Addendum #3

Project:	Pamlico County School 6-12, 601 Main Street Bayboro, NC 28515 Pamlico County, NC
Owner:	Pamlico County Schools 507 Anderson Dr. Bayboro, NC 28515
Architect:	SfL+a Architects 333 Fayetteville Street, Suite 225, Raleigh, NC 27601
CM at Risk:	Metcon, Inc. 763 Comtech Drive Pembroke, NC 28372
Date:	July 25, 2024.

Notice to all: The following modifications, additions, deletions, clarifications, and/or information are hereby made part of the Contract Documents and shall be fully binding. The addendum must be acknowledged as part of the Bid Form.

Item #1: Bid Manual:

A. Attention to all bidders the revised bid schedule is as follows:
   - **a. New Bid Date: 08/01/2024**
   - **b. New Bid Date for BP3100 TURNEKY SITEWORK ONLY 08/08/2024**
     - i. Opening time and location have not been changed.

B. Project Schedules
   - a. Project Schedule – **Forthcoming**
     - i. Construction Sequence Plan ILO schedule (23 Pages)
   - b. Site and Demo Schedule (Phase 2) (1 Page)

C. Site Logistics Plan
   - a. Site Logistics Phase 1 (2 Pages)
   - b. Site Logistics Phase 2 (1 Page)

D. Wall Material Composition Drawing for Existing School (1 Page)

E. School Roof Structure Material Breakdown (1 Page)

F. BP0204 – Demo & Abatement has been combined in BP3100 – Turnkey Sitework

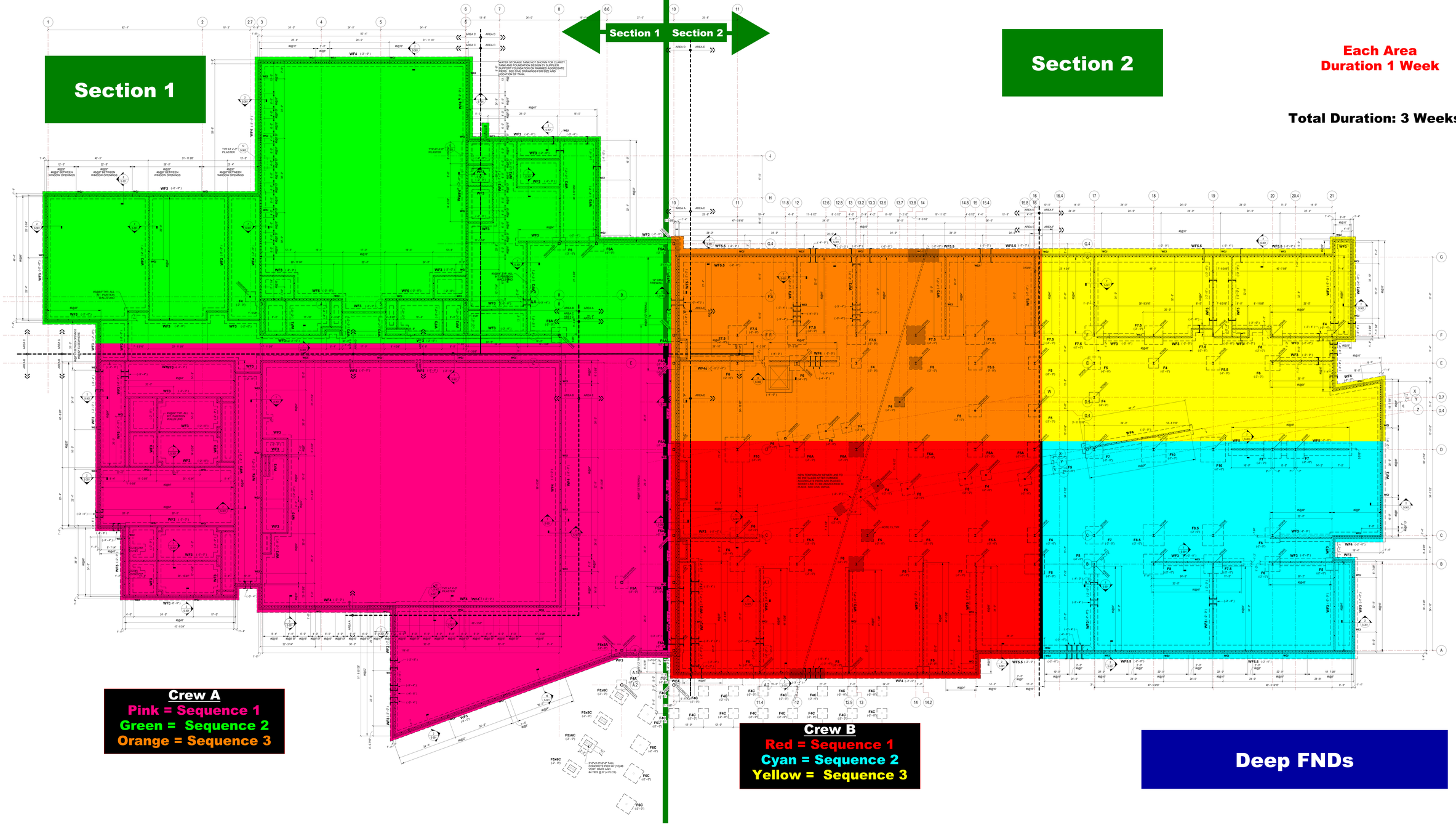
G. **Revised Scopes of Work:**
   a. BP0330 – Turnkey Concrete (16 Pages)
   b. BP0420 – Turnkey Masonry (14 Pages)
   c. BP0510 – Structural Steel (13 Pages)
   d. BP0750 – Turnkey Roofing (10 Pages)
   e. BP0840 – Glass and Glazing (10 Pages)
   f. BP2100 – Fire Suppression (13 Pages)
   g. BP2600 – Electrical, Com, Smoke (11 Pages)
   h. BP3100 - Turnkey Sitework (14 Pages)
   i. BP3231 – Fence & Gates (8 Pages)

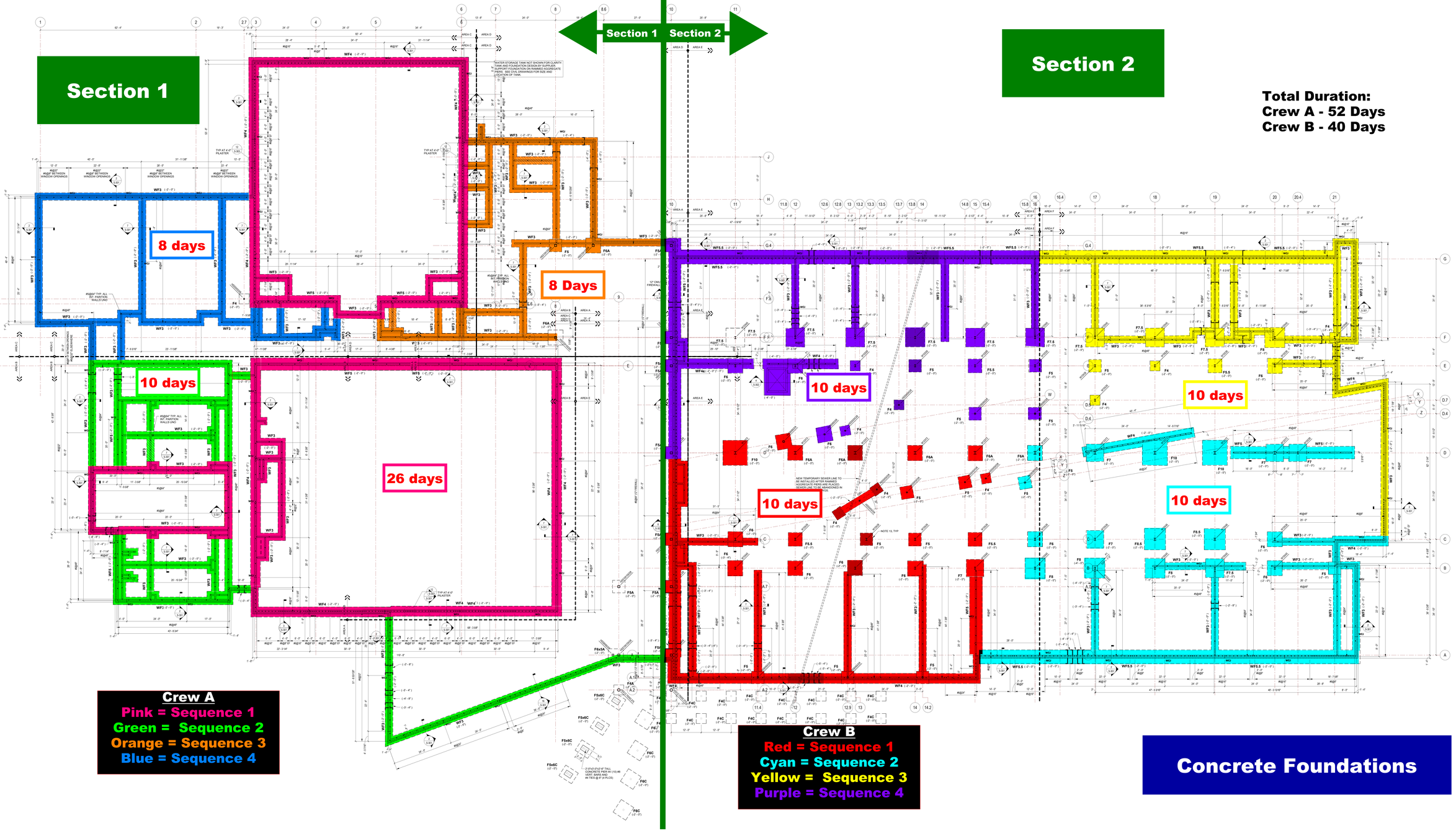
Item #3: Architect Documents:

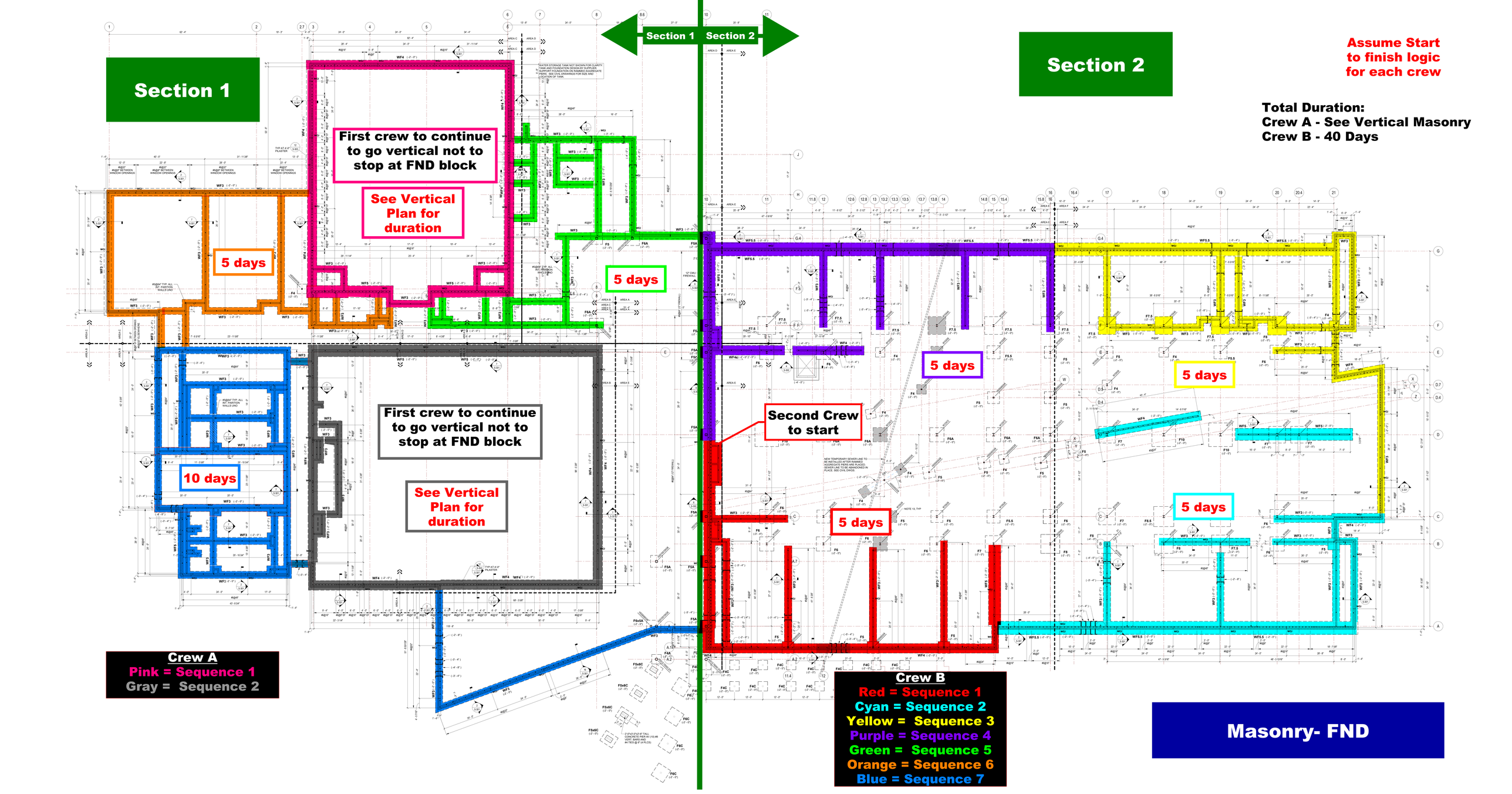
A. Please see the attached design Addendum 3, which includes Addendum Cover Sheet, revised specifications and revised drawings. (213 pages)

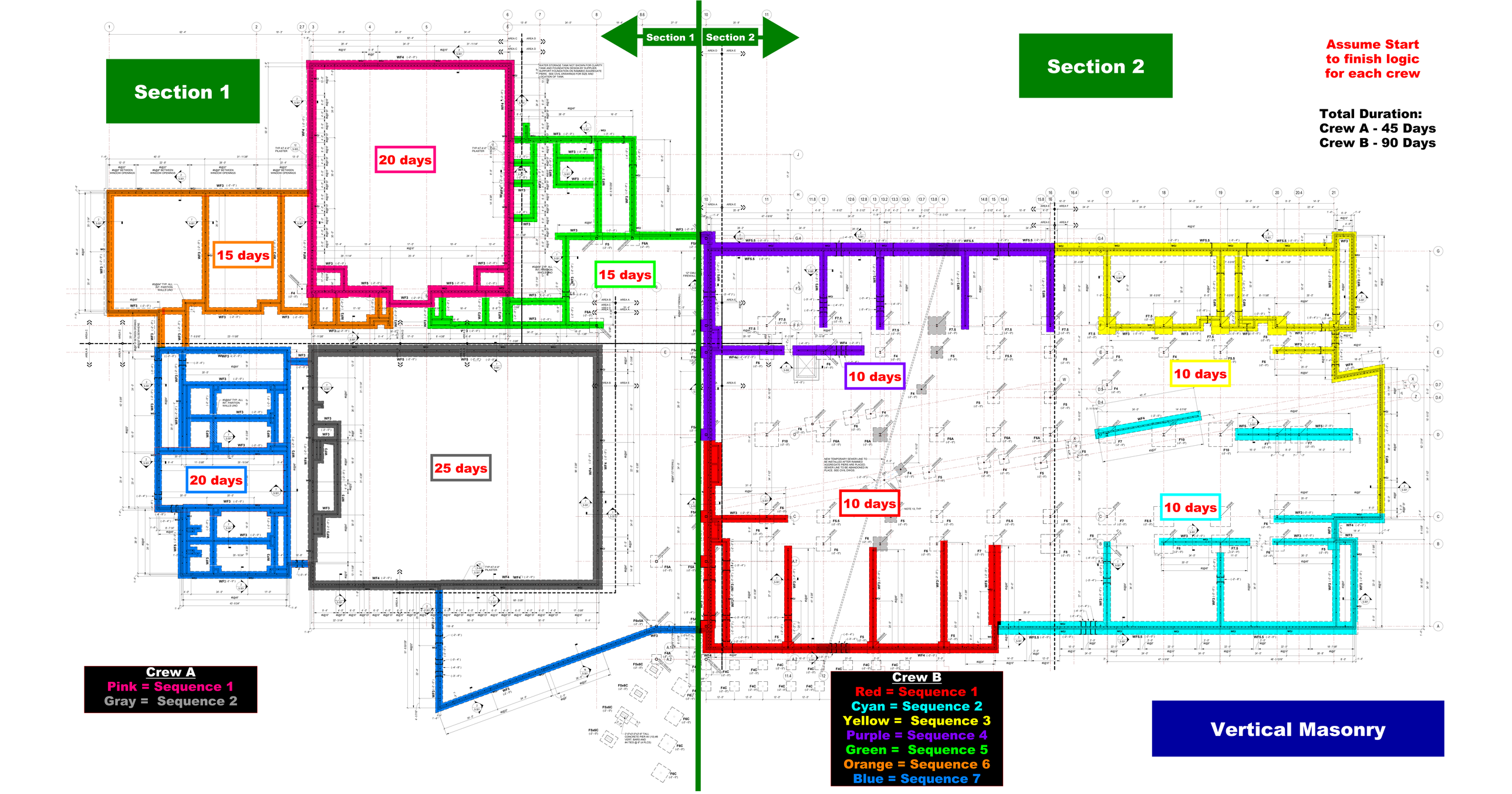
Item #4: RFI Log (12 Pages)

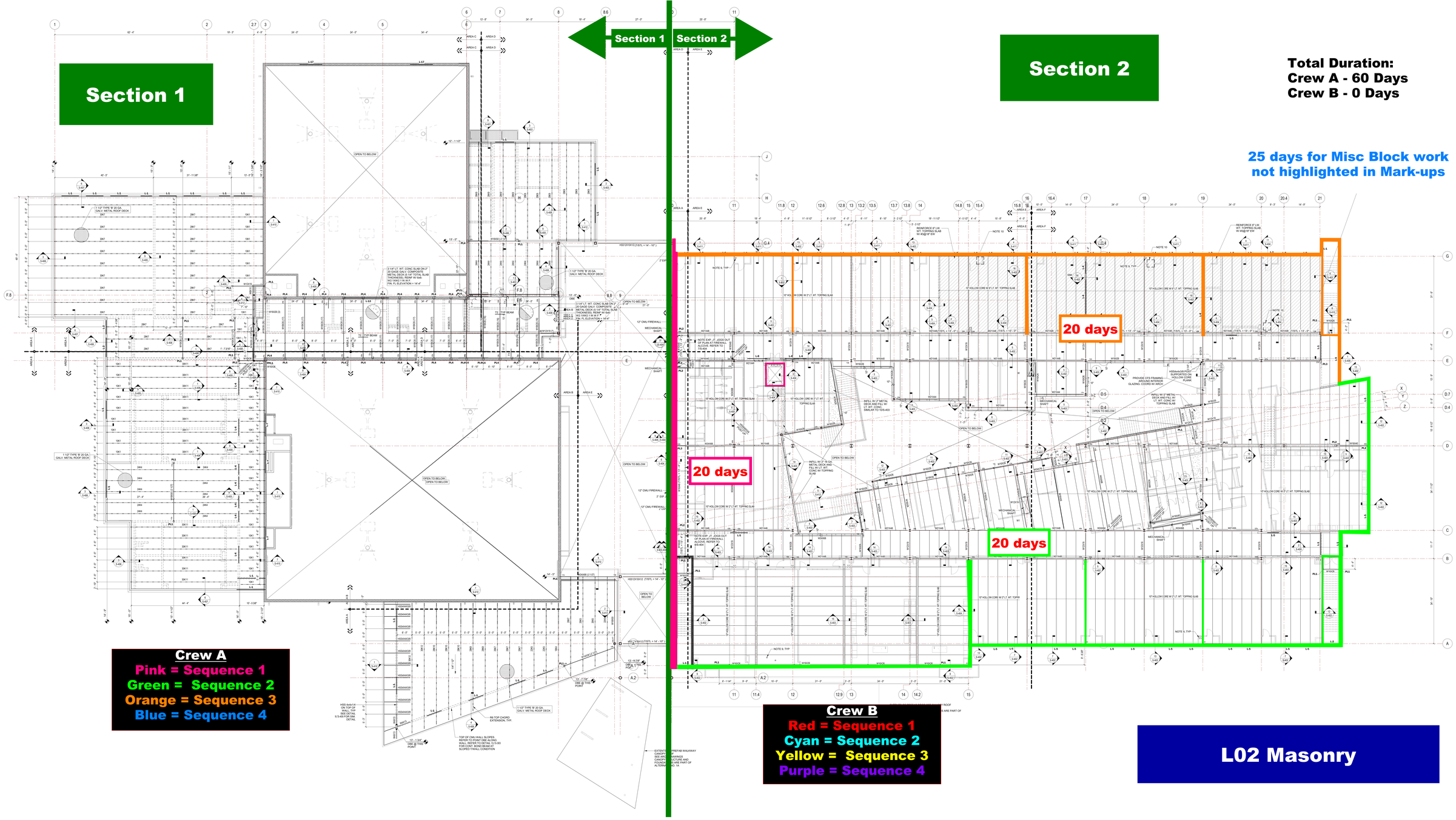
END OF ADDENDUM #3

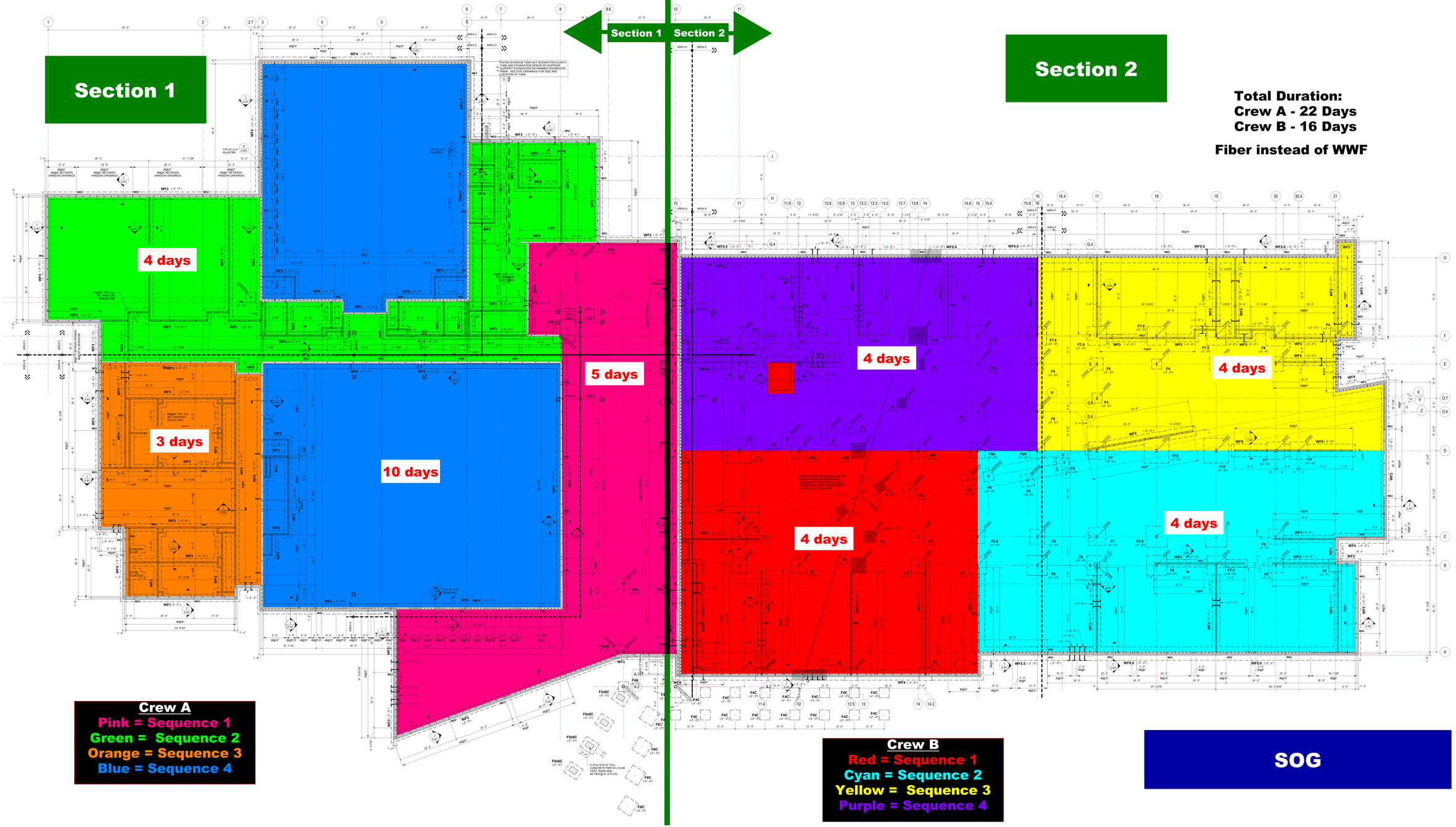

Section 1
Section 2
Section 1
Section 2
Each Area
Duration 1 Week
Total Duration: 3 Weeks
Crew A
Pink = Sequence 1
Green = Sequence 2
Orange = Sequence 3
Crew B
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Deep FNDs

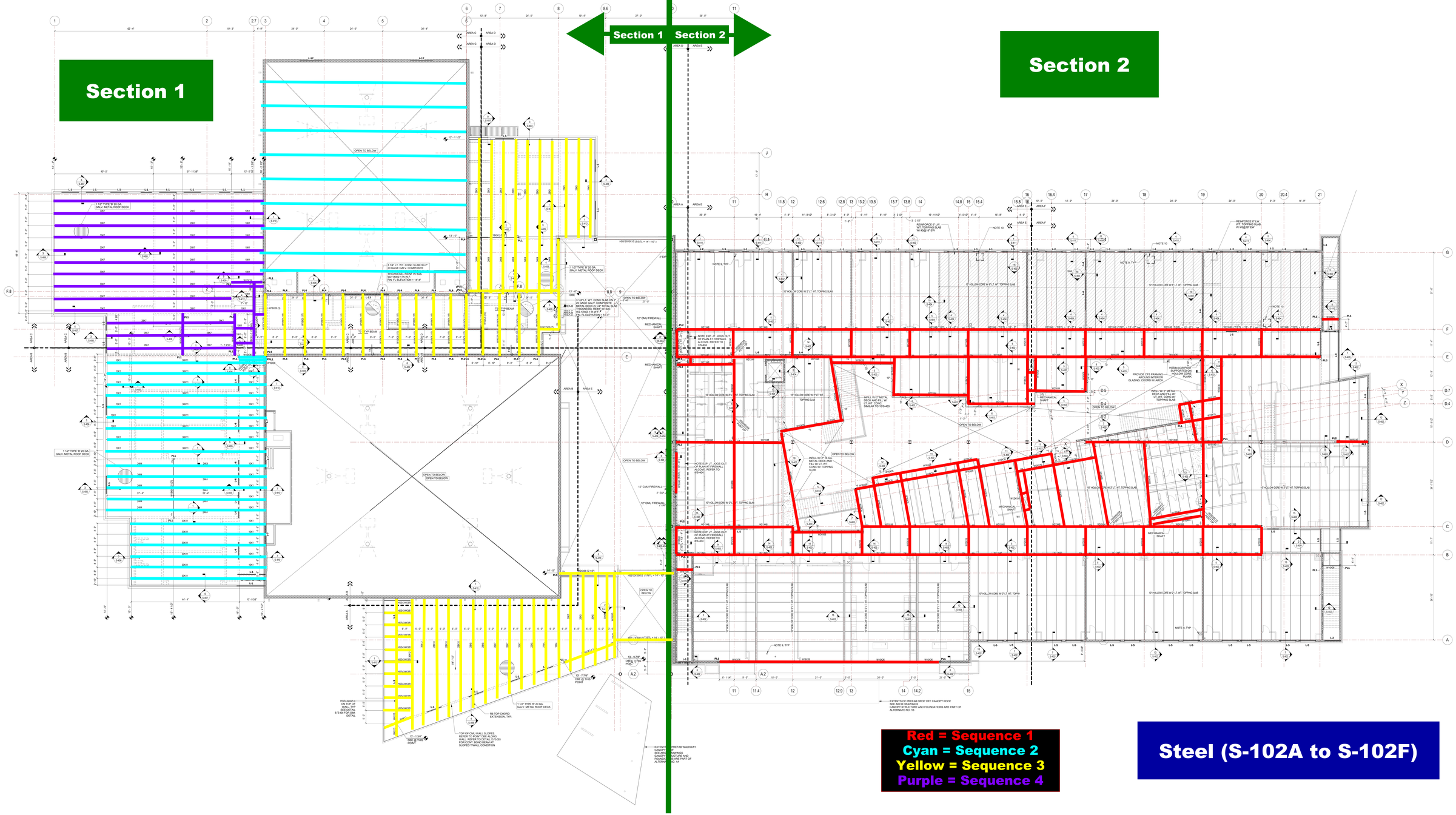

Section 1
Section 2
Section 1
Section 2
Total Duration:
Crew A - 52 Days
Crew B - 40 Days
8 days
8 Days
10 days
26 days
10 days
10 days
10 days
10 days
Crew A
Pink = Sequence 1
Green = Sequence 2
Orange = Sequence 3
Blue = Sequence 4
Crew B
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Concrete Foundations

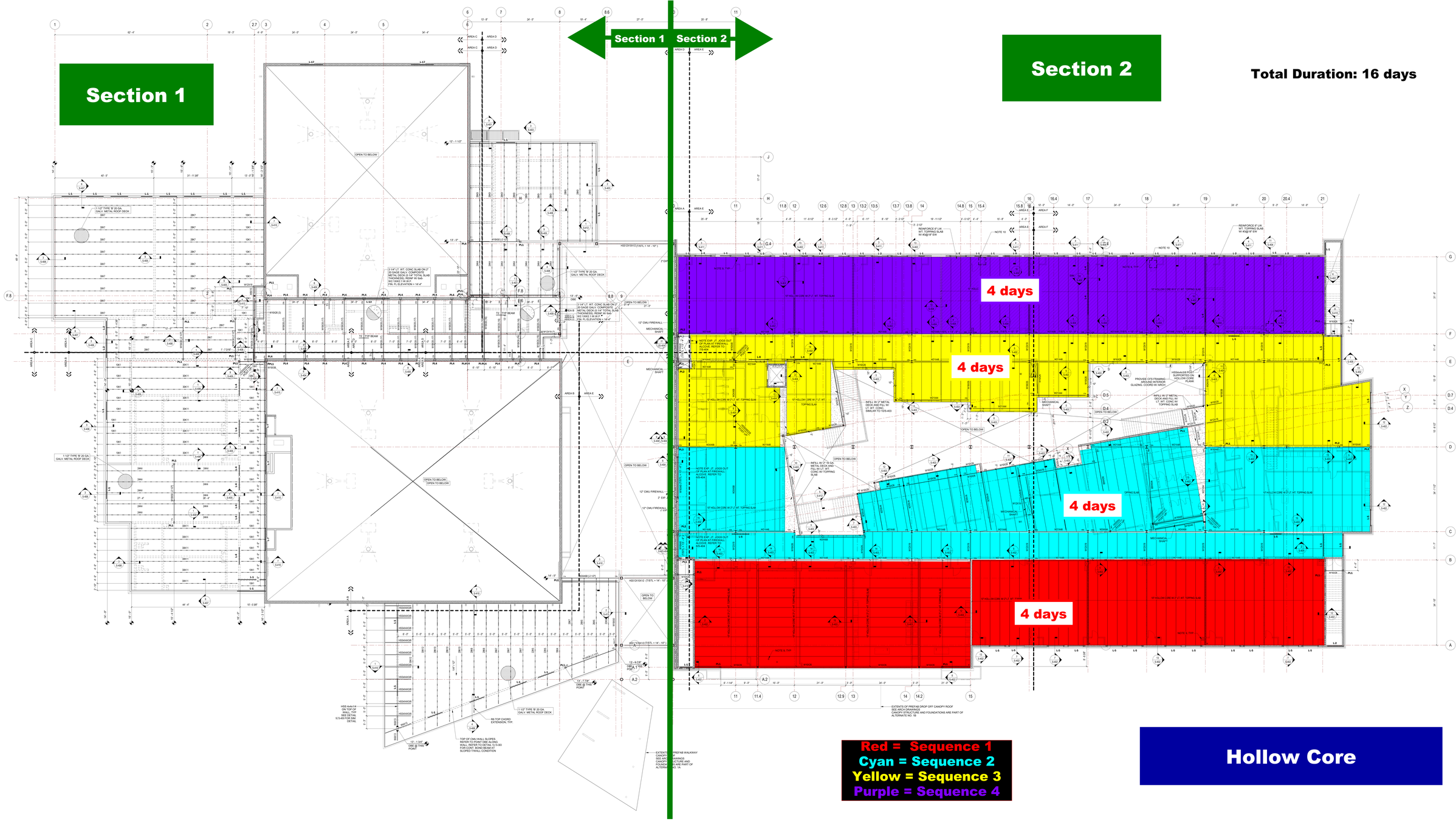

Section 1
Section 2
Section 1
Section 2
First crew to continue to go vertical not to stop at FND block
See Vertical Plan for duration
5 days
5 days
10 days
First crew to continue to go vertical not to stop at FND block
See Vertical Plan for duration
Second Crew to start
5 days
5 days
5 days
5 days
Assume Start to finish logic for each crew
Total Duration:
Crew A - See Vertical Masonry
Crew B - 40 Days
Crew A
Pink = Sequence 1
Gray = Sequence 2
Crew B
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Green = Sequence 5
Orange = Sequence 6
Blue = Sequence 7
Masonry- FND

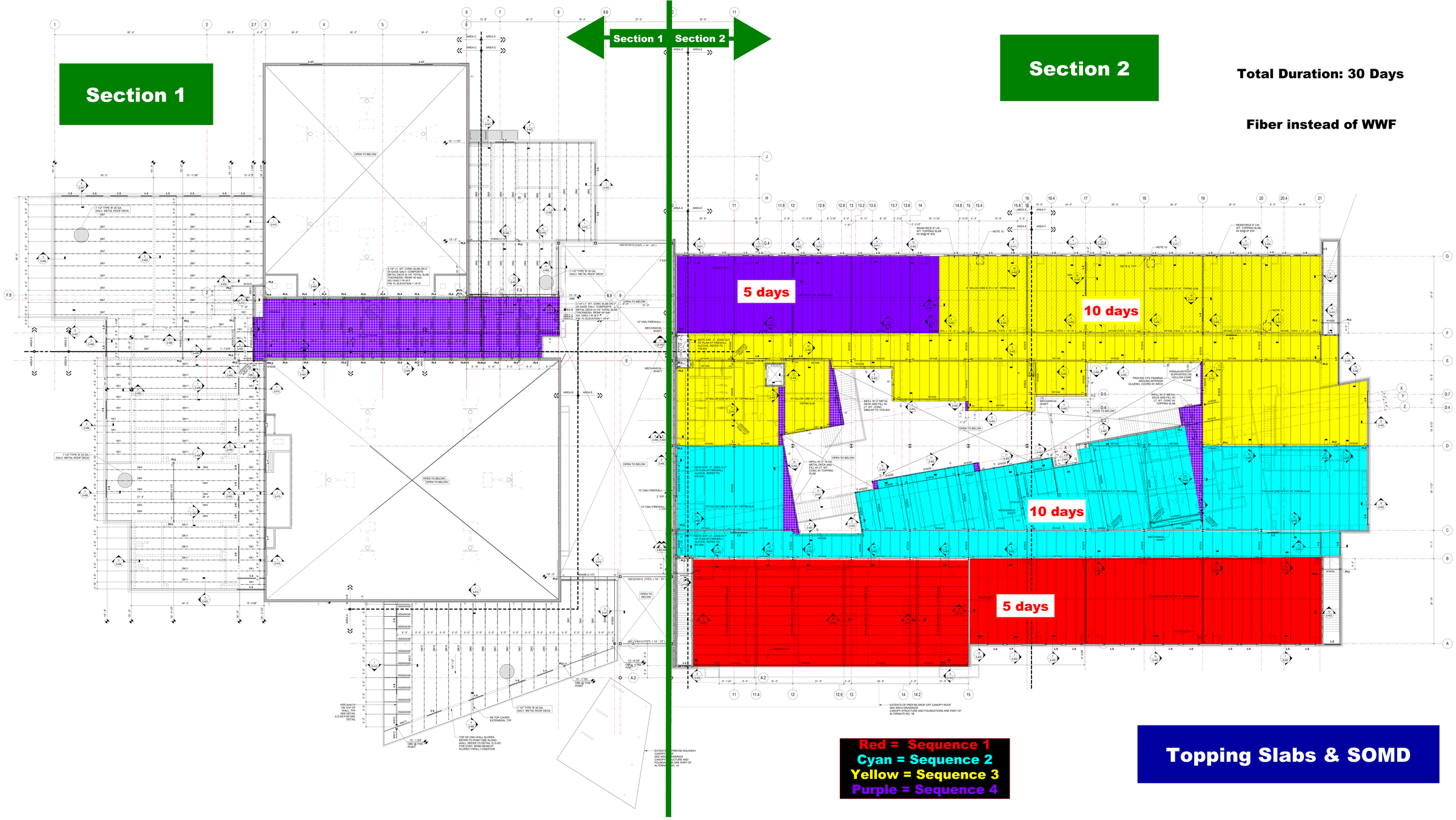

Section 1
Section 2
Section 1
Section 2
20 days
15 days
15 days
25 days
20 days
10 days
10 days
10 days
10 days
Assume Start to finish logic for each crew
Total Duration:
Crew A - 45 Days
Crew B - 90 Days
Crew A
Pink = Sequence 1
Gray = Sequence 2
Crew B
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Green = Sequence 5
Orange = Sequence 6
Blue = Sequence 7
Vertical Masonry

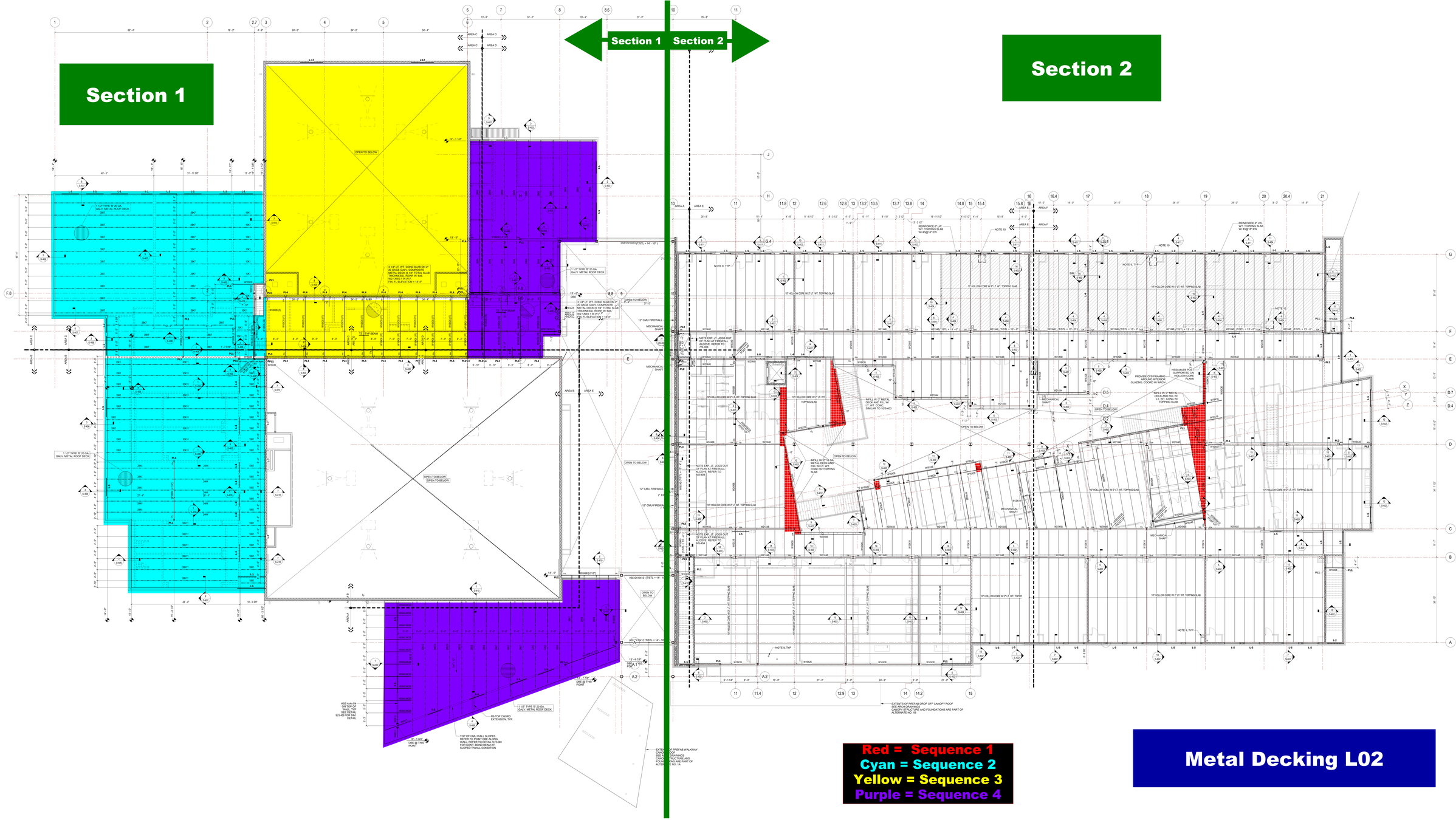

Section 1
Section 2
Section 1
Section 2
Total Duration:
Crew A - 60 Days
Crew B - 0 Days
25 days for Misc Block work
not highlighted in Mark-ups
20 days
20 days
20 days
Crew A
Pink = Sequence 1
Green = Sequence 2
Orange = Sequence 3
Blue = Sequence 4
Crew B
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
L02 Masonry

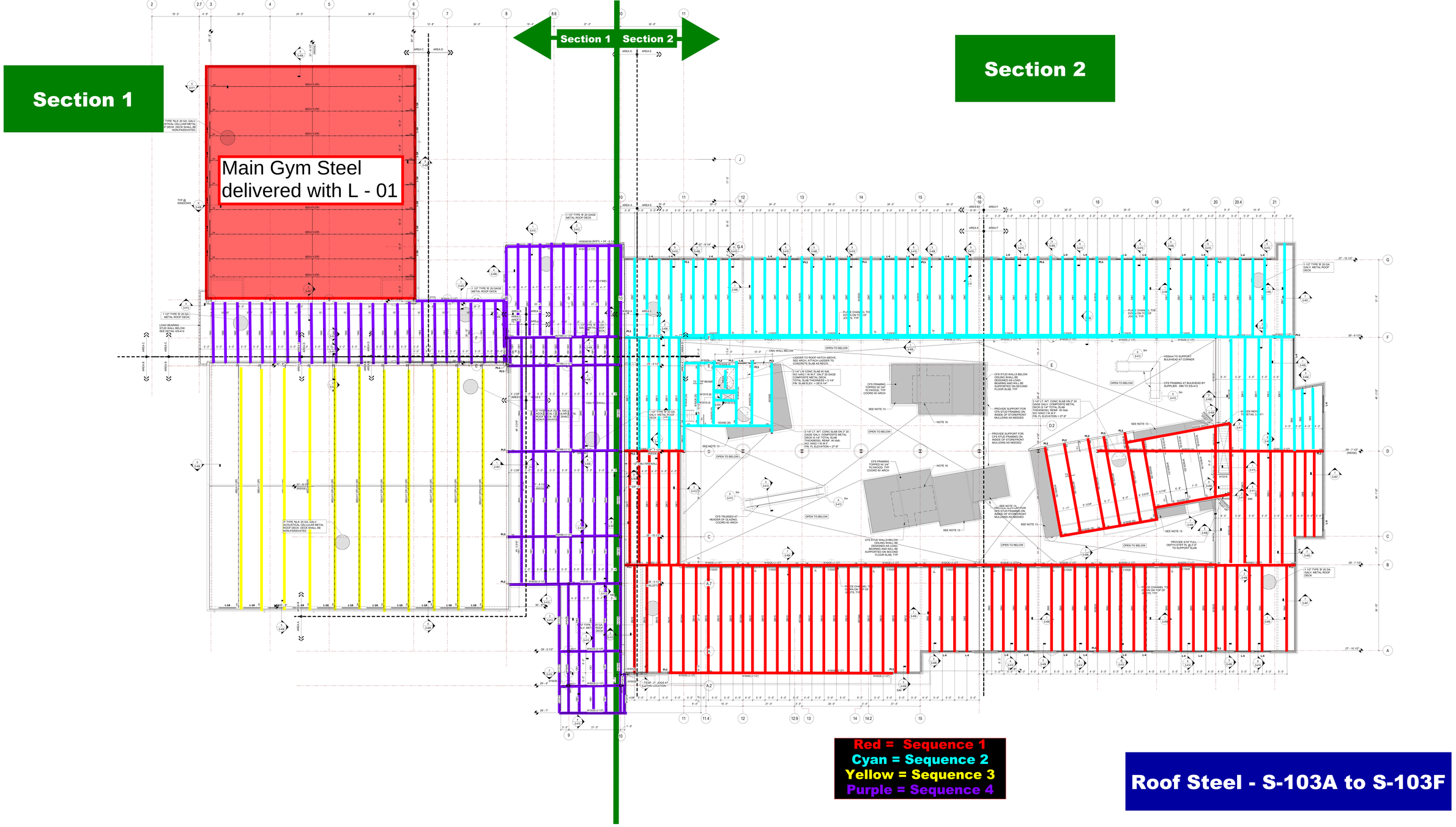

Section 1
Section 2
Section 1
Section 2
Total Duration:
Crew A - 22 Days
Crew B - 16 Days
Fiber instead of WWF
4 days
3 days
10 days
5 days
4 days
4 days
4 days
4 days
Crew A
Pink = Sequence 1
Green = Sequence 2
Orange = Sequence 3
Blue = Sequence 4
Crew B
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
SOG

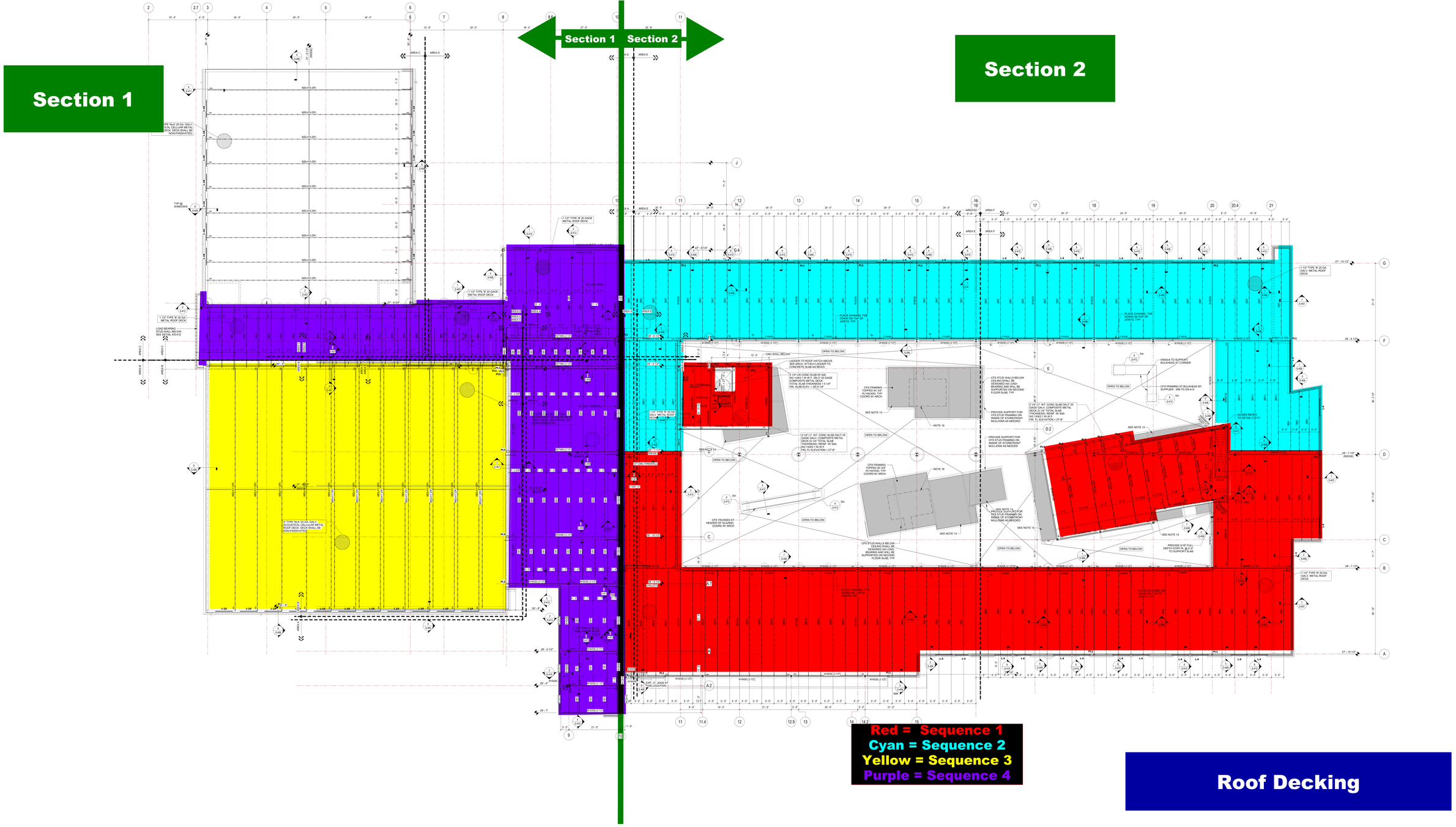

Section 1
Section 1
Section 2
Section 2
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Steel (S-102A to S-102F)


Section 1
Section 1
Section 2
Section 2
Total Duration: 16 days
4 days
4 days
4 days
4 days
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Hollow Core


Section 1
Section 2
Section 1
Section 2
Total Duration: 30 Days
Fiber instead of WWF
5 days
10 days
10 days
5 days
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Topping Slabs & SOMD


Section 1
Section 1
Section 2
Section 2
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Metal Decking L02


Section 1
Section 2
Section 1
Section 2
Main Gym Steel delivered with L - 01
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Roof Steel - S-103A to S-103F

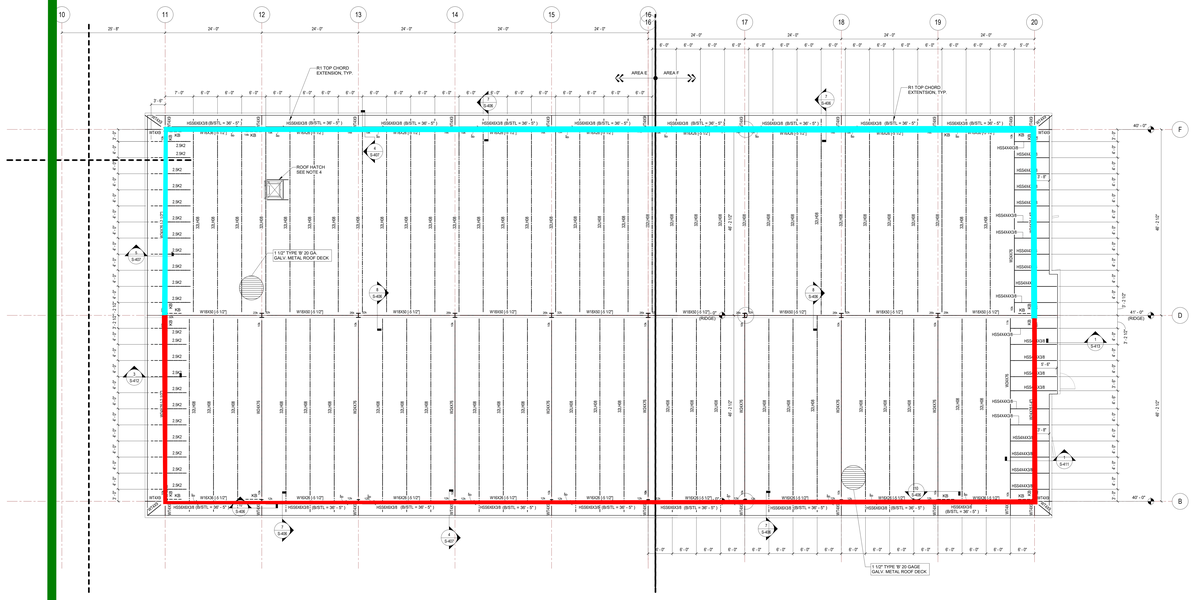

Section 1
Section 2
Section 1
Section 2
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Roof Decking

Section 1

Section 1 Section 2

Section 2

Total Duration: 10 Days



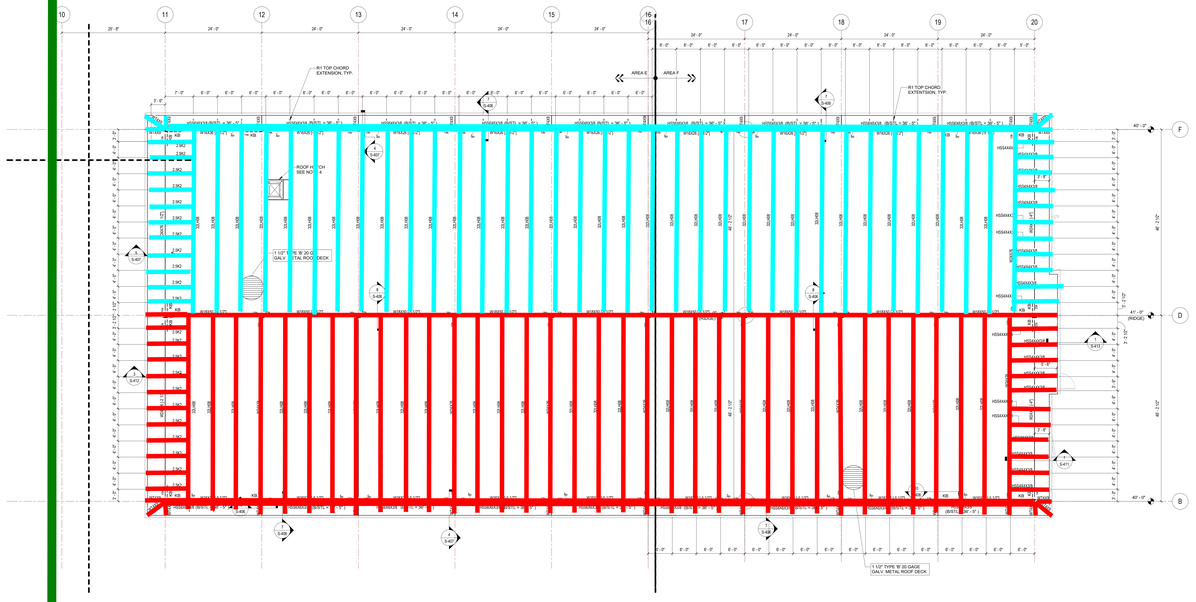
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4

High Roof - Masonry

Section 1

Section 1 Section 2

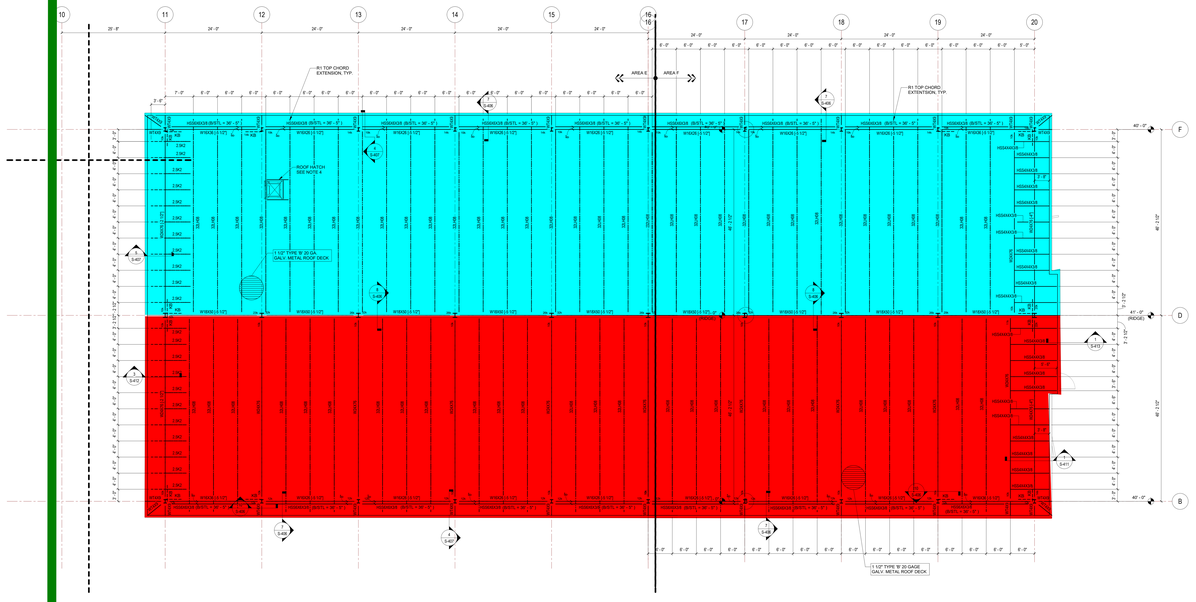
Section 2



Section 1

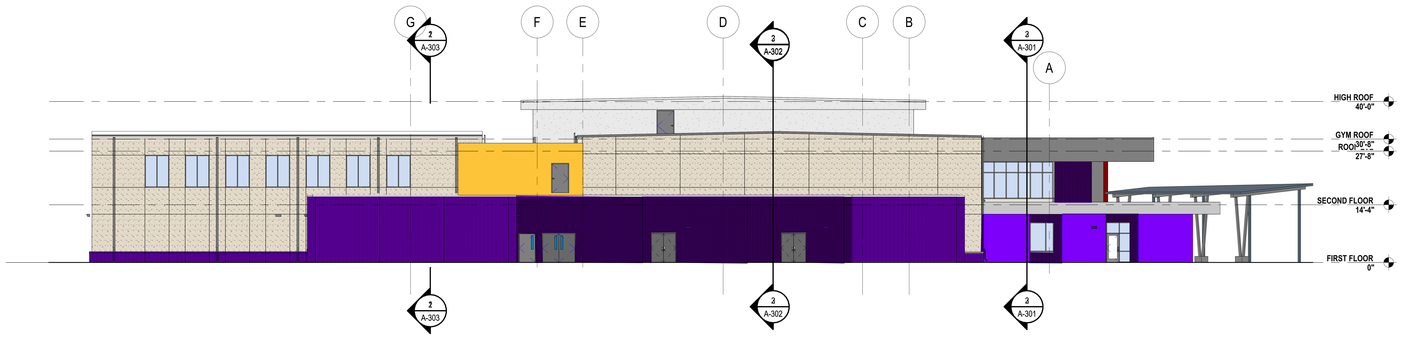
Section 1 Section 2

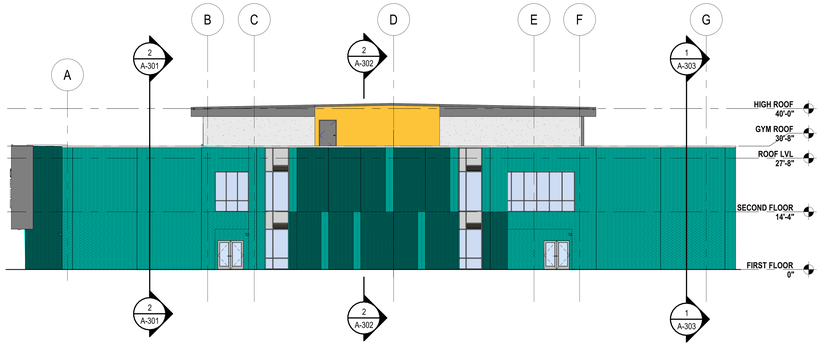
Section 2

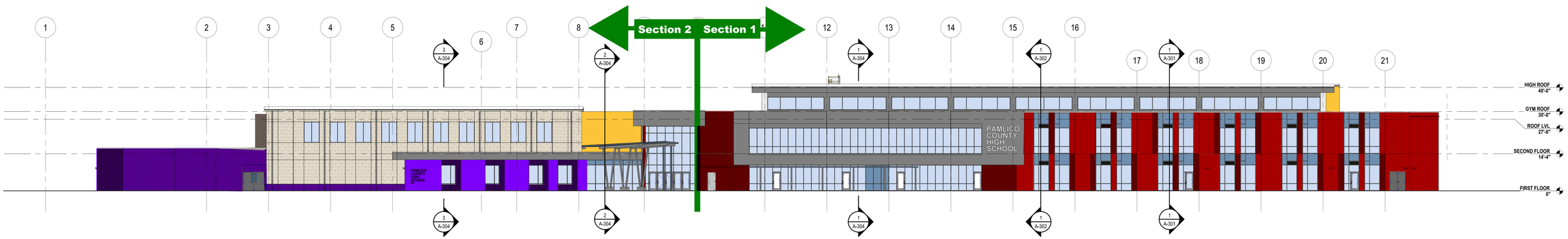


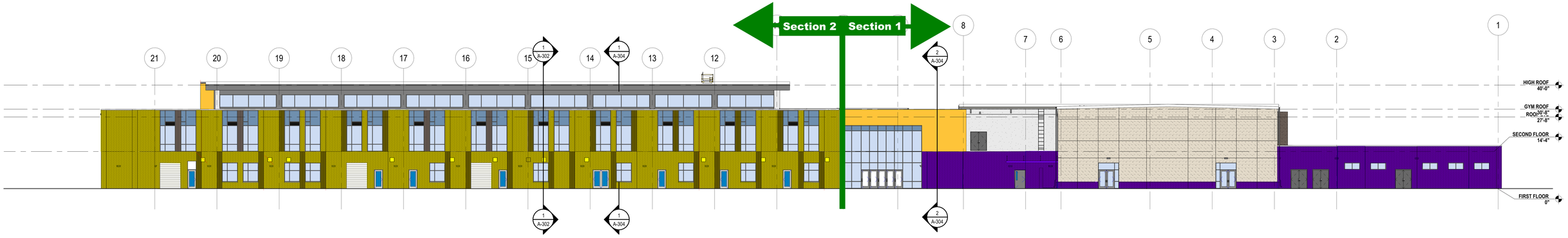
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4

High Roof Decking





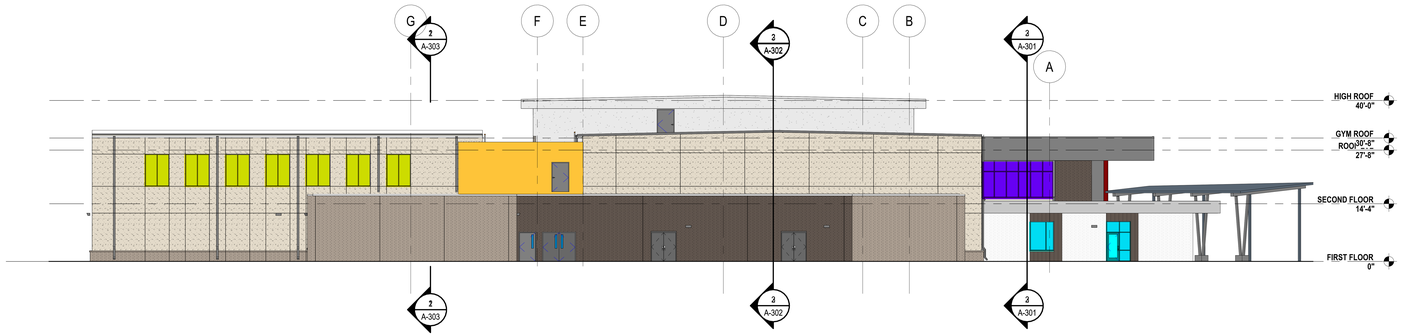


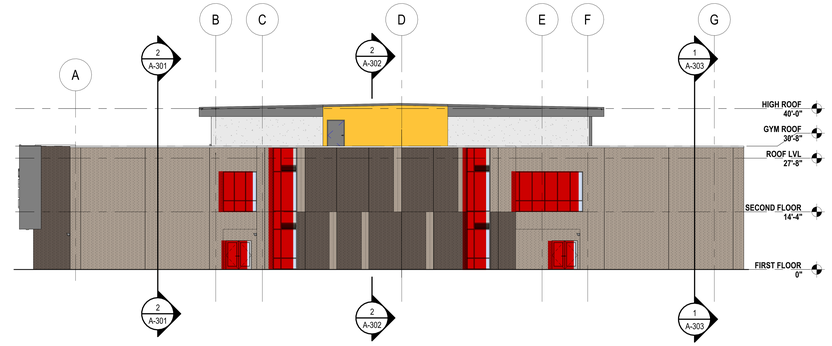


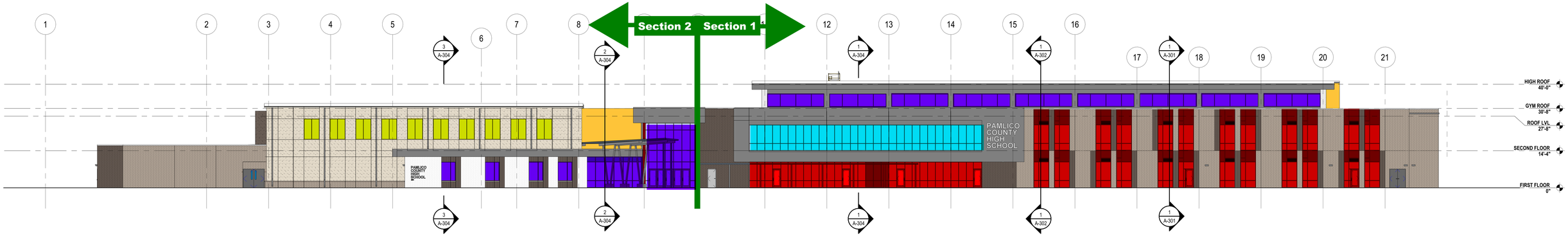
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4

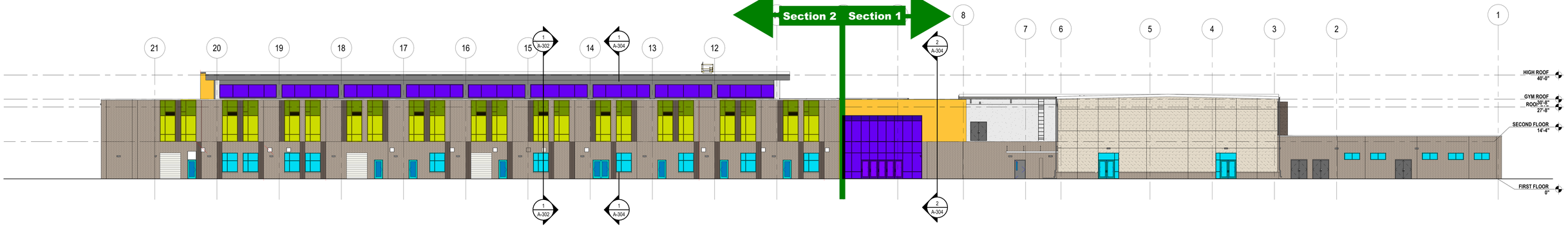
Brick Veneer

Follow all design documentation for exact final material. Mark ups are for scheduling sequencing purposes only





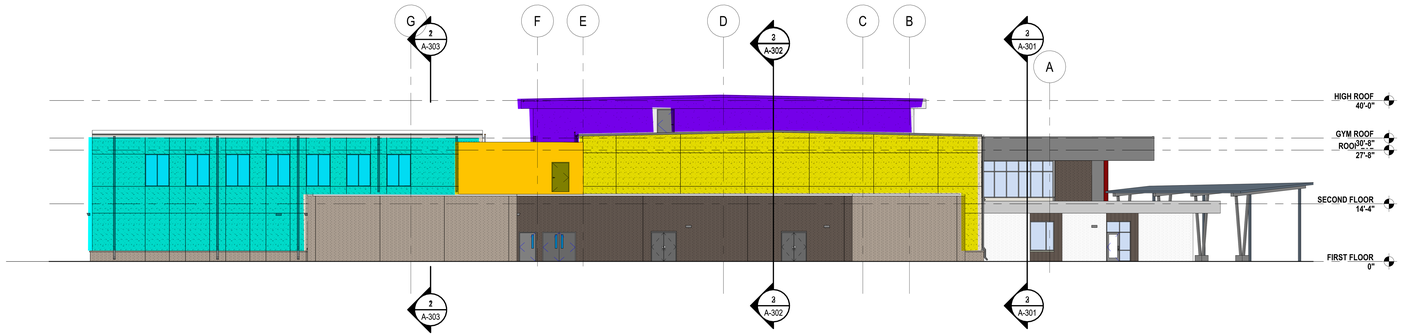


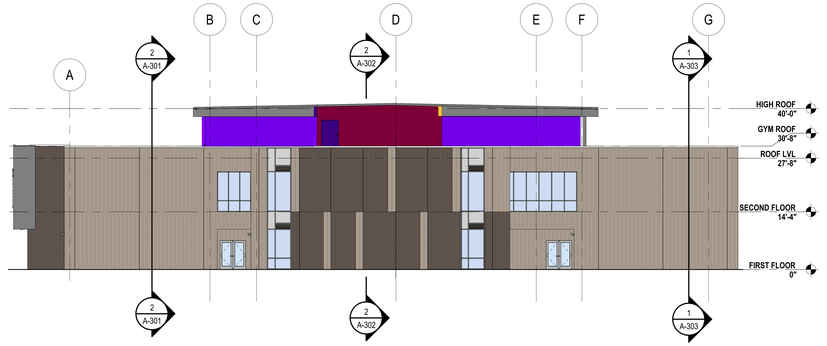


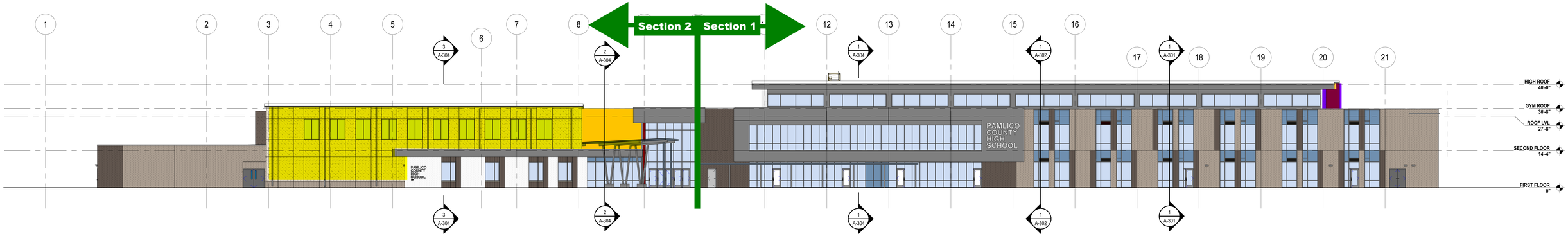
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4

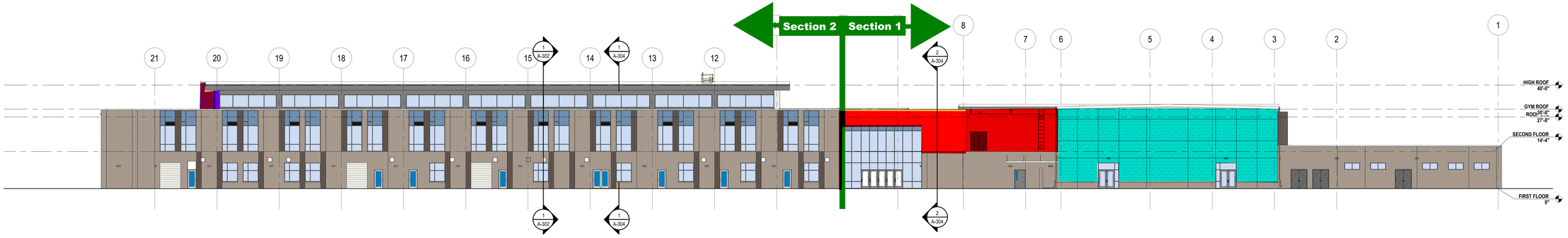
External Curtain Wall

Follow all design documentation for exact final material. Mark ups are for scheduling sequencing purposes only





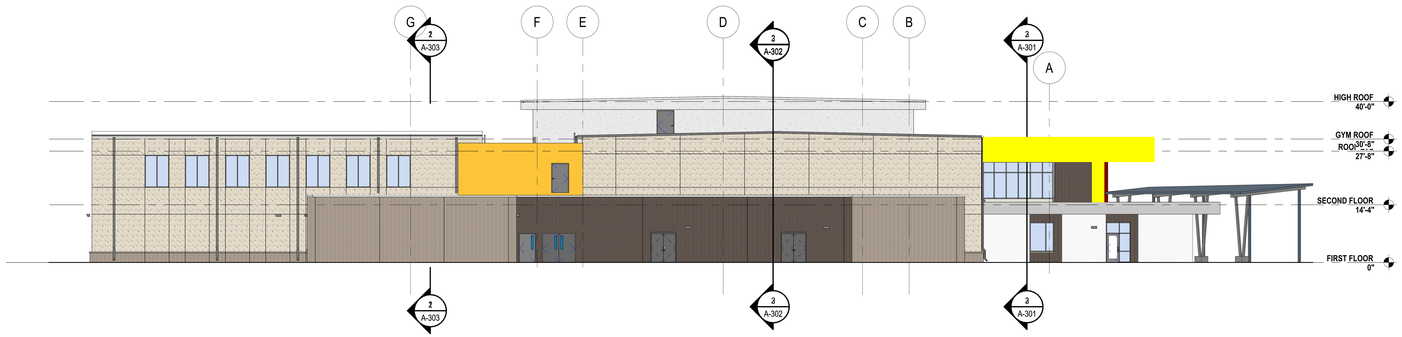


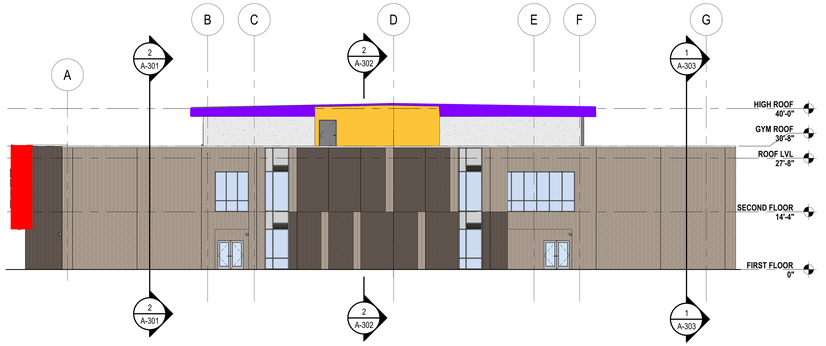


Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4

EFIS

Follow all design documentation for exact final material. Mark ups are for scheduling sequencing purposes only





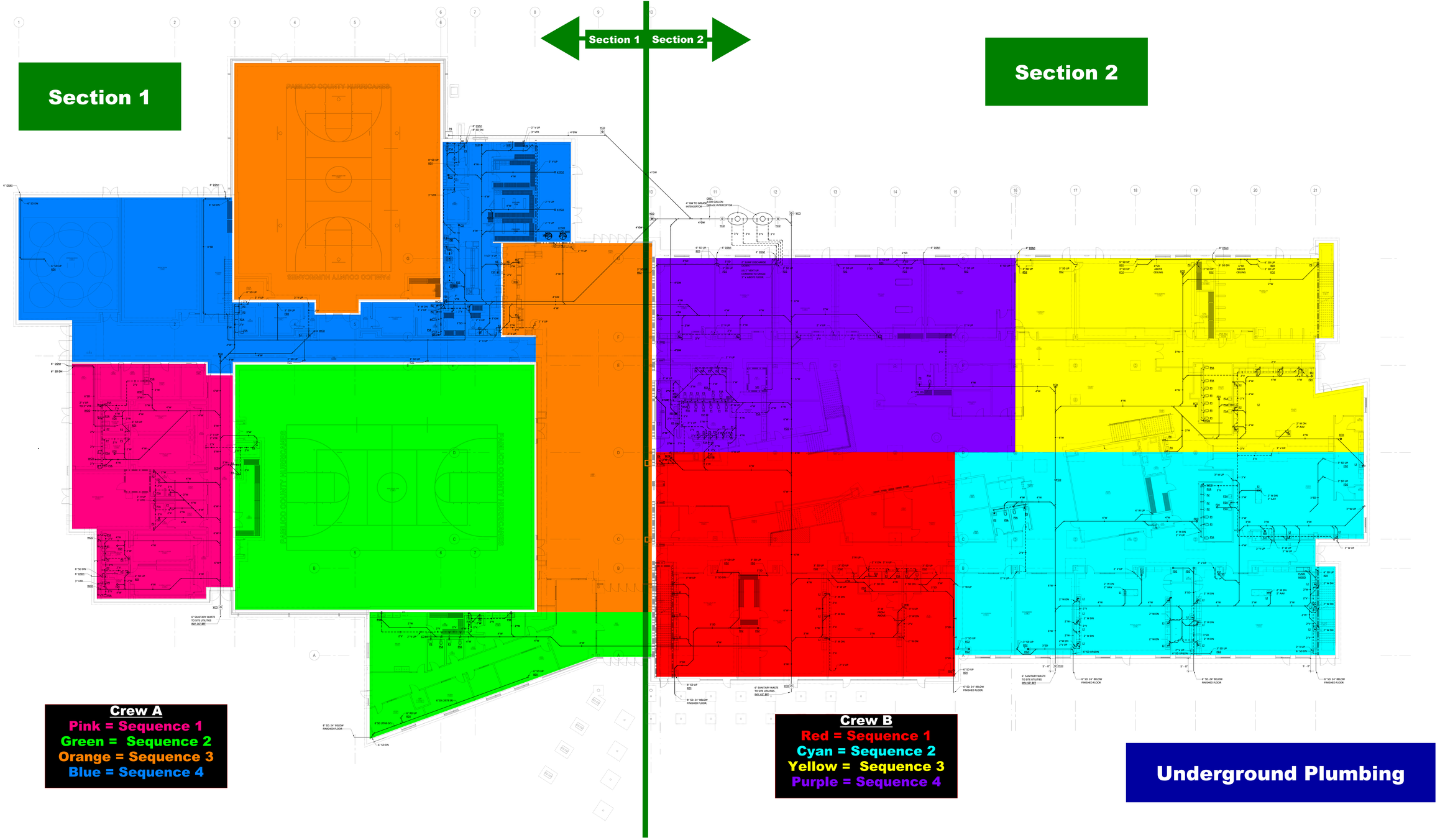


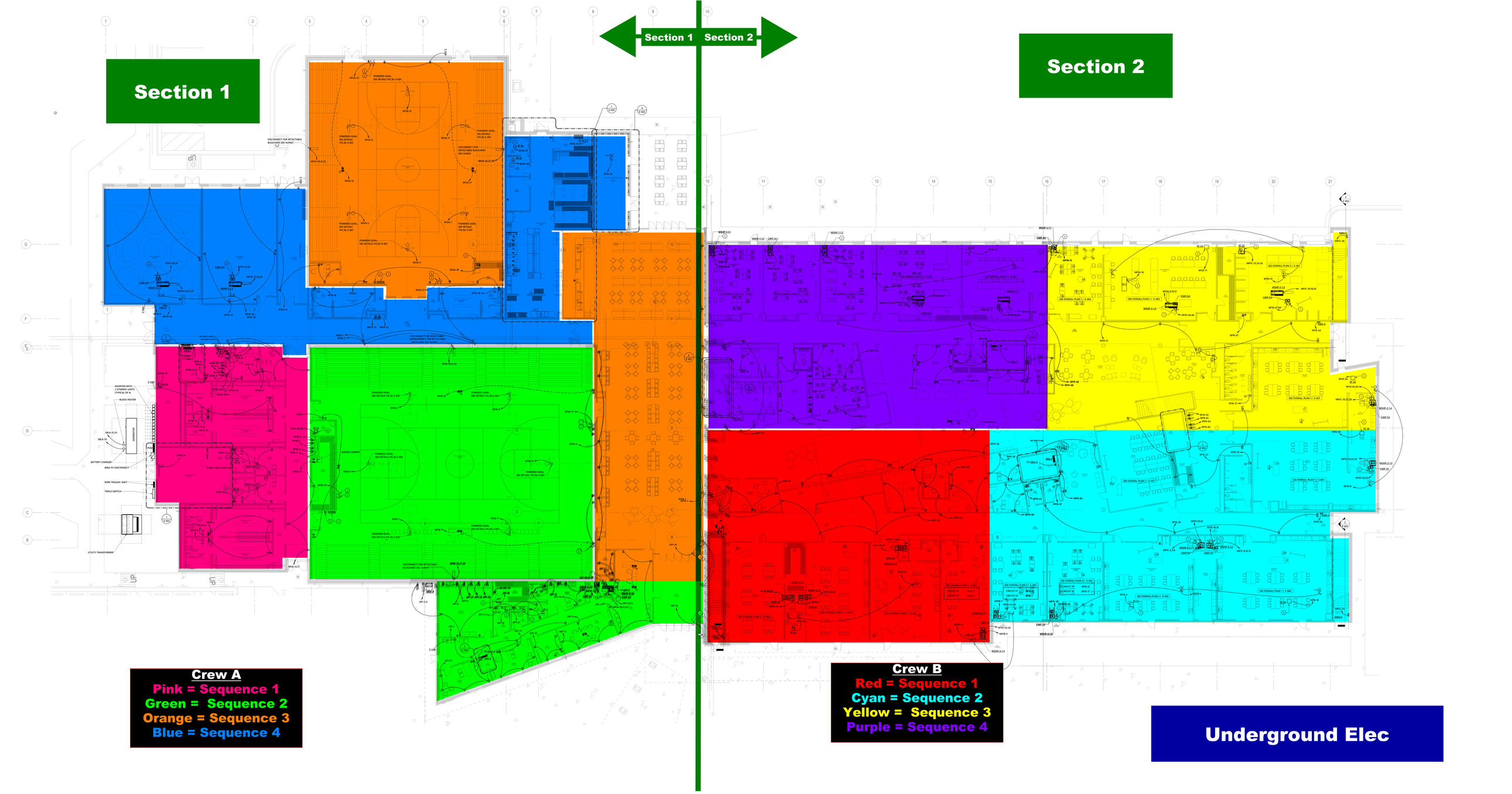


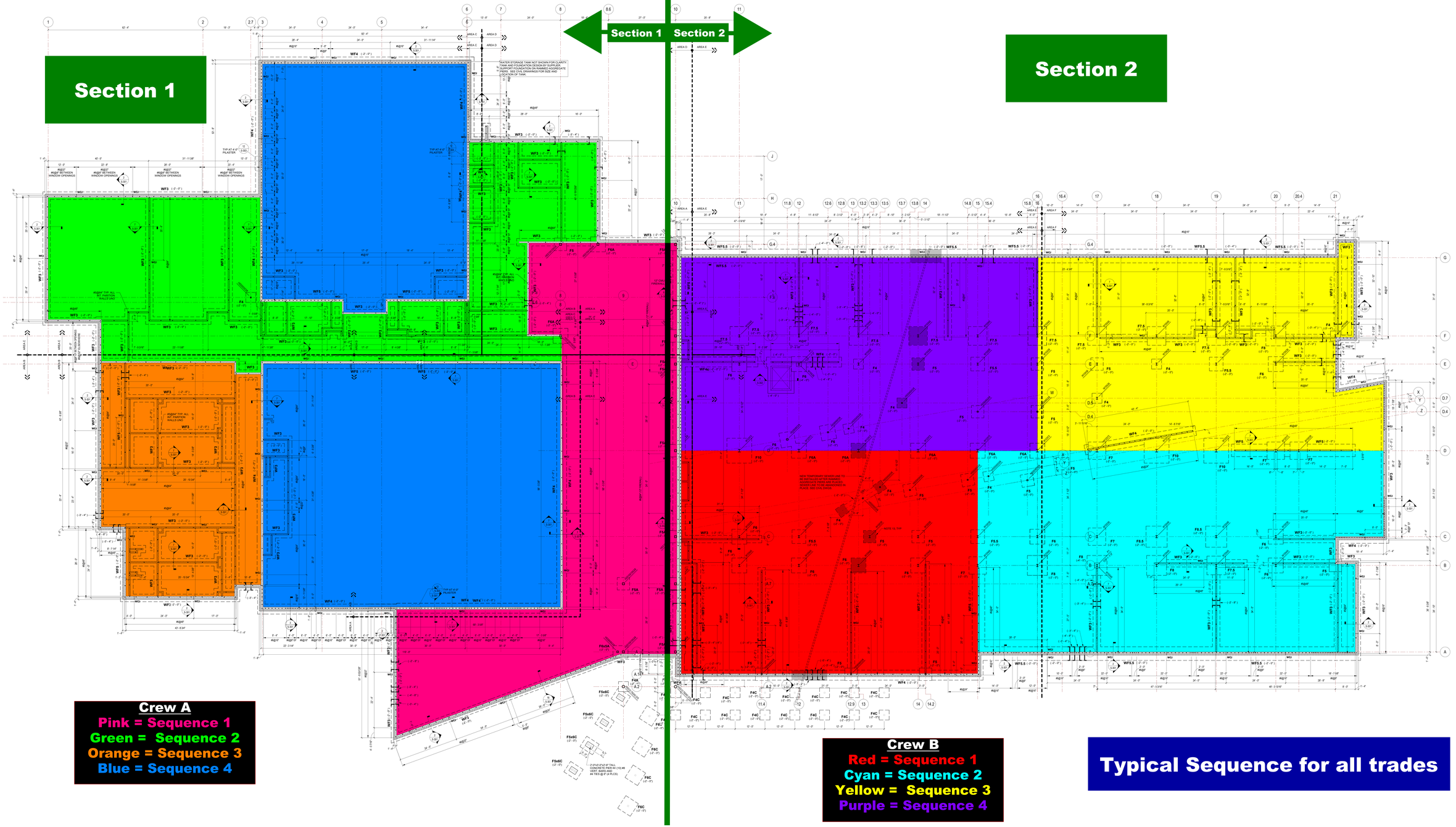
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4

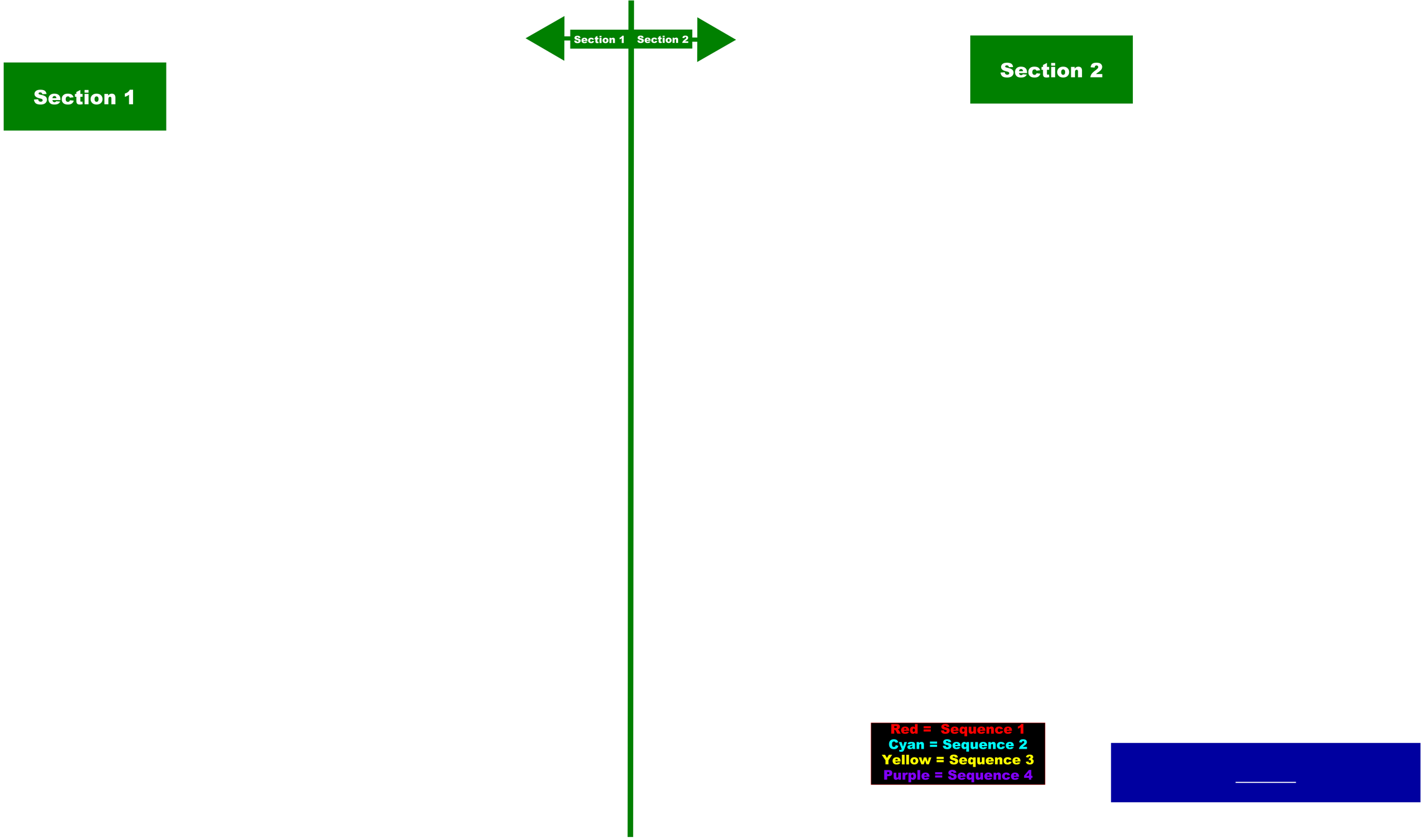
Metal Panels

Follow all design documentation for exact final material. Mark ups are for scheduling sequencing purposes only


Section 1
Section 2
Section 1
Section 2
Crew A
Pink = Sequence 1
Green = Sequence 2
Orange = Sequence 3
Blue = Sequence 4
Crew B
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Underground Plumbing


Section 1
Section 2
Section 1
Section 2
Crew A
Pink = Sequence 1
Green = Sequence 2
Orange = Sequence 3
Blue = Sequence 4
Crew B
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Underground Elec


Section 1
Section 2
Section 1
Section 2
Crew A
Pink = Sequence 1
Green = Sequence 2
Orange = Sequence 3
Blue = Sequence 4
Crew B
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4
Typical Sequence for all trades

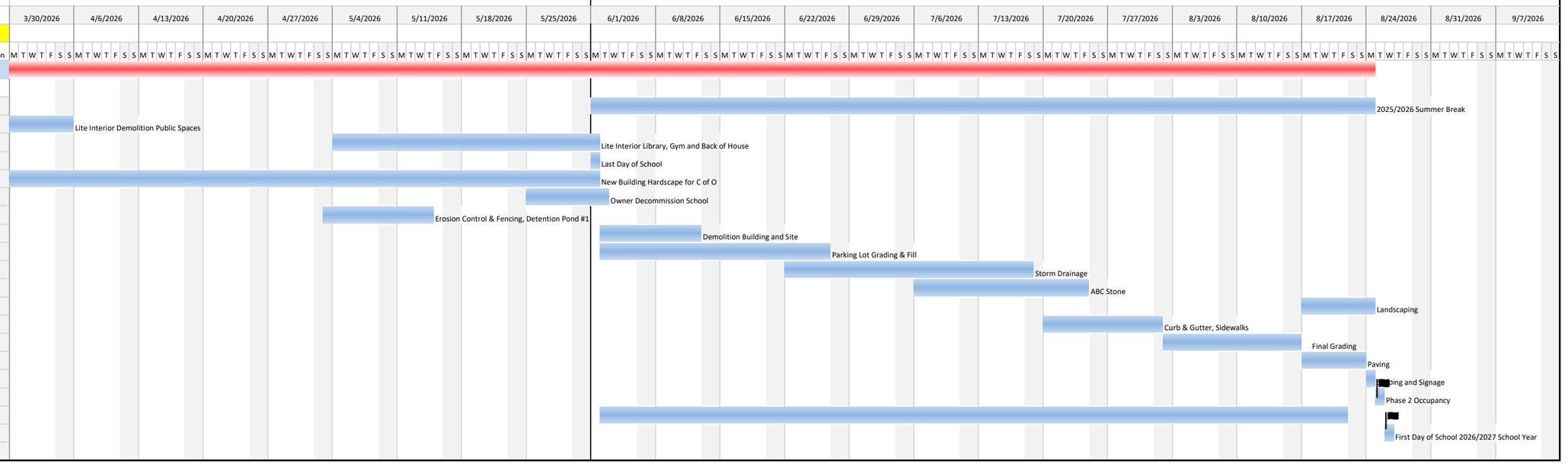

Section 1
Section 1
Section 2
Section 2
Red = Sequence 1
Cyan = Sequence 2
Yellow = Sequence 3
Purple = Sequence 4

metcon
BUILDINGS ■ INFRASTRUCTURE

Project Name: Pamlico County Schools
Project Number: 2023044
Project Start Date: 4/1/2026

Assume 7 Day Work and Multiple Shifts To Meet Schedule Obligations

Activity	Start Date	End Date	Duration
Phase 2 Demolition and Sitework	Mon, 03/30/26	Mon, 08/24/26	148
Asbestos Abatement Summer 2025			
2025/2026 Summer Break	Mon, 06/01/26	Mon, 08/24/26	85
Lite Interior Demolition Public Spaces	Mon, 03/30/26	Sun, 04/05/26	7
Lite Interior Library, Gym and Back of House	Mon, 05/04/26	Mon, 06/01/26	29
Last Day of School	Mon, 06/01/26	Mon, 06/01/26	1
New Building Hardscape for C of O	Mon, 03/02/26	Mon, 06/01/26	92
Owner Decommission School	Mon, 05/25/26	Tue, 06/02/26	9
Erosion Control & Fencing, Detention Pond #1	Sun, 05/03/26	Thu, 05/14/26	12
Demolition Building and Site	Tue, 06/02/26	Fri, 06/12/26	11
Parking Lot Grading & Fill	Tue, 06/02/26	Fri, 06/26/26	25
Storm Drainage	Mon, 06/22/26	Sat, 07/18/26	27
ABC Stone	Mon, 07/06/26	Fri, 07/24/26	19
Landscaping	Mon, 08/17/26	Mon, 08/24/26	8
Curb & Gutter, Sidewalks	Mon, 07/20/26	Sat, 08/01/26	13
Final Grading	Sun, 08/02/26	Sun, 08/16/26	15
Paving	Mon, 08/17/26	Sun, 08/23/26	7
Striping and Signage	Mon, 08/24/26	Mon, 08/24/26	1
Phase 2 Occupancy	Tue, 08/25/26	Tue, 08/25/26	1
Sorting Demo Material Off Site (Optional)	Tue, 06/02/26	Fri, 08/21/26	81
First Day of School 2026/2027 School Year	Wed, 08/26/26	Wed, 08/26/26	1



Overflow / Laydown

Metcon Trailer

Contractor Temp Parking

Gate 1

Gate 2
Exit Only

Gate 7

Break Shelter

Material Lay-down.
"Must be Coordinated with Metcon Prior to Delivery"

Concrete Washout Pit

Subcontractors Conex

Subcontractors Conex

Subcontractors Conex

Subcontractors Conex

Subcontractors Conex

Subcontractors Conex

Break Shelter

Topsoil Stockpile

With perimeter silt fence as required

Gate 3
Exit Only

Second Floor
Leave out area

Gate 6

Temp Sediment Basin

New School

Gate 5

Gate 5

Existing Building to remain operational during construction

Existing school to remain operational during construction

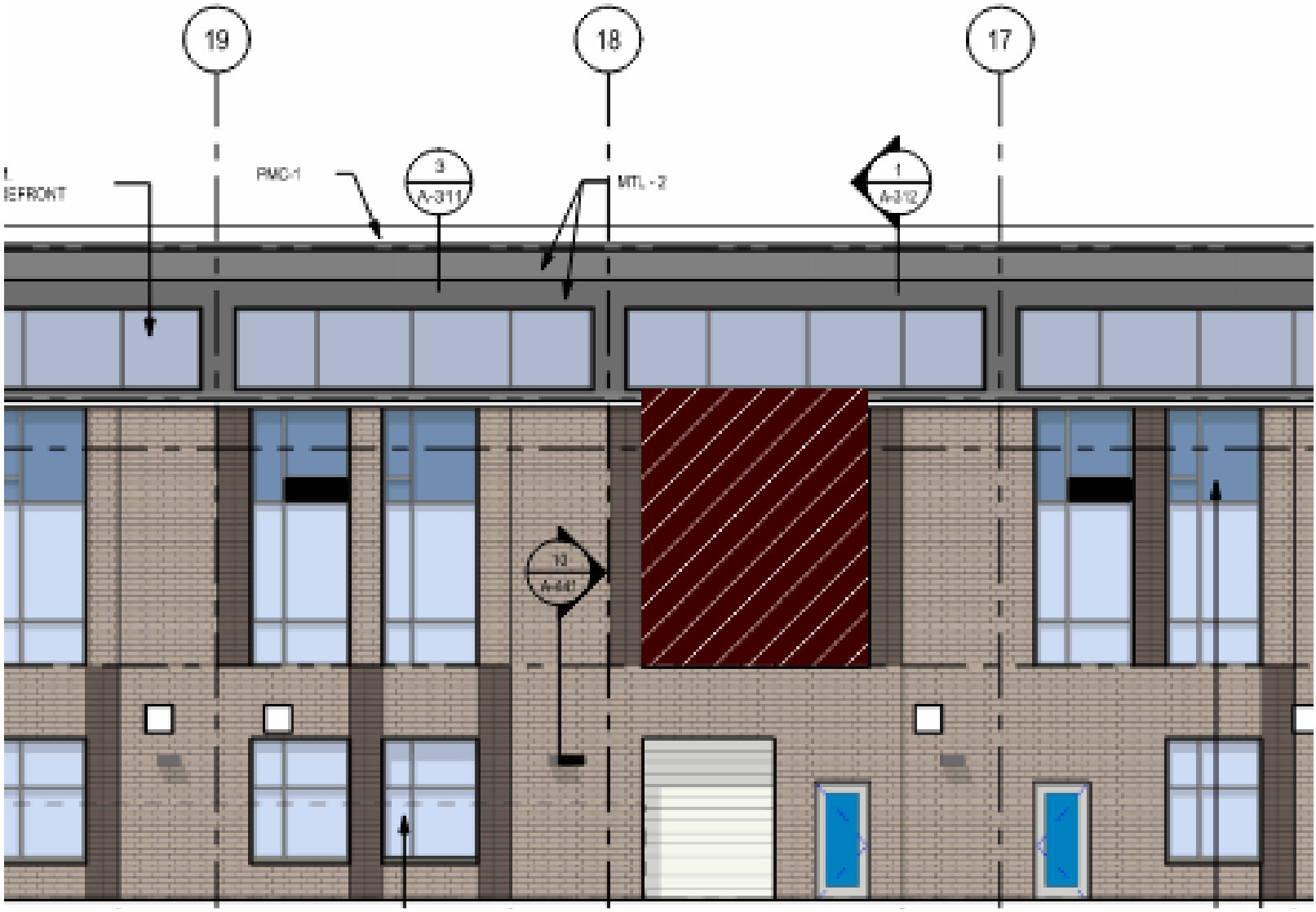
Gate 4

Summer 2026

Pamlico County School
Logistic Plan
Phase 1

- Temp Roads, Parking lots, and lay down areas
- Construction Fence
- Gate
- Construction Entrance
- Culvert
- Construction Camera
- Temp Hose Bib
- No construction Traffic or personnel
- Temp Drive entrance for owner use Summer 2026

Second Floor leave out area



The highlighted area above will need to be initially omitted to allow material access to the second floor, which has an elevation of 14'-4". Any additional work required to return or adjust the constructibility design will be the responsibility of the affected subcontractor.

Timing of closing in this section is at the discretion of the Construction Manager.

Overflow / Laydown

Metcon Trailer

Contractor Temp Parking

Topsoil Stockpile

With perimeter silt fence as required

New School

Gate 3

Gate 4

Building to remain open during Demo

Building to be Demolished

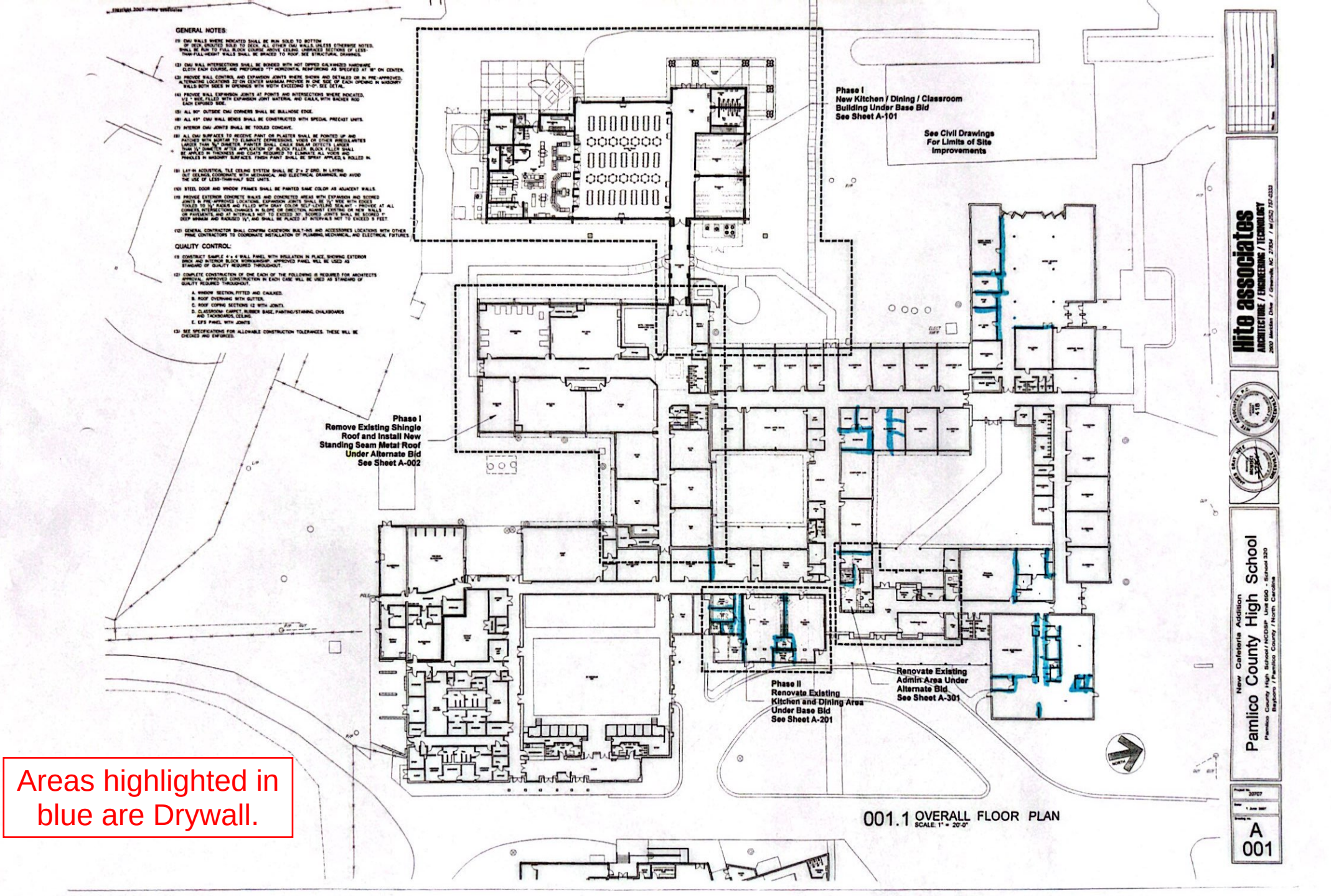
Building to remain open during Demo

Gate 1 Exit Only

Gate 2 Entrance Only

Pamlico County School Logistic Plan
Demo Phase

- Temp Roads, Parking lots, and lay down areas
- Phase 1 Construction Fence
- Phase 2 Additional Construction Fence
- Gate
- Construction Entrance
- Culvert
- Construction Camera
- Temp Hose Bib
- No construction Traffic or personnel
- Temp Drive entrance for owner use Summer 2025



Areas highlighted in blue are Drywall.

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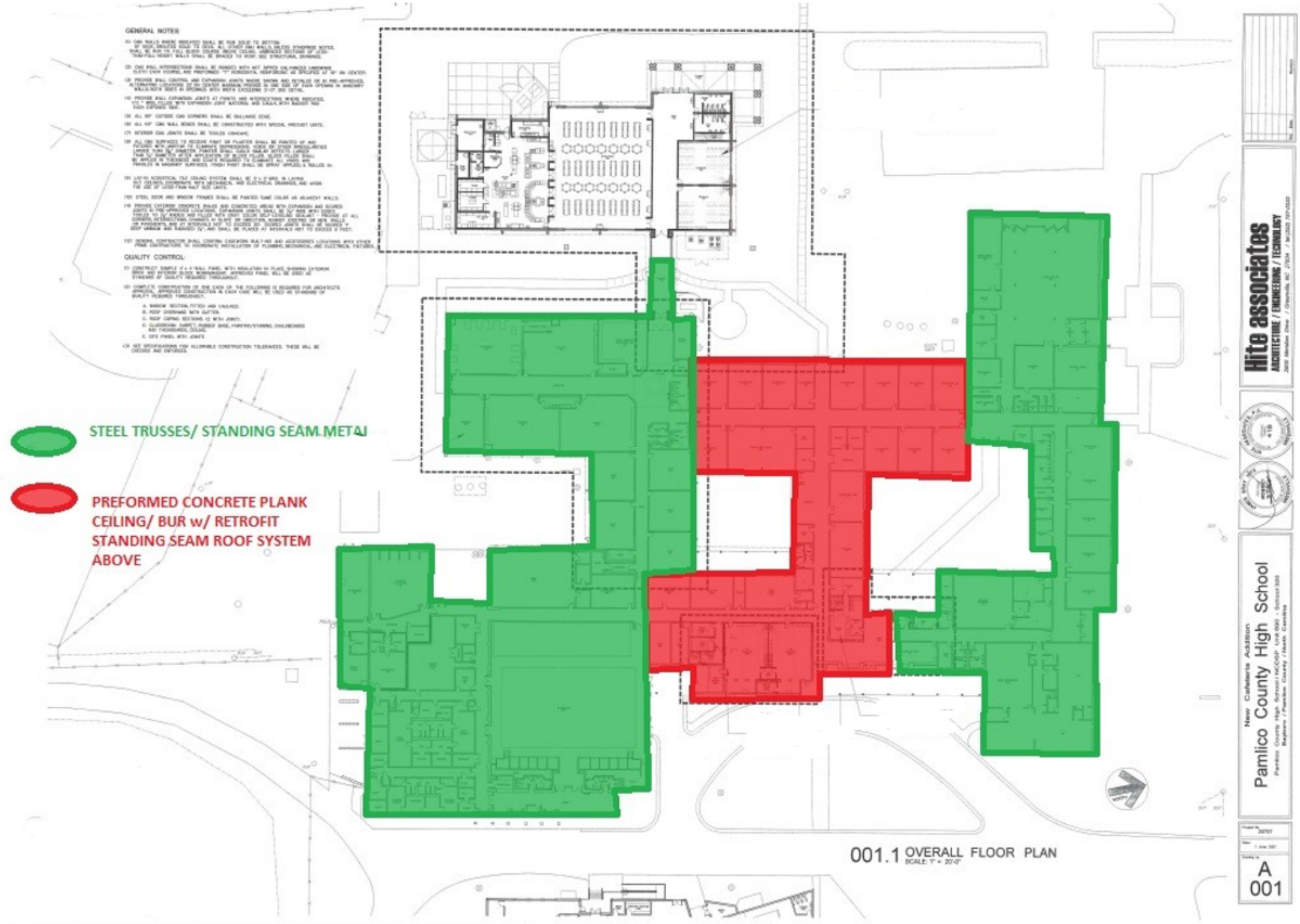
GENERAL NOTES
QUALITY CONTROL:
STEEL TRUSSES/ STANDING SEAM METAL
PREFORMED CONCRETE PLANK CEILING/ BUR w/ RETROFIT STANDING SEAM ROOF SYSTEM ABOVE
001.1 OVERALL FLOOR PLAN
SCALE: 1" = 20'-0"
Hite associates
ARCHITECTURE / ENGINEERING / TECHNOLOGY
New Cafeteria Addition
Pamlico County High School
A
001

BID PACKAGE #0330

TURNKEY CONCRETE

(SCOPE OF WORK)

The Scope of Work shall include the furnishing of a complete **TURNKEY CONCRETE**. This shall include, but is not limited to all required: labor, fabrication, engineering, submittals, shop drawings, materials, equipment, tools, supervision, hoisting, scaffolding, and transportation as required for a complete scope of work.

DESCRIPTION OF SCOPE INCLUSIONS

The following is a non-exhaustive list of inclusions and is not intended to limit the work in any way.

A. CONTRACT DOCUMENTS:

All work shall be performed in accordance with Contract Documents.

- All plans and specifications
- All scope of work requirements
- All contract requirements

B. BONDING REQUIRMENTS:

Each bidder quoting a sum greater than **$100,000** shall have a 10% Bid Bond accompanying their bid as well as a Payment and Performance Bond included in their price. Additionally, all Bonds required shall be furnished per the Subcontract Agreement provided in the Bid Manual. (Addendum 2)

C. SUBMITTAL REQUIREMENTS:

Collaborative File Sharing - Subcontractor shall be responsible for the uploading of all required submittals to a file sharing program (Procore). Notifications will be sent when submittals are reviewed. It is the subcontractor's responsibility to track the approval process and proceed as directed in the submittal by the due date stated in Procore.

Samples – Descriptions of samples shall be uploaded to the site for record purposes. "Hard" samples are still required per the plans/specifications.

At the time of submittals Subcontractor shall clearly identify to the Construction's Manager and Architect's attention, **any deviations from the Contract Documents**. This Subcontractor's responsibility to the Contract Documents is not relieved by the Architect or Construction Manager's review unless there is **written acceptance of the specific deviations**. Subcontractor is

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responsible for submitting and expediting approval of any submittal requirements through a jurisdictional agency, if applicable.

Subcontractor is to deliver all required Reports and bid documents to Construction Manager within 14 calendar days from date of Notice of Award. NO payment shall be made to subcontractor without all subcontractors' documents submitted. Provide signed and sealed engineered shop drawings as specified by a licensed and registered Engineer.

Any required re-submittals, record submittals, and/or field drawings shall be forwarded to Construction Manager within seven (7) days of initial submittal return to Subcontractor. **Failure of this Subcontractor to submit correct or timely submittals does not relieve said Subcontractor of material delivery obligations in accordance with the Project Schedule.** Subcontractor shall allow a minimum of twenty-eight (28) calendar days of Construction Manager -Architect review duration. No material substitutions will be approved by Construction Manager unless Subcontractor can obtain Owner-Architect approval for such substitutions at no additional cost to Construction Manager and without delaying project schedule.

D. STANDARD SCOPE INCLUSIONS:

The items listed below are specifically included and are for clarification purposes only. They shall not be construed as a complete list of all work. It is the intent of this to clarify subcontract issues. If conflicts are discovered between this and the Subcontract General Terms, then the Subcontract General Terms shall govern.

1. Provide a full-time, competent, and English-speaking Superintendent onsite at all times while this subcontractor's work is being performed to coordinate the work of this project. The competent person on site must be OSHA 30 certified. Failure to provide a competent person on site will result in the CM not allowing the subcontractor to work on site.
2. Metcon intends to use GCPay which is a third party pay application service that simplifies the application for payment processes between Metcon and our subcontractors by automating the payment application process. At no cost to our subcontractors, GCPay provides an automated information exchange for lien waivers and all compliance documents. This platform saves time and improves subcontractor communication by keeping them informed throughout the process of potential issues needing immediate attention.
3. The subcontractor has reviewed specification SECTION 01 22 00 – UNIT PRICES. All required unit pricing for this scope of work has been acknowledged and included in the bid form.
4. The subcontractor has reviewed specification SECTION 01 23 00 – ALTERNATES. All required pricing for alternates for this scope of work has been acknowledged and included in the bid form. If alternates are selected, they are selected in their entirety. All documents have been fully evaluated for alternative work.
5. As required, the subcontractor shall design, provide, and engineer crane subsurface/pads in accordance with project specifications and load requirements. The subcontractor shall ensure that all crane operations are structurally sound at no additional cost to the CM.

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6. Verify all substrate conditions and notify the Construction Manager twenty-one (21) days prior to the start of work of any deficiencies in substrate prohibiting the start of work under this agreement.

7. All subcontractor employees must have access to a tablet with Procore access for use on this project. This tablet shall be an iPad Pro generation 3 or newer with cellular connectivity or comparable in specs and capabilities.

8. This subcontractor will not use or allow the building's drainage systems to clean debris or dispose of waste materials. If any drainage systems are clogged or obstructed by this subcontractor's materials, this subcontractor will reimburse the Contractor for the repair cost plus a mark-up.

9. This subcontractor is responsible for requesting any additional information, instructions and/or clarifications required to complete the work. The subcontractor will request such information from the Design team in writing as a Request for information (RFI) through the file-sharing program Procore. Requests for such information shall be made in advance to avoid any delay in the work.

10. This subcontractor is responsible for receiving, unloading, inventorying, storing, and coordinating this subcontractor's work. **All deliveries, hoisting, and storage of materials will be coordinated and scheduled with CM. Any deliveries not scheduled will not be allowed on site.** Material and equipment deliveries must be coordinated "just in time." Material and equipment storage on site must not exceed five (5) workdays. Once materials and/or equipment are moved inside the building, it must be installed within five (5) workdays. This subcontractor must utilize its own equipment to unload material.

11. This subcontractor is responsible for its own traffic control/flag man for any hauling operation in or out of the project site. All traffic control personnel shall be NCDOT certified. Reference the Logistics Plan indicating the crossing and use of active public roadways.

12. This subcontractor is responsible for erecting its own scaffolding, working platforms, material handling, storage, lifting & hoisting as required to perform the work under this scope.

13. This subcontractor is responsible for maintaining streets and parking lots in clean condition for their scope of work. Others will provide a wheel wash station near the site exit gate.

14. This subcontractor is responsible for all temporary safety measures to meet OSHA and Metcon's safety standards pertaining to your scope of work. See Exhibit J for more details.

15. The subcontractor has reviewed all drawings, documents, appendices, and specifications for this project and has found no obvious omissions and further agrees that the work of this agreement and the project can be constructed within the milestones and completion dates agreed upon without claims for delays or costs implications unless substantial Owner directed Scope changes occur.

16. Within **10** days of receipt of the contract, this subcontractor is required to issue a manpower count for each section/activity of their scope of work to meet the schedule requirements. Metcon will review and approve the proposed manpower counts before commencing this work. Metcon, Owner, Architect, & Consultants will constantly track the manpower for each activity to ensure compliance with the schedule and the forecasted status of the project, which will measure performance. If the subcontractor has low productivity/performance, resulting in

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schedule delays, this subcontractor will increase its manpower at Metcon's, Owner's, and/or Architect's request. Pay applications may be delayed until compliance has been satisfied.

17. In the event of inclement weather, this subcontractor is responsible for securing and protecting all their materials and work in place.
18. This subcontractor shall conduct pursuant to N.C. Gen. Stat. § 115C-332.1, an annual check of each of its employees, and contractual employees, consultants, agents, and other representatives on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry if such employee, subcontractor, agent, or other representative will be on the Project site or other school property as part of his or her job. The CM shall conduct this check on each of its employees, consultants, agents, and other representatives prior to permitting such employee, consultant, agent or other representative to enter the Project site or other school property to perform work under this agreement. For the Construction Manager's convenience only, all the required registry checks may be completed at no cost by accessing the United States Department of Justice Sex Offender Public Registry at http://www.nsopw.gov. No person shall be permitted to enter the Project site or other school property to perform work under this agreement if that person is listed on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.
19. This subcontractor must thoroughly examine all drawings to recognize and include elements within their area of responsibility. This subcontractor is required to review all project drawings and specs. This subcontractor will have an opportunity to ask questions about design intent before bidding; after the bid and award of the package, the subcontractor will utilize the most stringent design. The design utilized shall be in the best interest of the Owner.
20. Parking at and around the site will be limited. Please see the Logistics plan for more information.
21. The subcontractor shall only remove temporary construction fences, safety control devices, or sediment control devices with advanced approval from the construction manager. In the event that removal is required, the subcontractor shall reinstall it in the same condition or better.
22. This subcontractor will abide by local noise ordinances as required.
23. A weekly job site cleanup will occur. Each subcontractor must contribute one laborer per five onsite workers for four (4) hours, to be used at the Construction Manager's discretion.
24. All non-compliance items or punch lists brought to the subcontractor's attention in Procore must be corrected and "ready for review" within 5 working days of initiation by the Construction Manager.
25. All subcontractors will adhere to a work week consisting of five (5) days per week, ten (10) hour days, fifty-two (52) weeks per year, with standardized starting and quitting timed 7 am to 5:30 pm regardless of external influences (such as driving distance, subcontractor's company policies, or personal preference.) No subcontractor will be allowed to work a four (4) day work week.
26. Under no circumstances is the subcontractor permitted to work without a construction manager's representative on site.

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27. Protection of work in place: This subcontractor shall provide and maintain protection of all adjacent property and other subcontractor's work, materials, tools, and equipment from damage resulting from this subcontractor's activities. This subcontractor is responsible for the cost of repairing or replacing any items damaged by its employees, its lower-tier subcontractors, or its suppliers, including damage caused during stocking or hoisting.
28. In addition to any Owner site requirements, eating and drinking shall be prohibited within the building or as otherwise determined by the Construction Manager. Subcontractor violators will be removed from the project site. Smoking or other tobacco products will not be allowed on site. Anyone violating this policy will be removed from the site permanently.
29. No visitors shall be admitted to the job site by the subcontractor without first obtaining the approval of the Construction Manager and having completed the site-specific job site orientation. This subcontractor will confirm and/or provide all their visitors with the site-required personal protection equipment.
30. No photographs or videos (including drone videos) of the project may be taken without the construction manager's and owner's prior approval. All persons approved to take photographs/videos must attend training and will be provided with credentials.
31. All schedules of values shall be uploaded to GC Pay within ten (10) days of the letter of intent being awarded. All subcontractors ' SOVs shall include the following standard items: mobilization, submittals, weekly composite cleanup, punch list, and project closeout. The schedule of values approval by the construction manager shall be followed before this subcontractor's first pay application. The construction manager requires a minimum of twenty (20) days to review the schedule of values.
32. Attached to the Bid manual is a sample of Metcon's standard contract. This subcontractor is required to review and accept it in its entirety.
33. Weekend work might be necessary to meet the project schedule, which must be coordinated with the Construction Manager if required. The construction manager will not allow weekend work if the subcontractors are not already working the full number of job site hours with full crews. This means that if you are working less than Monday through Friday, 7 am -5:30 pm, the site will not be open on the weekend unless excusable inclement weather determined by the CM occurs during the week. There will be no issue with opening the site as much as necessary to facilitate subcontractors who are trying to meet the scheduled responsibilities by working the total amount of open hours.
34. Include all necessary mobilizations required to complete this scope of work.
35. The construction manager reserves the right to add a fifteen (15) percent mark-up to all back charges that the construction manager facilitates. If back charges are resolved without the involvement of the Construction Manager, no mark-up will be applied.
36. Time and Material tickets must be approved by the Construction Manager's superintendent within 24 hours of work commencing. Invoices associated with time and material tickets must be submitted to the Construction Manager's Project Manager within thirty (30) days of work commencing. All invoices must reference a "CE number" assigned by the CM. Invoices not referencing a "CE number" will be returned and not processed.
37. Pull planning will be implemented on this project. The weekly "Plan Percent Complete Report" will be sent to the subcontractor's representative to provide tangible value to the subcontractor's

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progress. The subcontractor is required to use the pull planning process to identify all constraints that may impede their progress. Constraints not identified and documented within a reasonable time for rectification will not be considered valid reasons for schedule adjustments. The subcontractor is expected to follow the Pull Plan Schedule, which should enhance and supersede the contract schedule.

38. All required site safety documentation must be submitted in Procore 30 days after issuing the letter of intent. This is to include the following:
    a. Executed the partnership form for the subcontractor safety and health incident prevention program.
    b. Subcontractors' specific site job hazard analysis (JHA), detailing your scope of work, the hazards associated with each task, and how they will be abated.
    c. Trades whose work scope includes steel erection, pre-cast, demo, and roofing shall provide a written site safety plan.
    d. Provide OSHA 300 & 300A logs for the last three years.
    e. A written hazard communication program safety data sheet (SDS)
    f. A written safety plan for the revised silica dust respiratory plan (if applicable) is needed.
    g. A written ground fault protection program.
    h. Exhibit J3 returned with pages initialed.
    i. All site-specific personnel documentation will be required to be submitted two weeks before this scope of work begins.
    j. Failure to comply with this documentation will result in a delayed start in this subcontractor's mobilization. This may include withholding mobilization costs in pay applications until this subcontractor complies. No additional cost or time will be considered due to any acceleration required. (Addendum 2)
39. Survey points will be provided for general locational purposes. These will not be given in every single room. To complete this work scope, each subcontractor must transfer the general area survey points accurately as needed. The location of these general survey points is at the discretion of the Construction Manager. (Addendum 2)
40. The construction manager has the authority to recommend withholding pay applications from any subcontractor due to poor work quality. If this situation arises, the subcontractor will be notified in writing (72 hours' notice) that their work quality is unsatisfactory and requires remediation. The subcontractor must then submit a written remediation plan detailing how they will improve the quality of their work. Once the plan has been implemented and the work quality has been improved, the subcontractor may resubmit their pay application for the owner's approval. Any active unresolved 72-hour notices may result in the CM withholding the pay application for this subcontractor. (Addendum 2)
41. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.

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a. The construction manager can provide equipment and a robotic total station operator for $175/hr with at least 48hr notice. A competent layout representative from this subcontractor must accompany the layout crew.
b. Failure to use the robotic total station will result in a stop work order with no added time to the schedule until the subcontractor complies. No added cost associated with acceleration will be accepted.
c. This subcontractor shall be solely responsible for the correct layout, which cannot be delegated or assigned.

42. Please see the table below for all required meetings.
    a. Without exception, this Subcontractor's Project Manager and/or Superintendent must attend the weekly coordination/subcontractor meetings in person two weeks before starting work and while performing the scope of work.
    b. This subcontractor is required to participate in pull planning sessions actively. These sessions are in-person and onsite, with no exceptions. These will occur every 4-6 weeks at the CM discretion. Each day, the progress will be reviewed in the "Daily Forman's Huddle".
    c. Failure to have the proper representative at any onsite meeting will constitute a safety violation of "competent person not on site.". Refer to Exhibit J for more information.

Meeting Titles	Frequency	Who is required to attend	Location
Pre-install	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Safe Start	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Daily Foreman Huddle	Daily	Superintendent & Forman's	Onsite - CM Trailer
Weekly Coordination	Weekly	Superintendent &/or Project Manager	Onsite - CM Trailer
Pull Plan Initial	As required	Superintendent &/or Project Manager	Remote/Teams
Pull Plan Session	Monthly	Superintendent &/or Project Manager	Onsite - CM Trailer
Jobsite Safety Standdown	Weekly	Everyone onsite	Onsite - CM Trailer
BIM Coordination	Weekly	MEP Trades BIM Managers	Remote/Teams

E. SCOPE OF WORK SPECIFICATIONS

The following outlines the scope of work specifications sections relevant to the work to be performed. This list represents the core specifications that will guide the tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional specifications and related sections that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. **03 30 00-CAST–IN–PLACE CONCRETE**
2. **31 31 16-TERMITE CONTROL**

F. PROJECT SPECIFIC SCOPE REQUIREMENTS:

The following outlines the project-specific scope requirements of the work to be performed. This list represents the core tasks and responsibilities to be undertaken; however, it is not exhaustive or

comprehensive. Additional tasks and responsibilities that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. Subcontractor is responsible for backfilling against its work.
2. Subcontractor is responsible for removal and disposal of excess excavated fill material.
3. This Subcontractor is responsible for excavation safety including providing, installing, maintaining, and removing the following: safety perimeter fencing, flagging, ladder access points, for the duration of exposure on this project for all trades.
4. Subcontractor responsible to provide, maintain and remove the concrete washout area.
5. In situations where bad soils are excavated (i.e. Gumbo) this subcontractor shall be responsible for removing the soils off the building pad to a location chosen by the CM where the Site Work Subcontractor will then remove from site.
6. Fine grading and compaction of soil subgrade prior to installation of granular fill under this agreement upon completion of foundation work, and again after MEP under slab installations. Subcontractor shall export to a location on site as directed by CM any additional site spoils generated from MEP installations.
7. Subcontractor is responsible for the backfill of all column block-outs after column steel erection/base plate grouting is complete.
8. Subcontractor to grout all base plates at column locations.
9. Subcontractor shall furnish and install all concrete formwork materials, tools and accessories as required for all mud slabs, footings, slab-on-grade perimeters, foundation walls, masonry leave-out slab edges, etc. Including all required construction joints, templates, control joints, pour stops, slab depressions and recesses, block-outs, steel column block-outs and re-forming (this is included at both slab-on-grade condition as well as the elevated slab condition), keyways (for pour joints, construction joints, joint covers, etc.), brick ledges and haunches, bulkheads, grade changes, hollow core topping slabs, hollow core bonding beams, etc.
10. Included is all formwork, formwork system engineering (including signed and sealed by registered Engineer in the State of North Carolina), scaffold, shoring, bracing, etc.
11. All elevated slab pours shall be shored as required after review by a licensed engineer.
12. Furnishing and installation of all exposed corner chamfer strips, drip edges, recesses, isolation wraps, depressions, reglets, etc. as shown on structural and architectural drawings.

    a. If elevated slabs are shown without rolled/beveled corners the subcontractor is to include the additional materials/labor as specified above to provide an “eased” edge.

    b. Subcontractor is to shore elevated slabs from below to limit deflection of steel decking supporting elevated slabs. The prescribed floor tolerance of ¼” per 10’ shall not be compromised due to concrete being placed on unsupported spans of metal decking exceeding 15’.
13. Subcontractor shall provide and install all sleeving requirements for others which are either resting under or encapsulated within this scope of work.

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14. It is the responsibility of the subcontractor to coordinate the placement of all sleeves with other trades at least 72 hours prior to concrete placement.
15. Subcontractor is responsible for furnishing and installing anything related to formwork and related to design construction joints, bond breakers, etc.
16. Subcontractor is responsible to maintain dowel/ reinforcement placement to ensure proper clearances during concrete placements, any deviations/deflections resulting from improper workmanship shall become Subcontractor's expense and/or responsibility to correct.
17. Subcontractor is responsible for storage, receipt of, unloading, distribution, layout, and installation of embeds, anchor bolts, etc. cast-into work under this agreement and provided by others. Subcontractor shall provide all templates, replace all nuts/washers after template removal, and clean and grease all anchor bolts and embeds of all concrete residue. All layouts shall be performed from approved fabricator field use shop drawings only.
18. All concrete slab cold-key forming and saw cutting for control joints, construction joints, and joint covers is included.
19. Furnishing, unloading, distribution, field cutting, and installation of all expansion joint material and rigid insulation board (and removal if between concrete elements formed under this agreement).
20. Providing all required block-outs, sleeves, and cutouts associated with formwork system either located above, below, on or within the formwork assembly under this agreement for pumps, ducts, conduits, drains, pipes, pipe chases, floor openings, embeds, scuppers, etc.
21. Subcontractor is responsible for building all box-outs, furnishing all sleeving requirements, etc. for installation and removal under this agreement.
22. Subcontractor shall provide temporary block-outs around column piers from top of pier to underside of slab-on-grade to retain earth during steel erection and keep column block-outs clean of dirt (see masonry section below for condition at spread footings).
23. Construction Manager will not reimburse Subcontractor for cutting, drilling, etc. of formwork to install sleeves or embedded items in formwork system.
24. Subcontractor is responsible for furnishing and installing all form release agents. All agents shall be submitted for Engineer's approval and said Subcontractor shall be responsible for any non- compatibility problems with unapproved form release agents with subsequent material applications.
25. Subcontractor is responsible for all formwork tolerances and specified exposed finishes (Subcontractor shall assume, as a minimum, a class B finish with a smooth formed finish requirement). All plywood formwork supplied on this Project shall be new.
26. Subcontractor is responsible for removing all wall ties, exposed nails, screws/bolts, tie-cones, form block-outs materials, masking materials, etc. as formwork removal progresses. Scraping of all concrete to remove burs and fins is included herein.
27. All form nails, bolts, screws, etc. used at form bracing locations shall be removed completely from existing concrete elements and said concrete elements shall be patched by this Subcontractor to match adjacent finishes.

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28. Subcontractor is responsible for cleanliness of formwork cavities and metal decks prior to concrete placement.
29. Extended formwork storage on-site is not permitted if said materials are not being utilized. It is responsibility of Subcontractor to continually sort and remove materials from site during nonuse.
30. Subcontractor shall furnish and install all construction joint key ways in walls, columns, beams and slabs including removal thereof after concrete placement.
31. Subcontractor shall layout formwork systems, drill/cut, and reinforce formwork system for all rebar dowels, embeds, inserts, sleeves, etc. Subcontractor will provide split bulkhead system for slabs and beams in order to extend reinforcing steel into next pour.
32. Disposal of wood formwork in Construction Manager's dumpster is prohibited. Subcontractor is responsible for removal of all usable and non-usable form materials from jobsite including wood, form oil, curing compounds, etc.
33. Subcontractor is responsible for delivering and providing a slab on grade and slab on deck that is compliant to the flatness requirements of the specifications in division 3. All required floor leveling and grinding will be at the cost of the concrete subcontractor if required to meet the requirements of the athletic flooring and other flooring finishes. All specified curing compounds for each location are included in this scope of work. Coordination is required. (Addendum 3)
34. Subcontractor is responsible for any admix, space heaters, heat blankets, etc. for concrete curing during cold weather season at no additional cost to Construction manager.
35. Subcontractor is responsible for all the concrete on pan-filled stairs.
36. Subcontractor will Provide two (2) or more sources of concrete and grout. Subcontractor will turn in concrete mix submittals for all suppliers and mixes for Architect's approval. At least one of the of the two sources of concrete should have the capacity of heating the water utilized for the concrete mix to mitigate cold weather pour days.
37. Subcontractor is responsible for proper filling of hollow core cavities with concrete as intended by design specifications when pouring topping slabs. Hollow core cavity caps will be provided by hollow core subcontractor. The cap position is the responsibility of this subcontractor. This subcontractor is responsible for making sure that the appropriate quantity of caps is supplied by Hollow Core subcontractor.
38. Provide multiple mobilizations in phasing with slab pours including post treatment.
39. Provide all termite treatment including any hazard/safety signage requirements.
40. Provide retreatment of areas that are disturbed by subsequent excavation, rain, landscape grading, etc.
41. Provide termite treatment warranty in accordance with the specification which shall begin on the Owner's beneficial acceptance of building.
42. All required mockups are included. Subcontractor is responsible for the compliance to the "schedule of form materials" including obtaining Architect's approvals of any deviations.
43. Subcontractor is responsible for notifying Construction Manager and governing agencies of all inspection requests.

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44. Subcontractor to install uplift anchors as highlighted in structural details for tension piles. Steel Subcontractor shall supply angles and bolts.
45. All concrete that will have exposed edges needs to be formed with a pre-engineered edge form system, for example Doka or Symons forms. Some conditions required form work to be flush with continuous face block.

I. The following is a general outline of items included, but not limited to, under this agreement for **Reinforcing Steel** per specifications.

1. All reinforcing steel shall be cut, bent bundled, tagged and delivered in accordance to the Contract Documents and approved shop drawings. Deliveries shall be as material is needed for installation.
2. All welded-wire-fabric is included in flat sheets (not rolls). All bar and mesh supports for footings, walls, slab-on-grade, etc.
3. Subcontractor shall furnish all tie wire to perform this work.
4. Subcontractor is responsible for the cleanliness of all reinforcing steel prior to concrete placement.
5. Subcontractor shall review MEP drawings to ensure adequate reinforcing steel is provided at all slab and wall penetrations required on Contract Documents.
6. Subcontractor is responsible for the removal and disposal off-site of all extra reinforcing steel and shall not utilize Construction Manager's dumpster for such disposal.
7. Furnishing and maintenance of all exposed rebar safety caps for dowels, etc. is included. Safety caps for rebar left above finish floor levels will become the responsibility of the Masonry Subcontractor to maintain during the duration of this scope. After completing his scope, the Masonry Subcontractor will return all rebar caps into a container provided by this subcontractor.
8. All reinforcement in and coming out of concrete is the responsibility of this subcontractor.
   a. Hooks that tie into edge of precast and masonry rebar.
   b. Ubars at edge of precast and edge pour.
   c. Straight keyway rebar that lies on top of precast.

II. The following is general outline of items included, but not limited to, under this agreement for all **Cast-in-Place Concrete** per the specification section 03 30 00.

1. Scope of Work includes, but not limited to:
   a. All building footings, above grade slabs and all Slab-on-grade work including column block-outs, Elevator Pit, Fire ~~Tank~~ Pump Slab & Foundation, pour-backs and thickened slabs. (Addendum 2)
   b. Foundation at dumpster screen wall is included.
   c. All mechanical, plumbing and electrical equipment pads, including doweling into slab. Final sizing shall be coordinated with MEP trade subcontractor at no additional cost to Construction Manager.

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d. All interior elevated slabs.
e. All concrete control joints.
f. All expansion joint material in concrete in accordance with the Contract Documents.

2. Included is establishing off-set lines, protecting and transferring registered surveyor points, etc. with the use of a robotic total station.
    a. Subcontractor shall layout all new foundations including all anchor bolts, rebar dowel placements, embed requirements, block-outs, footing steps, etc.
    b. Subcontractor is responsible for all slab edge locations, slab transition locations, slab slope requirements, curb and wall locations, etc.
    c. Subcontractor is responsible to layout stair bottom and masonry wall thickened slab conditions.
    d. Subcontractor shall layout all new concrete equipment pads as highlighted above.
    e. Subcontractor layout lines shall be accessible to all MEP trades to rough-in foundations, slabs, walls, etc. Subcontractor shall coordinate and reference all layouts with MEP Subcontractors.
    f. Subcontractor is responsible for formwork placement, trueness, plumbness, etc. before, during, and after concrete placement. Substandard work will be demoed and replaced by this subcontractor at no additional cost to Construction Manager.
    g. This subcontractor is responsible for preventing any washout under any finished concrete work.

3. Subcontractor is responsible for all hoisting and hoisting devices for the unloading, loading and distribution of work under this agreement including cables, straps, slings, spreader bars, chokers, lifting bars, etc. as required to perform work under this agreement.
    a. Subcontractor shall submit to Construction Manager all crane inspection certifications ten (10) days prior to starting work. All certifications, and inspections shall be current and in accordance with OSHA and the Contract Documents.

III. The following is a general outline of items included, but not limited to, under this agreement for Concrete **Placement and Finishing** per specifications.

1. Subcontractor agrees to furnish, vibrate, hoist, place, finish and cure concrete for the duration of the Project at the footings, walls, slab-on-grade, secondary curbs, equipment pad, etc. either formed, installed, or excavated under this agreement.
2. Subcontractor agrees to coordinate all placements with Construction Manager 48 hours in advance to determine truck routing, truck delivery sequencing and timeliness, traffic control, etc.
3. Subcontractor agrees to provide on-site technical support to coordinate deliveries, verify concrete slumps and temperatures, etc. with testing agency. Subcontractor shall provide Construction Manager with copies of all delivery tickets with subsequent day's daily reports.
4. All tickets shall indicate batch times, time of arrival to site, start time of placement, finish time of placement, quantity of concrete, and mix design number. Each truck shall have an accurate count/trip meter of drum rotation from batching to placement.

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5. This agreement is based on Subcontractor obtaining approved mixed designs from Engineer of Record. Contract pricing will not be adjusted for compliance to Contract Documents, or inability of Subcontractor to obtain mix design approvals and approved products at point of discharge as determined by Field Conditions at time of placement.
6. Subcontractor's submittal package shall clearly identify each mix design and identify each mix with a proposed location for placement.
7. Subcontractor to provide vapor retarder as per specification section 07 26 16.
8. Truck "wash-out" of unused concrete will not be permitted on-site. Subcontractor will be allowed to rinse the chute and any concrete splatter on delivery truck only at a location determined by Construction Manager. Should Subcontractor wash out debris on-site, this Subcontractor is responsible for the removal; or costs thereof, to remove debris from site and **shall not utilize Construction Manager's dumpster for such disposal**. Washout area shall be emptied when it is no longer compliant with EPA standards.
9. Subcontractor will cooperate with the Owner's testing agency and shall respond immediately to any low cylinder breaks at 7 day, 28 days, and 56 days in writing to Construction Manager of possible causes and assistance of projected outcomes. This Subcontractor is responsible for costs of any early concrete breaks or extra cylinders requested by Subcontractor.
10. All concrete shall be delivered to the site with the approved slump. Water added at the site is prohibited if exceeds the amount of added water approved for each concrete mix. All specified and approved slumps and air contents shall be achieved by Subcontractor at point of discharge.
11. Subcontractor **shall not assume truck access to all points of concrete discharge**. Construction Manager will not accept extra costs or schedule delays for concrete placement as means and methods.
12. All concrete shall be shipped and maintain specified temperatures throughout the approved placement and curing time allotment specified in the Contract Documents at no additional cost to Construction Manager. Delaying concrete placements to avoid controllable concrete temperature placements is not acceptable means and methods.
13. Any concrete placements starting before, or exceeding, normal project working hours shall be coordinated with Construction Manager three (3) working days in advance.
14. Subcontractor is responsible for the strength of concrete as determined by specimen's taken at point of discharge (or sampling) in accordance with all applicable ACI and ASTM standards and specifications for sampling, curing, and testing concrete cylinders. Actual records of Subcontractors Ready Mix Vendor's delivery performance shall be kept and furnished to Construction Manager. If said concrete does not achieve designed strength or Owner's acceptance, Subcontractor will be responsible for all costs of removing, testing and retesting, replacing, and/or shoring of said concrete.
15. Construction Manager will not be responsible for payment of defective concrete, returned concrete not in-compliance of approved submittals, short-loads, minimum load requirement charges, weekend or after hour concrete placements requirements, environmental fees or charges, fuel surcharges, concrete delivered without inspection approvals for work to be placed, returned deliveries which were not coordinated with Construction Manager, loads returned due to site accessibility, etc.

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16. All concrete shall be shipped in four-wheeled mixers, if required by site conditions. Subcontractor shall coordinate requirements with batch plant.
17. Subcontractor shall protect all surfaces and embeds adjacent to work including alignments, elevations, and cleaning after day's placement of concrete. Subcontractor is responsible for ensuring all reinforcing steel remain in design location and shall protect and support said materials from pump hoses, manpower traffic, tool storage, etc.
18. Subcontractor will cooperate with the Owner testing agency to obtain specified cylinders and slumps.
19. Subcontractor is responsible to construct and maintain concrete curing box in accordance with ACI.
20. Subcontractor is responsible for screeding, troweling, vibrating, and finishing of all concrete in accordance with Project Specifications for flatness and levelness. Subcontractor shall coordinate and comply with all required slab finishes (i.e. float, trowel, broom, etc.) prior to beginning day's placement of concrete since each placement could have multiple finish requirements.
    a. Any slabs not specified to have a FF/FL value will be assumed to be FF 25 and FL 15 or better. In the case that a more stringent flatness and/or levelness is specified in the contract documents, contract documents supersede this clause.
21. Subcontractor will be responsible for all corrective repairs resulting from their defective workmanship. Defective workmanship shall be defined as all birdbaths, out of tolerance floor flatness and levelness, out of tolerance floor finish, wall alignment, elevations, and honeycombs, mis-located embeds or anchor bolts, missed chamfer/reveals, etc. All corrective work shall be performed within twenty-four (24) hours and prior to payment issuance from Construction Manager to Subcontractor for work performed.
22. Subcontractor is responsible for rubbing and grinding all exposed concrete. Assumed finish of concrete walls shall be a "rubbed finish".
23. Removing and patching of all tie holes is included. Patch shall match color and texture of surrounding concrete finishing.
24. All concrete receiving damp proofing or waterproofing shall be rubbed, joints ground, and concrete cured per the manufacturer's recommendations.
25. The subcontractor is responsible for field verifying all floor drain elevations to ensure specified drainage requirements prior to concrete placement and notifying the Construction Manager immediately of any documented inefficiencies.
26. The subcontractor is responsible for monitoring and cleaning up any concrete leaks, etc.
27. The subcontractor is responsible for furnishing and installing all curing methods or agents. All methods or agents shall be submitted for the Engineer's approval, and the Subcontractor shall be responsible for any non-compatibility problems with unapproved curing methods or agents with subsequent material applications.

IV. Subcontractor shall furnish and install all **Miscellaneous Concrete Work and Accessories,** including:

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1. Subcontractor shall furnish and install all slab-on-grade vapor barriers as specified including taping of joints, penetrations, etc.

2. All specified joint fillers, slab and floor treatment are included. Provide penetrating liquid floor treatment at all exposed concrete floors, mechanical pads, etc. including all floor sweeping, pressure cleaning, scraping, acid washing (if required by manufacturer), etc., ready to receive sealer. All this work shall be completed at or near the end of Project Completion date.

3. Provide block-outs for, then furnish and install all floor to wall expansion joints as specified in section 07 95 00.

4. Provide and install all perimeter foundation insulation board as specified in section 07 21 00 and as shown on plans.

5. Subcontractor is responsible for coordinating the control joints shown and required in the drawings with all flooring shop drawings to ensure that control joints in flooring systems align with structural concrete joints.

6. Grouting of steel column base plates and steel beam bearing plates per specifications.

7. Subcontractor is responsible for notifying Construction Manager of all dates/times for soil testing, foundation inspections (rebar), concrete placements, etc. with at least 48 hours advanced notice.

8. Subcontractor is responsible for dewatering. Dewatering is considered all-natural grade water as well as "surface or rain water" for all excavations under this agreement. Areas include all interior and exterior foundations, slab-on-grade, interior and exterior perimeter of building walls and retaining walls, column block-outs, sumps pits, etc. Dewatering duration is for such a period until all areas are poured in concrete under this agreement, backfilled under this agreement, or backfilled by others.

9. Dewatering includes all required pumps, sumps, stone, etc. for proper execution of work under this agreement and for the continual maintenance of exposed soil conditions to access the work under this agreement.

10. It is the responsibility of this Subcontractor to maintain a suitable soil substrate condition once exposed under this agreement (or exposed by others as in mass excavation to perform work under this agreement). The Owner (or the Construction Manager) will not be responsible to reimburse Subcontractor for the costs to remove unsuitable soil and dispose of off-site or for the replacement costs of suitable fill (or stone backfill) for exposed substrate conditions not achieving compactions due to excessive moisture content not inherent with undisturbed soil conditions on- site.

11. Subcontractor is responsible for all temporary power requirements via generator including fuel costs to perform work under this agreement. Subcontractor agrees to allow other trades

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working in the same vicinity to utilize same generator power. Also, temporary and task lighting to perform work under this agreement is also included.

12. Subcontractor is responsible for ensuring all tools, equipment, and formwork materials and assemblies stored or installed on-site from damage, theft, fire, etc.

13. Should stepped footings not be indicated for MEP coordination, this Subcontractor shall provide such requirements for all piping conditions indicated on MEP drawings and on site coordinated at no additional cost to Construction Manager.

14. MEP pad sizes indicated on Contract Documents are for reference only. Final sizing and design shall be coordinated with MEP trade subcontractor at no additional cost to Construction Manager.

15. Construction Manager is not responsible for truck or equipment access to or around building areas for Subcontractor as it relates to soil conditions. Subcontractor shall review soils report, existing and proposed grades, concurrent utility excavations, site access points from public roads in evaluating means and methods to deliver and execute work under this agreement.

16. Subcontractor shall set and place all anchor bolts.

V. The following is a general outline of items included, but not limited to, under this agreement, Provide materials, labor and equipment to perform the following **Foundation Excavation** work:

1. Subcontractor is responsible for excavation of all foundations including compaction, shaping, excavating, shoring, etc.
    a. Subcontractor is responsible for the undercutting and placement of cleaned washed stone as specified in the Project drawings and specifications at the site as needed. This pertains to the footings and foundations and any SOG as specified.
2. All excavated spoils excavated or graded under this agreement are to remain on-site within construction fencing on non-paved areas. Subcontractor may need to remove spoils from site, if obstructing work under this agreement, and return soil during backfilling operations. It is the responsibility of this Subcontractor to balance site soil conditions from the building pad.

G. DESCRIPTION OF SCOPE EXCLUSIONS

The following is a complete and exhaustive list of exclusions from the Scope of Work:

1. None

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BID PACKAGE #0420

TURNKEY MASONRY

(SCOPE OF WORK)

The Scope of Work shall include the furnishing of a complete **TURNKEY MASONRY PACKAGE**. This shall include, but is not limited to all required: labor, fabrication, engineering, submittals, shop drawings, materials, equipment, tools, supervision, hoisting, scaffolding, and transportation as required for a complete scope of work.

DESCRIPTION OF SCOPE INCLUSIONS

The following is non-exhaustive list of inclusions and is not intended to limit the work in any way.

A. CONTRACT DOCUMENTS:

All work shall be performed in accordance with Contract Documents.

- All plans and specifications
- All scope of work requirements
- All contract requirements

B. BONDING REQUIRMENTS:

Each bidder quoting a sum greater than **$100,000** shall have a 10% Bid Bond accompanying their bid as well as a Payment and Performance Bond included in their price. Additionally, all Bonds required shall be furnished per the Subcontract Agreement provided in the Bid Manual. (Addendum 2)

C. SUBMITTAL REQUIREMENTS:

Collaborative File Sharing - Subcontractor shall be responsible for the uploading of all required submittals to a file sharing program (Procore). Notifications will be sent when submittals are reviewed. It is the subcontractor's responsibility to track the approval process and proceed as directed in the submittal by the due date stated in Procore.

i. Samples – Descriptions of samples shall be uploaded to the site for record purposes. "Hard" samples are still required per the plans/specifications.

At the time of submittals Subcontractor shall clearly identify to the Construction's Manager and Architect's attention, **any deviations from the Contract Documents**. This Subcontractor's responsibility to the Contract Documents is not relieved by the Architect or Construction Manager's review unless there is **written acceptance of the specific deviations**. Subcontractor is

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responsible for submitting and expediting approval of any submittal requirements through a jurisdictional agency, if applicable.
Subcontractor is to deliver all required Reports and bid documents to Construction Manager within 14 calendar days from date of Notice of Award. NO payment shall be made to subcontractor without all subcontractors' documents submitted. Provide signed and sealed engineered shop drawings as specified by a licensed and registered Engineer.

Any required re-submittals, record submittals, and/or field drawings shall be forwarded to Construction Manager within seven (7) days of initial submittal return to Subcontractor. **Failure of this Subcontractor to submit correct or timely submittals does not relieve said Subcontractor of material delivery obligations in accordance with the Project Schedule.** Subcontractor shall allow a minimum of twenty-eight (28) calendar days of Construction Manager -Architect review duration. No material substitutions will be approved by Construction Manager unless Subcontractor can obtain Owner-Architect approval for such substitutions at no additional cost to Construction Manager and without delaying project schedule.

D. STANDARD SCOPE INCLUSIONS:

The items listed below are specifically included and are for clarification purposes only. They shall not be construed as a complete list of all work. It is the intent of this to clarify subcontract issues. If conflicts are discovered between this and the Subcontract General Terms, then the Subcontract General Terms shall govern.

1. Provide a full-time, competent, and English-speaking Superintendent onsite at all times while this subcontractor's work is being performed to coordinate the work of this project. The competent person on site must be OSHA 30 certified. Failure to provide a competent person on site will result in the CM not allowing the subcontractor to work on site.
2. Metcon intends to use GCPay which is a third party pay application service that simplifies the application for payment processes between Metcon and our subcontractors by automating the payment application process. At no cost to our subcontractors, GCPay provides an automated information exchange for lien waivers and all compliance documents. This platform saves time and improves subcontractor communication by keeping them informed throughout the process of potential issues needing immediate attention.
3. The subcontractor has reviewed specification SECTION 01 22 00 – UNIT PRICES. All required unit pricing for this scope of work has been acknowledged and included in the bid form.
4. The subcontractor has reviewed specification SECTION 01 23 00 – ALTERNATES. All required pricing for alternates for this scope of work has been acknowledged and included in the bid form. If alternates are selected, they are selected in their entirety. All documents have been fully evaluated for alternative work.

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5. As required, the subcontractor shall design, provide, and engineer crane subsurface/pads in accordance with project specifications and load requirements. The subcontractor shall ensure that all crane operations are structurally sound at no additional cost to the CM.

6. Verify all substrate conditions and notify the Construction Manager twenty-one (21) days prior to the start of work of any deficiencies in substrate prohibiting the start of work under this agreement.

7. All subcontractor employees must have access to a tablet with Procore access for use on this project. This tablet shall be an iPad Pro generation 3 or newer with cellular connectivity or comparable in specs and capabilities.

8. This subcontractor will not use or allow the building's drainage systems to clean debris or dispose of waste materials. If any drainage systems are clogged or obstructed by this subcontractor's materials, this subcontractor will reimburse the Contractor for the repair cost plus a mark-up.

9. This subcontractor is responsible for requesting any additional information, instructions and/or clarifications required to complete the work. The subcontractor will request such information from the Design team in writing as a Request for information (RFI) through the file-sharing program Procore. Requests for such information shall be made in advance to avoid any delay in the work.

10. This subcontractor is responsible for receiving, unloading, inventorying, storing, and coordinating this subcontractor's work. **All deliveries, hoisting, and storage of materials will be coordinated and scheduled with CM. Any deliveries not scheduled will not be allowed on site.** Material and equipment deliveries must be coordinated "just in time." Material and equipment storage on site must not exceed five (5) workdays. Once materials and/or equipment are moved inside the building, it must be installed within five (5) workdays. This subcontractor must utilize its own equipment to unload material.

11. This subcontractor is responsible for its own traffic control/flag man for any hauling operation in or out of the project site. All traffic control personnel shall be NCDOT certified. Reference the Logistics Plan indicating the crossing and use of active public roadways.

12. This subcontractor is responsible for erecting its own scaffolding, working platforms, material handling, storage, lifting & hoisting as required to perform the work under this scope.

13. This subcontractor is responsible for maintaining streets and parking lots in clean condition for their scope of work. Others will provide a wheel wash station near the site exit gate.

14. This subcontractor is responsible for all temporary safety measures to meet OSHA and Metcon's safety standards pertaining to your scope of work. See Exhibit J for more details.

15. The subcontractor has reviewed all drawings, documents, appendices, and specifications for this project and has found no obvious omissions and further agrees that the work of this agreement and the project can be constructed within the milestones and completion dates agreed upon without claims for delays or costs implications unless substantial Owner directed Scope changes occur.

16. Within **10** days of receipt of the contract, this subcontractor is required to issue a manpower count for each section/activity of their scope of work to meet the schedule requirements. Metcon will review and approve the proposed manpower counts before commencing this

work. Metcon, Owner, Architect, & Consultants will constantly track the manpower for each activity to ensure compliance with the schedule and the forecasted status of the project, which will measure performance. If the subcontractor has low productivity/performance, resulting in schedule delays, this subcontractor will increase its manpower at Metcon's, Owner's, and/or Architect's request. Pay applications may be delayed until compliance has been satisfied.

17. In the event of inclement weather, this subcontractor is responsible for securing and protecting all their materials and work in place.
18. This subcontractor shall conduct pursuant to N.C. Gen. Stat. § 115C-332.1, an annual check of each of its employees, and contractual employees, consultants, agents, and other representatives on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry if such employee, subcontractor, agent, or other representative will be on the Project site or other school property as part of his or her job. The CM shall conduct this check on each of its employees, consultants, agents, and other representatives prior to permitting such employee, consultant, agent or other representative to enter the Project site or other school property to perform work under this agreement. For the Construction Manager's convenience only, all the required registry checks may be completed at no cost by accessing the United States Department of Justice Sex Offender Public Registry at http://www.nsopw.gov. No person shall be permitted to enter the Project site or other school property to perform work under this agreement if that person is listed on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.
19. This subcontractor must thoroughly examine all drawings to recognize and include elements within their area of responsibility. This subcontractor is required to review all project drawings and specs. This subcontractor will have an opportunity to ask questions about design intent before bidding; after the bid and award of the package, the subcontractor will utilize the most stringent design. The design utilized shall be in the best interest of the Owner.
20. Parking at and around the site will be limited. Please see the Logistics plan for more information.
21. The subcontractor shall only remove temporary construction fences, safety control devices, or sediment control devices with advanced approval from the construction manager. In the event that removal is required, the subcontractor shall reinstall it in the same condition or better.
22. This subcontractor will abide by local noise ordinances as required.
23. A weekly job site cleanup will occur. Each subcontractor must contribute one laborer per five onsite workers for four (4) hours, to be used at the Construction Manager's discretion.
24. All non-compliance items or punch lists brought to the subcontractor's attention in Procore must be corrected and "ready for review" within 5 working days of initiation by the Construction Manager.
25. All subcontractors will adhere to a work week consisting of five (5) days per week, ten (10) hour days, fifty-two (52) weeks per year, with standardized starting and quitting timed 7 am to 5:30 pm regardless of external influences (such as driving distance, subcontractor's company policies, or personal preference.) No subcontractor will be allowed to work a four (4) day work week.

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26. Under no circumstances is the subcontractor permitted to work without a construction manager's representative on site.
27. Protection of work in place: This subcontractor shall provide and maintain protection of all adjacent property and other subcontractor's work, materials, tools, and equipment from damage resulting from this subcontractor's activities. This subcontractor is responsible for the cost of repairing or replacing any items damaged by its employees, its lower-tier subcontractors, or its suppliers, including damage caused during stocking or hoisting.
28. In addition to any Owner site requirements, eating and drinking shall be prohibited within the building or as otherwise determined by the Construction Manager. Subcontractor violators will be removed from the project site. Smoking or other tobacco products will not be allowed on site. Anyone violating this policy will be removed from the site permanently.
29. No visitors shall be admitted to the job site by the subcontractor without first obtaining the approval of the Construction Manager and having completed the site-specific job site orientation. This subcontractor will confirm and/or provide all their visitors with the site-required personal protection equipment.
30. No photographs or videos (including drone videos) of the project may be taken without the construction manager's and owner's prior approval. All persons approved to take photographs/videos must attend training and will be provided with credentials.
31. All schedules of values shall be uploaded to GC Pay within ten (10) days of the letter of intent being awarded. All subcontractors ' SOVs shall include the following standard items: mobilization, submittals, weekly composite cleanup, punch list, and project closeout. The schedule of values approval by the construction manager shall be followed before this subcontractor's first pay application. The construction manager requires a minimum of twenty (20) days to review the schedule of values.
32. Attached to the Bid manual is a sample of Metcon's standard contract. This subcontractor is required to review and accept it in its entirety.
33. Weekend work might be necessary to meet the project schedule, which must be coordinated with the Construction Manager if required. The construction manager will not allow weekend work if the subcontractors are not already working the full number of job site hours with full crews. This means that if you are working less than Monday through Friday, 7 am -5:30 pm, the site will not be open on the weekend unless excusable inclement weather determined by the CM occurs during the week. There will be no issue with opening the site as much as necessary to facilitate subcontractors who are trying to meet the scheduled responsibilities by working the total amount of open hours.
34. Include all necessary mobilizations required to complete this scope of work.
35. The construction manager reserves the right to add a fifteen (15) percent mark-up to all back charges that the construction manager facilitates. If back charges are resolved without the involvement of the Construction Manager, no mark-up will be applied.
36. Time and Material tickets must be approved by the Construction Manager's superintendent within 24 hours of work commencing. Invoices associated with time and material tickets must be submitted to the Construction Manager's Project Manager within thirty (30) days of work commencing. All invoices must reference a "CE number" assigned by the CM. Invoices not referencing a "CE number" will be returned and not processed.

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37. Pull planning will be implemented on this project. The weekly "Plan Percent Complete Report" will be sent to the subcontractor's representative to provide tangible value to the subcontractor's progress. The subcontractor is required to use the pull planning process to identify all constraints that may impede their progress. Constraints not identified and documented within a reasonable time for rectification will not be considered valid reasons for schedule adjustments. The subcontractor is expected to follow the Pull Plan Schedule, which should enhance and supersede the contract schedule.
38. All required site safety documentation must be submitted in Procore 30 days after issuing the letter of intent. This is to include the following:
    a. Executed the partnership form for the subcontractor safety and health incident prevention program.
    b. Subcontractors' specific site job hazard analysis (JHA), detailing your scope of work, the hazards associated with each task, and how they will be abated.
    c. Trades whose work scope includes steel erection, pre-cast, demo, and roofing shall provide a written site safety plan.
    d. Provide OSHA 300 & 300A logs for the last three years.
    e. A written hazard communication program safety data sheet (SDS)
    f. A written safety plan for the revised silica dust respiratory plan (if applicable) is needed.
    g. A written ground fault protection program.
    h. Exhibit J3 returned with pages initialed.
    i. All site-specific personnel documentation will be required to be submitted two weeks before this scope of work begins.
    j. Failure to comply with this documentation will result in a delayed start in this subcontractor's mobilization. This may include withholding mobilization costs in pay applications until this subcontractor complies. No additional cost or time will be considered due to any acceleration required. (Addendum 2)
39. Survey points will be provided for general locational purposes. These will not be given in every single room. To complete this work scope, each subcontractor must transfer the general area survey points accurately as needed. The location of these general survey points is at the discretion of the Construction Manager. (Addendum 2)
40. The construction manager has the authority to recommend withholding pay applications from any subcontractor due to poor work quality. If this situation arises, the subcontractor will be notified in writing (72 hours' notice) that their work quality is unsatisfactory and requires remediation. The subcontractor must then submit a written remediation plan detailing how they will improve the quality of their work. Once the plan has been implemented and the work quality has been improved, the subcontractor may resubmit their pay application for the owner's approval. Any active unresolved 72-hour notices may result in the CM withholding the pay application for this subcontractor. (Addendum 2)
41. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.

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a. The construction manager can provide equipment and a robotic total station operator for $175/hr with at least 48hr notice. A competent layout representative from this subcontractor must accompany the layout crew.
b. Failure to use the robotic total station will result in a stop work order with no added time to the schedule until the subcontractor complies. No added cost associated with acceleration will be accepted.
c. This subcontractor shall be solely responsible for the correct layout, which cannot be delegated or assigned.

42. Please see the table below for all required meetings.
    a. Without exception, this Subcontractor's Project Manager and/or Superintendent must attend the weekly coordination/subcontractor meetings in person two weeks before starting work and while performing the scope of work.
    b. This subcontractor is required to participate in pull planning sessions actively. These sessions are in-person and onsite, with no exceptions. These will occur every 4-6 weeks at the CM discretion. Each day, the progress will be reviewed in the "Daily Forman's Huddle".
    c. Failure to have the proper representative at any onsite meeting will constitute a safety violation of "competent person not on site.". Refer to Exhibit J for more information.

Meeting Titles	Frequency	Who is required to attend	Location
Pre-install	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Safe Start	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Daily Foreman Huddle	Daily	Superintendent & Forman's	Onsite - CM Trailer
Weekly Coordination	Weekly	Superintendent &/or Project Manager	Onsite - CM Trailer
Pull Plan Initial	As required	Superintendent &/or Project Manager	Remote/Teams
Pull Plan Session	Monthly	Superintendent &/or Project Manager	Onsite - CM Trailer
Jobsite Safety Standdown	Weekly	Everyone onsite	Onsite - CM Trailer
BIM Coordination	Weekly	MEP Trades BIM Managers	Remote/Teams

E. SCOPE OF WORK SPECIFICATIONS:

The following outlines the scope of work specifications sections relevant to the work to be performed. This list represents the core specifications that will guide the tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional specifications and related sections that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. **SECTION 04 05 03 - MASONRY MORTARING AND GROUTING**
2. **SECTION 04 20 00 - UNIT MASONRY**
3. **SECTION 04 72 00 - CAST STONE MASONRY**
4. **SECTION 07 21 00 - THERMAL INSULATION**
5. **SECTION 07 21 19 - FOAMED-IN-PLACE INSULATION**
6. **SECTION 07 65 00 - THROUGH WALL FLASHING**
7. **SECTION 07 95 13 - EXPANSION JOINT COVER ASSEMBLIES**

F. PROJECT SPECIFIC SCOPE REQUIREMENTS:

The following outlines the project-specific scope requirements of the work to be performed. This list represents the core tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional tasks and responsibilities that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. The subcontractor shall provide labor, materials, and equipment to build and clean all required sample panels under this agreement at no cost to the Construction Manager. The approved sample panel will remain standing to provide the standards for the workmanship of the masonry work. All sample panels shall be constructed and completed for Owner/Architect review by such time to allow for the manufacturing and shipment of masonry units in accordance with the project schedule.
2. Protection of all roofing, metal decking, concrete slabs and sidewalks, railings, door and window frames, structural steel, prefinished flashings, stairs, handrails, and any other materials that occur at or under this work from mortar droppings and dropped block is required and included. The cost of all protection and cleaning of same is included in the Contract Price.
    a. After cleaning, all interior blocks must be covered and protected. The masonry subcontractor is responsible for protecting this work for the duration of the job.
3. This subcontractor shall clean up all masonry debris created by this Work. All non-masonry material debris (other than block or mortar) shall be placed in the Construction Manager's dumpster. **Subcontractor shall remove all block, brick and mortar debris offsite. (Do not place in Job Dumpster) Any fees associated with dumping material in the jobsite dumpster will be back charged to the Subcontractor.**
4. Daily clean-up is expected; however, the final cleanup of masonry debris under the scaffolding shall take place directly after the scaffolding has been removed in each work area. Scraping and broom cleaning of floors is included. Collecting blown materials under this agreement is included.
5. This agreement includes all levels of masonry production, including bond type, pier work, rowlocks, sills, precast window sills, jamb return block, etc. The subcontractor shall complete all areas 100% prior to demobilizing, enabling subsequent trades to proceed (e.g., windows, rails, caulking, etc.).
6. The subcontractor will pay particular attention to the layout, width, and straightness of the block control joints. Subcontractor shall rake clean control joints of all mortar prior to the Construction Manager's caulking operation.
7. In addition to the control joints shown in the drawings, subcontractor is responsible for bringing to the attention of the Construction Manager and Architect if additional control joints are needed for a warrantable system. Subcontractor will submit proposed additional control joint suggestions to Construction manager and Architect for approval, before putting them in place at no additional cost.
8. This subcontractor will check the levelness and elevation of the concrete foundations prior to starting masonry work. Subcontractor shall inform Construction Manager in writing of any conditions which will prevent the Subcontractor from producing a first

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class masonry job within the specified tolerances of workmanship. Subcontractor shall submit written findings within three (3) working days following predecessor's installation.

9. This subcontractor will refer to the Construction Manager's approved hollow metal shop drawings, aluminum window and door frame shop drawings, louver shop drawings, etc., when determining the masonry opening sizes required. The construction Manager will provide the Subcontractor with approved shop drawings.
10. All cold and hot weather requirements are included. Subcontractor will be required to follow all guidelines related to the protection of in place masonry and the conditions under which masonry work can proceed daily. Schedule delays due to Subcontractor's unwillingness to comply with production under cold and hot weather requirements are not acceptable.
11. This subcontractor shall tool or strike all joints flush in areas to receive insulation, waterproofing, surface applied drywalls, furred drywall partitions, etc. Subcontractor is responsible for identifying such areas in compliance with manufacturer's recommendations for substrate conditions. All masonry shall be assumed jointed except at concealed exterior cavity walls and walls to receive ceramic tile.
12. Subcontractor to provide all transitional membranes required to complete a warrantable system that adheres to the materials covered by this scope of work.
13. Cleaning of all masonry materials furnished and installed under this Scope is included in accordance with manufacture's recommendations, Contract Documents, and as approved by the Architect. Subcontractor will provide a sample cleaning area (area indicated by Construction Manager) for review prior to beginning the block cleaning operation. All block cleaning will be in accordance with the procedures indicated in the specifications and by the manufacturer of the cleaning solution. Protection of windows, doors, hardware, planting, roofing and flashings, etc. is included in the performance of this operation.
14. This subcontractor shall clean the building (block, etc.) on an as-needed area basis determined by the Construction Manager in order to release subsequent trades to work (i.e. caulking, landscaping, etc.).
15. Subcontractor is responsible for protecting block work before and after block cleaning operations including, but not limited to, soil staining, walk board splatters, mortar, grout, etc. until receiving Architect's acceptance of work. Subcontractor shall provide a final re-clean of all masonry installations soiled during construction during Construction Manager's punch list phase and prior to Architect's punch list phase for each building.
16. All walls are to be considered finish product. All mortar will be mixed by this Subcontractor in accordance with the Contract Documents and shall be proportioned as indicated by the mortar manufacturer's instructions by utilizing prefabricated 1 C.F. box for measuring sand.
17. Subcontractor will ensure that consistent joint work is achieved, and the radius of jointer indicated is used by all masons on the crew and that the crew is tooling the joints correctly and at the correct time. Provide flush joints at all base locations as indicated

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on the finish schedule notes and mock-up requirements. Subcontractor is responsible for identifying tooling joint types, locations, elevations above finish floors with ceiling heights, etc.

18. Subcontractor shall correct all punch list items indicated by either the Construction Manager or the Architect immediately upon notification to prevent delaying subsequent trades from proceeding with their work. All masonry shall be sawcut. All saw cutting shall be performed outside the building limit areas, or as otherwise approved by the Construction Manager, to limit dust exposure to the building components (exposed concrete, windows, MEP piping and conduits, light fixtures, mechanical equipment, ductwork, etc.).
19. Subcontractor shall protect on a daily basis all stored materials and the tops of all walls under construction from moisture in order to minimize potential efflorescence of the block and mortar.
20. Subcontractor is responsible for all layout of masonry walls, bond beams, block walls, wall openings, door and window frames, masonry coursing and bonding, embeds within this scope of work, block outs, control joints, expansion joints, joint covers, windows, louvers, fire extinguisher cabinets, toilet accessories, etc. Construction Manager will provide building control lines for Subcontractor (one north-south line, one east-west line, and one benchmark elevation) on a per building basis only.
21. Subcontractor shall coordinate all installations under this agreement with the Mechanical, Electrical, Fire Protection and Plumbing Subcontractors and the Contract Documents to ensure their items are embedded, thru-wall conditions and/or blocked-out in accordance with the Contract Documents.
22. This contractor shall participate in BIM coordination with MPE trades to ensure all precast through masonry are installed within one quarter of an inch (¼") of modeled locations including bond beams. This subcontractor will be provided with BIM coordination access and drawings. Mason will participate in weekly BIM coordination calls.
23. Subcontractor will supply all incidental formwork and structural materials if required to support work under this agreement. This specifically includes materials and labor to install falsework for masonry cased openings, phased work requirements, expansion joint covers, door openings, window openings, louvers, in-set walls, recesses, arches, ductwork openings, door frames, etc. Subcontractor shall not use premanufactured CMU lintels unless submitted and approved by Architect.
24. All MEPF pipe sleeving shall be furnished by appropriate MEPF Subcontractor and installed by this Subcontractor. Layout of sleeving shall be by MEPF trades.
25. Exposed CMU will be "pointed up" and rubbed to accept specified finishes in accordance with Project Specifications, subsequent Subcontractors acceptance, and Architect's acceptance. Subcontractor shall "point" and rub all walls on an as-needed area determined by the Construction Manager in order to release subsequent trades to work (i.e. painting, ceiling grid, etc.).
26. When Masonry walls need to match the elevation of other structural members such as: roof trusses and glulam beams, for roof installation, this subcontractor shall coordinate

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elevation and contour of adjacent structure.

27. This subcontractor shall coordinate angle bracing for walls to structure above with MEP coordination drawings/model.
28. This Subcontractor is responsible for all costs associated with re-painting should such pointing and patching not be completed in accordance with Contract Documents and Architect's acceptance after said Subcontractor stated work had previously been completed.
29. Construction Manager's Electrical Subcontractor will provide OSHA required illumination only by natural or artificial means. This Subcontractor shall be responsible for providing additional task lighting above these requirements, if needed, to complete wall finishes.
30. Subcontractor shall provide all cutouts for toilet accessories, fire extinguisher cabinets, Knox boxes, door hardware, lockers, display cabinets, access panels, MEPF items, etc. Product data and layout information will be provided to the Subcontractor by the Construction Manager for items requiring cutouts and block outs.
31. Concrete Subcontractor will provide major cleaning of dirt off of footings prior to start of masonry on a one time only basis. If Subcontractor fails to begin installation of masonry on foundations at that time, and the said foundations require re-cleaning, this will become the responsibility of this Subcontractor. Minor cleaning (sweeping) of foundations will be performed by this Subcontractor. Subcontractor is responsible for all dewatering of excavations while performing work under this agreement at excavation locations.
32. Subcontractor will provide all pumping, dewatering, and de-mocking of their area that can collect water.
33. All masonry foundation stem walls shall terminate at elevation appropriate for Concrete Subcontractor to place concrete slab-on-grade prior to Subcontractor continuing walls vertical and without forming slab edges (stem walls shall extend to or above finish floor slabs). At the time of foundation stem wall installation, Subcontractor shall also extend support block to design location (below finish site grade) to receive block including concrete fill, insulation, etc. to avoid re- excavation of building foundations.
34. Hollow metal door and window frames which build into masonry walls will be furnished by others to Subcontractor as follows:
    a. Limited usage of HM frames will be utilized on this project. Where HM frames are required by code, they will be bolted frames. This subcontractor shall be responsible for the filling of these frames with grout.
32. Subcontractor agrees to let others utilize in-place scaffold after hours or without interfering with work under this agreement for the duration scaffolding is erected by this Subcontractor, provided indemnification and/or insurance certificates are provided to this Subcontractor from each Subcontractor utilizing scaffold.
33. All walls shall be braced if required per OSHA requirements.
34. Subcontractor shall allow time and provisions for Construction Manager, Owner and Architect to visually inspect all cavity wall and head flashings installed under this agreement

prior to concealment. Failure to obtain such inspections may require Subcontractor to expose concealed Work at no additional cost to Owner or Construction Manager.

35. All wall cavities shall be kept clean of all debris and mortar droppings. Subcontractor is responsible for cleaning all cavities as directed by Architect.
36. Pre-wetting of all masonry prior to installation is included per Contract Documents.
37. Subcontractor will refer to Construction Manager's approved window/curtainwall, hollow metal and louver shop drawings when determining the masonry opening block returns at openings to provide sufficient amount of returns to accommodate window/louver/door installations for anchorages and caulking without exposing cavity or requiring backing materials by others not shown on documents. All block returns shall be saw cut and true at all abutting masonry, concrete or metal stud assembly substrates.
38. Subcontractor shall coordinate block projections, returns, etc. to provide smooth block returns at overhead door openings receiving steel jamb plates, hollow metal door installations, louvers, window returns, etc.
39. Subcontractor is responsible for designating, furnishing, installing, maintaining and removing two safe entrances into buildings for others for the protection from overhead debris for the entire duration of performing any operations under this agreement. Safe entry shall have appropriate signage identifying safe entry and shall have safety fencing installed to direct pedestrian flow to safe entry and covered walkway if separation cannot be achieved from overhead work.
40. Subcontractor is responsible for ensuring all quality control inspection requirements outlined in the Contract Documents are adhered to throughout the Project. Subcontractor is responsible for notifying Construction Manager and governing agencies of all inspection request.
41. The following items including, but not limited to, are to be furnished and installed by Subcontractor complete:
    a. Masonry sand and aggregates.
    b. Masonry concrete fill/grout including vertical and horizontal cell fills, bond beams, vertical cells at hollow metal frames, CMU below finished floor, grouting of the hollow metal door and window frames, foundation block cavity, etc.
    c. All block and CMU expansion material, compressible fillers and control joint materials.
    d. Surface mounted wall to wall expansion joint covers and gaskets as shown on the drawings. (Addendum 2)
    e. Masonry joint reinforcing including ties, dovetail anchors, wire reinforcing, etc.
    f. CMU of all sizes, fire ratings and shapes indicated including if specified bullnose units, fire rated units, scored units, structural units, architectural units, weight classifications, etc.
    g. All masonry through wall flashing indicated is included. This shall include the furnishing and installation of through-wall flashing at window sill application locations that have masonry backup conditions. (Removed in Addendum ES02)
    h. Cleaning of all items installed under this scope.
    i. Cavity drain mat, nets, drip boards, weep vents, wicking material, etc. is included (Removed in Addendum ES02).

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j. Subcontractor shall provide all compressible fillers as required at the top of wall conditions.
k. All z-ties including sealing of penetrations of membrane flashings installed under this agreement.
l. All reinforcing steel (rebar) and bar positioners.

42. Furnishing, installing, maintaining and removal of all exposed rebar safety caps for dowels, etc. are included. Removal shall only occur under this agreement when concealed. Safety caps shall be installed on all exposed rebar installed under this agreement. Subcontractor is also responsible for the removal and placement of rebar caps installed by Concrete Subcontractor in a barrel(s) and turnover to Concrete Subcontractor.
43. Subcontractor is responsible for the cleanliness of all reinforcing steel prior to concrete/grout placement.
44. Subcontractor is responsible for the removal and disposal off-site of all extra reinforcing steel and shall not utilize Construction Manager's dumpster for such disposal.
45. The following items will be furnished only by the other trades for unloading, distribution, and installation by this Subcontractor:
    a. Loose masonry and block steel lintels (of all weights and lengths) set in or bearing onto masonry to include all associated anchor bolts.
    b. Embeds, bearing plates, and anchor bolts located within this work.
    c. Roofing related counter flashings required to be built-in block masonry.
    d. Non-formwork related sleeving requirements for PME Contractors built into work under this agreement.
    e. Structural steel masonry wall anchorage devices to columns, beams, slab edges, etc.
    f. Dowels from footings or foundation walls will be provided by Concrete Subcontractor to meet the spacing and minimum lap requirement starting at concrete placement only.
46. Subcontractor is responsible for providing a fall protection plan and engineered system signed and sealed by a licensed and registered Engineer in State of North Carolina. Subcontractor shall furnish and install a fall protection system to allow masonry worker to install masonry block at exposed areas. All systems shall be per OSHA guidelines in meeting a guardrail and tie-off system.
47. Subcontractor shall provide shop drawings indicating control joint locations as indicated on plans and not exceeding 30' of continuous wall length to verify layout, quantity, aesthetic locations, masonry coursing layout, lintel conditions and bearing, door/window openings, etc.
48. Daily reports shall provide actual daily block installations quantities and listing of total quantity of block installations to provide a percent complete on a per area basis.
49. Subcontractor is responsible for the engineering, layout, and installation/removal of temporary landing platforms required for material staging and trash removal. Subcontractor is responsible for furnishing, installing, maintaining and removing any safety railing requirements at these locations.
50. Subcontractor has reviewed the Drawings & Specification for this Project, has found no obvious omissions, and further agrees that the Work of this Agreement and the Project can

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be constructed within the milestone and completion dates without claims for delay or impact costs, unless substantial Owner directed Scope changes occur.

51. Subcontractor shall be responsible for vehicular and pedestrian traffic control while performing this scope of work.
52. Subcontractor is responsible to coordinate and schedule the installation of through wall metal flashing with the roofing subcontractor.
53. Subcontractor is responsible for reviewing the logistics plans for "leave out areas." Leave out areas will be used for stocking material to the second floor of the building. (Addendum 3)
54. This subcontractor must provide the BIM manager with electronic plans of all shop drawings. These plans will be used to create all coordination elevations requiring penetrations. Coordination with the BIM manager may be necessary. (Addendum 3)
55. All HM Frames in masonry construction are to be set by the Masonry Subcontractor and provided by others.
56. The following items including, but not limited to, are to be furnished and installed by Subcontractor complete:
    a. Block of all types, sizes, and special shapes indicated in the Contract Documents. Subcontractor is responsible for field cutting all special shaped blocks, lipped block, etc. from block selections. All mortar including admixtures, colors, etc. as required. Ensure all grout is properly consolidated to meet the requirements of the specifications and design.
    b. All Foamed-In-Place insulation and air barrier required for all exterior wall assemblies. Contractor should anticipate multiple mobilizations for this work.
    c. all Foamed in-place insulation and air barrier behind the metal wall panels.

G. DESCRIPTION OF SCOPE EXCLUSIONS

The following is a complete and exhaustive list of exclusions from the Scope of Work:

1. None

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BID PACKAGE #0510
STRUCTURAL STEEL
(SCOPE OF WORK)

The Scope of Work shall include the furnishing of a complete **STRUCTURAL STEEL**. This shall include, but is not limited to all required: labor, fabrication, engineering, submittals, shop drawings, materials, equipment, tools, supervision, hoisting, scaffolding, and transportation as required for a complete scope of work.

DESCRIPTION OF SCOPE INCLUSIONS

The following is a non-exhaustive list of inclusions and is not intended to limit the work in any way.

A. CONTRACT DOCUMENTS:

All work shall be performed in accordance with Contract Documents.

- All plans and specifications
- All scope of work requirements
- All contract requirements

B. BONDING REQUIRMENTS:

Each bidder quoting a sum greater than **$100,000** shall have a 10% Bid Bond accompanying their bid as well as a Payment and Performance Bond included in their price. Additionally, all Bonds required shall be furnished per the Subcontract Agreement provided in the Bid Manual. (Addendum 2)

C. SUBMITTAL REQUIREMENTS:

Collaborative File Sharing - Subcontractor shall be responsible for the uploading of all required submittals to a file sharing program (Procore). Notifications will be sent when submittals are reviewed. It is the subcontractor's responsibility to track the approval process and proceed as directed in the submittal by the due date stated in Procore.

Samples – Descriptions of samples shall be uploaded to the site for record purposes. "Hard" samples are still required per the plans/specifications.

At the time of submittals Subcontractor shall clearly identify to the Construction's Manager and Architect's attention, **any deviations from the Contract Documents**. This Subcontractor's responsibility to the Contract Documents is not relieved by the Architect or Construction Manager's review unless there is **written acceptance of the specific deviations**. Subcontractor is responsible for submitting and expediting approval of any submittal requirements through a jurisdictional agency, if applicable.

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Subcontractor is to deliver all required Reports and bid documents to Construction Manager within 14 calendar days from date of Notice of Award. NO payment shall be made to subcontractor without all subcontractors' documents submitted. Provide signed and sealed engineered shop drawings as specified by a licensed and registered Engineer.

Any required re-submittals, record submittals, and/or field drawings shall be forwarded to Construction Manager within seven (7) days of initial submittal return to Subcontractor. **Failure of this Subcontractor to submit correct or timely submittals does not relieve said Subcontractor of material delivery obligations in accordance with the Project Schedule.** Subcontractor shall allow a minimum of twenty-eight (28) calendar days of Construction Manager -Architect review duration. No material substitutions will be approved by Construction Manager unless Subcontractor can obtain Owner-Architect approval for such substitutions at no additional cost to Construction Manager and without delaying project schedule.

D. STANDARD SCOPE INCLUSIONS:

The items listed below are specifically included and are for clarification purposes only. They shall not be construed as a complete list of all work. It is the intent of this to clarify subcontract issues. If conflicts are discovered between this and the Subcontract General Terms, then the Subcontract General Terms shall govern.

1. Provide a full-time, competent, and English-speaking Superintendent onsite at all times while this subcontractor's work is being performed to coordinate the work of this project. The competent person on site must be OSHA 30 certified. Failure to provide a competent person on site will result in the CM not allowing the subcontractor to work on site.
2. Metcon intends to use GCPay which is a third party pay application service that simplifies the application for payment processes between Metcon and our subcontractors by automating the payment application process. At no cost to our subcontractors, GCPay provides an automated information exchange for lien waivers and all compliance documents. This platform saves time and improves subcontractor communication by keeping them informed throughout the process of potential issues needing immediate attention.
3. The subcontractor has reviewed specification SECTION 01 22 00 – UNIT PRICES. All required unit pricing for this scope of work has been acknowledged and included in the bid form.
4. The subcontractor has reviewed specification SECTION 01 23 00 – ALTERNATES. All required pricing for alternates for this scope of work has been acknowledged and included in the bid form. If alternates are selected, they are selected in their entirety. All documents have been fully evaluated for alternative work.
5. As required, the subcontractor shall design, provide, and engineer crane subsurface/pads in accordance with project specifications and load requirements. The subcontractor shall ensure that all crane operations are structurally sound at no additional cost to the CM.

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6. Verify all substrate conditions and notify the Construction Manager twenty-one (21) days prior to the start of work of any deficiencies in substrate prohibiting the start of work under this agreement.

7. All subcontractor employees must have access to a tablet with Procore access for use on this project. This tablet shall be an iPad Pro generation 3 or newer with cellular connectivity or comparable in specs and capabilities.

8. This subcontractor will not use or allow the building's drainage systems to clean debris or dispose of waste materials. If any drainage systems are clogged or obstructed by this subcontractor's materials, this subcontractor will reimburse the Contractor for the repair cost plus a mark-up.

9. This subcontractor is responsible for requesting any additional information, instructions and/or clarifications required to complete the work. The subcontractor will request such information from the Design team in writing as a Request for information (RFI) through the file-sharing program Procore. Requests for such information shall be made in advance to avoid any delay in the work.

10. This subcontractor is responsible for receiving, unloading, inventorying, storing, and coordinating this subcontractor's work. **All deliveries, hoisting, and storage of materials will be coordinated and scheduled with CM. Any deliveries not scheduled will not be allowed on site.** Material and equipment deliveries must be coordinated "just in time." Material and equipment storage on site must not exceed five (5) workdays. Once materials and/or equipment are moved inside the building, it must be installed within five (5) workdays. This subcontractor must utilize its own equipment to unload material.

11. This subcontractor is responsible for its own traffic control/flag man for any hauling operation in or out of the project site. All traffic control personnel shall be NCDOT certified. Reference the Logistics Plan indicating the crossing and use of active public roadways.

12. This subcontractor is responsible for erecting its own scaffolding, working platforms, material handling, storage, lifting & hoisting as required to perform the work under this scope.

13. This subcontractor is responsible for maintaining streets and parking lots in clean condition for their scope of work. Others will provide a wheel wash station near the site exit gate.

14. This subcontractor is responsible for all temporary safety measures to meet OSHA and Metcon's safety standards pertaining to your scope of work. See Exhibit J for more details.

15. The subcontractor has reviewed all drawings, documents, appendices, and specifications for this project and has found no obvious omissions and further agrees that the work of this agreement and the project can be constructed within the milestones and completion dates agreed upon without claims for delays or costs implications unless substantial Owner directed Scope changes occur.

16. Within **10** days of receipt of the contract, this subcontractor is required to issue a manpower count for each section/activity of their scope of work to meet the schedule requirements. Metcon will review and approve the proposed manpower counts before commencing this work. Metcon, Owner, Architect, & Consultants will constantly track the manpower for each activity to ensure compliance with the schedule and the forecasted status of the project, which will measure performance. If the subcontractor has low productivity/performance, resulting in

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schedule delays, this subcontractor will increase its manpower at Metcon's, Owner's, and/or Architect's request. Pay applications may be delayed until compliance has been satisfied.

17. In the event of inclement weather, this subcontractor is responsible for securing and protecting all their materials and work in place.
18. This subcontractor shall conduct pursuant to N.C. Gen. Stat. § 115C-332.1, an annual check of each of its employees, and contractual employees, consultants, agents, and other representatives on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry if such employee, subcontractor, agent, or other representative will be on the Project site or other school property as part of his or her job. The CM shall conduct this check on each of its employees, consultants, agents, and other representatives prior to permitting such employee, consultant, agent or other representative to enter the Project site or other school property to perform work under this agreement. For the Construction Manager's convenience only, all the required registry checks may be completed at no cost by accessing the United States Department of Justice Sex Offender Public Registry at http://www.nsopw.gov. No person shall be permitted to enter the Project site or other school property to perform work under this agreement if that person is listed on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.
19. This subcontractor must thoroughly examine all drawings to recognize and include elements within their area of responsibility. This subcontractor is required to review all project drawings and specs. This subcontractor will have an opportunity to ask questions about design intent before bidding; after the bid and award of the package, the subcontractor will utilize the most stringent design. The design utilized shall be in the best interest of the Owner.
20. Parking at and around the site will be limited. Please see the Logistics plan for more information.
21. The subcontractor shall only remove temporary construction fences, safety control devices, or sediment control devices with advanced approval from the construction manager. In the event that removal is required, the subcontractor shall reinstall it in the same condition or better.
22. This subcontractor will abide by local noise ordinances as required.
23. A weekly job site cleanup will occur. Each subcontractor must contribute one laborer per five onsite workers for four (4) hours, to be used at the Construction Manager's discretion.
24. All non-compliance items or punch lists brought to the subcontractor's attention in Procore must be corrected and "ready for review" within 5 working days of initiation by the Construction Manager.
25. All subcontractors will adhere to a work week consisting of five (5) days per week, ten (10) hour days, fifty-two (52) weeks per year, with standardized starting and quitting timed 7 am to 5:30 pm regardless of external influences (such as driving distance, subcontractor's company policies, or personal preference.) No subcontractor will be allowed to work a four (4) day work week.
26. Under no circumstances is the subcontractor permitted to work without a construction manager's representative on site.

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27. Protection of work in place: This subcontractor shall provide and maintain protection of all adjacent property and other subcontractor's work, materials, tools, and equipment from damage resulting from this subcontractor's activities. This subcontractor is responsible for the cost of repairing or replacing any items damaged by its employees, its lower-tier subcontractors, or its suppliers, including damage caused during stocking or hoisting.
28. In addition to any Owner site requirements, eating and drinking shall be prohibited within the building or as otherwise determined by the Construction Manager. Subcontractor violators will be removed from the project site. Smoking or other tobacco products will not be allowed on site. Anyone violating this policy will be removed from the site permanently.
29. No visitors shall be admitted to the job site by the subcontractor without first obtaining the approval of the Construction Manager and having completed the site-specific job site orientation. This subcontractor will confirm and/or provide all their visitors with the site-required personal protection equipment.
30. No photographs or videos (including drone videos) of the project may be taken without the construction manager's and owner's prior approval. All persons approved to take photographs/videos must attend training and will be provided with credentials.
31. All schedules of values shall be uploaded to GC Pay within ten (10) days of the letter of intent being awarded. All subcontractors ' SOVs shall include the following standard items: mobilization, submittals, weekly composite cleanup, punch list, and project closeout. The schedule of values approval by the construction manager shall be followed before this subcontractor's first pay application. The construction manager requires a minimum of twenty (20) days to review the schedule of values.
32. Attached to the Bid manual is a sample of Metcon's standard contract. This subcontractor is required to review and accept it in its entirety.
33. Weekend work might be necessary to meet the project schedule, which must be coordinated with the Construction Manager if required. The construction manager will not allow weekend work if the subcontractors are not already working the full number of job site hours with full crews. This means that if you are working less than Monday through Friday, 7 am -5:30 pm, the site will not be open on the weekend unless excusable inclement weather determined by the CM occurs during the week. There will be no issue with opening the site as much as necessary to facilitate subcontractors who are trying to meet the scheduled responsibilities by working the total amount of open hours.
34. Include all necessary mobilizations required to complete this scope of work.
35. The construction manager reserves the right to add a fifteen (15) percent mark-up to all back charges that the construction manager facilitates. If back charges are resolved without the involvement of the Construction Manager, no mark-up will be applied.
36. Time and Material tickets must be approved by the Construction Manager's superintendent within 24 hours of work commencing. Invoices associated with time and material tickets must be submitted to the Construction Manager's Project Manager within thirty (30) days of work commencing. All invoices must reference a "CE number" assigned by the CM. Invoices not referencing a "CE number" will be returned and not processed.
37. Pull planning will be implemented on this project. The weekly "Plan Percent Complete Report" will be sent to the subcontractor's representative to provide tangible value to the subcontractor's

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progress. The subcontractor is required to use the pull planning process to identify all constraints that may impede their progress. Constraints not identified and documented within a reasonable time for rectification will not be considered valid reasons for schedule adjustments. The subcontractor is expected to follow the Pull Plan Schedule, which should enhance and supersede the contract schedule.

38. All required site safety documentation must be submitted in Procore 30 days after issuing the letter of intent. This is to include the following:
    a. Executed the partnership form for the subcontractor safety and health incident prevention program.
    b. Subcontractors' specific site job hazard analysis (JHA), detailing your scope of work, the hazards associated with each task, and how they will be abated.
    c. Trades whose work scope includes steel erection, pre-cast, demo, and roofing shall provide a written site safety plan.
    d. Provide OSHA 300 & 300A logs for the last three years.
    e. A written hazard communication program safety data sheet (SDS)
    f. A written safety plan for the revised silica dust respiratory plan (if applicable) is needed.
    g. A written ground fault protection program.
    h. Exhibit J3 returned with pages initialed.
    i. All site-specific personnel documentation will be required to be submitted two weeks before this scope of work begins.
    j. Failure to comply with this documentation will result in a delayed start in this subcontractor's mobilization. This may include withholding mobilization costs in pay applications until this subcontractor complies. No additional cost or time will be considered due to any acceleration required. (Addendum 2)
39. Survey points will be provided for general locational purposes. These will not be given in every single room. To complete this work scope, each subcontractor must transfer the general area survey points accurately as needed. The location of these general survey points is at the discretion of the Construction Manager. (Addendum 2)
40. The construction manager has the authority to recommend withholding pay applications from any subcontractor due to poor work quality. If this situation arises, the subcontractor will be notified in writing (72 hours' notice) that their work quality is unsatisfactory and requires remediation. The subcontractor must then submit a written remediation plan detailing how they will improve the quality of their work. Once the plan has been implemented and the work quality has been improved, the subcontractor may resubmit their pay application for the owner's approval. Any active unresolved 72-hour notices may result in the CM withholding the pay application for this subcontractor. (Addendum 2)
41. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.

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a. The construction manager can provide equipment and a robotic total station operator for $175/hr with at least 48hr notice. A competent layout representative from this subcontractor must accompany the layout crew.
b. Failure to use the robotic total station will result in a stop work order with no added time to the schedule until the subcontractor complies. No added cost associated with acceleration will be accepted.
c. This subcontractor shall be solely responsible for the correct layout, which cannot be delegated or assigned.

42. Please see the table below for all required meetings.
    a. Without exception, this Subcontractor's Project Manager and/or Superintendent must attend the weekly coordination/subcontractor meetings in person two weeks before starting work and while performing the scope of work.
    b. This subcontractor is required to participate in pull planning sessions actively. These sessions are in-person and onsite, with no exceptions. These will occur every 4-6 weeks at the CM discretion. Each day, the progress will be reviewed in the "Daily Forman's Huddle".
    c. Failure to have the proper representative at any onsite meeting will constitute a safety violation of "competent person not on site.". Refer to Exhibit J for more information.

Meeting Titles	Frequency	Who is required to attend	Location
Pre-install	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Safe Start	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Daily Foreman Huddle	Daily	Superintendent & Forman's	Onsite - CM Trailer
Weekly Coordination	Weekly	Superintendent &/or Project Manager	Onsite - CM Trailer
Pull Plan Initial	As required	Superintendent &/or Project Manager	Remote/Teams
Pull Plan Session	Monthly	Superintendent &/or Project Manager	Onsite - CM Trailer
Jobsite Safety Standdown	Weekly	Everyone onsite	Onsite - CM Trailer
BIM Coordination	Weekly	MEP Trades BIM Managers	Remote/Teams

E. SCOPE OF WORK SPECIFICATIONS

The following outlines the scope of work specifications sections relevant to the work to be performed. This list represents the core specifications that will guide the tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional specifications and related sections that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. **05 12 00-STRUCTURAL STEEL**
2. **05 21 00-STEEL JOISTS**
3. **05 31 00-STEEL DECK**
4. **05 50 00-METAL FABRICATIONS**
5. **05 51 00-METAL STAIRS**
6. **05 52 00-METAL RAILINGS**
7. **07 72 33-ROOF HATCHES**

F. PROJECT SPECIFIC SCOPE REQUIREMENTS:

The following outlines the project-specific scope requirements of the work to be performed. This list represents the core tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional tasks and responsibilities that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. This subcontractor has inspected the site and is familiar with access, egress, staging, hoisting requirements, restraints, etc.

2. Perimeter safety tie-off cabling system including maintenance of same for duration of subcontractor's activities.

3. This subcontractor shall be responsible for coordinating all deliveries with the CM for truck loading, unloading, sequencing, delivery frequency, etc. This subcontractor shall assume multiple mobilizations during the work on this project.

4. This subcontractor shall be responsible for the erection of all structural steel, stairs, miscellaneous steel, etc.

5. **All Project Stairs must be expedited.** Once each stairwell opening is completed, field measurements are to commence immediately. Stairs are to be erected no later than 4 weeks after the stairwell openings are turned over for field measurements.

6. This subcontractor is responsible for furnishing, installation, and removal of all necessary temporary safety brackets, safety cables and fall protection devices for an OSHA approved erection of steel under this agreement. Subcontractor shall provide Construction Manager with copies of Subcontractor's fall protection plan, hoisting and rigging plan, crane(s) annual inspection and recent 3rd party inspection, safety policies, etc. prior to starting work.

7. This subcontractor has included all falsework, scaffolding, engineering, temporary shoring and bracing, support members, erection angles, cables, loose hardware, embeds, welding, drilling, and anchors necessary to support framing members during erection. Any and all patchwork required, as a result of temporary systems utilized, which is associated with the erection of this Scope of Work shall be the responsibility of this Subcontractor.

8. This subcontractor shall be responsible for providing safe access for the testing agency and Engineer of Record to the Work being fabricated, stored, or erected so that required inspection and testing may be accomplished. It is understood and agreed that any Work under this Scope found to be in non-compliance shall be corrected and re-tested at no cost to the Construction Manager and/or Owner.

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9. This subcontractor shall include certified welders as required and provide credentials prior to start of work.

10. This subcontractor will provide weld shields and fire blankets to protect surrounding finishes and visual harm to others.

11. This subcontractor shall utilize gas or diesel operated welding machines required for the Work under this Agreement. It is understood and agreed that temporary power will not be available onsite for welding operations.

12. This subcontractor shall be responsible for the cleaning of all welding slag, etc. from field welded connections and the touch up of primer paint and/or touch up galvanizing of these connections as well as bolted connections, and any abraded areas of shop paint.

~~13. Field painting of all unpainted bolts, nuts, etc. shall be performed after Engineer of Record and Testing Agency inspection.~~ (Addendum 3)

14. Furnish, install, properly secure/anchor and label temporary protections (use of plywood/handrails) over all floor and roof openings. These protections will be clearly identified and removed by others.

15. This subcontractor shall be responsible for the coordination with the Work of other trades as to prevent rework, damages, or delays.

16. Any drilling or core drilling of concrete and masonry to complete this Scope is included, especially installation of expansion and epoxy anchors is included. All cleaning and patching of spalled areas due to drilling and coring is the responsibility of this This subcontractor.

17. This subcontractor shall review both Architectural and Structural Drawings in conjunction with approved Fabricator Shop Drawings for conflicts in configuration and placement of building perimeter angles, slab edge dimensions, stair and openings, architectural feature openings, etc.

18. This subcontractor shall review Mechanical, Electrical, and Plumbing Drawings in conjunction with the Architectural and Structural Drawings for all miscellaneous structural framing and blockouts for beam penetrations, roof openings, floor openings, equipment loads, equipment locations, etc. This subcontractor acknowledges this MEP information must be coordinated with others and said layout information may not be available or provided to This subcontractor during initial fabrication/erection shop drawing preparation. This subcontractor will interpret Contract Drawings for coordination information during shop drawing preparation and identify such requested information via “clouding”. All requested information shall be obtained during shop drawing approval and this Subcontractor shall make all final corrections prior to fabrication incorporating all coordinated information at no additional cost to Construction Manager.

19. Any deviations, changes, and/or discrepancies differentiating the shop drawings from the Contract Documents shall be **clouded and clearly marked** requesting the Architect's/Engineer's and the Construction Manager's approval.

20. This subcontractor is responsible for cutting all holes in assemblies installed under this agreement. Holes for roof penetration shall be coordinated with roof curb and handrail installations to maintain a safe work environment.

21. All required layout is included to perform this subcontractor's work. Construction Manager will provide horizontal benchmarks and vertical control lines. This subcontractor is responsible for transferring grade to all anchor bolts from benchmark, and adjust with nuts, washers, etc. to maintain a plumb and level installation, and erecting steel measured from the control lines.

22. This subcontractor shall notify Construction Manager of any, and all, required repairs, noncompliance items, mis-fabricated items, etc. due to fabrication or detailing errors so Construction Manager can properly and timely notify Engineer of Record for recommendations and repair approvals.

23. This subcontractor shall submit to the Construction Manager all welders' certificates and crane inspection certifications ten (10) days prior to starting work. All certifications and inspections shall be current in accordance with OSHA, the Contract Documents and Metcon's safety policies.

24. This subcontractor shall perform surface preparation, shop painting and hot dipped galvanizing of materials supplied under this agreement per each specific specification section. This subcontractor is responsible for ensuring prime painting material is compatible with the finish painting of exposed steel in accordance with specifications.

25. This subcontractor shall coordinate galvanizing / prime painting / non-painting of structural and metal deck with the fireproofing Subcontractor prior to submitting fabrication shop drawings for review.

26. Verify which components furnished under this agreement will have field applied fireproofing by others and will require adhesion considerations under this agreement.

27. This subcontractor is responsible for cleaning steel upon completion of the installation. Cleaning shall include the removal of oils, grease, dirt, etc. associated with the storage, handling, or erection of the materials provided under this agreement.

28. Provide pre-drilled holes in specified steel, as necessary, for attachment of work by others including holes for wood blocking bolts, holes in embeds for anchoring to formwork, etc.

29. This subcontractor is responsible for the separation of all dissimilar materials.

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30. Provide signed and sealed engineered shop drawings by a registered and licensed Engineer in State of North Carolina as indicated in Contract Documents.

31. The following items shall be ***furnished and installed*** by This subcontractor including all layout, hoisting, scaffolding, unloading, bolts, expansion anchors, drilling, connection details and materials, welding, painting, and galvanizing, etc.:

    a. All building structural support columns, beams, bent plates, base plates, kickers, joist system, bracing, moment connections, shimming materials, beam seats, stiffener plates, cap plates, decking, etc.
    b. All structural steel columns, beams, and connections.
    c. All support frames and decking at infill areas.
    d. All roof decking, and provide the decking insulation to be installed by others. (Addendum 3)
    e. All miscellaneous steel clips, angles, and frames.
    f. All steel ladders including roof hatch access ladders.
    g. All galvanized steel ladders as indicated for upper roof access.
    h. All mechanical room ladders as indicated in the contract documents.
    i. All neoprene bearing pads (if any), weld plates, welding, moment connections, etc.
    j. All required field connectors and erection bolts including epoxy and expansion bolt type anchors for masonry/concrete conditions to complete erection of work required under this agreement.
    k. All base plate, shim materials and leveling nuts, etc.
    l. All metal roof truss non-gauged structural steel bracing.
    m. All required framing around roof openings, curtain wall, sky lights, etc. Coordination with other trades for opening sizes is included.
    n. This subcontractor shall paint all steel below grade with asphalt paint.
    o. All building interior and exterior handrails, guardrails, and stairs, including pickets.
    p. Perimeter safety cabling system including maintenance of same for duration of subcontractor's activities; safety cabling to be removed by others. Provide safety cable plan to CM for review. Include Top and Mid-rail cables
    q. All steel that is required for roof edge blocking.

31. The following items shall be ***furnished only*** to Construction Manager by This subcontractor including furnishing of all required bolts, expansion anchors, sleeves, connection details and materials, etc.:

    a. Column or beam anchor bolts embedded in concrete or masonry.
    b. All bearing plates required for structural steel and/or joist system.
    c. All sleeves for any items under this agreement to be cast into concrete (sleeves for rails).
    d. Embed plates at concrete or masonry for steel beam connections, metal roof deck, Roof edge blocking support, etc.
    e. Loose masonry steel lintels for masonry and brick veneer.
    f. All steel bollards

32. This subcontractor shall provide all perimeter and opening barricades (two-line 1/2" wire rope/cable) and edge angle toe boards all floors and roof as required by the authority having jurisdiction for safety. Provide intermediate posts at a minimum of 10' O.C. Provide

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turnbuckles for removable areas for staging materials as directed by Construction Manager (CM). Install barricades and edge angle toe boards immediately upon the creation of the opening or edge condition. Maintain barricades throughout the duration of this scope of work and/or as directed by CM. Wooden toe boards will be installed and maintained by others upon completion of concrete slab fill.

33. A hoisting plan will be required for approval by CM

34. All notations on contract documents relating to STRUCTURAL AND MISCELLANEOUS STEEL referenced as "by General Construction Manager" or by "Construction Manager" shall be assumed to be included in this agreement by this subcontractor.

35. Provide an allowance of **$25,000** to cover all miscellaneous steel resulting from coordination with all other subcontractors. All savings will be deducted as a change order back to the Construction Manager at the end of the project.

36. This subcontractor has reviewed the Drawings & Specification for this Project. This subcontractor has found no obvious omissions and further agrees that the Work of this Agreement and the Project can be constructed within the milestone and completion dates without claims for delay or impact costs, unless substantial Owner directed Scope changes occur.

37. This subcontractor to supply and install all decking on light gauge trusses.

38. This subcontractor is to supply and install all welded bearing pads per details.

39. ~~**This subcontractor is responsible for all Steel to Storefront attachments. This is to include all seats, angles, bolts, saddles, clips, etc.**~~ **(Addendum 3)**

40. If guaranteed dimensions are required, each subcontractor shall be responsible to provide templates with durability to withstand installation. Each template shall have layout dimensions if it is to be installed by another trade. Each subcontractor is responsible for confirming the accuracy of each template installed immediately before and after placement

G. DESCRIPTION OF SCOPE EXCLUSIONS

The following is a complete and exhaustive list of exclusions from the Scope of Work:

1. Testing (by Owner). All retesting costs are the responsibility of this Subcontractor.
2. Grouting under column base plates (by Concrete Subcontractor)
3. Metal studs, slip connection and deflection tracks (by Drywall Subcontractor)

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4. Roof hatches (by Roofing Sub).

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BID PACKAGE #0750
TURNKEY ROOFING
(SCOPE OF WORK)

The Scope of Work shall include the furnishing of a complete **TURNKEY ROOFING PACKAGE**. This shall include, but is not limited to all required: labor, fabrication, engineering, submittals, shop drawings, materials, equipment, tools, supervision, hoisting, scaffolding, and transportation as required for a complete scope of work.

DESCRIPTION OF SCOPE INCLUSIONS

The following is a non-exhaustive list of inclusions and is not intended to limit the work in any way.

A. CONTRACT DOCUMENTS:

All work shall be performed in accordance with Contract Documents.

- All plans and specifications
- All scope of work requirements
- All contract requirements

B. BONDING REQUIRMENTS:

Each bidder quoting a sum greater than **$100,000** shall have a 10% Bid Bond accompanying their bid as well as a Payment and Performance Bond included in their price. Additionally, all Bonds required shall be furnished per the Subcontract Agreement provided in the Bid Manual. (Addendum 2)

C. SUBMITTAL REQUIREMENTS:

Collaborative File Sharing - Subcontractor shall be responsible for the uploading of all required submittals to a file sharing program (Procore). Notifications will be sent when submittals are reviewed. It is the subcontractor's responsibility to track the approval process and proceed as directed in the submittal by the due date stated in Procore.

Samples – Descriptions of samples shall be uploaded to the site for record purposes. "Hard" samples are still required per the plans/specifications.

At the time of submittals Subcontractor shall clearly identify to the Construction's Manager and Architect's attention, **any deviations from the Contract Documents**. This Subcontractor's responsibility to the Contract Documents is not relieved by the Architect or Construction Manager's review unless there is **written acceptance of the specific deviations**. Subcontractor is responsible for submitting and expediting approval of any submittal requirements through a jurisdictional agency, if applicable.

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Subcontractor is to deliver all required Reports and bid documents to Construction Manager within 14 calendar days from date of Notice of Award. NO payment shall be made to subcontractor without all subcontractors' documents submitted. Provide signed and sealed engineered shop drawings as specified by a licensed and registered Engineer.

Any required re-submittals, record submittals, and/or field drawings shall be forwarded to Construction Manager within seven (7) days of initial submittal return to Subcontractor. **Failure of this Subcontractor to submit correct or timely submittals does not relieve said Subcontractor of material delivery obligations in accordance with the Project Schedule.** Subcontractor shall allow a minimum of twenty-eight (28) calendar days of Construction Manager -Architect review duration. No material substitutions will be approved by Construction Manager unless Subcontractor can obtain Owner-Architect approval for such substitutions at no additional cost to Construction Manager and without delaying project schedule.

D. STANDARD SCOPE INCLUSIONS:

The items listed below are specifically included and are for clarification purposes only. They shall not be construed as a complete list of all work. It is the intent of this to clarify subcontract issues. If conflicts are discovered between this and the Subcontract General Terms, then the Subcontract General Terms shall govern.

1. Provide a full-time, competent, and English-speaking Superintendent onsite at all times while this subcontractor's work is being performed to coordinate the work of this project. The competent person on site must be OSHA 30 certified. Failure to provide a competent person on site will result in the CM not allowing the subcontractor to work on site.
2. Metcon intends to use GCPay which is a third party pay application service that simplifies the application for payment processes between Metcon and our subcontractors by automating the payment application process. At no cost to our subcontractors, GCPay provides an automated information exchange for lien waivers and all compliance documents. This platform saves time and improves subcontractor communication by keeping them informed throughout the process of potential issues needing immediate attention.
3. The subcontractor has reviewed specification SECTION 01 22 00 – UNIT PRICES. All required unit pricing for this scope of work has been acknowledged and included in the bid form.
4. The subcontractor has reviewed specification SECTION 01 23 00 – ALTERNATES. All required pricing for alternates for this scope of work has been acknowledged and included in the bid form. If alternates are selected, they are selected in their entirety. All documents have been fully evaluated for alternative work.
5. As required, the subcontractor shall design, provide, and engineer crane subsurface/pads in accordance with project specifications and load requirements. The subcontractor shall ensure that all crane operations are structurally sound at no additional cost to the CM.
6. Verify all substrate conditions and notify the Construction Manager twenty-one (21) days prior to the start of work of any deficiencies in substrate prohibiting the start of work under this agreement.

7. All subcontractor employees must have access to a tablet with Procore access for use on this project. This tablet shall be an iPad Pro generation 3 or newer with cellular connectivity or comparable in specs and capabilities.
8. This subcontractor will not use or allow the building's drainage systems to clean debris or dispose of waste materials. If any drainage systems are clogged or obstructed by this subcontractor's materials, this subcontractor will reimburse the Contractor for the repair cost plus a mark-up.
9. This subcontractor is responsible for requesting any additional information, instructions and/or clarifications required to complete the work. The subcontractor will request such information from the Design team in writing as a Request for information (RFI) through the file-sharing program Procore. Requests for such information shall be made in advance to avoid any delay in the work.
10. This subcontractor is responsible for receiving, unloading, inventorying, storing, and coordinating this subcontractor's work. **All deliveries, hoisting, and storage of materials will be coordinated and scheduled with CM. Any deliveries not scheduled will not be allowed on site.** Material and equipment deliveries must be coordinated "just in time." Material and equipment storage on site must not exceed five (5) workdays. Once materials and/or equipment are moved inside the building, it must be installed within five (5) workdays. This subcontractor must utilize its own equipment to unload material.
11. This subcontractor is responsible for its own traffic control/flag man for any hauling operation in or out of the project site. All traffic control personnel shall be NCDOT certified. Reference the Logistics Plan indicating the crossing and use of active public roadways.
12. This subcontractor is responsible for erecting its own scaffolding, working platforms, material handling, storage, lifting & hoisting as required to perform the work under this scope.
13. This subcontractor is responsible for maintaining streets and parking lots in clean condition for their scope of work. Others will provide a wheel wash station near the site exit gate.
14. This subcontractor is responsible for all temporary safety measures to meet OSHA and Metcon's safety standards pertaining to your scope of work. See Exhibit J for more details.
15. The subcontractor has reviewed all drawings, documents, appendices, and specifications for this project and has found no obvious omissions and further agrees that the work of this agreement and the project can be constructed within the milestones and completion dates agreed upon without claims for delays or costs implications unless substantial Owner directed Scope changes occur.
16. Within **10** days of receipt of the contract, this subcontractor is required to issue a manpower count for each section/activity of their scope of work to meet the schedule requirements. Metcon will review and approve the proposed manpower counts before commencing this work. Metcon, Owner, Architect, & Consultants will constantly track the manpower for each activity to ensure compliance with the schedule and the forecasted status of the project, which will measure performance. If the subcontractor has low productivity/performance, resulting in schedule delays, this subcontractor will increase its manpower at Metcon's, Owner's, and/or Architect's request. Pay applications may be delayed until compliance has been satisfied.
17. In the event of inclement weather, this subcontractor is responsible for securing and protecting all their materials and work in place.

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18. This subcontractor shall conduct pursuant to N.C. Gen. Stat. § 115C-332.1, an annual check of each of its employees, and contractual employees, consultants, agents, and other representatives on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry if such employee, subcontractor, agent, or other representative will be on the Project site or other school property as part of his or her job. The CM shall conduct this check on each of its employees, consultants, agents, and other representatives prior to permitting such employee, consultant, agent or other representative to enter the Project site or other school property to perform work under this agreement. For the Construction Manager's convenience only, all the required registry checks may be completed at no cost by accessing the United States Department of Justice Sex Offender Public Registry at http://www.nsopw.gov. No person shall be permitted to enter the Project site or other school property to perform work under this agreement if that person is listed on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.
19. This subcontractor must thoroughly examine all drawings to recognize and include elements within their area of responsibility. This subcontractor is required to review all project drawings and specs. This subcontractor will have an opportunity to ask questions about design intent before bidding; after the bid and award of the package, the subcontractor will utilize the most stringent design. The design utilized shall be in the best interest of the Owner.
20. Parking at and around the site will be limited. Please see the Logistics plan for more information.
21. The subcontractor shall only remove temporary construction fences, safety control devices, or sediment control devices with advanced approval from the construction manager. In the event that removal is required, the subcontractor shall reinstall it in the same condition or better.
22. This subcontractor will abide by local noise ordinances as required.
23. A weekly job site cleanup will occur. Each subcontractor must contribute one laborer per five onsite workers for four (4) hours, to be used at the Construction Manager's discretion.
24. All non-compliance items or punch lists brought to the subcontractor's attention in Procore must be corrected and "ready for review" within 5 working days of initiation by the Construction Manager.
25. All subcontractors will adhere to a work week consisting of five (5) days per week, ten (10) hour days, fifty-two (52) weeks per year, with standardized starting and quitting timed 7 am to 5:30 pm regardless of external influences (such as driving distance, subcontractor's company policies, or personal preference.) No subcontractor will be allowed to work a four (4) day work week.
26. Under no circumstances is the subcontractor permitted to work without a construction manager's representative on site.
27. Protection of work in place: This subcontractor shall provide and maintain protection of all adjacent property and other subcontractor's work, materials, tools, and equipment from damage resulting from this subcontractor's activities. This subcontractor is responsible for the cost of repairing or replacing any items damaged by its employees, its lower-tier subcontractors, or its suppliers, including damage caused during stocking or hoisting.

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28. In addition to any Owner site requirements, eating and drinking shall be prohibited within the building or as otherwise determined by the Construction Manager. Subcontractor violators will be removed from the project site. Smoking or other tobacco products will not be allowed on site. Anyone violating this policy will be removed from the site permanently.
29. No visitors shall be admitted to the job site by the subcontractor without first obtaining the approval of the Construction Manager and having completed the site-specific job site orientation. This subcontractor will confirm and/or provide all their visitors with the site-required personal protection equipment.
30. No photographs or videos (including drone videos) of the project may be taken without the construction manager's and owner's prior approval. All persons approved to take photographs/videos must attend training and will be provided with credentials.
31. All schedules of values shall be uploaded to GC Pay within ten (10) days of the letter of intent being awarded. All subcontractors ' SOVs shall include the following standard items: mobilization, submittals, weekly composite cleanup, punch list, and project closeout. The schedule of values approval by the construction manager shall be followed before this subcontractor's first pay application. The construction manager requires a minimum of twenty (20) days to review the schedule of values.
32. Attached to the Bid manual is a sample of Metcon's standard contract. This subcontractor is required to review and accept it in its entirety.
33. Weekend work might be necessary to meet the project schedule, which must be coordinated with the Construction Manager if required. The construction manager will not allow weekend work if the subcontractors are not already working the full number of job site hours with full crews. This means that if you are working less than Monday through Friday, 7 am -5:30 pm, the site will not be open on the weekend unless excusable inclement weather determined by the CM occurs during the week. There will be no issue with opening the site as much as necessary to facilitate subcontractors who are trying to meet the scheduled responsibilities by working the total amount of open hours.
34. Include all necessary mobilizations required to complete this scope of work.
35. The construction manager reserves the right to add a fifteen (15) percent mark-up to all back charges that the construction manager facilitates. If back charges are resolved without the involvement of the Construction Manager, no mark-up will be applied.
36. Time and Material tickets must be approved by the Construction Manager's superintendent within 24 hours of work commencing. Invoices associated with time and material tickets must be submitted to the Construction Manager's Project Manager within thirty (30) days of work commencing. All invoices must reference a "CE number" assigned by the CM. Invoices not referencing a "CE number" will be returned and not processed.
37. Pull planning will be implemented on this project. The weekly "Plan Percent Complete Report" will be sent to the subcontractor's representative to provide tangible value to the subcontractor's progress. The subcontractor is required to use the pull planning process to identify all constraints that may impede their progress. Constraints not identified and documented within a reasonable time for rectification will not be considered valid reasons for schedule adjustments. The subcontractor is expected to follow the Pull Plan Schedule, which should enhance and supersede the contract schedule.

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38. All required site safety documentation must be submitted in Procore 30 days after issuing the letter of intent. This is to include the following:
    a. Executed the partnership form for the subcontractor safety and health incident prevention program.
    b. Subcontractors' specific site job hazard analysis (JHA), detailing your scope of work, the hazards associated with each task, and how they will be abated.
    c. Trades whose work scope includes steel erection, pre-cast, demo, and roofing shall provide a written site safety plan.
    d. Provide OSHA 300 & 300A logs for the last three years.
    e. A written hazard communication program safety data sheet (SDS)
    f. A written safety plan for the revised silica dust respiratory plan (if applicable) is needed.
    g. A written ground fault protection program.
    h. Exhibit J3 returned with pages initialed.
    i. All site-specific personnel documentation will be required to be submitted two weeks before this scope of work begins.
    j. Failure to comply with this documentation will result in a delayed start in this subcontractor's mobilization. This may include withholding mobilization costs in pay applications until this subcontractor complies. No additional cost or time will be considered due to any acceleration required. (Addendum 2)
39. Survey points will be provided for general locational purposes. These will not be given in every single room. To complete this work scope, each subcontractor must transfer the general area survey points accurately as needed. The location of these general survey points is at the discretion of the Construction Manager. (Addendum 2)
40. The construction manager has the authority to recommend withholding pay applications from any subcontractor due to poor work quality. If this situation arises, the subcontractor will be notified in writing (72 hours' notice) that their work quality is unsatisfactory and requires remediation. The subcontractor must then submit a written remediation plan detailing how they will improve the quality of their work. Once the plan has been implemented and the work quality has been improved, the subcontractor may resubmit their pay application for the owner's approval. Any active unresolved 72-hour notices may result in the CM withholding the pay application for this subcontractor. (Addendum 2)
41. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.
    a. The construction manager can provide equipment and a robotic total station operator for $175/hr with at least 48hr notice. A competent layout representative from this subcontractor must accompany the layout crew.
    b. Failure to use the robotic total station will result in a stop work order with no added time to the schedule until the subcontractor complies. No added cost associated with acceleration will be accepted.
    c. This subcontractor shall be solely responsible for the correct layout, which cannot be delegated or assigned.

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42. Please see the table below for all required meetings.
    a. Without exception, this Subcontractor's Project Manager and/or Superintendent must attend the weekly coordination/subcontractor meetings in person two weeks before starting work and while performing the scope of work.
    b. This subcontractor is required to participate in pull planning sessions actively. These sessions are in-person and onsite, with no exceptions. These will occur every 4-6 weeks at the CM discretion. Each day, the progress will be reviewed in the "Daily Forman's Huddle".
    c. Failure to have the proper representative at any onsite meeting will constitute a safety violation of "competent person not on site.". Refer to Exhibit J for more information.

Meeting Titles	Frequency	Who is required to attend	Location
Pre-install	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Safe Start	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Daily Foreman Huddle	Daily	Superintendent & Forman's	Onsite - CM Trailer
Weekly Coordination	Weekly	Superintendent &/or Project Manager	Onsite - CM Trailer
Pull Plan Initial	As required	Superintendent &/or Project Manager	Remote/Teams
Pull Plan Session	Monthly	Superintendent &/or Project Manager	Onsite - CM Trailer
Jobsite Safety Standdown	Weekly	Everyone onsite	Onsite - CM Trailer
BIM Coordination	Weekly	MEP Trades BIM Managers	Remote/Teams

E. SCOPE OF WORK SPECIFICATIONS

The following outlines the scope of work specifications sections relevant to the work to be performed. This list represents the core specifications that will guide the tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional specifications and related sections that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. **SECTION 07 22 16 - ROOF INSULATION**
2. **SECTION 07 52 16 - MODIFIED BITUMEN ROOFING –** Alternate #9
3. **SECTION 07 54 23 - THERMOPLASTIC-POLYOLEFIN ROOFING**
4. **SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM**
5. **SECTION 07 72 00 - ROOF ACCESSORIES**

F. PROJECT SPECIFIC SCOPE REQUIREMENTS:

The following outlines the project-specific scope requirements of the work to be performed. This list represents the core tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional tasks and responsibilities that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. Subcontractor Provide all required gutters and downspouts.

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2. All downspouts that connect to in ground piping require a decorative shroud around the point of interconnection.
    a. Shroud/cover shall be removable.
    b. Made out of sheet metal with riveted or welded corners.
    c. Color to match downspouts.
3. The subcontractor will provide walk off mats as shown on plans and supply material specified in the specifications.
4. The subcontractor will ~~provide and~~ install the acoustical insulation. The roofer is responsible for placing the insulation in the metal decking and ensuring it remains free from moisture until the roofing system is complete. (Addendum 3)
5. Includes all metal bands and associated wood blocking.
6. The subcontractor will supply all flashing around roof hatches as indicated in plans and specifications.
7. All Field measurements and verification are included. The subcontractor shall notify the Construction Manager, in writing, at least seven (7) days before equipment installation, of any field discrepancies found during field measurement.
8. Subcontractor acknowledges that not all roofing systems and components are shown on the Drawings and that Subcontractor has allowed and will supply a sufficient roofing system to meet the intent of the Contract Documents and manufacturer's recommendations. The subcontractor is responsible for all costs associated with modifying Contract Drawing details relating to this agreement.
    a. Changes to waterproofing details such as through wall flashing and other related items shall be covered to ensure the intent of the drawings is covered as mentioned in the above statement.
9. Changes to waterproofing details such as through wall flashing and other related items shall be covered to ensure the intent of the drawings is covered as mentioned in the above statement.
10. The subcontractor is responsible for cleaning and or protecting all surrounding finished installations from work performed under this agreement to prevent damage.
11. Provide all OSHA required fall protection systems and maintain through the end of the project for shared usage with all other trades as needed. Include fall protection systems capable of securing up to 20 other tradesmen.
    a. Harness and PPE are to be provided by each subcontractor.
12. Subcontractor is responsible for all furring, blocking, cants, backing or any other manufacturer requirement that are not indicated on contract documents to provide a complete and warrantable system.
13. All components and assemblies installed under this agreement shall meet any specified fire rating requirements indicated on the Contract Documents from the substrate provided by others.
14. All systems, flashings, accessories, etc. furnished under this agreement shall be prefinished in accordance with contract documents to match Architect's approved samples in color, pattern, texture, etc.

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15. Subcontractor is responsible for protecting all on-site stored materials including any materials supplied by other contractors for this subcontractor to install.
16. Daily cleanup of debris is included. General Construction Manager shall provide a single on-site location or dumpster for removal from site by others. Blown debris pickup is included in this agreement.
17. Subcontractor shall place all control joints and expansion joints required by this Scope of Work where shown on the Drawings or specifications, and if not indicated Subcontractor will install in locations directed or required for a complete and proper installation of the roofing system per manufacturer's recommendations.
18. This Subcontractor is responsible to separate dissimilar metals from electrolytic actions.
19. Subcontractor shall broom clean and wash-down roof areas. Subcontractor is responsible to protect surrounding substrates and finishes installed by others from damage by performance of work under this agreement. Manufacturer's recommended procedure for touch-up painting all abrasions, scratches, etc. is included following cleaning procedure noted above for Owner and Architect acceptance of work.
20. Subcontractor shall not overload building structure system when storing products on building roof structure.
21. Subcontractor shall schedule frequent manufacturer(s) inspections of the materials and installation procedures for a warrantable system. Copies of inspection reports shall be provided to Construction Manager weekly. Any specified field testing, roof flood testing, hosing, etc. is also included.
22. All required or specified mock-ups are included.
23. The subcontractor understands that the metal roof decking will be provided by others. The subcontractor acknowledges new roofing will be installed over a roofing substrate per tolerances specified under the specification section for ***Steel Roof Decking if applicable***.
24. The subcontractor understands that the roof topping slab shall be provided by others. The subcontractor acknowledges new roofing will be installed over a roofing substrate installed per tolerances specified under the specification section for lightweight ***concrete if applicable***.
25. Subcontractor shall provide and install all roof membrane, fasteners, cant strips, flashings and boots, wood blocking, cricket insulation, saddles, cants, adhesives, termination bars, caulking, mastic, primers, sealers, protective coatings, underlayment's, base sheet, recovery boards, coping, edge trims, vapor retarder, separation layers, counterflashing's, fire retardant gypsum/barrier board (including as specified and required with UL assemblies for roof assemblies), accessories, membrane cleaners, etc. required to provide a waterproof and warrantable roof system.
26. All preformed and prefinished flashings are included per following as specified and in color(s)/texture(s) to match Architect's approved samples.
27. All roof taper is included for proper drainage. Subcontractor shall coordinate insulation layout with structural drawings, roof drain layout, existing and new structure substrate conditions, scuppers, mechanical curbs, etc. in achieving proper specified slope requirements. Structure substrate shall be installed in accordance with structural drawings. The subcontractor shall ensure that proper roof drainage, rework for this to be this subcontractor's responsibility.

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28. The mechanical subcontractor will provide the Mechanical roof curbs. However, this subcontractor will be responsible for all required flashing and for coordinating the size and configuration of these roof curbs with the mechanical subcontractor.
29. Subcontractor is responsible for all substrate preparation/backing to turn-up roof membrane at windows, metal panels, masonry, etc.
30. All roof and roof-related caulking required for a watertight roof system is included. This includes but is not limited to, caulk at flashings to flashings, caulk flashings to brick, caulk flashings to steel beams/tubes, caulk flashings to metal panels, caulk above termination bars to substrate, caulk parapet and edge metal copings to brick or metal panels at building exterior sides, etc.
31. Flashing of all roof penetrations and associated flashings including plumbing vents, fan curbs, stacks/flues, electrical penetrations, structural steel, lightning protection, etc.
32. All roof related counter flashings, etc. are included.
33. Subcontractor shall provide any required masonry counterflashing reglets in a timely manner to be installed during masonry construction, etc. Saw cutting into brick is included.
34. All prefinished custom fabricated flashings at fascia including drips, etc.
35. All metal cap flashing with continuous cleat over PT wood blocking.
36. The subcontractor shall notify Construction Manager in writing within twenty-one (21) days prior to mobilizing to each area of noncompliance or rework requirements of existing substrate or rough opening conditions. Failure to notify Construction Manager of any inefficiency will result in the subcontractor assuming full acceptance of substrate, rough opening conditions and locations.
37. The subcontractor shall prepare detailed shop drawings identifying all required rough opening sizes and locations, all metal stud locations, structural angle locations, etc.
38. All systems, flashings, accessories, etc. furnished under this agreement shall be prefinished in accordance with contract documents to match Architect's approved samples in color, pattern, texture, etc.
39. The subcontractor shall provide standard manufacturer's factory testing requirements or as specified under the Project Specifications (whichever is more stringent), outlining the performance characteristics of all requirements under the Project Specifications.
40. The subcontractor is responsible for all metal stud, structural steel, concrete, and masonry substrate preparation, including spacers, shims, etc., as each trade shall be responsible for installation tolerances allowed to each respective trade under the contract specification.
41. The subcontractor is responsible for coordinating work under this agreement with the Plumbing Subcontractor, Mechanical Subcontractor, Electrical Subcontractor, and Solar PV Subcontractor as applicable.

G. DESCRIPTION OF SCOPE EXCLUSIONS

The following is a complete and exhaustive list of exclusions from the Scope of Work:

1. NONE

Initial Here_____

BID PACKAGE #0840
GLASS AND GLAZING
(SCOPE OF WORK)

The Scope of Work shall include the furnishing of a complete **GLASS AND GLAZING PACKAGE**. This shall include, but is not limited to, all required: labor, fabrication, engineering, submittals, shop drawings, materials, equipment, tools, supervision, hoisting, scaffolding, and transportation as required for a complete scope of work.

DESCRIPTION OF SCOPE INCLUSIONS

The following is a non-exhaustive list of inclusions and is not intended to limit the work in any way.

A. CONTRACT DOCUMENTS:

All work shall be performed in accordance with Contract Documents.

- All plans and specifications
- All scope of work requirements
- All contract requirements

B. BONDING REQUIRMENTS:

Each bidder quoting a sum greater than **$100,000** shall have a 10% Bid Bond accompanying their bid as well as a Payment and Performance Bond included in their price. Additionally, all Bonds required shall be furnished per the Subcontract Agreement provided in the Bid Manual. (Addendum 2)

C. SUBMITTAL REQUIREMENTS:

Collaborative File Sharing - Subcontractor shall be responsible for the uploading of all required submittals to a file sharing program (Procore). Notifications will be sent when submittals are reviewed. It is the subcontractor's responsibility to track the approval process and proceed as directed in the submittal by the due date stated in Procore.

Samples – Descriptions of samples shall be uploaded to the site for record purposes. "Hard" samples are still required per the plans/specifications.

At the time of submittals Subcontractor shall clearly identify to the Construction's Manager and Architect's attention, **any deviations from the Contract Documents**. This Subcontractor's responsibility to the Contract Documents is not relieved by the Architect or Construction Manager's review unless there is **written acceptance of the specific deviations**. Subcontractor is responsible for submitting and expediting approval of any submittal requirements through a jurisdictional agency, if applicable.

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Subcontractor is to deliver all required Reports and bid documents to Construction Manager within 14 calendar days from date of Notice of Award. NO payment shall be made to subcontractor without all subcontractors' documents submitted. Provide signed and sealed engineered shop drawings as specified by a licensed and registered Engineer.

Any required re-submittals, record submittals, and/or field drawings shall be forwarded to Construction Manager within seven (7) days of initial submittal return to Subcontractor. **Failure of this Subcontractor to submit correct or timely submittals does not relieve said Subcontractor of material delivery obligations in accordance with the Project Schedule.** Subcontractor shall allow a minimum of twenty-eight (28) calendar days of Construction Manager -Architect review duration. No material substitutions will be approved by Construction Manager unless Subcontractor can obtain Owner-Architect approval for such substitutions at no additional cost to Construction Manager and without delaying project schedule.

D. STANDARD SCOPE INCLUSIONS:

The items listed below are specifically included and are for clarification purposes only. They shall not be construed as a complete list of all work. It is the intent of this to clarify subcontract issues. If conflicts are discovered between this and the Subcontract General Terms, then the Subcontract General Terms shall govern.

1. Provide a full-time, competent, and English-speaking Superintendent onsite at all times while this subcontractor's work is being performed to coordinate the work of this project. The competent person on site must be OSHA 30 certified. Failure to provide a competent person on site will result in the CM not allowing the subcontractor to work on site.
2. Metcon intends to use GCPay which is a third party pay application service that simplifies the application for payment processes between Metcon and our subcontractors by automating the payment application process. At no cost to our subcontractors, GCPay provides an automated information exchange for lien waivers and all compliance documents. This platform saves time and improves subcontractor communication by keeping them informed throughout the process of potential issues needing immediate attention.
3. The subcontractor has reviewed specification SECTION 01 22 00 – UNIT PRICES. All required unit pricing for this scope of work has been acknowledged and included in the bid form.
4. The subcontractor has reviewed specification SECTION 01 23 00 – ALTERNATES. All required pricing for alternates for this scope of work has been acknowledged and included in the bid form. If alternates are selected, they are selected in their entirety. All documents have been fully evaluated for alternative work.
5. As required, the subcontractor shall design, provide, and engineer crane subsurface/pads in accordance with project specifications and load requirements. The subcontractor shall ensure that all crane operations are structurally sound at no additional cost to the CM.

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6. Verify all substrate conditions and notify the Construction Manager twenty-one (21) days prior to the start of work of any deficiencies in substrate prohibiting the start of work under this agreement.

7. All subcontractor employees must have access to a tablet with Procore access for use on this project. This tablet shall be an iPad Pro generation 3 or newer with cellular connectivity or comparable in specs and capabilities.

8. This subcontractor will not use or allow the building's drainage systems to clean debris or dispose of waste materials. If any drainage systems are clogged or obstructed by this subcontractor's materials, this subcontractor will reimburse the Contractor for the repair cost plus a mark-up.

9. This subcontractor is responsible for requesting any additional information, instructions and/or clarifications required to complete the work. The subcontractor will request such information from the Design team in writing as a Request for information (RFI) through the file-sharing program Procore. Requests for such information shall be made in advance to avoid any delay in the work.

10. This subcontractor is responsible for receiving, unloading, inventorying, storing, and coordinating this subcontractor's work. **All deliveries, hoisting, and storage of materials will be coordinated and scheduled with CM. Any deliveries not scheduled will not be allowed on site.** Material and equipment deliveries must be coordinated "just in time." Material and equipment storage on site must not exceed five (5) workdays. Once materials and/or equipment are moved inside the building, it must be installed within five (5) workdays. This subcontractor must utilize its own equipment to unload material.

11. This subcontractor is responsible for its own traffic control/flag man for any hauling operation in or out of the project site. All traffic control personnel shall be NCDOT certified. Reference the Logistics Plan indicating the crossing and use of active public roadways.

12. This subcontractor is responsible for erecting its own scaffolding, working platforms, material handling, storage, lifting & hoisting as required to perform the work under this scope.

13. This subcontractor is responsible for maintaining streets and parking lots in clean condition for their scope of work. Others will provide a wheel wash station near the site exit gate.

14. This subcontractor is responsible for all temporary safety measures to meet OSHA and Metcon's safety standards pertaining to your scope of work. See Exhibit J for more details.

15. The subcontractor has reviewed all drawings, documents, appendices, and specifications for this project and has found no obvious omissions and further agrees that the work of this agreement and the project can be constructed within the milestones and completion dates agreed upon without claims for delays or costs implications unless substantial Owner directed Scope changes occur.

16. Within **10** days of receipt of the contract, this subcontractor is required to issue a manpower count for each section/activity of their scope of work to meet the schedule requirements. Metcon will review and approve the proposed manpower counts before commencing this work. Metcon, Owner, Architect, & Consultants will constantly track the manpower for each activity to ensure compliance with the schedule and the forecasted status of the project, which will measure performance. If the subcontractor has low productivity/performance, resulting in

schedule delays, this subcontractor will increase its manpower at Metcon's, Owner's, and/or Architect's request. Pay applications may be delayed until compliance has been satisfied.

17. In the event of inclement weather, this subcontractor is responsible for securing and protecting all their materials and work in place.
18. This subcontractor shall conduct pursuant to N.C. Gen. Stat. § 115C-332.1, an annual check of each of its employees, and contractual employees, consultants, agents, and other representatives on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry if such employee, subcontractor, agent, or other representative will be on the Project site or other school property as part of his or her job. The CM shall conduct this check on each of its employees, consultants, agents, and other representatives prior to permitting such employee, consultant, agent or other representative to enter the Project site or other school property to perform work under this agreement. For the Construction Manager's convenience only, all the required registry checks may be completed at no cost by accessing the United States Department of Justice Sex Offender Public Registry at http://www.nsopw.gov. No person shall be permitted to enter the Project site or other school property to perform work under this agreement if that person is listed on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.
19. This subcontractor must thoroughly examine all drawings to recognize and include elements within their area of responsibility. This subcontractor is required to review all project drawings and specs. This subcontractor will have an opportunity to ask questions about design intent before bidding; after the bid and award of the package, the subcontractor will utilize the most stringent design. The design utilized shall be in the best interest of the Owner.
20. Parking at and around the site will be limited. Please see the Logistics plan for more information.
21. The subcontractor shall only remove temporary construction fences, safety control devices, or sediment control devices with advanced approval from the construction manager. In the event that removal is required, the subcontractor shall reinstall it in the same condition or better.
22. This subcontractor will abide by local noise ordinances as required.
23. A weekly job site cleanup will occur. Each subcontractor must contribute one laborer per five onsite workers for four (4) hours, to be used at the Construction Manager's discretion.
24. All non-compliance items or punch lists brought to the subcontractor's attention in Procore must be corrected and "ready for review" within 5 working days of initiation by the Construction Manager.
25. All subcontractors will adhere to a work week consisting of five (5) days per week, ten (10) hour days, fifty-two (52) weeks per year, with standardized starting and quitting timed 7 am to 5:30 pm regardless of external influences (such as driving distance, subcontractor's company policies, or personal preference.) No subcontractor will be allowed to work a four (4) day work week.
26. Under no circumstances is the subcontractor permitted to work without a construction manager's representative on site.

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27. Protection of work in place: This subcontractor shall provide and maintain protection of all adjacent property and other subcontractor's work, materials, tools, and equipment from damage resulting from this subcontractor's activities. This subcontractor is responsible for the cost of repairing or replacing any items damaged by its employees, its lower-tier subcontractors, or its suppliers, including damage caused during stocking or hoisting.
28. In addition to any Owner site requirements, eating and drinking shall be prohibited within the building or as otherwise determined by the Construction Manager. Subcontractor violators will be removed from the project site. Smoking or other tobacco products will not be allowed on site. Anyone violating this policy will be removed from the site permanently.
29. No visitors shall be admitted to the job site by the subcontractor without first obtaining the approval of the Construction Manager and having completed the site-specific job site orientation. This subcontractor will confirm and/or provide all their visitors with the site-required personal protection equipment.
30. No photographs or videos (including drone videos) of the project may be taken without the construction manager's and owner's prior approval. All persons approved to take photographs/videos must attend training and will be provided with credentials.
31. All schedules of values shall be uploaded to GC Pay within ten (10) days of the letter of intent being awarded. All subcontractors ' SOVs shall include the following standard items: mobilization, submittals, weekly composite cleanup, punch list, and project closeout. The schedule of values approval by the construction manager shall be followed before this subcontractor's first pay application. The construction manager requires a minimum of twenty (20) days to review the schedule of values.
32. Attached to the Bid manual is a sample of Metcon's standard contract. This subcontractor is required to review and accept it in its entirety.
33. Weekend work might be necessary to meet the project schedule, which must be coordinated with the Construction Manager if required. The construction manager will not allow weekend work if the subcontractors are not already working the full number of job site hours with full crews. This means that if you are working less than Monday through Friday, 7 am -5:30 pm, the site will not be open on the weekend unless excusable inclement weather determined by the CM occurs during the week. There will be no issue with opening the site as much as necessary to facilitate subcontractors who are trying to meet the scheduled responsibilities by working the total amount of open hours.
34. Include all necessary mobilizations required to complete this scope of work.
35. The construction manager reserves the right to add a fifteen (15) percent mark-up to all back charges that the construction manager facilitates. If back charges are resolved without the involvement of the Construction Manager, no mark-up will be applied.
36. Time and Material tickets must be approved by the Construction Manager's superintendent within 24 hours of work commencing. Invoices associated with time and material tickets must be submitted to the Construction Manager's Project Manager within thirty (30) days of work commencing. All invoices must reference a "CE number" assigned by the CM. Invoices not referencing a "CE number" will be returned and not processed.

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37. Pull planning will be implemented on this project. The weekly "Plan Percent Complete Report" will be sent to the subcontractor's representative to provide tangible value to the subcontractor's progress. The subcontractor is required to use the pull planning process to identify all constraints that may impede their progress. Constraints not identified and documented within a reasonable time for rectification will not be considered valid reasons for schedule adjustments. The subcontractor is expected to follow the Pull Plan Schedule, which should enhance and supersede the contract schedule.
38. All required site safety documentation must be submitted in Procore 30 days after issuing the letter of intent. This is to include the following:
    a. Executed the partnership form for the subcontractor safety and health incident prevention program.
    b. Subcontractors' specific site job hazard analysis (JHA), detailing your scope of work, the hazards associated with each task, and how they will be abated.
    c. Trades whose work scope includes steel erection, pre-cast, demo, and roofing shall provide a written site safety plan.
    d. Provide OSHA 300 & 300A logs for the last three years.
    e. A written hazard communication program safety data sheet (SDS)
    f. A written safety plan for the revised silica dust respiratory plan (if applicable) is needed.
    g. A written ground fault protection program.
    h. Exhibit J3 returned with pages initialed.
    i. All site-specific personnel documentation will be required to be submitted two weeks before this scope of work begins.
    j. Failure to comply with this documentation will result in a delayed start in this subcontractor's mobilization. This may include withholding mobilization costs in pay applications until this subcontractor complies. No additional cost or time will be considered due to any acceleration required. (Addendum 2)
39. Survey points will be provided for general locational purposes. These will not be given in every single room. To complete this work scope, each subcontractor must transfer the general area survey points accurately as needed. The location of these general survey points is at the discretion of the Construction Manager. (Addendum 2)
40. The construction manager has the authority to recommend withholding pay applications from any subcontractor due to poor work quality. If this situation arises, the subcontractor will be notified in writing (72 hours' notice) that their work quality is unsatisfactory and requires remediation. The subcontractor must then submit a written remediation plan detailing how they will improve the quality of their work. Once the plan has been implemented and the work quality has been improved, the subcontractor may resubmit their pay application for the owner's approval. Any active unresolved 72-hour notices may result in the CM withholding the pay application for this subcontractor. (Addendum 2)

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41. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.
    a. The construction manager can provide equipment and a robotic total station operator for $175/hr with at least 48hr notice. A competent layout representative from this subcontractor must accompany the layout crew.
    b. Failure to use the robotic total station will result in a stop work order with no added time to the schedule until the subcontractor complies. No added cost associated with acceleration will be accepted.
    c. This subcontractor shall be solely responsible for the correct layout, which cannot be delegated or assigned.
42. Please see the table below for all required meetings.
    a. Without exception, this Subcontractor's Project Manager and/or Superintendent must attend the weekly coordination/subcontractor meetings in person two weeks before starting work and while performing the scope of work.
    b. This subcontractor is required to participate in pull planning sessions actively. These sessions are in-person and onsite, with no exceptions. These will occur every 4-6 weeks at the CM discretion. Each day, the progress will be reviewed in the "Daily Forman's Huddle".
    c. Failure to have the proper representative at any onsite meeting will constitute a safety violation of "competent person not on site.". Refer to Exhibit J for more information.

Meeting Titles	Frequency	Who is required to attend	Location
Pre-install	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Safe Start	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Daily Foreman Huddle	Daily	Superintendent & Forman's	Onsite - CM Trailer
Weekly Coordination	Weekly	Superintendent &/or Project Manager	Onsite - CM Trailer
Pull Plan Initial	As required	Superintendent &/or Project Manager	Remote/Teams
Pull Plan Session	Monthly	Superintendent &/or Project Manager	Onsite - CM Trailer
Jobsite Safety Standdown	Weekly	Everyone onsite	Onsite - CM Trailer
BIM Coordination	Weekly	MEP Trades BIM Managers	Remote/Teams

E. SCOPE OF WORK SPECIFICATIONS

The following outlines the scope of work specifications sections relevant to the work to be performed. This list represents the core specifications that will guide the tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional specifications and related sections that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. **SECTION 08 41 13 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS**
2. **SECTION 08 44 13 - GLAZED ALUMINUM CURTAIN WALLS**
3. **SECTION 08 80 00 - GLAZING**

F. PROJECT SPECIFIC SCOPE REQUIREMENTS:

The following outlines the project-specific scope requirements of the work to be performed. This list represents the core tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional tasks and responsibilities that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. All products furnished under this agreement, including accessories, shall be prefinished in accordance with Contract Documents and the Architect's approved colors, textures, etc.
2. The subcontractor shall field measure and verify all rough openings, slab conditions, and dimensions prior to the fabrication and installation of aluminum assemblies and glass. For new construction areas framed in metal stud or masonry wall conditions, the contractor will guarantee rough opening measurements, provided the subcontractor issues Final Field Use Drawings approved by the architect to the contractor, masonry subcontractor, and metal stud/drywall subcontractor at least twenty-eight (28) days prior to the start of wall construction activities. Openings in poured-in-place concrete conditions must be field measured by the subcontractor.
3. This subcontractor is responsible for separating aluminum and other surfaces from sources of corrosion or electrolytic action at points of contact with dissimilar materials.
4. This subcontractor shall provide the manufacturer with testing for system performance requirements as specified under the Project Specifications, outlining the performance characteristics of all requirements under Project Specifications.
5. This subcontractor is responsible for all wood blocking, wood trim, spacers, shims, etc., to accommodate existing masonry substrate conditions, as detailed in the Contract Documents.
6. This subcontractor has acknowledged window placement locations within the wall cavities and shall detail, fabricate, and install a warrantable assembly as such, including all required flashings and caulking, whether indicated or not on the contract drawings to conceal surrounding substrates (including brick/air spaces/drywall returns to windows) and provide adequate caulking backers.
7. This subcontractor will also be responsible for all wood blocking and metal framing components which are detailed on this Subcontractor's shop drawings above the requirements of the Contract Documents to meet wind loading, dead loads, anchorage details, etc. (i.e. Subcontractor shop drawings shall not supersede work by others as indicated on the Contract Documents).
8. This subcontractor is responsible for all required field touch-up painting of factory finishes as may be required after installation and prior to Owner acceptance. Use materials and prepare as recommended by the paint manufacturer.
9. This subcontractor is responsible for protecting this scope of work until the Owner accepts aluminum, glazing, and caulking operations.
10. Provide all prefinished sill flashings, sill receptors, trim closures, drip flashings, head flashings, etc., to meet manufacturers' and Architect's requirements for a warrantable system.
11. Furnish and install all broken metal as directed by CM to the storefront/ curtain wall framing system.

12. All assemblies shall be shipped to the project, or glazing shall be shipped with assemblies and installed concurrently with frame installation to provide an immediate secure and dried-in condition for this Project. If the Subcontractor fails to provide glazing with framing installation, this Subcontractor will be responsible for providing temporary secure and weather-tight alternative installation to the glazing at no additional cost to the Contractor.
13. Scheduled start and finish dates shall mean complete aluminum and glazing installations.
14. Subcontractor to provide and maintain temporary wood or metal framed plastic covering in-fills at all door and window openings until permanent doors and windows are installed. This Subcontractor is responsible for removing temporary windows as installation begins for each opening under this agreement. Each temporary window assembly shall be carefully removed from the opening, transported to the Construction Manager's laydown yard, and neatly stacked by this Subcontractor for future re-use.
15. Provide all Aluminum Framed Entrances and Storefronts, including all required aluminum framing members, internal structural reinforcing, structural anchorage devices to building structure, factory and field testing, weather-stripping, fasteners and anchors, setting blocks, shims, spacers, edge blocks, glazing points, angle clips, beads, concealed sealants, bituminous paint, welding, and all other incidental items required for a complete structural and weather-tight system.
16. All sill flashings, head flashings, and break metal closures at mullions and jambs/heads/sills are included.
17. This subcontractor coordinates and prepares all assemblies to receive specified glass and door hardware.
18. This subcontractor is responsible for furnishing and installing all aluminum door weather-stripping, silencers, weather sweeps, etc.
19. If applicable, This subcontractor shall provide and install all Composite Doors and Frames as indicated on door and window schedules.
20. This Subcontractor is responsible for the coordination, receipt, shipping (from the hardware supplier’s local office), handling, unpacking, storage, protection, and installation (field and factory) of all hardware required for aluminum doors. Field cutting/ fitting of thresholds and weather stripping are included herein.
21. This Subcontractor is responsible for providing all required holes, chases, backing plates, stile sizing, header profiles, etc., required for the installation of said hardware equipment furnished by others per specification section 08 71 00 Door Hardware requirements, electrical rough-in (security, power, card readers, etc.) and complete operation.
22. All shop drawings provided under this agreement shall be fully detailed and coordinated with other scheduled hardware installations before fabrication.
23. This subcontractor acknowledges that any additional hardware materials specified under specification section 08 41 13 are not part of the hardware package under 08 71 00 and shall be provided herein at no additional cost to the Contractor.
24. All fabrication of storefront and door assemblies shall be completed off-site and shipped to the project. *No on-site fabrication of aluminum assemblies will be permitted.*

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25. It is the responsibility of this Subcontractor to verify door undercut requirements based on the interior floor finish requirements. Frames shall be assumed to rest on building slab.
26. This Subcontractor shall provide temporary lockable doors at all aluminum door openings for construction use. The permanent doors will be installed at the end of each phase or as directed by the Contractor. All other temporary doors, provided by others. (Addendum 2)
27. All window hardware is included.
28. Included is all annealed glass, heat treated glass, laminated glass, insulating glass, float glass, tempered glass, wired glass, spandrel glass, pyrolytic glass, tinting of glass, etc. including combinations thereof, as specified in the Contract Documents and as required by the inspecting agencies having jurisdiction.
29. If applicable, include polycarbonate panels in gym windows.
30. All structural, weather-tight, and aesthetic ***caulking*** is included for the proper installation of items included in this scope. This specifically includes both the interior and exterior perimeter caulking, butt glazing, glazing, framing members, etc., complete of all assemblies provided under this agreement in accordance with specification sections **07 90 00**, per all related specification sections under this agreement, per manufacturer's recommendations, per contract drawings, and per Architect's requirements after installation completion of surrounding finishes.
    a. Interior and exterior caulking operations shall be separate mobilizations from aluminum and glazing installations following prime painting, brick installations and cleaning, metal panel installations, concrete rubbing operations, etc.
    b. All caulking colors shall match that specified or as approved by the Architect. Field mock-ups are included herein to obtain the Architect's approval.
    c. c. This Subcontractor is responsible for all surface preparation and primers for caulk adhesion on both windows and surrounding substrate conditions. Field testing of adhesion to meet the Architect's acceptance of installations is included herein.
31. The subcontractor acknowledges that not all openings may be ready at the time of scheduled installation and agrees to remobilize areas as they become available at no cost to the Contractor.
32. Subcontractor is responsible for reviewing the logistics plans for "leave out areas." Leave out areas will be used for stocking material to the second floor of the building. (Addendum 3)

G. DESCRIPTION OF SCOPE EXCLUSIONS:

The following is a complete and exhaustive list of exclusions from the Scope of Work:

1. NONE

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BID PACKAGE #2100
FIRE SUPPRESSION
(SCOPE OF WORK)

The Scope of Work shall include the furnishing of a complete **FIRE SUPPRESSION**. This shall include, but is not limited to all required: labor, fabrication, engineering, submittals, shop drawings, materials, equipment, tools, supervision, hoisting, scaffolding, and transportation as required for a complete scope of work.

DESCRIPTION OF SCOPE INCLUSIONS

The following is a non-exhaustive list of inclusions and is not intended to limit the work in any way.

A. CONTRACT DOCUMENTS:

All work shall be performed in accordance with Contract Documents.

- All plans and specifications
- All scope of work requirements
- All contract requirements

B. BONDING REQUIRMENTS:

Each bidder quoting a sum greater than **$100,000** shall have a 10% Bid Bond accompanying their bid as well as a Payment and Performance Bond included in their price. Additionally, all Bonds required shall be furnished per the Subcontract Agreement provided in the Bid Manual. (Addendum 2)

C. SUBMITTAL REQUIREMENTS:

Collaborative File Sharing - Subcontractor shall be responsible for the uploading of all required submittals to a file sharing program (Procore). Notifications will be sent when submittals are reviewed. It is the subcontractor's responsibility to track the approval process and proceed as directed in the submittal by the due date stated in Procore.

Samples – Descriptions of samples shall be uploaded to the site for record purposes. "Hard" samples are still required per the plans/specifications.

At the time of submittals Subcontractor shall clearly identify to the Construction's Manager and Architect's attention, **any deviations from the Contract Documents**. This Subcontractor's responsibility to the Contract Documents is not relieved by the Architect or Construction Manager's review unless there is **written acceptance of the specific deviations**. Subcontractor is responsible for submitting and expediting approval of any submittal requirements through a jurisdictional agency, if applicable.

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Subcontractor is to deliver all required Reports and bid documents to Construction Manager within 14 calendar days from date of Notice of Award. NO payment shall be made to subcontractor without all subcontractors' documents submitted. Provide signed and sealed engineered shop drawings as specified by a licensed and registered Engineer.

Any required re-submittals, record submittals, and/or field drawings shall be forwarded to Construction Manager within seven (7) days of initial submittal return to Subcontractor. **Failure of this Subcontractor to submit correct or timely submittals does not relieve said Subcontractor of material delivery obligations in accordance with the Project Schedule.** Subcontractor shall allow a minimum of twenty-eight (28) calendar days of Construction Manager -Architect review duration. No material substitutions will be approved by Construction Manager unless Subcontractor can obtain Owner-Architect approval for such substitutions at no additional cost to Construction Manager and without delaying project schedule.

D. STANDARD SCOPE INCLUSIONS:

The items listed below are specifically included and are for clarification purposes only. They shall not be construed as a complete list of all work. It is the intent of this to clarify subcontract issues. If conflicts are discovered between this and the Subcontract General Terms, then the Subcontract General Terms shall govern.

1. Provide a full-time, competent, and English-speaking Superintendent onsite at all times while this subcontractor's work is being performed to coordinate the work of this project. The competent person on site must be OSHA 30 certified. Failure to provide a competent person on site will result in the CM not allowing the subcontractor to work on site.
2. Metcon intends to use GCPay which is a third party pay application service that simplifies the application for payment processes between Metcon and our subcontractors by automating the payment application process. At no cost to our subcontractors, GCPay provides an automated information exchange for lien waivers and all compliance documents. This platform saves time and improves subcontractor communication by keeping them informed throughout the process of potential issues needing immediate attention.
3. The subcontractor has reviewed specification SECTION 01 22 00 – UNIT PRICES. All required unit pricing for this scope of work has been acknowledged and included in the bid form.
4. The subcontractor has reviewed specification SECTION 01 23 00 – ALTERNATES. All required pricing for alternates for this scope of work has been acknowledged and included in the bid form. If alternates are selected, they are selected in their entirety. All documents have been fully evaluated for alternative work.
5. As required, the subcontractor shall design, provide, and engineer crane subsurface/pads in accordance with project specifications and load requirements. The subcontractor shall ensure that all crane operations are structurally sound at no additional cost to the CM.

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6. Verify all substrate conditions and notify the Construction Manager twenty-one (21) days prior to the start of work of any deficiencies in substrate prohibiting the start of work under this agreement.

7. All subcontractor employees must have access to a tablet with Procore access for use on this project. This tablet shall be an iPad Pro generation 3 or newer with cellular connectivity or comparable in specs and capabilities.

8. This subcontractor will not use or allow the building's drainage systems to clean debris or dispose of waste materials. If any drainage systems are clogged or obstructed by this subcontractor's materials, this subcontractor will reimburse the Contractor for the repair cost plus a mark-up.

9. This subcontractor is responsible for requesting any additional information, instructions and/or clarifications required to complete the work. The subcontractor will request such information from the Design team in writing as a Request for information (RFI) through the file-sharing program Procore. Requests for such information shall be made in advance to avoid any delay in the work.

10. This subcontractor is responsible for receiving, unloading, inventorying, storing, and coordinating this subcontractor's work. **All deliveries, hoisting, and storage of materials will be coordinated and scheduled with CM. Any deliveries not scheduled will not be allowed on site.** Material and equipment deliveries must be coordinated "just in time." Material and equipment storage on site must not exceed five (5) workdays. Once materials and/or equipment are moved inside the building, it must be installed within five (5) workdays. This subcontractor must utilize its own equipment to unload material.

11. This subcontractor is responsible for its own traffic control/flag man for any hauling operation in or out of the project site. All traffic control personnel shall be NCDOT certified. Reference the Logistics Plan indicating the crossing and use of active public roadways.

12. This subcontractor is responsible for erecting its own scaffolding, working platforms, material handling, storage, lifting & hoisting as required to perform the work under this scope.

13. This subcontractor is responsible for maintaining streets and parking lots in clean condition for their scope of work. Others will provide a wheel wash station near the site exit gate.

14. This subcontractor is responsible for all temporary safety measures to meet OSHA and Metcon's safety standards pertaining to your scope of work. See Exhibit J for more details.

15. The subcontractor has reviewed all drawings, documents, appendices, and specifications for this project and has found no obvious omissions and further agrees that the work of this agreement and the project can be constructed within the milestones and completion dates agreed upon without claims for delays or costs implications unless substantial Owner directed Scope changes occur.

16. Within **10** days of receipt of the contract, this subcontractor is required to issue a manpower count for each section/activity of their scope of work to meet the schedule requirements. Metcon will review and approve the proposed manpower counts before commencing this work. Metcon, Owner, Architect, & Consultants will constantly track the manpower for each activity to ensure compliance with the schedule and the forecasted status of the project, which will measure performance. If the subcontractor has low productivity/performance, resulting in

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schedule delays, this subcontractor will increase its manpower at Metcon's, Owner's, and/or Architect's request. Pay applications may be delayed until compliance has been satisfied.

17. In the event of inclement weather, this subcontractor is responsible for securing and protecting all their materials and work in place.
18. This subcontractor shall conduct pursuant to N.C. Gen. Stat. § 115C-332.1, an annual check of each of its employees, and contractual employees, consultants, agents, and other representatives on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry if such employee, subcontractor, agent, or other representative will be on the Project site or other school property as part of his or her job. The CM shall conduct this check on each of its employees, consultants, agents, and other representatives prior to permitting such employee, consultant, agent or other representative to enter the Project site or other school property to perform work under this agreement. For the Construction Manager's convenience only, all the required registry checks may be completed at no cost by accessing the United States Department of Justice Sex Offender Public Registry at http://www.nsopw.gov. No person shall be permitted to enter the Project site or other school property to perform work under this agreement if that person is listed on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.
19. This subcontractor must thoroughly examine all drawings to recognize and include elements within their area of responsibility. This subcontractor is required to review all project drawings and specs. This subcontractor will have an opportunity to ask questions about design intent before bidding; after the bid and award of the package, the subcontractor will utilize the most stringent design. The design utilized shall be in the best interest of the Owner.
20. Parking at and around the site will be limited. Please see the Logistics plan for more information.
21. The subcontractor shall only remove temporary construction fences, safety control devices, or sediment control devices with advanced approval from the construction manager. In the event that removal is required, the subcontractor shall reinstall it in the same condition or better.
22. This subcontractor will abide by local noise ordinances as required.
23. A weekly job site cleanup will occur. Each subcontractor must contribute one laborer per five onsite workers for four (4) hours, to be used at the Construction Manager's discretion.
24. All non-compliance items or punch lists brought to the subcontractor's attention in Procore must be corrected and "ready for review" within 5 working days of initiation by the Construction Manager.
25. All subcontractors will adhere to a work week consisting of five (5) days per week, ten (10) hour days, fifty-two (52) weeks per year, with standardized starting and quitting timed 7 am to 5:30 pm regardless of external influences (such as driving distance, subcontractor's company policies, or personal preference.) No subcontractor will be allowed to work a four (4) day work week.
26. Under no circumstances is the subcontractor permitted to work without a construction manager's representative on site.

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27. Protection of work in place: This subcontractor shall provide and maintain protection of all adjacent property and other subcontractor's work, materials, tools, and equipment from damage resulting from this subcontractor's activities. This subcontractor is responsible for the cost of repairing or replacing any items damaged by its employees, its lower-tier subcontractors, or its suppliers, including damage caused during stocking or hoisting.
28. In addition to any Owner site requirements, eating and drinking shall be prohibited within the building or as otherwise determined by the Construction Manager. Subcontractor violators will be removed from the project site. Smoking or other tobacco products will not be allowed on site. Anyone violating this policy will be removed from the site permanently.
29. No visitors shall be admitted to the job site by the subcontractor without first obtaining the approval of the Construction Manager and having completed the site-specific job site orientation. This subcontractor will confirm and/or provide all their visitors with the site-required personal protection equipment.
30. No photographs or videos (including drone videos) of the project may be taken without the construction manager's and owner's prior approval. All persons approved to take photographs/videos must attend training and will be provided with credentials.
31. All schedules of values shall be uploaded to GC Pay within ten (10) days of the letter of intent being awarded. All subcontractors ' SOVs shall include the following standard items: mobilization, submittals, weekly composite cleanup, punch list, and project closeout. The schedule of values approval by the construction manager shall be followed before this subcontractor's first pay application. The construction manager requires a minimum of twenty (20) days to review the schedule of values.
32. Attached to the Bid manual is a sample of Metcon's standard contract. This subcontractor is required to review and accept it in its entirety.
33. Weekend work might be necessary to meet the project schedule, which must be coordinated with the Construction Manager if required. The construction manager will not allow weekend work if the subcontractors are not already working the full number of job site hours with full crews. This means that if you are working less than Monday through Friday, 7 am -5:30 pm, the site will not be open on the weekend unless excusable inclement weather determined by the CM occurs during the week. There will be no issue with opening the site as much as necessary to facilitate subcontractors who are trying to meet the scheduled responsibilities by working the total amount of open hours.
34. Include all necessary mobilizations required to complete this scope of work.
35. The construction manager reserves the right to add a fifteen (15) percent mark-up to all back charges that the construction manager facilitates. If back charges are resolved without the involvement of the Construction Manager, no mark-up will be applied.
36. Time and Material tickets must be approved by the Construction Manager's superintendent within 24 hours of work commencing. Invoices associated with time and material tickets must be submitted to the Construction Manager's Project Manager within thirty (30) days of work commencing. All invoices must reference a "CE number" assigned by the CM. Invoices not referencing a "CE number" will be returned and not processed.
37. Pull planning will be implemented on this project. The weekly "Plan Percent Complete Report" will be sent to the subcontractor's representative to provide tangible value to the subcontractor's

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progress. The subcontractor is required to use the pull planning process to identify all constraints that may impede their progress. Constraints not identified and documented within a reasonable time for rectification will not be considered valid reasons for schedule adjustments. The subcontractor is expected to follow the Pull Plan Schedule, which should enhance and supersede the contract schedule.

38. All required site safety documentation must be submitted in Procore 30 days after issuing the letter of intent. This is to include the following:
    a. Executed the partnership form for the subcontractor safety and health incident prevention program.
    b. Subcontractors' specific site job hazard analysis (JHA), detailing your scope of work, the hazards associated with each task, and how they will be abated.
    c. Trades whose work scope includes steel erection, pre-cast, demo, and roofing shall provide a written site safety plan.
    d. Provide OSHA 300 & 300A logs for the last three years.
    e. A written hazard communication program safety data sheet (SDS)
    f. A written safety plan for the revised silica dust respiratory plan (if applicable) is needed.
    g. A written ground fault protection program.
    h. Exhibit J3 returned with pages initialed.
    i. All site-specific personnel documentation will be required to be submitted two weeks before this scope of work begins.
    j. Failure to comply with this documentation will result in a delayed start in this subcontractor's mobilization. This may include withholding mobilization costs in pay applications until this subcontractor complies. No additional cost or time will be considered due to any acceleration required. (Addendum 2)
39. Survey points will be provided for general locational purposes. These will not be given in every single room. To complete this work scope, each subcontractor must transfer the general area survey points accurately as needed. The location of these general survey points is at the discretion of the Construction Manager. (Addendum 2)
40. The construction manager has the authority to recommend withholding pay applications from any subcontractor due to poor work quality. If this situation arises, the subcontractor will be notified in writing (72 hours' notice) that their work quality is unsatisfactory and requires remediation. The subcontractor must then submit a written remediation plan detailing how they will improve the quality of their work. Once the plan has been implemented and the work quality has been improved, the subcontractor may resubmit their pay application for the owner's approval. Any active unresolved 72-hour notices may result in the CM withholding the pay application for this subcontractor. (Addendum 2)
41. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.

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a. The construction manager can provide equipment and a robotic total station operator for $175/hr with at least 48hr notice. A competent layout representative from this subcontractor must accompany the layout crew.
b. Failure to use the robotic total station will result in a stop work order with no added time to the schedule until the subcontractor complies. No added cost associated with acceleration will be accepted.
c. This subcontractor shall be solely responsible for the correct layout, which cannot be delegated or assigned.

42. Please see the table below for all required meetings.
    a. Without exception, this Subcontractor's Project Manager and/or Superintendent must attend the weekly coordination/subcontractor meetings in person two weeks before starting work and while performing the scope of work.
    b. This subcontractor is required to participate in pull planning sessions actively. These sessions are in-person and onsite, with no exceptions. These will occur every 4-6 weeks at the CM discretion. Each day, the progress will be reviewed in the "Daily Forman's Huddle".
    c. Failure to have the proper representative at any onsite meeting will constitute a safety violation of "competent person not on site.". Refer to Exhibit J for more information.

Meeting Titles	Frequency	Who is required to attend	Location
Pre-install	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Safe Start	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Daily Foreman Huddle	Daily	Superintendent & Forman's	Onsite - CM Trailer
Weekly Coordination	Weekly	Superintendent &/or Project Manager	Onsite - CM Trailer
Pull Plan Initial	As required	Superintendent &/or Project Manager	Remote/Teams
Pull Plan Session	Monthly	Superintendent &/or Project Manager	Onsite - CM Trailer
Jobsite Safety Standdown	Weekly	Everyone onsite	Onsite - CM Trailer
BIM Coordination	Weekly	MEP Trades BIM Managers	Remote/Teams

E. SCOPE OF WORK SPECIFICATIONS

The following outlines the scope of work specifications sections relevant to the work to be performed. This list represents the core specifications that will guide the tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional specifications and related sections that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. **SECTION 08 31 13 - ACCESS DOORS AND FRAMES**
2. **DIVISION 21 – FIRE SUPPRESSION**

F. PROJECT SPECIFIC SCOPE REQUIREMENTS:

The following outlines the project-specific scope requirements of the work to be performed. This list represents the core tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional tasks and responsibilities that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

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1. All Fire Protection related work identified on plumbing drawings as well as inclusion of those items indicated on civil and mechanical drawings identified to be completed by Fire Protection Subcontractor.
2. Section 08 31 13 - access doors and frames in association with this scope of work
3. This agreement includes all piping, valves, couplings, water flow indicators, water-motor gongs, Fire Department connections, air compressors, backflow devices, supervisory switches, alarm check valves, sprinkler heads, alarm devices, anchorage hangers/devices and attachments, meters, sleeves, gauges, escutcheons, etc. as required for a complete fire protection system.
4. Connections for electrical alarm system including flow and tamper switches all properly connected to the sprinkler system is included. Coordination of location of all devices with Electrical Subcontractor is included.
5. All fire department connections drain lines, and inspector test line locations shall be coordinated with Owner, Architect, and local authority(s) having jurisdiction.
6. The subcontractor shall ensure that the equipment hose threads are identical to those used by the local fire department equipment.
7. The subcontractor is responsible for the vibration and seismic requirements of the Fire Protection system. This includes all design calculations and drawings which must be signed and sealed by a professional Engineer registered in the state of North Carolina.
8. Provide all required sprinkler heads of type, location, size, and color to meet code, the Architect's approval, and the local authority(s) having jurisdiction approval in order to meet both required coverage areas and aesthetics.
9. The subcontractor is responsible for scheduling, coordinating, preparing, and documenting all inspections of the Owner, Architect, Engineer, and required local authority(s) having jurisdiction. All pre-testing and testing requirements needed to achieve a certificate of occupancy are included.
10. The subcontractor is responsible for testing building systems to the point of connection. All testing, certification tests, etc., are conducted under the direction of the Owner, Engineer, Inspectors, and governmental authority(s) having jurisdiction.
11. The subcontractor is responsible for ensuring that all sprinkler valves are accessible. Should valves be deemed inaccessible by the local authority having jurisdiction, this Subcontractor shall be responsible for providing fixed ladders/wall steps or other means deemed appropriate by the local authority to access valves.
12. The subcontractor shall furnish and install all access doors required for access to this scope of work in accordance with the local authority(s) having jurisdiction.
13. The subcontractor is aware of the building's architectural, structural, HVAC, plumbing, and electrical components and has considered these for layout, head locations, and penetrations.
14. Subcontractor is to meet and coordinate with the electrical, plumbing, and mechanical subcontractors to ensure that all items, whether electrical, mechanical or fire protection, will be provided as needed and that the installation of any items will be completed by one of the other subcontractors without any additional expense to the Construction Manager and/or

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Owner. The first installation does not constitute grounds for a change order for relocation of work under this agreement, which has not been properly coordinated with others.

15. The subcontractor shall verify existing incoming water pressure (i.e., flow test) for final design and acceptance of the system by the local authority(s) having jurisdiction. This would include performing (as witnessed by Construction Manager, Owner and Engineer) an on-site water flow test(s) as basis of engineered shop drawing design within five days of contract award and before beginning shop drawings to certify the information provided by Owner at time of bid is accurate. (More time?)
16. All wall and floor slab penetrations must be properly core drilled and/or sleeved, collared, escutcheoned when exposed, grouted, fire-safe, and fire-caulked to meet all applicable codes. Provide a neat, clean, tightly sealed product. The subcontractor is responsible for the layout, furnishing, and installation of all sleeving requirements under this agreement.
17. The subcontractor is responsible for cleaning up all core drill slurry from walls and slabs and removing and patching all core drill machine anchors.
18. Provide all required Owner training, maintenance manuals, spare heads and cabinet, etc. in unopened packages. All items shall be turned over no later than 30 days prior to the Project Completion date. All items shall be transmitted to Construction Manager in writing and delivered and unloaded in a location(s) on Campus as determined by Construction Manager.
19. The subcontractor is responsible for avoiding trapped water in the sprinkler system during design and installation. All required auxiliary drains are included.
20. The subcontractor is responsible for providing all required pipe identification, valve tagging, pipe color coding, flow direction identification, etc. Prime painting of all steel piping and accessories requiring finish painting is included herein.
21. The subcontractor is responsible for limiting exposed piping conditions to public view and shall coordinate and obtain approval from the Architect of all such exposed conditions prior to installation. Shop drawing approval by the Architect does not constitute acceptance of exposed or uncoordinated piping locations if such conflicts are not highlighted on submittal approval for the Architect as a 'verification by others' notation.
22. The subcontractor shall provide the Painting and Caulking Subcontractors with the necessary substrate materials for adhesion, cohesion, and compatibility test reports and prepare the surface accordingly for the application of finish products. **Removing of all piping oil, grease, etc. is included**.
23. The subcontractor is responsible for all layout and coordination of layout for the installation of walls, openings, soffits, and the suspended ceiling systems within this work and work by other trades affected by this scope of work.
24. The subcontractor shall protect all flooring conditions (including concrete slabs to received flooring) from staining under work under this agreement.
25. Subcontractor will coordinate this work with the masonry and drywall subcontractors to minimize cutting of CMU and drywall, ensure adequate framing, required wall thickness, etc. Any blocking and backing required for rough-in at stud walls or soffits is provided by this Subcontractor.

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26. The subcontractor shall install and test fire protection system during building rough-in stage to prevent any water damage to work by others. Subcontractor will also energize the complete system prior to Construction Manager beginning finish operations (i.e. flooring, finish painting, casework, etc.) to ensure system complete and no leaks are apparent.
27. The subcontractor is responsible for providing adequate freeze protection techniques in the design, layout, and installation of the fire protection system.
28. The subcontractor is responsible for the final placement of all sprinkler head locations to meet the design intent with the local authority(s) having jurisdiction and aesthetics' approval for the Architect, including all adjustments, etc., at no cost to the Construction Manager. All lines shall be installed true and straight with heads being center, square and equal in layout. Subcontractor shall not install the sprinkler heads until ceiling grid installations, final painting, etc. are completed by others to ensure correct placement and no damages occurs to sprinkler heads and/or escutcheons.
29. All warranties start at Project Completion or date approved by Owner, NOT at start-up.
30. The subcontractor shall allow the walls to be primed and finished painted prior to installing surface-mounted piping, heads, etc.
31. All rough-in work included in this Scope of Work is to be concealed within wall cavity unless approved otherwise by Owner and Architect.
32. All reference to ‘by Construction Manager’, 'by Contractor' and 'by General Contractor' on the Fire Protection Drawings and in Division 21 specification sections shall be inferable assumed as 'By this Subcontractor'.
33. Subcontractor is responsible for compliance to all requirements of local authority(s) having jurisdiction on all installations under this agreement.
34. Electrical subcontractor will only provide conduit and wiring as indicated on the electrical drawings. Any additional conduit or wiring required to complete this system above what is indicated on the electrical drawings shall be included herein.
35. Concrete saw cuts, removal, and concrete replacement as required to install Work within this Scope is included in this Scope of Work. No saw cutting or core drilling are to be performed without written approval from Construction Manager and Architect/Engineer.
36. Any grouting for piping or equipment is included.
37. Provide testing, cleaning, certification, start-up, etc. in whole or in part of the work included in this scope to meet project schedule on a per area basis.
38. The subcontractor is responsible for caps to protect all installed heads from damage, paint, drywall mud, etc. from the time of installation to the Owner's acceptance of the buildings. Installation of sprinkler heads will precede the finish painting of the walls.
39. The subcontractor shall provide a head cap/ring at all drywall installations for all drywall finishers to finish around the head and cut the drywall neatly to the correct size of escutcheon. This subcontractor is responsible for all drywall repair costs to refinish around sprinkler heads caused by piping movement or misalignment.
40. The subcontractor is responsible for identifying all potential conflicts with building structure systems. Subcontractor shall include all required piping modifications, fittings, etc. to comply

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with final piping layouts with approved coordination drawings and/or to comply with field conditions for connections to existing utilities at no additional cost to Construction Manager.

41. The subcontractor has reviewed the Drawings and Specifications for this Project. Subcontractor has found no obvious omissions and further agrees that the Work of this Agreement and the Project can be constructed within the milestone and completion dates without claims for delay or impact costs, unless substantial Owner directed Scope changes occur.
42. All Maintenance Manuals and Owner Training requirements shall be completed 45 days prior to schedule project completion date or earlier if noted elsewhere in Contract Documents.
43. The subcontractor is responsible for developing all floor and ceiling layout background files and shall not assume Architect files will be available for use in developing shop drawings or coordination drawings.
44. Layout of all work from Construction Manager's single horizontal (one north-south and one east-west) and vertical control (one benchmark) point provided on a one time basis.
45. The subcontractor is responsible for obtaining any necessary City/County permits and scheduling inspections for all temporary/and permanent installations and ensuring notification of the power company for installation of meters.
46. The subcontractor is responsible for the complete design of the wet-pipe sprinkler system, including complete submittal to the Architect and appropriate governmental inspection agencies for approval. Subcontractor is also responsible for obtaining all permits from local authority(s) having jurisdiction, etc. Design work is separate from the CM provided BIM manager; coordination between subcontractor and BIM manager is required. (Addendum 3)
47. All drawings and calculations shall be signed and sealed by a registered and licensed Engineer in the State of North Carolina
48. Provide Design and installation of Seismic restraints per plan directive and Appendix B in drawings. (verify the location of seismic restraints directive)
49. BIM coordination will occur for this project. See the section "**H. BIM COORDINATION SCOPE INCLUSIONS**" below.
50. The subcontractor is responsible for coordinating and providing a minimum of 48-hour notice prior to the shutdown of any system required to perform their work. All shutdowns and associated work must be conducted outside of normal working hours to minimize disruption to regular operations. Obtain necessary permissions and ensure all stakeholders are informed about the shutdown schedule. Clear and detailed communication must be maintained regarding the scope of work, the expected duration of the shutdown, and any potential impacts on other systems or operations. The subcontractor should prepare and share a contingency plan to handle any unexpected issues that may arise during the shutdown period. Ensure that backup systems or alternative arrangements are in place if required. Adhere to all safety regulations, guidelines, and protocols during the shutdown and subsequent work. Conduct a thorough inspection after the work is completed to ensure that the system is fully operational and there are no residual issues.

G. DESCRIPTION OF SCOPE EXCLUSIONS

The following is a complete and exhaustive list of exclusions from the Scope of Work:

1. NONE

H. BIM COORDINATION SCOPE INCLUSIONS:

Bim coordination scope inclusions outline the scope of work for Building Information Modeling (BIM) required for Mechanical, Electrical, Plumbing, and Fire Protection (MEPFP) trades. The objective is to ensure seamless coordination and integration of all MEPFP systems through the BIM process. All final approved drawings must be done in the same paper scale as the contract drawings.

1. Coordination Meetings
    a. Weekly coordination meetings will be conducted. Each subcontractor must designate an MEPFP coordinator to attend these meetings.
2. Allowance
    a. Each subcontractor is to provide an in-scope allowance of $35,000. This allowance has been set aside to cover the costs associated with coordination activities and will facilitate collaboration between the MEPFP trades and the designated CM-supplied BIM Manager.
3. Collaboration with BIM Manager
    a. Subcontractors are required to work directly with the CM-provided BIM manager. All routing and subcontractor preferences must be resolved outside of coordination meetings.
    b. All drawings will be done by in 3D with Autodesk Revit or Navisworks Manager.
4. Clash Detection and Resolution
    a. During weekly coordination meetings, clashes with all MEPFP contractors will be discussed and resolved.
5. Final As-Built Models
    a. At the end of the BIM process, all final as-built models must accurately reflect all installed MEPFP systems. Any deviations from the BIM drawings requiring rework will be done at the expense of the subcontractor, not covered by the MEPFP allowance.
6. Preparation and Coordination Timeline
    a. After the issuance of the "Letter of Intent," the subcontractor has 30 days to prepare for the BIM process and coordinate with the CM-supplied BIM coordinator.
    b. The first BIM coordination meeting will begin 30 days after the "Letter of Intent" is issued.
7. Review and Approval of Coordination Drawings
    a. 90 days after the issuance of the "Letter of Intent," the CM-supplied BIM Manager will issue coordination drawings for approval and review.
    b. The subcontractor's BIM coordinator will review and approve all BIM model drawings within 15 days. After 15 days, the issued drawings will be considered

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binding and used on-site. Any errors or changes required after this period will be made at the subcontractor's expense.

8. Completion of BIM Process
    a. The BIM process will be completed 105 days after the "Letter of Intent" is issued.
    b. Any delays caused by the subcontractor will result in a deductive change order for any additional costs incurred.
    c. At the end of the BIM Process this Subcontractor will have access to all MEFP Coordinated. Models and drawings will comply with project standards and guidelines, ensuring they meet the required level of detail and accuracy for construction.

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BID PACKAGE #2600
ELECTRICAL, COMMUNICATION, FIRE & SMOKE PROTECTION
(SCOPE OF WORK)

The Scope of Work shall include the furnishing of a complete **ELECTRICAL, COMMUNICATION, FIRE & SMOKE PROTECTION**. This shall include, but is not limited to all required: labor, fabrication, engineering, submittals, shop drawings, materials, equipment, tools, supervision, hoisting, scaffolding, and transportation as required for a complete scope of work.

DESCRIPTION OF SCOPE INCLUSIONS

The following is a non-exhaustive list of inclusions and is not intended to limit the work in any way.

A. CONTRACT DOCUMENTS:

All work shall be performed in accordance with Contract Documents.

- All plans and specifications
- All scope of work requirements
- All contract requirements

B. BONDING REQUIRMENTS:

Each bidder quoting a sum greater than **$100,000** shall have a 10% Bid Bond accompanying their bid as well as a Payment and Performance Bond included in their price. Additionally, all Bonds required shall be furnished per the Subcontract Agreement provided in the Bid Manual. (Addendum 2)

C. SUBMITTAL REQUIREMENTS:

Collaborative File Sharing - Subcontractor shall be responsible for the uploading of all required submittals to a file sharing program (Procore). Notifications will be sent when submittals are reviewed. It is the subcontractor's responsibility to track the approval process and proceed as directed in the submittal by the due date stated in Procore.

Samples – Descriptions of samples shall be uploaded to the site for record purposes. "Hard" samples are still required per the plans/specifications.

At the time of submittals Subcontractor shall clearly identify to the Construction's Manager and Architect's attention, **any deviations from the Contract Documents**. This Subcontractor's responsibility to the Contract Documents is not relieved by the Architect or Construction Manager's review unless there is **written acceptance of the specific deviations**. Subcontractor is responsible for submitting and expediting approval of any submittal requirements through a jurisdictional agency, if applicable.

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Subcontractor is to deliver all required Reports and bid documents to Construction Manager within 14 calendar days from date of Notice of Award. NO payment shall be made to subcontractor without all subcontractors' documents submitted. Provide signed and sealed engineered shop drawings as specified by a licensed and registered Engineer.

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D. STANDARD SCOPE INCLUSIONS:

The items listed below are specifically included and are for clarification purposes only. They shall not be construed as a complete list of all work. It is the intent of this to clarify subcontract issues. If conflicts are discovered between this and the Subcontract General Terms, then the Subcontract General Terms shall govern.

1. Provide a full-time, competent, and English-speaking Superintendent onsite at all times while this subcontractor's work is being performed to coordinate the work of this project. The competent person on site must be OSHA 30 certified. Failure to provide a competent person on site will result in the CM not allowing the subcontractor to work on site.
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schedule delays, this subcontractor will increase its manpower at Metcon's, Owner's, and/or Architect's request. Pay applications may be delayed until compliance has been satisfied.

17. In the event of inclement weather, this subcontractor is responsible for securing and protecting all their materials and work in place.
18. This subcontractor shall conduct pursuant to N.C. Gen. Stat. § 115C-332.1, an annual check of each of its employees, and contractual employees, consultants, agents, and other representatives on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry if such employee, subcontractor, agent, or other representative will be on the Project site or other school property as part of his or her job. The CM shall conduct this check on each of its employees, consultants, agents, and other representatives prior to permitting such employee, consultant, agent or other representative to enter the Project site or other school property to perform work under this agreement. For the Construction Manager's convenience only, all the required registry checks may be completed at no cost by accessing the United States Department of Justice Sex Offender Public Registry at http://www.nsopw.gov. No person shall be permitted to enter the Project site or other school property to perform work under this agreement if that person is listed on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.
19. This subcontractor must thoroughly examine all drawings to recognize and include elements within their area of responsibility. This subcontractor is required to review all project drawings and specs. This subcontractor will have an opportunity to ask questions about design intent before bidding; after the bid and award of the package, the subcontractor will utilize the most stringent design. The design utilized shall be in the best interest of the Owner.
20. Parking at and around the site will be limited. Please see the Logistics plan for more information.
21. The subcontractor shall only remove temporary construction fences, safety control devices, or sediment control devices with advanced approval from the construction manager. In the event that removal is required, the subcontractor shall reinstall it in the same condition or better.
22. This subcontractor will abide by local noise ordinances as required.
23. A weekly job site cleanup will occur. Each subcontractor must contribute one laborer per five onsite workers for four (4) hours, to be used at the Construction Manager's discretion.
24. All non-compliance items or punch lists brought to the subcontractor's attention in Procore must be corrected and "ready for review" within 5 working days of initiation by the Construction Manager.
25. All subcontractors will adhere to a work week consisting of five (5) days per week, ten (10) hour days, fifty-two (52) weeks per year, with standardized starting and quitting timed 7 am to 5:30 pm regardless of external influences (such as driving distance, subcontractor's company policies, or personal preference.) No subcontractor will be allowed to work a four (4) day work week.
26. Under no circumstances is the subcontractor permitted to work without a construction manager's representative on site.

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27. Protection of work in place: This subcontractor shall provide and maintain protection of all adjacent property and other subcontractor's work, materials, tools, and equipment from damage resulting from this subcontractor's activities. This subcontractor is responsible for the cost of repairing or replacing any items damaged by its employees, its lower-tier subcontractors, or its suppliers, including damage caused during stocking or hoisting.
28. In addition to any Owner site requirements, eating and drinking shall be prohibited within the building or as otherwise determined by the Construction Manager. Subcontractor violators will be removed from the project site. Smoking or other tobacco products will not be allowed on site. Anyone violating this policy will be removed from the site permanently.
29. No visitors shall be admitted to the job site by the subcontractor without first obtaining the approval of the Construction Manager and having completed the site-specific job site orientation. This subcontractor will confirm and/or provide all their visitors with the site-required personal protection equipment.
30. No photographs or videos (including drone videos) of the project may be taken without the construction manager's and owner's prior approval. All persons approved to take photographs/videos must attend training and will be provided with credentials.
31. All schedules of values shall be uploaded to GC Pay within ten (10) days of the letter of intent being awarded. All subcontractors ' SOVs shall include the following standard items: mobilization, submittals, weekly composite cleanup, punch list, and project closeout. The schedule of values approval by the construction manager shall be followed before this subcontractor's first pay application. The construction manager requires a minimum of twenty (20) days to review the schedule of values.
32. Attached to the Bid manual is a sample of Metcon's standard contract. This subcontractor is required to review and accept it in its entirety.
33. Weekend work might be necessary to meet the project schedule, which must be coordinated with the Construction Manager if required. The construction manager will not allow weekend work if the subcontractors are not already working the full number of job site hours with full crews. This means that if you are working less than Monday through Friday, 7 am -5:30 pm, the site will not be open on the weekend unless excusable inclement weather determined by the CM occurs during the week. There will be no issue with opening the site as much as necessary to facilitate subcontractors who are trying to meet the scheduled responsibilities by working the total amount of open hours.
34. Include all necessary mobilizations required to complete this scope of work.
35. The construction manager reserves the right to add a fifteen (15) percent mark-up to all back charges that the construction manager facilitates. If back charges are resolved without the involvement of the Construction Manager, no mark-up will be applied.
36. Time and Material tickets must be approved by the Construction Manager's superintendent within 24 hours of work commencing. Invoices associated with time and material tickets must be submitted to the Construction Manager's Project Manager within thirty (30) days of work commencing. All invoices must reference a "CE number" assigned by the CM. Invoices not referencing a "CE number" will be returned and not processed.
37. Pull planning will be implemented on this project. The weekly "Plan Percent Complete Report" will be sent to the subcontractor's representative to provide tangible value to the subcontractor's

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progress. The subcontractor is required to use the pull planning process to identify all constraints that may impede their progress. Constraints not identified and documented within a reasonable time for rectification will not be considered valid reasons for schedule adjustments. The subcontractor is expected to follow the Pull Plan Schedule, which should enhance and supersede the contract schedule.

38. All required site safety documentation must be submitted in Procore 30 days after issuing the letter of intent. This is to include the following:
    a. Executed the partnership form for the subcontractor safety and health incident prevention program.
    b. Subcontractors' specific site job hazard analysis (JHA), detailing your scope of work, the hazards associated with each task, and how they will be abated.
    c. Trades whose work scope includes steel erection, pre-cast, demo, and roofing shall provide a written site safety plan.
    d. Provide OSHA 300 & 300A logs for the last three years.
    e. A written hazard communication program safety data sheet (SDS)
    f. A written safety plan for the revised silica dust respiratory plan (if applicable) is needed.
    g. A written ground fault protection program.
    h. Exhibit J3 returned with pages initialed.
    i. All site-specific personnel documentation will be required to be submitted two weeks before this scope of work begins.
    j. Failure to comply with this documentation will result in a delayed start in this subcontractor's mobilization. This may include withholding mobilization costs in pay applications until this subcontractor complies. No additional cost or time will be considered due to any acceleration required. (Addendum 2)
39. Survey points will be provided for general locational purposes. These will not be given in every single room. To complete this work scope, each subcontractor must transfer the general area survey points accurately as needed. The location of these general survey points is at the discretion of the Construction Manager. (Addendum 2)
40. The construction manager has the authority to recommend withholding pay applications from any subcontractor due to poor work quality. If this situation arises, the subcontractor will be notified in writing (72 hours' notice) that their work quality is unsatisfactory and requires remediation. The subcontractor must then submit a written remediation plan detailing how they will improve the quality of their work. Once the plan has been implemented and the work quality has been improved, the subcontractor may resubmit their pay application for the owner's approval. Any active unresolved 72-hour notices may result in the CM withholding the pay application for this subcontractor. (Addendum 2)
41. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.

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a. The construction manager can provide equipment and a robotic total station operator for $175/hr with at least 48hr notice. A competent layout representative from this subcontractor must accompany the layout crew.
b. Failure to use the robotic total station will result in a stop work order with no added time to the schedule until the subcontractor complies. No added cost associated with acceleration will be accepted.
c. This subcontractor shall be solely responsible for the correct layout, which cannot be delegated or assigned.

42. Please see the table below for all required meetings.
    a. Without exception, this Subcontractor's Project Manager and/or Superintendent must attend the weekly coordination/subcontractor meetings in person two weeks before starting work and while performing the scope of work.
    b. This subcontractor is required to participate in pull planning sessions actively. These sessions are in-person and onsite, with no exceptions. These will occur every 4-6 weeks at the CM discretion. Each day, the progress will be reviewed in the "Daily Forman's Huddle".
    c. Failure to have the proper representative at any onsite meeting will constitute a safety violation of "competent person not on site.". Refer to Exhibit J for more information.

Meeting Titles	Frequency	Who is required to attend	Location
Pre-install	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Safe Start	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Daily Foreman Huddle	Daily	Superintendent & Forman's	Onsite - CM Trailer
Weekly Coordination	Weekly	Superintendent &/or Project Manager	Onsite - CM Trailer
Pull Plan Initial	As required	Superintendent &/or Project Manager	Remote/Teams
Pull Plan Session	Monthly	Superintendent &/or Project Manager	Onsite - CM Trailer
Jobsite Safety Standdown	Weekly	Everyone onsite	Onsite - CM Trailer
BIM Coordination	Weekly	MEP Trades BIM Managers	Remote/Teams

E. SCOPE OF WORK SPECIFICATIONS

The following outlines the scope of work specifications sections relevant to the work to be performed. This list represents the core specifications that will guide the tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional specifications and related sections that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. **Division 26 – Electrical**
2. **Division 27 – Communications**
3. **Division 28 – Electronic Safety and Security**

F. PROJECT SPECIFIC SCOPE REQUIREMENTS:

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The following outlines the project-specific scope requirements of the work to be performed. This list represents the core tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional tasks and responsibilities that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. This subcontractor shall be responsible for disconnecting and terminating all existing electrical connections to the building slated for demolition, ensuring safe and complete isolation of power sources as per project specifications and safety regulations. This subcontractor shall coordinate with the demolition subcontractor and site subcontractor to complete this work. (Addendum 2)
2. Furnish, install, maintain, and remove the following ***temporary utilities***:
    a. Subcontractor shall furnish, install, maintain, and remove (upon project completion) all Electrical / Telecom / Cable Internet service (including connections) to the Construction Manager's office trailer complex and 2 temporary site camera systems, including 2 telephone poles. Power will need to be provided for the site camera system.
    b. Subcontractor shall furnish, install, maintain, and remove (upon project completion) all required conduit, conductors, meter cans, disconnects, breakers, panels, subpanels, etc., for temporary power service. Temporary electrical service shall be capable of supplying adequate power for all construction activities with the main panel to be in the front of the building and five (5) sub-panels in the building to be located as directed by the Construction Manager. Additionally, provide two (2) 220v, 50-amp circuits with circuit breakers in locations outside the building as directed by the Construction Manager for masonry equipment.
    c. Subcontractor shall furnish, install, maintain, and remove (upon project completion) a temporary lighting system. Temporary lighting shall be LED only equal to or greater than 5 ft/candles at any position on the floor and at any elevation above the finish floor to the underside of the structure without consideration for natural lighting through door/window openings. All rooms, corridors, closets, attic areas, etc., which have work to be performed shall be included as requiring temporary lighting. Maintenance and replacement of all bulbs are included.
    d. Subcontractor agrees to utilize a permanent lighting system for temporary construction lighting at each area upon activation of the permanent system and prior to the beginning of finish trades to allow finishes to be performed under permanent light conditions. Light fixtures shall be plastic-covered to prevent soiling of lenses, etc. The subcontractor is responsible for re-lamping permanent fixtures in accordance with Contract Documents for the Construction Manager's utilization of permanent lighting during finishing operations.
3. All conduits, raceways and pull strings for work by others as shown on the drawings is include in this scope of work.
4. All Exterior Lighting and all Exterior Athletic Lighting is include in this scope of work.
5. The subcontractor is responsible for obtaining any necessary City/County permits and scheduling inspections for all temporary/and permanent installations and ensuring notification of the power company for installation of meters. Obtaining the abovementioned should be done in a timely manner without causing delays to the schedule.

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4. The subcontractor is to furnish and install all HVAC, Theatrical lighting, Plumbing, Fire suppression, etc., disconnects, and service conductors/conduits.
5. The subcontractor is responsible for all seismic supports for this scope of work.
6. The subcontractor shall furnish, install, maintain, and remove (upon project completion) a temporary Mesh Wi-fi network for the entire site. Wi-fi network speed should be of a minimum of 1GBps. Access to the password-protected Wi-Fi network will be granted only to superintendents and project managers in all trades.
7. If there are any price differences associated with the lead time of this equipment, this vendor shall disclose this information.
8. All electrical equipment shall include a coordination study.
9. All required Load Bank Testing, certifications, or any other specified test listed on the drawings and specs shall be covered in pricing.
10. All wall and floor slab penetrations must be properly core drilled and/or sleeved, collared, escutcheoned when exposed, grouted. Provide a neat, clean, tightly sealed product. The subcontractor is responsible for the layout, furnishing, and installation of all sleeving requirements under this agreement. Including Hollow core.
11. The subcontractor is responsible for cleaning up all core drill slurry from walls and slabs and removing and patching all core drill machine anchors.
12. The subcontractor is responsible for coordinating all mechanical installations that can not be core drilled and providing a complete mechanical system. There will be no cost or time considerations given for adjustments of equipment or pipe runs due to conflicts arising from a lack of coordination with adjacent other existing MEP installations, building structure, or other Subcontractors. The first installation does not constitute grounds for a change order for re-installations due to uncoordinated work.
13. Recessed floor boxes must be coordinated with the substrate contractor.
14. Subcontractors shall layout and install all required sleeves within elements of the structure to install the Subcontractor's work. Subcontractor shall seal, pack, fire safe, water seal, weather caulk, aesthetic caulk, etc. all its sleeves/penetrations as required by the Contract Documents and as to maintain required ratings. Formed openings in masonry, concrete walls, and penetrations through hollow core planks are included herein
15. BIM coordination will occur for this project. See the section "**H. BIM COORDINATION SCOPE INCLUSIONS**" below.
16. The subcontractor is responsible for coordinating and providing a minimum of 48-hour notice prior to the shutdown of any system required to perform their work. All shutdowns and associated work must be conducted outside of normal working hours to minimize disruption to regular operations. Obtain necessary permissions and ensure all stakeholders are informed about the shutdown schedule. Clear and detailed communication must be maintained regarding the scope of work, the expected duration of the shutdown, and any potential impacts on other systems or operations. The subcontractor should prepare and share a contingency plan to handle any unexpected issues that may arise during the shutdown period. Ensure that backup systems or

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alternative arrangements are in place if required. Adhere to all safety regulations, guidelines, and protocols during the shutdown and subsequent work. Conduct a thorough inspection after the work is completed to ensure that the system is fully operational and there are no residual issues.

G. DESCRIPTION OF SCOPE EXCLUSIONS

The following is a complete and exhaustive list of exclusions from the Scope of Work:

1. NONE

H. BIM COORDINATION SCOPE INCLUSIONS:

Bim coordination scope inclusions outline the scope of work for Building Information Modeling (BIM) required for Mechanical, Electrical, Plumbing, and Fire Protection (MEPFP) trades. The objective is to ensure seamless coordination and integration of all MEPFP systems through the BIM process. All final approved drawings must be done on the same paper scale as the contract drawings.

1. Coordination Meetings
    a. Weekly coordination meetings will be conducted. Each subcontractor must designate an MEPFP coordinator to attend these meetings.
2. Allowance
    a. Each subcontractor is to provide an in-scope allowance of $35,000. This allowance has been set aside to cover the costs associated with coordination activities and will facilitate collaboration between the MEPFP trades and the designated CM-supplied BIM Manager.
3. Collaboration with BIM Manager
    a. Subcontractors are required to work directly with the CM-provided BIM manager. All routing and subcontractor preferences must be resolved outside of coordination meetings.
    b. All drawings will be done by in 3D with Autodesk Revit or Navisworks Manager.
4. Clash Detection and Resolution
    a. During weekly coordination meetings, clashes with all MEPFP contractors will be discussed and resolved.
5. Final As-Built Models
    a. At the end of the BIM process, all final as-built models must accurately reflect all installed MEPFP systems. Any deviations from the BIM drawings requiring rework will be done at the expense of the subcontractor, not covered by the MEPFP allowance.
6. Preparation and Coordination Timeline
    a. After the issuance of the "Letter of Intent," the subcontractor has 30 days to prepare for the BIM process and coordinate with the CM-supplied BIM coordinator.
    b. The first BIM coordination meeting will begin 30 days after the "Letter of Intent" is issued.

7. Review and Approval of Coordination Drawings
    a. 90 days after the issuance of the "Letter of Intent," the CM-supplied BIM Manager will issue coordination drawings for approval and review.
    b. The subcontractor's BIM coordinator will review and approve all BIM model drawings within 15 days. After 15 days, the issued drawings will be considered binding and used on-site. Any errors or changes required after this period will be made at the subcontractor's expense.
8. Completion of BIM Process
    a. The BIM process will be completed 105 days after the "Letter of Intent" is issued.
    b. Any delays caused by the subcontractor will result in a deductive change order for any additional costs incurred.
    c. At the end of the BIM Process this Subcontractor will have access to all MEFP Coordinated. Models and drawings will comply with project standards and guidelines, ensuring they meet the required level of detail and accuracy for construction.
9. This subcontractor must create a “Conduit Racking/Path Plan and submit it to the BIM manager. The BIM Manager and the subcontractor will coordinate all necessary details. Any rework resulting from a deviation of the completed Conduit Racking Path plan, will be at the subcontractor’s risk and expense. (Addendum 3)

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BID PACKAGE #3100
TURNKEY SITEWORK
(SCOPE OF WORK)

The Scope of Work shall include the furnishing of a complete **TURNKEY SITE**. This shall include, but is not limited to all required: labor, fabrication, engineering, submittals, shop drawings, materials, equipment, tools, supervision, hoisting, scaffolding, and transportation as required for a complete scope of work.

DESCRIPTION OF SCOPE INCLUSIONS

The following is a non-exhaustive list of inclusions and is not intended to limit the work in any way.

A. CONTRACT DOCUMENTS:

All work shall be performed in accordance with Contract Documents.

- All plans and specifications
- All scope of work requirements
- All contract requirements

B. BONDING REQUIRMENTS:

Each bidder quoting a sum greater than **$100,000** shall have a 10% Bid Bond accompanying their bid as well as a Payment and Performance Bond included in their price. Additionally, all Bonds required shall be furnished per the Subcontract Agreement provided in the Bid Manual. (Addendum 2)

C. SUBMITTAL REQUIREMENTS:

Collaborative File Sharing - Subcontractor shall be responsible for the uploading of all required submittals to a file sharing program (Procore). Notifications will be sent when submittals are reviewed. It is the subcontractor's responsibility to track the approval process and proceed as directed in the submittal by the due date stated in Procore.

Samples – Descriptions of samples shall be uploaded to the site for record purposes. "Hard" samples are still required per the plans/specifications.

At the time of submittals Subcontractor shall clearly identify to the Construction's Manager and Architect's attention, **any deviations from the Contract Documents**. This Subcontractor's responsibility to the Contract Documents is not relieved by the Architect or Construction Manager's review unless there is **written acceptance of the specific deviations**. Subcontractor is responsible for submitting and expediting approval of any submittal requirements through a jurisdictional agency, if applicable.

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Any required re-submittals, record submittals, and/or field drawings shall be forwarded to Construction Manager within seven (7) days of initial submittal return to Subcontractor. **Failure of this Subcontractor to submit correct or timely submittals does not relieve said Subcontractor of material delivery obligations in accordance with the Project Schedule.** Subcontractor shall allow a minimum of twenty-eight (28) calendar days of Construction Manager -Architect review duration. No material substitutions will be approved by Construction Manager unless Subcontractor can obtain Owner-Architect approval for such substitutions at no additional cost to Construction Manager and without delaying project schedule.

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4. The subcontractor has reviewed specification SECTION 01 23 00 – ALTERNATES. All required pricing for alternates for this scope of work has been acknowledged and included in the bid form. If alternates are selected, they are selected in their entirety. All documents have been fully evaluated for alternative work.
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6. Verify all substrate conditions and notify the Construction Manager twenty-one (21) days prior to the start of work of any deficiencies in substrate prohibiting the start of work under this agreement.

7. All subcontractor employees must have access to a tablet with Procore access for use on this project. This tablet shall be an iPad Pro generation 3 or newer with cellular connectivity or comparable in specs and capabilities.

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9. This subcontractor is responsible for requesting any additional information, instructions and/or clarifications required to complete the work. The subcontractor will request such information from the Design team in writing as a Request for information (RFI) through the file-sharing program Procore. Requests for such information shall be made in advance to avoid any delay in the work.

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schedule delays, this subcontractor will increase its manpower at Metcon's, Owner's, and/or Architect's request. Pay applications may be delayed until compliance has been satisfied.

17. In the event of inclement weather, this subcontractor is responsible for securing and protecting all their materials and work in place.
18. This subcontractor shall conduct pursuant to N.C. Gen. Stat. § 115C-332.1, an annual check of each of its employees, and contractual employees, consultants, agents, and other representatives on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry if such employee, subcontractor, agent, or other representative will be on the Project site or other school property as part of his or her job. The CM shall conduct this check on each of its employees, consultants, agents, and other representatives prior to permitting such employee, consultant, agent or other representative to enter the Project site or other school property to perform work under this agreement. For the Construction Manager's convenience only, all the required registry checks may be completed at no cost by accessing the United States Department of Justice Sex Offender Public Registry at http://www.nsopw.gov. No person shall be permitted to enter the Project site or other school property to perform work under this agreement if that person is listed on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.
19. This subcontractor must thoroughly examine all drawings to recognize and include elements within their area of responsibility. This subcontractor is required to review all project drawings and specs. This subcontractor will have an opportunity to ask questions about design intent before bidding; after the bid and award of the package, the subcontractor will utilize the most stringent design. The design utilized shall be in the best interest of the Owner.
20. Parking at and around the site will be limited. Please see the Logistics plan for more information.
21. The subcontractor shall only remove temporary construction fences, safety control devices, or sediment control devices with advanced approval from the construction manager. In the event that removal is required, the subcontractor shall reinstall it in the same condition or better.
22. This subcontractor will abide by local noise ordinances as required.
23. A weekly job site cleanup will occur. Each subcontractor must contribute one laborer per five onsite workers for four (4) hours, to be used at the Construction Manager's discretion.
24. All non-compliance items or punch lists brought to the subcontractor's attention in Procore must be corrected and "ready for review" within 5 working days of initiation by the Construction Manager.
25. All subcontractors will adhere to a work week consisting of five (5) days per week, ten (10) hour days, fifty-two (52) weeks per year, with standardized starting and quitting timed 7 am to 5:30 pm regardless of external influences (such as driving distance, subcontractor's company policies, or personal preference.) No subcontractor will be allowed to work a four (4) day work week.
26. Under no circumstances is the subcontractor permitted to work without a construction manager's representative on site.

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27. Protection of work in place: This subcontractor shall provide and maintain protection of all adjacent property and other subcontractor's work, materials, tools, and equipment from damage resulting from this subcontractor's activities. This subcontractor is responsible for the cost of repairing or replacing any items damaged by its employees, its lower-tier subcontractors, or its suppliers, including damage caused during stocking or hoisting.
28. In addition to any Owner site requirements, eating and drinking shall be prohibited within the building or as otherwise determined by the Construction Manager. Subcontractor violators will be removed from the project site. Smoking or other tobacco products will not be allowed on site. Anyone violating this policy will be removed from the site permanently.
29. No visitors shall be admitted to the job site by the subcontractor without first obtaining the approval of the Construction Manager and having completed the site-specific job site orientation. This subcontractor will confirm and/or provide all their visitors with the site-required personal protection equipment.
30. No photographs or videos (including drone videos) of the project may be taken without the construction manager's and owner's prior approval. All persons approved to take photographs/videos must attend training and will be provided with credentials.
31. All schedules of values shall be uploaded to GC Pay within ten (10) days of the letter of intent being awarded. All subcontractors ' SOVs shall include the following standard items: mobilization, submittals, weekly composite cleanup, punch list, and project closeout. The schedule of values approval by the construction manager shall be followed before this subcontractor's first pay application. The construction manager requires a minimum of twenty (20) days to review the schedule of values.
32. Attached to the Bid manual is a sample of Metcon's standard contract. This subcontractor is required to review and accept it in its entirety.
33. Weekend work might be necessary to meet the project schedule, which must be coordinated with the Construction Manager if required. The construction manager will not allow weekend work if the subcontractors are not already working the full number of job site hours with full crews. This means that if you are working less than Monday through Friday, 7 am -5:30 pm, the site will not be open on the weekend unless excusable inclement weather determined by the CM occurs during the week. There will be no issue with opening the site as much as necessary to facilitate subcontractors who are trying to meet the scheduled responsibilities by working the total amount of open hours.
34. Include all necessary mobilizations required to complete this scope of work.
35. The construction manager reserves the right to add a fifteen (15) percent mark-up to all back charges that the construction manager facilitates. If back charges are resolved without the involvement of the Construction Manager, no mark-up will be applied.
36. Time and Material tickets must be approved by the Construction Manager's superintendent within 24 hours of work commencing. Invoices associated with time and material tickets must be submitted to the Construction Manager's Project Manager within thirty (30) days of work commencing. All invoices must reference a "CE number" assigned by the CM. Invoices not referencing a "CE number" will be returned and not processed.
37. Pull planning will be implemented on this project. The weekly "Plan Percent Complete Report" will be sent to the subcontractor's representative to provide tangible value to the subcontractor's

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progress. The subcontractor is required to use the pull planning process to identify all constraints that may impede their progress. Constraints not identified and documented within a reasonable time for rectification will not be considered valid reasons for schedule adjustments. The subcontractor is expected to follow the Pull Plan Schedule, which should enhance and supersede the contract schedule.

38. All required site safety documentation must be submitted in Procore 30 days after issuing the letter of intent. This is to include the following:
    a. Executed the partnership form for the subcontractor safety and health incident prevention program.
    b. Subcontractors' specific site job hazard analysis (JHA), detailing your scope of work, the hazards associated with each task, and how they will be abated.
    c. Trades whose work scope includes steel erection, pre-cast, demo, and roofing shall provide a written site safety plan.
    d. Provide OSHA 300 & 300A logs for the last three years.
    e. A written hazard communication program safety data sheet (SDS)
    f. A written safety plan for the revised silica dust respiratory plan (if applicable) is needed.
    g. A written ground fault protection program.
    h. Exhibit J3 returned with pages initialed.
    i. All site-specific personnel documentation will be required to be submitted two weeks before this scope of work begins.
    j. Failure to comply with this documentation will result in a delayed start in this subcontractor's mobilization. This may include withholding mobilization costs in pay applications until this subcontractor complies. No additional cost or time will be considered due to any acceleration required. (Addendum 2)
39. Survey points will be provided for general locational purposes. These will not be given in every single room. To complete this work scope, each subcontractor must transfer the general area survey points accurately as needed. The location of these general survey points is at the discretion of the Construction Manager. (Addendum 2)
40. The construction manager has the authority to recommend withholding pay applications from any subcontractor due to poor work quality. If this situation arises, the subcontractor will be notified in writing (72 hours' notice) that their work quality is unsatisfactory and requires remediation. The subcontractor must then submit a written remediation plan detailing how they will improve the quality of their work. Once the plan has been implemented and the work quality has been improved, the subcontractor may resubmit their pay application for the owner's approval. Any active unresolved 72-hour notices may result in the CM withholding the pay application for this subcontractor. (Addendum 2)
41. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.

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a. The construction manager can provide equipment and a robotic total station operator for $175/hr with at least 48hr notice. A competent layout representative from this subcontractor must accompany the layout crew.
b. Failure to use the robotic total station will result in a stop work order with no added time to the schedule until the subcontractor complies. No added cost associated with acceleration will be accepted.
c. This subcontractor shall be solely responsible for the correct layout, which cannot be delegated or assigned.

42. Please see the table below for all required meetings.
    a. Without exception, this Subcontractor's Project Manager and/or Superintendent must attend the weekly coordination/subcontractor meetings in person two weeks before starting work and while performing the scope of work.
    b. This subcontractor is required to participate in pull planning sessions actively. These sessions are in-person and onsite, with no exceptions. These will occur every 4-6 weeks at the CM discretion. Each day, the progress will be reviewed in the "Daily Forman's Huddle".
    c. Failure to have the proper representative at any onsite meeting will constitute a safety violation of "competent person not on site.". Refer to Exhibit J for more information.

Meeting Titles	Frequency	Who is required to attend	Location
Pre-install	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Safe Start	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Daily Foreman Huddle	Daily	Superintendent & Forman's	Onsite - CM Trailer
Weekly Coordination	Weekly	Superintendent &/or Project Manager	Onsite - CM Trailer
Pull Plan Initial	As required	Superintendent &/or Project Manager	Remote/Teams
Pull Plan Session	Monthly	Superintendent &/or Project Manager	Onsite - CM Trailer
Jobsite Safety Standdown	Weekly	Everyone onsite	Onsite - CM Trailer
BIM Coordination	Weekly	MEP Trades BIM Managers	Remote/Teams

E. SCOPE OF WORK SPECIFICATIONS

The following outlines the scope of work specifications sections relevant to the work to be performed. This list represents the core specifications that will guide the tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional specifications and related sections that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. **SECTION 31 05 13 - SOILS FOR EARTHWORK**
2. **SECTION 31 05 16 - AGGREGATES FOR EARTHWORK**
3. **SECTION 31 10 00 - SITE CLEARING AND DEMOLITION**
4. **SECTION 31 20 00 - EARTHWORK FOR SITE**
5. **SECTION 31 22 13 - ROUGH GRADING**
6. **SECTION 31 23 16 – EXCAVATION**
7. **SECTION 31 23 17 – TRENCHING**
8. **SECTION 31 23 23 – FILL**
9. **SECTION 31 25 13 - EROSION CONTROLS**

10. SECTION 32 11 23 - AGGREGATE BASE COURSES
11. SECTION 32 12 16 - ASPHALT PAVING
12. SECTION 32 13 13 - CONCRETE PAVING
13. SECTION 32 17 23 - PAVEMENT MARKINGS
14. SECTION 32 31 13 - CHAIN LINK FENCES AND GATES – Permanent Only
15. SECTION 33 11 16 - SITE WATER UTILITY DISTRIBUTION PIPING
16. SECTION 33 27 53 - TURNKEY DUPLEX LIFT STATION
17. SECTION 33 31 00 - SANITARY UTILITY SEWERAGE PIPING
18. SECTION 33 41 00 - STORM UTILITY DRAINAGE PIPING

F. PROJECT SPECIFIC SCOPE REQUIREMENTS:

The following outlines the project-specific scope requirements of the work to be performed. This list represents the core tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional tasks and responsibilities that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. Furnish, install, maintain, and remove the following *temporary utilities*.
    a. Subcontractor shall furnish, install, maintain, and remove (upon project completion) all required water taps, valves, backflow preventers, underground PVC or cast iron piping, and insulated wrap on exposed piping to Construction Manager's office trailer complex including connection to trailer.
    b. Subcontractor shall furnish, install, maintain, and remove (upon project completion) all required water taps, valves, backflow preventers, underground PVC or cast iron piping, and insulated wrap on exposed piping to provide a site construction water source. Include a supported header assembly providing four (4) 2" connections and six (6) hose bib connections.
    c. Provide 200,000 SF of 4" stone aggregate base compacted furnish, install, maintained and removed at CM's discretion. See logistics plan for details.
2. Installation and Maintenance of Erosion Control
3. Temporary Utilities as outlined above
4. Site Clearing
5. Rough and Final Grading
6. All Cut and Fill operations including Building pad prep
7. All Water Distribution Systems
8. On Site Sewer Systems complete
9. All Storm Water Systems
10. All Site Concrete outside the building line. This shall include sidewalks, playground,
11. Equipment pads shall be installed by others.
12. All Paving, Striping and ADA Signage.

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13. Temporary Seeding and Mulch

14. This subcontractor shall be responsible for all decorative fencing, chain link fencing, in its entirety as it is indicated within the contract documents.

15. This subcontractor shall be responsible for installing bollards provided by others.

16. ~~All Sitework (clearing, excavation, etc.) on this project is to be bid as "UNCLASSIFIED"~~. Subsurface will remain "UNCLASSIFIED" up to subgrade however, this will not apply to existing building pad and parking lots. (Addendum 3)

17. This Subcontractor shall contract with a registered land surveyor in the State of North Carolina to stake all work under this agreement. Also, this Subcontractor shall provide a signed and sealed drawing to certify that all grading, ponds, utility installations, etc. comply with Contract Documents upon completion of each phase of work and prior to receipt of payment for completed work. Final signed and sealed as-built drawings shall be provided at conclusion of the scope of work.

18. Coordinate building point of entry (location and elevation), and flange layout / bolt pattern with Fire Protection Subcontractor. Sleeving of walls and waterproofing penetration is herein included.

19. All work under this subcontract will be in accordance with the Contract Documents and City, County, DENR, and NCDOT Requirements.

20. This subcontractor is responsible for the procuring of and payment for all required Right-of-way permits, Curb Cut Permits, City Insurance requirements, roadway bonds, tap fees, etc. This subcontractor shall have NCDOT certified traffic control personnel and devices to insure safe vehicular entrance and exit to and from the site.

21. All terminations to within 4'-0" of building are included. Subcontractor shall be responsible for tie-in of lines to building structures regardless of whether stub outs are installed at time of utility line installation. Subcontractor shall coordinate with other subcontractors to ensure that final installation is completed as required.

22. It is the responsibility of this Subcontractor to ensure that all piping installations have sufficient specified, or code required coverage.

23. This subcontractor is responsible for final setting and adjusting of all grates, manholes, hydrants, PIVs, cleanout covers, valve boxes, etc.

24. This subcontractor is responsible for total coordination of all underground utilities and for providing complete utilities system. There will be no cost or time considerations given for adjustments of structures or pipe runs due to conflicts arising from lack of coordination with adjacent utilities, structures, or other Subcontractors. First installed does not constitute grounds for a change order for installation of uncoordinated work.

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25. This subcontractor is responsible for the re-wetting, aeration, and/or drying of existing soil materials to obtain optimum moisture content for use as compacted fill. In the event weather conditions do not allow Subcontractor to dry wet materials required to perform the work within the scheduled time frame, Subcontractor shall remove and dispose of the wet material and replace with suitable soil as not to delay project schedule at no additional cost to Construction Manager.

26. Surface and rainwater controls shall be provided throughout the duration of the Agreement. Contaminated water, beyond the limits allowed by the Contract Documents shall not be permitted, mechanically or by natural flow, to be discharged off-site. Quality of water discharged shall comply with all requirements of the Contract documents and local jurisdictional allowances. All flocculation as required to comply with the quality of water requirements of the Contract Documents shall be included.

27. All liabilities of sediment entering storm sewer system or discharging off-site is the responsibility of this Subcontractor to rectify.

28. This subcontractor is responsible for notifying Construction Manager, Owner, Architect, and governing agencies two weeks prior of all tie-ins and shutdowns of existing utility systems and inspection requests. These requests shall be in writing to the CM.

29. This subcontractor is responsible for compliance to all requirements of local authority(s) having jurisdiction on all installations under this agreement. This subcontractor has reviewed the Drawings & Specification for this Project. Subcontractor has found no obvious omissions and further agrees that the Work of this Agreement and the Project can be constructed within the milestone and completion dates without claims for delay or impact costs, unless substantial Owner directed Scope changes occur.

30. This subcontractor is required to maintain daily rain fall records, have rain gauge on-site, current inspection drawings, permit card, etc. for Owner, Engineer, and DENR storm water inspection requirements. This subcontractor is responsible to have a supervisor present on all storm water management inspections. All inspection violations shall be corrected by the end of the day of the inspection violation notification or Subcontractor will not be allowed to continue site operations until such violations are rectified. This subcontractor is responsible for all recordkeeping and reporting per NCG01- " Self Inspection, Recordkeeping and Reporting" as outlined in the documents.

31. This subcontractor is responsible for providing all required temporary and permanent access requirements for Owner and Construction operations at all times. This includes any RCP culvert necessary to provide access to the site. Please refer to the site logistics plan for details. (Addendum 2)

32. This subcontractor is responsible for dewatering. Dewatering is considered all-natural grade water as well as "surface or rainwater" for all excavations under this agreement. Dewatering includes all required pumps, sumps, stone, etc. for proper execution of work under this

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agreement and for the continual maintenance of exposed soil conditions to access the work under this agreement.

33. It is the responsibility of this Subcontractor to maintain a suitable soil substrate condition once exposed under this agreement (or exposed by others as in mass excavation to perform work under this agreement). The Owner (or the Construction Manager) will not be responsible to reimburse Subcontractor for the costs to remove unsuitable soil and dispose of off-site or for the replacement costs of suitable fill (or stone backfill) for exposed substrate conditions not achieving compactions due to excessive moisture content not inherent with undisturbed soil conditions on-site. This subcontractor is responsible for all work performed be per NCG01- "Ground Stabilization and Material Handling" as outlined in the documents.

34. Final grading shall be free of any rocks, roots, debris. The Subcontractor shall request an inspection of topsoil/grading to be performed by the Construction Manager and/or owner prior to placing any permanent ground cover.

35. The site contractor shall include, in their bid, allowances for the following based upon unit prices provided on the bid form. Allowances shall be adjusted within the subcontract agreement based upon unit prices provided.

    a. 2,000 cubic yards replacement of unsuitable soil dispose off site and replace with imported structural fill.
    b. 500 cubic yards of aggregate base stone (NCDOT CABC)
    c. 1000 cubic yards of imported structural fill.
    d. All of the above allowances shall be INCLUDED in the subcontractor's total bid amount.

36. Asphalt Binder and Fuel F.O.B Index: This Subcontractor shall include in their base bid a price per ton on Asphalt Binder and price per gallon on Fuel F.O.B. In the event there is fluctuation on these prices this Subcontractor shall utilize current prices from the NCDOT Asphalt Binder and Fuel F.O.B. Index noted below:
    a. https://connect.ncdot.gov/projects/construction/lists/monthly%20terminal%20asphalt%20binder%20%20fuel%20fob%20prices/allitems.aspx
    b. If Asphalt Binder and Fuel F.O.B prices are higher than base bid at the time of ordering, the subcontractor will be issued a change order.
    c. If Asphalt Binder and Fuel F.O.B. prices are lower than base bid at the time of ordering, the owner will be issued a credit back.

37. Base bid is to bring in imported fill for this project including but not limited to building pads, parking lots, roads and other structural fill.

38. Remote Fire Department Connection if shown, is by this subcontractor.

39. Subcontractor is responsible for site surcharge requirements and monitoring of back fill over seven (7) feet.

40. This subcontractor is to provide demolition of the existing building on site and surrounding structures see plan C-100 for more information. (Addendum 2)

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41. Provide temporary lighting in areas of egress and where work is to be conducted. (Addendum 2)
42. Protect existing mechanical units that are to remain during the extent of construction in accordance with the construction indoor air quality management plan. (Addendum 2)
43. Provide all State, City and County permitting/**fees required to perform the complete scope of work.** (Addendum 2)
44. Provide all certifications required to perform the complete scope of work for demolition. (Addendum 2)
45. The subcontractor will remove/Haul/Dispose of all demolition materials as shown on the plans, specifications, and addenda. This includes all dump fees. (Addendum 2)
46. The subcontractor will provide dust control during demolition. (Addendum 2)
47. The subcontractor will provide protection for all materials that remain. (Addendum 2)
48. If this subcontractor uses cutting torches, welding equipment, plasma torches, etc., it shall be required to provide fire blankets, fire watches, extinguishers, etc. (Addendum 2)
49. This subcontractor will provide dumpsters and develop the waste management plan. (Addendum 2)
50. All City/County, DHEC, OSHA and NCSCO permit, notification, and fees pertaining to this scope of work **is included**. (Addendum 2)
51. Prepare and provide a specific Health & Safety Plan prior to the commencement of work **for approval**. (Addendum 2)
52. Create a binder containing the Material Safety Data Sheets (MSDS) for all the materials proposed for use or transport to the site. Have the binder on site and make it available all staff. (Addendum 2)
53. Prepare and provide a site-specific hazard analysis prior to the commencement of work. (Addendum 2)
54. Prepare and provide a site-specific safety plan prior to the commencement of work. (Addendum 2)
55. Prepare and provide copies of asbestos accreditations issued by the State of North Carolina to supervisor(s) and worker(s) projected to perform work on this project and on any supervisor or worker who performs work on this project after the commencement of the project; prior to the commencement of work. (Addendum 2)
56. Prepare and provide copies of the most recent individual respiratory fit testing records for worker(s) and supervisor(s) projected to perform work on this project and on any supervisor or worker who performs work on this project before and after the commencement of the project. (Addendum 2)
57. Abatement of all hazardous materials. To include and are not limited to molded materials, asbestos of all types, PCBs of all types, and mercury-containing materials of all types. Please reference abatement plans, specifications, and reports.
    a. To include and not limited to all 9” floor tile
    b. To Include and not limited to 2’X4’ Lay in ceiling panels with Fissure Pattern

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c. To include and not limited to Spray Fireproofing
d. To include and is not limited to Vibration Dampers
e. Include of existing sidewalk demolition.

(Addendum 2)

58. Perform demolition per plans to accommodate the abatement and hazardous materials removal. (Addendum 2)
59. Provide abatement clearance reports to the Metcon Superintendent, with a copy for the owner to be provided to the Metcon PM. (Addendum 2)
60. Provide waste dump tickets to Metcon Superintendent with a copy to be provided to the Metcon PM for the owner. (Addendum 2)
61. Provide the abatement manifest to the Metcon Superintendent, with a copy for the owner to be provided to the Metcon PM. (Addendum 2)
62. All notices; management of 10-day notification forms to required entities, negative exposure assessment (NEA's), all required licensed air monitors, and safety work plans required for your scope of work. This includes all work practices defined by USOSHA, and USEPA's regulations. (Addendum 2)
63. The survey report, if any, lists asbestos-containing materials to be completely removed, abated, and disposed of. The third-party consultant shall verify the quantities and remove them prior to other non-demolition and non-abatement subcontractors beginning their scope of work per the plan and specifications. (Addendum 2)
64. Provide all temporary walls (egress, safety, dust, etc.) required for personnel access to occupied areas during phase one of the project. (Addendum 2)
65. All labor equipment and materials associated with demolition and removal of CMU walls, slab, and masonry openings per plans construction documents. (Addendum 2)
66. This subcontractor shall properly dispose of all hazardous material per the required codes and standards. (Addendum 2)
67. The relocation, disconnection, termination, and capping of plumbing, electrical, and HVAC systems within the building scheduled for demolition will be the responsibility of other parties. Additionally, the capture and disposal of HVAC refrigerant will also be handled by others. (Addendum 1)
68. This subcontractor is responsible for protecting from damage, items located in adjacent buildings during the demolition phase. (i.e. Air handlers, Storefront, windows, etc.) (Addendum 3)

G. DESCRIPTION OF SCOPE EXCLUSIONS

The following is a complete and exhaustive list of exclusions from the Scope of Work:

1. Soil testing is done by the Owner; retesting costs are the responsibility of this Subcontractor.
2. Termite Control under slab on grade (by Concrete Subcontractor)
3. All Site Electrical (by Electrical Subcontractor)

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4. All Athletic Lighting (by Electrical Subcontractor)

5. Landscape plantings – As shown in the contract drawings as “L” sheets (by Landscaping Subcontractor)

6. Fire storage tank and foundations by other.

7. Fire pump and foundation by others.

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BID PACKAGE #3231

FENCE & GATES

(SCOPE OF WORK)

The Scope of Work shall include the furnishing of a complete **FENCE & GATES**. This shall include, but is not limited to all required: labor, fabrication, engineering, submittals, shop drawings, materials, equipment, tools, supervision, hoisting, scaffolding, and transportation as required for a complete scope of work.

DESCRIPTION OF SCOPE INCLUSIONS

The following is a non-exhaustive list of inclusions and is not intended to limit the work in any way.

A. CONTRACT DOCUMENTS:

All work shall be performed in accordance with Contract Documents.

- All plans and specifications
- All scope of work requirements
- All contract requirements

B. BONDING REQUIRMENTS:

Each bidder quoting a sum greater than **$100,000** shall have a 10% Bid Bond accompanying their bid as well as a Payment and Performance Bond included in their price. Additionally, all Bonds required shall be furnished per the Subcontract Agreement provided in the Bid Manual. (Addendum 2)

C. SUBMITTAL REQUIREMENTS:

Collaborative File Sharing - Subcontractor shall be responsible for the uploading of all required submittals to a file sharing program (Procore). Notifications will be sent when submittals are reviewed. It is the subcontractor's responsibility to track the approval process and proceed as directed in the submittal by the due date stated in Procore.

Samples – Descriptions of samples shall be uploaded to the site for record purposes. "Hard" samples are still required per the plans/specifications.

At the time of submittals Subcontractor shall clearly identify to the Construction's Manager and Architect's attention, **any deviations from the Contract Documents**. This Subcontractor's responsibility to the Contract Documents is not relieved by the Architect or Construction Manager's review unless there is **written acceptance of the specific deviations**. Subcontractor is

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responsible for submitting and expediting approval of any submittal requirements through a jurisdictional agency, if applicable.

Subcontractor is to deliver all required Reports and bid documents to Construction Manager within 14 calendar days from date of Notice of Award. NO payment shall be made to subcontractor without all subcontractors' documents submitted. Provide signed and sealed engineered shop drawings as specified by a licensed and registered Engineer.

Any required re-submittals, record submittals, and/or field drawings shall be forwarded to Construction Manager within seven (7) days of initial submittal return to Subcontractor. **Failure of this Subcontractor to submit correct or timely submittals does not relieve said Subcontractor of material delivery obligations in accordance with the Project Schedule.** Subcontractor shall allow a minimum of twenty-eight (28) calendar days of Construction Manager -Architect review duration. No material substitutions will be approved by Construction Manager unless Subcontractor can obtain Owner-Architect approval for such substitutions at no additional cost to Construction Manager and without delaying project schedule.

D. STANDARD SCOPE INCLUSIONS:

The items listed below are specifically included and are for clarification purposes only. They shall not be construed as a complete list of all work. It is the intent of this to clarify subcontract issues. If conflicts are discovered between this and the Subcontract General Terms, then the Subcontract General Terms shall govern.

1. Provide a full-time, competent, and English-speaking Superintendent onsite at all times while this subcontractor's work is being performed to coordinate the work of this project. The competent person on site must be OSHA 30 certified. Failure to provide a competent person on site will result in the CM not allowing the subcontractor to work on site.
2. Metcon intends to use GCPay which is a third party pay application service that simplifies the application for payment processes between Metcon and our subcontractors by automating the payment application process. At no cost to our subcontractors, GCPay provides an automated information exchange for lien waivers and all compliance documents. This platform saves time and improves subcontractor communication by keeping them informed throughout the process of potential issues needing immediate attention.
3. The subcontractor has reviewed specification SECTION 01 22 00 – UNIT PRICES. All required unit pricing for this scope of work has been acknowledged and included in the bid form.
4. The subcontractor has reviewed specification SECTION 01 23 00 – ALTERNATES. All required pricing for alternates for this scope of work has been acknowledged and included in the bid form. If alternates are selected, they are selected in their entirety. All documents have been fully evaluated for alternative work.
5. As required, the subcontractor shall design, provide, and engineer crane subsurface/pads in accordance with project specifications and load requirements. The subcontractor shall ensure that all crane operations are structurally sound at no additional cost to the CM.

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6. Verify all substrate conditions and notify the Construction Manager twenty-one (21) days prior to the start of work of any deficiencies in substrate prohibiting the start of work under this agreement.

7. All subcontractor employees must have access to a tablet with Procore access for use on this project. This tablet shall be an iPad Pro generation 3 or newer with cellular connectivity or comparable in specs and capabilities.

8. This subcontractor will not use or allow the building's drainage systems to clean debris or dispose of waste materials. If any drainage systems are clogged or obstructed by this subcontractor's materials, this subcontractor will reimburse the Contractor for the repair cost plus a mark-up.

9. This subcontractor is responsible for requesting any additional information, instructions and/or clarifications required to complete the work. The subcontractor will request such information from the Design team in writing as a Request for information (RFI) through the file-sharing program Procore. Requests for such information shall be made in advance to avoid any delay in the work.

10. This subcontractor is responsible for receiving, unloading, inventorying, storing, and coordinating this subcontractor's work. **All deliveries, hoisting, and storage of materials will be coordinated and scheduled with CM. Any deliveries not scheduled will not be allowed on site.** Material and equipment deliveries must be coordinated "just in time." Material and equipment storage on site must not exceed five (5) workdays. Once materials and/or equipment are moved inside the building, it must be installed within five (5) workdays. This subcontractor must utilize its own equipment to unload material.

11. This subcontractor is responsible for its own traffic control/flag man for any hauling operation in or out of the project site. All traffic control personnel shall be NCDOT certified. Reference the Logistics Plan indicating the crossing and use of active public roadways.

12. This subcontractor is responsible for erecting its own scaffolding, working platforms, material handling, storage, lifting & hoisting as required to perform the work under this scope.

13. This subcontractor is responsible for maintaining streets and parking lots in clean condition for their scope of work. Others will provide a wheel wash station near the site exit gate.

14. This subcontractor is responsible for all temporary safety measures to meet OSHA and Metcon's safety standards pertaining to your scope of work. See Exhibit J for more details.

15. The subcontractor has reviewed all drawings, documents, appendices, and specifications for this project and has found no obvious omissions and further agrees that the work of this agreement and the project can be constructed within the milestones and completion dates agreed upon without claims for delays or costs implications unless substantial Owner directed Scope changes occur.

16. Within **10** days of receipt of the contract, this subcontractor is required to issue a manpower count for each section/activity of their scope of work to meet the schedule requirements. Metcon will review and approve the proposed manpower counts before commencing this work. Metcon, Owner, Architect, & Consultants will constantly track the manpower for each activity to ensure compliance with the schedule and the forecasted status of the project, which will measure performance. If the subcontractor has low productivity/performance, resulting in

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schedule delays, this subcontractor will increase its manpower at Metcon's, Owner's, and/or Architect's request. Pay applications may be delayed until compliance has been satisfied.

17. In the event of inclement weather, this subcontractor is responsible for securing and protecting all their materials and work in place.
18. This subcontractor shall conduct pursuant to N.C. Gen. Stat. § 115C-332.1, an annual check of each of its employees, and contractual employees, consultants, agents, and other representatives on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry if such employee, subcontractor, agent, or other representative will be on the Project site or other school property as part of his or her job. The CM shall conduct this check on each of its employees, consultants, agents, and other representatives prior to permitting such employee, consultant, agent or other representative to enter the Project site or other school property to perform work under this agreement. For the Construction Manager's convenience only, all the required registry checks may be completed at no cost by accessing the United States Department of Justice Sex Offender Public Registry at http://www.nsopw.gov. No person shall be permitted to enter the Project site or other school property to perform work under this agreement if that person is listed on the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.
19. This subcontractor must thoroughly examine all drawings to recognize and include elements within their area of responsibility. This subcontractor is required to review all project drawings and specs. This subcontractor will have an opportunity to ask questions about design intent before bidding; after the bid and award of the package, the subcontractor will utilize the most stringent design. The design utilized shall be in the best interest of the Owner.
20. Parking at and around the site will be limited. Please see the Logistics plan for more information.
21. The subcontractor shall only remove temporary construction fences, safety control devices, or sediment control devices with advanced approval from the construction manager. In the event that removal is required, the subcontractor shall reinstall it in the same condition or better.
22. This subcontractor will abide by local noise ordinances as required.
23. A weekly job site cleanup will occur. Each subcontractor must contribute one laborer per five onsite workers for four (4) hours, to be used at the Construction Manager's discretion.
24. All non-compliance items or punch lists brought to the subcontractor's attention in Procore must be corrected and "ready for review" within 5 working days of initiation by the Construction Manager.
25. All subcontractors will adhere to a work week consisting of five (5) days per week, ten (10) hour days, fifty-two (52) weeks per year, with standardized starting and quitting timed 7 am to 5:30 pm regardless of external influences (such as driving distance, subcontractor's company policies, or personal preference.) No subcontractor will be allowed to work a four (4) day work week.
26. Under no circumstances is the subcontractor permitted to work without a construction manager's representative on site.

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27. Protection of work in place: This subcontractor shall provide and maintain protection of all adjacent property and other subcontractor's work, materials, tools, and equipment from damage resulting from this subcontractor's activities. This subcontractor is responsible for the cost of repairing or replacing any items damaged by its employees, its lower-tier subcontractors, or its suppliers, including damage caused during stocking or hoisting.
28. In addition to any Owner site requirements, eating and drinking shall be prohibited within the building or as otherwise determined by the Construction Manager. Subcontractor violators will be removed from the project site. Smoking or other tobacco products will not be allowed on site. Anyone violating this policy will be removed from the site permanently.
29. No visitors shall be admitted to the job site by the subcontractor without first obtaining the approval of the Construction Manager and having completed the site-specific job site orientation. This subcontractor will confirm and/or provide all their visitors with the site-required personal protection equipment.
30. No photographs or videos (including drone videos) of the project may be taken without the construction manager's and owner's prior approval. All persons approved to take photographs/videos must attend training and will be provided with credentials.
31. All schedules of values shall be uploaded to GC Pay within ten (10) days of the letter of intent being awarded. All subcontractors ' SOVs shall include the following standard items: mobilization, submittals, weekly composite cleanup, punch list, and project closeout. The schedule of values approval by the construction manager shall be followed before this subcontractor's first pay application. The construction manager requires a minimum of twenty (20) days to review the schedule of values.
32. Attached to the Bid manual is a sample of Metcon's standard contract. This subcontractor is required to review and accept it in its entirety.
33. Weekend work might be necessary to meet the project schedule, which must be coordinated with the Construction Manager if required. The construction manager will not allow weekend work if the subcontractors are not already working the full number of job site hours with full crews. This means that if you are working less than Monday through Friday, 7 am -5:30 pm, the site will not be open on the weekend unless excusable inclement weather determined by the CM occurs during the week. There will be no issue with opening the site as much as necessary to facilitate subcontractors who are trying to meet the scheduled responsibilities by working the total amount of open hours.
34. Include all necessary mobilizations required to complete this scope of work.
35. The construction manager reserves the right to add a fifteen (15) percent mark-up to all back charges that the construction manager facilitates. If back charges are resolved without the involvement of the Construction Manager, no mark-up will be applied.
36. Time and Material tickets must be approved by the Construction Manager's superintendent within 24 hours of work commencing. Invoices associated with time and material tickets must be submitted to the Construction Manager's Project Manager within thirty (30) days of work commencing. All invoices must reference a "CE number" assigned by the CM. Invoices not referencing a "CE number" will be returned and not processed.
37. Pull planning will be implemented on this project. The weekly "Plan Percent Complete Report" will be sent to the subcontractor's representative to provide tangible value to the subcontractor's

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progress. The subcontractor is required to use the pull planning process to identify all constraints that may impede their progress. Constraints not identified and documented within a reasonable time for rectification will not be considered valid reasons for schedule adjustments. The subcontractor is expected to follow the Pull Plan Schedule, which should enhance and supersede the contract schedule.

38. All required site safety documentation must be submitted in Procore 30 days after issuing the letter of intent. This is to include the following:
    a. Executed the partnership form for the subcontractor safety and health incident prevention program.
    b. Subcontractors' specific site job hazard analysis (JHA), detailing your scope of work, the hazards associated with each task, and how they will be abated.
    c. Trades whose work scope includes steel erection, pre-cast, demo, and roofing shall provide a written site safety plan.
    d. Provide OSHA 300 & 300A logs for the last three years.
    e. A written hazard communication program safety data sheet (SDS)
    f. A written safety plan for the revised silica dust respiratory plan (if applicable) is needed.
    g. A written ground fault protection program.
    h. Exhibit J3 returned with pages initialed.
    i. All site-specific personnel documentation will be required to be submitted two weeks before this scope of work begins.
    j. Failure to comply with this documentation will result in a delayed start in this subcontractor's mobilization. This may include withholding mobilization costs in pay applications until this subcontractor complies. No additional cost or time will be considered due to any acceleration required. (Addendum 2)
39. Survey points will be provided for general locational purposes. These will not be given in every single room. To complete this work scope, each subcontractor must transfer the general area survey points accurately as needed. The location of these general survey points is at the discretion of the Construction Manager. (Addendum 2)
40. The construction manager has the authority to recommend withholding pay applications from any subcontractor due to poor work quality. If this situation arises, the subcontractor will be notified in writing (72 hours' notice) that their work quality is unsatisfactory and requires remediation. The subcontractor must then submit a written remediation plan detailing how they will improve the quality of their work. Once the plan has been implemented and the work quality has been improved, the subcontractor may resubmit their pay application for the owner's approval. Any active unresolved 72-hour notices may result in the CM withholding the pay application for this subcontractor. (Addendum 2)
41. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.

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a. The construction manager can provide equipment and a robotic total station operator for $175/hr with at least 48hr notice. A competent layout representative from this subcontractor must accompany the layout crew.
b. Failure to use the robotic total station will result in a stop work order with no added time to the schedule until the subcontractor complies. No added cost associated with acceleration will be accepted.
c. This subcontractor shall be solely responsible for the correct layout, which cannot be delegated or assigned.

42. Please see the table below for all required meetings.
    a. Without exception, this Subcontractor's Project Manager and/or Superintendent must attend the weekly coordination/subcontractor meetings in person two weeks before starting work and while performing the scope of work.
    b. This subcontractor is required to participate in pull planning sessions actively. These sessions are in-person and onsite, with no exceptions. These will occur every 4-6 weeks at the CM discretion. Each day, the progress will be reviewed in the "Daily Forman's Huddle".
    c. Failure to have the proper representative at any onsite meeting will constitute a safety violation of "competent person not on site.". Refer to Exhibit J for more information.

Meeting Titles	Frequency	Who is required to attend	Location
Pre-install	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Safe Start	Once Per Subcontractor	Superintendent, Project Manager, & Forman's	Onsite - CM Trailer
Daily Foreman Huddle	Daily	Superintendent & Forman's	Onsite - CM Trailer
Weekly Coordination	Weekly	Superintendent &/or Project Manager	Onsite - CM Trailer
Pull Plan Initial	As required	Superintendent &/or Project Manager	Remote/Teams
Pull Plan Session	Monthly	Superintendent &/or Project Manager	Onsite - CM Trailer
Jobsite Safety Standdown	Weekly	Everyone onsite	Onsite - CM Trailer
BIM Coordination	Weekly	MEP Trades BIM Managers	Remote/Teams

E. SCOPE OF WORK SPECIFICATIONS

The following outlines the scope of work specifications sections relevant to the work to be performed. This list represents the core specifications that will guide the tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional specifications and related sections that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

1. **SECTION 32 31 13 CHAIN LINK FENCES AND GATES- Temporary**

F. PROJECT SPECIFIC SCOPE REQUIREMENTS:

The following outlines the project-specific scope requirements of the work to be performed. This list represents the core tasks and responsibilities to be undertaken; however, it is not exhaustive or comprehensive. Additional tasks and responsibilities that are necessary for the successful completion of the project but not explicitly mentioned here may also be required:

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1. Furnishing, installing, and maintaining fencing and gates per the site logistics plan. This subcontractor is responsible for field verifying the location and the linear feet of the site fencing.
2. This subcontractor shall be responsible for installing and maintaining windscreens (provided by the General Contractor) on the entire fence for the duration of the project.
3. All posts shall be post-driven.
4. ~~Subcontractor shall furnish three (3) gates with wheels: two (2) gate panels per entry with a total span of twenty four feet (24'). This Subcontractor will also furnish and install personnel gates: two (2) four feet (4'), and two (2) ten feet (10'). Locations of gates can be found in the Logistics Plan~~. Assume single gates are ten feet wide (10') and double gates are twenty feet wide (20'). See all logistics plans for fencing information and locations. (Addendum 3)
5. This subcontractor shall locate all existing utilities prior to starting work. If any utilities conflict with the path/rout of the site fencing, this subcontractor shall notify the Construction Manager within 24hrs.
6. This subcontractor will be responsible for all hoisting, hauling, loading, unloading, transporting/handling all material in and around the site, etc.
7. This subcontractor shall coordinate all delivery with the Construction Manager along with adhering and complying with the "Construction Traffic Restrictions" within the contract documents.
8. All fencing and windscreen shall be removed at the Construction Manager's request and shall be the responsibility of this subcontractor.
9. This subcontractor shall be responsible for multiple mobilizations at no additional cost to the Construction Manager nor the Owner.
10. The construction fence and gates shall be 8ft tall.
11. All fencing components i.e., post, gates, wheels, chain link fence, etc. shall be new.
12. The construction fence shall have top and bottom rails.

G. DESCRIPTION OF SCOPE EXCLUSIONS

The following is a complete and exhaustive list of exclusions from the Scope of Work:

1. Windscreen provided by Construction Manager.

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ADDENDUM NO. 3 – July 25, 2024

sfL+a ARCHITECTS
Capital Bank Plaza
333 Fayetteville Street, Suite 225
Raleigh NC 27601

Project: **Pamlico County Schools**
Pamlico 6-12 School
Bayboro, North Carolina

From: SfL+a Architects
333 Fayetteville Street, Suite 225
Raleigh, North Carolina 27601
(919) 573-6350 FAX (919) 573-6355

To: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the original Construction Documents dated June 12, 2024, as noted below. Acknowledge receipt of this Addendum by writing its number and date on the Bid Form. Failure to do so may subject the bidder to disqualification.

This Addendum consists of 6 pages of responses, 1 page of accepted substitution requests,132 pages of specifications and 67 pages of drawings.

CONTRACTOR BID QUESTIONS – From CM RFI Log

Item #1. Spec Section083323 - Overhead Coiling Doors: Paragraph 1.1A there is a section for exterior coiling, interior coiling fire-rated, and interior coiling non-fire rated. Scheduled are only the exterior doors. Are these two types of doors relevant to this project?
Answer: We do not have any interior Non- rated file doors. We do have a rated coiling door at the concession stands that is a countertop coiling door.

Item #1. Drawing P-111D shows a P-8 plumbing fixture, this fixture is not listed in the plumbing schedule (drawing P-002) What is the P-8 fixture and who is to provide/install it? May we have this item added to the plumbing schedule so that we may know what to provide for this fixture?
Answer: P8 fixture is can wash basin. Specification has been added to P-002.

Item #2. Drawing P-111F shows a 3" SD line located in room 1716 that connects to two FD2 drains. It is unclear if this SD pipe is installed underground and feeds two drains that will be in the Physics room 1716, or if this SD line is located above the ceiling and connects to two FD2 drains located on the second floor in the MS Science room 2230. Drawing P-112F shows the exact SD piping layout as it is shown on drawing P-111F which makes it confusing. Can we get this piping layout clarified?
Answer: Line is located above ceiling. It has been removed from P-111F and is now only shown on P-112F.

Item #3. Drawing P-11F shows a 2" underground sanitary waste line in room 1710 that connects to an L1 sink then continues towards the Fume Hood located in the top right corner of that room. There is no termination point given for this sewer pipe. What does this pipe connect to? Does this piping end at the L1 sink?
Answer: 2" line is for fume hood connection. Note has been added and line made more clear.

Item #4. Drawing P-112F rooms 2214 Math Science & 2216 Math Science both show a FD1 floor drain just adjacent to the FD2 drains. There is no associated waste piping shown for the FD1 drains, Are these drains required or is this a misprint?

Answer: Yes, they are required for the eyewashes. The view range has been adjusted to show the associated piping.

Item #5. On sheets M-401, M-402, and M-403, 10 gallon end of line air separators are called out at a number of the WSHP's. I can find no information on the equipment schedule or in the specifications for these air separators. Could you please have the engineer provide more information?

Answer: These are actually Expansion Tanks as shown on detail 13/M-503. Notes will be updated on sheets for expansion tanks and reference detail.

Item #6. A-112F.2 changed significantly. Will window treatments be needed at the new windows/glazing at the HS Classrooms interior and exterior windows? No new finish schedule for A-112F.2 was issued with Addendum 2 showing window treatment locations for this area.

Answer: Yes. See Finish Area Plans A-711A through A-719F for all window shade locations at interior and exterior glazing. The finish schedule will be revised to indicate window treatments fabric selection in forthcoming Addendum.

Item #7. After ECS's review of surcharging the understanding was that the slab on grade was going to be supported on residual soils and not Aggregate Piers, Please Clarify.

FOUNDATIONS

1. THE IN-SITU SOIL ALLOWABLE BEARING PRESSURE IS 1,500 PSF PER THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY ECS SOUTHEAST, LLP, AND DATED APRIL 18, 2023.
2. THE BUILDING WALL FOOTINGS AND COLUMNS FOOTINGS HAVE BEEN DESIGNED BASED ON AN ASSUMED EQUIVALENT BEARING CAPACITY OF 3,000 PSF. THE BUILDING AREA SHALL BE SUPPORTED ON GROUND IMPROVEMENT BY RAMMED AGGREGATE PIERS/STONE COLUMNS.
   A. ALL COLUMN AND WALL FOOTINGS AND SLAB-ON-GRADE SHALL BE CONSTRUCTURED ON SUBGRADE SOILS WHICH HAVE BEEN MODIFIED WITH GROUND MODIFICATION USING STONE REPLACEMENT TECHNIQUES. THE AGGREGATE PIER ELEMENTS SHALL BE CONSTRUCTED BY COMPACTING AGGREGATE IN AN EXCAVATED HOLE USING SPECIAL HIGH ENERGY IMPACT DENSIFICATION EQUIPMENT.

Answer: *If surcharging is performed per ECS's specifications, aggregate piers are not required under the slab on grade. Aggregate piers are required under all column and wall footings. This note will be updated in a future Addendum.*

Item #8. Note (9.) for the water source heat pumps calls for dynamic air filters to be provided. There is no information on the plans or specs that describe what the dynamic air cleaning filters are. Can we get some information on these? Would Needlepoint Bipolar Ionization be an acceptable alternates to the dynamic air cleaners?

Answer: *Where indicated with Dynamic Air Cleaners/Filtration provide Polarized-Media Electronic Air Cleaners 1" Panel Air Cleaners, Dynamic Model P1000 filter or equivalent polarized media filtration system compliant to meet UL Standard 867. Filter system must have capability to reduce OA ventilation per IAQ procedure of ASHRAE Standard 62 to OA values noted in equipment schedules. Notes and specs will be updated with this additional information in next addendum. Needlepoint Bipolar Ionization is not an acceptable alternative.*

Item #9. The louver schedule lists Ruskin model EME220DD. Spec section 08 91 00 list the Ruskin EME220DD as basis of design, but lists a panel depth of 5". The EME220DD is a 2" louver not a 5" louver. Can you please clarify if a 2" filter is acceptable?

Answer: **Ruskin model EME220DD is correct. Minimum size will be revised to 2" in forthcoming addendum and bidders will be instructed to refer to Mechanical Drawings.**

Item #10. The scheduled louver sizes do not meet the scheduled free area, free area velocity, or pressure drop. Can we verify the louver dimensions or louver model number?

Answer: Refer to the schedule for allowable free area. Specifications have been changed to reference the schedule. Schedule has been reviewed and approved.

Item #11. There are no specifications for HVAC duct insulation. The Mechanical General Notes on sheet M-001 calls for all 2" duct wrap with vapor barrier and transfer duct to have 1" thick liner. Could you please request a duct insulation schedule? Exhaust duct is often left uninsulated. And, what about the exposed duct in the locker rooms, weight room, wrestling room, EMT class, trades lab, wood working, and welding lab? Does it need jacketing?

Answer: Updated Specification will be issued for HVAC insulation, see below excerpt for insulation/jacket schedule:

INDOOR DUCT AND PLENUM INSULATION SCHEDULE

A. Supply-air Ducts, Concealed (installed above ceilings),

1. Mineral-Fiber Blanket: 2 inches thick and installed R-6.0.

B. Return-air Ducts, Concealed (installed above ceilings),

1. Mineral-Fiber Blanket: 2 inches thick and installed R-6.0.

C. Exposed Supply and Return Ductwork in Air Conditioned, Occupied Spaces, and Exhaust Air Ductwork:

1. None.

D. Exposed Supply and Return Ductwork exposed in Air Conditioned Utility Spaces (Conditioned Mechanical Rooms or Mechanical Rooms used as Return Air Plenums) and Exposed in Non-Air Conditioned Spaces (Boiler Rooms, et. Al):

1. Mineral-Fiber Board Insulation: 2 inches thick and installed R-6.0.

E. Outside-Air Ducts:

1. Mineral-Fiber Blanket: 2 inches thick and installed R-6.0.

F. Type-I Commercial Kitchen Hood Exhaust Ducts:

1. Fire Rated Insulation System as identified in this specification section.

G. Type-II Commercial Kitchen Hood and Dishwasher Exhaust Ducts:

1. None.

H. Kitchen Hood Make-Up Air Ducts:

1. Mineral-Fiber Blanket: 2 inches thick and installed R-6.0.

EQUIPMENT INSULATION SCHEDULE

A. Insulation materials and thicknesses are identified below. If more than one material is listed for a type of equipment, selection from materials listed is Contractor's option.

B. Insulate indoor and outdoor equipment in paragraphs below that is not factory insulated.

C. Condenser-water pump insulation shall be one of the following:

1. None

D. Condenser-water expansion/compression tank insulation shall be one of the following:

1. None

E. Condenser-water air-separator insulation shall be one of the following:

1. None

PIPING INSULATION SCHEDULE, GENERAL

A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.

B. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:

1. Drainage piping located in crawl spaces.

2. Underground piping.

3. Chrome-plated pipes and fittings unless there is a potential for personnel injury.

4. Condenser Water Supply and Return piping

INDOOR PIPING INSULATION SCHEDULE

A. Condensate and Equipment Drain Water below 60 Deg F:

1. All Pipe Sizes: Insulation shall be one of the following:

a. Cellular Glass: 1-1/2 inches thick.
b. Flexible Elastomeric: 3/4 inch thick.

INDOOR, FIELD-APPLIED JACKET SCHEDULE
A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.
B. If more than one material is listed, selection from materials listed is Contractor's option.
C. Ducts, Plenums, and Piping, Concealed (installed above ceilings) and Exposed in Air Conditioned Occupied Spaces:
1. None.
D. Ducts, Plenums, and Piping, Exposed in Air Conditioned Utility Spaces (Conditioned Mechanical Rooms and Mechanical Rooms used as Return Air Plenums):
1. 8 ounce canvas with lagging adhesive.
E. Ducts, Plenums, and Piping, Exposed in Non-Air Conditioned Spaces (Boiler Rooms, et. al.):
1. PVC: 20 mils thick (N/A if installed in a return air plenum).
2. Aluminum, Smooth: 0.016 inch thick.
F. Equipment, Concealed (installed above ceilings):
1. None.
G. Equipment, Exposed (all applications):
1. PVC: 20 mils thick (N/A if installed in a return air plenum)
2. Aluminum, Smooth: 0.016 inch thick.

Item #12. Please send a specification for HVAC Mechanical Insulation.

Answer: See Item 11.

Item #13. Item 39 in BP3100 is the surcharge. Can you give me a little more information. It says here we are responsible for surcharging and monitoring of fill over 7 feet. That isn't clear. What are we surcharging ? The pad ? 7' of surcharge ? or is the for fill depths above 7' where the fill is intended to be used as a surcharge ?

Answer: **The building footprint requires surcharging to avoid using rammed aggregate piers or undercutting 4 feet. The new FFE is above current grade, and fill will be required to come up to new grade. In addition to the fill required to come up to new grade, another 4' of fill is required to be placed on top for a period of at least one month for the surcharging process. Please confirm recommendations with ECS.**

Item #14. Initial RFI: Question – the Div. 9 Specifications call out "Pre-molded" outside rubber corner bases. Basis of design is Flexco, and they do not make a pre-molded corner base. There is nothing in the scopes stating that the pre-molded is required. Can you please confirm if pre-molded can be excluded (otherwise, Flexco cannot be the basis of Design)?"
The answer they came back with is "Flexco will not be the BOD for the vented wall base, Johnsonite will be the BOD for vented wall base. Flexco will remain the BOD for Non- vented wall base"

1. Unresolved – They changed the RB1 to Johnsonite (from Flexco). This contradicts what they said. RB1 is not a vented wall base, it is only a cove base. RB1 should have stayed as Flexco "Umber" #078 - RB3 is the vented Base that needs to be changed.

2. Unanswered - the Div. 9 Specifications call out "Pre-molded" outside rubber corner bases. Basis of design is Flexco, and they do not make a pre-molded corner base. There is nothing in the scopes stating that the pre-molded is required. Can you please confirm if pre-molded can be excluded (otherwise, Flexco cannot be the basis of Design)?" – This is what needs to be answered. If Pre-molded outside corners are not required, they can stay with Flexco, otherwise, it needs to change

Answer: RB1 will be Revised to be Flexco – Umber 078, 4" Clove Base. RB3 will be Jonsonite, Black 48 – 4" Vented Wall base. Vented wall base is required where shown on finish plans.

Item #15. Looking through the insulation specifications, I do not see exposed piping finishes listed in the insulation schedule. Usually, it is listed as the last item in the specification, Normally it calls for Canvas or PVC on exposed piping. What type of finish/Jacketing will be required for piping in exposed areas?

Answer: See Item #11.

Item #16. Under Finish Hardware, set 48.2 It mentions both a lockset and a panic device. All doors listed are on the first floor and are out swinging doors.

Answer: This hardware set will be corrected and the specification will be issued.

Item #17. Through out the mechanical drawings I have not seen fire dampers called out, please confirm that there are no fire dampers or show location and qty.

Answer: **Correct, there are not currently any rated wall penetrations that require fire dampers.**

Item #18. A-601 - Doors C1500 and C1700 are both labelled as door type FG, however, the plans and elevations both show double doors which should be FG(2).

Answer: This is correct. Correction will be made in forthcoming addendum.

Item #19. The following locations contain SF tags without any corresponding storefront shown within that area:

- o A-111D.1 - Door 1502A has a "SF27" label.
- o A-111E.1 - Room 1506 has a "SF39" label.
- o A-112E.1 - Room 2106 has a "SF39" label.
- o A-111E.1 - Stair 02 S2 has a "SF13" label.
- o A-111F.F - Colab 3 1616 has both an "SF14" and "SF15" label

Please confirm that there is not meant to be any storefront within these locations.

Answer: **The following revisions will be included in a forthcoming addendum.**

A-111D.1 - Door 1502A – The label has been removed.
A-111E.1 - Room 1506 - The label has been removed.
A-112E.1 - Room 2108 - The label has been removed.
A-111E.1 - Stair 02 S2- The label has been removed.
A-111F.F - Colab 3 1616 – The labels have been removed.

Item #20. A-112F.1 - On the right hand side of Room 2117 there is an unlabeled SF that measures 3'-8" wide.

Answer: SF has been revised to have a SF21.1 Tag. See sheet A-112E.1 for revision.

Item #21. A-112E.1 - Referring to the Storefront Schedule, the only SF with a 3'-8' wide opening is SF21.1. However, the SF21.1 locations at HS AP 2113 and Research Room 2115 only have a 2'-9" opening.

Answer: SF has been revised to align with SF type SF20.1. a 3'2" opening.

Item #22. A-111E.2 & 112F.2 - Please verify the partition types for the walls that contain storefront systems (screenshots named "Page # - Partition Types" below).

Answer: A111E.1 – SF 39 – Tag has been removed.
A111E.1 – SF-13 – Tag has been removed.
A111E.2 – See revision on for wall types.
A111F.1 – SF15 and SF15 - Tag has been removed.
A111D.1 – SF27 - Tag has been removed.
A112E.1 – See sheet for revisions.
A112F.2 – See sheet for revisions.
A112E.1 – SF39 – Tag has been removed.

Item #23. S-010 - Can you verify that the wind speed information, components, and cladding listed on this page are correct? There are concerns that these numbers are too high for the 4 1/2" front glass plane system outlined in the specs, a larger system may be required on any storefront that is taller than 88".

Answer: Basic wind speed is correct. Components & cladding will be reviewed and updated as required in future Addendum. Please note the values reported on S-010 are ultimate wind pressures.

Item #24. RFI 100 answer was….Please provide related content for clarification on content. The detail on plans appears to be a 3-sided aluminum box with a removable bottom closure but the specs call for a factory finish head box with removable fascia. Do they want a 3-sided headbox with a removable bottom closure not fascia or a snap-on front fascia only which will expose the roll from the back? I have attached examples of head box and fascia attached.

Answer: We intend for the housing to be a three-sided head box with a removable bottom closure. We don't want to see the roller shade from the back. The finish will be Aluminum to match the glazing system. This will be updated in our specifications to conform with the drawings.

CHANGES TO SPECIFICATIONS

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Item #1. Add new sections to schedule.

00 23 00 Alternates

Item #1. Remove Alternate No. 10
Item #2. Add Alternate No. 11 Utilizing Harrison Recycling Site and Quarry.
Item #3. Add Alternate No. 12 Utilize fiber reinforced concrete.

08 71 00 – Door Hardware

Item #1. Revise set 48.2.

08 83 00 Mirrors

Item #1. ADD SECTION

08 91 00 – Louvers

Item #1. Revise 2.1 Performance Requirements
- i. B. Louver Aire Passage : See Mechanical Drawings.
- ii. C. Louver Free Area: See Mechanical Drawings.

Item #2. Revise 2.2 Wall Louvers Section B: Basis of Desing to:
- i. 1. Ruskin EME220D0 In-wall and Glazing Infill Compatible – In Curtain Wall Locations Only.
- ii. 2. Ruskin – EME520DD – In all other locations.

10 75 00 – Flag Poles

Item #1. Revise section 2.2 Flagpoles – In – Ground Mounted Type
- i. Section D.1 Accessories – to only show a. United States Flag.
- ii. Remove b. State flag and C. County Flag.

10 51 13 Metal Lockers

Item #1. Revise Section 2.2 Hight to 36”

12 24 13 – Roller Shades

Item #1. Revise 2.2 A. Mounting
- i. 2. Provide factory finished three 0 sided headbox with removable bottom closure to conceal roller(s) and operating mechanism from view at all sides.

Item #2. Revise 2.2-C Colors
- i. As indicated on drawings. 2. Housing and Closure to be Aluminum to match Glazing system.

23 07 00 – HVAC Insulation

Item #1. Specification added to project documentation.

23 81 46 – Water Source Unitary Heat Pumps

Item #1. Section 2.1 G revised to include information for use of Polarized Media Dynamic Air Cleaners. Section 2.1 L updated to reflect use of LON or BACnet compatible unit controllers.

232113.33 – Ground Loop Heat Pump Piping:

Item #1. Chemical treatment/flushing parameters added.

03 30 00-Cast-In-Place Concrete

Item #1. Subparagraph 2.2, add the following:

i. "C. Synthetic Fibrillated Micro-Fiber: Fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C1116/C1116M, Type III, 1/2 to 1-1/2 inches long."

ii. "D. Synthetic Macro-Fiber: Synthetic macro-fibers engineered and designed for use in concrete, complying with ASTM C1116/C1116M, Type III, 1 to 2-1/4 inches long."

Item #2. Subparagraph 2.6 C, add the following:

i. "5. Synthetic Macro-Fiber: Uniformly distribute in concrete mixture at manufacturer's recommended rate, but not less than a rate of 3 lb/cu. yd."

Item #3. Subparagraph 2.6 D, add the following:

i. "6. Synthetic Micro-Fiber: Uniformly distribute in concrete mixture at manufacturer's recommended rate, but not less than a rate of 1.5 lb/cu. yd."

Item #4. Subparagraph 2.8, add the following:

i. *"and ASTM C 116."*

ACCEPTED SUBSTITUTION REQUESTS

The following substation requests have been accepted:

Item #1. 09 84 00 Acoustic Room Components
- Proposed Substitution of Respond A- Series Wall Panels : Conwed is seen as an approved equal for the following section: Acoustical Wall Panels, 2.3A (FWP1, FWP2, FWP30)

Item #2. 07 54 23 Thermoplastic Polyolefin (TPO) Membrane Roofing System
- Proposed Substitution of G410 80 Mil Roofing System : Sika – is seen as an approved equal to the specified roofing system.

Item #3. Alternate No.2 – Solar PV System
- Proposed Substitution of LR5-72HBD Longi 540 W for the Solar PV system referenced in sheets E-605-606 is seen as an approved equal to the specified system.

Item #4. 10 51 13 Metal Lockers
- Proposed Substitution of Lockers MFG all Welded Metal Lockers : Lockers MFG – is seen as an approved equal in accordance to the section.

Item #5. 12 66 13 Telescoping Bleachers
- Proposed Substitution of Sheridan Seating : Model Number M200 – is seen as an approved equal to the specified telescoping bleacher basis of design.

Item #6. **12 35 53.19 Wood Laboratory Casework**
- Proposed Substitution of Leonard Petrson as an approved manufacturer per section 2.1 is seen as an approved equal to the specified manufacturers.

Item #7. 075216 Modified Bitumen
- Proposed Substitution of Bi-Tech as a Manufacturer for the Modified Bitumen Roof System is seen as an approved equal to the specified manufacturers.

CHANGES TO DRAWINGS

General

Item #1. G-000 Volume 1
- Volume 1 cover sheet revised to include new sheets.

Civil

Item #2. C-200
- Deleted all fencing associated with the stormwater management devices (basins).

Item #3. C-201
- Deleted all fencing associated with the stormwater management devices (basins).

Item #4. C-300
- Added general erosion control info. An 18" RCP was added under the sidewalk adjacent to High School Drive.

Item #5. C-301
- Added general erosion control info. An 18" RCP was added under the sidewalk adjacent to High School Drive.

Item #6. C-301.1
- This overall sheet was added to indicate sequencing the erosion control.

Item #7. C-503
- Item 7: Added a Check Dam Detail

Item #8. C-504
- Delete specification section 33 27 53 and reference sanitary sewer lift pump information.

Structural

Item #9. S-010
- Updated foundation general notes based on Bid RFI #140 & #146
- Updated components & cladding table based on Bid RFI #162

Item #10. S-040
- Added this sheet as a response to Bid RFI #53

Item #11. S-102E
- Added detail reference for shear wall connection along GL E between GL 11-12

Item #12. S-102F
- Added detail reference for shear wall connection along GL B between GL 18-20
- Added detail reference for shear wall connection along GL F between GL 17-19

Item #13. S-103F
- Added detail reference @ mechanical mezzanine CMU wall for clarity

Item #14. S-301
- Detail 4, 6, 14 – Updated footing rebar to match typical wall footing details on this sheet

Item #15. S-405
- Detail 12 added.

Architectural

Item #16. A-111B.2
- Revise wall tags in C1200, 1206 and 1204

Item #17. A-111C.2

- Revise wall tag in 1302A.

Item #18. A-111D.1
- Door 1502 has had the SF label removed.

Item #19. A-111E.1
- Add window tag in room 1618.
- Remove SF tag in RM. 1506.
- Remove SF tag in Media 1603 by Stair 02.

Item #20. A-111E.2
- Revise wall tag in room 1607.

Item #21. A-112E.1
- Remove SF tag in RM. 2108.

Item #22. A-111F.2
- Remove SF tags in Colab 1616.

Item #23. A112F.1
- Revise SF tag for SF04 in room 2221 to be SF04.1.

Item #24. A112F.2
- Revise partition type at room 2221.

Item #25. A-408
- Revise “Enlarged Science Lab Plans & Elevations Schedule” to include change notes indication OFOI to CFCI.

Item #26. A-409
- Revise “Enlarged Science Lab Plans & Elevations Schedule” to include change notes indication OFOI to CFCI.

Item #27. A-410
- Revise “Enlarged Science Lab Plans & Elevations Schedule” to include change notes indication OFOI to CFCI.

Item #28. A-411
- Revise “Enlarged Science Lab Plans & Elevations Schedule” to include change notes indication OFOI to CFCI.

Item #29. A-412
- Revise “Enlarged Science Lab Plans & Elevations Schedule” to include change notes indication OFOI to CFCI.

Item #30. A-413
- Revise “Enlarged Science Lab Plans & Elevations Schedule” to include change notes indication OFOI to CFCI.

Item #31. A-415
- Revise View 15 and 14 to include additional information on mirrors.

Item #32. A-420
- Revise View 2 to show the correct door type without style.

Item #33. A-601
- Revise Door Scheule to include columns for Door Glazing Type and Frame System.
- Revise Door Abbreviation Legend to include additional abbreviations for new columns in the schedule.
- Frame Types have been revised to coordinate with CW unit, SF unit, or Frame type from legend.
- Revise C1500C, C1600, C1600A, C1800 to be door type F and remove the Narrow Lite from the door. This deviates from previous RFI response in Add. 2.
- Revise rated doors to have HM frames.
- Revise Door Legend to so correct glazing options for doors as they associate with the schedule.

Item #34. A-602

- Remove IGL from the Glazing Schedule.
- Revise CW02 glazing to be all IG1.

Item #35. A-621

- Revise Frame Legend to include BOD Glazing Frame Systems.
- SF19.1 Remove Stile from doors shown in SF19.1 and SF11.
- Add note to indicate 4 1/3" "Store Front to be set to the exterior face of the wall" on SF09 and SF11
- Remove IGL from the Glazing Schedule.
- Revise frame dimensions for SF08.
- Revise SF23.1 Width.

Item #36. A-622

- Revise Frame Legend to include BOD Glazing Frame Systems.
- Revise dimensions on SF 29 to fit 3'-0" doors.
- Revise dimensions on SF32 to fit (2) 3'-0" doors.
- Revise dimensions on SF33 to fit (2) 3'-0" doors.

Item #37. A-701

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.
- Revise 09 65 00 – Resilient Flooring: Rubber Wall Base RB1 to Tarkett to Umber 078 – 4" Cove Base and RB3 to Johnsonite Black 48, 4" Vented wall base.
- Revise 12 24 13 – Window Treatment: Roller Shades Basis of Design to selected color and opacity for WT1 and WT2.

Item #38. A-702.1

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.
- Revise the extent of the Epoxy finish in the serving area.

Item #39. A-702.2

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.

Item #40. A-711A

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.
- Revise Room 1102, C1100, 1111, 1106, 1006B to floor finish LVT1.

Item #41. A-712B

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.

Item #42. A-713C

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2. I am running a few minutes late; my previous meeting is running over.
- Revise Room 1310, 1308, and 1301 to have RB2. Instead of RB3.

Item #43. A-714D

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.
- Revise the extent of the Epoxy finish in the serving area.

Item #44. A-715E

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.

Item #45. A-716F

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.
- Revise the Finish tag in Classroom 1512.

Item #46. A-717C

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.

Item #47. A-718E

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.

Item #48. A-719F

- Revise hatch in "Finish Floor Pattern Plan Legend" for CPT1 and CPT2.

Food Services

Item #49. FS-002

- Revise schedule for item number 41 and 58 to have custom fabrication.

Item #50. FS-007

- Revise views 1, 2, and 3 to show stainless steel fabricated serving line
- Revise views 4 and 5 to show stainless steel fabricated concession.

Mechanical

Item #51. M-001:

- Note added for condenser/geothermal piping water chemical treatment

Item #52. M-002:

- Note added to WSHP schedule to clarify filter types utilized for Dynamic Air Cleaning.

Item #53. M-003

- Louver schedule airflows and free areas updated.
- Louver L-5 revised from 36” x 16” to 50” x 20”

Item #54. M-111B

- Louver L-5 revised from 36” x 16” to 50” x 20”

Item #55. M-211F:

a. Revised/noted piping sizes

Item #56. M-401:

a. Revised notes for end of line expansion tanks

Item #57. M-402:

a. Revised notes for end of line expansion tanks

Item #58. M-403:

a. Revised notes for end of line expansion tanks

Plumbing

Item #59. P-111A:

- Added secondary storm drains and piping per new roof plan.

Item #60. P-111D:

- Added piping for new roof drain and new secondary roof drains above mechanical room.

Item #61. P-111E:

- Added piping and downspout nozzles for added secondary storm drains.

Item #62. P-112A:

- Added piping for added secondary roof drain.

Item #63. P-112C:

- Added piping for added secondary roof drains above mechanical room.

Item #64. P-112D:

- Added piping for added secondary roof drain.

Item #65. P-112E:

- Added piping for added secondary roof drains.

Item #66. P-113A:

- Added additional roof drain and Secondary roof drains.

Item #67. P-113B:

- Added additional roof drain and Secondary roof drains.

END OF ADDENDUM

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SECTION 01 23 00

ALTERNATES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Alternates.
   2. Schedule of Alternates.

B. Related Requirements:
   1. Bidding Documents and Forms: Instructions for preparation of pricing for Alternates.
   2. Drawing and Specification requirements related to the work type indicate by the items listed in this Section under the Schedule of Alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, manufacturer, or installation methods described in the Contract Documents.
   1. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Agreement.
   2. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
   3. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule of Alternates:
   1. Schedule of Alternates included in Part 3 of this Section.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1 - Add - Walkway Coverings Canopy

1. **Alternate No. 1A - Add Walkway Canopy**
   a. Refer to Drawing Sheet A-431.
   b. Reference Structural, Plumbing, and Civil as required.
   c. Refer to Section –10 73 26 – Walkway Coverings.
2. **Alternate No. 1B - Add Drop Off Canopy**
   a. Refer to Drawing Sheet A-431.
   b. Reference Structural, Plumbing, and Civil as required.
   c. Refer to Section 10 73 26 - Walkway Coverings.

B. Alternate No. 2 - Replace Paint with Custom Wall Coverings

1. **Alternate No. 2A - Reception**
   a. Refer to drawings for locations.
   b. Refer to Section 10 14 00 - Signage.
2. **Alternate No. 2B - Lobby**
   a. Refer to drawings for locations.
   b. Refer to Section 10 14 00 - Signage.
3. **Alternate No. 2C - Media Center**
   a. Refer to drawings for locations.
   b. Refer to Section 10 14 00 - Signage.

C. Alternate No. 3 - Add Solar PV System

1. Refer to Electrical Drawings.
2. Provide solar energy photovoltaic and electrical systems as indicated.

D. Alternate No. 4 - Add Electrical Vehicle Charges

1. Refer to Electrical Drawings
2. Provide Electric Vehicle charging stations with load management and associated electrical systems as indicated.

E. Alternate No. 5 - Replace Mechanical Heat Pumps with Mechanical Heat Pumps that meet Domestic Content Requirements

1. Refer to Mechanical Drawings.
2. Refer to Section 23 81 46 - Water-Source Unitary Heat Pumps.
3. Replace specified Mechanical Heat Pumps with Mechanical Heat Pumps that will satisfy the Domestic content requirements to qualify for Domestic Content Bonus Credit based on Sections 45, 45Y, 48, and 48E, of the Internal Revenue Code. Public Law 17-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022 (IRA).

F. Alternate No. 6 - Refrigerant Phase-Out Mechanical Heat Pumps and Split Systems

1. Refer to Mechanical Drawings.
2. Refer to Section 23 81 46 – Water-Source Heat Pumps, 23 81 26 - Split-System Air-Conditioners.
3. Equipment using refrigerant R410A is being phased out due to Environmental Protection Agency (EPA) regulations. Refrigerant R454B is being utilized by most manufacturers as the replacement moving forward. Equipment selections have not

been made available until recently. All equipment bids shall clearly indicate which refrigerant is base bid, and shall provide an alternate for equal equipment utilizing R454B.

G. Alternate No. 7 - Replace Cable Trays with J Hooks

1. Refer to Technology Drawings.
2. Replace Cable Trays with J Hooks assembly for technology wiring throughout the building.

H. Alternate No. 8 - Add Paved Parking Lot

1. Alternate No. 8A - Add Paved Auditorium Lot

a. Refer to Civil Drawings.
b. Refer to Section 32 12 16 - Asphalt Paving.

2. Alternate No. 8B - Add Paved Student Lot off High School Drive.

a. Refer to Civil Drawings.
b. Refer to Section 32 12 16 - Asphalt Paving.

I. Alternate No. 9 - Replace Thermoplastic-Polyolefin Roofing with Modified Bituminous Roofing

1. Refer to Section 07 52 16 - Modified Bituminous Roofing.
2. If Alternate is accepted an additional service for roof redesign must be included in the cost of the system. $10,000.00 must held as an allowance for Roof Redesign.
3. Refer to Section 01 21 00 - Allowances.

J. Alternate No. 10 – NOT USED

K. **Alternate No. 11 Utilizing the Harrison Recycling Site and Quarry.**

1. Alternate No. 11 A - Haul off-site un- sorted, clean demo debris to the Harrison site (7miles form the construction site)

a. Harrison Recycling Site will not have dumping fees.
b. Harrison Recycling Site does not have a limit for load deliveries.
c. Harrison Recycling Site will be open 24 hours a day.

2. Alternate No. 11 B – Utilizing Harrison Quarry to obtain fill material available for purchase

a. Fill material will be available at $ 4/Yard

L. Alternate No. 12 Utilize fiber reinforced concrete

1. Alternate No. 12 A – Utilize Fiber Reinforced Concrete in leu of wire mesh for all Slab on Grade Concrete.
2. Alternate No. 12 B – Utilize Fiber Reinforced Concrete in leu of wire mesh for all Topping Slabs on top of Hollow Core Planks.
3. Refer to Section 03 30 00 – Cast In Place Concrete.

END OF SECTION

SECTION 03 30 00

CAST –IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete for the following:
1. Slabs on deck.
2. Slabs on grade.
3. Walls.
4. Footings.
5. Fill for metal pan stairs
6. Mechanical equipment pads and housekeeping pads.
7. Control, expansion, and contraction joint devices.

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
2. ACI 305 - Hot Weather Concreting.
3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
4. ACI 308.1 - Standard Specification for Curing Concrete.
5. ACI 318 - Building Code Requirements for Structural Concrete.

B. ASTM International:
1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
2. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
3. ASTM C33 - Standard Specification for Concrete Aggregates.
4. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
5. ASTM C42/C42M - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
6. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
7. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic Cement Concrete.
8. ASTM C150 - Standard Specification for Portland Cement.
9. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
10. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
11. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
12. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
13. ASTM C330 - Standard Specification for Lightweight Aggregates for Structural Concrete.

14. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.
15. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
16. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
17. ASTM C685/C685M - Standard Specification for Concrete Made By Volumetric Batching and Continuous Mixing.
18. ASTM C845 - Standard Specification for Expansive Hydraulic Cement.
19. ASTM C989 - Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.
20. ASTM C1017/C1017M - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
21. ASTM C1064/C1064M - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
22. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
23. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
24. ASTM C1157 - Standard Performance Specification for Hydraulic Cement.
25. ASTM C1218 - Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
26. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.
27. ASTM D994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
28. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
29. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
30. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
31. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
32. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
33. ASTM E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
34. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

1.3 PERFORMANCE REQUIREMENTS

A. Vapor Barrier Permeance: testing results from ASTM F 1249 or ASTM E 96 must state a water vapor transmission rate (WVTR) of less than 0.01 perms.)

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data on joint devices, attachment accessories and admixtures.

C. Design Data:
1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:
a. Hot and cold weather concrete work.
b. Air entrained concrete work.
2. Identify mix ingredients and proportions, including admixtures.
3. Identify chloride content of admixtures and whether or not chloride was added during manufacture.

D. Manufacturer's Installation Instructions: Submit installation procedures and interface required with adjacent Work.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 77 00 - Closeout Procedures: Closeout procedures.

B. Project Record Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301 and ACI 318.

B. Conform to ACI 305 when concreting during hot weather.

C. Conform to ACI 306.1 when concreting during cold weather.

D. Acquire cement and aggregate from one source for Work.

1.7 COORDINATION

A. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, and as follows:
1. Type I, except where other type is specifically permitted or required.
a. Type I may be replaced by Type III (high early strength) for concrete placed during cold weather.

B. Fly Ash: ASTM C 618, Type C or F.
1. Maximum allowable loss on ignition: 4.0 percent.

C. Water: Potable.

D. Aggregates:
1. Normal weight concrete: ASTM C 33, uniformly graded as follows:
a. Class: Moderate weathering region, but not less than 3M

b. Nominal Maximum Aggregate Size:
1) Slabs on Grade: 1-inch.
2) Footings and Walls: 3/4-inch.

2. Lightweight Aggregate: ASTM C330, 3/4-inch nominal maximum aggregate size.

E. Admixtures - General: Admixtures which result in more than 0.1 percent of soluble chloride ions by weight of cement are prohibited.

F. Air-Entraining Admixture: ASTM C 260 and certified by manufacturer for compatibility with other mix components.

G. Water-Reducing Admixture: ASTM C 494, Type A.

H. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.

I. Water-Reducing and Accelerating Admixtures: ASTM C 494, Type E.

2.2 REINFORCEMENT

A. Deformed Reinforcement: ASTM A615/A615M; 60 ksi yield strength, steel bars, unfinished.

B. Welded Plain Wire Fabric: ASTM A185; in flat sheets.

C. Synthetic Fibrillated Micro-Fiber: Fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C1116/C1116M, Type III, 1/2 to 1-1/2 inches long.

D. Synthetic Macro-Fiber: Synthetic macro-fibers engineered and designed for use in concrete, complying with ASTM C1116/C1116M, Type III, 1 to 2-1/4 inches long.

2.3 REINFORCEMENT ACCESSORY MATERIALS

A. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor retarder puncture.

B. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic tipped steel type; size and shape to meet Project conditions.

2.4 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Vapor Barrier
1. Vapor barrier must have all of the following qualities:
a. Permeance of less than 0.01 Perms [grains/(ft^2 · hr · inHg)] as tested in accordance with ASTM E 1745 Section 7.1.
b. Other performance criteria:
1) Strength: ASTM E 1745 Class B.
2) Thickness: 10 mils
c. Manufactured from prime virgin resins.

2. Seam Tape: Manufacturer's recommended low permeance tape composed of a high-density polyethylene film and a rubber based, pressure-sensitive adhesive.
3. Products: The following products, provided they comply with requirements of the contract documents, will be among those considered acceptable:
   a. Stego Wrap 10-Mil Class A Vapor Retarder by Stego Industries, LLC

B. Nonshrink Grout: ASTM C 1107.
1. Type: Provide nonmetallic type only.
2. Products: The following products, provided they comply with requirements of the contract documents, will be among those considered acceptable:
   a. Nonmetallic type:
      1) "Masterflow 928"; Master Builders, Inc.
      2) "Sonogrout 14k"; Sonneborn Building Products Division/ChemRex, Inc.
      3) "Euco N-S Grout"; The Euclid Chemical Company.
      4) "Supreme"; Cormix Construction Chemicals.
      5) "Crystex"; L & M Construction Chemicals, Inc.
      6) "Sure-Grip High Performance Grout"; Dayton Superior Corporation.
      7) "Horn Non-Corrosive Non-Shrink Grout"; A. C. Horn, Inc.
      8) "Five Star Grout"; Five Star Products, Inc.

C. Burlap: AASHTO M 182, Class 2 jute or kenaf cloth.

D. Moisture-Retaining Cover: ASTM C 171, and as follows:
1. Curing paper.
2. Polyethylene film.
3. White burlap-polyethylene sheeting.

E. Liquid Curing Compounds:
1. Manufacturers: Provide products complying with requirements of the contract documents and made by one of the following:
   a. Master Builders, Inc.
   b. Anti Hydro International, Inc.
   c. The Euclid Chemical Company.
   d. A. C. Horn, Inc.
   e. Dayton Superior Corporation.
   f. W. R. Meadows, Inc.
   g. The Burke Company.
   h. Sonneborn Building Products Division/ChemRex, Inc.
   i. L & M Construction Chemicals, Inc.
   j. Setcon Industries, Inc.
   k. Cormix, Inc.
2. Material - curing compounds: Comply with ASTM C 309, Type 1.
   a. Non-yellowing formulation where subject to ultraviolet light.
   b. Where compounds are proposed for use on surfaces to which finishes, coatings, or coverings subsequently will be applied, compound shall possess demonstrated compatibility with finish, coating, or covering, and use shall be subject to approval of the architect.

c. Curing and sealing compound: Where indicated, provide curing and sealing formulation with long-lasting finish that is resistant to chemicals, oil, grease, deicing salts, and abrasion.

3. Solvents: Water-based products where used on interior surfaces.

F. Self-Expanding Strip Waterstops: Manufactured rectangular or trapezoidal strip, sodium bentonite or other hydrophylic material for adhesive bonding to concrete.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Volclay Waterstop-RX;
   b. Colloid Environmental Technologies Co.
   c. Conseal CS-231; Concrete Sealants Inc.
   d. Swellseal Joint; De Neef Construction Chemicals (U.S.) Inc.
   e. Hydrotite; Greenstreak.
   f. Mirastop; Mirafi Moisture Protection, Div. of Royal Ten Cate (USA), Inc.
   g. Adeka Ultra Seal; Mitsubishi International Corporation.
   h. Superstop; Progress Unlimited Inc.

G. Underlayment Compound: Self-leveling cementitious compound designed for pumping.

1. Products: Provide one of the following:
   a. "Flo-Top"; The Euclid Chemical Company.
   b. "Thoro Underlayment Self-Leveling"; Thoro System Products Division/ICI Americas.

H. Expansion Joint Filler:

1. Interior - Nonextruding bituminous type: ASTM D 1751.
2. Exterior - Sponge rubber type: ASTM D 1752, Type I.

2.5 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 25 percent, for concrete exposed to weather.

C. Limit water-soluble, chloride-ion content in hardened concrete, measured by percent by weight of cement, as follows:

1. Concrete slabs exposed to weather. 0.30.
2. Concrete protected from weather: 1.00.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete and concrete with a water-cementitious materials ratio below 0.50.

2.6 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Slump Limit: 4 inches, plus or minus 1 inch.

B. Foundation Walls, Piers: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Slump Limit: 4 inches, plus or minus 1 inch.

C. Slabs-on-Grade, protected from weather: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Minimum Cementitious Materials Content: 520 lb/cu. yd. for 1 inch maximum aggregate size or 540 lb/cu. yd. for ¾ inch maximum aggregate size.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.
5. Synthetic Macro-Fiber: Uniformly distribute in concrete mixture at manufacturer's recommended rate, but not less than a rate of 3 lb/cu. yd.

D. Slabs-on-Grade, exposed to weather: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4500 psi at 28 days.
2. Minimum Cementitious Materials Content: 520 lb/cu. yd. for 1 inch maximum aggregate size; 540 lb/cu. yd. for ¾ inch maximum aggregate size.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch or 3/4-inch nominal maximum aggregate size.
5. Water-Cementitious ratio: 0.40.
6. Synthetic Micro-Fiber: Uniformly distribute in concrete mixture at manufacturer's recommended rate, but not less than a rate of 1.5 lb/cu. yd.

E. Suspended Slabs on metal deck and topping slab on hollow core planks: Proportion structural lightweight concrete mixture as follows:

1. Minimum Compressive Strength: 3500 psi at 28 days.
2. Maximum aggregate size: ¾ inch.
3. Calculated Equilibrium Unit Weight: 115 lb/cu. ft., plus or minus 3 lb/cu. ft. as determined by ASTM C567.
4. Slump Limit: 4 inches, plus or minus 1 inch.

5. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.7 CONTROL OF MIX IN THE FIELD

A. Slump: A tolerance of up to 1 inch above approved design mix slump will be permitted for 1 batch in 5 consecutive batches tested. Concrete of lower slump than that specified may be used, provided proper placing and consolidation is obtained.

B. Total Air Content: A tolerance of plus or minus 1-1/2 percent of approved design mix air content will be allowed for field measurements.

C. Do not use batches that exceed tolerances.

2.8 CONCRETE MIXING

A. Transit Mixers: Mix concrete materials in transit mixers, complying with requirements of ASTM C 94 and ASTM C 1116.
   1. At ambient temperatures of 85 to 90 degrees F, reduce mixing and delivery time to 75 minutes.
   2. At ambient temperatures above 90 degrees F, reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 31 00 - Administrative Requirements: Coordination and project conditions.

B. Verify requirements for concrete cover over reinforcement.

C. Verify anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 PREPARATION

A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Remove laitance, coatings, and unsound materials.

B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

C. Remove debris and ice from formwork, reinforcement, and concrete substrates.

D. Remove water from areas receiving concrete before concrete is placed.

3.3 PLACING CONCRETE

A. Place concrete in accordance with ACI 301 and ACI 318.

B. Notify testing laboratory and Architect/Engineer minimum 24 hours prior to commencement of operations.

C. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.

D. Install vapor barrier under interior slabs on grade in accordance with ASTM E1643. Lap joints minimum 6 inches and seal watertight by taping edges and ends.

E. Repair vapor barrier damaged during placement of concrete reinforcing. Repair with vapor barrier material; lap over damaged areas minimum 6 inches and seal watertight.

F. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

G. Install joint device anchors. Maintain correct position to allow joint cover to be flush with floor and wall finish.

H. Install joint covers in longest practical length, when adjacent construction activity is complete.

I. Apply sealants in joint devices in accordance with Section 07920.

J. Deposit concrete at final position. Prevent segregation of mix.

K. Place concrete in continuous operation for each panel or section determined by predetermined joints.

L. No free falls in excess of 3 feet shall be permitted. For falls in excess of 3 feet, chutes or elephant trunks shall be employed.

M. Concrete shall be thoroughly compacted during placing and thoroughly worked around reinforcing and embedded fixtures and into the corners of the form. Vibration shall be employed to aid the compaction of the concrete under experienced supervision. Forms shall be designed to withstand their action. Supplement vibration by spading. No forking and/or raking shall be permitted. At least one spare vibrator shall be on hand for emergency use.

N. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

O. Place concrete continuously between predetermined expansion, control, and construction joints.

P. Do not interrupt successive placement; do not permit cold joints to occur.

Q. No concrete that has partially hardened, become contaminated by foreign materials, or has been re-tempered shall be deposited.

R. Place floor slabs in saw cut pattern indicated.

S. Saw cut joints within 12 hours after placing. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.

T. Screed floors and slabs on grade level, maintaining surface flatness as indicated.

U. Provide control joints in concrete terrazzo flooring per NTMA recommendations and as follows: Provide control joints at no more than 6'-0" on center. Provide control joints at all corner locations. Coordinate joint locations with Architectural documents.

3.4 FINISHING FORMED SURFACES

A. Repairs, General: Repair surface defects, including tie holes, immediately after removing formwork.
   1. Remove honeycombed areas and other defective concrete down to sound concrete, cutting perpendicular to surface or slightly undercutting. Dampen patch location and area immediately surrounding it prior to applying bonding compound or patching mortar.
   2. Before bonding compound has dried, apply patching mixture matching original concrete in materials and mix except for omission of coarse aggregate, and using a blend of white and normal portland cement as necessary to achieve color match. Consolidate thoroughly and strike off slightly higher than surrounding surface.

B. Unexposed Form Finish: Repair tie holes and patch defective areas. Rub down or chip off fins or other raised areas exceeding 1/4 inch height.

C. Exposed Form Finish: Repair and patch defective areas, with fins or other projections completely removed and smoothed.
   1. Surfaces requiring CSC4 finish per ACI 347.3R-14
      a. Exposed concrete columns at entry canopy.
   2. Smooth rubbed finish: Apply to surfaces indicated no later than 24 hours after form removal.
      a. Wet concrete surfaces to be finished and rub with Carborundum brick or other abrasive until uniform color and texture are achieved.
      b. Do not apply separate grout mixture.
   3. Contiguous unformed surfaces: Strike smooth and float to a similar texture tops of walls, horizontal offsets, and other unformed surfaces adjacent to or contiguous with formed surfaces. Continue final finish of formed surfaces across unformed surfaces, unless otherwise specifically indicated.

3.5 FINISHING SLABS

A. Finishing Operations - General:
   1. Do not directly apply water to slab surface or dust with cement.
   2. Use hand or powered equipment only as recommended in ACI 302.1R.
   3. Screeding: Strikeoff to required grade and within surface tolerances indicated. Verify conformance to surface tolerances. Correct deficiencies while concrete is still plastic.
   4. Bull Floating: Immediately following screeding, bull float or darby before bleed water appears to eliminate ridges, fill in voids, and embed coarse aggregate. Recheck and correct surface tolerances.

5. Do not perform subsequent finishing until excess moisture or bleed water has disappeared and concrete will support either foot pressure with less than 1/4-inch indentation or weight of power floats without damaging flatness.
6. Final floating: Float to embed coarse aggregate, to eliminate ridges, to compact concrete, to consolidate mortar at surface, and to achieve uniform, sandy texture. Recheck and correct surface tolerances.
7. Troweling: Trowel immediately following final floating. Apply first troweling with power trowel except in confined areas, and apply subsequent trowelings with hand trowels. Wait between trowelings to allow concrete to harden. Do not over trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over it. Consolidate concrete surface by final troweling operation. Completed surface shall be free of trowel marks, uniform in texture and appearance, and within surface tolerance specified.
    a. Grind smooth surface defects which would telegraph through final floor covering system.

B. Coordinate appearance and texture of required final finishes with the architect before application.

C. Float Finish: As specified above.

D. Broomed Float Finish: After floating and when water sheen has practically disappeared, apply uniform transverse corrugations approximately 1/16 inch deep, without tearing surface.

E. Trowel Finish: As specified above.

F. Trowel and Fine Broom Finish: Follow trowel finishing operation immediately with fine brooming to achieve slightly scarified surface.

G. Slab Surface Tolerances:
1. Achieve flat, level planes except where grades are indicated. Slope uniformly to drains.
2. Floated finishes: Depressions between high spots shall not exceed 1/4 inch under a 10-foot straightedge.
3. Troweled finishes: Achieve level surface plane so that depressions between high spots do not exceed the following dimension, using a 10-foot straightedge:
    a. 1/8 inch non-cumulative in any direction and equivalent to F_F50 (floor flatness), F_L30 (floor levelness) at areas to receive wood flooring and special sports flooring as noted in Division 9.
    b. 3/16 inch all others receiving troweled finishes.

H. Slab Finish Schedule: Apply finishes in the following typical locations and as otherwise shown on the drawings:
1. Float finish:
    a. Surfaces to receive thickset stone flooring
2. Broomed float:
    a. Sidewalks.
    b. Exterior slabs not otherwise scheduled.
3. Trowel finish:
    a. Exposed interior floors not otherwise scheduled.

b. Surfaces to receive resilient tile.
c. Surfaces to receive carpet.

4. Trowel and fine broom:
   a. Surfaces to receive thinset tile.

I. Repair of Slab Surfaces: Test slab surfaces for smoothness and to verify surface plane to tolerance specified. Repair defects as follows:

1. High areas: Correct by grinding after concrete has cured for not less than 14 days.
2. Low areas: Immediately after completion of surface finishing operations, cut out low areas and replace with fresh concrete. Finish repaired areas to blend with adjacent concrete. Proprietary patching compounds may be used when approved by the architect.
3. Crazed or cracked areas: Cut out defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts. Dampen exposed concrete and apply bonding compound. Mix, place, compact, and finish patching concrete to match adjacent concrete.
4. Isolated cracks and holes: Groove top of cracks and cut out holes not over 1 inch in diameter. Dampen cleaned concrete surfaces and apply bonding compound; place dry pack or proprietary repair compound acceptable to architect while bonding compound is still active:
   a. Dry-pack mix: One part portland cement to 2-1/2 parts fine aggregate and enough water as required for handling and placing.
   b. Install patching mixture and consolidate thoroughly, striking off level with and matching surrounding surface. Do not allow patched areas to dry out prematurely.
5. Underlayment: Leveling of slabs for subsequent application of floor finishes may be achieved by use of specified underlayment material, at contractor's option.

J. Surface Sealer: Apply to all interior concrete slabs to remain exposed.

1. Allow concrete to cure for 30 days prior to application of sealer.
2. Use clear solvent base, 100% solid epoxy sealer similar to Tamms Duraltex 1705. Apply two coats. Follow manufacturers recommendation for surface preparation.

3.6 CONCRETE CURING AND PROTECTION

A. General:

1. Prevent premature drying of freshly placed concrete, and protect from excessively cold or hot temperatures until concrete has cured.
2. Provide curing of concrete by one of the methods listed and as appropriate to service conditions and type of applied finish in each case.

B. Normal Curing Period:

1. Not less than 7 days for standard cements and mixes.
2. Not less than 4 days for high early strength concrete using Type III cement.

C. Formed Surfaces: Cure formed concrete surfaces by moist curing with forms in place for full curing period or until forms are removed.

1. Keep wooden or metal forms moist when exposed to heat of the sun.
2. If forms are removed prior to completion of curing process, continue curing by one of the applicable methods specified.

D. Surfaces Not in Contact with Forms:
1. Start initial curing as soon as free water has disappeared, but before surface is dry.
2. Keep continuously moist for not less than 7 days by uninterrupted use of any of the following:
   a. Water ponding.
   b. Water-saturated sand.
   c. Water-fog spray.
   d. Saturated burlap: Provide 4-inch minimum overlap at joints.
3. Begin final curing procedures immediately following initial curing and before concrete has dried.
   a. Moisture-retaining cover: Lap not less than 3 inches at edges and ends, and seal with waterproof tape or adhesive. Repair holes or tears during curing period with same tape or adhesive. Maintain covering in intimate contact with concrete surface. Secure to avoid displacement.
      1) Extend covering past slab edges at least twice the thickness of slab.
      2) Do not use plastic sheeting on surfaces which will be exposed to view when in service.
   b. Curing compound: Apply at rate stated by manufacturer to conform with moisture-retention requirements specified, using second, immediate application at right angles to first, if necessary, and reapply if damaged by rain.
   c. Curing and sealing compound: Apply at rate stated by manufacturer to conform with moisture-retention requirements specified, using second, immediate application at right angles to first, if necessary, and reapply if damaged by rain. Apply additional coat near substantial completion to act as sealer.
   d. Use curing compounds only in locations permitted or required, and where use will not interfere with other finishes, coatings, or coverings to be applied.
4. Continue final curing to end of curing period.

E. Avoid rapid drying at end of curing period.

F. During and following curing period, protect concrete from temperature changes of adjacent air in excess of 5 degrees F per hour and 50 degrees F per 24 hours. Progressively adjust protective measures to provide uniform temperature changes over entire concrete surface.

3.7 MISCELLANEOUS CONCRETE ITEMS

A. Fill-in: Fill in holes and openings left in concrete structures for passage of work by other trades after such work is in place. Place such fill-in concrete to blend with existing construction, using same mix and curing methods.

B. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as indicated on drawings. Set anchor bolts at correct elevations, complying with diagrams or templates of equipment manufacturer.
   1. Grout base plates and foundations as indicated with nonshrink grout.
   2. Use nonmetallic grout for exposed conditions, unless otherwise indicated.

C. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Screed, tamp, and finish concrete surfaces as scheduled.

D. Reinforced Masonry: Provide concrete grout for reinforced masonry where indicated on drawings and as scheduled.

3.8 CONCRETE REPAIRS

A. Perform cosmetic repairs of concrete surfaces as specified under concrete application.

B. Perform structural repairs with prior approval of the architect for method and procedure, using epoxy bonding systems. The architect's approval is required for repair methods using materials other than those specified.

3.9 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. Composite Sampling, and Making and Curing of Specimens: ASTM C 172 and ASTM C 31.
   1. Take samples at point of discharge.
   2. For pumped concrete, perform sampling and testing at the frequencies specified herein at point of delivery to pump, and perform additional sampling and testing at the same frequency at discharge from line. Results obtained at discharge from line shall be used for acceptance of concrete.

B. Slump: ASTM C 143. One test per strength test and additional tests if concrete consistency changes.
   1. Modify sampling to comply with ASTM C 94.

C. Air Content of Normal Weight Concrete: ASTM C 173 or ASTM C 231. One test per strength test performed on air-entrained concrete.

D. Air Content of Lightweight Concrete: ASTM C 173. One test per strength test performed on air-entrained concrete.

E. Approximate Air-Dry Weight of Lightweight Concrete: ASTM C 567. Determine fresh unit weight once per strength test and report approximate air-dry weight of concrete represented.

F. Concrete Temperature:
   1. Test hourly when air temperature is 40 degrees F or below.
   2. Test hourly when air temperature is 90 degrees F or above.
   3. Test each time a set of strength test specimens is made.

G. Compressive Strength Tests: ASTM C 39.

1. Compression test specimens: Mold and cure one set of 4 standard cylinders for each compressive strength test required.
2. Testing for acceptance of potential strength of as-delivered concrete:
    a. Obtain samples on a statistically sound, random basis.
    b. Minimum frequency:
        1) One set per 100 cubic yards or fraction thereof for each day's pour of each concrete class.
        2) One set per 3500 square feet of slab or wall area or fraction thereof for each day's pour of each concrete class.
        3) When less than 5 cubic yards is placed in one day, the architect may, at architect's option, waive laboratory testing of specimens if adequate evidence of satisfactory strength is provided. (Molding and curing of these specimens is not waived.)
        4) When the above testing frequency would provide fewer than 5 strength tests for a given class of concrete during the project, conduct testing from not less than 5 randomly selected batches, or from each batch if fewer than 5.
    c. Test one specimen per set at 7 days for information unless an earlier age is required.
    d. Test 2 specimens per set for acceptance of strength potential; test at 28 days unless other age is specified. The test result shall be the average of the two specimens. If one specimen shows evidence of improper sampling, molding, or testing, the test result shall be the result of the remaining specimen; if both show such evidence, discard the test result and inform the architect.
    e. Retain one specimen from each set for later testing, if required.
    f. Strength potential of as-delivered concrete will be considered acceptable if all of the following criteria are met:
        1) No individual test result falls below specified compressive strength by more than 500 psi.
        2) Not more than 10 percent of individual test results fall below specified compressive strength f'(c).
        3) Average of any 3 consecutive strength test results equals or exceeds specified compressive strength f'(c).
3. Removal of forms or supports: Mold additional specimens and field-cure with concrete represented; test to determine strength of concrete at proposed time of form or support removal.

H. Test Results: Testing agency shall report test results in writing to architect and contractor within 24 hours of test.
1. Test reports shall contain the following data:
    a. Project name, number, and other identification.
    b. Name of concrete testing agency.
    c. Date and time of sampling.
    d. Concrete type and class.
    e. Location of concrete batch in the completed work.
    f. All information required by respective ASTM test methods.
2. Nondestructive testing devices such as impact hammer or sonoscope may be used at architect's option for assistance in determining probable concrete strength at

various locations or for selecting areas to be cored, but such tests shall not be the sole basis for acceptance or rejection.

3. The testing agency shall make additional tests of in-place concrete as directed by the architect when test results indicate that specified strength and other concrete characteristics have not been attained.
   a. Testing agency may conduct tests of cored cylinders complying with ASTM C 42, or tests as directed.
   b. Cost of additional testing shall be borne by the contractor when unacceptable concrete has been verified.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.
2. Sliding doors.
3. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Electromechanical door hardware.
3. Automatic operators.
4. Cylinders specified for doors in other sections.

C. Related Sections:

1. Division 08 Section “Hollow Metal Doors and Frames”.
2. Division 08 Section “Interior Aluminum Doors and Frames”.
3. Division 08 Section “Flush Wood Doors”.
4. Division 08 Section “Aluminum-Framed Entrances and Storefronts”.
5. Division 08 Section “Automatic Door Operators”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. UL/ULC and CSA C22.2 - Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.
8. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.

3. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:

    a. Type, style, function, size, label, hand, and finish of each door hardware item.
    b. Manufacturer of each item.
    c. Fastenings and other pertinent information.
    d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    e. Explanation of abbreviations, symbols, and codes contained in schedule.
    f. Mounting locations for door hardware.
    g. Door and frame sizes and materials.
    h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

    a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
    b. Complete (risers, point-to-point) access control system block wiring diagrams.
    c. Wiring instructions for each electronic component scheduled herein.

2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Please note that ASSA ABLOY is transitioning the Yale Commercial brand to ASSA ABLOY ACCENTRA. This affects only the brand name; the products and product numbers will remain unchanged. The brand transition is expected to be complete in or about May of 2024, and products shipping after that time will be branded ASSA ABLOY ACCENTRA.

D. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 BUTT HINGES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

   a. Two Hinges: For doors with heights up to 60 inches.
   b. Three Hinges: For doors with heights 61 to 90 inches.
   c. Four Hinges: For doors with heights 91 to 120 inches.
   d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

   a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
   b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

   a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
   b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:

   a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Manufacturers:

   a. Hager Companies (HA) - BB Series, 5-knuckle.
   b. McKinney (MK) - TA/T4A Series, 5-knuckle.
   c. dormakaba Best (ST) - F/FBB Series, 5-knuckle.

2.3 CONTINUOUS HINGES

A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:.

   a. Hager Companies (HA).
   b. Pemko (PE).
   c. Dormakaba Best (ST).

2.4 POWER TRANSFER DEVICES

A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:

    a. Pemko (PE) - EL-CEPT Series.
    b. Securitron (SU) - EL-CEPT Series.
    c. Dormakaba Best (ST) EPT-12C Series.

B. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.

1. Provide one each of the following tools as part of the base bid contract:

    a. McKinney (MK) - Electrical Connecting Kit: QC-R001.
    b. McKinney (MK) - Connector Hand Tool: QC-R003.

2. Manufacturers:

    a. Hager Companies (HA) - Quick Connect.
    b. McKinney (MK) - QC-C Series.
    c. Dormakaba Best (ST) - WH Series.

2.5 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.

1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
2. Furnish dust proof strikes for bottom bolts.
3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
5. Manufacturers:

    a. Burns Manufacturing (BU).
    b. Door Controls International (DC).
    c. Rockwood (RO).

B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Pulls, where applicable, shall be provided with a 10” clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
6. Manufacturers:

    a. Burns Manufacturing (BU).
    b. Hiawatha, Inc. (HI).
    c. Rockwood (RO).

2.6 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

1. Manufacturers:

    a. Sargent Manufacturing (SA).

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

1. Threaded mortise cylinders with rings and cams to suit hardware application.
2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Manufacturer’s Standard.

C. Keying System: Each type of lock and cylinders to be factory keyed.

1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Field verify and key cylinders to match Owner's existing system.

D. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Three (3).
2. Master Keys (per Master Key Level/Group): Five (5).

3. Construction Keys (where required): Ten (10).

E. Construction Keying: Provide construction master keyed cylinders.

F. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.7 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

1. Manufacturers:

a. Lund Equipment (LU).
b. MMF Industries (MM).
c. Telkee (TK).
d. No Substitution.

2.8 MORTISE LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): Provide ANSI/BHMA A156.13, Series 1000, Operational and Security Grade 1 Certified Products Directory (CPD) listed mortise locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide locksets with functions and features as follows:

a. Heavy duty 12-gauge wrought steel case.
b. Stainless steel 3/4" one-piece anti-friction reversible latchbolt with a one-piece hardened stainless steel 1” projection deadbolt.
c. Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
d. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
e. Meets UL Certification Directory ZHLL.R21744 for products used in windstorm rated assemblies.
f. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.13 requirements to 16 million cycles or greater.
g. Status indicators inside, outside, or on both sides of doors as specified; available with wording for “locked/unlocked”, “vacant/occupied” or custom wording options. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status.
h. Ten-year limited warranty for mechanical functions.

2. Electromechanical locksets shall have the following functions and features:

a. Universal Molex plug-in connectors that have standardized color-coded wiring and are available in fail safe or fail secure and operate from 12vdc to 24vdc regulated.

b. EcoFlex or equivalent technology that reduces energy consumption up to 92% as certified by GreenCircle.
c. Options to be available for request-to-exit or enter signaling, latchbolt and deadbolt monitoring.
d. Optional high security monitoring with internal end-of-line monitoring alongside deadbolt privacy and integrated door position monitoring.
e. Two-year limited warranty on electrified functions.

3. Manufacturers:

a. Corbin Russwin Hardware (RU) - ML2000 Series.
b. dormakaba Best (BE) - 45H Series.
c. Sargent Manufacturing (SA) - 8200 Series.

2.9 DEADLOCKS AND LATCHES

A. Mortise Deadlocks, Small Case: ANSI/BHMA A156.36, Grade 1, small case mortise type deadlocks constructed of heavy gauge wrought corrosion resistant steel. Steel or stainless steel bolts with a 1" throw and hardened steel roller pins. Deadlocks to be products of the same source manufacturer and keyway as other specified locksets.

1. Manufacturers:

a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA) - 350 Series.
b. dormakaba Best (BE) - 48H Series.
c. Corbin Russwin Hardware (RU) - DL4000 Series.
d. Sargent Manufacturing (SA) - 4870 Series.

2.10 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.11 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. Exit devices shall have a five-year warranty.
2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer’s catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

    a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2” wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide exit devices with functions and features as follows:

    a. Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
    b. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
    c. Extended cycle test: Exit devices to have been cycle tested in ordinance with ANSI/BHMA 156.3 requirements to 5 million cycles or greater.
    d. Five-year limited warranty for mechanical features.

2. Electromechanical exit devices shall have the following functions and features:

a. Universal Molex plug-in connectors that have standardized color-coded wiring and are field configurable in fail safe or fail secure and operate from 12vdc to 24vdc regulated.
b. EcoFlex or equivalent technology that reduces energy consumption up to 92% as certified by GreenCircle.
c. Options to be available for request-to-exit or enter signaling, latchbolt and touchbar monitoring.
d. Field configurable electrified trim to fail-safe or fail-secure that operates from 12-24VDC.
e. Five-year limited warranty for electromechanical features.

3. Manufacturers:

a. Arrow (AW) - 3700/3800/3900, 4800/4900 Series.
b. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
c. Sargent Manufacturing (SA) - 80 Series.

2.12 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Cycle Testing: Provide closers which have surpassed 15 million cycles.
4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.

1. Large body cast iron surface mounted door closers shall have a 30-year warranty.
2. Manufacturers:

a. Corbin Russwin Hardware (RU) - DC8000 Series.
b. LCN Closers (LC) - 4040XP Series.
c. Norton Rixson (NO) - 9500 Series.
d. Sargent Manufacturing (SA) - 281 Series.

2.13 ELECTROMECHANICAL DOOR OPERATORS

A. Electromechanical Door Operators (High Traffic): Provide ANSI/BHMA A156.19 Certified Products Directory (CPD) listed low energy operators that are UL325/991 and UL10C certified and comply with requirements for the Americans with Disabilities Act (ADA). Operators shall accommodate openings up to 250 pounds and 48" wide.

1. Provide operators with features as follows:

   a. Non-handed with push and pull side mounting.
   b. Activation by push button, hands-free or radio frequency devices.
   c. Adjustable opening force and closing power.
   d. Two-year limited warranty.
   e. Wi-Fi interface.
   f. Mounting backplate to simplify and speed up installation.
   g. Integration with access control systems.

2. Operators shall have the following functionality:

   a. Adjustable Hold Open: Amount of time a door will stay in the full open position after an activation.
   b. Blow Open for Smoke Ventilation: Door opens when signal is received from alarm system allowing air or smoke to flow through opening. Door will stay open until signal from alarm system is stopped.
   c. Emergency Interface Relay: Door closes and ignores any activation input until signal is discontinued.
   d. Infinite Hold Open: Door will hold open at set position until power is turned off.
   e. Latch Assist: At closed position, after an activation, the door is pulled in. After the door has closed, the door is pulled in to assist with latch release/engagement.
   f. Obstruction Detection: Door closes if it hits an obstruction while opening; door will reverse to open position if it hits an obstruction while closing. Door will stop once it hits an obstruction and will rest against the obstruction until removed.
   g. Open Delay: Delays operator opening for locking hardware.
   h. Outside Wall Switch Disable: When contact is closed, outside wall switch is disabled.
   i. Power Assist: Senses the door is being opened manually and applies small amount of power to assist the user in opening the door with force less than 5 lbs. The door opens only as far as it is moved manually, then closes once released.
   j. Power Close: Additional force to assist door closing between 7° and 2°.
   k. Presence Detector Input: Input for external sensor to detect presence at door open or close position only.
   l. Push & Go: As the door is manually opened, the operator "senses" movement and opens door to the full-open position.
   m. Selector Mode Switch: Off disables the signal inputs unless Blow Open is activated, on activates the signal inputs, hold open activates the unit (unless Blow Closed is activated) to the hold open position.
   n. Vestibule Delay: When the wall switch is pressed, first door in vestibule will open. Second door will open once vestibule door delay has expired. Delay is adjustable.
   o. Executive Mode Feature: When the door receives an activation signal it opens and remains open until either a second signal is received, or the door is manually moved in closing direction.

3. Manufacturers:

a. ASSA ABLOY Entrance Systems (BE) - SW200 Series.
b. dormakaba (DO) - ED100 Series.
c. Horton Automatics (HO) - S4100LE Series.
d. Norton Rixson (NO) - 6300 Series.

2.14 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:

    a. Stainless Steel: 300 grade, 050-inch thick.

5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:

    a. Hager Companies (HA).
    b. Hiawatha, Inc. (HI).
    c. Rockwood (RO).

2.15 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

    a. Hager Companies (HA).
    b. Hiawatha, Inc. (HI).
    c. Rockwood (RO).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber

spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:

   a. Norton Rixson (RF).
   b. Rockwood (RO).
   c. Sargent Manufacturing (SA).

2.16 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. National Guard Products (NG).
2. Pemko (PE).
3. Reese Enterprises, Inc. (RE).

2.17 ELECTRONIC ACCESSORIES

A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.

1. Manufacturers:

a. Sargent Manufacturing (SA) - 3280 Series.
b. Security Door Controls (SD) - DPS Series.
c. Securitron (SU) - DPS Series.

B. Switching Power Supplies: Provide power supplies with either single or dual voltage configurations at 12 or 24VDC. Power supplies shall have battery backup function with an integrated battery charging circuit and shall provide capability for power distribution, direct lock control and Fire Alarm Interface (FAI) through add on modules. Power supplies shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs.

1. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
2. Manufacturers:

a. Securitron (SU) - AQD Series.
b. Altronix (AS) - Maximal 3.

2.18 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.19 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.5 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.6 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.7 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
2. The supplier is responsible for handing and sizing all products.
3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer’s Abbreviations:

1. MK - McKinney
2. PE - Pemko
3. SU - Securitron
4. RO - Rockwood
5. SA - SARGENT
6. RF - Rixson
7. NO - Norton
8. OT - Other

HARDWARE SETS

SET: 1.0

DOORS: 1100, 1100-E

1	CONTINUOUS HINGE	CFM_SLF-HD1 PT X LENGTH REQUIRED		PE
1	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	RIM EXIT DEVICE, STOREROOM	21 55 56 8804 PSB	US32D	SA
1	AUTOMATIC OPENER	6300 SERIES	689	NO
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
1	RAIN GUARD	346C		PE
1	SWEEP	315CN		PE
1	THRESHOLD	766FG		PE
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	DOOR SWITCH	505		NO
1	SWITCH POST	500	689	NO
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. ADA ACCESS BY ACTUATOR SWITCH. IN LOCKED CONDITION, ACTUATOR ENERGIZED ONLY UPON VALID CARD READER PRESENTATION.
4. EGRESS FREE FOR IMMEDIATE EXIT. ADA EGRESS BY ACTUATOR SWITCH.
5. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
6. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
7. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 1.1
DOORS: 1401

1	CONTINUOUS HINGE	CFM_SLF-HD1 PT X LENGTH REQUIRED		PE
1	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	RIM EXIT DEVICE, STOREROOM	21 55 56 8804 PSB	US32D	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
1	RAIN GUARD	346C		PE
1	SWEEP	315CN		PE
1	THRESHOLD	766FG		PE
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
6. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 2.0
DOORS: C1500, C1700

2	CONTINUOUS HINGE	CFM_SLF-HD1 PT X LENGTH REQUIRED		PE
2	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	KEYED REMOVEABLE MULLION	(12-) L980S	PC	SA
1	RIM PANIC DEVICE (DMY-REX,MELR)	55 56 8810 PTB	US32D	SA
1	RIM EXIT DEVICE, STOREROOM	21 55 56 8804 PSB	US32D	SA
1	CYLINDER	21 980C1	US26D	SA
2	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
2	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
2	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
2	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
2	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. KEYSWITCH ACTIVATED RETRACTING EXIT DEVICE LATCHES AT BEGINNING OF THE DAY. KEYSWITCH ACTIVATED AT END OF DAY RELEASING EXIT DEVICE LATCHES.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. EXIT DEVICE LATCHES RELEASE (FAIL SECURE) IN EVENT OF POWER LOSS OR UPON LOCKDOWN PROCEDURE INITIATED VIA REMOTE BUTTON/SWITCH. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 2.1
DOORS: 1508A

2	CONTINUOUS HINGE	CFM_SLF-HD1 PT X LENGTH REQUIRED		PE
2	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	KEYED REMOVEABLE MULLION	(12-) L980S	PC	SA
1	RIM PANIC DEVICE (DMY-REX,MELR)	55 56 8810 PTB	US32D	SA
1	RIM EXIT DEVICE, STOREROOM	21 55 56 8804 PSB	US32D	SA
1	CYLINDER	21 980C1	US26D	SA
2	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
2	SWEEP	315CN		PE
1	THRESHOLD	FG		PE
1	RAIN GUARD	346C		PE
2	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
2	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
2	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. KEYSWITCH ACTIVATED RETRACTING EXIT DEVICE LATCHES AT BEGINNING OF THE DAY. KEYSWITCH ACTIVATED AT END OF DAY RELEASING EXIT DEVICE LATCHES.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. EXIT DEVICE LATCHES RELEASE (FAIL SECURE) IN EVENT OF POWER LOSS OR UPON LOCKDOWN PROCEDURE INITIATED VIA REMOTE BUTTON/SWITCH. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 3.0
SET NOT USED

SET: 4.0
DOORS: 1100A, 1100B, 1100C, 1100D, 1802A, 1804A, C1100

1	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, DUMMY	16 TB 21 8810 PTB	US32D	SA
1	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	DROP PLATE	AS REQUIRED	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
1	SWEEP	315CN		PE
1	THRESHOLD	766FG		PE
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

** For doors 1802A,1804A, C1100 – Replace – Threshold listed with 253FG – PE. I am running a few minutes late; my previous meeting is running over.

SET: 4.1
DOORS: 1401A, 1401B, 1401C, 1401D, 1708A, 1710A

1	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, DUMMY	16 TB 21 8810 PTB	US32D	SA
1	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	DROP PLATE	AS REQUIRED	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
1	RAIN GUARD	346C		PE
1	SWEEP	315CN		PE
1	THRESHOLD	766FG		PE
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 4.2
DOORS: 1806A, 1808A

1	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, STOREROOM	AL TB 21 8804 ETB	US32D	SA
1	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	DROP PLATE	AS REQUIRED	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
1	RAIN GUARD	346C		PE
1	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 5.0
DOORS: 1301-C, 1301-D

2	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, EXIT ONLY	TB 8810 EO	US32D	SA
1	RIM EXIT DEVICE, DUMMY	16 TB 21 8810 PTB	US32D	SA
2	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
2	DROP PLATE	AS REQUIRED	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
1	RAIN GUARD	346C		PE
2	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
2	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 6.0
DOORS: 1502A, 1504A, 1506A, 1510A, 1514A

1	CONTINUOUS HINGE	CFM_HD1 PT X LENGTH REQUIRED		PE
1	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	RIM EXIT DEVICE, STOREROOM	21 55 56 8804 PSB	US32D	SA
1	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
1	THRESHOLD	253FG		PE
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
6. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 6.1
DOORS: 1512A, 1402-A

1	CONTINUOUS HINGE	CFM_HD1 PT X LENGTH REQUIRED		PE
1	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
1	THRESHOLD	253FG		PE
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
6. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 6.2
DOORS: C1300A

1	CONTINUOUS HINGE	CFM_HD1 PT X LENGTH REQUIRED		PE
1	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	RIM EXIT DEVICE, STOREROOM	21 55 56 8804 PSB	US32D	SA
1	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
1	THRESHOLD	FG		PE
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
6. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 7.0
DOORS: C1200

2	CONTINUOUS HINGE	CFM_HD1 PT X LENGTH REQUIRED		PE
2	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	KEYED REMOVEABLE MULLION	(12-) L980S	PC	SA
1	RIM EXIT DEVICE, STOREROOM	21 55 56 8804 PSB	US32D	SA
1	RIM EXIT DEVICE, EXIT ONLY	TB 55 8810 EO	US32D	SA
1	CYLINDER	21 980C1	US26D	SA
2	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	GASKETING	319CN		PE
1	GASKETING	5110BL X LENGTH REQUIRED		PE
2	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
2	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
2	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
2	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
6. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 7.1
DOORS: 1402-A, 1314

2	CONTINUOUS HINGE	CFM_HD1 PT X LENGTH REQUIRED		PE
2	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	SURFACE VERT ROD EXIT	TB 21 55 56 NB8706 ETB	US32D	SA
1	SURFACE VERT ROD EXIT, EXIT ONLY	TB 55 NB8710 EO	US32D	SA
2	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
2	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
2	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
2	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
2	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
6. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 8.0
DOORS: 1718A

1	CONTINUOUS HINGE	CFM_HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, STOREROOM	16 TB 21 8804 PSB	US32D	SA
1	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	GASKETING	319CN		PE
1	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 9.0
DOORS: 1308-A, 1310-A, C1300, E1301

2	CONTINUOUS HINGE	CFM_HD1 X LENGTH REQUIRED		PE
1	KEYED REMOVEABLE MULLION	(12-) L980S	PC	SA
1	RIM EXIT DEVICE, EXIT ONLY	16 TB 21 8810 EO	US32D	SA
1	RIM EXIT DEVICE, STOREROOM	16 TB 21 8804 PSB	US32D	SA
1	CYLINDER	21 980C1	US26D	SA
2	SURFACE CLOSER	281 CPS	EN	SA
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	GASKETING	319CN		PE
1	GASKETING	5110BL X LENGTH REQUIRED		PE
2	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
2	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 10.0
DOORS: 1411A

2	CONTINUOUS HINGE	CFM_HD1 X LENGTH REQUIRED		PE
1	KEYED REMOVEABLE MULLION	(12-) L980S	PC	SA
1	RIM EXIT DEVICE, EXIT ONLY	12 TB 8810 EO	US32D	SA
1	RIM EXIT DEVICE, STOREROOM	12 TB 21 8804 PSB	US32D	SA
1	CYLINDER	21 980C1	US26D	SA
2	SURFACE CLOSER	281 CPS	EN	SA
(HD SPRING STOP)				
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
1	GASKETING	5110BL X LENGTH REQUIRED		PE
2	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 11.0
DOORS: 1-S1-A, 1-S4-A

1	CONTINUOUS HINGE	CFM_HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, EXIT ONLY	12 TB 8810 EO	US32D	SA
1	RIM EXIT DEVICE, EXIT ONLY	LD TB 8810 EO	US32D	SA
1	SURFACE CLOSER	281 CPS	EN	SA
(HD SPRING STOP)				
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
1	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 12.0
DOORS: 1-S5-A

2	CONTINUOUS HINGE	CFM_HD1 X LENGTH REQUIRED		PE
1	KEYED REMOVEABLE MULLION	(12-) L980S	PC	SA
2	RIM EXIT DEVICE, EXIT ONLY	12 TB 8810 EO	US32D	SA
1	CYLINDER	21 980C1	US26D	SA
2	SURFACE CLOSER (HD SPRING STOP)	281 CPS EN		SA
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
1	GASKETING	5110BL X LENGTH REQUIRED		PE
2	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
2	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 13.0
DOORS: M2300A, M3000, M3100

1	CONTINUOUS HINGE	CFM_HD1 X LENGTH REQUIRED		PE
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
1	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 13.1
DOORS: 1411B

1	CONTINUOUS HINGE	CFM_HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, STOREROOM	TB 21 8804 ETB	US32D	SA
1	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
1	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 14.0
SET NOT USED

SET: 15.0
DOORS: 1102A, 1102B

1	CONTINUOUS HINGE	CFM_SLF-HD1 PT X LENGTH REQUIRED		PE
1	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	FAIL SECURE LOCK	RX 21 8271-_V LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DROP PLATE	AS REQUIRED	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	DOOR RELEASE	TS-18		AK
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER ALLOWING INGRESS. DOOR CAN BE REMOTE RELEASED VIA DOOR RELEASE BUTTON.
3. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
4. LOCKSET REMAINS LOCKED (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 16.0
DOORS: 1301 - B, 1301-A

1	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, STOREROOM	16 TB 21 8804 PSB	US32D	SA
1	DROP PLATE	AS REQUIRED	EN	SA
1	SURFACE CLOSER	281 CPSH	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT

SET: 17.0
DOORS: 1200A, 1200B

2	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	SURFACE VERT ROD EXIT	16 TB 21 NB8710 306 X LESS PULL	US32D	SA
1	SURFACE VERT ROD EXIT, EXIT ONLY	16 TB 21 NB8710 EO	US32D	SA
2	DOOR PULL	BF157	US32D	RO
2	DROP PLATE	AS REQUIRED	EN	SA
2	SURFACE CLOSER	281 CPSH	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT
2	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 18.0
DOORS: 1602

1	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	OFFICE/ENTRY LOCK	21 8205 LNL	US26D	SA
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DROP PLATE	AS REQUIRED	EN	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT

SET: 19.0
DOORS: 1604, 1618, 1619

1	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	OFFICE/ENTRY LOCK	21 8205 LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DROP PLATE	AS REQUIRED	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT

SET: 20.0
DOORS: 1100-F, 1100-G, 1100-H, 1100-I

1	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, DUMMY	16 TB 21 8810 PTB	US32D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DROP PLATE	AS REQUIRED	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT

SET: 21.0
DOORS: C1700A

2	CONTINUOUS HINGE	CFM_HD1 PT X LENGTH REQUIRED		PE
1	KEYED REMOVEABLE MULLION	(12-) L980S	PC	SA
1	RIM EXIT DEVICE, STOREROOM	21 55 56 8804 PSB	US32D	SA
1	RIM EXIT DEVICE, EXIT ONLY	TB 55 8810 EO	US32D	SA
1	CYLINDER	21 980C1	US26D	SA
2	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	GASKETING	319CN		PE
1	GASKETING	5110BL X LENGTH REQUIRED		PE
2	SWEEP	315CN		PE
1	THRESHOLD	253A		PE
		MK		

SET: 22.0
SET NOT USED

SET: 23.0
SET NOT USED

SET: 24.0
DOORS: 2107

1	CONTINUOUS HINGE	CFM_SLF-HD1 X LENGTH REQUIRED		PE
1	RIM EXIT DEVICE, PASSAGE	TB 8815 ETB	US32D	SA
1	SURFACE CLOSER	281 CPSH	EN	SA
1	DOOR/FRAME SEALS	BY STOREFRONT MANUFACTURER		OT

SET: 25.0
SET NOT USED

SET: 26.0
SET NOT USED

SET: 27.0
DOORS: C1500C, C1600, C1600A, C1800

6	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	SURFACE VERT ROD EXIT	12 TB 21 55 56 NB8706 ETB	US32D	SA
1	SURFACE VERT ROD EXIT, EO	12 TB 55 NB8710 EO	US32D	SA
2	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
2	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
2	ELECTROMAGNETIC HOLDER	998M	689	RF
1	SPLIT ASTRAGAL	18061CNB		PE
1	GASKETING	S88BL (HEAD & JAMBS)		PE
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS HELD OPEN BY ELECTROMAGNETIC HOLDER. CONNECT HOLDER TO FIRE ALARM SYSTEM TO RELEASE UPON FIRE ALARM.
2. WHEN CLOSED AND SECURE AUTHORIZED ACCESS BY CARD READER RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
6. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 27.1
DOORS: C1600, C1600A

6	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	SURFACE VERT ROD EXIT	12 TB 21 55 56 NB8706 ETB	US32D	SA
1	SURFACE VERT ROD EXIT, EO	12 TB 55 NB8710 EO	US32D	SA~~1~~
2	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
2	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
2	ELECTROMAGNETIC HOLDER	998M	689	RF
1	SPLIT ASTRAGAL	18061CNB		PE
1	GASKETING	S88BL (HEAD & JAMBS)		PE
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS HELD OPEN BY ELECTROMAGNETIC HOLDER. CONNECT HOLDER TO FIRE ALARM SYSTEM TO RELEASE UPON FIRE ALARM.
2. EGRESS FREE FOR IMMEDIATE EXIT.
3. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
4. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
5. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 27.2
DOORS: C1300B

6	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
2	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
2	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
3	SILENCER	608-RKW		RO
2	ELECTROMAGNETIC HOLDER	998M	689	RF
	PE			
1	SPLIT ASTRAGAL	18061CNB		PE
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: OPERATIONAL NARRATIVE:
1. DOORS HELD OPEN BY ELECTROMAGNETIC HOLDER. CONNECT HOLDER TO FIRE ALARM SYSTEM TO RELEASE UPON FIRE ALARM.
2. WHEN CLOSED AND SECURE AUTHORIZED ACCESS BY CARD READER RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
6. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 28.0
SET NOT USED

SET: 29.0
DOORS: 2-S1-B, 2-S4-B

3	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	RIM EXIT DEVICE, EXIT ONLY	AL 12 TB 8810 EO	US32D	SA
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. WHEN EXIT DEVICE PUSHPAD IS DEPRESSED ALARM WILL SOUND. FACTORY PRESET FOR STANDARD ALARM MODE TO AUTOMATICALLY RESET AFTER 5 MINS.
3. ALARM MODES SELECTABLE VIA SWITCH ON CIRCUIT BOARD.
4. EGRESS FREE FOR IMMEDIATE EXIT.
5. ALARM POWERED BY 9-VOLT BATTERY.
6. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 29.1
DOORS: 2-S5-B

6	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	KEYED REMOVEABLE MULLION	(12-) L980S	PC	SA
2	RIM EXIT DEVICE, EXIT ONLY	AL 12 TB 8810 EO	US32D	SA
1	CYLINDER	21 980C1	US26D	SA
2	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
2	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE
1	GASKETING	5110BL X LENGTH REQUIRED		PE

NOTES: OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. WHEN EXIT DEVICE PUSHPAD IS DEPRESSED ALARM WILL SOUND. FACTORY PRESET FOR STANDARD ALARM MODE TO AUTOMATICALLY RESET AFTER 5 MINS.
3. ALARM MODES SELECTABLE VIA SWITCH ON CIRCUIT BOARD.
4. EGRESS FREE FOR IMMEDIATE EXIT.
5. ALARM POWERED BY 9-VOLT BATTERY.
6. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 30.0
SET NOT USED

SET: 31.0
SET NOT USED

SET: 32.0
DOORS: E1301-B

3	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	RIM EXIT DEVICE, STOREROOM	12 TB 21 8804 ETB	US32D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE

SET: 33.0
DOORS: C1200A

6	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	KEYED REMOVEABLE MULLION	(12-) L980S	PC	SA
1	RIM EXIT DEVICE, STOREROOM	16 TB 21 8804 PSB	US32D	SA
1	RIM EXIT DEVICE, EXIT ONLY	LD TB 8810 EO	US32D	SA
1	CYLINDER	21 980C1	US26D	SA
2	SURFACE CLOSER	281 CPSH	EN	SA
2	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	GASKETING	5110BL X LENGTH REQUIRED		PE
2	SILENCER	608-RKW		RO

SET: 33.1
DOORS: 1200C, 1200D, C1800A, C2100

6	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	SURFACE VERT ROD EXIT, EXIT ONLY	TB NB8710 EO	US32D	SA
1	SURFACE VERT ROD EXIT	TB 21 NB8706 ETB	US32D	SA
2	SURFACE CLOSER	281 CPSH	EN	SA
2	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
2	SILENCER	608-RKW		RO

SET: 33.1
DOORS: 1500B

SET: 34.0
DOORS: M2300

6	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	SURFACE VERT ROD EXIT, EXIT ONLY	TB NB8710 EO	US32D	SA
1	SURFACE VERT ROD EXIT	TB 21 NB8706 ETB	US32D	SA
2	SURFACE CLOSER (HD SPRING STOP)	281 CPS	EN	SA
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	SPLIT ASTRAGAL	18061CNB		PE
1	GASKETING	319CN		PE
1	RAIN GUARD	346C		PE
2	SWEEP	315CN		PE
1	THRESHOLD	253FG		PE

2	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU

SET: 35.1
SET NOT USED

SET: 36.0
SET NOT USED

SET: 37.0
DOORS: 1102C, 1313, 1503, 1503B, 1515, 1608, 2233, 2233C

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	FAIL SAFE LOCK	RX 21 8270-_V LNL	US26D	SA
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
3	SILENCER	608-RKW		RO
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: ***SPECIAL TEMPLTING AS REQUIRED TO ALLOW 180° SWING.***

OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER ALLOWING INGRESS.
3. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
4. LOCKSET REMAINS LOCKED (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 37.1
DOORS: 1112, 1610

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	FAIL SAFE LOCK	RX 21 8270-_V LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
3	SILENCER	608-RKW		RO
1	ELECTROLYNX HARNESS (FRAME)	QC-C1500P		MK
1	ELECTROLYNX HARNESS (DOOR)	QC-C**** X LENGTH REQUIRED		MK
1	CARD READER	PROVIDED BY SECURITY SUPPLIER		OT
1	POSITION SWITCH	DPS - M / W-BK (SPDT)	BK	SU
1	POWER SUPPLY	PROVIDED BY SECURITY SUPPLIER		OT
1	WIRING DIAGRAM	ELEVATION AND POINT TO POINT AS SPECIFIED		OT

NOTES: ***SPECIAL TEMPLTING AS REQUIRED TO ALLOW 180° SWING.***

OPERATIONAL NARRATIVE:
1. DOORS NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY CARD READER ALLOWING INGRESS.
3. DOOR POSITION SWITCH MONITOR OPEN/CLOSED STATUS.
4. LOCKSET REMAINS LOCKED (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 38.0
DOORS: 1614, 1615, 1708B, 1710B, 2107A, 2230B

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
3	SILENCER	608-RKW		RO

SET: 38.1
DOORS: 2-S7-A, 1718B, 1716B

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
3	SILENCER	608-RKW		RO

SET: 39.0
DOORS: 1105, 1305, 1105, 1305, 1513, 1518, 1802C, 1802C, 1804B, 1804C, 2126B, 2205, M1502, M1504, M1506, M1512, M1704, M1706, M1708, M1710, M1716, M1718, M1802, M1804, M1806, M1808, M2102, M2104, M2106, M2108, M2110, M2112, M2114, M2116, M2118, M2120, M2122, M2126, M2208, M2210, M2212, M2214, M2216, M2218, M2220, M2222, M2224, M2226, M2228, M2230

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
3	SILENCER	608-RKW		RO

SET: 39.1
DOORS: 1111B, 1120A, 1508B, 1620A, 1508B, 1120A, 1508B, 1620B

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
3	SILENCER	608-RKW		RO

SET: 39.2
DOORS: 1410

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
3	SILENCER	608-RKW		RO

SET: 39.3
DOORS: 1120B, 1406B, 1510B, 2227

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO

SET: 40.0
DOORS: 1206, 1514B, 1516B, 1613, 1120A

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
3	SILENCER	608-RKW		RO

SET: 41.0

SET NOT USED

SET: 42.0
DOORS: 1510D

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
3	SILENCER	608-RKW		RO

SET: 43.0
DOORS: 1306

6	HINGE, FULL MORTISE	TA2714	US26D	MK
1	DUST PROOF STRIKE	570	US26D	RO
2	FLUSH BOLT	555 / 557 (AS REQUIRED)	US26D	RO
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
2	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	SPLIT ASTRAGAL	18061CNB		PE
2	SILENCER	608-RKW		RO

SET: 44.0
DOORS: 1204, 1806C, M2100

6	HINGE, FULL MORTISE	TA2714	US26D	MK
1	DUST PROOF STRIKE	570	US26D	RO
2	FLUSH BOLT	555 / 557 (AS REQUIRED)	US26D	RO
1	STOREROOM/CLOSET LOCK	21 8204 LNL	US26D	SA
2	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
2	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	SPLIT ASTRAGAL	18061CNB		PE
2	SILENCER	608-RKW		RO

SET: 45.0
DOORS: 1511, 1121B, 1709, 1711, 2101, 2209

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM DEADBOLT LOCK	LB 21 V21 8251 LNL	US26D	SA
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE

** Note: Door 1121B – TO HAVE CLASSROOM LOCK FUNCTION

SET: 46.0
DOORS: 1110, 1205, 1207, 1304, 1307, 1403, 1602B, 1605, 1606, 1620, 2113, 2202, 2203, 2204, 2206

3 HINGE, FULL MORTISE	TA2714	US26D	MK
1 OFFICE/ENTRY LOCK	21 8205 LNL	US26D	SA
1 DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
3 SILENCER	608-RKW		RO

SET: 47.0
DOORS: 1106, 1114, 1304, 1309, 1607

3 HINGE, FULL MORTISE	TA2714	US26D	MK
1 OFFICE/ENTRY LOCK	21 8205 LNL	US26D	SA
1 CONC OVERHEAD STOP	6-X36	689	RF
3 SILENCER	608-RKW		RO

SET: 48.0
DOORS: 1308, 1502, 1504, 1505, 1506, 1512, 1601, 1704, 1706, 1808, 2126, 2207, 2208, 2211, 2210, 2212, 2215, 2239

3 HINGE, FULL MORTISE	TA2714	US26D	MK
1 DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1 OFFICE/ENTRY LOCK	21 V01 8205 LNL	US26D	SA
3 SILENCER	608-RKW		RO

SET: 48.1
DOORS: 2102, 2104, 2106, 2108, 2109, 2110, 2112,2114, 2115, 2116, 2117, 2118, 2120, 2122, 2214, 2216, 2218, 2219, 2220, 2221, 2222, 2224 2226, 2228, 2230

3 HINGE, FULL MORTISE	TA2714	US26D	MK
1 OFFICE/ENTRY LOCK	21 V01 8205 LNL	US26D	SA
1 CONC OVERHEAD STOP	6-X36	689	RF
3 SILENCER	608-RKW		RO

SET: 48.2
DOORS: 1508,1514, 1516, 1612, 1612A, 1708, 1710, 1716, 1716A, 1718, 1802, 1804, 1806, 1510*

3 HINGE, FULL MORTISE	TA2714	US26D	MK
1 SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1 RIM EXIT DEVICE, STOREROOM	LC 16 18 21 V01 PE8804 PSB	US32D	SA
1 THUMB TURN CYLINDER	124-41	US26D	SA
1 CONC OVERHEAD STOP	6-X36	689	RF
3 SILENCER	608-RKW		RO

****NOTE: FOR DOOR 1510 – DOOR TO HAVE STC 43 RATING – PROVIDE GASKETING AND SYSTEM AS SUCH.

SET: 49.0
DOORS: 1308, 1310

6	HINGE, FULL MORTISE	TA2714	US26D	MK
1	DUST PROOF STRIKE	570	US26D	RO
2	FLUSH BOLT	555 / 557 (AS REQUIRED)	US26D	RO
1	OFFICE/ENTRY LOCK	21 V01 8205 LNL	US26D	SA
2	SURFACE CLOSER	281 PSH	EN	SA
2	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	SPLIT ASTRAGAL	18061CNB		PE
2	SILENCER	608-RKW		RO

SET: 50.0
DOORS: 1104

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	CLASSROOM LOCK	21 8237 LNL	US26D	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
3	SILENCER	608-RKW		RO

SET: 51.0
DOORS: 1108, 1512C, 1512C

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	CLASSROOM LOCK	21 8237 LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
3	SILENCER	608-RKW		RO

SET: 52.0
DOORS: 1121, 1311

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	CLASSROOM LOCK	21 8237 LNL	US26D	SA
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
3	SILENCER	608-RKW		RO

SET: 53.0
SET NOT USED

SET: 54.0
DOORS: 1106-C, 1107, 1109, 1205-B, 1207-B, 1405, 2233B

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	PRIVACY LOCK	8265 LNL	US26D	SA
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE

SET: 55.0
DOORS:1806B, 1808B, 1111

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	PRIVACY LOCK	LB V21 8265 LNL	US26D	SA
1	CONC OVERHEAD STOP	6-X36	689	RF
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	GASKETING	S88BL (HEAD & JAMBS)		PE

SET: 56.0
DOORS: 1106-B, 1111

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	PASSAGE LATCH (F01)	8215 LNJ	US26D	SA
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
3	SILENCER	608-RKW		RO

SET: 57.0
DOORS: 1120, 1122

3	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	PASSAGE LATCH (F01)	8215 LNJ	US26D	SA
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	ELECTROMAGNETIC HOLDER	998M	689	RF
1	GASKETING	S88BL (HEAD & JAMBS)		PE

NOTES: • CONNECT HOLDER TO FIRE ALARM SYSTEM TO RELEASE UPON FIRE ALARM.

SET: 58.0
DOORS: 1404

3	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	DOOR PULL	BF 111	US32D	RO
1	PUSH PLATE	70C-RKW	US32D	RO
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE

SET: 59.0
DOORS: 1202, 1203, 1203C, 1208, 1208B, 1209, 1302, 1303

3	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	CLASSROOM DEADLOCK	LB 21 4877	US32D	SA
1	DOOR PULL	BF 111	US32D	RO
1	PUSH PLATE	70C-RKW	US32D	RO
1	SURFACE CLOSER	281 O / P9 (TYPE AS REQ.)	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
1	DOOR STOP	406 / 441H (TYPE AS REQ.)	US26D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE

SET: 60.0
DOORS: 1402

3	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	CLASSROOM DEADLOCK	LB 21 4877	US32D	SA
1	DOOR PULL	BF 111	US32D	RO
1	PUSH PLATE	70C-RKW	US32D	RO
1	SURFACE CLOSER	281 CPSH	EN	SA
1	KICK PLATE	K1050 8" HIGH CSK BEV	US32D	RO
3	SILENCER	608-RKW		RO

SET: 61.0
DOORS: 1120C, 1510C, 1514C, 1516C

1	ALL HARDWARE	BY DOOR MANUFACTURER	OT

END OF SECTION 08 71 00

SECTION 08 83 00

MIRRORS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Frameless glass mirrors, for wall mounted installation.

B. Related Requirements:
   1. Section 04 20 00 - Unit Masonry: Wall construction.

1.2 REFERENCES

A. American National Standards Institute:
   1. ANSI Z97.1 - Safety Glazing Materials Used in Buildings Safety.

B. ASTM International:
   1. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
   2. ASTM C1036 - Standard Specification for Flat Glass.
   3. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
   4. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
   5. ASTM C1193 - Standard Guide for Use of Joint Sealants.
   6. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror, 2008, Reapproved 2013

C. Consumer Product Safety Commission:
   1. CPSC 16 CFR 1201; Safety Standard for Architectural Glazing.

D. Glass Association of North America:
   1. GANA - FGMA Sealant Manual.
   2. GANA - Glazing Manual.

E. South Coast Air Quality Management District:
   1. SCAQMD Rule 1168 - Adhesive and Sealant Applications.

1.3 PERFORMANCE REQUIREMENTS

A. Limit mirrored glass deflection to 1/200 or flexure limit of glass with full recovery of glazing materials, whichever is less based on loading requirements specified in Section.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data:
   1. Mirror Types: Submit structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
   2. Glazing Materials: Submit chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

C. Manufacturer’s Certificate: Certify mirrors meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual and GANA Sealant Manual for mirror installation methods.

B. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Installer: Company specializing in performing Work of this section with minimum five years documented experience.

B. Preconstruction Mirror Mastic Compatibility Test: Submit mirror mastic products to mirror manufacturer for testing to determine compatibility of mastic with mirror backing film and substrates on which mirrors are installed.

1.7 PRE-INSTALLATION MEETING

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week before starting Work of this section.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Do not install glazing when ambient temperature is less than 50 degrees F.

C. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing sealants.

1.9 WARRANTY

A. Section 01 77 00 - Closeout Procedures: Product warranties.

B. Furnish two (2) year warranty to include coverage for reflective coating on mirrors and replacement of same.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Laminated Safety Mirror Glass: ASTM C1172, Kind LM laminated mirror glass, ASTM C1036 Type 1 transparent flat, Class 1 clear, Quality Q1 mirror select.
   1. Edge Treatment:
      a. Flat Polished/Ground.
   2. Edge Seal: Seal edge after edge treatment to prevent chemical or atmospheric penetration of backing.
   3. Perform edge treatment and sealing in factory immediately after cutting to final sizes.
   4. Thickness: Nominal total of 1/4 inch, unless otherwise indicated.
   5. Size: Sizes noted on Drawings.

2.2 ACCESSORIES

A. Mirror Adhesive: Chemically compatible with mirror coating and wall substrate.

2.3 MIRROR HARDWARE

A. Metal J-Channels: Fabricated with a return deep enough to produce a glazing channel to accommodate mirrors of thickness indicated and in lengths required to cover bottom and top edges of each mirror in a single piece.
   1. Metal:
      a. Stainless steel.
   2. Finish:
      a. Bright polished.
   3. Bottom Trim: J-channels formed with front leg and back leg not less than 3/8 and 7/8 inch in height, respectively, and a thickness of not less than 0.05 inch.
   4. Top Trim: J-channels formed with front leg and back leg not less than 5/8 and 1 inch in height, respectively, and a thickness of not less than 0.062 inch.

B. Fasteners: Fabricated of same metal and alloy as fastened metal. Finish to match fastened metal in finished color and texture where fasteners are exposed.

C. Anchors and Inserts: Provide devices as required for mirror hardware installation. Provide toothed or lead-shield expansion-bolt devices for drilled-in-place anchors. Provide galvanized anchors and inserts for applications on inside face of exterior walls and where indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 73 00 - Execution: Verification of existing conditions before starting work.

B. Verify openings for mirrored glazing are correctly sized and within tolerance.

C. Verify surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive mirrors.

3.2 PREPARATION

A. Section 01 73 00 - Execution: Prepare field conditions and existing construction for installation of work of this section.

B. Prepare materials to be installed and equipment to be used during installation.

C. Clean contact surfaces with solvent and wipe dry.

D. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

E. Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION

A. Perform installation in accordance with GANA Glazing Manual.
   1. Glazing Sealants: Comply with ASTM C1193.
   2. Set mirrors plumb and level, free of optical distortion.
      a. Mirrors shall be butt mounted to unpainted wall with mastic to comply with manufacturer's recommendations
   3. Set mirrors with edge clearance free of surrounding construction.

B. For wall-mounted mirrors, install mirrors with mastic and mirror hardware.
   1. Attach mirror hardware securely to mounting surfaces with mechanical fasteners installed with anchors or inserts as applicable. Install fasteners so heads do not impose point loads on backs of mirrors.
   2. For mirror hardware in the form of a continuous J-channel at bottom and continuous top trim at top, fasten J-channel directly to wall and attach top trim to continuous cleat fastened directly to wall.
   3. Install mastic as follows:
      a. Apply barrier coat to mirror backing where approved in writing by manufacturers of mirrors and backing material.
   4. Place plumb and level without visible distortion.

3.4 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Inspect for quality of glazing.

3.5 CLEANING

A. Section 01 73 00 - Execution and Section 01 77 00 - Closeout Procedures: Related to cleaning.

B. Remove labels after Work is complete.

C. Clean mirrors and adjacent surfaces.

D. Maintain environmental conditions that will prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.

3.6 SCHEDULE

A. Trophy Case.

B. Where indicated on the drawings.

END OF SECTION

SECTION 08 91 00

LOUVERS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes louvers, frames, and accessories.

B. Related Requirements:
   1. Section 07 90 00 - Joint Protection: Sealant at louver perimeter.
   2. Division 23 - Heating, Ventilating and Air-Conditioning (HVAC): Coordinate Work of this Section with requirements of HVAC systems.

1.2 REFERENCES

A. American Architectural Manufacturers Association (AAMA):
   1. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. Air Movement and Control Association International, Inc. (AMCA):
   1. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating; 2023.
   2. AMCA 511 - Certified Ratings Program Product Rating Manual for Air Control Devices; 2021, Editorial Revisions 2022.

C. American Society of Civil Engineers (ASCE):
   1. ASCE 7 - Minimum Design Loads and Associated Criteria For Buildings And Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

D. ASTM International (ASTM):
   1. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
   2. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

1.3 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate Work with installation of masonry flashings.

C. Coordinate Work with installation of mechanical ductwork and electrical services to motorized devices.

D. Coordinate air-flow rate and capacity to comply with the design requirements indicated in the contract documents.

E. Verify field measurements prior to fabrication.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data describing design characteristics, maximum recommended air velocity, design free area, materials, and finishes.

C. Shop Drawings: Indicate louver layout plan and elevations, opening and clearance dimensions, tolerances; head, jamb, and sill details; blade configuration, screens, blank-off panel areas required, and frames.

D. Samples for Initial Selection: Two manufacturer's color charts illustrating the full range of finishes and colors available for products with factory-applied finishes; submit for Architect's initial selection.

E. Samples for Verification: From the Architect's initial selection, prepare two samples for each selected finish and color; samples on same product material type indicated for final Work; each sample 4 x 4 inches. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with AMCA 500-L testing and AMCA 511 certification. Attach AMCA seal to louvers.

B. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum five (5) years documented experience.

1.7 WARRANTY

A. Section 01 77 00 - Closeout Procedures: Product warranties.

B. Provide minimum fifteen (15) year manufacturer's warranty on finish.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Design and size system components and anchorage to safely withstand assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to louver plane.
   1. Wind Design Pressure:
      a. As indicated on Drawings, in accordance with ASCE 7, and in accordance with the State Building Code for the State in which the project is located.

B. Louver Air Passage: See Mechanical Drawings.

C. Louver Free Area: See Mechanical Drawings.

D. Louver Water Penetration: Not more than 0.01 oz/sq ft of free area at minimum 750 ft / min face velocity.

2.2 WALL LOUVERS

A. Manufacturers:
   1. Airline Products Co.
   2. Airolite.
   3. Arrow United Industries.
   4. Construction Specialties Inc.
   5. Greenheck Corp.

6. Ruskin.
7. Substitutions: Section 01 60 00 - Product Requirements.

B. Basis of Design:
1. Ruskin – EME220D – In- wall and Glazing Infill Compatible. – In Curtain Wall Locations Only.
2. Ruskin – EME520DD – In all other locations.

C. Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified in accordance with AMCA 511.

D. Louver Construction: Extruded aluminum; size, configuration and face dimensions as indicated on Drawings.

E. Louver Panel Depth: Minimum 2 inches deep, or deeper if required by size and performance requirements.

F. Heads, sills, jambs, and mullions to be one-piece structural aluminum extrusion members; minimum extrusion wall thickness to be 0.081 inch and with integral perimeter formed with sealant slot and retaining bead to retain backer rod for sealant application.
1. Intermediate Mullions: Concealed of extruded aluminum, profiled to suit louver frame.

G. Louver Blades: Drainable blades to be one-piece aluminum extrusions; minimum extrusion wall thickness to be 0.060 inch and with integral front lip gutter and multiple secondary gutters designed to stop and drain moisture to exterior of building envelope.
1. Storm proof, sloped at 45 degrees, chevron style.

H. Sill Pan: Sill flashings to include sill pan, minimum 3 inch high by full depth formed from minimum 0.050 inch thick aluminum; single length one-piece construction; integral formed drip edge to divert moisture away from building face. End dam side panels to be continuous welded to sill pan and full height of sill pan.

I. Hinged Units: Where indicated on Drawings, provide secondary frame to which louver frame is attached; non-ferrous hinges; all finishes to match colors selected by Architect.

2.3 MATERIALS

A. Extruded Aluminum: ASTM B221; 6063 alloy, T5 temper typical or 6061 alloy, T6 temper for extruded structural members.

B. Sheet Aluminum: ASTM B209/B209M, 5005 alloy, H15 or H34 temper, wall thickness as required for system application and use but not less than 0.050 inch.

2.4 ACCESSORIES

A. Screens: Mechanically fasten to interior side of louver.
1. Bird Screen: Interwoven wire mesh of aluminum, 0.063 inch diameter wire, 1/2 inch open weave, square design, set in aluminum frame.
2. Insect Screen: 18 x 16 size aluminum mesh, set in aluminum frame.

B. Blank-Off Panels: Furnish where indicated on the Drawings; fabricated by the louver manufacturer; metal type to be same as louver and frame metal type; metal finish type to be same as louver finish type.
1. Panel Type:
a. Composite Metal Sheet Panel: Blank-off panels to be composite construction faced on both sides with 0.032 inch (0.81 mm) thick metal sheet and core to be expanded polystyrene (EPS) having R-value of 4, minimum. Panel perimeter

frame to be 0.050 inch (1.27mm) thick-formed metal channels; mitered at the corners.

1) Composite Panel Thickness:
   a) 2 inches.

2. Secure blank-off panels to interior side of louver and fully sealed weathertight.
3. Blank-Off Panels Finish: In accordance with AAMA 2605, 70 percent resin fluoropolymer coating, minimum 1.4 mil (0.035mm) thick; color to be flat black.

C. Fasteners and Anchors: Concealed; stainless steel type.

D. Flashings: Sheet aluminum; finish to match louver finish.

E. Sealants: Silicone type specified in Section 07 90 00.

2.5 FACTORY FINISHING

A. Powder Coat: Polyvinylidene fluoride (PVDF) powder coat system complying with AAMA 2605, minimum 70 percent PVDF resin with minimum total dry film thickness (DFT) of 1.5 mils, 0.0015 inch (0.038 mm).

B. Colors and Gloss: As selected by Architect from manufacturer's full range.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 73 00 - Execution: Verification of existing conditions before starting work.

B. Verify prepared openings and flashings are ready to receive Work and opening dimensions are as indicated on shop drawings.

3.2 INSTALLATION

A. Section 01 73 00 - Execution: Related to installation of Work.

B. Provide continuous corrosion protection between dissimilar materials.

C. Louver systems, including sill flashings, to be installed in accordance with Drawings the manufacturer's recommendations and to shed water to exterior of building envelope.

D. Install flashings and align louver assembly to ensure moisture shed from flashings and diversion of moisture to exterior of building envelope.

E. Sill pan to be embedded in full bed of sealant. Design system such that penetrations in flashings and sill pan are only for the purpose of structural anchoring of louver system.

F. Fully seal anchor holes and heads to prevent water penetration.

G. Install louvers level and plumb.

H. Secure louvers in opening framing with concealed fasteners.

I. Install bird and insect screen and frame to interior of louver.

J. Install perimeter sealant and backing rod in accordance with Section 07 90 00.

3.3 CLEANING

A. Section 01 73 00 - Execution and Section 01 77 00 - Closeout Procedures: Related to cleaning.

B. In accordance with manufacturer's recommendations, strip protective finish coverings and clean surfaces and components.

END OF SECTION

SECTION 10 75 00

FLAGPOLES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Flagpoles installed with in-ground foundation.

B. Related Requirements:
   1. Section 03 30 00 - Cast-in-Place Concrete: Concrete for base and foundation construction.

1.2 REFERENCES

A. ASTM International (ASTM):
   1. ASTM B241/B241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube; 2022.

B. National Association of Architectural Metal Manufacturers (NAAMM):
   1. NAAMM FP 1001 - Guide Specifications for Design of Metal Flagpoles; 2007.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data on pole, accessories, and configurations.

C. Shop Drawings: Indicate detailed dimensions, attachment details, anchor requirements, imposed loads, and foundation details for in-ground installed flagpoles.
   1. Shop drawings and engineering data indicating compliance with requirements of this Section and applicable code requirements are to be designed and sealed by a Professional Engineer experienced in design of the work in this Section and licensed to perform structural engineering in the State in which the project is located.

D. Flag Designs: Submit drawings indicating design, colors, and fabrication details of flag(s) required.

1.4 CLOSEOUT SUBMITTALS

A. Section 01 78 23 - Operation and Maintenance Data.

B. Operation and Maintenance Data: Submit Operation and Maintenance Data.

1.5 QUALIFICATIONS

A. Delegated Designer Requirement: Design flagpole, flagpole foundation, and anchorage under direct supervision of Professional Engineer experienced in design of the work in this Section and licensed in State in which the project is located.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Spiral wrap flagpole with protective covering and pack in protective shipping tubes or containers.

C. Protect flagpole and accessories from damage or moisture.

1.7 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Section 01 60 00 - Product Requirements: Extra materials, spare parts, and maintenance products.
   1. Keys to lockable cleat box.
   2. Specialty adjustment tools, if any required.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide flagpoles capable of withstanding the effects of wind loads as determined according to NAAMM FP 1001. Design for non-resonant safety factor of 2.5; to resist without permanent deformation at design wind speed as indicated on Drawings; with flag deployed and flag size as indicated in this Section.

2.2 FLAGPOLES - IN-GROUND MOUNTED TYPE

A. Manufacturers:
   1. American Flagpole.
   2. Concord Industries, Inc.
   3. Ewing.
   4. Morgan-Francis Flagpole.
   5. Pole-Tech Company, Inc.

B. Aluminum: ASTM B241/B241M, 6063 alloy, T6 temper.

C. Flagpole Quantities Required and Configuration Table: Tapered design.

Quantity Required	Above Ground Height.	Butt Diameter	Wall Thickness	Finial Ball Dia.	Flag Size
1	50 feet	10 inches min**	0.188 inch min**	4 inches	10 x 15 feet
** Minimum dimension subject to increase in accordance with Engineer's Design and Performance Requirements.					

D. Accessories:
   1. Flag Types: Flag graphic design is to comply with the referenced entity's official design. Fabrication to be of nylon fabric with hemmed edges and brass grommets. Provide one (1) each of the following flags.
      a. United States flag. Design in accordance with stars and stripes design.
   2. Halyard: External type; minimum 3/8 inch diameter nylon, braided, with stainless steel or bronze core. Provide non-corrosive hardware required to display (attach/fly) the following quantity of flags per flagpole.
      a. One (1) flag per flagpole.
   3. Finial Ball: Aluminum; finish to match flagpole.
   4. Truck Assembly: Cast aluminum; revolving, stainless steel ball bearings, non-fouling.
   5. Cleats: 9 inch size, aluminum with stainless steel fastenings, two for each halyard.
   6. Cleat Box: Aluminum, with built-in hinge and lockable assembly, attached to pole with tamper proof screws inside box.
   7. Foundation Tube Sleeve: Minimum 16 gauge corrugated galvanized steel; depth as required for loads imposed on flagpole.
   8. Pole Base Attachment: Sleeve; aluminum base with base cover.
   9. Lightning Ground Cable: Copper No. 6 AWG, soft drawn.

E. Factory Finishing:
   1. Aluminum: Anodized to clear color.

2. Finial: Spun finish.
3. Metal Surfaces in Contact with Concrete: Coat with asphaltic paint.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 73 00 - Execution: Verification of existing conditions before starting work.

B. Verify area is ready to receive work and dimensions are as required.

3.2 PREPARATION

A. Section 01 73 00 - Execution: Prepare field conditions and existing construction for installation of work of this section.

B. Prepare materials to be installed and equipment to be used during installation.

C. Coat metal sleeve surfaces below grade, in contact with cementitious surfaces, and in contact with dissimilar metals with asphaltic paint.

3.3 INSTALLATION

A. Section 01 73 00 - Execution: Related to installation of Work.

B. Install work in accordance with Delegated Design by Engineer and manufacturer's requirements.

C. Provide isolation barrier between dissimilar materials.

D. Electrically ground flagpole installation.

3.4 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation from Plumb: 1 inch.

3.5 ADJUSTING

A. Section 01 73 00 - Execution: Adjusting.

B. Adjust operating devices so halyard and flag function smoothly.

END OF SECTION

SECTION 12 24 13

ROLLER WINDOW SHADES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes roller window shades:
   1. Manually operating shades.
   2. .

B. Related Requirements:
   1. Section 06 10 53 - Miscellaneous Rough Carpentry: Wood blocking and grounds for mounting roller shades and accessories.
   2. Section 08 41 13 - Aluminum-Framed Entrances and Storefronts.
   3. Section 08 44 13 - Glazed Aluminum Curtain Walls.
   4. Section 09 21 16 - Gypsum Board Assemblies: Coordination with gypsum board assemblies for installation of shade pockets, closures, and related accessories.
   5. Section 09 51 13 - Acoustical Panel Ceilings: Coordination with acoustical ceiling systems for installation of shade pockets, closures, and related accessories.

1.2 REFERENCES

A. ASTM International (ASTM):
   1. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, Editorial Changes 2021.

B. National Fire Protection Association (NFPA):
   1. NFPA 70 - National Electrical Code; 2023, Errata 2023.
   2. NFPA 701 - Fire Tests for Flame-Resistant Textiles and Films; 2023, Errata 2023.

1.3 PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this Section. Review the work requirements, project conditions, sequencing, application procedures, quality control, testing and inspection and production schedule.

1.4 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

B. Coordinate with electrical contractor for appropriate location for power outlets as required by manufacturer’s equipment and installation requirements.

C. Coordinate with requirements of roller shade installer/dealer to ensure that no inaccessible areas are constructed.

1.5 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Styles, material descriptions, dimensions of individual components, profiles, features, finishes and operating instructions.
   3. Storage and handling requirements and recommendations.

4. Mounting details and installation methods.
5. Typical wiring diagrams.

C. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances, wiring diagrams and relationship to adjacent work.
1. Include Shade Schedule indicating size, location, width, and keys to details.
2. Window Treatment Schedule: For all roller shades. Use same room designations as indicated on the Drawings and include opening sizes and key to typical mounting details.

D. Samples for Initial Selection: For each finish product specified, submit two sets of shade material options and aluminum finish color samples representing manufacturer's full range of available colors and patterns. Include sample of shade material indicating fully fabricated bottom and side edges.

E. Samples for Verification: From the Architect’s initial selections, prepare and submit two samples for each selection of metal finishes, shade system components, unassembled, demonstrating compliance with specified requirements. Include shade material selection samples, 12 x 12 inches with face of material marked to indicate interior faces.

F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

A. Section 01 78 23 - Operation and Maintenance Data.

B. Operation and Maintenance Data: List of all components with part numbers, sources of supply, and operation and maintenance instructions; include copy of shop drawings.

C. Manufacturer's Instructions and Maintenance Data: Methods for maintaining roller shades, precautions and recommendations regarding cleaning methods, cleaning materials and stain removal methods, instructions for operating hardware and controls.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with a minimum of five (5) years documented experience in manufacturing products specified in this section.

B. Obtain roller shades through one source from a single manufacturer.

C. Installer Qualifications: Installer trained and certified by the manufacturer. Company specializing in performing the type of work required in this section, with a minimum of five (5) years documented experience in installing.

D. Fire-Test-Response Characteristics: Passes NFPA 701 small and large-scale vertical burn. Materials tested shall be identical to products proposed for use.

E. Fungal Resistance: No growth when tested according to ASTM G21.

1.8 MOCK-UP

A. Section 01 40 00 - Quality Requirements: Mock-up requirements.

B. Provide a mock-up of one roller shade assembly for evaluation of mounting, appearance, and accessories.
1. Locate mock-up at location designated by Architect.
2. Do not proceed with remaining work until, mock-up is accepted by Architect.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Deliver shades in factory-labeled packages, marked with manufacturer and product name, fire-test-response characteristics, and location of installation using same room designations indicated on Drawings and in the submittal Shade Schedule.

1.10 PROJECT CONDITIONS

A. Section 01 60 00 - Product Requirements: Requirements before, during and after installation of Work.

B. Environmental Limitations: Install roller shades after finish work including painting is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.11 WARRANTY

A. Section 01 77 00 - Closeout Procedures: Product warranties.

B. Roller Shade Hardware and Chain Warranty: Manufacturer's standard non-depreciating twenty five (25) year warranty.

PART 2 PRODUCTS

2.1 ROLLER SHADES

A. Manufacturers:
1. Draper, Inc.
2. Hunter Douglas Corporation.
3. Lutron Electronics Company, Inc.
4. MechoShade Systems, Inc.
5. TimberBlindMetroShade.
6. Mermet

B. Basis of Design:
1. As indicated on Drawings.

2.2 MANUAL OPERATING SHADES

A. Mounting:
1. As indicated on Drawings.
2. Provide factory finished three-sided headbox with removable bottom closure to conceal roller(s) and operating mechanisms from view at all sides.

B. Width:
1. As indicated on Drawings.

C. Colors: Colors for fabrics and components exposed to view unless indicated otherwise on Drawings.
1. As indicated on Drawings.
2. Housing and Closures to be Aluminum to match Glazing System.

D. Single Roller Type.
1. Fabric Material Type:
   a. Solar (glare) shade material.
2. Locations: As indicated on Drawings.

E. Fabric Material Types:
   1. Solar (glare) Shade Material:
      a. As selected by Architect from manufacturer’s full range.

F. Clutch Operator: Manufacturer's standard material and design integrated with bracket/brake assembly.
   1. Provide a permanently lubricated brake assembly mounted on an oil-impregnated hub with wrapped spring clutch.
   2. Brake must withstand minimum pull force of 50 pounds (22.7 kg) in the stopped position.
   3. Mount clutch/brake assembly on the support brackets, fully independent of the roller tube components.

G. Drive Chain: Continuous loop stainless steel beaded ball chain, 95 pound (43 kg) minimum breaking strength. Provide upper and lower limit stops.
   1. Chain Retainer: Chain tensioning device complying with WCMA A100.1.

2.3 SHADE BAND

A. Shade Bands: Construction of shade band includes the fabric, the hem weight, hem-pocket, shade roller tube, and the attachment of the shade band to the roller tube. Sewn hems and open hem pockets are not acceptable.
   1. Hem Pockets and Hem Weights: Fabric hem pocket with RF-welded seams (including welded ends) and concealed hem weights. Hem weights shall be of appropriate size and weight for shade band. Hem weight shall be continuous inside a sealed hem pocket. Hem pocket construction and hem weights shall be similar, for all shades within one room.
   2. Shade Band and Shade Roller Attachment:
      a. Use extruded aluminum shade roller tube of a diameter and wall thickness required to support shade fabric without excessive deflection.
      b. Provide for positive mechanical engagement with drive / brake mechanism.
      c. Provide for positive mechanical attachment of shade band to roller tube; shade band shall be made removable / replaceable with a "snap-on" "snap-off" spline mounting, without having to remove shade roller from shade brackets.
      d. Mounting spline shall not require use of adhesives, adhesive tapes, staples, and/or rivets.
      e. Any method of attaching shade band to roller tube that requires the use of adhesive, adhesive tapes, staples, and/or rivets are not acceptable.

2.4 SHADE FABRICATION

A. Fabricate units to completely fill existing openings from head to sill and jamb-to-jamb, unless specifically indicated otherwise.

B. Provide battens in standard shades as required to assure proper tracking and uniform rolling of the shadebands. Contractor shall be responsible for assuring the width-to-height (W:H) ratios shall not exceed manufacturer's standards or, in absence of such standards, shall be responsible for establishing appropriate standards to assure proper tracking and rolling of the shadecloth within specified standards. Battens shall be roll-formed stainless steel or tempered steel, as required.

C. For railroaded shadebands, provide seams in railroaded multi-width shadebands as required to meet size requirements and in accordance with seam alignment as acceptable to Architect. Seams shall be properly located. Furnish battens in place of plain seams when the width, height, or weight of the shade exceeds manufacturer's standards. In absence of such

standards, assure proper use of seams or battens as required to, and assure the proper tracking of the railroaded multi-width shadebands.

D. Provide battens for railroaded shades when width-to-height (W:H) ratios meet or exceed manufacturer's standards. In absence of manufacturer's standards, be responsible for proper use and placement of battens to assure proper tracking and roll of shadebands.

2.5 COMPONENTS

A. Access and Material Requirements:
   1. Provide shade hardware allowing for the removal of shade roller tube from brackets without removing hardware from opening and without requiring end or center supports to be removed.
   2. Provide shade hardware that allows for removal and re-mounting of the shade bands without having to remove the shade tube, drive, or operating support brackets.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 73 00 - Execution: Verification of existing conditions before starting work.

B. Verify field measurements are as shown on shop drawings.

C. Examine substrates for conditions detrimental to installation of the Work. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Examine products to be installed for damage and other conditions detrimental to completion of the Work. Proceed with installation only after unsatisfactory conditions have been corrected.

E. Verify that required electrical service is available, in proper location, and ready for installation of the work of this section.

3.2 PREPARATION

A. Section 01 73 00 - Execution: Prepare field conditions and existing construction for installation of work of this section. Prepare materials to be installed and equipment used during installation.

B. Clean surfaces thoroughly prior to installation.

C. Prepare surfaces for installation of the work.

3.3 INSTALLATION

A. Section 01 73 00 - Execution: Related to installation of Work.

B. Install roller shades level, plumb, square, and true according to components in accordance with manufacturer's written instructions and located so shade band is not closer than 2 inches to interior face of glass. Allow proper clearances for window operation hardware.

3.4 ADJUSTING

A. Section 01 73 00 - Execution: Starting, testing, adjusting, and balancing.

B. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.5 CLEANING

A. Section 01 73 00 - Execution and Section 01 77 00 - Closeout Procedures: Related to cleaning.

B. Clean roller shade surfaces after installation, according to manufacturer's written instructions.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 73 00 - Execution: Protecting installed construction.

B. Protect installed work from damage.

3.7 DEMONSTRATION AND TRAINING

A. Section 01 79 00 – Demonstration and Training.

B. Provide demonstration and train to Owner's maintenance personnel to adjust, operate and maintain roller shade systems.

END OF SECTION

SECTION 23 07 00

HVAC INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Insulation Materials:
    a. Cellular glass.
    b. Flexible elastomeric.
    c. Mineral fiber.
    d. Phenolic.
2. Fire-rated insulation systems.
3. Adhesives.
4. Mastics.
5. Lagging adhesives.
6. Sealants.
7. Factory-applied jackets.
8. Field-applied fabric-reinforcing mesh.
9. Field-applied cloths.
10. Field-applied jackets.
11. Tapes.
12. Securements.
13. Corner angles.

B. Related Sections:

1. Division 21 Section "Fire-Suppression Systems Insulation."
2. Division 22 Section "Plumbing Insulation."
3. Division 23 Section "Metal Ducts" for duct liners.

1.3 ACCEPTABLE MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Aeroflex
2. Armacell
3. Certain Teed Corp.
4. Johns Manville
5. Knauf Insulation
6. Owens Corning
7. Pittsburg Corning Corp.

B. Listing of manufacturers name does not guarantee approval. All equipment must meet or exceed quality and capacities of specified equipment. Final approval will be based on equipment submittals. Any manufacturer not listed but wishing to bid this project shall submit a written request 14 days prior to bid date, prior approval is required for all manufacturers not listed.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include thermal conductivity, thickness, and jackets (both factory and field applied, if any).

B. Qualification Data: For qualified Installer.

C. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.

D. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.

B. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.7 COORDINATION

A. Coordinate size and location of supports, hangers, and insulation shields specified in Division 23 Section "Hangers and Supports for HVAC Piping and Equipment."

B. Coordinate clearance requirements with piping Installer for piping insulation application, duct Installer for duct insulation application, and equipment Installer for equipment insulation application. Before preparing piping and ductwork Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

C. Coordinate installation and testing of heat tracing.

1.8 SCHEDULING

A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.

B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.

B. Products shall not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

F. Cellular Glass: Inorganic, incombustible, foamed or cellulated glass with annealed, rigid, hermetically sealed cells. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Block Insulation: ASTM C 552, Type I.
2. Special-Shaped Insulation: ASTM C 552, Type III.
3. Board Insulation: ASTM C 552, Type IV.
4. Preformed Pipe Insulation without Jacket: Comply with ASTM C 552, Type II, Class 1.
5. Preformed Pipe Insulation with Factory-Applied ASJ-SSL: Comply with ASTM C 552, Type II, Class 2.
6. Factory fabricate shapes according to ASTM C 450 and ASTM C 585.

G. Flexible Elastomeric: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials.

H. Mineral-Fiber Blanket Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type I. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

I. Mineral-Fiber Board Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IA or Type IB. For duct and plenum applications, provide insulation with factory-applied FSK jacket. For equipment applications, provide insulation with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

J. Mineral-Fiber, Preformed Pipe Insulation:

1. Type I, 850 deg F Materials: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A, with factory-applied ASJ-SSL. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
2. Type II, 1200 deg F Materials: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type II, Grade A, with factory-applied ASJ-SSL. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

K. Mineral-Fiber, Pipe Insulation Wicking System: Preformed pipe insulation complying with ASTM C 547, Type I, Grade A, with absorbent cloth factory applied to the entire inside surface of preformed pipe insulation and extended through the longitudinal joint to outside surface of insulation under insulation jacket. Factory apply a white, polymer, vapor-retarder jacket with self-sealing adhesive tape seam and evaporation holes running continuously along the longitudinal seam, exposing the absorbent cloth.

L. Mineral-Fiber, Pipe and Tank Insulation: Mineral or glass fibers bonded with a thermosetting resin. Semirigid board material with factory-applied ASJ complying with ASTM C 1393, Type II or Type IIIA Category 2, or with properties similar to ASTM C 612, Type IB. Nominal density is 2.5 lb/cu. ft. or more. Thermal conductivity (k-value) at 100 deg F is 0.29 Btu x in./h x sq. ft. x deg F or less. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

M. Phenolic:

1. Preformed pipe insulation of rigid, expanded, closed-cell structure. Comply with ASTM C 1126, Type III, Grade 1.
2. Block insulation of rigid, expanded, closed-cell structure. Comply with ASTM C 1126, Type II, Grade 1.
3. Factory fabricate shapes according to ASTM C 450 and ASTM C 585.
4. Factory-Applied Jacket: Requirements are specified in "Factory-Applied Jackets" Article.

    a. Preformed Pipe Insulation: ASJ.
    b. Board for Duct and Plenum Applications: ASJ.
    c. Board for Equipment Applications: ASJ.

2.2 FIRE-RATED INSULATION SYSTEMS

A. Fire-Rated Blanket: High-temperature, flexible, blanket insulation with FSK jacket that is tested and certified to provide a 2-hour fire rating by a NRTL acceptable to authority having jurisdiction.

1. Products: Subject to compliance with requirements, provide one of the following:

    a. CertainTeed Corp.; FlameChek.
    b. Johns Manville; Firetemp Wrap.
    c. Nelson Firestop Products; Nelson FSB Flameshield Blanket.
    d. Thermal Ceramics; FireMaster Duct Wrap.
    e. 3M; Fire Barrier Wrap Products.

2.3 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

B. Cellular-Glass & Phenolic Adhesive: Solvent-based resin adhesive, with a service temperature range of minus 75 to plus 300 deg F.

1. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Flexible Elastomeric Adhesive: Comply with MIL-A-24179A, Type II, Class I.

1. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

E. ASJ Adhesive, and FSK and PVDC Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

1. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

F. PVC Jacket Adhesive: Compatible with PVC jacket.

1. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4 MASTICS

A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-C-19565C, Type II.

1. For indoor applications, use mastics that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Vapor-Barrier Mastic: Water based; suitable for indoor and outdoor use on below ambient services.

1. Water-Vapor Permeance: ASTM E 96, Procedure B, 0.013 perm at 43-mil dry film thickness.
2. Service Temperature Range: Minus 20 to plus 180 deg F.
3. Solids Content: ASTM D 1644, 59 percent by volume and 71 percent by weight.
4. Color: White.

C. Vapor-Barrier Mastic: Solvent based; suitable for indoor use on below ambient services.

1. Water-Vapor Permeance: ASTM F 1249, 0.05 perm at 35-mil dry film thickness.
2. Service Temperature Range: 0 to 180 deg F.
3. Solids Content: ASTM D 1644, 44 percent by volume and 62 percent by weight.
4. Color: White.

D. Vapor-Barrier Mastic: Solvent based; suitable for outdoor use on below ambient services.

1. Water-Vapor Permeance: ASTM F 1249, 0.05 perm at 30-mil dry film thickness.

2. Service Temperature Range: Minus 50 to plus 220 deg F.
3. Solids Content: ASTM D 1644, 33 percent by volume and 46 percent by weight.
4. Color: White.

E. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.

1. Water-Vapor Permeance: ASTM F 1249, 3 perms at 0.0625-inch dry film thickness.
2. Service Temperature Range: Minus 20 to plus 200 deg F.
3. Solids Content: 63 percent by volume and 73 percent by weight.
4. Color: White.

2.5 LAGGING ADHESIVES

A. Description: Comply with MIL-A-3316C Class I, Grade A and shall be compatible with insulation materials, jackets, and substrates.

1. For indoor applications, use lagging adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2. Fire-resistant, water-based lagging adhesive and coating for use indoors to adhere fire-resistant lagging cloths over duct, equipment, and pipe insulation.
3. Service Temperature Range: Minus 50 to plus 180 deg F.
4. Color: White.

2.6 SEALANTS

A. Joint Sealants: Cellular-Glass & Phenolic Products.

1. Materials shall be compatible with insulation materials, jackets, and substrates.
2. Permanently flexible, elastomeric sealant.
3. Service Temperature Range: Minus 100 to plus 300 deg F.
4. Color: White or gray.
5. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. FSK and Metal Jacket Flashing Sealants:

1. Materials shall be compatible with insulation materials, jackets, and substrates.
2. Fire- and water-resistant, flexible, elastomeric sealant.
3. Service Temperature Range: Minus 40 to plus 250 deg F.
4. Color: Aluminum.
5. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. ASJ Flashing Sealants, and Vinyl, PVDC, and PVC Jacket Flashing Sealants:

1. Materials shall be compatible with insulation materials, jackets, and substrates.
2. Fire- and water-resistant, flexible, elastomeric sealant.
3. Service Temperature Range: Minus 40 to plus 250 deg F.
4. Color: White.
5. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.7 FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
3. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.
4. FSP Jacket: Aluminum-foil, fiberglass-reinforced scrim with polyethylene backing; complying with ASTM C 1136, Type II.
5. PVDC Jacket for Indoor Applications: 4-mil- thick, white PVDC biaxially oriented barrier film with a permeance at 0.02 perms when tested according to ASTM E 96 and with a flame-spread index of 5 and a smoke-developed index of 20 when tested according to ASTM E 84.
6. PVDC Jacket for Outdoor Applications: 6-mil- thick, white PVDC biaxially oriented barrier film with a permeance at 0.01 perms when tested according to ASTM E 96 and with a flame-spread index of 5 and a smoke-developed index of 25 when tested according to ASTM E 84.
7. PVDC-SSL Jacket: PVDC jacket with a self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip.
8. Vinyl Jacket: White vinyl with a permeance of 1.3 perms when tested according to ASTM E 96, Procedure A, and complying with NFPA 90A and NFPA 90B.

2.8 FIELD-APPLIED FABRIC-REINFORCING MESH

A. Woven Glass-Fiber Fabric for Pipe Insulation: Approximately 2 oz./sq. yd. with a thread count of 10 strands by 10 strands/sq. inch for covering pipe and pipe fittings.

B. Woven Glass-Fiber Fabric for Duct and Equipment Insulation: Approximately 6 oz./sq. yd. with a thread count of 5 strands by 5 strands/sq. inch for covering equipment.

C. Woven Polyester Fabric: Approximately 1 oz./sq. yd. with a thread count of 10 strands by 10 strands/sq. inch, in a Leno weave, for duct, equipment, and pipe.

2.9 FIELD-APPLIED CLOTHS

A. Woven Glass-Fiber Fabric: Comply with MIL-C-20079H, Type I, plain weave, and presized a minimum of 8 oz./sq. yd..

2.10 FIELD-APPLIED JACKETS

A. Field-applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.

B. FSK Jacket: Aluminum-foil-face, fiberglass-reinforced scrim with kraft-paper backing.

C. PVC Jacket: High-impact-resistant, UV-resistant PVC complying with ASTM D 1784, Class 16354-C; thickness as scheduled; roll stock ready for shop or field cutting and forming. Thickness is indicated in field-applied jacket schedules.

1. Adhesive: As recommended by jacket material manufacturer.

2. Color: Color-code jackets based on system.
3. Factory-fabricated fitting covers to match jacket if available; otherwise, field fabricate.

    a. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, unions, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories.

4. Factory-fabricated tank heads and tank side panels.

D. Metal Jacket:

1. Aluminum Jacket: Comply with ASTM B 209, Alloy 3003, 3005, 3105 or 5005, Temper H-14.

    a. Finish and thickness are indicated in field-applied jacket schedules.
    b. Moisture Barrier for Indoor Applications: 3-mil- thick, heat-bonded polyethylene and kraft paper.
    c. Moisture Barrier for Outdoor Applications: 3-mil- thick, heat-bonded polyethylene and kraft paper.
    d. Factory-Fabricated Fitting Covers:

        1) Same material, finish, and thickness as jacket.
        2) Preformed 2-piece or gore, 45- and 90-degree, short- and long-radius elbows.
        3) Tee covers.
        4) Flange and union covers.
        5) End caps.
        6) Beveled collars.
        7) Valve covers.
        8) Field fabricate fitting covers only if factory-fabricated fitting covers are not available.

E. Self-Adhesive Outdoor Jacket: 60-mil- thick, laminated vapor barrier and waterproofing membrane for installation over insulation located aboveground outdoors; consisting of a rubberized bituminous resin on a cross laminated polyethylene film covered with white aluminum-foil facing.

F. PVDC Jacket for Indoor Applications: 4-mil- thick, white PVDC biaxially oriented barrier film with a permeance at 0.02 perms when tested according to ASTM E 96 and with a flame-spread index of 5 and a smoke-developed index of 20 when tested according to ASTM E 84.

G. PVDC Jacket for Outdoor Applications: 6-mil- thick, white PVDC biaxially oriented barrier film with a permeance at 0.01 perms when tested according to ASTM E 96 and with a flame-spread index of 5 and a smoke-developed index of 25 when tested according to ASTM E 84.

H. PVDC-SSL Jacket: PVDC jacket with a self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip.

2.11 TAPES

A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.

1. Width: 3 inches.
2. Thickness: 11.5 mils.
3. Adhesion: 90 ounces force/inch in width.
4. Elongation: 2 percent.
5. Tensile Strength: 40 lbf/inch in width.
6. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.

1. Width: 3 inches.
2. Thickness: 6.5 mils.
3. Adhesion: 90 ounces force/inch in width.
4. Elongation: 2 percent.
5. Tensile Strength: 40 lbf/inch in width.
6. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

C. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive. Suitable for indoor and outdoor applications.

1. Width: 2 inches.
2. Thickness: 6 mils.
3. Adhesion: 64 ounces force/inch in width.
4. Elongation: 500 percent.
5. Tensile Strength: 18 lbf/inch in width.

D. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.

1. Width: 2 inches.
2. Thickness: 3.7 mils.
3. Adhesion: 100 ounces force/inch in width.
4. Elongation: 5 percent.
5. Tensile Strength: 34 lbf/inch in width.

E. PVDC Tape for Indoor Applications: White vapor-retarder PVDC tape with acrylic adhesive.

1. Width: 3 inches.
2. Film Thickness: 4 mils.
3. Adhesive Thickness: 1.5 mils.
4. Elongation at Break: 145 percent.
5. Tensile Strength: 55 lbf/inch in width.

F. PVDC Tape for Outdoor Applications: White vapor-retarder PVDC tape with acrylic adhesive.

1. Width: 3 inches.
2. Film Thickness: 6 mils.
3. Adhesive Thickness: 1.5 mils.
4. Elongation at Break: 145 percent.
5. Tensile Strength: 55 lbf/inch in width.

2.12 SECUREMENTS

A. Bands:

1. Aluminum: ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 1/2 inch wide with wing or closed seal.
2. Springs: Twin spring set constructed of stainless steel with ends flat and slotted to accept metal bands. Spring size determined by manufacturer for application.

B. Insulation Pins and Hangers:

1. Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch- diameter shank, length to suit depth of insulation indicated.

2. Cupped-Head, Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch- diameter shank, length to suit depth of insulation indicated with integral 1-1/2-inch galvanized carbon-steel washer.

3. Metal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:

   a. Baseplate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
   b. Spindle: Aluminum, fully annealed, 0.106-inch- diameter shank, length to suit depth of insulation indicated.
   c. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.

4. Nonmetal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate fastened to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:

   a. Baseplate: Perforated, nylon sheet, 0.030 inch thick by 1-1/2 inches in diameter.
   b. Spindle: Nylon, 0.106-inch- diameter shank, length to suit depth of insulation indicated, up to 2-1/2 inches.
   c. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.

5. Self-Sticking-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:

   a. Baseplate: Galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
   b. Spindle: Aluminum, fully annealed, 0.106-inch- diameter shank, length to suit depth of insulation indicated.
   c. Adhesive-backed base with a peel-off protective cover.

6. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch- thick, aluminum sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.

a. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in exposed locations.

7. Nonmetal Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch-thick nylon sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.

C. Staples: Outward-clinching insulation staples, nominal 3/4-inch- wide, stainless steel or Monel.

D. Wire: 0.062-inch soft-annealed, stainless steel.

2.13 CORNER ANGLES

A. PVC Corner Angles: 30 mils thick, minimum 1 by 1 inch, PVC according to ASTM D 1784, Class 16354-C. White or color-coded to match adjacent surface.

B. Aluminum Corner Angles: 0.040 inch thick, minimum 1 by 1 inch, aluminum according to ASTM B 209, Alloy 3003, 3005, 3105 or 5005; Temper H-14.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

1. Verify that systems and equipment to be insulated have been tested and are free of defects.
2. Verify that surfaces to be insulated are clean and dry.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Preparation: Clean and prepare surfaces to be insulated. Before insulating, apply a corrosion coating to insulated surfaces as follows:

1. Stainless Steel: Coat 300 series stainless steel with an epoxy primer 5 mils thick and an epoxy finish 5 mils thick if operating in a temperature range between 140 and 300 deg F. Consult coating manufacturer for appropriate coating materials and application methods for operating temperature range.
2. Carbon Steel: Coat carbon steel operating at a service temperature between 32 and 300 deg F with an epoxy coating. Consult coating manufacturer for appropriate coating materials and application methods for operating temperature range.

B. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.

C. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless-steel surfaces, use demineralized water.

3.3 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment, ducts and fittings, and piping including fittings, valves, and specialties.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment, duct system, and pipe system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Keep insulation materials dry during application and finishing.

H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

I. Install insulation with least number of joints practical.

J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.

1. Install insulation continuously through hangers and around anchor attachments.
2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.

K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

L. Install insulation with factory-applied jackets as follows:

1. Draw jacket tight and smooth.
2. Cover circumferential joints with 3-inch- wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches o.c.

    a. For below ambient services, apply vapor-barrier mastic over staples.

4. Cover joints and seams with tape as recommended by insulation material manufacturer to maintain vapor seal.
5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to duct and pipe flanges and fittings.

M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

P. For above ambient services, do not install insulation to the following:

1. Vibration-control devices.
2. Testing agency labels and stamps.
3. Nameplates and data plates.
4. Manholes.
5. Handholes.
6. Cleanouts.

3.4 PENETRATIONS

A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.

1. Seal penetrations with flashing sealant.
2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
4. Seal jacket to roof flashing with flashing sealant.

B. Insulation Installation at Underground Exterior Wall Penetrations: Terminate insulation flush with sleeve seal. Seal terminations with flashing sealant.

C. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.

1. Seal penetrations with flashing sealant.
2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
4. Seal jacket to wall flashing with flashing sealant.

D. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

E. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions. Terminate insulation at fire damper sleeves for fire-rated wall and partition penetrations. Externally insulate damper sleeves to match adjacent insulation and overlap duct insulation at least 2 inches.

1. Comply with requirements in Division 07 Section "Penetration Firestopping" firestopping and fire-resistive joint sealers.

F. Insulation Installation at Floor Penetrations:

1. Duct: Install insulation continuously through floor penetrations that are not fire rated. For penetrations through fire-rated assemblies, terminate insulation at fire damper sleeves and externally insulate damper sleeve beyond floor to match adjacent duct insulation. Overlap damper sleeve and duct insulation at least 2 inches.
2. Pipe: Install insulation continuously through floor penetrations.
3. Seal penetrations through fire-rated assemblies. Comply with requirements in Division 07 Section "Penetration Firestopping."

3.5 EQUIPMENT, TANK, AND VESSEL INSULATION INSTALLATION

A. Mineral Fiber, Pipe and Tank Insulation Installation for Tanks and Vessels: Secure insulation with adhesive and anchor pins and speed washers.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of tank and vessel surfaces.
2. Groove and score insulation materials to fit as closely as possible to equipment, including contours. Bevel insulation edges for cylindrical surfaces for tight joints. Stagger end joints.
3. Protect exposed corners with secured corner angles.
4. Install adhesively attached or self-sticking insulation hangers and speed washers on sides of tanks and vessels as follows:

    a. Do not weld anchor pins to ASME-labeled pressure vessels.
    b. Select insulation hangers and adhesive that are compatible with service temperature and with substrate.
    c. On tanks and vessels, maximum anchor-pin spacing is 3 inches from insulation end joints, and 16 inches o.c. in both directions.
    d. Do not over compress insulation during installation.
    e. Cut and miter insulation segments to fit curved sides and domed heads of tanks and vessels.
    f. Impale insulation over anchor pins and attach speed washers.
    g. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.

5. Secure each layer of insulation with stainless-steel or aluminum bands. Select band material compatible with insulation materials.
6. Where insulation hangers on equipment and vessels are not permitted or practical and where insulation support rings are not provided, install a girdle network for securing insulation. Stretch prestressed aircraft cable around the diameter of vessel and make taut

with clamps, turnbuckles, or breather springs. Place one circumferential girdle around equipment approximately 6 inches from each end. Install wire or cable between two circumferential girdles 12 inches o.c. Install a wire ring around each end and around outer periphery of center openings, and stretch prestressed aircraft cable radially from the wire ring to nearest circumferential girdle. Install additional circumferential girdles along the body of equipment or tank at a minimum spacing of 48 inches o.c. Use this network for securing insulation with tie wire or bands.

7. Stagger joints between insulation layers at least 3 inches.
8. Install insulation in removable segments on equipment access doors, manholes, handholes, and other elements that require frequent removal for service and inspection.
9. Bevel and seal insulation ends around manholes, handholes, ASME stamps, and nameplates.
10. For equipment with surface temperatures below ambient, apply mastic to open ends, joints, seams, breaks, and punctures in insulation.

B. Flexible Elastomeric Thermal Insulation Installation for Tanks and Vessels: Install insulation over entire surface of tanks and vessels.

1. Apply 100 percent coverage of adhesive to surface with manufacturer's recommended adhesive.
2. Seal longitudinal seams and end joints.

C. Insulation Installation on Pumps:

1. Fabricate metal boxes lined with insulation. Fit boxes around pumps and coincide box joints with splits in pump casings. Fabricate joints with outward bolted flanges. Bolt flanges on 6-inch centers, starting at corners. Install 3/8-inch- diameter fasteners with wing nuts. Alternatively, secure the box sections together using a latching mechanism.
2. Fabricate boxes from galvanized steel, at least 0.050 inch thick.
3. For below ambient services, install a vapor barrier at seams, joints, and penetrations. Seal between flanges with replaceable gasket material to form a vapor barrier.

3.6 GENERAL PIPE INSULATION INSTALLATION

A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.

B. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:

1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity, unless otherwise indicated.
2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe

diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.

5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below ambient services, provide a design that maintains vapor barrier.
6. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below ambient services and a breather mastic for above ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
8. For services not specified to receive a field-applied jacket except for flexible elastomeric install fitted PVC cover over elbows, tees, strainers, valves, flanges, and unions. Terminate ends with PVC end caps. Tape PVC covers to adjoining insulation facing using PVC tape.
9. Stencil or label the outside insulation jacket of each union with the word "UNION." Match size and color of pipe labels.

C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes, vessels, and equipment. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.

D. Install removable insulation covers at locations indicated. Installation shall conform to the following:

1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.
3. Construct removable valve insulation covers in same manner as for flanges except divide the two-part section on the vertical center line of valve body.
4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.
5. Unless a PVC jacket is indicated in field-applied jacket schedules, finish exposed surfaces with a metal jacket.

3.7 CELLULAR-GLASS INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
3. For insulation with factory-applied jackets on above ambient services, secure laps with outward clinched staples at 6 inches o.c.
4. For insulation with factory-applied jackets on below ambient services, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Flanges:

1. Install preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of cellular-glass block insulation of same thickness as pipe insulation.
4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch, and seal joints with flashing sealant.

C. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed sections of same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.
2. When preformed sections of insulation are not available, install mitered sections of cellular-glass insulation. Secure insulation materials with wire or bands.

D. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed sections of cellular-glass insulation to valve body.
2. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
3. Install insulation to flanges as specified for flange insulation application.

3.8 FLEXIBLE ELASTOMERIC INSULATION INSTALLATION

A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

B. Insulation Installation on Pipe Flanges:

1. Install pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.

4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

C. Insulation Installation on Pipe Fittings and Elbows:

1. Install mitered sections of pipe insulation.
2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

D. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed valve covers manufactured of same material as pipe insulation when available.
2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
3. Install insulation to flanges as specified for flange insulation application.
4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.9 MINERAL-FIBER INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of preformed pipe insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
3. For insulation with factory-applied jackets on above ambient surfaces, secure laps with outward clinched staples at 6 inches o.c.
4. For insulation with factory-applied jackets on below ambient surfaces, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Flanges:

1. Install preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.
4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch, and seal joints with flashing sealant.

C. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire or bands.

D. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed sections are not available, install mitered sections of pipe insulation to valve body.
3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
4. Install insulation to flanges as specified for flange insulation application.

E. Blanket Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 75 percent coverage of duct and plenum surfaces.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:

    a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
    b. On duct sides with dimensions larger than 18 inches, place pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
    c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
    d. Do not over compress insulation during installation.
    e. Impale insulation over pins and attach speed washers.
    f. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.

4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from 1 edge and 1 end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.

    a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
    b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to 2 times the insulation thickness but not less than 3 inches.

5. Overlap unfaced blankets a minimum of 2 inches on longitudinal seams and end joints. At end joints, secure with steel bands spaced a maximum of 18 inches o.c.

6. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
7. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch- wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.

F. Board Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 75 percent coverage of duct and plenum surfaces.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:

    a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
    b. On duct sides with dimensions larger than 18 inches, space pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
    c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
    d. Do not over compress insulation during installation.
    e. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.

4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from 1 edge and 1 end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.

    a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
    b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to 2 times the insulation thickness but not less than 3 inches.

5. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Groove and score insulation to fit as closely as possible to outside and inside radius of elbows. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
6. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch- wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.

3.10 PHENOLIC INSULATION INSTALLATION

A. General Installation Requirements:

1. Secure single-layer insulation with stainless-steel bands at 12-inch intervals and tighten bands without deforming insulation materials.
2. Install 2-layer insulation with joints tightly butted and staggered at least 3 inches. Secure inner layer with 0.062-inch wire spaced at 12-inch intervals. Secure outer layer with stainless-steel bands at 12-inch intervals.

B. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
3. For insulation with factory-applied jackets on above ambient services, secure laps with outward clinched staples at 6 inches o.c.
4. For insulation with factory-applied jackets with vapor retarders on below ambient services, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

C. Insulation Installation on Pipe Flanges:

1. Install preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of block insulation of same material and thickness as pipe insulation.

D. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed insulation sections of same material as straight segments of pipe insulation. Secure according to manufacturer's written instructions.

E. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed insulation sections of same material as straight segments of pipe insulation. Secure according to manufacturer's written instructions.
2. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
3. Install insulation to flanges as specified for flange insulation application.

3.11 FIELD-APPLIED JACKET INSTALLATION

A. Where glass-cloth jackets are indicated, install directly over bare insulation or insulation with factory-applied jackets.

1. Draw jacket smooth and tight to surface with 2-inch overlap at seams and joints.
2. Embed glass cloth between two 0.062-inch- thick coats of lagging adhesive.
3. Completely encapsulate insulation with coating, leaving no exposed insulation.

B. Where FSK jackets are indicated, install as follows:

1. Draw jacket material smooth and tight.
2. Install lap or joint strips with same material as jacket.
3. Secure jacket to insulation with manufacturer's recommended adhesive.
4. Install jacket with 1-1/2-inch laps at longitudinal seams and 3-inch- wide joint strips at end joints.
5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.

C. Where PVC jackets are indicated, install with 1-inch overlap at longitudinal seams and end joints; for horizontal applications, install with longitudinal seams along top and bottom of tanks and vessels. Seal with manufacturer's recommended adhesive.

1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.

D. Where metal jackets are indicated, install with 2-inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches o.c. and at end joints.

E. Where PVDC jackets are indicated, install as follows:

1. Apply three separate wraps of filament tape per insulation section to secure pipe insulation to pipe prior to installation of PVDC jacket.
2. Wrap factory-presized jackets around individual pipe insulation sections with one end overlapping the previously installed sheet. Install presized jacket with an approximate overlap at butt joint of 2 inches over the previous section. Adhere lap seal using adhesive or SSL, and then apply 1-1/4 circumferences of appropriate PVDC tape around overlapped butt joint.
3. Continuous jacket can be spiral wrapped around a length of pipe insulation. Apply adhesive or PVDC tape at overlapped spiral edge. When electing to use adhesives, refer to manufacturer's written instructions for application of adhesives along this spiral edge to maintain a permanent bond.
4. Jacket can be wrapped in cigarette fashion along length of roll for insulation systems with an outer circumference of 33-1/2 inches or less. The 33-1/2-inch- circumference limit allows for 2-inch- overlap seal. Using the length of roll allows for longer sections of jacket to be installed at one time. Use adhesive on the lap seal. Visually inspect lap seal for "fish-mouthing," and use PVDC tape along lap seal to secure joint.
5. Repair holes or tears in PVDC jacket by placing PVDC tape over the hole or tear and wrapping a minimum of 1-1/4 circumferences to avoid damage to tape edges.

3.12 FIRE-RATED INSULATION SYSTEM INSTALLATION

A. Where fire-rated insulation system is indicated, secure system to ducts and duct hangers and supports to maintain a continuous fire rating.

B. Insulate duct access panels and doors to achieve same fire rating as duct.

C. Install firestopping at penetrations through fire-rated assemblies. Fire-stop systems are specified in Division 07 Section "Penetration Firestopping."

3.13 FINISHES

A. Duct, Equipment, and Pipe Insulation with ASJ, Glass-Cloth, or Other Paintable Jacket Material: Paint jacket with paint system identified below and as specified in Division 09 painting Sections.

1. Flat Acrylic Finish: Two finish coats over a primer that is compatible with jacket material and finish coat paint. Add fungicidal agent to render fabric mildew proof.

a. Finish Coat Material: Interior, flat, latex-emulsion size.

B. Flexible Elastomeric Thermal Insulation: Coat exposed outdoor flexible elastomeric insulation with two coats of manufacturer's recommended protective white coating; or cover with aluminum jacketing all exposed outdoor flexible elastomeric insulation, in lieu of paint.

C. Color: Final color as selected by Architect. Vary first and second coats to allow visual inspection of the completed Work.

D. Do not field paint aluminum or stainless-steel jackets.

3.14 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Inspect ductwork, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each duct system defined in the "Duct Insulation Schedule, General" Article.
2. Inspect field-insulated equipment, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each type of equipment defined in the "Equipment Insulation Schedule" Article. For large equipment, remove only a portion adequate to determine compliance.
3. Inspect pipe, fittings, strainers, and valves, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to three locations of straight pipe, three locations of threaded fittings, three locations of welded fittings, two locations of threaded strainers, two locations of welded strainers, three locations of threaded valves, and three locations of flanged valves for each pipe service defined in the "Piping Insulation Schedule, General" Article.

C. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.15 DUCT INSULATION SCHEDULE, GENERAL

A. Plenums and Ducts Requiring Insulation:

1. Indoor, concealed supply, return, and outdoor air.
2. Indoor, exposed outdoor air.
3. Indoor, concealed and exposed, Type I, commercial, kitchen hood exhaust.

4. Indoor, concealed and exposed kitchen hood make-up air.
5. Outdoor, concealed supply and return.
6. Outdoor, exposed supply and return.

B. Items Not Insulated:

1. Fibrous-glass ducts.
2. Metal ducts with duct liner of sufficient thickness to comply with energy code and ASHRAE/IESNA 90.1.
3. Indoor, exposed supply and return air in air conditioned, occupied spaces
4. Exhaust ductwork, including Type II Kitchen Exhaust and Dishwasher Exhaust
5. Factory-insulated flexible ducts.
6. Factory-insulated plenums and casings.
7. Flexible connectors.
8. Vibration-control devices.
9. Factory-insulated access panels and doors.

3.16 INDOOR DUCT AND PLENUM INSULATION SCHEDULE

A. Supply-air Ducts, Concealed (installed above ceilings),

1. Mineral-Fiber Blanket: 2 inches thick and installed R-6.0.

B. Return-air Ducts, Concealed (installed above ceilings),

1. Mineral-Fiber Blanket: 2 inches thick and installed R-6.0.

C. Exposed Supply and Return Ductwork in Air Conditioned, Occupied Spaces, and Exhaust Air Ductwork:

1. None.

D. Exposed Supply and Return Ductwork exposed in Air Conditioned Utility Spaces (Conditioned Mechanical Rooms or Mechanical Rooms used as Return Air Plenums) and Exposed in Non-Air Conditioned Spaces (Boiler Rooms, et. Al):

1. Mineral-Fiber Board Insulation: 2 inches thick and installed R-6.0.

E. Outside-Air Ducts:

1. Mineral-Fiber Blanket: 2 inches thick and installed R-6.0.

F. Type-I Commercial Kitchen Hood Exhaust Ducts:
1. Fire Rated Insulation System as identified in this specification section.

G. Type-II Commercial Kitchen Hood and Dishwasher Exhaust Ducts:
1. None.

H. Kitchen Hood Make-Up Air Ducts:

1. Mineral-Fiber Blanket: 2 inches thick and installed R-6.0.

3.17 EQUIPMENT INSULATION SCHEDULE

A. Insulation materials and thicknesses are identified below. If more than one material is listed for a type of equipment, selection from materials listed is Contractor's option.

B. Insulate indoor and outdoor equipment in paragraphs below that is not factory insulated.

C. Condenser-water pump insulation shall be one of the following:
1. None

D. Condenser-water expansion/compression tank insulation shall be one of the following:
1. None

E. Condenser-water air-separator insulation shall be one of the following:

1. None

3.18 PIPING INSULATION SCHEDULE, GENERAL

A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.

B. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:

1. Drainage piping located in crawl spaces.
2. Underground piping.
3. Chrome-plated pipes and fittings unless there is a potential for personnel injury.
4. Condenser Water Supply and Return piping

3.19 INDOOR PIPING INSULATION SCHEDULE

A. Condensate and Equipment Drain Water below 60 Deg F:

1. All Pipe Sizes: Insulation shall be one of the following:

a. Cellular Glass: 1-1/2 inches thick.
b. Flexible Elastomeric: 3/4 inch thick.

3.20 INDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Ducts, Plenums, and Piping, Concealed (installed above ceilings) and Exposed in Air Conditioned Occupied Spaces:

1. None.

D. Ducts, Plenums, and Piping, Exposed in Air Conditioned Utility Spaces (Conditioned Mechanical Rooms and Mechanical Rooms used as Return Air Plenums):

1. 8 ounce canvas with lagging adhesive.

E. Ducts, Plenums, and Piping, Exposed in Non-Air Conditioned Spaces (Boiler Rooms, et. al.):

1. PVC: 20 mils thick (N/A if installed in a return air plenum).
2. Aluminum, Smooth: 0.016 inch thick.

F. Equipment, Concealed (installed above ceilings):

1. None.

G. Equipment, Exposed (all applications):

1. PVC: 20 mils thick (N/A if installed in a return air plenum)
2. Aluminum, Smooth: 0.016 inch thick.

END OF SECTION

SECTION 23 21 13.33
GROUND-LOOP HEAT-PUMP PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes piping for horizontal and vertical, direct-buried, ground-loop, heat-pump systems that operate between 23 and 104 deg F.

1.3 PERFORMANCE REQUIREMENTS

A. Components and installation shall be capable of withstanding the following minimum working pressure, unless otherwise indicated:

1. Ground-Loop, Heat-Pump Piping: 160 psig.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Pipe and fittings.
2. Joining method and equipment.

B. Field quality-control test reports.

PART 2 - PRODUCTS

2.1 PIPES AND FITTINGS

A. HDPE Pipe: ASTM D 2239, SDR-11; with PE compound number required to achieve required system working pressure.

1. Molded PE Fittings: ASTM D 2683 or ASTM D 3261, HDPE resin, socket- or butt-fusion type, made to match HDPE pipe dimensions and class.

B. U-Bend Assembly: Factory fabricated with embossed depth stamp every 36 inches from U-bend.

2.2 BOREHOLE BACKFILL

A. Surface Seal: Thermally enhanced bentonite-sand mixture with thermal conductivity greater than 1.20 Btu/h x sq. ft. x deg F.

B. Backfill below Surface Seal: Thermally enhanced bentonite-sand mixture with thermal conductivity greater than 1.20 Btu/h x sq. ft. x deg F.

C. All backfill materials must comply with all NC State regulations, including Aquifer Protection.

2.3 CHEMICAL TREATMENT

A. Chemicals: Specially formulated, based on analysis of makeup water, to prevent accumulation of scale and corrosion in piping and connected equipment.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, warning tape, and backfilling are specified in Division 31 Section "Earth Moving."

B. Well drilling must be performed by a North Carolina certified well driller.

C. All drilling must comply with all NC State regulations, including Aquifer Protection.

D. The installation of geothermal supply and return piping and well piping must be performed by a North Carolina H-2 licensed contractor and cannot be subcontracted to an unlicensed contractor.

3.2 HORIZONTAL PIPING INSTALLATION

A. Separate trenches by 10 feet minimum, unless otherwise indicated. Remove rocks in trenches that could contact pipe.

B. Backfill to 18 inches above pipe with mud developed from excavated rock-free soil or with sand, pea gravel, or fly ash. Backfill from slurry level to grade with excavated soil, compacting as specified for pipe burial in Division 31 Section "Earth Moving."

C. Extend pipe from trench onto the bottom of the body of water at an elevation that is at least 12 inches below frost line. Seal membrane or impervious liner under the body of water after installing piping.

D. Install PE piping in trenches according to ASTM D 2774 or ASTM F 645.

1. Clean PE pipe and fittings and make heat-fusion joints according to ASTM D 2657. Minimize number of joints.

E. Purge, flush, and pressure test piping before backfilling trenches.

F. Install continuous detectable warning tape for underground piping. Locate tape a minimum of 24 inches below finished grade, directly over piping. Underground warning tapes are specified in Division 31 Section "Earth Moving."

G. Common piping installation requirements are specified in Division 23 Section "Common Work Results for HVAC."

3.3 VERTICAL PIPING INSTALLATION

A. Install HDPE piping in boreholes according to ASTM D 2774 or ASTM F 645.

1. Clean HDPE pipe and fittings and make heat-fusion joints according to ASTM D 2657. Minimize number of joints.

B. Purge, flush, and pressure test piping before backfilling boreholes.

C. After installation of loop pipe in borehole, fill piping loop with water or antifreeze solution, and pump backfill into borehole to discharge at base of borehole.

D. Fill borehole with backfill to a point at least 60 inches below grade and backfill remainder with surface seal material.

E. Extend piping and connect to water-source, ground-loop, heat-pump piping systems at outside face of building wall in locations and pipe sizes indicated.

1. Terminate water-service piping at building wall until building water-source, ground-loop, heat-pump piping systems are installed. Terminate piping with caps. Make connections to building water-source, ground-loop, heat-pump piping systems when those systems are installed.

F. Wall sleeves are specified in Division 23 Section "Common Work Results for HVAC."

G. Mechanical sleeve seals are specified in Division 23 Section "Common Work Results for Plumbing."

3.4 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

3.5 CHEMICAL TREATMENT

A. Perform an analysis of makeup water to determine type and quantities of chemical treatment needed to keep system free of scale, corrosion, and fouling, and to sustain the water characteristics for the system.

B. Fill system with fresh water and add compounds, agents and detergents to remove grease and debris from piping. Circulate solution for a minimum of 24 hours, drain, clean strainer screens, and refill with fresh water.

C. Add initial chemical treatment and maintain water quality noted above for the first year of operation.

3.6 FIELD QUALITY CONTROL

A. Piping Tests: Fill piping 24 hours before testing and apply test pressure to stabilize piping. Use potable water only.

B. Hydrostatic Tests: Test at not less than 1-1/2 times the pipe working-pressure rating allowing for static pressure of borehole depth.

1. Increase pressure in 50-psig increments and inspect each joint between increments. Hold at test pressure for 30 minutes. Slowly increase to next test pressure increment and hold for 30 minutes. After testing at maximum test pressure, reduce pressure to 30 psig. Hold for 90 minutes, and measure pressure at 30-minute intervals. Repair leaks and retest until no leaks exist.

C. Prepare reports of testing activity.

END OF SECTION

SECTION 23 81 46
WATER-SOURCE UNITARY HEAT PUMPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. **BID ALTERNATE #5**: Replace specified Mechanical Heat Pumps with Mechanical Heat Pumps that will satisfy the Domestic content requirements to qualify for Domestic Content Bonus Credit based on Sections 45, 45Y, 48, and 48E, of the Internal Revenue Code. Public Law 17-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022 (IRA). Unit must still meet/exceed performance requirements outlined by design schedule.

C. **BID ALTERNATE #6:** Equipment using refrigerant R410A is being phased out due to Environmental Protection Agency (EPA) regulations. Refrigerant R454B is being utilized by most manufacturers as the replacement moving forward. Equipment selections have not been made available until recently. All equipment bids shall clearly indicate which refrigerant is base bid, and shall provide an alternate for equal equipment utilizing R454B.

1.2 SUMMARY

A. This Section includes the following types of water-source heat pumps:

1. Concealed horizontal or vertical units, 15 tons and smaller.

1.3 SUBMITTALS

A. Product Data: Include rated capacities, furnished specialties, and accessories for each model.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Wiring Diagrams: Power, signal, and control wiring.

C. Product Certificates: For each type of water-source heat pump, signed by product manufacturer. All equipment listed in this section must be rated and certified in accordance with American Refrigeration Institute / International Standards Organization (ARI / ISO) and Canadian Standards Association (CSA-US). The units shall have ARI / ISO and CSA-US labels

D. Operation and Maintenance Data: For water-source heat pumps to include in emergency, operation, and maintenance manuals.

E. Warranty: Special warranty specified in this Section.

1.4 ACCEPTABLE MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Climate Master
2. Enertech/Tetco
3. Water Furnace
4. Daikin
5. Trane

B. Listing of manufacturers name does not guarantee approval. All equipment must meet or exceed quality and capacities of specified equipment. Final approval will be based on equipment submittals. Any manufacturer not listed but wishing to bid this project shall submit a written request 10 days prior to bid date, prior approval is required for all manufacturers not listed.

1.5 QUALITY ASSURANCE

A. Product Options: Drawings indicate size, profiles, and dimensional requirements of water-source heat pumps and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements."

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. ASHRAE Compliance:

1. ASHRAE 15.
2. Applicable requirements in ASHRAE 62.1-2004, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

D. ASHRAE/IESNA 90.1-2004 Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6 - "Heating, Ventilating, and Air-Conditioning."

E. Comply with NFPA 70.

F. Comply with safety requirements in UL 484 for assembly of free-delivery water-source heat pumps.

G. Comply with safety requirements in UL 1995 for duct-system connections.

1.6 COORDINATION

A. Coordinate layout and installation of water-source heat pumps and suspension components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components, and partition assemblies.

B. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

C. Coordinate installation of roof curbs, equipment supports, and roof penetrations. These items are specified in Division 07 Section "Roof Accessories."

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of water-source heat pumps that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, refrigeration components.
2. Warranty Period: Manufacturer shall warranty all parts one year from start-up or 18 months from shipment. The compressor shall have a 5 year warranty. Installing contractor shall provide warranty labor for a period on one year.

PART 2 - PRODUCTS

2.1 WATER-SOURCE HEAT PUMPS

A. Description: Packaged water-source heat pump with temperature controls; factory assembled, tested, and rated according to ARI-ISO-13256-1.

B. Cabinet and Chassis: Galvanized-steel casing, powder coated on both sides, with the following features:

1. Minimum of three (3) Access panels for serviceability of internal components.
2. Knockouts for electrical and piping connections.
3. Flanged duct connections.
4. Compressor Section Cabinet Insulation: Glass-fiber liner, minimum 1/2 inch thick, dual density, 1 ¾lb.
5. Air Handling Section Cabinet Insulation: Glass-fiber liner, minimum 1/2 inch thick, single density, foil backed 1 ¾lb.
6. Standard cabinet panel insulation must meet NFPA 90A requirements, air erosion and mold growth limits of UL-181, stringent fungal resistance test per ASTM-C1071 and ASTM G21, and shall meet zero level bacteria growth per ASTM G22.
7. Condensate Drainage: HDPE or stainless-steel drain pan with condensate drain piping projecting through unit cabinet and complying with ASHRAE 62.1-2004.
8. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2004.
9. All units must have an insulated panel separating the fan compartment from the compressor compartment. The compressor shall be located outside the air stream.

C. Fan and Motor:

1. General requirements for motors are specified in Division 23 Section "Common Motor Requirements for HVAC Equipment."
2. Blower shall have inlet rings to allow removal of wheel and motor from one side without removing housing. Units shall have a direct-drive centrifugal fan. The fan motor shall be 3-speed, permanently lubricated, PSC or ECM type, with internal thermal overload protection. Units supplied without permanently lubricated motors must provide external oilers for easy service. The fan motor shall be isolated from the fan housing by a torsionally flexible motor mounting system with rubber type grommets to inhibit vibration induced high noise levels associated with “hard wire belly band” motor mounting. The fan and motor assembly must be capable of overcoming the external static pressures as shown on the schedule. Airflow / Static pressure rating of the unit shall be based on a dry coil and a clean filter in place.

D. Water Circuit:

1. Refrigerant-to-Water Heat Exchangers:

    a. Coaxial heat exchangers with copper water tube with enhanced heat-transfer surfaces inside a steel shell; both shell and tube leak tested to 500 psig on refrigerant side and 400 psig on water side. Factory mount heat exchanger in unit on resilient rubber vibration isolators.
    b. Stainless-steel, brazed-plate heat exchanger leak tested to 450 psig for refrigerant side and 400 psig for water side. Factory mount heat exchanger in unit on resilient rubber vibration isolators.
2. Motorized Water Valve: Stop water flow through the unit when compressor is off.

E. Refrigerant-to-Air Coils: Copper tubes with aluminum fins, leak tested to 450 psig.

F. Refrigerant Circuit Components:

1. Sealed Refrigerant Circuit: Charge with R-407C or R-410A refrigerant.

    a. **BID ALTERNATE #6:** Equipment using refrigerant R410A is being phased out due to Environmental Protection Agency (EPA) regulations. Refrigerant R454B is being utilized by most manufacturers as the replacement moving forward. Equipment selections have not been made available until recently. All equipment bids shall clearly indicate which refrigerant is base bid, and shall provide an alternate for equal equipment utilizing R454B.
        i. Provide units with applicable factory refrigerant monitoring devices and BAS point monitoring.
2. Filter-Dryer: Factory installed to clean and dehydrate the refrigerant circuit.
3. Charging Connections: Service fittings on suction and liquid for charging and testing.
4. Reversing Valve: Pilot-operated sliding-type valve designed to be fail-safe in heating position with replaceable magnetic coil.
5. Compressor: Hermetic rotary or scroll compressor installed on vibration isolators and housed in an acoustically treated enclosure with factory-installed safeties. Activation of any safety device shall prevent compressor operation via a microprocessor lockout circuit. The lockout circuit shall be reset at the thermostat or at the contractor supplied disconnect switch. Factory installed safeties required as follows:

    a. Anti- short cycle timer.
    b. High-pressure cutout.

c. Low-pressure cutout or loss of charge switch.
d. Water coil low temperature sensor
e. Air coil low temperature sensor
f. Condensate overflow sensor

6. Refrigerant Piping Materials: ASTM B 743 copper tube with wrought-copper fittings and brazed joints.
7. Pipe Insulation: Refrigerant minimum 3/8-inch- thick, flexible elastomeric insulation on piping exposed to airflow through the unit. Maximum 25/50 flame-spread/smoke-development indexes according to ASTM E 84.
8. Refrigerant Metering Device: Thermal expansion valve to allow specified operation with entering-water temperatures from 40 to 100 deg F.

G. Filters:
~~1. Disposable, pleated type, 1 inch thick and with a minimum of 90 percent arrestance according to ASHRAE 52.1 and a minimum efficiency reporting value of 7 according to ASHRAE 52.2.~~
2. Where indicated with Dynamic Air Cleaners/Filtration provide Polarized-Media Electronic Air Cleaners 1" Panel Air Cleaners, Dynamic Model P1000 or equivalent polarized media filtration system compliant to meet UL Standard 867. Filter system must have capability to reduce OA ventilation per IAQ procedure of ASHRAE Standard 62 to OA values noted in equipment schedules. Provide with low-voltage connection, wire/connect to unit control transformer.

H. Sound Attenuation (required for classroom units only):

1. Ultra quiet package shall consist of high technology sound attenuating material that is strategically applied to the compressor and air handling compartment casings and fan scroll in addition to the standard system design, to further dampen and attenuate sound transmissions.

I. Hot gas reheat (where indicated)

1. Dehumidification (where indicated) is provided through a hot gas reheat option. The coil shall consist of 3/8"/1/2" copper tubes mechanically expanded into evenly spaced aluminum fins. All coils shall be proof and leak tested. The proof test must be performed at 1.5 times the maximum operating pressure and the leak test performed at the maximum operating pressure.

J. Drain Pan: the drain pan shall be constructed of 304 Stainless Steel to inhibit corrosion. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117. If plastic type material is used, it must be HDPE (High Density Polyethylene) to avoid thermal cycling shock stress failure over the lifetime of the unit. Drain pan shall be fully insulated. Drain outlet shall be located at pan as to allow complete and unobstructed drainage of condensate. Drain outlet for horizontal units shall be connected from pan directly to IPT fitting. The unit as standard will be supplied with solid-state electronic condensate overflow protection. Vertical units shall be furnished with a PVC slip condensate drain connection and an internal factory installed condensate trap.

K. Control equipment is specified in Division 23 Sections "Instrumentation and Controls for HVAC." See plans for Sequence of Operation.

L. Controls:

Solid state control system shall communicate with thermostat to display (at the thermostat) the unit status, fault status, and specific fault condition, as well as retrieve previously stored fault that caused unit shutdown. The Remote Service Sentinel allows building maintenance personnel or service personnel to diagnose unit from the wall thermostat. The control board shall provide a signal to the thermostat fault light, indicating a lockout. Upon cycling the G (fan) input 3 times within a 60 second time period, the fault light shall display the specific code as indicated by a sequence of flashes. A detailed flashing code shall be provided at the thermostat LED to display unit status and specific fault status such as over/under voltage fault, high pressure fault, low pressure fault, low water temperature fault, condensate overflow fault, etc. The control board will be supplied with a LONWORKS interface board, which is LONMark certified, *or BACnet certified interface board*. This will permit all units to be daisy chained via a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

a. space temperature
b. leaving water temperature
c. discharge air temperature
d. command of space temperature setpoint
e. cooling status
f. heating status
g. low temperature sensor alarm
h. low pressure sensor alarm
i. high pressure switch alarm
j. condensate sensor alarm
k. hi/low voltage alarm
l. fan "ON/AUTO" position of space thermostat as specified above
m. unoccupied / occupied command
n. cooling command
o. heating command
p. fan "ON / AUTO" command
q. fault reset command
r. itemized fault code revealing reason for specific shutdown fault (any one of 7)

M. Electrical Connection: Single electrical connection.

N. Capacities and Characteristics: As indicated on the drawings.

2.2 HOSE KITS

A. General: Hose kits shall be designed for minimum 400 psig working pressure, and operating temperatures from 33 to 211 deg F. Tag hose kits to equipment designations.

B. Hose: Length 24 inches. Minimum diameter, equal to water-source heat-pump connection size.

C. Isolation Valves: Two-piece bronze-body ball valves with stainless-steel ball and stem and galvanized-steel lever handle. Provide valve for supply and return. If balancing device is combination shutoff type with memory stop, the isolation valve may be omitted on the return.

D. Strainer: Y-type with blowdown valve in supply connection.

E. Balancing Device: Mount in return connection. Include meter ports to allow flow measurement with differential pressure gage.

1. Automatic balancing valve, factory set to operate within +/-5% of gpm rating. Cartridge must be accessible without removing valve from piping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of water-source heat pumps.

B. Examine roughing-in for piping and electric installations for water-source heat pumps to verify actual locations of piping connections and electrical conduit before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Concrete Bases: Install floor mounted units on 4-inch- high concrete bases. See Division 23 Section "Common Work Results for HVAC" for concrete base materials and fabrication requirements.

B. Unless otherwise noted, mount horizontal and vertical water-source heat pumps on concrete base with vibration isolators. Vibration isolators are specified in Division 23 Section "Vibration and Seismic Controls for HVAC Piping and Equipment."

1. Units with Internally Isolated Fans and Compressors: Support on concrete bases using neoprene pads with minimum 0.125-inch static deflection. Secure units to anchor bolts installed in concrete bases.
2. Units without Internally Isolated Fans and Compressors: Support on concrete bases using housed-spring isolators with minimum 1-inch static deflection. Secure units to anchor bolts installed in concrete bases.
3. Install units level.

3.3 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties. Specific connection requirements are as follows:

1. Connect supply and return hydronic piping to heat pump with hose kits.
2. Connect heat-pump condensate drain pan to indirect waste connection with condensate trap of adequate depth to seal against the pressure of fan. Install cleanouts in piping at changes of direction.

B. Duct installation requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of ducts. Specific connection requirements are as follows:

1. Connect supply and return ducts to water-source heat pumps with flexible duct connectors specified in Division 23 Section "Air Duct Accessories."

C. Install electrical devices furnished by manufacturer but not specified to be factory mounted.

D. Install piping adjacent to machine to allow service and maintenance.

E. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

F. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.4 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. After installing water-source heat pumps and after electrical circuitry has been energized, test units for compliance with requirements.
2. Inspect for and remove shipping bolts, blocks, and tie-down straps.
3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

B. Remove and replace malfunctioning units and retest as specified above.

3.5 STARTUP SERVICE (Provided by Installing Contractor)

A. Complete installation and startup checks according to manufacturer's written instructions and do the following:

1. Inspect for visible damage to unit casing.
2. Inspect for visible damage to compressor, coils, and fans.
3. Inspect internal insulation.
4. Verify that labels are clearly visible.
5. Verify that clearances have been provided for servicing.
6. Verify that controls are connected and operable.
7. Verify that filters are installed.
8. Adjust vibration isolators.
9. Inspect operation of barometric dampers.
10. Verify bearing lubrication on fan.
11. Inspect fan-wheel rotation for movement in correct direction without vibration and binding.
12. Adjust fan belts to proper alignment and tension.
13. Start unit according to manufacturer's written instructions.
14. Complete startup sheets and attach copy with Contractor's startup report.
15. Inspect and record performance of interlocks and protective devices; verify sequences.
16. Operate unit for an initial period as recommended or required by manufacturer.
17. Verify thermostat and humidistat calibration.
18. Inspect outdoor-air dampers for proper stroke and interlock with return-air dampers.
19. Inspect controls for correct sequencing of heating, mixing dampers, refrigeration, and normal and emergency shutdown.
20. Start refrigeration system and measure and record the following:

    a. Coil leaving-air, dry- and wet-bulb temperatures.
    b. Coil entering-air, dry- and wet-bulb temperatures.
    c. Outdoor-air, dry-bulb temperature.

d. Outdoor-air-coil, discharge-air, dry-bulb temperature.

21. Measure and record the following minimum and maximum airflows. Plot fan volumes on fan curve.

a. Supply-air volume.
b. Return-air volume.
c. Relief-air volume.
d. Outdoor-air intake volume.

3.6 ADJUSTING

A. Adjust initial temperature and humidity set points.

B. Set field-adjustable switches and circuit-breaker trip ranges as indicated.

C. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other than normal occupancy hours for this purpose.

3.7 CLEANING

A. Replace filters used during construction prior to air balance or substantial completion.

B. After completing installation of exposed, factory-finished water-source heat pumps, inspect exposed finishes and repair damaged finishes.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain water-source heat pumps. Refer to Division 01 Section "Demonstration and Training."

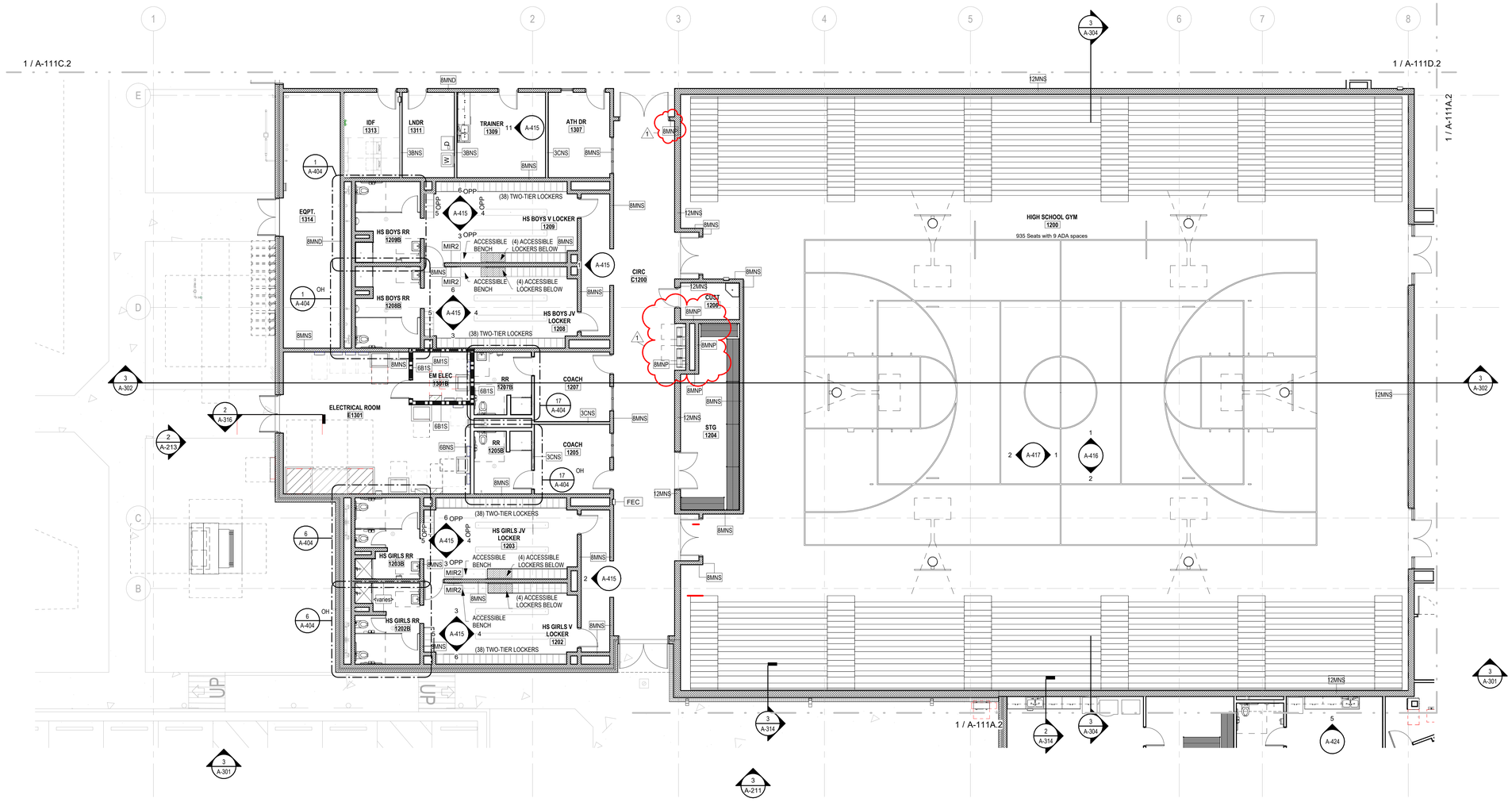
END OF SECTION

FLOOR PLAN LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL
CJ	CONTROL JOINT
	FLOOR DRAIN - SEE PLUMBING DRAWINGS
SF1	STOREFRONT (CURTAIN WALL) TAG - SEE PLANS AND ENLARGED ELEVATIONS
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
Room name 101A	ROOM TAG

GENERAL NOTES:

1. SEE SHEET A-010 FOR PARTITION TYPES AND DETAILS.
2. CONTRACTOR RESPONSIBLE FOR PROCUREMENT AND INSTALLATION OF LOCKERS
3. ALL INTERIOR WALLS SHALL HAVE SOUND ATTENUATION BATTS - U.N.O.



1 A-111B.2 **FIRST FLOOR PARTIAL PLAN - AREA B**
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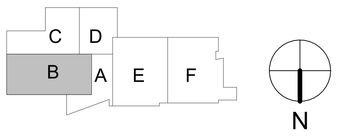

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PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: MK
CHECKED BY: MK

FIRST FLOOR PARTIAL PLAN - AREA B

A-111B.2

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FLOOR PLAN LEGEND

SYMBOL	DESCRIPTION
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	2 HOUR RATED WALL
CJ	CONTROL JOINT
	FLOOR DRAIN - SEE PLUMBING DRAWINGS
SF1	STOREFRONT (CURTAIN WALL) TAG - SEE PLANS AND ENLARGED ELEVATIONS
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
Room name 101A	ROOM TAG

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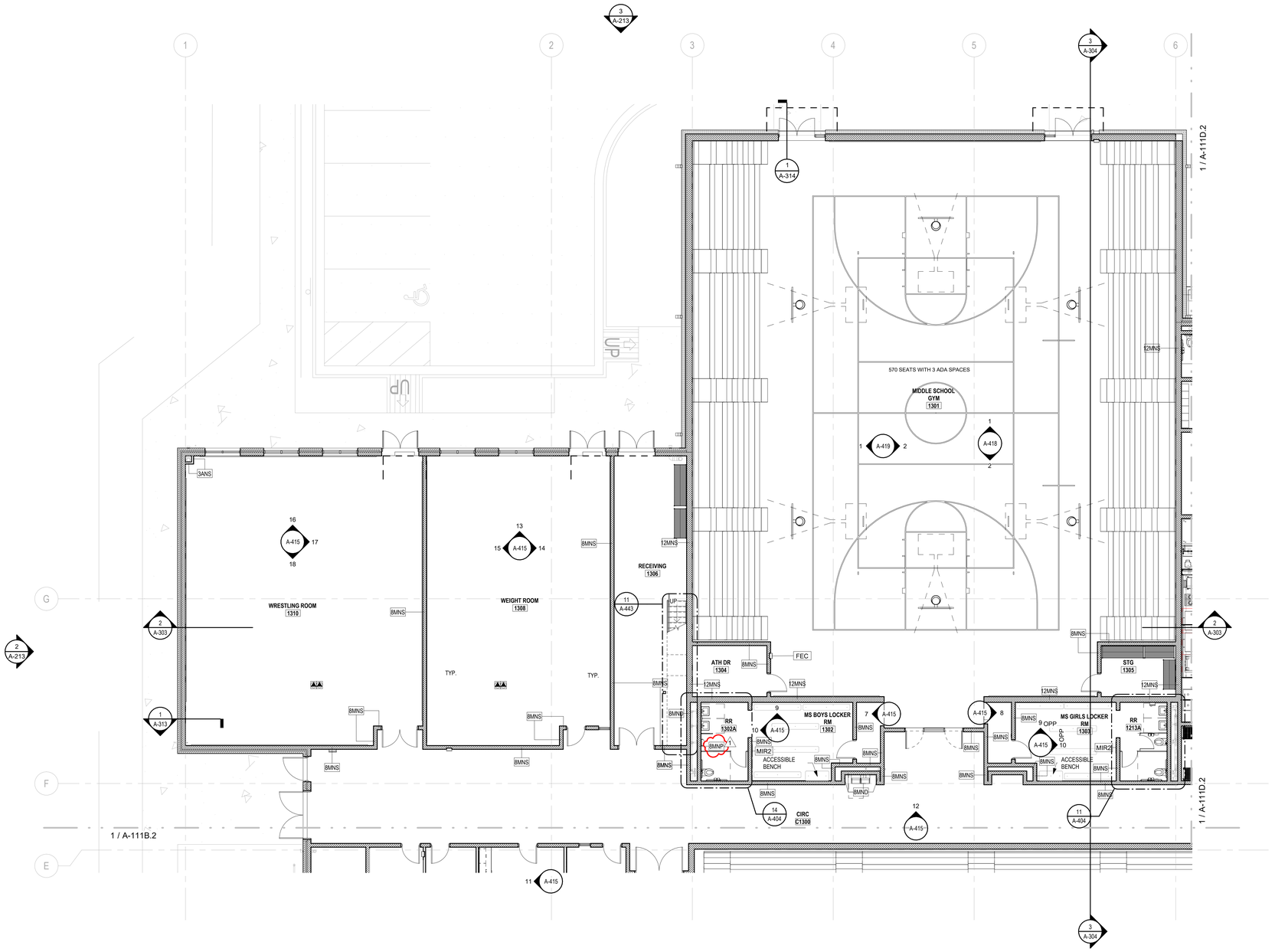

1 A-111C.2 **FIRST FLOOR PARTIAL PLAN - AREA C**
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1	07/25/2024	Bid Addendum 3

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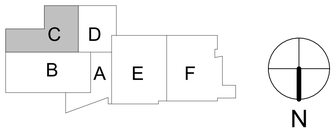

FIRST FLOOR PARTIAL PLAN - AREA C

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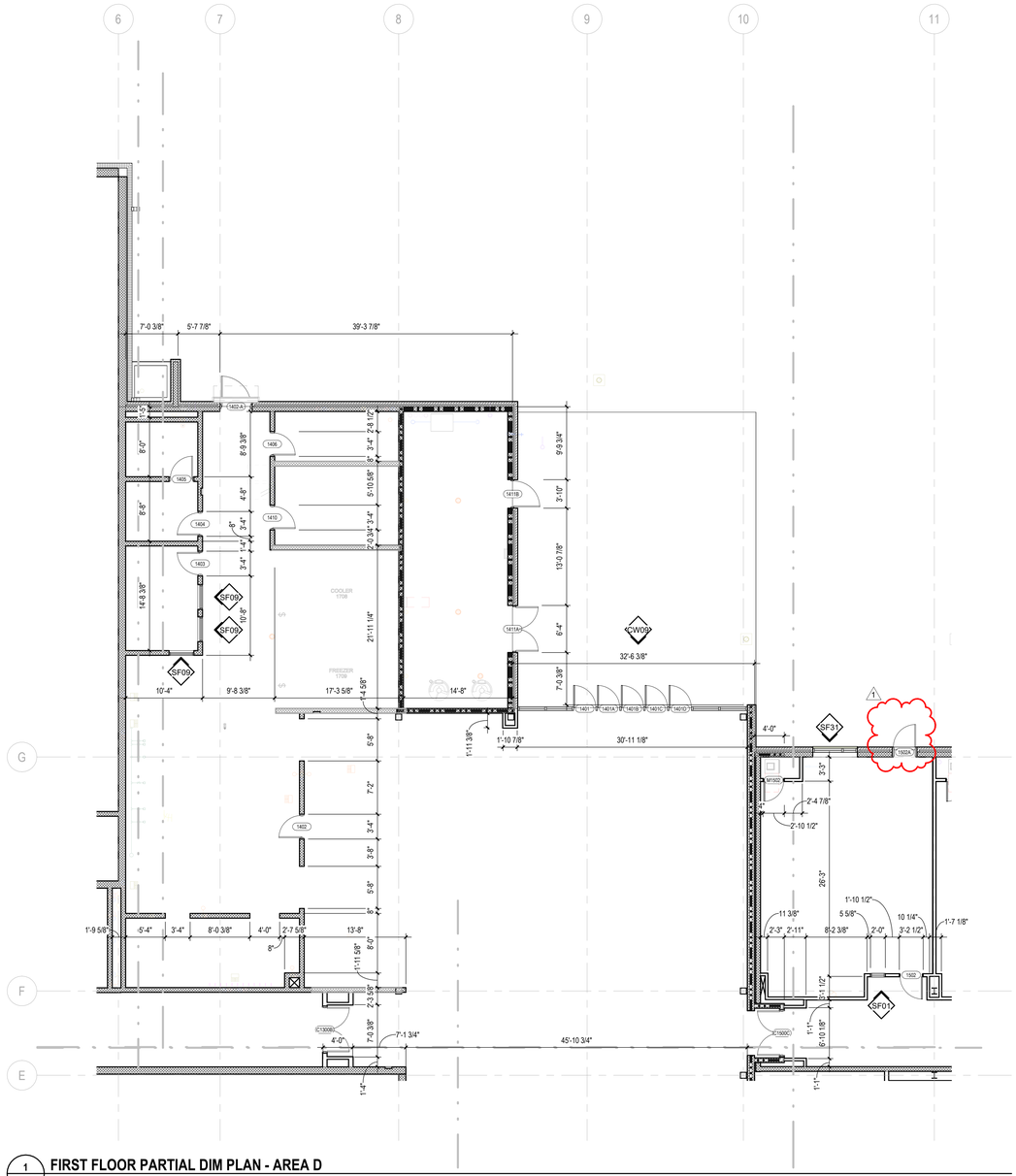

1 A-111D.1 **FIRST FLOOR PARTIAL DIM PLAN - AREA D**

SCALE: 1/8" = 1'-0"

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No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
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FIRST FLOOR PARTIAL PLAN - AREA D - DIM. PLAN

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1 A-111E.1 **FIRST FLOOR PARTIAL DIM PLAN - AREA E**

SCALE: 1/8" = 1'-0"

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ENERGY STAR PARTNER

No.	Date	Description
<varies>	<varies>	<varies>

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: MK
CHECKED BY: MK

FIRST FLOOR PARTIAL PLAN - AREA E - DIM. PLAN

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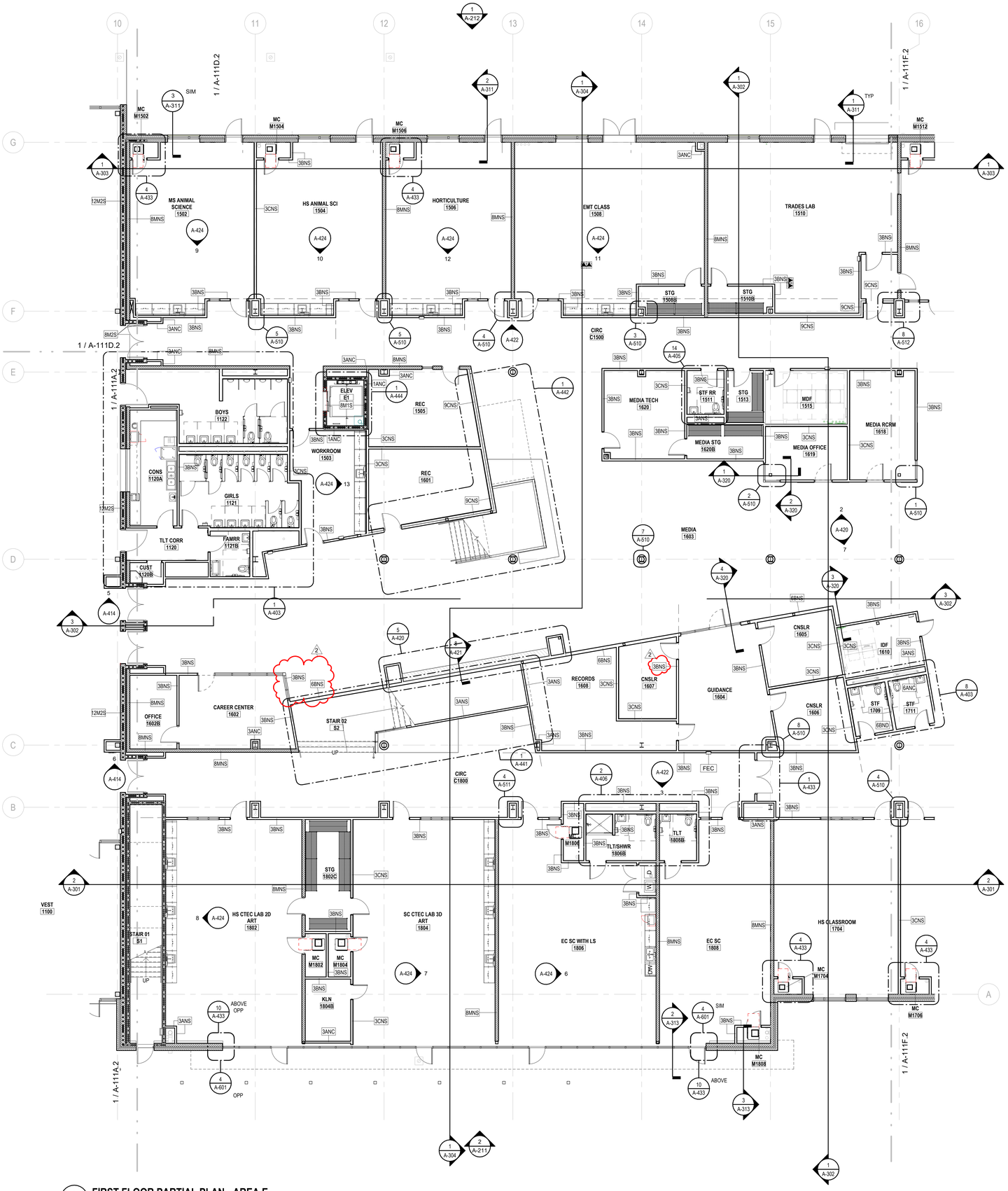

1 A-111E.2 **FIRST FLOOR PARTIAL PLAN - AREA E**

SCALE: 1/8" = 1'-0"

FLOOR PLAN LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL
CJ	CONTROL JOINT
	FLOOR DRAIN - SEE PLUMBING DRAWINGS
SF1	STOREFRONT (CURTAIN WALL) TAG - SEE PLANS AND ENLARGED ELEVATIONS
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
Room name 101A	ROOM TAG

GENERAL NOTES:

1. SEE SHEET A-010 FOR PARTITION TYPES AND DETAILS.
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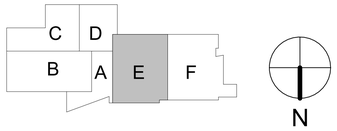

FIRST FLOOR PARTIAL PLAN - AREA E

A-111E.2

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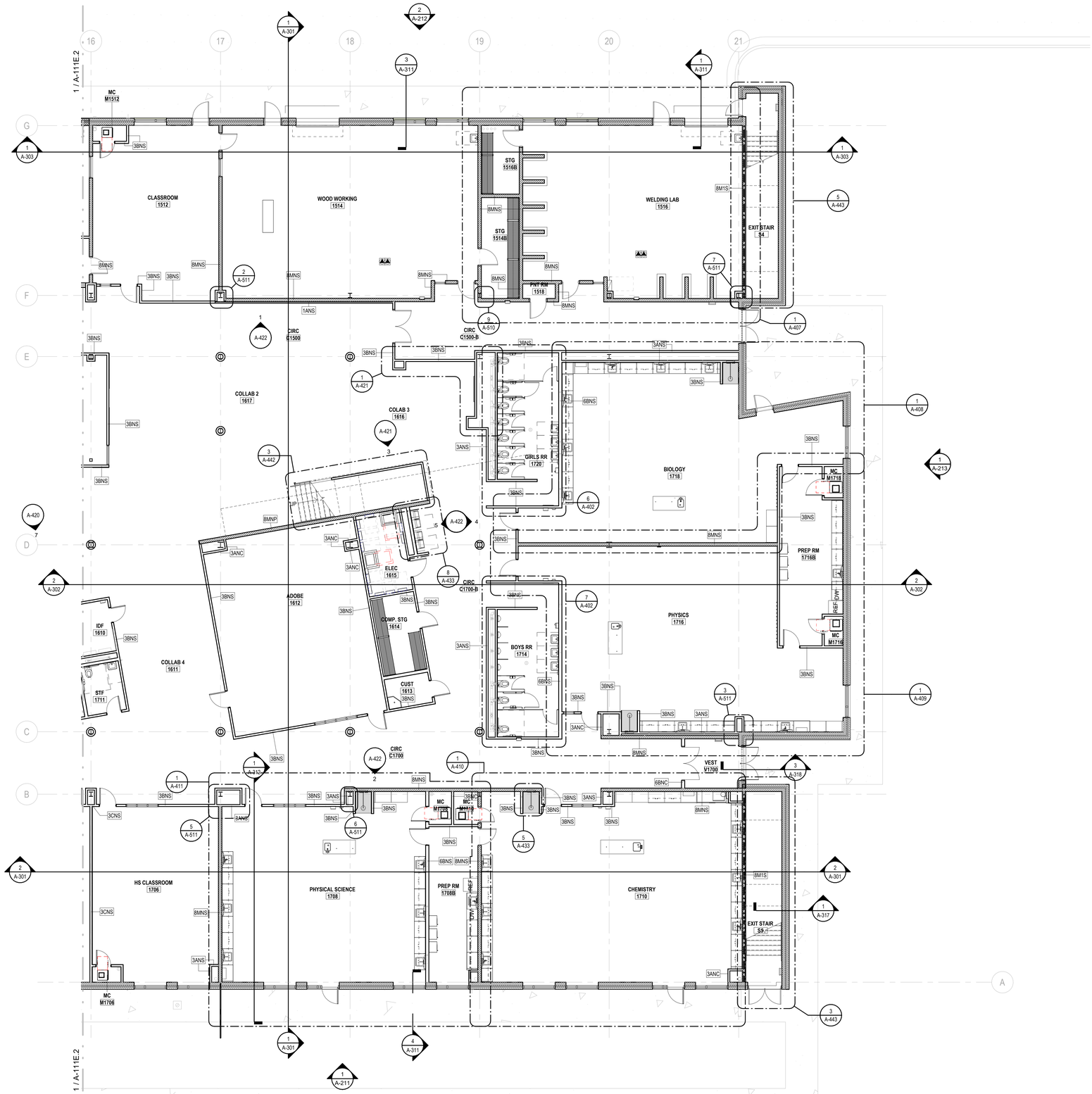

1 FIRST FLOOR PARTIAL PLAN - AREA F

A-111F.2 SCALE: 1/8" = 1'-0"

FLOOR PLAN LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL
CJ	CONTROL JOINT
	FLOOR DRAIN - SEE PLUMBING DRAWINGS
SF1	STOREFRONT (CURTAIN WALL) TAG - SEE PLANS AND ENLARGED ELEVATIONS
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
Room name 101A	ROOM TAG

GENERAL NOTES:

1. SEE SHEET A-010 FOR PARTITION TYPES AND DETAILS.
2. CONTRACTOR RESPONSIBLE FOR PROCUREMENT AND INSTALLATION OF LOCKERS
3. ALL INTERIOR WALLS SHALL HAVE SOUND ATTENUATION BATTS - U.N.O.

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CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
ISSUE DATE:		06/12/24
PROJECT #:		2205
DRAWN BY:		MK
CHECKED BY:		MK

C D B A E F

N

FIRST FLOOR PARTIAL PLAN - AREA F

A-111F.2

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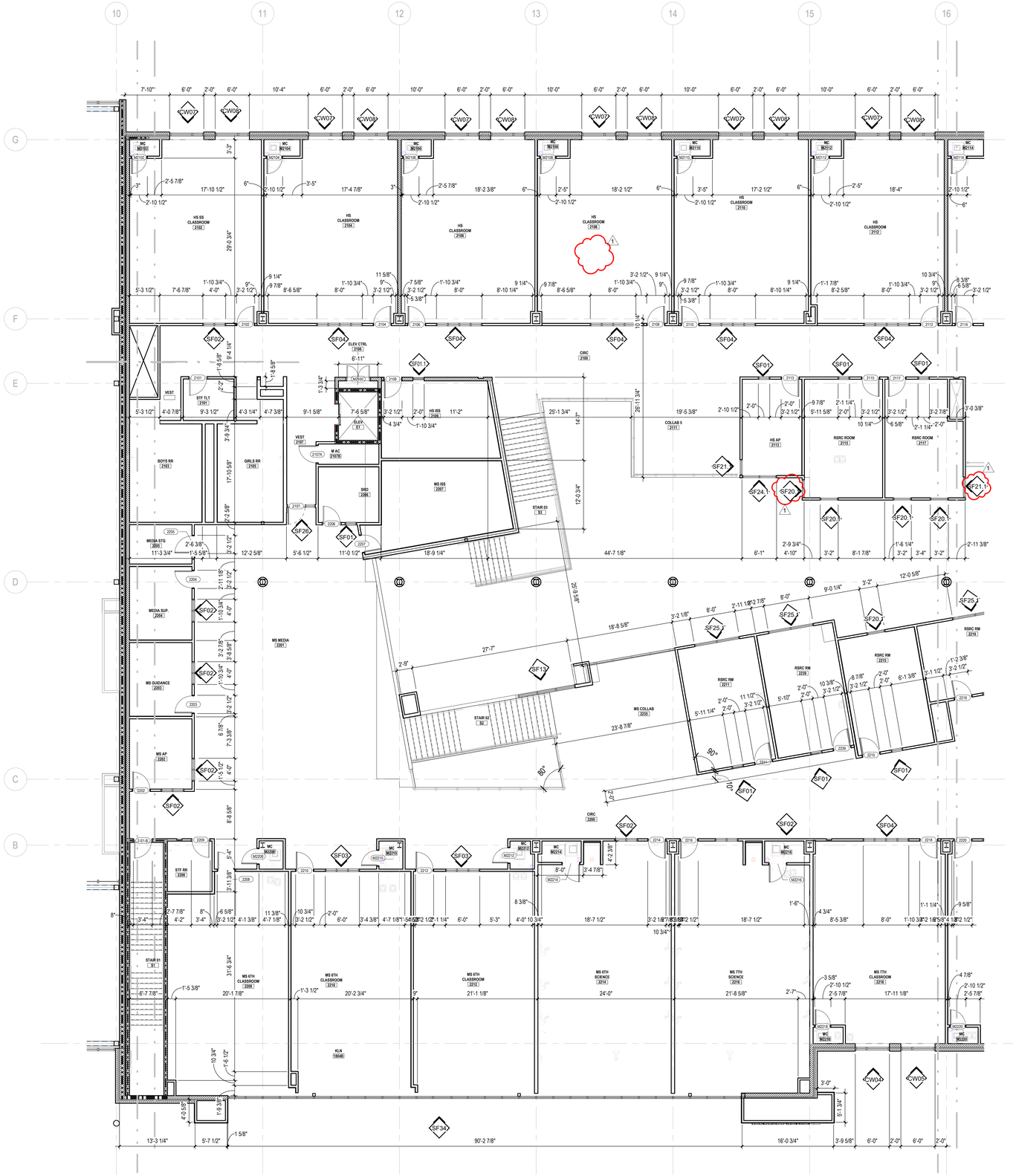

1 **SECOND FLOOR PARTIAL DIM PLAN - AREA E**
A-112E.1 SCALE: 1/8" = 1'-0"

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ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: MK
CHECKED BY: MK

SECOND FLOOR PARTIAL PLAN - AREA E - DIM. PLAN

A-112E.1

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1 SECOND FLOOR PARTIAL DIM PLAN - AREA F

A-112F.1

SCALE: 1/8" = 1'-0"

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No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: MK
CHECKED BY: MK

SECOND FLOOR PARTIAL PLAN - AREA F - DIM. PLAN

A-112F.1

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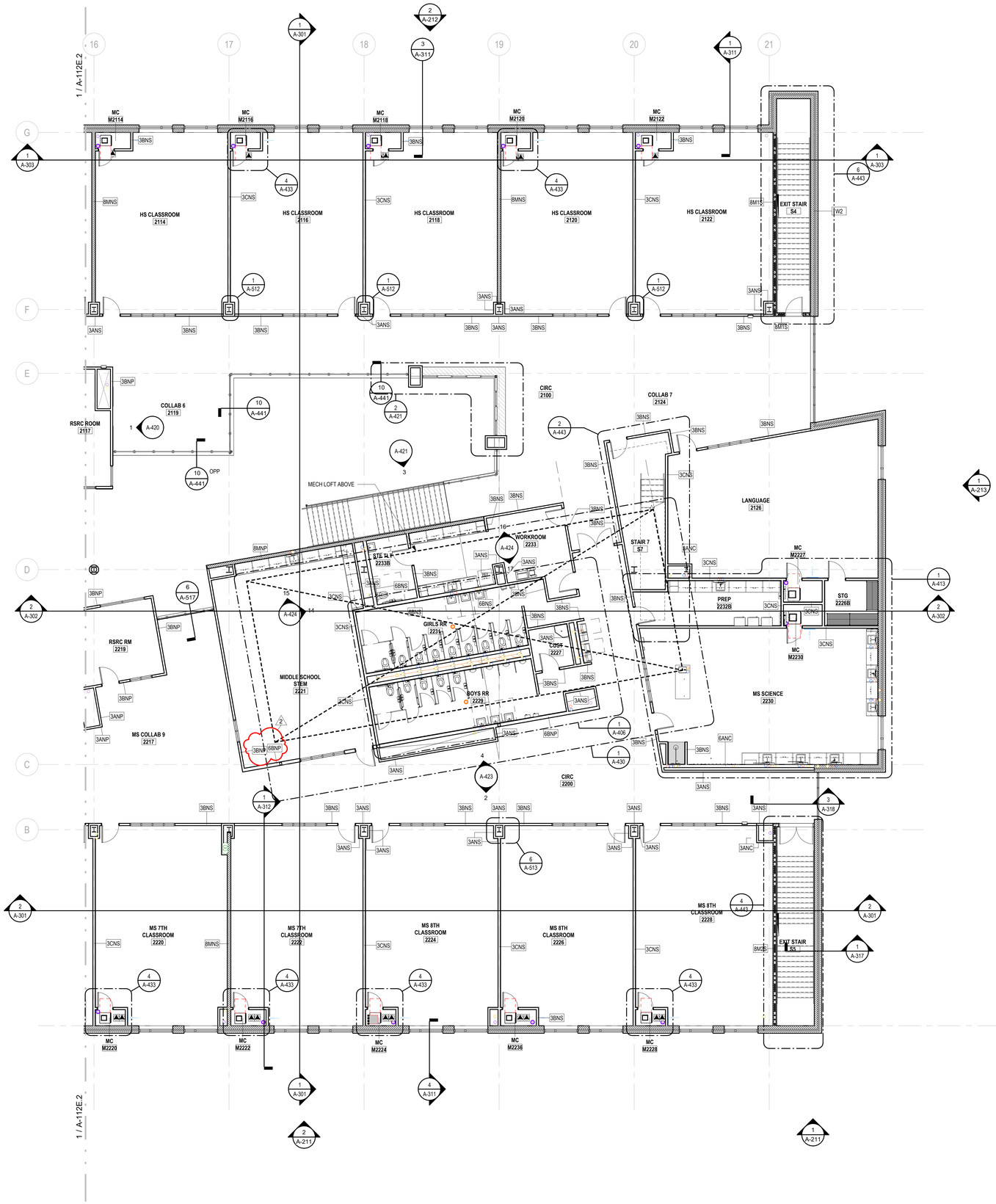

1 A-112F.2 SECOND FLOOR PARTIAL PLAN - AREA F

SCALE: 1/8" = 1'-0"

FLOOR PLAN LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL
CJ	CONTROL JOINT
	FLOOR DRAIN - SEE PLUMBING DRAWINGS
SF1	STOREFRONT (CURTAIN WALL) TAG - SEE PLANS AND ENLARGED ELEVATIONS
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
Room name 101A	ROOM TAG

GENERAL NOTES:

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PROFESSIONAL ENGINEER SEAL 040111 DAVID T. LINDSTROM 6.12.24 REGISTERED

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ENERGY STAR PARTNER

No.	Date	Description
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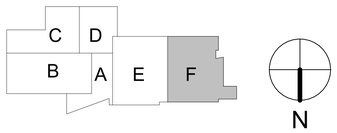
ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: MK
CHECKED BY: MK

SECOND FLOOR PARTIAL PLAN - AREA F

A-112F.2



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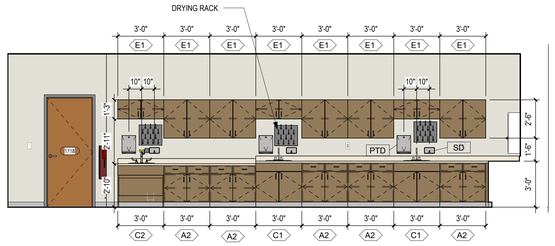
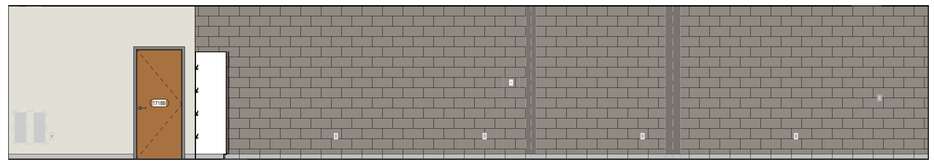


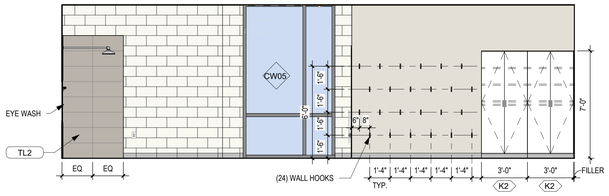
5 A-408 **BIOLOGY 1718 -WEST**

SCALE: 1/4" = 1'-0"



4 A-408 **BIOLOGY 1718 - SOUTH**

SCALE: 1/4" = 1'-0"



3 A-408 **BIOLOGY 1718 - EAST**

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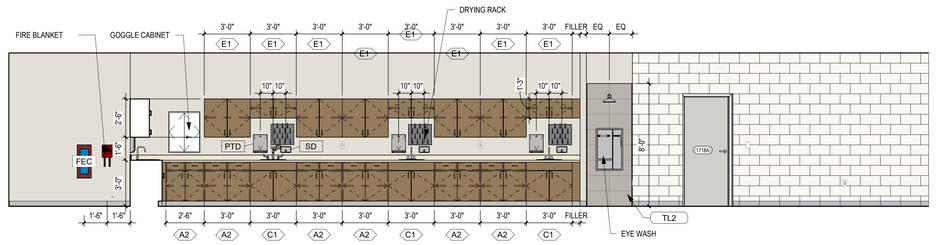
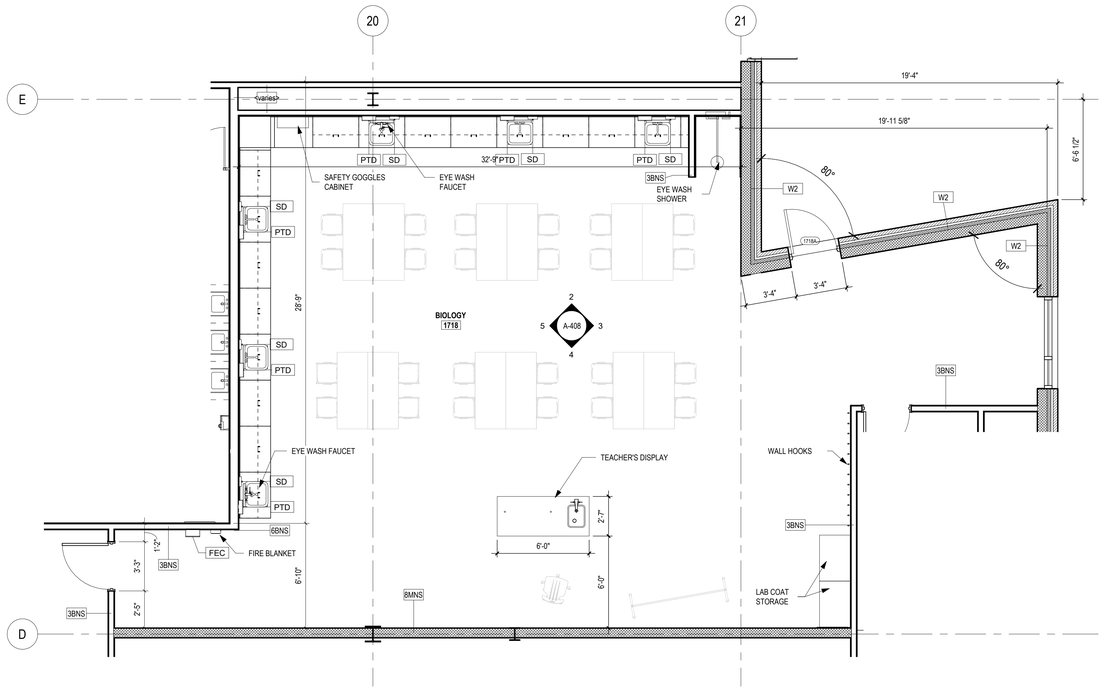


2 A-408 **BIOLOGY 1718 - NORTH**

SCALE: 1/4" = 1'-0"



1 A-408 **ENLARGED FLOOR PLAN - BIOLOGY 1727**

SCALE: 1/4" = 1'-0"

ENLARGED SCIENCE LAB PLANS & ELEVATIONS LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	1/2 HR RATED TENANT OR CORRIDOR SEPARATION (FIRE PARTITION)
	1/2 HOUR RATED/SMOKE PARTITION (INCIDENTAL USE SEPARATION)
	2 HOUR RATED WALL
	3 HOUR RATED WALL
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
Room Name 101A 0000 SF	ROOM TAG

GENERAL NOTES:

1. ALL SCIENCE EQUIPMENT TO BE CONTRACTOR FURNISHED, CONTRACTOR INSTALLED UNLESS NOTED OTHERWISE
2. WOOD CASEWORK UPPER AND LOWER CABINETS AND PHENOLIC RESINOUS COUNTERTOPS TO BE PROVIDED IN CHEMISTRY LAB 1710, PREP RM 1708B, PREP RM 2232B AND MS SCIENCE 2230 ONLY. ALL OTHER SCIENCE LABS TO BE PLASTIC LAMINATE MILLWORK.

ENLARGED SCIENCE LAB PLANS & ELEVATIONS SCHEDULE

WALL HOOKS

FIRE EXTINGUISHER CABINET

FIRE BLANKET CABINET - BOD: NYSTROM BC-6601

EYE WASH

FUME HOOD

FLAMMABLES STORAGE CABINET

ACID CORROSIVE STORAGE CABINET

REFRIGERATOR

DISHWASHER (REF. INTERIOR SIGNAGE DETAILS FOR REQ'D SIGNAGE)

GOGGLE CABINET (CFCI)

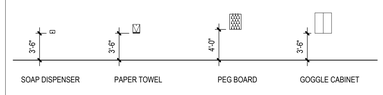
DRYING RACK (CFCI)

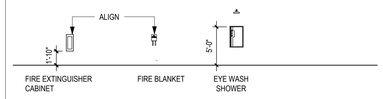
TEACHER'S DISPLAY (CFCI) PLUMBING, ELECTRIC, AND ACCESSORIES (CFCI)

LAB COAT STORAGE

BASE CORROSIVE STORAGE CABINET

SCIENCE LAB EQUIPMENT MOUNTING HEIGHT LEGEND





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PROJECT #: 2205

DRAWN BY: Author

CHECKED BY: Checker

ENLARGED PLANS & ELEVATIONS - SCIENCE LAB

A-408

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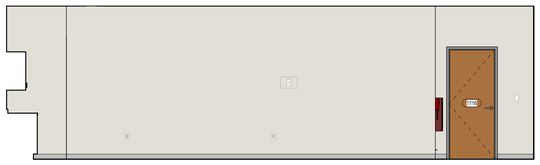
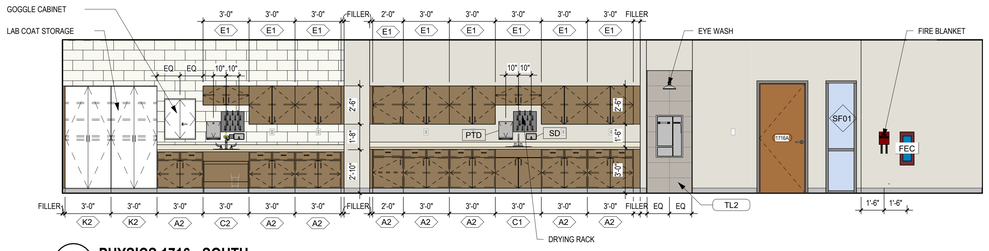


9 A-409 **PHYSICS 1716 - WEST**
SCALE: 1/4" = 1'-0"



8 A-409 **PHYSICS 1716 - SOUTH**
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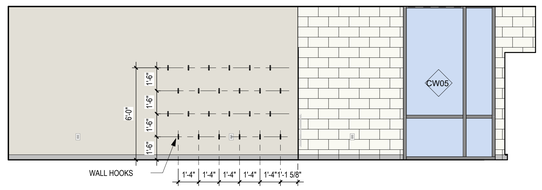

7 A-409 **PHYSICS 1716 - EAST**
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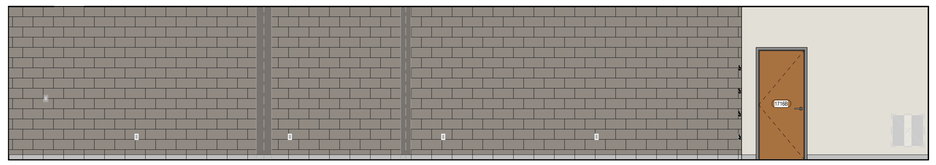
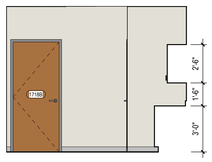
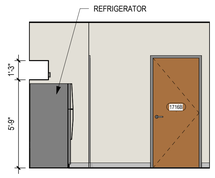


6 A-409 **PHYSICS 1716 - NORTH**
SCALE: 1/4" = 1'-0"



5 A-409 **PREP RM 1716B - NORTH**
SCALE: 1/4" = 1'-0"



4 A-409 **PREP RM 1716B - SOUTH**
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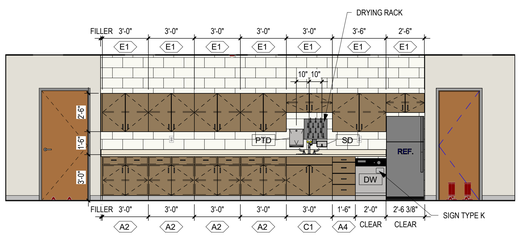

3 A-409 **PREP RM 1716B - EAST**
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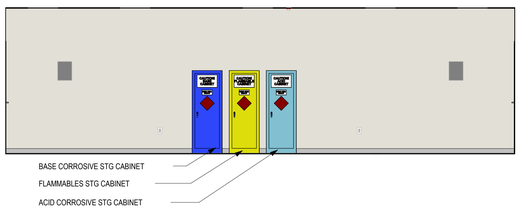

2 A-409 **PREP RM 1716 - WEST**
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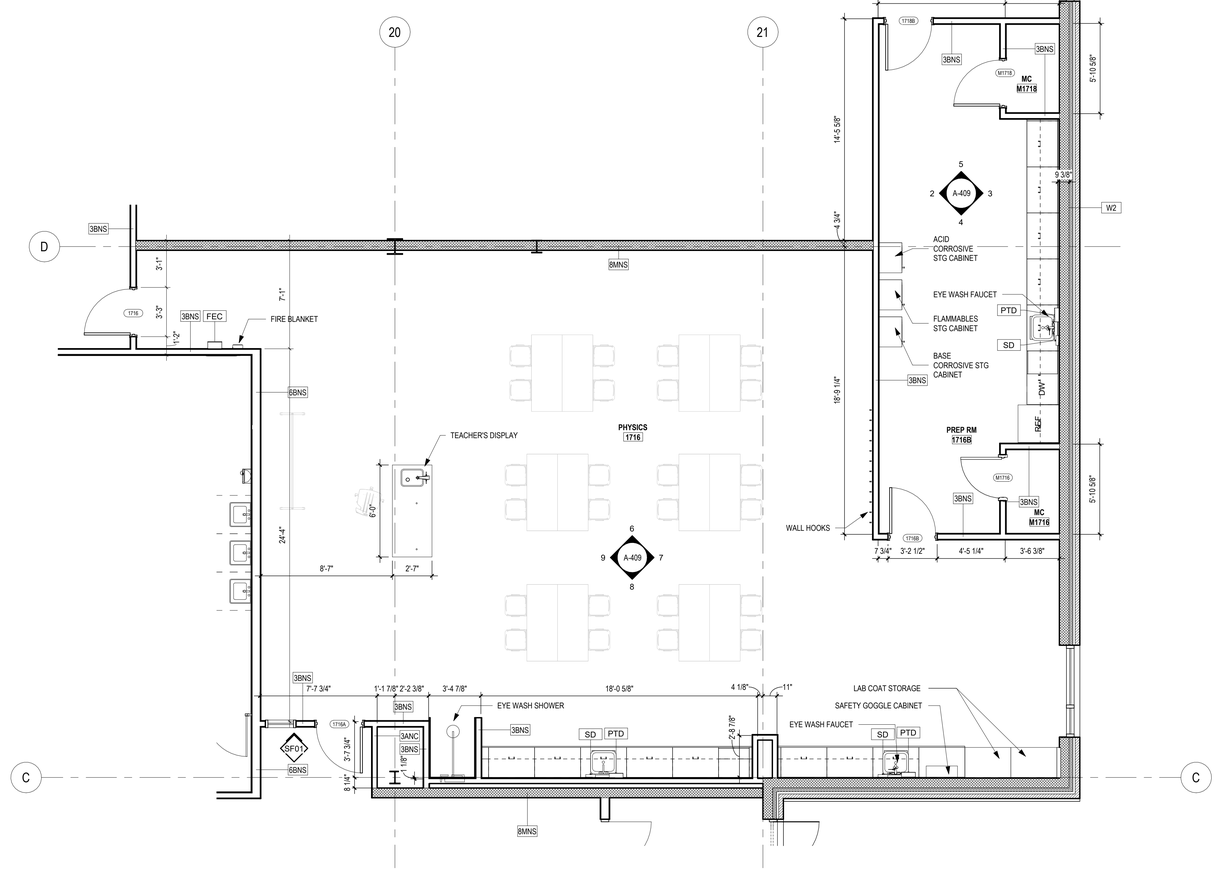

1 A-409 **ENLARGED FLOOR PLAN - PHYSICS 1716**
SCALE: 1/4" = 1'-0"

ENLARGED SCIENCE LAB PLANS & ELEVATIONS LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	1/2 HR RATED TENANT OR CORRIDOR SEPARATION (FIRE PARTITION)
	1/2 HOUR RATED/SMOKE PARTITION (INCIDENTAL USE SEPARATION)
	2 HOUR RATED WALL
	3 HOUR RATED WALL
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
Room Name 101A 0000 SF	ROOM TAG

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ENLARGED SCIENCE LAB PLANS & ELEVATIONS SCHEDULE

WALL HOOKS

FIRE EXTINGUISHER CABINET

FIRE BLANKET CABINET - BOD: NYSTROM BC-6601

EYE WASH

FUME HOOD

FLAMMABLES STORAGE CABINET

ACID CORROSIVE STORAGE CABINET

REFRIGERATOR

DISHWASHER (REF. INTERIOR SIGNAGE DETAILS FOR REQ'D SIGNAGE)

GOGGLE CABINET (CFCI)

DRYING RACK (CFCI)

TEACHER'S DISPLAY (CFCI) PLUMBING, ELECTRIC, AND ACCESSORIES (CFCI)

LAB COAT STORAGE

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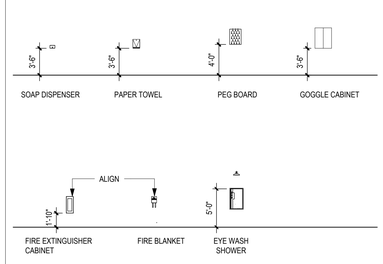
SCIENCE LAB EQUIPMENT MOUNTING HEIGHT LEGEND



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601 Main Street, Bayboro, NC, 28515

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No.	Date	Description
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es		
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ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: MK
CHECKED BY: MK

ENLARGED PLANS & ELEVATIONS - SCIENCE LAB

A-409

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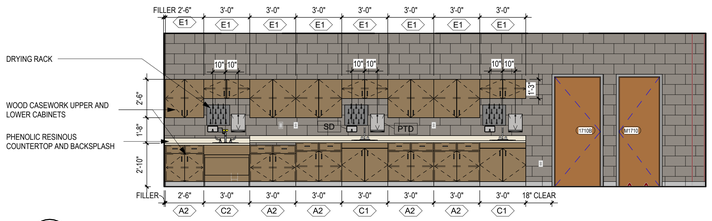
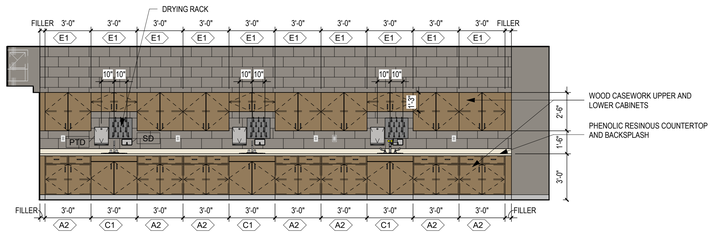


5 A-410 **CHEMISTRY 1710 - WEST**

SCALE: 1/4" = 1'-0"



3 A-410 **CHEMISTRY 1710 - EAST**

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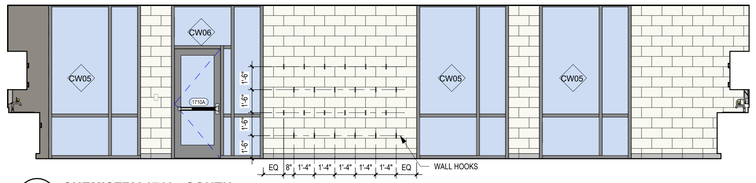
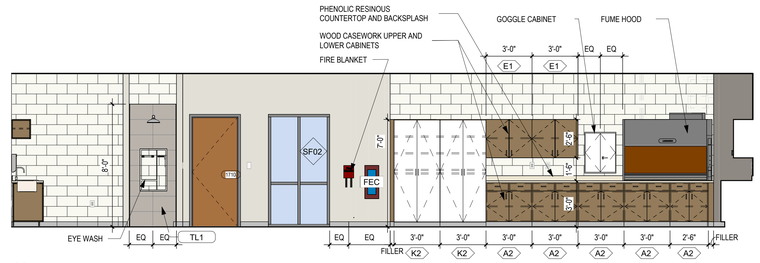


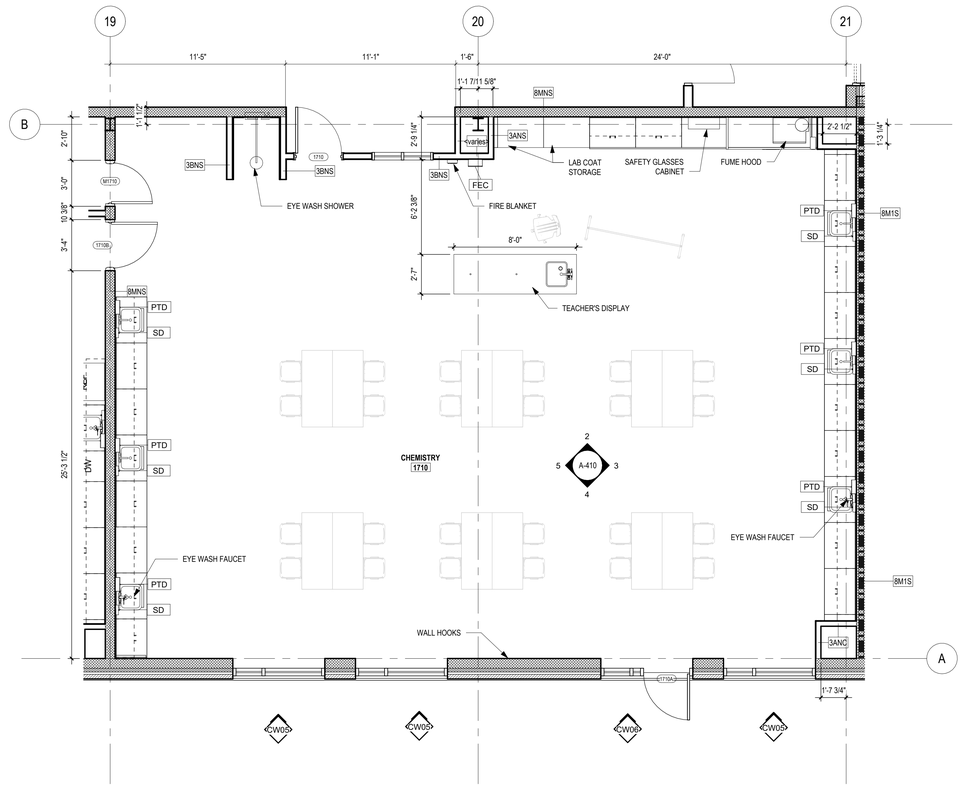
4 A-410 **CHEMISTRY 1710 - SOUTH**

SCALE: 1/4" = 1'-0"



2 A-410 **CHEMISTRY 1710 - NORTH**

SCALE: 1/4" = 1'-0"



1 A-410 **ENLARGED FLOOR PLAN - CHEMISTRY 1718**

SCALE: 1/4" = 1'-0"

ENLARGED SCIENCE LAB PLANS & ELEVATIONS LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	1/2 HR RATED TENANT OR CORRIDOR SEPARATION (FIRE PARTITION)
	1/2 HOUR RATED/SMOKE PARTITION (INCIDENTAL USE SEPARATION)
	2 HOUR RATED WALL
	3 HOUR RATED WALL
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
Room Name 101A 0000 SF	ROOM TAG

GENERAL NOTES:

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ENLARGED SCIENCE LAB PLANS & ELEVATIONS SCHEDULE

WALL HOOKS

FIRE EXTINGUISHER CABINET

FIRE BLANKET CABINET - BOD: NYSTROM BC-6601

EYE WASH

FUME HOOD

FLAMMABLES STORAGE CABINET

ACID CORROSIVE STORAGE CABINET

REFRIGERATOR

DISHWASHER (REF. INTERIOR SIGNAGE DETAILS FOR BOOD SIGNAGE)

GOGGLE CABINET (CFCI)

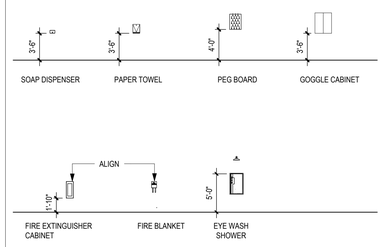
DRYING RACK (CFCI)

TEACHER'S DISPLAY (CFCI) PLUMBING, ELECTRIC, AND ACCESSORIES (CFCI)

LAB COAT STORAGE

BASE CORROSIVE STORAGE CABINET

SCIENCE LAB EQUIPMENT MOUNTING HEIGHT LEGEND



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PAMLICO 6-12 SCHOOL

601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
<varies>	<varies>	

ISSUE DATE: 06/12/24

PROJECT #: 2205

DRAWN BY: MK

CHECKED BY: MK

ENLARGED PLANS & ELEVATIONS - SCIENCE LAB

A-410

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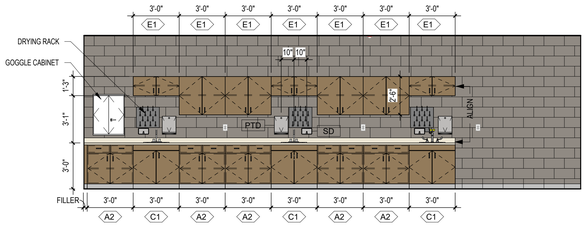
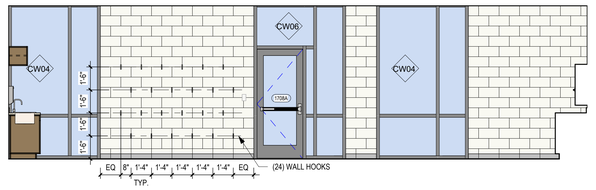
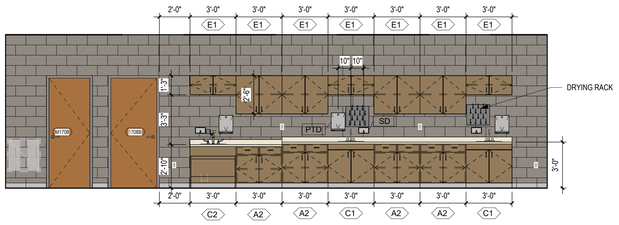


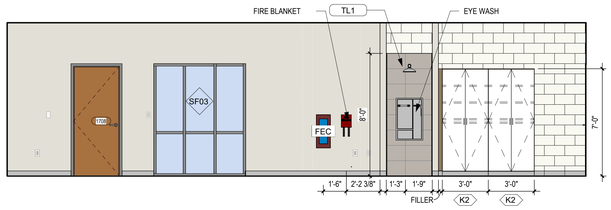
8 A-411 **PHYSICAL SCIENCE 1708 - WEST**
SCALE: 1/4" = 1'-0"



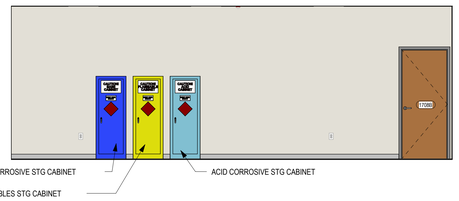
7 A-411 **PHYSICAL SCIENCE 1708 - SOUTH**
SCALE: 1/4" = 1'-0"



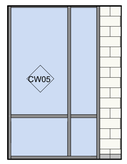
6 A-411 **PHYSICAL SCIENCE 1708 - EAST**
SCALE: 1/4" = 1'-0"



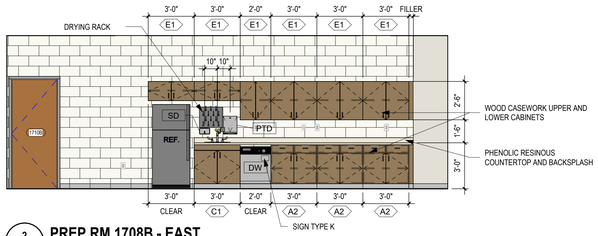
5 A-411 **PHYSICAL SCIENCE 1708 - NORTH**
SCALE: 1/4" = 1'-0"



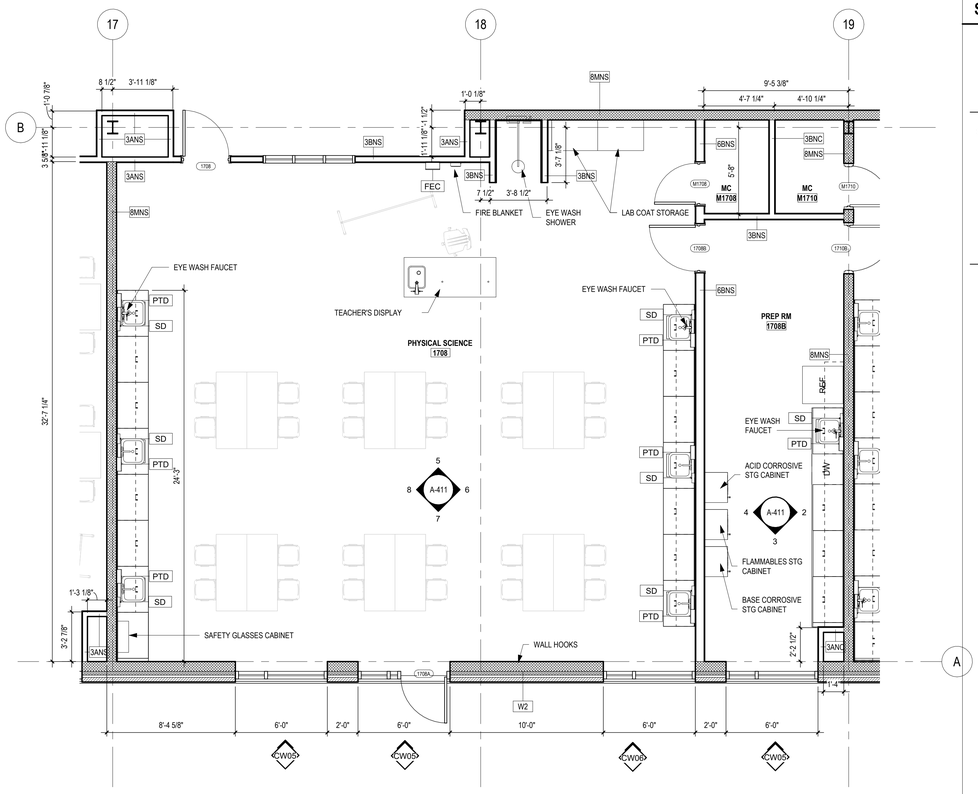
4 A-411 **PREP RM 1708B -WEST**
SCALE: 1/4" = 1'-0"



3 A-411 **PREP RM 1708B - SOUTH**
SCALE: 1/4" = 1'-0"



2 A-411 **PREP RM 1708B - EAST**
SCALE: 1/4" = 1'-0"



1 A-411 **ENLARGED FLOOR PLAN - PHYSICAL SCIENCE**
SCALE: 1/4" = 1'-0"

ENLARGED SCIENCE LAB PLANS & ELEVATIONS LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	1/2 HR RATED TENANT OR CORRIDOR SEPARATION (FIRE PARTITION)
	1/2 HOUR RATED/SMOKE PARTITION (INCIDENTAL USE SEPARATION)
	2 HOUR RATED WALL
	3 HOUR RATED WALL
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
Room Name 101A 0000 SF	ROOM TAG

GENERAL NOTES:

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ENLARGED SCIENCE LAB PLANS & ELEVATIONS SCHEDULE

WALL HOOKS

FIRE EXTINGUISHER CABINET

FIRE BLANKET CABINET - BOD: NYSTROM BC-6601

EYE WASH

FUME HOOD

FLAMMABLES STORAGE CABINET

ACID CORROSIVE STORAGE CABINET

REFRIGERATOR

DISHWASHER (REF. INTERIOR SIGNAGE DETAILS FOR BOOD SIGNAGE)

GOGGLE CABINET (CFCI)

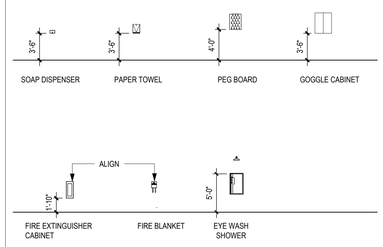
DRYING RACK (CFCI)

TEACHER'S DISPLAY (CFCI) PLUMBING, ELECTRIC, AND ACCESSORIES (CFCI)

LAB COAT STORAGE

BASE CORROSIVE STORAGE CABINET

SCIENCE LAB EQUIPMENT MOUNTING HEIGHT LEGEND



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ENLARGED PLANS & ELEVATIONS - SCIENCE LAB

A-411

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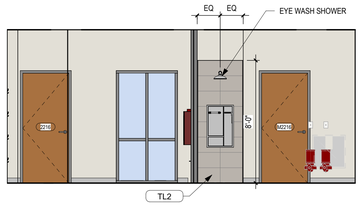

9 A-412 **MS 7TH SCIENCE 2210 - NORTH**
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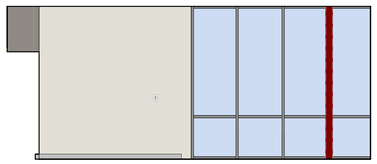

7 A-412 **MS 7TH SCIENCE 2210 - SOUTH**
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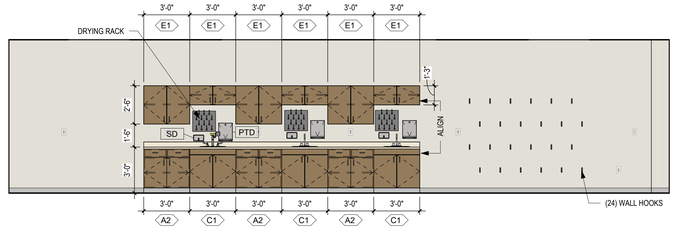

8 A-412 **MS 7TH SCIENCE 2210 - WEST**
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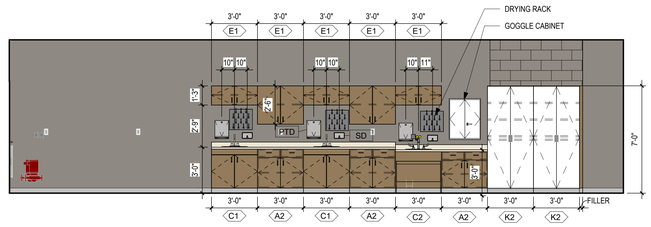
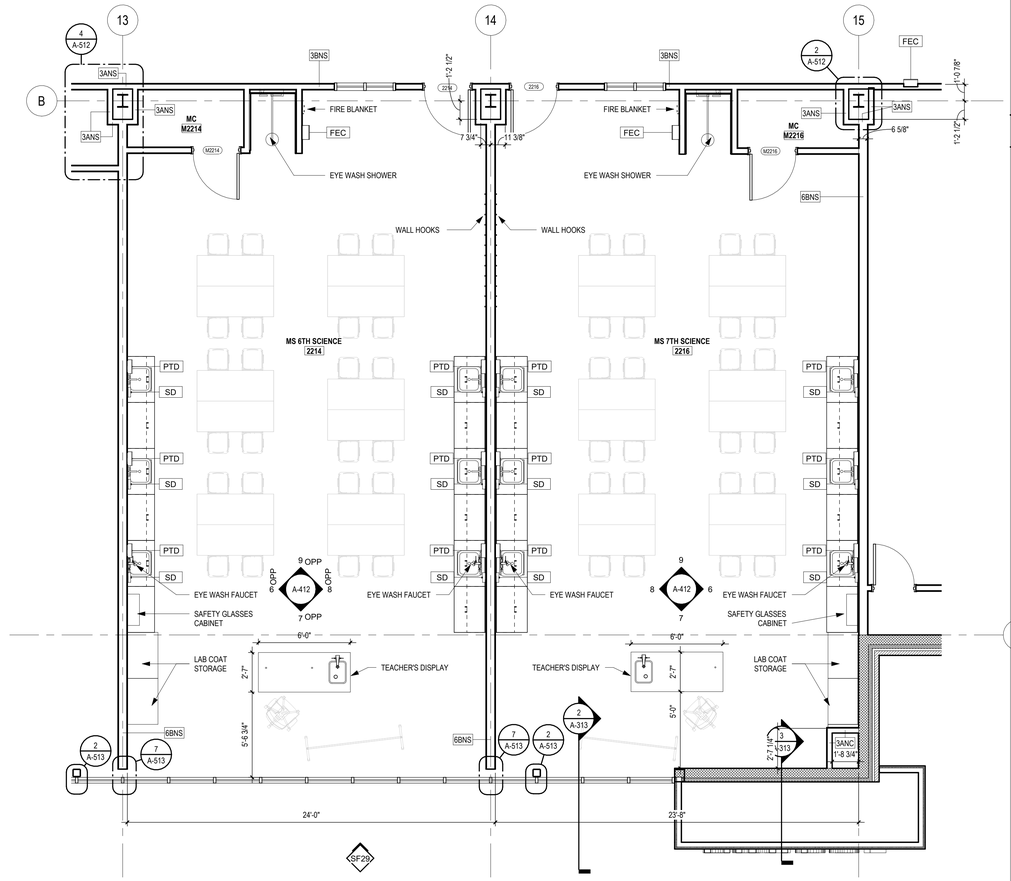


6 A-412 **MS 7TH SCIENCE 2210 - EAST**
SCALE: 1/4" = 1'-0"



1 A-412 **ENLARGED FLOOR PLAN - MS SCIENCE 06 & 07**
SCALE: 1/4" = 1'-0"

ENLARGED SCIENCE LAB PLANS & ELEVATIONS LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	1/2 HR RATED TENANT OR CORRIDOR SEPARATION (FIRE PARTITION)
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	2 HOUR RATED WALL
	3 HOUR RATED WALL
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
Room Name 101A 0000 SF	ROOM TAG

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ENLARGED SCIENCE LAB PLANS & ELEVATIONS SCHEDULE

WALL HOOKS

FIRE EXTINGUISHER CABINET

FIRE BLANKET CABINET - BOD: NYSTROM BC-6601

EYE WASH

FUME HOOD

FLAMMABLES STORAGE CABINET

ACID CORROSIVE STORAGE CABINET

REFRIGERATOR

DISHWASHER (REF. INTERIOR SIGNAGE DETAILS FOR REQ'D SIGNAGE)

GOGGLE CABINET (CFCI)

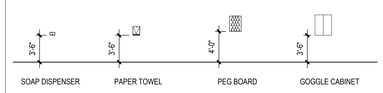
DRYING RACK (CFCI)

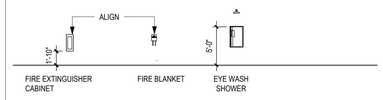
TEACHER'S DISPLAY (CFCI) PLUMBING, ELECTRIC, AND ACCESSORIES (CFCI)

LAB COAT STORAGE

BASE CORROSIVE STORAGE CABINET

SCIENCE LAB EQUIPMENT MOUNTING HEIGHT LEGEND





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ENLARGED PLANS & ELEVATIONS - SCIENCE LAB

A-412

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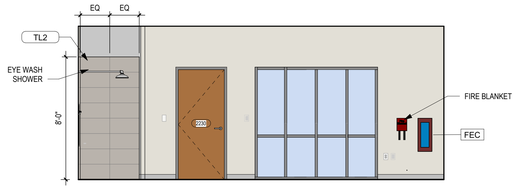

8 A-413 **MS SCIENCE 2230 -WEST**
SCALE: 1/4" = 1'-0"



7 A-413 **MS SCIENCE 2230 - NORTH**
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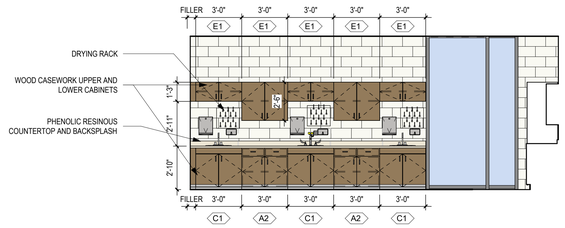

6 A-413 **MS SCIENCE 2230 - EAST**
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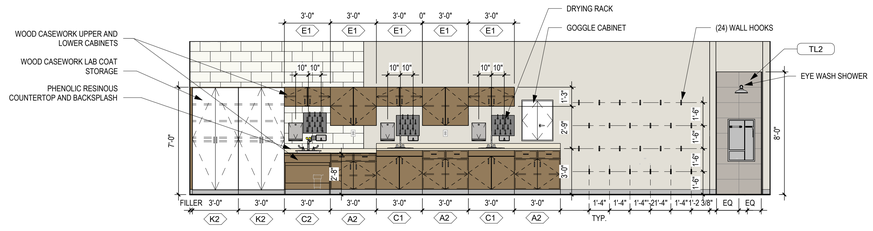

5 A-413 **MS SCIENCE 2230 - SOUTH**
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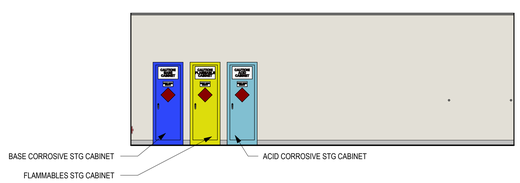

4 A-413 **PREP 2232B - SOUTH**
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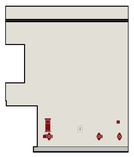

3 A-413 **PREP 2232B - EAST**
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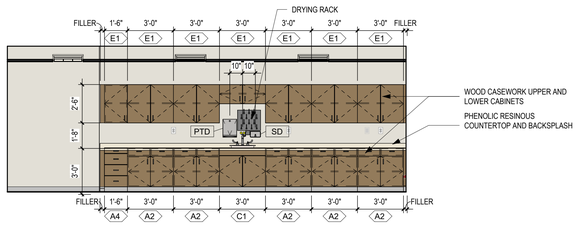
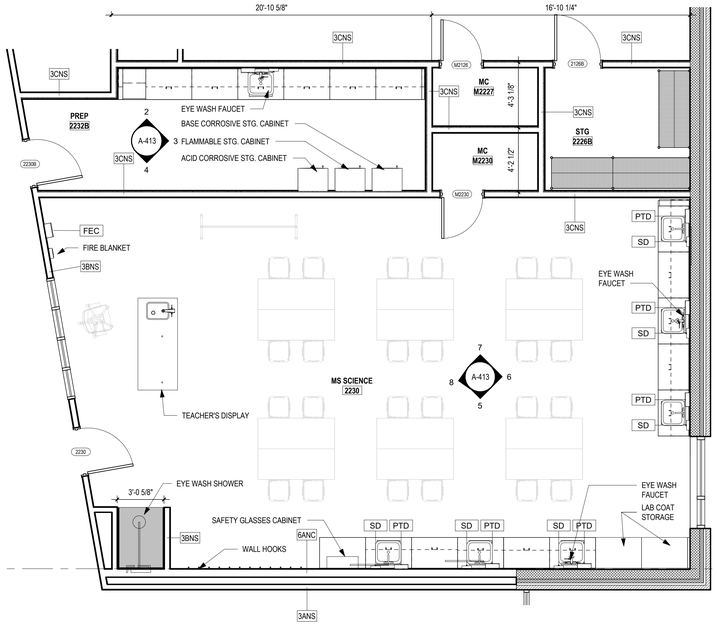


2 A-413 **PREP 2232B - NORTH**
SCALE: 1/4" = 1'-0"



1 A-413 **ENLARGED FLOOR PLAN - MS SCIENCE 2225**
SCALE: 1/4" = 1'-0"

ENLARGED SCIENCE LAB PLANS & ELEVATIONS LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	1/2 HR RATED TENANT OR CORRIDOR SEPARATION (FIRE PARTITION)
	1/2 HOUR RATED/SMOKE PARTITION (INCIDENTAL USE SEPARATION)
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	3 HOUR RATED WALL
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
Room Name 101A 0000 SF	ROOM TAG

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ENLARGED SCIENCE LAB PLANS & ELEVATIONS SCHEDULE

WALL HOOKS

FIRE EXTINGUISHER CABINET

FIRE BLANKET CABINET - BOD: NYSTROM BC-6601

EYE WASH

FUME HOOD

FLAMMABLES STORAGE CABINET

ACID CORROSIVE STORAGE CABINET

REFRIGERATOR

DISHWASHER (REF. INTERIOR SIGNAGE DETAILS FOR RECD SIGNAGE)

GOGGLE CABINET (CFCI)

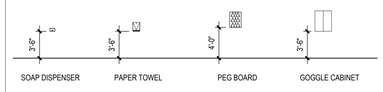
DRYING RACK (CFCI)

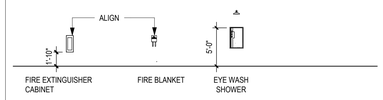
TEACHER'S DISPLAY (CFCI) PLUMBING, ELECTRIC, AND ACCESSORIES (CFCI)

LAB COAT STORAGE

BASE CORROSIVE STORAGE CABINET

SCIENCE LAB EQUIPMENT MOUNTING HEIGHT LEGEND





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ISSUE DATE: 06/12/24
PROJECT #: 2205
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CHECKED BY: MK

ENLARGED PLANS & ELEVATIONS - SCIENCE LAB

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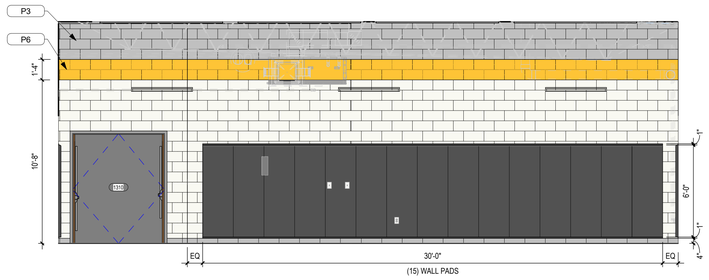
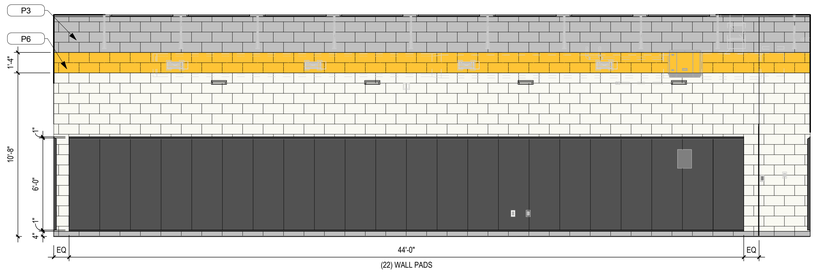
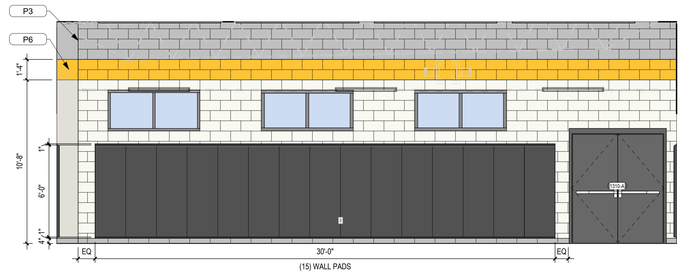


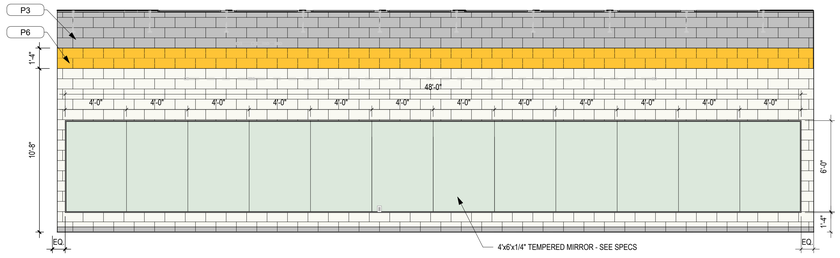
18 A-415 **WRESTLING ROOM 1310 - SOUTH**
SCALE: 1/4" = 1'-0"



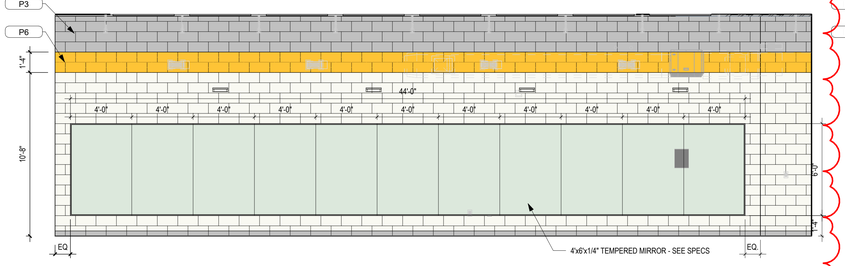
17 A-415 **WRESTLING ROOM 1310 - EAST**
SCALE: 1/4" = 1'-0"



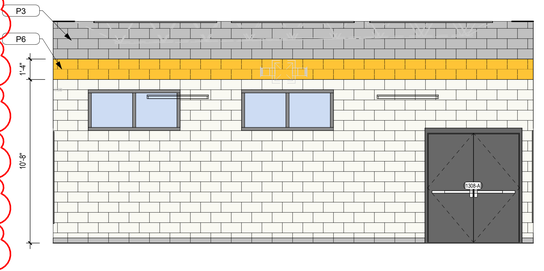
16 A-415 **WRESTLING ROOM 1310 - NORTH**
SCALE: 1/4" = 1'-0"



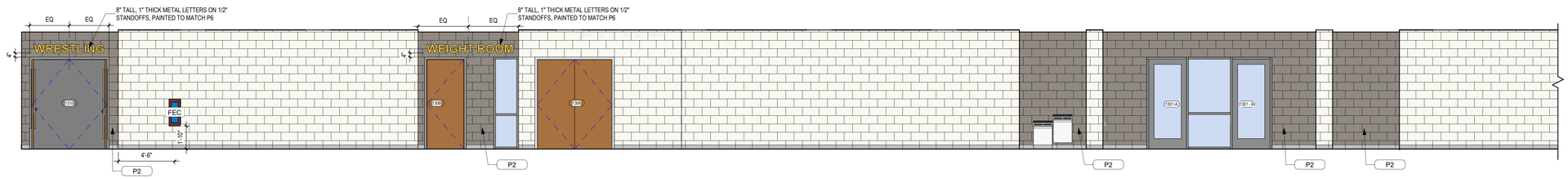
15 A-415 **WEIGHT ROOM 1308 - WEST**
SCALE: 1/4" = 1'-0"



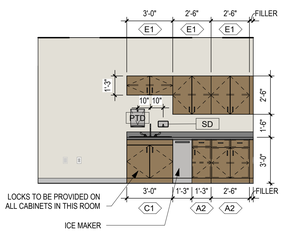
14 A-415 **WEIGHT ROOM 1308 - EAST**
SCALE: 1/4" = 1'-0"



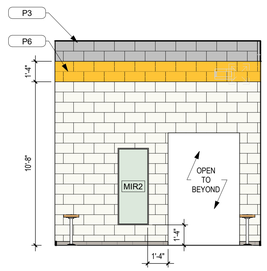
13 A-415 **WEIGHT ROOM 1308 - NORTH**
SCALE: 1/4" = 1'-0"



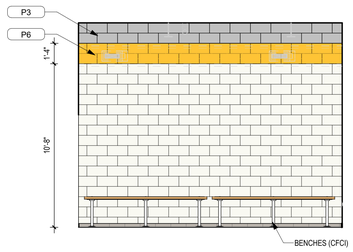
12 A-415 **CIRC C1300 - NORTH**
SCALE: 1/4" = 1'-0"



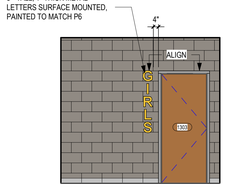
11 A-415 **TRAINER 1309 - WEST**
SCALE: 1/4" = 1'-0"



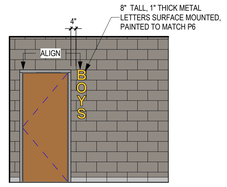
10 A-415 **TYP. MS LOCKER ROOM - WEST**
SCALE: 1/4" = 1'-0"



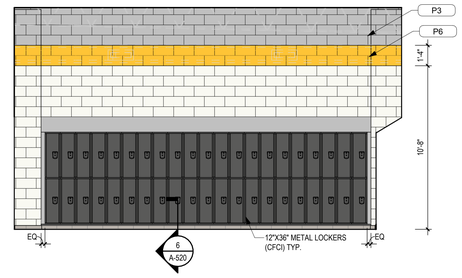
9 A-415 **TYP. MS LOCKER ROOM - NORTH**
SCALE: 1/4" = 1'-0"



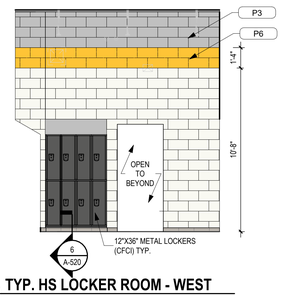
8 A-415 **MS GIRLS LOCKER ROOM ENTRY**
SCALE: 1/4" = 1'-0"



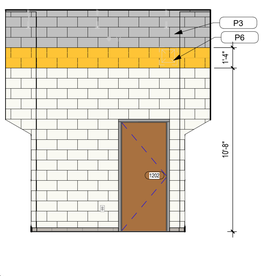
7 A-415 **MS BOYS LOCKER ROOM ENTRY**
SCALE: 1/4" = 1'-0"



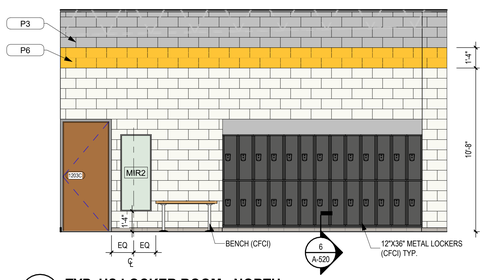
6 A-415 **TYP. HS LOCKER ROOM - SOUTH**
SCALE: 1/4" = 1'-0"



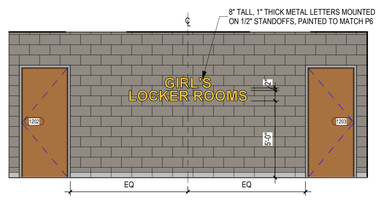
5 A-415 **TYP. HS LOCKER ROOM - WEST**
SCALE: 1/4" = 1'-0"



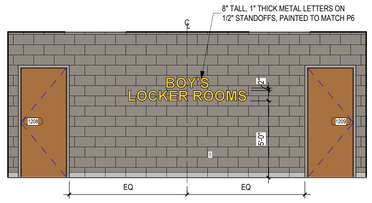
4 A-415 **TYP. HS LOCKER ROOM - EAST**
SCALE: 1/4" = 1'-0"



3 A-415 **TYP. HS LOCKER ROOM - NORTH**
SCALE: 1/4" = 1'-0"



2 A-415 **HS GIRL'S LOCKER ROOM ENTRY**
SCALE: 1/4" = 1'-0"



1 A-415 **HS BOY'S LOCKER ROOM ENTRY**
SCALE: 1/4" = 1'-0"

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Raleigh, NC 27601
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CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: Author
CHECKED BY: Checker

INTERIOR ELEVATIONS - ATHLETICS

A-415

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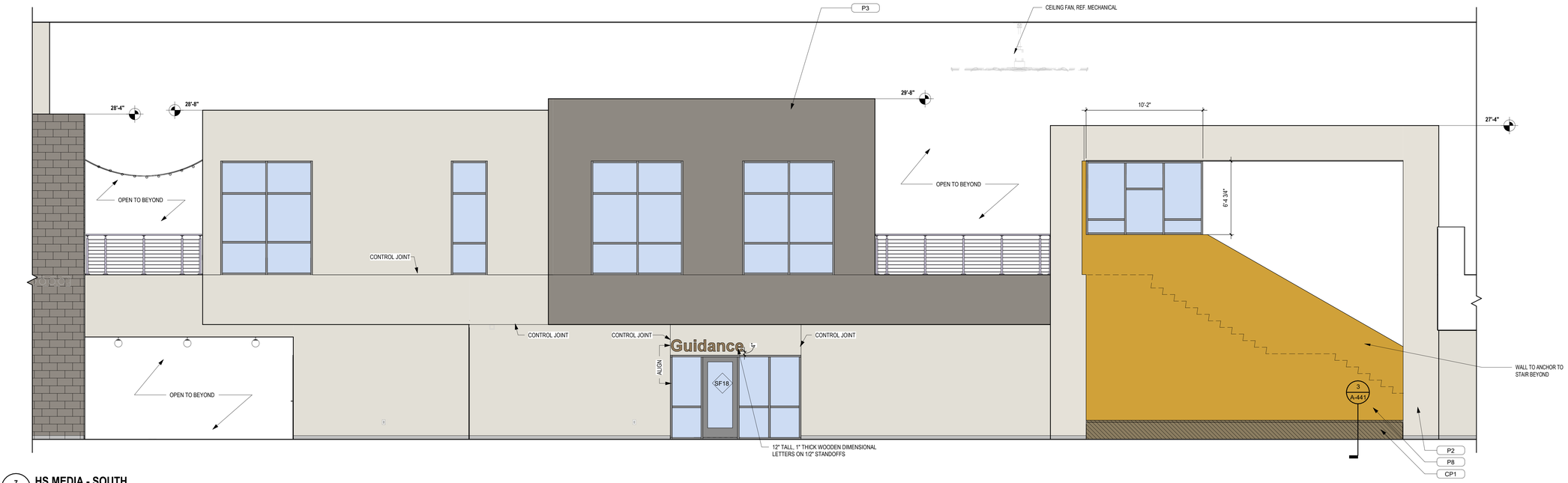
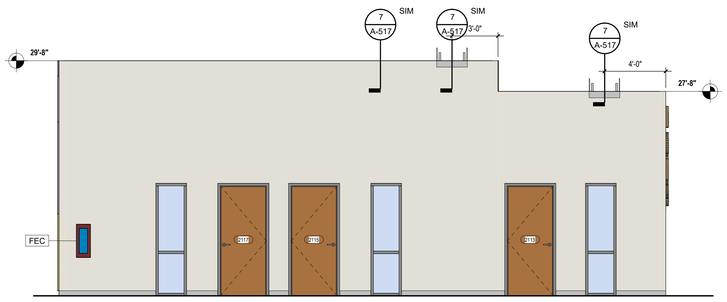
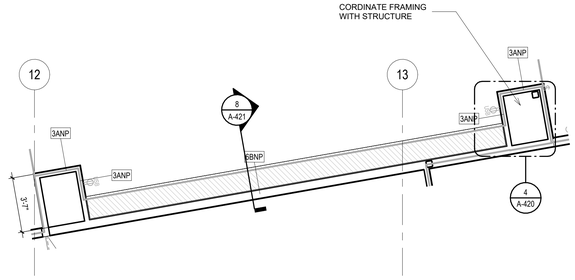
7/25/2024 2:41:43 PM Autodesk Docs://Pamlico High School 6-12/2205 - Pamlico HS - ARCH.rvt



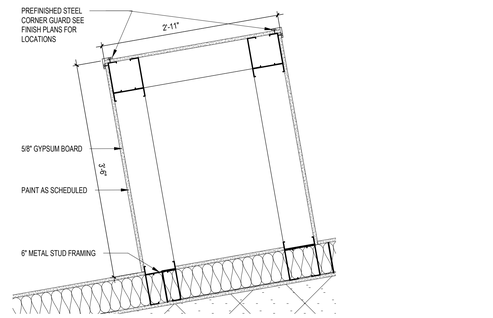
7 A-420 **HS MEDIA - SOUTH**
SCALE: 1/4" = 1'-0"



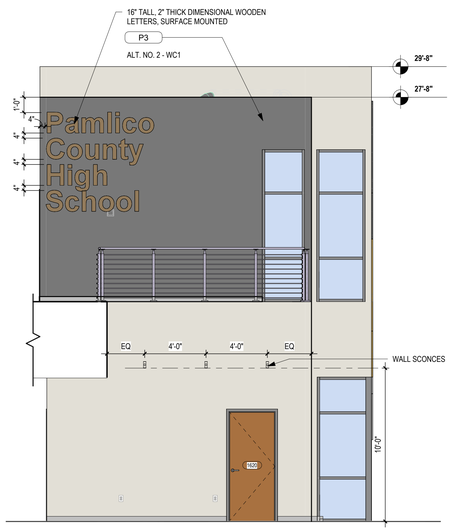
6 A-420 **HIGH SCHOOL RESOURCE - SOUTH**
SCALE: 1/4" = 1'-0"



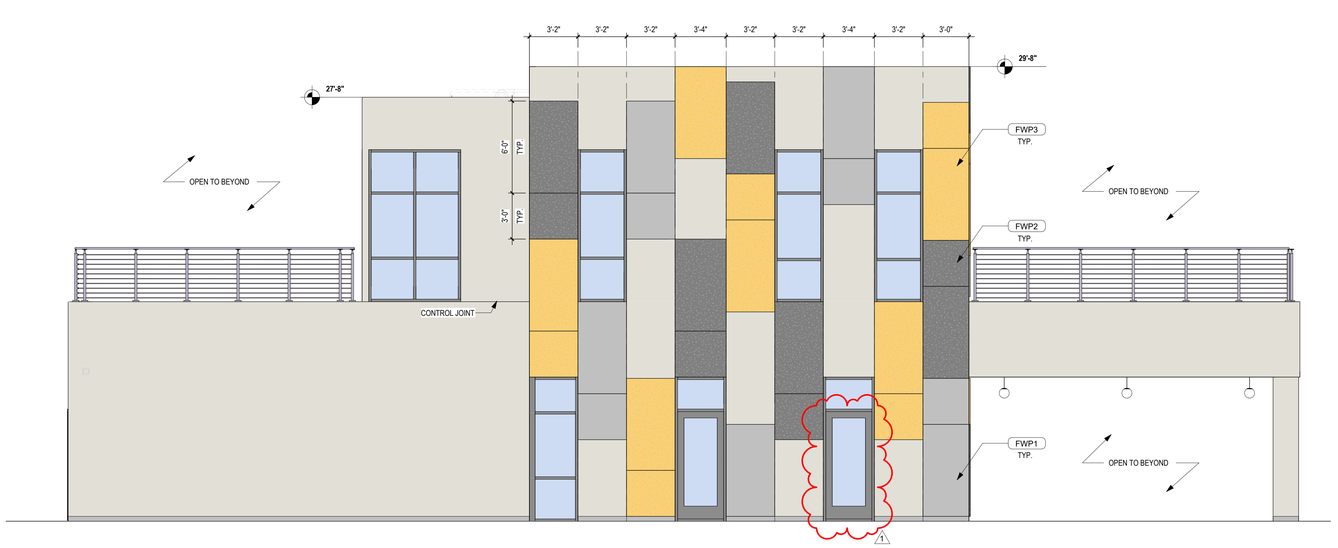
5 A-420 **ENLARGED FLOOR PLAN - MEDIA FRAMED SEAT**
SCALE: 1/4" = 1'-0"



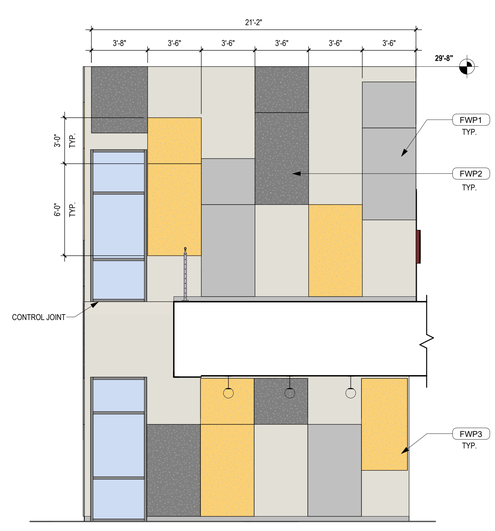
4 A-420 **ENRG PLAN DETAIL - FRAME**
SCALE: 1" = 1'-0"



3 A-420 **HS MEDIA - WEST**
SCALE: 1/4" = 1'-0"



2 A-420 **HS MEDIA - NORTH**
SCALE: 1/4" = 1'-0"



1 A-420 **HS MEDIA - EAST**
SCALE: 1/4" = 1'-0"

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CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: MK
CHECKED BY: MK

INTERIOR ELEVATIONS - LEARNING COMMONS

A-420

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DOOR & FRAME SCHEDULE

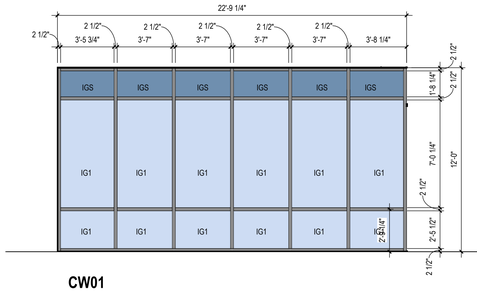
NO.	DOOR WIDTH	DOOR HEIGHT	DOOR THK	DOOR MAT	DOOR TYPE	DOOR GLAZING	FRAME SYSTEM	FRAME TYPE	FRAME MAT	HW Set	FIRE RATING	KEYED NOTES
1-S1-A	3'-0"	7'-2"	1 3/4"	FRP	F		TF	1	ALUM	11.0	--	CLSR,PHW
1-S4-A	3'-0"	7'-2"	1 3/4"	FRP	F		TF	1	ALUM	11.0	--	CLSR,PHW
1-S5-A	6'-0"	7'-2"	1 3/4"	FRP	F(2)		TF	3	ALUM	12.0	--	CLSR,PHW
2-S1-B	3'-0"	7'-2"	1 3/4"	WD	F		HM	1	HM	29.0	45	CLSR,PHW, ALARM
2-S4-B	3'-0"	7'-2"	1 3/4"	WD	F		HM	1	HM	29.0	45	CLSR,PHW, ALARM
2-S5-B	6'-0"	7'-0"	1 3/4"	WD	F(2)		HM	2	HM	29.1	45	CLSR,PHW, ALARM
2-S7-A	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	38.1		CLSR
1100	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG1	CW	CW02	ALUM	1.0		CR, PHW,CLSR
1100A	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG1	CW	CW02	ALUM	4.0		CLSR,PHW
1100B	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG1	CW	CW02	ALUM	4.0		CLSR,PHW
1100C	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG1	CW	CW02	ALUM	4.0		CLSR,PHW
1100D	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG1	CW	CW02	ALUM	4.0		CLSR,PHW
1100E	3'-0"	7'-2"	1 3/4"	ALUM	FG	LG	CW	CW10	ALUM	1.0		CR, PHW,CLSR
1100F	3'-0"	7'-2"	1 3/4"	ALUM	FG	LG	CW	CW10	ALUM	20.0		CLSR,PHW
1100G	3'-0"	7'-2"	1 3/4"	ALUM	FG	LG	CW	CW10	ALUM	20.0		CLSR,PHW
1100H	3'-0"	7'-2"	1 3/4"	ALUM	FG	LG	CW	CW10	ALUM	20.0		CLSR,PHW
1100I	3'-0"	7'-2"	1 3/4"	ALUM	FG	LG	CW	CW10	ALUM	20.0		CLSR,PHW
1102A	3'-0"	7'-2"	1 3/4"	ALUM	FG		IF	SF05	ALUM	15.0		CR, PHW,CLSR
1102B	3'-0"	7'-2"	1 3/4"	ALUM	FG	LG	IF	SF07	ALUM	15.0		CR,CLSR
1102C	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	37.0		CR,CLSR
1103	3'-0"	7'-2"	1 3/4"	ALUM	FG	SG	IF	SF26	ALUM	37.0		CLSR
1104	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	50.0		
1105	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
1106	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	47.0		
1106-B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	56.0		
1106-C	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	54.0		CLSR
1107	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	54.0		CLSR
1108	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	51.0		
1109	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	54.0		CLSR
1110	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	46.0		
1111	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	56.0		
1111B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.1		
1112	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	37.1		CR,CLSR
1114	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	47.0		
1120	4'-0"	7'-10"	1 3/4"	HM	F		HM	1	HM	57.0	90	EDHO, CLSR
1120A	3'-0"	7'-2"	1 3/4"	WD	N		IF	1	ALUM	39.1		
1120B	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.3		
1120C	8'-0"	4'-8"	1 3/4"	STEEL	RR		-	-	STEEL	61.0	90	
1121	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	52.0		CLSR
1121B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	45.0		
1122	4'-0"	7'-10"	1 3/4"	HM	F		HM	1	HM	57.0	90	EDHO, CLSR
1200A	6'-0"	7'-2"	1 3/4"	ALUM	FG(2)	SG	TF	SF08	ALUM	17.0		CLSR,PHW
1200B	6'-0"	7'-2"	1 3/4"	ALUM	FG(2)	SG	TF	SF08	ALUM	17.0		CLSR,PHW
1200C	6'-0"	7'-2"	1 3/4"	WD	N(2)	SG	TF	2	ALUM	33.1		CLSR,PHW
1200D	6'-0"	7'-2"	1 3/4"	WD	N(2)	SG	TF	2	ALUM	33.1		CLSR,PHW
1202	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	59.0		CLSR
1203	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	59.0		CLSR
1203C	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	59.0		CLSR
1204	6'-0"	7'-2"	1 3/4"	WD	F(2)		TF	2	ALUM	44.0	--	
1205	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	46.0		
1205-B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	54.0		CLSR
1206	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	40.0		CLSR
1207	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	46.0		
1207-B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	54.0		CLSR
1208	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	59.0		CLSR
1208B	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	59.0		CLSR
1209	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	59.0		CLSR
1301 - B	3'-0"	7'-2"	1 3/4"	ALUM	FG	SG	TF	SF11	ALUM	16.0		
1301-A	3'-0"	7'-2"	1 3/4"	ALUM	FG	SG	TF	SF11	ALUM	16.0		CLSR,PHW
1301-C	6'-0"	7'-2 1/4"	1 3/4"	ALUM	FG(2)	IG2	TF	SF32	ALUM	5.0		CLSR,PHW
1301-D	6'-0"	7'-2 1/4"	1 3/4"	ALUM	FG(2)	IG2	TF	SF32	ALUM	5.0		CLSR,PHW
1302	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	59.0		CLSR
1303	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	59.0		CLSR
1304	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	47.0		
1305	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	39.0		
1306	6'-0"	7'-2"	1 3/4"	WD	F(2)		TF	2	ALUM	43.0	--	
1306-A	6'-0"	7'-2"	1 3/4"	FRP	F(2)		TF	2	ALUM	7.1		CLSR,CR
1307	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	46.0		
1308	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	48.0		
1308-A	6'-0"	7'-2"	1 3/4"	FRP	F(2)		TF	3	ALUM	9.0		CLSR,PHW
1309	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	47.0		
1310	6'-0"	7'-2"	1 3/4"	WD	N(2)	SG	TF	2	ALUM	49.0	--	
1310-A	6'-0"	7'-2"	1 3/4"	FRP	F(2)		TF	3	ALUM	9.0		CLSR,PHW
1311	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	52.0		CLSR
1313	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	37.0		CR,CLSR
1314	6'-0"	7'-2"	1 3/4"	FRP	F(2)		TF	2	ALUM	7.1		CLSR,CR
1401	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG2	CW	CW09	ALUM	1.1		CR, PHW,CLSR
1401A	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG2	CW	CW09	ALUM	4.1		CLSR,PHW
1401B	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG2	CW	CW09	ALUM	4.1		CLSR,PHW
1401C	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG2	CW	CW09	ALUM	4.1		CLSR,PHW
1401D	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG2	CW	CW09	ALUM	4.1		CLSR,PHW
1402	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	60.0		
1402-A	4'-0"	7'-2"	1 3/4"	FRP	N	IG1	TF	1	ALUM	6.1		CR,CLSR
1403	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	46.0		
1404	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	58.0		
1405	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	54.0		CLSR
1406	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	39.3		
1410	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	39.2		
1411A	6'-0"	7'-2"	1 3/4"	FRP	F(2)		TF	3	ALUM	10.0	--	CLSR,PHW
1411B	3'-6"	7'-2"	1 3/4"	FRP	F		TF	1	ALUM	13.1	--	CLSR,PHW
1500B	6'-0"	7'-2"	1 3/4"	WD	F(2)		IF	2	ALUM	33.2		CLSR,PHW, STC 43
1502	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
1502A	3'-0"	7'-2"	1 3/4"	GLASS	FG	IG2	TFTB	1	ALUM	6.0		CR, PHW,CLSR
1503	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	37.0		CR,CLSR
1503B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	37.0		CR,CLSR
1504	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
1504A	3'-0"	7'-2"	1 3/4"	GLASS	FG	IG2	TFTB	1	ALUM	6.0		CR, PHW,CLSR
1505	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
1506	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
1506A	3'-0"	7'-2"	1 3/4"	GLASS	FG	IG2	TFTB	1	ALUM	6.0		CR, PHW,CLSR
1508	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1508A	6'-0"	7'-0"	1 3/4"	WD	FG(2)	IG2	TFTB	3	ALUM	2.1		CR, PHW,CLSR
1508B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.1		
1510	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	48.3		CLSR,PHW, STC 43
1510A	3'-0"	7'-2"	1 3/4"	GLASS	FG	IG2	TFTB	1	ALUM	6.0		CR, PHW,CLSR
1510B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.3		
1510C	8'-0"	10'-0"	1 3/4"	STEEL	OHD		-	-	STEEL	61.0		
1510D	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	42.0		CLSR,PHW
1511	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	45.0		CLSR
1512	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
1512A	3'-0"	7'-2"	1 3/4"	GLASS	FG	IG2	TFTB	1	ALUM	6.1		CR,CLSR,
1512B	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	51.0		
1512C	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	51.0		
1513	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		CLSR
1514	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	48.2		CLSR,PHW
1514A	3'-0"	7'-2"	1 3/4"	GLASS	FG	IG2	TFTB	1	ALUM	6.0		CR, PHW,CLSR
1514B	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	40.0		CLSR
1514C	8'-0"	10'-0"	1 3/4"	STEEL	OHD		-	-	STEEL	61.0		
1515	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	37.0		CR,CLSR
1516	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	48.2		CLSR,PHW
1516A	3'-0"	7'-2"	1 3/4"	GLASS	FG	IG2	TFTB	1	ALUM	6.0		CR, PHW,CLSR
1516B	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	40.0		CLSR
1516C	8'-0"	10'-0"	1 3/4"	STEEL	OHD		-	-	STEEL	61.0		
1518	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	39.0		

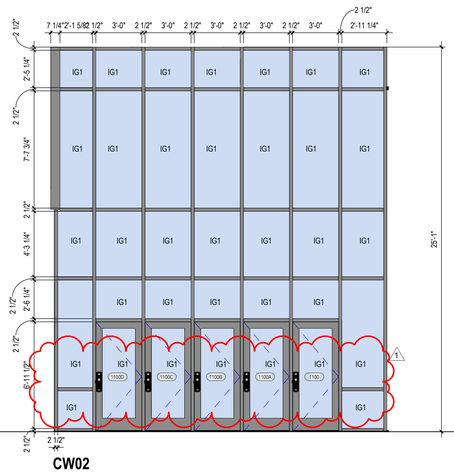
DOOR & FRAME SCHEDULE

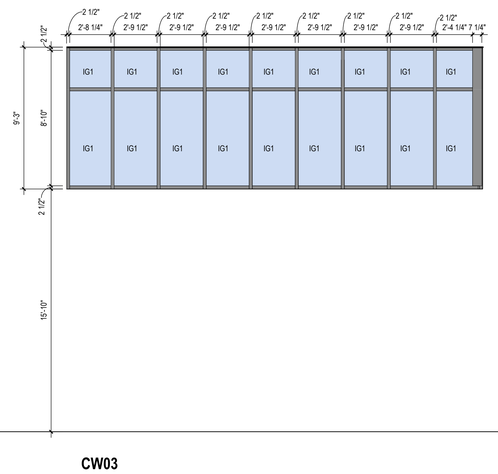
NO.	DOOR WIDTH	DOOR HEIGHT	DOOR THK	DOOR MAT	DOOR TYPE	DOOR GLAZING	FRAME SYSTEM	FRAME TYPE	FRAME MAT	HW Set	FIRE RATING	KEYED NOTES
1601	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
1602	3'-0"	7'-2"	1 3/4"	ALUM	FG		IF	SF16	ALUM	18.0		CLSR
1602B	3'-0"	7'-2"	1 3/4"	GLASS	FG		IF	1	ALUM	46.0		
1604	3'-0"	7'-0"	1 3/4"	ALUM	FG		TF	SF18.1	ALUM	19.0		CLSR
1605	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	46.0		
1606	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	46.0		
1607	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	47.0		
1608	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	37.0		CR,CLSR
1610	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	37.1		CR,CLSR
1612	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1612A	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1613	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	40.0		CLSR
1614	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	38.0		CLSR
1615	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	38.0		CLSR
1618	3'-0"	7'-0"	1 3/4"	ALUM	FG		TF	SF19.1	ALUM	19.0		
1619	3'-0"	7'-0"	1 3/4"	ALUM	FG		TF	SF19.1	ALUM	19.0		
1620	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	46.0		
1620B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.1		
1704	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
1706	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
1708	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1708A	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG1	CW	CW06	ALUM	4.1		CLSR,PHW
1708B	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	38.0		CLSR
1709	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	45.0		CLSR
1710	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1710A	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG1	CW	CW06	ALUM	4.1		CLSR,PHW
1710B	3'-0"	7'-2"	1 3/4"	WD	F	IG2	TF	1	ALUM	38.0		CLSR
1711	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	45.0		CLSR
1716	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1716A	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1716B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	38.1		CLSR
1718	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1718A	3'-0"	7'-2"	1 3/4"	HM	F		TF	1	HM	8.0		CLSR,PHW
1718B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	38.1		CLSR
1802	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1802A	3'-0"	7'-2 1/4"	1 3/4"	ALUM	FG	IG1	TFTB	SF29	ALUM	4.0		CLSR,PHW
1802C	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	39.0		
1804	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1804A	3'-0"	7'-2 1/4"	1 3/4"	ALUM	FG	IG1	TFTB	SF29	ALUM	4.0		CLSR,PHW
1804B	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
1804C	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
1806	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.2		CLSR,PHW
1806A	3'-0"	7'-2 1/4"	1 3/4"	ALUM	FG	IG1	TFTB	SF29	ALUM	4.2		CLSR,PHW- ALARM
1806B	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	55.0		
1806C	5'-0"	7'-2"	1 3/4"	WD	F(2)		IF	2	ALUM	44.0		
1808	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
1808A	3'-0"	7'-2 1/4"	1 3/4"	ALUM	FG	IG1	TFTB	SF29	ALUM	4.2		CLSR,PHW- ALARM
1808B	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	55.0		
2101	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	45.0		CLSR
2102	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2104	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2106	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2107	3'-0"	7'-2"	1 3/4"	ALUM	FG	SG	IF	1	ALUM	24.0		CLSR,PHW
2107A	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	38.0		CLSR
2108	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2109	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	48.1		
2110	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2112	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2113	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	46.0		
2114	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2115	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2116	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2117	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2118	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2120	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2122	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2126	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
2126B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
2202	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	46.0		
2203	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	46.0		
2204	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	46.0		
2205	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
2206	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	46.0		
2207	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
2208	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
2209	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	45.0		CLSR
2210	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
2211	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
2212	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
2214	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2215	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
2216	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2218	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2219	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2220	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2221	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2222	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2224	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2226	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2227	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.3		
2228	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2230	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.1		
2230B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	38.0		CLSR
2233	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	37.0		CR,CLSR
2233B	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	54.0		CLSR
2233C	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	37.0		CR,CLSR
2239	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	48.0		
C1100	3'-0"	7'-2"	1 3/4"	ALUM	FG	IG1	TFTB	SF27	ALUM	4.0		PHW,CLSR
C1200	8'-0"	7'-2"	1 3/4"	WD	N(2)	IG1	TF	2	ALUM	7.0		CR, PHW,CLSR
C1200A	8'-0"	7'-2"	1 3/4"	WD	N(2)	SG	TF	3	ALUM	33.0		CLSR,PHW
C1300	8'-0"	7'-2"	1 3/4"	WD	N(2)	IG1	TF	3	ALUM	9.0		CLSR,PHW
C1300A	4'-0"	7'-2"	1 3/4"	WD	N	IG1	TF	1	ALUM	6.2		CR, PHW,CLSR
C1300B	6'-0"	7'-2"	1 3/4"	WD	N(2)	SG	HM	2	HM	27.2	--	CR, PHW,CLSR, EDHO
C1500	6'-0"	7'-0"	1 3/4"	ALUM	FG(2)	IG1	TF	3	ALUM	2.0		PHW,CLSR
C1500C	6'-0"	7'-2"	1 3/4"	WD	F(2)		HM	2	HM	27.1	90 min	CR, PHW,CLSR, EDHO
C1600	6'-0"	7'-2"	1 3/4"	WD	F(2)		HM	2	HM	27.1	90 min	PHW,CLSR, EDHO
C1600A	6'-0"	7'-2"	1 3/4"	WD	F(2)		HM	2	HM	27.0	90 min	CR, PHW,CLSR, EDHO
C1700	6'-0"	7'-0"	1 3/4"	ALUM	FG(2)	IG1	TF	3	ALUM	2.0		PHW,CLSR
C1700A	6'-0"	7'-2"	1 3/4"	ALUM	FG(2)	IG2	IF	3	ALUM	21.0		CLSR,PHW
C1800	6'-0"	7'-2"	1 3/4"	WD	F(2)		HM	2	HM	27.0	90 min	CR, PHW,CLSR, EDHO
C1800A	6'-0"	7'-2"	1 3/4"	ALUM	FG(2)	SG	IF	SF13	ALUM	33.1		CLSR,PHW
C2100	6'-0"	7'-2"	1 3/4"	ALUM	FG(2)	SG	IF	2	ALUM	33.1		CLSR,PHW
E1301	6'-0"	7'-2"	1 3/4"	FRP	F(2)		TF	3	ALUM	9.0		CLSR,PHW
E1301-B	3'-0"	7'-2"	1 3/4"	WD	F		HM	1	HM	32.0	45	CLSR,PHW
M1502	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M1504	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M1506	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M1512	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M1704	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M1706	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M1708	2'-8"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	39.0		
M1710	2'-8"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	39.0		

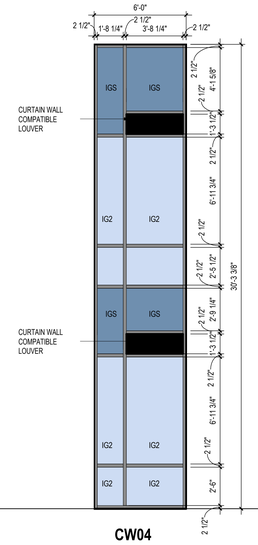
DOOR & FRAME SCHEDULE

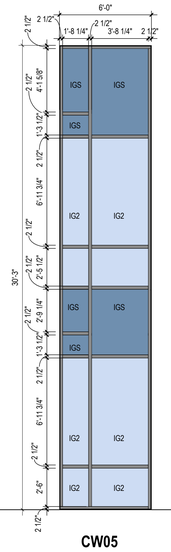
NO.	DOOR WIDTH	DOOR HEIGHT	DOOR THK	DOOR MAT	DOOR TYPE	DOOR GLAZING	FRAME SYSTEM	FRAME TYPE	FRAME MAT	HW Set	FIRE RATING	KEYED NOTES
M1716	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M1718	3'-0"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M1802	3'-0"	7'-2"	1 3/4"	WD	F		TF	1	ALUM	39.0		
M1804	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M1806	2'-8"	7'-2"	1 3/4"	WD	F		IF	1	ALUM	39.0		
M2100	4'-0"	7'-2"	1 3/4"	WD	F(2)		TF	2	ALUM	44.0		
M2102	2'-8"	7'-2"	1 3/4"

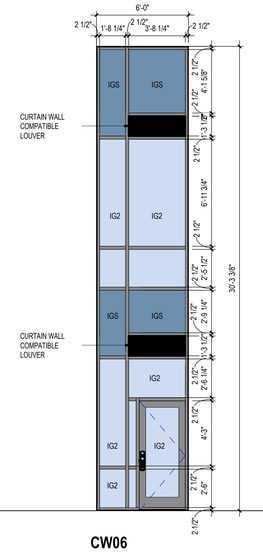


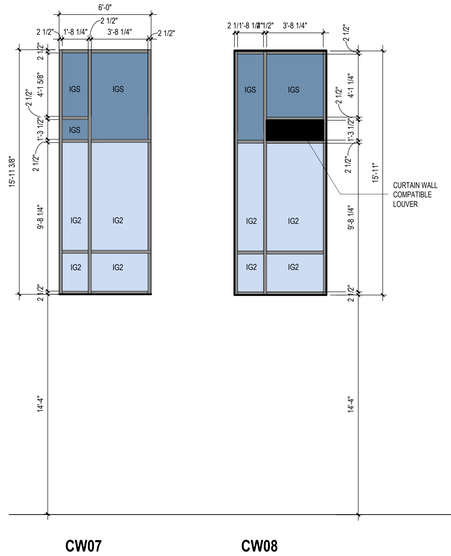


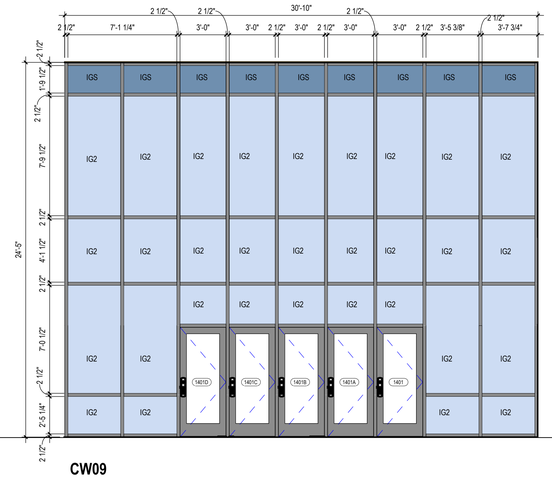


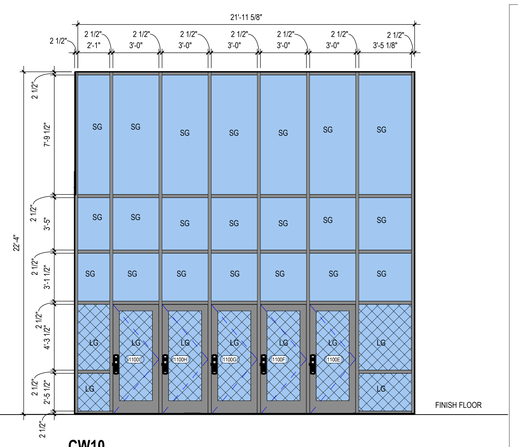


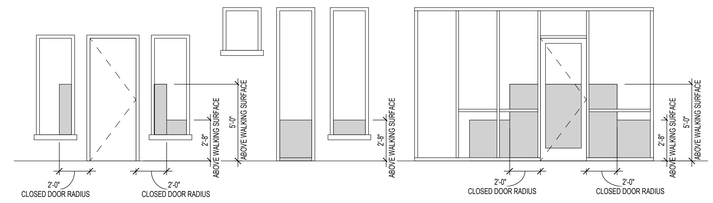












*NOTE: ONLY GLAZING LOCATED 36" OR LESS FROM ADJACENT WALKING SURFACE TO MEET REQUIREMENTS ABOVE, EXCEPT GLAZING LOCATIONS WITHIN THE 24" CLOSED DOOR RADIUS REQUIREMENT

1 / A-602 **SAFETY GLAZING REQUIREMENT DIAGRAM**

SCALE: 1/4" = 1'-0"

FRAME LEGEND

SYMBOL	DESCRIPTION
CW	6" AND 7 1/2" CURTAIN WALL BOD - KAWNEER - 1600 WALL SYSTEM
SF	6" NOMINAL ALUMINUM INTERIOR FRAMING SYSTEM BOD - KAWNEER - INFRAME 4 1/2" STOREFRONT NONTHERMAL, BROKEN **(INDICATED WITH "X.1" INDICATOR)** BOD - KAWNEER - TRIFAB 450 WO 4 1/2" STORE FRONT THERMALLY BROKEN BOD - KAWNEER - TRIFAB VG 451T

GENERAL NOTES:

1.EXTERIOR CURTAIN WALL AND STOREFRONT SHALL HAVE A THERMAL BREAK TYPE FRAME. INTERIOR STOREFRONT NOT REQUIRED TO HAVE A THERMAL BREAK FRAME.
2.FIELD VERIFY ALL OPENING DIMENSIONS PRIOR TO MANUFACTURING CURTAIN WALLS,STOREFRONT AND HOLLOW METAL FRAMES.

GLAZING SCHEDULE

TYPE	DESCRIPTION
SG	SAFTEY GLASS, 1/4" CLEAR TEMPERED
IG1	INSULATED SAFETY GLASS UNITS, CLEAR, TEMPERED (LOW E)
IG2	INSULATED SAFETY GLASS UNITS, **TINTED**, TEMPERED, (LOW E)
IG3	INSULATED SAFETY GLASS UNITS, CLEAR, TEMPERED
IGT	INSULATED GLASS UNITS, TRANSLUCENT FILM (LOW E)
IGS	INSULATED SAFETY GLASS UNITS, SPANDREL, TEMPERED
LG	LAMINATE GLASS UNITS, 1/4" CLEAR

NOTE: FOR DETAILED INFORMATION SEE SPECIFICATIONS SECTION 088000-GLAZING

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CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL

601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: MK
CHECKED BY: MK

CURTAIN WALL TYPES

A-602

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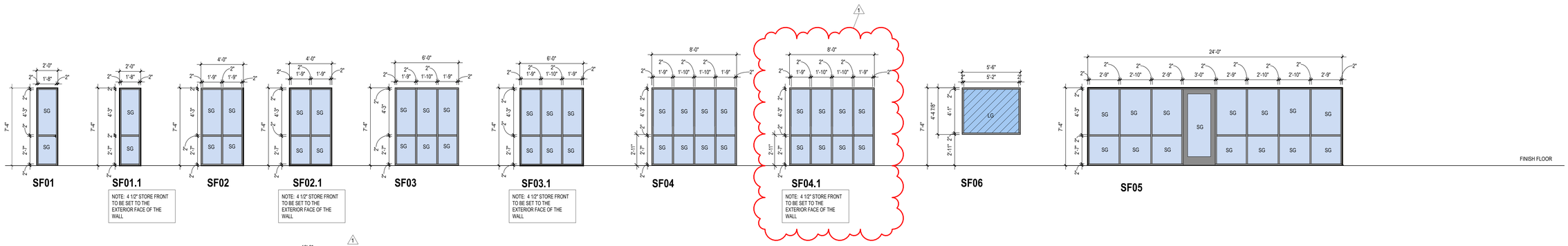

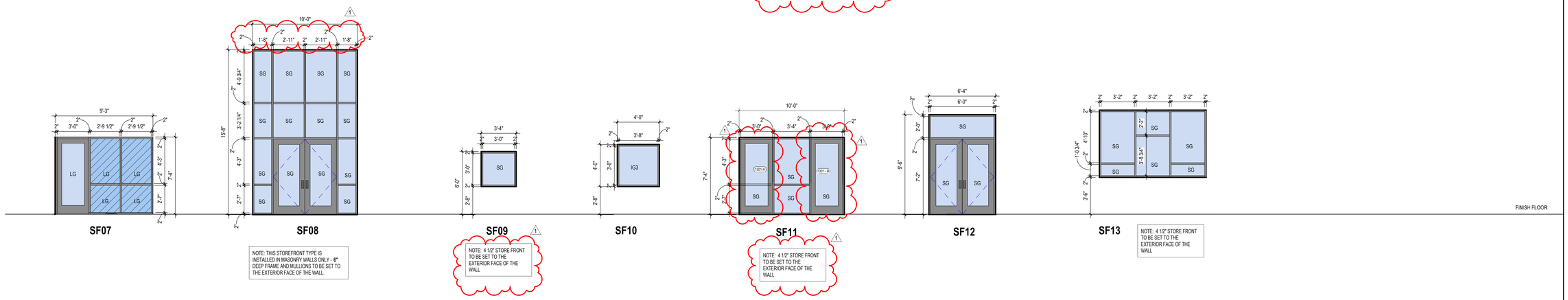

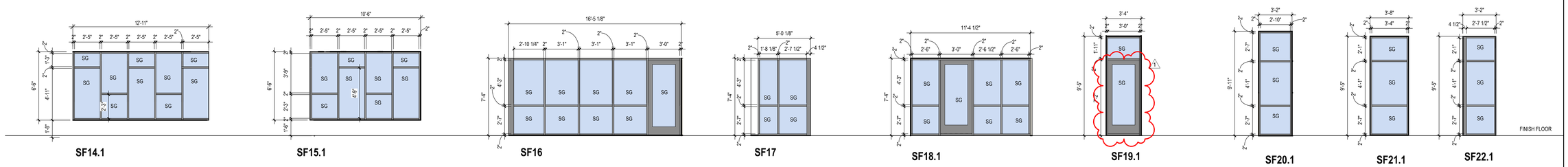

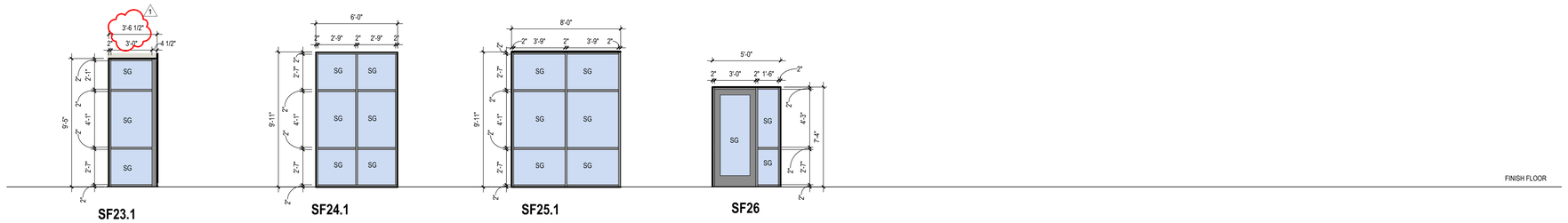

FRAME LEGEND

SYMBOL	DESCRIPTION
CW	6" AND 7 1/2" CURTAIN WALL - BOD - KAWNEER - 1600 WALL SYSTEM
SF	6" NOMINAL ALUMINUM INTERIOR FRAMING SYSTEM - BOD - KAWNEER - INFRAME 4 1/2" STOREFRONT NON-THERMALLY BROKEN **(INDICATED WITH '1' INDICATOR)** BOD - KAWNEER - TRIFAB 450 VG 4 1/2" STOREFRONT THERMALLY BROKEN BOD - KAWNEER - TRIFAB VG 451T

GENERAL NOTES:

1.EXTERIOR CURTAIN WALL AND STOREFRONT SHALL HAVE A THERMAL BREAK TYPE FRAME. INTERIOR STOREFRONT NOT REQUIRED TO HAVE A THERMAL BREAK FRAME
2.FIELD VERIFY ALL OPENING DIMENSIONS PRIOR TO MANUFACTURING CURTAIN WALLS,STOREFRONT AND HOLLOW METAL FRAMES.

GLAZING SCHEDULE

TYPE	DESCRIPTION
SG	SAFTEY GLASS, 1/4" CLEAR TEMPERED
IG1	INSULATED SAFETY GLASS UNITS, CLEAR, TEMPERED (LOW E)
IG2	INSULATED SAFETY GLASS UNITS, **TINTED**, TEMPERED, (LOW E)
IG3	INSULATED SAFETY GLASS UNITS, CLEAR, TEMPERED
IGT	INSULATED GLASS UNITS, TRANSLUCENT FILM (LOW E)
IGS	INSULATED SAFETY GLASS UNITS, SPANDREL, TEMPERED
LG	LAMINATE GLASS UNITS, 1/4" CLEAR

NOTE: FOR DETAILED INFORMATION SEE SPECIFICATIONS SECTION 088000-GLAZING

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ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: MK
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STOREFRONT TYPES - INTERIOR

A-621

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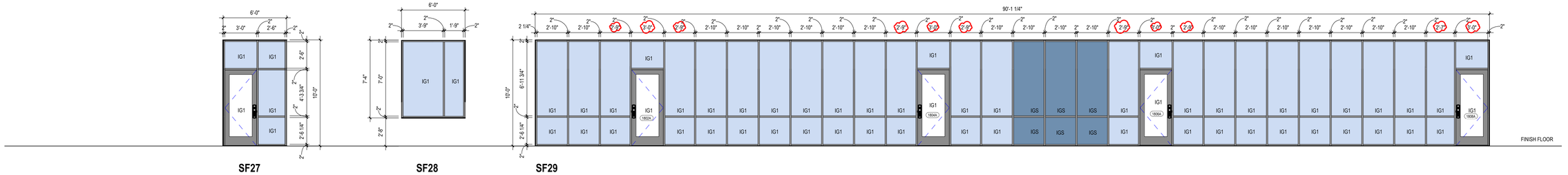

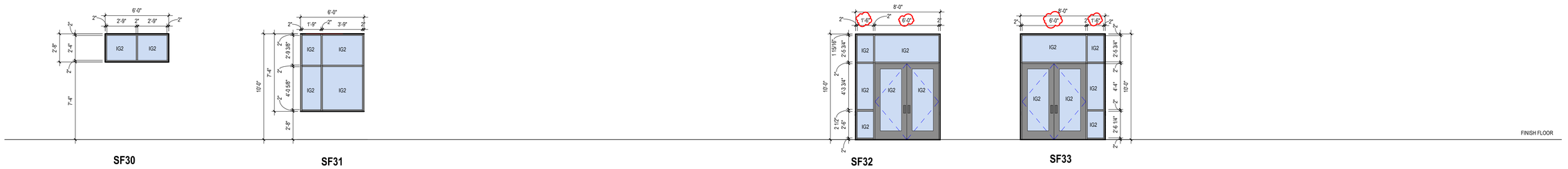

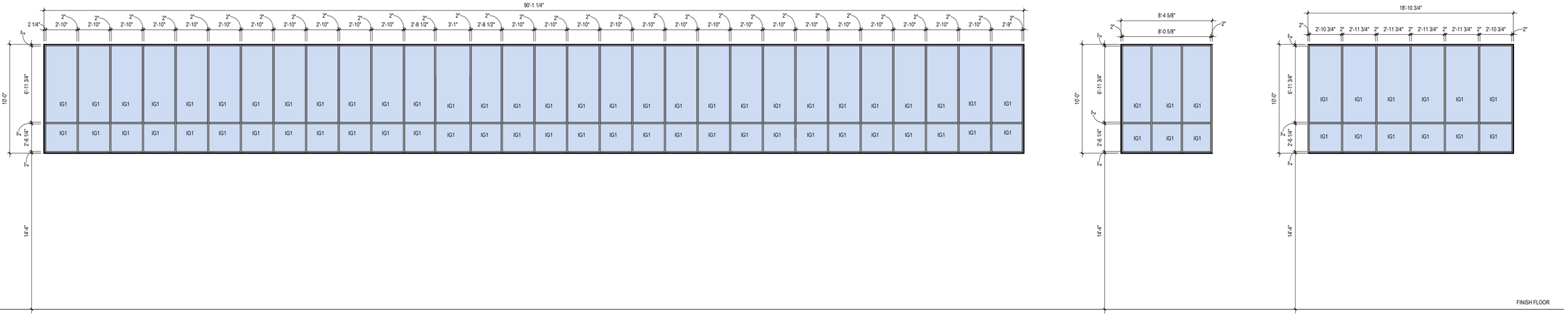

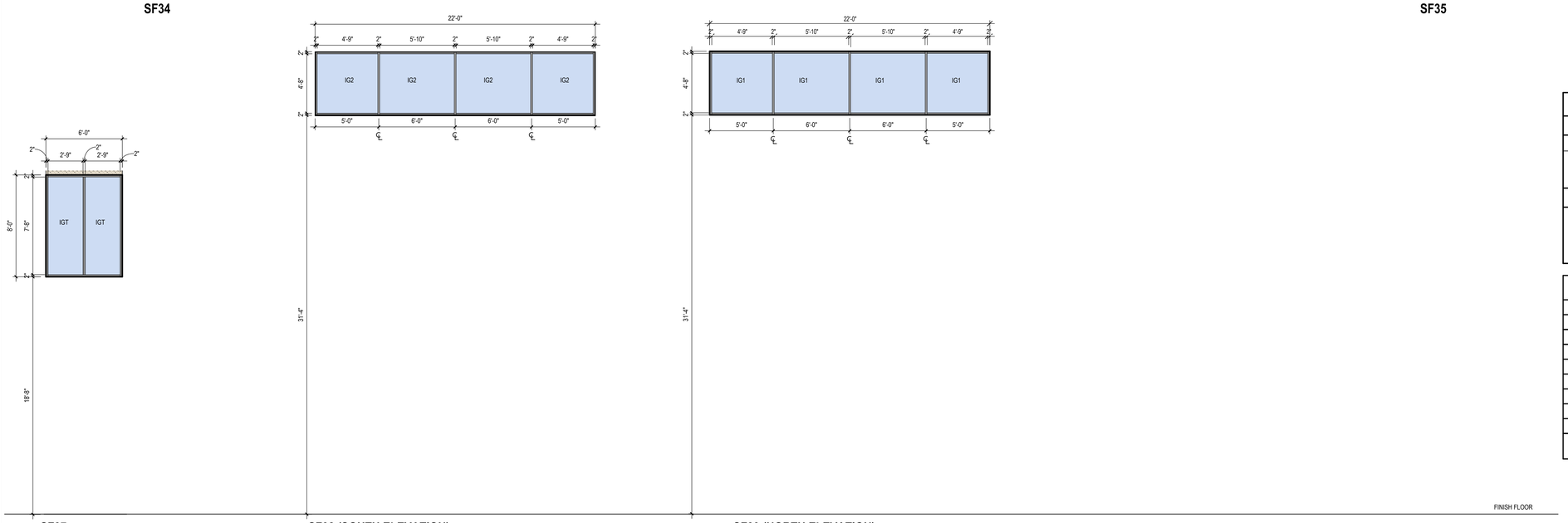

FRAME LEGEND

SYMBOL	DESCRIPTION
CW	6" AND 7 1/2" CURTAIN WALL, BOD - KAWNEER - 1600 WALL SYSTEM
SF	6" NOMINAL ALUMINUM INTERIOR FRAMING SYSTEM, BOD - KAWNEER - INFRAME 4 1/2" STORE FRONT, NON-THERMALLY BROKEN **(INDICATED WITH "X" INDICATOR)** BOD - KAWNEER- TRIFAB 450 VG 4 1/2" STORE FRONT, THERMALLY BROKEN, BOD - KAWNEER - TRIFAB VG 451T

GENERAL NOTES:

1.EXTERIOR CURTAIN WALL AND STOREFRONT SHALL HAVE A THERMAL BREAK TYPE FRAME. INTERIOR STOREFRONT NOT REQUIRED TO HAVE A THERMAL BREAK FRAME.
2.FIELD VERIFY ALL OPENING DIMENSIONS PRIOR TO MANUFACTURING CURTAIN WALLS,STOREFRONT AND HOLLOW METAL FRAMES.

GLAZING SCHEDULE

TYPE	DESCRIPTION
SG	SAFTEY GLASS, 1/4" CLEAR TEMPERED
IG1	INSULATED SAFETY GLASS UNITS, CLEAR, TEMPERED (LOW E)
IG2	INSULATED SAFETY GLASS UNITS, **TINTED**, TEMPERED, (LOW E)
IG3	INSULATED SAFETY GLASS UNITS, CLEAR, TEMPERED
IGT	INSULATED GLASS UNITS, TRANSLUCENT FILM (LOW E)
IGS	INSULATED SAFETY GLASS UNITS, SPANDREL, TEMPERED
LG	LAMINATE GLASS UNITS, 1/4" CLEAR

NOTE: FOR DETAILED INFORMATION SEE SPECIFICATIONS SECTION 088000-GLAZING

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NANCY L. LINDSTROM 23401 REGISTERED PROFESSIONAL ENGINEER 6.12.24

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601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
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ISSUE DATE: 06/12/24
PROJECT #: 2205
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STOREFRONT TYPES

A-622

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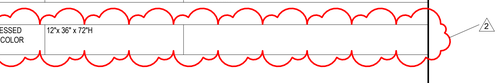
INTERIOR FINISH LEGEND

MARK	MATERIAL	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NO.	Size	NOTES
03 - CONCRETE					
03 30 00 - CAST-IN-PLACE CONCRETE					
SC1	SEALED CONCRETE	---	SEALED CONCRETE		
06 - WOODS, PLASTICS, AND COMPOSITES					
06 40 23 - PLASTIC LAMINATES					
PL1	PLASTIC LAMINATE	FORMICA	NEUTRAL WEFT 5875-58 (MATTE FINISH)	-	COUNTERTOPS AND BACKSPLASHES, UNO
PL2	PLASTIC LAMINATE	FORMICA	MILLENNIUM OAK 5887-43 (ARTISAN FINISH)	-	BASE AND UPPER CABINETS, UNO
PL3	PLASTIC LAMINATE	FORMICA	MILLENNIUM OAK 5887-58 (MATTE FINISH)	-	SERVING LINE
06 61 16 - SOLID SURFACING FABRICATIONS					
SSM1	SOLID SURFACE MATERIAL	FORMICA	LUNA SAND 757	1/2" THICKNESS	
06 83 16 - FIBERGLASS REINFORCED PANELING					
FRP1	FIBERGLASS REINFORCED PANELS	MARLITE	STANDARD FRP, P100 WHITE, PEBBLED SURFACE		INSTALLED TO 48" AFF WITH EPOXY PAINT ABOVE, UNO
08 - OPENINGS					
08 14 16 - FLUSH WOOD DOORS					
WD	WOOD DOORS	VT INDUSTRIES	RED OAK (PLAIN SLICED) CLEAR STAIN		
09 - FINISHES					
09 30 00 - TILING					
TL1	TILING	DALTILE	VOLUME 1.0 COLOR TBD BY ARCHITECT IN CA	12" X 12"	FIELD FLOORING
TL2	TILING	DALTILE	VOLUME 1.0 COLOR TBD BY ARCHITECT IN CA	12" X 24"	FIELD WALLS
TL3	TILING	DALTILE	COLOR WHEEL LINEAR - MUSTARD 10/12 - GLOSSY	4" X 12"	
TL4	TILING	DALTILE	COLOR WHEEL LINEAR - BISCUIT K175 - GLOSSY	4" X 12"	
TLB1	TILING	DALTILE	VOLUME 1.0 BULLNOSE COLOR TBD BY ARCHITECT IN CA	3" X 12"	
09 51 13 - ACOUSTICAL PANEL CEILINGS					
APC1	ACOUSTICAL PANEL CEILING	ARMSTRONG	CALLA, TEGULAR, WHITE TILES WHITE GRID	24" X 24"	TYPICAL PUBLIC AREA, MINIMUM NRC .80
APC2	ACOUSTICAL PANEL CEILING	ARMSTRONG	ULTIMA HEALTH ZONE, TEGULAR, WHITE TILES WHITE GRID	24" X 24"	KITCHEN LOCATIONS
APC3	ACOUSTICAL PANEL CEILING	ARMSTRONG	FINE FISSURED SCHOOL ZONE, TEGULAR, WHITE TILES WHITE GRID	24" X 24"	INCLUDING BUT NOT LIMITED TO CLASSROOMS AND OFFICES, MINIMUM NRC .70
09 64 66 - WOOD ATHLETIC FLOORING					
WAF1	WOOD ATHLETIC FLOORING	CONNOR SPORTS FLOOR	WOOD ATHLETIC FLOATING FLOOR SYSTEM, DURACUSHION III, MAPLE: CLEAR URATHANE FINISH		
09 65 00 - RESILIENT FLOORING					
LVT1	LUXURY VINYL TILE	TARKETT	EVENT ABSTRACT - PEME MELANGE - 11188 PIETRO	18" X 18" X 2.5 MM THICKNESS	WHITE
LVT2	LUXURY VINYL TILE	TARKETT	EVENT ABSTRACT - PEME MELANGE - 11189 ONYX	18" X 18" X 2.5 MM THICKNESS	GREY
LVT2A	LUXURY VINYL TILE	TARKETT	EVENT ABSTRACT - PEME MELANGE - 11189 ONYX	18" X 18" X 2.5 MM THICKNESS	GREY - PROVIDE ACOUSTICAL BACKING
LVT3	LUXURY VINYL TILE	TARKETT	EVENT ABSTRACT - PEME MELANGE - 11183 DAISY	18" X 18" X 2.5 MM THICKNESS	YELLOW
LVT4	LUXURY VINYL TILE	TARKETT	ID LATITUDE WOOD - COLOR TBD	6" X 48" X 2.5 MM THICKNESS	WOOD
RB1	RUBBER WALL BASE	FLEXCO	LUMBER 078	4" COVE BASE	
RB2	RUBBER WALL BASE	FLEXCO	LUMBER 078	4" TOELESS BASE	
RB3	VENTED BASE	JOHNSONITE	BLACK 4R	4" VENTED BASE	
09 65 66 - RESILIENT ATHLETIC FLOORING					
RAF1	RESILIENT ATHLETIC FLOORING	ALLSTATE	RENEW RUBBER, COLOR EARL GREY (R2)		
RAF2	RESILIENT ATHLETIC FLOORING	GERFLOOR	TARAFLEX SPORT M PLUS WITH BLEACHERBLOCK BENEATH BLEACHERS. COLOR 6381 MAPLE	7.5 MM THICK 4.92' X 86.5'	WOOD LOOK - MIDDLE SCHOOL GYM
09 67 23 - RESINOUS FLOORING					
RSB1	EPOXY BASE	DUR-A-FLEX	TO MATCH RSF1		
RSF1	EPOXY FLOORING	DUR-A-FLEX	HYBRI-FLEX EC, SHALE		
09 68 13 - TILE CARPETING					
CPT1	CARPET TILE	TARKETT	FLAME EDIT 11612 BALLAST 22412	24" X 24"	
CPT2	CARPET TILE	TARKETT	FLAME EDIT 11612 COMMON GROUND 22404	24" X 24"	
CPT3	CARPET TILE	TARKETT	CREATE BALANCE, CUSTOM COLOR 114812942-190	18" X 36"	TO MATCH CP1, ARCHITECT APPROVED SAMPLE MUST BE USED
CPT4	CARPET ENTRYWAY SYSTEM	TARKETT	ASSERTIVE ACTION 04837 CHROMIUM 26201	24" X 24"	
09 68 16 - SHEET CARPETING					
CP1	SHEET CARPET	TARKETT	CREATE BALANCE WITH POWERBOND CUSHION, CUSTOM COLOR 114812942-190	72" ROLL WIDTH	TO MATCH CPT3, ARCHITECT APPROVED SAMPLE MUST BE USED
09 84 00 - ACOUSTICAL ROOM COMPONENTS					
AWP1	ACOUSTICAL WALL PANEL	CARDINAL ACOUSTICS	DIRECT ATTACH ACOUSTICAL WALL PANELS, PAINTED TO MATCH P1	1" THICK, REF. INT. ELEVATIONS	
AWP2	ACOUSTICAL WALL PANEL	CARDINAL ACOUSTICS	DIRECT ATTACH ACOUSTICAL WALL PANELS, PAINTED TO MATCH P5	1" THICK, REF. INT. ELEVATIONS	
AWP3	ACOUSTICAL WALL PANEL	CARDINAL ACOUSTICS	DIRECT ATTACH ACOUSTICAL WALL PANELS, PAINTED TO MATCH P6	1" THICK, REF. INT. ELEVATIONS	
AWP4	ACOUSTICAL WALL PANEL	CARDINAL ACOUSTICS	DIRECT ATTACH ACOUSTICAL WALL PANELS, PAINTED TO MATCH P7	1" THICK, REF. INT. ELEVATIONS	
AWP5	ACOUSTICAL WALL PANEL	CARDINAL ACOUSTICS	DIRECT ATTACH ACOUSTICAL WALL PANELS, PAINTED TO MATCH P3	1" THICK, REF. RCP	
FWP1	ACOUSTICAL FABRIC WRAPPED PANEL	DECOUSTICS	FABRIC WRAPPED PANELS, FABRIC: MAHARAM MESSENGER 046 ICE, SQUARE EDGES, BUTT JOINT SEAM	1" THICK, REF. INT. ELEVATIONS	LIGHT GRAY
FWP2	ACOUSTICAL FABRIC WRAPPED PANEL	DECOUSTICS	FABRIC WRAPPED PANELS, FABRIC: MAHARAM MESSENGER 031 CLOUD, SQUARE EDGES, BUTT JOINT SEAM	1" THICK, REF. INT. ELEVATIONS	DARK GRAY
FWP3	ACOUSTICAL FABRIC WRAPPED PANEL	DECOUSTICS	FABRIC WRAPPED PANELS, FABRIC: MAHARAM MESSENGER 072 MAIZE, SQUARE EDGES, BUTT JOINT SEAM	1" THICK, REF. INT. ELEVATIONS	YELLOW
09 90 00 - PAINTING AND COATING					
ES1	INTERIOR PAINT		EXPOSED STRUCTURE	-	PAINTED TO MATCH P1
ES2	INTERIOR PAINT		EXPOSED STRUCTURE	-	PAINTED TO MATCH P3
ES3	INTERIOR PAINT		EXPOSED STRUCTURE	-	UNPAINTED
P1	INTERIOR PAINT	SHERWIN WILLIAMS	HERON PLUME SW 6070	-	FIELD PAINT, UNO.
P2	INTERIOR PAINT	SHERWIN WILLIAMS	DOVETAIL SW 7018	-	LIGHT GREY
P3	INTERIOR PAINT	SHERWIN WILLIAMS	GAUNTLET GREY SW 7019	-	GREY, DOOR FRAMES
P4	INTERIOR PAINT	SHERWIN WILLIAMS	BLACK FOX SW 7020	-	DARK GREY
P5	INTERIOR PAINT	SHERWIN WILLIAMS	GOLDEN PLUMERIA SW 9019	-	LIGHT YELLOW
P6	INTERIOR PAINT	SHERWIN WILLIAMS	CHEERFUL SW 6903	-	YELLOW
P7	INTERIOR PAINT	SHERWIN WILLIAMS	GOLDFINCH SW 6905	-	DARK YELLOW
WD1	WOOD STAIN		RED OAK, STAINED TO MATCH WOOD DOORS (WD) ARCHITECT TO SELECT FROM MANUFACTURER'S FULL RANGE	-	

INTERIOR FINISH LEGEND

MARK	MATERIAL	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NO.	Size	NOTES
10 - SPECIALTIES					
10 14 00 - SIGNAGE					
WC1	WALLCOVERING	AVERY DENNISON	MPI 1405 WITH DOL 6460	REF. INTERIOR ELEVATIONS	FOR SMOOTH SURFACES AND GYP. BD. WALLS. ARCHITECT TO PROVIDE ARTWORK
WC2	WALLCOVERING	AVERY DENNISON	MPI 1105 WITH DOL 1300Z	REF. INTERIOR ELEVATIONS	FOR BLOCK WALLS. ARCHITECT TO PROVIDE ARTWORK.
10 21 13 - PLASTIC TOILET COMPARTMENTS					
TP1	SOLID PLASTIC TOILET PARTITIONS	ASI GLOBAL PARTITIONS	9205 BLACK	-	
10 26 23.14 - WALL PROTECTION					
CG1	CORNER GUARD	INPRO	STAINLESS STEEL	2"X2"X7'-8" ALIGN WITH TOP OF ADJACENT DOORS WHERE APPLICABLE	TO BE INSTALLED AT ALL OUTSIDE GYP. BD. CORNERS IN PUBLIC SPACES U.N.O. REFER TO FINISH PLANS AND INTERIOR PLAN DETAILS FOR MORE INFORMATION
10 51 13 - METAL LOCKERS					
LCK1	METAL LOCKERS	PENCO	GUARDIAN, 2-TIER, W/ FRONT BASE , CLASSIC II RECESSED HANDLE FOR MULTI-POINT LATCHING, SLOPED TOP, COLOR BLACK	12"x 36" x 72"H	
11 - EQUIPMENT					
11 66 23.53 - WALL PADDING					
WP1	WALL PADDING	DRAPER	ECOVISION WALL PAD, COLOR BLACK	2' X 6'	1" FABRIC WRAPPED MOUNTING FLANGES AT PANEL TOP AND BOTTOM
12 - FURNISHINGS					
12 24 13 - ROLLER SHADES					
WT1	WINDOW TREATMENT	MERMET	WHITE LINEN, 1% OPENNESS	SHADES TO EXTEND FULL LENGTH OF EXPOSED GLASS	MANUAL SHADES TO BE PROVIDED AT ALL OFFICE AND CLASSROOM EXTERIOR WINDOWS, REF. INTERIOR FINISH PLANS FOR ADDITIONAL LOCATIONS.
WT2	WINDOW TREATMENT	MERMET	WHITE LINEN, 3% OPENNESS	SHADES TO EXTEND FULL LENGTH OF EXPOSED GLASS	MANUAL SHADES TO BE PROVIDED AT ALL INTERIOR CLASSROOM AND OFFICE GLAZING UNITS GREATER THAN 4'-0" WIDE, REF. INTERIOR FINISH PLANS FOR ADDITIONAL LOCATIONS
12 44 16 - SHOWER CURTAINS					
CT1	VINYL SHOWER CURTAIN	BOBRICK	WHITE OPAQUE VINYL, 204-3	70"W X 72"H	
CT2	VINYL SHOWER CURTAIN	BOBRICK	WHITE OPAQUE VINYL, 204-2	42"W X 72"H	



2 / A-701 TYPICAL FULL HEIGHT WALL TILE PATTERN
SCALE: 3/8" = 1'-0"



1 / A-701 TYPICAL WALL TILE PATTERN WITH BULLNOSE TOP
SCALE: 3/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
P	PAINT
SS	STAINLESS STEEL
TL	TILE
WC	WALLCOVERING
WD	WOOD

MISC. FINISH CODE ABBREVIATIONS

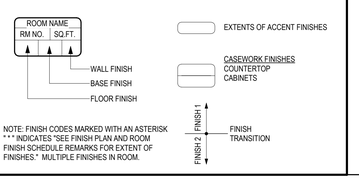
APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
RB	RESILIENT BASE
RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING



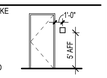
NOTE: FINISH CODES MARKED WITH AN ASTERISK * * * INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND SCHEDULE FOR ADDITIONAL INFORMATION.
2. FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS NOTED OTHERWISE.
3. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED P3 UNLESS NOTED OTHERWISE.
4. MISC. EXPOSED HARDWARE, INCLUDING BUT NOT LIMITED TO GRILLES, GRATES OR TRIM ACCESSORIES, TO BE PAINTED TO MATCH ADJACENT WALL FINISH.
5. EXPOSED COLUMNS TO BE PAINTED P1 UNLESS NOTED OTHERWISE
6. REFER TO ELEVATIONS FOR DETAILS AND TRANSITIONS OF WALL TILE, ACOUSTICAL WALL PANELS, MARKER BOARDS AND TACK WALLS.

SIGNAGE NOTES

1. ROOM SIGNAGE TO BE LOCATED ON THE WALL ADJACENT TO THE STRIKE SIDE OF THE DOOR.
2. MOUNTING LOCATION AND HEIGHT SHOWN IS TYPICAL AND TO THE CENTERLINE OF THE SIGN.
3. VERIFY NON-TYPICAL SIGN LOCATIONS WITH THE ARCHITECT PRIOR TO INSTALLATION.
4. AT DOORS WITH SIDELIGHTS ON THE STRIKE SIDE OF JAMB, USE DOUBLE SIDED TAPE ONLY. PROVIDE A BLANK SOLID SIGN OF SAME COLOR AND SIZE ON OPPOSITE SIDE.
5. COORDINATE ROOM NAME, NUMBER AND DOOR INVENTORY NUMBER WITH USER.
6. PROVIDE SIGNAGE AT ALL INTERIOR DOOR LOCATION. ROOMS WITH MORE THAN ONE ACCESS POINT SHALL REQUIRE SIGNAGE AT EACH LOCATION.



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PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
-v ari es ->	<varies>	<varies>

ISSUE DATE: 06/12/24
PROJECT #: 2205
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CHECKED BY: RH

FINISH SCHEDULE

A-701

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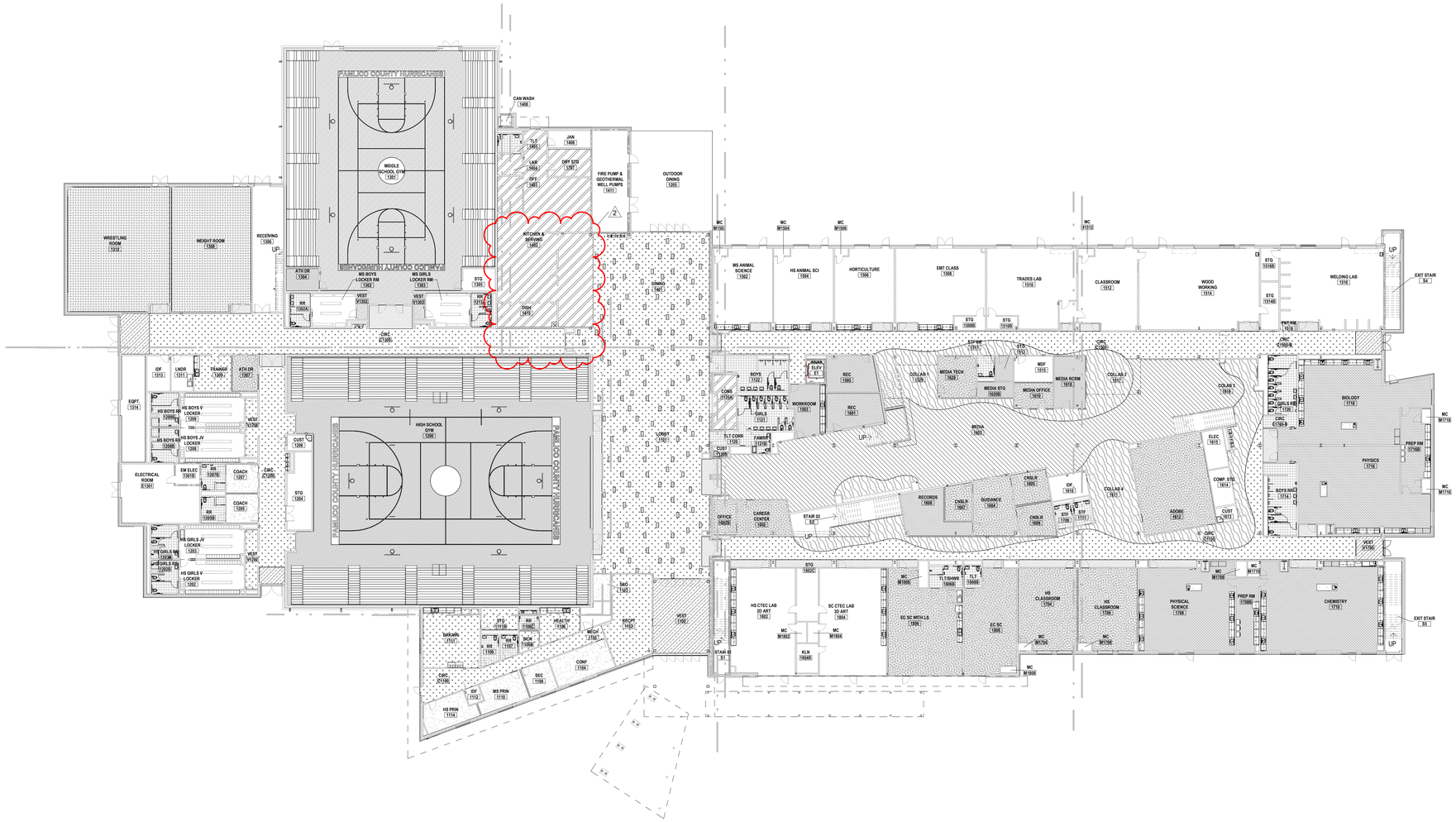

1 OVERALL FIRST FLOOR PLAN
A-702.1

SCALE: 1" = 20'-0"

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENRYRWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

NOTE: FINISH CODES MARKED WITH AN ASTERISK * * * INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

FINISH 1 / FINISH 2 — FINISH TRANSITION

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REGISTERED LANDSCAPE ARCHITECT 6.12.24 FAYETTEVILLE

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1	07/10/2024	Bid Addendum 2

ISSUE DATE: 06/12/24

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OVERALL FINISH PLAN - FIRST FLOOR

A-702.1

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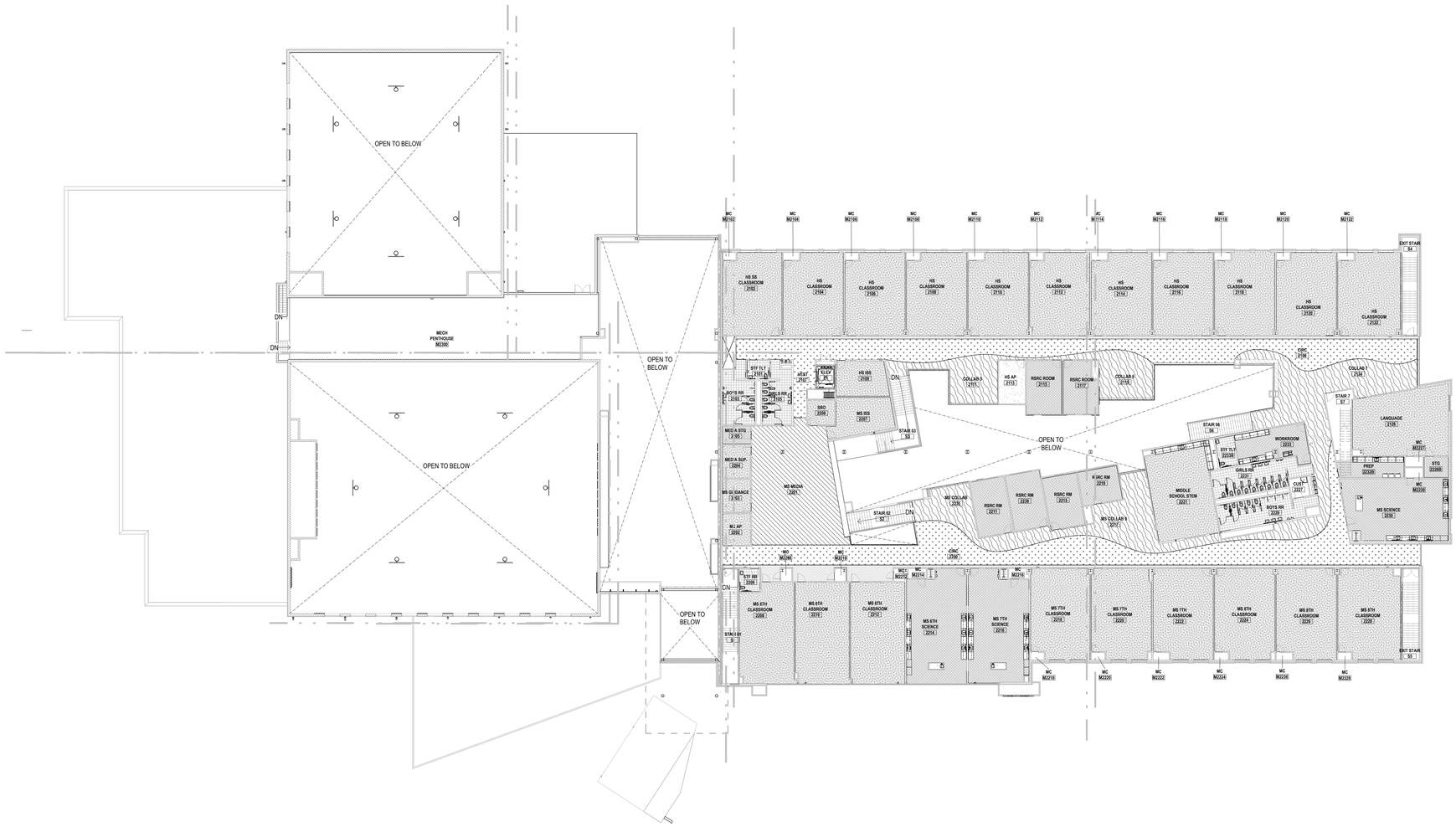

1 A-702.2 **OVERALL SECOND FLOOR PLAN**
SCALE: 1" = 20'-0"

FINISH FLOOR PATTERN PLAN LEGEND

1	CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
2	CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
	CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
	CPT4	CARPET ENRYRWAY SYSTEM	LVT4	LUXURY VINYL TILE
	RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
	SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
	TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 1 | FINISH 2 — FINISH TRANSITION

NOTE: FINISH CODES MARKED WITH AN ASTERISK " * " INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

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OVERALL FINISH PLAN - SECOND FLOOR

A-702.2

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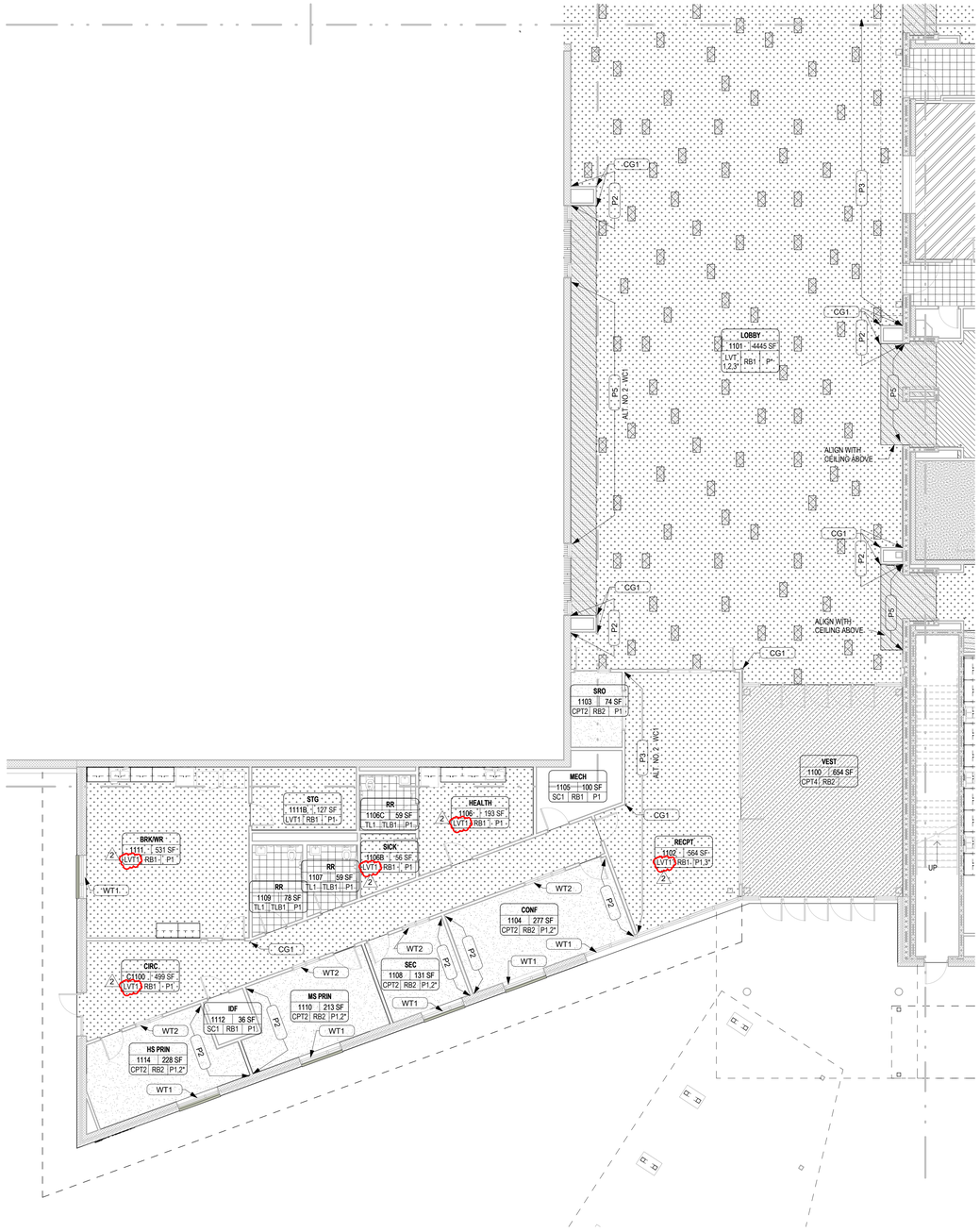

1 A-711A **FIRST FLOOR FINISH PLAN - AREA A**

SCALE: 1/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
P	PAINT
SS	STAINLESS STEEL
TL	TILE
WC	WALLCOVERING
WD	WOOD

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
RB	RESILIENT BASE
RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

NOTE: FINISH CODES MARKED WITH AN ASTERISK * * * INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 1 | FINISH 2 — FINISH TRANSITION

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND SCHEDULE FOR ADDITIONAL INFORMATION.
2. FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS NOTED OTHERWISE.
3. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED P3 UNLESS NOTED OTHERWISE.
4. MISC. EXPOSED HARDWARE, INCLUDING BUT NOT LIMITED TO GRILLES, GRATES OR TRIM ACCESSORIES, TO BE PAINTED TO MATCH ADJACENT WALL FINISH.
5. EXPOSED COLUMNS TO BE PAINTED P1 UNLESS NOTED OTHERWISE
6. REFER TO ELEVATIONS FOR DETAILS AND TRANSITIONS OF WALL TILE, ACOUSTICAL WALL PANELS, MARKER BOARDS AND TACK WALLS.

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PAMLICO 6-12 SCHOOL

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ENERGY STAR PARTNER

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FIRST FLOOR FINISH PLAN - AREA A

A-711A

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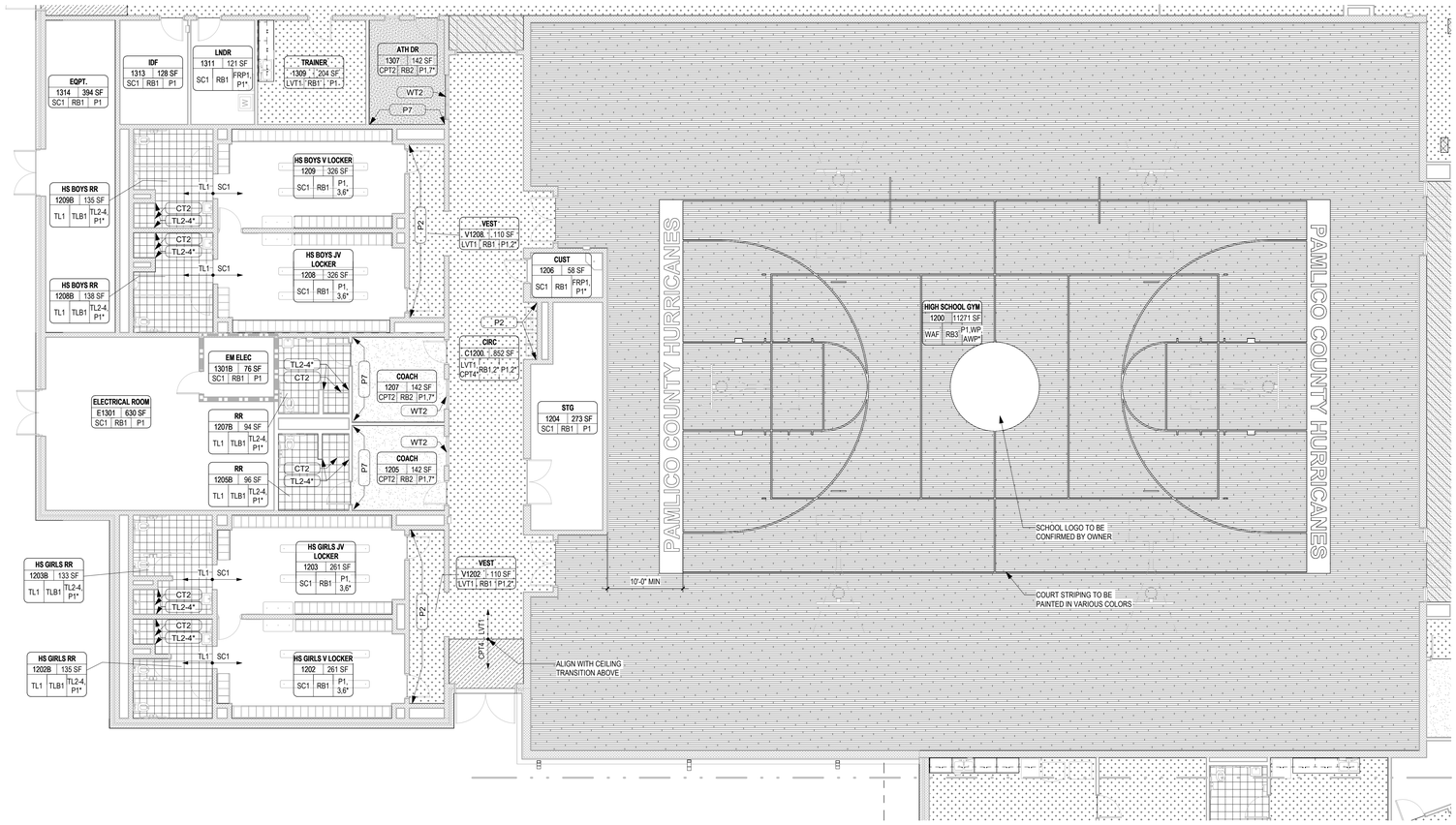


1 A-712B **FIRST FLOOR FINISH PLAN - AREA B**

SCALE: 1/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
P	PAINT
SS	STAINLESS STEEL
TL	TILE
WC	WALLCOVERING
WD	WOOD

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
RB	RESILIENT BASE
RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

NOTE: FINISH CODES MARKED WITH AN ASTERISK * * * INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

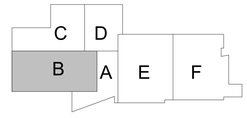
EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 1
FINISH 2
FINISH TRANSITION

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND SCHEDULE FOR ADDITIONAL INFORMATION.
2. FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS NOTED OTHERWISE.
3. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED P3 UNLESS NOTED OTHERWISE.
4. MISC. EXPOSED HARDWARE, INCLUDING BUT NOT LIMITED TO GRILLES, GRATES OR TRIM ACCESSORIES, TO BE PAINTED TO MATCH ADJACENT WALL FINISH.
5. EXPOSED COLUMNS TO BE PAINTED P1 UNLESS NOTED OTHERWISE
6. REFER TO ELEVATIONS FOR DETAILS AND TRANSITIONS OF WALL TILE, ACOUSTICAL WALL PANELS, MARKER BOARDS AND TACK WALLS.



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PROFESSIONAL ENGINEER SEAL 047111 RICKY L. HOLDEN 6.12.24 FAYETTEVILLE NORTH CAROLINA

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL

601 Main Street, Bayboro, NC, 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
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CHECKED BY: RH

FIRST FLOOR FINISH PLAN - AREA B

A-712B

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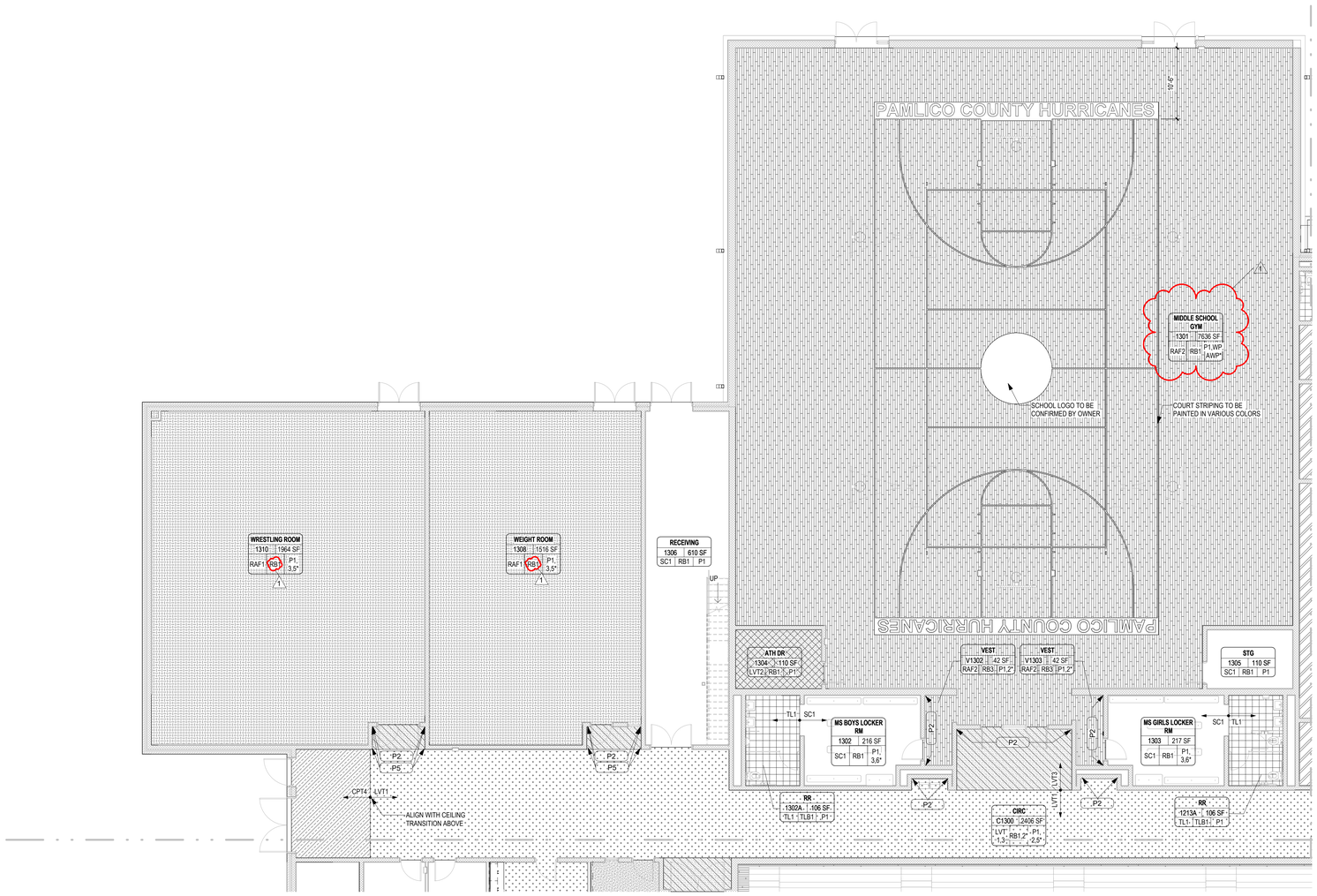

1 A-713C **FIRST FLOOR FINISH PLAN - AREA C**
SCALE: 1/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
P	PAINT
SS	STAINLESS STEEL
TL	TILE
WC	WALLCOVERING
WD	WOOD

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
RB	RESILIENT BASE
RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENRYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 1 | FINISH 2 — FINISH TRANSITION

NOTE: FINISH CODES MARKED WITH AN ASTERISK * * * INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

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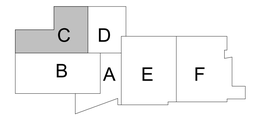

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FIRST FLOOR FINISH PLAN - AREA C

A-713C

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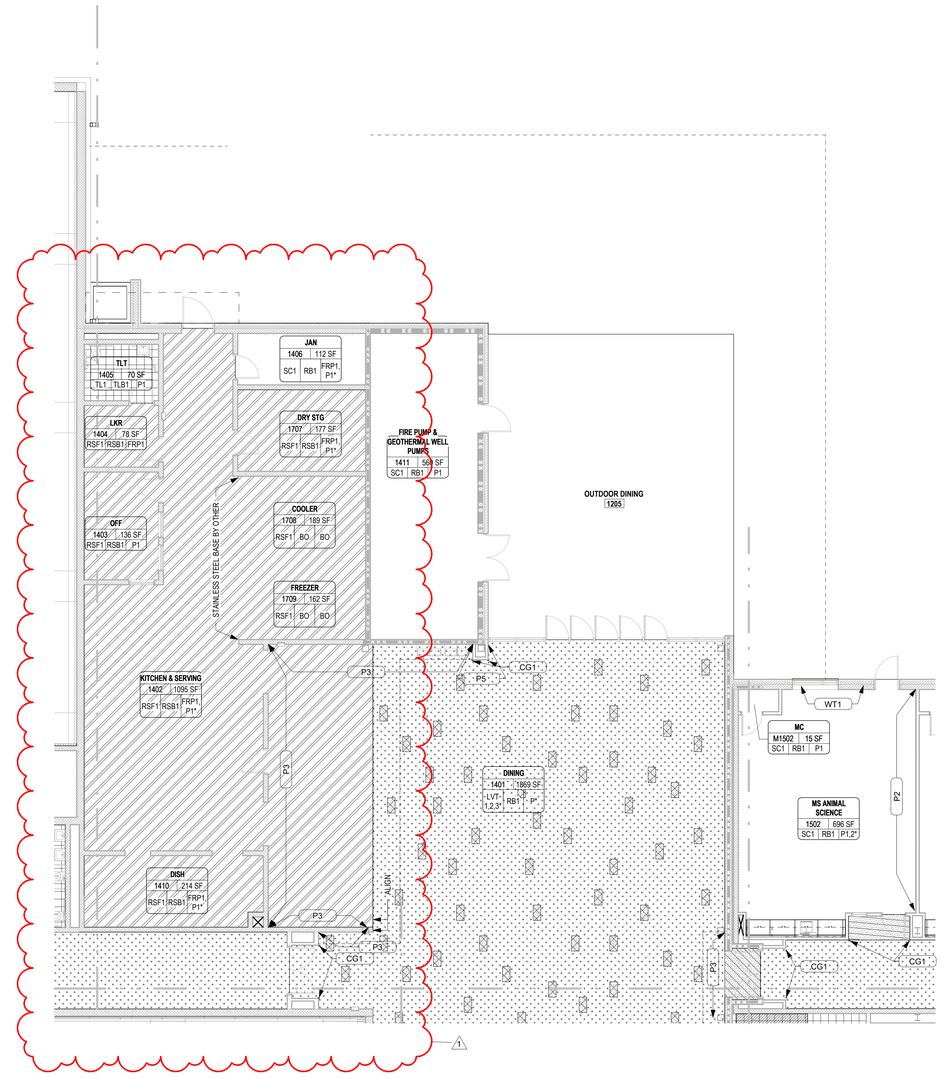

1 A-714D FIRST FLOOR FINISH PLAN - AREA D

SCALE: 1/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
P	PAINT
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TL	TILE
WC	WALLCOVERING
WD	WOOD

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
RB	RESILIENT BASE
RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

NOTE: FINISH CODES MARKED WITH AN ASTERISK * * * INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

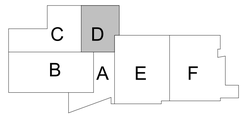
EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 1 / FINISH 2 — FINISH TRANSITION

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND SCHEDULE FOR ADDITIONAL INFORMATION.
2. FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS NOTED OTHERWISE.
3. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED P3 UNLESS NOTED OTHERWISE.
4. MISC. EXPOSED HARDWARE, INCLUDING BUT NOT LIMITED TO GRILLES, GRATES OR TRIM ACCESSORIES, TO BE PAINTED TO MATCH ADJACENT WALL FINISH.
5. EXPOSED COLUMNS TO BE PAINTED P1 UNLESS NOTED OTHERWISE
6. REFER TO ELEVATIONS FOR DETAILS AND TRANSITIONS OF WALL TILE, ACOUSTICAL WALL PANELS, MARKER BOARDS AND TACK WALLS.



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PUBLIC LIMITED PAVEMENT ENGINEER 7743 6.12.24 FAYETTEVILLE NORTH CAROLINA

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: RH
CHECKED BY: RH

FIRST FLOOR FINISH PLAN - AREA D

A-714D

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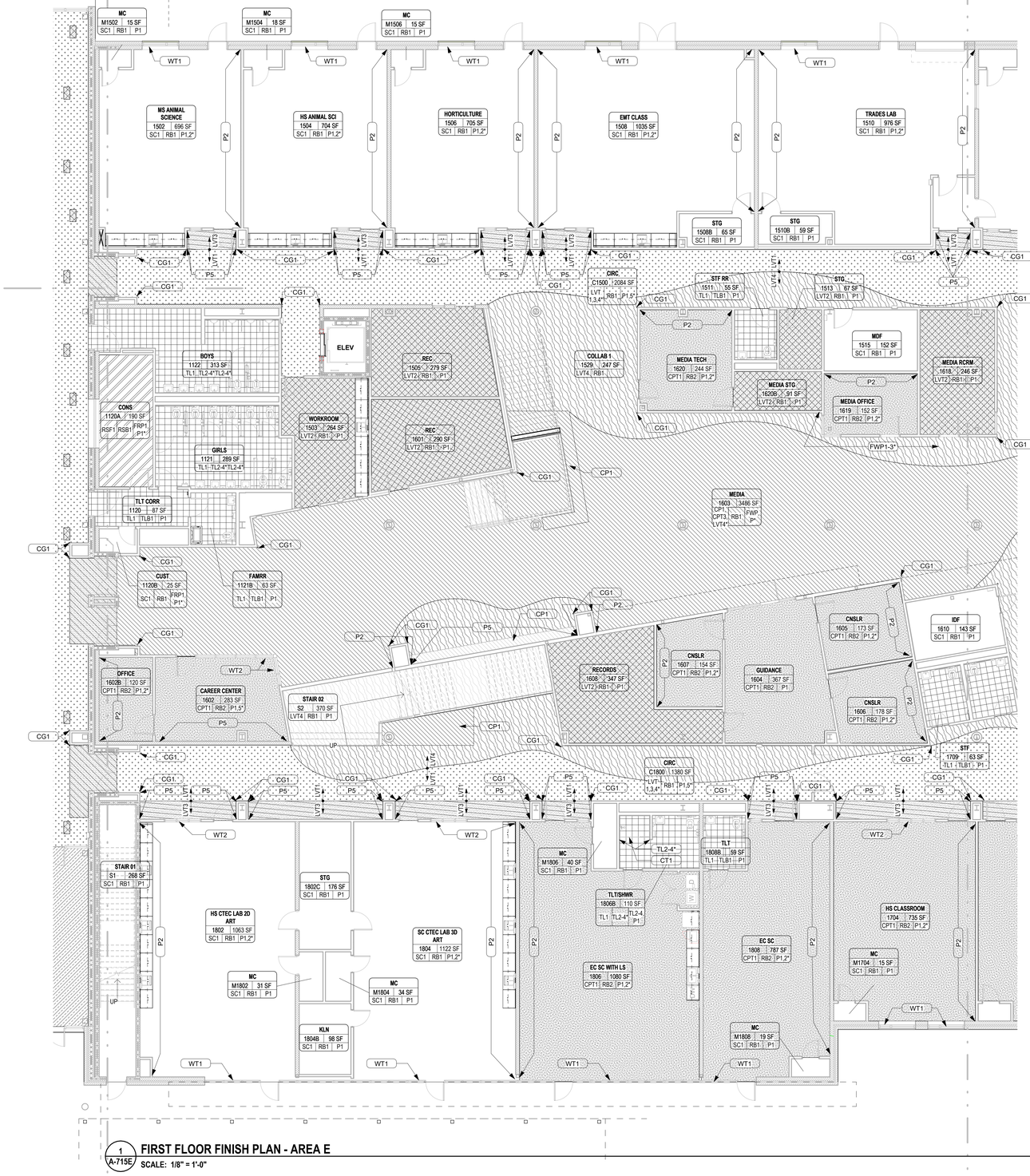

1 A-715E **FIRST FLOOR FINISH PLAN - AREA E**

SCALE: 1/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
P	PAINT
SS	STAINLESS STEEL
TL	TILE
WC	WALLCOVERING
WD	WOOD

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
RB	RESILIENT BASE
RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

NOTE: FINISH CODES MARKED WITH AN ASTERISK * ** INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 1 / FINISH 2 — FINISH TRANSITION

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND SCHEDULE FOR ADDITIONAL INFORMATION.
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3. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED P3 UNLESS NOTED OTHERWISE.
4. MISC. EXPOSED HARDWARE, INCLUDING BUT NOT LIMITED TO GRILLES, GRATES OR TRIM ACCESSORIES, TO BE PAINTED TO MATCH ADJACENT WALL FINISH.
5. EXPOSED COLUMNS TO BE PAINTED P1 UNLESS NOTED OTHERWISE
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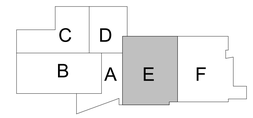

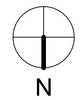

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ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: RH
CHECKED BY: RH

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL

601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

FIRST FLOOR FINISH PLAN - AREA E

A-715E

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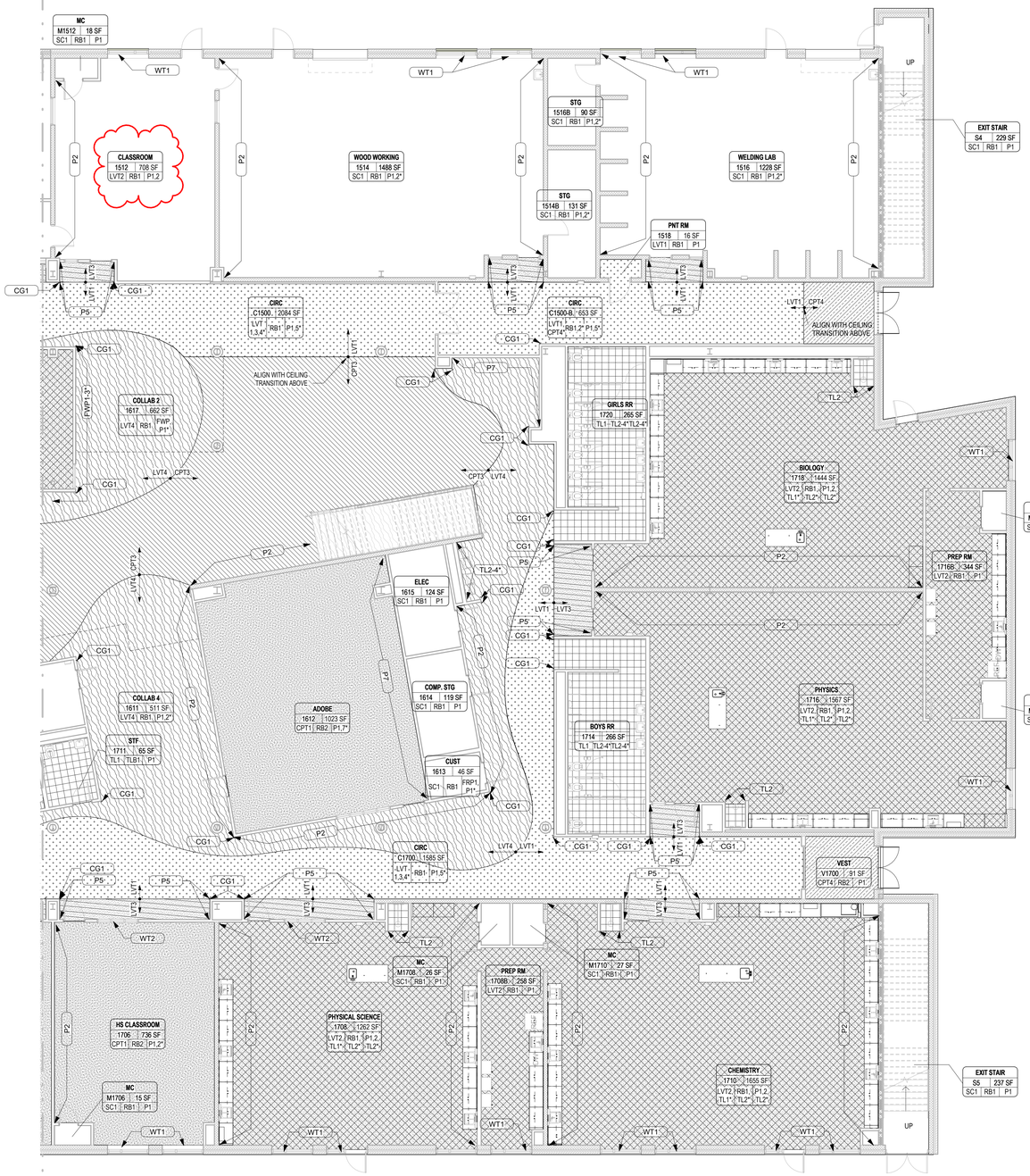

1 A-716F **FIRST FLOOR FINISH PLAN - AREA F**

SCALE: 1/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
P	PAINT
SS	STAINLESS STEEL
TL	TILE
WC	WALLCOVERING
WD	WOOD

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
RB	RESILIENT BASE
RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 2 / FINISH 1
FINISH TRANSITION

NOTE: FINISH CODES MARKED WITH AN ASTERISK * * INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

GENERAL FINISH NOTES

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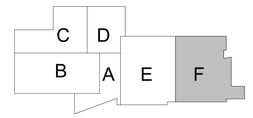

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6.12.24

CONSTRUCTION DOCUMENTS

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PAMLICO 6-12 SCHOOL

601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: RH
CHECKED BY: RH

FIRST FLOOR FINISH PLAN - AREA F

A-716F

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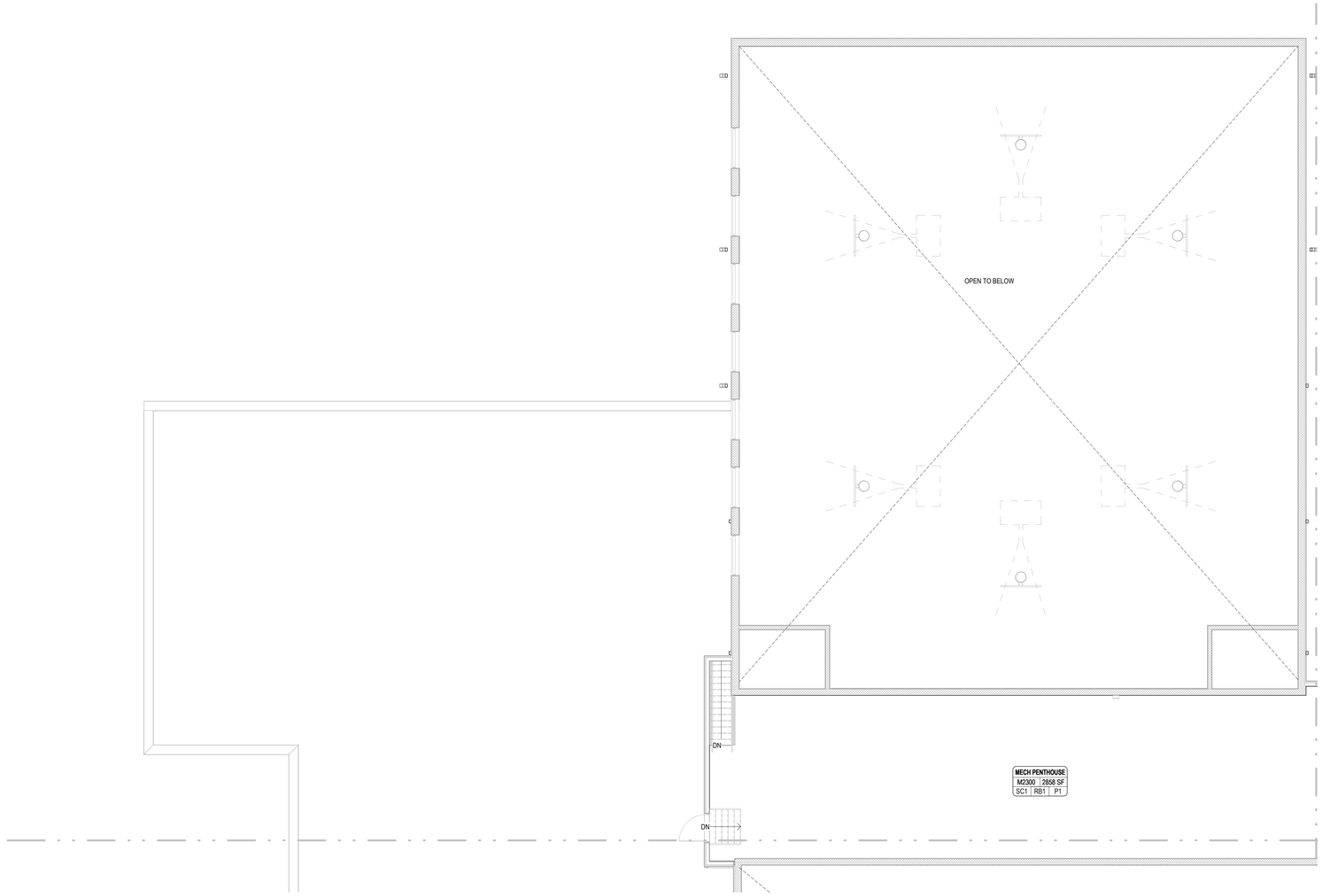

1 A-717C **SECOND FLOOR FINISH PLAN - AREA C**
SCALE: 1/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
P	PAINT
SS	STAINLESS STEEL
TL	TILE
WC	WALLCOVERING
WD	WOOD

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
RB	RESILIENT BASE
RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CPT1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 2 | FINISH 1
FINISH TRANSITION

NOTE: FINISH CODES MARKED WITH AN ASTERISK * * * INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

GENERAL FINISH NOTES

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2. FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS NOTED OTHERWISE.
3. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED P3 UNLESS NOTED OTHERWISE.
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5. EXPOSED COLUMNS TO BE PAINTED P1 UNLESS NOTED OTHERWISE
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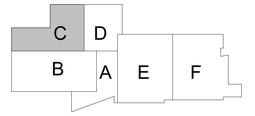

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PUBLIC LIFE DISTRICT 6.12.24 FAYETTEVILLE

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: RH
CHECKED BY: RH

SECOND FLOOR FINISH PLAN - AREA C

A-717C

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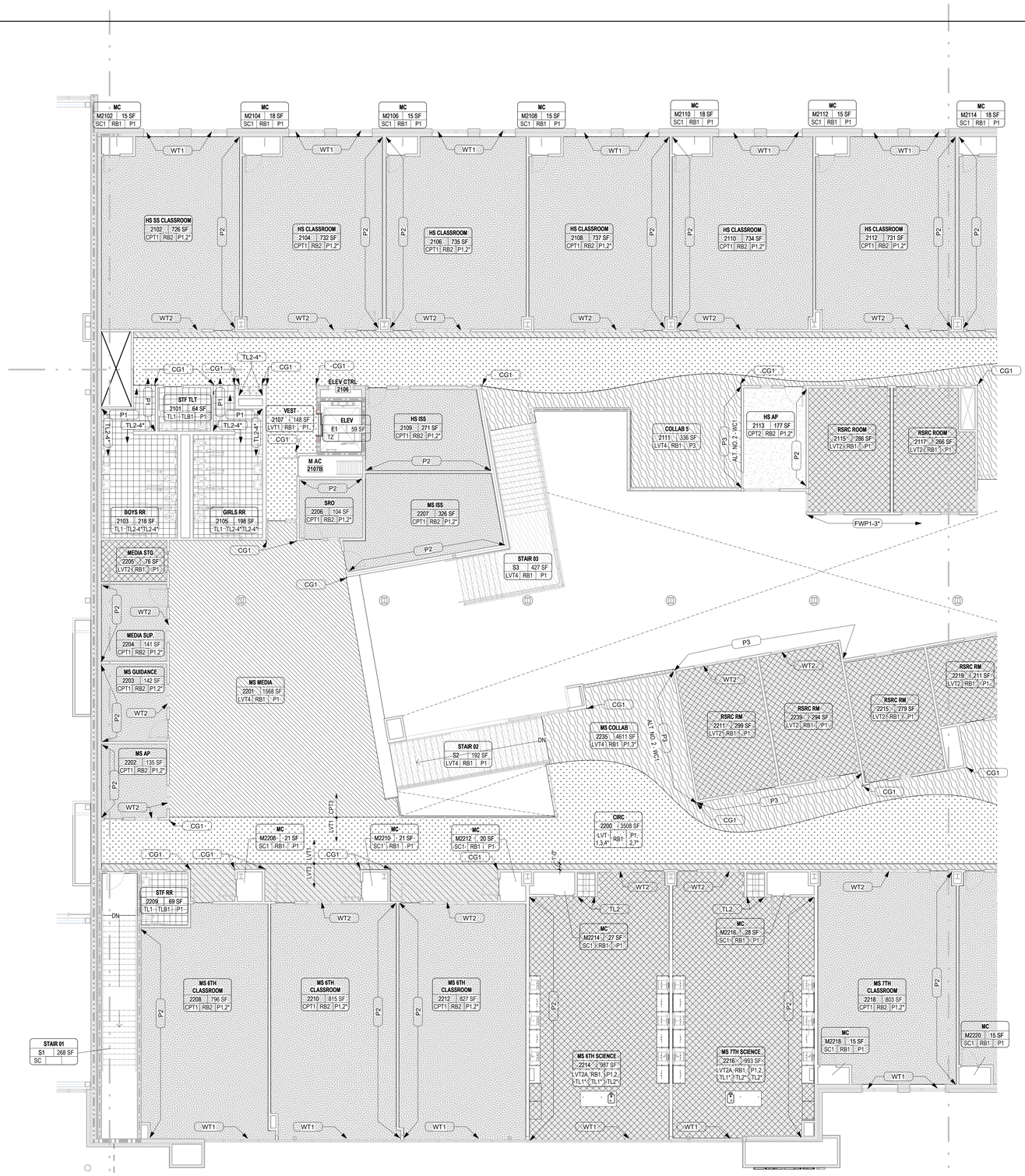

1 A-718E **SECOND FLOOR FINISH PLAN - AREA E**

SCALE: 1/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
P	PAINT
SS	STAINLESS STEEL
TL	TILE
WC	WALLCOVERING
WD	WOOD

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
RB	RESILIENT BASE
RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. | SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 2 | FINISH 1 — FINISH TRANSITION

NOTE: FINISH CODES MARKED WITH AN ASTERISK * * INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

GENERAL FINISH NOTES

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3. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED P3 UNLESS NOTED OTHERWISE.
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601 Main Street, Bayboro, NC , 28515

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1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: RH
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C D B A E F

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SECOND FLOOR FINISH PLAN - AREA E

A-718E

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1 A-719F **SECOND FLOOR FINISH PLAN - AREA F**

SCALE: 1/8" = 1'-0"

FINISH SCHEDULE ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPT	CARPET TILE
CP	SHEET CARPET
LVT	LUXURY VINYL TILE
RAF	RUBBER ATHLETIC FLOORING
RSF	RESINOUS FLOORING
SC	SEALED CONCRETE
TL	TILE
WAF	HARWOOD ATHLETIC FLOORING

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING
ES	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PL	PLASTIC LAMINATE

WALL FINISH CODE ABBREVIATIONS

AWP	ACOUSTICAL WALL PANELS
FWP	ACOUSTICAL FABRIC WRAPPED PANELS
FRP	FIBERGLASS REINFORCED PANELS
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SS	STAINLESS STEEL
TL	TILE
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WD	WOOD

BASE FINISH CODE ABBREVIATIONS

TLB	TILE BASE
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RSB	RESINOUS BASE

FINISH FLOOR PATTERN PLAN LEGEND

CPT1	CARPET TILE	LVT1	LUXURY VINYL TILE
CPT2	CARPET TILE	LVT2	LUXURY VINYL TILE
CPT3/CP1	CARPET TILE OR SHEET	LVT3	LUXURY VINYL TILE
CPT4	CARPET ENYRYWAY SYSTEM	LVT4	LUXURY VINYL TILE
RSF1	RESINOUS FLOORING	RAF1	RUBBER ATHLETIC FLOORING
SC1	SEALED CONCRETE	RAF2	RUBBER ATHLETIC FLOORING
TL1	TILE	WAF	WOOD ATHLETIC FLOORING

ROOM NAME
RM NO. SQ.FT.
WALL FINISH
BASE FINISH
FLOOR FINISH

EXTENTS OF ACCENT FINISHES

CASEWORK FINISHES
COUNTERTOP
CABINETS

FINISH 1 / FINISH 2 — FINISH TRANSITION

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LICENSED ARCHITECT 6.12.24 REGISTERED LANDSCAPE ARCHITECT

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

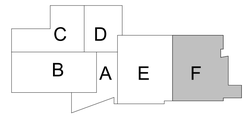
No.	Date	Description
1	07/25/2024	Bid Addendum 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: RH
CHECKED BY: RH

SECOND FLOOR FINISH PLAN - AREA F

A-719F



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VICINITY MAP (N.T.S.)

PARKING TABULATION:

PARKING NEEDS:

STUDENT:	117 SPACES
FACULTY/STAFF:	110 SPACES
VISITOR:	10 SPACES
TOTAL:	237 SPACES

TOTAL SPACES PROVIDED:

STUDENT:	151
FACULTY/STAFF:	114
VISITOR:	10
TOTAL	275

ADA SPACES REQUIRED:	201 TO 300 = 7
ADA SPACES PROVIDED:	15 - ALL VAN ACCESSIBLE
BUS PARKING:	18 SPACES

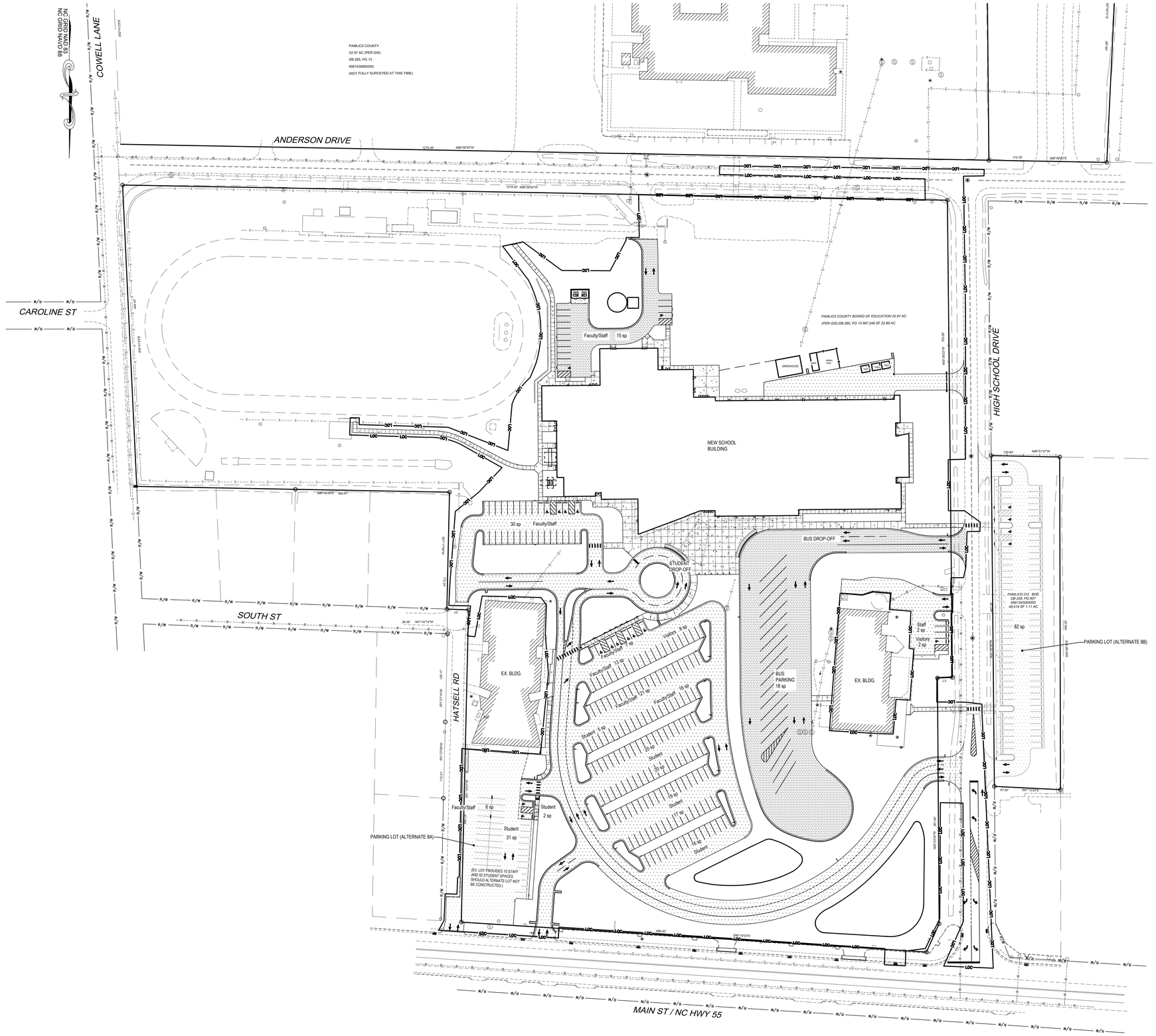
BOUNDARY LINE TABLE

LINE	BEARING	DISTANCE
L1	N24°03'27"E	45.67'
L2	S88°02'15"E	31.91'
L3	N87°56'29"E	22.09'
L4	S09°49'47"W	98.10'
L5	S78°31'08"E	15.48'

CONTROL TABLE

POINT	NORTHING*	EASTING*	ELEV#
EMN1	513,385.5052	2,663,470.3147	12.21'
EMN2	513,381.4464	2,663,680.1555	11.89'
EMN3	513,377.5134	2,663,942.5416	12.28'
EMN4	513,791.9149	2,663,464.8524	11.52'
EMN5	514,059.8846	2,663,462.9373	11.29'
NCGS PAM6	514,442.7375	2,663,741.6434	10.85'

*NAD 83(2011) #NAVD88



GRAPHIC SCALE 60 0 30 60 120 240 (IN FEET) 1 inch = 60 ft.

1 C-200 **OVERALL SITE PLAN**
1" - 60'

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1020 FRANK D. CRAWFORD III 4/12/2024

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC 28515

ENERGY STAR PARTNER

No.	Date	Description
	07/25/24	ADDENDUM 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
CAD TECH.: ILB
CHECKED BY: FDC

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OVERALL SITE PLAN

C-200

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VICINITY MAP (N.T.S.)

SITE NOTES

1. HEAVY DUTY ASPHALT PAVEMENT. SEE SHT. C-502, #8.
2. PAINT STRIPES. SEE SHT. C-501, #4.
3. STANDARD CONCRETE SIDEWALK. SEE SHT. C-502, #4.
4. NOT USED
5. ACCESSIBLE RAMP NON-WING TYPE. SEE SHT. C-501, #7.
6. ACCESSIBLE RAMP - IN-LINE TYPE. SEE SHT. C-501, #13.
7. CONCRETE WHEEL STOP- FLUMED. SEE SHT. C-502, #10.
8. HIGH VISIBILITY PEDESTRIAN CROSSWALK STRIPING. SEE SHT. C-502, #2.
9. VAN ACCESSIBLE PARKING SPACE STRIPING & SIGNAGE w/ 1.5-IN, 12-GAUGE, PERFORATED STEEL POST PER M.U.T.C.D. & BUILDING CODE RQMTS. SEE SHT. C-501, #4.
10. TRAFFIC ARROWS. SEE SHT. C-502, #6.
11. DUMPSTER ENCLOSURE. SEE SHT. C-503,#1.
12. 18-IN TRAFFIC "STOP" SIGN w/ 1.5-IN, 12-GAUGE, PERFORATED STEEL POST PER M.U.T.C.D. RQMTS. SEE SHT. C-501, #2.
13. STOP BAR. SEE SHT. C-502, #3.
14. STD. 2' CURB AND GUTTER. SEE SHT. C-502, #1.
15. PARKING INFORMATION SIGNS, SEE OVERALL SITE PLAN FOR PARKING DESIGNATIONS. SEE SHT. C-502, #9.
16. ASPHALT PAVEMENT. SEE SHEET C-501, #10.
17. SIDEWALK ADJ TO C&G. SEE SHT. C-502, #13.
18. CANOPY SEE ARCHITECTURAL PLANS
19. PAINTED ISLAND STRIPING. SEE SHT. C-501, #4 FOR PAINT TYPE AND SPACING.
20. LANE STRIPING. SEE SHT. C-502, #11.
21. CENTERLINE STRIPING. SEE SHT. C-502, #12.
22. CURB TAPER. SEE SHT. C-502, #15.
23. BLACK VINYL COATED CHAIN LINK FENCE, SEE SHT. C-501, #15.
24. SIDEWALK FLUME. SEE SHT. C-502, #7.
25. CONCRETE FLUME. SEE SHT. C-500, #9.
26. DECORATIVE CONC. BOLLARD. SEE SHT. C-502, #14.
27. CONCRETE SWALE. SEE SHT. C-503, #2.
28. SEGMENTAL CONCRETE BLOCK WALL W/ GUARDRAIL, SEE SHT. C-503, #3 & #5.

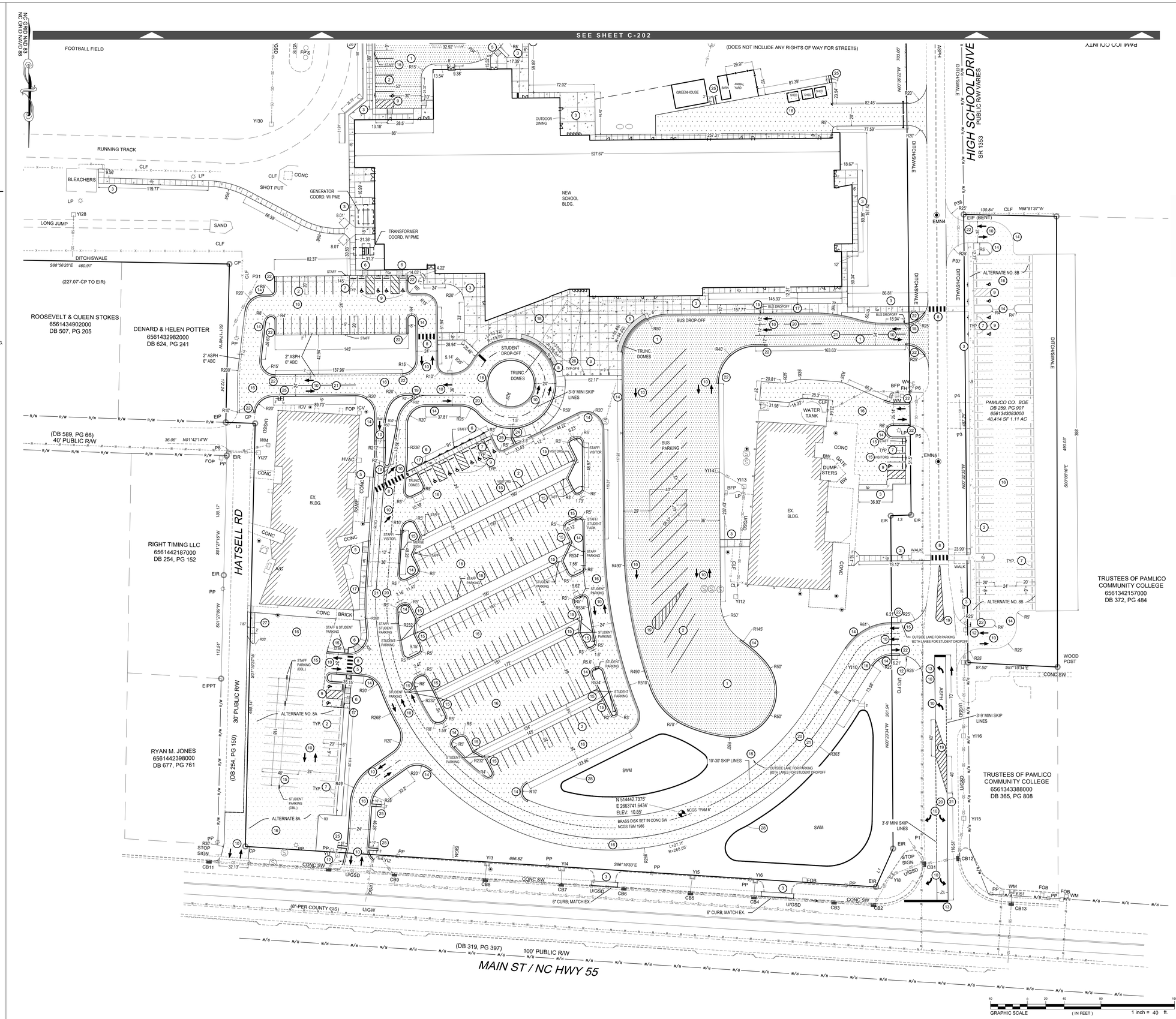
ADDITIONAL NOTES

1. **ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THE TITLE PAGE SHALL APPLY TO THIS PLAN.**
2. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. BENCHMARK IS A BRASS DISK SET IN CONC SW IN THE NORTHWEST AREA OF THE SITE WITH COORDINATES N 514442.74 E 2663741.64 AND AN ELEVATION OF 10.85'.

CONTROL TABLE

POINT	NORTHING*	EASTING*	ELEV#
EMN1	513,385.5052	2,663,470.3147	12.21'
EMN2	513,381.4464	2,663,680.1555	11.89'
EMN3	513,377.5134	2,663,942.5416	12.28'
EMN4	513,791.9149	2,663,464.8524	11.52'
EMN5	514,059.8846	2,663,462.9373	11.29'
NCGS PAM6	514,442.7375	2,663,741.6434	10.85'

*NAD 83(2011) #NAVD88



1 / C-201 **SITE PLAN** 1" = 40'

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NORTH CAROLINA 1020 FRANK D. CRAWFORD, III 4/12/2024

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL

601 Main Street, Bayboro, NC 28515

ENERGY STAR PARTNER

No.	Date	Description
	07/25/24	ADDENDUM 3
ISSUE DATE:		06/12/24
PROJECT #:		2205
CAD TECH.:		ILB
CHECKED BY:		FDC

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SITE PLAN

C-201

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VICINITY MAP (N.T.S.)

STORMWATER REQUIREMENTS:

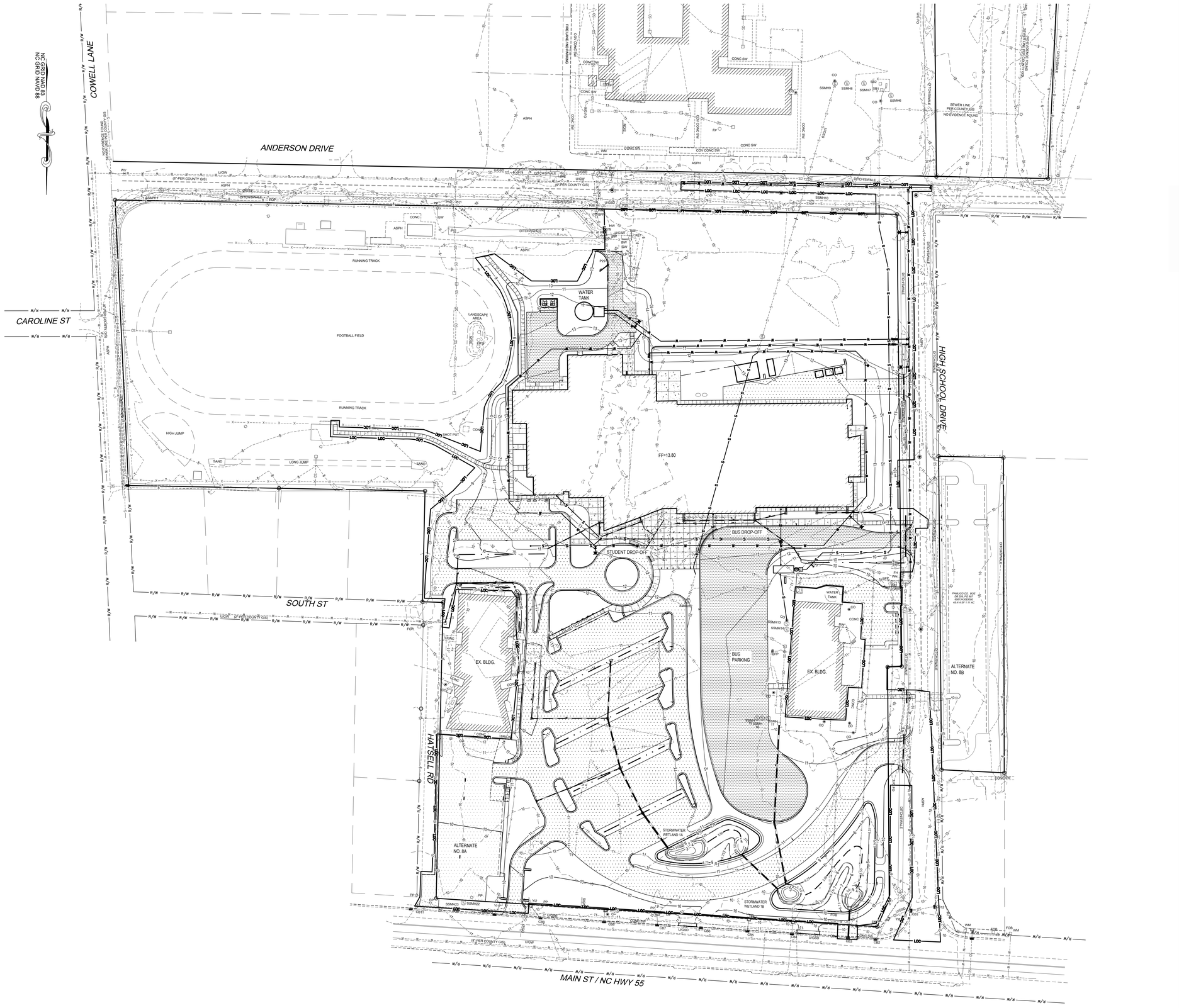
SITE DRAINS TO SOUTH PRONG OF BAY RIVER, INDEX # 27-150-3, BAY RIVER IS A TIDAL SALT WATER (SC, Sw) AND NUTRIENT SENSITIVE WATER (NSW), AND IS PART OF THE NEUSE RIVER BASIN.

PIPE TABLE

STRUCTURE	RIM (BOC)	TOP GRATE	INV-IN	FROM	SIZE	INV-OUT	TO	SIZE
P1						5.46'	Y18	15"RCP
P2						7.89'	Y118	15"RCP
P3			8.08'		15"RCP			
P4			8.23'		15"RCP			
P5			8.01'		15"RCP			
P6			7.91'		15"RCP			
P7						8.44'	Y119	12"RCP
P8						7.44'	Y127	15"RCP
P9			6.24'	Y29	18"CI			
P10			6.52'	Y31	18"STEEL			
P11			6.80'	P12	18"RCP			
P12						6.69'	P11	18"RCP
P13			6.87'	P14	15"RCP			
P14						7.21'	P13	15"RCP
P15						7.28'	P16	15"RCP
P16			7.02'	P15	15"RCP			
P17						7.34'	P18	12"TC
P18			7.31'	P17	18"TC			
P19						7.73'	P20	15"RCP
P20			7.55'	P19	15"RCP			
P21			7.98'	P22	15"RCP			
P22						8.14'	P21	15"RCP
P23						7.50'	P24	12"CLAY
P24			7.46'	P23	12"CLAY			
P25						7.43'	P26	15"RCP
P26			7.22'	P25	15"RCP			
P27						7.22'	P28	15"RCP
P28			7.16'	P27	15"RCP			
P29						8.35'	P30	12"RCP
P30			7.39'	P29	12"RCP			
P31			7.59'	?	12"RCP			
P32			5.45'	?	18"RCP			
P33			6.62'	P34	15"RCP			
P34						6.70'	P33	15"RCP
P35			9.02'	P36	12"RCP			
P36						9.09'	P35	12"RCP
P37						8.43'	P38	15"RCP
P38			8.41'	P37	15"RCP			
P39						8.04'	P40	15"RCP
P40			7.74'	P39	15"RCP			
P41			8.57'	P42	15"RCP			
P42						8.70'	P41	15"RCP
P43						8.88'	P44	18"RCP
P44			8.65'	P43	18"RCP			
P45						7.74'	P46	18"RCP
P46			7.41'	P45	15"RCP			
P47			6.69'	P48	15"RCP			
P48						6.71'	P47	15"RCP
P49						4.29'	OFFSITE	36"RCP
P50						6.32'	P51	18"RCP
P51			6.23'	P50	18"RCP			
P52						6.27'	P53	36"RCP
P53			6.20'	P52	36"RCP			

STORM STRUCTURE TABLE

STRUCTURE	RIM (BOC)	TOP GRATE	INV-IN	FROM	SIZE	INV-OUT	TO	SIZE
CB1	9.95'		5.64'	P1	18"RCP	5.47'	Y18	18"RCP
			5.57'	CB12	12"RCP			
CB2	10.71'		4.87'	CB3	30"RCP	4.84'	30"RCP	OFFSITE
CB3	10.62'		4.96'	CB4	30"RCP	4.67'	CB2	30"RCP
			4.80'	Y17	12"RCP			
CB4	11.07'		5.81'	CB5	30"RCP	5.55'	CB3	30"RCP
			5.74'	Y18	12"RCP			
CB5	11.30'		5.72'	CB4	30"RCP	5.66'	CB6	30"RCP
			5.82'	Y15	12"RCP			
CB6	11.56'		5.90'	CB7	30"RCP	5.90'	CB5	30"RCP
CB7	11.67'		6.05'	CB8	30"RCP	5.95'	CB5	30"RCP
			6.06'	Y14	12"RCP			
CB8	11.63'		6.00'	FULL OF	WATER			
CB9	11.43'		6.21'	FULL OF	WATER			
CB10	11.08'		6.32'	FULL OF	WATER			
CB11	11.48'		6.57'	FULL OF	WATER			
CB12	9.84'		5.98'	Y13	12"RCP	5.79'	CB1	12"RCP
CB13	9.83'		6.33'	Y01	12"RCP	6.18'	OFFSITE	12"RCP
Y11		9.06'				7.10'	CB10	12"RCP
Y12		8.80'				8.67'	CB9	12"RCP
Y13		9.39'				8.90'	CB8	12"RCP
Y14		9.66'				8.18'	CB7	12"RCP
Y15		9.70'				8.38'	CB5	12"RCP
Y16		9.67'				8.49'	CB4	12"RCP
Y17		7.90'	5.57'	Y18	12"RCP	5.56'	CB3	15"RCP
Y18		8.44'	5.01'	CB1	18"RCP	4.98'	CB2	18"RCP
Y19		8.92'	5.66'	Y110	15"RCP	5.72'	Y17	15"RCP
Y110		9.49'	5.96'	Y111	12"RCP	5.96'	Y19	15"RCP
Y111		9.20'	7.50'	Y112	15"RCP	7.50'	Y110	15"RCP
Y112		9.83'	8.29'	Y113	15"RCP	8.22'	Y111	15"RCP
Y113		9.62'	8.77'	Y114	15"RCP	8.50'	Y112	15"RCP
Y114		10.03'	8.99'	Y02	12"PVC	8.82'	Y113	18"RCP
Y115		8.85'	6.64'	Y116	15"RCP	6.62'	CB12	15"RCP
Y116		9.31'	7.05'	Y117	15"RCP	6.84'	Y115	15"RCP
Y117		9.17'	7.20'	Y118	15"RCP	7.10'	Y116	15"RCP
Y118		9.67'	7.51'	P2	15"RCP	7.48'	Y117	15"RCP
Y119		10.32'	8.53'	FULL OF	WATER			
Y120		10.48'	8.80'	FULL OF	WATER			
Y121		10.94'	INACCESSIBLE			CONC LID		
Y122		10.12'	7.74'	BLDG	12"PVC	7.71'	Y114	12"PVC
Y123		9.35'	7.84'	BLDG	6"CLAY	7.56'	?	12"RCP
			7.58'	BLDG	12"RCP			
Y124		9.88'				8.38'	?	10"PVC
Y125		8.52'	7.03'	Y148	12"RCP	6.84'	Y126	12"RCP
Y126		8.10'	6.84'					
Y127		8.89'	7.27'	Y128	12"RCP	7.01'	P8	15"RCP
Y128		8.02'				6.99'	?	8"PVC
Y129		7.97'				6.48'	P9	18"CI
Y130		8.27'				7.13'	Y131	12"METAL
Y131		8.11'	6.92'	Y132	10"METAL	6.86'	P10	18"RCP
Y132		10.39'	8.94'	BLDG	8"PVC	8.83'	Y133	8"CLAY
Y133		10.39'	9.23'	Y134	8"CLAY	9.20'	Y132	8"CLAY
Y134		10.36'	8.98'	Y133	8"CLAY	8.95'	Y135	12"RCP
Y135		10.67'	8.54'	Y139	12"RCP	8.37'	Y136	15"RCP
			8.39'	Y150	12"RCP			
Y136		10.58'	8.36'	Y138	15"RCP	8.07'	?	15"RCP
			8.17'	Y138	12"RCP			
Y137		10.68'		FULL OF	WATER			
Y138		10.72'	8.68'	Y141	12"RCP	8.62'	Y136	12"RCP
Y139		10.57'	8.50'	Y140	8"RCP	8.51'	Y135	12"RCP
			8.54'	Y142	12"RCP	8.51'	Y155	12"RCP
Y140		10.39'	9.33'	BLDG	4"CLAY	9.00'	Y139	8"RCP
Y141		10.72'				9.10'	Y138	12"RCP
Y142		10.72'	9.11'	Y143	8"RCP	8.92'	Y139	8"RCP
Y143		10.61'	9.11'	Y144	8"RCP	8.92'	Y142	8"RCP
Y144		11.14'	9.02'	Y145	8"RCP	8.92'	Y143	8"RCP
Y145		10.92'	9.28'	?	8"RCP	9.25'	Y144	8"RCP
Y146		7.40'		FULL OF	WATER			
Y147		8.39'		FULL OF	WATER			
Y148		7.67'	Y149	15"RCP		7.57'	Y147	15"RCP
Y149						8.05'	Y148	15"RCP
Y150		10.80'	8.91'	Y134	12"RCP	8.83'	Y135	12"RCP
Y151						8.93'	CB13	12"RCP
FD1		10.40'	8.13'	BLDG	6"CI	8.02'	?	6"PVC
FD2		10.87'	9.29'	BLDG	6"CI	9.06'	?	6"PVC
FD3		10.84'	8.57'	BLDG	6"PVC	8.53'	?	6"CI
FD4		11.11'	9.45'	BLDG	6"CLAY	9.07'	?	6"PVC



1 / C-300 **OVERALL GRADING PLAN**
1" - 60'

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MARTA CARSWELL 1020 REGISTERED LANDSCAPE ARCHITECT FRANK D. CRAWFORD III 4/12/2024

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC 28515

ENERGY STAR PARTNER

No.	Date	Description
	07/25/24	ADDENDUM 3

ISSUE DATE: 06/12/24

PROJECT #: 2205
CAD TECH.: ILB
CHECKED BY: FDC

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OVERALL GRADING PLAN

C-300



VICINITY MAP (N.T.S.)

1. CURB INLET, SEE SHT. C-501, #8.
2. JUNCTION BOX, SEE SHT. C-502, #18.
3. BLOCK & GRAVEL INLET PROTECTION, SEE SHT. C-500, #11.
4. TEMPORARY SILT FENCE W/ OUTLETS AS SHOWN, SEE SHEET C-500, #8 & #16.
5. ROCK PIPE INLET PROTECTION, SEE SHT. C-503, #4.
6. TEMP GRAVEL CONST. ENTRANCE, C-500, #5.
7. CONC. WASHOUT PIT, SEE SHT. C-500, #10.
8. FLARED END SECTION, SEE SHT. C-502, #19.
9. DROP INLET, SEE SHT. C-503, #6.
10. YARD INLET, SEE SHT. C-501, #9.
11. VELOCITY DISSIPATER (OUTLET PROTECTION), SEE SHT. C-500, #15. VEL DISSIPATERS SHALL BE W1 6' x W2 8' x Ld 10' UNLESS OTHERWISE NOTED, CLASS A STONE, 12" THICK
12. GRASS SWALE, SEE SHT. C-500, #7.
13. STORM DRAIN CLEANOUT, SEE SHT. C-502, #17.
14. TEMP. SKIMMER BASIN, SEE SHT. C-500, #12 & #13.
15. TURF REINF. MAT, SEE SHT. C-501, #6.
16. TEMP. SEDIMENT TRAP, SEE SHT. C-501, #3.
17. TEMP. ROCK CHECK DAM, SEE SHT. C-503, #7.
18. TEMP. DIVERSION BERM, SEE SHT. C-500, #6.

NOTE: SEE GRADING PLAN SHEETS FOR ADDITIONAL GRADING & DRAINAGE RELATED ITEMS.

EROSION CONTROL CONSTRUCTION SEQUENCE

AREA OF NEW CLASSROOM STRUCTURE

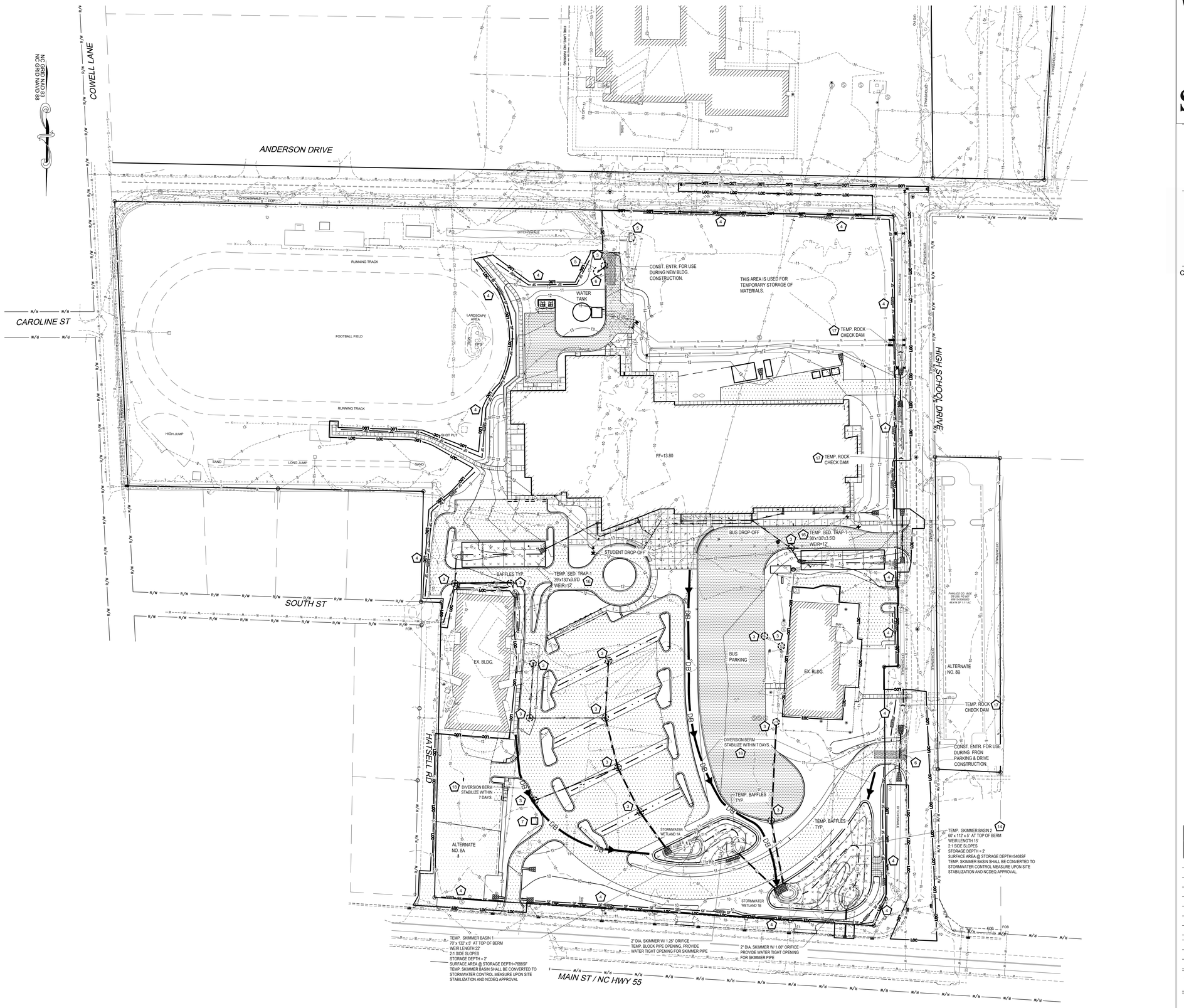
1. OBTAIN ALL NECESSARY PERMITS AND APPROVALS AND HOLD PRE-CONSTRUCTION CONFERENCE.
2. INSTALL GRAVEL CONSTRUCTION ENTRANCE AT SOUTH SIDE OFF OF ANDERSON DRIVE AS SHOWN ON PLAN.
3. INSTALL PERIMETER SILT FENCE AND SILT FENCE OUTLETS SOUTHWARD FROM THE TEMPORARY SEDIMENT TRAPS TO AROUND THE SOUTHERN PERIMETER OF THE CONSTRUCTION AREA AS SHOWN ON PLAN.
4. INSTALL THE TWO CHECK DAMS IN THE DITCHES ALONG HIGH SCHOOL DRIVE WEST OF THE NEW BUILDING.
5. INSTALL INLET PROTECTION AROUND EXISTING INLETS IN NEW BUILDING SITE AREA.
6. DEMOLISH PAVEMENT AND SPORTS RELATED STRUCTURES IN AREA OF NEW BUILDING SITE.
7. INSTALL TEMPORARY SEDIMENT TRAPS AS SHOWN ON PLAN.
8. ROUGH GRADE THE NEW BUILDING SITE, REAR PARKING AREA AND ADJACENT SIDEWALKS AND FRONT ENTRY PLAZA.
9. APPLY TEMPORARY SEEDING TO ALL DISTURBED AREA.
10. INSTALL UNDERGROUND UTILITIES IN NEW BUILDING AREA.
11. CONSTRUCT BUILDING PAD.
12. FINE GRADE REAR PARKING AREA.
13. INSTALL CURB, GUTTER AND SIDEWALKS AT REAR AND SIDES OF NEW BUILDING.
14. INSTALL PERMANENT VELOCITY DISSIPATERS AS SHOWN IN THE PLANS.
15. INSTALL ROOF DRAIN STORM PIPES. ENSURE ROOF DRAIN STORM PIPES DRAIN TO TEMPORARY SEDIMENT TRAPS.
16. INSTALL FRONT BUILDING SIDEWALKS AND ENTRY PLAZA
17. INSTALL ASPHALT PAVEMENT AT REAR OF BUILDING.
18. REMOVE TEMPORARY MEASURE UPON APPROVAL FROM NCDEQ PERTAINING TO THE NEW BUILDING CONSTRUCTION.

DEMOLITION OF EXISTING STRUCTURE AND NEW PARKING AREAS

19. WHEN NEW BUILDING IS COMPLETED BEGIN WORK ON NORTHERN (FRONT) DRIVES AND PARKING.
20. INSTALL GRAVEL CONSTRUCTION ENTRANCE AT THE HIGH SCHOOL DRIVE LOCATION SHOWN ON THE PLAN.
21. INSTALL SEDIMENT FENCE AND STRAW WATTLE OUTLETS AROUND NORTH, EAST AND WEST PERIMETERS ASSOCIATED WITH THE NEW NORTHERN PARKING AND DRIVE AREAS.
22. INSTALL THIRD CHECK DAM AT DITCH ALONG HIGH SCHOOL DRIVE.
23. DEMOLISH EXISTING BUILDINGS, PAVEMENTS AND OTHER COMPONENTS IN AREA OF NEW PARKING LOTS AND DRIVEWAYS.
24. CONSTRUCT TEMPORARY SKIMMERS BASINS.
25. CONSTRUCT TEMPORARY DIVERSION BERMS AS AREAS ARE BEING CLEARED AND GRUBBED. DIVERSION BERMS ARE TO DRAIN TO SKIMMER BASINS.
26. INSTALL INLET PROTECTION AROUND EXISTING INLETS IN AREAS OF PARKING LOT AND DRIVEWAY CONSTRUCTION.
27. CLEAR AND GRUB THE SITE WITHIN THE LIMITS OF CONSTRUCTION.
28. APPLY TEMPORARY SEEDING TO ALL DISTURBED AREAS.
29. GRADE THE PROPOSED PARKING FACILITY & DRIVEWAYS.
30. INSTALL STORM WATER UTILITIES. STORM DRAINAGE SYSTEM WILL BE CONSTRUCTED SO THAT PERMANENT DRAINAGE OUTLETS RELEASE RUNOFF INTO THE STORM WATER CONTROL MEASURES WHICH WILL ACT AS TEMPORARY SKIMMER BASINS.
31. INSTALL CURB AND GUTTER AND REMAINING SIDEWALKS.
32. INSTALL ASPHALT.
33. REMOVE TEMPORARY SKIMMER BASIN COMPONENTS UPON APPROVAL BY NCDEQ.
34. RE-ESTABLISH STORM WATER CONTROL MEASURE.
35. APPLY PERMANENT SEEDING (GROUND COVER) TO ALL DISTURBED AREAS.
36. ALL TEMPORARY MEASURES SHALL BE REMOVED ONLY UPON NCDEQ APPROVAL.

DWQ Construction General Permit Ground Stabilization Requirements		
Site Area Description	**Stabilization Time Frame**	**Stabilization Time Frame Exceptions**
Perimeter dikes, swales, ditches and slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
Slopes 3:1 or flatter	14 days	7-days for slopes greater than 50 feet in length
All other areas with slopes flatter than 4:1	14 days	None (except for perimeters and HQW Zones)

* "Extensions of time may be approved by the permitting authority based on weather or other site-specific condition that make compliance impracticable." (Sectio II.B(2)(b))



1 OVERALL EROSION CONTROL PLAN
C-300.1 1" - 60'

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 1020 FRANK D. CRAWFORD III 4/12/2024

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC 28515

ENERGY STAR PARTNER

No.	Date	Description
	07/25/24	ADDENDUM 3

ISSUE DATE:	06/12/24
PROJECT #:	2205
CAD TECH.:	ILB
CHECKED BY:	FDC

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OVERALL EROSION CONTROL PLAN

C-300.1



VICINITY MAP (N.T.S.)

GRADING/EROSION CONTROL NOTES

1. CURB INLET, SEE SHT. C-501, #8.
2. JUNCTION BOX, SEE SHT. C-502, #18.
3. BLOCK & GRAVEL INLET PROTECTION, SEE SHT. C-500, #11.
4. TEMPORARY SILT FENCE W/ OUTLETS AS SHOWN, SEE SHEET C-500, #8 & #16.
5. ROCK PIPE INLET PROTECTION, SEE SHT. C-503, #4.
6. TEMP GRAVEL CONST. ENTRANCE, C-500, #5.
7. CONC. WASHOUT PIT, SEE SHT. C-500, #10.
8. FLARED END SECTION, SEE SHT. C-502, #19.
9. DROP INLET, SEE SHT. C-503, #6.
10. YARD INLET, SEE SHT. C-501, #9.
11. VELOCITY DISSIPATER (OUTLET PROTECTION), SEE SHT. C-500, #15. VEL. DISSIPATERS SHALL BE W1 6' x W2 8' x La 10' UNLESS OTHERWISE NOTED, CLASS A STONE, 12" THICK.
12. GRASS SWALE, SEE SHT. C-500, #7.
13. STORM DRAIN CLEANOUT, SEE SHT. C-502, #17.
14. TEMP. SKIMMER BASIN, SEE SHT. C-500, #12 & #13.
15. TURF REINF. MAT, SEE SHT. C-501, #6.
16. TEMP. SEDIMENT TRAP, SEE SHT. C-501, #3.
17. TEMP. ROCK CHECK DAM, SEE SHT. C-503, #7.
18. TEMP. DIVERSION BERM, SEE SHT. C-500, #6.

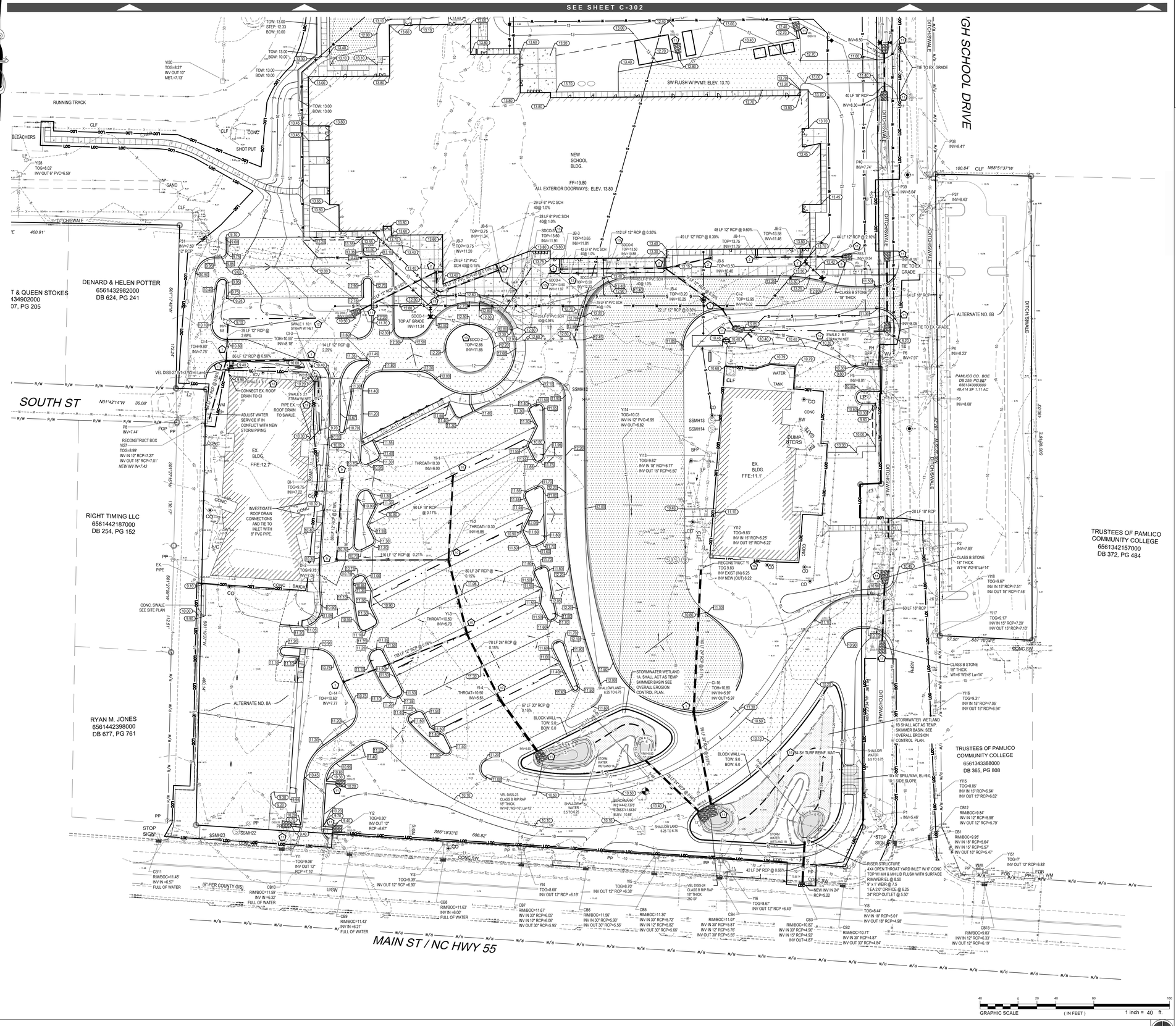
SEE SHT. C300.1 FOR EROSION CONTROL ITEMS

ADDITIONAL NOTES

1. **ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THE TITLE PAGE SHALL APPLY TO THIS PLAN.**
2. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. BENCHMARK IS AN BRASS DISK SET IN CONC SW IN THE NORTHWEST AREA OF THE SITE WITH COORDINATES N N 514442.74 E 2663741.64 AND AN ELEVATION OF 10.85'.
3. PURSUANT TO G.S. 113A-57(3), PROVISIONS FOR PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT. ALL SEEDED AREAS WILL BE FERTILIZED, RE-SEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGORIOUS, DENSE VEGETATION COVER. IF ANY SEEDING FAILURE OCCURS, THOSE AREAS SHALL BE RE-SEEDED WITH RYE GRAIN FOR TEMPORARY STABILIZATION AND PREPARED FOR PERMANENT SEEDING.
4. SEE DETAIL SHEETS FOR EROSION CONTROL MEASURES & MAINTENANCE.
5. CONTACT PERSON: PAMLICO COUNTY BOARD OF EDUCATION (252) 745-4171.
6. PARCEL IDENTIFICATION NUMBER(S): 6561-43-0892
7. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL MEASURES ONLY AFTER REMOVAL HAS BE APPROVED BY DENR.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING EROSION AND SEDIMENTATION CONTROL MONITORING ACCORDING TO NPDES PERMIT REQUIREMENTS.
9. SEE SHEET C5.0 FOR TEMPORARY & PERMANENT SEEDING REQUIREMENTS.

NC GRID NAD 83

SEE SHEET C-302



1 GRADING PLAN
C-301 1" = 40'

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GRADING & DRAINAGE PLAN

C-301

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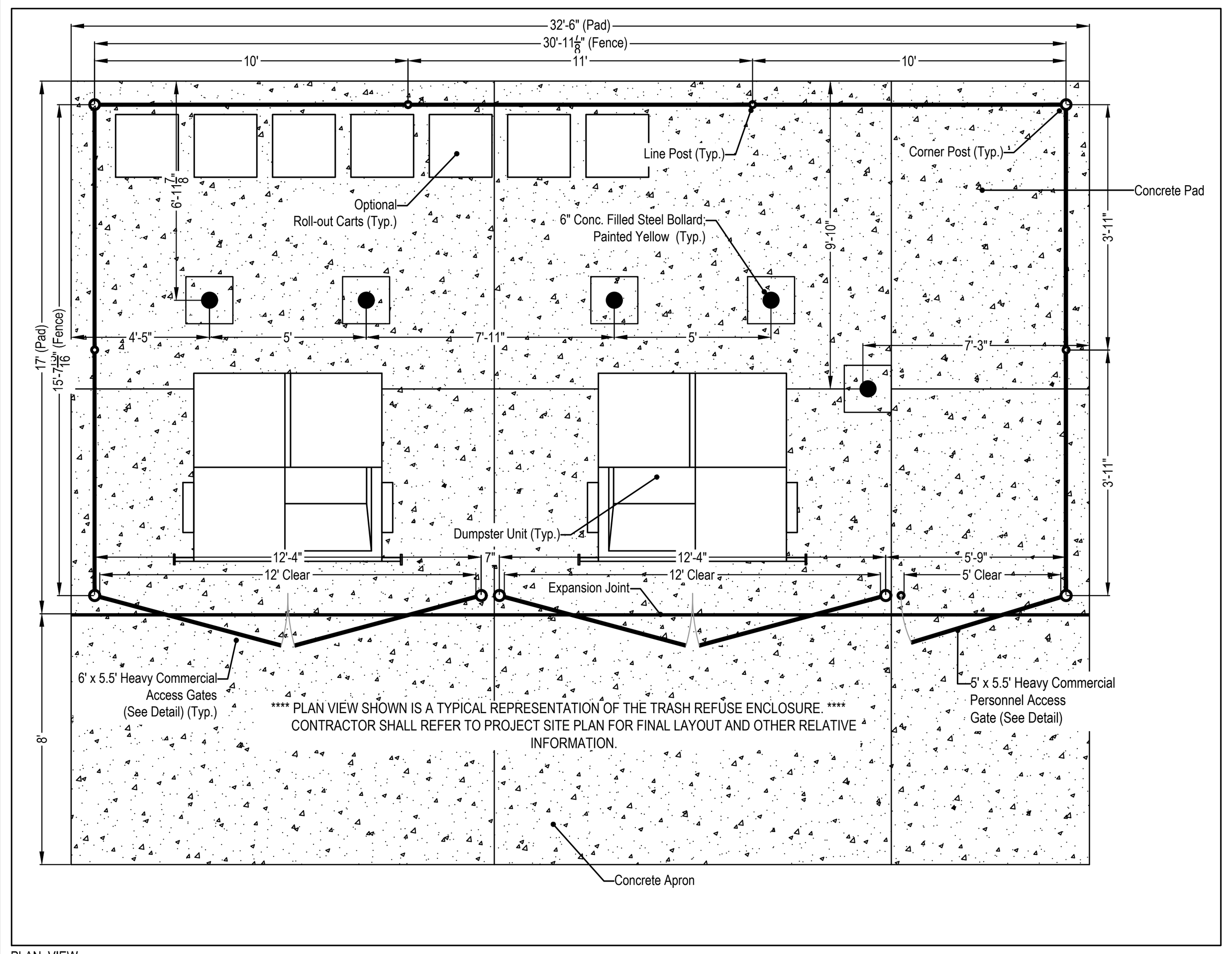
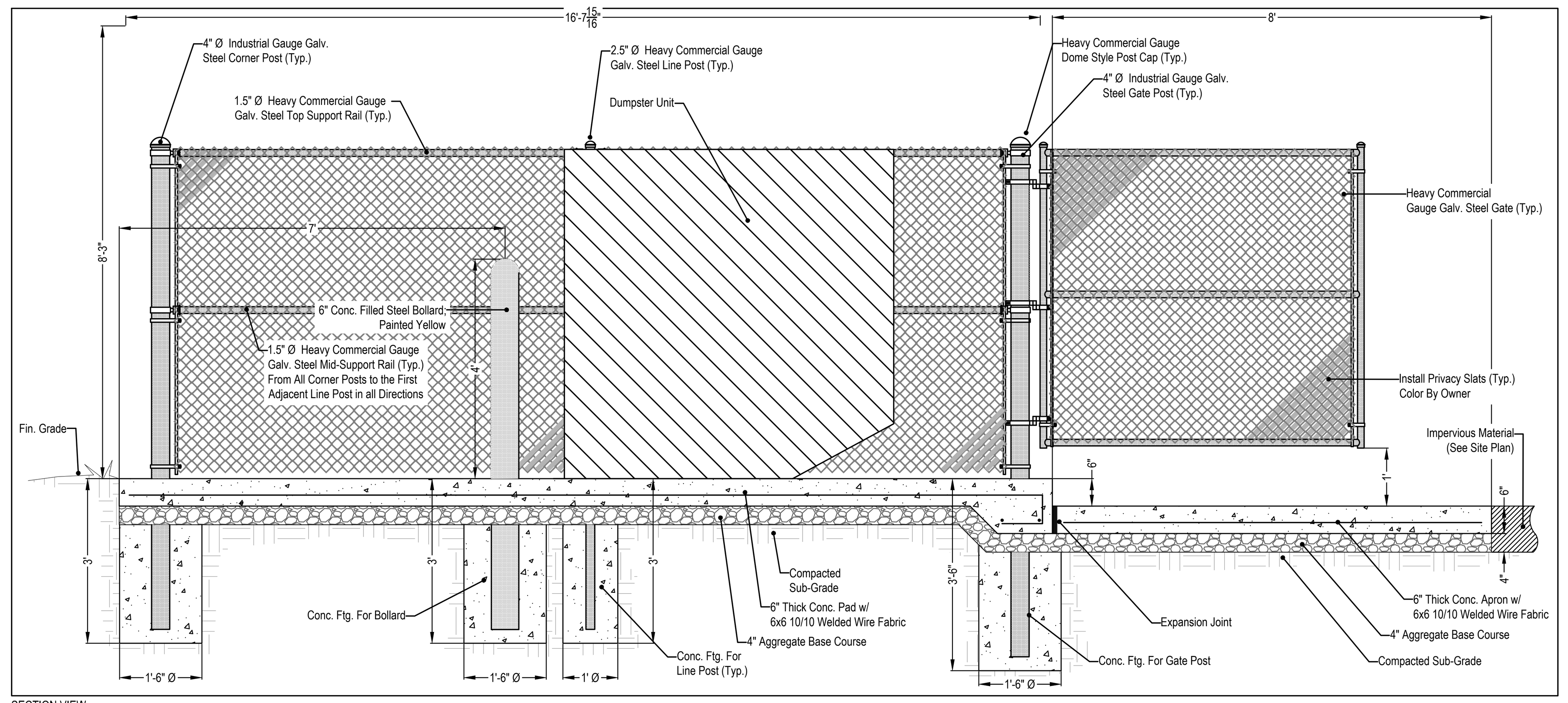
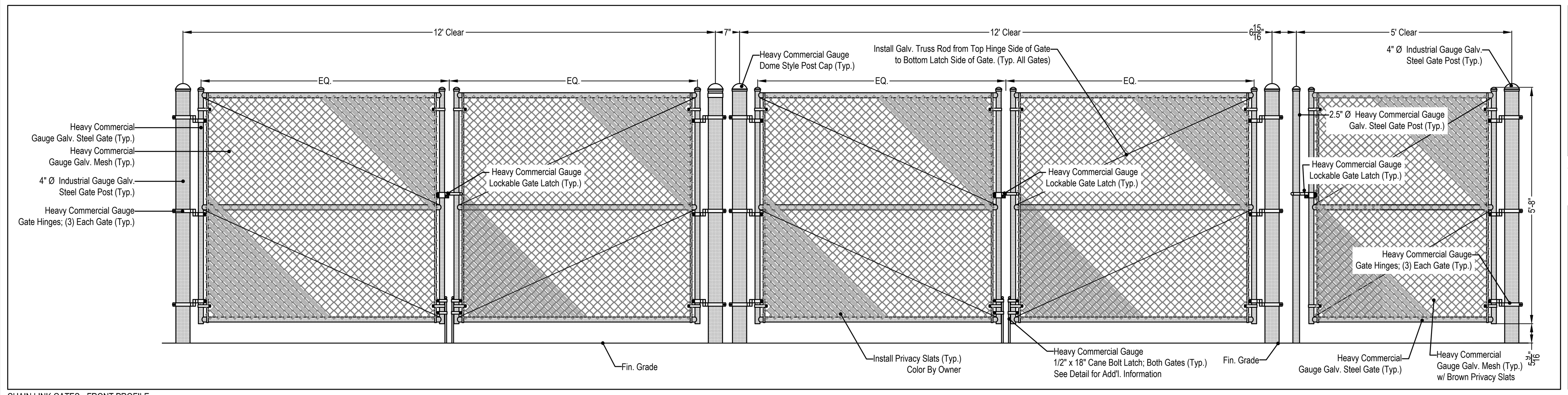


PLAN VIEW
N.T.S.



SECTION VIEW
N.T.S.

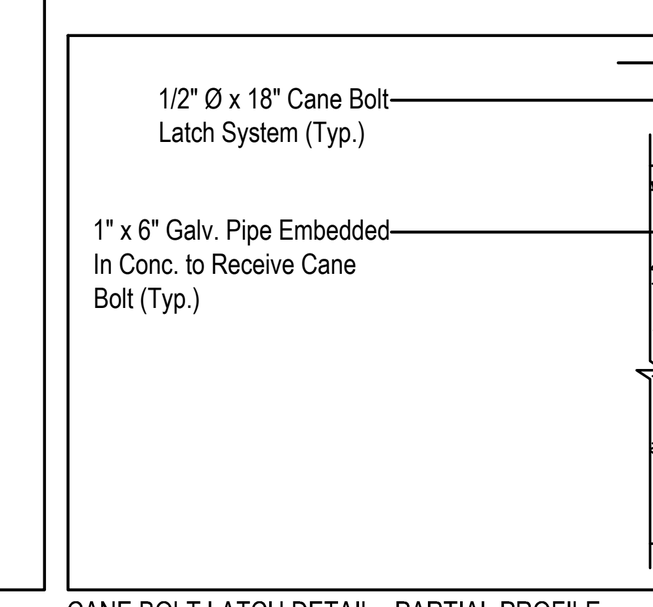


CHAIN LINK GATES - FRONT PROFILE
N.T.S.

General Notes:

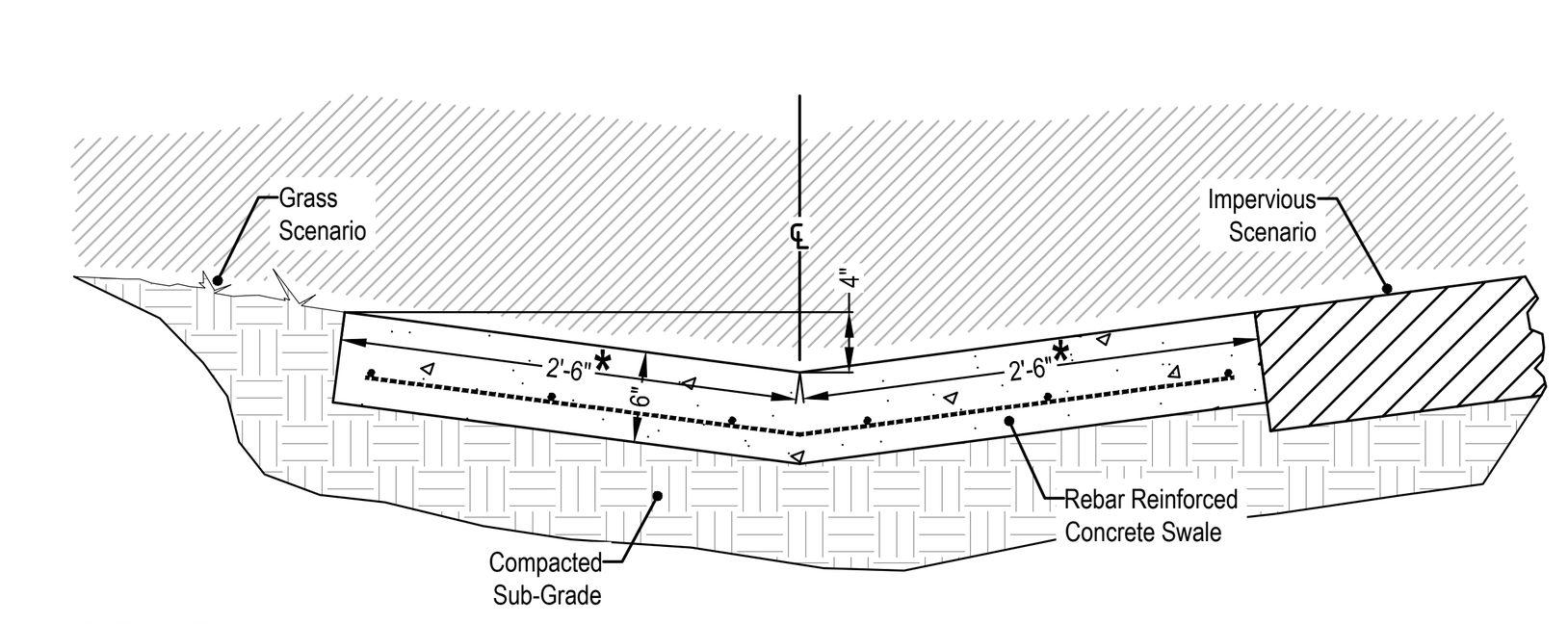
1. Trash refuse enclosure shall conform to all Building Code & Health Department requirements.
2. All steel finishes shall be shopped primed and painted. Color to be selected by Owner.
3. Pad drain may be required. See Utility Plan for additional information. If a drain is required, then the concrete pad shall be sloped 1/4" / ft. toward drain unless otherwise indicated.
4. All nuts, bolts, washers, and other mounting hardware and fittings shall be galvanized steel unless otherwise indicated.
5. All concrete shall be 3,000 psi tested.

GENERAL NOTES
No Scale



CANE BOLT LATCH DETAIL - PARTIAL PROFILE
N.T.S.

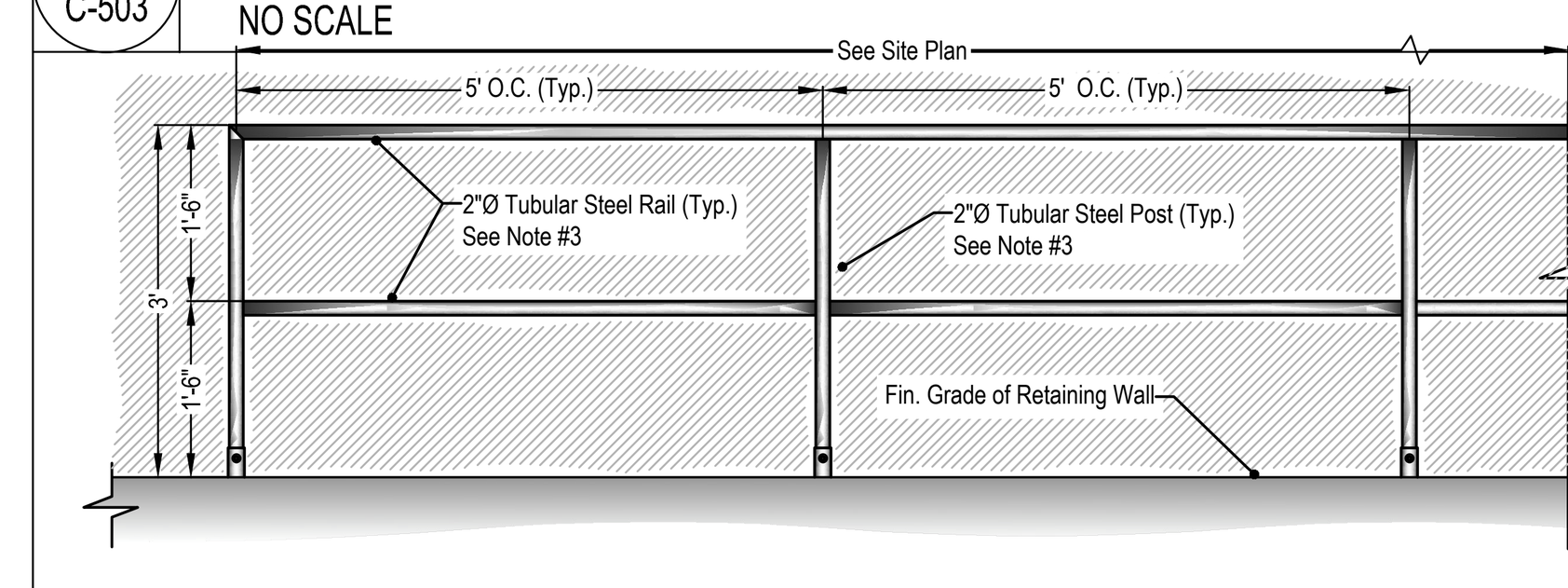
1	**DOUBLE UNIT DUMPSTER ENCLOSURE**
C-503	NO SCALE



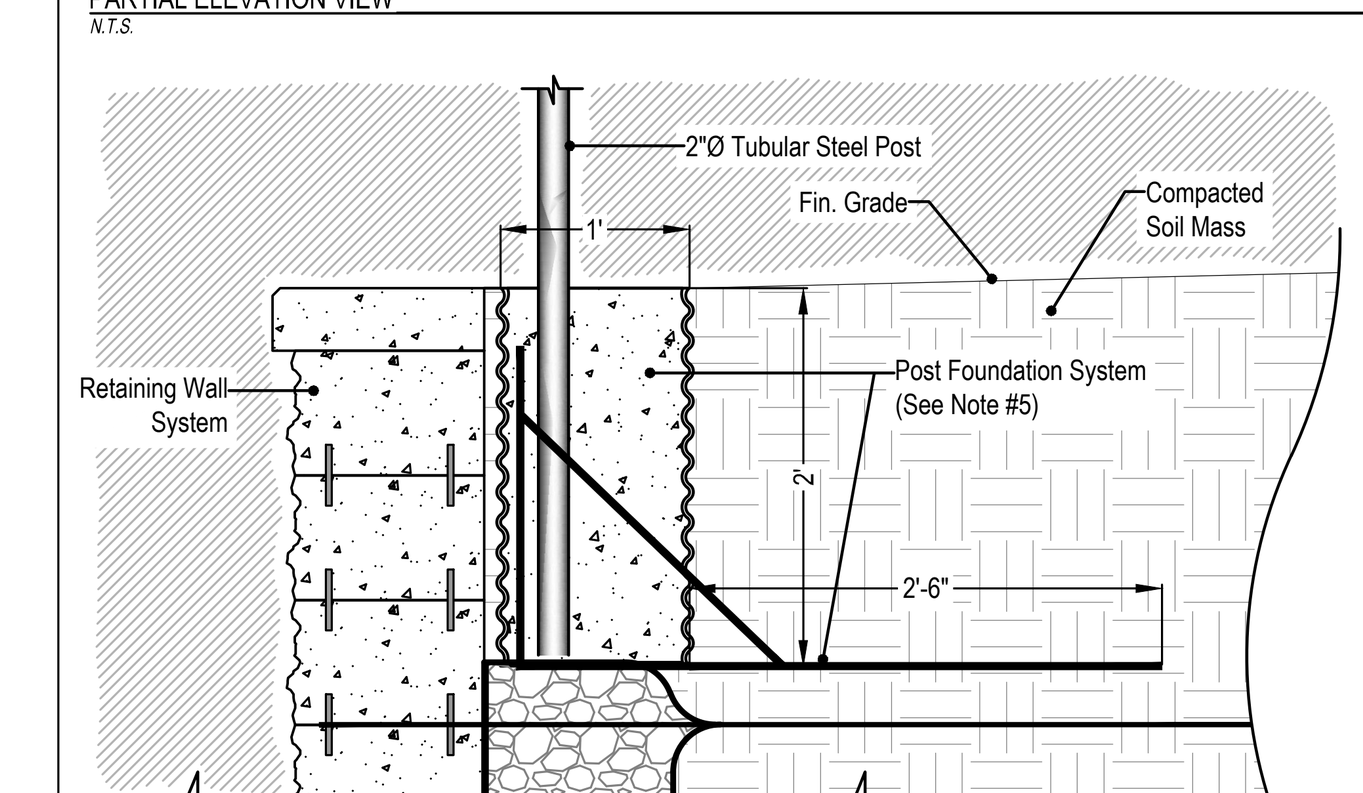
SECTION VIEW
N.T.S.

CONCRETE SWALE - 5-FT * *SEE PLAN FOR DIMENSIONS
NOT TO SCALE

2	**CONCRETE SWALE**
C-503	NO SCALE



PARTIAL ELEVATION VIEW
N.T.S.



PARTIAL SECTION VIEW
N.T.S.

General Notes:

1. All mounting hardware and fasteners including, but not limited too, bolts, washers, nuts, etc., shall be stainless steel.
2. Steel posts, railing, and sleeves shall be shop-primed and painted. Color to be selected by Owner.
3. All concrete shall be 3,000 PSI.
4. Railing shall be welding in accordance with specifications.
5. Post foundation system shall be Strata Sleeve-It System, or approved equal. System shall be installed in accordance with Manufacturer's recommendations.

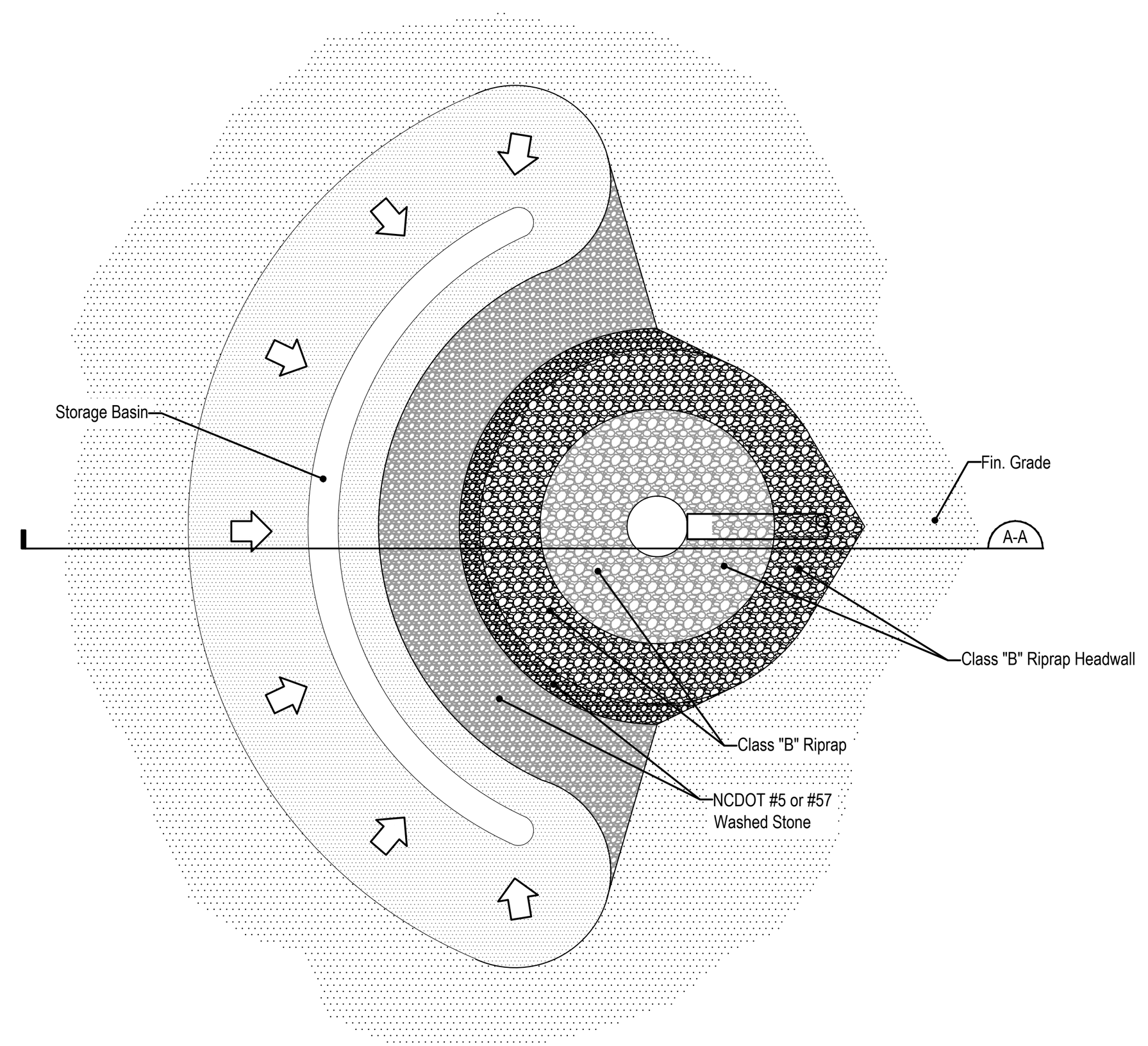
3	**TYPICAL STEEL TUBE RETAINING WALL GUARDRAILING**
C-503	NO SCALE

Construction Specifications:

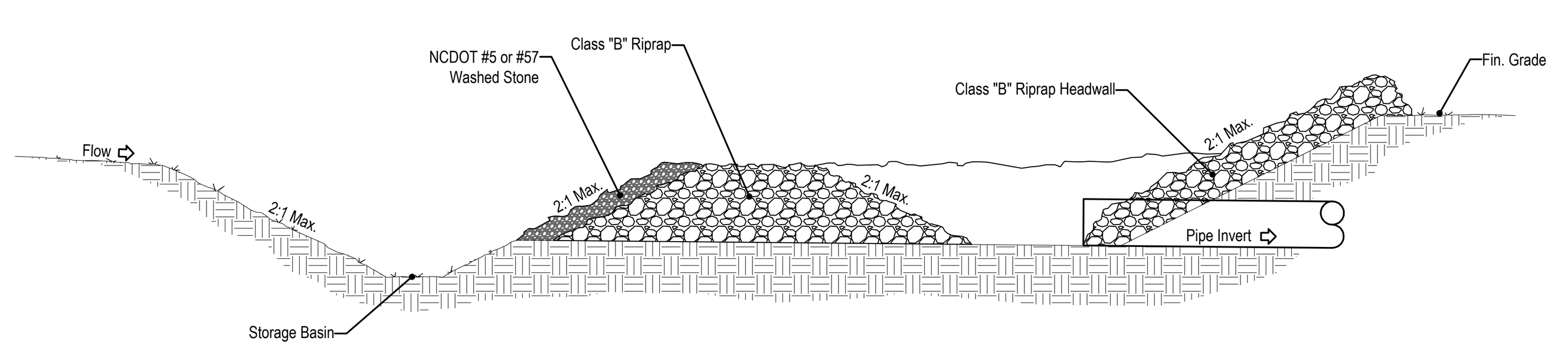
1. Clear the area of all debris that might hinder excavation and disposal of spoil.
2. Install class "B" riprap in a semi-circle where it ties into the embankment. The minimum crest width of the riprap shall be 3-ft, with a minimum bottom width of 11-ft. The minimum height shall be 2-ft, but 1-ft lower than the shoulder of the embankment or diversions.
3. A 1-ft thick layer of NCDOT #5 or #57 washed stone shall be placed on the outside slope of the riprap.
4. The sediment storage area shall be excavated around the outside of the stone horseshoe 18-inches below natural grade.
5. When the contributing drainage area has been stabilized, fill depression and establish final grading elevations, compact area properly, and stabilize with ground cover per specifications.

Maintenance:

1. Inspect rock pipe protection at least weekly and after each significant (1/2-inch or greater) rainfall event and repair immediately. Remove sediment and restore the sediment storage area to its original dimensions when the sediment has accumulated to one-half of the design depth for the trap. Place the sediment that is remove in the designated disposal area and replace the contaminated part of the gravel facing.
2. Check the structure for damage. Any riprap displaced from the stone horseshoe must be replaced immediately.
3. After all the sediment-produceing areas have been permanently stabilized, remove the structure and all unstable sediment after removal has been approved by NCDENR. Smooth the area to blend with the adjoining areas and provide permanent ground cover per specifications.



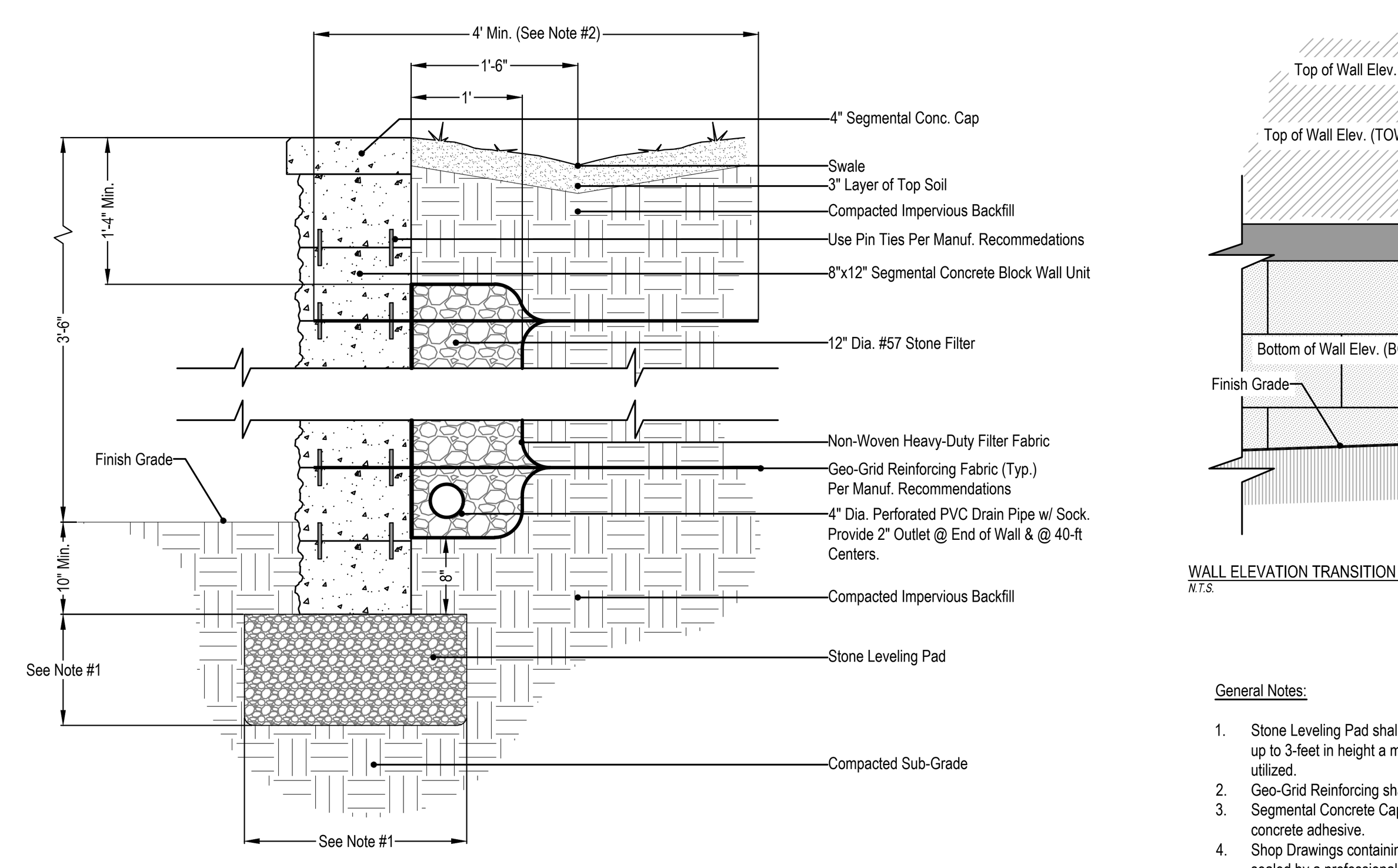
PLAN VIEW
N.T.S.



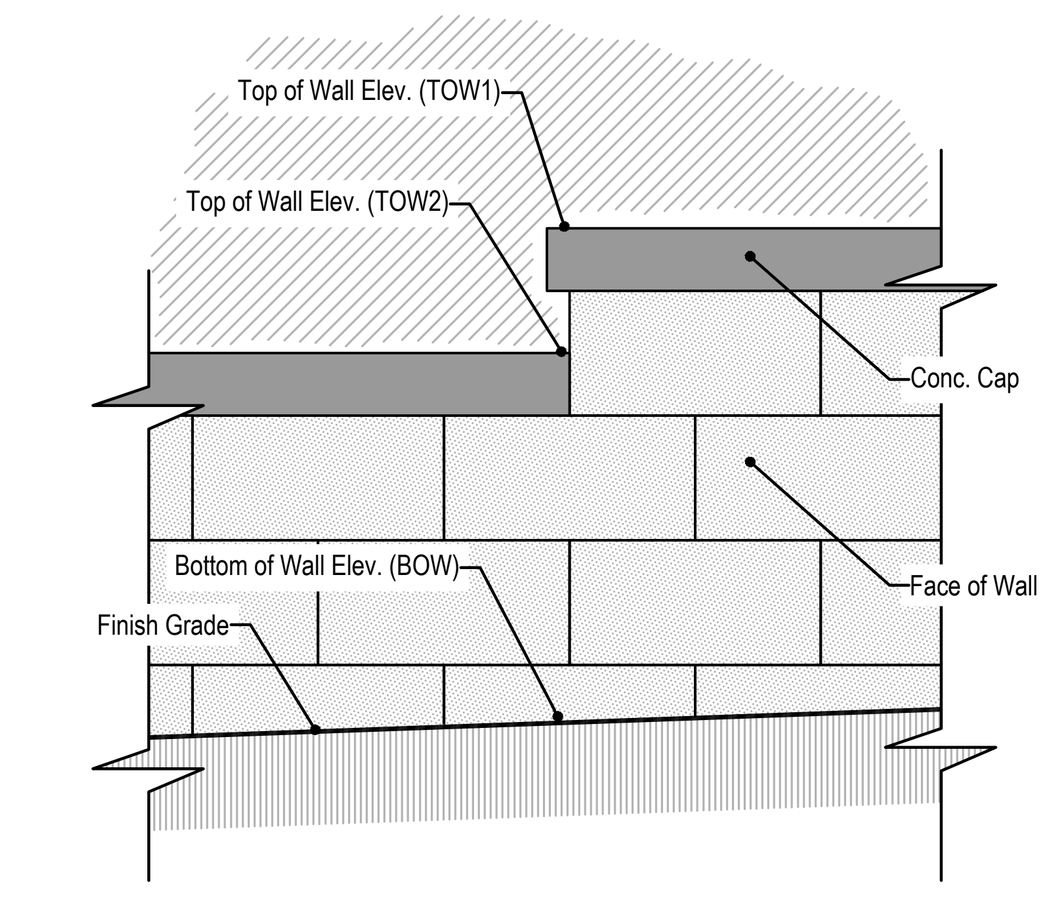
A-A SECTION VIEW
N.T.S.

ROCK PIPE INLET PROTECTION
NOT TO SCALE

4	**ROCK PIPE INLET PROTECTION**
C-503	NO SCALE



SECTION VIEW
N.T.S.

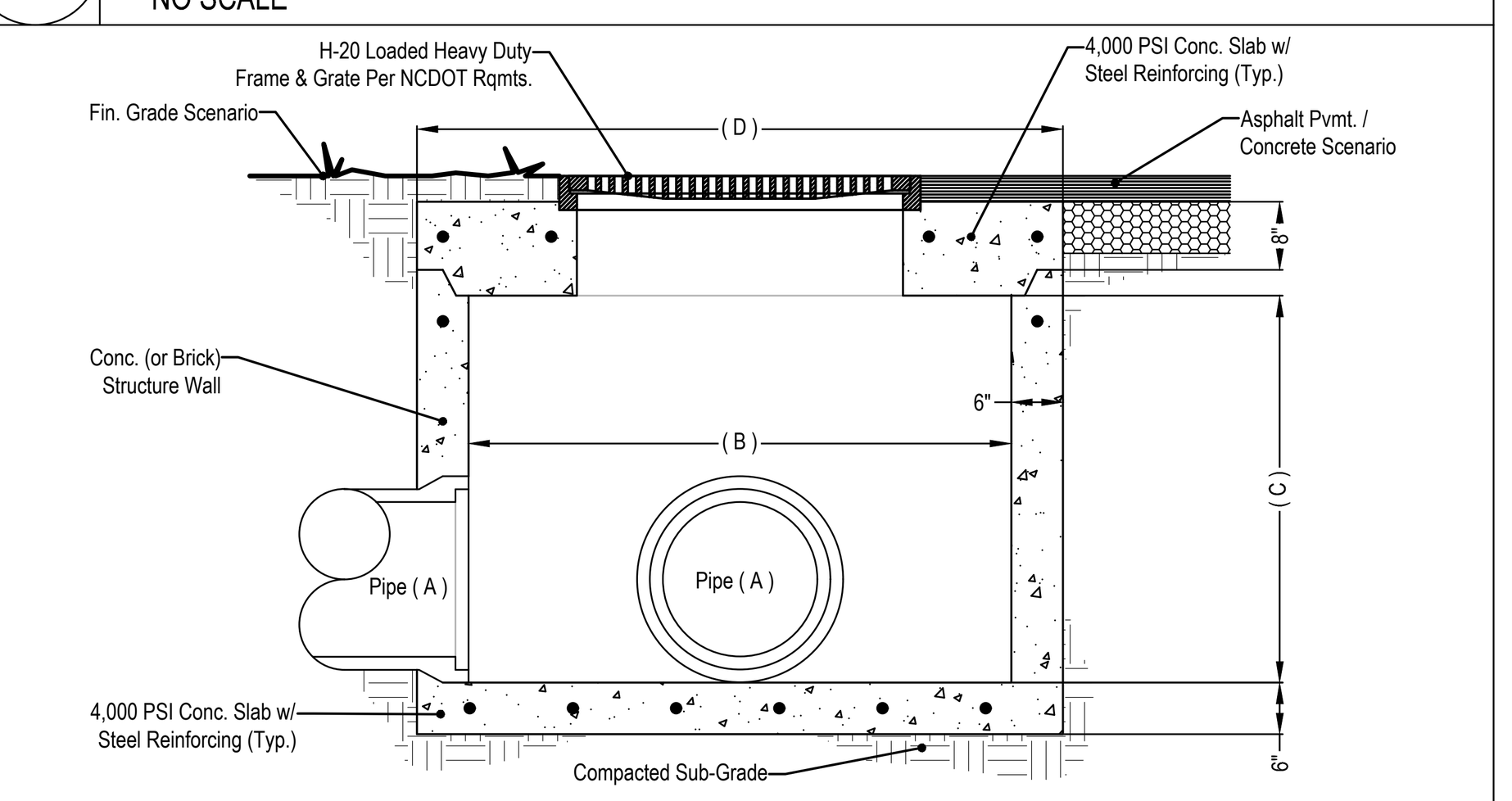


WALL ELEVATION TRANSITION - PARTIAL VIEW
N.T.S.

General Notes:

1. Stone Leveling Pad shall be installed per manufacturer's recommendations. For walls up to 3-feet in height a minimum pad dimension of 12" Deep x 30" Wide shall be utilized.
2. Geo-Grid Reinforcing shall be installed per manufacturer's recommendations.
3. Segmental Concrete Cap shall be secured to wall system with high-strength flexible concrete adhesive.
4. Shop Drawings containing all design & construction component shall be submitted and sealed by a professional licensed North Carolina Engineer.

5	**SEGMENTAL CONCRETE BLOCK WALL**
C-503	NO SCALE



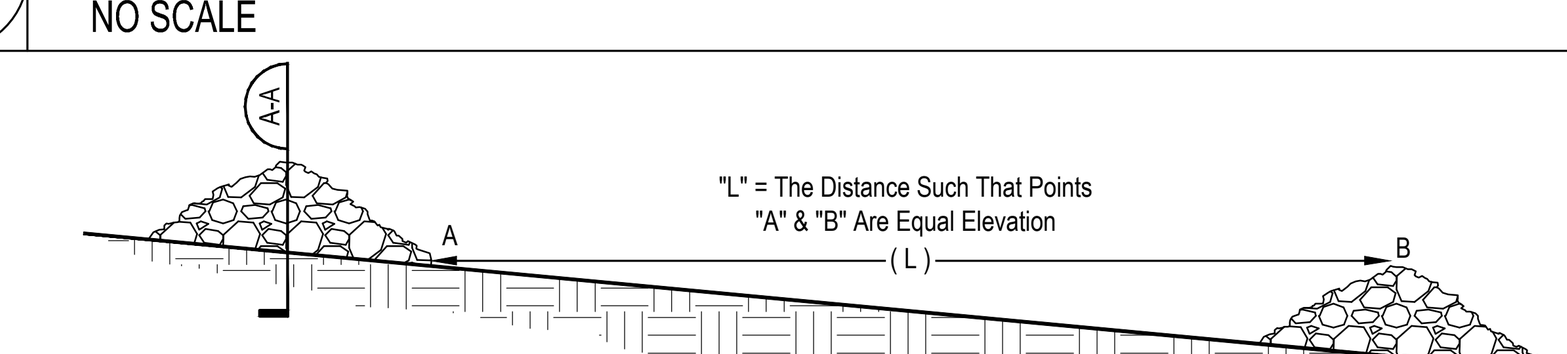
SECTION VIEW
N.T.S.

Pipe Diameter [A] (in)	Dimensions (ft)		
	B	C (Min.)	D
12	3.50	2.33	4.83
15	3.50	2.58	4.83
18	4.00	2.91	5.33
24	4.00	3.41	5.33
30	4.00	3.91	5.33
36	4.00	4.50	5.33
42	4.00	4.91	5.33
48	4.00	5.41	5.91

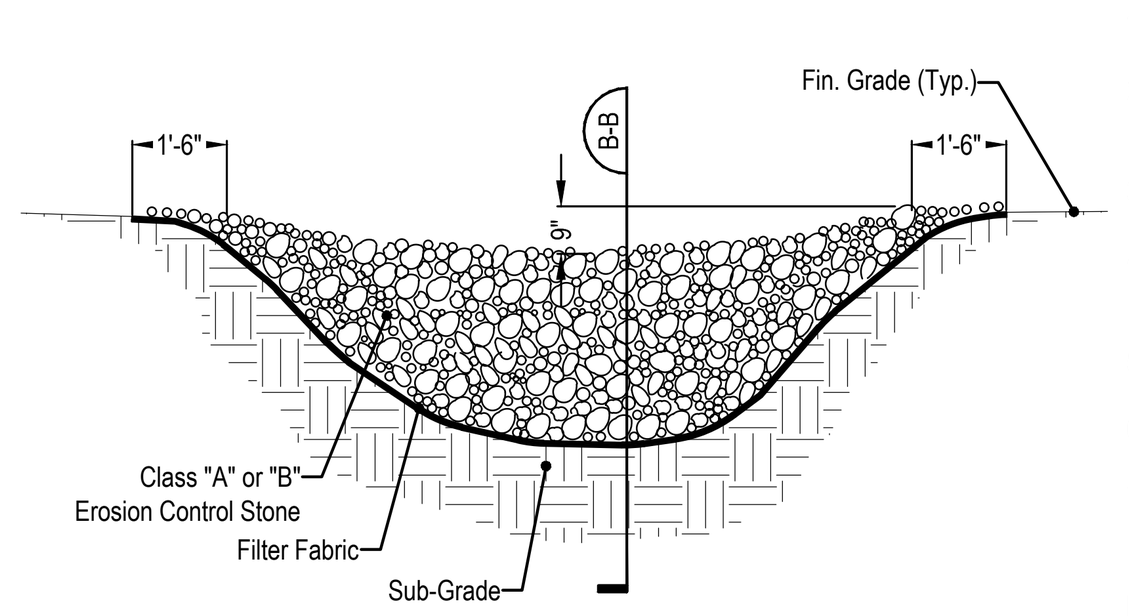
General Notes:

1. Riser height shall be adjusted as necessary to bring frame & grate to finish grade.
2. All basins over 3'-6" in depth shall be provide with copolymer polypropylene structure steps per NCDOT Standard 840.66 at 1'-2" o.c. unless otherwise specified or required.
3. Use Type "E", "F", & "G" grates per NCDOT Standard 840.03 unless otherwise specified.
4. Jumbo Brick will be permitted unless otherwise specified. Concrete Brick or 4" Solid Concrete Blocks may be used in lieu of clay bricks. for basins 8-ft in height or less use 8-in walls. Over 8-ft use 12-in walls up to 6-ft from top then continue with 8-in wall for the remaining 6-ft.
5. Inverts shall be shaped to form a smooth, regular surface, sloped to prevent sedimentation and provide positive drainage.
6. All concrete used shall be 4000 psi.
7. This detail is a general representation of a drop inlet structure as it relates to the orientation and placement of components. actual field and design conditions may vary.
8. All basins located within areas of traffic shall be H20 Loaded Traffic Rated Precast Concrete Boxes per NCDOT Standards.

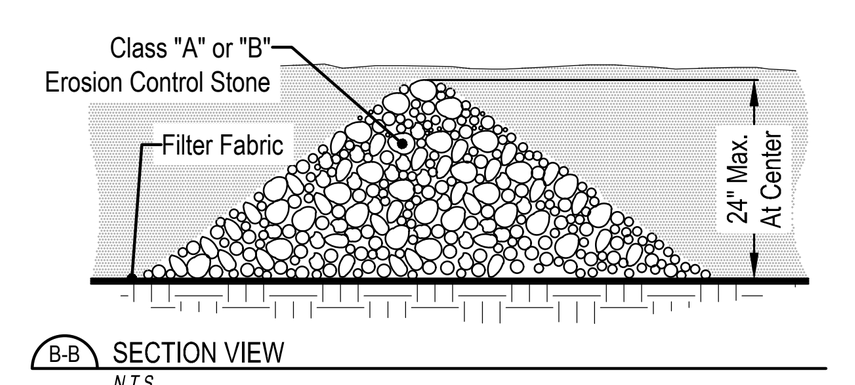
6	**DROP INLET**
C-503	NO SCALE



GENERAL SECTION VIEW
N.T.S.



A-A SECTION VIEW
N.T.S.



B-B SECTION VIEW
N.T.S.

Construction Specifications:

1. Place stone to the lines and dimensions shown in the plan on a filter fabric foundation.
2. Keep the center stone section at least 9-inches below natural ground level where the dam abuts the channel banks.
3. Extend stone at least 1.5-ft beyond the ditch bank to keep water from cutting around the ends of the check dam.
4. Set spacing between dams to assure that the elevation at the top of the lower dam is the same as the toe elevation of the upper dam.
5. Protect the channel after the lowest check dam from heavy flow that could cause erosion.
6. Make sure that the channel reach above the most upstream dam is stable.
7. Ensure that other areas of the channel, such as culvert entrances below the check dams, are not subject to damage or blockage from displaced stones.

Maintenance:

1. Inspect check dams and channels at weekly and after each significant (1/2-inch or greater) rainfall event and repair immediately. Clean out sediment, straw, limbs, or other debris that could clog the channel when needed.
2. Anticipate submergence and deposition above the check dam and erosion from high flows around the edges of the dam. Correct all damage immediately. If significant erosion occurs between dams, additional measures can be taken such as, installing a protective riprap liner in that portion of the channel.
3. Remove sediment accumulated behind the dams as needed to prevent damage to channel vegetation, allow the channel to drain through the stone check dam, and prevent large flows from carrying sediment over the dam. Add stones to dams as needed to maintain design height and cross section.

7	**ROCK CHECK DAM**
C-503	NO SCALE

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1020 FRANK D. CRAWFORD JR. 4/12/2024

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC 28515

ENERGY STAR PARTNER

No.	Date	Description
	07/25/24	ADDENDUM 3

ISSUE DATE: 06/12/24
PROJECT #: 2205
CAD TECH.: ILB
CHECKED BY: FDC

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DETAILS

C-503

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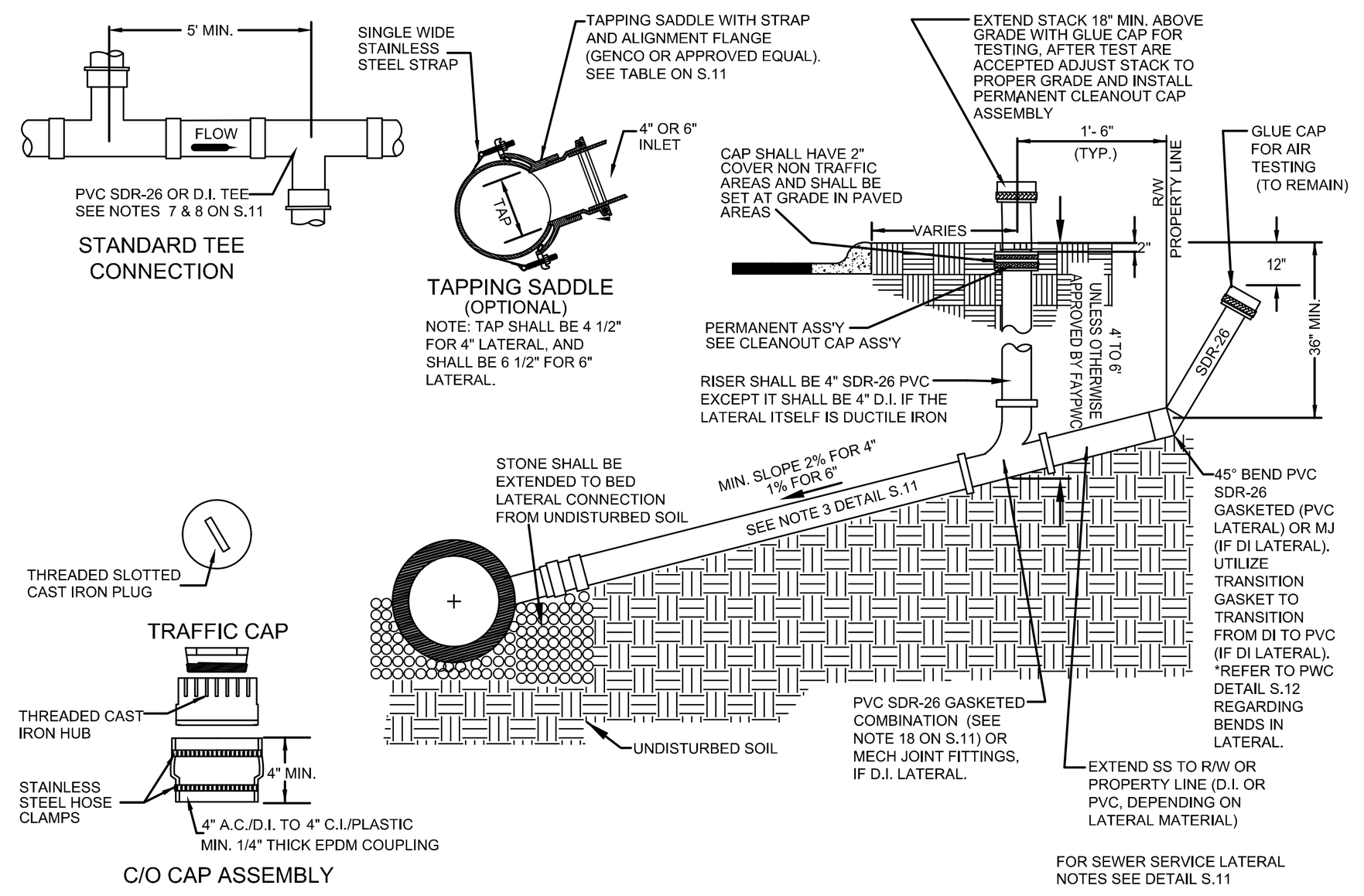

** ALL REFERENCES TO "PWC" IN THIS DETAIL SHALL REFER TO THE LOCAL UTILITY AUTHORITY UNLESS OTHERWISE SPECIFIED **

1 C-504

SANITARY SEWER LATERAL

NO SCALE

SEWER SERVICE LATERAL NOTES

1. HOLE IN SANITARY SEWER MAIN MUST BE CUT WITH SHELL CUTTER NO HAMMER TAPS ALLOWED.
2. LATERAL SHALL CONFORM TO ASTM SPECS. D-3034 SDR-26 UNLESS OTHERWISE INDICATED AS D.I.
3. ALL PIPE & FITTINGS SHALL BE 4" OR 6" UNLESS OTHERWISE SPECIFIED.
4. ALL D.I. PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY (PROTECTO 401). THE ENTIRE D.I. LATERAL SHALL BE COMPRISED OF D.I. PIPE & MECHANICAL JOINT FITTINGS.
5. ALL CONNECTIONS SHALL HAVE RUBBER GASKET SEALS INSTALLED.
6. SANITARY SEWER SERVICE C/O STACK SHALL BE LOCATED 18" FROM WATER SERVICE LOCK VALVE WHEN IN THE SAME DITCH.
7. INSTALLATION OTHER THAN AS SHOWN MUST BE APPROVED BY THE PWC.
8. CONNECTIONS TO THE TOP OF MAIN SHALL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE PWC PROJECT COORDINATOR.
9. SLOPE AND DEPTH OF THE SERVICE LATERAL SHALL BE DETERMINED BY THE TOPOGRAPHY OF THE LOT AS APPROVED BY THE PWC ENGINEER OR AS INDICATED ON THE DRAWINGS.
10. LATERAL SHALL CONFORM TO THE 2% MINIMUM SLOPE FOR THE 4" OR THE 1% MINIMUM SLOPE FOR THE 6". MAXIMUM CLEAN OUT SPACING FOR 4" PIPE 75', 6" PIPE 100'.
11. SEE INTERIOR DROP STRUCTURE OR SLIDE, MORTAR SLIDE & SHELF DETAIL FOR VERTICAL DROPS OF MAINS AND LATERALS.
12. LATERALS LESS THAN 3' IN DEPTH OR GREATER THAN 20' DEPTH SHALL UTILIZE DUCTILE IRON PIPE AND FITTINGS WITH CERAMIC EPOXY (PROTECTO 401), OR WHEN SEPARATION REQUIREMENTS CANNOT BE MET.
13. ENTIRE SEWER LATERAL ASSEMBLY SHALL BE AIR TESTED CONCURRENTLY WITH SEWER MAIN.
14. INDIVIDUAL LATERALS SHALL BE CLEANED AND FLUSHED PRIOR TO FLUSHING SANITARY SEWER MAINS.
15. LATERAL SHALL NOT BE BACK-FILLED UNTIL INSPECTED BY THE FAYPWC PROJECT COORDINATOR.
16. WYE CONNECTIONS SHALL NOT BE USED TO TIE LATERALS INTO A MANHOLE.
17. IF BENDS ARE APPROVED BY THE PROJECT COORDINATOR, STONE BEDDING IS REQUIRED TO BE INSTALLED FROM UNDISTURBED (SEE DETAIL S.12) SOIL TO BOTTOM OF BEND.
18. PVC COMBINATION SHALL BE A MOLDED WYE AND BEND, GASKETED, SDR26, AS MANUFACTURED BY HARCO, GPK OR APPROVED EQUAL.
19. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
20. ALL LATERALS (4" AND 6") SHALL UTILIZE A 4" RISER (STACK).
21. REFER TO DETAIL S.12 FOR SEPARATION REQUIREMENTS.
22. LOCATION OF CLEANOUT SHALL BE NO CLOSER THAN 10' TO FRONT OF BUILDING.

THE FOLLOWING TABLE SUMMARIZES THE MATERIALS TO BE UTILIZED FOR SEWER MAIN TO LATERAL CONNECTIONS:

	PVC Main	DI Main
DI Lateral	DI fitting	MJ fitting
PVC Lateral	PVC fitting or saddle	MJ fitting with transition gasket or saddle

** ALL REFERENCES TO "PWC" IN THIS DETAIL SHALL REFER TO THE LOCAL UTILITY AUTHORITY UNLESS OTHERWISE SPECIFIED **

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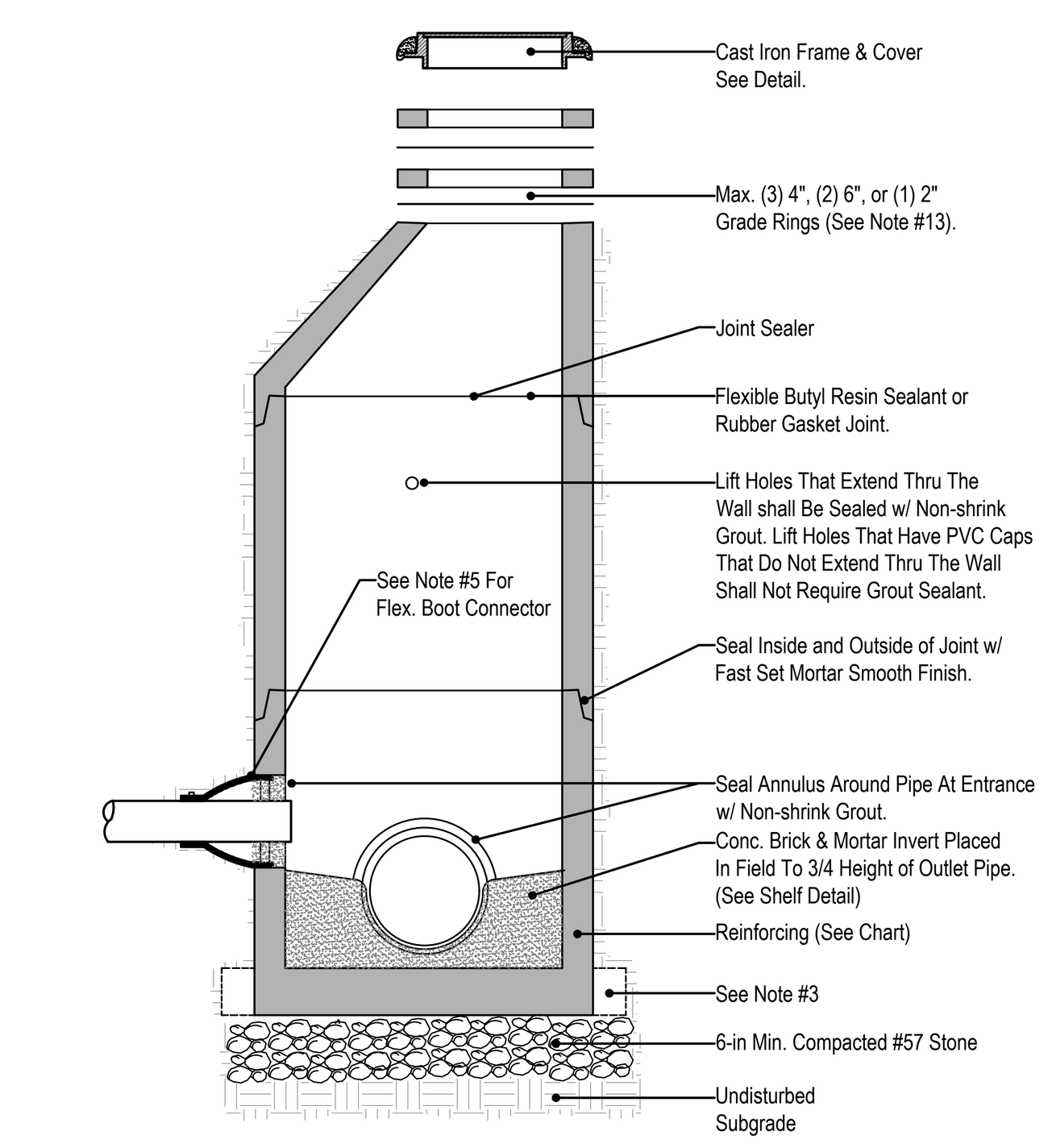
SANITARY SEWER LATERAL NOTES

NO SCALE



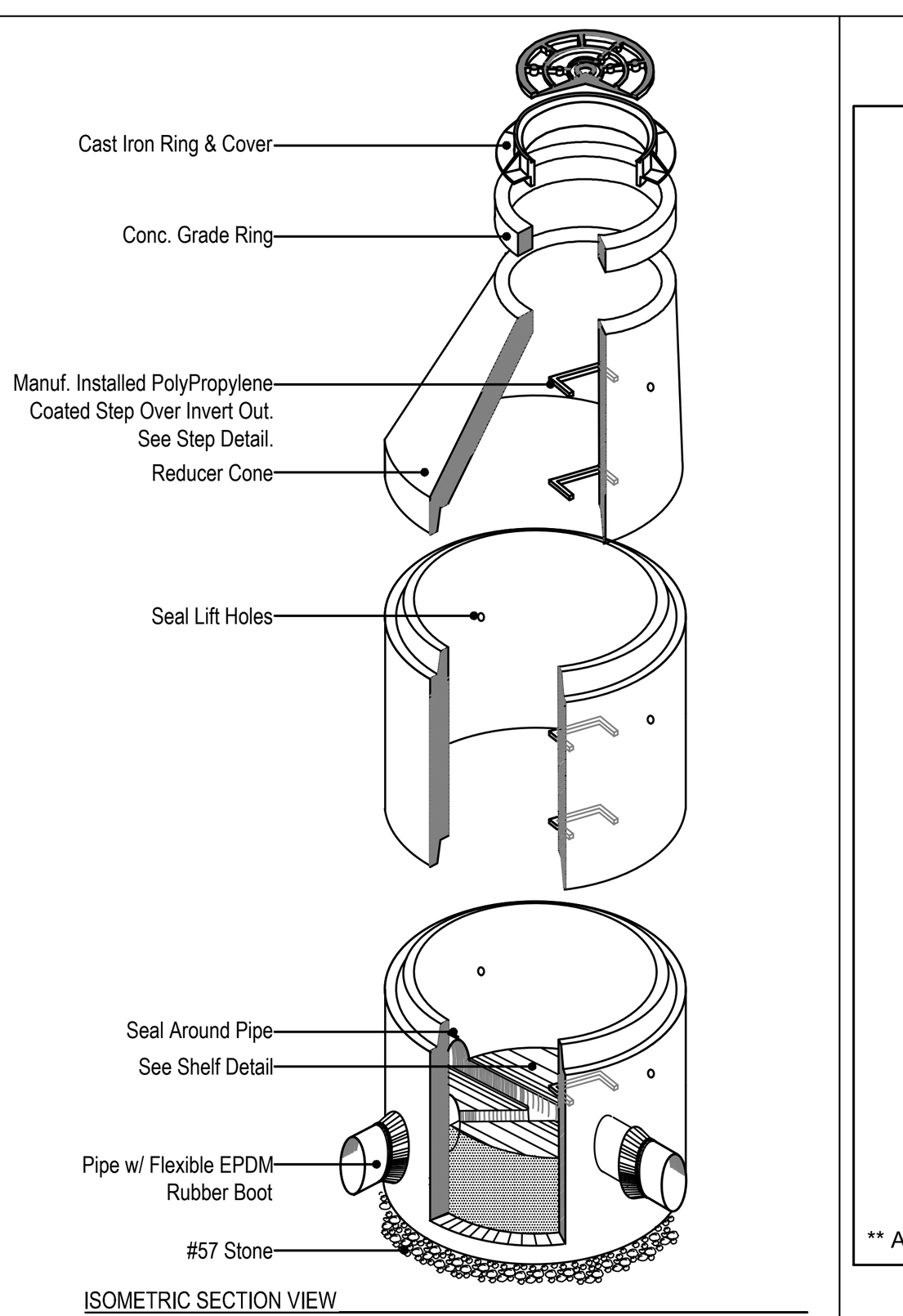
SECTION VIEW
N.T.S.

General Notes:

1. Precast Reinforced Concrete Manholes shall be in accordance with ASTM C-478.
2. Minimum concrete compressive strength shall be 4000 PSI.
3. Manholes greater than 12-ft depth shall have a minimum 6-in extended base.
4. Flexible butyl resin joint sealant shall be in accordance with ASTM C990. Rubber gasket joints shall be in accordance with ASTM C443.
5. Flexible EPDM rubber boot connectors shall be in accordance with ASTM C923, installed by manufacturer with stain-less steel compression ring and take-up clamp. Connection to main shall be by contractor with stainless steel pipe clamp.
6. Connections to existing manholes shall be by coring manhole and field installing a flex boot connector. Do not allow debris to enter system.
7. Mortar shall be quick setting, non-shrink grout mixed in accordance with manufacturer's recommendations.
8. Manhole steps shall be in accordance with ASTM C478 and OSHA regulations. Align steps with invert out.
9. Pre-formed manhole inverts are not acceptable unless specifically approved by the Designer in writing. Standing water in invert of manhole is not acceptable.
10. Vertical drops between the inflow pipes and outflow pipes shall require the following:
    A.- Greater than 2.5-ft - See Drop Structure Detail (Minimum 5-ft diameter manhole required).
    B.- 1-ft to 2.5-ft (See Pipe Slide Detail).
    C.- Less than 1-ft (See Mortar Slide Detail).
11. Manhole ring and cover and drop structure shall be in accordance technical specifications and detail.
12. Invert on plans is to manhole centerline.
13. Concrete grade rings shall not be used for above grade adjustments (i.e., Outfall Areas). Use of grade rings are allowable in yard areas and pavement, where the ring and cover are at ground level.
14. The minimum slope across the invert of the manhole shall be 1% unless otherwise approved by Designer.
15. The exterior manhole riser joints, including the joint at the cone, shall be sealed on the outside by an approved joint wrap. The wrap shall be a minimum of six (6) inches in width, and shall be centered on the joint.
16. Manhole boot for 4-inche laterals - Should it be necessary to install a 4-inch lateral into a manhole, the rubber boot that the lateral is inserted into shall be securely fastened to the core hole, by utilizing a stainless steel band that is tightened using a jack or a torque wrench (direct drive). Both standard size and step down boots are allowed. The torque wrench shall be supplied by the manufacturer. No other type bands or method of securing the boot to the manhole shall be accepted. For 4-inch SDR-26 laterals, the pipe outside diameter range of the boot shall be 3.5 inches to 4.25 inches. For 4-inch ductile iron laterals, the pipe outside diameter range of the boot shall either be as for VC or 4.25 inches to 4.81 inches. In all cases, the boot shall be tightened on the lateral by means of a single stainless steel strap. The lateral invert shall be at the top of the shelf.
17. No more than four, 4-inch laterals or three, 6-inch laterals shall enter a 4-ft diameter terminal manhole. No more than two laterals (Regardless of size) shall enter all other 4-ft diameter manholes. All laterals shall have an individual through. 5-ft diameter manholes shall be used if the above conditions are not met.
18. No more than five laterals shall enter a 5-ft diameter terminal manhole.
19. Use of Tee-Wyes on laterals is not allowed.

Pipe Size	Manhole Size	Min. Wall Thk.	Min. Reinf. Steel	Min. Base Thk.
21" or Less	48" Dia.	5-in	ASTM A-185 0.12 Sq./In.	6-in
24" to 36"	60" Dia.	6-in	ASTM A-185 0.15 Sq./In.	8-in
42"	72" Dia.	7-in	ASTM A-185 0.15 Sq./In.	8-in

Manhole diameter sizes may be adjusted on the plans to reflect special circumstances. Reducing slabs are not acceptable on manholes less than or equal to 6-ft diameter.



ISOMETRIC SECTION VIEW
N.T.S.

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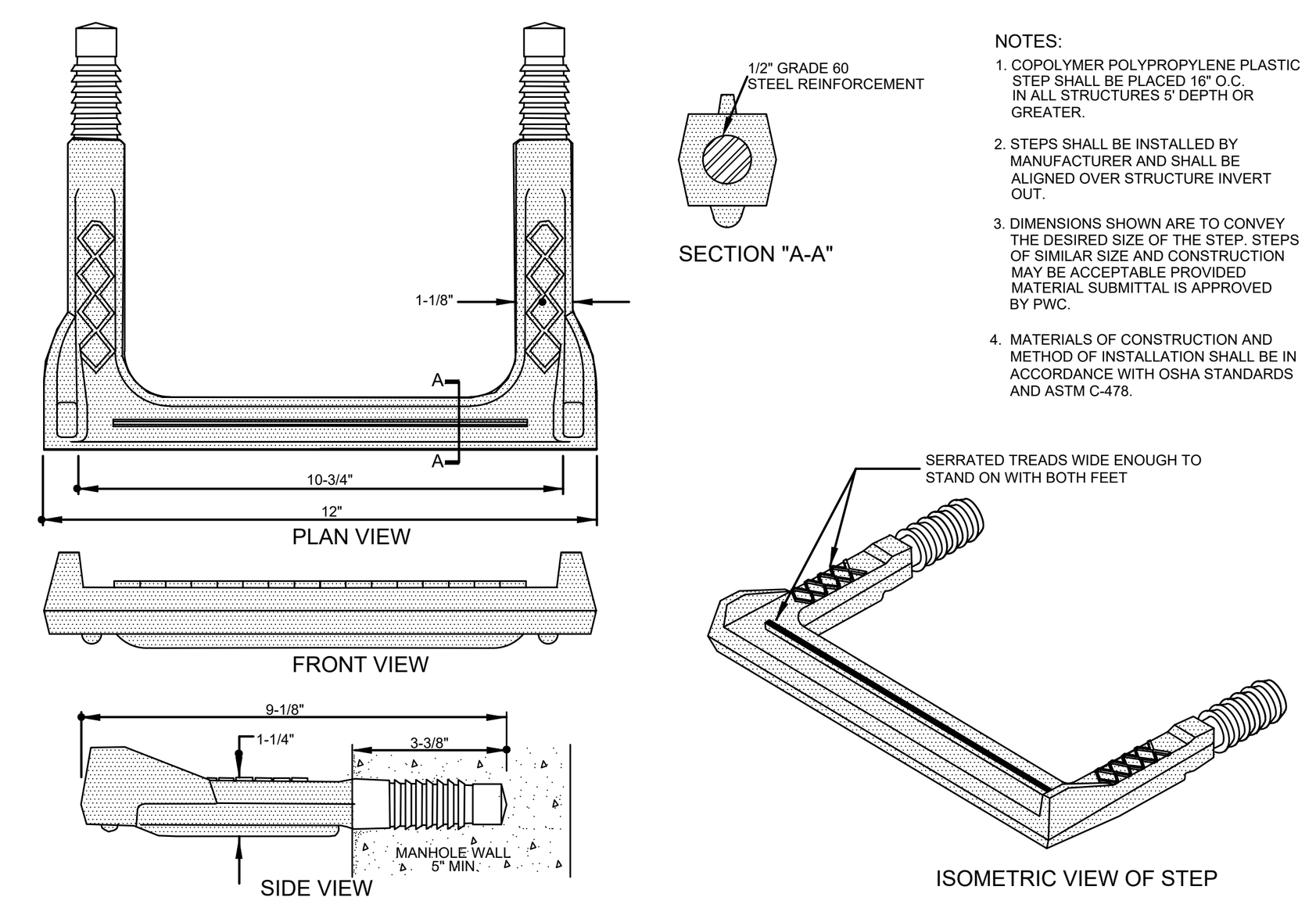
SANITARY SEWER MANHOLE

NO SCALE



NOTES:
1. COPOLYMER POLYPROPYLENE PLASTIC STEP SHALL BE PLACED 16" O.C. IN ALL STRUCTURES 5' DEPTH OR GREATER.
2. STEPS SHALL BE INSTALLED BY MANUFACTURER AND SHALL BE ALIGNED OVER STRUCTURE INVERT OUT.
3. DIMENSIONS SHOWN ARE TO CONVEY THE DESIRED SIZE OF THE STEP. STEPS OF SIMILAR SIZE AND CONSTRUCTION MAY BE ACCEPTABLE PROVIDED MATERIAL SUBMITTAL IS APPROVED BY PWC.
4. MATERIALS OF CONSTRUCTION AND METHOD OF INSTALLATION SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND ASTM C-478.

** ALL REFERENCES TO "PWC" IN THIS DETAIL SHALL REFER TO THE LOCAL UTILITY AUTHORITY UNLESS OTHERWISE SPECIFIED **

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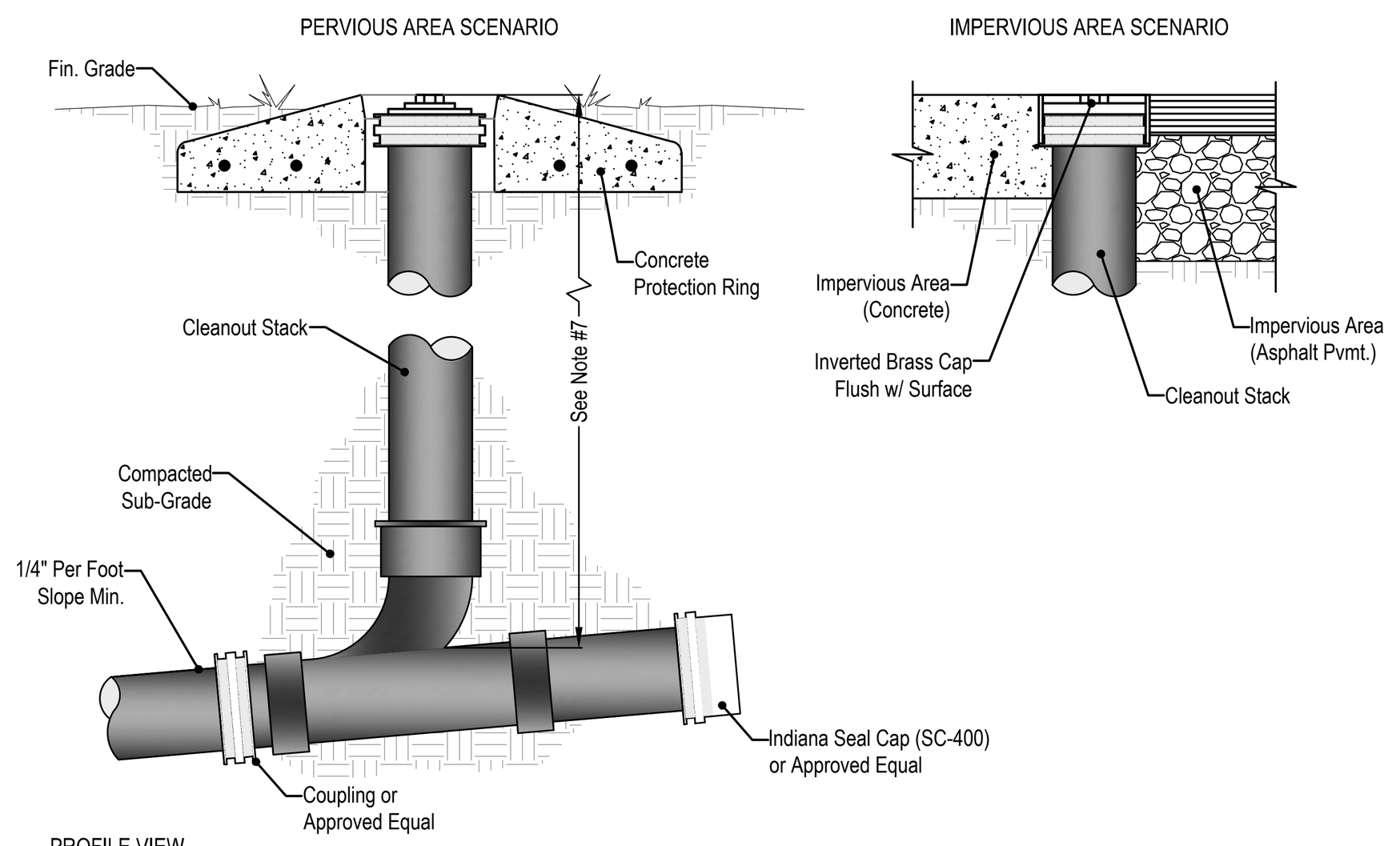
MANHOLE STEPS

NO SCALE



PROFILE VIEW
N.T.S.

General Notes:

1. PVC pipe shall conform to ASTM specifications D-3034 SDR-35 unless otherwise specified.
2. All pipe fittings shall be as noted on plans.
3. All cast iron pipe and fittings shall be cast iron soil pipe service weight or ductile iron unless otherwise specified.
4. All connections shall have rubber gasket seal installed.
5. Installation other than as shown must be approved by designer.
6. Slope and depth of the service lateral shall be determined by the topography and as noted on plans.
7. Cleanout stack to be buried to a depth of 2.5-ft minimum or 6-ft maximum unless otherwise specified.
8. Cleanouts in areas of pavement, concrete, or otherwise impervious material, Contractor shall install an inverted brass cap which shall be flush with the finish grade.
9. Cleanouts in areas of grassed, mulched, or otherwise open pervious material shall be installed with a concrete protection ring flush with the finish grade.

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TYPICAL SANITARY SEWER CLEANOUT

NO SCALE

1. CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE PWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH PWC STANDARDS.
2. SEWER MAINS, LATERALS, AND MANHOLES SHALL BE INSTALLED UTILIZING A PWC APPROVED CUT-SHEET, INDICATING INSTALLATION DEPTH.
3. TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
   A. INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY PWC.
   B. CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY PWC.
   C. AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH PWC REQUIREMENTS.
4. WHEN THE EXISTING MAIN IS NOT TO BE ABANDONED, THE CONTRACTOR SHALL UNCOVER THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE LATERAL TO ABANDON THE OLD SERVICE.
5. SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON ACCEPTANCE OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL DEBRIS, AND THEN REMOVE THE PLUG.
6. SEPARATION REQUIREMENTS:
   A. **LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
      i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
      ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL
   B. **CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF FERROUS MATERIAL AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
   C. **CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
   D. **CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 24-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAIN/LATERAL CROSSING UNDER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF SIX(6) INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY PWC.

** ALL REFERENCES TO "PWC" IN THIS DETAIL SHALL REFER TO THE LOCAL UTILITY AUTHORITY UNLESS OTHERWISE SPECIFIED **

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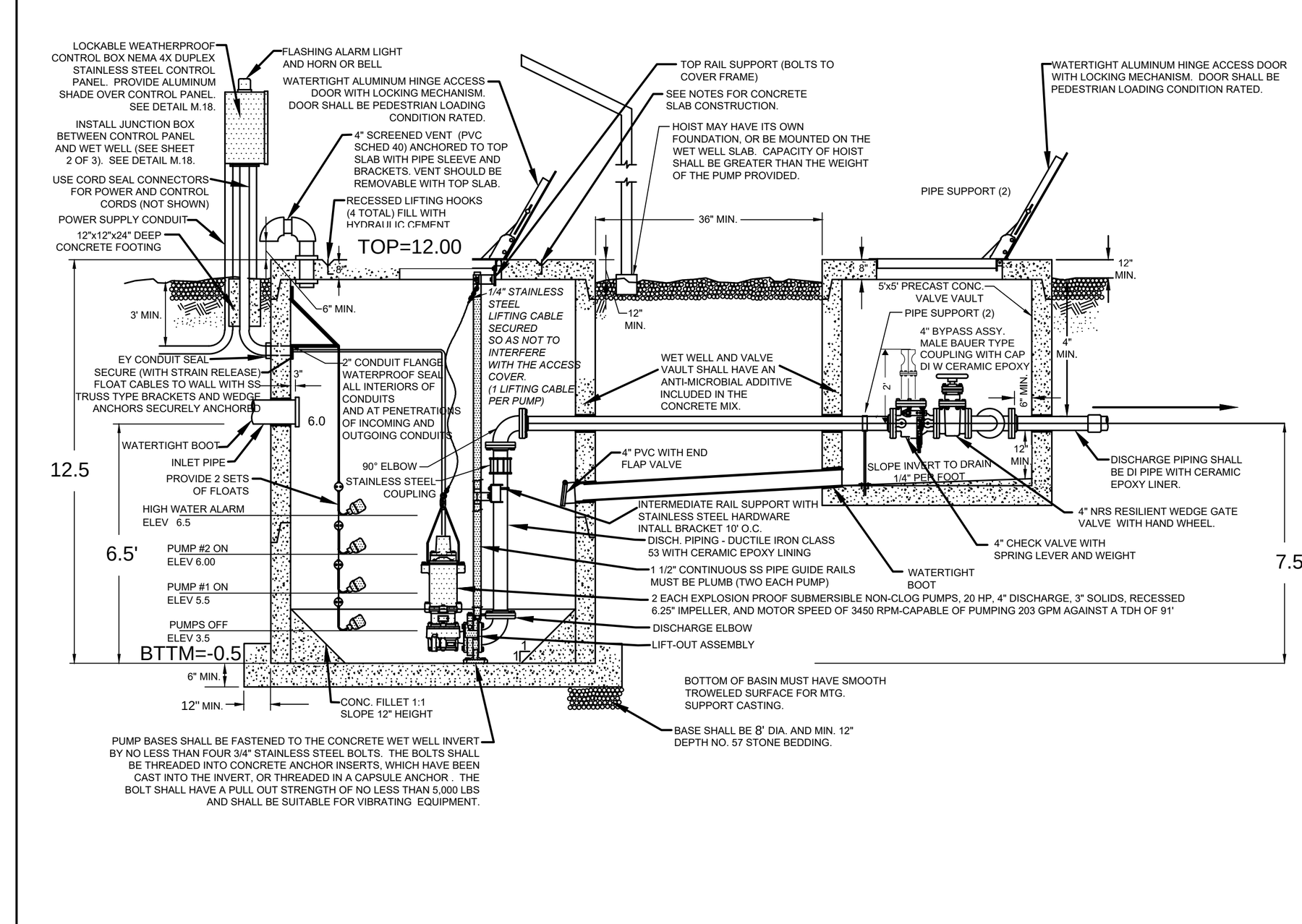
SANITARY SEWER NOTES

NO SCALE



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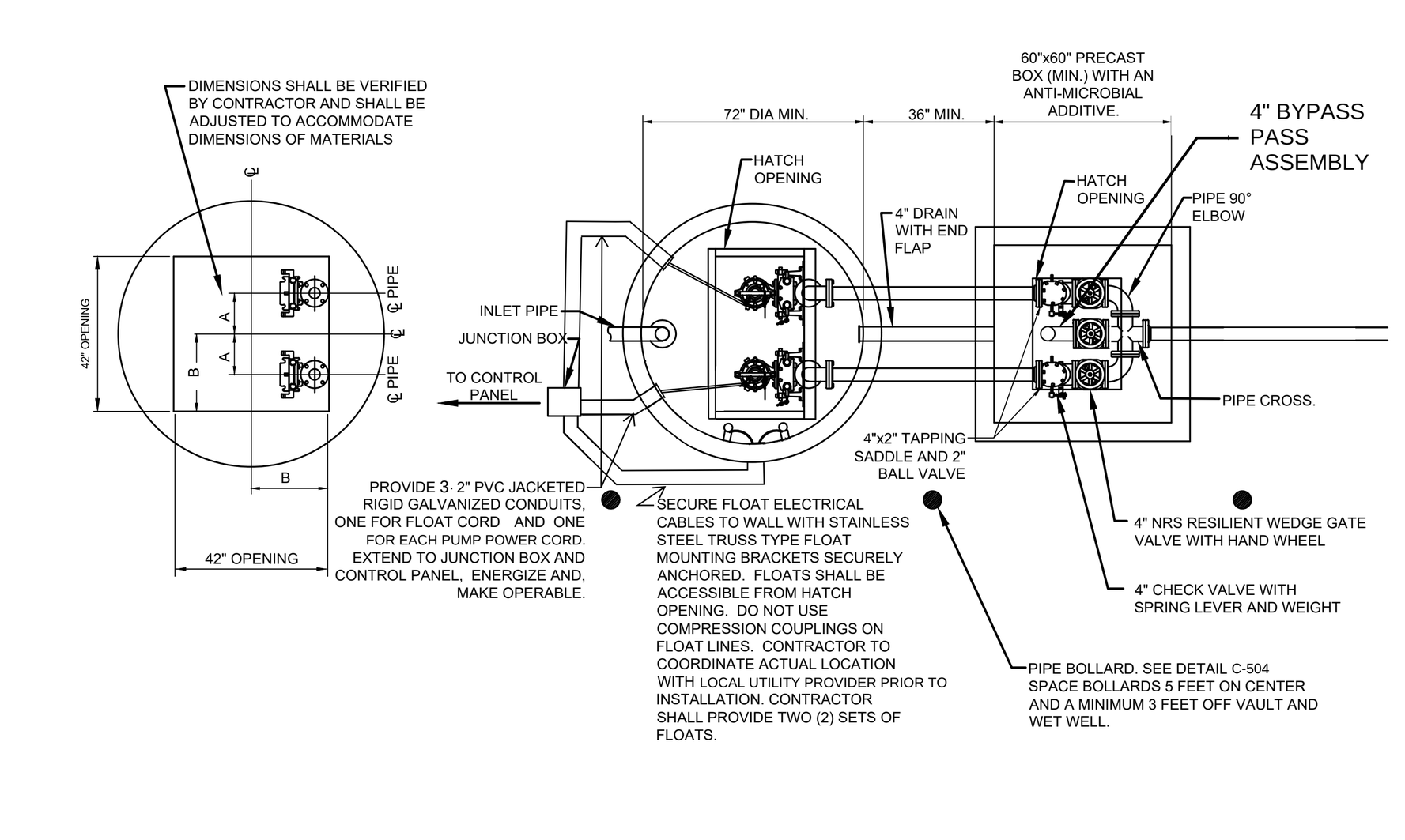

** ALL REFERENCES TO "PWC" IN THIS DETAIL SHALL REFER TO THE LOCAL UTILITY AUTHORITY UNLESS OTHERWISE SPECIFIED **

LIFT STATION NOTES:
1. CONCRETE SHALL BE 4,000PSI COMPRESSION STRENGTH. ALL CEMENTITIOUS MATERIALS SHALL HAVE AN ANTI-MICROBIAL ADDITIVE INCLUDED IN THE MIX.
2. WET WELL AND VALVE VAULT SHALL MEET REQUIREMENTS OF ASTM C-478.
3. ALL ELECTRICAL MATERIAL AND INSTALLATION SHALL BE BY A LICENSED ELECTRICIAN AND IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, AND RULES AND REGULATIONS OF LOCAL AUTHORITIES HAVING JURISDICTION. MATERIALS SHALL BE LISTED OR LABELED BY THE UNDERWRITERS LABORATORIES STANDARDS.
4. LIFT STATION WET WELL AND VALVE VAULT CONCRETE SLAB SHALL BE MANUFACTURED TO WITHSTAND H-20 LOADING CONDITIONS.
5. SHOP DRAWINGS AND WIRING DIAGRAMS SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT.
6. DESIGN ENGINEER SHALL BE CONTACTED TO REVIEW FOUNDATION BEDDING BEFORE SETTING WET WELL AND VALVE VAULT. FOUNDATION SHALL BE SET ON A MINIMUM 12" DEPTH OF NO. 57 STONE BEDDING.
7. CONTROL PANEL BOX SHALL BE LOCKABLE. CONTRACTOR SHALL MAINTAIN SECURITY OF WET WELL UNTIL TRANSFERED TO OWNER.
8. CONTRACTOR SHAL INSTALL ALL EQUIPMENT AND PROVIDE START UP SERVICE.
9. CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO MAKE THE LIFT STATION FULLY OPERATIONAL AND IN ACCORDANCE WITH LOCAL AUTHORITY AND NORTH CAROLINA CODE STANDARDS.
10. RECESSED LIFTING HOOKS SHALL BE PLACED IN CONCRETE WET WELL COVER.
11. CONTROL PANEL BOX SHALL BE ANCHORED IN 12"x24" DEEP CONCRETE FOOTING. REFER TO STANDARD DETAIL M.18 FOR ALUMINUM SHADE.
12. CONTRACTOR SHALL PROVIDE ALL NECESSARY LUBRICANTS AND ENGAGE EQUIPMENT MANUFACTURE IN THE INITIAL STARTUP AND TESTING OF LIFT STATION.
13. PIPEWORK SHALL BE ASSEMBLED, INSTALLED, AND FULLY SUPPORTED TO ELIMINATE ANY STRAIN ON THE PUMPING EQUIPMENT, PIPING, AND PIPE FITTINGS.
14. ALL THRU-THE-WALL SLEEVES AND CARRIER PIPES INTO THE WET WELL SHALL BE WATERTIGHT.
15. ALL HANGERS, CLAMPS, FLANGE BOLTS, AND CONNECTIONS SHALL BE STAINLESS STEEL UNLESS OTHERWISE SPECIFIED. THESE ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
16. ALL DIMENSIONS SHALL BE VERIFIED BY CONTRACTOR AND SHALL BE ADJUSTED TO ACCOMMODATE DIMENSIONS OF MATERIALS SUPPLIED BY MANUFACTURE AND INSTALLED BY CONTRACTOR.
17. FLANGE FACES SHALL BE SERRATED.
18. CONSTRUCTION SHALL BE IN ACCORDANCE WITH LOCAL AUTHORITY, ALL APPLICABLE CODES, AND THE N.E.C.

HATCH DOOR NOTES:
1. HATCH SHALL BE SINGLE LEAF, PEDESTRIAN RATED, CHANNEL FRAME, ALUMINUM DIAMOND PATTERN PLATE DOOR.
2. HATCH DOORS SHALL BE WATERTIGHT, EQUIPPED WITH NEOPRENE GASKET, HINGED WITH LOCKING MECHANISM (HASP), AND AUTOMATIC HOLD OPEN ARM.
3. ENSURE HATCH DOOR RESTS EVENLY ON FRAME ALL AROUND.
4. ALL HARDWARE SHALL BE ZINC PLATED STEEL-CHROMATE SEALED OR STAINLESS STEEL.

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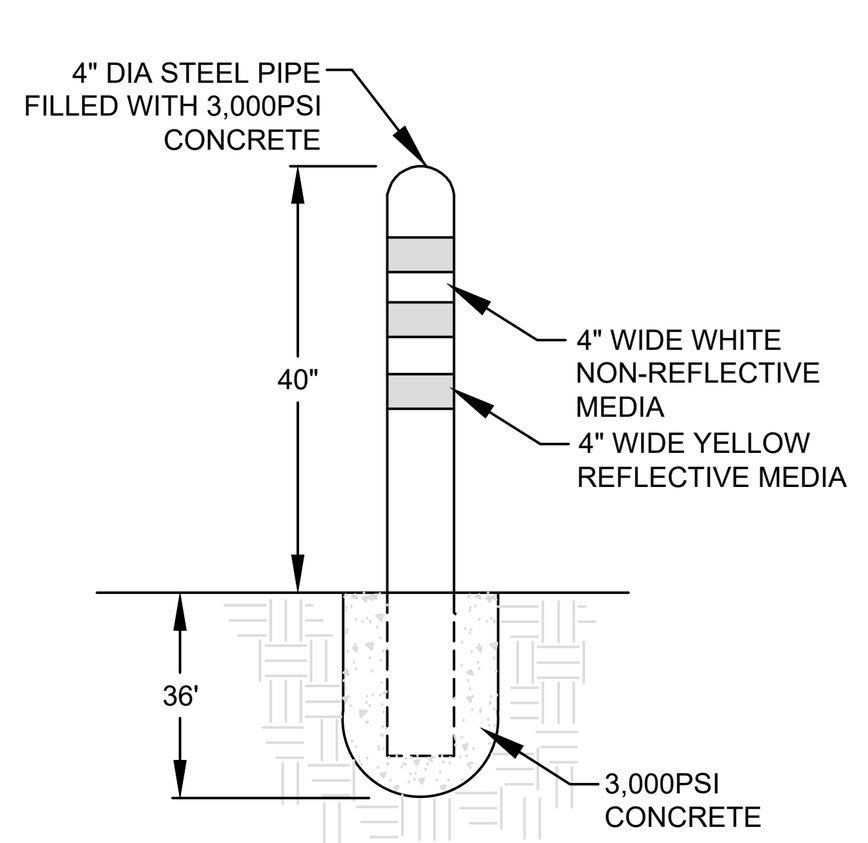
EXPLOSION PROOF SUBMERSIBLE LIFT STATION

NO SCALE



CONCRETE BOLLARD DETAIL

7 C-504

NO SCALE

8 C-504

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NO SCALE

12 C-504 -

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13 C-504 -

NO SCALE

14 C-504 -

NO SCALE

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CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL

601 Main Street, Bayboro, NC 28515

ENERGY STAR PARTNER

	7/25/2024	ADDENDUM 3

1R 'DWH 'HVFULSWLRQ

ISSUE DATE: 06/12/24

PROJECT #: 2205
CAD TECH.: ILB
CHECKED BY: FDC

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DETAILS

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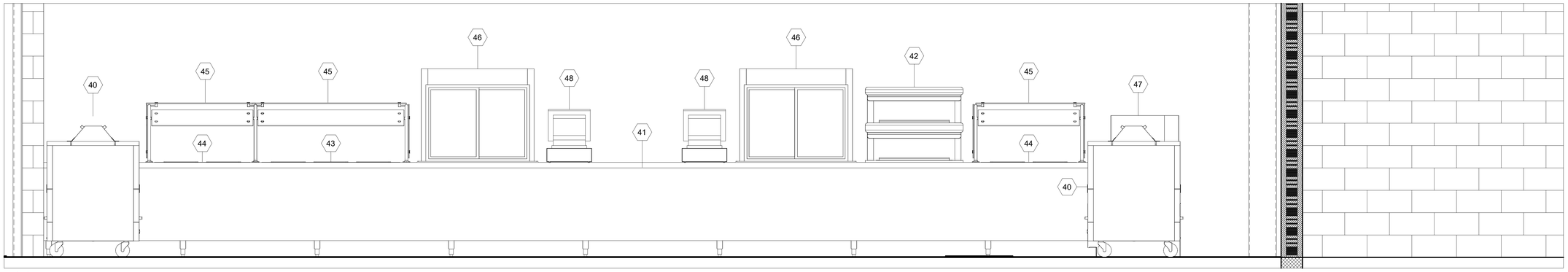

1 FS-002 SERVING LINE FRONT ELEVATION
3/4" = 1'-0"

FOODSERVICE EQUIPMENT SCHEDULE

QTY	ITEM	DESCRIPTION	MANUFACTURER	MODEL	ITEM 2	ELECTRICAL							PLUMBING								GAS			REMARKS
						ELECTRICAL A.F.F.	KW	HP	AMPS	VOLTS	PHASE	NEMA	HW SIZE	HW/A.F.F.	CW SIZE	CW/A.F.F.	IW	DRAIN TYPE	DW	DW A.F.F.	GAS SIZE	GAS/A.F.F.	BTU/HR.	
1	01	AIR CURTAIN	MARS AIR	LPN272-1UA-OB	01	ABV.			2.6	120	1	DIRECT												MICRO SWITCH AT DOOR
6	02A	SHELVING UNIT	METRO	5Q457G3	02A																			74" HIGH, 5-TIER, POLYMER/EPOXY
4	02B	SHELVING UNIT	METRO	5Q467G3	02B																			74" HIGH, 5-TIER, POLYMER/EPOXY
2	03	COLD STORAGE ASSEMBLY	BALLY	CUSTOM	03	*												F.D.						REFER TO REFRIGERATION CONNECTION SCHEDULE
4	04A	SHELVING UNIT	METRO	Q446G3	04A																			63" HIGH, 4-TIER, POLYMER/EPOXY
12	04B	SHELVING UNIT	METRO	Q456G3	04B																			63" HIGH, 4-TIER, POLYMER/EPOXY
1	04C	SHELVING UNIT	METRO	Q466G3	04C																			63" HIGH, 4-TIER, POLYMER/EPOXY
2	05A	DUNNAGE RACK	METRO	HP2236PDMB	05A																			
1	05B	DUNNAGE RACK	METRO	HP2248PDMB	05B																			
1	06	CAN RACK	CHANNEL	CSR-156	06																			
1	07	SPARE NUMBER	-	-	07																			
1	08	REACH-IN REFRIGERATOR	EVEREST	EBSR2	08	24"		1/3	3.5	120	1	5-15P												CASTERS, DOOR HINGE RIGHT & LEFT
1	09	ONE-COMPARTMENT SINK	JOHN BOOS	41PB204-1D30L	09								1/2"	14"	1/2"	14"	2"	F.S.						PRE-RINSE UNIT WITH ADD ON FAUCET, LEVER WASTE
1	10	FOOD PROCESSOR	ROBOT COUPE	CL50	10	50"			12.0	120	1	5-15P												
4	11	WORKTABLE	JOHN BOOS	ST6-3096GBK-X	11																			DRAWER, TABLE MOUNT POT RACK
1	12	TWO-COMPARTMENT SINK	JOHN BOOS	42PB204-2D24	12								1/2"	14"	1/2"	14"	2"	F.S.						PRE-RINSE UNIT WITH ADD ON FAUCET, (2) LEVER WASTE
2	12.1	WALL MOUNTED SHELF	JOHN BOOS	BHS1236-14/304	12.1																			MOUNT 5'-4" A.F.F.
1	13-16	SPARE NUMBER	-	-	13-16																			
4	17	HAND SINK	JOHN BOOS	PBHS-W-0909-P-SSLR	17								1/2"	14"	1/2"	14"			2"					SIDE SPLASH WHERE REQUIRED
1	18	SPARE NUMBER	-	-	18																			
2	19	WARMING CABINET, PASS-THRU	VICTORY	HSA-1D-S1-PT-HD	19	90"			6.3	208	1	6-20P												GLASS DOOR ON KITCHEN SIDE, ADJUSTABLE LEGS, DOOR HINGE
2	20	REFRIGERATOR, PASS-THRU	VICTORY	RSA-1D-S1-PT-HD-HC	20	90"		1/3	6.5	120	1	5-15P												GLASS DOOR ON KITCHEN SIDE, ADJUSTABLE LEGS, DOOR HINGE
1	21	ICE MACHINE, AIR COOLED	SCOTSMAN ICE	MC0722MA-32	21	64"			11.0	208	1	DIRECT			3/8"	64"	1"	F.S.						KBT27 BIN TOP, WATER FILTER, BACKFLOW PREVENTION DEVICE
1	21.1	ICE BIN	SCOTSMAN ICE	B530P	21.1												1"	F.S.						
1	22	FIRE SUPPRESSION SYSTEM	ANSUL	R-102	22																			WET CHEMICAL
1	23	EXHAUST HOOD, WALL	CAPTIVEAIRE	ND2-PSP	23	ABV.			20.0	120	1	(2) DIRECT												REFER TO VENTILATION CONNECTION SCHEDULE
1	24	CONVECTION STEAMER, GAS, DOUBLE	CLEVELAND	(2) 22CGT66.1	24	24"/50"			4.0	120	1	(2) 5-15P			(2) 3/4"	24"/50"	2"	F.S.			(2) 1/2"	24"/50"	(2) 32,000	QUICK GAS DISCONNECT, WATER FILTER, BACKFLOW PREVENTION DEVICE
1	25	HD RANGE, 24", 4-OPEN BURNER	MONTAGUE	124-5	25																1-1/4"	24"	40,000	QUICK GAS DISCONNECT, STANDARD OVEN BASE,HIGH SHELF
2	26	CONVECTION OVEN, GAS	BLODGETT	ZEPH-100-G-ES DBL	26	24"/50"			8.0	120	1	(2) 5-15P									(2) 3/4"	24"/50"	(2) 45,000	QUICK GAS DISCONNECT, CASTERS
1	27	TILTING SKILLET BRAISING PAN, GAS	MARKET FORGE	30P-STGL	27	24"			3.0	120	1	C&P	3/8"	24"	3/8"	24"	2"	F.T.			3/4"	24"	93,000	SINGLE PANTRY FAUCET, FLANGED FEET
1	28	FLOOR TROUGH	IMC TEDDY	ASFT-1836-PFG	28												4"							
1	29	SLICER, ELECTRIC	HOBART	EDGE13-11	29	STUB			4.0	120	1	5-15P												EQUIPMENT STAND
2	30	HEATED HOLDING AND PROOFING CABINET	METRO	C599-SDC-U	30	ABV.			16.7	120	1	5-20P												CASTERS
1	31	SINK, 3 COMPARTMENT	JOHN BOOS	43PB20284-2D30	31								(2) 1/2"	14"	(2) 1/2"	14"	2"							(1) FAUCETS, (1) PRE-RINSE W/ADD ON FAUCET, (3) LEVER WASTE
1	31.1	WALL SHELF W/POT RACK	ADVANCE TABCO	PS-12-120	31.1																			MOUNT 5'-4" A.F.F.
1	32-35	SPARE NUMBER	-	-	32-35																			
2	36	DRYING RACK UNIT	METRO	PR48VX3	36																			CASTERS
1	37	CAN OPENER, TABLE MOUNT	EDLUND	S-11	37																			
2	38	RACK, UNIVERSAL	CHANNEL MANUFACTURING	AUR-13	38																			CASTERS
4	39	SHELVING UNIT	METRO	Q556EG3	39																			67-5/16" HIGH, 4-TIER, POLYMER/EPOXY, CASTERS
2	40	MILK COOLER	CONTINENTAL REFRIGERATOR	MC3NSSD	40	24"		-	5.7	120	1	5-15P					1"							CASTERS
1	41	SERVING LINE COUNTER	CUSTOM FAB	CUSTOM	41																			
1	42	HOT/COLD SHELF	LTI	QSGT-28-2T	42	CTR.			7.5	120	1	5-15P												
1	43	HOT/COLD WELL, DROP-IN	LTI	DI-QSCHP-3	43	CTR.			12.0	120/208	1	14-20P					1"	F.S.						
2	44	HOT/COLD WELL, DROP-IN	LTI	DI-QSCHP-2	44	CTR.			9.6	120	1	14-20P					1"	F.S.						
3	45	FOOD SHIELD	PREMIER METAL AND GLASS	TM2R-A	45	CTR.			3.0	120	1	C&P												LED LIGHTS
2	46	DROP-IN DISPLAY CASE	ATLAS METAL	WCPT-3	46	CTR.		1/2	11.0	120	1	5-15P												DOOR LOCKING DEVICE
1	47	REFRIGERATED SELF SERVICE CASE	FUTURE	N.I.K.C.	47	CTR.			15.2	120	1	5-20P												LOCKING CASTERS, LED LIGHTS, SECURITY COVER
2	48	P.O.S.	BY OWNER	N.I.K.C.	48	CTR.			15.0	120	1	C&P												F.S.E.C. TO VERIFY UTILITIES
1	49-50	SPARE NUMBER	-	-	49-50																			
1	51	HAND SINK	JOHN BOOS	PBHS-W-0909-P-SSLR	51								1/2"	14"	1/2"	14"			2"					SIDE SPLASH WHERE REQUIRED
1	52	ICE MAKER WITH BIN, CUBE STYLE	SCOTSMAN	CU0920MA-1	52	64"			6.4	120	1	5-15P			3/8"	64"	1"	F.S.						WATER FILTER, BACKFLOW PREVENTION DEVICE
1	53	REACH-IN REFRIGERATOR	EVEREST	EBR1	53	24"		1/4	3.7	120	1	5-15P												DOOR HINGE ON RIGHT, CASTERS
1	54	3-COMPARTMENT SINK	ADVANCE TABCO	FE-3-1416-12RL-X	54								(2) 1/2"	14"	(2) 1/2"	14"	2"	F.S.						(2) FAUCETS, (3) LEVER WASTE
1	55	MICROWAVE OVEN	AMANA	RFS18TS	55	50"			13.5	208	1	6-20P												
1	56	HEATED WELL	HATCO	RHW-1	56	50"			10.4	120	1	5-15P												RHW-11QT-LID-HG LID
1	57	P.O.S.	BY OWNER	N.I.K.C.	57	50"			15.0	120	1	C&P												F.S.E.C. TO VERIFY UTILITIES
1	58	CONCESSION COUNTER	CUSTOM FAB	CUSTOM	58																			

110° F. HOT WATER REQUIREMENTS

		GPH
MOP SINK	-	5
CAN WASH	-	10
HAND SINK	4 @ 20	80
	TOTAL	95

140° F. HOT WATER REQUIREMENTS

		GPH
POT SINK	3 @ 30	90
PREP, SINKS	3 @ 20	60
FILL FAUCET	1 @ 10	10
PRE-RINSE	2 @ 35	70
CLEANING	-	5
	TOTAL	235

REFRIGERATION CONNECTION SCHEDULE

CONN	EQUIPMENT	LOAD	V/PH	REMARKS
03A	LIGHTS, COOLER	400 W	120/1	3 EXTRA LIGHTS
03B	EVAP. COIL, COOLER	2.0 AMP	120/1	-
03C	COND. UNIT, COOLER	11.1 MCA	208/3	-
03D	LIGHTS & DOOR HEAT	700 W	120/1	3 EXTRA LIGHTS
03E	HEAT TAPE, FREEZER	15.0 AMP	120/1	DRAINLINE HEAT LAMP
03F	EVAP. COIL, FREEZER	1.8 AMP	208/1	FEED DEFROST THRU TIMER @ COND. UNIT
03G	COND. UNIT, FREEZER	17.0 MCA	208/3	

VENTILATION CONNECTION SCHEDULE

ITEM	CONNECTION	SIZE	CFM	S.P.	QTY.	TOTAL
23A	EXHAUST	14" DIA.	2300	-1.020"	1	2300
23B	SUPPLY	8" X 36"	613	0.169"	3	1840
23C	EXHAUST	14" DIA.	1290	-0.438"	1	1290
23D	SUPPLY	12" X 20"	516	0.146"	2	1032

ABBREVIATIONS

ABV.	ABOVE
A.F.F.	ABOVE FINISHED FLOOR
CTR.	COUNTER MOUNTED
C.W.	COLD WATER
E.C.	ELECTRICAL CONTRACTOR
F.D.	FLOOR DRAIN
F.S.	FLOOR SINK
F.S.E.C.	FOOD SERVICE EQUIPMENT CONTRACTOR
G.C.	GENERAL CONTRACTOR
H.W.	HOT WATER
I.W.	INDIRECT WASTE
M.C.	MECHANICAL CONTRACTOR
N.I.K.C.	NOT IN KITCHEN CONTRACT
S/S	STAINLESS STEEL
ST.	STUB
U.C.	UTILITY CHASE
W.	WASTE

***GAS NOTE:
KITCHEN EQUIPMENT WILL BE PROVIDED WITH GAS PRESSURE REGULATORS DESIGNED TO OPERATE WITH 14" W.C. INCOMING GAS PRESSURE OR LESS. PLUMBER TO PROVIDE INTERMEDIATE REGULATORS, AS REQUIRED TO REDUCE INCOMING BUILDING PRESSURE TO LEVEL SUITABLE FOR EQUIPMENT.

ELECTRICAL LOADS ARE BASED ON MANUFACTURER'S INFORMATION. MINIMUM CIRCUIT AMPACITY AND OVERCURRENT PROTECTION TO BE DETERMINED BY CODE REQUIREMENTS AND/OR MANUFACTURER'S DIRECTIONS.

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CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/24	Bid Addendum 3

ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: AG
CHECKED BY: AG

FOOD SERVICE EQUIPMENT SCHEDULE & ELEVATION

FS-002

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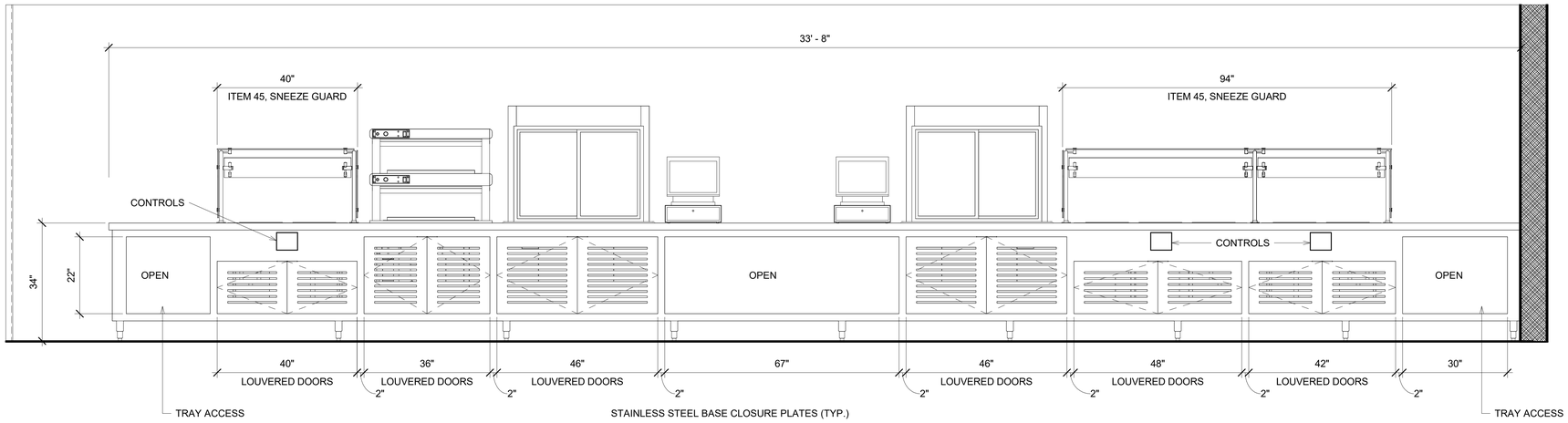
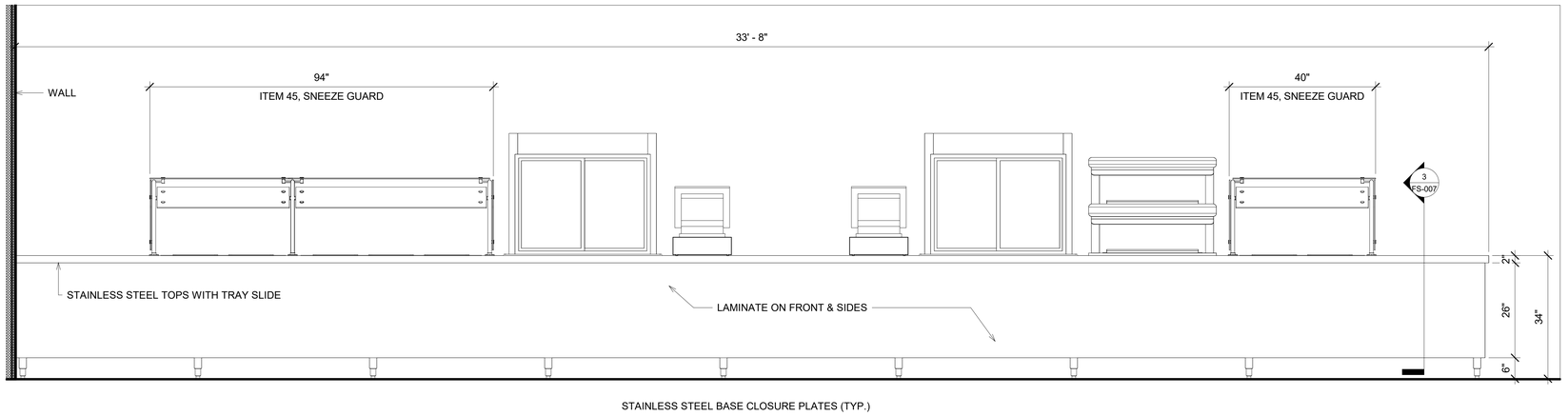
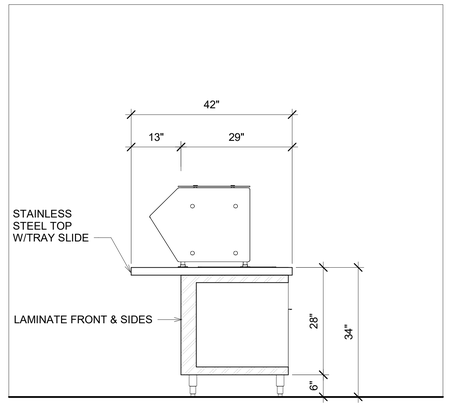


1 FS-007 SERVING COUNTER, REAR ELEVATION
3/4" = 1'-0" ITEM 41

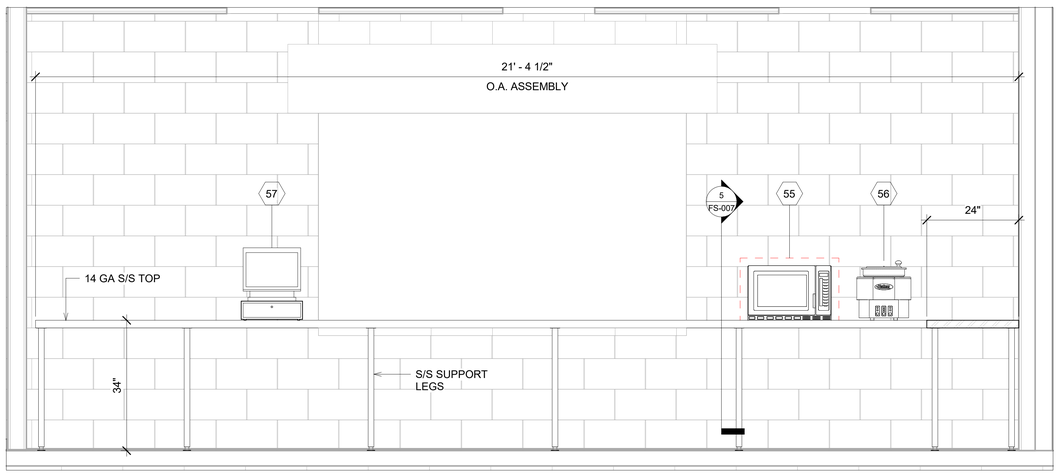
SERVING COUNTER CONSTRUCTION FINISHES:
1. TOP: 14 GA S/S
2. BODY, HEADER: 18 GA S/S AS DETAILED. PLASTIC LAMINATE FRONTS & SIDES MODEL / COLOR(S) AND PATTERN AS SELECTED BY ARCHITECT
3. UNDERSHELVING: 16 GA. S/S ON WORKING SIDES
4. TRAY SLIDES: SOLID SURFACE WITH 4 EA. S/S RIBS
5. TOE BASE 16 GA. BRUSHED STAINLESS STEEL (REMOVABLE)



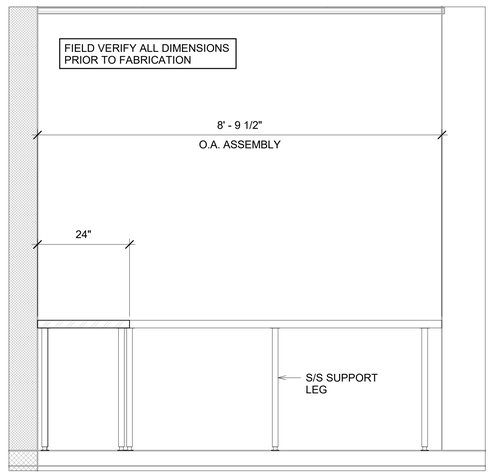
2 FS-007 SERVING COUNTER, FRONT ELEVATION
3/4" = 1'-0" ITEM 41



3 FS-007 SERVING COUNTER SECTION
3/4" = 1'-0"



4 FS-007 CONCESSION STAND COUNTER
3/4" = 1'-0"



5 FS-007 CONCESSION STAND COUNTER SECTION
3/4" = 1'-0"

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CONSTRUCTION DOCUMENTS

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PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/24	Bid Addendum 3

ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: AG
CHECKED BY: Checker

FOOD SERVICE DETAILS

FS-007

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PAMLICO COUNTY

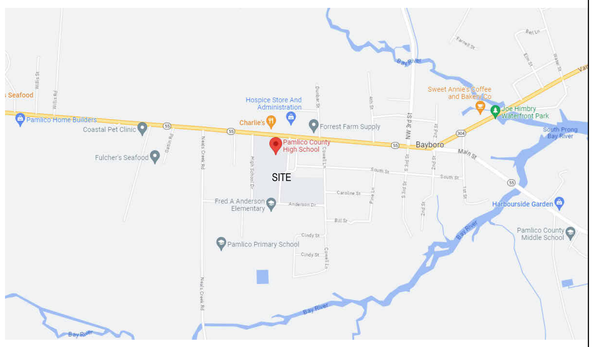
PAMLICO 6-12 SCHOOL

601 Main Street, Bayboro, NC , 28515

RENDERING



VICINITY MAP



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Grand total: 230

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P. 919-740-7423

VOLUME 1

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CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC , 28515

ENERGY STAR PARTNER

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PROJECT NUMBER: 2205

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ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
ADD	ADDENDUM	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MBH	ONE THOUSAND BTU PER HOUR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CFM	CUBIC FEET PER MINUTE	NIC	NOT IN CONTRACT
CLG	CEILING	NO	NORMALLY OPEN
D	DEGREE	NTS	NOT TO SCALE
DB	DRY BULB	O/A	OUTSIDE AIR
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PSI	POUNDS PER SQUARE INCH
ELEC	ELECTRICAL	PSIG	POUNDS PER SQUARE INCH GAUGE
EQUIP	EQUIPMENT	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R/A	RETURN AIR
E/A	EXHAUST AIR	RH	RELATIVE HUMIDITY
EXIST	EXISTING	RL/A	RELIEF AIR
F	DEGREES FAHRENHEIT	RM	REMAIN
FD	FIRE DAMPER	RPM	REVOLUTIONS PER MINUTE
FL	FLOOR	SF	SQUARE FOOT
FPM	FEET PER MINUTE	S/A	SUPPLY AIR
FT	FOOT/FEET	SF	SQUARE FOOT
GC	GENERAL CONTRACTOR	SD	SMOKE DAMPER
GPM	GALLONS PER MINUTE	SP	STATIC PRESSURE
HP	HORSE POWER	T	THERMOSTAT
HTG	HEATING	TD	TEMPERATURE DROP
HTR	HEATER	TEMP	TEMPERATURE
HW	HOT WATER	TYP	TYPICAL
IN	INCH	VAV	VARIABLE AIR VOLUME
LB	POUND	VENT	VENTILATION
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE		

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	EWH	ELECTRIC WATER HEATER
ACC	AIR COOLED CONDENSER	FCU	FAN COIL UNIT
ACCU	AIR COOLING CONDENSING UNIT	FP	FIRE PUMP
AHU	AIR HANDLING UNIT	GI	GREASE INTERCEPTOR
AS	AIR SEPARATOR	GRV	GRAVITY ROOF VENTILATOR
B	BOILER	HWP	HEATING WATER PUMP
CH	CHILLER	HX	HEAT EXCHANGER
CT	COOLING TOWER	HRU	HEAT RECOVERY UNIT
CUH	CABINET UNIT HEATER	PRV	POWER ROOF VENTILATOR
CWP	CONDENSER WATER PUMP	RE	RETURN/EXHAUST FAN
CHWP	CHILLED WATER PUMP	RTU	ROOFTOP UNIT
DBP	DOMESTIC WATER BOOSTER PUMP	SEP	SEWAGE EJECTOR PUMP
DC	DUCT MOUNTED COIL	SF	SUPPLY FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER
ET	EXPANSION TANK		

MECHANICAL DUCT SYMBOLS

SYMBOL	DESCRIPTION
16x8	SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
16/8	OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
16"Ø	ROUND DUCT SIZE TAG (DIAMETER)
S/A	SUPPLY AIR
O/A	OUTDOOR AIR
R/A	RETURN AIR
E/A	EXHAUST AIR
L/A	RELIEF AIR
	SUPPLY AIR DIFFUSER (4-WAY)
	RETURN AIR GRILLE
	RETURN AIR GRILLE WITH SOUND BOOT
	EXHAUST AIR GRILLE
	POINT OF EXISTING TO NEW CONNECTION
	POINT OF DISCONNECT TO EXISTING CONNECTION
M.C.	MECHANICAL CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
N.I.C.	NOT IN CONTRACT
AFF	ABOVE FINISHED FLOOR
DN	DOWN
UP	UP
X / X	SECTION CUT REFERRING DETAIL NUMBER REFERRING SHEET NUMBER

MECHANICAL ACCESSORIES SYMBOL LEGEND

SYMBOL	DESCRIPTION
FD	RECTANGULAR DUCT FIRE DAMPER W/ ACCESS DOOR (SEE DETAIL)
DD	RECTANGULAR DUCT MOUNTED DUCT DETECTOR. FURNISHED AND CONNECTED BY ELECTRICAL CONTRACTOR, INSTALLED BY MECHANICAL CONTRACTOR. CUTTING OF DUCT, INSTALLATION OF DETECTOR, AND DETERMINATION OF SAMPLING TUBE LENGTH SHALL BE THE MECHANICAL CONTRACTOR. PROVIDE REMOTE INDICATING LIGHT WITH EACH DETECTOR.
M	RECTANGULAR DUCT MOUNTED MOTOR OPERATED DAMPER, INTERLOCK WITH FAN AS INDICATED. (DAMPER BY M.C.)
M	ROUND DUCT MOTORIZED DAMPER

MECHANICAL PIPING SYMBOLS

SYMBOL	DESCRIPTION
	BUTTERFLY VALVE
	3-PIECE BALL VALVE
	CHECK VALVE
	STRAINER WITH BLOWDOWN VALVE WITH HOSE CONN.
	BALANCING VALVE
	B&G CIRCUIT SETTER
	UNION
	THERMOMETER
P	PRESSURE GAGE & COCK
	GAGE COCK
	FLOW SWITCH
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	STEAM TRAP, F&T
	STEAM TRAP, TB
	CONTROL VALVE
	GAS COCK
	PRESSURE REDUCING/REGULATING VALVE
S	SOLENOID VALVE

MECHANICAL PIPING SYSTEMS LEGEND

SYMBOL	DESCRIPTION
D	CONDENSATE DRAINAGE
G	NATURAL GAS
GR	GEOTHERMAL WATER RETURN
GS	GEOTHERMAL WATER SUPPLY
R	REFRIGERANT

TESTING, ADJUSTING, AND BALANCING

1. THE MECHANICAL CONTRACTOR SHALL BALANCE ALL MECHANICAL SYSTEMS TO THE PERFORMANCE SPECIFICATIONS INDICATED ON PLANS AND PROVIDE THE ENGINEER WITH THREE COPIES OF A COMPLETE TEST AND BALANCE REPORT. THE REPORT IS TO BE ISSUED A MINIMUM OF TWO WEEKS PRIOR TO PROJECT COMPLETION. THE TEST AND BALANCE REPORT WILL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. ANY ADDITIONAL TESTING, ADJUSTING AND BALANCING REQUIRED (AT ENGINEER'S REQUEST) AFTER REVIEW OF THE INITIAL REPORT SHALL BE PROVIDED AT NO ADDITIONAL COST. TEST AND BALANCE REPORT TO BE COMPLETED BY AN INDEPENDENT, CERTIFIED TEST AND BALANCE CONTRACTOR.
2. CONDUCT TESTING AND BALANCING IN ACCORDANCE WITH TECHNICAL PORTIONS OF THE AABC "NATIONAL STANDARDS FOR TESTING AND BALANCING HVAC SYSTEMS", LATEST EDITION.
3. INSTRUMENTS USED FOR BALANCING MUST HAVE BEEN CALIBRATED WITHIN A PERIOD OF SIX (6) MONTHS PRIOR TO BALANCING. SUBMIT SERIAL NUMBERS, AND DATES OF CALIBRATION OF ALL INSTRUMENTS TO BE USED PRIOR TO THE START OF WORK.
4. SET HVAC SYSTEM AIRFLOW AND WATER FLOW RATES WITHIN THE FOLLOWING TOLERANCES:
   A. SUPPLY, RETURN, AND EXHAUST FANS AND EQUIPMENT WITH FANS: MINUS 5 TO PLUS 10 PERCENT.
   B. AIR OUTLETS AND INLETS: 0 TO MINUS 10 PERCENT.
   C. GEOTHERMAL CONDENSER WATER FLOW RATE: 0 TO MINUS 10 PERCENT.
5. REFER TO SPECIFICATION SECTION 230593 AND CONTRACT DRAWINGS IN THEIR ENTIRETY FOR ADDITIONAL REQUIREMENTS.

MECHANICAL GENERAL NOTES

SEE SPECIFICATIONS FOR ADDITIONAL PROJECT REQUIREMENTS. THESE GENERAL NOTES ARE INTENDED TO SUPPLEMENT THE SPECIFICATIONS. IN THE EVENT THAT THE VERBIAGE IS IN CONFLICT OR CONTRADICTS THE REQUIREMENTS LISTED HERE, THE QUESTION SHALL BE ASKED PRIOR TO BIDDING OR THE MORE STRINGENT SHALL APPLY AT THE ENGINEER'S DISCRETION.

1. DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATION OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
2. ALL EQUIPMENT LISTED IN PROJECT SCHEDULES IS TO BE CONSIDERED DESIGN BASIS EQUIPMENT. ALL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, PIPING, SHEET METAL, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. THIS INCLUDES ANY MODIFICATIONS TO ANY ASSOCIATED MECHANICAL, PLUMBING, OR ELECTRICAL SYSTEMS REQUIRED BY THIS SPECIFIC MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL CONSTRUCTED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS. ALL SUPPLY, RETURN AND OUTSIDE AIR DUCTWORK SHALL BE WRAPPED WITH 2" THICK DUCT WRAP WITH VAPOR BARRIER. INSULATION (INCLUDING FLEXIBLE DUCT INSULATION) SHALL HAVE A MINIMUM INSTALLED R-VALUE OF 6.0. TRANSFER DUCTS SHALL BE LINED WITH 1" THICK FIBERGLASS DUCT LINER FOR ACOUSTICAL PURPOSES. DUCT DIMENSIONS ON PLANS ARE FREE AREA SIZE.
4. SUPPLY AND RETURN DUCTWORK LOCATED OUTSIDE THE BUILDING SHALL BE WRAPPED WITH 3" THICK DUCT WRAP WITH VAPOR BARRIER HAVING A MINIMUM INSTALLED R VALUE OF 8.0. COVER EXTERNAL INSULATION WITH AN ALUMINUM OUTER ENCLOSURE AND SEAL WATER TIGHT.
5. ALL DUCTWORK SHALL BE SEALED PER THE REQUIREMENTS OF THE NORTH CAROLINA INTERNATIONAL MECHANICAL CODE. SEAL MEDIUM PRESSURE SUPPLY DUCTWORK FOR POSITIVE 3" PRESSURE CLASS, SMACNA SEAL CLASS A, SMACNA LEAKAGE CLASS 4. SEAL LOW PRESSURE SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST DUCTWORK FOR POSITIVE/NEGATIVE 2" PRESSURE CLASS, SMACNA SEAL CLASS A, SMACNA LEAKAGE CLASS 4.
6. ALL PIPING, DUCTS, VENTS, ETC., EXTENDING THROUGH WALLS AND ROOF SHALL BE FLASHED AND COUNTERFLASHED IN A WATERPROOF MANNER.
7. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS, TO AVOID INTERFERENCE.
8. UPON PROJECT COMPLETION, THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE OWNER INSTALLATION INFORMATION INCLUDING RECORD SUBMITTALS (WITH ANY SUBMITTAL REVIEW COMMENTS ADDRESSED) AND O&M MANUALS FOR EACH PIECE OF EQUIPMENT INCLUDING ALL SELECTED OPTIONS, THE NAME AND ADDRESS OF AT LEAST ONE SERVICE AGENCY, FULL CONTROL SYSTEM O&M AND CALIBRATION INFORMATION INCLUDING WIRING DIAGRAMS, SCHEMATICS, FULL SEQUENCE OF OPERATION, AND PROGRAMMED SETPOINTS. IN ADDITION, THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO HIRE A REGISTERED DESIGN PROFESSIONAL TO COMMISSION THE INSTALLED SYSTEM AND PROVIDE THE OWNER AND CODE REVIEWER A SEALED STATEMENT OF SYSTEM COMMISSIONING (PER 2018 NCECC APPENDIX C1).
9. PROVIDE A ONE YEAR WARRANTY FOR ALL WORK PERFORMED BEGINNING ON THE DAY THE SYSTEM IS COMPLETELY OPERATIONAL AND ACCEPTABLE BY THE OWNER.
10. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND ALL EQUIPMENT FOR MAINTENANCE AND FILTER REMOVAL.
11. CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 PVC PIPE AND FITTINGS. DRAINS FROM AIR HANDLING UNITS SHALL BE TRAPPED. CONDENSATE DRAINS SHALL BE INSULATED WITH 1/2" THICK ARMAFLEX INSULATION. MINIMUM DRAIN SIZE SHALL BE 3/4".
12. ALL REFRIGERANT PIPE SHALL BE NITROGENIZED AR COPPER TUBE, SIZE, INSULATE, AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS. REFRIGERANT PIPING INSULATION EXPOSED OUTDOORS SHALL BE COVERED WITH AN OUTER ALUMINUM JACKET.
13. ANY DEVICE REQUIRING A THERMOSTAT FOR CONTROL SHALL BE FURNISHED WITH A THERMOSTAT WHETHER INDICATED ON THE DRAWINGS OR NOT.
14. INSTALL THE TOP OF ALL THERMOSTATS, SENSORS, AND SWITCHES AT 4'-0" (MAXIMUM) ABOVE FINISH FLOOR. COORDINATE EXACT THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLATION. ANY DEVICE ON A PERIMETER WALL SHALL BE MOUNTED ON A FOAM-FILLED ELECTRICAL BOX, WITH ALL GAPS BETWEEN BOX AND WALL SEALED TO PREVENT INFILTRATION.
15. CONTRACTOR SHALL VERIFY LOCATION OF ALL ROOF PENETRATIONS WITH ARCHITECT & OWNER PRIOR TO INSTALLATION. NEW ROOF PENETRATIONS MADE THROUGH EXISTING ROOF SYSTEMS SHALL BE VERIFIED WITH THE OWNER'S EXISTING ROOF WARRANTY PRIOR TO INSTALLATION.
16. ROOF CURBS SHALL ALLOW A MINIMUM OF 8" ABOVE ROOF INSULATION FOR FLASHING, OR AS INDICATED ON THE DRAWINGS, WHICHEVER IS GREATER. IN ADDITION, ALL ROOF CURBS OR EQUIPMENT SUPPORT RAILS THAT SUPPORT EQUIPMENT, PIPING, CONDUIT, ETC. EXPOSED ON THE ROOF SHALL HAVE SUFFICIENT HEIGHT TO MAINTAIN A MINIMUM OF 18" CLEARANCE BELOW SUPPORTED EQUIPMENT FOR ROOF MAINTENANCE.
17. CONTRACTOR SHALL LOCATE EXHAUST FANS, OUTLETS, AND GAS FLUES A MINIMUM OF 15'-0" FROM ANY OUTSIDE AIR INTAKE.
18. DRYER VENT WALL CAPS SHALL BE PROVIDED WITH A BACKDRAFT DAMPER. DRYER VENT SHALL NOT EXCEED A TOTAL EQUIVALENT LENGTH OF 35'-0" WITH A 2.5' DEDUCTION FOR EACH 45° BEND AND A 5' DEDUCTION FOR EACH 90° BEND.
19. KITCHEN HOOD EXHAUST DUCT SHALL BE 16 GAUGE CARBON STEEL. ALL JOINTS AND SEAMS SHALL BE CONSTRUCTED WITH A CONTINUOUS LIQUID - TIGHT EXTERNAL WELD. ALL DUCTWORK SHALL SLOPE A MINIMUM OF 1/4 INCH PER FOOT TOWARD HOOD. PROVIDE CLEANOUTS AT EVERY CHANGE OF DIRECTION IN THE EXHAUST DUCT AND AT 20'-0" (MINIMUM) INTERVALS.
20. THE MECHANICAL CONTRACTOR SHALL PERFORM A LIGHT TEST (AS REQUIRED BY THE MECHANICAL CODE) FOR ALL JOINTS AND SEAMS IN THE PRESENCE OF THE LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO CONCEALING KITCHEN HOOD EXHAUST DUCTWORK.
21. ALL GEOTHERMAL CONDENSER WATER PIPING SHALL BE SDR-11 HDPE PIPE. PROVIDE WITH MOLDED PE FITTINGS, HDPE RESIN SOCKET- OR BUTT-FUSION TYPE MADE TO MATCH HDPE PIPE DIMENSIONS AND CLASS.
22. ALL CONDENSER WATER PIPING SHALL PITCH DOWN IN DIRECTION OF FLOW WITH MANUAL AIR VENTS AT ALL HIGH POINTS AND 1/2" DRAIN VALVES AT ALL LOW POINTS.
23. PROVIDE UNIONS, FLANGES OR COUPLINGS AT CONNECTION TO ALL VALVES AND EQUIPMENT. DO NOT USE DIRECT WELDED OR THREADED CONNECTIONS TO VALVES, EQUIPMENT OR OTHER APPARATUS.
24. PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
25. ALL ISOLATION VALVES, TERMINAL UNITS, CONTROLS, ETC. REQUIRING ACCESS AND SERVICE SHALL BE INSTALLED WITHIN 18" OF THE CEILING FOR SERVICE ACCESSIBILITY. LOCATIONS SHALL BE INDICATED ON THE CEILING GRID PER THE SPECIFICATIONS.
26. ALL EQUIPMENT CONCRETE PAD SIZES FOR MECHANICAL EQUIPMENT SHALL BE CONFIRMED WITH APPROVED SHOP DRAWING SUBMITTALS AND ASSOCIATED UNIT MANUFACTURER ANCHOR LOCATIONS PRIOR TO FABRICATION/INSTALLATION. THE MECHANICAL AND PLUMBING CONTRACTORS SHALL COORDINATE THE EXACT LOCATION OF MECHANICAL EQUIPMENT HOUSEKEEPING PADS WITH THE FLOOR DRAIN LOCATIONS PRIOR TO INSTALLATION OF DRAINS AT EQUIPMENT/PAD LOCATIONS.
27. DUCTWORK AND PIPING PASSING THROUGH/ABOVE ELECTRICAL ROOMS SHALL BE CLOSELY COORDINATED WITH THE ELECTRICAL CONTRACTOR. DUCTWORK OR PIPING SHALL NOT BE LOCATED ABOVE ELECTRICAL PANELS.
28. EQUIPMENT OPERATED DURING CONSTRUCTION SHALL USE FILTERED MEDIA TO PREVENT CONSTRUCTION DEBRIS FROM ENTERING COILS, DUCTWORK SYSTEMS, AIR TERMINALS ETC. AT COMPLETION OF CONSTRUCTION, MECHANICAL CONTRACTOR SHALL CLEAN ALL SYSTEMS WITH ALL CONTROL DEVICES WIDE OPEN AND REMOVE ANY REMAINING DEBRIS PRIOR TO TEST AND BALANCING. MECHANICAL CONTRACTOR SHALL REPLACE ALL FILTRATION WITH NEW FILTERS AT COMPLETION OF CONSTRUCTION. ANY DUCTWORK, AIR TERMINALS, AND/OR OTHER EQUIPMENT UPSTREAM OF FILTRATION SHALL BE CLEANED THOROUGHLY OF CONSTRUCTION DEBRIS BEFORE HANDING OVER TO OWNER.
29. COMMERCIAL DRYER EXHAUST DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL NOT LESS THAN 0.0195 INCHES THICK. EXHAUST DUCT SHALL BE ASSEMBLED WITH SMOOTH INTERIOR SURFACE SO THAT THE JOINTS DO NOT PERMIT THE ACCUMULATION OF LINT, DO NOT USE SHEET METAL SCREWS AT JOINTS. ALL 90° TURN SHALL HAVE LONG RADIUS ELBOWS. ALL DUCTWORK SHALL BE INSTALLED PER THE DRYER MANUFACTURER'S RECOMMENDATIONS. COMMERCIAL DRYER EXHAUST DUCTWORK SHALL BE WRAPPED WITH TWO LAYERS OF 1 1/2" THICK THERMAL INSULATION BLANKET AS MANUFACTURED BY FIREMASTER (OR EQUAL). INSULATION SHALL BE INSTALLED PER NFPA-96 AND IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS TO OBTAIN A 2-HOUR RATED ASSEMBLY. ASSEMBLY SHALL BE U.L. APPROVED.
30. PROVIDE COMBINATION FIRE/SMOKE DAMPERS WITH AN IONIZATION TYPE DUCT MOUNTED SMOKE DETECTOR IN DUCTED APPLICATIONS, OR SPOT DETECTORS IN OPENING APPLICATIONS (WITHIN 5'-0" OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN DETECTOR AND DAMPER), INSTALLED IN THE DUCT WIRED, TO CLOSE THE DAMPER UPON ACTIVATION. DUCT MOUNTED SMOKE DETECTORS AND SPOT DETECTORS SHALL BE SUPPLIED, WIRED FOR INTERFACE WITH FIRE ALARM SYSTEM AND UNIT SHUTDOWN BY THE ELECTRICAL CONTRACTOR. DETECTORS SHALL BE INSTALLED IN THE DUCT BY THE MECHANICAL CONTRACTOR.
31. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING RESTRAINTS TO RESIST THE EARTHQUAKE EFFECTS ON THE MECHANICAL SYSTEMS. THE REQUIREMENTS FOR THOSE RESTRAINTS ARE FOUND IN THE LOCAL BUILDING CODE AND ASCE 7. THE ANCHORAGE OF THE MECHANICAL SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE LOCAL BUILDING CODE AND ASCE 7.
32. ALL MECHANICAL EQUIPMENT SHALL BE U.L. LISTED AND LABELED AS A COMPLETE PACKAGE, NOT THROUGH INDIVIDUAL COMPONENTS OR PARTS. PROVIDE REQUIRED 3RD PARTY FIELD UL LISTING SERVICES AS REQUIRED TO COMPLY.
33. FUME HOOD EXHAUST DUCT SHALL BE CONSTRUCTED OF STAINLESS STEEL, WITH WELDED JOINTS AND SEAMS. PREP ROOM AND CHEMICAL STORAGE EXHAUST DUCTWORK SHALL BE CONSTRUCTED OF APPROVED G90 GALVANIZED SHEET STEEL WITH NOMINAL THICKNESS OF 18 GAUGE. DUCTWORK AND EXHAUST SYSTEM SHALL MEET THE REQUIREMENTS OF NCMC SECTION 510.
34. CONTRACTOR SHALL COORDINATE WITH GEOTHERMAL CONTRACTOR FOR CONDENSER WATER FLUSHING AND WATER TREATMENT PROCEDURE, CHEMICALS TO BE USED, ETC. PROVIDE CHEMICAL TREATMENT NEEDED TO KEEP SYSTEM FREE OF SCALE, CORROSION, AND FOULING.

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COORDINATION DRAWINGS

THE MECHANICAL CONTRACTOR SHALL ORGANIZE COORDINATION MEETINGS TO DEVELOP A SET OF DRAWINGS WITH ALL CONTRACTORS (ELECTRICAL, MECHANICAL, PLUMBING, FIRE PROTECTION, IT/DATA, AND GENERAL CONTRACTOR). THE MECHANICAL CONTRACTOR WILL HAVE THE LEAD RESPONSIBILITY FOR THE COORDINATION DRAWINGS. THE MECHANICAL CONTRACTOR SHALL PRODUCE THE ORIGINAL DRAWINGS AND FORWARD THE DRAWINGS TO EACH OF THE OTHER CONTRACTORS FOR THEM TO ADD THEIR SYSTEMS TO THIS SET OF COORDINATION DRAWINGS. THE CONTRACTORS WILL DEVELOP THE DRAWINGS IN THIS ORDER: MECHANICAL, FIRE PROTECTION, PLUMBING, ELECTRICAL, IT/DATA (INCLUDING CABLE TRAY) AND GENERAL. THIS SHALL ALSO BE THE ORDER OF PRECEDENCE FOR INSTALLATION OF SYSTEMS. ANY RELOCATION OF SYSTEM ROUTINGS WILL BE FOUND IN THE COORDINATION PHASE AND NOTICED BY EACH OF THE CONTRACTORS. THESE DRAWINGS, WHEN COMPLETED, SHALL BE SIGNED OFF BY ALL OF THE ABOVE LISTED PARTIES. DRAWINGS SHALL BE COMPLETED PRIOR TO FABRICATION AND INSTALLATION OF DUCTWORK AND PIPING SYSTEMS, OR PURCHASE OF EQUIPMENT. THE FOLLOWING ITEMS REPRESENT THE MINIMUM REQUIREMENTS FOR SHOP DRAWINGS AND COORDINATION DRAWINGS:

1. ALL SHOP AND COORDINAGION DRAWINGS WILL BE 1/4" = 1'-0" SCALE
2. DRAWINGS WILL BE ORIGINAL DRAWINGS AND NOT OVERLAYS OF THE CONTRACT/DESIGN
3. COORDINATION DRAWINGS WILL BE DRAWN ON REPRODUCIBLE MATERIAL 48"x36".
4. COORDINATION DRAWINGS ARE NOT SHOP DRAWINGS AND ARE REQUIRED IN ADDITION TO SHOP DRAWINGS.
5. ONCE THE COMPLETE COORDINATION DRAWINGS HAVE BEEN COMPILED, THE MECHANICAL CONTRACTOR WILL DISTRIBUTE ONE SIGNED SET TO EACH OF THE FOLLOWING CONTRACTORS: ELECTRICAL, PLUMBING, FIRE PROTECTION, AND GENERAL. ADDITIONAL SETS WILL BE SENT TO THE OWNER, ARCHITECT, AND ENGINEER.

MECHANICAL SHEET INDEX

SHEET NUMBER	SHEET NAME
M-001	MECHANICAL LEGEND AND NOTES
M-002	MECHANICAL SCHEDULES
M-003	MECHANICAL SCHEDULES
M-004	MECHANICAL VENTILATION CALCULATIONS
M-101	OVERALL FIRST FLOOR MECHANICAL PLAN
M-102	OVERALL SECOND FLOOR MECHANICAL PLAN
M-103	OVERALL ROOF MECHANICAL PLAN
M-111A	FIRST FLOOR MECHANICAL PLAN - AREA A
M-111B	FIRST FLOOR MECHANICAL PLAN - AREA B
M-111C	FIRST FLOOR MECHANICAL PLAN - AREA C
M-111D	FIRST FLOOR MECHANICAL PLAN - AREA D
M-111E	FIRST FLOOR MECHANICAL PLAN - AREA E
M-111F	FIRST FLOOR MECHANICAL PLAN - AREA F
M-112A	SECOND FLOOR MECHANICAL PLAN - AREA A
M-112B	SECOND FLOOR MECHANICAL PLAN - AREA B
M-112C	SECOND FLOOR MECHANICAL PLAN - AREA C
M-112D	SECOND FLOOR MECHANICAL PLAN - AREA D
M-112E	SECOND FLOOR MECHANICAL PLAN - AREA E
M-112F	SECOND FLOOR MECHANICAL PLAN - AREA F
M-113E	SECOND FLOOR CLERESTORY MECHANICAL PLAN - AREA E
M-113F	SECOND FLOOR CLERESTORY MECHANICAL PLAN - AREA F
M-114C	ROOF MECHANICAL PLAN - AREA C
M-114E	ROOF MECHANICAL PLAN - AREA E
M-114F	ROOF MECHANICAL PLAN - AREA F
M-211A	FIRST FLOOR MECHANICAL PIPING PLAN - AREA A
M-211B	FIRST FLOOR MECHANICAL PIPING PLAN - AREA B
M-211C	FIRST FLOOR MECHANICAL PIPING PLAN - AREA C
M-211D	FIRST FLOOR MECHANICAL PIPING PLAN - AREA D
M-211E	FIRST FLOOR MECHANICAL PIPING PLAN - AREA E
M-211F	FIRST FLOOR MECHANICAL PIPING PLAN - AREA F
M-212C	SECOND FLOOR MECHANICAL PIPING PLAN - AREA C
M-212E	SECOND FLOOR MECHANICAL PIPING PLAN - AREA E
M-212F	SECOND FLOOR MECHANICAL PIPING PLAN - AREA F
M-301	MECHANICAL GEOTHERMAL SITE PLAN
M-401	ENLARGED MECHANICAL PLANS - MECH PENTHOUSE M2300
M-402	ENLARGED MECHANICAL PLANS - MECH LOFT M3000
M-403	ENLARGED MECHANICAL PLANS - MECH LOFT M3100
M-501	U.L. PENETRATION DETAILS
M-502	MECHANICAL DETAILS
M-503	MECHANICAL DETAILS
M-601	MECHANICAL CONTROLS SEQUENCES OF OPERATION
M-602	MECHANICAL CONTROL POINTS LIST

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY - MECHANICAL SUMMARY

C401 METHOD OF COMPLIANCE

- [x] 2018 NCECC CHAPTER 4
- [ ] ASHRAE 90.1-2013 PRESCRIPTIVE
- [ ] ASHRAE 90.1-2013 PERFORMANCE
- [ ] N/A (EXISTING LIGHTING, HVAC, AND DOM. WATER HEATING SYSTEMS TO REMAIN)
- [ ] COMCHECK PROVIDED (2018 NCECC)
- [ ] COMCHECK PROVIDED (90.1-2013)
- [ ] ENERGY MODELING DATA PROVIDED

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

- [ ] C406.2 EFFICIENT MECH EQUIPMENT
- [x] C406.3 REDUCED LTG DENSITY
- [ ] C406.4 ENHANCED LTG CONTROLS
- [ ] C406.5 ON-SITE RENEWABLE ENERGY
- [ ] C406.6 DEDICATED OA SYSTEM
- [ ] C406.7 SERVICE WATER HEATING

C301 CLIMATE ZONE

3A - PAMLICO COUNTY, NORTH CAROLINA

DESIGN CONDITIONS

EXTERIOR (ASHRAE 90.1-2013 TABLE D-1)

winter dry bulb	22.5° F.
summer dry bulb	93.3° F.
summer wet bulb	78.1° F.

INTERIOR (2018 NCECC SECTION C302.1)

winter dry bulb	72° F.
summer dry bulb	75° F.

C403.2 HEATING & COOLING LOADS AND EQUIPMENT & SYSTEM SIZING

BUILDING HEATING LOAD	2,289,200 BTUH (peak)
BUILDING COOLING LOAD	4,288,800 BTUH (peak)
INSTALLED HEATING CAPACITY	5,583,115 BTUH
INSTALLED COOLING CAPACITY	4,562,097 BTUH

C403.2.3 & C406.2 - REQUIRED & INCREASED HVAC EQUIPMENT PERFORMANCE

SYSTEM DESCRIPTION - GEOTHERMAL LOOP SERVING WSHP WITH HOT GAS REHEAT. ERV PROVIDING VENTILATION.

- [x] MINIMUM HVAC EQUIP EFFICIENCY COMPLIANCE - TABLE C403.2.3
- [ ] INCREASED HVAC EQUIP EFFICIENCY COMPLIANCE - 10% OVER TABLE C403.2.3

EQUIP TYPE	SIZE CATEGORY (BTUH)	SUBCATEGORY	C403.2.3 MINIMUM EFFICIENCY (a)	10% INCREASED EFF. (a)	DESIGN EFFIC.
TABLE C403.2.3(1) - UNITARY AIR CONDITIONERS AND CONDENSING UNITS					
AIR COND, AIR COOLED	< 65,000 (<= 5 TONS)	SPLIT SYSTEM & SINGLE PACKAGE	13.0 SEER	14.3 SEER	SEE SCHEDULE
a. DEDUCT 0.2 FROM THE REQUIRED EERS AND IEERS FOR UNITS WITH A HEATING SECTION OTHER THAN ELECTRIC RESISTANCE HEAT OR NO HEAT.					
TABLE C403.2.3(2) - ELECTRICALLY OPERATED UNITARY AND APPLIED HEAT PUMPS					
GWTR SRCE COOL MODE	< 17,000	86° EWT	12.2 SEER	13.4 SEER	SEE SCHEDULE
GWTR SRCE COOL MODE	>= 17,000 <135,000	86° EWT	13.0 EER	14.3 EER AT 86° EWT	SEE SCHEDULE
GROUND LOOP COOL MODE	< 135,000	68° EWT	4.3 COP	4.7 COP AT 70° EWT	SEE SCHEDULE
a. DEDUCT 0.2 FROM THE REQUIRED EERS AND IEERS FOR UNITS WITH A HEATING SECTION OTHER THAN ELECTRIC RESISTANCE HEAT OR NO HEAT.					

C403.2.4 THRU C403.2.11

- [x] HVAC SYSTEMS ARE FULLY COMPLIANT WITH THE REQUIREMENTS FOR HVAC SYSTEM CONTROL, VENTILATION, ENERGY RECOVERY, DUCT AND PLENUM INSULATION AND SEALING, PIPING INSULATION, AND SYSTEM COMPLETION.

C403.2.12 - AIR SYSTEM DESIGN AND CONTROL

- [ ] ALL FANS INSTALLED ON THE PROJECT ARE 5 HP OR LESS AND ARE EXEMPT FROM THESE REQUIREMENTS.
- [x] FANS ABOVE 5 HP MEET THE CFM LIMITATIONS SHOWN BELOW:

OPTION 1 - FAN SYSTEM MOTOR NAMEPLATE HP - TABLE C403.2.12

WATER SOURCE HEAT PUMP SCHEDULE

SYMBOL	EQUIP. SERVES	EQUIPMENT TYPE	EVAPORATOR COOLING COIL NOMINAL (TONS)	SUPPLY AIR	OUTSIDE AIR			COOLING CAPACITY			HEATING CAPACITY			CONDENSER WATER				FAN MOTOR		COMPRESSOR (EA)			ELECTRICAL DATA					MANUFACTURER	MODEL	ASSOCIATED PUMP TAG	ACCESSORIES
																				MOTOR										
				FLOW	OCC. MIN.	DESIGN	ESP	TC (BTUH)	SHC (BTUH)	EER	BTUH	COP	REFRIG.	GPM	PD	RUNOUT	HP	FLA	QTY	LRA	RLA	VOLTAGE	PHASE	MCA	MOCP					
WSHP-1-1.1	1502 MS ANIMAL SCIENCE	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-1-1.2	1504 HS ANIMAL SCIENCE	VERTICAL	3.0	1200	105	105	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-1-1.3	1506 HORTICULTURE	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-1-1.4	1508 EMT CLASS	HORIZONTAL	5.0	2000	125	125	0.30	60821	40890	13.2	84171	4.4	R-410A	15.0	14.7	1/2"	1.00	22.1	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TZS060	CWP-5H	HGR, DAC
WSHP-1-1.5	1510 HVAC LAB	HORIZONTAL	5.0	2000	90	90	0.30	60821	40890	13.2	84171	4.4	R-410A	15.0	14.7	1/2"	1.00	22.1	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TZS060	CWP-5H	HGR, DAC
WSHP-1-2.1	2102 HS SS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-1-2.2	2104 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-1-2.3	2106 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-1-2.4	2108 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-1-2.5	2110 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-1-3.1	MEDIA/COLLAB	VERTICAL	6.0	2400	360	360	0.75	68954	45860	13.2	89017	4.3	R-410A	18.0	18.8	1/2"	1.00	10.8	1	66.1	8.2	460 V	3	12.9	20.0	ENERTECH	TVS072	CWP-6V	HGR, DAC
WSHP-1-3.2	MEDIA/COLLAB	VERTICAL	6.0	2400	360	360	0.75	68954	45860	13.2	89017	4.3	R-410A	18.0	18.8	1/2"	1.00	10.8	1	66.1	8.2	460 V	3	12.9	20.0	ENERTECH	TVS072	CWP-6V	HGR, DAC
WSHP-2-1.1	1512 CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-2-1.2	1514 WOOD WORKING	HORIZONTAL	5.0	2000	90	90	0.50	60821	40890	13.2	84171	4.4	R-410A	15.0	14.7	1/2"	1.00	22.1	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TZS060	CWP-5H	HGR, DAC
WSHP-2-1.3	1516 WELDING LAB	HORIZONTAL	5.0	2000	120	120	0.50	60821	40890	13.2	84171	4.4	R-410A	15.0	14.7	1/2"	1.00	22.1	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TZS060	CWP-5H	HGR, DAC
WSHP-2-1.4	1718 BIOLOGY	VERTICAL	5.0	2000	125	125	0.30	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC
WSHP-2-1.5	1716 PHYSICS	VERTICAL	5.0	2000	125	125	0.30	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC
WSHP-2-2.1	2112 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-2-2.2	2114 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-2-2.3	2116 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-2-2.4	2118 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-2-2.5	2120 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-2-2.6	2122 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-2-2.7	MEDIA/COLLAB	HORIZONTAL	5.0	2000	200	200	0.75	60821	40890	13.2	84171	4.4	R-410A	15.0	14.7	1/2"	1.00	22.1	1	52.0	7.8	480 V	1	12.4	20.0	ENERTECH	TZS060	CWP-5H	HGR, DAC
WSHP-2-3.1	2221 MIDDLE SCHOOL STEM	VERTICAL	4.0	1600	280	280	0.30	50923	34563	16.8	62476	5.1	R-410A	12.0	10.6	1/2"	0.75	20.7	1	109.7	16.0	265 V	1	24.7	40.0	ENERTECH	TVS048	CWP-4V	HGR, DAC
WSHP-2-3.2	MEDIA/COLLAB	VERTICAL	5.0	2000	280	280	0.75	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC
WSHP-2-3.3	1612 ADOBE	VERTICAL	6.0	2400	360	360	0.30	68954	45860	13.2	89017	4.3	R-410A	18.0	18.8	1/2"	1.00	10.8	1	66.1	8.2	460 V	3	12.9	20.0	ENERTECH	TVS072	CWP-6V	HGR, DAC
WSHP-3-1.1	1708 PHYSICAL SCIENCE	VERTICAL	5.0	2000	125	125	0.30	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC
WSHP-3-1.2	1710 CHEMISTRY	VERTICAL	5.0	2000	125	125	0.30	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC
WSHP-3-2.1	2218 MS 7TH CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-3-2.2	2220 MS 7TH CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-3-2.3	2222 MS 7TH CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-3-2.4	2224 MS 8TH CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-3-2.5	2226 MS 8TH CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-3-2.6	2228 MS 8TH CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-3-2.7	2230 MS SCIENCE	VERTICAL	5.0	2000	125	125	0.30	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC
WSHP-3-2.8	2226 LANGUAGE	VERTICAL	5.0	2000	145	145	0.30	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC
WSHP-3-2.9	RESOURCE ROOMS	HORIZONTAL	4.0	1600	180	180	0.75	49088	34682	15.9	62097	4.8	R-410A	12.0	9.9	1/2"	0.75	17.7	1	72.0	13.0	265 V	1	21.0	30.0	ENERTECH	TZS048	CWP-4H	HGR, DAC
WSHP-3-2.10	GUIDANCE OFFICE	HORIZONTAL	4.0	1600	135	135	0.75	49088	34682	15.9	62097	4.8	R-410A	12.0	9.9	1/2"	0.75	17.7	1	72.0	13.0	265 V	1	21.0	30.0	ENERTECH	TZS048	CWP-4H	HGR, DAC
WSHP-3-3.1	MEDIA/COLLAB	VERTICAL	3.0	1200	150	150	0.75	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-3-3.2	MEDIA/COLLAB	VERTICAL	6.0	2400	350	350	0.75	68954	45860	13.2	89017	4.3	R-410A	18.0	18.8	1/2"	1.00	10.8	1	66.1	8.2	460 V	3	12.9	20.0	ENERTECH	TVS072	CWP-6V	HGR, DAC
WSHP-3-3.3	MEDIA/COLLAB	VERTICAL	6.0	2400	350	350	0.75	68954	45860	13.2	89017	4.3	R-410A	18.0	18.8	1/2"	1.00	10.8	1	66.1	8.2	460 V	3	12.9	20.0	ENERTECH	TVS072	CWP-6V	HGR, DAC
WSHP-4-1.1	1802 HS CTEC LAB 2D ART	VERTICAL	4.0	1600	250	250	0.30	50923	34563	16.8	62476	5.1	R-410A	12.0	10.6	1/2"	0.75	20.7	1	109.7	16.0	265 V	1	24.7	40.0	ENERTECH	TVS048	CWP-4V	HGR, DAC
WSHP-4-1.2	1804 HS CTEC LAB 3D	VERTICAL	4.0	1600	250	250	0.30	50923	34563	16.8	62476	5.1	R-410A	12.0	10.6	1/2"	0.75	20.7	1	109.7	16.0	265 V	1	24.7	40.0	ENERTECH	TVS048	CWP-4V	HGR, DAC
WSHP-4-1.3	1806 EC SC WITH LS	VERTICAL	4.0	1600	250	250	0.30	50923	34563	16.8	62476	5.1	R-410A	12.0	10.6	1/2"	0.75	20.7	1	109.7	16.0	265 V	1	24.7	40.0	ENERTECH	TVS048	CWP-4V	HGR, DAC
WSHP-4-1.4	1702 EC SC	VERTICAL	4.0	1600	250	250	0.30	50923	34563	16.8	62476	5.1	R-410A	12.0	10.6	1/2"	0.75	20.7	1	109.7	16.0	265 V	1	24.7	40.0	ENERTECH	TVS048	CWP-4V	HGR, DAC
WSHP-4-1.5	1704 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-4-1.6	1706 HS CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-4-2.1	2208 MS 6TH CLASSOOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-4-2.2	2210 MS 6TH CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-4-2.3	2212 MS 6TH CLASSROOM	VERTICAL	3.0	1200	135	135	0.30	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-4-2.4	2214 MS 6TH CLASSROOM	VERTICAL	5.0	2000	125	125	0.30	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC
WSHP-4-2.5	2216 MS 7TH SCIENCE	VERTICAL	5.0	2000	125	125	0.30	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC
WSHP-4-3.1	MEDIA/COLLAB	VERTICAL	6.0	2400	360	360	0.75	68954	45860	13.2	89017	4.3	R-410A	18.0	18.8	1/2"	1.00	10.8	1	66.1	8.2	460 V	3	12.9	20.0	ENERTECH	TVS072	CWP-6V	HGR, DAC
WSHP-4-3.2	MEDIA/COLLAB	VERTICAL	4.0	1600	220	220	0.75	50923	34563	16.8	62476	5.1	R-410A	12.0	10.6	1/2"	0.75	20.7	1	109.7	16.0	265 V	1	24.7	40.0	ENERTECH	TVS048	CWP-4V	HGR, DAC
WSHP-5-1.1	1310 WRESTLING ROOM	HORIZONTAL	5.0	2000	95	95	0.50	60821	40890	13.2	84171	4.4	R-410A	15.0	14.7	1/2"	1.00	22.1	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TZS060	CWP-5H	HGR, DAC
WSHP-5-1.2	1308 WEIGHT ROOM	HORIZONTAL	5.0	2000	75	75	0.50	60821	40890	13.2	84171	4.4	R-410A	15.0	14.7	1/2"	1.00	22.1	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TZS060	CWP-5H	HGR, DAC
WSHP-5-2.1	LOCKER ROOMS	VERTICAL	3.0	1200	100	100	1.00	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-5-2.2	LOCKER ROOMS	VERTICAL	4.0	1600	150	150	1.00	50923	34563	16.8	62476	5.1	R-410A	12.0	10.6	1/2"	0.75	20.7	1	109.7	16.0	265 V	1	24.7	40.0	ENERTECH	TVS048	CWP-4V	HGR, DAC
WSHP-5-2.3	LOCKER ROOMS	VERTICAL	2.0	800	50	50	1.00	27924	22526	14.8	34642	5.8	R-410A	6.0	5.7	1/2"	0.33	11.2	1	54.0	9.0	265 V	1	13.5	20.0	ENERTECH	TVS024	CWP-2V	HGR, DAC
WSHP-5-G1	MS GYM	VERTICAL	20.0	8000	200	755	1.25	237400	176800	13.2	298200	4.4	R-410A	50.0	9.0	2"	3.22	39.8	2	123.0	15.0	460 V	3	43.6	60.0	CLIMATEMASTER	RB-240	CWP-20	HGR,DAC,DCV,VFD
WSHP-5-G2	MS GYM	VERTICAL	20.0	8000	200	755	1.25	237400	176800	13.2	298200	4.4	R-410A	50.0	9.0	2"	3.22	39.8	2	123.0	15.0	460 V	3	43.6	60.0	CLIMATEMASTER	RB-240	CWP-20	HGR,DAC,DCV,VFD
WSHP-6-D1	DINING	VERTICAL	12.5	5000	520	520	1.25	165400	116900	14.4	198000	4.3	R-410A	35.0	6.5	1/2"	1.46	30.5	1	125.0	13.2	460 V	3	33.8	45.0	CLIMATEMASTER	RB-168	CWP-12.5	HGR,DAC,DCV,VFD
WSHP-6-K1	KITCHEN	VERTICAL	6.0	2400	200	200	0.75	68954	45860	13.2	89017	4.3	R-410A	18.0	18.8	1/2"	1.00	10.8	1	66.1	8.2	460 V	3	12.9	20.0	ENERTECH	TVS072	CWP-6V	HGR, DAC
WSHP-6-K2	KITCHEN	VERTICAL	2.0	800	50	50	0.75	27924	22526	14.8	34642	5.8	R-410A	6.0	5.7	1/2"	0.33	11.2	1	54.0	9.0	265 V	1	13.5	20.0	ENERTECH	TVS024	CWP-2V	HGR, DAC
WSHP-6-L1	LOBBY	VERTICAL	12.5	5000	700	700	1.25	165400	116900	14.4	198000	4.3	R-410A	35.0	6.5	1/2"	1.46	30.5	1	125.0	13.2	460 V	3	33.8	45.0	CLIMATEMASTER	RB-168	CWP-12.5	HGR,DAC,DCV,VFD
WSHP-7-G1	HS GYM	VERTICAL	25.0	10000	300	1405	1.25	311100	229300	13.3	369000	4.2	R-410A	62.5	11.0	2"	7.65	55.9	2	147.0	21.6	460 V	3	61.3	80.0	CLIMATEMASTER	RB-300	CWP-25	HGR,DAC,DCV,VFD
WSHP-7-G2	HS GYM	VERTICAL	25.0	10000	300	1405	1.25	311100	229300	13.3	369000	4.2	R-410A	62.5	11.0	2"	7.65	55.9	2	147.0	21.6	460 V	3	61.3	80.0	CLIMATEMASTER	RB-300	CWP-25	HGR,DAC,DCV,VFD
WSHP-8-A1	ADMIN	VERTICAL	3.0	1200	150	150	0.75	39213	28860	14.3	51836	5.2	R-410A	9.0	7.3	1/2"	0.50	16.9	1	72.0	13.5	265 V	1	20.3	30.0	ENERTECH	TVS036	CWP-3V	HGR, DAC
WSHP-8-A2	ADMIN	VERTICAL	5.0	2000	180	180	0.75	59121	41032	13.8	78340	4.7	R-410A	15.0	15.0	1/2"	1.00	10.4	1	52.0	7.8	460 V	3	12.4	20.0	ENERTECH	TVS060	CWP-5V	HGR, DAC

NOTES:

1. COOLING COIL CAPACITY AND EFFICIENCY BASED ON 80°/67° ENTERING AIR AND 85°F. ENTERING CONDENSER WATER TEMPERATURE. HEATING CAPACITY AND EFFICIENCY BASED ON 50° ENTERING CONDENSER WATER TEMPERATURE.
2. PROVIDE UNITS WITH: SCHNEIDER ELECTRIC SMART STRUCTURE WSHP CONTROLLER (OR EQUAL, BY CONTROLS CONTRACTOR), FILTER, U.L. LABEL, HOSE KIT, SELF BALANCING VALVE, BALL VALVE, AND STRAINER AS INDICATED ON WATER SOURCE HEAT PUMP PIPING DETAIL.
3. PROVIDE UNITS WITH REFRIGERANT DETECTION SYSTEMS (RDS)
4. PROVIDE COMBINATION THERMOSTAT, HUMIDITY SENSOR FOR HGR UNITS FOR SPACE HUMIDIDITY CONTROL.
5. PROVIDE HOT GAS REHEAT WHERE INDICATED FOR HUMIDITY CONTROL, INDICATED BY 'HGR', SEE SEQUENCE OF OPERATION.
6. PROVIDE CONSTANT SPEED AND VARIABLE SPEED UNITS WITH SINGLE POINT POWER CONNECTION. PROVIDE UNITS WITH INTEGRAL DISCONNECTS.
7. ALL WATER SOURCE HEAT PUMPS SHALL BE PROVIDED WITH OPEN PROTOCOL CONTROLLERS.
8. PROVIDE EACH UNIT WITH A IONIZATION TYPE SMOKE DETECTOR, INSTALLED IN THE RETURN DUCT WIRED TO SHUT DOWN THE UNIT UPON ACTIVATION. SMOKE DETECTOR SHALL BE SUPPLIED, WIRED FOR INTERFACE WITH FIRE ALARM SYSTEM AND UNIT SHUTDOWN BY THE ELECTRICAL CONTRACTOR. SMOKE DETECTOR SHALL BE INSTALLED IN THE RETURN DUCT BY THE MECHANICAL CONTRACTOR.
9. PROVIDE DEMAND CONTROL VENTILATION CONTROLS WHERE INDICATED FOR OUTSIDE AIR AIRFLOW DAMPER CONTROL, INDICATED BY 'DCV', SEE SEQUENCE OF OPERATION. /2
10. PROVIDE DYNAMIC AIR CLEANING FILTERS FOR UNITS WHERE INDICATED , INDICATED BY 'DAC'. PROVIDE POLARIZED-MEDIA ELECTRONIC AIR CLEANERS 1" PANEL AIR CLEANERS, DYNAMIC MODEL P1000 FILTER OR EQUIVALENT POLARIZED MEDIA FILTRATION SYSTEM COMPLIANT TO MEET UL STANDARD 867. PROVIDE WITH LOW VOLTAGE CONNECTION, WIRE/CONNECT TO UNIT CONTROL TRANSFORMER.
11. PROVIDE UNITS WITH CONDENSATE PUMP WHEN NOT GRAVITY DRAINED

BID ALTERNATE #5: REPLACE SPECIFIED MECHANICAL HEAT PUMPS WITH MECHANICAL HEAT PUMPS THAT WILL SATISFY THE DOMESTIC CONTENT REQUIREMENTS TO QUALIFY FOR DOMESTIC CONTENT BONUS CREDIT BASED ON SECTIONS 45, 45Y, 48, AND 48E, OF THE INTERNAL REVENUE CODE. PUBLIC LAW 117-169, 136 STAT. 1818 (AUGUST 16, 2022), COMMONLY KNOWN AS THE INFLATION REDUCTION ACT OF 2022 (IRA).

BID ALTERNATE #6: EQUIPMENT USING REFRIGERANT R410A IS BEING PHASED OUT DUE TO ENVIRONMENTAL PROTECTION AGENCY (EPA) REGULATIONS. REFRIGERANT R454B IS BEING UTILIZED BY MOST MANUFACTURERS AS THE REPLACEMENT MOVING FORWARD. EQUIPMENT SELECTIONS HAVE NOT BEEN MADE AVAILABLE UNTIL RECENTLY. ALL EQUIPMENT BIDS SHALL CLEARLY INDICATE WHICH REFRIGERANT IS BASE BID, AND SHALL PROVIDE AN ALTERNATE FOR EQUAL EQUIPMENT UTILIZING R454B.

ENERGY RECOVERY VENTILATOR SCHEDULE

SYMBOL	SUPPLY AIR			EXHAUST AIR			SUMMER SUPPLY AIR CONDITIONS (°F.)				WINTER SUPPLY AIR CONDITIONS (°F.)				ELECTRICAL				MANUFACTURER
	SUPPLY (CFM)	SUPPLY E.S.P. (IN H20)	FAN HP	EXH. (CFM)	EXH. E.S.P. (IN H20)	FAN HP	DRY BULB (F°)	WET BULB (F°)	SPECIFIC HUMIDITY	ENTHALPY	DRY BULF (F°)	WET BULB (F°)	SPECIFIC HUMIDITY	ENTHALPY	MCA	MOCP	Voltage	Phase	GREENHECK MODEL
ERV-1	1500	0.75	0.75 hp	1860	0.75	1.00 hp	93.3	78.1	0.017264	41.4	22.5	18.8	0.001201	6.7	4.8 A	15.0 A	460 V	3	ERV-45-15L
ERV-2	2100	0.75	1.50 hp	2535	0.75	2.00 hp	93.3	78.1	0.017264	41.4	22.5	18.8	0.001201	6.7	7.9 A	15.0 A	460 V	3	ERV-45-15L

NOTES:

1. REFER TO SPECIFICAT

DUCTLESS A/C CONDENSING UNIT SCHEDULE

SYMBOL	MANUFACTURER	MODEL NO.	NOMINAL CAPACITY	TYPE	REFRIGERANT TYPE	REFRIGERANT CHARGE	LOW AMBIENT KIT	SUMMER AMBIENT DBT	WINTER AMBIENT DBT	EER	SOUND PRESSURE LEVEL	WEIGHT	MCA	MOCP	VOLT	PH	REMARKS
ODU-1	Mitsubishi Electric	PUY-A24NHA7(-BS)	2.0 ton	COOLING ONLY	R410A	7 lb	Yes	93.3 °F	22.5 °F	12.2	47	151 lb	19.0 A	26.0 A	208 V	1	
ODU-2	Mitsubishi Electric	PUY-A18NKA7(-BS)	1.5 ton	COOLING ONLY	R410A	4 lb	Yes	93.3 °F	22.5 °F	10.7	44	99 lb	11.0 A	28.0 A	208 V	1	
ODU-3	Mitsubishi Electric	PUY-A18NKA7(-BS)	1.5 ton	COOLING ONLY	R410A	4 lb	Yes	93.3 °F	22.5 °F	10.7	44	99 lb	11.0 A	28.0 A	208 V	1	
ODU-4	Mitsubishi Electric	PUY-A18NKA7(-BS)	1.5 ton	COOLING ONLY	R410A	4 lb	Yes	93.3 °F	22.5 °F	10.7	44	99 lb	11.0 A	28.0 A	208 V	1	

DUCTLESS A/C CONDENSING UNIT SCHEDULE NOTES:

1. COOLING CAPACITY @ 95 AMBIENT.
2. ALL UNITS SHALL BE U.L. LISTED AND ASHRAE 90.1 COMPLIANT.
3. MOUNT UNITS ON A 4" THICK CONCRETE PAD AND PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNITS.
4. MOUNT UNITS ON ROOF ON EQUIPMENT SUPPORT RAILS AS MFG. BY ROOF PRODUCTS AND SYSTEMS, CORP. (OR EQUAL) AND PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNITS.
5. PROVIDE UNITS WITH CONDENSER COIL HAIL GUARDS AND LOW AMBIENT CONTROLS.
6. PROVIDE UNIT COILS WITH SEACOAST PROTECTION
7. FOR REFRIGERANT LINE APPLICATIONS WITH A TOTAL EQUIVALENT LENGTH BETWEEN 50'-0" AND 175'-0".
   THE FOLLOWING ACCESSORIES SHALL BE PROVIDED;
   -COMPRESSOR CRANKCASE HEATER.
   - COMPRESSORT START ASSIST CAPACITOR AND RELAY (NOT REQUIRED FOR SCROLL COMPRESSORS OR THREE PHASE UNITS).
   - WIND BAFFLES (FOR UNIT MOUNTED ON ROOFS).
   - SEACOAST PROTECTION FOR COILS.
   -FOR HORIZONTAL CONFIGURATION: PROVIDE LIQUID LINE SOLENOID WITHIN 2'-0" OUTDOOR UNIT WITH FLOW ARROW POINTING TOWARD OUTDOOR UNIT. VAPOR LINE SHOULD SLOPE TOWARD INDOOR UNIT.
   - FOR INDOOR UNIT LOCATED ABOVE OUTDOOR UNIT (50'-0" MAX.), A LIQUID LINE (BI-FLOW) SOLENOID MUST BE INSTALLED WITHIN 2'-0" OF OUTDOOR UNIT WITH FLOW ARROW POINTING TOWARD OUTDOOR UNIT. AN INVERTED VAPOR LINE TRAP MUST BE INSTALLED AT INDOOR UNIT. THE TOP OF THE TRAP MUST BE GREATER THAN THE HEIGHT OF THE INDOOR COIL.
   -FOR INDOOR UNIT LOCATED BELOW OUTDOOR UNIT (150'-0" MAX); A LIQUID LINE (BI-FLOW) SOLENOID MUST BE INSTALLED WITHIN 2'-0" OF OUTDOOR UNIT.

BID ALTERNATE #6: EQUIPMENT USING REFRIGERANT R410A IS BEING PHASED OUT DUE TO ENVIRONMENTAL PROTECTION AGENCY (EPA) REGULATIONS. REFRIGERANT R454B IS BEING UTILIZED BY MOST MANUFACTURERS AS THE REPLACEMENT MOVING FORWARD. EQUIPMENT SELECTIONS HAVE NOT BEEN MADE AVAILABLE UNTIL RECENTLY. ALL EQUIPMENT BIDS SHALL CLEARLY INDICATE WHICH REFRIGERANT IS BASE BID, AND SHALL PROVIDE AN ALTERNATE FOR EQUAL EQUIPMENT UTILIZING R454B.

DUCTLESS A/C INDOOR UNIT SCHEDULE

SYMBOL	MANUFACTURER	MODEL NO.	DESIGN AIRFLOW	TOTAL CAPACITY	EAT(db)	EAT(wb)	UNIT WEIGHT	MCA	VOLT	PH	INTERLOCK ID	REMARKS
DSS-1	Mitsubishi Electric	PKA-A24KA7	775 CFM	24,000 Btu/h	90.0 °F	72.0 °F	46 lb	1.0 A	208 V	1	ODU-1	
DSS-2	Mitsubishi Electric	PKA-A18LA	455 CFM	18,000 Btu/h	90.0 °F	72.0 °F	28 lb	1.0 A	208 V	1	ODU-2	
DSS-3	Mitsubishi Electric	PKA-A18LA	455 CFM	18,000 Btu/h	90.0 °F	72.0 °F	28 lb	1.0 A	208 V	1	ODU-3	
DSS-4	Mitsubishi Electric	PKA-A18LA	455 CFM	18,000 Btu/h	90.0 °F	72.0 °F	28 lb	1.0 A	208 V	1	ODU-4	

DUCTLESS A/C UNIT SCHEDULE NOTES:

1. PROVIDE WITH FACTORY THERMOSTAT AND CONDENSATE PUMP.
2. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
3. SIZE AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS.
4. INDOOR UNITS ARE POWERED BY THE CONDENSING UNITS.
5. IN EVERY ROOM SERVED BY A MINI-SPLIT INDOOR UNIT PROVIDE A TEMPERATURE SENSOR INTEGRATED INTO THE BAS WITH HIGH TEMPERATURE ALARM SET AT 80F (ADJ)

EXHAUST FAN SCHEDULE

SYMBOL	LOCATION	MANUFACTURER	MODEL NO.	TYPE	CFM	APPROX. ESP	DRIVE TYPE	FAN RPM	ELECTRICAL DATA WATTS	H.P.	VOLTAGE-PHASEØ	ACCESSORIES	CONTROL TYPE
EF-1	ADMIN OFFICE	GREENHECK	CSP-A250	CEILING	75	0.50	DIRECT	770	25	0.00	115 V-1Ø	A,B,F,G,O	2
EF-2	ADMIN OFFICE	GREENHECK	CSP-A250	CEILING	75	0.50	DIRECT	770	25	0.00	115 V-1Ø	A,B,F,G,O	2
EF-3	ADMIN OFFICE	GREENHECK	CSP-A250	CEILING	75	0.50	DIRECT	770	25	0.00	115 V-1Ø	A,B,F,G,O	2
EF-4	ADMIN OFFICE	GREENHECK	CSP-A250	CEILING	75	0.50	DIRECT	770	25	0.00	115 V-1Ø	A,B,F,G,O	2
EF-5	HS GIRLS V LOCKER 1202	GREENHECK	G-095-D	DOWNBLAST	400	0.50	DIRECT	1540	1000	0.13	115 V-1Ø	A,B,D,E	2
EF-6	HS GIRLS JV LOCKER 1203	GREENHECK	G-095-D	DOWNBLAST	400	0.50	DIRECT	1540	1000	0.13	115 V-1Ø	A,B,D,E	2
EF-7	ELECTRICAL ROOM	GREENHECK	G-120-A	DOWNBLAST	1,420	0.50	DIRECT	1406	1000	0.50	115 V-1Ø	A,C,D,E	1
EF-8	ELECTRICAL ROOM	GREENHECK	G-080-D	DOWNBLAST	180	0.50	DIRECT	1330	500	0.25	115 V-1Ø	A,C,D,E	1
EF-9	EQUIP 1314	GREENHECK	G-080-D	DOWNBLAST	180	0.50	DIRECT	1330	500	0.25	115 V-1Ø	A,C,D,E	1
EF-10	HS BOYS JV LOCKER 1208	GREENHECK	G-095-D	DOWNBLAST	400	0.50	DIRECT	1540	1000	0.13	115 V-1Ø	A,B,D,E	2
EF-11	HS BOYS LOCKER ROOM 1209	GREENHECK	G-095-D	DOWNBLAST	400	0.50	DIRECT	1540	1000	0.13	115 V-1Ø	A,B,D,E	2
EF-12	LNDR 1311	GREENHECK	SP-B150	CEILING	125	0.50	DIRECT	911	128	0.00	115 V-1Ø	A,B,F,G,O	5
EF-13	RR 1205B	GREENHECK	SP-B150	CEILING	125	0.50	DIRECT	911	128	0.00	115 V-1Ø	A,B,F,G,O	2
EF-14	RR 1207B	GREENHECK	SP-B150	CEILING	125	0.50	DIRECT	911	128	0.00	115 V-1Ø	A,B,F,G,O	2
EF-15	CUST 1206	GREENHECK	SP-B150	CEILING	125	0.50	DIRECT	911	128	0.00	115 V-1Ø	A,B,F,G,O	2
EF-16	MECH PENTHOUSE M2300	GREENHECK	SQ-90	INLINE	275	0.50	DIRECT	1643	0	0.10	115 V-1Ø	A,B,F,G	2
EF-17	MECH PENTHOUSE M2300	GREENHECK	SQ-90	INLINE	275	0.50	DIRECT	1643	0	0.10	115 V-1Ø	A,B,F,G	2
EF-18	KITCHEN	GREENHECK	CSP-A250	CEILING	75	0.50	DIRECT	770	25	0.00	115 V-1Ø	A,B,F,G,O	2
EF-19	KITCHEN	GREENHECK	CSP-A250	CEILING	75	0.50	DIRECT	770	25	0.00	115 V-1Ø	A,B,F,G,O	2
EF-20	KITCHEN	GREENHECK	CSP-A250	CEILING	75	0.50	DIRECT	770	25	0.00	115 V-1Ø	A,B,F,G,O	2
EF-21	DISHWASHING	GREENHECK	G-080-D	DOWNBLAST	180	0.50	DIRECT	1330	500	0.25	115 V-1Ø	A,B,D,E	3
EF-22	PUMP ROOM	GREENHECK	G-120-A	DOWNBLAST	1,440	0.50	DIRECT	1420	1000	0.50	115 V-1Ø	A,C,D,E	1,10
EF-23	TRADES LAB	GREENHECK	SQ-120	INLINE	520	0.25	DIRECT	753	500	0.13	115 V-1Ø	A,B,F,G	3
EF-24	WOOD WORKING	GREENHECK	SQ-120	INLINE	520	0.25	DIRECT	753	0	0.13	115 V-1Ø	A,C,F,G,K	3
EF-25	WELDING	GREENHECK	USF-15-B7	UTILITY SET	3,200	0.50	DIRECT	1641	0	1.50	460 V-3Ø	A,C,K,N,U	4
EF-26	1718 BIOLOGY	GREENHECK	SQ-120	INLINE	1,310	0.50	DIRECT	1629	1127	0.50	115 V-1Ø	A,B,F,G	5
EF-27	1716B & 2230B PREP ROOM	GREENHECK	G-080-D	DOWNBLAST	490	0.50	DIRECT	1426	500	0.25	115 V-1Ø	A,B,D,E	7
EF-28	FUME HOOD EXHAUST	GREENHECK	USF-04-B7	UTILITY SET	700	0.50	DIRECT	1702	0	0.25	460 V-1Ø	A,C,K,N,U	9
EF-29	1710 CHEMISTRY	GREENHECK	SQ-120	INLINE	1,650	0.50	DIRECT	1583	1127	0.50	115 V-1Ø	A,B,F,G	5
EF-30	1708B PREP ROOM	GREENHECK	G-080-D	DOWNBLAST	260	1.00	DIRECT	1651	500	0.25	115 V-1Ø	A,B,D,E	5
EF-31	1714 PHYSICAL SCIENCE	GREENHECK	SQ-120	INLINE	1,260	0.50	DIRECT	1583	1127	0.50	115 V-1Ø	A,B,F,G	5
EF-32	1804 HS CTEC LAB 3D ART	GREENHECK	G-120-A	DOWNBLAST	840	1.00	DIRECT	1411	500	0.50	115 V-1Ø	A,B,D,E	5
EF-33	1802 HS CTEC LAB 2D ART	GREENHECK	G-120-A	DOWNBLAST	840	1.00	DIRECT	1411	500	0.50	115 V-1Ø	A,B,D,E	5
EF-34	KILN	GREENHECK	SP-B150	CEILING	150	0.50	DIRECT	1050	128	0.00	115 V-1Ø	A,B,F,G,O	1
EF-35	2214 6TH SCIENCE	GREENHECK	G-099-A	DOWNBLAST	890	0.50	DIRECT	1547	500	0.25	115 V-1Ø	A,B,D,E	5
EF-36	1716 PHYSICS	GREENHECK	SQ-120	INLINE	1,310	0.50	DIRECT	1629	1130	0.50	115 V-1Ø	A,B,F,G	5
EF-37	2210 7TH SCIENCE	GREENHECK	G-099-A	DOWNBLAST	900	0.50	DIRECT	1558	500	0.25	115 V-1Ø	A,B,D,E	5
EF-38	2230 MS SCIENCE	GREENHECK	G-099-A	DOWNBLAST	960	0.50	DIRECT	1611	500	0.25	115 V-1Ø	A,B,D,E	5

EXHAUST FAN SCHEDULE ACCESSORIES:

A. DISCONNECT SWITCH
B. GRAVITY BACKDRAFT DAMPER
C. MOTORIZED BACKDRAFT DAMPER
D. PREFAB, ROOF CURB
E. BIRDSCREEN
F. ACOUSTICAL LINING
G. HANGING BRACKETS WITH VIBRATION ISOLATION
H. WL, WALL LOUVER DISCHARGE
I. RCC OR GRS ROOF CAP (FLAT ROOF) OR RJ ROOF CAP (PITCHED ROOF)
J. WALL MOUNTING COLLAR
K. INLET GAURD
M. 2" WASHABLE ALUMINUM FILTERS
N. MOTORSIDE FAN GUARD
O. EXHAUST GRILLE
P. U.L. 762
Q. VENTED ROOF CURB EXTENSION
R. COMBINATION KITCHEN HOOD FAN CURB
S. INTERLOCK WITH FUME HOOD
T. PROVIDE DRAIN PLUG ACCESSORY
U. ROOF SUPPORT RAILS
V. VFD

EXHAUST FAN SCHEDULE CONTROLS:

1. WALL MOUNTED THERMOSTAT (REVERSE ACTING, SET FOR 80°)
2. INTERLOCK WITH ROOM LIGHT SWITCH (FAN SHALL OPERATE WHEN LIGHT IS ON IF ANY ROOM IS SERVED BY FAN)
3. WALL MOUNTED ON/OFF SWITCH WITH IDENTIFICATION LABEL
4. WALL MOUNTED MUSHROOM PUSH BUTTON SWITCH/STARTER WITH IDENTIFICATION LABEL
5. WALL MOUNTED TWIST TIMER WITH 0-3O MINUTE RANGE WITH IDENTIFICATION LABEL
6. CONTROLLED BY BUILDING AUTOMATION SYSTEM
7. CONTINUOUS OPERATION
8. CONTROLLED BY THE FACP AND FIREMAN'S MANUAL OVER-RIDE CONTROL PANEL IN FIRE COMMAND ROOM. NO MECHANICAL CONTROL POINTS REQUIRED BY M.C. FOR SMOKE CONTROL FANS
9. INTERLOCK WITH FUME HOOD
10. INTERLOCK WITH MECHANICAL ROOM 'CO' DETECTOR

EXHAUST FAN SCHEDULE NOTES:

1. ALL FANS SHALL BE U.L. LISTED AND LABELED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR FLOW. ALL FANS INSTALLED INSIDE, ABOVE, OR ADJACENT TO OCCUPIED SPACES SHALL HAVE A MAXIMUM 9.0 INLET SONE LEVEL.
2. ALL FANS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE.
3. MECHANICAL CONTRACTOR SHALL PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AS REQUIRED.
4. PROVIDE ALL DIRECT DRIVE FANS WITH SPEED CONTROLLERS.
5. BACKDRAFT DAMPER ON ROOF SUPPLY FANS SHALL BE MOTORIZED.

ELECTRIC HEATER SCHEDULE

SYMBOL	LOCATION	CFM	BTUH	ELECTRICAL KW	AMPS	VOLTAGE	PH	MANUFACTURER (MARKEL)	Equipment Weight	ACCESSORIES
EWH-1	S1 STAIR 01	175	6,824	2	7.50 A	277	1	E3324TD-RP	27 lb	A,B,D,G,H
EWH-2	V1300 VEST	175	5,120	1.5	4.10 A	277	1	E3322TD-RP	26 lb	A,B,D,G,H
EWH-3	S4 EXIT STAIR	175	6,824	2	7.20 A	277	1	E3324TD-RP	27 lb	A,B,D,G,H
EWH-4	V1500 VEST	175	2,560	0.75	6.25 A	120	1	E3321TD-RP	26 lb	A,B,D,G,H
EWH-5	V1700 VEST	175	2,560	0.75	6.25 A	120	1	E3321TD-RP	26 lb	A,B,D,G,H
EWH-6	S5 EXIT STAIR	175	6,824	2	7.20 A	277	1	E3324TD-RP	27 lb	A,B,D,G,H
EWH-7	E1210 ELECTRICAL ROOM	175	16,378	4.8	17.30 A	277	1	E3327TD-RP	29 lb	A,B,D,G,H
EWH-8	1314 EQPT.	175	7,677	3	10.80 A	277	1	E3325TD-RP	29 lb	A,B,D,G,H
EWH-9	1411 FIRE PUMP ROOM	175	16,378	4.8	17.30 A	277	1	E3327TD-RP	29 lb	A,B,D,G,H

NOTES:

1. HEATING CAPACITY BASED ON 65° F E.A.T.
2. SEE PLANS FOR TYPE OF THERMOSTAT REQUIRED (WALL MOUNTED OR UNIT MOUNTED). UNIT HEATERS SHOWN WITHOUT THERMOSTAT INDICATED SHALL BE PROVIDED WITH A UNIT MOUNTED THERMOSTAT.
3. SET TO MAINTAIN 45°F.

ELECTRIC HEATER ACCESSORIES:

A. DISCONNECT SWITCH
B. BUILT IN THERMOSTAT
C. WALL MOUNTED THERMOSTAT
D. WALL MOUNTING BRACKETS
E. CEILING MOUNTED BRACKETS
F. ADJUSTABLE DISCHARGE LOUVERS
G. PENCIL PROOF LOUVERS
H. CABINET FOR SURFACE MOUNTING

HVLS FAN SCHEDULE

SYMBOL	LOCATION	CFM	DRIVE	MAX RPM	ELECTRICAL DATA H.P.	VOLTAGE-PHASEØ	MANUFACTURER	MODEL
HVLS-1	LOBBY	71900	DIRECT	125	0.75	460 V-3Ø	GREENHECK	DS-6-12-70HV
HVLS-2	DINING	71900	DIRECT	125	0.75	460 V-3Ø	GREENHECK	DS-6-12-70HV
HVLS-3	CLASSROOM WING	71900	DIRECT	125	0.75	460 V-3Ø	GREENHECK	DS-6-12-70HV
HVLS-4	CLASSROOM WING	71900	DIRECT	125	0.75	460 V-3Ø	GREENHECK	DS-6-12-70HV

NOTES:

1. ALL FANS SHALL BE U.L. LISTED AND LABELED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR FLOW.
2. ALL FANS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE.
3. MECHANICAL CONTRACTOR SHALL PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AS REQUIRED.
4. PROVIDE WITH: A DIGITAL WALL CONTROLLER WITH FAULT CODE ACCESS AND DISPLAY CODE LOCK-OUT, BAS MONITORING/INTEGRATION, AVD FUSED DISCONNECT, INDUSTRIAL GRADE GEAR BOX, AIRFOIL RETAINERS, HUB CLIPS, SAFETY CABLES ,GRADE 8 BOLTS, FIRE DELAY, 12-YEAR LIMITED WARRANTY.
5. COORDINATE SUPPORT REQUIREMENTS WITH MANUFACTURER.
6. FANS SHALL SHUT-DOWN UPON SIGNAL FROM SPRINKLER MONITORING SYSTEM INDICATING WATER FLOW IN THE SPRINKLER SYSTEM. COORDINATE CONNECTION(S) WITH FP/FA CONTRACTORS.
7. SEE 12/M503 FOR FP INSTALLATION COORDINATION DETAIL

KITCHEN HOOD SCHEDULE

(FURNISHED AND INSTALLED BY THE M.C.)

KEF-1 CAPTIVE-AIRE MODEL DU240HFA EXHAUST FAN; 3,590 CFM, 1.4" E.S.P., 3-HP 460V-3PH FAN MOTOR, 311 LBS OPERATING WEIGHT.

MUA-1 CAPTIVE-AIRE MODEL A2-D.250-20D NATURAL GAS HEAT MAKE-UP AIR UNIT; 2872 CFM, 0.75" E.S.P., 2-HP 460V-3PH FAN MOTOR, 4.8A MCA, 15A MOCP, 163,610 INPUT BTUs, 150,521 OUTPUT BTUs, 48 DEG F TEMP RISE, 680 LBS OPERATING WEIGHT.

KH-1 CAPTIVE-AIRE MODEL 6624 ND-2-PSP-F; 11'-6"x6'-8"x2'-0" DEEP HOOD WITH 6" DEEP SUPPLY PLENUMS AT FRONT; 2300 CFM EXHAUST @ 1.02" S.P. (MAX.); 1840 CFM SUPPLY @ 0.17" S.P. (MAX.)

KH-2 CAPTIVE-AIRE MODEL 6624 ND-2-PSP-F; 6'-0"x6'-8"x2'-0" DEEP HOOD WITH 6" DEEP SUPPLY PLENUMS AT FRONT; 1290 CFM EXHAUST @ 0.438" S.P. (MAX.); 1032 CFM SUPPLY @ 0.15" S.P. (MAX.)

ALL 430 STAINLESS STEEL CONSTRUCTION. ALL COMPONENTS SHALL BE U.L. LISTED AND LABELED. PROVIDE A REMOTE CONTROL PANEL MOUNTED ON FACE OF HOOD WITH MASTER DISCONNECT SWITCH, STARTER FOR FAN, CONTROL VOLTAGE TRANSFORMER, FIRE CONTROL SYSTEM RELAY AND TERMINAL STRIP. MOUNT HOOD 6'-8" ABOVE FINISH FLOOR. PROVIDE STAINLESS STEEL ENCLOSURE AROUND TOP OF HOOD AS REQUIRED TO CLOSE TO CEILING. PROVIDE VERTICAL END PANELS FOR ENDS OF HOOD. HOOD SHALL BE PROVIDED WITH: AUTOMATICALLY OPERATED FIXED PIPE FIRE SUPPRESSION SYSTEM IN ACCORDANCE WITH NFPA 96, CONTROL SWITCHES AND PILOT LIGHT FOR EXHAUST FAN, TWO4' VAPORPROOF LED LAMP LIGHT FIXTURES (MIN. 2 PER HOOD), AND STAINLESS STEEL GREASE FILTERS. FIRE SUPPRESSION SYSTEM SHALL BE ANSUL R-102 WITH ANSULEX LIQUID FIRE SUPPRESSANT. REMOTE PULL STATION FOR ACTIVATION OF FIRE SUPPRESSION SYSTEM SHALL BE PROVIDED AND INSTALLED WHERE INDICATED ON THE PLANS. FIRE SUPPRESSION SYSTEM SHALL BE UL 300 LISTED. CONTRACTOR SHALL PROVIDE MANUAL VOLUME DAMPER IN EACH SUPPLY DUCT COLLAR FOR MAKE-UP AIR BALANCING.

ADDITIONAL FIRE SUPPRESSION NOTES (2018 NC FIRE CODE)

904.12.1 A MANUAL ACTUATION DEVICE SHALL BE LOCATED AT OR NEAR A MEANS OF EGRESS FROM THE COOKING AREA, A MINIMUM OF 10 FEET AND A MAXIMUM OF 20 FEET FROM THE KITCHEN EXHAUST SYSTEM. THE MANUAL ACTUATION DEVICE SHALL BE LOCATED A MINIMUM OF 3.5 FEET AND A MAXIMUM OF 4 FEET ABOVE THE FLOOR AND CLEARLY INDICATE THE HAZARD PROTECTED. THE MANUAL ACTUATION SHALL REQUIRE A MAXIMUM FORCE OF 40 POUNDS AND A MAXIMUM MOVEMENTOF 14 INCHES TO ACTUATE THE FIRE SUPPRESSION SYSTEM.

904.12.2 THE ACTUATION OF THE FIRE SUPPRESSION SYSTEM SHALL AUTOMATICALLY SHUT DOWN THE FUEL AND ELECTRICAL POWER SUPPLY TO THE COOKING EQUIPMENT. THE FUEL AND ELECTRICAL SUPPLY RESET SHALL BE MANUAL.

NOTES:

1. KITCHEN HOOD SHALL BE CONSTRUCTED AND INSTALLED PER NFPA 96.
2. UPON ACTIVATION OF FIRE CONTROL SYSTEM, KITCHEN HOOD EXHAUST FAN SHALL CONTINUE TO OPERATE. PROVIDE INTERLOCK FOR AUTOMATIC OPERATION OF FIRE SUPPRESSION SYSTEM WITH:
   A. CONTACTORS (BY ELEC. CONTR.)
   B. HOOD SUPPLY AND EXHAUST FANS
   C. REMOTE MANUAL PULL STATION
   D. ALL ASSOCIATED AIR HANDLING UNITS
   E. FIRE ALARM SYSTEM NOTIFICATION (BY ELEC. CONTR.)
   F. NATURAL GAS SHUT-OFF
3. SEE SHEET M-503 FOR HOOD DETAILS.
4. KITCHEN HOOD EXHAUST DUCT SHALL BE STAINLESS STEEL. ALL JOINTS AND SEAMS SHALL BE CONSTRUCTED WITH A CONTINUOUS LIQUID-TIGHT EXTERNAL WELD. ALL DUCTWORK SHALL SLOPE A MINIMUM OF 1/4 INCH PER FOOT TOWARD HOOD. PROVIDE CLEANOUTS AT EVERY CHANGE OF DIRECTION IN THE EXHAUST DUCT AND AT 20'-0" (MINIMUM) INTERVALS. THE MECHANICAL CONTRACTOR SHALL PERFORM A LIGHT TEST (AS REQUIRED BY MECHANICAL CODE) FOR ALL JOINTS AND SEAMS IN THE PRESENCE OF THE LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO CONCEALING KITCHEN HOOD EXHAUST DUCTWORK.
5. ALL EXPOSED PIPING WITH FIRE SUPPRESSION SYSTEM SHALL BE COVERED WITH A CHROME SLEEVE.
6. MECHANICAL CONTRACTOR SHALL INSTALL 1/2" CONDUIT IN WALL FOR MANUAL PULL STATION. SEE PLANS FOR LOCATION OF MANUAL PULL STATION (MPS).
7. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HOOD CERTIFICATION IN COMPLIANCE WITH LOCAL CODE REQUIREMENTS. CERTIFICATION SHALL BE WITNESSED AND PERFORMED BY A PERSON CERTIFIED THROUGH AABC, TABB, NEBB OR NBC AND SHALL PROVIDE DOCUMENTATION OF PERFORMANCE TO THE CODE OFFICIAL. THIS SHALL INCLUDE WET TEST CAPTURE & CONTAINMENT.ALL EQUIPMENT SHALL BE ENERGIZED AND IN OPERATION DURING THE TEST. TEST SHALL ALSO INCLUDE VERIFYING ACTUAL FLOW RATES VERSUS DESIGN FLOW RATES.

VARIABLE SPEED KITCHEN HOODS
THE DCV (EMS) DEMAND VENTILATION SYSTEM IS DESIGNED TO AUTOMATICALLY REDUCE EXHAUST AND SUPPLY AIRFLOW QUANTITIES, WHILE ENSURING HOOD PERFORMANCE IS MAINTAINED. THE EMS USES VARIABLE FREQUENCY DRIVES (VFD) AND TEMPERATURE SENSORS IN THE EXHAUST DUCTS TO MODULATE THE FANS SPEED DURING COOKING OPERATION AND MAXIMIZE ENERGY SAVINGS. THE EMS LCD SCREEN INTERFACE PROVIDES FAN(S) CONTROL, SYSTEM CONFIGURATION, AND DIAGNOSTIC INFORMATION. CONSTRUCTION:

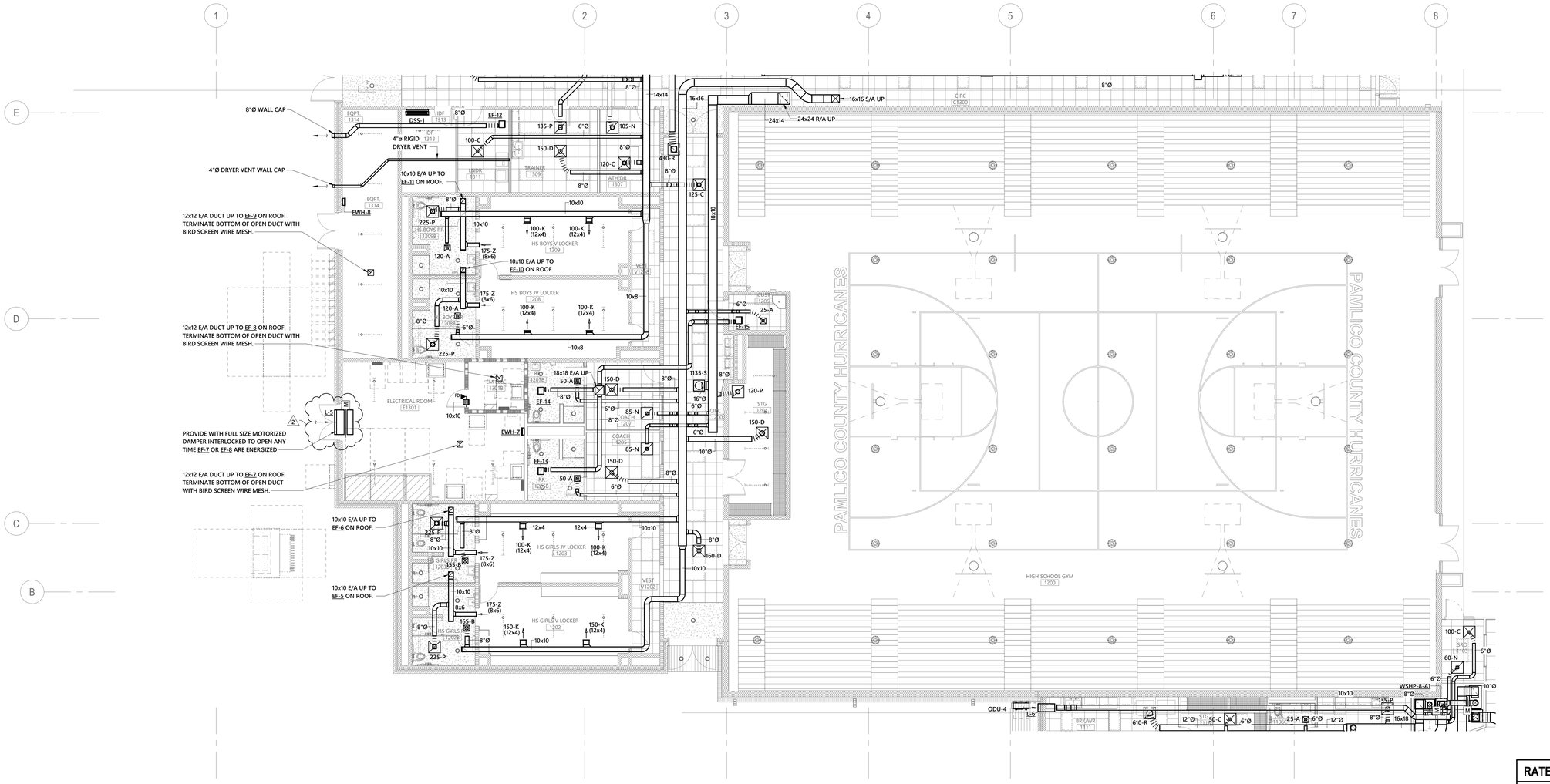
THE DCV INCLUDES:
• A SMART CONTROLLER
• LCD SCREEN INTERFACE
• DUCT TEMPERATURE SENSORS
• ROOM TEMPERATURE SENSOR
• VARIABLE FREQUENCY DRIVES

CONTROLS WILL BE LISTED BY ETL TO UL STANDARD 508A. THE SYSTEM INCLUDES A LCD SCREEN INTERFACE FOR FAN(S) AND HOOD LIGHTS CONTROL, WASH CONTROL (IF APPLICABLE), GAS VALVE RESET, PROGRAMMABLE SCHEDULE, MAX AIR OVERRIDE FUNCTION, PREPARATION TIME MODE, COOL DOWN MODE, AND DIAGNOSTICS INCLUDING VFD STATUS. THE LCD SCREEN SHOWS DESCRIPTIVE PLAIN TEXT EXPLAINING THE FUNCTIONS OR VALUES. THE LCD SCREEN INTERFACE WILL BE INSTALLED ON THE FACE OF THE HOOD, ON THE FACE OF THE UTILITY CABINET OR ON THE FACE OF A WALL MOUNTED CONTROL ENCLOSURE. CONTROL ENCLOSURE WILL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL. THE SMART CONTROLLER WILL CONSTANTLY MONITOR THE EXHAUST AIR TEMPERATURE THROUGH THE RISER MOUNTED TEMPERATURE SENSOR AND MODULATE THE FAN SPEEDS ACCORDINGLY. A ROOM TEMPERATURE SENSOR WILL ALSO BE PROVIDED FOR FIELD INSTALLATION IN THE KITCHEN SPACE IN ORDER TO START THE FAN(S) BASED ON THE TEMPERATURE DIFFERENTIAL BETWEEN THE ROOM AND THE EXHAUST AIR IN THE DUCT RATHER THAN FIXED SET-POINTS. A PREPARATION TIME MODE IS AVAILABLE FOR MORNING OPERATION: DEDICATED MAKE-UP AIR WILL BE LOCKED OUT ONLY ALLOWING THE USE OF TRANSFER AIR DURING THIS MODE. EXHAUST FAN(S) WILL RUN AT LOW CFM WHILE MAINTAINING A BALANCED KITCHEN PRESSURE. A COOL DOWN MODE IS DESIGNED FOR EQUIPMENT COOL-DOWN PERIOD AT THE END OF THE DAILY COOKING OPERATIONS: SIMILARLY TO PREPARATION TIME MODE, DEDICATED MAKE-UP AIR WILL BE LOCKED OUT ONLY ALLOWING THE USE OF TRANSFER AIR DURING THIS MODE. EXHAUST FAN(S) WILL RUN AT LOW CFM WHILE MAINTAINING A BALANCED KITCHEN PRESSURE. FAN MAXIMUM/ MINIMUM SPEEDS WILL BE ADJUSTABLE FOR PROPER KITCHEN BALANCE. FAN DIRECTION CHANGE IS ALSO AVAILABLE FROM THE SMART CONTROLLER CONFIGURATION MENU WITHOUT NEED FOR REWIRING. DUCT TEMPERATURE SENSOR(S) WILL BE MOUNTED IN THE EXHAUST HOODRISER(S). TEMPERATURE PROBE WILL BE CONSTRUCTED OF STAINLESS STEEL. SYSTEM WILL BE FACTORY PRE-SET TO MODULATE FAN SPEED WITHIN A RANGE OF 45°F FOR 600°F AND 700°F COOKING APPLICATIONS AND A RANGE OF 5°F FOR 400°F COOKING APPLICATIONS. SETPOINTS ARE FULLY ADJUSTABLE THROUGH THE TOUCH SCREEN INTERFACE BASED ON APPLICATION NEEDS. THE MAX AIR OVERRIDE WILL HAVE AN ADJUSTABLE TIMEOUT VALUE. THE PANELS INCLUDE COLOR CODED WIRINGWITH AS-BUILT WIRING DIAGRAMS AND SPARE TERMINALS CONTROLLED BY THE FIRE SYSTEM MICRO SWITCH. THE PANEL IS FACTORY PRE-WIRED TO SHUT SUPPLY FANS DOWN IN A FIRE CONDITION. OPTIONS TO TURN ON THE EXHAUST FANS OR TURN OFF THE HOOD LIGHTS IN A FIRE CONDITION WILL BE CONFIGURABLE THROUGH THE SMART CONTROLLER, BUT ONLY THROUGH A PASSWORD PROTECTED MENU TO PREVENT ANY CHANGES AFTER A FIRE INSPECTION HAS BEEN PERFORMED.

BAS SHALL MONITOR STATUS AND FREQUENCY Hz OF KITCHEN FANS.

LOUVER SCHEDULE

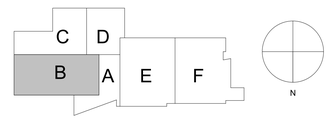
SYMBOL	MANUFACTURER	MODEL NO.	DESIGN AIRFLOW	FREE AREA	FREE AREA VELOCITY	PD	DIMENSIONS WIDTH	DIMENSIONS HEIGHT	REMARKS	COMMENTS
L-1	RUSKIN	EME220DD	<varies>	1.7 SF	<varies>	0.05 in-wg	44"	15"	OUTSIDE/MAKE-UP AIR	B
L-2	RUSKIN	EME220DD	<varies>	1.7 SF	<varies>	0.30 in-wg	44"	15"	EXHAUST	B
L-3	RUSKIN	EMES20DD	2100 CFM	3.3 SF	632 FPM	0.10 in-wg	38"	30"	OUTSIDE/MAKE-UP AIR	
L-4	RUSKIN	EMES20DD	2535 CFM	2.9 SF	864 FPM	0.10 in-wg	48"	20"	EXHAUST	
L-5	RUSKIN	EMES20DD	1600 CFM	2.8 SF	576 FPM	0.10 in-wg	50"	20"	OUTSIDE/MAKE-UP AIR	
L-6	R



1 FIRST FLOOR MECHANICAL PLAN - AREA B
1/8" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

KEYPLAN



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No.	Date	Description
-variables->	<varies>	<varies>

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PROJECT #: 2205
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FIRST FLOOR MECHANICAL PLAN - AREA B

M-111B

Sheet No. 9 of 42

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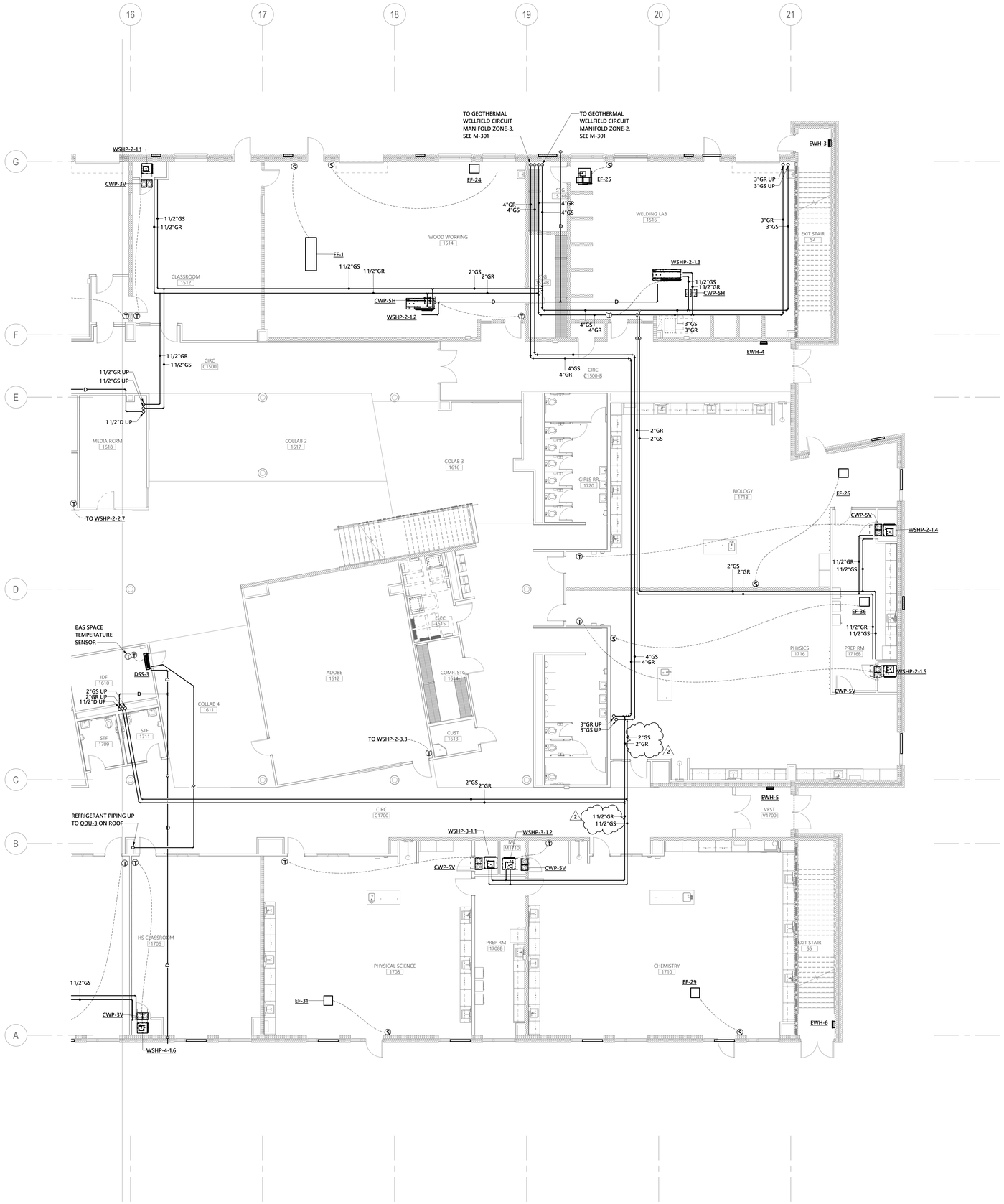
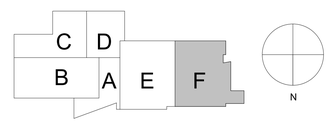


1 FIRST FLOOR MECHANICAL PIPING PLAN - AREA F
1/8" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

KEYPLAN



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PROJECT #: 2205
DRAWN BY: TAL
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FIRST FLOOR MECHANICAL PIPING PLAN - AREA F

M-211F

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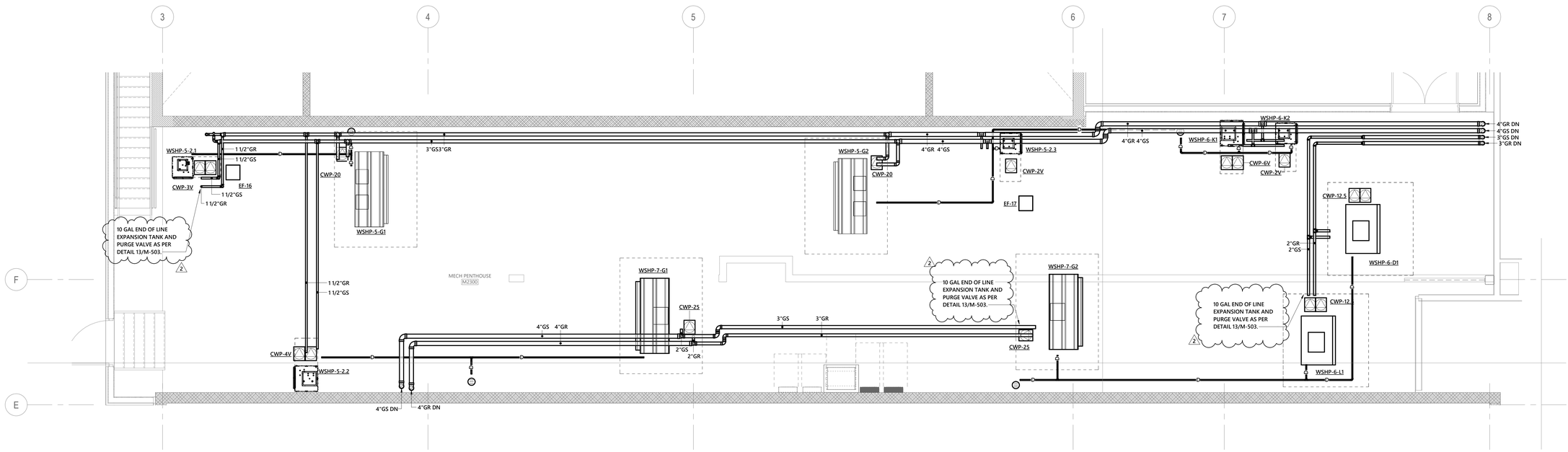
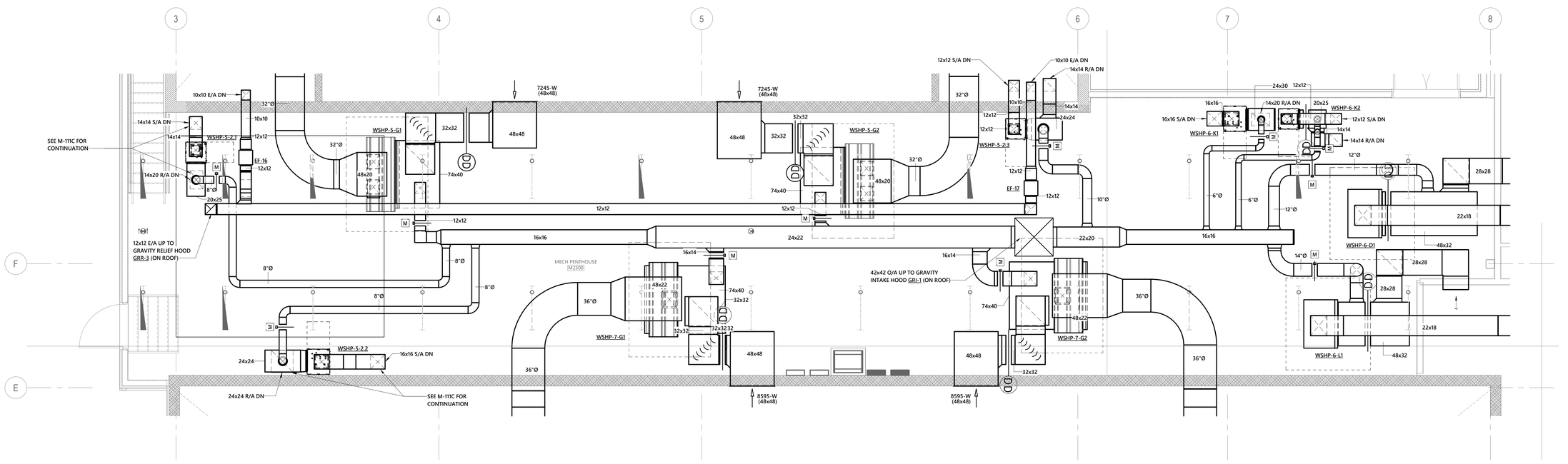


2 MECH PENTHOUSE M2300 ENLARGED MECHANICAL PIPING PLAN
1/4" = 1'-0"



1 MECH PENTHOUSE M2300 ENLARGED MECHANICAL DUCTWORK PLAN
1/4" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

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ENLARGED MECHANICAL PLANS - MECH PENTHOUSE M2300

M-401

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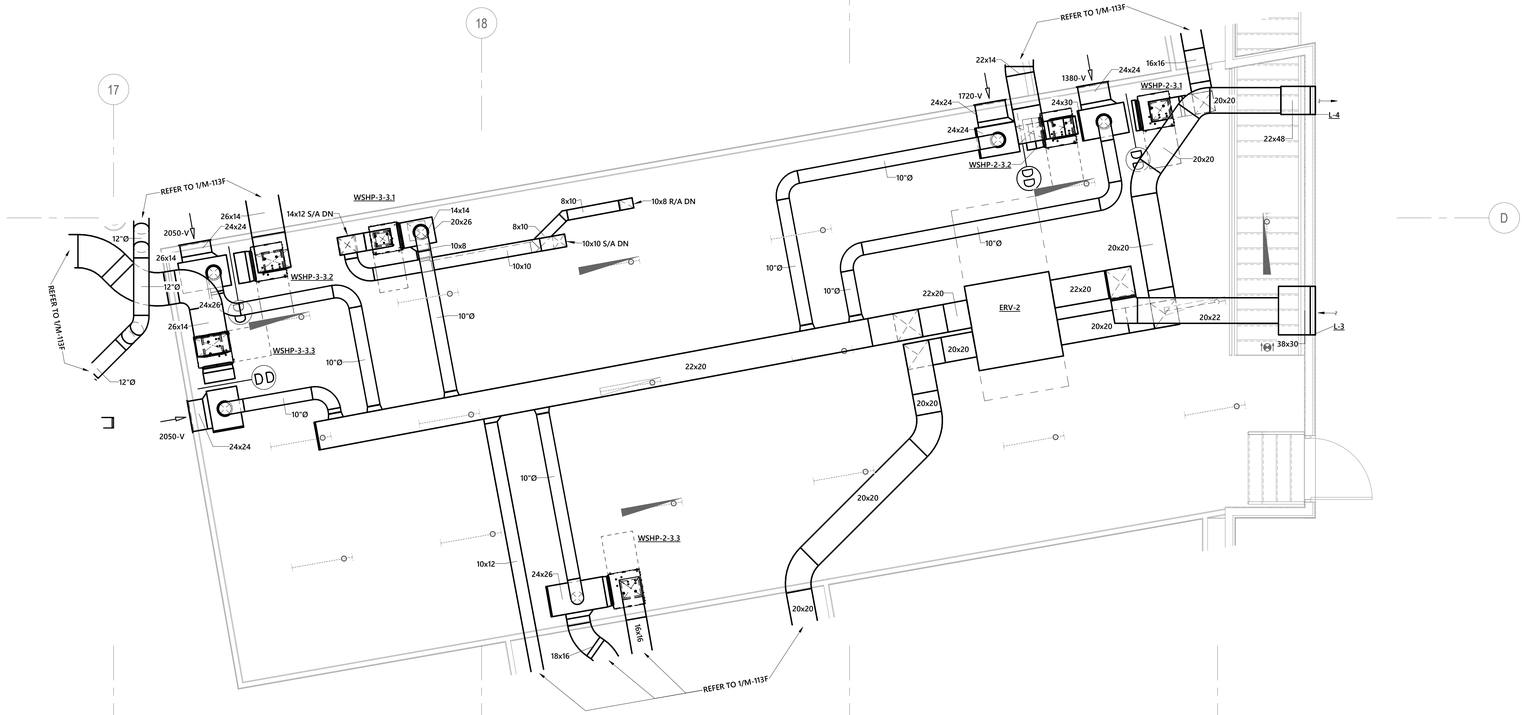
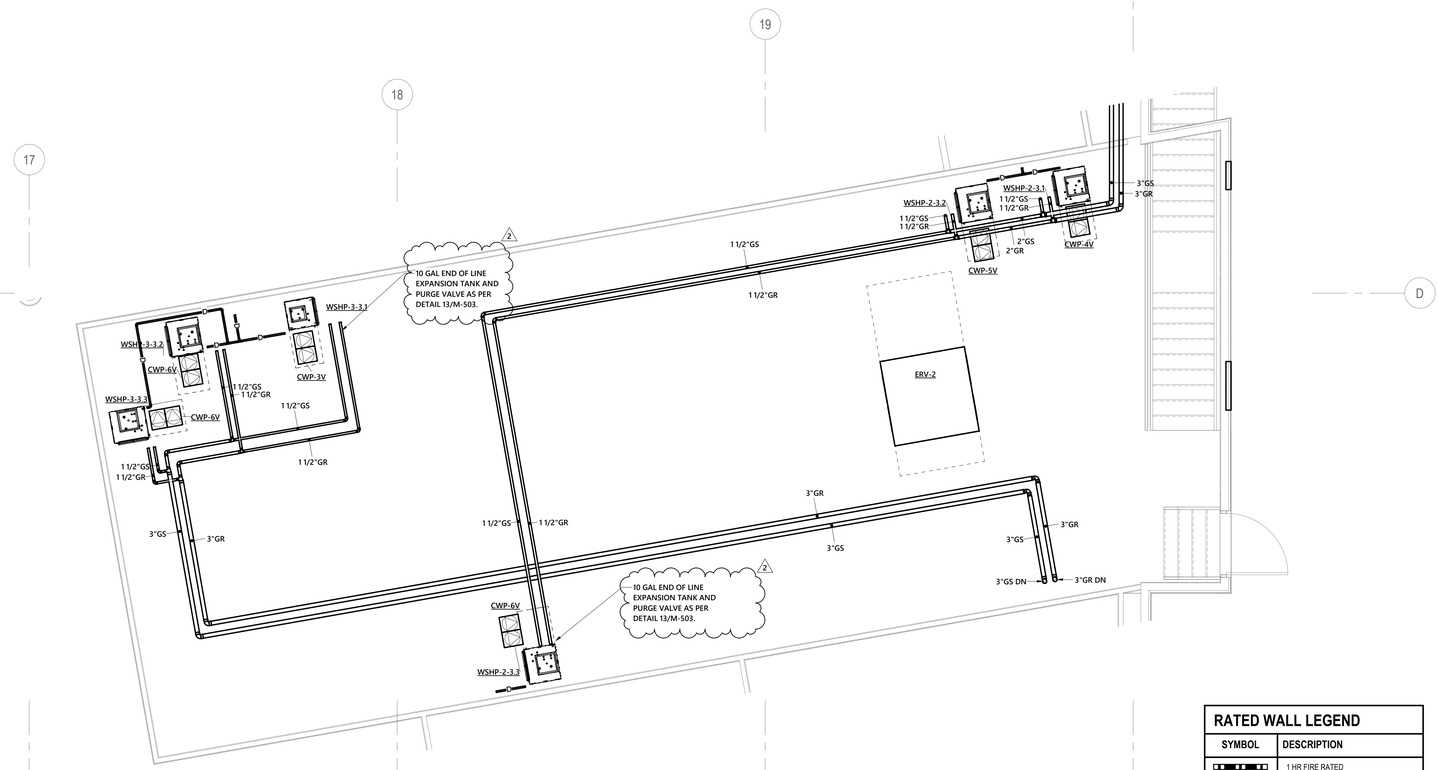


1 MECH LOFT M3000 ENLARGED MECHANICAL DUCTWORK PLAN
1/4" = 1'-0"



2 MECH LOFT M3000 ENLARGED MECHANICAL PIPING PLAN
1/4" = 1'-0"

RATED WALL LEGEND

SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

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2	7/25/24	Addendum #3

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ENLARGED MECHANICAL PLANS - MECH LOFT M3000

M-402

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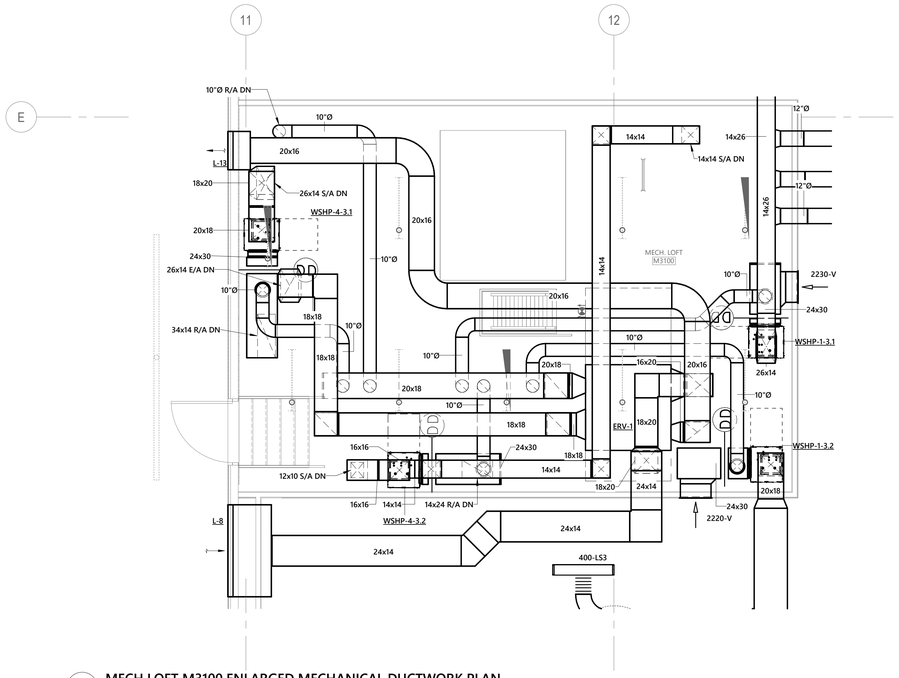
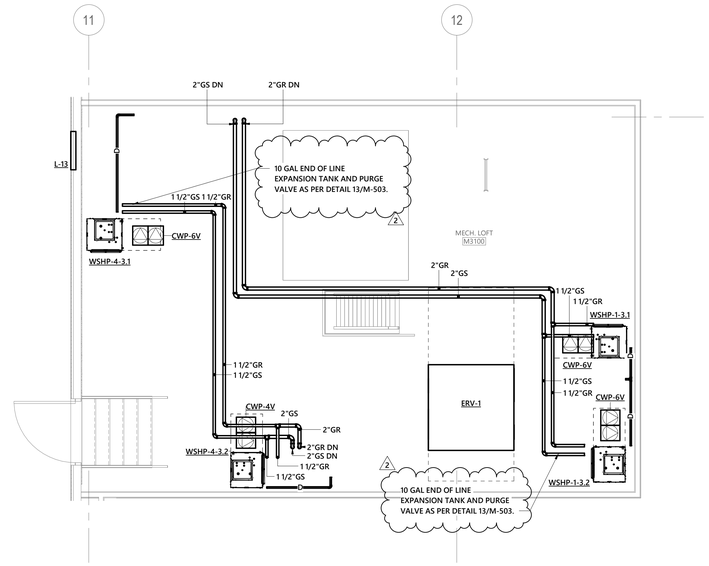


1 MECH LOFT M3100 ENLARGED MECHANICAL DUCTWORK PLAN

1/4" = 1'-0"



2 MECH LOFT M3100 ENLARGED MECHANICAL PIPING PLAN

1/4" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

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ENLARGED MECHANICAL PLANS - MECH LOFT M3100

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Sheet No. 37 of 42

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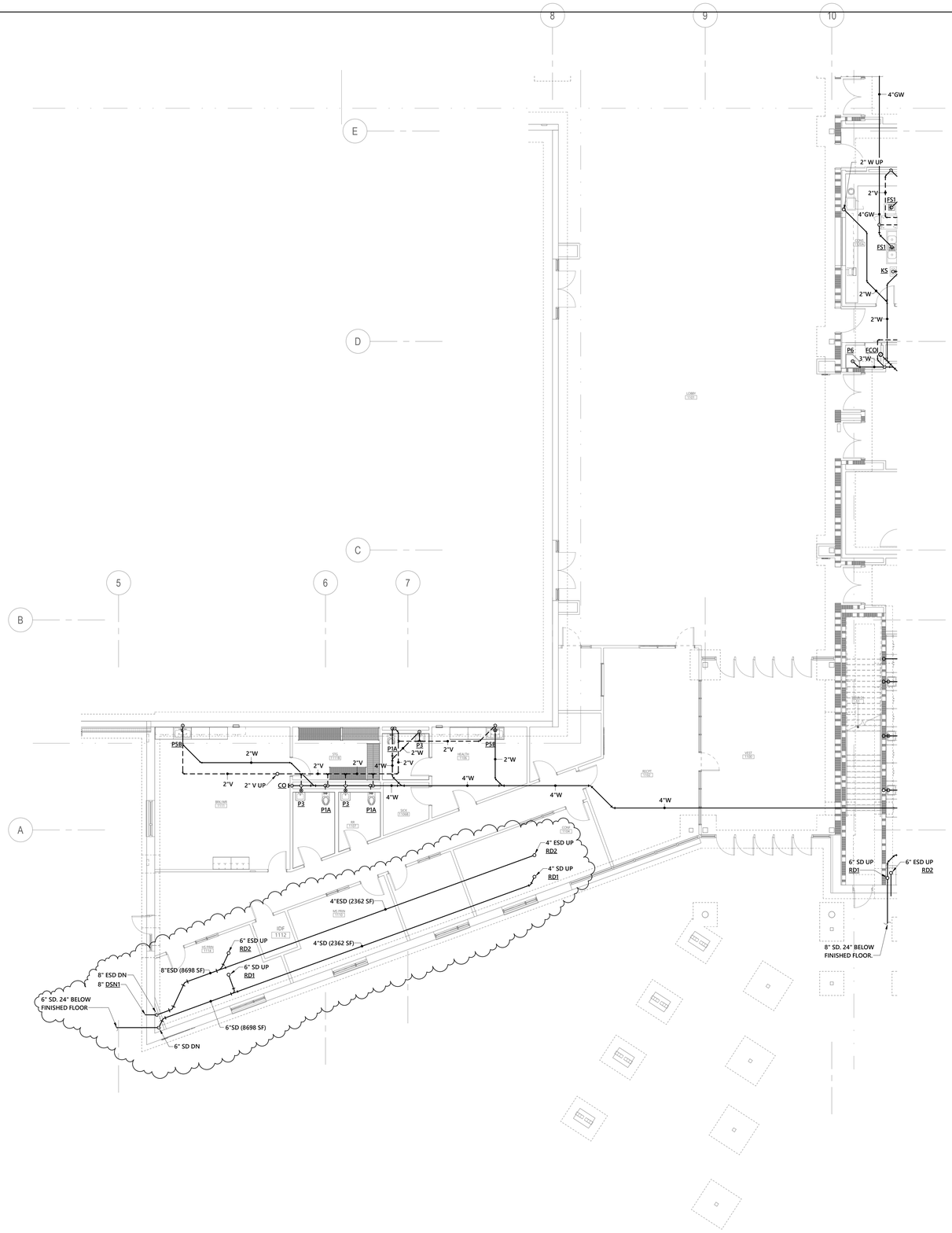
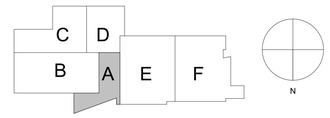


1 FIRST FLOOR WASTE & VENT PLUMBING PLAN - AREA A
1/8" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

KEYPLAN



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601 Main Street, Bayboro, NC, 28515

ENERGY STAR PARTNER

No.	Date	Description
2	7/25/24	Addendum #3

ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: CAW
CHECKED BY: GCF

FIRST FLOOR WASTE & VENT PLUMBING PLAN - AREA A

P-111A

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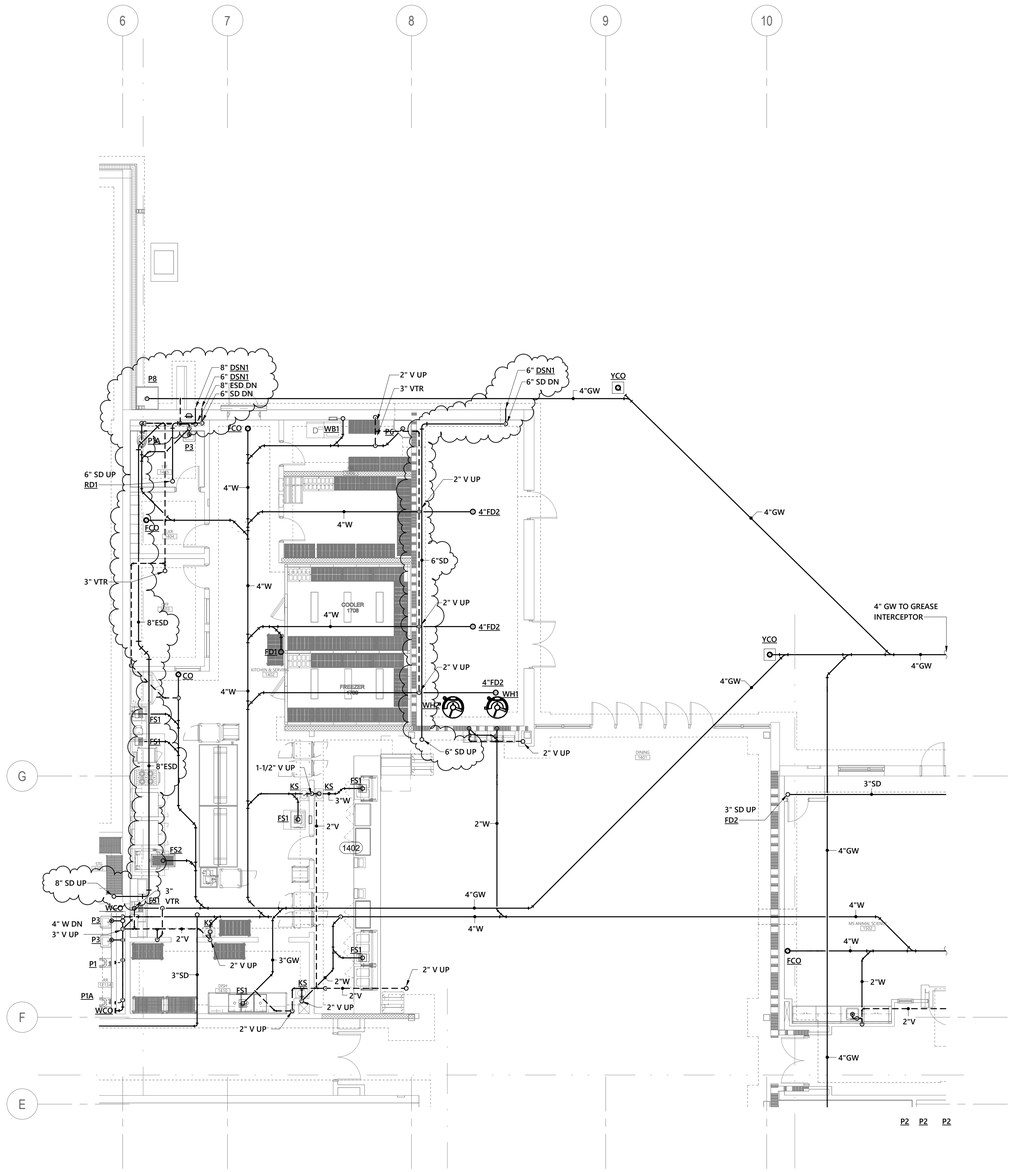
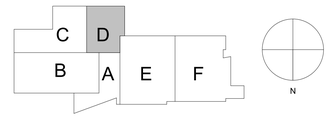


1 FIRST FLOOR WASTE & VENT PLUMBING PLAN - AREA D
1/8" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

KEYPLAN



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No.	Date	Description
2	7/25/24	Addendum #3

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: CAW
CHECKED BY: GCF

FIRST FLOOR WASTE & VENT PLUMBING PLAN - AREA D

P-111D

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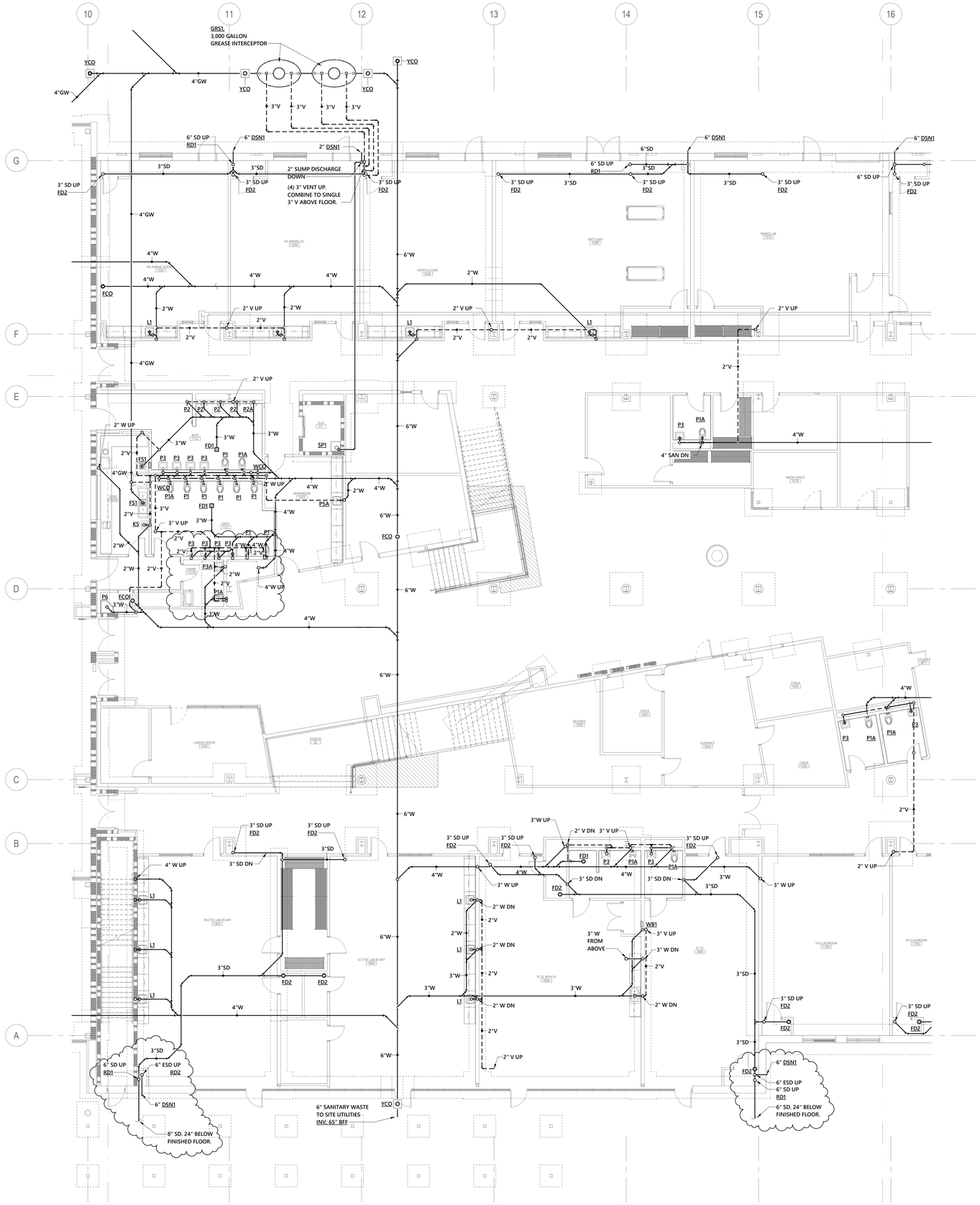
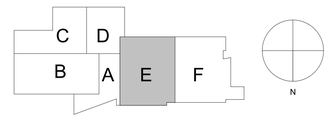


1 FIRST FLOOR WASTE & VENT PLUMBING PLAN - AREA E
1/8" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

KEYPLAN



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FIRST FLOOR WASTE & VENT PLUMBING PLAN - AREA E

P-111E

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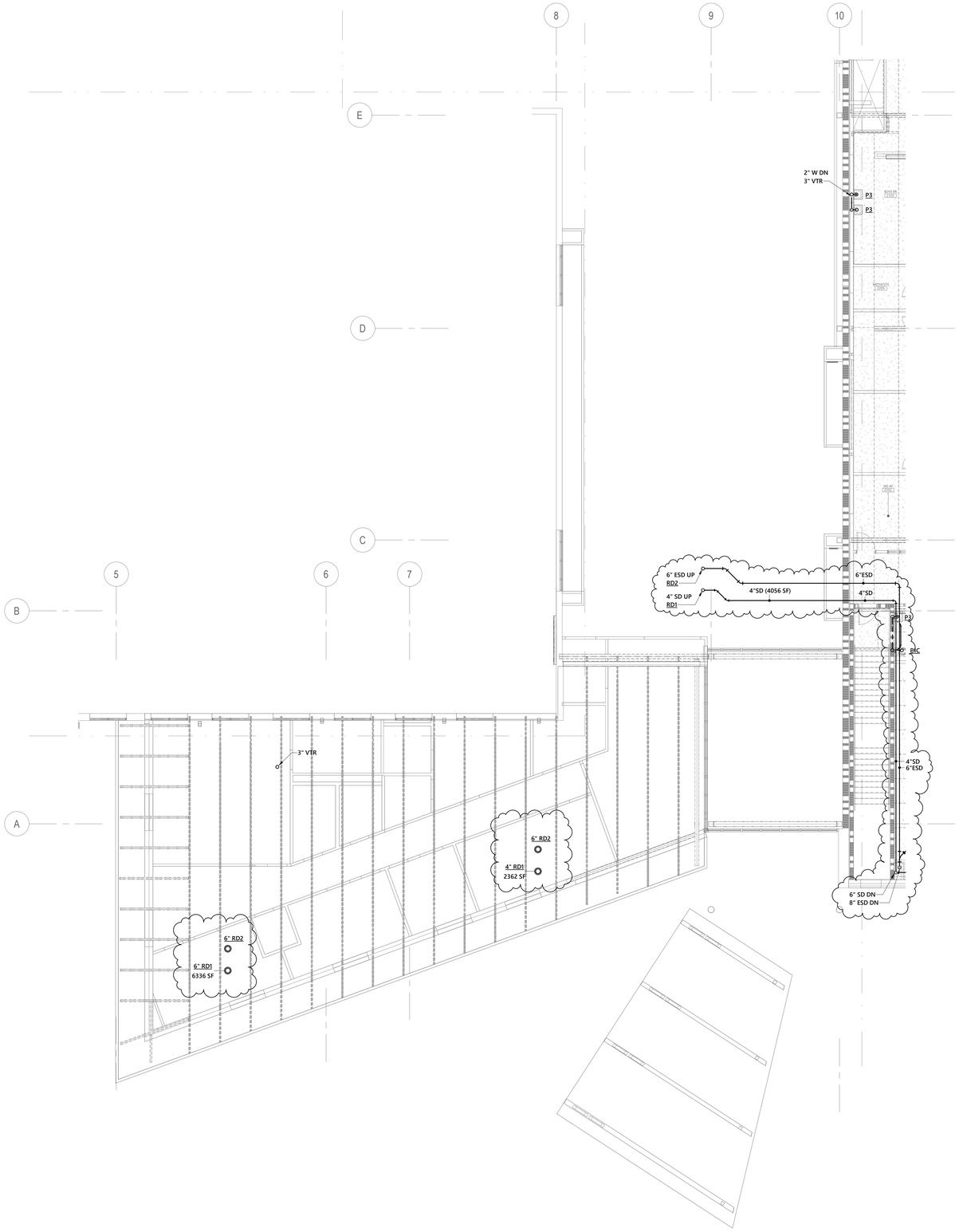
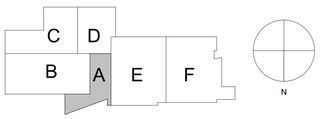


1 SECOND FLOOR WASTE & VENT PLUMBING PLAN - AREA A
1/8" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

KEYPLAN



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2	7/25/24	Addendum #3

ISSUE DATE: 06/12/24
PROJECT #: 2205
DRAWN BY: CAW
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SECOND FLOOR WASTE & VENT PLUMBING PLAN - AREA A

P-112A

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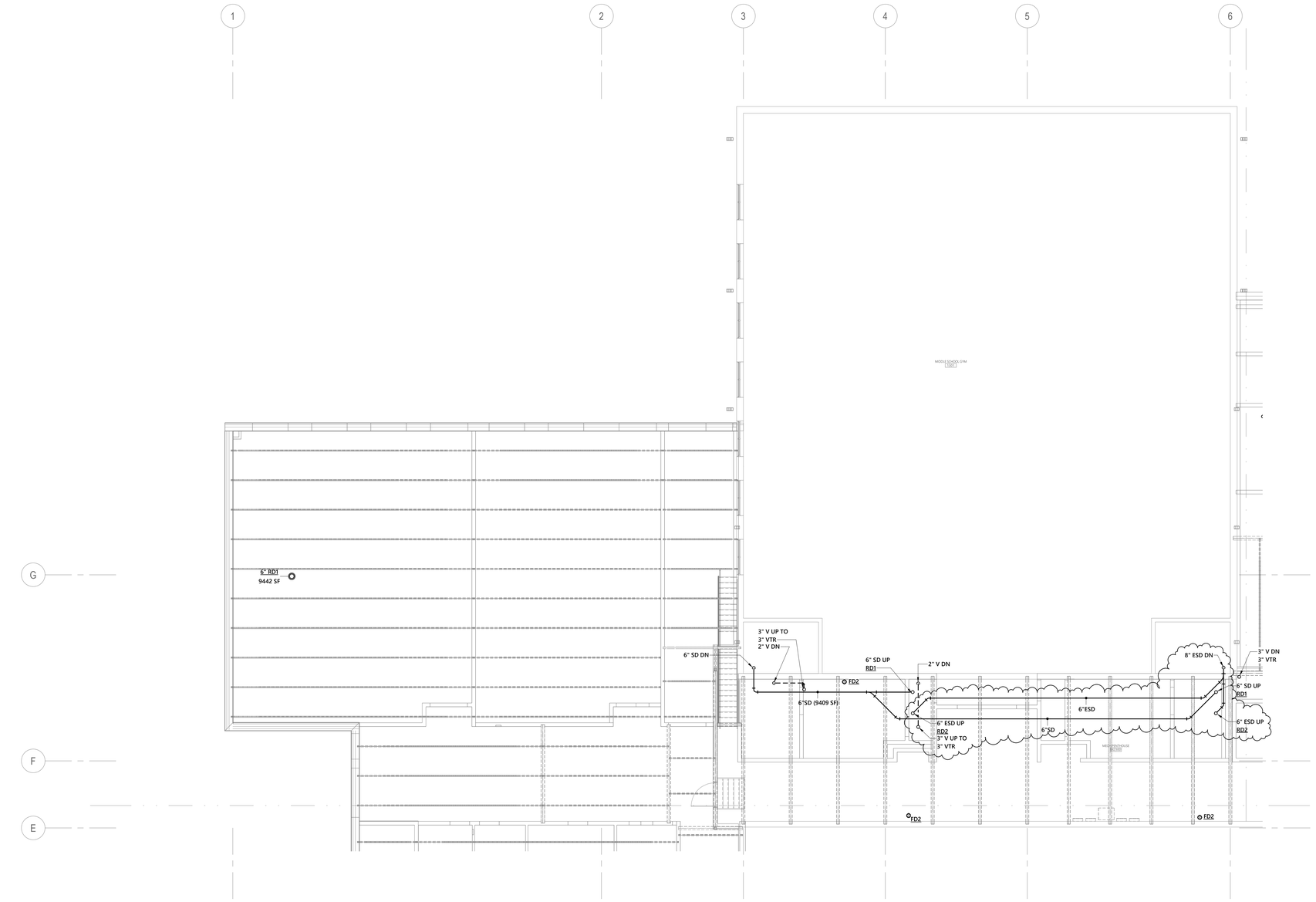
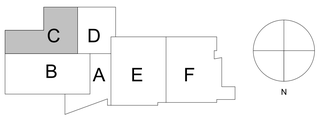


1 **SECOND FLOOR WASTE & VENT PLUMBING PLAN - AREA C**
1/8" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

KEYPLAN



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ISSUE DATE:	06/12/24
PROJECT #:	2205
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SECOND FLOOR WASTE & VENT PLUMBING PLAN - AREA C

P-112C

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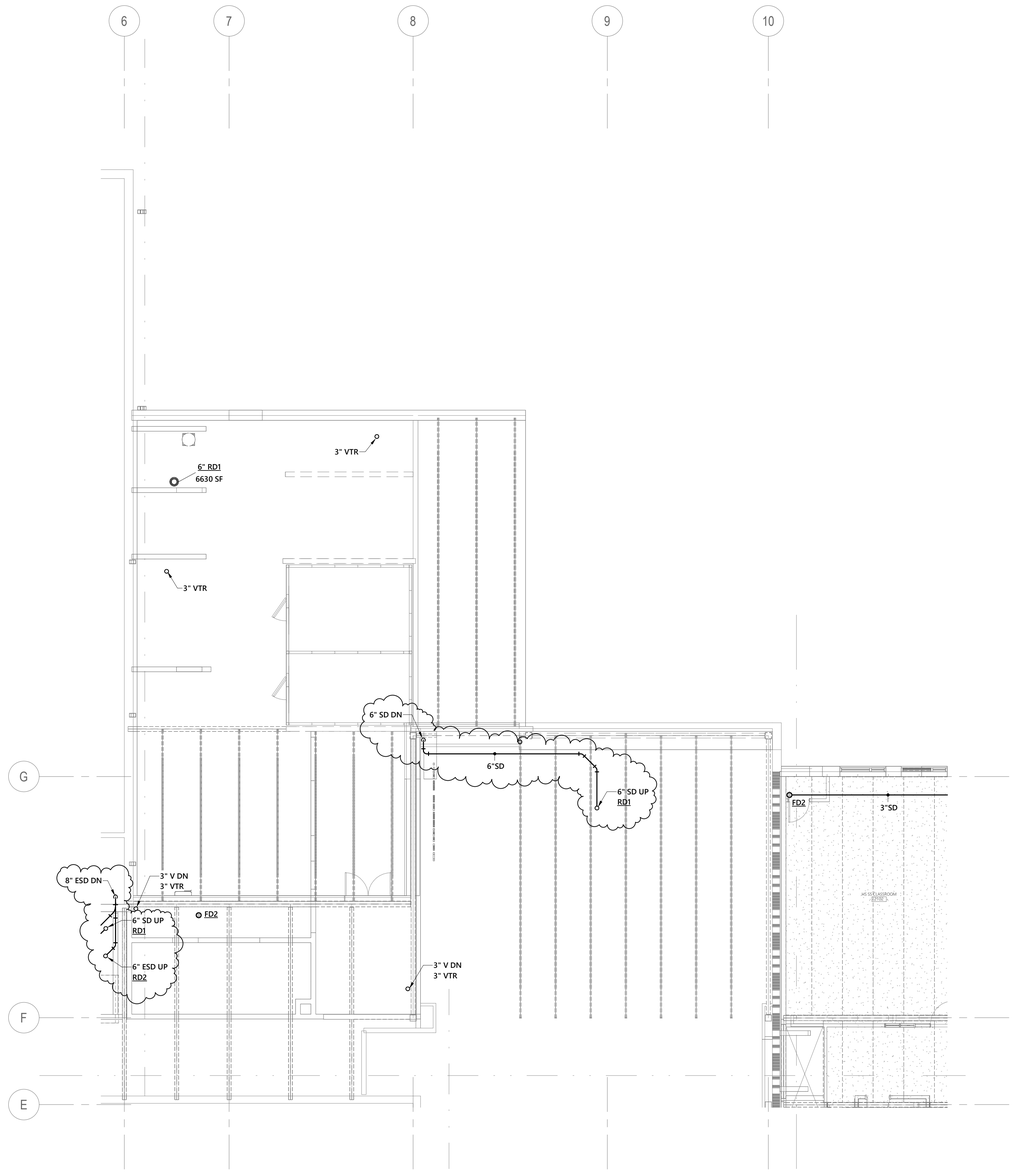
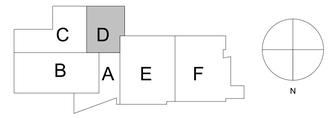


1 SECOND FLOOR WASTE & VENT PLUMBING PLAN - AREA D
1/8" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

KEYPLAN



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2	7/25/24	Addendum #3

ISSUE DATE: 06/12/24

PROJECT #: 2205
DRAWN BY: CAW
CHECKED BY: GCF

SECOND FLOOR WASTE & VENT PLUMBING PLAN - AREA D

P-112D

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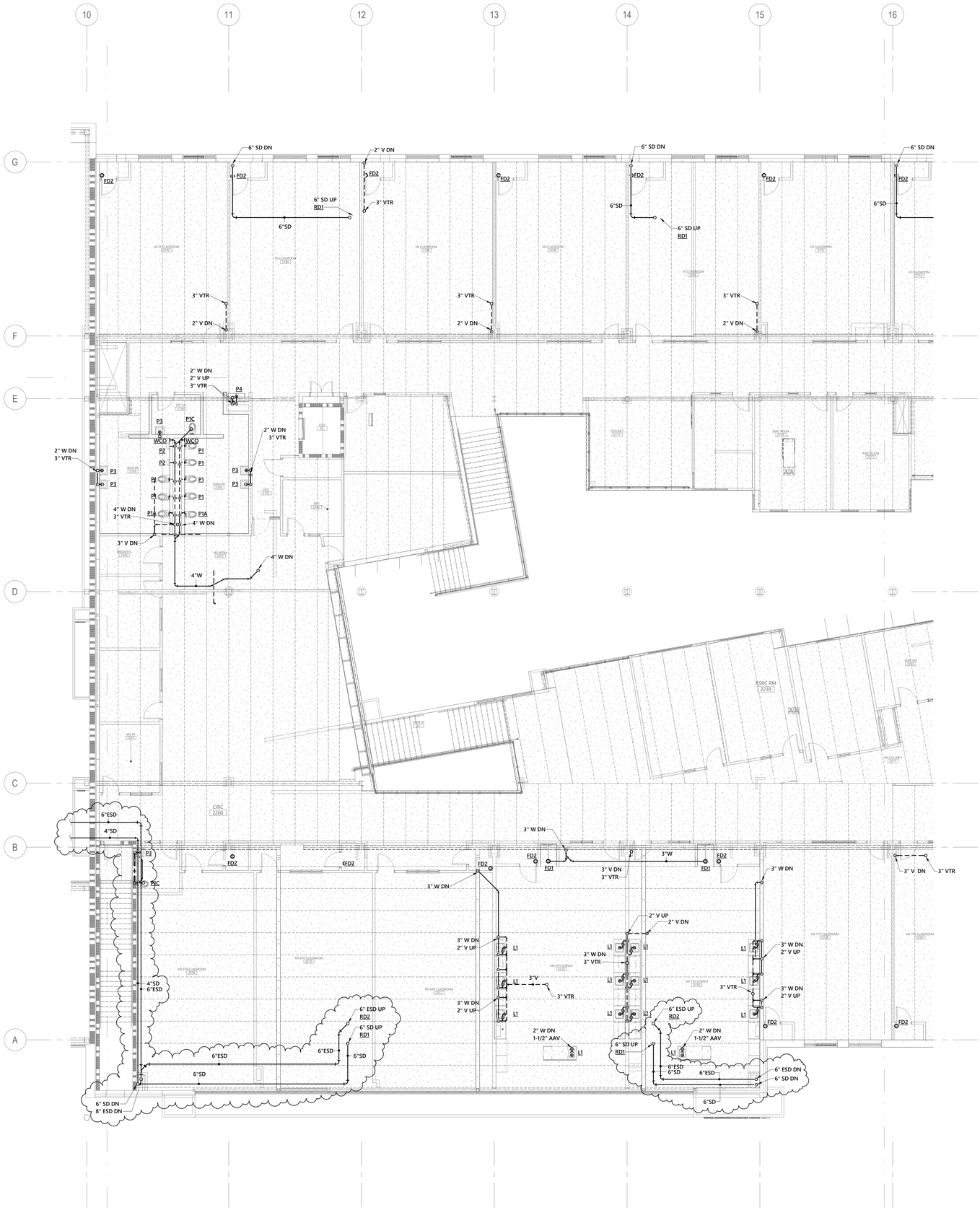
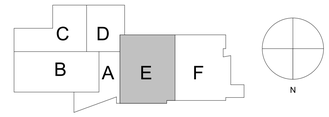


1 SECOND FLOOR WASTE & VENT PLUMBING PLAN - AREA E

1/8" = 1'-0"

RATED WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR FIRE RATED
	2 HR FIRE RATED

KEYPLAN



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SECOND FLOOR WASTE & VENT PLUMBING PLAN - AREA E

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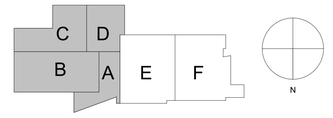
1 ROOF PLUMBING PLAN - WEST
1/16" = 1'-0"

KEYPLAN



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ROOF PLUMBING PLAN - WEST

P-113A

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1 ROOF PLUMBING PLAN - EAST

1/16" = 1'-0"

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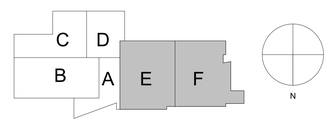

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PROJECT #: 2205
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ROOF PLUMBING PLAN - EAST

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DESIGN CRITERIA

LOCATION: BAYBORO, NORTH CAROLINA
BUILDING CODE: 2018 NORTH CAROLINA STATE BUILDING CODE
(2015 IBC WITH NORTH CAROLINA AMENDMENTS)

RISK CATEGORY III
BASIC LATERAL FORCE RESISTING SYSTEM:
ORDINARY REINFORCED MASONRY SHEAR WALLS

DESIGN LIVE LOADS

ROOF	20 PSF
CLASSROOMS	60 PSF
FIRST FLOOR CORRIDORS	100 PSF
STORAGE	125 PSF
MECHANICAL	150 PSF
SECOND FLOOR CORRIDORS	80 PSF

DESIGN SUPERIMPOSED DEAD LOADS

ROOF	30 PSF (INCLUDING 10 PSF SOLAR ALLOWANCE - ALTERNATE NO. 3)
CLASSROOMS	20 PSF

ROOF SNOW LOAD P_g = 10 PSF
C_e = 0.9
I_s = 1.1
C_t = 1.0

RAIN ON SNOW 15 PSF

WIND LOAD V = 143 MPH (3 SECOND GUST)
EXPOSURE C
DESIGN (DESIGN/ULTIMATE) WIND BASE SHEAR:
V_s = 350k V_u = 760k
INTERNAL PRESSURE COEFFICIENT = ±0.18
COMPONENTS & CLADDING PER ASCE 7 FIGURES 6-3

ULTIMATE WIND LOADS ON COMPONENTS & CLADDING FOR GIVEN TRIBUTARY AREAS (psf)

	ZONE	10 SQ FT	20 SQ FT	50 SQ FT	100 SQ FT	500 SQ FT
ROOF	1	+20.9/-51.5	+19.6/-50.1	+17.9/-48.4	+16.6/-47.1	+16.6/-47.1
	2	+47.1/-86.3	+45.0/-77.2	+42.3/-65.0	+40.2/-55.8	+35.3/-55.8
	3	-47.1/-86.3	+45.0/-77.2	+42.0/-65.0	+40.2/-55.8	+35.3/-55.8
ROOF OTHANG	2	-74.3	-73.0	-71.2	-69.9	-48.1
	3	-74.3	-73.0	-71.2	-69.9	-48.1
WALL	4	+47.1/-51.0	+45.0/-48.9	+42.3/-46.2	+40.2/-44.1	+35.3/-39.2
	5	+47.1/-62.8	+45.0/-58.6	+42.3/-53.1	+40.2/-48.9	+35.3/-39.2

1. DETERMINE WIND LOADS ON COMPONENTS IN ACCORDANCE WITH THE NCSBC AND ASCE-7 OR WITH THIS TABLE. REFERENCE ASCE-7-10 CHAPTER 30. TRIBUTARY AREA = GREATER OF LxW OR LxL/3.
2. DESIGN FOR STRENGTH USING LOADS FROM ASCE-7 OR FROM THIS TABLE.
3. FOR SERVICEABILITY AND DEFLECTION REQUIREMENTS, REFER TO ASCE 7-10 APPENDIX C.
4. POSITIVE PRESSURES ARE DIRECTED TOWARD THE INTERIOR. NEGATIVE LOADS ARE DIRECTED AWAY FROM THE INTERIOR. NEGATIVE ROOF LOADS ARE UPLIFT LOADS.
5. NET UPLIFT SHALL BE CACLULATED USING A RELIABLE ROOF DEAD LOAD OF 10 PSF AND THE APPLICABLE LOAD COMBINATIONS PER ASCE 7-10.

SEISMIC CRITERIA

SEISMIC DESIGN VALUES DETERMINED UTILIZING 2008 USGS HAZARD DATA	
SPECTRAL RESPONSE ACCELERATIONS	S_s = 0.115 S_1 = 0.059
SITE CLASS	D
SPECTRAL RESPONSE COEFFICIENTS	S_{ds} = 0.123 S_{d1} = 0.094
SEISMIC DESIGN CATEGORY	B
DESIGN ULTIMATE SEISMIC BASE SHEAR:	V_x = 1070k V_y = 1070k
IMPORTANCE FACTOR	I_e = 1.25
DESIGN SEISMIC RESPONSE COEFFICIENT	C_s = 0.077
RESPONSE MODIFICATION FACTOR	R = 2.0

SPECIAL INSPECTION REQUIREMENTS
THE FOLLOWING SYSTEMS ARE SUBJECT TO THE SPECIAL INSPECTION REQUIREMENTS OF THE NCSBC, CHAPTER 17.

1. RAMMED AGGREGATE PIERS
2. CAST-IN-PLACE CONCRETE FOUNDATIONS
3. ELEVATED CAST-IN-PLACE CONCRETE SLABS
4. CONCRETE MASONRY (LOAD-BEARING OR LATERAL-LOAD RESISTING)
5. STRUCTURAL STEEL
6. STEEL DECK
7. PRECAST CONCRETE HOLLOW CORE PLANKS
8. STEEL JOISTS
9. SPRAY FIRE RESISTANT MATERIALS

GENERAL NOTES

GENERAL

1. DESIGN, FURNISH, AND INSTALL TEMPORARY SHORING, BRACING, AND OTHER TEMPORARY SUPPORTS REQUIRED FOR CONSTRUCTING THE STRUCTURE AND TO MAINTAIN THE STABILITY THROUGHOUT ALL PHASES OF CONSTRUCTION UNTIL THE STRUCTURE IS COMPLETED. ALL TEMPORARY SUPPORTS ARE TO BE REMOVED UNLESS NOTED OTHERWISE.
2. USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS AND THE DRAWINGS OF OTHER TRADES.
3. COORDINATE WITH OTHER TRADES THE ACTUAL LOCATIONS AND SIZES OF OPENINGS AND PENETRATIONS REQUIRED BY THEIR WORK.
4. COORDINATE WITH OTHER TRADES THE ACTUAL LOCATIONS AND ELEVATIONS OF BURIED SERVICES PASSING NEAR FOUNDATIONS. UNDERGROUND SERVICES WHICH PASS BENEATH WALL FOOTINGS SHALL HAVE AT LEAST 12" OF CLEARANCE BELOW THE BOTTOM OF THE FOOTING. WHERE THIS IS NOT ACHIEVED, EITHER STEP THE FOOTING DOWN BENEATH THE SERVICE OR INSTALL A STEEL PIPE SLEEVE FOR THE SERVICE TO PASS THROUGH. SLEEVES ARE FURNISHED AND INSTALLED BY THE TRADE INSTALLING THE SERVICE. NO SERVICE IS TO BE INSTALLED BENEATH COLUMN FOOTINGS UNLESS APPROVED BY THE ARCHITECT.
5. COORDINATE WITH OTHER TRADES THE ACTUAL LOCATIONS AND TYPES OF ATTACHMENTS AND ANCHORS THAT ARE REQUIRED BY THE TRADES TO FASTEN THEIR WORK TO THE STRUCTURE.
6. MODIFICATIONS TO STRUCTURAL COMPONENTS AND INSTALLATION OF PENETRATIONS THROUGH STRUCTURAL MEMBERS ARE NOT PERMITTED WITHOUT PRIOR APPROVAL OF THE ARCHITECT.
7. VERIFY ACTUAL DIMENSIONS, ELEVATIONS, AND CONDITIONS OF EXISTING CONSTRUCTION PRIOR TO PROCEEDING WITH WORK OR ORDERING MATERIALS WHICH COULD BE AFFECTED BY EXISTING CONDITIONS..

FOUNDATIONS

1. THE IN-SITU SOIL ALLOWABLE BEARING PRESSURE IS 1,500 PSF PER THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY ECS SOUTHEAST, LLP, AND DATED APRIL 18, 2023.
2. THE BUILDING WALL FOOTINGS AND COLUMNS FOOTINGS HAVE BEEN DESIGNED BASED ON AN ASSUMED EQUIVALENT BEARING CAPACITY OF 3,000 PSF. THE BUILDING WALL AND COLUMN FOOTINGS SHALL BE SUPPORTED ON GROUND IMPROVEMENT BY RAMMED AGGREGATE PIERS/STONE COLUMNS.
   A. ALL COLUMN AND WALL FOOTINGS SHALL BE CONSTRUCTURED ON SUBGRADE SOILS WHICH HAVE BEEN MODIFIED WITH GROUND MODIFICATION USING STONE REPLACEMENT TECHNIQUES. THE AGGREGATE PIER ELEMENTS SHALL BE CONSTRUCTED BY COMPACTING AGGREGATE IN AN EXCAVATED HOLE USING SPECIAL HIGH ENERGY IMPACT DENSIFICATION EQUIPMENT.
3. THE BUILDING PAD AREA AND AN ADDITIONAL 5 FEET IN THE HORIZONTAL DIRECTION BEYOND THE BUILDING PAD FOOTPRINT SHALL BE SURCHARGED WITH 4 FEET OF FILL ABOVE FINAL GRADE. THE SURCHARGE FILL SHALL REMAIN IN PLACE FOR AT LEAST ONE MONTH OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE SURCHARGE PROCEDURE IS RECOMMENDED BY THE GEOTECHNICAL ENGINEER IN ORDER TO AVOID UNDERCUTTING 4 FEET OF SOFT SOILS UNDER THE BUILDING PAD EXTENTS. UNDERCUTTING IN LOCALIZED AREAS MAY STILL BE REQUIRED AFTER SURCHARGING TO REMOVE SOFT SOILS OR OTHER SOIL CONDITIONS DEEMED UNSUITABLE BY THE GEOTECHNICAL ENGINEER. AREAS REQUIRING UNDERCUTTING SHALL BE BACKFILLED WITH PROPERLY PLACED AND COMPACTED STRUCTURAL FILL IN ORDER TO ACHEIVE THE REQUIRED BEARING CAPACITY. USE OF GEOTEXTILES AND SELECT GRANULAR FILL MAY BE RECOMMENDED BY THE GEOTECHNICAL ENGINEER TO REDUCE REQUIRED UNDERCUT DEPTHS.

FOUNDATIONS (CONT.)

4. ALL STRUCTURAL EARTH FILL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8 INCHES AND BE COMPACTED TO AT LEAST 95 PERCENT OF THE SOIL'S STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698. THE TOP 12 INCHES OF FILL IN LOAD BEARING AREAS SHOULD BE COMPACTED TO AT LEAST 98 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ALL STRUCTURAL FILL MATERIAL SHALL BE COMPACTED AT A MOISTURE CONTENT WITHIN 3 PERCENT OF THE SOIL'S OPTIMUM MOISTURE CONTENT (AS DETERMINED BY ASTM D-698). ALL STRUCTURAL FILL SHALL BE PLACED UNDER THE FULL-TIME CONTROL OF AN ENGINEERING TECHNICIAN WORKING UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER. THE PLACEMENT AND COMPACTION OF ALL FILL MATERIAL SHALL BE MONITORED AND TESTED IN ORDER TO CONFIRM THAT THE RECOMMENDED DEGREE OF COMPACTION IS BEING OBTAINED. IF AN IMPORTED STRUCTURAL FILL IS REQUIRED TO COMPLETE SITE GRADING, IT SHALL BE APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO USE. IMPORTED STRUCTURAL FILL SHOULD TYPICALLY CONSIST OF LOW PLASTICITY SOIL (LL<50, PI<25), HAVE A STANDARD PROCTOR MAXIMUM DRY DENSITY OF AT LEAST 100 PCF, AND BE FREE OF ORGANIC AND OTHER DELETERIOUS MATERIALS. IF CLEAN SAND FILL IS NECESSARY TO REPLACE LOWER CONSISTENCY SOILS IN THE BUILDING AREA, THE SAND SHOULD CONTAIN LESS THAN 10 TO 12 PERCENT FINES.
5. FINISHED SUBGRADES IN BUILDING AREAS RECEIVING MORE THAN 7 FEET OF FILL SHALL BE MONITORED FOR SETTLEMENT DUE TO THE FILL LOADING. SETTLEMENT MONUMENTS SHOULD BE INSTALLED AT THE TOP OF THE FILL IMMEDIATELY UPON FILL COMPLETION WITH SETTLEMENT MEASUREMENTS TAKEN AT LEAST TWO PER WEEK UNTIL SETTLEMENTS HAVE STABILIZED. CONSTRUCTION F BUILDING FOUNDATIONS AND PAVEMENTS SHALL NOT OCCUR UNTIL IT IS CONFIRMED THAT SETTLEMENT DUE TO NEW FILL HAS STABILIZED.
6. NO FOUNDATIONS SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
7. ALL FOOTING EXCAVATIONS ARE TO BE FINISHED BY HAND.
8. ALL FINISHED FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE ARCHITECT OR HIS DESIGNATE BEFORE ANY CONCRETE IS PLACED.
9. UNLESS OTHERWISE NOTED, ALL FOOTINGS AND PILASTERS SHALL BE CENTERED UNDER SUPPORTED MEMBERS.
10. DOWELS FROM FOUNDATIONS INTO PIERS, COLUMNS, BUTTRESSES, OR WALLS ABOVE SHALL BE THE SAME SIZE AND NUMBER AS VERTICAL REINFORCEMENT IN PIERS, COLUMNS, BUTTRESSES, OR WALLS ABOVE, EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS.
11. CAREFULLY FOLLOW THE REQUIREMENTS OF THE SPECIFICATIONS FOR BACKFILL UNDER OR ADJACENT TO ANY PORTION OF THE BUILDING.
12. WHERE FOUNDATION ELEMENTS ARE TO HAVE FILL ON BOTH SIDES, EACH SIDE SHALL BE FILLED SIMULTANEOUSLY, MAINTAINING A COMMON ELEVATION.
13. COORDINATE UNDERFLOOR DRAIN REQUIREMENTS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND THE REQUIREMENTS OF THE GEOTECHNICAL ENGINEER.
14. CONTRACTOR SHALL PROVIDE CONTINUOUS CONTROL OF SURFACE AND UNDERGROUND WATER AS REQUIRED DURING CONSTRUCTION SUCH THAT THE WORK IS DONE IN THE DRY.

STRUCTURAL PRECAST CONCRETE

1. HOLLOW CORE PLANKS SHALL BE NORMAL WEIGHT CONCRETE AND SHALL TEST MINIMUM 5,000 PSI AT 28 DAYS. PRESTRESSING STRANDS SHALL BE 7-WIRE, 270k STRANDS TENSIONED TO 30,881 LB EA, UNO.
2. PRESTRESSING AND FABRICATION SHALL CONFORM TO THE STANDARDS OF ACI 318, 2014 EDITION.
3. PRECAST CONCRETE DESIGN SHALL CONFORM TO PRESTRESSED CONCRETE INSTITUTE DESIGN HANDBOOK, 7th EDITION.
4. PRECAST SHALL BE DESIGNED FOR THE SUPERIMPOSED LOAD INDICATED IN THE DESIGN CRITERIA, INITIAL ERECTION AND HANDLING STRESSES AND 15 PSF FOR MEP ATTACHMENTS.
5. PRECAST CONSTRUCTION SHALL PROVIDE A MINIMUM 2-HOUR FIRE RATING AS PER GOVERNING BUILDING CODE.
6. THE DESIGN AND DETAILING OF ALL PRECAST CONCRETE AND THEIR CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE PRECAST FABRICATOR. THIS SHALL INCLUDE ALL BOLTS, PLATES, BRACES, REINFORCING, WELD SIZES, AND ANY EMBEDDED ITEMS IN BOTH PRECAST AND THE STRUCTURAL FRAME FOR ALL CONNECTIONS BETWEEN THE PRECAST AND THE SUPPORT FRAME. ALL CONNECTIONS SHOWN ON THE DRAWINGS ARE CONCEPTUAL IN NATURE AND ARE FOR BIDDING PURPOSES ONLY.
7. THE PRECAST DESIGN SHALL BE PREFORMED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA . THE DESIGN SHALL CONFORM TO THE GOVERNING BUILDING CODE, THE PCI DESIGN MANUAL, AND ASCE 7-10. DESIGN CALCULATIONS, STAMPED BY THE REGISTERED ENGINEER, SHALL BE SUBMITTED FOR REVIEW BY THE ENGINEER OF RECORD. THE PRECAST FABRICATOR SHALL DESIGN THE ENTIRE STRUCTURAL SYSTEM FOR ALL GRAVITY AND LATERAL LOADS SHOWN ON THESE DRAWINGS AND REQUIRED BY THE GOVERNING BUILDING CODE.
8. DESIGN MODIFICATIONS MAY BE MADE ONLY AS NECESSARY TO MEET FIELD CONDITIONS AND TO ENSURE PROPER FITTING OF THE WORK, AND ONLY AS ACCEPTABLE TO THE ENGINEER OF RECORD. MAINTAIN GENERAL DESIGN CONCEPT SHOWN WITHOUT INCREASING OR DECREASING SIZES OF MEMBERS OR ALTERING PROFILES AND ALIGNMENT SHOWN.
9. REFER TO THE ARCHITECTURAL, MECHANICAL, AND PLUMBING DRAWINGS FOR LOCATIONS OF ALL OPENINGS, SLEEVES, AND PENETRATIONS IN THE STRUCTURE. ALL OPENINGS, PLANT-CAST OR FIELD-CUT, MUST BE REVIEWED AND APPROVED BY THE PRECAST FABRICATOR'S ENGINEER. SUBMIT WALL SHOP DRAWINGS NOTING REQUIRED OPENINGS FOR REVIEW. MECHANICAL SUBCONTRACTOR SHALL REVIEW AND APPROVE SHOP DRAWINGS PRIOR TO SUBMITTAL TO ARCHITECT.
10. PRE-STRESSED CONCRETE MANUFACTURER MUST DESIGN OPENINGS WHICH REQUIRE HANGER TYPE SUPPLEMENTARY STEEL MEMBERS.
11. CONCRETE STRENGTH TESTING OF HOLLOW CORE PLANKS:
    A. TEST CONCRETE COMPRESSION SPECIMENS OBTAINED FROM THE CONCRETE BEING USED IN THE INSTALLED PANELS IN ACCORDANCE WITH PCI MNL-116.
12. PROVIDE NON-LEACHING MULTIMONOMER PLASTIC STRIP BEARING PADS CAPABLE OF SUPPORTING CONSTRUCTION LOADS WITH NO VISIBLE OVERALL EXPANSION.
13. INSTALL A CONCRETE TOPPING SLAB WITH A 28-DAY COMPRESSIVE STRENGTH OF 3500 PSI.
14. ERECTION:
    A. ERECT PRE-STRESSED CONCRETE UNITS INTO FINAL POSITION UNDER THE SUPERVISION OF THE MANUFACTURER OR AN ERECTOR EXPERIENCED IN INSTALLATION OF THE TYPES OF UNITS SPECIFIED ON THE CONTRACT DOCUMENTS.
    B. ALIGN AND LEVEL PRE-STRESSED CONCRETE UNITS IN ACCORDANCE WITH THE REQUIREMENTS AND TOLERANCES OF PCI MNL-116 PRIOR TO GROUTING KEY WAY JOINTS. GROUT KEYWAYS PRIOR TO UNITS BEING LOADED OR ENDS RESTRAINED.
    C. CLEAN AND FILL ALL KEYWAYS BETWEEN UNITS SOLIDLY WITH GROUT (MINIMUM 3000 PSI GROUT STRENGTH). REMOVE GROUT SEEPAGE PRIOR TO HARDENING.
    D. PATCH DAMAGE AND HOLES IN HOLLOW-CORE SLAB UNITS TO MAINTAIN THE UNIT'S STRUCTURAL ADEQUACY.
15. TOPPING SLAB:
    A. CLEAN AND WET PLANKS PRIOR TO PLACING CONCRETE TOPPING SLAB.
    B. INSTALL A TOPPING SLAB WITH A MINIMUM DEPTH OF 2" UNO ON THE PLANS.
    C. SEE ARCHITECTURAL DRAWING FOR ADDITIONAL TOPPING THICKNESS REQUIRED FOR SLAB DRAINAGE.

CAST-IN-PLACE CONCRETE

1. MATERIALS
   A. PORTLAND CEMENT: ASTM C150, TYPE I.
   B. FLY ASH: ASTM A618, CLASS C OR F.
   C. NORMAL-WEIGHT AGGREGATE: ASTM ASTM C33, CLASS 3M.
   D. LIGHTWEIGHT AGGREGATE EXPANDED SHALE OR SLATE: ASTM C330.
   E. REINFORCING STEEL: ASTM A615 GRADE 60.
   F. REINFORCING STEEL, WELDABLE: ASTM A706.
   G. WELDED WIRE FABRIC: ASTM A185, FLAT SHEETS.
   H. UNDER-SLAB DRAINAGEFILL: 6" GRANULAR FILL, MAXIMUM AGGREGATE SIZE OF 3/4".
   I. VAPOR BARRIER: ASTM E1745, CLASS B; FIVE-PLY, NYLON OR POLYESTER CHORD, 10 MILS THICKNESS.
   J. WATERSTOP: SELF EXPANDING.
2. CONCRETE MIXES
   A. FOOTINGS 3000 PSI NW
   B. SLABS-ON-GRADE: 3000 PSI NW.
   C. SLABS-ON-GRADE EXPOSED TO WEATHER: 4500 PSI NW, AIR-ENTRAINED
   D. SUPPORTED SLABS ON STEEL DECK: 3500 PSI LW (115 PCF)
   E. TOPPING SLABS ON HOLLOW CORE: 3500 PSI LW (115 PCF)
3. PERFORM CONCRETE WORK IN ACCORDANCE WITH ACI 318 AND ACI 301.

CAST-IN-PLACE CONCRETE CONTINUED

4. PROVIDE CONCRETE COVER AS FOLLOWS:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3".
   B. CONCRETE EXPOSED TO EARTH OR WEATHER:
      a. #5 OR SMALLER: 1 1/2".
      b. #6 OR LARGER: 2".
   C. CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
      a. SLABS, WALLS, JOIST: 3/4" BEAMS, COLUMNS: 1 1/2" TO PRIMARY
      b. REINFORCEMENT, TIES, STIRRUPS, OR SPIRALS.
5. PROVIDE CONTINUOUS REINFORCEMENT WHEREVER POSSIBLE. SPLICE ONLY AS SHOWN OR APPROVED. MINIMUM LAP LENGTHS, EXPRESSED IN NUMBER OF BAR
6. DIAMETERS, SHALL BE AS FOLLOWS:

BAR SIZE	NORMAL WT. CONCRETE STRENGTH, fc (psi)		
	3000	4000	5000
#6 OR SMALLER	57 DIA.	49 DIA.	44 DIA.
#7 OR LARGER	71 DIA.	62 DIA.	55 DIA.

MULTIPLY THE ABOVE LENGTHS BY 1.3 FOR TOP BARS AND BY 1.3 FOR LIGHTWEIGHT CONCRETE. WHERE BARS OF UNEQUAL DIAMETER ARE LAPPED, USE THE LAP LENGTH OF THE SMALLER BAR. THE ABOVE LENGTHS ARE CLASS "B" TENSION LAP SPLICES BASED ON GRADE 60 BARS WITH A COVER OF AT LEAST 1 BAR DIA. AND SPACING AT LEAST 3 BAR DIA. LAP LENGTHS SHALL BE INCREASED IN ACCORDANCE WITH ACI 318 IF COVER IS LESS THAN 1 BAR DIA. OR SPACING IS LESS THAN 3 BAR DIA.

7. ACCURATELY INSTALL AND PROPERLY SECURE ANCHORS, BEARING PLATES, SLEEVES, AND OTHER EMBEDDED ITEMS.
8. ACCURATELY LOCATE AND BLOCK OUT OPENINGS AND PENETRATIONS.
9. COORDINATE WITH OTHER TRADES FOR ANCHORS, EMBEDDED ITEMS, SLEEVES, AND PENETRATIONS REQUIRED AND/OR FURNISHED BY THE OTHER TRADES.
10. PROVIDE CONTRACTION JOINTS IN SLABS-ON-GRADE WHERE INDICATED ON THE PLANS. PROVIDE A JOINT DEPTH EQUAL TO AT LEAST 25% OF THE SLAB THICKNESS.
11. INSTALL AND SEAL VAPOR BARRIER IN ACCORDANCE WITH ASTM E1643 AND MANUFACTURER'S INSTRUCTIONS. LAP JOINTS 6" AND SEAL WITH MANUFACTURER'S RECOMMENDED TAPE.
12. FLOOR FINISHES:
    A. FLOAT FINISH: SURFACES TO RECEIVE A TROWEL FINISH, TO BE COVERED WITH FLUID-APPLIED OR SHEET WATERPROOFING, OR TO BE COVERED WITH BUILT-UP OR MEMBRANE ROOFING.
    B. TROWEL FINISH: SURFACES EXPOSED TO VIEW OR COVERED WITH RESILIENT FLOORING, CARPET, WOOD FLOORING, PAINT, SEALER, OR OTHER THIN FILM FINISH.
    C. TROWEL AND FINE-BROOM FINISH: SURFACES TO BE COVERED WITH QUARRY OR CERAMIC TILE INSTALLED BY THE THIN-SET OR THICK-SET METHOD.
    D. BROOM FINISH: EXTERIOR CONCRETE PLATFORMS, STEPS, AND RAMPS
13. FLOOR FINISH TOLERANCE:
    A. SLABS TO RECEIVE WOOD FLOORING:
       a. SPECIFIED OVERALL VALUES: FF=35 / FL=25.
       b. MINIMUM LOCAL VALUES: FF=24 / FL=17.
    B. ALL OTHERS RECEIVING TROWEL OR TROWEL AND FIN-BROOM FINISH:
       a. SPECIFIED OVERALL VALUES: FF=25 / FL=20.
       b. MINIMUM LOCAL VALUES: FF=17 / FL=15.
14. FLOOR FRAMING AND FLOOR DECK ARE DESIGNED TO REMAIN UNSHORED DURING CONCRETE PLACEMENT. ACCOUNT FOR AN EXPECTED DEFLECTION IN BEAMS AND GIRDERS OF UP TO 1/360 OF THE SPAN LENGTH (IN INCHES) OR 1 INCH, WHICHEVER IS LESS. WHEN CALCULATING CONCRETE QUANTITIES.
15. FINISH SLABS FLAT AND LEVEL.
16. NO CONDUIT OR PIPE MAY BE RUN WITHIN STRUCTURAL CONCRETE MEMBERS EXCEPT WHERE INDICATED.

COLD-FORMED STEEL STRUCTURAL FRAMING

1. ENGINEER, FABRICATE, AND INSTALL COLD-FORMED STEEL STRUCTURAL FRAMING FOR THE FOLLOWING:
   A. STRUCTURAL TRUSSES AS INDICATED ON ROOF PLANS.
2. ENGINEER, FABRICATE, AND INSTALL PERMANENT AND TEMPORARY BRACING, BRIDGING, CONNECTIONS, AND ANCHORAGES TO THE PRIMARY STRUCTURE FOR THE COMPONENTS LISTED ABOVE.
3. REFER TO ARCHITECTURAL DRAWINGS FOR NON-LOAD-BEARING COLD-FORMED STEEL CURTAIN WALL MEMBERS AND OTHER COLD-FORMED AND LIGHT GAGE STEEL MEMBERS NOT LISTED ABOVE.
4. COMPLY WITH DESIGN:
   A. AISI "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".
   B. CCFSS TECHNICAL BULLETIN: "AISI SPECIFICATION FOR SCREW CONNECTIONS".
   C. AISI "DESIGN GUIDE FOR COLD-FORMED STEEL TRUSSES".
   D. AWS D1.3, "STRUCTURAL WELDING CODE, SHEET STEEL".
5. STRUCTURAL PERFORMANCE:
   A. DEAD, LIVE, WIND LOADS AND SEISMIC CRITERIA: SEE GENERAL NOTES ON THIS SHEET.
   B. LATERAL LOAD ON INTERIOR LOAD-BEARING WALLS: 5 PSF.
   C. HORIZONTAL DEFLECTION, EXTERIOR LOAD-BEARING WALL FRAMING: SPAN/600 FOR MASONRY VENEERS, SPAN/360 OTHERWISE.
   D. ALLOW FOR CONSTRUCTION TOLERANCES AND ACCOMMODATE LIVE LOAD DEFLECTIONS OF THE PRIMARY STRUCTURE OF UP TO 3/4 INCH.
   E. ASSUME NON-STRUCTURAL SHEATHING PROVIDES NO LATERAL BRACING TO FRAMING MEMBERS.
6. SUBMIT COMPLETED DESIGN CALCULATIONS AND ERECTION DRAWINGS SEALED BY A PROFESSIONAL ENGINEER LICENSED IN NORTH CAROLINA, TO THE ARCHITECT FOR REVIEW.
7. MATERIALS
   A. COLD-FORMED STEEL: ASTM A653, GRADE 33 UNLESS NOTED OTHERWISE, G60 COATING.
   B. MINIMUM UNCOATED-STEEL THICKNESS: 0.0428" FOR ALL MEMBERS, EXCEPT TRUSS MEMBERS.
   C. MINIMUM UNCOATED-STEEL THICKNESS, TRUSS MEMBERS: THICKNESS REQUIRED TO SATISFY DESIGN AND CONSTRUCTABILITY REQUIREMENTS.
   D. ANCHOR BOLTS: ASTM F1554, GRADE 36, ZINC-COATED IN ACCORDANCE WITH ASTM A153, CLASS C.
   E. EXPANSION AND ADHESIVE ANCHORS: AS INDICATED ELSEWHERE IN THE GENERAL NOTES.
   F. POWER-ACTUATED ANCHORS: CORROSION RESISTANT CARBON STEEL, 0.145" MINIMUM DIAMETER.
   G. MECHANICAL FASTENERS: CORROSION-RESISTANT-COATED CARBON STEEL, SELF-DRILLING, SELF-THREADING DRILL SCREWS, #10 MIN.
   H. WELD FILLER MATERIAL: IN ACCORDANCE WITH AWS D1.3
8. PERFORM WELDING WITH QUALIFIED WELDERS IN ACCORDANCE WITH AWS D1.3.
9. INSTALL PERMANENT BRIDGING, BRACING, AND ANCHORAGES TO THE PRIMARY STRUCTURES AS INDICATED ON APPROVED SHOP DRAWINGS.
10. INSTALL BENT PLATES AS INDICATED AT RIDGES, HIPS, VALLEYS, EAVES, AND OTHER TRANSITIONS TO PROVIDE ADEQUATE SUPPORT FOR DECKING AND SHEATHING.

STRUCTURAL STEEL

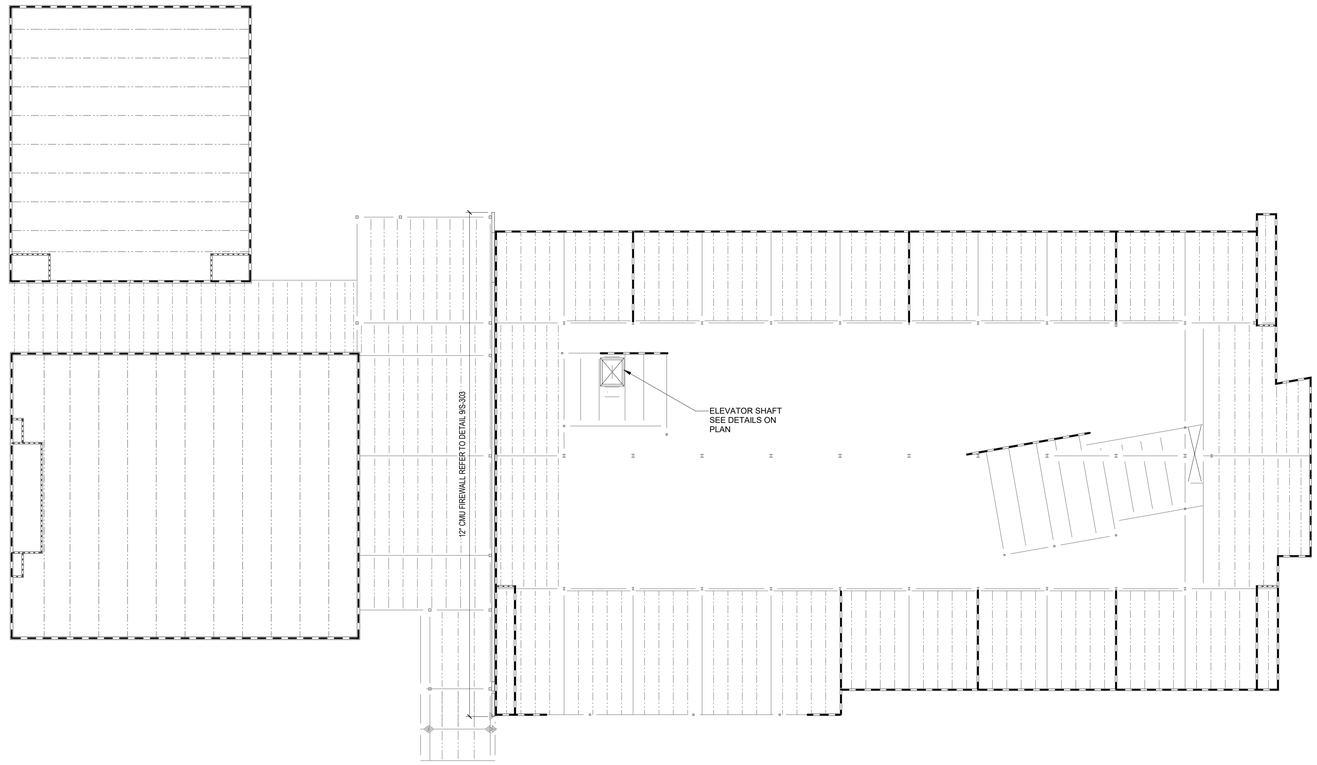
1. MATERIALS
   A. STRUCTURAL STEEL WIDE FLANGE SHAPES: ASTM A992
   B. OTHER STRUCTURAL STEEL ROLLED SHAPES: ASTM A36
   C. RECTANGULAR OR ROUND HSS: ASTM A500, GR C
   D. STEEL PIPE: ASTM A53, GR B
   E. STEEL PLATE: ASTM A36
   F. HIGH STRENGTH BOLTS: ASTM A325
   G. ANCHOR RODS: ASTM F1554, GRADE 36
   H. WELD ELECTRODE: IN ACCORDANCE WITH AWS D1.1
2. FABRICATE AND ERECT STEEL IN ACCORDANCE WITH THE AISC SPECIFICATION. PERFORM SHOP AND FIELD WELDING IN ACCORDANCE WITH AWS D1.1 WITH CURRENTLY CERTIFIED WELDERS.
3. FLOOR FRAMING HAS BEEN DESIGNED TO REMAIN UNSHORED DURING CONCRETE PLACEMENT.
4. UNLESS NOTED OTHERWISE, ALL BOLTED CONNECTIONS ARE MADE WITH 3/4" HIGH STRENGTH BOLTS INSTALLED SNUG TIGHT.
5. WELD SHEAR CONNECTORS IN ACCORDANCE WITH AWS D1.1 WITH CURRENTLY CERTIFIED WELDERS. REMOVE AND DISCARD ARC SHIELDS AFTER WELDING.
6. STEEL PREPARATION AND FINISH:
   A. INTERIOR FRAMING: SSPC SP3 POWER TOOL CLEANING; PAINT 23 LATEX PRIMER FOR STEEL SURFACES.
   B. EXTERIOR FRAMING: SSPC SP6 COMMERCIAL BLAST CLEANING; PAINT 20 ZINC RICH PRIMER.
   C. BRICK RELIEF ANGLES: SSPC SP6 COMMERCIAL BLAST CLEANING; HOT DIPPED GALVANIZED.

STRUCTURAL STEEL CONTINUED

7. FOR BEAMS NOT MEETING THE MINIMUM SIZE REQUIREMENT OF THE UL ASSEMBLY, THE CONTRACTOR SHALL PROVIDE FOR APPROVAL W/D CALCULATIONS AS REQUIRED IN SECTION 722.5.2.2 OF THE NC STATE BUILDING CODE.
8. STRUCTURAL STEEL CONNECTIONS SHALL CONFORM TO THE FOLLOWING, UNO:
   a. MINIMUM SIZE OF BOLTS SHALL BE 3/4" DIAMETER AND EACH CONNECTION SHALL HAVE A MINIMUM OF TWO BOLTS WITH ONE HARDENED WASHER PER BOLT.
   b. BEARING TYPE CONNECTIONS SHALL BE DESIGNED AS TYPE "N".
   c. IN GENERAL. CONNECTIONS SHALL BE FIELD BOLTED AND TIGHTENED TO SNUG TIGHT CONDITION, UNO. ALL BOLTS DESIGNATED "SLIP CRITICAL" OR "FULLY TIGHTENED" SHALL BE TIGHTENED TO THE MINIMUM PRETENSION VALUE SHOWN IN TABLE J3.1 OF THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS. IN ADDITION, CONNECTIONS DESIGNATED "SLIP CRITICAL" SHALL HAVE PROPERLY PREPARED FAYING SURFACES TO MEET CLASS A SURFACE CONDITION, UNO.
   d. "FULLY TIGHTENED" CONNECTIONS SHALL INCLUDE ALL BOLTS IN MOMENT CONNECTIONS, BRACED FRAME CONNECTIONS, HANGERS, GIRT CONNECTIONS, BOLTS IN TENSION, CONNECTIONS SUBJECT TO VIBRATION AND ALL A490 BOLTS. DIRECT TENSION INDICATOR (DTI) WASHERS OR TENSION CONTROL BOLTS (TCB'S) SHALL BE USED AT THESE CONDITIONS.
   e. MINIMUM THICKNESS OF ALL CONNECTION MATERIAL TO BE 5/16", UNO. MINIMUM THICKNESS OF GUSSET PLATES AND SHEAR PLATES TO BE 3/8".
   f. UNO IN THE DRAWINGS, MINIMUM NUMBER OF BOLTS REQUIRED IN A BEAM WEB CONNECTION SHALL BE AS FOLLOWS:

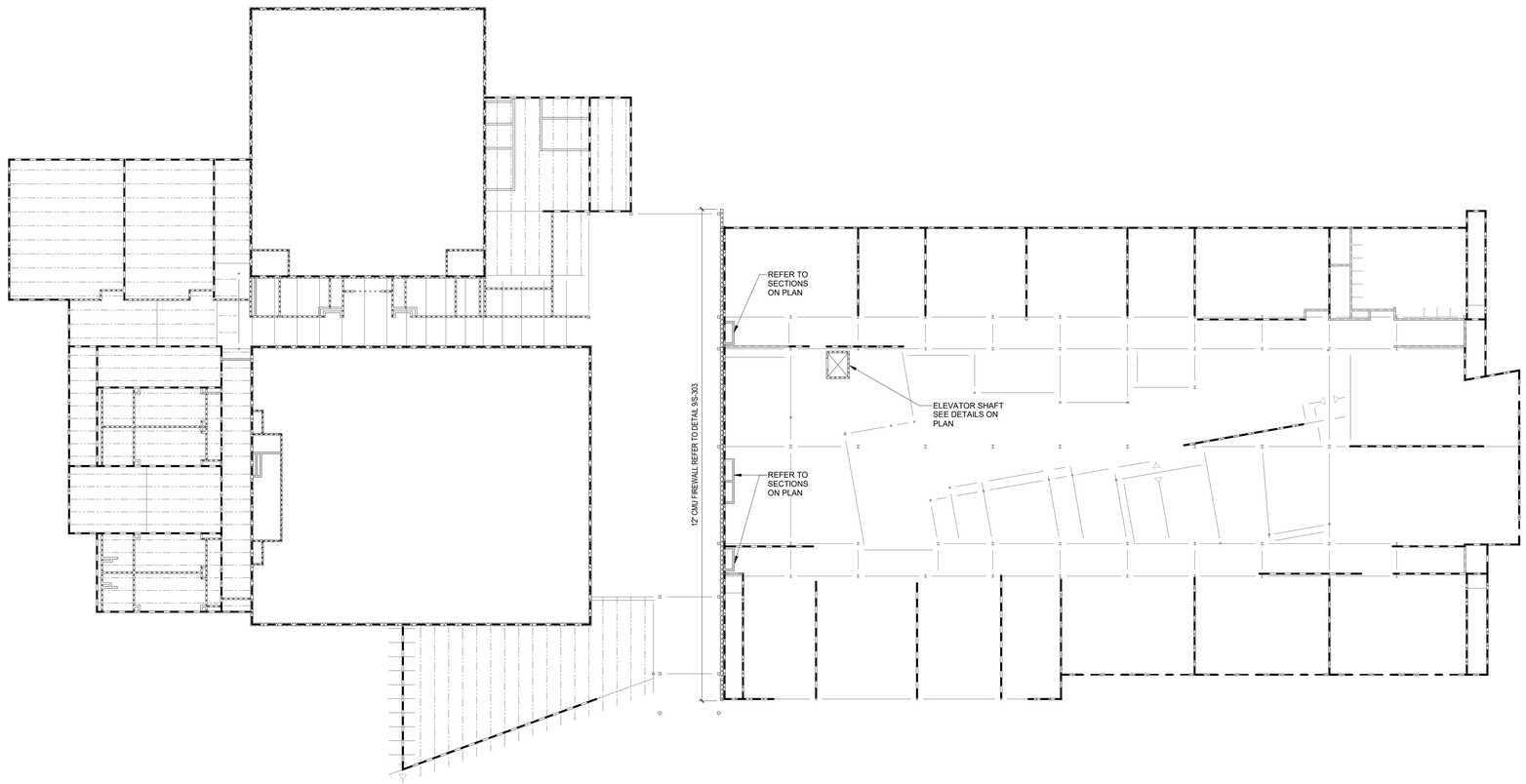
BEAM SIZE	MIN NO OF BOLTS
• W8 / W10 / W12	2
• W14 / W16 / W18	3
• W21 / W24	4
• W27 / W30	5
• W33 / W36	6
• W40 / W44	7

   g. IN CONNECTIONS OF BEAMS, THE MINIMUM NUMBER OF BOLTS SHALL BE REQUIRED TO DEVELOP THE END REACTION NOTED ON THE CONTRACT DRAWINGS. MINIMUM BEAM END REACTION TO BE USED IS 10 KIPS ASD.
   h. CONNECTIONS OF BEAMS SHALL DEVELOP THE BEAM SHEAR END REACTION IN ADDITION TO ANY AXIAL FORCES LISTED ON THE STRUCTURAL DRAWINGS, WHERE APPLICABLE. FORCES SHALL BE CONSIDERED TO ACT SIMULTANEOUSLY.
   i. ALL MOMENT CONNECTIONS SHALL DEVELOP THE FULL MOMENT CAPACITY OF THE BEAM, UNO.
   j. ALL BRACING CONNECTIONS SHALL DEVELOP THE TENSION/COMPRESSION FORCES NOTED ON THE DRAWINGS. IF THE FORCE IS NOT NOTED ON DRAWINGS, THE BRACING CONNECTION SHALL DEVELOP THE ALLOWABLE TENSION FORCE IN THE MEMBER. BRACING CONNECTIONS SHALL BE DESIGNED AND DETAILED SO THAT ALL FORCE COMPONENTS WILL BE TRANSMITTED DIRECTLY TO THE CENTER OF GRAVITY OF INTERSECTING MEMBERS. WHERE THIS IS NOT POSSIBLE, CONNECTIONS SHALL BE DESIGNED FOR ALL RESULTING ECCENTRICITIES.
9. WELD SHEAR CONNECTORS IN ACCORDANCE WITH AWS D1.1 WITH CURRENTLY CERTIFIED



2 S-040 **HIGH ROOF SHEARWALL PLAN**

SCALE: 3/64" = 1'-0"



1 S-040 **SECOND FLOOR/LOW ROOF SHEARWALL PLAN**

SCALE: 3/64" = 1'-0"

SHEARWALL PLAN NOTES:

1. REFER TO FRAMING PLANS FOR SECTIONS NOT IDENTIFIED ON THIS SHEET.
2. COORDINATE WALL TYPES WITH ARCH DWGS.

SHEARWALL PLAN LEGEND:

- DENOTES CMU LOAD BEARING/SHEAR WALL REFER TO DETAILS ON PLAN SHEETS
- DENOTES CMU PARTITION WALL UP TO UNDERSIDE OF DECK. REFER TO DETAIL 6/S-401 FOR TOP OF WALL BRACING
- DENOTES CMU PARTITION WALL UP TO UNDERSIDE OF HOLLOW CORE REFER TO DETAIL 6/S-401 FOR TOP OF WALL BRACING
- DENOTES CMU PARTITION WALL STOPS BELOW DECK/HOLLOW CORE, NO TOP OF WALL BRACING REQ'D
- DENOTES CMU PARTITION WALL UP TO UNDERSIDE OF DECK, NO TOP OF WALL BRACING REQ'D

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DRAWN BY: Author

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1

SHEARWALL PLAN

S-040

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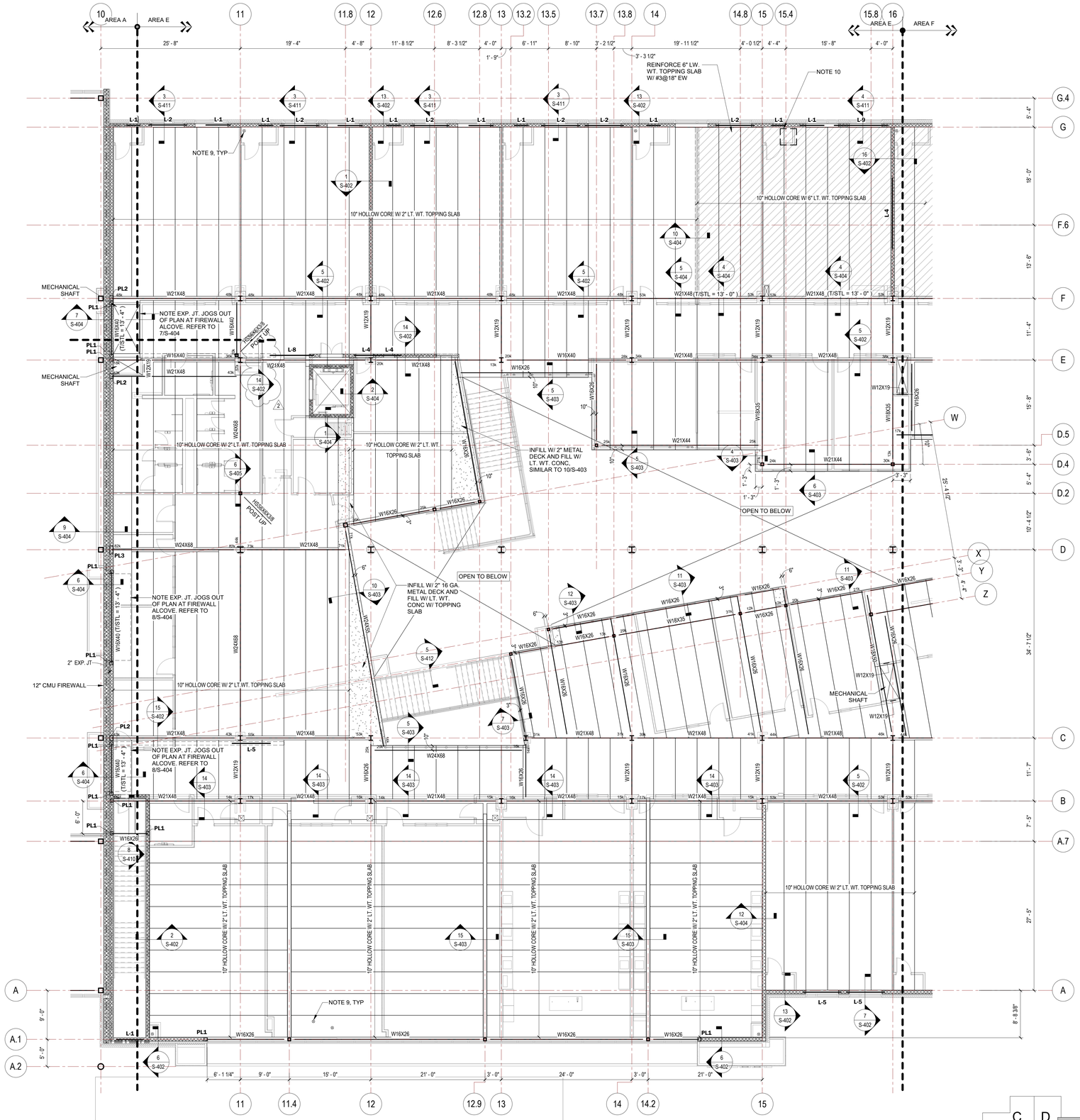

1 S-102E **SECOND FLOOR FRAMING PLAN - AREA E**

SCALE: 1/8" = 1'-0"

FLOOR FRAMING NOTES:

1. TOP OF 2" TOPPING SLAB ELEVATION = 14'-4". TOPPING SLAB SHALL BE REINFORCED WITH 6x6 W1.4xW1.4 W.W.F.
2. BOTTOM OF HOLLOW CORE PLANKS ELEVATION = 13'-4". TOP OF STEEL SHALL BE AT BOTTOM OF HOLLOW CORE PLANKS, U.O.N.
3. INDICATES MOMENT CONNECTION. SEE DETAIL 5/S-405. FABRICATOR TO DESIGN AND DETAIL CONNECTION FOR THE MOMENT INDICATED ON THE PLAN "# k-ft". IF NO MOMENT IS PROVIDED, THE CONNECTION SHALL BE DESIGNED FOR THE FULL MOMENT CAPACITY OF THE BEAM.
4. DENOTES TOP OF DECK BEARING ELEVATION ABOVE FIN. FLOOR ELEVATION = 0'-0" U.O.N.
5. **L-#** DENOTES EXTERIOR/LOAD BEARING LINTEL. SEE S-401 FOR SCHEDULE.
6. BEAM VERTICAL SHEAR DENOTED BY XXk. BEAM CONNECTIONS SHALL BE DEISGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
7. **PL#** DENOTES BEAM BEARING PL. SEE DETAIL 2/S-401.
8. SEE DETAIL 6/S-401 FOR BRACING OF NON-LOAD BEARING CMU WALLS EXTENDING TO BOTTOM OF HOLLOW CORE. INTERIOR NON-LOAD BEARING WALLS NOT EXTENDING TO DECK SHALL BE BRACED BY INTERSECTING WALL OR ANGLE BRACING TO JOIST AT 12'-0" O.C. MAX. SEE DETAIL 5/S-401. COORDINATE WITH ARCH'L THE WALLS EXTENDING TO THE DECK.
9. HOLLOW CORE PENETRATION. REFER TO MECHANICAL DRAWINGS FOR OPENING SIZE AND FINAL LOCATIONS. HOLLOW CORE SUPPLIER SHALL DESIGN HOLLOW CORE PLANKS ACCOUNTING FOR OPENINGS DENOTED ON PLANS.
10. ELEC. TRANSFORMER HUNG FROM UNDERSIDE OF HOLLOW CORE PLANKS ON UNISTRUT FRAME. REFER TO ELEC DWGS FOR FINAL EQUIPMENT LOCATION. HOLLOW CORE PLANKS SHALL BE DESIGNED TO SUPPORT THE WEIGHT OF THE EQUIPMENT AND FRAME. COORD. W/ EQUIPMENT SUPPLIER FOR FINAL EQUIPMENT DIMENSIONS AND WEIGHT.

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SECOND FLOOR FRAMING PLAN AREA E

S-102E

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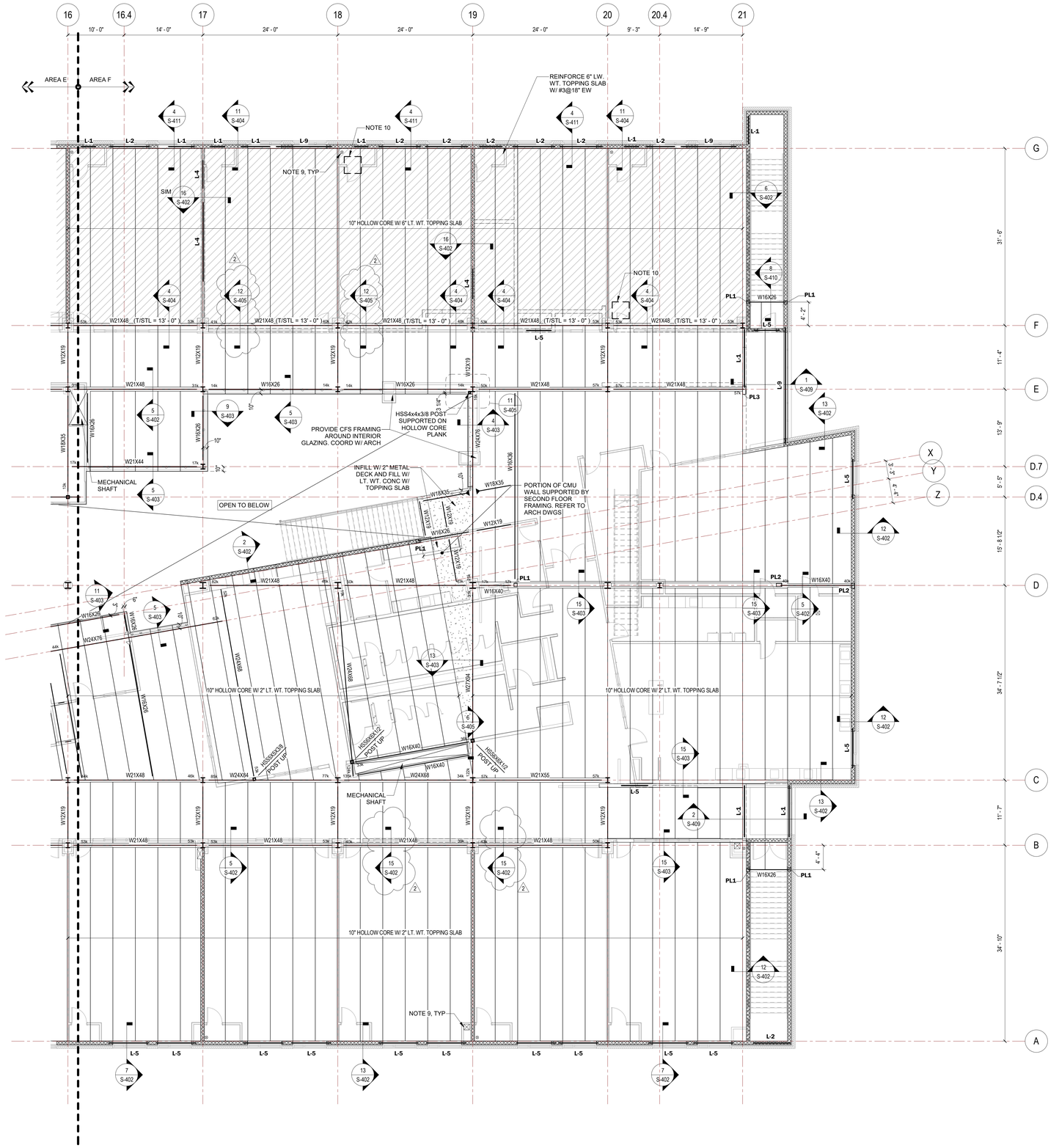
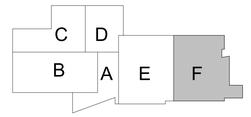


FLOOR FRAMING NOTES:

1. TOP OF 2" TOPPING SLAB ELEVATION = 14'-4". TOPPING SLAB SHALL BE REINFORCED WITH 6x6 W1.4xW1.4 W.W.F.
2. BOTTOM OF HOLLOW CORE PLANKS ELEVATION = 13'-4". TOP OF STEEL SHALL BE AT BOTTOM OF HOLLOW CORE PLANKS, U.O.N.
3. ⊢ INDICATES MOMENT CONNECTION. SEE DETAIL 5/S-405. FABRICATOR TO DESIGN AND DETAIL CONNECTION FOR THE MOMENT INDICATED ON THE PLAN "# k-ft". IF NO MOMENT IS PROVIDED, THE CONNECTION SHALL BE DESIGNED FOR THE FULL MOMENT CAPACITY OF THE BEAM.
4. ◢ DENOTES TOP OF DECK BEARING ELEVATION ABOVE FIN. FLOOR ELEVATION = 0'-0" U.O.N.
5. **L-#** DENOTES EXTERIOR/LOAD BEARING LINTEL. SEE S-401 FOR SCHEDULE.
6. BEAM VERTICAL SHEAR DENOTED BY XXk. BEAM CONNECTIONS SHALL BE DEISGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
7. **PL#** DENOTES BEAM BEARING PL. SEE DETAIL 2/S-401.
8. SEE DETAIL 6/S-401 FOR BRACING OF NON-LOAD BEARING CMU WALLS EXTENDING TO BOTTOM OF HOLLOW CORE. INTERIOR NON-LOAD BEARING WALLS NOT EXTENDING TO DECK SHALL BE BRACED BY INTERSECTING WALL OR ANGLE BRACING TO JOIST AT 12'-0" O.C. MAX. SEE DETAIL 5/S-401. COORDINATE WITH ARCH'L THE WALLS EXTENDING TO THE DECK.
9. HOLLOW CORE PENETRATION. REFER TO MECHANICAL DRAWINGS FOR OPENING SIZE AND FINAL LOCATIONS. HOLLOW CORE SUPPLIER SHALL DESIGN HOLLOW CORE PLANKS ACCOUNTING FOR OPENINGS DENOTED ON PLANS.
10. ELEC. TRANSFORMER HUNG FROM UNDERSIDE OF HOLLOW CORE PLANKS ON UNISTRUT FRAME. REFER TO ELEC DWGS FOR FINAL EQUIPMENT LOCATION. HOLLOW CORE PLANKS SHALL BE DESIGNED TO SUPPORT THE WEIGHT OF THE EQUIPMENT AND FRAME. COORD. W/ EQUIPMENT SUPPLIER FOR FINAL EQUIPMENT DIMENSIONS AND WEIGHT.

1 / S-102F **SECOND FLOOR FRAMING PLAN - AREA F**

SCALE: 1/8" = 1'-0"



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	06/12/2024	BID DOCUMENTS

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SECOND FLOOR FRAMING PLAN AREA F

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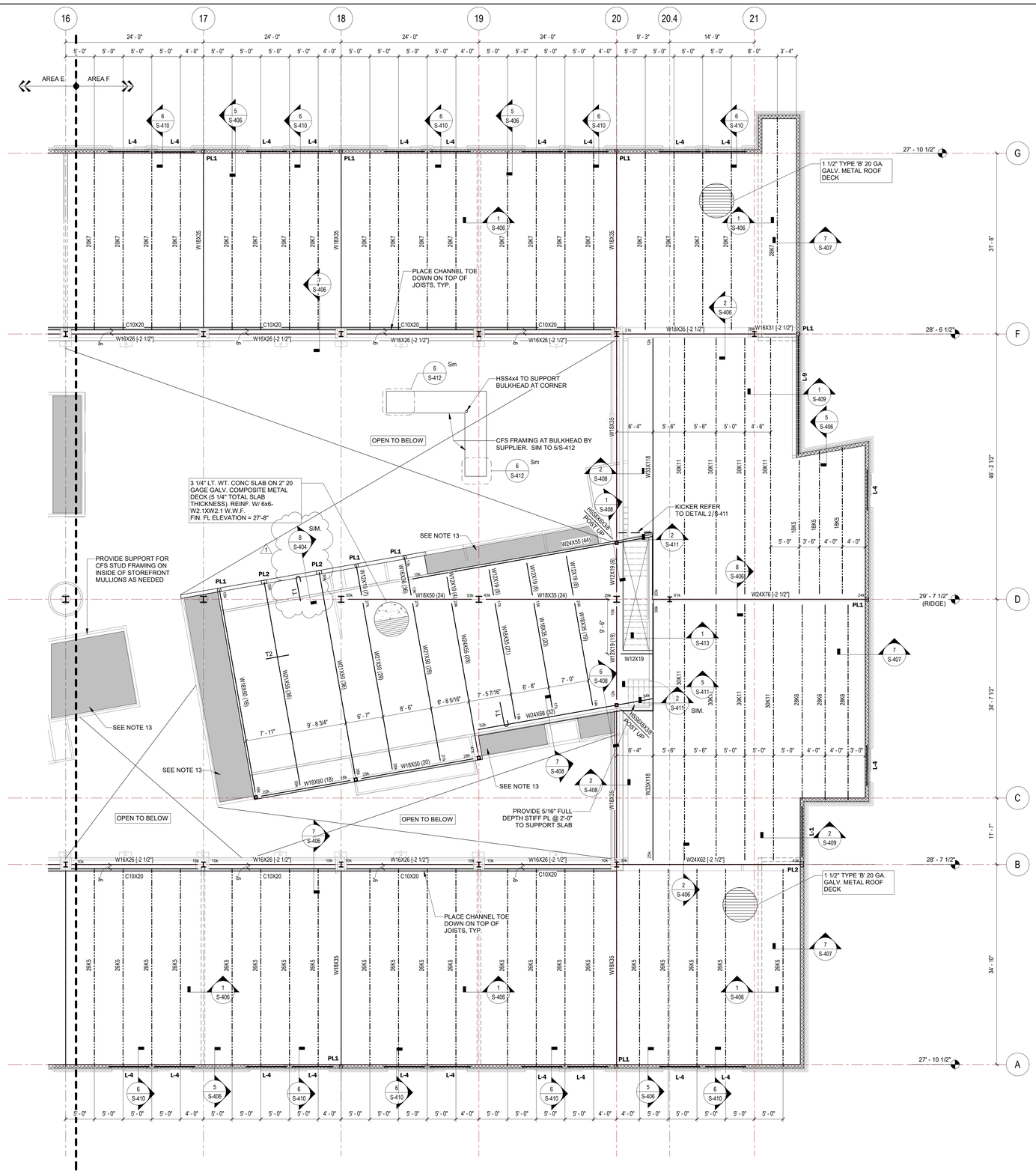


FLOOR FRAMING NOTES:

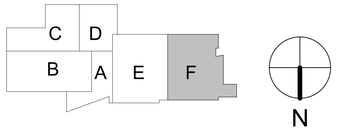
1. TOP OF STEEL ELEVATION = 5 1/4" BELOW FIN. FLOOR ELEV. U.O.N. SEE PLAN FOR FINISHED FLOOR ELEVATION.
2. ALL ELEVATIONS REFERENCED FROM 0'-0" U.O.N.
3. NUMBERS IN PARENTHESIS DENOTES QUANITTY OF 3/4"Ø x 4" STUDS EQUALLY SPACED ON BEAM. SEE 3 / S-405 FOR COMPOSITE BEAM LEGEND.
4. BEAM VERTICAL SHEAR DENOTED BY XXk. BEAM CONNECTIONS SHALL BE DEISGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
5. ▶—— INDICATES MOMENT CONNECTION. SEE DETAIL. FABRICATOR TO DESIGN AND DETAIL CONNECTION FOR THE MOMENT INDICATED ON THE PLAN "# k-ft". IF NO MOMENT IS PROVIDED, THE CONNECTION SHALL BE DESIGNED FOR HE FULL MOMENT CAPACITY OF THE BEAM.
6. **L-#** DENOTES EXTERIOR/LOAD BEARING LINTEL. SEE S-401 FOR SCHEDULE.
7. **T-#** DENOTES SLAB TOP BARS. SEE DETAIL 10 / S-402 & 11 / S-402 .
8. **PL #** DENOTES BEAM BEARING PL. SEE SCHEDULE AND DETAILS.
9. FLOOR FRAMING AND COMPOSITE FLOOR DECK ARE DESIGNED TO REMAIN UNSHORED DURING CONCRETE PLACEMENT. ACCOUNT FOR AN EXPECTED DEFLECTION IN BEAMS AND GIRDERS OF UP TO 1/360 OF THE SPAN LENGTH (IN INCHES) OR 1", WHICHEVER IS LESS WHEN CALCULATING CONCRETE QUANTITIES. FINISH SUPPORTED SLABS FLAT AND LEVEL.
10. CONSTRUCTION JOINTS IN ELEVATED CONCRETE ON METAL DECK POURS SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION. SEE DETAIL 8 / S-402.
11. FRAMED FLOOR OPENINGS COORD. LOCATION W/ MECH'L CONTRACTOR. SEE DETAIL 7 / S-405 .

ROOF FRAMING PLAN NOTES:

1. ▲——— DENOTES DECK BEARING ELEVATION ABOVE FIN. FLOOR ELEVATION 0'-0".
2. **L-#** DENOTES EXTERIOR/LOAD BEARING LINTEL. SEE S-401 FOR SCHEDULE.
3. [-#] INDICATES TOP OF STEEL ELEVATION BELOW DECK BEARING.
4. FRAME ROOF OPENINGS (INCLUDING ROOF DRAINS) W/ ANGLE FRAMING. COORD. LOCATION W/ MECH'L. SEE DETAIL 8 / S-401.
5. DO NOT HANG ANYTHING FROM THE ROOF DECK OR JOIST BRIDGING.
6. MECH'L PIPING SHALL BE SUPPORTED AT JOIST PANEL POINTS OR ADDITIONAL BRACING SHALL BE PROVIDED. SEE DETAIL.
7. UNLESS OTHERWISENOTED ON PLAN, REFER TO DETAILS ON S-401 FOR BRACING OF NON-LOAD BEARING CMU WALLS EXTENDING TO DECK. INTERIOR NON-LOAD BEARING WALLS NOT EXTENDING TO DECK SHALL BE BRACED BY INTERSECTING WALL OR ANGLE BRACING TO JOIST AT 12'-0" O.C. MAX. COORDINATE WITH ARCH'L FOR THE PARTITION WALLS EXTENDING TO THE DECK.
8. JOIST BRIDGING NOT SHOWN FOR CLARITY. JOIST MANUFACTURERS SHALL DESIGN AND PROVIDE BRIDGING IN ACCORDANCE W/ SJI REQUIREMENTS.
9. COORDINATE ROOF OPENING SIZE AND LOCATIONS WITH MECHANICAL CONTRACTOR. SEE DETAIL.
10. BEAM VERTICAL SHEAR DENOTED BY XXk. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
11. ▶—— INDICATES MOMENT CONNECTION. SEE DETAIL 5 / S-405 . FABRICATOR TO DESIGN AND DETAIL CONNECTION FOR THE MOMENT INDICATED ON THE PLAN "# k-ft". IF NO MOMENT IS PROVIDED, THE CONNECTION SHALL BE DESIGNED FOR THE FULL MOMENT CAPACITY OF THE BEAM.
12. "KB" DENOTES KNEE BRACE. SEE DETAIL 10 / S-406
13. HATCHED AREA INDICATES CFS JOISTS @ 2'-0" TOPPED WITH 3/4" PLYWOOD TO SUPPORT CEILING. COLD FORMED STEEL STUD CEILING JOISTS, AS WELL AS ANY REQUIRED GIRDERS SHALL BE DESIGNED FOR 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE W/ ARCH'L DRAWINGS.
14. BASKETBALL GOALS SHALL BE HUNG FROM JOISTS AT PANEL POINTS. JOISTS SHALL BE DESIGNED FOR A POINT LOAD OF 2,500 LB AT ANY LOCATION ALONG THE JOIST. ANY SUPPLEMENTAL FRAMING REQUIRED SHALL BE PROVIDED BY BASKETBALL GOAL SUPPLIER.
15. **PL#** DENOTES BEAM BEARING PL. SEE DETAIL 2 / S-401 .
16. DASHED OUTLINE INDICATES LOCATION OF MECHANICAL EQUIPMENT AND ACCESS. REFER TO MECH. DWGS FOR FINAL EQUIPMENT LOCATIONS. CFS JOISTS SHALL BE DESIGNED FOR THE EQUIPMENT WEIGHT IN ADDITION TO 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE EQUIPMENT WEIGHT WITH MECHANICAL CONTRACTOR.
17. REFER TO MEP DRAWINGS FOR LOCATIONS OF DESTRATIFICATION FANS. REFER TO DETAIL 10 / S-405 FOR SUPPLEMENTAL STEEL SUPPORT FOR FANS. GC TO COORDINATE FINAL FAN SIZE AND LOCATIONS WITH MECHANCIAL CONTRACTOR AND STEEL FABRICATOR.

1 / S-103F — **ROOF FRAMING PLAN - AREA F**

SCALE: 1/8" = 1'-0"



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ROOF FRAMING PLAN AREA F

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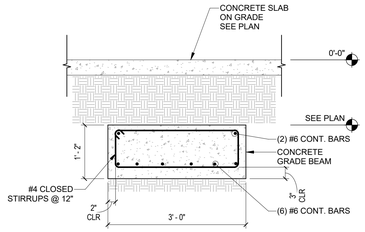
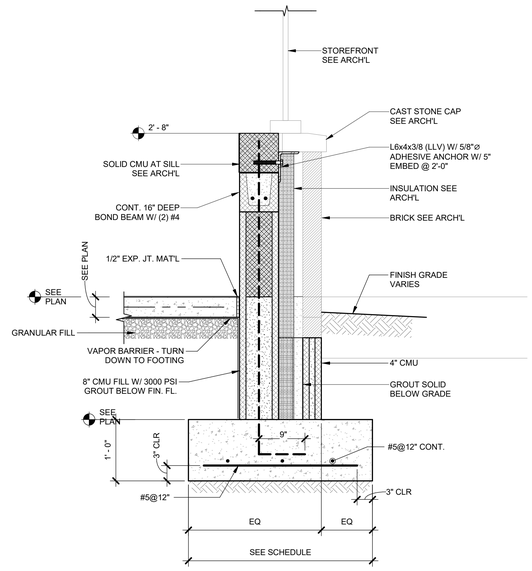


17 S-301 **GRADE BEAM DETAIL**
SCALE: 3/4" = 1'-0"



16 S-301 **SECTION THRU STOREFRONT**
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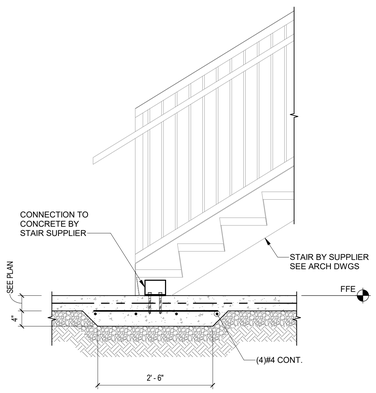
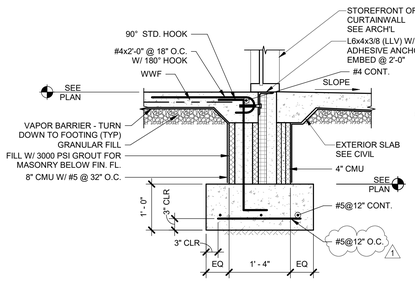
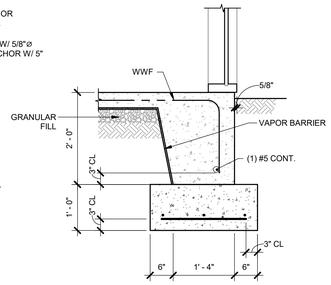


15 S-301 **TYPICAL STAIR STRINGER @ THICKENED SLAB**
SCALE: 3/4" = 1'-0"



14 S-301 **TYPICAL CURTAIN WALL**
SCALE: 3/4" = 1'-0"



13 S-301 **TYPICAL LUG FOOTING**
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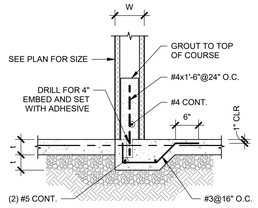

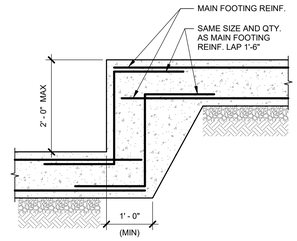

12 S-301 **STEPPED FOOTING DETAIL**
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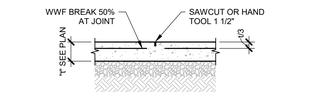
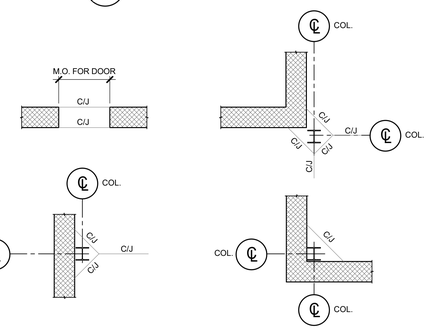


11 S-301 **TYPICAL SLAB ON GRADE DETAIL**
SCALE: 3/4" = 1'-0"



10 S-301 **CONTROL JOINT DETAILS**
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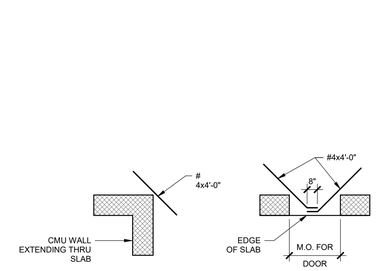
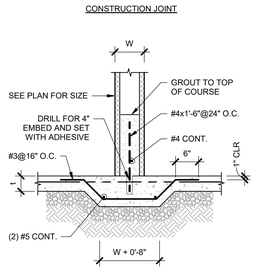


9 S-301 **SLAB PLAN @ RE-ENTRANT CORNER**
SCALE: 1/4" = 1'-0"



8 S-301 **TYPICAL THICKENED SLAB DETAIL**
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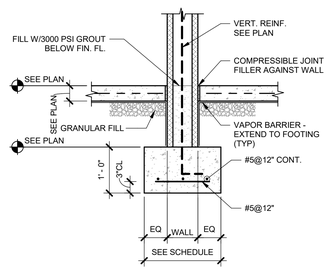

7 S-301 **INTERIOR WALL FOOTING DETAIL**
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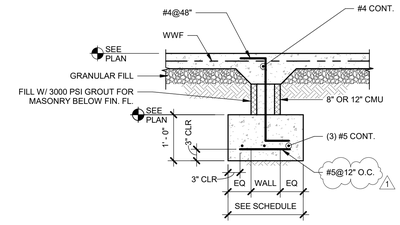
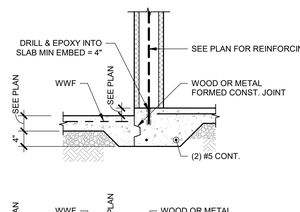
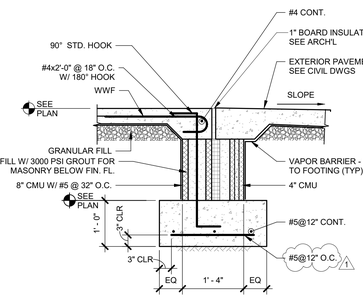


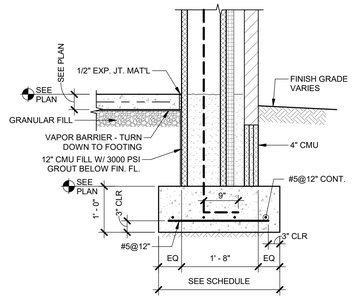
6 S-301 **TYPICAL INTERIOR DOOR OPENING**
SCALE: 3/4" = 1'-0"



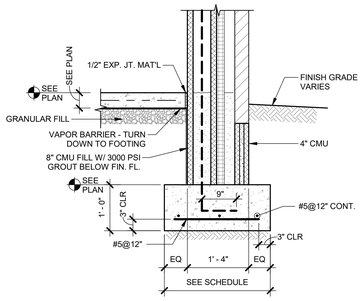
5 S-301 **TYPICAL DEPRESSED SLAB**
SCALE: 3/4" = 1'-0"



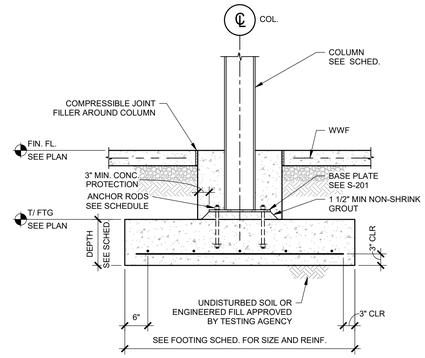
4 S-301 **TYPICAL EGRESS DOOR & OVERHEAD DOOR OPENING**
SCALE: 3/4" = 1'-0"



3 S-301 **12" CMU EXTERIOR WALL FOOTING DETAIL**
SCALE: 3/4" = 1'-0"



2 S-301 **8" CMU EXTERIOR WALL FOOTING DETAIL**
SCALE: 3/4" = 1'-0"



1 S-301 **STEEL COLUMN FOOTING DETAIL**
SCALE: 3/4" = 1'-0"

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JOHN W. CARPENTER PROFESSIONAL ENGINEER 037412 TIMOTHY K. WILTON 6-12-24

CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC, 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	ADDENDUM #3
	06/12/2024	BID DOCUMENTS

ISSUE DATE: 06/12/2024
PROJECT #: 23.08.034
DRAWN BY: AS
CHECKED BY: TH

FOUNDATION DETAILS

S-301

ADA AND LEGAL DISCLAIMER: This document is intended to comply with the requirements of the Americans with Disabilities Act (ADA). However architects and engineers are not licensed to interpret laws or give advice concerning laws. The owner should have this document reviewed by his attorney to determine if it complies with ADA and other laws.

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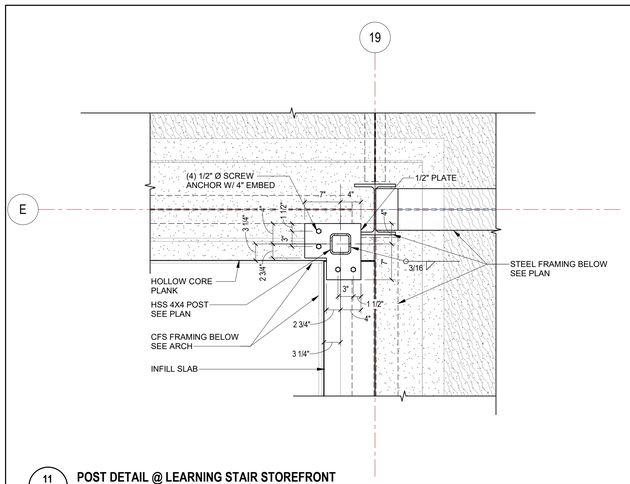
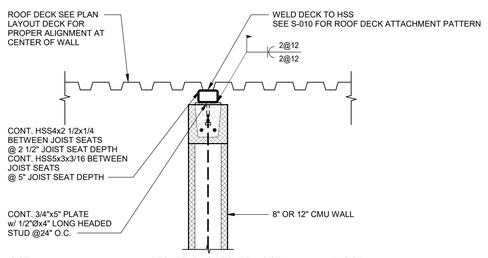
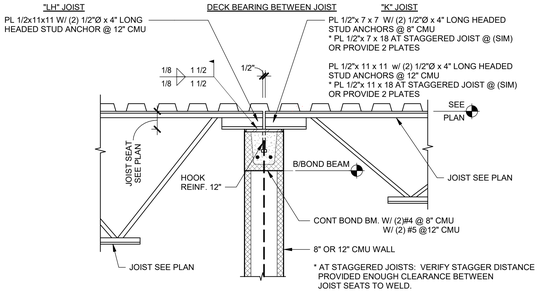


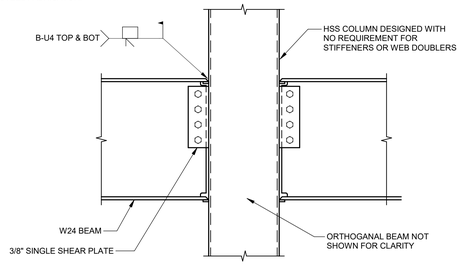
11 POST DETAIL @ LEARNING STAIR STOREFRONT
S-405 SCALE: 1" = 1'-0"



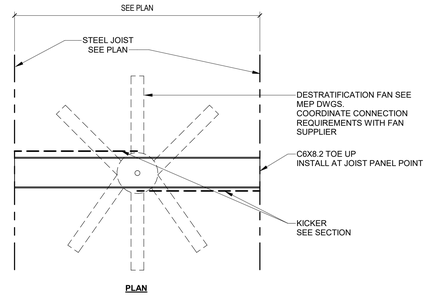


9 JOIST BEARING DETAIL @ ROOF
S-405 SCALE: 1" = 1'-0"

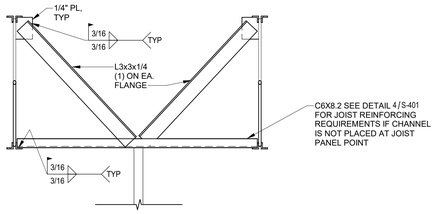
NOTE: THESE MOMENT CONNECTION TYPICAL DETAILS APPLY FOR CONNECTIONS WITH UP TO 10º OF SKEW. SEE PLAN FOR LOCATIONS OF MOMENT CONNECTIONS. MOMENT CONNECTIONS SHALL BE DESIGNED BY STEEL FABRICATOR.



5 TYPICAL MOMENT CONNECTION
S-405 SCALE: 1" = 1'-0"



PLAN

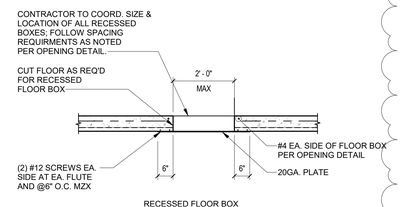


SECTION

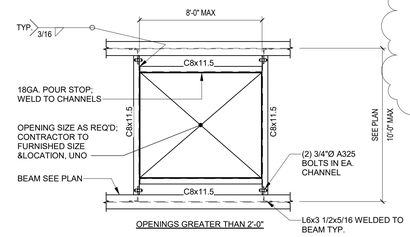
10 DESTRATIFICATION FAN SUPPORT DETAIL
S-405 SCALE: 1" = 1'-0"

DECK PERPENDICULAR DECK PARALLEL

8 TYPICAL COMPOSITE SLAB SUPPORT @ CMU WALL
S-405 SCALE: 1" = 1'-0"



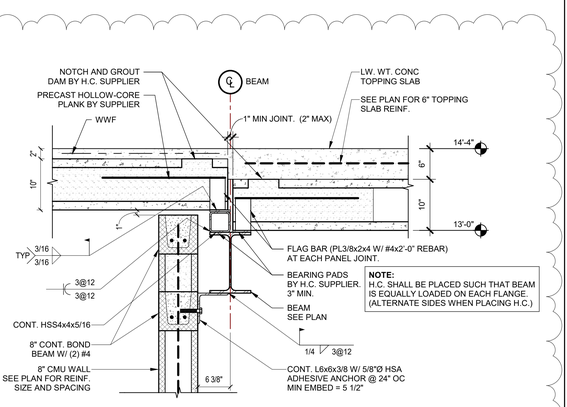
RECESSED FLOOR BOX



OPENINGS GREATER THAN 2'-0"

NOTES:
1. PROVIDE REINFORCING AROUND ALL DUCT PENETRATIONS, CHASES, ELECTRICAL BOXES PLUMBING PIPES , AND OTHER OPENINGS IN SLABS. FOR OPENING LARGER 2'-0"x2'-0".
2. OPENING THAT ARE SPACED CLOSER THAN (2) TIMES THE OPENING SIZE SHALL BE CONSIDERED ONE OPENING.
3. MINIMUM CLEAR DISTANCE BETWEEN OPENING IS 1'-0"
4. OPENINGS GREATER THAN 2'-0" NOT SHOWN ON STRUCTURAL DWGS. REQUIRE APPROVAL FROM THE ENGINEER OF RECORD.

7 OPENING IN SLAB
S-405 SCALE: 1/2" = 1'-0"

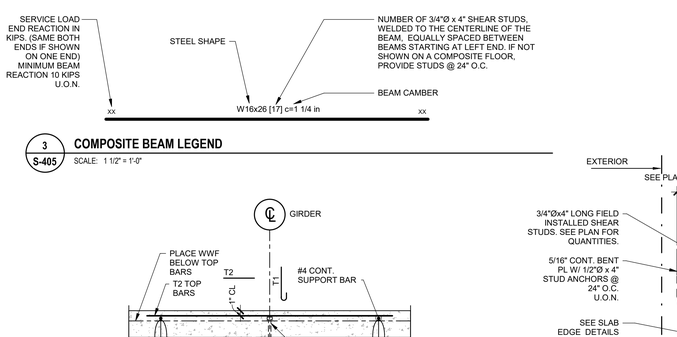


NOTE: H.C. SHALL BE PLACED SUCH THAT BEAM IS EQUALLY LOADED ON EACH FLANGE. (ALTERNATE SIDES WHEN PLACING H.C.)

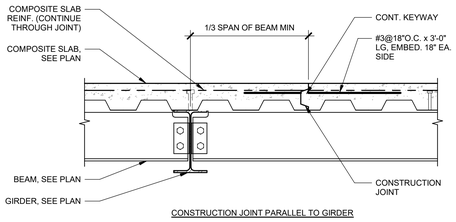
12 HOLLOW-CORE DETAIL
S-405 SCALE: 1" = 1'-0"

NOTES:
1. PROVIDE REINFORCING AROUND ALL DUCT PENETRATIONS, CHASES, ELECTRICAL BOXES PLUMBING PIPES , AND OTHER OPENINGS IN SLABS, FOR OPENING FROM 10"x10" (OR 10'Ø) TO 4'-0"x4'-0" (OR 24"Ø).
2. MINIMUM CLEAR DISTANCE BETWEEN OPENING IS 2'-0"
3. ALL OPENINGS 10" TO 2'-0" MAY NOT BE SHOWN ON STRUCTURAL DWGS.
4. OPENINGS GREATER THAN 2'-0" NOT SHOWN ON STRUCTURAL DWGS. REQUIRE APPROVAL FROM THE ENGINEER OF RECORD.
5. OPENING FOR DUCT
   1. RUN DECK THRU OPENING AREA
   2. FORM OPENING
   3. POUR SLAB
   4. CUT DECK OUT AFTER CONCRETE HAS ATTAINED DESIGN STRENGTH.

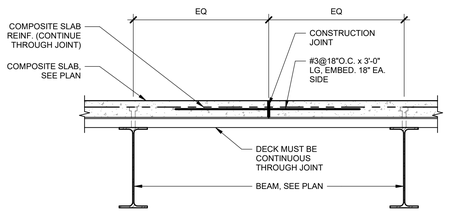
6 STEEL POST TO TRANSFER BEAM CONNECTION
S-405 SCALE: 1" = 1'-0"



3 COMPOSITE BEAM LEGEND
S-405 SCALE: 1 1/2" = 1'-0"



CONSTRUCTION JOINT PARALLEL TO GIRDER



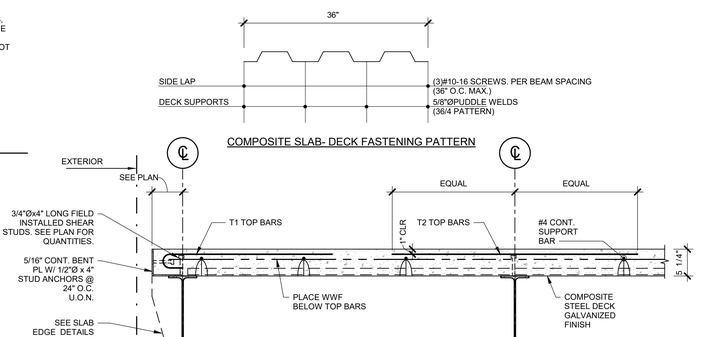
CONSTRUCTION JOINT PARALLEL TO INFILL BEAMS

NOTE: CONTRACTOR SHALL SUBMIT LOCATIONS OF ALL CONSTRUCTION JOINTS FOR APPROVAL PRIOR TO CONSTRUCTION AND FABRICATION.

4 TYPICAL CONSTRUCTION JOINTS IN COMPOSITE DECK
S-405 SCALE: 1" = 1'-0"

NOTES:
1. DO NOT PAINT TOP SIDE OF TOP FLANGE OF BEAM.

2 TYP. COMPOSITE GIRDER DETAIL
S-405 SCALE: 1" = 1'-0"



NOTES:
1. DO NOT PAINT TOP SIDE OF TOP FLANGE OF BEAM.
2. COMPOSITE SLABS HAVE BEEN DESIGNED AS "UNSHORED" CONSTRUCTION.
3. DECK SHALL BE CONTINUOUS OVER 2 OR MORE SPANS. TYP.
4. CONCRETE OVERAGES IN ELEVATED DECK POURS. MAYBE CALCULATED BY THE CONTRACTOR FOR BEAM DEFLECTIONS L/300 ADDITIONAL DEFLECTIONS DUE TO DECK DEFLECTIONS PER SDI SHOULD BE INCLUDED.

1 TYP. COMPOSITE BEAM AND SLAB DETAIL
S-405 SCALE: 1" = 1'-0"

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CONSTRUCTION DOCUMENTS

PAMLICO COUNTY
PAMLICO 6-12 SCHOOL
601 Main Street, Bayboro, NC, 28515

ENERGY STAR PARTNER

No.	Date	Description
1	07/25/2024	ADDENDUM #3
	06/12/2024	BID DOCUMENTS

ISSUE DATE: 06/12/2024
PROJECT #: 23.08.034
DRAWN BY: AS
CHECKED BY: TH

STEEL FRAMING DETAILS

S-405

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Pamlico County School 6-12

ITEM #	REQUEST DATE	REQUEST LOCATION Plans/Spec/Bid Manual	QUESTION	RESPONSE	RESPONDER	ANSWER DATE	TRADE/SCOPE	REQUEST BY
1	6/25/2024	Plans	Scope of work states to include Commercial Laundry Equipment and Residential Equipment. Is there drawings and equipment schedules with indicating these items and the quantities?	There will be no schedule provided. See Spec Section 11 21 73.10 for Commercial Laundry Equpment. BOD is provided.	SFLA	7/2/2024	BP1140	Singer Equipment
2	6/26/2024	Scope	Reviewing the scope of work for BP1140, I see it calls for this bid package to be responsible for the 11 27 73.10 Commercial laundry spec section, and the 11 30 13 residential spec section. We are not a laundry or a residential equipment dealer, and both fall outside of our wheelhouse of work. Can these spec sections be moved to the BP0150 general trades scope?	No, the 11 27 73 (Commercial laundry spec section) and the 11 30 13 (residential equipment) will not be moved to BP0150 General Trades Scope.	Metcon	7/12/2024	BP1140	11400 - Food Service
3	6/26/2024	Scope	Line 32 in the BP1140 scope of work states that this scope of work is responsible for final connections. Final connections are clearly indicated by MEP trades in the other scopes of work and on E-501, P-408, and FS Drawings. Please confirm final connections are by others.	Electrical contractor will bring power to the location of the appliance, each subcontractor is responsible for making their final electrical connection at the appliance.	Metcon	7/12/2024	BP1140	11400 - Food Service
4	6/26/2024	Scope	Line 33 in the BP1140 scope of work states that this scope of work is responsible for kitchen exhaust fans, and make-up air units. These are indicated in the 11 40 00 specs as by mechanical (page 1) and listed on M-003 as by the MC. M-003 also indicates that the MC is responsible for the hood, fire suppression system, and fans. Please confirm that the MC is responsible for the exhaust and make-up air units for the kitchen. Also please verify who is responsible for providing and installing the hood and fire suppression system.	MC is responsible for the hood, exhaust and make-up air units for the kitchen. Fire Suppression Contractor will be responsible for the hood fire suppression system. (line 33 on the Food service equipment Scope will be deleted and added to the Mechanical Scope)	Metcon	7/12/2024	BP1140	11400 - Food Service
5	6/26/2024	Specifications	Spec 123553.19 calls for white oak and red oak in the spec. Which veneer is desired? Red oak is a standard veneer while white oak will be much more costly.	Red Oak. Specification to be revised.	SFLA	6/27/2024	BP1230	Nycom
6	6/26/2024	Specifications	Spec 123553.19 calls for the back of doors and interiors of the cabinets to be stained. Please confirm this is required and the added cost should be included.	This is required.	SFLA	6/28/2024	BP1230	Nycom
7	6/26/2024	Drawings	Section 101400 Signage - 2.3 Room Identification Signs 15. C. “Refer to Signage Schedule”. Please provide a “Signage Schedule” correlating with the signage elevations detailed on 1/A-520.	Specifications will be revised. Sign Schedule is not provided. Refer to drawings for all sign locations. We will issues revision to the documents to include additional general notes for signage. Note will include but not be limited to " Provide Signage at all interior door locations. Rooms with more than one access point shall require signage at each location."	SFLA	7/2/2024	BP1014	AOA Signs
8	6/26/2024	Drawings	Section 101400 Signage - 2.6 Dimensional Letter Signs C. 6. Copy List does NOT include Copy: “Pamlico County Middle School” (5/A-423) Please confirm the copy “Pamlico County Middle School” detailed on drawing A-423 is required.	This is required. Specifications to be revised.	SFLA	7/2/2024	BP1014	AOA Signs
9	6/26/2024	Scope	Line 11 of the carpet/resilient scope BP0960 under trade specific section notes that resilient athletic flooring to be provided by this contractor. The Athletic flooring scope sheet BP0964, however, lists the resilient athletic flooring spec section as being included in this package with the wood athletic flooring. Does the resilient athletic flooring belong in the carpet/resilient scope, or with the wood athletic flooring scope?	Resilient athletic flooring belongs in the wood athletic flooring scope. (Remove line 11 of BP0960)	Metcon	7/12/2024	BP0960	Bonitz
10	6/27/2024	Logistics	Will there be any additional layout areas available for Conex’s/ storage? Describe logistics for employee parking?	There will be 2 employee parking areas that will have extra conex laydown area. In addition to that there will be more storage and lay down area by the job site trailer and towards the back of the new building. Please refer to the logistics plan.	Metcon	6/27/2024	BP0150	Pre-Bid
11	6/27/2024	Drawings/Scope	Regarding the canopy foundations , Will you need this supported by the ground improvement (aggregate pier scope)?	No, ground improvement will only be used around the foundations of the building.	Metcon	6/27/2024	BP1073/3160	Pre-Bid
12	6/27/2024	Bid Manual	What is the process for becoming a pre-qualified tier 1 subcontractor for this project?	Subcontractor will have to fill out prequalification forms A and B, and go through the review process. Please call Ms. Tina for more information.	Metcon	6/27/2024		Pre-Bid
13	6/27/2024	Specifications	Will duct cleaning be required per spec or only if it fails cleanliness test?	Duct cleaning will be required per the spec.	Metcon	6/27/2024	BP2300	Pre-Bid
14	6/27/2024		Who will be setting Trimble points, will they be in each room as needed?	Tremble points will not be set in each room. Control points at strategic points around the building will be set by Construction Manager to be used by subcontractors for doing their own layout.	Metcon	6/27/2024		Pre-Bid
15	6/27/2024	Bid Manual	Is there a preliminary phased construction schedule at this time?	Not at this time, a preliminary schedule will be provided in an upcoming addendum.	Metcon	6/27/2024		Pre-Bid

Pamlico County School 6-12

ITEM #	REQUEST DATE	REQUEST LOCATION Plans/Spec/Bid Manual	QUESTION	RESPONSE	RESPONDER	ANSWER DATE	TRADE/SCOPE	REQUEST BY
16	6/27/2024	BIM	Have you made a decision regarding BIM? Will sprinkler and cable tray be involved?	The sprinkler subcontractor will provide their own design and 3D drawings done with Auto desk, Revit or Navisworks. The completed sprinkler design will be used for coordination by the BIM Manager. Please refer to Bid package #2100 for fees associated with BIM coordination. Note, the BIM coordination allowance is not to be used against the subcontractor's time to build their 3D model. The BIM allowance is set to pay for the coordination done by the BIM Manager.	Metcon	6/27/2024		Pre-Bid
17	6/27/2024	Drawings	Regarding the structural details, most connections show flag bars, can alternate details be provided to lower the cost for welding?	Architect states this could be possible. Question to be sent as an RFI for further discussion with the Structural Engineer. A substitution request form will need to be submitted.	Metcon	6/27/2024		Pre-Bid
18	6/27/2024	Logistics	Please provide an equipment and crane access plan around the footprint of the new school, will there be access between the existing school and the new construction?	There will be crane and equipment access all around the building with the exception of a small area in the north-east, were the old building and the new building are closer together. Subcontractor will have to plan accordingly to complete their scope of work. Geotech reports will be made available for subcontractors to use while doing the crane pad and lift plan.	Metcon	6/27/2024		Pre-Bid
19	6/27/2024	BIM	If Metcon does the BIM, does the $35,000 allowance need to be included in the cost?	Pre-coordination has been done, but full coordination will occur when all shop drawings are incorporated into the BIM model. If your scope of work calls for a BIM allowance, then it needs to be included in the bid.	Metcon	6/27/2024		Pre-Bid
20	6/27/2024	Scope	Is there any additional information that can be provided for the photovoltaic alternate scope of work will be included in the build? Client interest?	As any alternate, after all the bids come in, the owner reserves the right to choose alternates at their discretion.	Metcon	6/27/2024		Pre-Bid
21	6/27/2024	Scope	Are the current bid packages amendable? There are items within Div. 10 package that traditionally fall under other scopes i.e.. lab equipment and ark kilns. Typically, we see visual displays and metal storage solutions within the specialties however they are separate on this project.	The scopes of work can be amendable depending on the situation and subcontractor feedback. There are no visual displays in this project and the kilns are owner provided.	Metcon	6/27/2024	BP1020	Pre-Bid
22	6/27/2024		Would proven clearance for entire crews to be able to work on military installations (DBIDS badges) meet your security requirements? If not, would background check costs be passed to the subcontractors?	This project will not accept any workers listed in the State Sex Offender and Public Protection Registration Program. For more information please see section D (Standard scope inclusions), item 18 of the scopes of work. Any expense should be included in your bid number, if any.	Metcon	6/27/2024		Pre-Bid
23	6/27/2024	BIM	Do the submittal drawings have to be in BIM?	Submittal drawings can be in 2D.	Metcon	6/27/2024		Pre-Bid
24	6/27/2024	Scope	Will there be an audio-visual package for this project?	No, there will not be an audio-visual package for this project.	Metcon	6/27/2024	BP1152	Pre-Bid
25	6/27/2024	Bid Manual	When will we receive bid documents?	Bid documents have been released to all certified, pre-qualified subcontractors thus far. If you have not received the documents please contact Andrea Avery.	Metcon	6/27/2024		Pre-Bid
26	6/27/2024	Bid Manual	Do the minority business listed in Affidavit A have to be HUB certified?	Yes, they must be pre-certified.	Metcon	6/27/2024		Pre-Bid
27	6/27/2024		The bid bond on the bid manual shows 10%. Can you confirm that this is correct and it's not 5%?	The bid bond for this project is 10%.	Metcon	6/27/2024		Pre-Bid
28	6/27/2024	Logistics	Crane access, will there be only one side access? Looking at the layout, crane access will be tight, and a bigger crane will be needed due to the reach.	There will be multiple access points for cranes to come in, please see the logistics plan and plan accordingly.	Metcon	6/27/2024		Pre-Bid
29	6/27/2024	Scope	Can you state the requirement for ground improvement regarding fire suppression tank?	In preparation for the installation of the fire suppression Tank, deep stone column foundations will need to be installed before concrete foundations can be poured.	Metcon	6/27/2024	BP3161/0780	
30	6/28/2024	Plans	General Note #2 on the Enlarged Plans and Elevations pages A-408 through A-413 states that only rooms "Chemistry 1718, Prep 1708B, Prep 2230B, and MS Science 2230" receive wood lab casework, however the elevations are showing wood lab casework in additional rooms not called out on this list. Also, room #1718 is actually shown as a Biology Lab and not Chemistry. There are also multiple other Lab rooms that receive lab equipment (drying racks, safety stations, goggle cabinets, etc.) that aren't on this list of rooms that receive lab casework. Can you please clarify which rooms are to receive wood lab casework?	General Note Should Read: "Chemistry 1710, Prep 1708B, Prep 2232B, and MS Science 2230" receive wood lab casework. Wood casework is indicated correctly on elevations. There is an error on sheet A-413. The sheet is referencing incorrect room numbers in the view titles. (MS Science 2225 to be MS Science 2230; PREP 2225B to be PRE 2232B) There are only 2 classrooms and 2 prep rooms with wood lab casework and phenolic counter tops.	SFL+a	7/2/2024	BP1230	NYCOM
31	6/28/2024	Scope	BP1020 Specialties mentions Bike Racks and Fire Extinguisher cabinets but does not include those specifications. Are these included in this bid package?	For Fire Extinguisher cabinets specifications please look at Spec Section 10-44-00. Bike racks are not included in this project.	SFL+a	7/2/2024	BP1230	NYCOM
32	6/28/2024	Plans	Finish Plan A711A doesn't note shades at 1111 (ext. window) nor at 1102 (ext. /int windows). Do these areas receive shades? Please confirm.	Provide Window shade in at Ext. Window 1111 only.	SFL+a	7/2/2024	BP1220	CWT

Pamlico County School 6-12

ITEM #	REQUEST DATE	REQUEST LOCATION Plans/Spec/Bid Manual	QUESTION	RESPONSE	RESPONDER	ANSWER DATE	TRADE/SCOPE	REQUEST BY
33	6/28/2024	Plans	Finish Plan A715E is noting WT1 shades at doors @ rooms 1502, 1504, 1506. Are shades required at doors?	No, they are not.	SFL+a	7/2/2024	BP1220	CWT
34	6/28/2024	Bid Manual	Do all bid packages require bid bond?	No, Bid Bonds are only required for packages $100,000.00 or grater. Bid manual has been updated.	Metcon	7/12/2024	BP1220	CWT
35	7/1/2024	Plans	Specifications give an allowance for brick, but the elevations call out a basis-of-design manufacturer and color. Should we just use the allowances as stated?	Use allowance to provide brick that matches the basis of design. Substitute requests will be reviewed to match Basis of Design.	SFL+a	7/2/2024	BP0400	Southeastern Contracting
36	7/1/2024	Plans	A010 wall type 6B1S is hatched like CMU but this is definitely metal stud, correct?	Yes! That is a graphic error. This will be corrected in an addendum.	SFL+a	7/2/2024	BP0400	Southeastern Contracting
37	7/1/2024	Plans	Will the brick allowance cover the special shapes such as shown in 9/A511?	No. Bid as drawn.	SFL+a	7/2/2024	BP0400	Southeastern Contracting
38	7/1/2024	Scope	Masonry scope item 41d refers to surface mounted expansion joint covers, but this is also scoped in BP0710 item 11d. Please confirm that this work will be provided by BP0710.	Surface mounted expansion joint covers and gasket will be removed form BP0710 (item 11d).	Metcon		BP0400	Southeastern Contracting
39	7/1/2024	Plans	Detail 2/A503 shows foam insulation below finished floor. If we can install an equivalent thickness of rigid foam board at this location, we can install the outer and inner masonry wythes at the same time, thus eliminating any chance of debris or mud getting on the foundation. Please advise if this is acceptable.	No. Bid as drawn.	SFL+a	7/2/2024	BP0400	Southeastern Contracting
40	7/1/2024	Scope	Will a mockup be required on this project? If so, can we get details?	Yes.	SFL+a	7/2/2024	BP0400	Southeastern Contracting
41	7/1/2024	Specifications	Lockers MFG substitution request.	Not Complete - Provide Request per Specs.	SFL+a	7/1/2024	BP1050	Elite Storage Products
42	7/2/2024	Specifications	The Div. 9 Specifications call out “Pre-molded” outside rubber corner bases. Basis of design is Flexco and they do not make a pre-molded corner base. There is nothing in the scopes stating that the pre-molded is required. Can you please confirm if pre-molded can be excluded (otherwise, Flexco cannot be the basis of Design)?	Flexco will not be the BOD for the Vented Wall Base. Johnsonite will be the BOD for the Vented Wall Base. Flexco will remain the BOD for Non Vented Wall Base. - Specs and Drawings will be updated.	SFL+a	7/12/2024	BP0960	Bonitz
43	7/8/2024	Scope	Please clarify line item from tile scope of work: 38. The subcontractor is required to utilize a robotic total station (similar to that offered by Hilti, Trimble, or Leica) for layout, backchecking, verification before installation, and documenting as-built conditions.	Item 38 on the Tile Scope of Work refers to the use of a robotic total station which measures both, vertical and horizontal angles and slopes. This will ensure accuracy of the final installed product.	Metcon	7/12/2024	BP0930	Concordia
44	7/8/2024	Scope	I am wanting to know if we can do a switch from Sheet Applied Air Barrier to Fluid Applied Air Barrier for Spec 072700. Looking at using Henry Airbloc 17MR. I can submit a technical data sheet if needed	We would like to be approved as an equal for the products in spec section 09840+C52:J580 Acoustic Room Components for Pamlico County School	SFL+a	7/12/2024	BP0750	Eskola
45	7/8/2024	Plans	Architectural details do not show any fireproofing surrounding structural steel framing, however; on G-005, UL Design No. D925 shows fireproofing field applied to steel beams. Please clarify on plans, section’s and details in the building framing of the need for this fireproofing.	Note on G-002 Building Code Summary in the Fire Protection Requirements Table states that: ! NOTE: FLOOR ASSEMBLY - D925 1/G-005 IS FOR RATED ALCOVE LIDS ONLY. This UL detail is for the solid concrete lid only. No steel structure is rated in any other locations.	SFL+a	7/12/2024	BP0510	CM Steel
46	7/8/2024	Plans	The Aluminum Roof Ladders shown on 2/A-445 are not listed in the BP0510 Scope. What package do they belong to? Or, Are they marked incorrectly, and should be prime painted steel ladder?	They are in the wrong scope section Metcon to correct.	Metcon	7/12/2024	BP0510	CM Steel
47	7/8/2024	Plans	Please clarify the conflicting Rail Metal Types as shown for Stair #7. Sheet A-443 Details 9 and 2.	Revisions will be made. Stair 1, 2, 7 and 8 in mechanical and fire stair areas should have painted steel handrails and guardrails.	SFL+a	7/12/2024	BP0510	CM Steel
48	7/9/2024	Specifications	I am going through the specs on this project and have found a discrepancy in section 27.00.00. The first sentence in the summary states to use “category 6A” and the rest of the specifications / drawings refer to category 6. What direction would you like me to take?	CAT 6A shall be used as indicated on T-001 . The corrected spec shall be distributed in the bid addendum.	SFL+a	7/12/2024	BP2600	NC Sound of Goldsboro
49	7/10/2024	Specifications	Confirm which are lab fridges (by spec 115300) and which are residential fridges (by spec 113013) as the plans do not distinguish between the two.	Lab fridges are located in science prep rooms only.	SFL+a	7/12/2024	BP1230	Nycom
50	7/10/2024	Plans	Ref to 1/A-111F.1. The structural plan 1/S-101F does not match. Structural plan is missing the Curtain Wall Openings as shown on the Arch. Floor Plan along grid G.	Along CL- G there are no Curtain Walls on Level 1. All glazing on L1 on CL-G are SF. Curtain Walls type 7 and 8 are shown on A-112F.1. They are shown only on Level 2.	SFL+a	7/12/2024	BP0510	CM Steel
51	7/10/2024	Plans	The only reference to concrete equipment pads that I see is in the Mechanical General Notes on sheet M-001 and it only states the requirement to confirm pad sizes, and locations in relation to floor drains. Typically, the mechanical contractor will coordinate pad locations to be installed by the concrete contractor. Is that the direction we are going on this project?	Yes, coordination with mechanical contractor will be needed for installation of concrete equipment pads.	Metcon	7/12/2024	BP2300	TA Woods
52	7/10/2024	Schedule	Due to the tight 45 day schedule on the demo/abatement can the abatement be completed over holidays and breaks during the school year?	Yes, abatement can be completed over summer breaks and holidays. Please refer to schedule for more details.	Metcon	7/12/2024	BP0240	DH Griffin
53	7/10/2024	Plans	Will SFLA and the Engineer of Record provide a Structural Shear Wall plan, Elevations, Wall Sections and Details for this project.	We will provide plan views denoting shear wall locations and corresponding sections/details. Wall elevations will not be provided. This will be incorporated in a future Addendum.	Bennett & Pless	7/12/2024	BP0510	CM Steel

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54	7/10/2024	Specifications	Substitution Request for Wall Panels	Submitted for review - pending approval	SFL+a	7/12/2024	BP0950	Acousti
55	7/10/2024	Specifications	Spec section 098400 2.3 B 7 d 1) states Factory applied paint. Just below it for 2) states Field Applied. Are the Cementitious panels to be factory or field painted?	Field Painted. Specification will be updated to reflect.	SFL+a	7/12/2024	BP0950	Acousti
56	7/11/2024	Specifications	Please advise on missing specification 2.7 COMMUNICATIONS COPPER HORIZONTAL CABLING A. Comply with requirements for identification products in Section 271513 "Communications Copper Horizontal Cabling."	Specification to be provided.	SFL+a	7/12/2024	BP2700	Strategic Connections
57	7/11/2024	Specifications	We would like to be approved as an equal for the products in spec section 098400 Acoustic Room Components for Pamlico County School	Not Complete - Provide Request per Specs.	SFL+a	7/12/2024	BP0950	AVL
			STOP OF ADDENDUM 1					
58	7/11/2024	Plans	ADA Ambulatory stalls require (2) 42" Grab bars and (2) 18" Grab Bars to meet the guidelines however the plans only show (2) 42" Grab Bars, are those stalls intended to meet the ADA Ambulatory stall requirements?	Yes.	SFL+a	7/12/2024	BP1020	Precision Walls
59	7/11/2024	Plans	The Athletic lockers are specified to be 12x15x72" however the finish legend states the measurements to be 15x15x72" and the page showing the lockers A-415 states 12x36" dimensions. What is the correct sizing intended to the athletic style lockers.	12x36 is the correct size. This will be corrected.	SFL+a	7/12/2024	BP1050	Precision Walls
60	7/11/2024	Plans	Metal Storage Shelfing is shown however is not listed as a scope of work within BP1050 Storage Specialty, please confirm which owns this scope of work.	Yes. It is in the scope of work.	SFL+a	7/12/2024	BP1050	Precision Walls
61	7/11/2024	Plans	The mirrors shown in the Weight Room on page A-415 are marked as MIR2, please confirm these are intended to be stainless framed, tempered glass mirrors such as in the bathrooms.	No. We will revise the mirror and issues an update in the Addendum.	SFL+a	7/12/2024	BP1020	Precision Walls
62	7/11/2024	Specification	Based on the location and design criteria, this project appears to be in and require glass and glazing systems that are rated for hurricane impact resistance to wind borne debris. However the specified Exterior Storefront Framing in spec. sec. (084113), Curtain Wall Framing in (084413) basis of design(s), and the insulated glass make ups listed in spec. section 088000 are not rated for hurricane impact resistance. Can we get confirmation that hurricane impact resistant to wind borne debris is or is not required for this project? If it is required we will need insulated glass makeups Basis of designs specified that meet this impact requirement.	Based on the building location and Risk Category, we are not in a wind-borne debris region.	SFL+a	7/12/2024	BP0840	Clayton Commercial
63	7/11/2024	Scope	The Enlarged Science Lab Plans & Elevations Schedule on sheets A-408 through A-413 indicates Goggle Cabinet, Drying Rack, and Teacher's Display are OFOI items. Please confirm	This is to be Contractor Provided Contractor Installed.	SFL+a	7/17/2024	BP0840	Clayton Commercial
64	7/11/2024	Plans	A-111E.1 there appears to be 4 locations where interior walls abut into storefront framing (SF29). Will a wall end cap be required at these locations? If so will it be brake metal or a special assembly such as a mullion mate? (if an assembly we will need a spec. & basis of design for this product) Who will be responsible for furnishing and installing these wall end caps?	See detail 7/A-512 for gyp wall cap information. Note Acoustic partions closers are included in detail. Fire rated wall endcaps shall be furnished by BP0920.	SFL+a/Metcon	7/17/2024	BP0840	Clayton Commercial
65	7/11/2024	Scope	Who will be responsible for installing the auto swing door operators at aluminum door locations?	Material to be supplied by doors and hardware and installed Electrician.	Metcon	7/17/2024	BP0840	Clayton Commercial
66	7/11/2024	Scope	Curtain Wall Elevations CW04, CW06 and CW08 have louvers installed in them, please confirm that these louvers will be furnished by BP2300 and that BP0840 will install them into the curtain wall framing. All other louvers on the project are furnished and installed by BP2300.	Louvers are to be furnished by BP2300 (HVAC) and to be installed by BP0840 (Glass and Glazing) when they are on a curtain wall framing. Coordination is required.	Metcon	7/17/2024	BP0840	Clayton Commercial
67	7/11/2024	Plans	Door #'s: S-S1-B, 2-S4-B, 2-S5-B, C1800, & E1301-B Call for fire rated aluminum frames. Please provide a spec. and basis of design for the aluminum fire rated frames.	All rated doors are to have Hollow Metal Frames. Schedule to be updated.	SFL+a	7/17/2024	BP0840	Clayton Commercial
68	7/11/2024	Plans	Door #'s: C1500C, C1600, C1600A, and C1800 calls for fire rated doors lites, please provide a spec. and basis of design for the fire rated glass.	Spec will be provided in a forthcoming addendum.	SFL+a	7/17/2024	BP0840	Clayton Commercial
69	7/11/2024	Scope	Item 9: "Protecting work until Owner accepts", to what extent (how much of each frame) will the glass and glazing need to be protected, and what will be the acceptable means for this protection?	Sometimes during the installation of adjacent glassing the frames of the already installed get dented of scratched. What we are looking for is for protection against scratches and dents on the frames. Please use any means to ensure a dent and scratch free final product to the owner.	Metcon	7/17/2024	BP0840	Clayton Commercial

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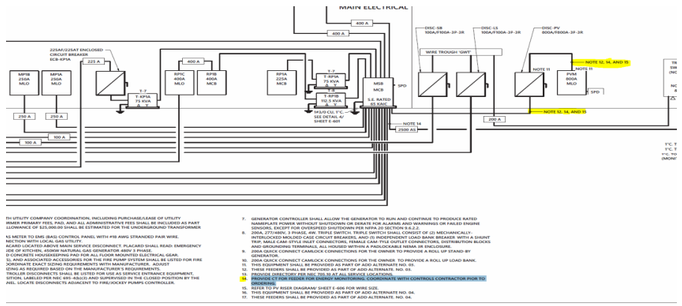
70	7/11/2024	Scope	Item 14: "provide & Maintain temp. wd. or mtl. framed plastic covering infills at all door window openings", With the amount and qty. of openings on this project it would be very expensive to build and maintain framed temp. infills for every opening, at some locations due to the size of the openings it wouldn't be practical either. Please clarify the true amount of openings that BP0840 will need to provide temp. infills for. (will the openings be released in phases so temp. infills can be reused in other areas as windows are installed and other rough openings are built?	Temporary infills will need to be place in an as needed basis during the dry-in portion of construction. Rotation of material is acceptable.	Metcon	7/17/2024	BP0840	Clayton Commercial
71	7/11/2024	Scope	Item 26: "provide temp. lockable doors at all aluminum door openings for construction use", however in BP0810 item #4d & 5, Calls for Temp doors at "ALL exterior doors of the building" and that BP0810 will coordinate with Storefront Subcontractor to ensure the temp. doors and hinges will not damage aluminum frames, so it seems that BP0810 will be responsible for all temp. doors on the project and that Item #26 in BP0840 can be deleted from that Scope of Work, is that correct?	Each subcontractor will be responsible for their own temporary doors. BP0840 will be responsible for temporary doors in aluminum frames and BP0810 will be responsible for all other doors.	Metcon	7/17/2024	BP0840	Clayton Commercial
72	7/11/2024	Scope	Item 29: If Applicable, Include polycarbonate panels in gym windows, do not see any reference to polycarbonate glazing in the 088000 specs. or in the glazing schedules on A-602,A-621 or A-622, so it seems that this is not a requirement for this project. Please confirm that this is the case and remove this line item from BP0840 SoW to avoid confusion.	The statement "If applicable" answers this question. There are no polycarbonate panels in this project. If polycarbonate panels are added in the future, BP0840 is responsible for the change order.	Metcon	7/17/2024	BP0840	Clayton Commercial
73	7/11/2024	Plans C76:C84	Note 14 on the feeders from Panel PVM to PV Disconnect and PV Disconnect to MSB call for CTs. What is the purpose of these CTs? E701 	Energy monitoring through the BAS system	SFL+a	7/17/2024	BP4814	8MSolar
74	7/11/2024	Bid Manual	Since solar is part of Alternate 03, please confirm if bidders are required to provide a bid bond and the payment and performance bond.	Yes, if you place a bid for Alternate 3 (solar) and the amount is over $100,000 you will need to provide a bid bond payment.	Metcon	7/17/2024	BP4814	8MSolar
75	7/11/2024	Specifications	Substitution Requests:1 - Modules: Basis of design: Q Cell 480 W Proposed Substitution: Longi 540 W (datasheet attached) 2 - Inverters: Basis of design: SolarEdge 120KW Inverters Proposed Substitution: SMA 62.5 kW Inverters (datasheet attached) 3 - Rapid Shutdown Devices: Basis of design: SolarEdge Optimizers Proposed Substitution: RSD-D20s for SMA Inverters (datasheet attached)	Submitted for review - pending approval	SFL+a	7/12/2024	BP4814	8MSolar
76	7/12/2024	Plans	Sheet A-601: Doors 1502A-1504A-1506A-1510A-1512A-1514A-1516A-1602B are all indicated as door material “GLASS” but door type is indicated as “FG-Full Glass”. Also, hardware types for these doors would indicate a Stile and Rail door is to be used. Please review and clarify the correct Door Material & Door Type for these (8) entrances.	Door Material will be updated to ALUM (Aluminum), Refer to Door Legend for Associated Door Type. FG is shown correctly with stiles and rails as shown. Please note glass type for interior vs. exterior locations. We will provide additional notes for clarification on the drawings in Addendum 3	SFL+a	7/17/2024	BP0840	Glass Tech Commercial
77	7/12/2024	Plans	Sheet A-601: Virtually all interior door frames (F1-F2-F3) are indicated to be material type “ALUM” with “Wood” doors. However, the door schedule does not delineate which of the interior aluminum framing systems (Trifab 450 - 2” x 4-1/2” - Surface Mount or In Frame - 2” x 6” - Wrapped) is to be used for each door frame opening. -Please provide desired framing sizes, Head/Jamb/Sill details, and wall thickness for each (F1-F2-F3) interior aluminum entrance?	***A full review will be completed. Our intention for the In Frame system (IF) vs. Trifab system (TF) is indicated in the notes of the glazing schedule and in the storefront specifications. Masonry walls are to have TF system and Gypsum walls are to have IF systems unless noted otherwise. In a forthcoming addendum, we will provide a column in the door schedule that will indicate if an SF door is an In Frame system (IF) or a Trifab system (TF).***	SFL+a	7/17/2024	BP0840	Glass Tech Commercial
78	7/12/2024	Plans	Sheet A-601: Door 1718A is listed as material type “H.M.” door in an “ALUM” frame. Please review and clarify if this is correct.	HM door in a HM Frame is correct. We will correct in the drawings in a forthcoming addendum.	SFL+a	7/12/2024	BP0840	Glass Tech Commercial
79	7/12/2024	Plans	Sheet A-601: Doors 2-S1-B / 2-S4-B / 2-S5-B / C1800 / E1301-B are all indicated to be fire-rated entrances with wood doors but the framing material is indicated as “ALUM”. No aluminum manufacturer produces a fire-rated framing system, all systems are Hollow Metal, Steel, or a Steel-clad system. -Please review and advise on fire-rated entrance makeups and if necessary, provide a fire-rated entrance specification and basis of design? -Please clarify what scope of work is to provide Fire-Rated entrance framing?	See Item 67.	SFL+a	7/12/2024	BP0840	Glass Tech Commercial

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80	7/12/2024	Specifications	Specification 084113-084413 – Part 2.6 – Section A. – Finishes: indicates a Color Anodized Finish “As selected by the Architect from the manufacturer full range of options.” -Please provide the desired Anodized Finish Color for the aluminum storefront and curtainwall as these options all vary significantly in Cost and Material Availability.	Specification Will be updated to select: Clear Anodized in forthcoming Addendum.	SFL+a	7/12/24.	BP0840	Glass Tech Commercial
81	7/12/2024	Plans	Sheet A-621: Please confirm that the “SF” framing on this sheet is to be interior aluminum storefront type: In Frame -2” x 6” – Wrapped?	Per frame legend on A-621. SF - 6" Nominal Aluminum Interior Frame System is intended to be our BOD: In Frame Wrapped System.	SFL+a	7/12/2024	BP0840	Glass Tech Commercial
82	7/12/2024	Plans	Sheet A-621: Please confirm that the “SF.1” type interior aluminum storefront is to be: Trifab 450 - 2” x 4-1/2” Front- Set – Surface Mount?	Per frame legend on A-621. SF - 4 1/2" storefront non - thermally broken (Indicated with "x.1" indicator) are intended to be our BOD Trifab 450 2" x 4 1/2" front set system. Note that all 4 1/2" systems are noted on sheet A-621 with notes below for additional information in Addendum 3.	SFL+a	7/12/2024	BP0840	Glass Tech Commercial
83	7/12/2024	Specifications	Given the projects physical location, Kawneer (Basis of Design: Aluminum manufacturer) has requested written clarification and confirmation on whether or not the architect has determined if NCBC / IBC requires that this projects exterior aluminum curtainwall, storefront, and entrances be WIND-BORNE DEBRIS (Large & Small missile) Hurricane-Impact Resistant compliant for exterior framing and glazing.	Based on the building location and Risk Category, we are not in a wind-borne debris region.	SFL+a	7/12/2024	BP0840	Glass Tech Commercial
84	7/12/2024	Plans	Glazing type “ILG” does not appear to be tagged anywhere on the framing elevations. Please confirm its usage?	This glazing type has been removed from the project. Unused symbol removed in Addendum 3.	SFL+a	7/12/2024	BP0840	Glass Tech Commercial
85	7/12/2024	Plans	Sheet A-621: “SF11 & SF19.1” indicate a door type with a Cross Rail which is not found on the door schedule.	This is a graphic error. This will be corrected in a forthcoming Addendum.	SFL+a	7/12/2024	BP0840	Glass Tech Commercial
86	7/12/2024	Plans	Sheet A-601: Multiple SF/CW tags do not align with the correct frame to door location. (Ex. 1100-E indicates “SF06” / C1800A indicates “SF13” / Doors 1401 indicates “CW07” which are all windows without entrances.)	A full review of the SF and CW locations will be reviewed and revised in a forthcoming Addendum.	SFL+a	7/17/2024	BP0840	Glass Tech Commercial
87	7/12/2024	Scope	Could I get clarification between package 0510 and 0550? I assume 0550 will provide the Stainless Steel Ornamental Rail system shown on sheet A-441 and the railings in detail 9/A442, and 0510 will provide the stairs and the standard Steel Railings?	That is correct. BP0550 (Ornamental Metals) will provide the stainless steel ornamental railing system and BP0510 (Structural Steel) will provide the stairs and steel railing.	Metcon	7/17/2024	BP0550	Steel and Pipe
88	7/12/2024	Plans	Some rooms show name tag with different hatches, for e.g.: Room No's 1106,1111 etc.…show tag for LVT-2 and shows Hatch as LVT-1, room No's like 1114,1108 etc.… show tag as CPT-2 and hatch as CPT-1. Please clarify, what shall Superseed, Finish plan tag or Finish hatches.	This is a graphical error. This will be corrected in a forthcoming addendum.	SFL+a	7/17/2024	BP0960	John Systems
89	7/12/2024	Schedule	Demolition schedule states we have 3 weeks to complete demolition 6/15/2026 – 7/5/2026. During the site visit yesterday we were told that we only have 2 weeks to complete the demolition. Can we please clarify the schedule?	A schedule will be provided to identify dates and durations.	Metcon	7/17/2024	BP0240	DH Griffin
90	7/12/2024	Schedule	Are the bulbs/ballast removal included in the 7 day lite interior demolition occurring 3/30/2026-4/5/2026?	No, bulbs and ballast are not included on the soft demolition. Soft demolition will be for items that can be demolished/removed and keep the school operational until final demolition.	Metcon	7/17/2024	BP0240	DH Griffin
91	7/12/2024	Scope	Are we allowed to leave the VCT tile on the slab during demolition? The VCT can be crushed with the slab. Or will the VCT need to be removed from slab?	Vinyl Composit Tiles will need to be removed. During summer school breaks, soft demo such as VCT removal will be allowed to expedite demolition and abatement.	Metcon	7/17/2024	BP0240	DH Griffin
92	7/12/2024	Scope	Are there any restrictions on what hours/days we can work?	There are no restrictions on hours of operations.	Metcon	7/17/2024	BP0240	DH Griffin
93	7/12/2024	Scope	Are there any restrictions on the number of loads per day we can bring to Corey Harrison’s dump? Can he keep up with the large number of loads he will be receiving per day	No, there are no restrictions on the number of loads per day that can be delivered to Corey's Dump Site.	Metcon	7/17/2024	BP0240	DH Griffin
94	7/12/2024	Scope	Are there any restrictions on truck sizes at Corey Harrison’s dump?	There are no restrictions on truck sizes at Corey's Dump Site.	Metcon	7/17/2024	BP0240	DH Griffin

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95	7/12/2024	Scope	Are we allowed to start demo on the out buildings and ball fields prior to the demo start date?	Yes, demolition of the ball field and out buildings will be schedule right after NTP (at the beginning of the project). The rest of the demo will occur towards the end of the project.	Metcon	7/17/2024	BP0240	DH Griffin
96	7/12/2024	Scope	Can we keep the scrap metal or does it have to go to Corey Harrison's dump?	Yes you can keep the scrap metal, but stockpiling should not interfere with the schedule.	Metcon	7/17/2024	BP0240	DH Griffin
97	7/12/2024	Scope	Will liquidated damages remain $1000 per day?	Liquidated damages will remain $1,000 per day for all scopes with the exception of Demo and Site. For Demo and Site actual damages will be assessed in leu of liquidated damages.	Metcon	7/17/2024	BP0240	DH Griffin
98	7/12/2024	Scope	Can below grade foundations remain since this is being put back as parking/green space?	Below grade foundations will be demo'ed and haul away.	Metcon	7/17/2024	BP0240	DH Griffin
99	7/12/2024	Plans	Are there as-builts of the existing school? Specifically underground foundations?	***A floor plan will be released that indicates roof construction and wall construction diagrams. We have no drawing for underground foundations.***	SFL+a	7/17/2024	BP0240	DH Griffin
100	7/12/2024	Specification	Please confirm that aluminum 5" x 5" pocket boxes with closure plates are required in lieu of a standard front snap-on fascia.	***Please provide product data on related content for clarification on the question.***	SFL+a	7/17/2024	BP1220	Precision Walls
101	7/12/2024	Specification	The basis of design on the finish legend is Mermet. Mermet is a fabric company not a roller shade manufacturer. Please confirm that Mermet is the only fabric that can be utilized. If other shade fabrics can be utilized please indicate what fabrics are acceptable.	Any approved per-specs roller shade manufacturer with their fabric can be used.	SFL+a	7/16/2024	BP1220	Precision Walls
102	7/12/2024	Plans	Finish legend/specs do not indicate what openness % factor or Mermet fabric product line to utilize for WT-1 and WT2. Please advise.	Architect to select from full line during submittals.	SFL+a	7/12/2024	BP1220	Precision Walls
103	7/12/2024	Specification	Please confirm that this project does not have motorized window treatments, manual only.	There are no motorized window treatments. Only Manual.	SFL+a	7/12/2024	BP1220	Precision Walls
104	7/12/2024	Scope	Item 25. Please confirm that everyone on the job is to work M-F 7am to 5:30. Typical 40-hour week M-F 7am to 3:30 is not acceptable?	Yes, everyone on the job is to work 7:00am - 5:30 pm M-F.	Metcon	7/17/2024	BP1220	Precision Walls
105	7/12/2024	Scope	BP1166 & BP1266, (Paragraph 38) it is required to utilize a robotic total station for layout, backchecking, verification before installation, and documenting as-built conditions. We are questioning why is this needed for the athletic equipment being the BB Goals are suspended in the air, and if I not mistaken a robotic total station is used for surveying on the ground. Could you clarify that we need to include the robotic total station within the Bid Packages?	Item 38 on the Tile Scope of Work refers to the use of a robotic total station which measures both, vertical and horizontal angles and slopes. This will ensure accuracy of the final installed product. It might not apply to all items within the scope.	Metcon	7/17/2024	BP1166	Learning Environments
106	7/12/2024	Scope	Bid Package BP1230-Casework, Section D, item #38 calls for subcontractor to utilize a robotic total station for surveying. Please confirm this requirement for the casework.	Item 38 on the Tile Scope of Work refers to the use of a robotic total station which measures both, vertical and horizontal angles and slopes. This will ensure accuracy of the final installed product. It might not apply to all items within the scope.	Metcon	7/17/2024	BP1230	Nycom
107	7/12/2024	Scope	Flammables storage cabinets are specified under both spec sections 11 53 00- Laboratory Equipment and 12 35 53.19-Wood Laboratory Casework. Please clarify which bid package these fall under, BP1020 or BP1230	All Flammable Storage cabinets will fall under BP1020. (Statement added to both scopes of work.)	Metcon	7/17/2024	BP1230	Nycom
108	7/12/2024	Scope	Bid Package BP1230, Section F, item #27 states "All sinks and faucets located within the casework are to be provided by this subcontractor." However, the plumbing fixture schedule on P-002 indicates that only the L1 & L2 fixtures are to be supplied by the Lab Casework Supplier. Please indicate if the P5A and P5B sinks and faucets within the PLAM casework are to be included in the BP1230 bid package or if they will be supplied by the plumbing subcontractor.	If the sinks and faucets are located within casework, they will be by BP1230 (Manufactured Casework).	Metcon	7/17/2024	BP1230	Nycom
109	7/12/2024	Scope	The Food Service Equipment Schedule on FS-002 lists items 41 and 58 to be custom millwork items. Please confirm that these are to be included in BP1230 and if so, please provide details for item #58-Concession Counter (finish selection, detail, and elevation needed).	Item 41. Will be custom fabricated stainless steel. Refer to drawings. For #58 this will be a custom fabricated stainless steel. Revision to be issued in a forthcoming Addendum.	SFL+a	7/17/2024	BP1230	Nycom
110	7/12/2024	Scope	Bid package BP1230, section F, item 28 states "This subcontractor shall be responsible for providing and installing all solid surface windowsills as indicated on the contract documents," However, there are no SSM sills found on the drawings. Please indicate if SSM sills are required.	There are no solid surface windowsills in this project.	Metcon	7/17/2024	BP1230	Nycom
111	7/12/2024	Plans	The Enlarged Science Lab Plans & Elevations Schedule on sheets A-408 through A-413 indicates Goggle Cabinet, Drying Rack, and Teacher's Display are OFOI items. Please confirm	To be Contractor Provided and Contractor Installed.	SFL+a	7/17/2024	BP1230	Nycom

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112	7/12/2024	Plans	A601 - Door Legend calls out glazing type "IG2C" for all exterior doors, however, IG2C is not listed on the glazing schedule. Is this intended to be glazing type "IG2"?	IG2C for Exterior Doors with Glazing should read IG1/IG2. Contractor to reference associated glazing unit as indicated on A-602 and A-622 . Glazing tint should match adjacent glazing in unit.	SFL+a	7/17/2024	BP0840	Craven Glass Company
113	7/12/2024	Plans	A601 - Door Schedule lists doors 1100E through 1100I as frame type SF06. Page A111A.1 states that these doors are CW10.	This is correct. Doors 1100E through 1100I are CW10. Revision to be issues in forthcoming Addendum.	SFL+a	7/17/2024	BP0840	Craven Glass Company
114	7/12/2024	Plans	A601 - There are (7) doors listed on the door schedule that have a frame type of "SF", missing the identifying SF number. Doors 1102A, 1102B, 1103, 1200A, 1200B, 1808A, and C2100.	This will be corrected in a subsequent Addendum. The following doors have the following associated SF/Frame types. Door 1102A (SF05), 1102B (SF07) 1103(SF26), 1200A(SF08), 1808A (SF29) and C2100(2).	SFL+a	7/17/2024	BP0840	Craven Glass Company
115	7/12/2024	Plans	A621 - Both SF11 and SF19.1 Elevations depict full glass doors with midrails, however, that is not a door type option within the door legend.	This error was corrected in Addendum 02.	SFL+a	7/17/2024	BP0840	Craven Glass Company
116	7/12/2024	Plans	A111A.1 - Door 1103's SF is not labelled or listed on the Door Schedule	SF for Door 1103 is SF26. This will be revised and issued in a forthcoming addendum.	SFL+a	7/17/2024	BP0840	Craven Glass Company
117	7/12/2024	Plans	A111A.1 - Door 1102A is labelled as SF02. SF02 depicts a 4'-0" wide opening whereas Door 1102A is located within a 24'-0" opening.	Door 1102A should be type SF05. This will be revised and issued in a forthcoming addendum.	SFL+a	7/17/2024	BP0840	Craven Glass Company
118	7/12/2024	Plans	A111A.1 - Same as above, the glazing located within Conference Room 1104 also cannot be SF02. This opening is 6'-0" wide.	Door 1103 is a single door separated by arox. 2' of wall. SF03 is a 6' unit and is shown correctly on A11A.1.	SFL+a	7/17/2024	BP0840	Craven Glass Company
119	7/12/2024	Plans	A111E.1 - Door 1619 labelled "SF19.1" includes a transom. The corresponding elevation matches, however, transom framing is not listed on page A601 under frame types. The same is true for SF12. Singular transom and sidelite framing are typically called out separately within the framing types because they require a different manufacturing process.	Door 1618 should be a SF19.1. This will be revised and issued in a forthcoming addendum.	SFL+a	7/17/2024	BP0840	Craven Glass Company
120	7/12/2024	Plans	A111F.1 - The glazing located on the exterior wall of Classroom 1706 is not labelled, is this intended to be CW05?	***This is correct. It should be labeled CW05. This will be revised in a forthcoming Addendum.***	SFL+a	7/17/2024	BP0840	Craven Glass Company
121	7/12/2024	Plans	A420 - Door 1618 is shown within the elevation as having a transom. This SF is not labelled on the floor plans or elevations.	This is an error. There should be no transom. This will be revised in a forthcoming Addendum.	SFL+a	7/17/2024	BP0840	Craven Glass Company
122	7/12/2024	Plans	A442 - Detail 6 and 9 both call out "Tempered Glass Infill Panels" however there is no further information on these infill panels within the plans or the specs. There is corresponding information for cable wire infill and decorative metal railing on these staircases. Are these glass infill areas intended to be within the glazing scope and if so, can you provide any additional information?	Details 6 and 9 are incorrect. There are no glazing panels on the stairs. Decorative metal railings are currently specified. This will be revised in a forthcoming addendum.	SFL+a	7/17/2024	BP0840	Craven Glass Company
123	7/12/2024	Plans	A-112F.1 - Door C2100 is listed on the door schedule as frame type "SF" but is not labelled on the floor plan with an identifying tag, nor does it have any corresponding elevations that I have found.	***The frame should be Type 2. Aluminum Frame. This will be revised in a forthcoming addendum.***	SFL+a	7/17/2024	BP0840	Craven Glass Company
124	7/12/2024	Plans	Sheet A-601: There are a substantial amount of entrances indicated to be “ALUM” door frames without any delineation as to what the (F1-F2-F3) framing system, profile and throat size are to be. One of the basis of design Interior Aluminum framing systems used throughout the project is (Inframe – 2” x 6” - Interior wall-wrap framing system), however this system has a minimum wall throat capture size of 4-7/8” thick and a maximum of 5-1/16” thick. There are many door #s that appear to be drawn within wall types that are too thick to accept the assumed interior framing system. (Example: Doors 1200C/1207/1208B are both in wall type “8MNS” which has a 7-5/8” thickness, which the In Frame system cannot accommodate.) -Please review (F1-F2-F3), (SFx), (SFx.1) entrances and advise on what framing systems are to be utilized at each wall type thickness, whether “In Frame wall-wrap” or “Trifab 450 surface mount type”.	***A full review will be completed. Our intention for the In Frame system (IF) vs. Trifab system (TF) is indicated in the notes of the glazing schedule and in the storefront specifications. Masonry walls are to have TF system and Gypsum walls are to have IF systems unless noted otherwise. In a forthcoming addendum, we will provide a column in the door schedule that will indicate if an SF door is an In Frame system (IF) or a Trifab system (TF).***	SFL+a	7/17/2024	BP0840	Craven Glass Company
125	7/12/2024	Scope	Resilient athletic flooring is shown in bid package #0964, but bid package #0960 says that "This subcontract includes all resilient athletic flooring and accessories." Please verify that bid package #0960 (Resilient Flooring & Carpet) is responsible for installing resilient athletic flooring and accessories.	Resilient athletic flooring belongs in the Athletic Flooring scope (BP0962).	Metcon	7/17/2024	BP0960	John Systems
126	7/12/2024	Plans	In Schedule Room No. 1512 (classroom), LVT-1 and TL-1 are given, but hatches are not given in this room, so we can't identify the location of LVT-1 and TL-1. Please Clarify	Room 1512 to be LVT -1- will be updated in forthcoming Addendum.	SFL+a	7/17/2024	BP0960	John Systems
			Stop of Addendum 2					

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127	7/15/2024	Specs	Spec Section 083313 - Coiling Counter Doors : Paragraph 2.3G calls for a stainless steel countertop. Is countertop by us or by others?	Stainless steel countertops under coiling counter doors, are by BP0833 as stated on spec section 08 33 13.	Metcon	7/25/2024	BP0833	Custom Door and Gate
128	7/15/2024	Specs	Spec Section083323 - Overhead Coiling Doors: Paragraph 1.1A there is a section for exterior coiling, interior coiling fire-rated, and interior coiling non-fire rated. Scheduled are only the exterior doors. Are these two types of doors relevant to this project?	We do not have any interior Non- rated file doors. We do have a rated coiling door at the concession stands that is a countertop coiling door.	SFL+a	7/25/2024	BP0833	Custom Door and Gate
129	7/15/2024	Specs	Will the acid neutralization kits for the L-1 & L-2 Lab sinks be supplied by the lab equipment supplier, or will these have to be provided by the plumbing subcontractor? (reference Plumbing Fixture Schedule (Lab Spaces) drawing P-002	Typically these are supplied by the lab equipment supplier and installed by the plumbing contractor as per verbiage on P-002. If this is different for this job, we can adjust the verbiage.	Metcon	7/25/2024	BP2200	East Carolina Mechanical
130	7/15/2024	Plans	Drawing P-111D shows a P-8 plumbing fixture, this fixture is not listed in the plumbing schedule (drawing P-002) What is the P-8 fixture and who is to provide/install it? May we have this item added to the plumbing schedule so that we may know what to provide for this fixture?	P8 fixture is can wash basin. Specification has been added to P-002.	SFL+a	7/25/2024	BP2200	East Carolina Mechanical
131	7/15/2024	Plans	Drawing P-111F shows a 3" SD line located in room 1716 that connects to two FD2 drains. It is unclear if this SD pipe is installed underground and feeds two drains that will be in the Physics room 1716, or if this SD line is located above the ceiling and connects to two FD2 drains located on the second floor in the MS Science room 2230. Drawing P-112F shows the exact SD piping layout as it is shown on drawing P-111F which makes it confusing. Can we get this piping layout clarified?	Line is located above ceiling. It has been removed from P-111F and is now only shown on P-112F.	SFL+a	7/25/2024	BP2200	East Carolina Mechanical
132	7/15/2024	Plans	Drawing P-11F shows a 2" underground sanitary waste line in room 1710 that connects to an L1 sink then continues towards the Fume Hood located in the top right corner of that room. There is no termination point given for this sewer pipe. What does this pipe connect to? Does this piping end at the L1 sink?	2" line is for fume hood connection. Note has been added and line made more clear.	SFL+a	7/25/2024	BP2200	East Carolina Mechanical
133	7/15/2024	Plans	Drawing P-112F rooms 2214 Math Science & 2216 Math Science both show a FD1 floor drain just adjacent to the FD2 drains. There is no associated waste piping shown for the FD1 drains, Are these drains required or is this a misprint?	Yes, they are required for the eyewashes. View range has been adjusted to show associated piping.	SFL+a	7/25/2024	BP2200	East Carolina Mechanical
134	7/15/2024	Scope	Does the roofer have to use the robotic total station on this project? A quick google search shows it is a surveying tool.	Yes, all subcontractors that need precise measurements of length, heigh and slopes are required to use a robotic total station. A robotic total station measures both, vertical and horizontal angles and slopes, ensuring accuracy of the final installed product.	Metcon	7/25/2024	BP0750	Eskola
135	7/15/2024	Scope	Roofing SOW says to include wood blocking. Would this include wood sheathing/plywood?	Yes, If it pertains to the roofing system it is included in the roofing scope.	Metcon	7/25/2024	BP0750	Eskola
136	7/16/2024	Scope	Bid Scope – Part F. – Line 2. – States that BP-0840 is to verify all rough openings prior to fabrication. For new metal stud and masonry openings , sizes shall be "guaranteed rough openings" by the contractor. Openings in poured-in-place concrete conditions must be field measured by the subcontractor.	What is the question?	Metcon	7/25/2024	BP0840	GlassTech
137	7/16/2024	Scope	Given the guaranteed sizes / field measurement / verification of openings criteria and that other trades are inevitably responsible for the opening construction that BP-0840 is to infill, would you please explain in a little more detail how much robotic total station usage is expected for the BP-0840:Glass & Glazing package? Are we expected to schedule to have the total station operator follow the envelope around and check every exterior opening as part of our scope of work?	Robotic total station is to be used as a verification tool. For prior and future work in order to avoid rework due to inaccurate dimensions. Robotic station is not required for punch openings. Curtain wall systems need to be field verified with total robotic station.	Metcon	7/25/2024	BP0840	Glass Tech
138	7/16/2024	Plans	On sheets M-401, M-402, and M-403, 10 gallon end of line air separators are called out at a number of the WSHP's. I can find no information on the equipment schedule or in the specifications for these air separators. Could you please have the engineer provide more information?	These are actually Expansion Tanks as shown on detail 13/M-503. Notes will be updated on sheets for expansion tanks and reference detail.	SFL+a	7/25/2024	BP2300	TA Woods
139	7/18/2024	Plans	A-112F.2 changed significantly. Will window treatments be needed at the new windows/glazing at the HS Classrooms interior and exterior windows? No new finish schedule for A-112F.2 was issued with Addendum 2 showing window treatment locations for this area.	Yes. See Finish Area Plans A-711A through A-719F for all window shade locations at interior and exterior glazing. The finish schedule will be revised to indicate window treatments fabric selection in forthcoming Addendum.	SFL+a	7/25/2024	BP1220	Common Wealth Blinds
140	7/18/2024	Plans	After ECS's review of surcharging the understanding was that the slab on grade was going to be supported on residual soils and not Aggregate Piers, Please Clarify. **FOUNDATIONS** 1. THE IN-SITU SOIL ALLOWABLE BEARING PRESSURE IS 1,500 PSF PER THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY ECS SOUTHEAST, LLP, AND DATED APRIL 18, 2023. 2. THE BUILDING WALL FOOTINGS AND COLUMNS FOOTINGS HAVE BEEN DESIGNED BASED ON AN ASSUMED EQUIVALENT BEARING CAPACITY OF 3,000 PSF. THE BUILDING AREA SHALL BE SUPPORTED ON GROUND IMPROVEMENT BY RAMMED AGGREGATE PIERS/STONE COLUMNS. A. ALL COLUMN AND WALL FOOTINGS AND SLAB-ON-GRADE SHALL BE CONSTRUCTURED ON SUBGRADE SOILS WHICH HAVE BEEN MODIFIED WITH GROUND MODIFICATION USING STONE REPLACEMENT TECHNIQUES. THE AGGREGATE PIER ELEMENTS SHALL BE CONSTRUCTED BY COMPACTING AGGREGATE IN AN EXCAVATED HOLE USING SPECIAL HIGH ENERGY IMPACT DENSIFICATION EQUIPMENT.	If surcharging is performed per ECS's specifications, aggregate piers are not required under the slab on grade. Aggregate piers are required under all column and wall footings. This note will be updated in a future Addendum.	B&P	7/25/2024	BP3164	Keller

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141	7/18/2024	Plans	Note (9.) for the water source heat pumps calls for dynamic air filters to be provided. There is no information on the plans or specs that describe what the dynamic air cleaning filters are. Can we get some information on these? Would Needlepoint Bipolar Ionization be an acceptable alternates to the dynamic air cleaners?	Where indicated with Dynamic Air Cleaners/Filtration provide Polarized-Media Electronic Air Cleaners 1" Panel Air Cleaners, Dynamic Model P1000 filter or equivalent polarized media filtration system compliant to meet UL Standard 867. Filter system must have capability to reduce OA ventilation per IAQ procedure of ASHRAE Standard 62 to OA values noted in equipment schedules. Notes and specs will be updated with this additional information in next addendum. Needlepoint Bipolar Ionization is not an acceptable alternative.	SFL+a	7/25/2024	BP2300	TA Woods
142	7/18/2024	Plans	The louver schedule lists Ruskin model EME220DD. Spec section 08 91 00 list the Ruskin EME220DD as basis of design, but lists a panel depth of 5". The EME220DD is a 2" louver not a 5" louver. Can you please clarify if a 2" filter is acceptable?	Ruskin model EME220DD is correct. Minimum size will be revised to 2" in forthcoming addendum.	SFL+a	7/25/2024	BP2300	TA Woods
143	7/18/2024	Plans	The scheduled louver sizes do not meet the scheduled free area, free area velocity, or pressure drop. Can we verify the louver dimensions or louver model number?	Mechanical Louver Schedule on M-003 has been updated to reflect correct Free Area/velocities and Max pressure drops for model louver	SFL+a	7/25/2024	BP2300	TA Woods
144	7/18/2024	Specifications	There are no specifications for HVAC duct insulation. The Mechanical General Notes on sheet M-001 calls for all 2" duct wrap with vapor barrier and transfer duct to have 1" thick liner. Could you please request a duct insulation schedule? Exhaust duct is often left uninsulated. And, what about the exposed duct in the locker rooms, weight room, wrestling room, EMT class, trades lab, wood working, and welding lab? Does it need jacketing?	See Item #11 on Architects Cover Sheet to Addendum 3	SFL+a	7/25/2024	BP2300	TA Woods
145	7/18/2024	Specification	PLEASE SEND A SPECIFICATION FOR HVAC MECHANICAL INSULATION	See RFI 144	SFL+a	7/25/2024	BP2300	Jacksonville heating and Air
146	7/18/2024	Scope	Item 39 in BP3100 is the surcharge. Can you give me a little more information. It says here we are responsible for surcharging and monitoring of fill over 7 feet. That isn't clear. What are we surcharging ? The pad ? 7' of surcharge ? or is the for fill depths above 7' where the fill is intended to be used as surcharge ?	The building footprint requires surcharging to avoid using rammed aggregate piers or undercutting 4 feet. The new FFE is above current grade, and fill will be required to come up to new grade. In addition to the fill required to come up to new grade, another 4' of fill is required to be placed on top for a period of at least one month for the surcharging process. Please confirm recommendations with ECS.	B&P	7/25/2024	BP3100	Justin Allen
147	7/18/2024	Scope	37. in BP3100Base bid is to bring in imported fills. I take this to mean that no onsite cut or excavation is to be anticipated to be used as fill and should be hauled off. Please confirm.	That is correct. Spoils from construction are not expected to be used as fill. With that said, if they meet the specifications needed for fill, they can be used.	Metcon	7/25/2024	BP3100	Justin Allen
148	7/18/2024	Scope	32. in BP3100This sub is responsible for dewatering. This is for our package only. Please confirm.	Any packet that has to dig below grade with the possibility of water accumulation is responsible for their own dewatering. With that said we expect the bulk of the dewatering will be done by the Demo/Site packet.	Metcon	7/25/2024	BP3100	Justin Allen
149	7/18/2024	Specification	Fexco, and they do not make a pre-molded corner base. There is nothing in the scopes stating that the pre-molded is required. Can you please confirm if pre-molded can be excluded (otherwise, Fexco cannot be the basis of Design)?" The answer they came back with is "Fexco will not be the BOD for the vented wall base, Johnsonite will be the BOD for vented wall base. Fexco will remain the BOD for Non- vented wall base" 1. Unresolved – They changed the RB1 to Johnsonite (from Fexco). This contradicts what they said. RB1 is not a vented wall base, it is only a cove base. RB1 should have stayed as Fexco "Umber" #078 - RB3 is the vented Base that needs to be changed. 2. Unanswered - the Div. 9 Specifications call out "Pre-molded" outside rubber corner bases. Basis of design is Fexco, and they do not make a pre-molded corner base. There is nothing in the scopes stating that the pre-molded is required. Can you please confirm if pre-molded can be excluded (otherwise, Fexco cannot be the basis of Design)?" – This is what needs to be answered. If Pre-molded outside corners are not required, they can stay with Fexco, otherwise, it needs to change	Answer: RB1 will be Revised to be Fexco – Umber 078, 4" Cove Base. RB3 will be Jonsonite, Black 48 – 4" Vented Wall base. Vented wall base is required in locations scheduled for WAF1 - Wood Athletic Flooring only.	SFL+a	7/25/2024	BP0960	Bonitz
150	7/18/2024	Scope	With the Bid Package 0710 will we be required to pick the air barrier behind the EIFS or is this for the EIFS subcontractor to pick up?	Air barrier behind EFIS is by the EFIS subcontractor.	Metcon	7/25/2024	BP0710	Eskola
151	7/18/2024	Specification	Looking through the insulation specifications, I do not see exposed piping finishes listed in the insulation schedule. Usually, it is listed as the last item in the specification, Normally it calls for Canvas or PVC on exposed piping. What type of finish/Jacketing will be required for piping in exposed areas?	See RFI 144	SFL+a	7/25/2024	BP2300	East Carolina Mechanical
152	7/18/2024	Specifications	Under Finish Hardware, set 48.2 It mentions both a lockset and a panic device. All doors listed are on the first floor and are out swinging doors.	This hardware set will be corrected and the specification will be issued.	SFL+a	7/25/2024	BP0810	Hardware Specialties

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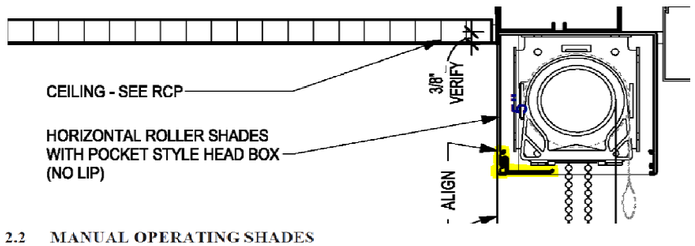
153	7/19/2024	Scope	Does this mean we are providing temporary infill at every single window opening and door? Often times we see this but it only applies if we're not able to glaze the opening according to schedule, or we're only providing protection in sections around the buildings as the openings are finished by the other subs. If this is open to interpretation and some bidders think this is as needed and some price it as infill for every opening there 14. Subcontractor to provide and maintain temporary wood or metal framed plastic covering in-fills at all door and window openings until permanent doors and windows are installed. This Subcontractor is responsible for removing temporary windows as installation begins for each opening under this agreement. Each temporary window assembly shall be carefully removed from the opening, transported to the Construction Manager's laydown yard, and neatly stacked by this Subcontractor for future re-use.	Temporary infills will need to be place in an as needed basis during the dry-in portion of construction. Rotation of material is acceptable.	Metcon	7/25/2024	BP0840	Carolina Classic Windows and Glass
154	7/19/2024	Scope	This is a fairly boiler plate scope line, so I just wanted to confirm we're providing 3rd party testing or will we be supporting owner provided testing? I see two Water Spray Test on each area for Storefront and the same for Curtainwall 15. Provide all Aluminum Framed Entrances and Storefronts, including all required aluminum framing members, internal structural reinforcing, structural anchorage devices to building structure, factory and field testing, weather-stripping, fasteners and anchors, setting blocks, shims, spacers, edge blocks, glazing points, angle clips, beads, concealed sealants, bituminous paint, welding, and all other incidental items required for a complete structural and weather-tight system.	Yes, subcontractor will be providing 3rd party testing approved by the owner.	Metcon	7/25/2024	BP0840	Carolina Classic Windows and Glass
155	7/19/2024	Scope	I don't see any polycarbonate panels in the Gym windows (SF37 from what I count), is this from older drawings? agencies having jurisdiction. 29. If applicable, include polycarbonate panels in gym windows.	The statement "If applicable" answers this question. There are no polycarbonate panels in this project. If polycarbonate panels are added in the future, BP0840 is responsible for the change order.	Metcon	7/25/2024	BP0840	Carolina Classic Windows and Glass
156	7/19/2024	Specification	Throughout the mechanical drawings I have not seen fire dampers called out, please confirm that there are no fire dampers or show location and qty.	Correct, there are not currently any rated wall penetrations that require fire dampers.	SFL+a	7/25/2024	BP2300	TA Wood
157	7/19/2024	Plans	A-601 - Doors C1500 and C1700 are both labelled as door type FG, however, the plans and elevations both show double doors which should be FG(2).	This is correct. Revision will be included in forthcoming addendum.	SFL+a	7/25/2024	BP0840	Craven Glass Company
158	7/19/2024	Plans	The following locations contain SF tags without any corresponding storefront shown within that area: oA-111D.1 - Door 1502A has a "SF27" label. oA-111E.1 - Room 1506 has a "SF39" label. oA-112E.1 - Room 2106 has a "SF39" label. oA-111E.1 - Stair 02 S2 has a "SF13" label. oA-111F.F - Colab 3 1616 has both an "SF14" and "SF15" label Please confirm that there is not meant to be any storefront within these locations.	The following revisions will be included in a forthcoming addendum. A-111D.1 - Door 1502A – The label has been removed. A-111E.1 - Room 1506 - The label has been removed. A-112E.1 - Room 2108 - The label has been removed. A-111E.1 - Stair 02 S2- The label has been removed. A-111F.F - Colab 3 1616 – The labels have been removed.	SFL+a	7/25/2024	BP0840	Craven Glass Company
159	7/19/2024	Plans	A-112F.1 - On the right hand side of Room 2117 there is an unlabeled SF that measures 3'-8" wide.	SF has been revised to have a SF21.1 Tag. See sheet A-112E.1 for revision.	SFL+a	7/25/2024	BP0840	Craven Glass Company
160	7/19/2024	Plans	A-112E.1 - Referring to the Storefront Schedule, the only SF with a 3'-8' wide opening is SF21.1. However, the SF21.1 locations at HS AP 2113 and Research Room 2115 only have a 2'-9" opening.	SF has been revised to align with SF type SF20.1. a 3'2" opening.	SFL+a	7/25/2024	BP0840	Craven Glass Company
161	7/19/2024	Plans	•A-111E.2 & 112F.2 - Please verify the partition types for the walls that contain storefront systems (screenshots named "Page # - Partition Types" below).	Answer: A111E.1 – SF 39 – Tag has been removed. A111E.1 – SF-13 – Tag has been removed. A111E.2 – See revision on for wall types. A111F.1 – SF15 and SF15 - Tag has been removed. A111D.1 – SF27 - Tag has been removed. A112E.1 – See sheet for revisions. A112F.2 – See sheet for revisions. A112E.1 – SF39 – Tag has been removed.	SFL+a	7/25/2024	BP0840	Craven Glass Company

Pamlico County School 6-12

ITEM #	REQUEST DATE	REQUEST LOCATION Plans/Spec/Bid Manual	QUESTION	RESPONSE	RESPONDER	ANSWER DATE	TRADE/SCOPE	REQUEST BY
162	7/19/2024	Plans	S-010 - Can you verify that the wind speed information, components, and cladding listed on this page are correct? There are concerns that these numbers are too high for the 4 1/2" front glass plane system outlined in the specs, a larger system may be required on any storefront that is taller than 88".	Basic wind speed is correct. Components & cladding will be reviewed and updated as required in future Addendum. Please note the values reported on S-010 are ultimate wind pressures.	SFL+a	7/25/2024	BP0840	Craven Glass Company
163	7/19/2024	General	Is Tax to be included, and if yes at what rate?	Yes, 6.75%	Metcon	7/25/2024	**BP0550**	Viva Railings
164	7/19/2024	General	Is this a prevailing wage / Union job?	No	Metcon	7/25/2024	BP0550	Viva Railings
165	7/19/2024	General	CCIP/OCIP/ROCIP required?	No	Metcon	7/25/2024	BP0550	Viva Railings
166	7/19/2024	General	Is it a LEED project? If yes at what level? (Gold, Silver etc.)	No	Metcon	7/25/2024	BP0550	Viva Railings
167	7/19/2024	General	Is there any requirement for supplying material as BUY AMERICA/N Act?	No	Metcon	7/25/2024	BP0550	Viva Railings
168	7/12/2024	Scope	Item #25 states to work five days a week, ten hours a day. Is the requirement to work 50 hours a week or is the schedule based on 40 hours a week?	Yes, everyone on the job is to work 7:00am - 5:30 pm M-F.	Metcon	7/25/2024	BP0920	Precision Walls
169	7/12/2024	Scope	Item 5 states acoustical outlet backer pad, sealant and cover. Typically this is included in the Electrical Scope of work since they are the trade providing the outlets and have a count. If this is required by this bid package can a number of these be provided in order to price accurately.	Yes, acoustical outlet backer pad, sealant and cover is by BP0920. Each subcontractor is responsible for their own takeoff.	Metcon	7/25/2024	BP0920	Precision Walls
170	7/12/2024	Scope	Item 9 states turnbuckles and cables. Please add clarification on what is required for this line item.	Some times during construction, metal framing requires the use of turnbuckles and cable assemblies to stabilize and plum walls. If they are shown in the drawings they belong to BP0920.	Metcon	7/25/2024	BP0920	Precision Walls
171	7/12/2024	Scope	Item 10 states Mezzanine Floor Area. Please add clarification on what is required for this line item.	Please see note 13 on S-03E.	Metcon	7/25/2024	BP0920	Precision Walls
172	7/12/2024	Scope	Item 14 states Dens Glass in all Electrical Rooms. Dens Glass is an exterior product and not meant for interior applications with joint compound. Are we to figure a Dens Armour Plus gypsum board at these locations.		Metcon	7/25/2024	BP0920	Precision Walls
173	7/12/2024	Scope	Item #15 states to include a 5% overall wall system for unidentifiable repairs. 5% is a very subjective value for a bid package and will be different for every Subcontractor bidding the project. Can this be changed to a dollar value similar to that in other bid packages. Example is the ACT which has $75,000 in repair allowances.	We will keep the 5% due to the variability in pricing. If we determine a set amount for this particular package we can end up with unnecessary exposures.	Metcon	7/25/2024	BP0920	Precision Walls
174	7/12/2024	Scope	Item 34 states if guaranteed dimensions are required this bid package to provide durable templates. Please clarify if guaranteed dimensions are a requirement or not for this project.	Yes guaranteed dimensions are required for this job.	Metcon	7/25/2024	BP0920	Precision Walls
175	7/12/2024	Scope	Item 10 states caulk behind the grid at walls if required or necessary. The specifications do not require caulking behind the wall angle. Please clarify if caulking is required behind the wall mold.	Subcontractor to follow drawing details and specification requirements.	Metcon	7/25/2024	BP0950	Precision Walls
176	7/12/2024	Scope	RFI 100 answer was….Please provide related content for clarification on content. The detail on plans appears to be a 3-sided aluminum box with a removable bottom closure but the specs call for a factory finish head box with removable fascia. Do they want a 3-sided headbox with a removable bottom closure not fascia or a snap-on front fascia only which will expose the roll from the back? I have attached examples of head box and fascia attached.  2.2 MANUAL OPERATING SHADES A. Mounting: 1. As indicated on Drawings. 2. Provide factory finished headbox with removable fascia to conceal roller(s) and operating mechanisms from view at all sides.	Answer: We intend for the housing to be a three-sided head box with a removable bottom closure. We don't want to see the roller shade from the back. The finish will be Aluminum to match the glazing system. This will be updated in our specifications to conform with the drawings.	SFL+a	7/25/2024	BP0950	Precision Walls
			Stop END RFIS					