Memorandum of Addendum #3

January 20, 2021

To: **General Contractors**

From: **Paul Bonsall**
ADW Architects, p.a.

Re: **Addendum No. 3**
Sampson County 911 & ES Facilities
Clinton, NC
ADW Job No. 20003

NOTICE TO CONTRACTORS

This Addendum #3 has become a part of the drawings and project manual for the above project.

Each Contractor shall be responsible for notifying their sub-contractors of the information contained herein.

Revised or newly issued drawing contained in this Addendum #3 shall supersede and take precedence over any conflicting information in any previously issued drawings. Revised or newly issued project manual sections contained in this Addendum #3 shall supersede and take precedence over any conflicting information in any previously issued project manual sections.

Each Contractor shall bear all expenses resulting from the use of substitutions which may be included in this addendum, including the cost of work in general, structural, fire protection, plumbing, mechanical, and electrical trades required due to the substitution and the cost of any Architect's services made necessary by the substitutions.

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CHANGE OF LOCATION FOR THE BID OPENING

The location for the opening of bids has been **changed** to:

The Expo Center
414 Warsaw Road
Clinton, NC 28328
in the Heritage Hall

Directions to the Expo Center from the Sampson County Administrative Offices:

From County Complex Road:
Turn right onto Rowan Road toward US 701 BUS.
Turn right onto US 701 BUS North and proceed for approximately 1 mile to Warsaw Road.
Turn left onto Warsaw Road and proceed approximately 500 feet to The Expo Center located on the left.
The first parking lot of The Expo Center is on the same side of the building as the Heritage Hall.

The time and date of the opening of Bids has **not changed.**

NOTICE
COVID-19 Protocol for masking, distancing, and attendance will be observed.
Please limit the number of attendees from your company to a few as possible.

Document Clarification Request Synopsis

Attached to this Addendum 3 is a representative listing of Document Clarification Requests (DCRs) submitted from the various known General Contractor bidders that have been received and answered to date. Addenda have been issued as necessary to address the clarifications requested.

Project Manual

Issue No. 1:
The following Project Manual Sections have been **replaced** in their entirety. A **revised** copy of each section is included in this Addendum 3 (Revision 4):

GENERAL

Section 00 01 14 - Sampson County MWBE Verification Resolution – Revision 1
Section 00 41 13 Bid Form Stipulated Sum Single Prime – Addendum 1 (Revision 2)
Section 01 21 00 – Allowances – Revision 1
Section 01 22 00 - Unit Prices – Revision 1
Section 01 23 00 - Alternates

ARCHITECTURAL

Section 07 42 43 - Composite Wall Panels
Section 08 56 53 - Bullet Resistant Windows

Issue No. 2

Section 05 50 00 – Metal Fabrications: **Replace** paragraph 2.11 METAL BOLLARDS with the following:

2.11 METAL BOLLARDS

A. Fabricate metal bollards of 6" diameter hot-dipped galvanized Schedule 80 steel pipe.
B. Construct bollards with concrete footings as indicated in the drawings
C. Fill bollards with 3000 psi concrete and form a dome from the same concrete pour at the top of the bollard.
D. Paint the bollards as specified in Section 09 91 00 – Painting.

Issue No. 3

Section 08 33 24 – Overhead Coiling Doors: **Revise** paragraph 2.2.F to read as follows:

E. Bottom Bar: Two angles, each not less than 1 ½" x 1 ½" x 1/8"; fabricated from hot-dipped galvanized steel.

Issue No. 4

Section 08 33 24 – Overhead Coiling Doors: **Revise** paragraph 2.2.G to read as follows:

F. Curtain Jamb Guides: Galvanized steel.

Issue No. 5

Section 08 33 24 – Overhead Coiling Doors: **Revise** paragraph 2.2.K to read as follows:

K. Door Finish:
1. Powder-Coated Finish: Color as selected by Architect from the manufacturer's full range.
2. Interior Curtain-Slat Facing: Match the finish of the exterior curtain-slat face.

Issue No. 6

Section 10 51 13 – Lockers and Shelving: **Add** paragraph 2.01.4 as follows:

4. Acceptable equivalents from Lockers Manufacturing, Germantown, TN

Issue No. 7

Section 04 20 00 – Unit Masonry: **Delete** paragraph 2.2.C.4.b,:

Drawings

Issue No. 1:
The following sheets have been **replaced** in their entirety. A **revised** copy of each drawing is included in this Addendum #3 (Revision 4):

GENERAL

Sheet G000 – Cover Sheet, Revision 1, dated 12/17/2021

ARCHITECTURAL

Sheet A501 - Enlarged Toilet Plans and Elevations, Revision 2/Addendum 1, dated 01/09/2021
Sheet A502 - Toilet Elevations and Details, Revision 2/Addendum 1, dated 01/09/2021
Sheet A700 – Finish Legend, Schedule, Notes & Codes, Revision 2/Addendum 1, dated 01/09/2021
Sheet A702 – Main Building Finish Floor Plan, Revision 2/Addendum 1, dated 01/09/2021
Sheet A704 – 911 Finish Floor Plan, Revision 2/Addendum 1, dated 01/09/2021
Sheet A705 – Interior Details, Revision 2/Addendum 1, dated 01/09/2021

Issue No. 2

Sheet C304 – Grading and Drainage Plan: **Add** the following Notes:

20. The Contractor shall include their bid the replacement of 4 existing culverts. All pipe shall be Class III and meet NCDOT Standard specifications.
    1. Replace existing 24" culvert crossing Fontana St. at the NE corner of the site with 68 LF of 30" RCP.
    2. Replace existing 24" driveway culvert on the east side of Fontana St. (approx. 100' NE the site) with 32 LF of 30" RCP.
    3. Replace existing 24" culvert crossing Commerce St. (approx. 560' west of the site) with 74 LF of 30" RCP.
    4. Replace existing 18" driveway culvert on the east side of Fontana St. (approx. 100' west the site) with 42 LF of 24" RCP.

    Contractor shall saw cut and remove existing pavement as necessary to install the culverts. Like pavement shall be placed. Provide traffic control where required by NCDOT.

Attachments:

Document Clarification Request Synopsis

Project Manual:
Section 00 01 14 - Sampson County MWBE Verification Resolution - Addendum 3 (Revision 4)
Section 00 41 13 - Bid Form Stipulated Sum Single Prime - Addendum 3 (Revision 4)
Section 01 21 00 – Allowances - Addendum 3 (Revision 4)
Section 01 22 00 - Unit Prices - Addendum 3 (Revision 4)
Section 01 23 00 - Alternates - Addendum 3 (Revision 4)
Section 07 42 43 - Composite Wall Panels – Addendum 3 (Revision 4)
Section 08 56 53 - Bullet Resistant Windows - Addendum 3 (Revision 4)

Drawings:
Sheet G000 – Cover Sheet, Revision – Revision 4/Addendum 3, dated 1/20/2021
Sheet A001 – Architectural Site Plan – Revision 4/Addendum 3, dated 1/20/2021
Sheet A101 – Overall Floor Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet A102 – Main Building Floor Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet A103 – EMS Wing Floor Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet A104 – 911 Building Floor Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet A202 – Building Elevations - Revision 4/Addendum 3, dated 1/20/2021
Sheet A203 – Building Elevations - Revision 4/Addendum 3, dated 1/20/2021
Sheet A900 – Casework Elevations - Revision 4/Addendum 3. dated 1/20/2021
Sheet A901 – Casework Elevations - Revision 4/Addendum 3, dated 1/20/2021
Sheet A902 – Casework Sections - Revision 4/Addendum 3, dated 1/20/2021

Sheet M002 – Mechanical General Notes & Schedules - Revision 4/Addendum 3, dated 1/20/2021
Sheet M003 – Mechanical Equipment Schedules - Revision 4/Addendum 3, dated 1/20/2021
Sheet M104 – Partial Plans-Mechanical - Revision 4/Addendum 3, dated 1/20/2021
Sheet E001 – Electrical Notes & Legends - Revision 4/Addendum 3, dated 1/20/2021
Sheet E002 – Electrical Specifications - Revision 4/Addendum 3, dated 1/20/2021
Sheet E010 – Site Plan-Electrical - Revision 4/Addendum 3, dated 1/20/2021
Sheet E601 – Electrical Details - Revision 4/Addendum 3, dated 1/20/2021
Sheet E014 – Grounding Details - Revision 4/Addendum 3, dated 1/20/2021
Sheet E101 - Area 1 Lighting Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet E102 – Area 2 Lighting Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet E103 – Area 3 Lighting Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet E202 – Area 2 Power Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet E401 – Area 1 Systems Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet E402 – Area 2 Systems Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet E403 – Area 3 Systems Plan - Revision 4/Addendum 3, dated 1/20/2021
Sheet E601 – Electrical Details - Revision 4/Addendum 3, dated 1/20/2021
Sheet E603 – Electrical Details - Revision 4/Addendum 3, dated 1/20/2021
Sheet E604 – Electrical Details - Revision 4/Addendum 3, dated 1/20/2021
Sheet E701 – Power Riser Diagram - Revision 4/Addendum 3, dated 1/20/2021
Sheet E802 – Equipment Schedules - Revision 4/Addendum 3, dated 1/20/2021
Sheet E805 – Electrical Panel Schedules - Revision 4/Addendum 3, dated 1/20/2021

Cc: \ Owner's Representative
Invited Bidders

End of Addendum #3

Document Clarification Request Synopsis

Received and answered as of 3:00 p.m. January 20, 2021:

1. There is a patio listed on the grading drawings, but there is not a sectional detail for it. Can you let us know how the patio is made, and if a detail can be provided? **See Details 15/S302, 03/A431, and Sheet S001: Concrete/Reinforcing Steel**
2. Approximately how many cubic yards are located at the 3 stockpiles at the Sampson County Airport? Since it is an airport, what conditions/requirements will be needed to load and transport to the site? Is there anything in place to load trucks or will we need to provide equipment to load? **There are approximately 250,000 cubic yards of material from which the contractor can choose. The contractor will be responsible for providing equipment and labor to load and transport the material. The Owner's Representative, Mr. Lin Reynolds, will be able to arrange access**.
3. Can we be provided with CAD files for site take-offs? **Please contact the Civil Engineer, Mr. Wesley Sherrill,** WSherrill@benesch.com. **These files will be provided free of change, but the contractor must sign a Benesch Electronic Release Form.**
4. What is the Basis of Design manufacturer and model for the Cantilever Security Gate? **The gate and operator basis of design is the Tymetal Tiger System Package: Tymetal Structural Cantilever Slide Gate with a TYM-VSA Security Operator.**
5. The manual gates are detailed to be painted after installation. **It is acceptable to have gate leaves pre-painted, not the other parts of the fence system.**
6. Is a thermally improved framing system acceptable for the project? **Thermally improved frames will be accepted, subject to all other requirements of the specification.**
7. Is the Level 4 bullet-resistant exterior glazing supposed to insulated? **The Level 4 glass must also be insulated. A minimum ½" air space is acceptable.**
8. Can the operable portion of window unit (D2) be supplied by a manufacturer other than the one providing the rest of the frame? **Yes, that is acceptable, subject to the other requirements of the specification.**
9. What is the basis of design for the profile of the Metal Wall Panels? **Centria CC-260.**
10. Please confirm that there are two 7'-0 diameter County Seal signs. **There are two 7'-0" diameter County Seals signs.**
11. The reflective ceiling plans only call out two types of Acoustical Ceiling Tiles, but the specification lists three. Which is correct? **The specification and the RCPs were revised in Addendum #1.**
12. Is this a LEED project? **This is not a LEED project.**
13. Section 21 22 00 – Clean Agent Fire Protection Systems, 1.4 A. This violates NFPA 2001 section 5.3.5 (see attached page) which states that the room and sub floor shall be simultaneously protected. Note, if done by spec it would take 2 tanks. Should we follow the NFPA 2001 standard? **Follow NFPA 2001-2012 requirements. Simultaneous protection of room and sub-floor.**
14. Section 21 22 00 – Clean Agent Fire Protection Systems: You show 2 System Operating Sequence's, 1.5 E & F. Which one do you want? "E" is the most economical for about 90% of small rooms like Room 131. **Provide 1.5 E. Sequence of Operation**.
15. Section 21 22 00 – Clean Agent Fire Protection Systems, 1.8: Extra Materials (not necessary in today's overnight shipping market). 1.8 4 Calls for an extra tank with 100 per of agent. This will add a cost of about $ 5,000.00 to this job. Do you really want this extra tank? **Extra tank described in 1.8.4 would be the reserve tank(s). Please provide the reserve tank.**

16. Section 21 22 00 – Clean Agent Fire Protection Systems, 2.5. Extinguishing-Agent Containers: Implies that you want a main and reserve supply of agent. This will add a cost of about $ 10,000.00 on this project. Do you really want the main and reserve tanks? If you do want the M & R tanks do you still want the extra tank ($5000.00). **Extinguishing Agent Containers section intent is to stablish the required manufacturing and construction specifications for tanks, manifolds, and tank brackets. This section is not meant to require additional tanks. See response to question #3 regarding additional materials.**
17. 16. Section 21 22 00 – Clean Agent Fire Protection Systems, 2.9 F Annunciator Panel, Graphic. These panels are very costly. Almost no benefit to the end user on most small rooms. The cost for this panel on this job installed today is around $4000.00. (room 131 only needs 4 detectors $1000.00 per LED). Do you really want this Panel? **Provide the Annunciator Panel Graphic.**
18. The General Note on drawing E010 calls for 36" x 36" hand holes for all low voltage cable unless otherwise indicated by the local utility. Low voltage according to the specification is anything 600V or less, meaning everything applies. Please advise as to the quantities actually needed. Attempts to get reliable information from Duke Energy/Progress have been unsuccessful. **This note applies to site Tele/Comm conduits to the property line, conduits to the antenna, etc. This does note does not apply to the power utility incoming conduits.**
19. What are the spacing requirements for the concrete warning planks that are to be placed above the concrete enclosed raceways? **Concrete warning planks will not be required. Use standard warning tape in buried duct banks.**
20. Are the garages considered to be hazardous locations requiring Class 1 or 2 explosion proof devices? **Hazardous locations are up to 18" a.f.f. The Electrical drawings show devices located above 18" in these areas to avoid this hazardous location**.
21. Division 27 specifications currently have only one section (27 53 19 – Emergency Responder Radio System) with no other sections regarding the bulk of the Division 27 requirements. **The Emergency Radio Responder System is the only system under Division 27 that is provided under the contract. The other Division 27 systems are to be provided by the others.**
22. Can you verify the use of desired data cable for this facility? CAT6 or CAT 6A? **Telecomm cabling is not part of this contract. Boxes and raceways for these systems are to be included in this contract.**
23. Are the Tele/Data outlets to be single port, one and one, or is there a different cable count? **Telecomm cabling is not part of this contract. Boxes and raceways for these systems are to be included in this contract.**
24. Will the telephone cables be CAT6(A) or CAT3? **Telecomm cabling is not part of this contract. Boxes and raceways for these systems are to be included in this contract.**
25. What is the desired cable jacket color code for the different types of outlets? **Telecomm cabling is not part of this contract. Boxes and raceways for these systems are to be included in this contract.**
26. Is there a preferred cable solution? Commscope and/or Leviton? **Telecomm cabling is not part of this contract. Boxes and raceways for these systems are to be included in this contract.**
27. Will there be any fiber cable installation? Single-Mode or Multi-Mode? **Telecomm cabling is not part of this contract. Boxes and raceways for these systems are to be included in this contract.**
28. Who is providing and installing the ladder rack and the basket tray? **Ladder rack and basket tray are to be provided and installed by the Contractor.**

29. Who is providing the Telecomm Plate for the floor boxes? **These will be provided by the E.C. after coordination with the Owner's telecomm designer.**
30. Will the AV and Security be bid by others? **Yes. See Section 01 10 00 – Summary of Work, paragraph 1.9.A.2.**
31. Section 08 33 24 – Overhead Coiling Doors: Paragraphs 2.2.F and G call for the bottom bar and guides to be galvanized to match the curtain slats. The finish will not adhere to the type of galvanizing used on these components. **These items can be unfinished hot-dipped galvanized.**
32. 31. Section 08 33 24 – Overhead Coiling Doors: Paragraph 2.2.K calls for baked enamel (3 colors) or powdercoat finish (many colors). **Upcoming addenda will change this to powdercoated finish.**
33. Many architectural wall sections call out "Fully Grouted 8" CMU or 12" reinforced CMU, see structural drawings. The structural drawings do not appear to indicate fully grouted CMU cells. Do you want all fully grouted cells or just the reinforced cells to be grouted? **Grout per the structural documents requirements.**
34. Should the cast letters be sized based on the building elevations or is there a specific letter height needed? **Cast letters on the building shall be 9" high. Cast letters on the monument signs will be 8" high.**
35. Referenced specification calls for a closure sized brick in addition to a modular one. I cannot find anywhere on the plans where the closures are located. **The reference to closure sized brick will be deleted in an upcoming addendum.**
36. Who is responsible for the fuel in the two 500kva generators? Do we fill them only enough to test, or do we have to turn them over full of fuel? **Fuel tanks shall be full at turn-over to the Owner.**
37. Please confirm that all slope lines need to be doweled and formed. **Yes, all sloped slab lines will need to be doweled and formed as noted in note 7 on sheet S103.**
38. There are 7 TYPE 15 signs, but no description as to what they are. **Please see previous addendum.**
39. Are there any additional forms required on bid day other than the Bid Form, the Bond, and the Minority Participation form? **Those are the forms that are required, subject to future addenda.**
40. Room 020 Training appears to have casework on the north wall, where is this detailed? **Elevations and a casework section cut will be added in an upcoming addendum.**
41. Please clarify what bid bond form is to be submitted with the bid. The invitation to Bid references the bid bond to be "in accordance with and conditioned as prescribed by G.S. 143-129, State of North Carolina" which we believe references the state and the Instructions to Bidders references the AIA A310. **Bid Bond forms vary according to your Bonding Company as they are issued by them. Language citing conformance with G.S. 143-129 should be included. Your Bonding Company should be very familiar with this. The document must also include a statement of Power of Attorney.**
42. The aggregate subgrade specified for vehicular concrete pavement (7/C502) and concrete slab-on-grade is compacted ABC stone. Can #57 stone be utilized in lieu of ABC Stone for these areas? **ABC stone is recommended per the Geotech Report. Use compacted ABC stone as shown in the drawings.**
43. Please clarify the materials required at the top of wall shown in detail 1/A433. **See detail 09/A424.**
44. What quantity of the Dewatering and French Drains is to be furnished for this allowance? Is it the 500 LF of preliminary trench evaluation, or is it 5,100 LF of the finished allowance? **Our intent is that <u>both</u> be used. Note that some portion of the preliminary work will not *necessarily* need to repeated for the final work. We will clarify this in an upcoming Addendum.**

45. We would like to verify that the communications system including all devises, cabling, racks, and patch panels are going to be provided and installed by the owners provided vendor, and all the G.C. is required to provide under this contract is Raceway Only. **Telecomm racks, cabling and devices are not part of this contract. Boxes and raceways are to be included in this contract.**
46. We would like to verify that the access controls and CCTV systems will be provided and installed by the owners provided vendor, and all the G.C. is required to provide for these systems is Raceway Only. **Access controls and CCTV systems are not part of this contract. Boxes and raceways are to be included in this contract.**
47. In the pre-bid meeting it was discussed that the Division 28 scope of work for this system is going to be raceway only, and that the cabling, equipment, and devices where going to be provided by the owner's private contractor. Can you please verify that this is correct so the division 28 contractors can have a more defined scope of work? **This system is to be provided in this contract. Refer to Detail #15, sheet E604, for system information and base bid/alternate bid requirements. This is a delegated designed system to be provided during submittal phase based on the signal testing.**
48. The drawings show about 70 pipe bollards around the vehicle bays. In the specifications it lists surface-mounted and removable bollards. Can you provide clarification on the size and type of bollards to be used along with details on the installation methods? **No pipe bollards are to be surface mounted or removable. <u>Section 05 50 00 – Miscellaneous Metals</u> will be revised in this addendum.**
49. Is there any possibility to add additional time to the contract duration? In looking at the amount of site work with the undercut, soils stabilizations, cut/fill, and grading we are estimating 3-4 months to complete the site work portion of the contract. That would only leave 10-11 months to construct the 38,000 SF facility. Is there any possibility to extend the project duration about 2 months? **This is an issue that is open to the successful bidder during contract negotiations.**
50. The RCP Pipe shown on the South end site is called out to be class IV pipe. The RCP shown under the secondary drive on the north end of the site has no classification called out. In the specifications the RCP is called out to be class III pipe. Can you please provide clarification on what class of pipe should be supplied for this project? T**he pipe shall be Class III RCP unless noted otherwise on the drawings.**
51. There is spray foam insulation shown above all the storefront headers above the brick lentil. What is intent of this insulation and can it be substituted for another type of insulation? **The intent of the spray insulation in this location is to fully fill the void behind the steel lintel prior to the completion of the thru-wall flashing system. The spray insulation also acts as an air-water barrier, more easily completing the envelope. If the contractor can think of a better solution, we are willing to consider a substitution, either before or after the bid.**
52. The bid form only includes 3 of the 5 unit prices listed in spec section 01 22 00 (Unit Prices). Are we only to list the 3 on the bid form? **The bid form will be revised by addendum.**
53. Are the AV Monitors Owner Furnished and Contractor Installed (OFCI)? **Yes.**
54. Will there be tap fees? **The tap fees will be paid by the Owner.**
55. Is a security fence required to be installed around the construction site? **A security fence is required only to secure materials on site. The construction must also be secured, either by a fence or other method.**

END OF DCR Synopsis

Identification of HUB Certified/ Minority Business Participation

I,_____,
(Name of Bidder)
do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	*Minority Category	**HUB Certified (Y/N)

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

The total value of minority business contracting will be ($)_____.

State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of Sampson

(Name of Bidder)

Affidavit of_____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ❑ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ❑ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ❑ **3** – **(15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ❑ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ❑ **5** – **(10 pts)** Attended prebid meetings scheduled by the public owner.
- ❑ **6** – **(20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ❑ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ❑ **8** – **(25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ❑ **9** – **(20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ❑ **10** - **(20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of_____, County of_____

Subscribed and sworn to before me this _____day of _____20____

Notary Public_____

My commission expires _____

State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of Sampson

Affidavit of _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____ contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20___

Notary Public _____

My commission expires _____

Do not submit with bid Do not submit with bid Do not submit with bid Do not submit with bid

State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

County of Sampson

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit.
This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

SEAL

Signature:_____

Title:_____

State of _____, County of _____
Subscribed and sworn to before me this _____day of _____20____
Notary Public_____
My commission expires_____

State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of Sampson

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 10% participation by HUB Certified/ minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public_____

My commission expires _____

SECTION 00 41 13 - BID FORM – STIPULATED SUM – SINGLE PRIME - Addendum 3 (Revision 4)

PROJECT: Sampson County 911 and Emergency Services Facility
530 Commerce Road, Clinton, North Carolina.

NAME OF BIDDER: _____.

BUSINESS ADDRESS: _____.

LICENSE NO. _____ **DATE** _____.

This Contractor hereby proposes to furnish all materials, labor and equipment necessary to provide the Owner with a completed project as described in these specifications and as shown, detailed, or noted on the drawings listed herein and to include all allowances and any information provided in addenda as indicated on this proposal form.

A. CONTRACT PRICE:

Total Base Bid:

_____($_____)

B. ALTERNATES: As described on Drawings and in Specifications.

Alternate No. 1	_____	***(Add)***	***+$***_____
Alternate No. 2	_____	***(Add)***	***+$***_____
Alternate No. 3	_____	***(Add)***	***+$***_____
Alternate No. 4	_____	***(Add)***	***+$***_____
Alternate No. 5	_____	***(Add)***	***+$***_____
Alternate No. 6	_____	***(Add)***	***+$***_____
Alternate No. 7	_____	***(Add)***	***+$***_____
Alternate No. 8:	_____	***(Add)***	***+$***_____
Alternate No. 9:	_____	***(Add)***	***+$***_____
Alternate No.10:	_____	***(Add)***	***+$***_____

C. UNIT PRICES:

The undersigned quotes the following unit prices to be utilized in making adjustments to the Contract sum should the addition or omission of work required by the Contract Documents be necessary. Amount listed for unit prices will apply throughout the life of the Contract.

UP #1 Removal of Unsuitable Material and Replacement with Suitable Fill from the Owner's Stockpile, per cubic yard. $_____

UP #2 Dewatering Trenches and Permanent French Drain:
2A. per lineal foot of Preliminary Trench $_____
2B. per lineal foot of Permanent French Drain $_____

UP #3 2000 P.S.I. Lean Concrete Fill for Footings per cubic yard. $_____

UP #4 Chemical Drying, per square yard of treated area. $_____

UP #5 Chemical Stabilization, per square yard of treated area. $_____

D. TIME OF COMPLETION:

The undersigned further agrees to begin work immediately upon receipt of the "Notice to Proceed" with an adequate force, carry the work forward as expeditiously as possible, and complete the work in Four Hundred Twenty (420)

days.

E. QUALIFICATIONS AND CLARIFICATIONS:

Contractor shall obtain any clarifications with the Owner in writing prior to the bid date. Bid qualifications are not permitted.

F. ADDENDA:

Contractor shall acknowledge receipt of all Addenda to the drawings and specifications by affixing his signature in the spaces provided below:

	Date	**Signature**
Addendum No. 1	_____	_____
Addendum No. 2	_____	_____
Addendum No. 3	_____	_____
Addendum No. 4	_____	_____
Addendum No. 5	_____	_____

G. LISTING OF MAJOR SUBCONTRACTORS:

Plumbing Contractor: _____

Mechanical Contractor: _____

Electrical Contractor: _____

H. CONTRACTOR'S LICENSE:

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of North Carolina, and that all fees, permits, etc., pursuant to the submission of this proposal have been paid in full.

Respectfully submitted this _____day of _____, 2021.
Signature of Contractor or
Authorized Agent:

Name: _____

Title: _____

Address: _____

Phone: _____

License: _____

Witness: _____

Title: _____

Date: _____

Note:

1. ***Bids will be received until 2:00 pm, Wednesday, January 27, 2021 at the Sampson County Administration Building, 406 County Complex Road, Clinton, NC, 28328.***

SECTION 01 21 00 – ALLOWANCES – Addendum 3 (Revision 4)

PART 1 - GENERAL

1.01 SCOPE:

A. The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents.

B. Items covered by these allowances shall be supplied for such amounts and by such persons as the Architect may direct.

C. Designate in Construction Schedule delivery dates for products under each allowance.

D. Designate in Schedule of Values quantities of materials specified under unit cost allowances.

1.02 SELECTION OF PRODUCTS:

A. Architect's Duties:
   1. Consult with Contractor in consideration of products and suppliers. Make selection, designate products to be used. Notify Contractor, in writing, designating:
      a. Product, model, and finish.
      b. Accessories and attachments.
      c. Supplier.
      d. Cost, delivered and unloaded at site.

B. Contractor's Duties:
   1. Assist Architect in determining qualified suppliers. Obtain proposals from suppliers when requested by Architect. Make appropriate recommendations for consideration of Architect. Notify Architect of any effect anticipated by selection of product or supplier under consideration on the Construction schedule or the Contract Sum.
   2. On notification of selection, enter into purchase agreement with designated supplier.

1.03 DELIVERY:

A. Contractor's Responsibility:
   1. Arrange for delivery and unloading.
   2. Promptly inspect products for damage or defects.
   3. Submit claims for transportation damage.

1.04 INSTALLATION:

A. Comply with requirements of referenced specification section.

1.05 ADJUSTMENT OF COSTS:

A. Each Allowance includes the cost, expense, and/or materials as set forth for each item.

B. In the event the materials, as set forth in each allowance, do not cost, as much as allotted, a credit shall revert to the Owner.

C. In the event the materials, as set forth in each allowance, are not used in their entirety, a

monetary credit shall revert to the Owner.

D. In either of the above instances, the Contractor shall be required to substantiate quantity actually used of the allotted monies and/or materials.

PART 2 - PRODUCTS

2.01 ALLOWANCE NO. 1 - CONTINGENCY ALLOWANCE:

A. Make a cash allowance for a contingency that is to cover minor, unforeseen items of work arising during construction. It does not include error or omissions by Contractor. Work shall be charged against this allowance only under the direction of the Architect with approval by Owner.

B. Determined Cash Allowance: $560,000.00.

2.02 ALLOWANCE NO. 2 – REMOVAL OF UNSUITABLE SOIL AND REPLACEMENT WITH SUITABLE MATERIAL FROM THE OWNER'S STOCKPILE

A. Make a quantity allowance for removal of unsuitable soils encountered in sitework operations and replacement with suitable fill from Owner's materials stockpiled on a remote site.

B. Determined Quantity Allowance: 2,500 cubic yards.

C. Unused quantities shall be credited to the Owner at a rate established in Unit Price #1 per Section 01 22-00 – Unit Prices.

2.03 ALLOWANCE NO. 3 – DEWATERING TRENCHES AND PERMANENT FRENCH DRAINS

A. Provide a quantity allowance for dewatering trenches and permanent French drains required to adequately dewater the construction areas beyond.

B. Determined Quantity Allowance:
   a. Preliminary Trench Evaluation Allowance: 500 linear feet.
   b. Permanent French Drain Allowance: 5,100 linear feet. Actual quantities to be determined by the Owner's Site Inspection Engineer.

C. Unused amounts of the Determined Quantity shall be credited to the Owner at a rate established in Unit Price #2 per Section 01 22-00 – Unit Prices.

D. Additional quantities shall be charged to the Owner at a rate established in Unit Price #2 per Section 01 22-00 – Unit Prices.

2.04 ALLOWANCE NO. 4 – 2000 PSI LEAN CONCRETE FILL FOR FOOTINGS

A. Make a quantity allowance for 2000 psi lean concrete fill for footings.

B. Determined Quantity Allowance: 50 cubic yards.

C. Unused quantities shall be credited to the Owner at a rate established in Unit Price #3 per Section 01 22-00 – Unit Prices.

2.05 ALLOWANCE NO. 5 – CHEMICAL DRYING

A. Make a quantity allowance for chemical drying of on-site soils to expedite drying when sufficient scarification and natural drying effort has been attempted but unable to be accomplished within construction schedule demands.

B. Determined Quantity Allowance: 2,500 square yards.

C. Unused quantities shall be credited to the Owner at a rate established in Unit Price #4 per Section 01 22-00 – Unit Prices.

2.06 ALLOWANCE NO. 6 – CHEMICAL STABILIZATION

A. Make a quantity allowance for chemical stabilization of 12 inches of subgrade soils exposed after stripping, that are too unstable for placement of structural fill.

B. Determined Quantity Allowance: 34,000 square yards.

C. Unused quantities shall be credited to the Owner at a rate established in Unit Price #5 per Section 01 22-00 – Unit Prices.

PART 3 - EXECUTION

(NOT APPLICABLE)

END OF SECTION 01 21 00

SECTION 01 22 00 - UNIT PRICES – Addendum 3 (Revision 4)

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

B. See Division 01 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.

1.2 DEFINITIONS

A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A list of unit prices is included at the end of this Section. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. **Unit Price No. #1**: REMOVAL OF UNSUITABLE MATERIAL AND REPLACEMENT WITH SUITABLE FILL FROM THE OWNER’S STOCKPILE

1. Description: Material that contains organic matter, muck, humus, peat, sticks, or debris in amounts exceeding 5 percent, or other deleterious materials not normally suitable for

use in earth work, including procedures for measurement and payment, according to Division 31.

2. Unit of Measurement: Per cubic yard.

B. **Unit Price No. #2**: DEWATERING TRENCHES AND PERMANENT FRENCH DRAINS

1. Description: Dewatering trenches and permanent French drains required to adequately dewater the construction areas indicated in the Contract Documents. Quantities shall be determined by the Owner's Site Inspection Engineer.
2. Unit of Measurement: 2A. Per lineal foot of Temporary Trench
   2B. Per linear foot of French drain.

C. **Unit Price No. #3**: 2000 PSI LEAN CONCRETE FILL FOR FOOTINGS

1. Description: 2000 psi lean concrete fill for footings, including procedures for measurement and payment, according to Division 03.
2. Unit of Measurement: Per cubic yard.

D. **Unit Price No. #4**: CHEMICAL DRYING

1. Description: Application of lime or cement, at rate to be determined by contractor based on field conditions, to expedite drying of soils. Quantities shall be determined by the Owner's Site Inspection Engineer
2. Unit of Measurement: Per square yard of treated area.

E. **Unit Price No. #5**: CHEMICAL STABILIZATION

1. Description: Stabilization of upper 12 inches of subgrade soils by application of lime or cement in accordance with NCDOT Standard Specifications for Roads and Structures (Section 501 or 542). Includes preparation and submittal of mix design that is approved by Geotechnical Engineer.
2. Unit of Measurement: Per square yard of treated area.

END OF SECTION 01 22 00

SECTION 01 23 00 – ALTERNATES – Addendum 3 (Revision 4)

PART 1 - GENERAL

1.01 DESCRIPTION:

A. This section summarizes the alternate bids required to be submitted with each Bidder's bid. State in the alternate bids the net sum to be added to, or deducted from the Base Bid in the event the alternate bids are accepted.

B. Submit alternate bids by filling in blank spaces provided thereof on the Bid Form furnished by the Architect.

C. The Owner reserves the right to accept or reject any or all of the alternate bids.

D. Where the description of the alternate bids lists Trade Sections affected by the alternate bid, such a listing shall not necessarily be considered all-inclusive. It shall be the responsibility of each Bidder to determine to his own satisfaction and for his own purposes the limits and extend of the Work affected by the alternate bids and to make full and proper allowance therefore in the submission of his alternate bid proposal.

E. Include in the alternate bids all changes in cost, either additive or deductive, resulting in the work of all Trade Sections of the Specifications affected thereby. Work required by the alternate bids shall be performed in accordance with applicable Specifications of the Trade Section affected.

F. Delayed acceptance of the alternate bids: The Owner reserves the right to delay the acceptance of the alternate bids for a period not to exceed 30 calendar days from the time of accepting the general contract without a change in the dollar amount of the alternate bids.

1.02 WORK OF OTHER RELATED SECTIONS:

A. Pertinent Sections of these Specifications describe the materials and methods required under the various alternates.

B. The method for stating the proposed Contract Sum is described on the Bid Form.

1.03 SUBMITTALS:

A. All alternates described in this Section of these Specifications are required to be reflected in the bid submitted on the Bid Form for the Work; however, do not submit alternates other than those specifically allowed in the Documents.

1.04 PRODUCT HANDLING:

A. If the Owner elects to proceed on the basis of one or more of the alternates, make all modifications to the Work required in the furnishing and installation of the selected alternate or alternates to the approval of the Architect and at no additional cost to the Owner other than as proposed on the Bid Form.

PART 2 - PRODUCTS

2.01 ALTERNATE NO. 1 - PROVIDE CPT-3 ELECTRIC STATIC DISSIPATIVE CARPET TILE IN THE E.O.C./MULTIPURPOSE ROOM 058 IN LIEU OF CPT-1 CARPET TILE. Provide change in carpet type and provide associated required static grounding.

2.02 ALTERNATE NO. 2 – ADD AIR SCRUBBERS IN VEHICLE BAYS
Provide twelve full Air Scrubber Systems in Apparatus Rooms A and B (Rooms 201 and 209) as indicated in the Architectural Reflected Ceiling Plans and Electrical Plans. Include a complete system of fans as scheduled, power and control wiring, devices, and raceways.

2.03 ALTERNATE NO. 3 – ADD LSHV FANS IN APPARATUS BAYS
Provide two full Low Speed High Volume Ceiling Fan Systems in Apparatus Rooms A and B (Rooms 201 and 209) as indicated in the Architectural Reflected Ceiling Plans and Electrical Plans. Include a complete system of fans as scheduled, power and control wiring, devices, and raceways.

2.04 ALTERNATE NO. 4 – ADD PATIO CANOPY STRUCTURE
Provide a Prefinished Metal Canopy System at Patio 133. Include all footings, posts, beams, roof decks, drainage, and flashings. Include all fasteners and sealants. Provide lighting as indicated in the Electrical documents.

205 ALTERNATE NO. 5 – ADD ASPHALT PAVING TO THE SECONDARY ACCESS ROAD
Provide Standard Duty Asphalt Paving at the Secondary Access Road for approximately 15 feet wide by 310 feet long as indicated in the Civil documents.

2.06 ALTERNATE NO. 6 – PROVIDE HIGH-BUILD URETHANE FLOOR FINISH IN LIEU OF HARDENER/DENSIFIER SEALED CONCRETE FINISHES IN VEHICLE BAYS
Provide the Alternate #6 finishes listed in the Finish Schedule for Apparatus Room A 201 and Apparatus Room B 209 in lieu of the scheduled finishes. Coordinate the thickness of the high-build urethane material with the top of the concrete slabs in order to maintain both required slab thickness and indicated top of floor (spot) elevations.

2.07 ALTERNATE NO. 7 – PROVIDE SPRAYED ACOUSTICAL INSULATION TO CEILINGS OF APPARATUS BAYS. Provide Sprayed Acoustical Insulation per Section 09 69 00 to ceilings in Apparatus Rooms A and B (Rooms 201 and 209). See also sheet A802.

2.08 ALTERNATE NO. 8 – PROVIDE LV-4 IN LIEU OF CPT-1 IN MAIN BUILDING CORRIDORS.
Provide luxury vinyl planks (LV-4) in Corridors 004,016, 027, 028, 040, 041, 050, and 054 in lieu of the scheduled carpet tile (CPT-1).

2.09 ALTERNATE NO. 9 – ADD ACOUSTICAL PANEL SYSTEM IN E.O.C./MULTI-PURPOSE ROOM 058. Provide the site-fabricated acoustical panel system on walls in the E.O.C./Multi-Purpose Room as detailed. Provide 1" track with the specified core material and stretchable fabric by Whisper Walls or approved equal.

2.10 ALTERNATE NO. 10 – PROVIDE FULL WORKING EMERGENCY RESPONDER BOOSTING SYSTEM. Provide a full working system including devices, cabling, conduit, and equipment. Performance of a signal survey and prepare a report is in the Base Bid. See Section 27 53 17 and detail 2/E606.

PART 3 - EXECUTION

3.01 ADVANCE COORDINATION:

A. Immediately after award of Contract, and to the maximum extent possible, thoroughly and clearly advise all necessary personnel and suppliers as to the nature and extent of alternatives selected by the Owner; use all means necessary to alert those personnel and suppliers involved as to all changes in the work caused by the Owner's selection of alternatives.

3.02 SURFACE CONDITIONS:

A. Prior to installation of the alternate items, verify that all surfaces have been modified as necessary to accept the installation and that the time or items may be installed in complete accordance with their manufacturer's current recommendations. In the event of discrepancy, immediately notify the Architect and proceed as he directs.

END OF SECTION 01 23 00

SECTION 07 42 43 - COMPOSITE WALL PANELS – Addendum 3 (Revision 4)

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes metal-faced composite wall panels.
   1. Panel system requirements include the following components:
      a. Aluminum faced composite panels with mounting system. Panel mounting system including anchorages, shims, furring, fasteners, gaskets and sealants, related flashing adapters, and masking (as required) for a complete watertight installation.
      b. The Basis of Design for details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details shall be the Alucobond Rainscreen II system.
      c. Parapet coping, column covers, soffits, sills, border, and filler items indicated as integral components of the panel system or as designed.

1.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design metal-faced composite wall panel assembly, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Provide metal-faced composite wall panel assemblies capable of withstanding the effects of the following loads and stresses within limits and under conditions indicated, based on testing according to ASTM E 330:
   1. Wind Loads: Refer to sheet S001, Item #4. Determine minimum wind pressure per ASCE 7-10.
   2. Deflection Limits: Metal-faced composite wall panel assemblies shall withstand wind loads with horizontal deflections no greater than 1/240 of the span.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show fabrication and installation layouts of metal-faced composite wall panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details. Distinguish among factory-, shop-, and field-assembled work.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For metal-faced composite wall panel assembly indicated to comply with performance requirements and design criteria, including analysis data and calculations signed and sealed by the qualified professional engineer responsible for their preparation.

E. Coordination Drawings: Exterior elevations, drawn to scale, on which the following items are shown and coordinated with each other.

F. Product test reports.

G. Maintenance data.

H. Samples of special warranties.

1.4 QUALITY ASSURANCE

A. Fire-Resistance Ratings: Where indicated, provide metal-faced composite wall panels identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

B. Pre-installation Conference: Conduct conference at Project site.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal-faced composite wall panel assemblies that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal-faced composite wall panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL MATERIALS

A. Aluminum Sheet: Coil-coated sheet, ASTM B 209, alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.

1. Surface: Smooth, flat finish.
2. Exposed Coil-Coated Finishes:

a. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat.

3. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

B. Panel Sealants: ASTM C 920.

2.2 MISCELLANEOUS METAL FRAMING

A. Miscellaneous Metal Framing, General: ASTM C 645, cold-formed metallic-coated steel sheet, ASTM A 653, G60 hot-dip galvanized or coating with equivalent corrosion resistance unless otherwise indicated.

B. Subgirts: Manufacturer's standard C- or Z-shaped sections 0.064-inch nominal thickness.

C. Zee Clips: 0.079-inch nominal thickness.

D. Base or Sill Angles or Channels: 0.079-inch nominal thickness.

E. Hat-Shaped, Rigid Furring Channels:

1. Nominal Thickness: As required to meet performance requirements.
2. Depth: 1-1/2 inches.

F. Cold-Rolled Furring Channels: Minimum 1/2-inch- wide flange.

1. Nominal Thickness: As required to meet performance requirements.
2. Depth: 3/4 inch.
3. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with nominal thickness of 0.040 inch.
4. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.

2.3 MISCELLANEOUS MATERIALS

A. Aluminum Extrusions: ASTM B 221.

B. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide exposed fasteners with heads matching color of metal-faced composite wall panels by means of plastic caps or factory-applied coating. Provide EPDM, PVC, or neoprene sealing washers.

2.4 METAL-FACED COMPOSITE WALL PANELS

A. General: Provide factory-formed and -assembled, metal-faced composite wall panels fabricated from two metal facings bonded, using no glues or adhesives, to solid, extruded thermoplastic core; formed into profile for installation method indicated. Include attachment system components and accessories required for weather-tight system.

1. Fire-Retardant Core: Noncombustible, with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

    a. Flame-Spread Index: 25 or less.
    b. Smoke-Developed Index: 450 or less.

2. Products: Subject to compliance with requirements, provide one of the following:

    a. Alcan Composites USA Inc.; Alucobond Plus.
    b. Alcoa Inc.; Reynobond FR.
    c. ALPOLIC, Division of Mitsubishi Chemical America, Inc.; ALPOLIC ACM.

B. Aluminum-Faced Composite Wall Panels: Formed with 0.020-inch- (0.50-mm-) thick, coil-coated aluminum sheet facings.

1. Panel Thickness: 0.157 inch (4 mm)
2. Core: Standard
3. Exterior Finish: 2-coat fluoropolymer

    a. Color: As indicated on drawings or if not indicated as selected by Architect from manufacturer's full range.

C. Attachment System Components: Formed from extruded aluminum or material compatible with panel facing.

1. Include manufacturer's standard perimeter extrusions with integral weather stripping, panel stiffeners, panel clips, and anchor channels.

2.5 ACCESSORIES

A. Wall Panel Accessories: Provide components required for a complete metal-faced composite wall panel assembly including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal-faced composite wall panels unless otherwise indicated.

B. Flashing and Trim: Formed from 0.018-inch- minimum thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet pre-painted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal-faced composite wall panels.

2.6 FABRICATION

A. General: Fabricate and finish metal-faced composite wall panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Fabricate metal-faced composite wall panels in a manner that eliminates condensation on interior side of panel and with joints between panels designed to form weather-tight seals.

C. Metal-Faced Composite Wall Panels: Factory form panels in a continuous process with no glues or adhesives between dissimilar materials. Trim and square edges of sheets with no displacement of face sheets or protrusion of core material.

1. Form panel lines, breaks, and angles to be sharp and true, with surfaces free from warp and buckle.
2. Fabricate panels with sharply cut edges, with no displacement of face sheets or protrusion of core material.
3. Fabricate panels with panel stiffeners, as required to comply with deflection limits, attached to back of panels with structural silicone sealant or bond tape.
4. Dimensional Tolerances:

a. Panel Bow: 0.8 percent maximum of panel length or width.
b. Squareness: 0.25-inch maximum.

D. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Miscellaneous Framing: Install subgirts, base angles, sills, furring, and other miscellaneous wall panel support members and anchorage according to ASTM C 754 and metal-faced composite wall panel manufacturer's written instructions.

3.2 METAL-FACED COMPOSITE WALL PANEL INSTALLATION

A. Attachment System Installation, General: Install attachment system required to support metal-faced composite wall panels and to provide a complete weather-tight wall system, including subgirts, perimeter extrusions, tracks, drainage channels, panel clips, and anchor channels.

1. Include attachment to supports, panel-to-panel joinery, panel-to-dissimilar-material joinery, and panel-system joint seals.
2. Do not begin installation until weather barrier and flashings that will be concealed by composite panels are installed.

3.3 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weather-tight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal-faced composite wall panel assembly including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

3.4 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal-faced composite wall panel units within installed tolerance of 1/4 inch in 20 feet, non-accumulative, on level, plumb, and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.5 CLEANING

A. Remove temporary protective coverings and strippable films, if any, as metal-faced composite wall panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of metal-faced composite wall panel installation, clean finished surfaces as recommended by panel manufacturer. Maintain in a clean condition during construction.

B. After metal-faced composite wall panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

END OF SECTION 07 42 43

SECTION 08 56 53 BULLET RESISTANT WINDOWS – Addendum #3 (Revision #4)

PART 1 – GENERAL

1.1 REFERENCE

A. The publication below forms a part of this specification.
UNDERWRITERS LABORATORY UL 752, latest edition.
Standard for Bullet Resistant Equipment

1.2 DESIGN

A. Extruded aluminum frames shall be thermally broken and have a 2 ½" face and 4 ½" or 6" depth. Frames shall be designed to defeat ballistic assaults from a .30 caliber rifle lead core as tested in accordance with UL 752 Level 4 standard.

1.3 SUBMITTALS

A. The following shall be submitted in accordance with division 01. Submit for approval prior to fabrication: VERIFICATION OF UL LISTING OF BULLET RESISTANTS for all system components, catalog cuts, shop drawings, specifications, frame profiles, size, type and spacing of frame anchors, reinforcement size and locations, details of joints and connections, welding details, glazing data sheets and samples, sample warrantys for glazing and window frames and printed data in sufficient detail to indicate compliance with the contract documents. Manufacturer's instructions for installation and cleaning.

1.4 WARRANTY

A. All materials and workmanship shall be warranted against defects for a period of one (1) year from date of receipt at job site.
B. Glazing shall be warranted against defects for a period of 5 years.
C. Finish warranty shall warrant entire finish system against fading, chalking, cracking, pealing or checking for a period of not less than 20 years commencing on the date of substantial completion

PART 2 – PRODUCTS

2.1 FRAMES

A. Bullet Resistant frames and glazing assemblies shall be furnished by one of the following:

a. EFCO Corporation, Monett, MO (Curtain Wall) (800) 221-4169
b. Action Bullet Resistant, West Islip, NY, (800) 962-8088.
c. U.S. Bulletproofing, Marlboro, MD, (301) 218-7920
d. North American Bulletproof, Cibolo, TX. (210) 225-0982
e. Other manufactures submitted in accordance with Division 01 10 days prior to bid.

B. All components will be constructed from extruded aluminum in 6061-T6 alloy / temper, or equal.

C. Interior glazing gaskets shall be closed cellular neoprene and exterior gaskets will be solid neoprene. All joints and connections shall be tight providing hairline joints and true alignment of adjacent members. All anchorage to the structure shall provide 3-way adjustments to compensate for normal building tolerances. All aluminum extrusions shall be extruded form 6061-T6 alloy or equal with a minimum tensile strength (minimum 38.0 ksi ultimate, 35.0 ksi yield). All internal framing fasteners shall be type 18-8 stainless steel. Framing to building structure will be grade 5, cadmium or nickel plated. Interior glazing gaskets shall be closed cellular neoprene (40-50 shore "A" durometer). Exterior glazing gaskets shall be solid neoprene (65-75 shore "A" durometer). All neoprene shall be in strict compliance with ASTM C-509-89 type II option I and A-864-89.

D. All exterior windows shall receive an extruded aluminum sill pan provided by the window manufacturer in addition to the bullet resistant window frame profile and in addition to any sill flashing specified elsewhere. The sill pan shall effectively direct liquid water from the window system to the exterior.

E. For Type D2 windows, provide non-bullet resistant aluminum casement window inserts into a bullet-resistant storefront/curtain wall frame system as described above and as detailed elsewhere. Provide UL 752 Level 2 glass-clad polycarbonate (Insulgard BALULN23 or equal) in the window insert. Provide products by CRL Aluminum, Series 7200 or equal by Kawneer or YKK. The window shall be readily securable and unlockable with the use of a single lever system on the interior.

2.2 GLAZING

A. Glazing
   1. Glass-Clad Polycarbonate (GCPC) glass units meeting the following criteria:
      a. Glazing to comply to UL 752 Level 4 protection requirements.
      b. Glass unit thickness shall be coordinated by the Contractor to fit within the selected UL 752 Level 4 aluminum storefront/curtainwall system. Thickness not to exceed 2 1/8".
      c. Provide glass surfaces on both sides. Scratch resistant polycarbonate is not acceptable.
      d. Glazed units to emulate the color and reflectance criteria of the 1" Insulating glass united provided elsewhere in project.
      e. Units shall be insulating and have at least a ½" sealed air space.
      f. Glass units shall be of one type and by one manufacturer.

B. Manufacturers:
   a. Guardian Glass
   b. Old Castle Building Envelope
   c. Global Security Glass
   d. Patriot Armour
   e. Dlubak Corporation
   f. Total Security Solutions
   g. Saint Gobain

2.3 FINISH

A. Standard finish for all aluminum components shall include manufacturers premium multi-step Flourocarbon (Kynar 500) factory applied paint coating system.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Set frames and glaze in accordance with manufacture's instructions. Repair damaged units (if approved by the manufacturer and the architect) or replace with new units.

3.2 PROTECTION

A. Properly store all the frames, glazing material etc. in a dry location and covered to protect from damage before and after installation.

3.3 CLEANING

A. Upon completion, clean exposed surfaces of frames and glazing products thoroughly in accordance with manufacturer's instructions. Remove mastic smears and other unsightly marks.

END OF SECTION 08 56 53

SAMPSON COUNTY 911 & E.S. FACILITIES

CLINTON, NORTH CAROLINA

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MissionCriticalPartners

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Charlotte, NC 28208
704.551.9880

adwarchitects
environmentsforlife
2815 Coliseum Centre Drive, Suite 500
Charlotte, North Carolina 28217
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STRUCTURAL ENGINEER:
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101 N. Tryon St. Suite 1400
Charlotte, NC 28202
704.334.7925

PLUMBING,MECHANICAL, ELECTRICAL, & FIRE PROTECTION:
optima engineering
1927 S. Tryon St. Suite 300
Charlotte, NC 28203
704.338.1292

DRAWING SYMBOLS

ELEVATION MARK — 1 / A101 SIM — DETAIL NUMBER / SHEET NUMBER

SECTION MARK — 1 / A101 SIM

DETAIL CALLOUT MARK — 1 / A101 SIM — DETAIL NUMBER / SHEET NUMBER

COLUMN GRID REFERENCE — 0

ROOM NAME & NUMBER — ROOM NAME 808A

REVISION CLOUD & NUMBER — 1

WALL TYPE — 1A1

DOOR NUMBER — 119

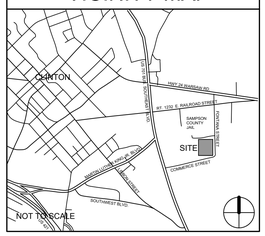
WINDOW TYPE — 1A

ELEVATION

MATCH LINE

FINISH MARK — A-A

VICINITY MAP



ISSUE DATES

09.01.20	DESIGN DEVELOPMENT DOCUMENTS
12.04.20	CONSTRUCTION DOCUMENTS

RENDERING

ABBREVIATIONS

AFF	ABOVE FINISH FLOOR	EQ	EQUAL	LB	POUND	SD	STORM DRAIN
APPROX	APPROXIMATE	EQUIP	EQUIPMENT	LH	LEFT HAND	SHT	SHEET
ARCH	ARCHITECTURAL	EWC	ELECTRIC WATER COOLER	LHR	LEFT HAND REVERSE	SIM	SIMILAR
AUTO	AUTOMATIC			LL	LIVE LOAD	SPEC	SPECIFICATION
AUX	AUXILIARY	EXH	EXHAUST	MAINT	MAINTENANCE	SQ	SQUARE
AVG	AVERAGE	EXIST	EXISTING	MAX	MAXIMUM	SQ FT	SQUARE FEET
BD	BOARD	EXP	EXPANSION	MECH	MECHANICAL	SQ IN	SQUARE INCHES
BLDG	BUILDING	EXP JT	EXPANSION JOINT	MEMO	MEMORANDUM	ST	STREET
BOT	BOTTOM	F	FAHRENHEIT	MEZZ	MEZZANINE	STD	STANDARD
BRG	BEARING	FAB	FABRICATE	MFG	MANUFACTURE(R)	STL	STEEL
BTU	BRITISH THERMAL UNITS	FD	FLOOR DRAIN	MH	MAN HOLE	STRUCT	STRUCTURAL
		FE	FIRE EXTINGUISHER	MIN	MINIMUM	SYM	SYMBOL
C	CELSIUS	FEC	FIRE EXTINGUISHER CABINET	MISC	MISCELLANEOUS	T&G	TONGUE & GROOVE
CB	CATCH BASIN			MO	MASONRY OPENING	TEL	TELEPHONE
CJ	CONTROL JOINT	FED	FEDERAL	MTL	METAL	TV	TELEVISION
CL	CENTERLINE	FFJ	FORMED FLOOR JOINT	NA	NOT APPLICABLE	TYP	TYPICAL
CL TO CL	CENTERLINE TO CENTERLINE	FIG	FIGURE	NEG	NEGATIVE	UNO	UNLESS NOTED OTHERWISE
		FIN	FINISH	NIC	NOT IN CONTRACT		
CLG	CEILING	FIN FLR	FINISH FLOOR	NO	NUMBER	VCT	VINYL COMPOSITION TILE
CLR	CLEAR	FIN GRD	FINISH GRADE	NTS	NOT TO SCALE		
CMU	CONCRETE MASONRY UNIT	FJ	FLOOR JOINT	OC	ON CENTER	VERT	VERTICAL
		FLR	FLOOR	OCEW	ON CENTER EACH WAY	VOC	VOLATILE ORGANIC COMPOUND
CO2	CARBON DIOXIDE	FPM	FEET PER MINUTE	OD	OUTSIDE DIAMETER		
COL	COLUMN	FPS	FEET PER SECOND	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED	VOL	VOLUME
CONC	CONCRETE	FT	FEET			WC	WATER CLOSET
CONST	CONSTRUCTION	GA	GAUGE	OFOI	OWNER FURNISHED OWNER INSTALLED		
CST	CONCRETE STAIN	GAL	GALLON				
CTR	CENTER	GALV	GALVANIZE(D)	OH	OPPOSITE HAND		
CU FT	CUBIC FEET	GEN	GENERAL	OPP	OPPOSITE		
CU IN	CUBIC INCH	GOVT	GOVERNMENT	PA	PUBLIC ADDRESS		
CU YD	CUBIC YARD	GPH	GALLONS PER HOUR	PL	PLATE		
DBL	DOUBLE	GPM	GALLONS PER MINUTE	PREFAB	PREFABRICATED		
DEPT	DEPARTMENT	GWB	GYPSUM WALL BOARD	PRELIM	PRELIMINARY		
DF	DRINKING FOUNTAIN	GYP	GYPSUM	PROJ	PROJECT		
DIA	DIAMETER	GYP BD	GYPSUM BOARD	PSF	POUNDS PER SQUARE FOOT		
DIM	DIMENSION	HDW	HARDWARE				
DS	DOWN SPOUT	HGT	HEIGHT	PSI	POUNDS PER SQUARE INCH		
DWG	DRAWING	HORIZ	HORIZONTAL				
EA	EACH	HR	HOUR	PT	POINT		
ED	EQUIPMENT DRAIN	HVAC	HEATING, VENTILATION, A/C	R (RAD)	RADIUS		
EEJ	EXTERIOR EXPANSION JOINT			RA	RETURN AIR		
		IN	INCH	RD	ROOF DRAIN		
EF	EXHAUST FAN	INFO	INFORMATION	REFRIG	REFRIGERATOR		
EL	ELEVATION	INSUL	INSULATION	REINF	REINFORCE		
ELEC	ELECTRICAL	INV	INVERT	REQD	REQUIRED		
ELEM	ELEMENTARY	JT	JOINT	RH	RIGHT HAND		
ELEV	ELEVATOR	LAB	LABORATORY	RHR	RIGHT HAND REVERSE		
ENGR	ENGINEER						

ALTERNATES

1. PROVIDE CPT--2 IN LIEU OF CPT-1 IN E.O.C./MULTIPURPOSE ROOM 058
2. ADD AIR SCRUBBERS IN APPARATUS ROOMS A AND B.
3. ADD LSW FANS IN APPARATUS ROOMS A AND B.
4. ADD PATIO CANOPY STRUCTURE.
5. ADD ASPHALT PAVEMENT TO THE SECONDARY ACCESS ROAD.
6. PROVIDE HIGH-BUILD URETHANE COATING IN LIEU OF SEALED CONCRETE IN APPARATUS ROOMS A AND B.
7. ADD SPRAYED ACOUSTICAL INSULATION TO THE CEILINGS IN APPARATUS ROOMS A AND B.
8. PROVIDE LV-4 IN LIEU OF CPT-1 IN MAIN BUILDING CORRIDORS.
9. ADD ACOUSTICAL PANEL SYSTEM IN E.O.C. / MULTI PURPOSE ROOM 058/
10. PROVIDE EMERGENCY RESPONDER BOOSTING SYSTEM

REV 4

SAMPSON COUNTY, N.C. — MANUFACTURING — AGRICULTURE — WORK — EST. 1784

OWNER:

Sampson County
406 County Complex Road
Building C
Clinton, NC 28328
910.592.6308

SHEET INDEX

SHEET NO.	SHEET TITLE
GENERAL	
G000	COVER SHEET
G001	CODE INFORMATION - APPENDIX B
G101	LIFE SAFETY PLAN
G102	ROOM OCCUPANCY SCHEDULE
G110	U.L. DETAILS
G130	WALL TYPES
G131	WALL TYPE DESCRIPTIONS
CIVIL	
C100	EXISTING CONDITIONS AND DEMOLITION PLAN
C200	SITE PLAN
C300	INITIAL EROSION CONTROL PLAN
C301	FINAL EROSION CONTROL PLAN
C302	NCDEQ NOTES
C304	GRADING AND DRAINAGE PLAN
C400	UTILITY PLAN
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C501	SITE CONSTRUCTION DETAILS
C502	SITE CONSTRUCTION DETAILS
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A110	OVERALL DIMENSION PLAN
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A501	ENLARGED TOILET PLANS AND ELEVATIONS
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A503	TOILET ELEVATIONS AND DETAILS
A600	DOOR, FRAME, AND HARDWARE SCHEDULES & DETAILS
A601	WINDOW ELEVATIONS AND DETAILS
A602	HEAD AND JAMB DETAILS
A700	FINISH LEGEND, SCHEDULE, NOTES & CODES
A701	OVERALL FINISH FLOOR PLAN
A702	MAIN BUILDING FINISH FLOOR PLAN
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A704	911 FINISH FLOOR PLAN
A705	INTERIOR DETAILS
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A800	OVERALL REFLECTED CEILING PLAN
A801	MAIN BUILDING RCP
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A803	911 BUILDING RCP
A900	CASEWORK ELEVATIONS
A901	CASEWORK ELEVATIONS
A902	CASEWORK ELEVATIONS

SHEET NO.	SHEET TITLE
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S111	OVERALL ROOF FRAMING PLAN
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FP002	DETAILS - FIRE PROTECTION
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P105	AREA 3 COMPRESSED AIR PLAN - PLUMBING
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MECHANICAL	
M001	MECHANICAL SHEET INDEX, LEGEND & CODE COMPLIANCE
M002	MECHANICAL GENERAL NOTES & SCHEDULES
M003	MECHANICAL EQUIPMENT SCHEDULES
M004	SEQUENCE OF OPERATION AND POINTS LIST
M101	PARTIAL FLOOR PLAN - MECHANICAL
M102	PARTIAL FLOOR PLANS - MECHANICAL
M103	PARTIAL ROOF PLAN - MECHANICAL
M104	PARTIAL ROOF PLANS - MECHANICAL
M501	MECHANICAL DETAILS
M502	MECHANICAL DETAILS
ELECTRICAL	
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E002	ELECTRICAL SPECIFICATIONS
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E012	FLOOR PLAN - SUPPLEMENTAL GROUNDING
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E102	AREA 2 LIGHTING PLAN
E103	AREA 3 LIGHTING PLAN
E201	AREA 1 POWER PLAN
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E203	AREA 3 POWER PLAN
E301	AREA 1 EQUIPMENT CONNECTIONS PLAN
E302	AREA 2 EQUIPMENT CONNECTIONS PLAN
E303	AREA 3 EQUIPMENT CONNECTIONS PLAN
E304	AREA 1 AND AREA 2 EQUIPMENT CONNECTIONS ROOF PLANS
E305	AREA 3 EQUIPMENT CONNECTIONS ROOF PLAN
E401	AREA 1 SYSTEMS PLAN
E402	AREA 2 SYSTEMS PLAN
E403	AREA 3 SYSTEMS PLAN
E501	ENLARGED PLANS - ELECTRICAL
E601	ELECTRICAL DETAILS
E602	ELECTRICAL DETAILS
E603	ELECTRICAL DETAILS
E604	ELECTRICAL DETAILS
E605	ELECTRICAL DETAILS
E701	POWER RISER DIAGRAM
E801	LIGHT FIXTURE SCHEDULE
E802	EQUIPMENT SCHEDULES
E803	ELECTRICAL PANEL SCHEDULES
E804	ELECTRICAL PANEL SCHEDULES
E805	ELECTRICAL PANEL SCHEDULES

REV 1 — GENERAL NOTE COORDINATION

CONSTRUCTION DOCUMENTS

COVER SHEET

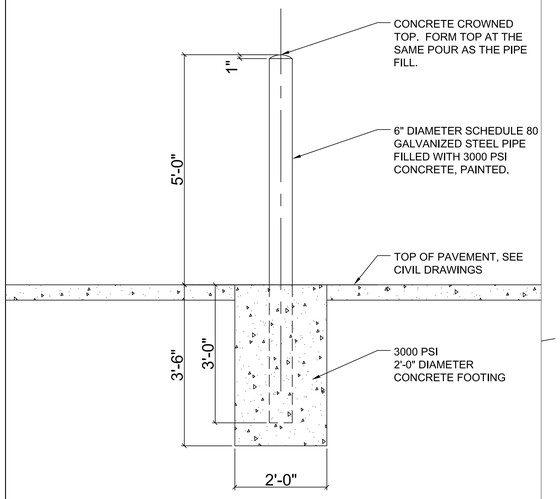
DATE: 12-04-2020
PROJECT NO: 20003

REVISIONS

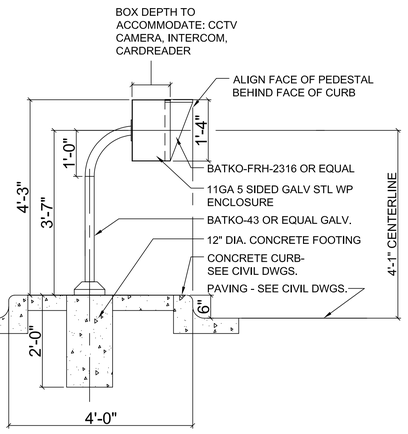
NO:	DATE:	DESCRIPTION:
REV1	12/17/20	REVISION 01
REV4	01/20/21	REVISION 04

SHEET NUMBER

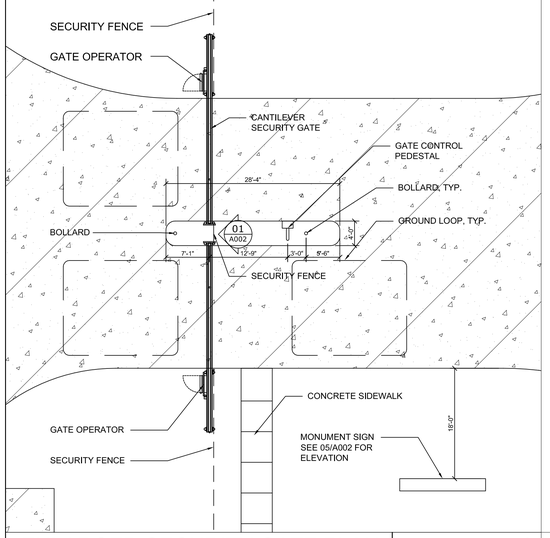
G000



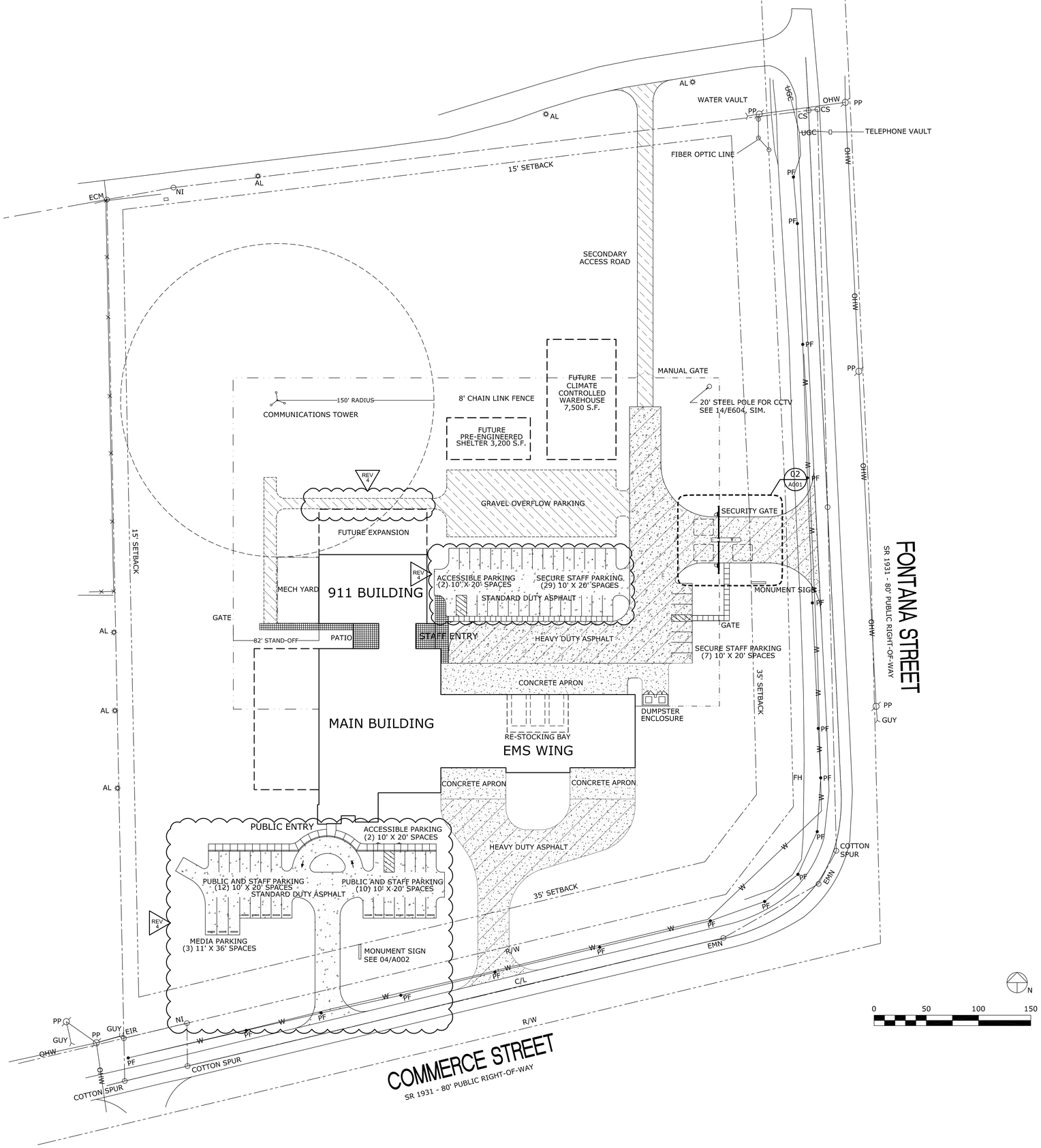
BOLLARD DETAIL | SCALE: 3/4"=1'-0" | 4



GATE CONTROL PEDESTAL DETAIL | SCALE: 3/4" = 1'-0" | 3



ENLARGED SECURITY GATE PLAN | SCALE: 1" = 10' | 2



ARCHITECTURAL SITE PLAN | SCALE: 1" = 40' | 1

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architecture planning interiors
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charlotte, north carolina 28217
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www.adwarchitects.com

SAMPSON COUNTY 911 & ES FACILITIES

CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

ARCHITECTURAL SITE PLAN

DATE	12.04.2020
PROJECT NO	20003

REVISIONS

NUM.	DATE	DESCRIPTION:
REV4	01/20/21	REV4/ADD3

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SEAL

SHEET NUMBER A001

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GENERAL NOTES

1. ALL ARCHITECTURAL COMPONENTS ARE TO BE ATTACHED AS REQUIRED BY ASCE 7-10 CHAPTER 13 SEISMIC DESIGN FOR NONSTRUCTURAL COMPONENTS. EACH INDIVIDUAL CONTRACTOR RESPONSIBLE FOR THE COMPONENT MUST PROVIDE PROJECT SPECIFIC DESIGN AND DOCUMENTATION PREPARED BY A LICENSED ENGINEER. CHAPTER 13 DEFINES THE FORCE REQUIRED TO SUPPORT THE COMPONENT FOR THE ANCHORAGE AND BRACING. THE COST OF PREPARING THIS INFORMATION AND DESIGN SHALL BE INCLUDED IN EACH CONTRACTOR'S BID PROVIDING THE COMPONENT.
2. FIELD VERIFY ALL CONDITIONS. GENERAL CONTRACTOR MUST NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO START OF WORK AFFECTED BY SUCH DISCREPANCY.
3. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, OBTAIN CLARIFICATION FROM ARCHITECT.
4. PROVIDE ADDITIONAL BLOCKING WITHIN STUD WALLS AS REQUIRED FOR SUPPORT OF CABINETS, SHELVING, WALL STOPS, COUNTERTOPS, MARKERBOARDS, TACKBOARDS, AV EQUIPMENT AND SIMILAR. VERIFY FINAL LOCATIONS OF ITEMS NOT IN CONTRACT (NIC, OFCI) WITH OWNER.
5. ALL INTERIOR DIMENSIONS ARE TO FACE OF STUD, FACE OF CMU, OR CENTER OF COLUMN, UNO. "CLEAR" DIMENSIONS ARE FROM FINISH FACE TO FINISH FACE, UNO.
6. SEE SHEETS A110, A111, A112 & A113 FOR WALL TYPES, DIMENSIONS, & OTHER INFORMATION NOT SHOWN ON THIS PLAN.
7. COORDINATE & ALIGN ALL FINISH FACES OF WALLS SO THAT THEY ALIGN - CONTRACTOR SHOULD ACCOUNT FOR EXTRA LAYERS OF GWB, STUD SIZE, & FURRING.
8. SEE A601 FOR WINDOW TYPES & OTHER DETAILS.
9. CAREFULLY REVIEW PLANS & COORDINATE ALL ELECTRICAL & PLUMBING WORK WITHIN CMU WALLS. ALL CONDUIT WHERE CMU IS VISIBLE SHALL BE WITHIN THE CMU WALLS. SURFACE MOUNTED CONDUIT WILL BE ACCEPTED ONLY WHERE NOT VISIBLE AND COVERED UP BY OTHER FINISHES.
10. CONTRACTOR TO PROVIDE & COORDINATE INSTALLATION OF RECESSED KNOX BOX WITH CITY OF CLINTON FIRE DEPARTMENT, LOCATE ON EXTERIOR WHERE INDICATED. COLOR SELECTED BY ARCHITECT.
11. PROVIDE 48" WIDE X HEIGHT OF CEILING SANITARY WALL FINISH ON BOTH SIDES OF MOP SINK. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
12. DURING CONSTRUCTION ALL REQUIREMENTS OF CHAPTER 14 OF THE NCFPC MUST BE MET.
13. PORTABLE FIRE EXTINGUISHERS ARE REQUIRED ON SITE DURING CONSTRUCTION.
14. ALL FIRE RATED CONSTRUCTION SHALL COMPLY WITH THE NCSBC & CHAPTER 7 OF THE NCFPC.
15. WRAP ALL COLUMNS W/ ⅝" GWB WHERE VISIBLE. WRAP METAL FURRING/FRAMING & GWB AROUND COLUMNS AS TIGHT AS POSSIBLE.
16. FEC = FIRE EXTINGUISHER CABINET. SEE SPECIFICATIONS. INSTALL SO HANDLE IS 40"-48" AFF BUT THAT TOP OF CABINET DOES NOT EXCEED 87"AFF. COORDINATE / VERIFY W/ AHJ.
17. ACCESS CONTROL LOCATIONS (AC). SEE A600 & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
18. ALL NOTES ARE TYPICAL UNLESS NOTED OTHERWISE.
19. SEE SHEET SERIES A700 FOR CORNER GUARD LOCATIONS AND DETAILS.
20. FURNITURE AND MONITORS (OFCI)

REV 4

REV 1 — UNESSENTIAL LAYERS TURNED OFF

REV 1 — GENERAL NOTE COORDINATION

SAMPSON COUNTY 911 & ES FACILITIES

CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

OVERALL FLOOR PLAN

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
REV1	12/17/20	REVISION 01
REV4	01/20/21	REV4/ADD3

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SEAL

SHEET NUMBER A101

OVERALL FLOOR PLAN | SCALE: 3/32" = 1'-0" 01

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SAMPSON COUNTY 911 & ES FACILITIES

CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

MAIN BUILDING FLOOR PLAN

DATE	12.04.2020
PROJECT NO	20003

REVISIONS

NUM.	DATE	DESCRIPTION:
REV1	12/17/20	REVISION 01
REV4	01/20/21	REV4/ADD3

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SEAL

SHEET NUMBER A102

ENLARGED FLOOR PLAN (MAIN BUILDING) | SCALE: 1/8" = 1'-0" 01

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SAMPSON COUNTY 911 & ES FACILITIES

CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

EMS WING FLOOR PLAN

DATE 12.04.2020
PROJECT NO 20003
REVISIONS

NUM.	DATE	DESCRIPTION:
REV1	12/17/20	REVISION 01
REV4	01/20/21	REV4/ADD3

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SEAL

SHEET NUMBER A103

ENLARGED FLOOR PLAN (EMS WING) | SCALE: 1/8" = 1'-0" 1

REV 1 GENERAL NOTE COORDINATION

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SAMPSON COUNTY 911 & ES FACILITIES

CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

911 BUILDING FLOOR PLAN

DATE	12.04.2020
PROJECT NO	20003

REVISIONS

NUM.	DATE	DESCRIPTION:
REV1	12/17/20	REVISION 01
REV4	01/20/21	REV4/ADD3

REV 1 GENERAL NOTE COORDINATION

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SEAL

SHEET NUMBER A104

ENLARGED FLOOR PLAN (911 BUILDING) | SCALE: 1/8" = 1'-0" 1

20003 EXTERIOR COLOR SCHEDULE

BRICK: TO MATCH PALMETTO BRICK RED WIRE CUT

SHOT-BLAST CMU: TO MATCH JOHNSON CONCRETE JCL-3063 SHORELINE SANDS

MORTAR: TO MATCH HOLCIM OYSTER WHITE

SEALANTS ADJACENT TO METALS: TO MATCH TREMCO "ANODIZED ALUMINUM"

SEALANTS IN MASONRY: TO MATCH TREMCO "OFF WHITE"

ACM: COLOR TO MATCH CLEAR ANODIZED ALUMINUM

METAL WALL PANELS: PROFILE TO MATCH CENTRIA CC-260, COLOR TO MATCH CLEAR ANODIZED ALUMINUM

ALUMINUM STOREFRONTS AND CURTAIN WALL: CLEAR ANODIZED ALUMINUM

ALUMINUM SUNSHADES AND LOUVERS: CLEAR ANODIZED ALUMINUM

MECHANICAL LOUVERS: COLOR TO MATCH CLEAR ANODIZED ALUMINUM

EXTERIOR SHEET METAL COPINGS AND FLASHINGS: COLOR TO MATCH CLEAR ANODIZED ALUMINUM

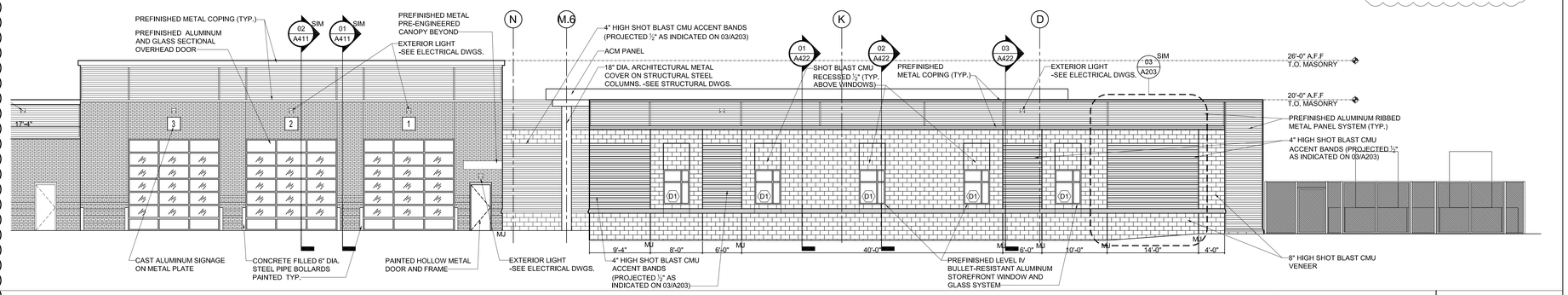
EXTERIOR METAL RAILINGS AND LADDERS: COLOR TO MATCH CLEAR ANODIZED ALUMINUM

CAST ALUMINUM LETTER SIGNAGE: COLOR TO MATCH CLEAR ANODIZED ALUMINUM, 9" TALL, ARIAL BOLD

ALUMINUM COUNTY SEAL: COLOR TO MATCH CLEAR ANODIZED ALUMINUM

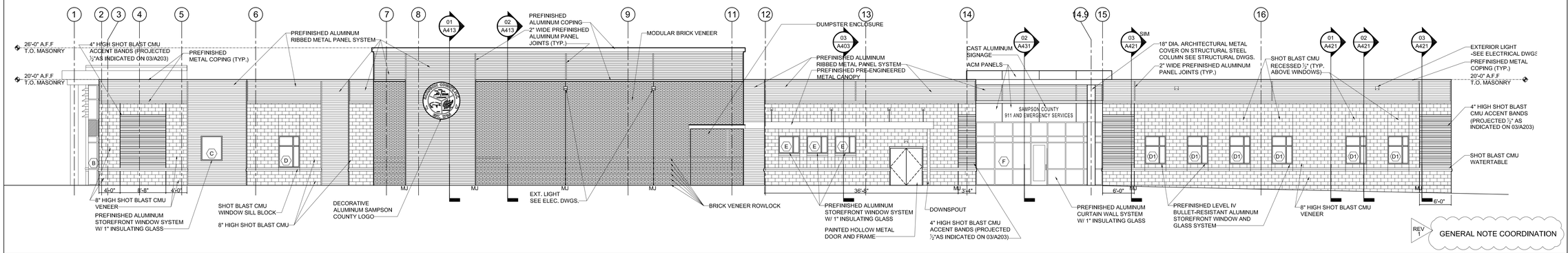
COLOR SCHEDULE | SCALE: NTS | 6

REV 4



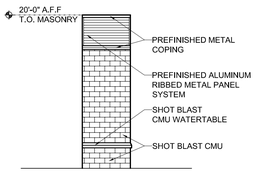
ENLARGED NORTH ELEVATION | SCALE: 1/8" = 1'-0" | 4

REV 1 GENERAL NOTE COORDINATION

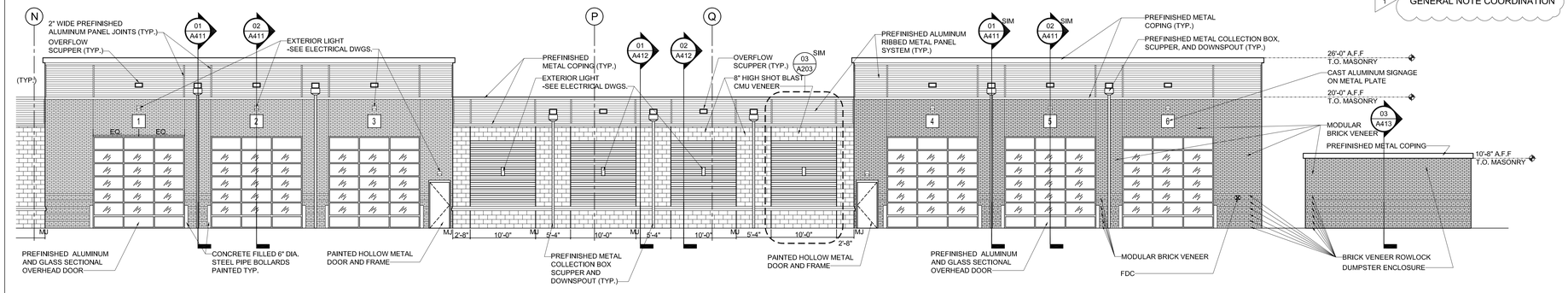


REV 1 GENERAL NOTE COORDINATION

ENLARGED EAST ELEVATION | SCALE: 1/8" = 1'-0" | 3

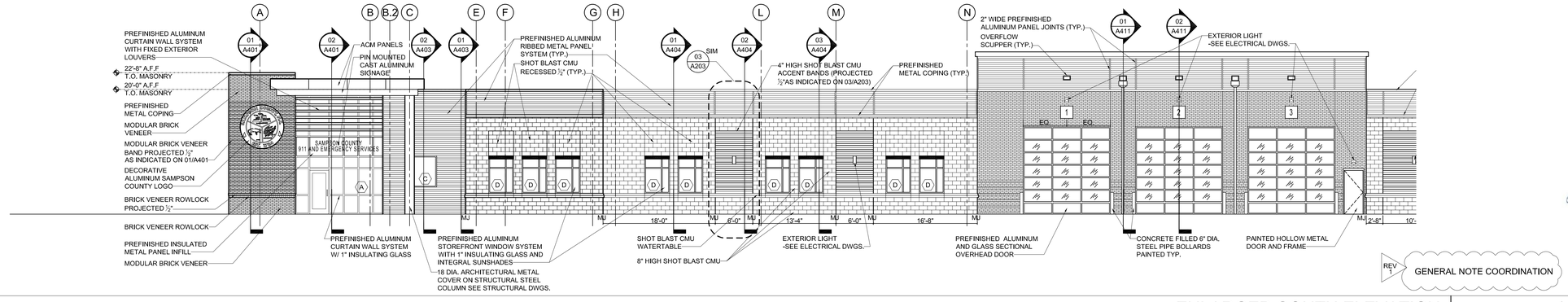


ENLARGED ELEV. | SCALE: 1/8" = 1'-0" | 5



REV 1 GENERAL NOTE COORDINATION

ENLARGED SOUTH ELEVATION | SCALE: 1/8" = 1'-0" | 2



REV 1 GENERAL NOTE COORDINATION

ENLARGED SOUTH ELEVATION | SCALE: 1/8" = 1'-0" | 1

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SAMPSON COUNTY 911 & ES FACILITIES

CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

ENLARGED BUILDING ELEVATIONS

DATE	12.04.2020
PROJECT NO	20003

REVISIONS

NUM.	DATE	DESCRIPTION:
REV1	12/17/20	REVISION 01
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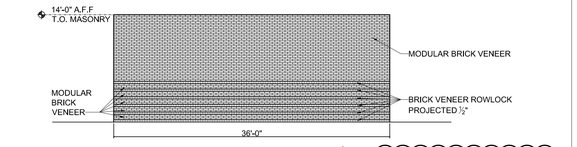
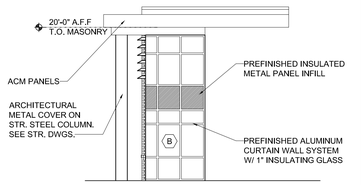
SEAL

SHEET NUMBER A202



REV 1 GENERAL NOTE COORDINATION

ENLARGED ELEVATION | SCALE: 1/8" = 1'-0" 10



REV 1 GENERAL NOTE COORDINATION

ENLARGED ELEV. | SCALE: 1/8" = 1'-0" 9

20003 EXTERIOR COLOR SCHEDULE

BRICK: TO MATCH PALMETTO BRICK RED WIRE CUT

SHOT-BLAST CMU: TO MATCH JOHNSON CONCRETE JCL-3063 SHORELINE SANDS

MORTAR: TO MATCH HOLCIM OYSTER WHITE

SEALANTS ADJACENT TO METALS: TO MATCH TREMCO "ANODIZED ALUMINUM"

SEALANTS IN MASONRY: TO MATCH TREMCO "OFF WHITE"

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METAL WALL PANELS: PROFILE TO MATCH CENTRIA CC-260, COLOR TO MATCH CLEAR ANODIZED ALUMINUM

ALUMINUM STOREFRONTS AND CURTAIN WALL: CLEAR ANODIZED ALUMINUM

ALUMINUM SUNSHADES AND LOUVERS: CLEAR ANODIZED ALUMINUM

MECHANICAL LOUVERS: COLOR TO MATCH CLEAR ANODIZED ALUMINUM

EXTERIOR SHEET METAL COPINGS AND FLASHINGS: COLOR TO MATCH CLEAR ANODIZED ALUMINUM

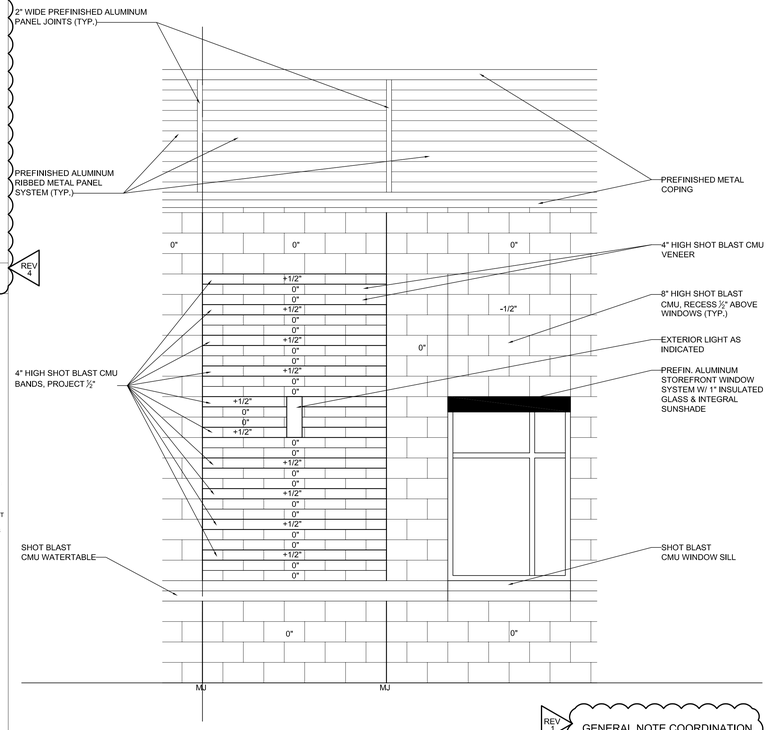
EXTERIOR METAL RAILINGS AND LADDERS: COLOR TO MATCH CLEAR ANODIZED ALUMINUM

CAST ALUMINUM LETTER SIGNAGE: COLOR TO MATCH CLEAR ANODIZED ALUMINUM, 9" TALL, ARIAL BOLD

ALUMINUM COUNTY SEAL: COLOR TO MATCH CLEAR ANODIZED ALUMINUM

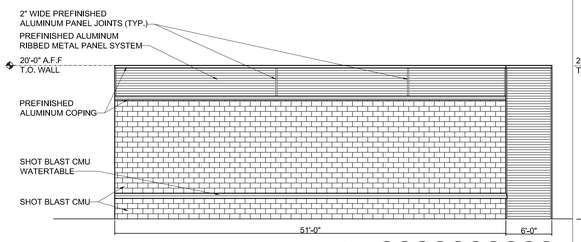
COLOR SCHEDULE | SCALE: NTS 11

REV 4



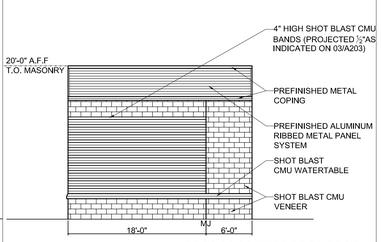
REV 1 GENERAL NOTE COORDINATION

ENLARGED DETAIL ELEVATION | SCALE: 1/2" = 1'-0" 3



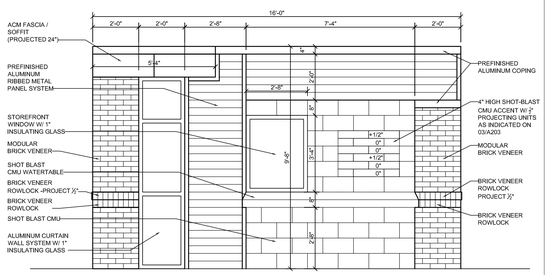
REV 1 GENERAL NOTE COORDINATION

ENLARGED ELEVATION | SCALE: 1/8" = 1'-0" 8



REV 1 GENERAL NOTE COORDINATION

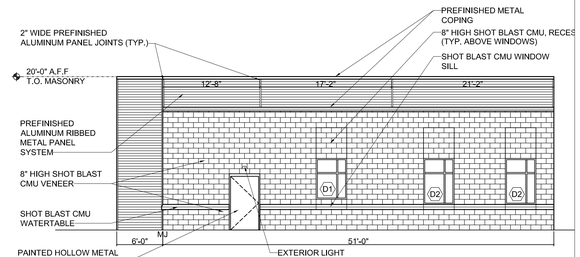
ENLARGED ELEV. | SCALE: 1/8" = 1'-0" 7



MOCKUP PANEL | SCALE: 3/8" = 1'-0" 4

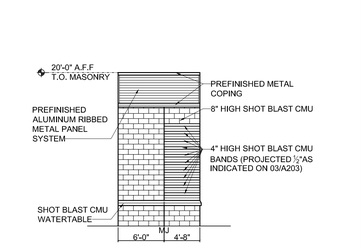
GENERAL NOTES:

1. CONTRACTOR SHALL BUILD MOCK-UP PANEL IN SAME MANNER AS THE FINISHED WALL WILL BE CONSTRUCTED. CONSTRACTOR SHALL BRACE WALL AS REQUIRED FOR PUBLIC SAFETY. WALL SHALL BE CONSTRUCTED AND APPROVED BY ARCHITECT AND OWNER PRIOR TO ORDERING BRICK VENEER OR METAL PANELS. COORDINATE PANEL LOCATION ON SITE WITH ARCHITECT AND OWNER.
2. SEE A200's SERIES FOR TYPICAL NOTES.

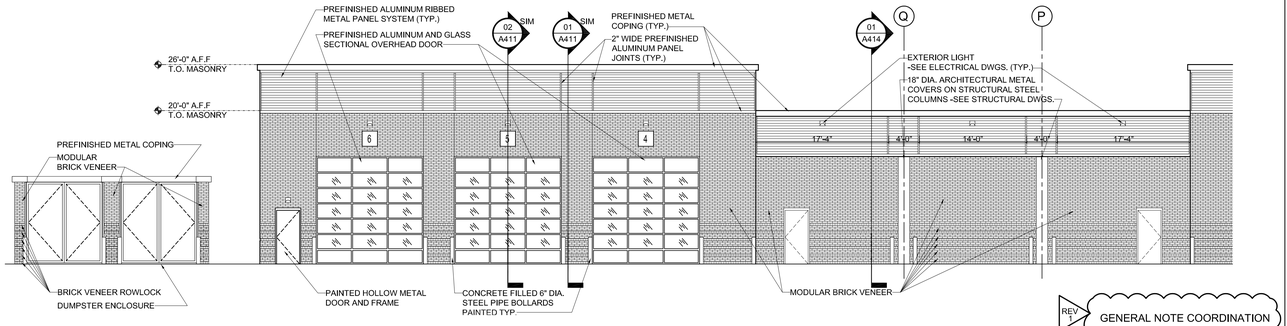


REV 1 GENERAL NOTE COORDINATION

ENLARGED ELEVATION | SCALE: 1/8" = 1'-0" 6

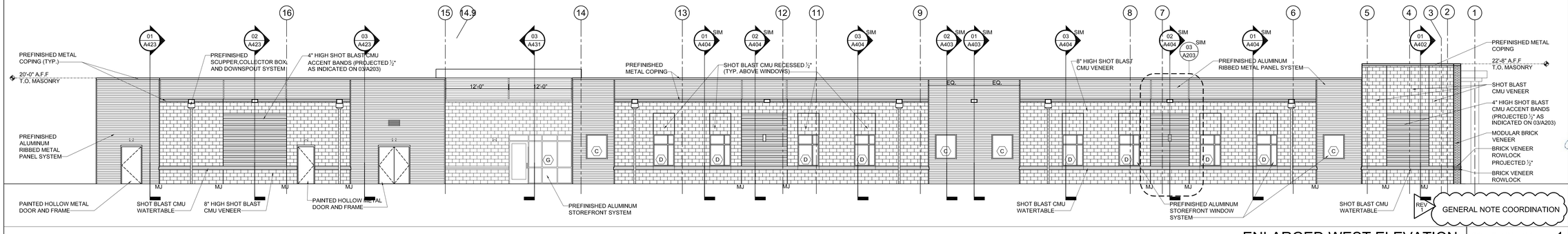


ENLARGED ELEV. | SCALE: 1/8" = 1'-0" 5



REV 1 GENERAL NOTE COORDINATION

ENLARGED NORTH ELEVATION | SCALE: 1/8" = 1'-0" 2



REV 1 GENERAL NOTE COORDINATION

ENLARGED WEST ELEVATION | SCALE: 1/8" = 1'-0" 1

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CONSTRUCTION DOCUMENTS

ENLARGED BUILDING ELEVATIONS

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
REV1	12/17/20	REVISION 01
REV4	01/20/21	REV4/ADD3

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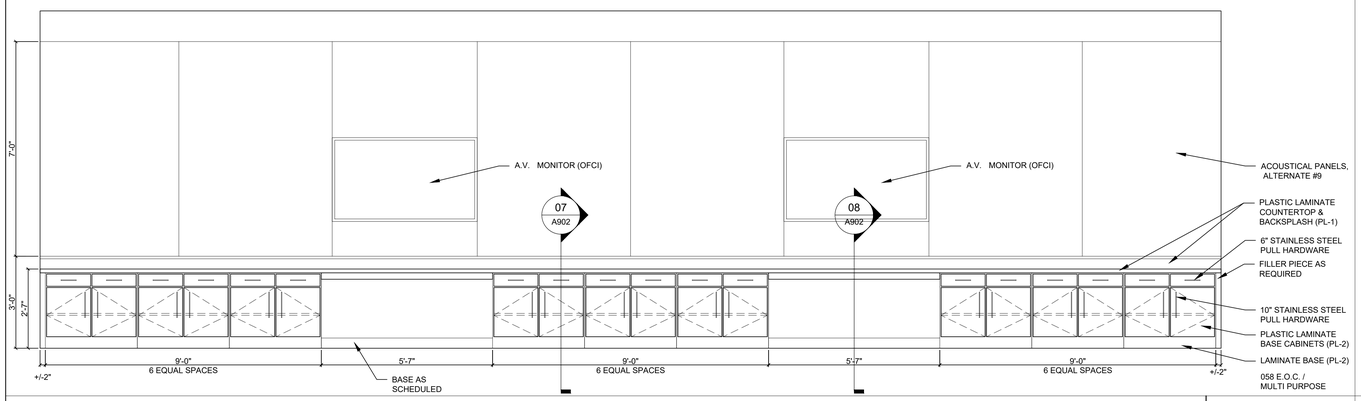
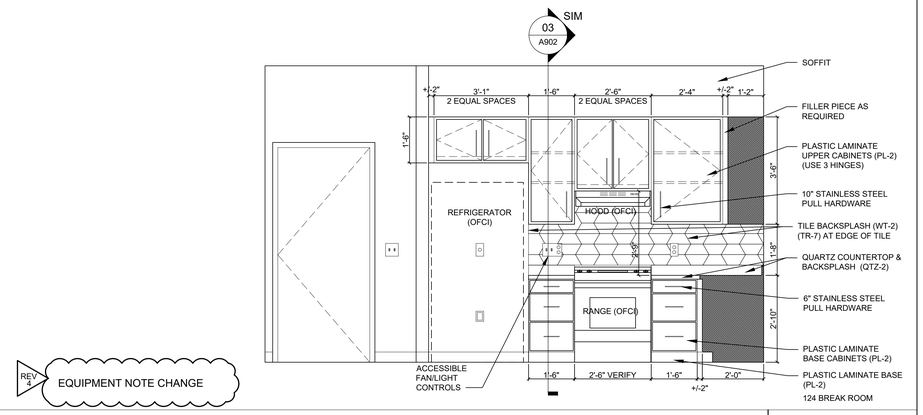
SEAL

SHEET NUMBER A203

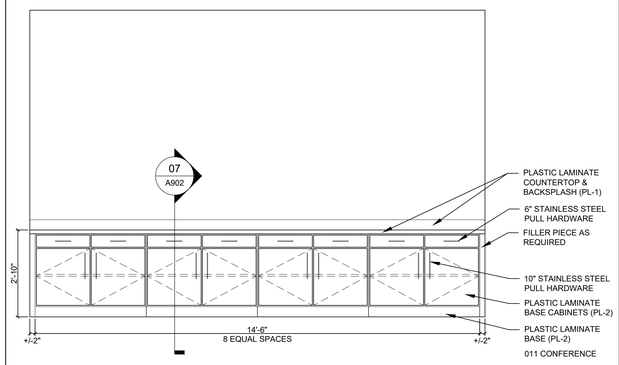


CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" 08

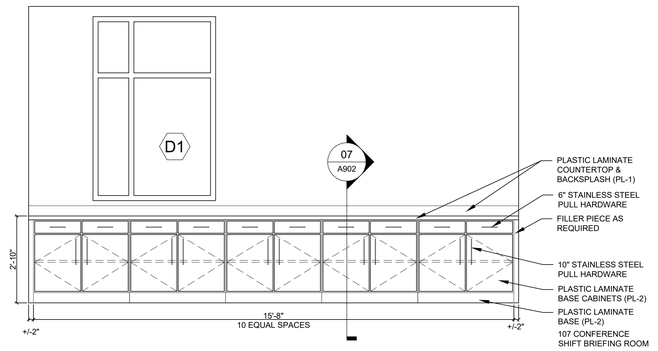


REV 4 EQUIPMENT NOTE CHANGE

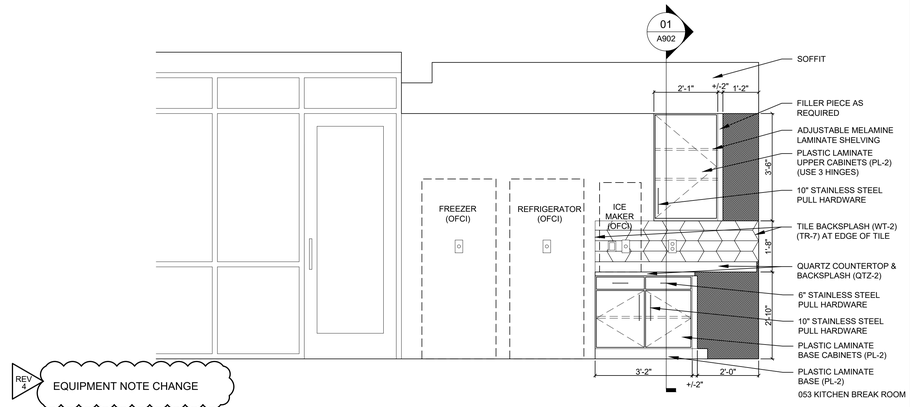
CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" 04



CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" 11

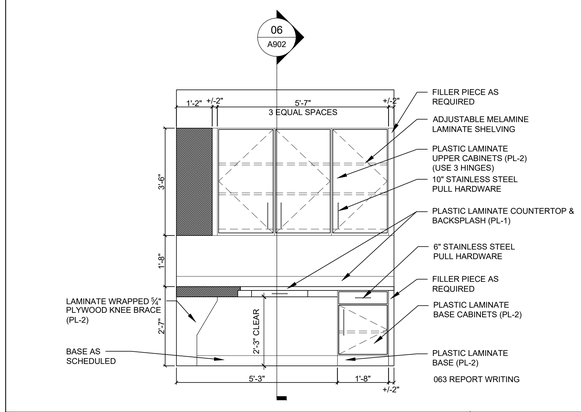


CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" 07

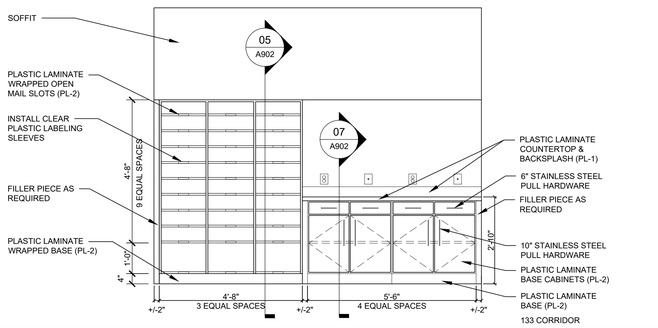


REV 4 EQUIPMENT NOTE CHANGE

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" 03



CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" 10



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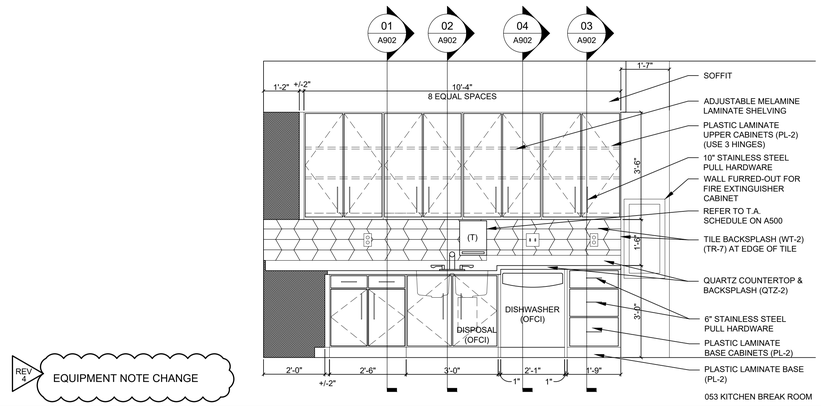
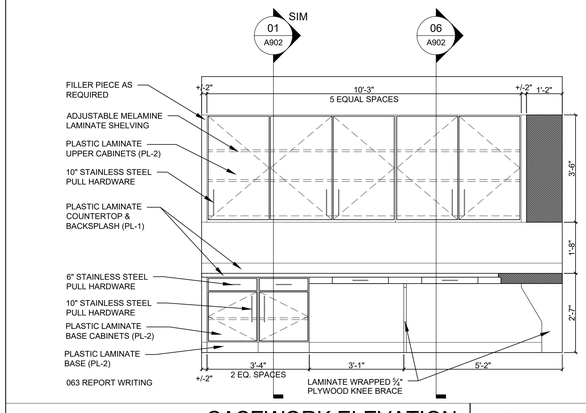


REV 4 EQUIPMENT NOTE CHANGE

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" 02



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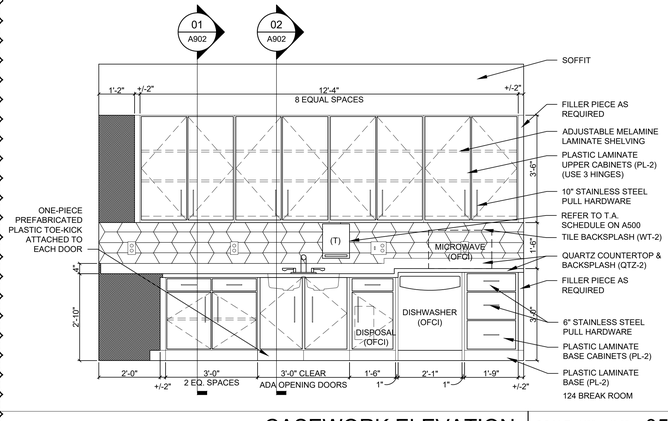
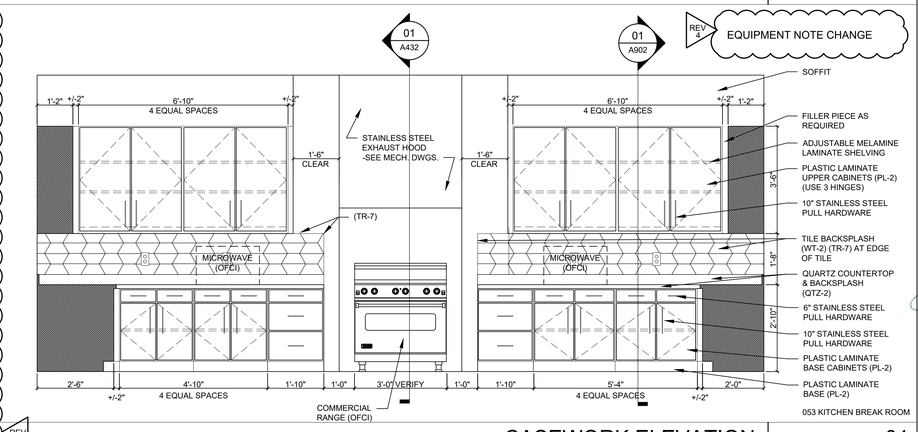


CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" 05

REV 4



CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" 01

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CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

CASEWORK ELEVATIONS

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
REV2	01/09/21	REV2/ADD1
REV4	01/20/21	REV4/ADD3

REV 2 GENERAL COORDINATION

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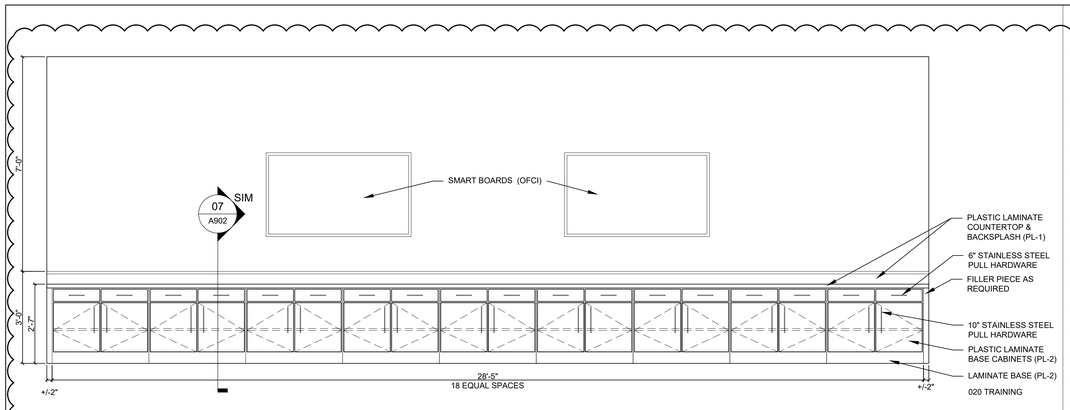
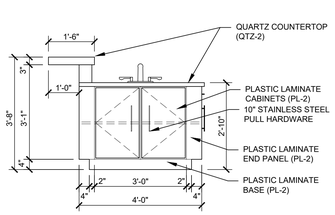
SEAL

SHEET NUMBER A900



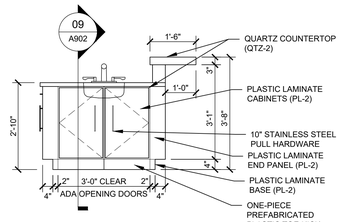
020 TRAINING

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 13

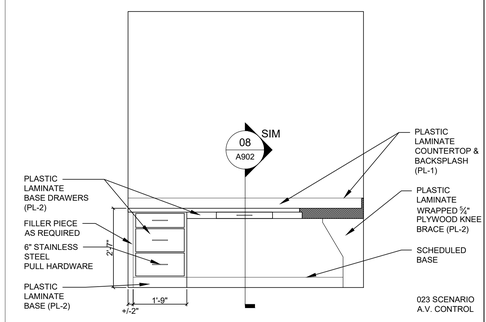


053 KITCHEN BREAK ROOM

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 8

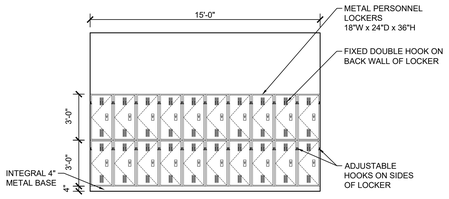


CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 4



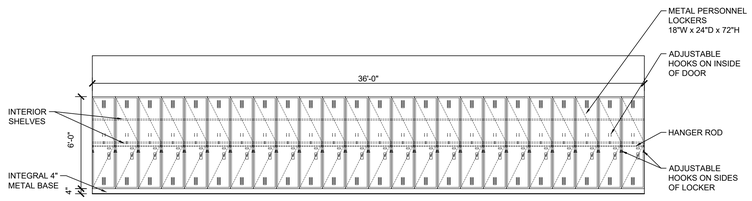
023 SCENARIO A.V. CONTROL

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 12



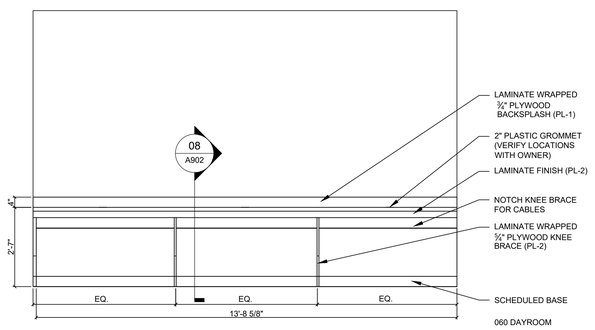
LOCKER ROOM 113 - SOUTH WALL
LOCKER ROOM 113 - NORTH WALL O.H.

LOCKERS ELEVATION | SCALE: 1/2" = 1'-0" | 11



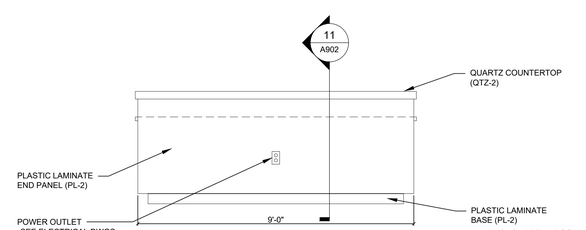
WOMEN'S LOCKERS 030 - NORTH WALL
MEN'S LOCKERS 033 - SOUTH WALL O.H.

LOCKERS ELEVATION | SCALE: 1/2" = 1'-0" | 9



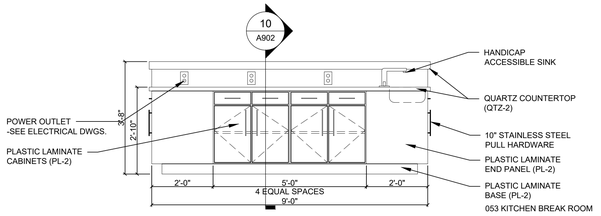
060 DAYROOM

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 10



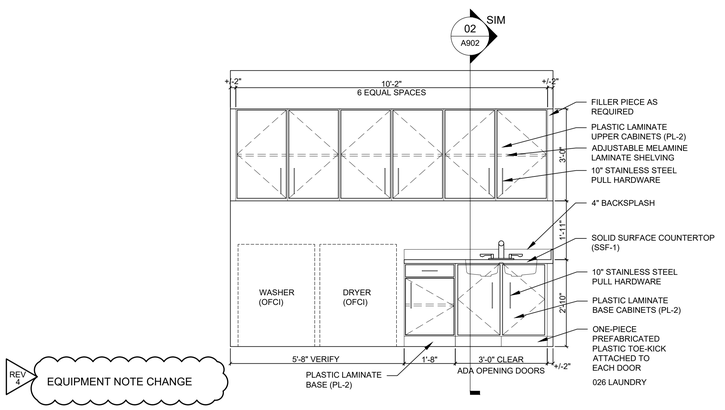
053 KITCHEN BREAK ROOM

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 7



053 KITCHEN BREAK ROOM

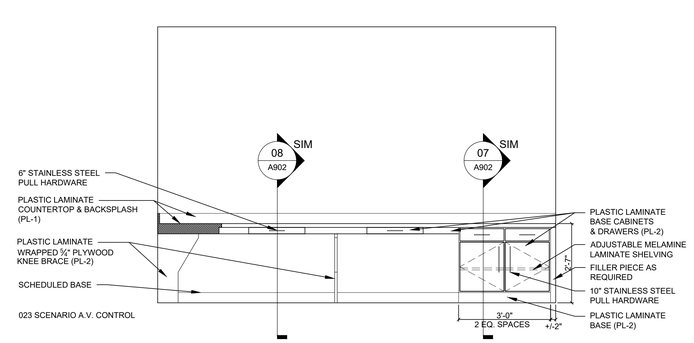
CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 6



REV 4 EQUIPMENT NOTE CHANGE

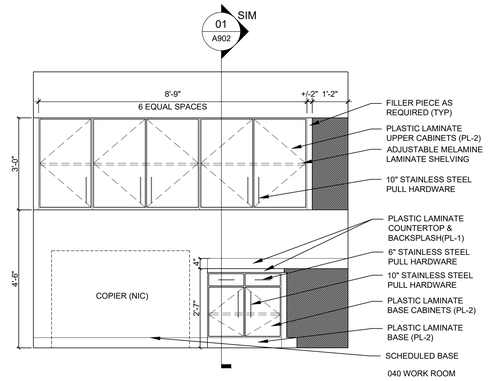
026 LAUNDRY

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 5



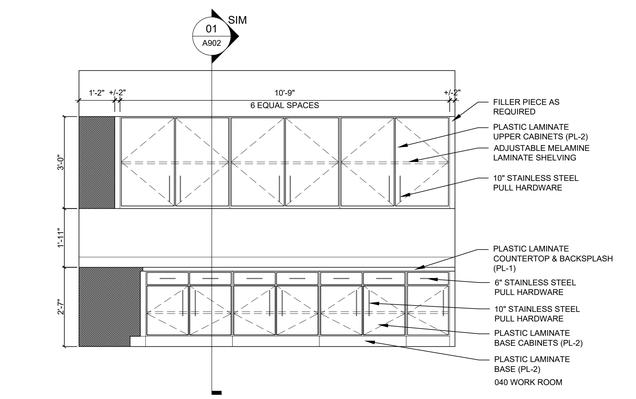
023 SCENARIO A.V. CONTROL

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 3



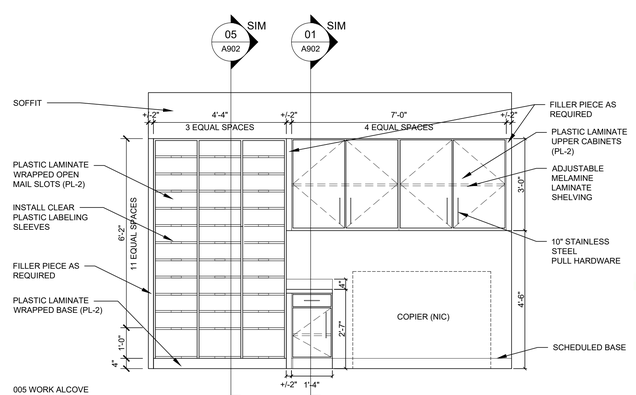
040 WORK ROOM

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 2



040 WORK ROOM

CASEWORK ELEVATION | SCALE: 1/2" = 1'-0" | 1



005 WORK ALCOVE

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SAMPSON COUNTY 911 & ES FACILITIES

CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

CASEWORK ELEVATIONS

DATE	12.04.2020
PROJECT NO	20003

REVISIONS

NUM.	DATE	DESCRIPTION:
REV2	01/09/21	REV2/ADD1
REV4	01/20/21	REV4/ADD3

REV 2 GENERAL COORDINATION

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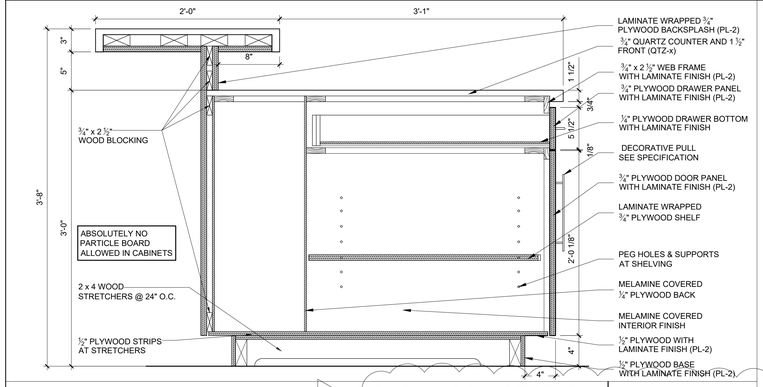
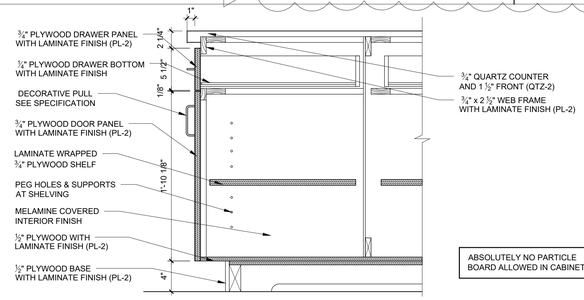
SEAL

SHEET NUMBER A901

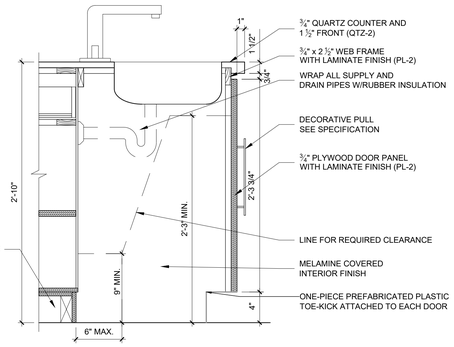


REV 2

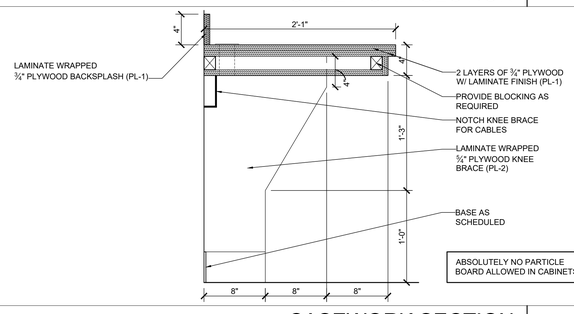
CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 11



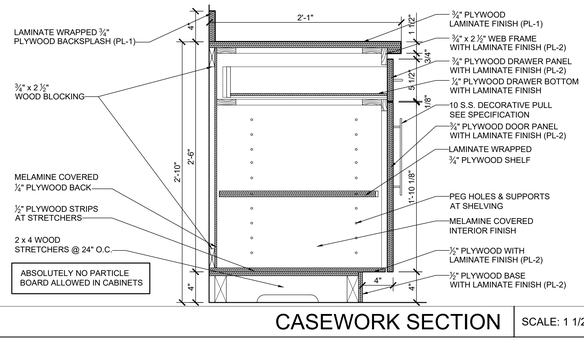
CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 10



CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 09



CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 08



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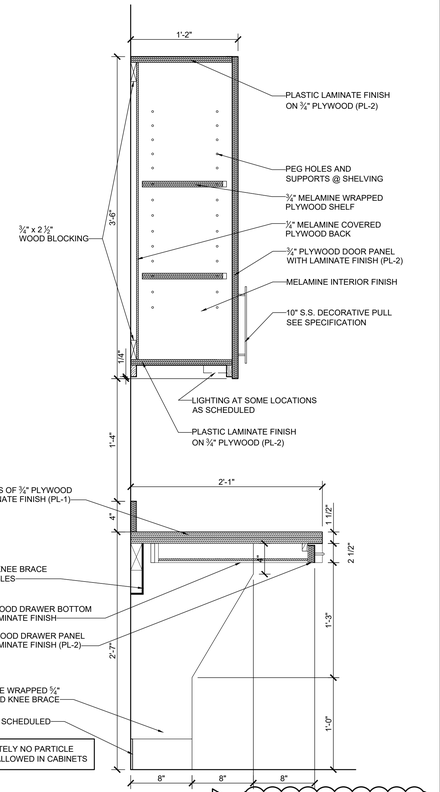
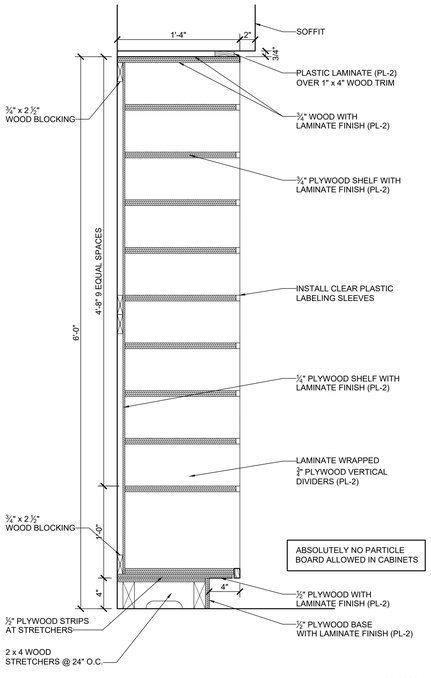
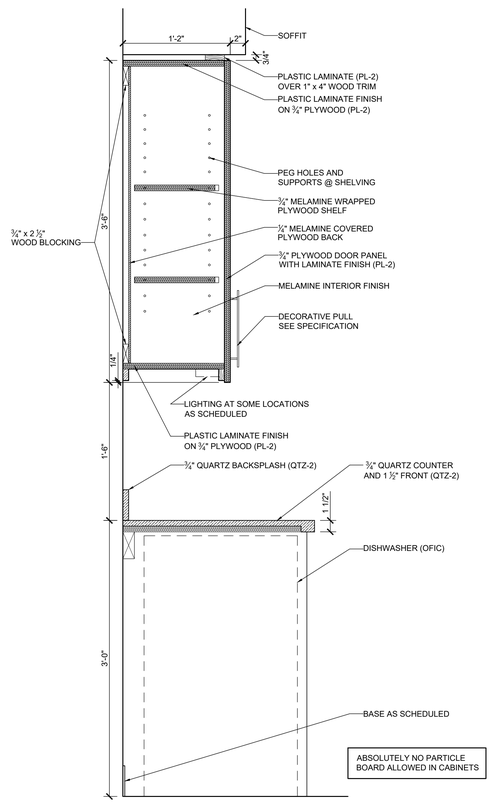


CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 06



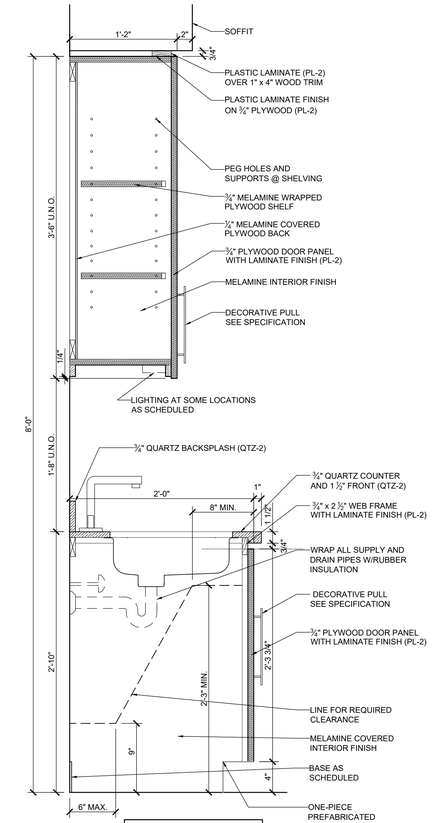
133 CORRIDOR

CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 05

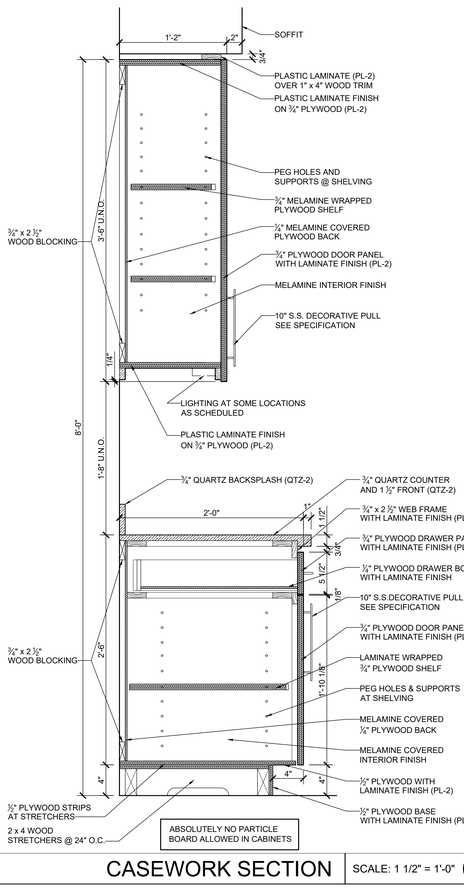


CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 03

CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 04



CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 02



CASEWORK SECTION | SCALE: 1 1/2" = 1'-0" 01

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CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

CASEWORK SECTIONS

DATE	12.04.2020
PROJECT NO	20003

REVISIONS

NUM.	DATE	DESCRIPTION:
REV2	01/09/21	REV2/ADD1
REV4	01/20/21	REV4/ADD3

REV 2 GENERAL COORDINATION

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JAMES GILMORE OWEN 5454 REGISTERED ARCHITECT NORTH CAROLINA 1-20-21

ADW ARCHITECTS, P.A. CORPORATE SEAL 50223 NORTH CAROLINA

SEAL

SHEET NUMBER A902

VARIABLE VOLUME ROOFTOP UNIT SCHEDULE (DX COOLING GAS HEAT, R-410 REFRIGERANT)

SYMBOL	CFM	VENTILATION AIR MIN. CFM	VENTILATION AIR DESIGN	SUPP. FAN E.S.P.	EXH. FAN E.S.P.	NET COOLING CAPACITY TC (BTUH)	NET COOLING CAPACITY SHC (BTUH)	COOLING EFFICIENCY EER (ARI)	COOLING EFFICIENCY IEER (ARI)	HEATING CAPACITY INPUT (BTUH)	HEATING CAPACITY OUTPUT (BTUH)	EFFICIENCY AFUE	COMPRESSOR NO.	COMPRESSOR RLA	COMPRESSOR LRA	OFM QTY.	OFM FLA	SUPPLY FAN QTY.	SUPPLY FAN HP	SUPPLY FAN FLA	RELIEF FAN QTY.	RELIEF FAN HP	RELIEF FAN FLA	POWER SUPPLY MCA	POWER SUPPLY MOCP	POWER SUPPLY VOLTAGE	OPERATING WEIGHT	MANUFACTURER TRANE MODEL
RTU-1	12,000	2,315	2,400	2.0"	0.5"	369,000	268,000	10.9	17.9	350,000	283,000	81%	2	23.0/22.7	--/--	2	2.9/2.7	2	5/5	8.3/8.3	2	6/6	6.3/6.3	90.75	110	460V-3ø	7,190 LBS	RF30-SYMBIO
RTU-2	8,000	900	1,200	2.0"	0.5"	267,000	180,000	11.3	17.2	350,000	283,000	81%	2	17.5/15.3	--/--	2	2.9/2.7	2	3/3	4.7/4.7	1	6	6.3	62.98	80	460V-3ø	7,050 LBS	RF20-SYMBIO
RTU-3	8,000	900	1,200	2.0"	0.5"	267,000	180,000	11.3	17.2	350,000	283,000	81%	2	17.5/15.3	--/--	2	2.9/2.7	2	3/3	4.7/4.7	1	6	6.3	62.98	80	460V-3ø	7,050 LBS	RF20-SYMBIO
RTU-4	8,000	900	1,200	2.0"	0.5"	267,000	180,000	11.3	17.2	350,000	283,000	81%	2	17.5/15.3	--/--	2	2.9/2.7	2	3/3	4.7/4.7	1	6	6.3	62.98	80	460V-3ø	7,050 LBS	RF20-SYMBIO

NOTES:

1. FURNISH UNITS WITH: FACTORY SOUND REDUCTION ROOF CURB (TRANE QUIET CURB, MINIMUM 12" ABOVE FINISHED ROOF, INCLUDING CRICKETS), DOUBLE-WALL CONSTRUCTION, DIRECT-DRIVE PLENUM SUPPLY FAN WITH VARIABLE SPEED DRIVE, INTEGRATED ECONOMIZER (COMPARATIVE ENTHALPY CONTROL) WITH 100% MODULATING EXHAUST, LOW AMBIENT CONTROLS (OPERATION DOWN TO 0°F), 65 KAIC SCCR RATING, CRANKCASE HEATER, VAV CONTROLS, MOTORIZED OA DAMPER, MOTORIZED RELIEF DAMPER, OUTSIDE AIR AND RELIEF HOODS, SUPPLY AND RELIEF FAN MOTOR SPRING-TYPE VIBRATION ISOLATORS, ALL NON-LOW VOLTAGE ELECTRICAL WIRING IN METALLIC RACEWAY, DUCT MOUNTED STATIC PRESSURE CONTROLLER, POWER EXHAUST CONTROLLER WITH INTERIOR SPACE PRESSURE SENSOR, CONDENSER HAIL GUARD, NEMA PREMIUM EFFICIENCY FAN MOTORS, EXTENDED SUPPLY FAN DISCHARGE PLENUM SECTION (DIRECT DOWNFLOW FAN WILL NOT BE ACCEPTED (RTU-1 THRU RTU-4)), FILTERS (MERV-8), PITCHED STAINLESS STEEL DRAIN PAN, SINGLE POINT ELECTRICAL CONNECTION WITH NON-FUSED DISCONNECT, CONTROL PANEL WITH DISPLAY, SUCTION AND DISCHARGE SERVICE VALVES, BAS CONTROLS INTERFACE MODULE. ALL ACCESS DOORS SHALL BE HINGED DOORS WITH "TOOL-LESS" ENTRY.
2. ALL UNITS SHALL BE AGA CERTIFIED, U.L. LABELED, AND ASHRAE 90.1 COMPLIANT.
3. PHOTOELECTRIC TYPE SMOKE DETECTORS SHALL BE PROVIDED WITH EACH ROOFTOP UNIT. DUCT DETECTORS WILL BE FURNISHED BY THE ELECTRICAL CONTRACTOR, INSTALLED IN DUCT BY THE MECHANICAL CONTRACTOR, AND WIRED FOR UNIT SHUT-DOWN AND FIRE ALARM INTERFACE BY THE ELECTRICAL CONTRACTOR. DUCT DETECTORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. TWO DUCT DETECTORS REQUIRED PER UNIT (ONE IN THE SUPPLY AND ONE IN THE RETURN).
4. COOLING CAPACITIES BASED ON 95° AMBIENT, 80/67 ENTERING AIR.
5. PRIMARY COOLING COIL DRAIN PAN SHALL BE PROVIDED WITH A FLOAT SWITCH BY UNIT MFR; ACTIVATION OF THE FLOAT SWITCH SHALL SHUT DOWN UNIT AND SEND AN ALARM TO THE CENTRAL BAS.
6. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN RTU-1 SHALL HAVE A MINIMUM SCCR RATING OF 65 KAIC.
7. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN RTU-2 SHALL HAVE A MINIMUM SCCR RATING OF 65 KAIC.
8. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN RTU-3 & RTU-4 SHALL HAVE A MINIMUM SCCR RATING OF 65 KAIC. (4)
8. ALL UNITS SHALL BE PROVIDED WITH A UL 2998 LISTED NEEDLEPOINT BI-POLAR IONIZATION SYSTEM (GLOBAL PLASMA SOLUTIONS I-MOD, OR EQUAL). POWER SHALL BE EXTENDED FROM THE UNIT CONTROL CIRCUIT.

CONSTANT VOLUME ROOFTOP UNIT SCHEDULE (DX COOLING WITH GAS HEAT)

SYMBOL	AREA SERVED	DESIGN CFM	DESIGN E.S.P.	MIN. CFM	COOLING CAPACITY NET TC (BTUH)	COOLING CAPACITY NET SHC (BTUH)	COOLING CAPACITY LAT AT COIL DB/WB (°F)	HEATING CAPACITY INPUT (BTUH)	HEATING CAPACITY OUTPUT (BTUH)	HEATING CAPACITY L.A.T. (°F)	HOT GAS REHEAT (BTUH)	POWER SUPPLY MCA	POWER SUPPLY MOCP	POWER SUPPLY VOLTAGE	OPERATING WEIGHT	MANUFACTURER AAON
RTU-5	EMS WAREHOUSE	2,400	.75"	--	102,450	71,490	53.2/53.0	195,000	156,000	112.6	48,000	23	30	460V-3ø	1,843 lbs	RN - 009 - 3 - 0 - EB09 - 3F9

NOTES:

1. ALL UNITS SHALL BE U.L. LABELED.
2. PROVIDE UNIT WITH: FACTORY ROOF CURB (MINIMUM 12" ABOVE FINISHED ROOF, INCLUDING CRICKETS), DOUBLE-WALL CONSTRUCTION, CONVENIENCE OUTLET, VARIABLE CAPACITY SCROLL COMPRESSORS (QTY-2), ECM CONDENSER FANS, BACNET CONTROLS INTERFACE, 4" PLEATED FILTERS (MERV 8), SINGLE POINT ELECTRICAL CONNECTION, CONDENSER HAIL GUARDS, MODULATING HOT-GAS REHEAT, 1" VIBRATION ISOLATORS, 65 KAIC SCCR RATING.
3. ALL TEMPERATURES ARE MEASURED IN DEGREES FAHRENHEIT, AND SPECIFIC HUMIDITY IS MEASURED IN GRAINS PER POUND DRY AIR.
4. OUTDOOR DESIGN CONDITIONS: SUMMER: 96° F. D.B., 78° F. W.B. - WINTER: 18° F. D.B.
5. MINIMUM COOLING EFFICIENCY: 10.3 EER AT FULL LOAD OPERATING CONDITIONS.
6. PROVIDE UNIT WITH A IONIZATION TYPE SMOKE DETECTOR, INSTALLED IN THE SUPPLY 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 SUPPLY DUCT BY THE MECHANICAL CONTRACTOR.
7. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN RTU-5 SHALL HAVE A MINIMUM SCCR RATING OF 65 KAIC.

GRILLE AND DIFFUSER SCHEDULE

SYMBOL	SERVICE	CFM RANGE	FACE SIZE*	NECK SIZE	TYPE	OBD	PRICE
A	SUPPLY	(SEE PLANS FOR SIZE AND CFM)			DBL. DEFL.	YES	520
B	SUPPLY	(SEE PLANS FOR SIZE AND CFM)			SPIRAL DUCT	YES	SDG
C	SUPPLY	0 - 120	12x12	6"ø	LOUVERED	NO	SMD
D	SUPPLY	0 - 175	24x24	8"ø	LOUVERED	NO	SMD
E	SUPPLY	180 - 270	24x24	10"ø	LOUVERED	NO	SMD
F	SUPPLY	275 - 390	24x24	12"ø	LOUVERED	NO	SMD
G	SUPPLY	395 - 535	24x24	14"ø	LOUVERED	NO	SMD
H	SUPPLY	0 - 200	(3) 3/4" SLOTS; 48" LONG	LINEAR; 8"ø INLET	NO	SDS75/SDAI75	
J	SUPPLY	205 - 320	(3) 3/4" SLOTS; 72" LONG	LINEAR; 10"ø INLET	NO	SDS75/SDAI75	
K	RET/EXH	0 - 120	12x12	6"ø	PERF.	NO	PDDR
L	RET/EXH	0 - 175	24x24	8x8	PERF.	NO	PDDR
M	RET/EXH	180 - 270	24x24	10x10	PERF.	NO	PDDR
N	RET/EXH	275 - 500	24x24	12x12	PERF.	NO	PDDR
P	RET/EXH	505 - 885	24x24	16x16	PERF.	NO	PDDR
Q	RET/EXH	890 - 2000	24x24	22x22	PERF.	NO	PDR
R	RET/EXH	(SEE PLANS FOR SIZE AND CFM)			SINGLE. DEFL.	YES	530
T	SUPPLY	0 - 130	24x12	6"ø	DBL. DEFL.	YES	520
U	RET/EXH	0 - 130	24x12	6"ø	SINGLE. DEFL.	YES	530

* LOUVERED FACE GRILLES IN GYP CEILINGS SHALL BE FURNISHED WITH SMALLEST FACE SIZE FOR SCHEDULED NECK SIZE.

NOTES:

1. ALL CEILING AND WALL MOUNTED DEVICES SHALL BE FURNISHED WITH AN ENAMEL OFF-WHITE FINISH (AS APPROVED BY THE ARCH/OWNER) UNLESS NOTED OTHERWISE.
2. ALL DEVICES SHALL BE FURNISHED WITH FRAMES SUITABLE FOR TYPE OF INSTALLATION REQUIRED.
3. ALL LINEAR DIFFUSERS IN LAY-IN CEILINGS SHALL BE FURNISHED WITH END CAPS, ALL LINEAR DIFFUSERS IN GYP. CEILINGS/ WALLS SHALL BE FURNISHED WITH END BORDERS.
4. ALL DOUBLE DEFLECTION SUPPLY GRILLES SHALL HAVE DAMPER BLADES ADJUSTED TO PROVIDE AIRFLOW PATTERN INDICATED BY FLOW ARROWS ON PLANS. DAMPERS SHALL BE ADJUSTED TO A 30 DEGREE POSITION UNLESS NOTED OTHERWISE ON PLANS.
5. REGISTERS ON ROUND DUCT SHALL BE MOUNTED FLUSH WITHOUT THE USE OF TRANSITIONS. THE FACE FRAME SHALL BE CURVED TO MATCH THE RADIUS OF THE DUCT ALLOWING THE GRILLE TO FIT SNUGLY AROUND THE DUCT. PROVIDE REGISTERS WITH OPTIONAL AIR SCOOP.
6. ALL DEVICES INSTALLED IN LOCKER ROOMS, TOILETS AND APPARATUS ROOMS SHALL BE ALL ALUMINUM CONSTRUCTION.

SERVER ROOM AIR CONDITIONING UNITS

DESIGN CONDITIONS: 75° F. D.B., 50% R.H.

A/C-1 & 2 LIEBERT MODEL DS070ASA (DOWNFLOW WITH TOP RETURN)

9,000 CFM @ 0.20" E.S.P.; 238,400 BTUH TC; 209,400 BTUH SHC; ELECTRIC REHEAT - SCR CONTROL, 25 KW, 85,300 BTUH; INFRARED HUMIDIFIER (STAINLESS STEEL PAN) - 22.0 LBS/HR, SUPPLY FAN - 2 @ 5.4 H.P.
ELECTRICAL DATA: 460V-3ø, 59.9 WSA, 80 OPD.

FURNISH UNIT WITH: ICOM FACTORY CONTROLS WITH LARGE GRAPHICS DISPLAY, LOCKING DISCONNECT SWITCH, FIRESTAT, SMOKE DETECTOR, RETURN AIR TEMPERATURE AND HUMIDITY SENSORS, HIGH EFFICIENCY FILTERS (MERV-8), FILTER CLOG DETECTION ALARM, 12" FLOORSTAND, DIGITAL SCROLL VARIABLE CAPACITY COMPRESSOR, INTELLISLOT COMM CARD, 4-YEAR EXTENDED COMPRESSOR WARRANTY.

CONDENSING UNITS

CU-1 & 2 LIEBERT MODEL MCL110

105° F. AMBIENT; 238,400 BTUH TC; 209,400 BTUH SHC;
ELECTRICAL DATA: 460V-3ø, 5.6 FLA, 6.3 WSA, 15 OPD
FURNISH UNIT WITH: VFD FAN SPEED CONTROL FOR LOW AMBIENT OPERATION

NOTES:

1. MOUNT CONDENSING UNITS ON 6" THICK CONCRETE PADS. INSTALL UNITS LEVEL.
2. ALL UNITS SHALL BE UL LISTED AND LABELED.
3. REFRIGERANT PIPING SHALL BE SIZED AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
4. ALL UNITS SHALL BE FURNISHED WITH 4-YEAR EXTENDED COMPRESSOR WARRANTY (5-YEAR WARRANTY).
5. PROVIDE 12" FLOORSTAND.
6. PROVIDE UNIT WITH RETURN DUCT CONNECTION.
7. PROVIDE ICOM MICROPROCESSOR BASED CONTROL MODULE.
8. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE A/C UNITS SHALL HAVE A MINIMUM SCCR RATING OF 65 KAIC.
9. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE CONDENSING UNITS SHALL HAVE A MINIMUM SCCR RATING OF 65 KAIC.

LEAK DETECTION SYSTEM (BELOW RAISED FLOOR)

PROVIDE LIEBERT LIQUI-TECT MONITORING SYSTEM. INSTALL LIQUID DETECTION CABLE (LIEBERT LT500Y WATER SENSING CABLE) AROUND THE PERIMETER OF MECHANICAL ROOM 129 BELOW THE RAISED FLOOR. LIQUID DETECTION SYSTEM CONTROL PANEL SHALL BE INTEGRATED WITH BAS.

INFRARED HEATERS SCHEDULE (NATURAL GAS)

SYMBOL	VOLTAGE	AMPS	HEATING CAPACITY HIGH/LOW INPUT (BTUH)	WEIGHT	LENGTH	MANUFACTURER SPACE-RAY
IFH-1 TO IFH-4	120V-1ø	2.6	125,000/80,000	185 LBS	32'-3"	LTS-125-30-N5

NOTES:

1. MOUNTING HEIGHTS AND EXACT LOCATIONS SHALL BE VERIFIED WITH THE OWNER AND INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. MINIMUM MOUNTING HEIGHT SHALL BE 14' 0" AFF WITH A MINIMUM OF CLEARANCE OF 18" ABOVE ANY SURFACE AND 82" FROM COMBUSTIBLES BELOW. INSTALL IN A HORIZONTAL POSITION PARALLEL RELATIVE TO THE FINISH FLOOR.
2. PROVIDE UNITS WITH: CHAIN MOUNTING BRACKET, REMOTE TIMER SWITCH (SEE PLANS FOR QTY. AND LOCATIONS), INTERMITTENT PILOT IGNITION, AND FLEXIBLE CONNECTOR BY HEATER MANUFACTURER (24V CONTROL TRANSFORMER AS REQUIRED).
3. INFRARED HEATERS SHALL BE TESTED IN ACCORDANCE WITH ANSI Z83.6 AND SHALL BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. SEQUENCE OF OPERATION: THE SPACE TIMER SWITCH SHALL CONTROL THE CALL FOR HEAT IN STAGES TO THE UNIT'S CONTROLLER. PER THE MANUFACTURER'S PRE-PROGRAMMED SEQUENCE, THE CONTROLLER SHALL PERFORM A SELF CHECK ROUTINE TO ASSURE PROPER IGNITION. WHEN THE FLAME IS DETECTED DURING THE TRIAL FOR IGNITION, SPARK IS SHUTOFF IMMEDIATELY AND THE GAS VALVE REMAINS ENERGIZED. THE MAIN BURNER FLAME IS CONSTANTLY MONITORED TO ASSURE THE SYSTEM CONTINUES TO OPERATE PROPERLY. ONCE THE TIMER HAS EXPIRED IT'S SET TIME DURATION (ADJUSTABLE) OR THE TIMER SWITCH IS DE-ATIVATED BY AN 'OFF' BUTTON, THE GAS VALVE IS DE-ENERGIZED.
5. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE HEATERS SHALL HAVE A MINIMUM SCCR RATING OF 7 KAIC.

COMMISSIONING NOTE - 2018 NCECC C408

THE OWNER WILL CONTRACT WITH A THIRD PARTY COMMISSIONING AGENT THAT WILL BE RESPONSIBLE FOR SYSTEM COMMISSIONING PER 2018 NCECC SECTION C408. THE MECHANICAL CONTRACTOR WILL BE REQUIRED TO COORDINATE WITH THE COMMISSIONING AGENT AND PROVIDE ALL NECESSARY TIME, MATERIALS, AND PROCEDURES AS REQUIRED BY THE COMMISSIONING AGENT TO PERFORM THE REQUIRED COMMISSIONING ACTIVITIES.

DUCTLESS SPLIT SYSTEMS (DX COOLING ONLY)

INDOOR UNIT SYMBOL	CFM	ELECTRICAL DATA MCA	VOLTAGE	OPERATING WEIGHT	MANUFACTURER DAIKIN	OUTDOOR UNIT SYMBOL	COOLING CAPACITY TC (BTUH)	COOLING CAPACITY SHC (BTUH)	HEATING CAPACITY (BTUH)	COMPRESSOR RLA	ELECTRICAL DATA MCA	ELECTRICAL DATA FUSE	ELECTRICAL DATA VOLTAGE	OPERATING WEIGHT	MANUFACTURER DAIKIN	ALLOWABLE LINE-SET LENGTHS
A/C-1	549	0.2	208V-1ø	27 LBS	FTXN24KVJU	CDU-1	24,000	18,000	N/A - COOL ONLY	11.15	15.8	20	208V-1ø	93 LBS	RKN24EVJU	98' TOTAL, 66' VERT.
A/C-2	549	0.2	208V-1ø	27 LBS	FTXN24KVJU	CDU-2	24,000	18,000	N/A - COOL ONLY	11.15	15.8	20	208V-1ø	93 LBS	RKN24EVJU	98' TOTAL, 66' VERT.

NOTES:

1. ALL UNITS SHALL BE U.L. LISTED AND HAVE A MINIMUM SEER OF 13.
2. COOLING CAPACITIES ARE BASED ON 95° AMBIENT, 80° ENTERING AIR DRY BULB, 67° ENTERING AIR WET BULB. AIRFLOWS INDICATED ARE AT 'HIGH' SPEED.
3. MOUNT GROUND-MOUNTED UNITS ON 6" CONCRETE PAD. MOUNT UNITS ON ROOF ON EQUIPMENT SUPPORT RAILS AS MFG. BY ROOF PRODUCTS AND SERVICE CORP. (OR EQUAL).
4. PROVIDE MANUFACTURER'S SUGGESTED CLEARANCES AROUND UNIT.
5. PROVIDE UNITS WITH MANUFACTURER'S WIND BAFFLES OR LOW AMBIENT CONTROLS FOR OPERATION DOWN TO 0° F, INVERTER COMPRESSOR, 7-DAY PROGRAMMABLE THERMOSTAT (WALL-MOUNTED), NON-LOCKING DISCONNECT FOR INDOOR UNIT.
6. PROVIDE OUTDOOR UNITS WITH 6 YEAR EXTENDED COMPRESSOR WARRANTY.
7. SEE MANUFACTURER'S RECOMMENDATIONS FOR REQUIRED ADDITIONAL REFRIGERANT CHARGE AND RECOMMENDED LINE-SET LENGTHS.
8. POWER SUPPLY TO CONDENSING UNIT IS A SINGLE POINT ELECTRICAL CONNECTION FOR THE SYSTEM (A/C UNIT AND CONDENSING UNIT). THE ELECTRICAL CONTRACTOR SHALL PROVIDE POWER TO THE CONDENSING UNIT AND FROM THE CONDENSING UNIT TO THE A/C UNIT INCLUDING CODE REQUIRED DISCONNECT SWITCHES.
9. REFRIGERANT PIPING AND WIRING FOR WALL-MOUNTED INDOOR UNITS SHALL BE ROUTED IN WALL WHERE POSSIBLE. ANY EXPOSED PIPING SHALL BE PAINTED TO MATCH WALL-FINISH.
10. MOUNT INDOOR AC UNIT 8'-0" A.F.F. (KEEP UNIT BELOW CEILING) COORDINATE WITH ALL UTILITIES, LIGHTS, CEILING, ETC.
11. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE DSS UNITS AND CONDENSING UNITS SHALL HAVE A MINIMUM SCCR RATING OF 5 KAIC.

EQUIVALENT MANUFACTURERS LISTING

LISTING OF MANUFACTURER'S 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 A MINIMUM OF 10 DAYS PRIOR TO BID DATE OR AS INDICATED IN THE SPECIFICATIONS, PRIOR APPROVAL IS REQUIRED FOR ALL MANUFACTURERS NOT LISTED.

CRAC UNITS: LIEBERT, APC STULZ, DATA-AIRE
FANS: ACME, COOK, GREENHECK, PENN, TWIN CITY
AIR DISTRIBUTION: CARNES, NAILOR, PRICE, TITUS, TUTTLE & BAILEY
FIRE DAMPERS: AIR BALANCE INC., GREENHECK, NAILOR, RUSKIN
LOUVERS: AIR BALANCE INC., GREENHECK, POTTORFF, RUSKIN, SAFE-AIR
PACKAGED ROOFTOP UNITS: CARRIER, TRANE, YORK/JOHNSON, DAIKIN, AAON
VAV TERMINAL UNITS: CARRIER, ENVIRO-TEC, NAILOR, PRICE, TITUS, TRANE
DUCTLESS SPLIT SYSTEMS: DAIKIN, MITSUBISHI, TRANE, LG
GRAVITY VENTILATOR: GREENHECK, COOK, RUSKIN
RADIANT HEATERS: SPACE RAY, RE-VERBER-RAY, ROBERTS GORDON
AIR SCRUBBERS: AIR VACUUM CORP. DIVERSIFIED AIR SYSTEMS, MAGNA GRIP
DDC CONTROLS: ALERTON, HONEYWELL, SIEMENS, TRANE
KITCHEN HOODS: CAPTIVE-AIRE, GREENHECK, SELECT AIR SYSTEMS

NOTE:
ALL COST ASSOCIATED WITH SUBSTITUTED 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 EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

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 COST ASSOCIATED WITH SUBSTITUTED 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 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. ROOFTOP UNIT SUPPLY DUCT CROSS HATCHED, RETURN DUCTWORK AND TRANSFER DUCTS SHALL BE LINED WITH 1" THICK FIBERGLASS DUCT LINER FOR ACOUSTICAL PURPOSES. IN ADDITION ROOFTOP UNIT SUPPLY AND RETURN DUCTWORK SHOWN CROSSED HATCH ON PLANS SHALL HAVE AN OUTER MASS LOADED VINYL BARRIER DUCT WRAP IN ADDITION TO THE DUCT LINER AND 2" THERMAL INSUALTION. DUCT DIMENSIONS ON PLANS ARE FREE AREA SIZE. EXHAUST DUCT DOES NOT REQUIRE INSULATION.
4. ALL DUCTWORK SHALL BE SEALED PER THE REQUIREMENTS OF THE NORTH CAROLINA MECHANICAL CODE. SEAL MEDIUM PRESSURE SUPPLY DUCTWORK FOR POSITIVE 3" PRESSURE CLASS, SMACNA SEAL CLASS A, SMACNA LEAKAGE CLASS 12. SEAL LOW PRESSURE SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST DUCTWORK FOR POSITIVE/NEGATIVE 2" PRESSURE CLASS, SMACNA SEAL CLASS A, SMACNA LEAKAGE CLASS 12.
5. ALL PIPING, DUCTS, VENTS, ETC., EXTENDING THROUGH WALLS AND ROOF SHALL BE FLASHED AND COUNTERFLASHED IN A WATERPROOF MANNER.
6. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS, TO AVOID INTERFERENCE.
7. THE MECHANICAL CONTRACTOR SHALL HAVE THE MECHANICAL SYSTEMS BALANCED 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 (AABC OR NEBB).
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.
9. PROVIDE A ONE YEAR WARRANTY FOR ALL WORK PERFORMED BEGINNING ON THE SUBSTANTIAL COMPLETION DATE. PROVIDE EXTENDED WARRANTIES AS INDICATED IN THE SCHEDULES AND SPECIFICATIONS FOR EQUIPMENT OR EQUIPMENT COMPONENTS.
10. PROVIDE MANUFACTURER'S RECOMMENDED AND CODE REQUIRED CLEARANCES AROUND ALL EQUIPMENT FOR MAINTENANCE AND FILTER REMOVAL.
11. CONDENSATE DRAIN PIPING SHALL BE SCHEDULE TYPE "L" HARD DRAWN COPPER AND SHALL BE INSULATED PER THE SPECIFICATIONS. DRAINS FROM ALL COOLING COILS SHALL BE TRAPPED. DRAIN SIZE SHALL BE EQUIPMENT DRAIN CONNECTION SIZE (3/4" MINIMUM) WITH A MINIMUM DEPTH OF 4" OR 1.5 TIMES THE UNIT FAN TSP, WHICHEVER IS GREATER.
12. ALL REFRIGERANT PIPE SHALL BE NITROGENIZED ACR COPPER TUBE. SIZE, INSULATE, AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS. ALL PIPING EXPOSED OUTDOORS SHALL BE COVERED WITH AN ALUMINUM OUTER 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. MECHANICAL CONTRACTOR SHALL VERIFY LOCATION OF ROOF PENETRATIONS FOR RELIEF HOODS, EXHAUST FANS AND OUTSIDE AIR INTAKES WITH ARCHITECT & ENGINEER PRIOR TO INSTALLATION.
16. ALL ROOF CURBS SHALL EXTEND A MINIMUM OF 12" ABOVE ROOF MEMBRANE 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. MECHANICAL CONTRACTOR SHALL LOCATE EXHAUST FANS, OUTLETS, AND GAS FLUES A MINIMUM OF 15'-0" FROM ANY OUTSIDE AIR INTAKE.
18. 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.
19. PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
20. 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.
21. MECHANICAL CONTRACTOR SHALL PROVIDE PRE-PRINTED COLOR-CODED PIPE LABELS WITH 1-1/2" HIGH LETTERING INDICATING SERVICE AND FLOW DIRECTION. ALL PIPING TO MATCH EXISTING FACILITIES STANDARD (IF APPLICABLE). OTHERWISE, PIPE LABELS SHALL MATCH THE FO

FAN SCHEDULE

SYMBOL	LOCATION	TYPE	CFM	APPROX. S.P.	DRIVE	FAN RPM	ELECTRICAL DATA WATTS	H.P.	VOLTAGE	FLA	MANUFACTURER GREENHECK	ACCESSORIES	CONTROLS	WEIGHT (LBS)
F-1	ROOF (SERVER/IT – 131)	EXHAUST	400	0.375"	BELT	1060	--	1/4	120V-1ø	--	GB-091-4	A,D,E,M	6	70
F-2	NOT USED													
F-3	LOCKER ROOM – 113	EXHAUST	100	0.25"	DIRECT	1100	21	--	120V-1ø	--	SP-A125	A,B,C,F,J	3	20
F-4	JANITOR – 121	EXHAUST	100	0.25"	DIRECT	1100	21	--	120V-1ø	--	SP-A125	A,B,C,F,J	3	20
F-5	ELECTRICAL – 211	EXHAUST	500	0.25"	BELT	1520	--	1/4	120V-1ø	--	BSQ-80-4	A,B,C,G,H	2	80
F-6	UNISEX SHOWER/TOILET – 111	EXHAUST	175	0.25"	DIRECT	900	17	--	120V-1ø	--	SP-A200	A,B,C,F,J	9	24
F-7	UNISEX SHOWER/TOILET – 110	EXHAUST	175	0.25"	DIRECT	900	17	--	120V-1ø	--	SP-A200	A,B,C,F,J	9	24
F-8	ROOF (STORAGE 059)	EXHAUST	1,650	0.5"	BELT	1150	--	1/3	120V-1ø	--	GB-141-4	A,B,D,E	1	70
F-9	PUBLIC TOILET – 003	EXHAUST	100	0.25"	DIRECT	1100	21	--	120V-1ø	--	SP-A125	A,B,C,F,J	9	20
F-10	LAUNDRY – 026	EXHAUST	100	0.25"	DIRECT	1100	21	--	120V-1ø	--	SP-A125	A,B,C,F,J	3	20
F-11	JANITOR – 061	EXHAUST	100	0.25"	DIRECT	1100	21	--	120V-1ø	--	SP-A125	A,B,C,F,J	3	20
F-12	ROOF (APPARATUS ROOM – 201)	EXHAUST	3,200	0.25"	BELT	690	--	1/2	120V-1ø	--	GB-200-5	A,B,D,E	7,8	120
F-13	ROOF (APPARATUS ROOM – 201)	EXHAUST	300	0.25"	BELT	910	--	1/4	120V-1ø	--	GB-081-6	A,B,D,E	3,7	70
F-14	ROOF (CORRIDOR 208)	EXHAUST	650	0.375"	BELT	1210	--	1/4	120V-1ø	--	GB-091-4	A,B,D,E	3	70
F-15	ROOF (RESTOCKING BAYS – 207)	EXHAUST	1,500	0.375"	BELT	1020	--	1/4	120V-1ø	--	GB-141-4	A,B,D,E	7,8	70
F-16	ROOF (APPARATUS ROOM – 209)	EXHAUST	3,200	0.25"	BELT	690	--	1/2	120V-1ø	--	GB-200-5	A,B,D,E	7,8	120
F-17	ROOF (APPARATUS ROOM – 209)	EXHAUST	300	0.25"	BELT	910	--	1/4	120V-1ø	--	GB-081-6	A,B,D,E	3,7	70
F-18	NOT USED													
F-19	ROOF (MECH ROOM – 045)	EXHAUST	750	0.25"	BELT	1110	--	1/4	120V-1ø	--	GB-101-4	A,D,E,M	6,10	70
KEF-1	ROOF UPBLAST – (KITCHEN)	EXHAUST	1,125	1.00"	DIRECT	1240	--	1/3	120V-1ø	--	CUBE 121-3	A,B,E,O,P,Q,R,S	11	
KSF-1	ROOF MAKEUP – (KITCHEN)	MAKE-UP	900	0.50"	BELT	700	--	1/4	120V-1ø	--	SAF-110	A,B,D,T	11	
											BIG ASS FANS			
ALTERNATE #3 RF-1	APPARTUS ROOM A 201	HVLS	--	--	DIRECT	111	--	1½	460V-3ø	--	12' – BASIC 6	A,K	5,12	150
ALTERNATE #3 RF-2	APPARTUS ROOM A 201	HVLS	--	--	DIRECT	111	--	1½	460V-3ø	--	12' – BASIC 6	A,K	5,12	150
ALTERNATE #3 RF-3	APPARTUS ROOM B 209	HVLS	--	--	DIRECT	111	--	1½	460V-3ø	--	12' – BASIC 6	A,K	5,12	150
ALTERNATE #3 RF-4	APPARTUS ROOM B 209	HVLS	--	--	DIRECT	111	--	1½	460V-3ø	--	12' – BASIC 6	A,K	5,12	150

ACCESSORIES

A: DISCONNECT SWITCH
B: GRAVITY BACKDRAFT DAMPER
C: ACOUSTICAL LINING
D: PREFAB. ROOF CURB
E: BIRDSCREEN
F: ROOF CAP WITH ROOF CURB (FLAT ROOF)
G: HANGING BRACKETS WITH VIBRATION ISOLATION
H: INLET GUARD
I: VARIABLE FREQUENCY DRIVE
J: EXHAUST GRILLE
K: MOUNTING BRACKETS/SUPPORTS PER MFG RECOMMENDATIONS (INSTALL ABOVE LIGHTING, COORDINATE WITH ELEC. CONTR.)
L: MOTORSIDE GUARD
M: MOTORIZED ISOLATION DAMPER
N: FAN CONTROLLER (BY FAN MFG.)
O: GREASE BOX (UL 705)
P: U.L. 762
Q: VENTED ROOF CURB EXTENSION
R: PREFAB. VENTED ROOF CURB
S: CLEAN OUT PORT
T: REMOVABLE HOOD COVER, FILTER RACK WITH 1" WASHABLE ALUMINUM FILTER

CONTROLS

1: CONTROLLED BY BUILDING AUTOMATION SYSTEM
2: WALL MOUNTED THERMOSTAT (REVERSE ACTING, SET FOR 80°)
3: CONTINUOUS OPERATION
4: MANUAL TIMER SWITCH (0–4 HOUR) WITH WITH PHENOLIC FAN IDENTIFICATION LABEL ABOVE SWITCH
5: REMOTE MOUNTED WIRED WALL CONTROL WITH VARIABLE SPEED WITH PHENOLIC FAN IDENTIFICATION LABEL ABOVE CONTROLLER
6: MANUAL SWITCH WITH PROTECTIVE COVER (SEE SEQUENCE OF OPERATION) WITH PHENOLIC FAN IDENTIFICATION LABEL ABOVE SWITCH PLATE TO READ "FIRE SUPPRESSION AGENT PURGE FAN"
7: INTERLOCK WITH CARBON MONOXIDE DETECTOR
8: MANUAL TIMER SWITCH (0–4 HOUR) WITH CO SENSOR OVERRIDE (SEE SEQUENCE OF OPERATION)
9: INTERLOCK WITH ROOM LIGHT SWITCH
10: INTERLOCK WITH HYDROGEN DETECTION SYSTEM
11: INTERLOCK WITH KITCHEN HOOD CONTROLS
12: INTERLOCK WITH FIRE ALARM (FAN SHALL SHUTDOWN UPON ACITIVATION OF FIRE ALARM SYSTEM)

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. INTERLOCK FAN WITH HYDROGEN DETECTION SYSTEM. UPON DETECTION OF HYDROGEN, THE MANUAL SWITCH SHALL BE OVERRIDDEN AND THE FAN SHALL BE STARTED. (SEE SEQUENCE OF OPERATION). 1
5. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN FANS F-1 THRU F-18 SHALL HAVE A MINIMUM SCCR RATING OF 8 KAIC.
6. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN FANS RF-1 THRU RF-4 SHALL HAVE A MINIMUM SCCR RATING OF 5 KAIC.

KITCHEN HOOD SCHEDULE (HOOD FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR)

SYMBOL	HOOD TYPE	DUTY	EXHAUST AIR PLENUM EXHAUST CFM	RISER (EACH) QTY	SIZE	CFM	S.P.	MAKE-UP AIR PLENUM MAKE-UP CFM	RISER (EACH) QTY	SIZE	CFM	S.P.	DIMENSIONS LENGTH	WIDTH	HEIGHT	MANUFACTURER CAPTIVEAIRE
KH-1	I	HEAVY	1125	1	12"ø	1125	0.52"	900	1	30x5	900	0.01"	5'-0"	4'-6"	2'-0"	54x24 EX-2B

1

TYPE-I KITCHEN HOOD NOTES:

ALL 430 STAINLESS STEEL CONSTRUCTION (WHERE EXPOSED). ALL COMPONENTS SHALL BE U.L. 710 LISTED AND LABELED. PROVIDE A WALL MOUNTED REMOTE CONTROL PANEL WITH MASTER DISCONNECT SWITCH IN A LOCATION THAT MEETS ADA REQUIREMENTS (COORDINATE EXACT MOUNTING LOCATION WITH ARCHITECT PRIOR TO INSTALLATION), STARTERS FOR BOTH FANS, 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 CLOSE TO CEILING. HOOD SHALL BE PROVIDED WITH: AUTOMATICALLY OPERATED FIXED PIPE FIRE SUPPRESSION SYSTEM IN ACCORDANCE WITH NFPA 17 AND NFPA 96, CONTROL SWITCHES AND PILOT LIGHTS FOR EXHAUST AND MAKE-UP FANS, TWO (2) U.L. LISTED LSS SERIES E26 CANOPY LIGHT FIXTURES (HIGH TEMP. ASSEMBLY) PROVIDING MIN. 50 FOOT CANDLES, STAINLESS STEEL GREASE FILTERS, FIRE DAMPER (212° LINK) IN SUPPLY DUCT COLLAR. FIRE SUPPRESSION SYSTEM SHALL BE ANSUL R-102 WITH REMOTE MOUNTED AUTOMAN. REMOTE PULL STATION FOR ACTIVATION OF FIRE SUPPRESSION SYSTEM SHALL BE PROVIDED AND INSTALLED WHERE INDICATED ON THE PLANS. FIRE SUPPRESSION SYSTEM SHALL BE U.L. 300 LISTED. NOZZLE TYPE AND LAYOUT SHALL BE APPLIANCE SPECIFIC.

KITCHEN HOOD (TYPE-I AND TYPE-II) GENERAL NOTES:

1. ALL KITCHEN HOODS SHALL BE U.L. 710 LISTED AND LABELED.
2. ALL KITCHEN HOODS SHALL BE CONSTRUCTED AND INSTALLED PER NFPA 96.
3. ALL KITCHEN HOODS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE.
4. PROVIDE STAINLESS STEEL ENCLOSURE AROUND TOP OF HOOD AS REQUIRED TO CLOSE OPENING IN CEILING.
5. MOUNT KITCHEN HOOD 6'-8" ABOVE FINISH FLOOR (UNLESS NOTED OTHERWISE).
6. 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. ALL EQUIPMENT SHALL BE ENERGIZED AND IN OPERATION DURING THE TEST. TEST SHALL ALSO INCLUDE VERIFYING ACTUAL FLOW RATES VERSUS DESIGN FLOW RATES.
7. POWER SUPPLY TO THE KITCHEN HOOD IS A SINGLE POINT ELECTRICAL CONNECTION WITH STARTER COIL CONTROL ONLY FOR CONTROL OF EXHAUST FAN, SUPPLY FAN, EXHAUST ON IN FIRE, LIGHTS OUT IN FIRE, RELAY ON/OFF, AND FAN(S) ON/OFF WITH THERMOSTATICALLY CONTROLLED. THE MECHANICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WIRING REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO INSTALLING THE KITCHEN HOOD AND FANS. THE KITCHEN HOOD MANUFACTURER SHALL PROVIDE ALL CONTROL WIRING AND CONTROL INTERLOCKS BETWEEN THE KITCHEN HOOD AND THE FAN(S) INTEGRAL TO THE KITCHEN HOOD.

TYPE-I KITCHEN HOOD CLEARANCE TO COMBUSTIBLES NOTES:

1. CLEARANCES FROM KITCHEN HOOD TO NON-COMBUSTIBLE ASSEMBLIES OR MATERIALS SHALL BE 0 INCHES. NON-COMBUSTIBLE ASSEMBLIES AND MATERIALS INCLUDE BRICK. CLAY TILE, CONCRETE MASONRY, PLASTER, CERAMIC, OR QUARRY TILE ON BRICK, CLAY TILE, OR CONCRETE MASONRY PRODUCTS.
2. CLEARANCES FROM KITCHEN HOOD TO LIMITED-COMBUSTIBLE ASSEMBLIES OR MATERIALS SHALL BE 3 INCHES. LIMITED-COMBUSTIBLE ASSEMBLIES AND MATERIALS INCLUDE GYPSUM BOARD ON SHEET METAL STUDS OR SOLID GYPSUM BOARD.
3. CLEARANCES FROM KITCHEN HOOD TO COMBUSTIBLE ASSEMBLIES OR MATERIALS SHALL BE 18 INCHES. COMBUSTIBLE ASSEMBLIES AND MATERIALS INCLUDE ANY WOOD FRAMING OR WOOD PANELING.
4. MECHANICAL CONTRACTOR SHALL COORDINATE CLOSELY WITH THE GENERAL CONTRACTOR AND THE KITCHEN EQUIPMENT SUPPLIER TO MAINTAIN THE CORRECT CLEARANCES FROM THE KITCHEN HOOD IN ORDER TO COMPLY WITH THE LATEST EDITION OF NFPA 96 AND THE LATEST EDITION OF THE MECHANICAL CODE IN EFFECT IN THIS JURISDICTION. THE KITCHEN HOOD MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE SECURED ON THE JOB SITE AND MADE AVAILABLE FOR THE INSPECTORS REVIEW AT ALL TIMES.
5. ALL KITCHEN GREASE EXHAUST DUCTS THAT DO NOT MAINTAIN REQUIRED CLEARANCES SHALL BE WRAPPED WITH THERMAL INSULATION BLANKET AS MANUFACTURED BY FIREMASTER (OR EQUAL). INSULATION SHALL BE INSTALLED PER NFPA-96 AND IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS TO OBTAIN REQUIRED RATED ASSEMBLY TO MATCH RATING OF ADJACENT STRUCTURES AND PENETRATIONS. ASSEMBLY SHALL BE U.L. APPROVED AND LISTED SPECIFICALLY FOR KITCHEN HOOD EXHAUST DUCT APPLICATIONS AND MEET ASTM E 2336. KITCHEN HOOD EXHAUST DUCT PENETRATIONS SHALL BE PROTECTED WITH A THROUGH-PENETRATION FIRESTOP SYSTEM CLASSIFIED IN ACCORDANCE WITH ASTM E 814 AND HAVING AN 'F' AND 'T' RATING EQUAL TO THE FIRE-RESISTANCE RATING OF THE ASSEMBLY BEING PENETRATED. EXPOSED DUCTWRAP SYSTEMS SHALL BE PROTECTED WHERE SUBJECT TO PHYSICAL DAMAGE.

TYPE-I KITCHEN HOOD FIRE SUPPRESSION NOTES:

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 MOVEMENT OF 14 INCHES TO ACTUATE THE FIRE SUPPRESSION SYSTEM. REMOTE PULL STATION FOR ACTIVATION OF FIRE SUPPRESSION SYSTEM SHALL BE PROVIDED AND INSTALLED WHERE INDICATED ON THE PLANS (LOCATION TO BE VERIFIED WITH OWNER AND ARCHITECT PRIOR TO INSTALLATION). MECHANICAL CONTRACTOR SHALL INSTALL 1/2" CONDUIT IN WALL FOR MANUAL PULL STATION.
2. THE ACTUATION OF THE FIRE SUPPRESSION SYSTEM SHALL AUTOMATICALLY:
   A. SHUT DOWN THE FUEL (SOLENOID GAS VALVE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR) AND/OR ELECTRICAL POWER (SHUNT-TRIP BREAKER PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR) SUPPLY TO THE COOKING EQUIPMENT. THE FUEL AND/OR ELECTRICAL SUPPLY RESET SHALL BE MANUAL.
   B. ALLOW KITCHEN HOOD EXHAUST FAN TO CONTINUE TO OPERATE.
   C. SHUT DOWN ALL ASSOCIATE AIR HANDLING UNITS.
   D. NOTIFY THE FIRE ALARM SYSTEM (PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR)
   E. SHUT DOWN KITCHEN HOOD SUPPLY FAN.
3. THE HOOD FIRE SUPPRESSION SYSTEM SHALL BE CONNECTED TO AND FED FROM THE FIRE SUPPRESSION SYSTEM CABINET AT THE TYPE-I KITCHEN HOOD.
4. ALL EXPOSED PIPING WITH FIRE SUPPRESSION SYSTEM SHALL BE COVERED WITH A CHROME SLEEVE.
5. G.C. SHALL PROVIDE CLASS K FIRE EXTINGUISHER WITH KITCHEN HOOD.

AIR SCRUBBER SCHEDULE - ALTERNATE #2

SYMBOL	LOCATION	TYPE	DRIVE	FAN RPM	ELECTRICAL DATA FLA	H.P.	VOLTAGE	MANUFACTURER AIR VACUUM CORP.
AS-1	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-2	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-3	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-4	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-5	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-6	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-7	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-8	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-9	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-10	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-11	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911
AS-12	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	1725	13.6	3/4	120V-1ø	AIRVAC 911

NOTES:
1. PROVIDE EACH UNIT WITH THE FOLLOWING: 4-STAGE FILTER PACK AND PRE-FILTERS.
2. PROVIDE A FILTER GAUGE AND A CONTROL PANEL FOR EACH SYSTEM (ONE FOR APPARATUS ROOM A 201 AND ON FOR APPARATUS ROOM B 209)
3. PROVIDE AN ACTIVATION PACKAGE FOR EACH SYSTEM
   APPARATUS ROOM A 201: SIX SETS OF PHOTO SENSORS AND SIX TRACK MOUNTED DOOR SWITCHES
   APPARATUS ROOM B 209: SIX SETS OF PHOTO SENSORS AND SIX TRACK MOUNTED DOOR SWITCHES.
4. PROVIDE A 5 YEAR WARRANTY ON ALL COMPONENTS (EXCLUDING FILTERS).
5. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE UNITS SHALL HAVE A MINIMUM SCCR RATING OF 7 KAIC.

FILTER DATA:
PRE-FILTER (STAGE 1) 24x24x1 3-PLY POLYESTER CONSTRUCTION. SELF-SEALING FILTER WITH PRE-INSTALLED INTERNAL HEAVY GAGE WIRE FRAME.
MAIN MEDIA FILTER (STAGE 2): 24x24x6 HEPA MAX 3000 WITH A MINIMUM EFFICIENT OF UP TO 95% AND EXCEEDS THE MAXIMUM EFFICIENCY OF 98% ASHRAE 52.1 TESTED FILTERS.
GAS-PHASE EXTRACTOR (STAGES 3&4): (1) 24x24x4 MULTISORB 3000 BLENDED GAS PHASE EXTRACTOR.50/50 RESPIRATOR GRADE ACTIVATED CARBON GRANUALS.

CABINET SHALL BE ALL WELDED STEEL CONSTRUCTION PROVIDED WITH POWER COAT PAINT FINISH (COORDINATE FINISH/COLOR WITH ARCHITECT), TWO HINGED ACCESS PANELS, A DWYER MAGNEHELIC STATIC PRESSURE GAGE, FOUR HORIZONTAL AND ADJUSTABLE AIRFLOW GRILLES, QUICK LATCH FILTER COMPARTMENT CAPABLE OF HOLDING UP TO 15" OF FILTRATION.

PARALLEL FAN-POWERED BOX SCHEDULE (ELECTRIC HEAT)

SYMBOL	PRIMARY CFM MAXIMUM	MINIMUM	FAN CFM	ELECTRICAL DATA FAN H.P.	ELEC. HEAT	VOLTAGE	ENVIRO-TEC VFR-EH	RUNOUT SIZE
1.1	1,335	335	535	1/4	8.5	460V-3PH	1011	14
1.2	1260	315	505	1/4	8.0	460V-3PH	1011	14
1.3	470	120	190	1/13	3.0	270V-1PH	0804	10
1.4	975	245	390	1/6	6.5	460V-3PH	1006	12
1.5	1000	250	400	1/4	6.5	460V-3PH	1011	12
1.6	600	150	240	1/13	4.0	277V-1PH	0804	10
1.7	600	150	240	1/13	4.0	277V-1PH	0804	10
1.8	2080	520	835	1/2	13.0	460V-3PH	1418	16
1.9	750	190	300	1/6	5.0	277V-1PH	1006	10
1.10	1980	495	795	1/4	12.5	460V-3PH	1211	16
1.11	1050	265	420	1/4	6.5	460V-3PH	1011	12
1.12	1200	300	480	1/4	7.5	460V-3PH	1011	12
1.13	650	165	260	1/13	4.5	277V-1PH	0804	10
1.14	500	125	200	1/13	3.5	277V-1PH	0804	10
2.1	490	125	200	1/13	3.5	277V-1PH	0804	10
2.2	270	70	110	1/13	2.0	277V-1PH	0604	8
2.3	450	115	180	1/13	3.0	277V-1PH	0804	10
2.4	450	115	180	1/13	3.0	277V-1PH	0804	10
2.5	500	125	200	1/13	3.5	277V-1PH	0804	10
2.6	440	110	180	1/13	3.0	277V-1PH	0804	10
2.7	400	100	160	1/13	2.5	277V-1PH	0804	8
2.8	540	135	220	1/13	3.5	277V-1PH	0604	10
2.9	650	165	260	1/13	4.5	277V-1PH	0804	10
2.10	400	100	160	1/13	2.5	277V-1PH	0804	8
2.11	475	120	190	1/13	3.0	277V-1PH	0804	10
2.12	540	135	220	1/13	3.5	277V-1PH	0804	10
2.13	690	175	280	1/13	4.5	277V-1PH	0804	10
2.14	810	205	325	1/6	5.5	277V-1PH	1006	12
2.15	700	175	280	1/13	4.5	277V-1PH	0804	10
2.16	950	240	380	1/6	6.0	460V-3PH	1006	12
3.1	500	125	200	1/13	9.0	460V-3PH	0804	16
3.2	300	75	120	1/13	9.0	460V-3PH	0604	16
3.3	700	175	280	1/13	4.5	277V-1PH	0804	10
3.4	300	75	120	1/13	2.0	277V-1PH	0604	8
3.5	440	110	180	1/13	3.0	277V-1PH	0804	10
3.6	600	150	240	1/13	4.0	277V-1PH	0804	10
3.7	370	95	150	1/13	2.5	277V-1PH	0804	8
3.8	900	225	360	1/6	6.0	460V-3PH	1006	12
3.9	350	90	140	1/13	2.5	277V-1PH	0804	8
3.10	1720	430	690	1/4	11.0	460V-3PH	1211	14
3.11	700	175	280	1/13	4.5	277V-1PH	0804	10
3.12	1800	450	72	1/4	11.5	460V-3PH	1211	14

NOTES:
1. MINIMUM INLET PRESSURE TO BOX SHALL BE .75" W.G.
2. MAXIMUM PRESSURE DROP THRU BOX (INCLUDING COIL) SHALL BE .25" S.P.
3. FURNISH BOXES WITH: DDC CONTROLS, ACOUSTICAL LINING, FILTER AND FRAME, DDC TEMPERATURE SENSOR, THERMOSTAT, CONTROL VOLTAGE TRANSFORMER, ELECTRIC HEAT, U.L. LABEL, ELECTRONIC DUCT SENSOR FOR MORNING WARM-UP, CONTROLS COVER.
4. ELECTRIC HEATER SHALL BE FURNISHED WITH DISCONNECT SWITCH, MAGNETIC CONTACTORS, AIRFLOW SWITCH, MANUAL RESET THERMAL CUTOUT.
5. ELECTRIC HEAT UP TO AND INCLUDING 5.0 KW SHALL BE SINGLE STEP. ELECTRIC HEATERS OVER 5.0 KW SHALL BE TWO STEP.
6. FAN SHALL PROVIDE 0.25" E.S.P., NOT INCLUDING ELECTRIC HEATER.
7. BOXES SHALL BE PROVIDED WITH NIGHT SET BACK AND MORNING WARM UP CONTROLS.
8. DDC CONTROLS SHALL BE FURNISHED TO THE BOX MANUFACTURER BY THE CONTROLS VENDOR. BOX MANUFACTURER SHALL FACTORY MOUNT AND WIRE CONTROLS. INSTALLATION OF CONTROLS SHALL INCLUDE CONTROLS TRANSFORMER, FAN RELAY, HEAT RELAY (ONE OR TWO STAGE AS REQUIRED), AIR FLOW PROBE, CONTROL COVER, AND ALL WIRING AND LABOR FOR A COMPLETE AND OPERATIONAL SYSTEM.
9. EACH FAN BOX SHALL BE WIRED TO ITS ASSOCIATED ROOFTOP UNIT SMOKE DETECTOR TO SHUT-DOWN UPON SMOKE SIGNAL ALONG WITH ROOFTOP UNIT.
10. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE TERMINAL UNITS SHALL HAVE A MINIMUM SCCR RATING OF 10 KAIC.

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CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

MECHANICAL EQUIPMENT SCHEDULES

DATE 12.04.2020
PROJECT NO 20003
REVISIONS

NUM.	DATE	DESCRIPTION:
1	12/17/20	REVISION #1
2	1/20/21	REV4/ADD3

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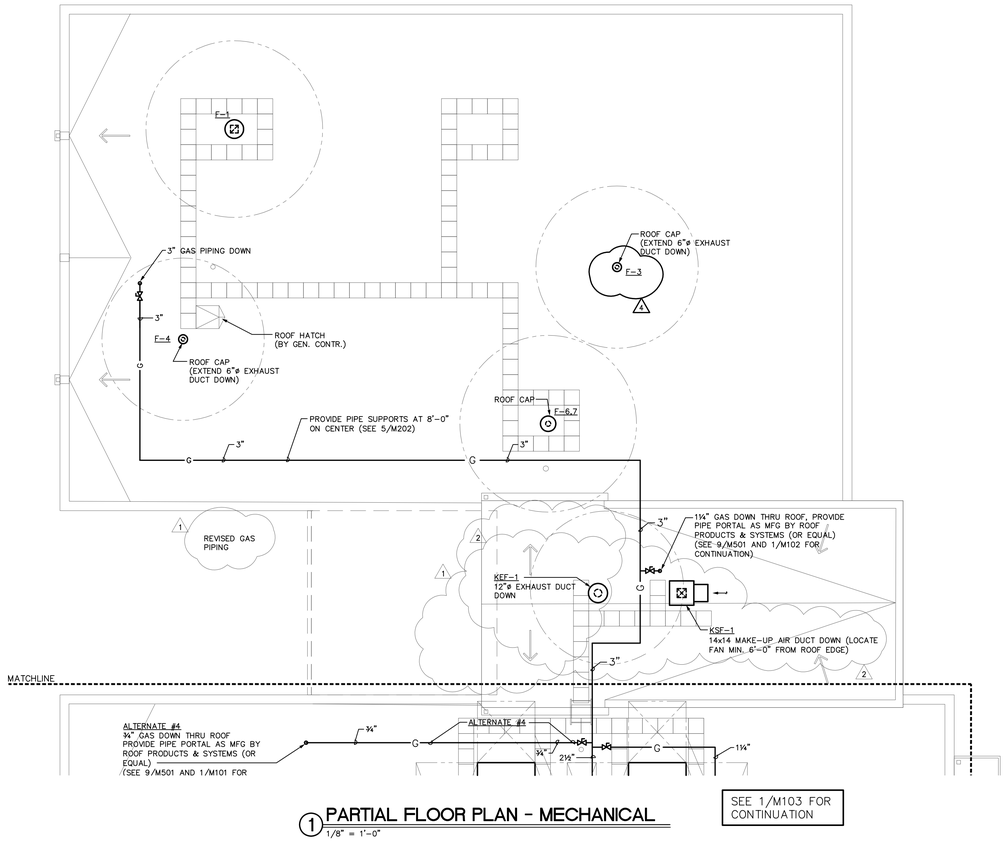
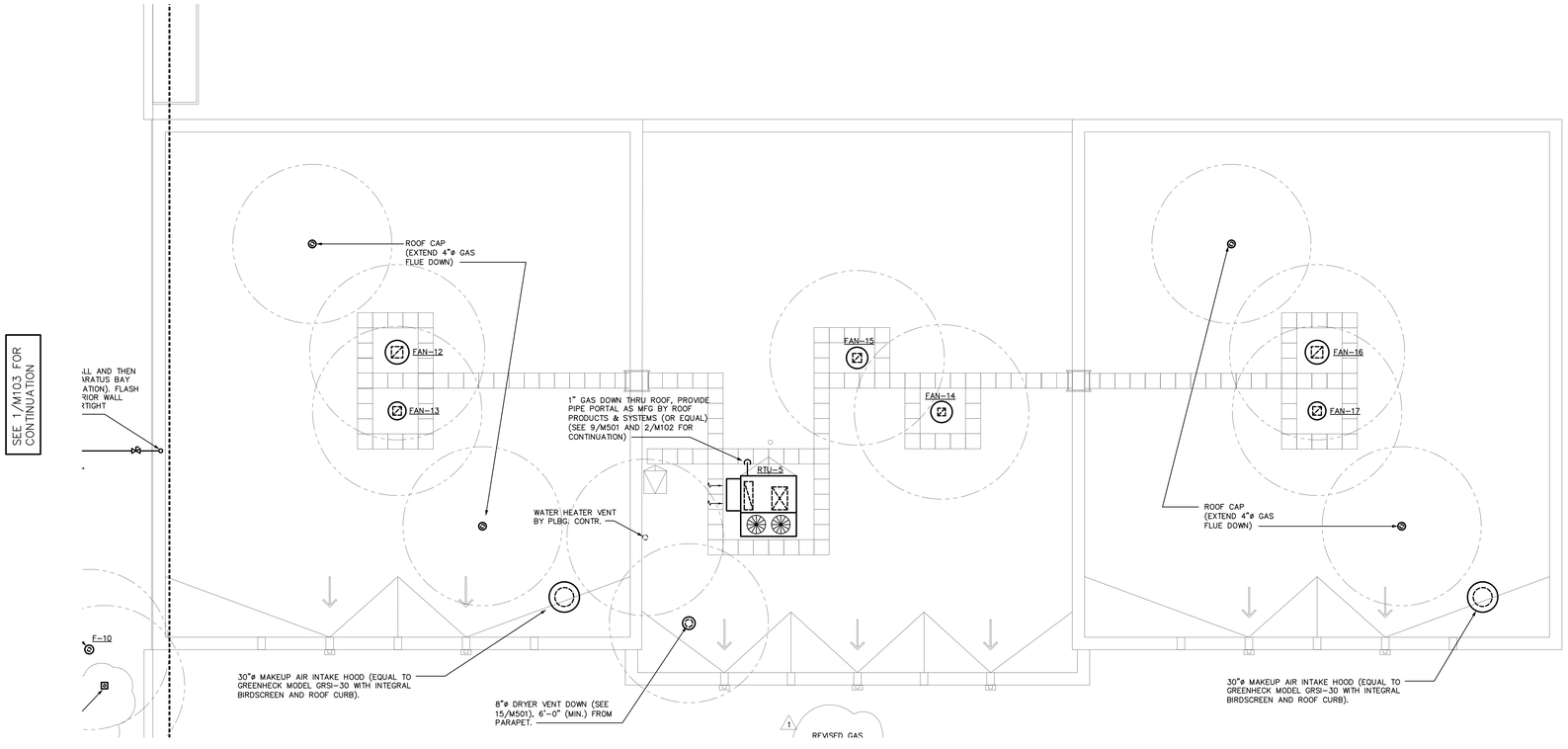
NORTH CAROLINA PROFESSIONAL 17228 ENGINEER RONALD V. ALMOND 12/04/2020
SEAL

SHEET NUMBER M003



1 PARTIAL FLOOR PLAN - MECHANICAL
1/8" = 1'-0"

SEE 1/M103 FOR CONTINUATION



2 PARTIAL FLOOR PLAN - MECHANICAL
1/8" = 1'-0"

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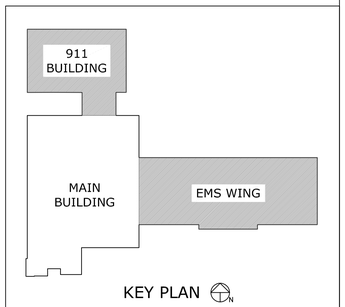
CONSTRUCTION DOCUMENTS

PARTIAL ROOF PLANS - MECHANICAL

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
1	12/17/20	REVISION 1
2	01/09/21	REV2/ADD1
3	1/20/21	REV4/ADD3



KEY PLAN N

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17228 ROMALD V. ALMONTE
SEAL 12/04/2020

SHEET NUMBER M104

SYMBOL SCHEDULE

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY – ELECTRICAL SUMMARY

C401 METHOD OF COMPLIANCE

- ■ 2018 NCECC CHAPTER 4
- ☐ NC SPECIFIC COMCHECK PROVIDED
- ☐ N/A BASED ON PROJECT SCOPE
- ☐ ASHRAE 90.1–2013

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

- ☐ C406.1.1 EFFICIENT MECH EQUIPMENT
- ☐ C406.1.4 ON–SITE RENEWABLE ENERGY
- ■ C406.1.2 REDUCED LTG DENSITY
- ☐ C406.1.5 DEDICATED OA SYSTEM
- ☐ C406.1.3 ENHANCED DIGITAL LTG CNTLS
- ☐ C406.1.6 HI–EFF SERVICE WTR HTG
- ☐ NOT APPLICABLE BASED ON PROJECT SCOPE

C408 – SYSTEM COMMISSIONING:

- ☐ BUILDING IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
- ■ BUILDING IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.

C405.2 – LIGHTING CONTROLS (MANDATORY REQUIREMENTS):

- ■ LIGHTING SYSTEMS ARE PROVIDED WITH CONTROLS AS REQUIRED PER SECTION C405.2, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE

C405.3 – EXIT SIGNS (MANDATORY REQUIREMENTS):

- ■ INTERNALLY ILLUMINATED EXIT SIGNS DO NOT EXCEED 5 WATTS PER SIDE.
- ☐ NOT APPLICABLE

C405.4 – INTERIOR LIGHTING POWER REQUIREMENTS (PRESCRIPTIVE) (NON–EXEMPT):

- ☐ NOT APPLICABLE PER 2018 NCECC C503.1, EXCEPTION 2.G.

C405.4.1 – TOTAL CONNECTED INTERIOR LIGHTING POWER:

17,707 WATTS SPECIFIED

32 % REDUCTION OF SPECIFIED VS. ALLOWED (APPLICABLE IF C406.1.2 IS SELECTED)

C405.4.2 – TOTAL ALLOWABLE INTERIOR LIGHTING POWER:

METHOD OF COMPLIANCE:

- ■ BUILDING AREA METHOD
- ☐ SPACE–BY–SPACE METHOD

25,874 WATTS ALLOWED

C405.5.1 – EXTERIOR BUILDING LIGHTING POWER (NON–EXEMPT):

- ☐ NOT APPLICABLE

TOTAL CONNECTED EXTERIOR LIGHTING POWER:

4,120 WATTS SPECIFIED

TOTAL ALLOWABLE EXTERIOR LIGHTING POWER:

11,233 WATTS ALLOWED

C405.6 – ELECTRICAL ENERGY CONSUMPTION (DWELLING UNITS):

- ☐ SEPARATE ELECTRICAL METERING HAS BEEN PROVIDED FOR EACH DWELLING UNIT IN GROUP R–2 BUILDINGS.
- ■ NOT APPLICABLE

C405.7 – ELECTRICAL TRANSFORMERS (MANDATORY REQUIREMENTS):

- ■ ELECTRICAL TRANSFORMERS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.7, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE

C405.8 – ELECTRICAL MOTORS (MANDATORY REQUIREMENTS):

- ■ ELECTRICAL MOTORS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.8, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE

ABBREVIATIONS

+42"	DIMENSION INDICATES HEIGHT ABOVE FINISHED FLOOR AT WHICH CENTER OF DEVICE IS TO MOUNTED. SEE PLANS.
3R	NEMA 3R
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLER UNIT
C.B.	CIRCUIT BREAKER
EC	EMPTY CONDUIT WITH PULL CORD
E.C.	ELECTRICAL CONTRACTOR
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FACP	FIRE ALARM CONTROL PANEL
FPN	FUSE PER NAMEPLATE
LC	LIGHTING CONTACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
U.G.	UNDERGROUND
WP	WEATHERPROOF
S.E.	SERVICE ENTRANCE
EM	EMERGENCY FIXTURE WITH BATTERY OR GEN. BACK–UP
Isc	RMS SYMMETRICAL SHORT CIRCUIT CURRENT
AIC	AMPERE INTERRUPTING CAPACITY (EQUIPMENT RATING)

DEVICES AND PATHWAYS

- WIRING SYSTEM CONCEALED IN WALL OR CEILING. WHEN SHOWN, CROSS LINES INDICATE NUMBER OF WIRES. (GROUND WIRES ARE NOT SHOWN)
- WIRING SYSTEM CONCEALED IN OR UNDER SLAB OR UNDERGROUND.
- WIRING SYSTEM EXPOSED
- CONDUIT TURNED UP TO FLOOR ABOVE.
- CONDUIT TURNED DOWN TO FLOOR BELOW.
- BRANCH CIRCUIT HOMERUN TO PANEL.
- JUNCTION BOX WITH CONNECTION TO EQUIPMENT SERVED. 4" SQUARE BOX WITH A SINGLE–GANG OPENING AND PLASTER RING.
- JUNCTION BOX FOR HAND DRYER CONNECTION; SEE MOUNTING HEIGHTS DETAIL FOR EXACT HEIGHT; SEE ARCH. SHEETS FOR COORDINATION 4" SQUARE BOX WITH A SINGLE–GANG OPENING AND PLASTER RING. PROVIDE WITH MANUAL TOGGLE SWITCH DISCONNECT (S$_M$) MOUNTED ABOVE CEILING, IF MOUNTED IN HARD CEILING SPACE AN ACCESS DOOR SHALL BE PROVIDED AT TOGGLE SWITCH LOCATION.
- DUPLEX RECEPTACLE, 20 AMP, 120 VOLT. HUBBELL 5352, OR EQUAL.
- DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER BACKSPLASH, OR AT HEIGHT NOTED.
- QUAD RECEPTACLE. TWO NEMA 5–20R DUPLEX RECEPTACLES.
- STANDARD TWO NEMA 5–20R DUPLEX RECEPTACLE FOR ELECTRIC WATER COOLER. COORDINATE LOCATION WITH PLUMBING CONTRACTOR.
- GROUND FAULT RECEPTACLE. NEMA 5–20R DUPLEX. ALL RECEPTACLES INSTALLED OUTSIDE, WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
- ISOLATED GROUND RECEPTACLE. NEMA 5–20R DUPLEX.
- WEATHERPROOF RECEPTACLE. NEMA 5–20R GFI DUPLEX. COVER SHALL BE INTERMATIC #WP1020 (CLEAR) OR SPECIFICATION EQUAL.
- DUPLEX RECEPTACLE, 20 AMP, 120 VOLT (USE 20 AMP FOR SINGLE RECEPTACLE ON A CIRCUIT.) COOPER 5352, OR EQUAL. T.V. RECEPTACLE MOUNTED AT 88" AFF.
- DUPLEX SWITCHED TAMPER RESISTANT RECEPTACLE, 20 AMP, 120 VOLT.
- SURGE PROTECTION DEVICE (SPD); SEE DETAIL
- WIREMOLD 2400 PLUGMOLD. NEMA 5–15R RECEPTACLES ON 12" CENTERS. ALTERNATE CIRCUITS.
- SPECIAL OUTLET. SEE PLANS.
- MOTOR OPERATED DAMPER, INTERLOCK WITH FAN AS INDICATED. (DAMPER BY M.C.) CONNECT TO LOCAL MECHANICAL CONTROLS CIRCUIT AS REQUIRED.
- GROUNDING BAR PER DIAGRAM.
- REFERENCE SHORE POWER DROPS DETAIL #2/E605.
- TWO GANG FLUSH MOUNTED FLOOR BOX WITH ACCESSIBLE COVER FOR POWER. PROVIDE TWO NEMA 5–20R DUPLEX RECEPTACLES. EQUAL TO WIREMOLD RFB2–OG–FPBTC. ARCHITECT TO SELECT FINISH.
- FB2
- FOUR GANG FLUSH MOUNTED FLOOR BOX WITH ACCESSIBLE COVER FOR POWER AND COMMUNICATIONS. PROVIDE TWO NEMA 5–20R DUPLEX RECEPTACLES, ONE COMMUNICATION PLATE FOR SIX RJ45 CAT6 JACKS ON EACH PLATE, AND ONE AV PLATE. EQUAL TO WIREMOLD RFB4–OG–FPBT. ARCHITECT TO SELECT FINISH. STUB FROM BOX ONE CONCEALED 1¼"C ROUTED TO WHICHEVER IS NEAREST, BB, J–HOOKS, OR CABLE TRAY.
- FB4AV
- FOUR GANG FLUSH MOUNTED FLOOR BOX WITH ACCESSIBLE COVER FOR POWER AND COMMUNICATIONS. PROVIDE TWO NEMA 5–20R DUPLEX RECEPTACLES AND TWO COMMUNICATION PLATES FOR SIX RJ45 CAT6 JACKS ON EACH PLATE. EQUAL TO WIREMOLD RFB4–OG–FPBT. ARCHITECT TO SELECT FINISH. STUB FROM BOX ONE CONCEALED 1¼"C ROUTED TO WHICHEVER IS NEAREST, BB, J–HOOKS, OR CABLE TRAY.
- FB4
- SIX GANG FLUSH MOUNTED FLOOR BOX WITH ACCESSIBLE COVER FOR POWER AND COMMUNICATIONS. PROVIDE FOUR NEMA 5–20R DUPLEX RECEPTACLES AND TWO COMM. PLATE WITH PROVISION FOR SIX RJ45 CAT6 JACKS. EQUAL TO WIREMOLD RFB6–OG–FPBT. ARCHITECT TO SELECT FINISH. STUB FROM BOX ONE CONCEALED 1¼"C ROUTED TO WHICHEVER IS NEAREST, BB, J–HOOKS, OR CABLE TRAY.
- FB6

PANELS, DISCONNECTS

- CONNECTION TO MOTOR. STARTER PROVIDED BY OTHERS UNLESS OTHERWISE NOTED.
- S$_M$ FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER, WITH OVERLOAD PROTECTION
- NON–FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING/FUSE SIZE. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- CIRCUIT BREAKER. NUMERALS INDICATE RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- COMBINATION STARTER/FUSED DISCONNECT. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- PLYWOOD TELEPHONE BACKBOARD. SIZE AS INDICATED ON RISER.
- PANELBOARD. SEE SCHEDULE FOR MOUNTING. TOP OF PANEL AT 6'–6" AFF.
- DOOR MOTOR CONTROL. MOUNT +48" AFF, CONTROLS SHALL BE UP, DOWN, AND STOP MOUNTED ON 4" SQUARE BOX (FLUSH BOX)

FIRE ALARM

- FACP(S) FIRE ALARM CONTROL PANEL WITH LOCAL SMOKE DETECTOR
- FA FIRE ALARM REMOTE ANNUNCIATOR. PROVIDE BOX AS REQUIRED PER MANUFACTURER RECOMMENDATION. PROVIDE 1"C CONDUIT FOR CABLING.
- F FIRE ALARM MANUAL STATION. PROVIDE PROTECTION DEVICE
- SD CEILING MOUNTED SMOKE DETECTOR. FA VENDOR PROVIDED.
- SD$_{MC}$ CEILING MOUNTED MULTI–CRITERIA SMOKE DETECTOR. FA VENDOR PROVIDED.
- HD CEILING MOUNTED HEAT DETECTOR.
- DD DUCT MOUNTED SMOKE 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.
- CO CEILING MOUNTED CARBON MONOXIDE DETECTOR (CENTRAL SYSTEM CONNECTED)
- FS SPRINKLER SYSTEM FLOW SWITCH.
- TS SPRINKLER SYSTEM TAMPER SWITCH.
- SD SMOKE DAMPER. FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR, CONNECTED TO FIRE ALARM SYSTEM BY ELECTRICAL CONTRACTOR.
- DH MAGNETIC DOOR HOLDER, PROVIDED BY ELECTRICAL CONTR, INSTALLED BY ELEC. CONTR. PROVIDE A SMOKE DETECTOR WITHIN 5 FT. OF BOTH SIDES OF DOORS TO LOCALLY ACTIVATE DOOR UPON SMOKE SIGNAL.
- F ADA COMPLIANT WALL MOUNT FIRE ALARM HORN WITH STROBE LIGHT, 15CD UNLESS OTHERWISE NOTED. WHITE FINISH.**
- S ADA COMPLIANT WALL MOUNT FIRE ALARM STROBE LIGHT, 15CD UNLESS OTHERWISE NOTED. WHITE FINISH.
- F ADA COMPLIANT CEILING MOUNTED FIRE ALARM HORN STROBE LIGHT, 15cd, UNLESS OTHERWISE NOTED. WHITE FINISH.**
- S ADA COMPLIANT CEILING MOUNTED FIRE ALARM STROBE LIGHT, 15cd, UNLESS OTHERWISE NOTED. WHITE FINISH.
- R DUCT DETECTOR REMOTE INDICATING LIGHT.
- H ADA COMPLIANT FIRE ALARM MINI HORN. WHITE FINISH.**
- SD$_{SB}$ CEILING MOUNTED SMOKE DETECTOR WITH LOW FREQUENCY SOUNDER BASE.**

**NOTE:
AUDIBLE DEVICES WITHIN SLEEPING ROOMS SHALL BE SUBJECT TO LOW FREQUENCY REQUIREMENTS. A SQUARE WAVE 520HZ TONE COMPLATIBLE WITH NFPA 72 18.4.5.3. CORRDINATE WITH LOCAL CODES AND REQUIREMENTS.

SPECIAL SYSTEMS

- S FLUSH–MOUNTED CEILING SPEAKER.
- S WALL–MOUNTED SPEAKER.3/4" CONDUIT TO LOCAL CABLE TRAY
- S$_{WP}$ EXTERIOR WEATHERPROOF SPEAKER;3/4" CONDUIT TO LOCAL CABLE TRAY PROVIDE WEATHERPROOF J–BOX
- V VOLUME CONTROL; SINGLE GANG BOX AND 3/4"C CONDUIT TO ABOVE CEILING WITH PULL STRING. SEE APPLICABLE DETAIL AND/OR SPECIFICATIONS FOR ADDITIONAL CONDUIT AND CABLING REQUIREMENTS.
- TV / TV2 SEE TV DETAILS ON SHEET E605 FOR TYPE AND REQUIREMENTS.
- SB / TV SEE TV/SMART BOARD DETAIL ON SHEET E605 FOR REQUIREMENTS.
- GA GENERATOR ANNUNCIATOR PANEL; 3/4" CONDUIT TO ATS. PROVIDE BOX AS REQUIRED PER MANUFACTURER RECOMMENDATION PROVIDE CABLING PER MANUFACTURER RECOMMENDATIONS
- UA UPS ANNUNCIATOR ANNUNCIATOR PANEL; 3/4" CONDUIT TO UPS. PROVIDE BOX AS REQUIRED PER MANUFACTURER RECOMMENDATION PROVIDE CABLING PER MANUFACTURER RECOMMENDATIONS
- D ACCESSIBLE DOOR OPENER PUSH BUTTON. PROVIDE MINIMUM (2) GANG BOX WITH SINGLE GANG OPENING. 3/4"C TO DOOR OPERATOR. COORDINATE WITH EQUIPMENT PROVIDED. SEE DETAIL.

SECURITY

- SECURITY CAMERA. PROVIDE 3/4" CONDUIT TO LOCAL ACCESSIBLE CEILING. PROVIDE DOUBLE GANG JUNCTION BOX WITH SINGLE GANG OPENING PLATE. PROVIDE PULL STRING.
- CR CARD READER, MINIMUM 1/2" CONDUIT. PROVIDE SINGLE GANG JUNCTION BOX AND PULL STRING. SEE CARD READER DETAIL FOR ADDITIONAL REQUIREMENTS OF PATHWAYS AND CABLING.
- DS DOOR STRIKE, MINIMUM 1/2" CONDUIT. PROVIDE SINGLE GANG JUNCTION BOX AND PULL STRING. SEE CARD READER DETAIL FOR ADDITIONAL REQUIREMENTS OF PATHWAYS AND CABLING.
- DC DOOR CONTACT, MINIMUM 1/2" CONDUIT. PROVIDE SINGLE GANG JUNCTION BOX AND PULL STRING. SEE CARD READER DETAIL FOR ADDITIONAL REQUIREMENTS OF PATHWAYS AND CABLING.

TELECOMMUNICATIONS

- TELE/DATA OUTLET ABOVE COUNTER OR HEIGHT SPECIFIED. 1" EC TO ABOVE NEAREST ACCESSIBLE CEILING FOR J–HOOK SYSTEM OR TO LOCAL CABLE TRAY (WITHIN 6") AS APPLICABLE WITH PULL STRING. 4" SQUARE BOX WITH A SINGLE–GANG OPENING AND PLASTER RING.
- TELE/DATA OUTLET. 1" EC TO ABOVE NEAREST ACCESSIBLE CEILING FOR J–HOOK SYSTEM OR TO LOCAL CABLE TRAY (WITHIN 6") AS APPLICABLE WITH PULL STRING. 4" SQUARE BOX WITH A SINGLE–GANG OPENING AND PLASTER RING.
- WAP ABOVE CEILING, STRUCTURE MOUNTED JUNCTION BOX FOR WIRELESS ACCESS LOW VOLTAGE CABLING. 4" SQUARE BOX WITH A TWO–GANG OPENING. STUB 1" EC FROM BOX TO J–HOOKS OR CABLETRAY ABOVE ACCESSIBLE CEILING. PROVIDE CABLING, TERMINATIONS, AND FACEPLATE PER SPECIFICATIONS.
- CABLE TRAY LADDER STYLE CABLE TRAY 12" WIDE X 4" DEEP (8" RUNG SPACING) SUSPENDED FROM CEILING STRUCTURE UNLESS OTHERWISE NOTED CABLE TRAY SHALL BE COORDINATED WITH MECHANICAL DUCTWORK IN FIELD PRIOR TO INSTALLATION; CONTRACTOR SHALL PRODUCE COORDINATION DRAWINGS AND FIELD ADJUST AS REQUIRED TO MEET INTENT OF DRAWINGS

LIGHTING (SEE FIXTURE SCH.)

- CL1 CEILING FAN. HUNTER DEMPSEY – 52" FOUR BLADE, WHITE FAN OR APPROVED EQUAL. PROVIDE WITH 3 SPEED FAN CONTROL WALL SWITCH. NO LIGHT KIT.
- CL2 CEILING FAN. CANARM – 36" THREE BLADE, WHITE FAN OR APPROVED EQUAL. PROVIDE WITH 3 SPEED FAN CONTROL WALL SWITCH. NO LIGHT KIT.
- LED LIGHTING FIXTURE. SEE FIXTURE SCHEDULE. SUSPEND FOUR CORNERS WITH WIRE TO STRUCTURE. DO NOT ALLOW GRID ALONE TO SUPPORT FIXTURE.
- LED STRIP FIXTURE.
- LED LIGHTING DOWNLIGHT.
- WALL MOUNTED LED LIGHTING FIXTURE.
- LED FIXTURE WITH EMERGENCY BATTERY BALLAST OR DRIVER. PROVIDE 1100 LUMEN INVERTER RATED FOR 90 MINUTE OPERATION. SEE FIXTURE SCHEDULE FOR FIXTURE TYPE, EMERGENCY DEVICE SHALL SUPPLEMENT FIXTURE.
- LED DOWNLIGHT WITH AN EMERGENCY BATTERY BALLAST OR DRIVER. BASED ON 1100 LUMEN INVERTER (SEE SCHEDULE FOR FIXTURE LUMEN MAXIMUM.) EMERGENCY DEVICE SHALL SUPPLEMENT FIXTURE.
- EXIT LIGHT WITH ARROWS AND NUMBERS OF FACES AS INDICATED ON PLANS. 90 MIN BATTERY BACKUP. SEE LIGHTING FIXTURE SCHEDULE.
- EMERGENCY BATTERY PACK FIXTURE. 90 MINUTE EMERGENCY INTEGRAL BATTERY. SEE LIGHTING FIXTURE SCHEDULE
- EMERGENCY BATTERY PACK/EXIT COMBO FIXTURE WITH 90 MINUTE BATTERY BACKUP, SEE FIXTURE SCHEDULE.
- EXTERIOR EMERGENCY FIXTURE WITH EMERGENCY BALLAST OR DRIVER. PROVIDE 1100 LUMEN INVERTER RATED FOR 90 MINUTE OPERATION. SEE FIXTURE SCHEDULE FOR FIXTURE TYPE, EMERGENCY DEVICE SHALL SUPPLEMENT FIXTURE.
- SINGLE HEAD POLE FIXTURE. SEE FIXTURE SCHEDULE.
- DOUBLE HEAD POLE FIXTURE. SEE FIXTURE SCHEDULE.
- LIGHT BOLLARD OR POLE TOP FIXTURE. SEE FIXTURE SCHEDULE.
- FLOODLIGHT. SEE FIXTURE SCHEDULE.
- S SINGLE POLE SWITCH, 20 AMP, 120/277 VOLT, COOPER AH 1221, OR EQUAL BY HUBBELL, LEVITON, AND PASS & SEYMOUR.
- S_2 DOUBLE POLE SWITCH, 20 AMP, 120/277 VOLT, COOPER 1222, OR EQUAL.
- S_3 THREE WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1223, THREE WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1223, OR EQUAL BY HUBBELL, LEVITON, AND PASS & SEYMOUR.
- S_4 FOUR WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1224, OR EQUAL.
- S_K KEY OPERATED SWITCH
- S_D DIMMER SWITCH. LUTRON SERIES, OR EQUAL. VERIFY LOAD ON CIRCUIT AND MATCH DIMMER SIZE TO LOAD AND DEVICE QUANTITY. PROVIDE DOUBLE GANG J–BOX WITH SINGLE GANG TRIM PLATE. PROVIDE DIMMING SWITCH AS RECOMMENDED BY LIGHTING MANUFACTURER. MATCH SWITCH TYPE TO SOURCE (LED, FLUORESCENT, OR INCANDESCENT,) WATTAGE, AND QUANTITY.
- S_S INDICATES TWO LEVEL SWITCHING. SWITCH OUTER TWO LAMPS OF FIXTURES TOGETHER AND THE INNER LAMP(S) TOGETHER.
- S_{VS} WALL MOUNTED VACANCY SENSOR AND SWITCH (MANUAL ON/AUTOMATIC OFF). INFRARED TECHNOLOGY, 120/277 RATED. SENSOR SWITCH WSX, WATT STOPPER PW–301, LEVITON, COOPER OR EQUAL.
- S_{OC} WALL MOUNTED OCCUPANCY SENSOR AND SWITCH. INFRARED TECHNOLOGY WITH NEUTRAL, 120/277V RATED. WATT STOPPER #WS–250, OR EQUAL BY SENSOR SWITCH, AND LEVITON.
- S_{OCD} WALL MOUNTED OCCUPANCY SENSOR AND SWITCH. INFRARED TECHNOLOGY, WATT STOPPER, SENSOR SWITCH, COOPER CONTROLS OR EQUAL. FOR DIMMING SWITCHING. SWITCH SHALL BE INSTALLED IN SINGLE GANG BOX. 120/277V RATED.
- S_F THREE SPEED FAN CONTROL SWITCH. PROVIDED WITH CEILING FAN KIT.
- OC$_{DT(HB)}$ CEILING MOUNTED EXTENDED RANGE OCCUPANCY SENSOR. WATT STOPPER #HB300B–LX, EQUALS: COOPER, HUBBEL.
- OC$_{DT}$ CEILING MOUNTED OCCUPANCY SENSOR, DUAL TECHNOLOGY. SENSOR SWITCH CM PDT 10, WATT STOPPER #DT–300, COOPER OAC–DT OR EQUAL.
- OC$_{IR}$ CEILING MOUNTED OCCUPANCY SENSOR. INFRARED TECHNOLOGY. WATT STOPPER #CI–300–1 OR EQUAL.
- OC$_L$ CEILING MOUNTED OCCUPANCY SENSOR, ULTRASONIC WATT STOPPER #WT–2255 OR EQUAL.
- HW$_{OC}$ WALL MOUNTED OCCUPANCY SENSOR, DUAL TECHNOLOGY. SENSOR SWITCH WV–PDT, WATT STOPPER #DT–200, LEVITON, GREENGATE OR EQUAL. CONICAL PATTERN, MOUNT AS CLOSE TO CORNER OF ROOM AS POSSIBLE. MOUNT 10' AFF OR 6" BELOW CEILING (IF LOWER THAN 10'.)
- VC$_{DT}$ CEILING MOUNTED VACANCY SENSOR, DUAL TECHNOLOGY. SENSOR SWITCH, WATT STOPPER , COOPER OR EQUAL.
- PP CEILING MOUNTED OCCUPANCY SENSOR, POWER PACK. SENSOR SWITCH PP–20, WATT STOPPER #BZ–100, COOPER SP–20, OR EQUAL.
- PP$_D$ CEILING MOUNTED OCCUPANCY SENSOR, DIMMING POWER PACK. SENSOR SWITCH, WATT STOPPER, COOPER, OR EQUAL.
- LS LIGHT LEVEL SENSOR WATT STOPPER LS–101 OR APPROVED EQUAL
- PC PHOTO CONTROL, EXTERIOR, MOUNT FACING NORTH.
- OC$_{EXT}$ EXTERIOR MOUNTED LINE VOLTAGE MOTION SENSOR WATT STOPPER #EN–100 (90 DEGREE) OR EQUAL.

ELECTRICAL SHEET INDEX

PLAN NUMBER	PLAN NAME
E001	ELECTRICAL NOTES & LEGENDS
E002	ELECTRICAL SPECIFICATIONS
E010	SITE PLAN – ELECTRICAL
E011	FLOOR PLAN – SITE GROUNDING
E012	FLOOR PLAN – SUPPLIMENTAL GROUNDING
E013	ROOF PLAN – GROUNDING
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E101	AREA 1 LIGHTING PLANS
E102	AREA 2 LIGHTING PLANS
E103	AREA 3 LIGHTING PLANS
E201	AREA 1 POWER PLANS
E202	AREA 2 POWER PLANS
E203	AREA 3 POWER PLANS
E301	AREA 1 EQUIPMENT CONNECTIONS PLANS
E302	AREA 2 EQUIPMENT CONNECTIONS PLANS
E303	AREA 3 EQUIPMENT CONNECTIONS PLANS
E304	AREA 1 AND AREA 2 EQUIPMENT CONNECTIONS ROOF PLANS
E305	AREA 3 EQUIPMENT CONNECTIONS ROOF PLANS
E401	AREA 1 SYSTEMS PLANS
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E501	ENLARGED PLANS – ELECTRICAL
E601	ELECTRICAL DETAILS
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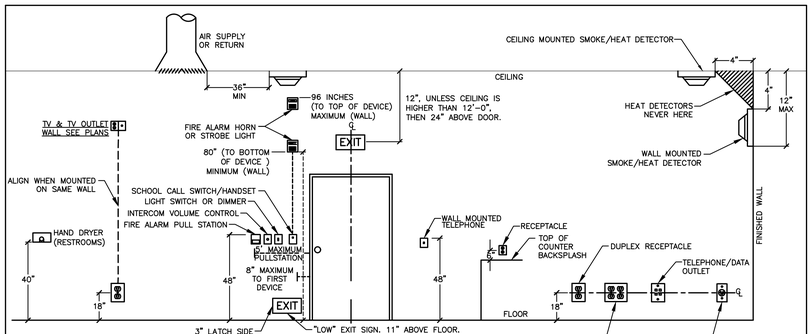
E701	POWER RISER DIAGRAM
E801	LIGHT FIXTURE SCHEDULE
E802	EQUIPMENT SCHEDULES
E803	PANEL SCHEDULES
E804	PANEL SCHEDULES
E805	PANEL SCHEDULES

SCHEDULE NOTES:

1. SEE DETAIL FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.
2. ALL DEVICES (SWITCHES AND RECEPTACLES) SHALL BE CHOSEN BY ARCHITECT, WITH EXCEPTION OF THOSE ON UPS POWER OR FED FROM CRITICAL PANEL WHICH SHALL BE ORANGE. ALL COVER PLATE FINISHES SHALL BE SELECTED BY ARCHITECT. ALL COVER PLATES IN MASONRY WALLS SHALL BE 302 STAINLESS STEEL JUMBO PLATES.
3. DEVICE BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS UNLESS OTHERWISE NOTED.
4. ALL FIRE ALARM SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED.
5. ALL LOW VOLTAGE CABLING SHALL BE PLENUM RATED.
6. MC CABLE SHALL NOT BE PERMITTED.
7. ALL PLAN DRAWINGS SHALL SUPERCEDE SPECIFICATIONS WHEN PLANS AND SPECIFICATIONS ARE IN CONFLICT.
8. ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRE, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
9. SHARED NEUTRAL OR "SUPER NEUTRAL" CONDUCTORS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY SHOWN ON THESE DRAWINGS.
10. SERIES RATED PANELS ARE NOT ACCEPTABLE.
11. STACKED TRANSFORMERS SHALL BE COORDINATED AND INSTALLED PRIOR TO DOOR OPENING OF ELECTRICAL ROOMS
12. ALL WALL MOUNTED OCCUPANCY/VACANCY SENSOR SWITCH OUTLETS SHALL BE BE PROVIDED WITH A GROUNDED CONDUCTOR AS PART OF THE WIRING SYSTEM.
13. ALL PANELBOARDS SHALL BE PROVIDED WITH A TYPED CIRCUIT DIRECTORY PER NEC 408.4. SPARE CIRCUIT BREAKERS SHALL BE PLACED IN THE "OFF" POSITION.



NOTES:
1. LOCATIONS WHERE TV MOUNT IS BACK TO BACK ON SAME WALL, AN OFFSET OF 8–12" WILL BE NEEDED FOR INSTALLATION OF JACK/RECEPTACLE.
2. DEVICES ABOVE COUNTER TOPS SHALL BE A MAXIMUM OF 48" TO TOP OF DEVICE.
3. LOW EXIT SIGN AS INDICATED ON PLANS. PER IBC 1011.2
4. DEVICES NEXT TO DOOR EXIT SHALL BE WITHIN 8" (MAXIMUM) TYPICAL OF DOOR UNLESS OBSTACLES SUCH AS SIDELITES, ETC.

2 MOUNTING HEIGHTS OF DEVICES – ELEVATION
NO SCALE

ALTERNATES:

ALTERNATE #2: ADD AIR SCRUBBERS IN VEHICLE BAYS

PROVIDE TWELVE FULL AIR SCRUBBER SYSTEMS IN APPARATUS ROOMS A AND B (ROOMS 201 AND 209) AS INDICATED IN THE ARCHITECTURAL REFLECTED CEILING PLANS AND ELECTRICAL PLANS. INCLUDE A COMPLETE SYSTEM OF FANS AS SCHEDULED, POWER AND CONTROL WIRING, DEVICES, AND RACEWAYS.

ALTERNATE #3: ADD LSHV FANS IN APPARATUS BAYS

PROVIDE TWO FULL LOW SPEED HIGH VOLUME CEILING FAN SYSTEMS IN APPARATUS ROOMS A AND B (ROOMS 201 AND 209) AS INDICATED IN THE ARCHITECTURAL REFLECTED CEILING PLANS AND ELECTRICAL PLANS. INCLUDE A COMPLETE SYSTEM OF FANS AS SCHEDULED, POWER AND CONTROL WIRING, DEVICES, AND RACEWAYS.

ALTERNATE #4: ADD PATIO CANOPY STRUCTURE

PROVIDE A PREFINISHED METAL CANOPY SYSTEM AT PATIO 133. INCLUDE ALL FOOTINGS, POSTS, BEAMS, ROOF DECKS, DRAINAGE, AND FLASHINGS. INCLUDE ALL FASTENERS AND SEALANTS. PROVIDE LIGHTING AS INDICATED IN THE ELECTRICAL DOCUMENTS.

COMMISSIONING NOTE – 2018 NCECC C408

THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR SYSTEM COMMISSIONING PER 2018 NCECC SECTION C408. MC SHALL HIRE A REGISTERED DESIGN PROFESSIONAL (ENGINEER SEALED IN NC OR CERTIFIED COMMISSIONING PROFESSIONAL) TO PERFORM THE COMMISSIONING DUTIES DESCRIBED IN SECTION C408, AND PROVIDE THE OWNER AND CODE OFFICIAL WITH A SEALED STATEMENT OF COMPLETION (APPENDIX C1). THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH COMMISSIONING AGENT AND PROVIDE ALL NECESSARY TIME, MATERIALS, AND PROCEDURES REQUIRED FOR A FULLY COMMISSIONED PROJECT.

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CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

ELECTRICAL NOTES & LEGENDS

DATE 12.04.2020
PROJECT NO 20003
REVISIONS

NUM.	DATE	DESCRIPTION:
1	12-17-2020	REVISION #1
4	01-20-2021	REV4 / ADD3

1. GENERAL:

A. THE WORK COVERED BY THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, MATERIALS AND SUPPLIES AS NECESSARY FOR THE COMPLETE AND SATISFACTORY OPERATING ELECTRICAL SYSTEMS AS SHOWN ON THE PLANS.
B. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, NFPA, STATE BUILDING CODE, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.
C. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL ELECTRICAL PERMITS AND INSPECTION FEES.
D. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. OR BY A STATE APPROVED THIRD PARTY TESTING AGENCY FOR THE USE INTENDED WHERE A STANDARD FOR SUCH MATERIALS AND USE EXISTS. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL AND OF THE SAME MANUFACTURER.
E. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CATALOG DATA IN ELECTRONIC FORMAT (PDF) FOR ALL ELECTRICAL ITEMS IN THE SCOPE OF WORK, INCLUDING, BUT NOT LIMITED TO, RACEWAYS, BOXES, FITTINGS, CONDUCTORS, LUMINAIRES, LAMPS, BALLASTS, WIRING DEVICES, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, SWITCHBOARDS, SWITCHGEARS, GENERATORS, AUTOMATIC TRANSFER SWITCHES (ATS), UNINTERRUPTIBLE POWER SUPPLY (UPS), POWER DISTRIBUTION UNITS (PDU), FLOOR/REMOTE DISTRIBUTION CABINETS (FDC/RDC), STATIC TRANSFER SWITCHES (STS), FIRE ALARM, TELECOMMUNICATIONS, ETC. FOR APPROVAL AS APPLICABLE FOR THE PROJECT. ONE COMPLETE SET OF APPROVED SUBMITTALS SHALL BE MAINTAINED AT THE JOB SITE.
F. ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH THE BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRE, REPLACEMENT OF OTHER COMPONENTS, BUILDING ALTERATIONS, METHODS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COSTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED AFTER BIDS HAVE BEEN ACCEPTED AND ALL COSTS WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CREDITS SHALL BE GIVEN TO THE OWNER WHERE SUCH EQUIPMENT AND METHODS RESULT IN LESS EXPENSE TO THE CONTRACTOR.
G. ONE COMPLETE SET OF THE LATEST CONSTRUCTION PLANS OF ALL TRADES SHALL BE MAINTAINED AT THE JOB SITE. IN ADDITION, ALL ADDENDUMS, BULLETINS, AND/OR SKETCHES SHALL BE INCORPORATED INTO THE ON-SITE CONSTRUCTION PLANS AS THE JOB PROGRESSES.
H. COMPLETELY ADEQUATE HOUSING SHALL BE PROVIDED FOR ALL MATERIALS STORED ON JOB SITE. ONLY CONDUIT MAY BE STORED OUTSIDE, BUT NOT IN CONTACT WITH THE GROUND.
I. THE CONDUIT AND NEUTRAL SYSTEM SHALL BE GROUNDED AT THE MAIN SERVICE EQUIPMENT. GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED PER NEC 250.
J. PROVIDE AN INTERSYSTEM BONDING TERMINATION DEVICE AT THE MAIN ELECTRICAL SERVICE PER NEC 250.94.
K. WIRING SHALL BE TESTED FOR CONTINUITY AND GROUNDS BEFORE BEING ENERGIZED. FAULTY WIRING SHALL BE REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.
L. PROVIDE ALL CUTTING AND PATCHING FOR INSTALLATION OF WORK AND REPAIR ANY DAMAGE DONE.
M. THE ELECTRICAL CONTRACTOR SHALL CONNECT ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS (UNLESS OTHERWISE NOTED), EXCEPT FOR CONTROL WIRING FOR EQUIPMENT NOT PROVIDED WITH THE ELECTRICAL CONTRACTOR TO CONTROL WIRING FOR SUCH EQUIPMENT SHALL BE PROVIDED BY THE RESPECTIVE DISCIPLINE.
N. ALL ELECTRICAL JUNCTION BOXES, SWITCHGEAR, CABLING, VOICE/DATA OUTLETS, LOW VOLTAGE CABINETS, EMERGENCY RECEPTACLES, ETC. SHALL BE LABELED ACCORDING TO PANEL/RACK AND CIRCUIT NUMBER.
O. UPON COMPLETION OF WORK, CONTRACTOR SHALL PRESENT ENGINEER WITH CERTIFICATE OF APPROVAL FROM LOCAL INSPECTION AND/OR AUTHORITY HAVING JURISDICTION BEFORE WORK WILL BE APPROVED FOR FINAL PAYMENT.
P. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR EFFECTIVE THE DATE THE WORK IS ACCEPTED BY THE OWNER. ANY IMPERFECT MATERIALS OR WORKMANSHIP SHALL BE REPLACED WITHOUT ADDED COST TO THE PROJECT.
Q. IT SHALL NOT BE THE INTENT OF ISSUED PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL NECESSARY ITEMS FOR A COMPLETE AND OPERATING SYSTEM.
R. THE WORD "PROVIDE" MEANS THAT THIS CONTRACTOR SHALL FURNISH, FABRICATE, ERECT, CONNECT, AND COMPLETELY INSTALL SYSTEMS IN PROPER OPERATING CONDITION. ALL LABOR, PRODUCT OPTIONS, ACCESSORIES AND INCIDENTAL MATERIALS REQUIRED SHALL BE INCLUDED AS PART OF THIS WORK TO COMPLETE THE INSTALLATION.
S. THE WORD "CONNECT" MEANS THAT THIS CONTRACTOR SHALL PROVIDE (SEE DEFINITION ABOVE) ALL DISCONNECTING MEANS, OVERCURRENT PROTECTION AND WIRING REQUIRED TO PLACE THE EQUIPMENT AND SYSTEMS IN PROPER OPERATING CONDITION AND TO COMPLY WITH CODE REQUIREMENTS.
T. CONTRACTOR SHALL COORDINATE THE ROUGH-IN OF ALL OUTLET LOCATIONS WITH ARCHITECTURAL FLOOR PLANS, ELEVATIONS, AND MILLWORK SHOP DRAWINGS PRIOR TO ROUGH-IN.
U. ELECTRICAL CONTRACTOR SHALL NOT SCALE PLANS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, UNLESS OTHERWISE NOTED.
V. CONTRACTOR SHALL TEST ALL "LIFE SAFETY" EQUIPMENT AND SYSTEMS FOR PROPER FUNCTION AND OPERATION. UPON SUCCESSFUL COMPLETION OF TESTS, CONFIRMATION SHALL BE SENT TO THE ENGINEER OF RECORD IN THE FORM OF A LETTER STATING THE TESTS PERFORMED, THE RESULTS, AND THE DATE TESTS WERE SUCCESSFULLY COMPLETE. "LIFE SAFETY" EQUIPMENT AND SYSTEMS CONSIST OF THOSE AS SPECIFIED IN THE STATE BUILDING CODE, THE NATIONAL ELECTRICAL CODE (NEC), NFPA 101, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.
W. IF DURING THE COURSE OF WORK, THE CONTRACTOR DISCOVERS A PROBLEM WITH THE PERFORMANCE OF THE INSTALLATION RELATIVE TO THE PLANS AND SPECIFICATIONS, THE NEC, OR OTHER CODES OR REQUIREMENTS, THE CONTRACTOR SHALL IMMEDIATELY BRING THE PROBLEM TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK.
X. WHERE THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL BRING THE ISSUE TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK OR ORDERING ANY MATERIALS. NO ADDITIONAL COSTS SHALL BE WARRANTED WITHOUT A CHANGE TO THE PROJECT SCOPE.
Y. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PROVIDING TEMPORARY POWER AND LIGHTING FOR ALL TRADES.
Z. COORDINATE LOCATION AND REQUIREMENTS FOR ELECTRICAL SERVICE WITH THE POWER COMPANY. WHERE MORE THAN ONE SERVICE IS SUPPLIED TO A BUILDING, PROVIDE IDENTIFICATION AT EACH SERVICE PER NEC 230-2(E).
AA. COORDINATE LOCATION AND REQUIREMENTS FOR TELEPHONE SERVICE WITH THE TELEPHONE COMPANY.
AB. THE CONTRACTOR SHALL PROVIDE A MINIMUM TWO WEEK NOTICE FOR ANY PLANNED UTILITY OUTAGES. WRITTEN AUTHORIZATION FROM THE OWNER SHALL BE PROVIDED PRIOR TO ANY OUTAGE. ALL PLANNED UTILITY OUTAGES SHALL BE COORDINATED WITH THE OWNER TO OCCUR DURING NON-OPERATING TIMES, INCLUDING NIGHTS, WEEKENDS AND HOLIDAYS. ALL PLANNED UTILITY OUTAGES SHALL INCLUDE PROVISIONS FOR PROPER BACK-UP OF ALL LIFE-SAFETY SYSTEMS AND INCLUDE AN APPROVED FIRE-WATCH PROGRAM AS REQUIRED BY THE LOCAL FIRE MARSHALL.

2. RACEWAY:

A. CONDUIT SHALL BE MANUFACTURED BY ALLIED, WHEATLAND, REPUBLIC CONDUIT, WESTERN TUBE, OR APPROVED EQUIVALENT.
B. FOR INTERIOR WORK, CONDUIT SHALL BE ZINC COATED EMT EXCEPT WHERE NOT PERMITTED BY CODE. USE SCHEDULE 40 PVC BELOW CONCRETE SLAB, IN DUCTBANKS, AND FOR EXTERIOR WORK WHERE NOT SUBJECT TO DAMAGE. USE IMC WHERE SUBJECT TO PHYSICAL DAMAGE.
C. EMT FITTINGS SHALL BE COMPRESSION GLAND TYPE, OF MALLEABLE STEEL. CONNECTORS SHALL HAVE INSULATED THROATS. CAST, SET SCREW, OR INDENTER TYPE FITTINGS ARE NOT ACCEPTABLE. ALL FITTINGS FOR EMT SHALL BE MADE OF STEEL.
D. ALL RACEWAY SHALL BE RUN CONCEALED, UNLESS OTHERWISE NOTED. FISH ALL NEW OUTLETS IN EXISTING WALLS, WHERE POSSIBLE. ALL RUNS SHALL BE NEAT AND SQUARE.
E. LOW VOLTAGE CABLING NOT SPECIFIED TO BE INSTALLED IN CONDUIT, SHALL BE INSTALLED IN A CABLE TRAY SYSTEM OR J-HOOK SYSTEM CONSISTING OF MINIMUM 2" DIAMETER HOOKS LOCATED ON 3'-0" CENTERS IN ALL ACCESSIBLE CEILINGS. WHERE THERE ARE INACCESSIBLE CEILINGS, PROVIDE CONDUIT FOR ENTIRE LENGTH OF INACCESSIBILITY.
F. RACEWAYS USED FOR LOW VOLTAGE SYSTEMS SUCH AS TELECOMMUNICATIONS, FIRE ALARM, SECURITY, CCTV, CONTROLS, AND SIMILAR CONDUITS ABOVE THE CEILING AND BACKBOARD(S) SHALL BE PROVIDED WITH INSULATED THROAT BUSHINGS AT EACH CONDUIT TERMINATION. THESE BUSHINGS SHALL BE BE INSTALLED PRIOR TO PULLING LOW-VOLTAGE CABLES.
G. RACEWAY PENETRATIONS THROUGH FLOOR SLABS AND FIRE-RATED WALLS SHALL BE FILLED WITH IMPERVIOUS, NON-SHRINK GROUT SUFFICIENTLY TIGHT TO PREVENT THE TRANSFER OF SMOKE, WATER, AND DUST. ROOF PENETRATIONS SHALL BE WITHIN THE EQUIPMENT ROOF CURB.
H. SUPPORT ALL CONDUIT WITH STRAPS AND CLAMPS.
I. ALL CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES, WHETHER EXPOSED OR NOT AND SUPPORTED FROM STRUCTURE AND PROPERLY SECURED.
J. WHERE CONDUITS PASS THROUGH A BUILDING EXPANSION JOINT, PROVIDE GALVANIZED EXPANSION FITTINGS WITH BONDING JUMPERS.
K. MINIMUM CONDUIT SIZE SHALL BE 3/4" FOR INTERIOR WORK, 1" FOR EXTERIOR WORK.
L. PROVIDE MINIMUM 210# TEST NYLON PULL CORD AND NYLON BUSHINGS IN ALL EMPTY RACEWAYS.
M. LIQUID-TIGHT METAL CONDUIT SHALL ONLY BE USED FOR FINAL CONNECTIONS TO EQUIPMENT AND ALL OTHER ROTATING AND VIBRATING EQUIPMENT, MAXIMUM LENGTH OF 3'-0".
N. FLEXIBLE METAL CONDUIT, MINIMUM SIZE 3/8", SHALL ONLY BE USED FOR FINAL CONNECTION TO LIGHTING FIXTURES, MAXIMUM LENGTH OF 6'-0".
O. PROVIDE PULL BOXES, SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360°. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WHERE CONDUITS PASS UNDER PAVED AREAS, THEY SHALL BE RGS.
P. ALL CONDUIT BENDS/ELBOWS EMERGING FROM UNDERGROUND SHALL BE IMC AND SHALL EXTEND A MINIMUM OF 18" BELOW GRADE.
Q. ALL UNDERGROUND RACEWAYS SHALL BE THOROUGHLY COATED WITH TWO COATS OF ASPHALTUM BITUMASTIC.
R. ALL CONDUITS INSTALLED UNDERGROUND OR IN CONCRETE SHALL HAVE JOINTS MADE WATERTIGHT BY USE OF POLYETRA-FLUOROETHYLENE TAPE.
S. THE USE OF AC OR NM CABLE IS NOT PERMITTED.

3. OUTLET BOXES:

A. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE GALVANIZED STEEL. ACCEPTED MANUFACTURERS SHALL BE STEEL CITY (THOMAS & BETTS), RACO, CROUSE-HINDS, APPLETON (EMERSON), OR APPROVED EQUIVALENT.
B. OUTLET BOXES SHALL NOT BE PLACED BACK-TO-BACK ON COMMON WALLS.
C. ATTACH EMT WITH CONNECTORS HAVING INSULATED THROAT.
D. ATTACH BOXES TO STUD WORK USING CADDY BAR STRAPS THAT CONNECT TO TWO ADJACENT STUDS TO PREVENT TWISTING OF BOX IN WALL.
E. ALL OUTLET BOXES (INCLUDING TELEPHONE, CABLE TV, AND COMPUTER) SHALL HAVE COVER PLATES, BLANK IF NOT USED.
F. ALL EXTERIOR BOXES SHALL BE WATER-TIGHT.

4. CONDUCTORS:

A. CONDUCTORS SHALL BE MANUFACTURED BY SOUTHWIRE (SIMPULL), ENCORE (SUPERSLICK), UNITED COPPER (SLK), CERRO (SLP), OR APPROVED EQUAL, "PRE-LUBRICATED" BY THE MANUFACTURER.
B. ALL CONDUCTORS SHALL BE COPPER, RATED 75° C WET/DRY EXCEPT WHERE OTHERWISE NOTED OR REQUIRED BY U.L. OR OTHER CODES.
C. ALL CONDUCTORS SHALL BE SINGLE INSULATED CONDUCTOR, THHN/THWN-2. SIZES #10 AWG AND SMALLER SHALL BE SOLID, SIZES #8 AWG AND LARGER SHALL BE STRANDED.
D. BRANCH CIRCUITS SHALL NOT BE SMALLER THAN #12 AWG. CONTROL WIRING MAY BE #14 AWG.
E. CONDUCTORS SHALL BE COLOR CODED BLACK/RED/BLUE FOR 120/208 VOLT SYSTEMS AND BROWN/ORANGE/YELLOW FOR 277/480 VOLT SYSTEMS FOR A, B, AND C PHASES, RESPECTIVELY. NEUTRAL SHALL BE WHITE FOR 120/208 VOLT SYSTEMS AND NATURAL GRAY FOR 277/480 VOLT SYSTEMS. GROUND CONDUCTOR SHALL BE GREEN ON ALL SYSTEMS. ALL CONDUCTOR SIZES SHALL HAVE CODE-REQUIRED INSULATION. THE USE OF COLORED TAPE ON LARGER WIRE SIZES SHALL NOT BE ALLOWED.
F. INSULATION SHALL BE DUAL RATED TYPE THHN/THWN-2 FOR FEEDERS AND BRANCH CIRCUITS. FIXTURE TAPS SHALL BE #12 THHN/THWN-2 IN FLEX WITH GREEN #12 AWG GROUNDING CONDUCTOR.
G. ALL CONDUCTORS SHALL BE IN CONDUIT.
H. WIRING TO LIGHTING FIXTURES SHALL BE AS REQUIRED BY UL LABEL.
I. MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE ALLOWED, UNLESS EXPLICITLY INDICATED ON THE DRAWINGS. WHERE EXPLICITLY INDICATED ON THE DRAWINGS:
   1) ALL 20A MULTI-WIRE RECEPTACLE CIRCUITS SHALL UTILIZE A #10 AWG NEUTRAL CONDUCTOR.
J. JOINTS IN #10 AWG AND SMALLER SHALL BE MADE UP WITH CRIMPED CONNECTORS WITH INSULATING CAPS (NO TAPE) OR WIRENUTS (MAXIMUM OF 3 CONDUCTORS UNDER ANY CONNECTOR OR WIRENUT). LARGER WIRE SHALL USE SPLIT BOLTS OR BOLTED CLAMPS.
K. ALL WIRING LUGS THROUGHOUT THE PROJECT, INCLUDING, BUT NOT LIMITED TO, BREAKERS, PANELBOARD/SWITCHBOARD LUGS, SAFETY SWITCH LUGS, MOTOR STARTER LUGS, TRANSFORMERS LUGS, WIRING DEVICE TERMINALS, AND ALL EQUIPMENT LUGS/TERMINALS SHALL BE RATED FOR USE WITH 75 DEGREE INSULATED CONDUCTORS AT THEIR 75 DEGREE AMPACITY AND SHALL BE SIZED AND SELECTED TO MATCH THE CONDUCTOR SIZE AND MATERIAL.
L. CIRCUIT JOINTS SHALL NOT BE MADE ON DEVICE TERMINALS.
M. WIRE WITHIN PANELBOARDS SHALL BE NEATLY TRAINED, SQUARED, BUNCHED, AND TAGGED.
N. ALL SYSTEM FURNITURE CONNECTIONS SHALL COMPLY WITH NEC 605.
O. GROUND ALL EQUIPMENT PER NEC ARTICLE 250. BOND WHERE CONDUITS ENTER ENCLOSURES THROUGH CONCENTRIC KNOCKOUTS. ALL FLEX, INCLUDING FIXTURE TAPS, SHALL INCLUDE GREEN GROUNDING CONDUCTOR, #12 AWG MINIMUM. PROVIDE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT AND FOR EACH CIRCUIT, SIZED PER NEC 250-122.
P. ALL CONDUCTORS INSTALLED IN VERTICAL RACEWAYS SHALL BE SUPPORTED AT INTERVALS AS REQUIRED PER NEC 300-19.
Q. THE ELECTRICAL CONTRACTOR SHALL FOLLOW AND APPLY THE TABLE BELOW, REGARDLESS WHAT THE PANEL SCHEDULE INDICATES, FOR SIZING ALL 120V & 277V, 20 AMP BRANCH CIRCUITS (COPPER CONDUCTORS) TO ALLOW A MAXIMUM OF 3% VOLTAGE DROP FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE ON THE BRANCH CIRCUIT AND ACHIEVE A MAXIMUM OF 5% VOLTAGE DROP ACROSS THE ENTIRE BRANCH CIRCUIT:

VOLTAGE	CONDUCTOR LENGTH *	BRANCH CIRCUIT
120	0' – 50'	#12
120	51' – 90'	#10
120	91' – 140'	#8
120	141' – 225'	#6
277	0' – 125'	#12
277	126' – 200'	#10
277	201' – 330'	#8
277	331' – 525'	#6

* – THE LENGTH IS MEASURED FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE WHICH THE BRANCH CIRCUIT SERVES. WHERE THE DISTANCE EXCEEDS ABOVE, CONSULT WITH THE ENGINEER.

5. WIRING DEVICES:

A. WIRING DEVICES SHALL BE SPECIFICATION GRADE, MINIMUM, EQUAL TO COOPER QUALITY INDICATED BELOW OR AS MANUFACTURED BY HUBBELL, LEGRAND-PASS & SEYMOUR, LEVITON, OR APPROVED EQUAL, UNLESS OTHERWISE NOTED:

SWITCHES (120/277V) SHALL BE AS FOLLOWS:

SINGLE-POLE 20 AMP	COOPER AH1221
DOUBLE-POLE 20 AMP	COOPER AH1222
THREE-WAY 20 AMP	COOPER AH1223
FOUR-WAY 20 AMP	COOPER AH1224
SINGLE-POLE-PILOT 20 AMP	COOPER AH1221PL
DOUBLE-POLE-PILOT 20 AMP	COOPER AH1222PL
THREE-WAY-PILOT 20 AMP	COOPER AH1223PL
SINGLE-POLE-KEY 20 AMP	COOPER AH1221L
DOUBLE-POLE-KEY 20 AMP	COOPER AH1222L
THREE-WAY-KEY 20 AMP	COOPER AH1223L
FOUR-WAY-KEY 20 AMP	COOPER AH1224L

DUPLEX RECEPTACLES SHALL HAVE A NYLON FACE AND SHALL BE AS FOLLOWS:

15 AMP DUPLEX	COOPER 5252
20 AMP DUPLEX	COOPER 5352
15 AMP DUPLEX GFCI	COOPER SGF15F
20 AMP DUPLEX GFCI	COOPER SGF20F
15 AMP DUPLEX TAMPER	COOPER TR5262
20 AMP DUPLEX TAMPER	COOPER TR5362
15 AMP DUPLEX GFCI-TAMPER	COOPER TRSGF15F
20 AMP DUPLEX GFCI-TAMPER	COOPER TRSGF20F
15 AMP DUPLEX IG	COOPER IG5262
20 AMP DUPLEX IG	COOPER IG5362
15 AMP DUPLEX SPD	COOPER 5262S
20 AMP DUPLEX SPD	COOPER 5362S
15 AMP DUPLEX IG-SPD	COOPER IG5262S
20 AMP DUPLEX IG-SPD	COOPER IG5362S
15 AMP DUPLEX CORROSION	COOPER 5262CR
20 AMP DUPLEX CORROSION	COOPER 5362CR

THE PART NUMBERS ABOVE ARE FOR WIRING DEVICE TYPE ONLY. SEE BELOW FOR WIRING DEVICE COLOR AND PLATE MATERIAL/COLOR.

B. SEE MOUNTING HEIGHT ELEVATION DETAIL FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.
C. THE COLOR OF ALL WIRING DEVICES (SWITCHES AND RECEPTACLES) SHALL BE AS DIRECTED BY THE ARCHITECT, UNLESS OTHERWISE NOTED. ALL COVER PLATES SHALL BE 302 STAINLESS STEEL. COVER PLATES IN MASONRY WALLS SHALL BE JUMBO SIZE.
D. ALL WIRING DEVICES FED FROM THE EMERGENCY POWER SYSTEM SHALL BE RED.
E. ALL WIRING DEVICES FED FROM A UPS SOURCE SHALL BE BLUE.
F. EACH DUPLEX RECEPTACLE INDICATED TO BE ON A DEDICATED CIRCUIT SHALL BE 20 AMP TYPE.
G. ADJACENT DEVICES SHALL HAVE A COMMON WALL PLATE.
H. WEATHERPROOF COVERS SHALL BE "WHILE-IN-USE" SO PLUGS MAY BE INSTALLED WITHOUT COMPROMISING THE WP FUNCTION. COOPER #WIU-2 DOUBLE-GANG WITH CLEAR COVER OR APPROVED EQUAL.
I. A MAXIMUM OF 10 GENERAL PURPOSE RECEPTACLES SHALL BE ON EACH BRANCH CIRCUIT.
J. DIMMERS SHALL BE LINEAR SLIDE, PRESENT ON/OFF, SQUARE LAW DIMMING, W/RFI FILTERING AND VOLTAGE COMPENSATION CIRCUITING.
K. ALL WALL MOUNTED OCCUPANCY/VACANCY SENSORS/SWITCHES SHALL BE INSTALLED WITH AN EQUIPMENT GROUNDING CONDUCTOR.
L. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.8, INSTALLED IN A READILY ACCESSIBLE LOCATION. WHERE A DEVICE LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE.
M. ALL GFCI RECEPTACLES SHALL HAVE AUTO-MONITORING / SELF-TEST FUNCTION AND REVERSE LINE-LOAD MISFIRE FUNCTION AND MEET ALL REQUIREMENTS OF UL 943 (LATEST EDITION).
N. TAMPER-RESISTANT RECEPTACLES SHALL BE PROVIDED FOR ALL AREAS PER NEC 406.12.

6. SUPPORTS:

A. ALL EQUIPMENT SHALL BE ADEQUATELY SUPPORTED FROM STRUCTURE.
B. INSERTS IN MASONRY SHALL BE LEAD OR FIBER IN DRILLED HOLES, OR CAST IN PLACE.
C. NAILS OR POWDER ACTUATED FASTENERS SHALL NOT BE USED.
D. EMT/IMC/RGS SUPPORTS SHALL BE A MAXIMUM OF 8'-0" APART AND A MAXIMUM OF 3'-0" FROM BOXES.
E. LIGHTING FIXTURES MOUNTED IN OR ON CEILING SHALL BE SUPPORTED FROM STRUCTURE VIA 12 GAUGE STEEL WIRE. PROVIDE A MINIMUM OF FOUR WIRES, ONE ATTACHED TO EACH CORNER OF LAY-IN FIXTURES. RECESSED DOWNLIGHT FIXTURES SHALL BE SUPPORTED THE SAME. DO NOT SUPPORT RACEWAY OR FIXTURES FROM CEILING GRID OR DUCT WORK. USE U.L. LISTED GRID CLIPS ON ALL LAY-IN FIXTURES.

7. PAINTING:

A. SUITABLE FINISH COAT SHALL BE PROVIDED FOR ALL EQUIPMENT. PANEL TUBS, COVERS, ETC. SHALL BE PRIMED AND ENAMELED TO BLEND WITH ADJACENT SURFACES, OR SHALL BE MANUFACTURER'S STANDARD COLOR BAKED ENAMEL FINISH, OR AS DIRECTED BY THE ARCHITECT.

8. TELECOMMUNICATIONS:

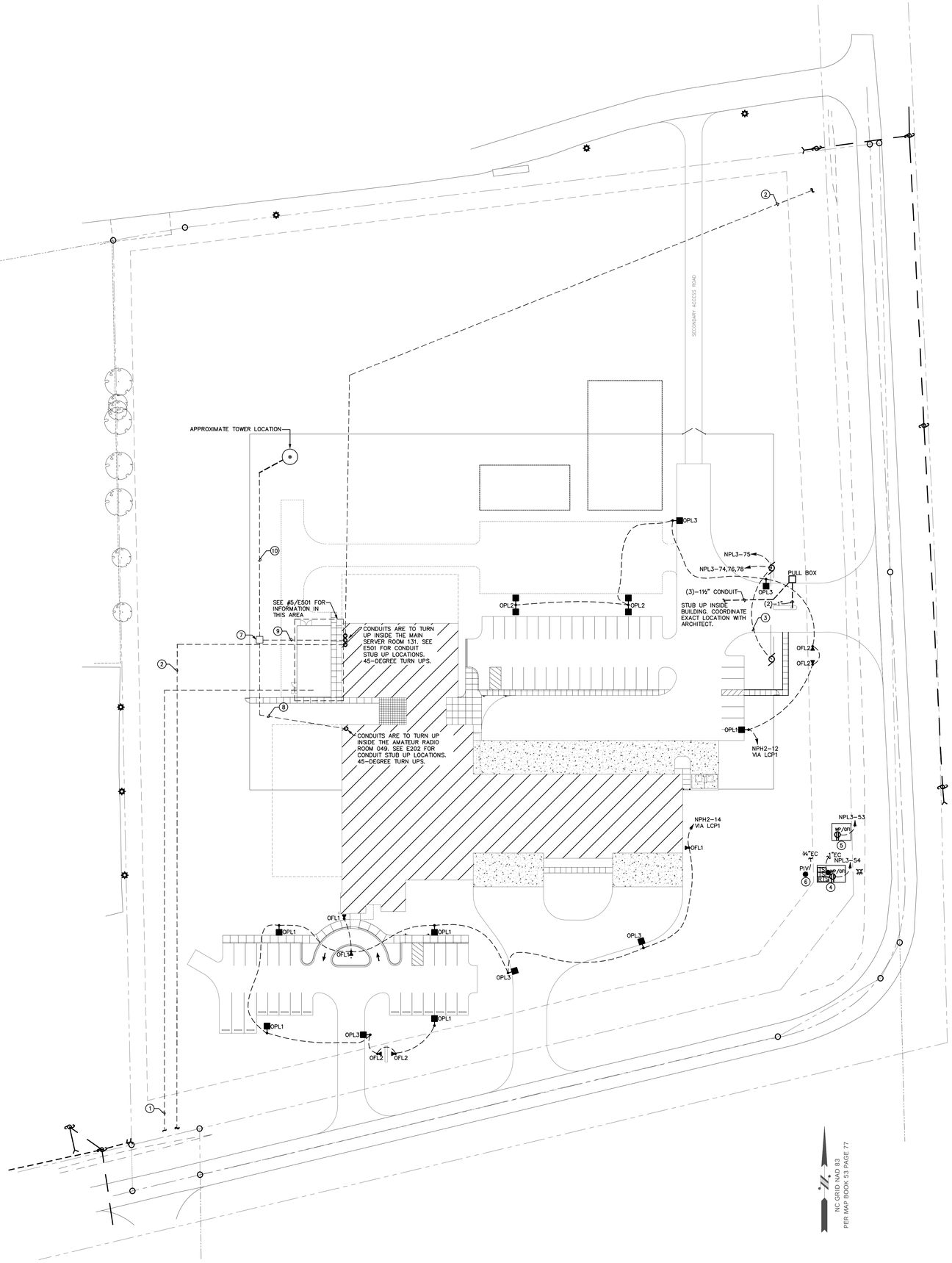
A. FURNISH A COMPLETE TELEPHONE CONDUIT SYSTEM AS INDICATED ON THE DRAWINGS.
B. TELECOMMUNICATION OUTLETS SHALL CONSIST OF A 4" SQUARE DEEP BOX WITH SINGLE GANG PLASTER RING. PROVIDE BLANK PLATE WITH KNOCKOUTS FOR OUTLETS, AS PERMANENT COVERS WILL BE PROVIDED BY A SEPARATE INSTALLER.
C. PROVIDE MINIMUM 1" RACEWAY, UNLESS OTHERWISE NOTED, FROM EACH BOX TO ABOVE NEAREST ACCESSIBLE CEILING SPACE FOR J-HOOK SYSTEM OR TO CABLE TRAY AS APPLICABLE. PROVIDE MINIMUM 210# TEST NYLON PULL CORD AND NYLON BUSHINGS IN ALL EMPTY RACEWAYS.
D. PROVIDE RACEWAYS FOR ALL EXTERIOR AND/OR EXPOSED LOCATIONS.
E. PROVIDE GROUNDING FOR ALL TELEPHONE/DATA SYSTEMS AND EQUIPMENT PER REQUIREMENTS AND SPECIFICATIONS PROVIDED BY THE OWNERS DESIGNATED VENDOR.
F. ALL LOW-VOLTAGE CABLING SHALL BE PLENUM-RATED.
G. CONTRACTOR SHALL FURNISH AND INSTALL A #6 AWG GREEN INSULATED COPPER WIRE IN CONDUIT FROM THE MAIN ELECTRICAL GROUNDING BAR TO TELECOMMUNICATIONS GROUNDING BUS BAR.
H. PROVIDE MOUNTING BACKBOARDS FOR COMMUNICATIONS EQUIPMENT. BACKBOARDS SHALL BE OF 3/4" TYPE AC, EXTERIOR PLYWOOD, PAINTED BOTH SIDES AND ALL EDGES WITH 2 COATS OF GRAY FLAME RETARDANT PAINT.
I. VERIFY SITE LOCATION OF TELEPHONE SERVICES WITH APPROPRIATE VENDOR, PRIOR TO SUBMITTING BID. TELEPHONE SERVICE CONDUITS SHALL BE PROVIDED TO THE PROPERTY LINE OR POINT AS DIRECTED BY THE LOCAL UTILITY.

9. LIGHTING FIXTURES:

A. TYPES AND MANUFACTURERS ARE SCHEDULED ON THE PLANS. EQUIVALENT FIXTURE SUBMITTALS/OTHERS MAY BE SUBMITTED ONLY AS INDICATED ON THE PLANS AND ARE SUBJECT TO THE APPROVAL OF THE OWNER AND ENGINEER.
B. ALL FIXTURES SHALL BE U.L. LISTED AND LABELED.
C. LAMPS SHALL BE GENERAL ELECTRIC, PHILIPS, OR OSRAM/SYLVANIA EXCEPT WHERE OTHERWISE NOTED IN THE LIGHTING FIXTURE SCHEDULE OR OTHERWISE NOTED. ALL FIXTURES SHALL BE EQUIPPED WITH LAMPS.
D. BALLASTS SHALL BE AS INDICATED IN THE LIGHTING FIXTURE SCHEDULE OR AS OTHERWISE NOTED.
E. ALL FIXTURES SHALL BE PROVIDED FOR PROPER VOLTAGE BASED ON THE CIRCUIT ASSIGNMENT INDICATED ON THE PLANS.
F. CATALOG NUMBERS ARE GENERAL IDENTIFICATION OF FIXTURES ONLY. ALL RELATED PARTS, SUCH AS PLASTER RINGS, JUNCTION BOXES, LOUVERS, SHIELDS, MOUNTING STEMS, CANOPIES, CONNECTORS, STRAPS, NIPPLES, HARDWARE, ACCESSORIES, ETC., TO FIT THEM INTO THE ENCLOSURE, SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. CONTRACTOR SHALL PROVIDE SUITABLE TRIM AND APPURTENANCES TO MOUNT FIXTURES IN TYPE OF CEILING OR WALL SPECIFIED IN ARCHITECTURAL FINISH SCHEDULES REGARDLESS OF CATALOG NUMBER GIVEN.
G. ALL FIXTURES SHALL BE GROUNDED PER THE NEC.
H. FIXTURES SHALL BE CONNECTED WITH FLEX TO THE RIGID RACEWAY PORTION OF THE WIRING SYSTEM SHALL CARRY A GREEN BONDING JUMPER WITHIN THE FLEX. THE JUMPER SHALL BE FASTENED TO BOTH THE FIXTURE AND THE RACEWAY SYSTEM WITH A STEEL CITY "G" CLIP OR APPROVED EQUIVALENT. PHASE AND GROUND CONDUCTORS RUN IN FLEX SHALL BE #12 AWG MINIMUM. MAXIMUM FLEX LENGTH SHALL BE 6'-0".
I. SURFACE-MOUNTED FLUORESCENT FIXTURES INSTALLED ON COMBUSTIBLE MATERIAL SHALL BE MOUNTED AT LEAST 1/4" FROM THE SURFACE OF THE MATERIAL, EXCEPT FOR FIXTURES WHICH ARE PLAINLY MARKED AS U.L. APPROVED FOR MOUNTING DIRECTLY TO SUCH SURFACES.
J. MOUNT ALL FIXTURES PLUMB AND SQUARE WITH ROWS ALIGNED.
K. FLUORESCENT LUMINAIRES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE SHALL HAVE A DISCONNECTING MEANS WITHIN INTEGRAL OR EXTERNAL TO EACH LUMINAIRE PER NEC 410.130(G).
L. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF FIXTURES.
M. CONTRACTOR SHALL COORDINATE FIXTURE TYPE AND TRIM WITH CEILING CONSTRUCTION AND ADJUST ACCORDINGLY WITHOUT ADDITIONAL EXPENSE.
N. ALL LIGHTING FIXTURES SHALL BE THERMALLY PROTECTED PER THE NEC.
O. FIXTURES IN CONTACT WITH INSULATION SHALL BE IC RATED.
P. FOR RECESSED LIGHTING FIXTURES IN FIRE RATED CEILINGS, PROVIDE A MANUFACTURER APPROVED AND LISTED FIRE RATED COVER/ASSEMBLY OVER THE FIXTURE TO MAINTAIN THE INTEGRITY OF THE CEILING FIRE RATING. ANY LIGHTING FIXTURES INSTALLED UNDER THE FIRE RATED CAP SHALL BE SUITABLE FOR THE INSTALLATION.

10. LIGHTING CONTROLS:

A. FURNISH AND INSTALL WHERE SHOWN AN ELECTRONIC TIME CONTROLLER AS MANUFACTURED BY TORK (NSI), PARAGON, INTERMATIC, OR APPROVED EQUAL. CONTACTS SHALL BE SPST OR AS INDICATED, RATED 120/277V AT 20A BALLAST LOAD, AND MINIMUM 30,000 SWITCHING CYCLES. PROVIDE WITH THE NUMBER OF CHANNELS INDICATED (MINIMUM 2 CHANNELS) OR AS REQUIRED TO MEET THE INTENT OF THE DRAWINGS. EACH CHANNEL SHALL BE INDIVIDUALLY PROGRAMMABLE WITH 128 ON-OFF OPERATIONS PER WEEK PLUS FOUR SEASONAL SCHEDULES TO MODIFY THE BASIC PROGRAM AND A HOLIDAY SCHEDULE THAT OVERRIDES THE WEEKLY OPERATION. THE CONTROLLER SHALL BE PROVIDED WITH A PHOTOELECTRIC SENSOR, ASTRONOMIC DIAL, AND A BATTERY BACKED-UP, NON-VOLITILE MEMORY FOR SCHEDULES AND TIME CLOCK.
B. LIGHTING CONTACTORS SHALL SWITCH LOADS AT THE VOLTAGE AND AMPERE RATING INDICATED AND SHALL HAVE THE NUMBER OF POLES INDICATED ON THE DRAWINGS OR AS REQUIRED. THE CONTACTOR AND CONTACTS SHALL BE CONTINUOUSLY RATED FOR THE LOAD SERVED, INCLUDING TUNGSTEN FILAMENT, INDUCTIVE, A



1 SITE PLAN - ELECTRICAL

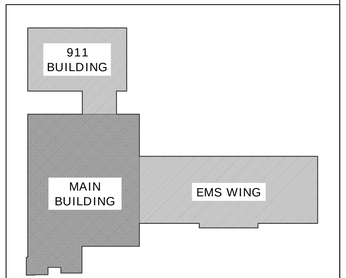
1" = 40'

GENERAL NOTES:

1. ALL LOW VOLTAGE CONDUIT RUNS SHALL HAVE HAND HOLES/PULL BOXES SUPPLIED AT 150' INTERVALS UNLESS OTHERWISE INDICATED BY LOCAL UTILITY. MINIMUM SIZE SHALL BE 36" X 36".
2. ALL SITE LIGHTING POLES SHALL BE MOUNTED ON A 30' POLE WITH A 3' CONCRETE BASE UNLESS OTHERWISE NOTED.

KEY NOTES:

1. PROVIDE (2)-6" CONDUIT FROM PAD MOUNTED TRANSFORMER TO DESIGNATED POINT AT EDGE OF PROPERTY FOR LOCAL POWER UTILITY USE. CONDUIT LOCATION, SIZE, AND BENDING RADIUS SHALL BE COORDINATED WITH UTILITY BEFORE INSTALLATION. PULLBOXES AS REQUIRED BY CODE/LOCAL UTILITY. E.C. TO PROVIDE UP TO 150' OF ADDITIONAL (2)-6" CONDUIT AND COMPLETE INSTALLATION BASED ON UTILITY COORDINATION.
2. PROVIDE (4)-4" CONDUIT FROM MAIN HEAD END ROOM TO PROPERTY LINE FOR TELEPHONE SERVICE. CONDUIT LOCATION, SIZE, AND BENDING RADIUS SHALL BE COORDINATED WITH UTILITY BEFORE INSTALLATION.E.C. TO PROVIDE UP TO 150' OF ADDITIONAL (2)-4" CONDUIT AND COMPLETE INSTALLATION BASED ON UTILITY COORDINATION.
3. PROVIDE CONDUIT FOR GATE MOTOR POWER AND ELECTRIC LOCK POWER BETWEEN EACH GATE MOTOR CONTROLLER.
4. FIRE SERVICE BACKFLOW, PROVIDE 1" CONDUIT TO FACP FOR TAMPER SWITCHES. COORDINATE EXACT QUANTITY AND LOCATION WITH CIVIL PLANS.
5. DOMESTIC SERVICE BACKFLOW, COORDINATE EXACT LOCATION WITH CIVIL PLANS.
6. POST INDICATOR VALVE, 3/4" TO FACP. COORDINATE EXACT LOCATION WITH CIVIL PLANS.
7. 3"x3" TO FCOMM PULLBOX.
8. (2)-4" EC FROM THE AMATEUR RADIO ROOM TO THE PULLBOX. CONDUIT SHALL BE CONCRETE ENCASED.
9. (2)-4" EC FROM THE SERVER ROOM TO THE PULLBOX. CONDUIT SHALL BE CONCRETE ENCASED.
10. (4)-4" EC FROM THE PULLBOX TO THE ANTENNA. CONDUIT SHALL BE CONCRETE ENCASED.



KEY PLAN

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SAMPSON COUNTY 911 & ES FACILITIES

CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

SITE PLAN - ELECTRICAL

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
1	12-17-2020	REVISION #1
2	01-09-2021	REV #2 / ADD1
4	01-20-2021	REV4 / ADD3

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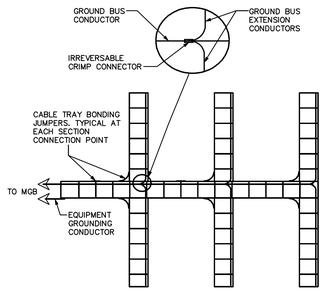
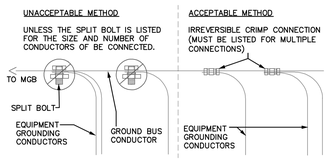
SEAL

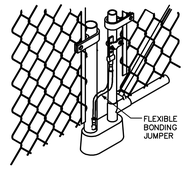
SHEET NUMBER E010



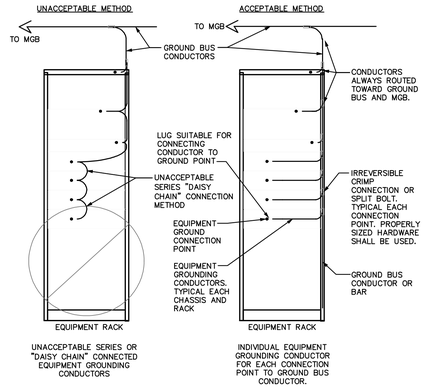
1 CABLE TRAY GROUNDING DETAIL
NOT TO SCALE



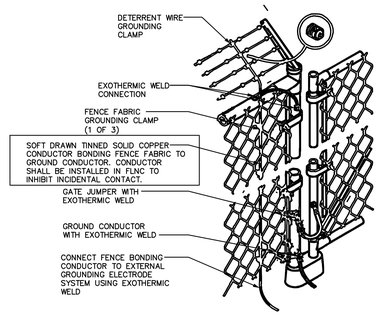
2 GROUND CONNECTION TYPES
NOT TO SCALE



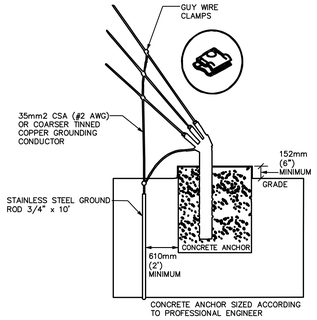
3 GATE GROUNDING DETAIL
NOT TO SCALE



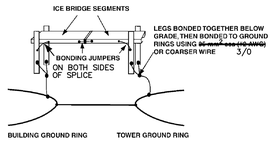
4 EQUIPMENT RACK BONDING DETAIL
NOT TO SCALE



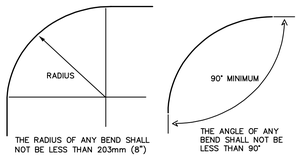
5 FENCE GROUNDING DETAIL
NOT TO SCALE



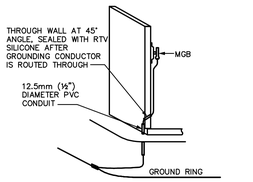
6 GUY WIRE GROUNDING DETAIL
NOT TO SCALE



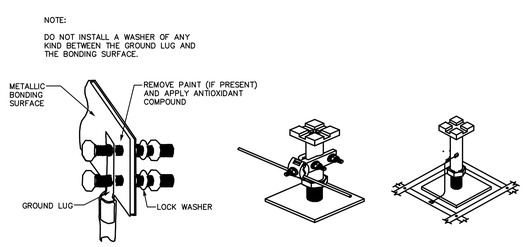
7 ICE BRIDGE GROUNDING DETAIL
NOT TO SCALE



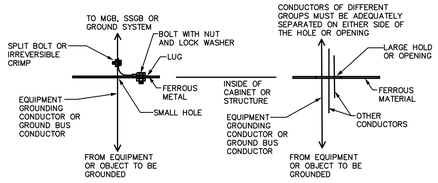
ACCEPTABLE GROUNDING CONNECTION BENDING
8
NOT TO SCALE



ROUTING OF MGB GROUNDING CONDUCTOR
9
NOT TO SCALE

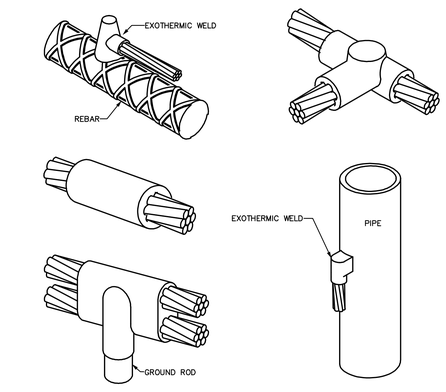


10 ACCEPTABLE GROUNDING CONNECTIONS
NOT TO SCALE

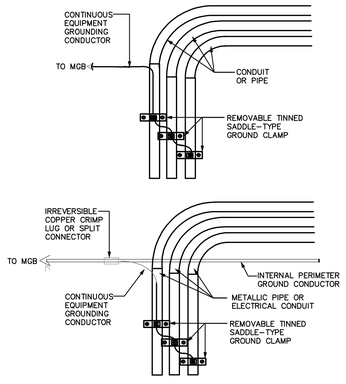


ROUTING OF MGB GROUNDING CONDUCTOR
11
NOT TO SCALE

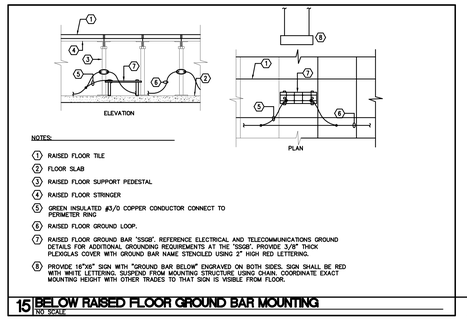
HIGH-COMPRESSION CONNECTORS AND TYPICAL CRIMPING TOOLS
12
NOT TO SCALE



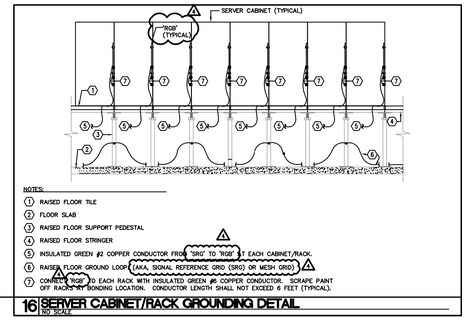
13 EXAMPLES OF COMPLETED EXOTHERMIC WELDS
NOT TO SCALE



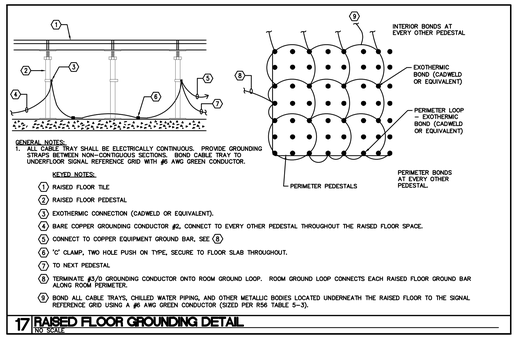
GROUNDING METHOD FOR METALLIC PIPE/CONDUIT
14
NOT TO SCALE



15 BELOW RAISED FLOOR GROUND BAR MOUNTING
NO SCALE



16 SERVER CABINET/RACK GROUNDING DETAIL
NO SCALE



17 RAISED FLOOR GROUNDING DETAIL
NO SCALE

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CONSTRUCTION DOCUMENTS

GROUNDING DETAILS

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
1	12-17-2020	REVISION #1
2	01-09-2021	REV #2 / ADD1
4	01-20-2021	REV4 / ADD3

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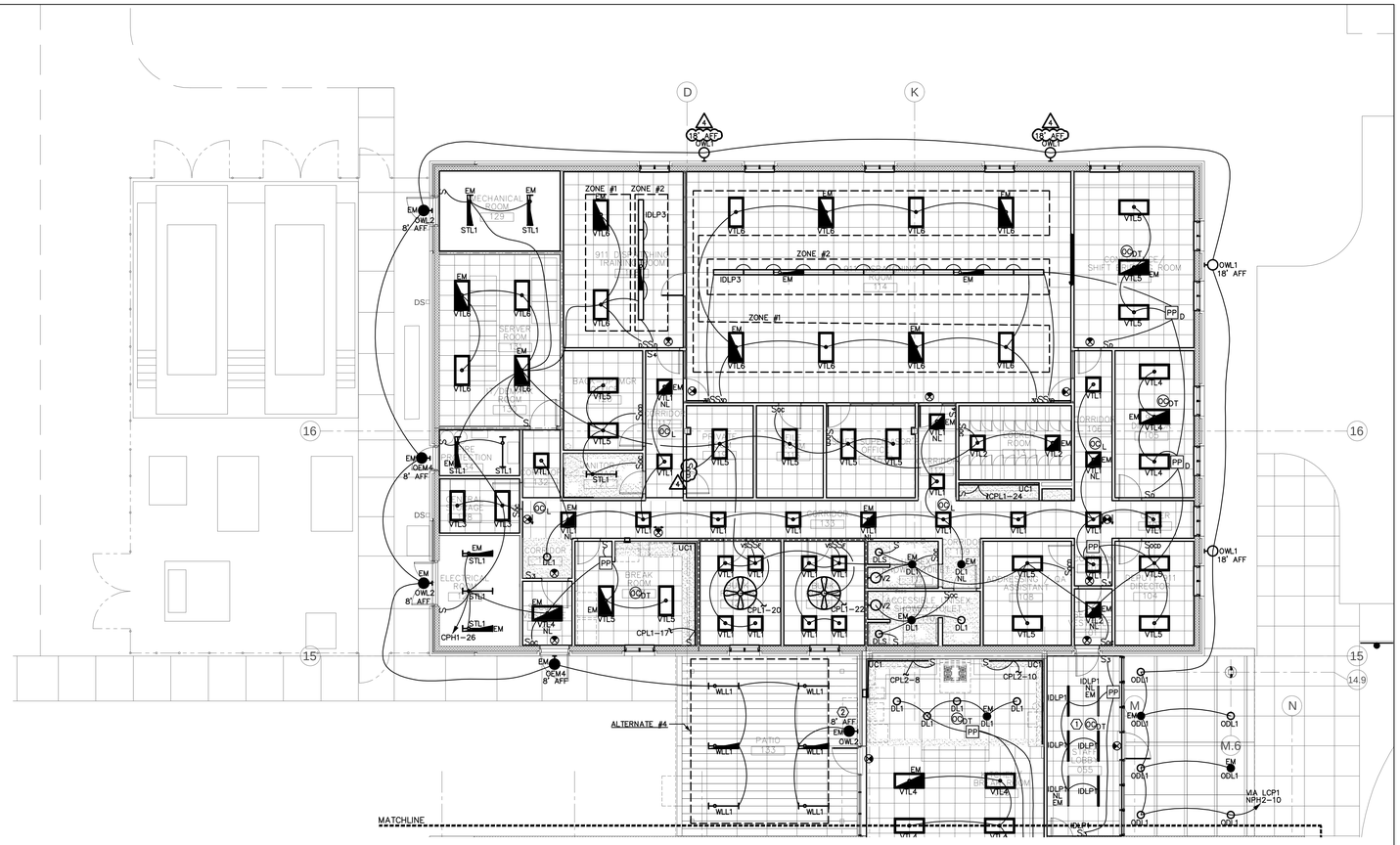
SEAL
NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 028297 ENGINEER BRANDON L. MILLER
12/04/2020

SHEET NUMBER E014



① AREA 1 FLOOR PLAN - LIGHTING
1/8" = 1'-0"

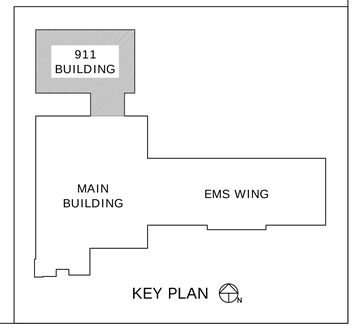
GENERAL NOTES
(APPLY TO THIS SHEET ONLY)

1. ALL NIGHT LIGHTS AND EXIT SIGNS TO BE CIRCUITED TO LIGHTING CIRCUIT AHEAD OF ALL SWITCHING.
2. ALL EMERGENCY FIXTURES (INCLUDING THOSE DESIGNATED AS 'NL' NIGHTLIGHT) SHALL BE PROVIDED WITH BATTERY BACKUP.
3. ALL SHOWER LIGHTS SHALL BE ON SEPARATE MANUAL CONTROL SWITCH IN LOCATION SHOWN. DO NOT CIRCUIT SHOWER LIGHTS TO BE CONTROLLED BY ROOM OCCUPANCY SENSOR(S).
4. ALL PENETRATIONS THROUGH CONSTRUCTION BOUNDARIES OF ROOMS PROTECTED BY CLEAN AGENT FIRE SUPPRESSION SYSTEMS SHALL BE SEALED GAS-TIGHT BY THE CONTRACTOR RESPONSIBLE FOR THE PENETRATIONS PRIOR TO FIRE SUPPRESSION SYSTEM ACCEPTANCE TEST. COORDINATE WITH ALL AFFECTED TRADES. IF THE SYSTEM DOES NOT PASS THE TEST, RESEAL PENETRATIONS AND RETEST UNTIL SYSTEM PASSES. CONTRACTOR(S) RESPONSIBLE FOR LEAKING PENETRATION(S) SHALL BEAR ANY COSTS ASSOCIATED WITH RETESTING THE FIRE SUPPRESSION SYSTEM.
5. HEIGHTS OF EXTERIOR FIXTURES ARE TO BE MEASURED FROM FINISHED FLOOR TO BOTTOM OF FIXTURE.

KEYED NOTES ⓧ
(APPLY TO THIS SHEET ONLY)

① HEIGHTS OF FIXTURES VARY IN THIS SPACE. VERIFY MOUNTING HEIGHTS OF ALL FIXTURES IN THIS SPACE WITH ARCHITECT PRIOR TO ORDERING TO ENSURE CORRECT SUSPENSION LENGTH KITS.

② WALLPACK LIGHT IS TO BE PART OF THE BASE BID. IF ALTERNATE #4 (PATIO CANOPY) IS ACCEPTED, THIS FIXTURE SHALL BE REMOVED.



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CONSTRUCTION DOCUMENTS

AREA 1 LIGHTING PLAN

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
4	01-20-2021	REV4 / ADD3

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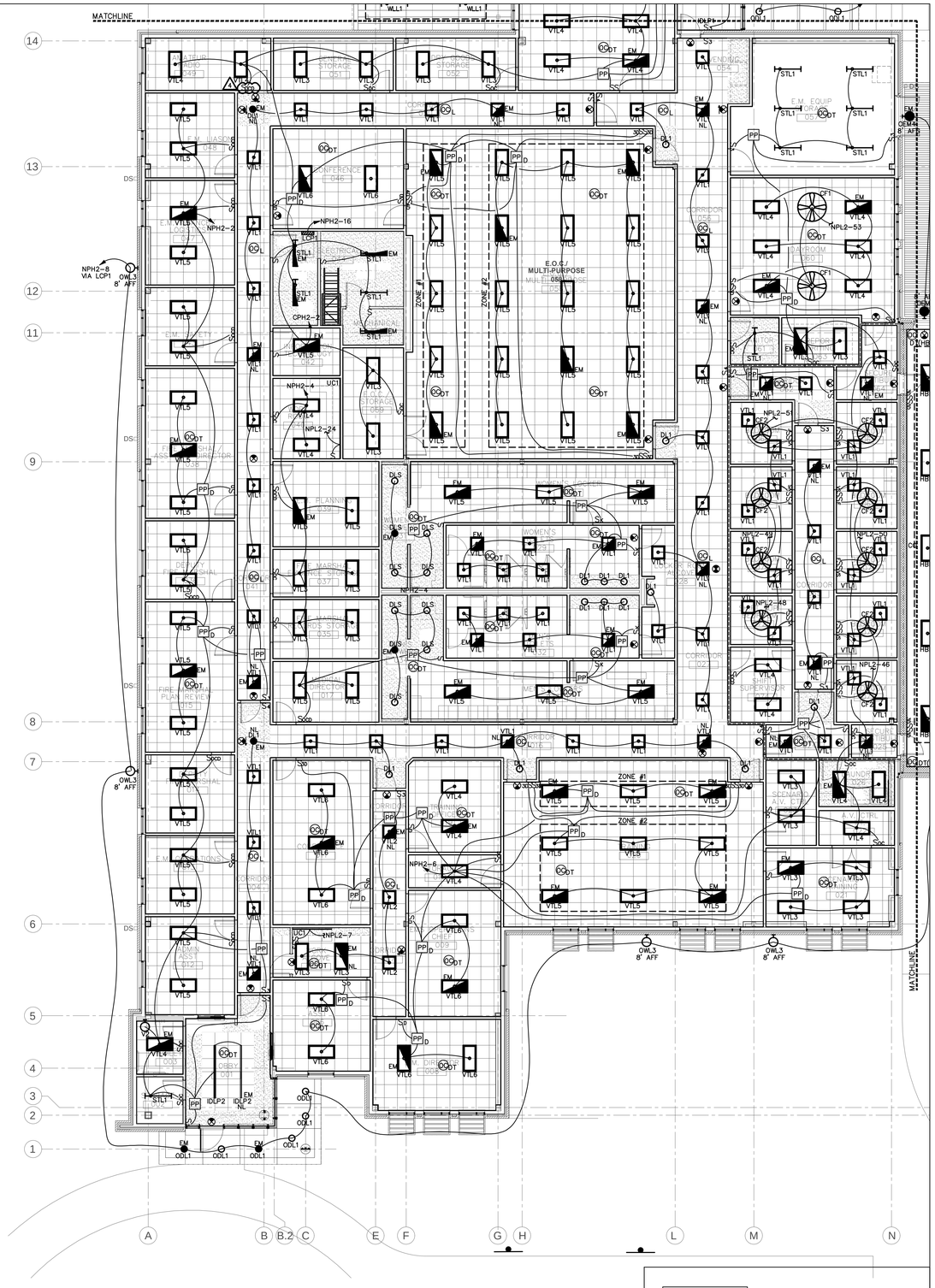
SEAL

SHEET NUMBER E101



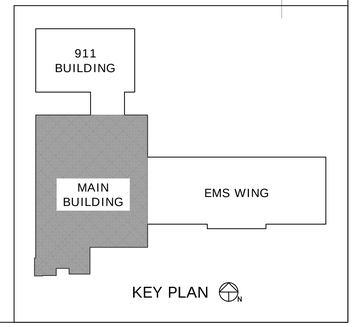
1 AREA 2 FLOOR PLAN - LIGHTING

1/8" = 1'-0"

GENERAL NOTES

(APPLY TO THIS SHEET ONLY)

1. ALL NIGHT LIGHTS AND EXIT SIGNS TO BE CIRCUITED TO LOCAL LIGHTING CIRCUIT AHEAD OF ALL SWITCHING.
2. ALL EMERGENCY FIXTURES (INCLUDING THOSE DESIGNATED AS 'NL' NIGHTLIGHT) SHALL BE PROVIDED WITH BATTERY BACKUP.
3. ALL SHOWER LIGHTS SHALL BE ON SEPARATE MANUAL CONTROL SWITCH IN LOCATION SHOWN. DO NOT CIRCUIT SHOWER LIGHTS TO BE CONTROLLED BY ROOM OCCUPANCY SENSOR(S).
4. HEIGHTS OF EXTERIOR FIXTURES ARE TO BE MEASURED FROM FINISHED FLOOR TO BOTTOM OF FIXTURE.



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CONSTRUCTION DOCUMENTS

AREA 2 LIGHTING PLAN

DATE	12.04.2020
PROJECT NO	20003

REVISIONS

NUM.	DATE	DESCRIPTION:
1	12-17-2020	REVISION #1
1	01-20-2021	REV4 / ADD3

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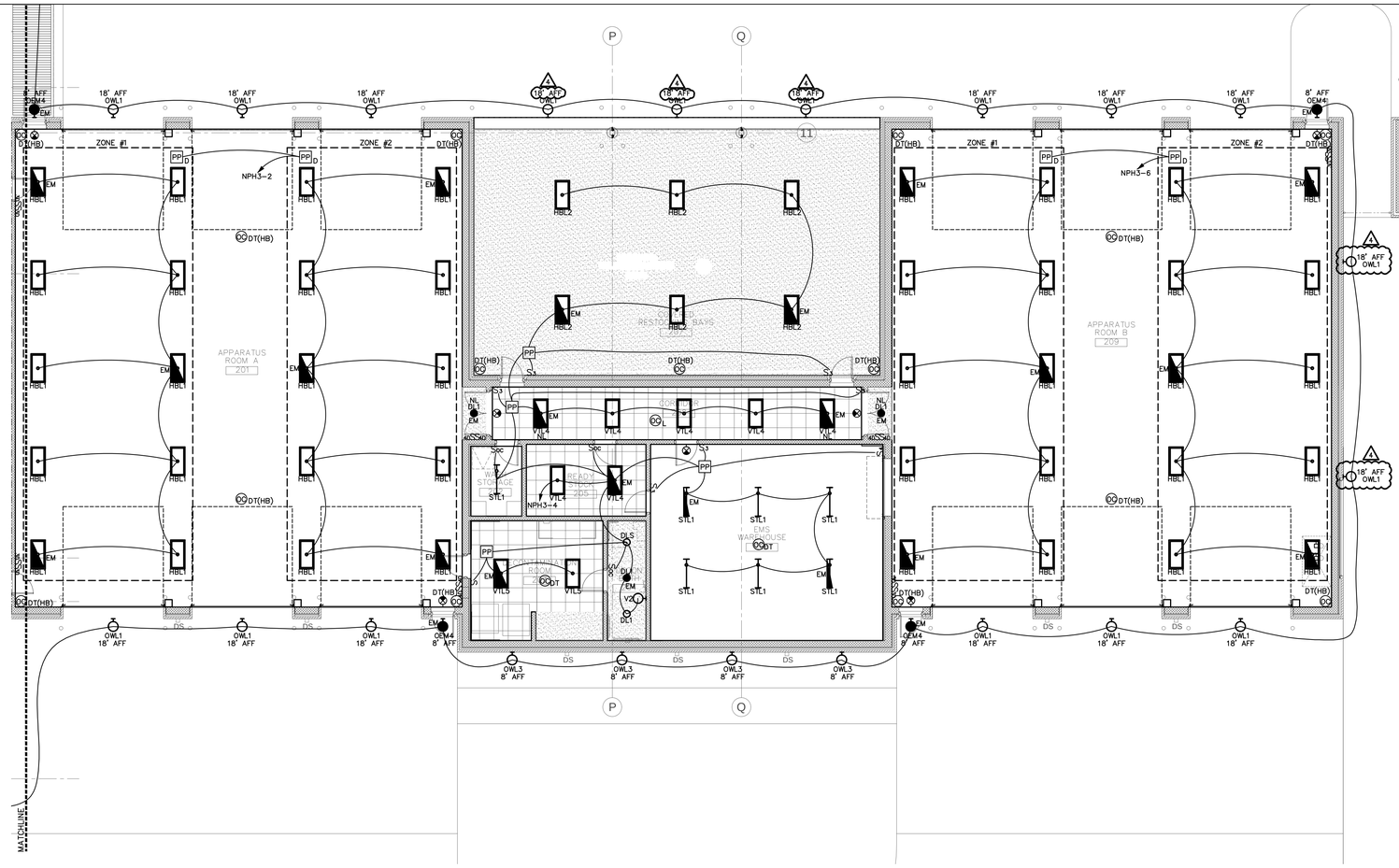
SEAL

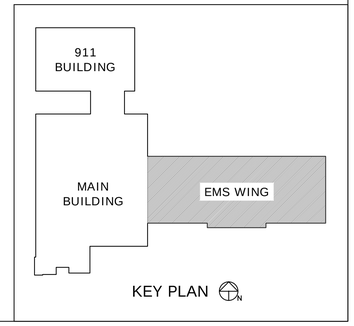
SHEET NUMBER E102



1 AREA 3 FLOOR PLAN - LIGHTING
1/8" = 1'-0"

GENERAL NOTES
(APPLY TO THIS SHEET ONLY)

1. ALL NIGHT LIGHTS AND EXIT SIGNS TO BE CIRCUITED TO LOCAL LIGHTING CIRCUIT AHEAD OF ALL SWITCHING.
2. ALL EMERGENCY FIXTURES (INCLUDING THOSE DESIGNATED AS 'NL' NIGHTLIGHT) SHALL BE PROVIDED WITH BATTERY BACKUP.
3. HEIGHTS OF EXTERIOR FIXTURES ARE TO BE MEASURED FROM FINISHED FLOOR TO BOTTOM OF FIXTURE.



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AREA 3 LIGHTING PLAN

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
1	12-17-2020	REVISION #1
4	01-20-2021	REV4 / ADD3

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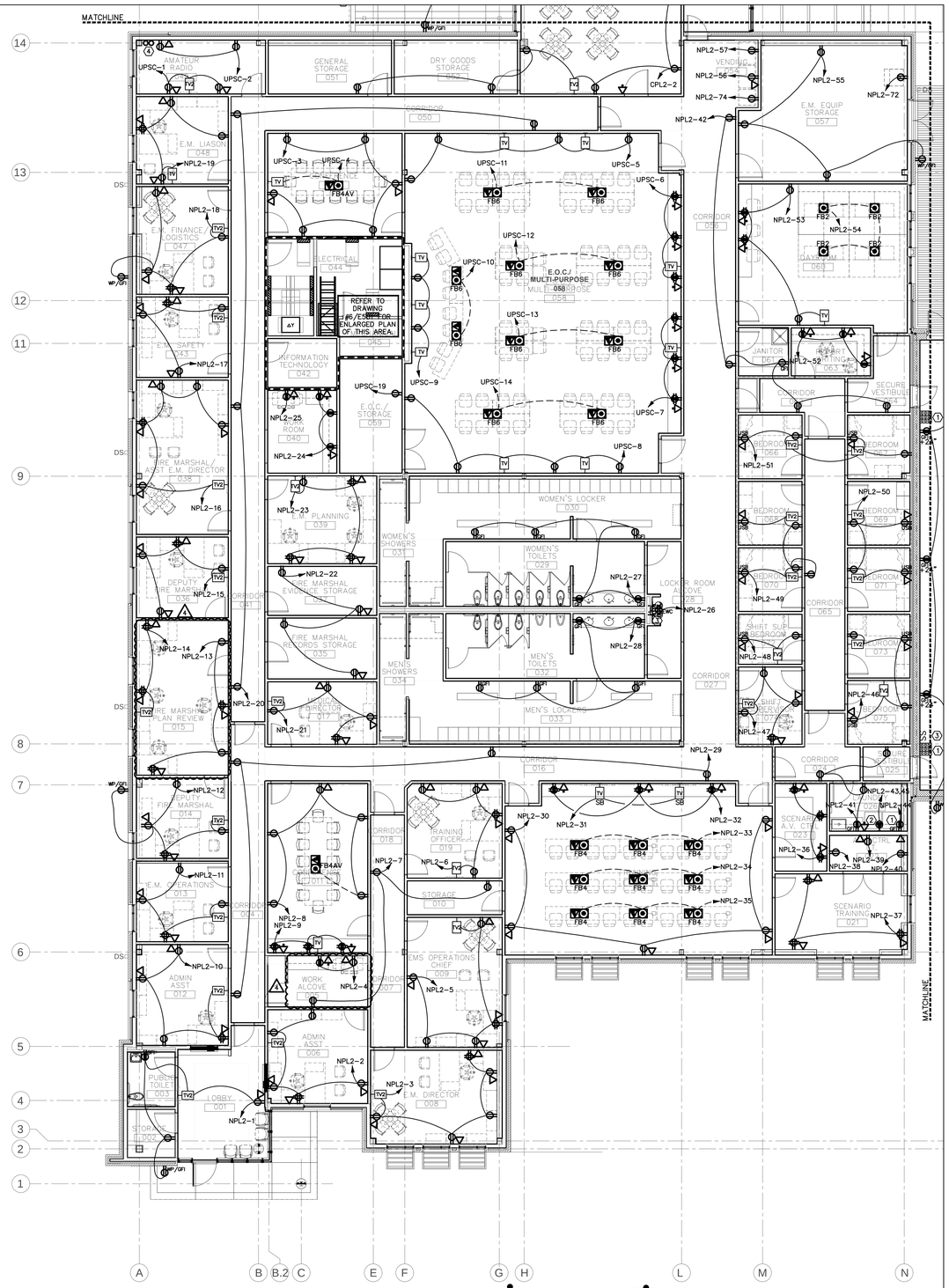
SEAL
NORTH CAROLINA REGISTERED LICENSED 028297 ENGINEER BRANDON L. MILLER 12/04/2020

SHEET NUMBER E103



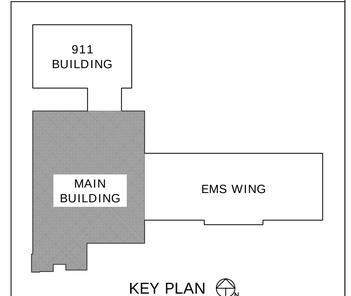
GENERAL NOTES
(APPLY TO THIS SHEET ONLY)

1. MC CABLE SHALL NOT BE USED.
2. CONTRACTOR SHALL COORDINATE ALL FLOOR BOX LOCATIONS AND REQUIREMENTS WITH FURNITURE VENDORS PRIOR TO ROUGH-IN.
3. CONTRACTOR SHALL COORDINATE ALL TV LOCATIONS, MOUNTING HEIGHTS, AND REQUIREMENTS WITH OWNER PRIOR TO ROUGH-IN.
4. ALL PENETRATIONS THROUGH CONSTRUCTION BOUNDARIES OF ROOMS PROTECTED BY CLEAN AGENT FIRE SUPPRESSION SYSTEMS SHALL BE SEALED GAS-TIGHT BY THE CONTRACTOR RESPONSIBLE FOR THE PENETRATIONS PRIOR TO FIRE SUPPRESSION SYSTEM ACCEPTANCE TEST. COORDINATE WITH ALL AFFECTED TRADES. IF THE SYSTEM DOES NOT PASS THE TEST, RESEAL PENETRATIONS AND RETEST UNTIL SYSTEM PASSES. CONTRACTOR(S) RESPONSIBLE FOR LEAKING PENETRATION(S) SHALL BEAR ANY COSTS ASSOCIATED WITH RETESTING THE FIRE SUPPRESSION SYSTEM.

1 AREA 2 FLOOR PLAN - POWER
1/8" = 1'-0"

KEYED NOTES (X)
(APPLY TO THIS SHEET ONLY)

1. PROVIDE 120V GFCI RECEPTACLE FOR WASHER. COORDINATE MOUNTING HEIGHT REQUIREMENTS WITH ARCHITECT.
2. PROVIDE DRYER RECEPTACLE WITH MATCHING CORD/PLUG. COORDINATE WITH ARCHITECT/OWNER FOR TYPE REQUIRED.
3. PROVIDE RECEPTACLES FOR CONNECTION TO ELECTRIC WATER COOLERS AND BOTTLE FILLER. BREAKER SHALL BE GFCI PROTECTED. COORDINATE MOUNTING REQUIREMENTS AND HEIGHTS WITH PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
4. ANTENNA CONDUIT STUB UP LOCATION. SEE SHEET E010 FOR ADDITIONAL INFORMATION.



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CONSTRUCTION DOCUMENTS

AREA 2 POWER PLAN

DATE 12.04.2020
PROJECT NO 20003
REVISIONS

NUM.	DATE	DESCRIPTION:
1	12-17-2020	REVISION #1
4	01-20-2021	REV4 / ADD3

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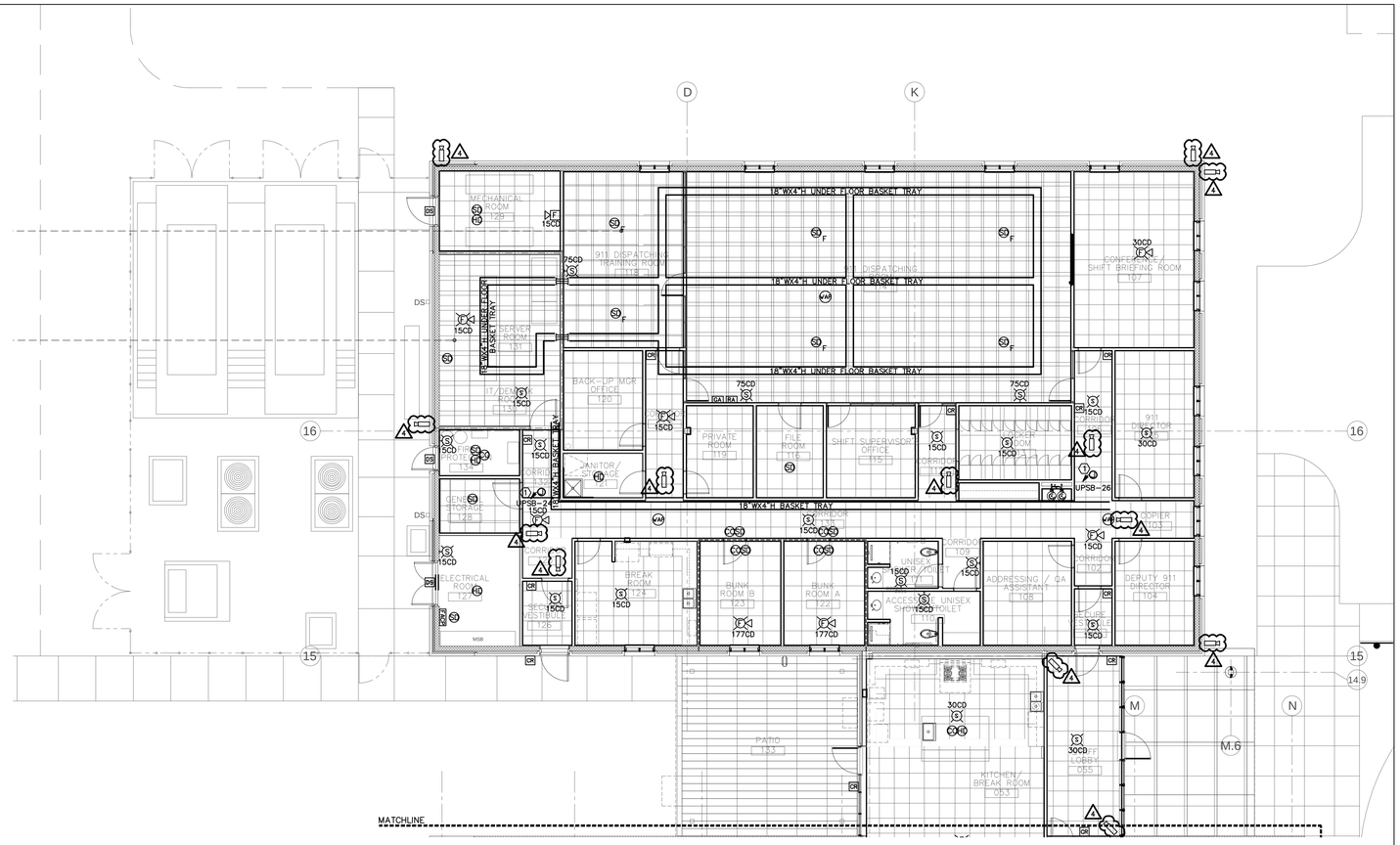
SEAL
NORTH CAROLINA REGISTERED LICENSED 028297 ENGINEER BRANDON L. MILLER 12/04/2020

SHEET NUMBER E202



1 AREA 1 FLOOR PLAN - SYSTEMS

1/8" = 1'-0"

GENERAL NOTES

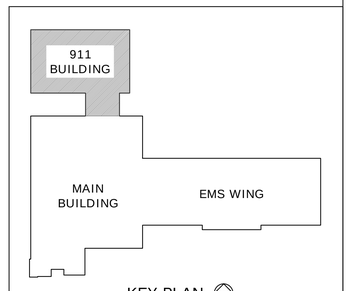
(APPLY TO THIS SHEET ONLY)

1. ALL WALL MOUNTED DEVICES (POWER, DATA, SYSTEMS, ETC..), WITHIN CMU WALLS ARE TO BE FLUSH MOUNTED AND FED WITH CONCEALED CONDUIT.
2. VERIFY ALL ACCESS CONTROL/SECURITY DEVICE LOCATIONS WITH SECURITY CONSULTANT PRIOR TO ROUGH-IN. PROVIDE ADDITIONAL CONDUIT STUBS AND PATHWAYS AS NEEDED
3. ALL PENETRATIONS THROUGH CONSTRUCTION BOUNDARIES OF ROOMS PROTECTED BY CLEAN AGENT FIRE SUPPRESSION SYSTEMS SHALL BE SEALED GAS-TIGHT BY THE CONTRACTOR RESPONSIBLE FOR THE PENETRATIONS PRIOR TO FIRE SUPPRESSION SYSTEM ACCEPTANCE TEST. COORDINATE WITH ALL AFFECTED TRADES. IF THE SYSTEM DOES NOT PASS THE TEST, RESEAL PENETRATIONS AND RETEST UNTIL SYSTEM PASSES. CONTRACTOR(S) RESPONSIBLE FOR LEAKING PENETRATION(S) SHALL BEAR ANY COSTS ASSOCIATED WITH RETESTING THE FIRE SUPPRESSION SYSTEM.

KEYED NOTES (X)

(APPLY TO THIS SHEET ONLY)

(1) PROVIDE EMPTY J-BOX FOR SECURITY CONTROLS. COORDINATE ACTUAL LOCATION AND NUMBER OF BOXES WITH SECURITY CONTRACTOR.



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CONSTRUCTION DOCUMENTS

AREA 1 SYSTEMS PLAN

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
1	01-20-2021	REV4 / ADD3

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SEAL

SHEET NUMBER E401

GENERAL NOTES

(APPLY TO THIS SHEET ONLY)

1. ALL WALL MOUNTED DEVICES (POWER, DATA, SYSTEMS, ETC..). WITHIN CMU WALLS ARE TO BE FLUSH MOUNTED AND FED WITH CONCEALED CONDUIT.
2. VERIFY ALL ACCESS CONTROL/SECURITY DEVICE LOCATIONS WITH SECURITY CONSULTANT PRIOR TO ROUGH-IN. PROVIDE ADDITIONAL CONDUIT STUBS AND PATHWAYS AS NEEDED

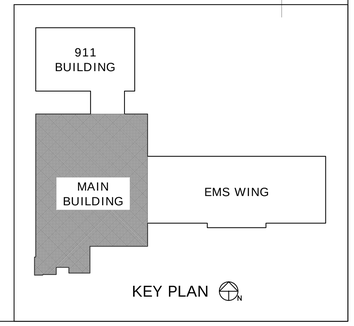
1 AREA 2 FLOOR PLAN - SYSTEMS

1/8" = 1'-0"

KEYED NOTES (X)

(APPLY TO THIS SHEET ONLY)

(1) PROVIDE EMPTY J-BOX FOR SECURITY CONTROLS. COORDINATE ACTUAL LOCATION AND NUMBER OF BOXES WITH SECURITY CONTRACTOR.



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CONSTRUCTION DOCUMENTS

AREA 2 SYSTEMS PLAN

DATE	12.04.2020
PROJECT NO	20003

REVISIONS

NUM.	DATE	DESCRIPTION:
1	12-17-2020	REVISION #1
4	01-20-2021	REV4 / ADD3

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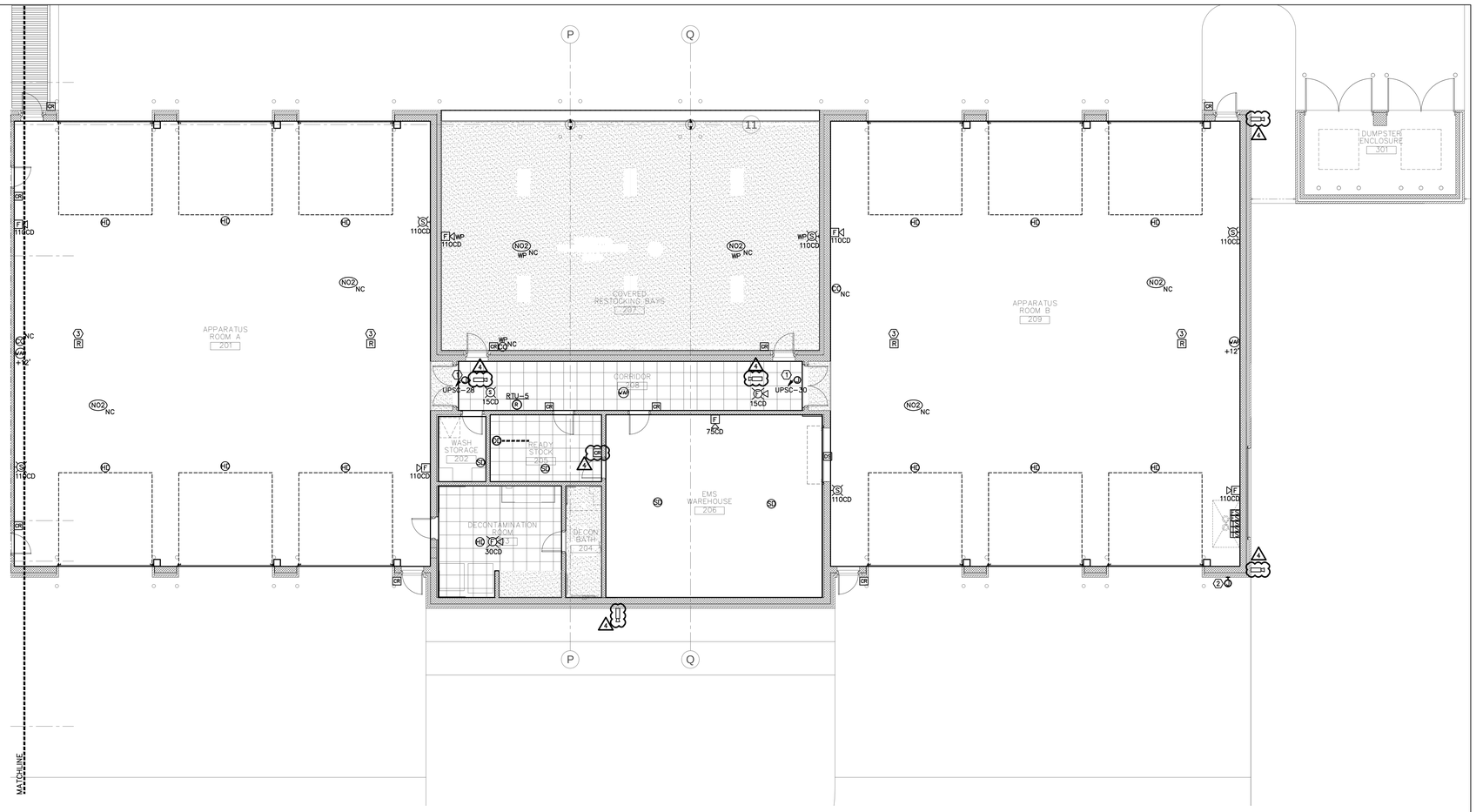
NORTH CAROLINA REGISTERED SEAL 028297 ENGINEER BRANNON L. MILLER 12/04/2020

SHEET NUMBER E402



1 AREA 3 FLOOR PLAN - SYSTEMS
1/8" = 1'-0"

GENERAL NOTES
(APPLY TO THIS SHEET ONLY)

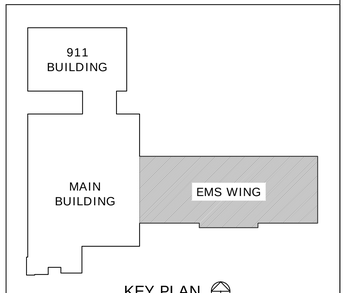
1. ALL WALL MOUNTED DEVICES (POWER, DATA, SYSTEMS, ETC..). WITHIN CMU WALLS ARE TO BE FLUSH MOUNTED AND FED WITH CONCEALED CONDUIT.
2. VERIFY ALL ACCESS CONTROL/SECURITY DEVICE LOCATIONS WITH SECURITY CONSULTANT PRIOR TO ROUGH-IN. PROVIDE ADDITIONAL CONDUIT STUBS AND PATHWAYS AS NEEDED.
3. CARBON MONOXIDE / NITROGEN DIOXIDE COMBO DETECTOR IN APPARATUS BAY. INSTALL MAIN UNIT (CO SENSOR) AT 48" AFF, REMOTE SENSOR (NO2) SHALL BE INSTALLED 12" FROM CEILING, INTERLOCK WITH FANS F-12 & F-13 IN BAY 201, F-16 & F-17 IN BAY 209, AND F-15 IN BAY 207. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION. (NOT CONNECTED TO FIRE ALARM SYSTEM). CONNECT MAIN CONTROL UNIT TO LOCAL 120V RECEPTACLE CIRCUIT. HONEYWELL E3 POINT OT EQUAL.
4. ALL WIRING SHALL BE IN CONDUIT IN THE APPARATUS BAY AREAS.
5. FIRE ALARM PULL STATION/HORN/STROBE & SPEAKERS IN APPARATUS BAY SHALL BE NEMA-3R LISTED.

KEYED NOTES (X)
(APPLY TO THIS SHEET ONLY)

(1) PROVIDE EMPTY J-BOX FOR SECURITY CONTROLS. COORDINATE ACTUAL LOCATION AND NUMBER OF BOXES WITH SECURITY CONTRACTOR.

(2) ELECTRIC SPRINKLER BELL CONNECT TO LOCAL 24V FACP CIRCUIT. ACTIVATED WITH FIRE ALARM SIGNAL.

(3) HVLS FANS RF-1, 2, 3, 4 SHALL BE TIED INTO THE FIRE ALARM SYSTEM VIA RELAYS TO SHUT DOWN DURING FULL BUILDING FIRE ALARM NOTIFICATION. PART OF ALTERNATE #3



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CONSTRUCTION DOCUMENTS

AREA 3 SYSTEMS PLAN

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
4	01-20-2021	REV4 / ADD3

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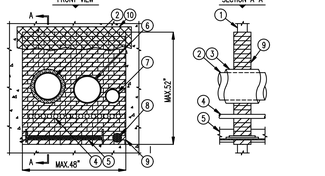
SEAL

SHEET NUMBER E403

U.L. SYSTEM NO. WJ8007

MULTIPLE PENETRATING ITEMS THROUGH CONCRETE FLOOR OR WALL

F RATING = 4-HR.
T RATING = 0-HR.



1. CONCRETE FLOOR OR WALL ASSEMBLY (MINIMUM 4-1/2" THICK).
2. MAXIMUM 12" DIAMETER STEEL PIPE OR MAXIMUM 6" DIAMETER COPPER PIPE.
3. MAXIMUM 1-1/2" THICK GLASS-FIBER PIPE INSULATION.
4. 1-1/2" DIAMETER STEEL CONDUIT (MAXIMUM QUANTITY = 15).
5. STEEL OR ALUMINUM CABLE TRAY (MAXIMUM SIZE : 36" x 6") WITH ANY OF THE FOLLOWING TYPES OF CABLE MAY BE USED WITH MAXIMUM 30% FILL OF CABLE TRAY :
   A. MAXIMUM 500 KCMIL SINGLE CONDUCTOR POWER CABLE.
   B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CABLE.
   C. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLES.
6. MAXIMUM 30" DIAMETER STEEL PIPE (12" DIAMETER PIPE SHOWN).
7. 6" DIAMETER STEEL PIPE.
8. MAXIMUM 4" DIAMETER CABLE BUNDLE TO INCLUDE ANY OF THE FOLLOWING :
   A. FIBER-OPTIC CABLE (MAX. 1/2" DIA).
   B. ROMEX (2/C NO. 10 +GROUND).
   C. 25 PAIR NO. 24 AWG TELEPHONE CABLES.
   D. 7/C NO. 12 AWG CABLES.
   E. RG 62A COAXIAL CABLES.
   F. METAL CLAD CABLE (MAX. 3/4" DIA).
9. HILTI FS 657 INTUMESCENT FIRESTOP BLOCK (2" TALL x 5" WIDE x 8" DEEP, REF: FRONT VIEW).
10. SEE NOTE NO. 4 BELOW.

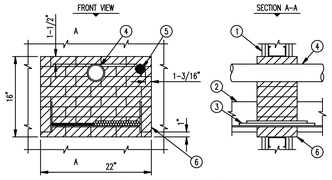
NOTES : 1. ANNULAR SPACING FOR CABLE TRAY = MINIMUM 1-1/2".
2. ANNULAR SPACING FOR PIPE AND CABLE PENETRATIONS = MINIMUM 1".
3. INSTALL HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT IN ANY VOID THAT MAY EXIST (AROUND CABLE TRAY, CABLES, OR PIPE PENETRATIONS).
4. IF THE ANNULAR SPACE IS GREATER THAN 2", PROVIDE A STEEL WIRE MESH (NOMINAL 2" SQUARES, NO. 16 SWG). INSTALL ON EACH SIDE OF WALL ASSEMBLY.
5. MAXIMUM AREA OF OPENING = 2456 SQUARE INCHES.

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL8013

MULTIPLE PENETRATIONS THROUGH 1-HR. OR 2-HR. GYPSUM WALL

F RATING = 1-HR OR 2-HR. L RATING AT AMBIENT = 5 CFM/SQ. FT.
T RATING = 0-HR. L RATING AT 400°F = 2 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. STEEL OR ALUMINUM CABLE TRAY (MAXIMUM SIZE : 18" x 6").
3. ANY OF THE FOLLOWING TYPES OF CABLE MAY BE USED WITH MAX. 30% FILL ON CABLE TRAY :
   A. 500 KCMIL SINGLE CONDUCTOR POWER CABLE.
   B. 7/C NO. 12 AWG COPPER CONDUCTOR CABLE.
   C. 300 PAIR NO. 24 AWG TELEPHONE CABLE.
4. MAXIMUM 3" DIAMETER PVC PLASTIC PIPE (SCHEDULE 40)(CLOSED OR VENTED PIPING SYSTEM).
5. CABLE BUNDLE (MAX. 2" DIA.) TO CONSIST OF ANY OF THE FOLLOWING:
   A. FIBER-OPTIC CABLE.
   B. RG 59 COAXIAL CABLE.
   C. 25 PAIR NO. 24 AWG TELEPHONE CABLE.
   D. 7/C NO. 12 AWG COPPER CONDUCTOR.
6. HILTI FS 657 FIRESTOP BLOCKS (2" x 5" x 8" DEEP, REF: FRONT VIEW).

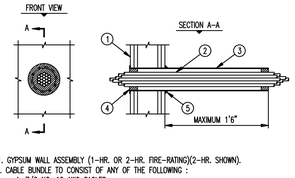
NOTES : 1. NOT SHOWN: PENETRATING ITEMS MAY ALSO INCLUDE A MAX. 4" DIA. STEEL OR COPPER PIPE, EMT, OR STEEL CONDUIT WITH A MAX. 1-1/2" GLASS-FIBER PIPE INSULATION OR NON-INSULATED MAX. 4" STEEL PIPE, EMT, OR CONDUIT.
2. ANNULAR SPACE = MINIMUM 1".
3. INSTALL HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT IN ANY VOID THAT MAY EXIST (AROUND PENETRATING ITEMS, OR BETWEEN BLOCKS).

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL3065

CABLE BUNDLE THROUGH 1-HR. OR 2-HR. FIRE-RATED GYPSUM WALL

F RATING = 1-HR. OR 2-HR. L RATING AT AMBIENT = 5 CFM/SQ. FT.
T RATING = 0-HR. L RATING AT 400°F = 2 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. CABLE BUNDLE TO CONSIST OF ANY OF THE FOLLOWING :
   A. 7/C NO. 12 AWG CABLES.
   B. 12 PAIR 24 AWG PHONE CABLES.
   C. 25 PAIR 24 AWG PHONE CABLES.
   D. RG 59 COAXIAL CABLES.
   E. 2/C (+GND) NO. 14 AWG METAL-CLAD CABLES.
   F. 2/C NO. 8 AWG METAL-CLAD CABLES.
   G. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLES.
3. OPTIONAL : MAX. 4" NOM. DIA. STEEL PIPE SLEEVE (SCH. 40 OR THINNER)(SEE NOTE NO. 4).
4. HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT :
   A. MINIMUM 5/8" DEPTH OF SEALANT FOR A 1-HR. FIRE-RATING.
   B. MINIMUM 1-1/4" DEPTH OF SEALANT FOR A 2-HR. FIRE-RATING.
5. SEE NOTE NO. 4 BELOW.

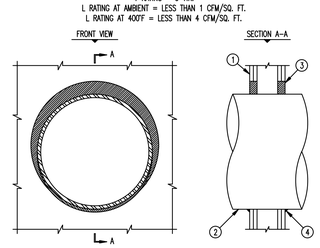
NOTES : 1. MAXIMUM DIAMETER OF OPENING = 4-1/2".
2. CABLES TO FILL MAXIMUM 33% OF AREA OF OPENING.
3. ANNULAR SPACE = MINIMUM 1/4", MAXIMUM 3/4".
4. STEEL SLEEVE MAY BE FLUSH WITH WALL SURFACE OR EXTEND UP TO 18" BEYOND WALL SURFACE IN ANY COMBINATION. WHEN SLEEVE IS FLUSH WITH WALL, APPLY HILTI FS-ONE FIRESTOP SEALANT ONTO WALL SURFACE. WHEN SLEEVE IS EXTENDED BEYOND ONE OR BOTH SIDES OF WALL, APPLY 1/2" CROWN HILTI FS-ONE FIRESTOP SEALANT TO WALL/SLEEVE INTERFACE.

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL1054

METAL PIPE THROUGH GYPSUM WALL ASSEMBLY

F RATING = 1-HR. OR 2-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = LESS THAN 4 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 30" DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   B. MAXIMUM 6" DIAMETER COPPER PIPE.
   C. MAXIMUM 6" DIAMETER STEEL CONDUIT.
   D. MAXIMUM 4" DIAMETER STEEL EMT.
3. HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT :
   A. MINIMUM 5/8" DEPTH OF SEALANT FOR A 1-HR. FIRE-RATING.
   B. MINIMUM 1-1/4" DEPTH OF SEALANT FOR A 2-HR. FIRE-RATING.
4. MINIMUM 1/2" BEAD HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT AT POINT OF CONTACT.

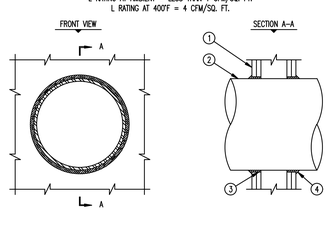
NOTES : 1. MAXIMUM DIAMETER OF OPENING = 32-1/4".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 2-1/4".

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL1085

EMT THROUGH 1-HR. OR 2-HR. GYPSUM WALL ASSEMBLY

F RATING = 1-HR. AND 2-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 12" DIAMETER STEEL PIPE (SCHEDULE 20 OR HEAVIER).
   B. MAXIMUM 12" DIAMETER CAST IRON PIPE.
   C. MAXIMUM 6" DIAMETER COPPER PIPE.
   D. MAXIMUM 6" DIAMETER EMT.
   E. MAXIMUM 6" DIAMETER STEEL CONDUIT.
3. HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT FORCED INTO ANNULAR SPACE TO MAXIMUM EXTENT.
4. MINIMUM 1/2" BEAD HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT AT PIPE/GYPSUM WALLBOARD INTERFACE.

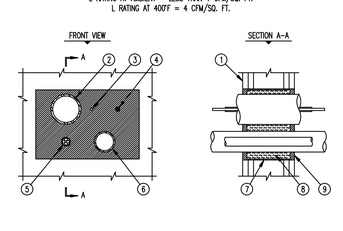
NOTE : ANNULAR SPACE = MINIMUM 0", MAXIMUM 1/4".

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL8004

MULTIPLE METAL PIPE AND CABLE THROUGH 2-HR. GYPSUM WALL

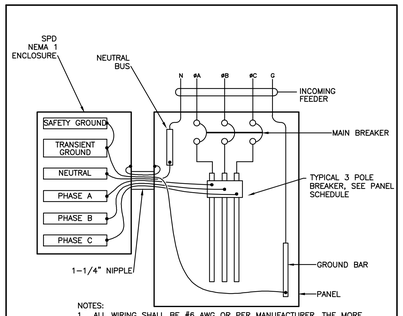
F RATING = 2-HR.
T RATING = 1/4-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (2-HR. FIRE-RATING).
2. MAXIMUM 3" DIAMETER ELECTRICAL METALLIC TUBING (EMT).
3. MAXIMUM 25 PAIR NO. 24 AWG (OR SMALLER) TELEPHONE CABLES.
4. MAXIMUM 3/C NO. 10 AWG NM (WITH GROUND) POWER CABLE WITH PVC INSULATION.
5. MAXIMUM 300 KCMIL (OR SMALLER) POWER CABLE WITH PVC INSULATION & NYLON JACKET.
6. MAXIMUM 2" DIAMETER STEEL PIPE, COPPER PIPE, EMT, OR STEEL CONDUIT.
7. NO. 8 STEEL WIRE MESH, 4-3/4" LONG (OR STANDARD METAL DRYWALL TRACK SCREWED SECURELY IN PLACE) CENTERED IN OPENING.
8. MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
9. MIN. 1/2" DEPTH HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT.

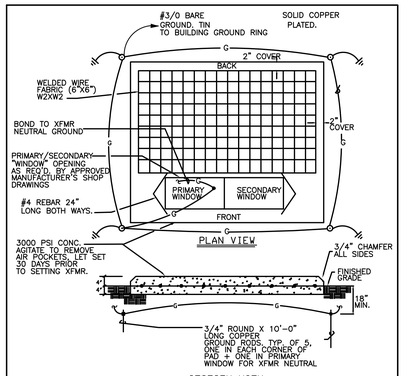
NOTES : 1. MAXIMUM AREA OF OPENING = 96 SQUARE INCHES WITH A MAX. DIM. OF 12".
2. DISTANCE BETWEEN ITEMS = MINIMUM 1-3/4", MAXIMUM 7".
3. DISTANCE FROM EDGE OF OPENING = MINIMUM 1/2", MAXIMUM 7". (EXCEPTION: 300 KCMIL POWER CABLE MUST BE MINIMUM 1-1/2" FROM EDGE OF OPENING.

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

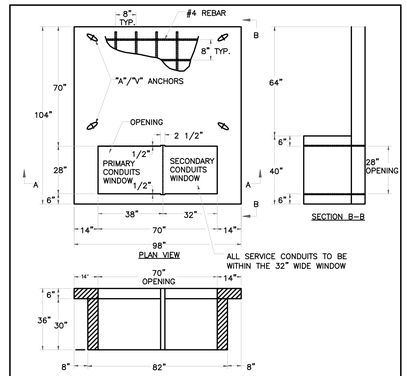


NOTES:
1. ALL WIRING SHALL BE #6 AWG OR PER MANUFACTURER, THE MORE STRINGENT SHALL APPLY.
2. AVOID SHARP BENDS IN WIRES. ALL WIRE LENGTHS SHALL NOT EXCEED 18" (WHERE POSSIBLE).
3. SEE SPD SPECIFICATION FOR EXACT TYPE (H1,H2,L1,L2) FOR LOCATION AS INDICATED ON THE POWER RISER DIAGRAM.
4. COORDINATE SURGE PROTECTION DEVICE TYPE WITH LIGHTNING PROTECTION ENGINEER PRIOR TO ORDERING.
5. NORMAL MODE ONLY.

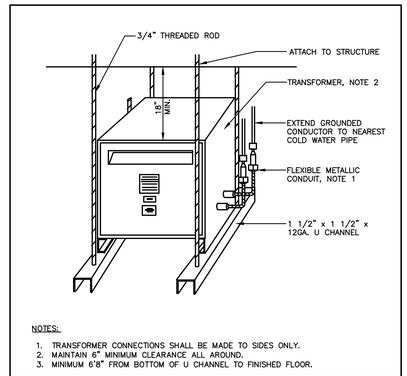
1 SPD CONNECTION - DETAIL
NO SCALE



2 TRANSFORMER PAD GROUNDING DETAIL
NO SCALE

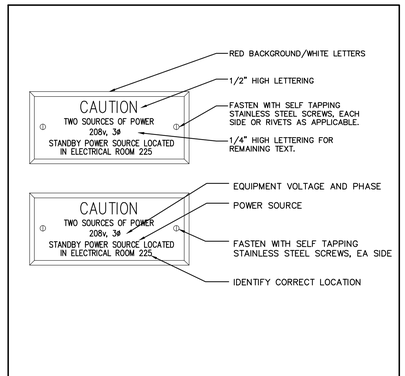


3 TRANSFORMER PAD DETAIL
NO SCALE

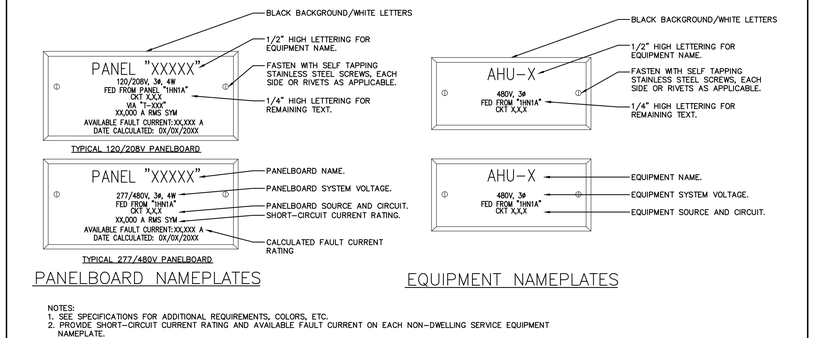


NOTES:
1. TRANSFORMER CONNECTIONS SHALL BE MADE TO SIDES ONLY.
2. MAINTAIN 6" MINIMUM CLEARANCE ALL AROUND.
3. MINIMUM 6'8" FROM BOTTOM OF U CHANNEL TO FINISHED FLOOR.

4 TRANSFORMER-SUSPENDED FROM STRUCTURE
NO SCALE

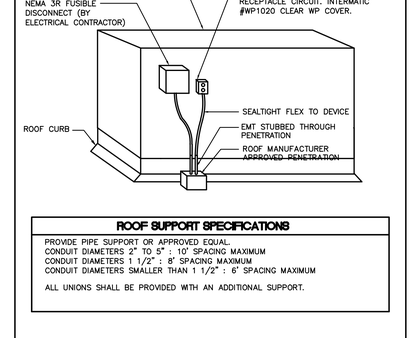


5 EMERGENCY POWER NAMEPLATE
NO SCALE



NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS, COLORS, ETC.
2. PROVIDE SHORT-CIRCUIT CURRENT RATING AND AVAILABLE FAULT CURRENT ON EACH NON-DWELLING SERVICE EQUIPMENT NAMEPLATE.

6 TYPICAL NAMEPLATE DIAGRAM
NO SCALE



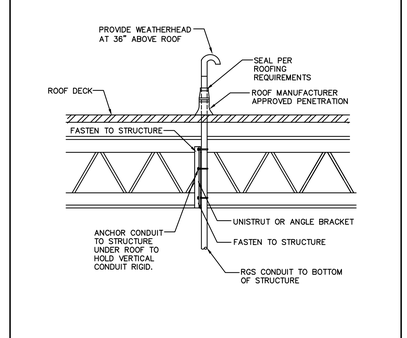
ROOF SUPPORT SPECIFICATIONS

PROVIDE PIPE SUPPORT OR APPROVED EQUAL.
CONDUIT DIAMETERS 2" TO 5" - 10' SPACING MAXIMUM
CONDUIT DIAMETERS 1 1/2" : 8' SPACING MAXIMUM
CONDUIT DIAMETERS SMALLER THAN 1 1/2" : 6' SPACING MAXIMUM

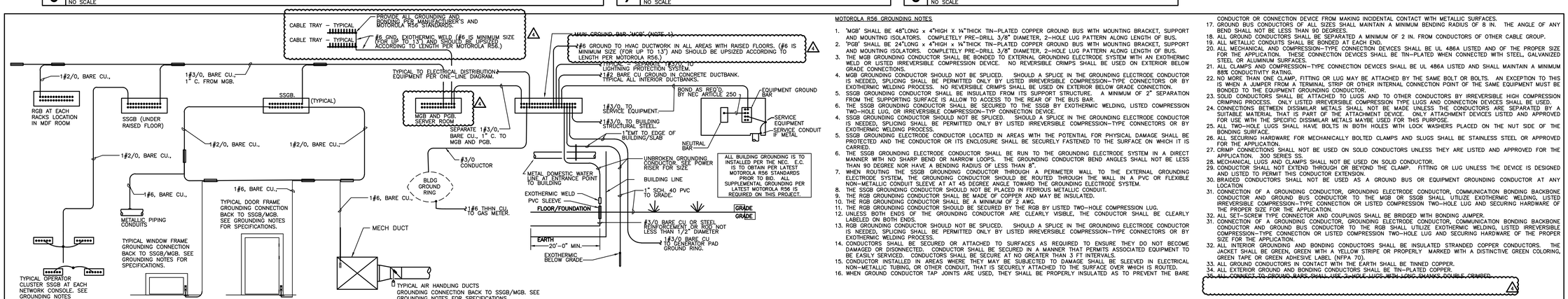
ALL UNIONS SHALL BE PROVIDED WITH AN ADDITIONAL SUPPORT.

NOTE: TYPICAL FOR ALL ROOF MOUNTED HVAC EQUIPMENT.

7 ROOFTOP RECEPTACLE DETAIL
NO SCALE



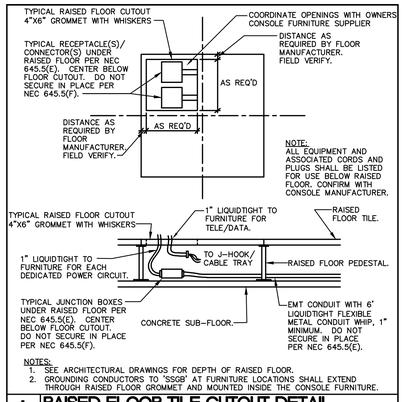
8 ROOF PENETRATION DIAGRAM
NO SCALE



9 SYSTEM GROUND DETAILS
NO SCALE

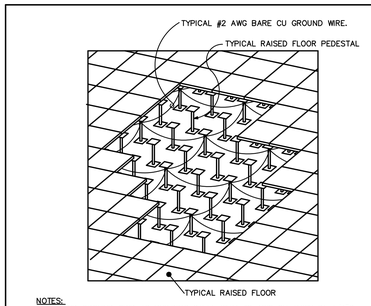
MOTOROLA R56 GROUNDING NOTES

1. "MGB" SHALL BE 48"LONG x 4"HIGH X ¼"THICK TIN-PLATED COPPER GROUND BUS WITH MOUNTING BRACKET, SUPPORT AND MOUNTING ISOLATORS. COMPLETELY PRE-DRILL 3/8" DIAMETER, 2-HOLE LUG PATTERN ALONG LENGTH OF BUS.
2. "PGB" SHALL BE 24"LONG x 4"HIGH x ¼"THICK TIN-PLATED COPPER GROUND BUS WITH MOUNTING BRACKET, SUPPORT AND MOUNTING ISOLATORS. COMPLETELY PRE-DRILL 3/8" DIAMETER, 2-HOLE LUG PATTERN ALONG LENGTH OF BUS.
3. THE MGB GROUNDING CONDUCTOR SHALL BE BONDED TO EXTERNAL GROUNDING ELECTRODE SYSTEM WITH AN EXOTHERMIC WELD OR LISTED IRREVERSIBLE COMPRESSION DEVICE. NO REVERSIBLE CRIMPS SHALL BE USED ON EXTERIOR BELOW GRADE CONNECTIONS.
4. MGB GROUNDING CONDUCTOR SHOULD NOT BE SPLICED. SHOULD A SPLICE IN THE GROUNDING ELECTRODE CONDUCTOR IS NEEDED, SPLICING SHALL BE PERMITTED ONLY BY LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTORS OR BY EXOTHERMIC WELDING PROCESS. NO REVERSIBLE CRIMPS SHALL BE USED ON EXTERIOR BELOW GRADE CONNECTION.
5. SSGB GROUNDING CONDUCTOR SHALL BE INSULATED FROM ITS SUPPORT STRUCTURE. A MINIMUM OF 2" SEPARATION FROM THE SUPPORTING SURFACE IS ALLOW TO ACCESS TO THE REAR OF THE BUS BAR.
6. THE SSGB GROUNDING CONDUCTOR SHALL BE SECURED TO THE SSGB BY EXOTHERMIC WELDING, LISTED COMPRESSION TWO-HOLE LUG, OR IRREVERSIBLE COMPRESSION-TYP CONNECTION DEVICE.
7. SSGB GROUNDING CONDUCTOR SHOULD NOT BE SPLICED. SHOULD A SPLICE IN THE GROUNDING ELECTRODE CONDUCTOR IS NEEDED, SPLICING SHALL BE PERMITTED ONLY BY LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTORS OR BY EXOTHERMIC WELDING PROCESS.
8. SSGB GROUNDING ELECTRODE CONDUCTOR LOCATED IN AREAS WITH THE POTENTIAL FOR PHYSICAL DAMAGE SHALL BE PROTECTED AND THE CONDUCTOR OR ITS ENCLOSURE SHALL BE SECURELY FASTENED TO THE SURFACE ON WHICH IT IS CARRIED.
9. THE SSGB GROUNDING ELECTRODE CONDUCTOR SHALL BE RUN TO THE GROUNDING ELECTRODE SYSTEM IN A DIRECT MANNER WITH NO SHARP BEND OR NARROW LOOPS. THE GROUNDING CONDUCTOR BEND ANGLES SHALL NOT BE LESS THAN 90 DEGREE NOR HAVE A BENDING RADIUS OF LESS THAN 8".
10. WHEN ROUTING THE SSGB GROUNDING CONDUCTOR THROUGH A PERIMETER WALL TO THE EXTERNAL GROUNDING ELECTRODE SYSTEM, THE GROUNDING CONDUCTOR SHOULD BE ROUTED THROUGH THE WALL IN A PVC OR FLEXIBLE NON-METALLIC CONDUIT SLEEVE AT AT 45 DEGREE ANGLE TOWARD THE GROUNDING ELECTRODE SYSTEM.
11. THE SSGB GROUNDING CONDUCTOR SHOULD NOT BE PLACED IN FERROUS METALLIC CONDUIT.
12. THE RGB GROUNDING CONDUCTOR SHALL BE MADE OF COPPER AND MAY BE INSULATED.
13. THE RGB GROUNDING CONDUCTOR SHALL BE A MINIMUM OF 2 AWG.
14. THE RGB GROUNDING CONDUCTOR SHOULD BE SECURED BY THE RGB BY LISTED TWO-HOLE COMPRESSION LUG.
15. UNLESS BOTH ENDS OF THE GROUNDING CONDUCTOR ARE CLEARLY VISIBLE, THE CONDUCTOR SHALL BE CLEARLY LABELED ON BOTH ENDS.
16. RGB GROUNDING CONDUCTOR SHOULD NOT BE SPLICED. SHOULD A SPLICE IN THE GROUNDING ELECTRODE CONDUCTOR IS NEEDED, SPLICING SHALL BE PERMITTED ONLY BY LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTORS OR BY EXOTHERMIC WELDING PROCESS.
17. CONDUCTORS SHALL BE SECURED OR ATTACHED TO SURFACES AS REQUIRED TO ENSURE THEY DO NOT BECOME DAMAGED OR DISONNECTED. CONDUCTOR SHALL BE SECURED IN A MANNER THAT PERMITS ASSOCIATED EQUIPMENT TO BE EASILY SERVICED. CONDUCTORS SHALL BE SECURE AT NO GREATER THAN 3 FT INTERVALS.
18. CONDUCTOR INSTALLED IN AREAS WHERE THEY MAY BE SUBJECTED TO DAMAGE SHALL BE SLEEVED IN ELECTRICAL NON-METALLIC TUBING, OR OTHER CONDUIT, THAT IS SECURELY ATTACHED TO THE SURFACE OVER WHICH IS ROUTED.
19. WHEN GROUND CONDUCTOR TAP JOINTS ARE USED, THEY SHALL BE PROPERLY INSULATED AS TO PREVENT THE BARE CONDUCTOR OR CONNECTION DEVICE FROM MAKING INCIDENTAL CONTACT WITH METALLIC SURFACES.
20. GROUND BUS CONDUCTORS OF ALL SIZES SHALL MAINTAIN A MINIMUM BENDING RADIUS OF 8 IN. THE ANGLE OF ANY BEND SHALL NOT BE LESS THAN 90 DEGREES.
21. ALL GROUND CONDUCTORS SHALL BE SEPARATED A MINIMUM OF 2 IN. FROM CONDUCTORS OF OTHER CABLE GROUP.
22. ALL METALLIC CONDUITS SHALL BE BONDED AT EACH END.
23. ALL MECHANICAL AND COMPRESSION-TYPE CONNECTION DEVICES SHALL BE UL 486A LISTED AND OF THE PROPER SIZE FOR THE APPLICATION. THESE CONNECTION DEVICES SHALL BE TIN-PLATED WHEN CONNECTED WITH STEEL, GALVANIZED STEEL OR ALUMINUM SURFACES.
24. ALL CLAMPS AND COMPRESSION-TYPE CONNECTION DEVICES SHALL BE UL 486A LISTED AND SHALL MAINTAIN A MINIMUM 85% CONDUCTIVITY RATING.
25. NO MORE THAN ONE CLAMP, FITTING OR LUG MAY BE ATTACHED BY THE SAME BOLT OR BOLTS. AN EXCEPTION TO THIS IS WHEN A JUMPER FROM A TERMINAL STRIP OR OTHER INTERNAL CONNECTION POINT OF THE SAME EQUIPMENT MUST BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
26. SOLID CONDUCTORS SHALL BE ATTACHED TO LUGS AND TO OTHER CONDUCTORS BY IRREVERSIBLE HIGH COMPRESSION CRIMPING PROCESS. ONLY LISTED IRREVERSIBLE COMPRESSION TYPE LUGS AND CONNECTION DEVICES SHALL BE USED.
27. CONNECTIONS BETWEEN DISSIMILAR METALS SHALL NOT BE MADE UNLESS THE CONDUCTORS ARE SEPARATED BY A SUITABLE MATERIAL THAT IS PART OF THE ATTACHMENT DEVICE. ONLY ATTACHMENT DEVICES LISTED AND APPROVED FOR USE WITH THE SPECIFIC DISSIMILAR METALS MAYBE USED FOR THIS PURPOSE.
28. ALL TWO-HOLE LUGS SHALL HAVE BOLTS IN BOTH HOLES WITH LOCK WASHERS PLACED ON THE NUT SIDE OF THE BONDING SURFACE.
29. ALL SECURING HARDWARE FOR MECHANICALLY BOLTED CLAMPS AND SLUGS SHALL BE STAINLESS STEEL OR APPROVED FOR THE APPLICATION.
30. CRIMP CONNECTIONS SHALL NOT BE USED ON SOLID CONDUCTORS UNLESS THEY ARE LISTED AND APPROVED FOR THE APPLICATION. 300 SERIES SS.
31. MECHANICAL LUGS AND CLAMPS SHALL NOT BE USED ON SOLID CONDUCTOR.
32. CONDUCTOR SHALL NOT EXTEND THROUGH OR BEYOND THE CLAMP. FITTING OR LUG UNLESS THE DEVICE IS DESIGNED AND LISTED TO PERMIT THIS CONDUCTOR EXTENSION.
33. BRAIDED CONDUCTORS SHALL NOT BE USED AS A GROUND BUS OR EQUIPMENT GROUNDING CONDUCTOR AT ANY LOCATION
34. CONNECTION OF A GROUNDING CONDUCTOR, GROUNDING ELECTRODE CONDUCTOR, COMMUNICATION BONDING BACKBONE CONDUCTOR AND GROUND BUS CONDUCTOR TO THE MGB OR SSGB SHALL UTILIZE EXOTHERMIC WELDING, LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTION OR LISTED COMPRESSION TWO-HOLE LUG AND SECURING HARDWARE OF THE PROPER SIZE FOR THE APPLICATION.
35. ALL SET-SCREW TYPE CONNECTOR AND COUPLINGS SHALL BE BRIDGED WITH BONDING JUMPER.
36. CONNECTION OF A GROUNDING CONDUCTOR, GROUNDING ELECTRODE CONDUCTOR, COMMUNICATION BONDING BACKBONE CONDUCTOR AND GROUND BUS CONDUCTOR TO THE RGB SHALL UTILIZE EXOTHERMIC WELDING, LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTION OR LISTED COMPRESSION TWO-HOLE LUG AND SECURING HARDWARE OF THE PROPER SIZE FOR THE APPLICATION.
37. ALL INTERIOR GROUNDING AND BONDING CONDUCTORS SHALL BE INSULATED STRANDED COPPER CONDUCTORS. THE JACKET SHALL BE GREEN, GREEN WITH A YELLOW STRIPE OR PROPERLY MARKED WITH A DISTINCTIVE GREEN COLORING, GREEN TAPE OR GREEN ADHESIVE LABEL (NFPA 70).
38. ALL GROUND COND



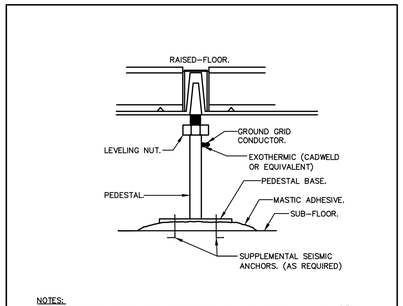
NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR DEPTH OF RAISED FLOOR.
2. GROUNDING CONDUCTORS TO 'SSGB' AT FURNITURE LOCATIONS SHALL EXTEND THROUGH RAISED FLOOR GROMMET AND MOUNTED INSIDE THE CONSOLE FURNITURE.

1 RAISED FLOOR TILE CUTOUT DETAIL
NO SCALE



NOTES:
1. BOND GROUND GRID TO BUILDING STEEL WITH #2 AWG CU THWN IN 3/4"C.
2. BOND GROUND GRID TO UNDER RAISED FLOOR 'SSGB' WITH (2)#3/0 AWG CU THWN IN 3/4"C.
3. BOND BRANCH CIRCUIT J-BOXES TO GROUND GRID WITH #6 AWG BARE CU.
4. ALL GROUND GRID SPLICES, TAPS AND TERMINATIONS SHALL BE EXOTHERMIC (CADWELD OR EQUIVALENT).
5. BOND GROUND GRID TO RAISED FLOOR PEDESTALS AT 4'-0" INTERVALS (EVERY OTHER PEDESTAL). CONNECTIONS SHALL BE EXOTHERMIC (CADWELD OR EQUIVALENT), APPROVED CLAMP MAY BE USED.

2 RAISED FLOOR GROUND GRID
NO SCALE



NOTES:
1. BOND GROUND GRID TO BUILDING STEEL WITH #2 AWG CU THWN IN 3/4"C.
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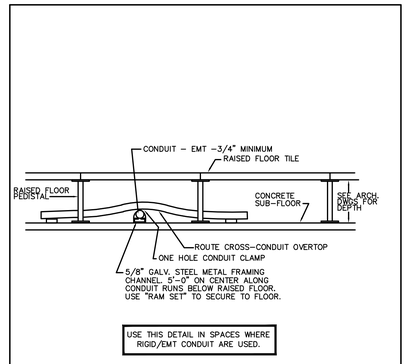
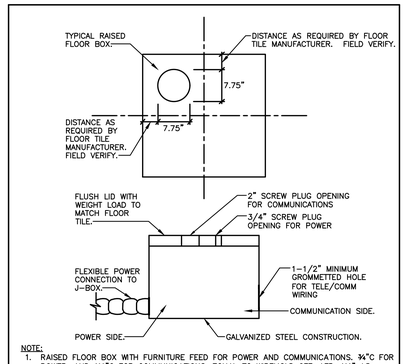
3. BOND BRANCH CIRCUIT J-BOXES TO GROUND GRID WITH #6 AWG BARE CU.
4. ALL GROUND GRID SPLICES, TAPS AND TERMINATIONS SHALL BE EXOTHERMIC (CADWELD OR EQUIVALENT).
5. BOND GROUND GRID TO RAISED FLOOR PEDESTALS AT 4'-0" INTERVALS (EVERY OTHER PEDESTAL). CONNECTIONS SHALL BE EXOTHERMIC (CADWELD OR EQUIVALENT), APPROVED CLAMP MAY BE USED.

3 RAISED FLOOR PEDESTAL GROUND CONN.
NO SCALE

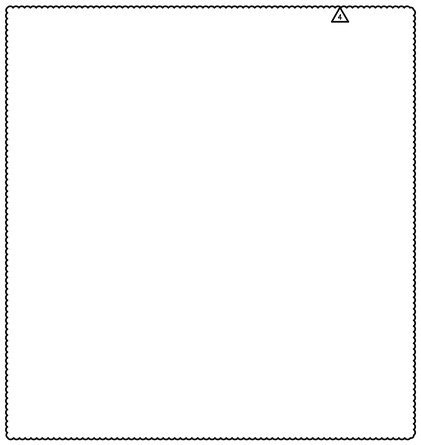


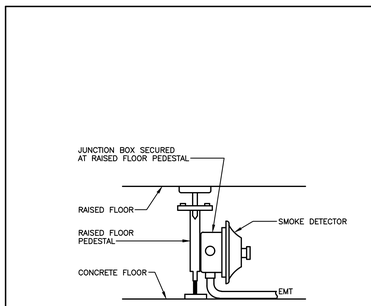
4 CONDUIT MOUNTING DETAIL BELOW RAISED FLOOR
NO SCALE



NOTE:
1. RAISED FLOOR BOX WITH FURNITURE FEED FOR POWER AND COMMUNICATIONS. ¾"C FOR POWER, AND 1½"C FOR COMMUNICATIONS. EQUAL TO WIREMOLD 6FF-AFB. 1⅛" I.D. RUBBER GROMMET PASS THROUGH.
2. PROVIDE 2 FLOOR BOXES AT EACH DESK LOCATION. COORDINATE WITH FURNITURE.

5 RAISED FLOOR BOX DETAIL
NO SCALE

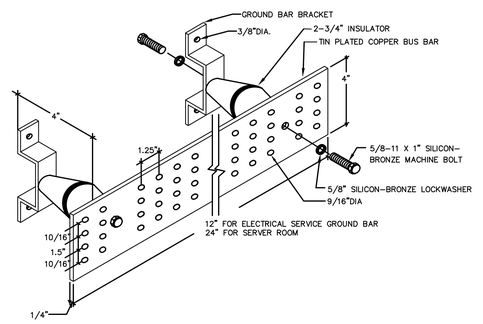




7 RAISED FLOOR SMOKE DETECTOR
NO SCALE

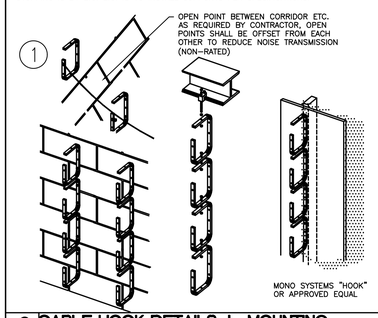
NOTES:

1. ALL GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH MOTOROLA R56 STANDARDS
2. ALL DIMENSIONING INDICATED IN THESE DOCUMENTS ARE FOR REFERENCE AND COORDINATION PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS IN THE FIELD.
3. ALL GRD ELECTRODES OR BONDING CONDUCTORS INSTALLED ALONE WITHIN A RACEWAY SHALL UTILIZE GRC WITH GROUNDING BUSHINGS AT EACH END. THIS GROUND CONDUCTOR SHALL LOOP THROUGH THE BUSHING LUG PRIOR TO TERMINATION. GROUND CONDUCTORS SHALL NOT MAKE A LOOP TO BOND THE CONDUIT. THE BONDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED OR PARALLEL IRREVERSIBLY CRIMPED UNTO THE GROUND CONDUTOR UPON EXITING THE CONDUIT.
4. LENGTH OF BUS BAR SHALL BE AS REQUIRED BY NUMBER OF CONDUCTOR CONNECTIONS PLUS 25% SPARE CAPACITY SPACE OR AS SPECIFIED OTHERWISE.
5. BUS BARS OVER 24" IN LENGTH REQUIRE AT LEAST ONE ADDITIONAL 2-3/4" INSULATOR SUPPORT OR AS SPECIFIED. BUS BARS OVER 6" WIDE OR MORE REQUIRE INSULATORS AT ALL FOUR CORNERS OR AS REQUIRED.
6. ANTIOXIDANT OINTMENT SHOULD BE APPLIED TO ALL CONNECTIONS.

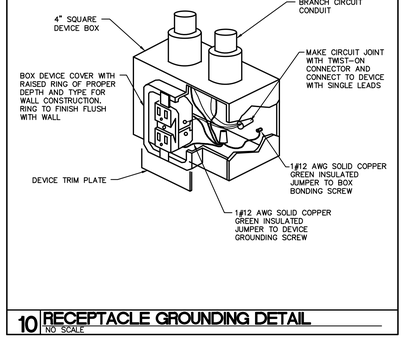


8 GROUNDING BAR DETAIL
NO SCALE

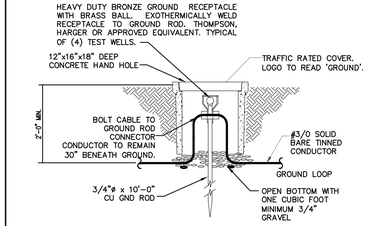
NOTES:
1. J-HOOK SHALL SUPPORT BOTH POINTS (ENTRY AND EXIT) CABLING SHALL NOT BE IN CONTACT WITH CORRIDOR MATERIAL (GYP OR MASONRY) FOR NON CABLE LOCATIONS ONLY.
2. ELECTRICAL CONTRACTOR TO SUPPLY AND MOUNT ALL VOICE/DATA/SECURITY/CCTV SUPPORT HOOKS AND OR CABLE TRAY. EC IS RESPONSIBLE FOR PROVIDING SLEEVES THROUGH WALLS FOR VOICE/DATA/SECURITY/CCTV CABLING WHERE NECESSARY. FIRE STOPPING IS BY E.C. E.C. IS TO INSTALL SUPPORTS PER SPECIFICATIONS.



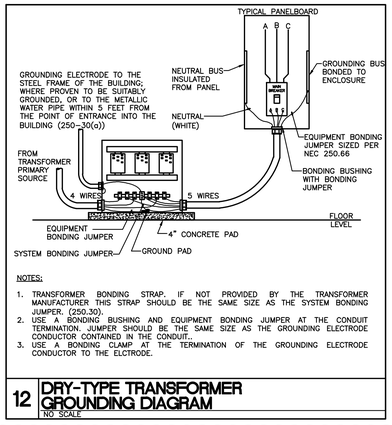
9 CABLE HOOK DETAILS + MOUNTING
NO SCALE



10 RECEPTACLE GROUNDING DETAIL
NO SCALE

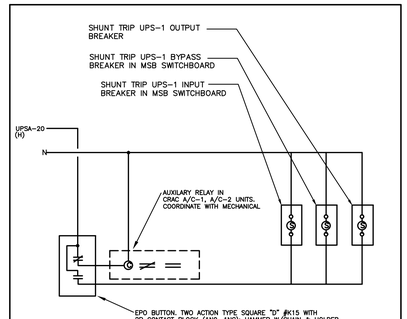


11 GROUND TEST WELL DIAGRAM
NO SCALE

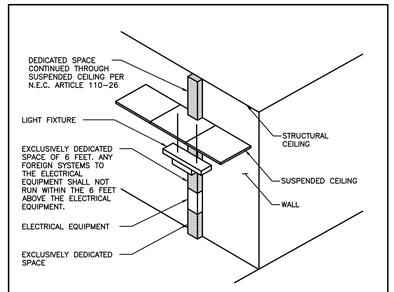


NOTES:
1. TRANSFORMER BONDING STRAP. IF NOT PROVIDED BY THE TRANSFORMER MANUFACTURER THIS STRAP SHOULD BE THE SAME SIZE AS THE SYSTEM BONDING JUMPER. (250.30).
2. USE A BONDING BUSHING AND EQUIPMENT BONDING JUMPER AT THE CONDUIT TERMINATION. JUMPER SHOULD BE THE SAME SIZE AS THE GROUNDING ELECTRODE CONDUCTOR CONTAINED IN THE CONDUIT.
3. USE A BONDING CLAMP AT THE TERMINATION OF THE GROUNDING ELECTRODE CONDUCTOR TO THE ELCTRODE.

12 DRY-TYPE TRANSFORMER GROUNDING DIAGRAM
NO SCALE



13 EPO WIRING DETAIL
NO SCALE



NOTES:

THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER AND UNDER THE ELECTRICAL EQUIPMENT FOR THE CABLES, RACEWAYS, ETC., TO AND FROM THE ELECTRICAL EQUIPMENT REQUIRED BY SECTION 11-26 OF THE NATIONAL ELECTRICAL CODE.

14 DEDICATED SPACE FOR ELECTRICAL EQUIPMENT
NO SCALE

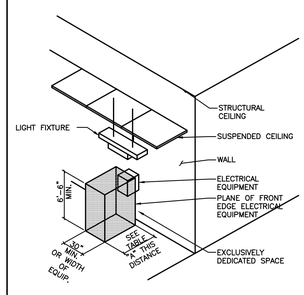


TABLE A - WORKING CLEARANCES			
VOLTAGE TO GROUND NOMINAL	MINIMUM CLEAR DISTANCE (FEET)		
CONDITION:	1	2	3
0 - 150	3	3	3
151 - 600	3	3 1/2	4

WHERE THE "CONDITIONS" ARE AS FOLLOWS:

1. EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR OTHER INSULATING MATERIALS. INSULATED WIRE OR INSULATED BUSBARS OPERATING AT NOT OVER 300V SHALL NOT BE CONSIDERED LIVE PARTS.
2. EXPOSED LIVE PARTS ON ONE SIDE AND GROUNDED PARTS ON THE OTHER SIDE.
3. EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE (NOT GUARDED AS PROVIDED IN CONDITION 1) WITH THE OPERATOR BETWEEN.

NOTES:

THIS FIGURE ILLUSTRATES THE WORKING SPACE IN FRONT OF THE ELECTRICAL EQUIPMENT REQUIRED BY SECTION 110-26 OF THE NATIONAL ELECTRICAL CODE.

15 WORKING CLEARANCE FOR ELECTRICAL EQUIPMENT
NO SCALE

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environmentsforlife
architecture planning interiors
six coliseum centre
2815 coliseum centre drive, suite 500
charlotte, north carolina 28217
t] 704 379 1919
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www.adwarchitects.com

SAMPSON COUNTY 911 & ES FACILITIES

CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

ELECTRICAL DETAILS

DATE 12.04.2020
PROJECT NO 20003
REVISIONS

NUM.	DATE	DESCRIPTION:
2	01-09-2021	REV #2 / ADD1
3	01-20-2021	REV4 / ADD3

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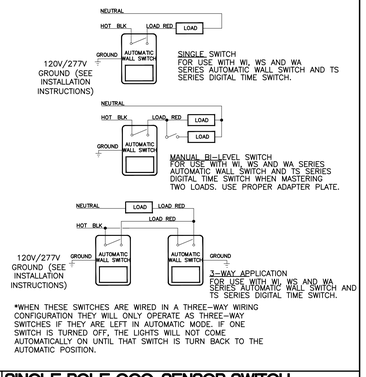
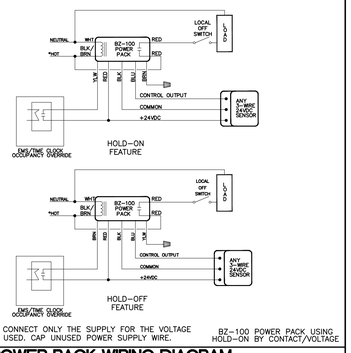
NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 028297 ENGINEER BRANDON L MILLER 12/04/2020

SEAL

SHEET NUMBER E603



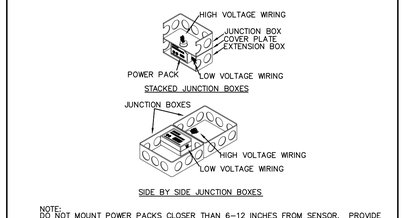
1 SINGLE POLE OCC. SENSOR SWITCH
NO SCALE



NOTE: CONNECT ONLY THE SUPPLY FOR THE VOLTAGE BEING USED. CAP UNUSED POWER SUPPLY WIRE.

BZ-100 POWER PACK USING HOLD-ON BY CONTACT/VOLTAGE

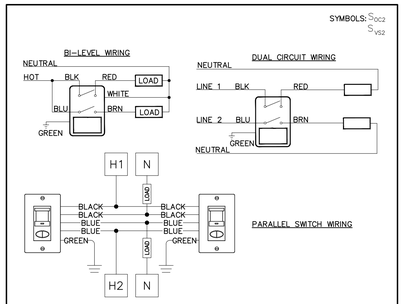
2 POWER PACK WIRING DIAGRAM
NO SCALE



NOTE:
DO NOT MOUNT POWER PACKS CLOSER THAN 6-12 INCHES FROM SENSOR. PROVIDE DOUBLE STACKED JUNCTION BOX FOR MAXIMUM VENTILATION OF POWER PACK. PROVIDE BLANK COVER. WHERE PERMITTED BY CODE AND AHJ, LEAVE (2) OPENINGS IN CONDUIT KNOCKOUT FOR VENTING OF POWER PACK. VERIFY WITH AHJ PRIOR TO KNOCKOUT REMOVAL.

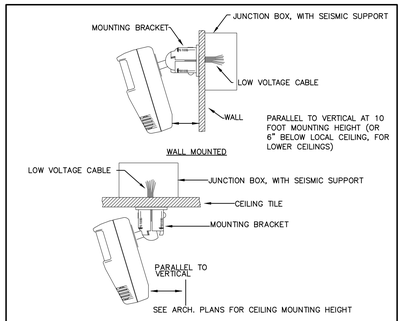
POWER PACK INSTALLED IN J-BOX

3 POWER PACK INSTALLATION
NO SCALE



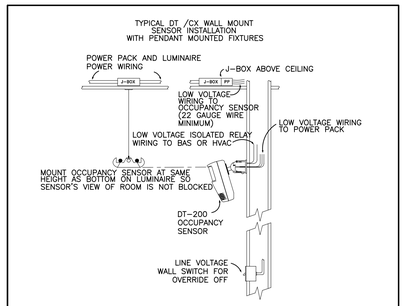
NOTES:
1. COLOR CODING AND WIRING MAY VARY PER MANUFACTURER.
2. IF SEQUENCE OF OPERATION PROVIDED, SEE SEQUENCE FOR SETTING REQUIREMENTS. OTHERWISE SET TIME AFTER NO OCCUPANCY DETECTED FOR 15 MINUTES.
3. OCCUPANCY AND/OR VACANCY SENSORS APPLY.
4. BOTH SENSORS MUST TIME OUT FOR LIGHTS TO TURN OFF.
5. SWITCHING IS LINE VOLTAGE.
6. WHEN REQUIRED CONNECT NEUTRAL TO WHITE LEAD (NEUTRAL OF SWITCH).

4 DUAL RELAY WALL SWITCH SENSORS
NO SCALE



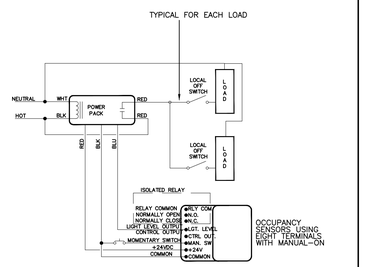
NOTES:
1. TILT SENSOR TOWARD CENTER OF ROOM FOR MAXIMUM EFFECTIVENESS.
2. CALIBRATE SENSITIVITY AND DIRECTION AFTER INSTALLATION.
3. PROVIDE WALL MOUNT BRACKET AND INSTALL AT CORNER MOST SECTION OF ROOM. PATTERN IS BASED ON CONICAL SHAPE.

5 CORNER MOUNT SENSOR
NO SCALE

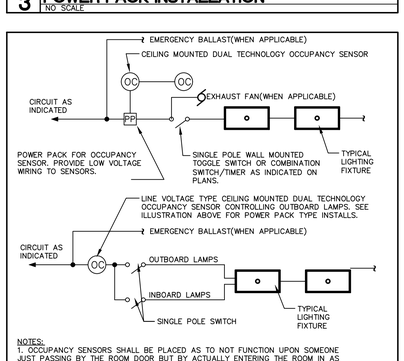


DT-200/CX SERIES MOUNTING DETAIL WITH PENDANT MOUNTED FIXTURES

6 DT-200 PENDANT FIXTURE
NO SCALE

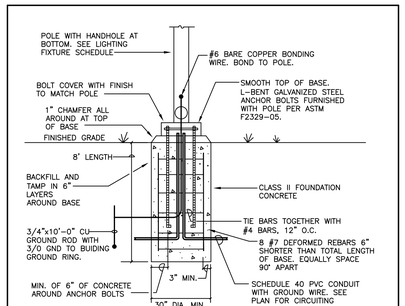


7 DT-200/300
NO SCALE



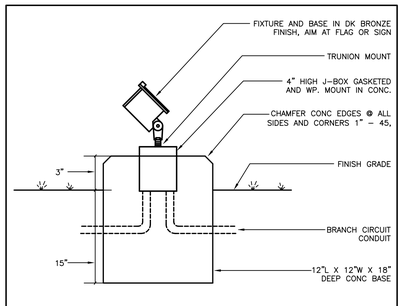
NOTES:
1. OCCUPANCY SENSORS SHALL BE PLACED AS TO NOT FUNCTION UPON SOMEONE JUST PASSING BY THE ROOM DOOR BUT BY ACTUALLY ENTERING THE ROOM IN AS MUCH AS POSSIBLE.

8 TYPICAL CEILING MOUNTED OCCUPANCY SENSOR WIRING DIAGRAMS
NO SCALE

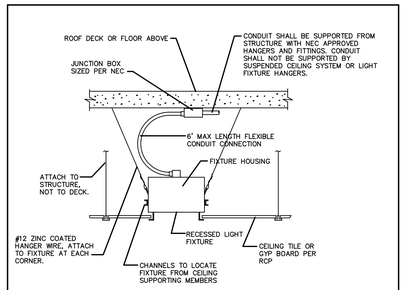


NOTES:
1. PRE-CAST ASSEMBLY OR CAST-IN-PLACE OPTIONS BOTH ARE ACCEPTABLE.
2. IF THE CAST-IN-PLACE OPTION IS CHOSEN, ALLOW 30 DAYS FOR CONCRETE BASE TO CURE BEFORE INSTALLING POLE.
3. REINFORCING STEEL TO BE GRADE 60.

9 POLE BASE DETAIL (EXTENDED)
NO SCALE

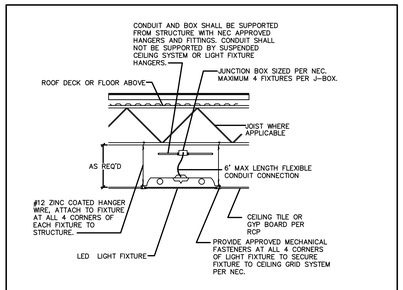


10 FLOODLIGHT DETAIL
NO SCALE



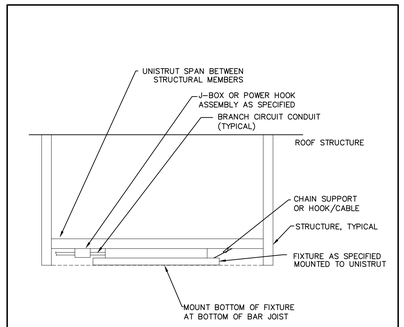
NOTES:
1. WHERE ROOF DECKING IS THE SUPPORT STRUCTURE, AND RACEWAY SYSTEM IS NOT IMC OR RMC, THE MINIMUM DISTANCE FROM ROOF DECKING SHALL BE 1.5" FOR ALL BOXES AND CONDUIT.

11 TYPICAL RECESSED DOWN LIGHT FIXTURE INSTALLATION DIAGRAM
NO SCALE



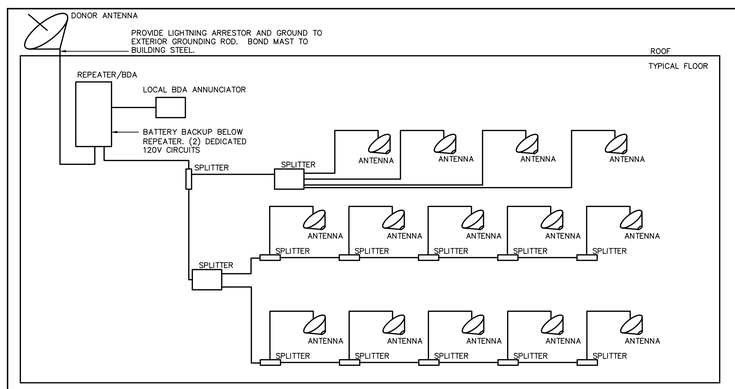
NOTES:
1. BRACE AS REQUIRED FOR TYPE IV FACILITY.

12 TYPICAL LAY-IN FIXTURE DIAGRAM
NO SCALE



NOTES:
1. ORIENTATION SHOWN IS FOR PERPENDICULAR TO FLOOR APPLICATIONS. ADJUST UNISTRUT AS REQUIRED.

13 HI-BAY FIXTURE (2X4)
NO SCALE

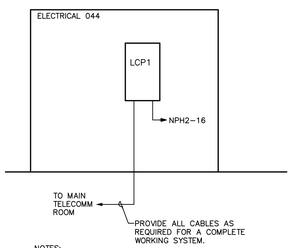


15 EMERGENCY RESPONDER SYSTEM BOOSTING RISER
NO SCALE

SYSTEM NOTES

NOTES:

1. SYSTEM IS BASED ON 800Mhz. COORDINATE WITH LOCAL EMERGENCY RESPONDERS FOR NECESSARY FREQUENCY REQUIRED.
2. SEE SPECIFICATIONS FOR ALL EQUIPMENT AND CABLING REQUIREMENTS.
3. ALL CABLING TO BE INSTALLED IN 1-1/2" CONDUIT.
4. SYSTEM BASED ON DESIGN FROM HARRIS COMMUNICATIONS. SEE SPECIFICATIONS FOR REQUIREMENTS AND EQUALS.
5. PROVIDE BATTERY BACK UP (5 MINS.) FOR MOMENTARY LOSS OF POWER. MAIN SYSTEM IS GENERATOR BACKED UP. NON GENERATOR BACKED UP SYSTEMS SHALL HAVE A MINIMUM BATTERY BACKUP OF 24 HOURS.
6. SEE SPECIFICATIONS FOR CABLING REQUIREMENTS.
7. SYSTEM SUPPLIER SHALL PROVIDE A SYSTEM SURVEY REPORT PRIOR TO PROVIDING THE SYSTEM. THIS SHALL BE CONSIDERED BASE BID FOR THE PROJECT. SIGNAL SURVEY REPORT SHALL BE TAKEN TO THE LOCAL FIRE CODE OFFICIAL AND THE LOCAL FIRE CODE OFFICIAL SHALL DETERMINE IF THE SYSTEM NEEDS TO BE INSTALLED. SIGNAL STRENGTH MEASUREMENTS SHALL BE MEASURED IN 95% OF ALL AREAS ON EACH FLOOR (100% OF ALL EGRESS AND CRITICAL AREAS).
8. PROVIDE AN ADD ALTERNATE FOR THE EMERGENCY RESPONDER SYSTEM INCLUDING ALL DEVICES, CABLING, CONDUIT, AND EQUIPMENT. SUBMITTAL AND SURVEY REPORT SHALL BE CONSIDERED BASE BID.
9. BASED ON SURVEY REPORT, DEVICES SHALL BE LOCATED TO MAXIMIZE BOOSTING SIGNAL. LOCATIONS SHALL BE COORDINATED WITH GENERAL CONTRACTOR.
10. LOCAL ANNUNCIATOR SHALL PROVIDE VISUAL AND LABELED IDENTIFICATION OF:
    - 10.1. NORMAL AC POWER.
    - 10.2. SIGNAL BOOSTER TROUBLE.
    - 10.3. LOSS OF NORMAL AC POWER.
    - 10.4. FAILURE OF BATTERY CHARGER.
    - 10.5. LOW-BATTERY CAPACITY.
    - 10.6. ANTENNA FAILURE.
11. PROVIDE FIRE ALARM PANEL CONNECTION (SUPERVISORY SIGNALS). COORDINATE REQUIRED CONNECTIONS WITH FIRE ALARM CONTRACTOR:
    - 11.1. DONOR ANTENNA MALFUNCTION.
    - 11.2. BDA FAILURE.
    - 11.3. LOW BATTERY CAPACITY.
    - 11.4. LOSS OF NORMAL AC POWER.
    - 11.5. FAILURE OF BATTERY CHARGER.



NOTES:
1. LIGHTING CONTROL RELAY PANELS TO BE WATTSTOPPER, LC&D OR EQUAL.
2. ALL LIGHTING CONTROL PANELS ARE TO BE 32 SPACE/RELAYS.

14 LIGHTING CONTOL RELAY PANEL RISER
DIAGRAMMATIC

LCP1 SCHEDULE

	RELAY #	LIGHTING CIRCUIT PANEL DESIGNATION	VOLTAGE/PHASE	FUNCTION	LAMP TYPE	NOTES
LTG - EXTERIOR EOC/EMS	a	NPH2-8	277/1	ON/OFF	LED	1,2,3
LTG - EXTERIOR 911	b	NPH2-10	277/1	ON/OFF	LED	1,2,3
LTG - SITE NORTH	c	NPH2-12	277/1	ON/OFF	LED	1,3
LTG - SITE SOUTH	d	NPH2-14	277/1	ON/OFF	LED	1,3
SPACE	e	XXXX-XX	277/1	ON/OFF	LED	
SPACE	f	XXXX-XX	277/1	ON/OFF	LED	
SPACE	g	XXXX-XX	277/1	ON/OFF	LED	
SPACE	h	XXXX-XX	277/1	ON/OFF	LED	
SPACE	i	XXXX-XX	277/1	ON/OFF/DIM	LED	
SPACE	j	XXXX-XX	277/1	ON/OFF/DIM	LED	
SPACE	k	XXXX-XX	277/1	ON/OFF/DIM	LED	
SPACE	l	XXXX-XX	277/1	ON/OFF/DIM	LED	
SPACE	m	XXXX-XX	277/1	ON/OFF/DIM	LED	
SPACE	n	XXXX-XX	277/1	ON/OFF/DIM	LED	
SPACE	o	XXXX-XX	277/1	ON/OFF/DIM	LED	
SPACE	p	XXXX-XX	277/1	ON/OFF/DIM	LED	

REMARKS
1. BASIS OF DESIGN IS 16 RELAY ACUITY GR-2400 CONTROL PANEL: GR2416 ENC SM NE1 GR2416 INT DTC DV.
2. PROVIDE WITH 8 INPUT DIGILINK CARD, EQUAL TO GR2400 DIGILINK DV D7 SME1.
3. PROVIDE A UL LISTED BARRIER SEPARATION BETWEEN NORMAL AND EMERGENCY CIRCUITS.
4. WHEN LCP HAS BEEN DE-ENERGIZED, RELAY SHALL FAIL TO THE CLOSED POSITION.

KEY NOTES:

1. PROGRAM NORMAL ON/OFF, COORDINATE AUTOMATED SCHEDULE WITH OWNER.
2. LIGHTING FIXTURES WITH EMERGENCY BATTERY PACKS AND EXIT SIGNS SHALL BE CONNECTED WITH A CONSTANT UNSWITCHED HOT LEG OF CIRCUIT.
3. OL - OUTSIDE LIGHT : ASTRONOMICAL CLOCK ON/OFF. COORDINATE SCHEDULE WITH OWNER.
4. OFL - FLAG POLE LIGHTING ; PHOTOCELL CONTROL ON/OFF.

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CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

ELECTRICAL DETAILS

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
1	01-20-2021	REV4 / ADD3

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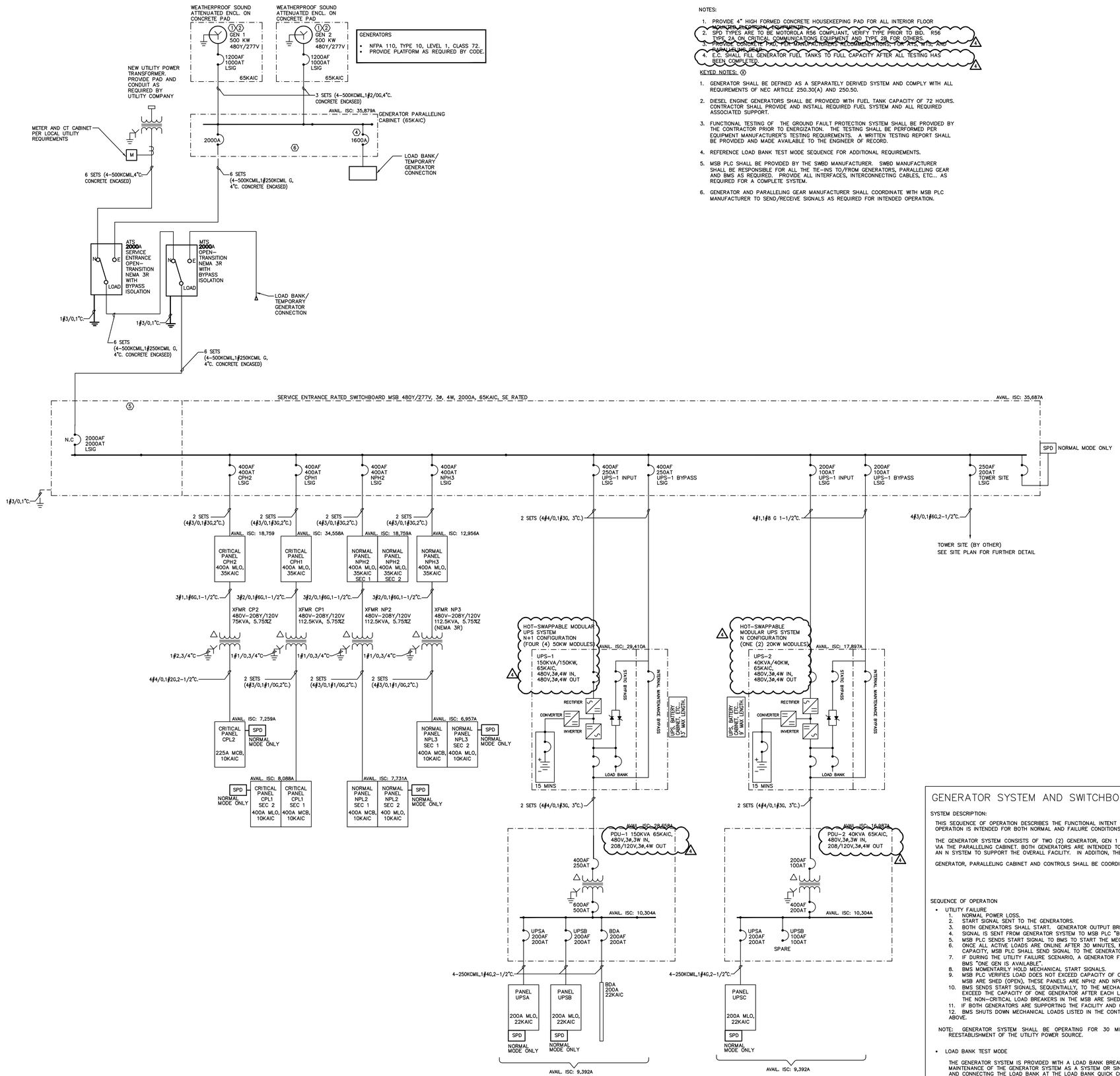
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028297 ENGINEER BRENDON L MILLER
12/04/2020

SHEET NUMBER E604



NOTES:

1. PROVIDE 4" HIGH FORMED CONCRETE HOUSEKEEPING PAD FOR ALL INTERIOR FLOOR MOUNTED ELECTRICAL EQUIPMENT.
2. SPD TYPES ARE TO BE MOTOROLA R56 COMPLIANT, VERIFY TYPE PRIOR TO BID. R56 TYPE 2A ON CRITICAL COMMUNICATIONS EQUIPMENT AND TYPE 2B FOR OTHERS.
3. PROVIDE CONCRETE PAD, PER MANUFACTURERS RECOMMENDATIONS, FOR ATS, MTS, AND PARALLELING GEAR.
4. E.C. SHALL FILL GENERATOR FUEL TANKS TO FULL CAPACITY AFTER ALL TESTING HAS BEEN COMPLETED.

KEYED NOTES: ⓧ

1. GENERATOR SHALL BE DEFINED AS A SEPARATELY DERIVED SYSTEM AND COMPLY WITH ALL REQUIREMENTS OF NEC ARTICLE 250.30(A) AND 250.50.
2. DIESEL ENGINE GENERATORS SHALL BE PROVIDED WITH FUEL TANK CAPACITY OF 72 HOURS. CONTRACTOR SHALL PROVIDE AND INSTALL REQUIRED FUEL SYSTEM AND ALL REQUIRED ASSOCIATED SUPPORT.
3. FUNCTIONAL TESTING OF THE GROUND FAULT PROTECTION SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR PRIOR TO ENERGIZATION. THE TESTING SHALL BE PERFORMED PER EQUIPMENT MANUFACTURER'S TESTING REQUIREMENTS. A WRITTEN TESTING REPORT SHALL BE PROVIDED AND MADE AVAILABLE TO THE ENGINEER OF RECORD.
4. REFERENCE LOAD BANK TEST MODE SEQUENCE FOR ADDITIONAL REQUIREMENTS.
5. MSB PLC SHALL BE PROVIDED BY THE SWBD MANUFACTURER. SWBD MANUFACTURER SHALL BE RESPONSIBLE FOR ALL THE TIE-INS TO/FROM GENERATORS, PARALLELING GEAR AND BMS AS REQUIRED. PROVIDE ALL INTERFACES, INTERCONNECTING CABLES, ETC... AS REQUIRED FOR A COMPLETE SYSTEM.
6. GENERATOR AND PARALLELING GEAR MANUFACTURER SHALL COORDINATE WITH MSB PLC MANUFACTURER TO SEND/RECEIVE SIGNALS AS REQUIRED FOR INTENDED OPERATION.

BMS SYSTEM POINT LIST (TYP. 2 GENS)

DESIGNATION	DESCRIPTION	UNITS	HARDWIRED POINTS: ANALOG INPUT	ANALOG OUTPUT	DIGITAL INPUT	DIGITAL OUTPUT	ALARM/WARNING POINT	TRENDING (Y-N)
P-1	VOLTS A-B	VOLTS					X	X
P-2	VOLTS B-C	VOLTS					X	X
P-3	VOLTS C-A	VOLTS					X	X
P-4	CURRENT A	AMPS					X	X
P-5	CURRENT B	AMPS					X	X
P-6	CURRENT C	AMPS					X	X
P-7	WATTS	KW					X	X
P-8	VOLT AMPERES REACTIVE	KVAR					X	X
P-9	VOLT AMPERES	KVA					X	X
P-10	POWER FACTOR	PF					X	X
P-11	FREQUENCY	HZ					X	X
P-12	SUMMARY ALARM						X	

GENERATORS SHALL BE CAPABLE OF COMMUNICATING VIA MODBUS PROTOCOL. THE GENERATORS SHALL BE WIRED TO THE MAIN SERVICE SWITCHBOARD MSB. AT THIS POINT, THE RS-485 WIRING SHALL BE EXTENDED TO THE BMS. COORDINATE THE SPECIFIC SETUP AND DETAILS OF THESE CONNECTIONS WITH THE BMS SYSTEM CONTROLS CONTRACTOR. COORDINATE DISTANCES OF MODBUS CONNECTIONS IN ORDER TO ACHIEVE OPTIMUM TRANSFER RATES. SEE DETAIL 9 ON DRAWING E007 FOR GENERATORS CONTROL/MONITORING BLOCK DIAGRAM.

UPS SYSTEM POINT LIST

DESIGNATION	DESCRIPTION	UNITS	HARDWIRED POINTS: ANALOG INPUT	ANALOG OUTPUT	DIGITAL INPUT	DIGITAL OUTPUT	ALARM/WARNING POINT	TRENDING (Y-N)
P-1	VOLTS IN A-B	VOLTS					X	X
P-2	VOLTS IN B-C	VOLTS					X	X
P-3	VOLTS IN C-A	VOLTS					X	X
P-4	VOLTS OUT A-B	VOLTS					X	X
P-5	VOLTS OUT B-C	VOLTS					X	X
P-6	VOLTS OUT C-A	VOLTS					X	X
P-7	CURRENT IN A	AMPS					X	X
P-8	CURRENT IN B	AMPS					X	X
P-9	CURRENT IN C	AMPS					X	X
P-10	CURRENT OUT A	AMPS					X	X
P-11	CURRENT OUT B	AMPS					X	X
P-12	CURRENT OUT C	AMPS					X	X
P-13	WATTS IN	KW					X	X
P-14	VOLT AMPERES IN	KVA					X	X
P-15	WATTS OUT	KW					X	X
P-16	VOLT AMPERES OUT	KVA					X	X
P-17	PF OUT	PF					X	X
P-18	FREQUENCY OUT	HZ					X	X
P-19	SUMMARY ALARM (UPS/BATT)						X	

NOTES:

1. THE UPS HAS INTEGRAL MONITORING CARDS WHICH WILL COMMUNICATE TO THE BMS FOR REMOTE MONITORING PURPOSES. THE UNIT COLLECTS PERFORMANCE POINTS AND STORES THE VALUES OF THESE POINTS IN REGISTERS WHICH CAN LATER BE RETRIEVED VIA STANDARD MODBUS QUERIES. COORDINATE THE SPECIFIC SETUP AND DETAILS OF THESE CONNECTIONS WITH THE SYSTEM CONTROLS CONTRACTOR. COORDINATE DISTANCES OF CONNECTIONS IN ORDER TO ACHIEVE OPTIMUM TRANSFER RATES.
2. ALL NETWORK CABLING SHALL BE CATEGORY 5E CABLE. COORDINATE THE DETAILS OF THESE CONNECTIONS WITH THE SYSTEM CONTROLS CONTRACTOR.
3. PROVISIONING OF THE POINTS LISTED HERE SHALL BE COORDINATED WITH OWNER.
4. ALL DEVICES SHALL BE PROGRAMMED SO THAT A LOSS OF COMMUNICATION WITH THE DEVICE WILL TRIGGER AN ALARM EVENT.

GENERATOR SYSTEM AND SWITCHBOARD MSB SEQUENCE OF OPERATION

SYSTEM DESCRIPTION:

THIS SEQUENCE OF OPERATION DESCRIBES THE FUNCTIONAL INTENT OF THE GENERATOR SYSTEM AND CONTROL FOR THE MAIN SWITCHBOARD EQUIPMENT. THE SEQUENCE OF OPERATION IS INTENDED FOR BOTH NORMAL AND FAILURE CONDITIONS AND HOW THE SYSTEM WILL REACT TO THESE EVENTS.

THE GENERATOR SYSTEM CONSISTS OF TWO (2) GENERATOR, GEN 1 AND GEN 2. EACH GENERATOR IS RATED FOR 500KW. THE GENERATORS ARE CONNECTED IN PARALLEL VIA THE PARALLELING CABINET. BOTH GENERATORS ARE INTENDED TO OPERATE AS AN 2N (REDUNDANCY) SYSTEM TO SUPPORT THE ECOM-911 AND SUPPORT SPACES AND AS AN N SYSTEM TO SUPPORT THE OVERALL FACILITY. IN ADDITION, THE GENERATOR SYSTEM IS PROVIDED WITH ISOLATED LOAD-BANK BREAKER

GENERATOR, PARALLELING CABINET AND CONTROLS SHALL BE COORDINATED AS A COMPLETE FUNCTIONING PACKAGE.

SEQUENCE OF OPERATION

- UTILITY FAILURE
  1. NORMAL POWER LOSS.
  2. START SIGNAL SENT TO THE GENERATORS.
  3. BOTH GENERATORS SHALL START. GENERATOR OUTPUT BREAKER SHALL CLOSE TO THE GENERATOR PARALLELING CABINET ONCE VOLTAGE/FREQUENCE IS UP TO RATED.
  4. SIGNAL IS SENT FROM GENERATOR SYSTEM TO MSB PLC "BOTH GENS AVAILABLE".
  5. MSB PLC SENDS START SIGNAL TO BMS TO START THE MECHANICAL LOAD PER MECHANICAL CONTROL SEQUENCE (SEE MECHANICAL DRAWING). NO LOAD SHED IS REQUIRED.
  6. ONCE ALL ACTIVE LOADS ARE ONLINE AFTER 30 MINUTES, MSB PLC WILL MONITOR THE LOAD DEMAND, IF THE RUNNING LOAD IS LESS THAN 95% OF ONE GENERATOR CAPACITY, MSB PLC SHALL SEND SIGNAL TO THE GENERATOR SYSTEM, TO SHUT DOWN 1 GENERATOR.
  7. IF DURING THE UTILITY FAILURE SCENARIO, A GENERATOR FAILS TO START AFTER AN ADJUSTABLE TIME DELAY (SET TO 30 SECONDS), A SIGNAL IS SENT TO MSB PLC AND BMS "ONE GEN IS AVAILABLE".
  8. BMS MOMENTARILY HOLD MECHANICAL START SIGNALS.
  9. MSB PLC VERIFIES LOAD DOES NOT EXCEED CAPACITY OF ONE GENERATOR. IF THE CAPACITY OF ONE GENERATOR IS EXCEEDED, THE NON-CRITICAL LOAD BREAKERS IN MSB ARE SHED (OPEN), THESE PANELS ARE NPH2 AND NPH3. IF THE CAPACITY OF ONE GENERATOR IS NOT EXCEEDED, PROCEED TO NEXT STEP.
  10. BMS SENDS START SIGNALS, SEQUENTIALLY, TO THE MECHANICAL LOADS PER THE CONTROL SEQUENCE (SEE MECHANICAL DRAWING). MSB PLC VERIFIES LOAD DOES NOT EXCEED THE CAPACITY OF ONE GENERATOR AFTER EACH LOAD ADD. IF THE CAPACITY OF ONE GENERATOR IS REACHED BEFORE THE ALL MECHANICAL LOADS ARE ADDED, THE NON-CRITICAL LOAD BREAKERS IN THE MSB ARE SHED (OPEN). BMS START SIGNALS CONTINUE.
  11. IF BOTH GENERATORS ARE SUPPORTING THE FACILITY AND ONE GENERATOR FAILS, A SIGNAL IS SENT TO MSB PLC & BMS – "ONE GEN AVAILABLE".
  12. BMS SHUTS DOWN MECHANICAL LOADS LISTED IN THE CONTROL SEQUENCE (IN REVERSE ORDER OF STARTING, SEE MECHANICAL DRAWING). PROCEED WITH STEP 9 AND 10 ABOVE.

NOTE: GENERATOR SYSTEM SHALL BE OPERATING FOR 30 MINUTES (ADJUSTABLE TIME DELAY) ONCE ONLINE TO AVOID RETRANSFER IN THE EVENT OF SHORT-TIME REESTABLISHMENT OF THE UTILITY POWER SOURCE.

- LOAD BANK TEST MODE

  THE GENERATOR SYSTEM IS PROVIDED WITH A LOAD BANK BREAKER AND QUICK CONNECTOR AT THE GENERATOR PARALLELING CABINET WHICH PERMITS LOAD BANK TESTING AND MAINTENANCE OF THE GENERATOR SYSTEM AS A SYSTEM OR SINGLE UNIT. LOAD BANK TESTING IS ACHIEVED BY CLOSING THE LOAD BANK BREAKER ON THE PARALLELING GEAR AND CONNECTING THE LOAD BANK AT THE LOAD BANK QUICK CONNECT. IF THERE IS LOST OF UTILITY DURING A LOAD BANK TESTING, THE GENERATOR LOAD BANK SHALL OPEN AND THE PLC CONTROL SHALL START THE SEQUENCE AND THE GENERATOR SYSTEM SHALL BE OPERATED PER SEQUENCE ABOVE.

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CONSTRUCTION DOCUMENTS

POWER RISER DIAGRAM

DATE 12.04.2020
PROJECT NO 20003

REVISIONS

NUM.	DATE	DESCRIPTION:
1	12-17-2020	REVISION #1
2	01-09-2021	REV #2 / ADD1
4	01-20-2021	REV4 / ADD3

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NORTH CAROLINA PROFESSIONAL SEAL 028297 ENGINEER BRANDON L. MILLER 12/04/2020

SEAL

SHEET NUMBER E701

VARIABLE VOLUME ROOFTOP UNIT SCHEDULE

SYMBOL	COMPRESSOR NO.	COMPRESSOR RLA	COMPRESSOR LRA	OFM QTY.	OFM FLA	SUPPLY FAN QTY.	SUPPLY FAN HP	SUPPLY FAN FLA	RELIEF FAN QTY.	RELIEF FAN HP	RELIEF FAN FLA	POWER SUPPLY MCA	POWER SUPPLY MOCP	POWER SUPPLY VOLTAGE	DISCONNECT
RTU-1	2	23.0/22.7	--/--	2	2.9/2.7	2	5/5	8.3/8.3	2	6/6	6.3/6.3	90.75	110	460V-3ø	200/F110-3P-3R
RTU-2	2	17.5/15.3	--/--	2	2.9/2.7	2	3/3	4.7/4.7	1	6	6.3	62.98	80	460V-3ø	100/F80-3P-3R
RTU-3	2	17.5/15.3	--/--	2	2.9/2.7	2	3/3	4.7/4.7	1	6	6.3	62.98	80	460V-3ø	100/F80-3P-3R
RTU-4	2	17.5/15.3	--/--	2	2.9/2.7	2	3/3	4.7/4.7	1	6	6.3	62.98	80	460V-3ø	100/F80-3P-3R

NOTES:
1. ALL NON-LOW VOLTAGE ELECTRICAL WIRING IN METALLIC RACEWAY, SINGLE POINT ELECTRICAL CONNECTION WITH NON-FUSED DISCONNECT, CONTROL PANEL WITH DISPLAY,
2. PHOTOELECTRIC TYPE SMOKE DETECTORS SHALL BE PROVIDED WITH EACH ROOFTOP UNIT. DUCT DETECTORS WILL BE FURNISHED BY THE ELECTRICAL CONTRACTOR, INSTALLED IN DUCT BY THE MECHANICAL CONTRACTOR, AND WIRED FOR UNIT SHUT-DOWN AND FIRE ALARM INTERFACE BY THE ELECTRICAL CONTRACTOR. DUCT DETECTORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. TWO DUCT DETECTORS REQUIRED PER UNIT (ONE IN THE SUPPLY AND ONE IN THE RETURN).
3. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN RTU-1 & RTU-2 SHALL HAVE A MINIMUM SCCR RATING OF 65 KAIC.
4. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN RTU-3 & RTU-4 SHALL HAVE A MINIMUM SCCR RATING OF 65 KAIC.

CONSTANT VOLUME ROOFTOP UNIT SCHEDULE

SYMBOL	AREA SERVED	POWER SUPPLY MCA	POWER SUPPLY MOCP	POWER SUPPLY VOLTAGE	DISCONNECT
RTU-5	EMS WAREHOUSE	23	30	460V-3ø	30/F30-3P-3R

NOTES:
1. ALL UNITS SHALL BE U.L. LABELED.
2. SINGLE POINT ELECTRICAL CONNECTION, 65kA SCCR RATING.
3. PROVIDE UNIT WITH A IONIZATION TYPE SMOKE DETECTOR, INSTALLED IN THE SUPPLY 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 SUPPLY DUCT BY THE MECHANICAL CONTRACTOR.
4. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN RTU-5 SHALL HAVE A MINIMUM SCCR RATING OF 65 KAIC.

SERVER ROOM AIR CONDITIONING UNITS

DESIGN CONDITIONS: 75° F. D.B., 50% R.H.

A/C-1 & 2 LIEBERT MODEL DSO70ASA (DOWNFLOW WITH TOP RETURN)

ELECTRIC REHEAT - SCR CONTROL, 25 KW, 85,300 BTUH; INFRARED HUMIDIFIER (STAINLESS STEEL PAN) - 22.0 LBS/HR, SUPPLY FAN - 2 @ 5.4 H.P.

ELECTRICAL DATA: 460V-3ø, 59.9 WSA, 80 OPD.

FURNISH UNIT WITH: ICOM FACTORY CONTROLS WITH LARGE GRAPHICS DISPLAY, LOCKING DISCONNECT SWITCH, FIRESTAT, SMOKE DETECTOR, RETURN AIR TEMPERATURE AND HUMIDITY SENSORS, HIGH EFFICIENCY FILTERS (MERV-8), FILTER CLOG DETECTION ALARM, 12" FLOORSTAND, DIGITAL SCROLL VARIABLE CAPACITY COMPRESSOR, INTELLISLOT COMM CARD, 4-YEAR EXTENDED COMPRESSOR WARRANTY.

CONDENSING UNITS

CU-1 & 2 LIEBERT MODEL MCL110

ELECTRICAL DATA: 460V-3ø, 5.6 FLA, 6.3 WSA, 15 OPD
FURNISH UNIT WITH: VFD FAN SPEED CONTROL FOR LOW AMBIENT OPERATION

NOTES:
1. MOUNT CONDENSING UNITS ON 6" THICK CONCRETE PADS. INSTALL UNITS LEVEL.
2. ALL UNITS SHALL BE UL LISTED AND LABELED.
3. REFRIGERANT PIPING SHALL BE SIZED AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
4. ALL UNITS SHALL BE FURNISHED WITH 4-YEAR EXTENDED COMPRESSOR WARRANTY (5-YEAR WARRANTY).
5. PROVIDE 12" FLOORSTAND.
6. PROVIDE UNIT WITH RETURN DUCT CONNECTION.
7. PROVIDE ICOM MICROPROCESSOR BASED CONTROL MODULE.
8. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE A/C UNITS AND CONDENSING UNITS SHALL HAVE A MINIMUM SCCR RATING OF 48 KAIC.

LEAK DETECTION SYSTEM (BELOW RAISED FLOOR)

PROVIDE LIEBERT LIQUI-TECT MONITORING SYSTEM. INSTALL LIQUID DETECTION CABLE (LIEBERT LT500Y WATER SENSING CABLE) AROUND THE PERIMETER OF MECHANICAL ROOM 129 BELOW THE RAISED FLOOR. LIQUID DETECTION SYSTEM CONTROL PANEL SHALL BE INTEGRATED WITH BAS.

DUCTLESS SPLIT SYSTEMS (COOLING ONLY)

INDOOR UNIT SYMBOL	LOCATION	ELECTRICAL DATA MCA	VOLTAGE	DISCONNECT	OUTDOOR UNIT SYMBOL	LOCATION	COMPRESSOR RLA	ELECTRICAL DATA MCA	FUSE	VOLTAGE	DISCONNECT
DSS-1	MECH/ELEC 45/44	--	208V-1ø	MY M.C.	ODU-1	ROOF	4.4	8.75	15	208V-1ø	30/F15-2P-3R
DSS-2	MECH/ELEC 45/44	--	208V-1ø	MY M.C.	ODU-2	ROOF	4.4	8.75	15	208V-1ø	30/F15-2P-3R

NOTES:
1. PROVIDE UNITS WITH NON-LOCKING DISCONNECT FOR INDOOR UNIT.
2. POWER SUPPLY TO CONDENSING UNIT IS A SINGLE POINT ELECTRICAL CONNECTION FOR THE SYSTEM (A/C UNIT AND CONDENSING UNIT). THE ELECTRICAL CONTRACTOR SHALL PROVIDE POWER TO THE CONDENSING UNIT AND FROM THE CONDENSING UNIT TO THE A/C UNIT INCLUDING CODE REQUIRED DISCONNECT SWITCHES.
3. REFRIGERANT PIPING AND WIRING FOR WALL-MOUNTED INDOOR UNITS SHALL BE ROUTED IN WALL WHERE POSSIBLE.
4. MOUNT INDOOR AC UNIT 8'-0" A.F.F. (KEEP UNIT BELOW CEILING) COORDINATE WITH ALL UTILITIES, LIGHTS, CEILING, ETC.
5. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE DSS UNITS AND CONDENSING UNITS SHALL HAVE A MINIMUM SCCR RATING OF 8 KAIC.

KITCHEN HOOD SCHEDULE (HOOD FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR)

SYMBOL	HOOD TYPE	DUTY	EXHAUST AIR PLENUM EXHAUST CFM	RISER (EACH) QTY.	SIZE	CFM	S.P.	MAKE-UP AIR PLENUM MAKE-UP CFM	RISER (EACH) QTY.	SIZE	CFM	S.P.	DIMENSIONS LENGTH	WIDTH	HEIGHT	MANUFACTURER ACCUREX
KH-1	I	HEAVY	1875	1	10x18	1875	0.40"	1500	2	4x24	750	0.20"	8'-4"	4'-6"	2'-0"	XBEW-100-S

TYPE-I KITCHEN HOOD NOTES:

ALL 430 STAINLESS STEEL CONSTRUCTION (WHERE EXPOSED). ALL COMPONENTS SHALL BE U.L. 710 LISTED AND LABELED. PROVIDE A WALL MOUNTED REMOTE CONTROL PANEL WITH MASTER DISCONNECT SWITCH IN A LOCATION THAT MEETS ADA REQUIREMENTS (COORDINATE EXACT MOUNTING LOCATION WITH ARCHITECT PRIOR TO INSTALLATION), STARTERS FOR BOTH FANS, 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 CLOSE TO CEILING. HOOD SHALL BE PROVIDED WITH: AUTOMATICALLY OPERATED FIXED PIPE FIRE SUPPRESSION SYSTEM IN ACCORDANCE WITH NFPA 17 AND NFPA 96, CONTROL SWITCHES AND PILOT LIGHTS FOR EXHAUST AND MAKE-UP FANS, TWO (2) U.L. LISTED L55 SERIES E26 CANOPY LIGHT FIXTURES (HIGH TEMP. ASSEMBLY) PROVIDING MIN. 50 FOOT CANDLES, STAINLESS STEEL GREASE FILTERS, FIRE DAMPER (212° LINK) IN SUPPLY DUCT COLLAR. FIRE SUPPRESSION SYSTEM SHALL BE ANSUL R-102 WITH REMOTE MOUNTED AUTOMAN. REMOTE PULL STATION FOR ACTIVATION OF FIRE SUPPRESSION SYSTEM SHALL BE PROVIDED AND INSTALLED WHERE INDICATED ON THE PLANS. FIRE SUPPRESSION SYSTEM SHALL BE U.L. 300 LISTED. NOZZLE TYPE AND LAYOUT SHALL BE APPLIANCE SPECIFIC.

KITCHEN HOOD (TYPE-I AND TYPE-II) GENERAL NOTES:

1. POWER SUPPLY TO THE KITCHEN HOOD IS A SINGLE POINT ELECTRICAL CONNECTION WITH STARTER COIL CONTROL ONLY FOR CONTROL OF EXHAUST FAN, SUPPLY FAN, EXHAUST ON IN FIRE, LIGHTS OUT IN FIRE, RELAY ON/OFF, AND FAN(S) ON/OFF WITH THERMOSTATICALLY CONTROLLED. THE MECHANICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WIRING REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO INSTALLING THE KITCHEN HOOD AND FANS. THE KITCHEN HOOD MANUFACTURER SHALL PROVIDE ALL CONTROL WIRING AND CONTROL INTERLOCKS BETWEEN THE KITCHEN HOOD AND THE FAN(S) INTEGRAL TO THE KITCHEN HOOD.

TYPE-I KITCHEN HOOD FIRE SUPPRESSION NOTES:

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 MOVEMENT OF 14 INCHES TO ACTUATE THE FIRE SUPPRESSION SYSTEM. REMOTE PULL STATION FOR ACTIVATION OF FIRE SUPPRESSION SYSTEM SHALL BE PROVIDED AND INSTALLED WHERE INDICATED ON THE PLANS (LOCATION TO BE VERIFIED WITH OWNER AND ARCHITECT PRIOR TO INSTALLATION). MECHANICAL CONTRACTOR SHALL INSTALL 1/2" CONDUIT IN WALL FOR MANUAL PULL STATION.
2. THE ACTUATION OF THE FIRE SUPPRESSION SYSTEM SHALL AUTOMATICALLY:
   A. SHUT DOWN THE FUEL (SOLENOID GAS VALVE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR) AND/OR ELECTRICAL POWER (SHUNT-TRIP BREAKER PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR) SUPPLY TO THE COOKING EQUIPMENT. THE FUEL AND/OR ELECTRICAL SUPPLY RESET SHALL BE MANUAL.
   B. ALLOW KITCHEN HOOD EXHAUST FAN TO CONTINUE TO OPERATE.
   C. SHUT DOWN ALL ASSOCIATE AIR HANDLING UNITS.
   D. NOTIFY THE FIRE ALARM SYSTEM (PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR)
   E. SHUT DOWN KITCHEN HOOD SUPPLY FAN.
3. THE HOOD FIRE SUPPRESSION SYSTEM SHALL BE CONNECTED TO AND FED FROM THE FIRE SUPPRESSION SYSTEM CABINET AT THE TYPE-I KITCHEN HOOD.

AIR SCRUBBER SCHEDULE - ALTERNATE #2

SYMBOL	LOCATION	TYPE	DRIVE	ELECTRICAL DATA FLA	H.P.	VOLTAGE	DISCONNECT
AS-1	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-2	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-3	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-4	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-5	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-6	APPARTUS ROOM A 201	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-7	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-8	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-9	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-10	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-11	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P
AS-12	APPARTUS ROOM B 209	AIR CLEANER	DIRECT	13.6	3/4	120V-1ø	30/F20-1P

NOTES:
1. CONTROL PANEL FOR EACH SYSTEM (ONE FOR APPARATUS ROOM A 201 AND ON FOR APPARATUS ROOM B 209)
2. ACTIVATION PACKAGE FOR EACH SYSTEM
   APPARATUS ROOM A 201: SIX SETS OF PHOTO SENSORS AND SIX TRACK MOUNTED DOOR SWITCHES
   APPARATUS ROOM B 209: SIX SETS OF PHOTO SENSORS AND SIX TRACK MOUNTED DOOR SWITCHES.
3. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE UNITS SHALL HAVE A MINIMUM SCCR RATING OF 7 KAIC.

   CABINET SHALL BE ALL WELDED STEEL CONSTRUCTION PROVIDED WITH POWER COAT PAINT FINISH (COORDINATE FINISH/COLOR WITH ARCHITECT), TWO HINGED ACCESS PANELS, A DWYER MAGNEHELIC STATIC PRESSURE GAGE, FOUR HORIZONTAL AND ADJUSTABLE AIRFLOW GRILLES, QUICK LATCH FILTER COMPARTMENT CAPABLE OF HOLDING UP TO 15" OF FILTRATION.

INFRARED HEATERS SCHEDULE (NATURAL GAS)

SYMBOL	VOLTAGE	AMPS	DISCONNECT
IFH-1 TO IFH-4	120V-1ø	2.6	MANUAL MOTOR STARTER

NOTES:
1. MOUNTING HEIGHTS AND EXACT LOCATIONS SHALL BE VERIFIED WITH THE OWNER AND INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. MINIMUM MOUNTING HEIGHT SHALL BE 14' 0" AFF WITH A MINIMUM OF CLEARANCE OF 18" ABOVE ANY SURFACE AND 82" FROM COMBUSTIBLES BELOW. INSTALL IN A HORIZONTAL POSITION PARALLEL RELATIVE TO THE FINISH FLOOR.
2. PROVIDE UNITS WITH: CHAIN MOUNTING BRACKET, REMOTE TIMER SWITCH (SEE PLANS FOR QTY. AND LOCATIONS), INTERMITTENT PILOT IGNITION, AND FLEXIBLE CONNECTOR BY HEATER MANUFACTURER (24V CONTROL TRANSFORMER AS REQUIRED).
3. SEQUENCE OF OPERATION: THE SPACE TIMER SWITCH SHALL CONTROL THE CALL FOR HEAT IN STAGES TO THE UNIT'S CONTROLLER. PER THE MANUFACTURER'S PRE-PROGRAMMED SEQUENCE, THE CONTROLLER SHALL PERFORM A SELF CHECK ROUTINE TO ASSURE PROPER IGNITION. WHEN THE FLAME IS DETECTED DURING THE TRIAL FOR IGNITION, SPARK IS SHUTOFF IMMEDIATELY AND THE GAS VALVE REMAINS ENERGIZED. THE MAIN BURNER FLAME IS CONSTANTLY MONITORED TO ASSURE THE SYSTEM CONTINUES TO OPERATE PROPERLY. ONCE THE TIMER HAS EXPIRED IT'S SET TIME DURATION (ADJUSTABLE) OR THE TIMER SWITCH IS DE-ATIVATED BY AN 'OFF' BUTTON, THE GAS VALVE IS DE-ENERGIZED.
4. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE HEATERS SHALL HAVE A MINIMUM SCCR RATING OF 7 KAIC.

FAN SCHEDULE

	SYMBOL	LOCATION	TYPE	ELECTRICAL DATA WATTS	H.P.	VOLTAGE	FLA	DISCONNECT	CONTROLS
	F-1	ROOF (SERVER/IT - 131)	EXHAUST	--	1/4	120V-1ø	--	30/F20-1P-3R	6,10
	F-3	LOCKER ROOM - 113	EXHAUST	21	--	120V-1ø	--	MANUAL MOTOR STARTER	3
	F-4	JANITOR - 121	EXHAUST	21	--	120V-1ø	--	MANUAL MOTOR STARTER	3
	F-5	ELECTRICAL - 211	EXHAUST	--	1/4	120V-1ø	--	MANUAL MOTOR STARTER	2
	F-6	UNISEX SHOWER/TOILET - 111	EXHAUST	17	--	120V-1ø	--	MANUAL MOTOR STARTER	9
	F-7	UNISEX SHOWER/TOILET - 110	EXHAUST	17	--	120V-1ø	--	MANUAL MOTOR STARTER	9
	F-8	ROOF (STORAGE 059)	EXHAUST	--	1/3	120V-1ø	--	MANUAL MOTOR STARTER	1
	F-9	PUBLIC TOILET - 003	EXHAUST	21	--	120V-1ø	--	MANUAL MOTOR STARTER	9
	F-10	LAUNDRY - 026	EXHAUST	21	--	120V-1ø	--	MANUAL MOTOR STARTER	3
	F-11	JANITOR - 061	EXHAUST	21	--	120V-1ø	--	MANUAL MOTOR STARTER	3
	F-12	ROOF (APPARATUS ROOM - 201)	EXHAUST	--	1/2	120V-1ø	--	MANUAL MOTOR STARTER	7,8
	F-13	ROOF (APPARATUS ROOM - 201)	EXHAUST	--	1/4	120V-1ø	--	MANUAL MOTOR STARTER	3,7
	F-14	ROOF (CORRIDOR 208)	EXHAUST	--	1/4	120V-1ø	--	MANUAL MOTOR STARTER	3
	F-15	ROOF (RESTOCKING BAYS - 207)	EXHAUST	--	1/4	120V-1ø	--	MANUAL MOTOR STARTER	7,8
	F-16	ROOF (APPARATUS ROOM - 209)	EXHAUST	--	1/2	120V-1ø	--	MANUAL MOTOR STARTER	7,8
	F-17	ROOF (APPARATUS ROOM - 209)	EXHAUST	--	1/4	120V-1ø	--	MANUAL MOTOR STARTER	3,7
	F-18	NOT USED							
1	F-19	ROOF (MECH ROOM - 045)	EXHAUST	--	1/4	120V-1ø	--	MANUAL MOTOR STARTER	6,10
	KEF-1	ROOF UPBLAST - (KITCHEN)	EXHAUST	--	1/3	120V-1ø	--	30/F20-1P-3R	11
	KSF-1	ROOF MAKEUP - (KITCHEN)	MAKE-UP	--	1/4	120V-1ø	--	30/F20-1P-3R	11
ALTERNATE #3	RF-1	APPARTUS ROOM A 201	HVLS	--	1½	460V-3ø	--	30/F20-3P	5,12
ALTERNATE #3	RF-2	APPARTUS ROOM A 201	HVLS	--	1½	460V-3ø	--	30/F20-3P	5,12
ALTERNATE #3	RF-3	APPARTUS ROOM B 209	HVLS	--	1½	460V-3ø	--	30/F20-3P	5,12
ALTERNATE #3	RF-4	APPARTUS ROOM B 209	HVLS	--	1½	460V-3ø	--	30/F20-3P	5,12

NOTES:
1. INTERLOCK FAN WITH HYDROGEN DETECTION SYSTEM. UPON DETECTION OF HYDROGEN, THE MANUAL SWITCH SHALL BE OVERRIDDEN AND THE FAN SHALL BE STARTED. (SEE SEQUENCE OF OPERATION). ALL ELECTRICAL COMPONENTS SERVING AND WITHIN FANS F-1 THRU F-18 SHALL HAVE A MINIMUM
2. SCCR RATING OF 8 KAIC.

CONTROLS
1: CONTROLLED BY BUILDING AUTOMATION SYSTEM
2: WALL MOUNTED THERMOSTAT (REVERSE ACTING, SET FOR 80°)
3: CONTINUOUS OPERATION
4: MANUAL TIMER SWITCH (0-4 HOUR) WITH WITH PHENOLIC FAN IDENTIFICATION LABEL ABOVE SWITCH
5: REMOTE MOUNTED WIRED WALL CONTROL WITH VARIABLE SPEED WITH PHENOLIC FAN IDENTIFICATION LABEL ABOVE CONTROLLER
6: MANUAL SWITCH WITH PROTECTIVE COVER (SEE SEQUENCE OF OPERATION) WITH PHENOLIC FAN IDENTIFICATION LABEL ABOVE SWITCH PLATE TO READ "FIRE SUPPRESSION AGENT PURGE FAN"
7: INTERLOCK WITH CARBON MONOXIDE DETECTOR
8: MANUAL TIMER SWITCH (0-4 HOUR) WITH CO SENSOR OVERRIDE (SEE SEQUENCE OF OPERATION)
9: INTERLOCK WITH ROOM LIGHT SWITCH
10: INTERLOCK WITH HYDROGEN DETECTION SYSTEM
11: INTERLOCK WITH KITCHEN HOOD CONTROLS
12: INTERLOCK WITH FIRE ALARM (FAN SHALL SHUTDOWN UPON ACITIVATION OF FIRE ALARM SYSTEM)

PARALLEL FAN-POWERED BOX SCHEDULE (ELECTRIC HEAT)

SYMBOL	PRIMARY CFM MAXIMUM	PRIMARY CFM MINIMUM	FAN CFM	ELECTRICAL DATA FAN H.P.	ELEC. HEAT	VOLTAGE	ENVIRO-TEC VFR-EH SIZE	RUNOUT SIZE
1.1	1335	335	535	1/4	8.5	460V-3PH	1011	14
1.2	1260	315	505	1/4	8.0	460V-3PH	1011	14
1.3	470	120	190	1/13	3.0	270V-1PH	0804	10
1.4	975	245	390	1/6	6.5	460V-3PH	1006	12
1.5	1000	250	400	1/4	6.5	460V-3PH	1011	12
1.6	600	150	240	1/13	4.0	277V-1PH	0804	10
1.7	600	150	240	1/13	4.0	277V-1PH	0804	10
1.8	2080	520	835	1/2	13.0	460V-3PH	1418	16
1.9	750	190	300	1/6	5.0	277V-1PH	1006	10
1.10	1980	495	795	1/4	12.5	460V-3PH	1211	16
1.11	1050	265	420	1/4	6.5	460V-3PH	1011	12
1.12	1200	300	480	1/4	7.5	460V-3PH	1011	12
1.13	650	165	260	1/13	4.5	277V-1PH	0804	10
1.14	500	125	200	1/13	3.5	277V-1PH	0804	10
2.1	490	125	200	1/13	3.5	277V-1PH	0804	10
2.2	270	70	110	1/13	2.0	277V-1PH	0604	8
2.3	450	115	180	1/13	3.0	277V-1PH	0804	10
2.4	450	115	180	1/13	3.0	277V-1PH	0804	10
2.5	500	125	200	1/13	3.5	277V-1PH	0804	10
2.6	440	110	180	1/13	3.0	277V-1PH	0804	10
2.7	400	100	160	1/13	2.5	277V-1PH	0804	8
2.8	540	135	220	1/13	3.5	277V-1PH	0604	10
2.9	650	165	260	1/13	4.5	277V-1PH	0804	10
2.10	400	100	160	1/13	2.5	277V-1PH	0804	8
2.11	475	120	190	1/13	3.0	277V-1PH	0804	10
2.12	540	135	220	1/13	3.5	277V-1PH	0804	10
2.13	690	175	280	1/13	4.5	277V-1PH	0804	10
2.14	810	205	325	1/6	5.5	277V-1PH	1006	12
2.15	700	175	280	1/13	4.5	277V-1PH	0804	10
2.16	950	240	380	1/6	6.0	460V-3PH	1006	12
3.1	500	125	200	1/13	9.0	460V-3PH	0804	16
3.2	300	75	120	1/13	9.0	460V-3PH	0604	16
3.3	700	175	280	1/13	4.5	277V-1PH	0804	10
3.4	300	75	120	1/13	2.0	277V-1PH	0604	8
3.5	440	110	180	1/13	3.0	277V-1PH	0804	10
3.6	600	150	240	1/13	4.0	277V-1PH	0804	10
3.7	370	95	150	1/13	2.5	277V-1PH	0804	8
3.8	900	225	360	1/6	6.0	460V-3PH	1006	12
3.9	350	90	140	1/13	2.5	277V-1PH	0804	8
3.10	1720	430	690	1/4	11.0	460V-3PH	1211	14
3.11	700	175	280	1/13	4.5	277V-1PH	0804	10
3.12	1800	450	72	1/4	11.5	460V-3PH	1211	14

NOTES:
1. ELECTRIC HEATER SHALL BE FURNISHED WITH DISCONNECT SWITCH, MAGNETIC CONTACTORS, AIRFLOW SWITCH, MANUAL RESET THERMAL CUTOUT.
2. ELECTRIC HEAT UP TO AND INCLUDING 5.0 KW SHALL BE SINGLE STEP. ELECTRIC HEATERS OVER 5.0 KW SHALL BE TWO STEP.
3. DDC CONTROLS SHALL BE FURNISHED TO THE BOX MANUFACTURER BY THE CONTROLS VENDOR. BOX MANUFACTURER SHALL FACTORY MOUNT AND WIRE CONTROLS. INSTALLATION OF CONTROLS SHALL INCLUDE CONTROLS TRANSFORMER, FAN RELAY, HEAT RELAY (ONE OR TWO STAGE AS REQUIRED), AIR FLOW PROBE, CONTROL COVER, AND ALL WIRING AND LABOR FOR A COMPLETE AND OPERATIONAL SYSTEM.
4. EACH FAN BOX SHALL BE WIRED TO ITS ASSOCIATED ROOFTOP UNIT SMOKE DETECTOR TO SHUT-DOWN UPON SMOKE SIGNAL ALONG WITH ROOFTOP UNIT.
5. ALL ELECTRICAL COMPONENTS SERVING AND WITHIN THE TERMINAL UNITS SHALL HAVE A MINIMUM SCCR RATING OF 48 KAIC.

HVAC SCHEDULE NOTES:
1. A NEUTRAL CONDUCTOR SHALL BE PROVIDED FOR ALL EQUIPMENT RATED FOR 277V OR 120V.
2. PROVIDE INTERCONNECTION BETWEEN CONDENSING UNIT AND INDOOR MATCHING UNIT.
3. PROVIDE CURRENT LIMITING FUSES FOR SHORT CIRCUIT CURRENT RATING (SCCR) OF 5000A OR LESS RATED TO MATCH PROVIDED EQUIPMENT.

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CLINTON, NORTH CAROLINA

CONSTRUCTION DOCUMENTS

EQUIPMENT SCHEDULES

DATE 12.04.2020
PROJECT NO 20003
REVISIONS

NUM.	DATE	DESCRIPTION:
1	12-17-2020	REVISION #1
4	01-20-2021	REV4 / ADD3

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NORTH CAROLINA PROFESSIONAL SEAL 028297 ENGINEER BRANDON L. MILLER 12/04/2020
SEAL

SHEET NUMBER E802

PANEL: NPH2 — SECTION 1 — SQD MFGR

VOLTAGE: 277 / 480 — 3 PHASE — 4 WIRE — TYPE
MOUNTING: SURFACE — 400 AMP — MAIN CIRCUIT BREAKER — 35,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	NOTES	CKT NO	A B C	CKT NO	NOTES	TRIP	WIRE	LOAD SERVED	LOAD KVA
2.83		12			1		2		20	12	LTG - NORTH & WEST	2.63
2.83	FPB 1.1	12	20		3		4		20	12	LTG - CENTER	1.18
3.50		12			5		6		20	12	LTG - SOUTH & EAST	2.60
2.60		12			7		8	7	20	12	LTG - EXTERIOR EOC/EMS	1.50
2.60	FPB 1.2	12	20		9		10	7	20	12	LTG - EXTERIOR 911	0.55
3.33		12			11		12	7	20	10	LTG - SITE NORTH	1.13
2.16		12			13		14	7	20	10	LTG - SITE SOUTH	0.94
2.16	FPB 1.4	12	20		15		16		20	12	LCP1	0.50
2.83		12			17		18		20		SPARE	0.00
2.16		12			19		20		20		SPARE	0.00
2.16	FPB 1.5	12	20		21		22		20		SPARE	0.00
2.83		12			23		24		20		SPARE	0.00
2.16		12			25		26		20		SPARE	0.00
2.16	FPB 1.11	12	20		27		28		20		SPARE	0.00
2.83		12			29		30		20		SPARE	0.00
3.30	FPB 1.3	12	20		31		32		20		SPARE	0.00
4.30	FPB 1.6	10	25		33		34		20		SPARE	0.00
4.30	FPB 1.7	10	25		35		36		20		SPARE	0.00
5.50	FPB 1.9	10	30		37		38			SR		25.66
4.80	FPB 1.13	10	25		39		40		175	SR	PANEL "NPL2"	22.53
4.50	WH3	10	30		41		42			SR	VIA 112.5 KVA XFMR "NP2"	20.82
65.8	SUB-TOTALS											80.0

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	10.5	1.25	13.2	CONNECTED		
HEATING	113.2	1.00	113.2	A =	74.4 KVA	268.6 A
COOLING	0.0	1.00	0.0	B =	60.5 KVA	218.2 A
VENTILATION	0.0	1.00	0.0	C =	62.9 KVA	226.9 A
MOTORS	1.6	1.00	1.6	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	69.7 KVA	251.5 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	54.4 KVA	196.5 A
REC. (>10kVA)	39.1	0.50	19.5	C =	56.7 KVA	204.6 A
WATER HEATER	5.0	1.00	5.0	DEMAND @ 125%		
MISC.	17.5	1.00	17.5	A =	87.1 KVA	314.4 A
SPARE	0.9	1.00	0.9	B =	68.1 KVA	245.6 A
TOTAL (KVA)	197.8		180.9	C =	70.9 KVA	255.8 A

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. CIRCUIT CONTROLLED VIA "LCP1"
8. PROVIDE FEED-THRU LUGS.
9. LOAD TOTAL INCLUDES FEED-THRU SECTIONS.

PANEL: NPH2 — SECTION 2 — SQD MFGR

VOLTAGE: 277 / 480 — 3 PHASE — 4 WIRE — TYPE
MOUNTING: SURFACE — 400 AMP — MAIN LUGS ONLY — 35,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	NOTES	CKT NO	A B C	CKT NO	NOTES	TRIP	WIRE	LOAD SERVED	LOAD KVA
3.80	FPB 2.1	12	20		43		44		20	12	FPB 2.8	3.80
2.30	FPB 2.2	12	20		45		46		25	10	FPB 2.9	4.80
3.30	FPB 2.3	12	20		47		48		20	12	FPB 2.10	2.80
3.30	FPB 2.4	12	20		49		50		20	12	FPB 2.11	3.30
3.80	FPB 2.5	12	20		51		52		20	12	FPB 2.12	3.80
3.30	FPB 2.6	12	20		53		54		25	10	FPB 2.13	4.80
2.80	FPB 2.7	12	20		55		56		30	10	FPB 2.14	6.00
0.00	SPARE		20		57		58		20		SPARE	0.00
0.00	SPARE		20		59		60		20		SPARE	0.00
0.00	SPARE		20		61		62		20		SPARE	0.00
0.00	SPARE		20		63		64		20		SPARE	0.00
0.00	SPARE		20		65		66		20		SPARE	0.00
0.00	SPARE		20		67		68		20		SPARE	0.00
0.00	SPARE		20		69		70		20		SPARE	0.00
0.00	SPARE		20		71		72		20		SPARE	0.00
0.00	SPARE		20		73		74		20		SPARE	0.00
0.00	SPARE		20		75		76		20		SPARE	0.00
0.00	SPARE		20		77		78		20		SPARE	0.00
0.00	SPARE		20		79		80		20		SPARE	0.00
0.00	SPARE		20		81		82		20		SPARE	0.00
0.00	SPARE		20		83		84		20		SPARE	0.00
22.6	SUB-TOTALS											29.3

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	51.9	1.00	51.9	A =	23.0 KVA	83.0 A
COOLING	0.0	1.00	0.0	B =	14.7 KVA	53.0 A
VENTILATION	0.0	1.00	0.0	C =	14.2 KVA	51.2 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	23.0 KVA	83.0 A
REC. (1st 10kVA)	0.0	1.00	0.0	B =	14.7 KVA	53.0 A
REC. (>10kVA)	0.0	0.50	0.0	C =	14.2 KVA	51.2 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	0.0	1.00	0.0	A =	28.8 KVA	103.7 A
SPARE	0.0	1.00	0.0	B =	18.4 KVA	66.3 A
TOTAL (KVA)	51.9		51.9	C =	17.8 KVA	64.0 A

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.

PANEL: NPL2 — SECTION 1 — SQD MFGR

VOLTAGE: 120 / 208 — 3 PHASE — 4 WIRE — TYPE
MOUNTING: SURFACE — 400 AMP — MAIN CIRCUIT BREAKER — 10,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	NOTES	CKT NO	A B C	CKT NO	NOTES	TRIP	WIRE	LOAD SERVED	LOAD KVA
1.26	REC - 001,001,003 & EXTERIOR	12	20		1		2		20	12	REC - 006	1.44
1.44	REC - 008	12	20		3		4		20	12	COPIER & POST 004,005	1.50
1.44	REC - 009	12	20		5		6		20	12	REC - 010	1.26
0.72	REC - 005,007,010 & "UC1"	12	20		7		8		20	12	REC - 011	1.26
1.44	REC - 011	12	20		9		10		20	12	REC - 012	1.44
1.26	REC - 013	12	20		11		12		20	12	REC - 014 & EXTERIOR	1.26
1.08	REC - 015	12	20		13		14		20	12	REC - 015	1.08
1.26	REC - 036	12	20		15		16		20	12	REC - 038	1.44
0.90	REC - 043	12	20		17		18		20	12	REC - 047 & EXTERIOR	1.08
0.90	REC - 048	12	20		19		20		20	12	REC - 041,050	0.72
0.90	REC - 017	12	20		21		22		20	12	REC - 035,037	0.72
1.26	REC - 039	12	20		23		24		20	12	REC - 040 & "UC1"	0.54
1.00	COPIER - 040	12	20		25		26	7	20	12	EWC - 028	1.00
0.90	REC - 029,030	12	20		27		28		20	12	REC - 032,033	0.90
0.72	REC - 004,016	12	20		29		30		20	12	REC - 020	0.90
1.20	SMART BOARDS - 020	12	20		31		32		20	12	REC - 020	1.08
1.08	REC - 020 (FLOORBOX)	12	20		33		34		20	12	REC - 020 (FLOORBOX)	1.08
1.08	REC - 020 (FLOORBOX)	12	20		35		36		20	12	REC - 023	1.08
1.08	REC - 021	12	20		37		38		20	12	REC - 022	1.00
1.00	REC - 022	12	20		39		40		20	12	REC - 022	0.00
0.72	REC - 024,025,026	10	30		41		42		20	12	REC - 056,061,062,064	0.90
22.6	SUB-TOTALS											21.7

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	25.7 KVA	213.6 A
COOLING	0.0	1.00	0.0	B =	22.5 KVA	187.6 A
VENTILATION	0.0	1.00	0.0	C =	20.8 KVA	173.4 A
MOTORS	1.6	1.00	1.6	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	19.7 KVA	163.7 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	16.1 KVA	133.9 A
REC. (>10kVA)	39.1	0.50	19.5	C =	13.7 KVA	114.3 A
WATER HEATER	0.5	1.00	0.5	DEMAND @ 125%		
MISC.	17.0	1.00	17.0	A =	24.6 KVA	204.6 A
SPARE	0.9	1.00	0.9	B =	20.1 KVA	167.4 A
TOTAL (KVA)	69.0		49.5	C =	17.2 KVA	142.9 A

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. PROVIDE CLASS A GFI (6mA-PERSONNEL) BRKR (250' MAX).
8. PROVIDE AFI (ARC-FAULT INTERRUPTING) BREAKER.
9. PROVIDE FEED-THRU LUGS.
10. LOAD TOTAL INCLUDES FEED-THRU SECTIONS.

PANEL: NPL2 — SECTION 2 — SQD MFGR

VOLTAGE: 120 / 208 — 3 PHASE — 4 WIRE — TYPE
MOUNTING: SURFACE — 400 AMP — MAIN LUGS ONLY — 10,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	NOTES	CKT NO	A B C	CKT NO	NOTES	TRIP	WIRE	LOAD SERVED	LOAD KVA
2.50	DRYER - 026	10	30		43		44		20	12	WASHING MACHINE - 026	1.20
2.50		10			45		46	8	20	12	REC - 073,075 & CLNG FAN	1.08
0.90	REC - 074	12	20		47		48	8	20	12	REC - 072 & CLNG FAN	0.54
1.26	REC - 065,068,070 & CLNG FAN	12	20	8	49		50	8	20	12	REC - 069,071 & CLNG FAN	1.08
1.08	REC - 066,067 & CLNG FAN	12	20	8	51		52		20	12	REC - 063	0.54
1.44	REC - 060 & CLNG FANS	12	20		53		54		20	12	REC - 060 (FLOORBOX)	0.72
0.90	REC - 057 & EXTERIOR	12	20		55		56	7	20	12	VENDING - 054	1.00
1.00	VENDING - 054	12	20	7	57		58		20	12	REC - 055 & EXTERIOR	0.54
0.72	REC - 133 (PATIO) & EXTERIOR	12	20		59		60		20	12	WH1 & RCP1	0.50
0.83	FAN F-8	12	20		61		62		20	12	FAN F-19	0.67
0.36	REC - ROOFTOP - MAIN	12	20		63		64		20	12	FAN F-9, F10, F-11	0.06
0.20	MECHANICAL CONTROLS - MAIN	12	20		65		66		20	12	MECHANICAL CONTROLS - MAIN	0.20
0.20	MECHANICAL CONTROLS - MAIN	12	20		67		68		20	12	MECHANICAL CONTROLS - MAIN	0.20
0.00	SPARE		20		69		70	8	20	12	BEDROOM CEILING FANS	0.27
0.00	SPARE		20		71		72	7	20	12	ICE MACHINE - 057	1.20
0.00	SPARE		20		73		74	7	20	12	VENDING - 054	1.00
0.00	SPARE		20		75		76		20		SPARE	0.00
0.00	SPARE		20		77		78		20		SPARE	0.00
0.00	SPARE		20		79		80		20		SPARE	0.00
0.00	SPARE		20		81		82		20		SPARE	0.00
0.00	SPARE		20		83		84		20		SPARE	0.00
13.9	SUB-TOTALS											10.8

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	10.8 KVA	90.2 A
COOLING	0.0	1.00	0.0	B =	7.4 KVA	61.9 A
VENTILATION	0.0	1.00	0.0	C =	6.4 KVA	53.5 A
MOTORS	1.6	1.00	1.6	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	10.7 KVA	88.8 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	7.2 KVA	60.3 A
REC. (>10kVA)	1.2	0.50	0.6	C =	6.2 KVA	51.6 A
WATER HEATER	0.5	1.00	0.5	DEMAND @ 125%		
MISC.	11.5	1.00	11.5	A =	13.3 KVA	111.0 A
SPARE	0.0	1.00	0.0	B =	9.1 KVA	75.4 A
TOTAL (KVA)	24.7		24.1	C =	7.7 KVA	64.5 A

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. PROVIDE CLASS A GFI (6mA-PERSONNEL) BRKR (250' MAX).
8. PROVIDE AFI (ARC-FAULT INTERRUPTING) BREAKER.

PANEL: NPH3 — SQD MFGR

VOLTAGE: 277 / 480 — 3 PHASE — 4 WIRE — TYPE
MOUNTING: SURFACE — 400 AMP — MAIN CIRCUIT BREAKER — 35,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	NOTES	CKT NO	A B C	CKT NO	NOTES	TRIP	WIRE	LOAD SERVED	LOAD KVA
5.09		10			1		2		20	12	LTG - 201	2.71
5.09	RTU-5	10	30		3		4		20	12	LTG - 202 - 208	1.31
5.09		10			5		6		20	12	LTG - 209	2.71
2.90		12			7		8		20		SPARE	0.00
2.90	AIR COMPRESSOR - 202	12	20		9		10		20		SPARE	0.00
2.90	7.5 HP	12			11		12		20		SPARE	0.00
0.70		12			13		14		20		SPARE	0.00
0.70	HVLS FAN RF-1	12	20	7	15		16		20		SPARE	0.00
0.70		12			17		18		20		SPARE	0.00
0.70		12			19		20		20		SPARE	0.00
0.70	HVLS FAN RF-2	12	20	7	21		22		20		SPARE	0.00
0.70		12			23		24		20		SPARE	0.00
0.70		12			25		26		20		SPARE	0.00
0.70	HVLS FAN RF-3	12	20	7	27		28		20		SPARE	0.00
0.70		12			29		30		20		SPARE	0.00
0.70		12			31		32		20		SPARE	0.00
0.70	HVLS FAN RF-4	12	20	7	33		34		20		SPARE	0.00
0.70		12			35		36		20		SPARE	0.00
0.00	SPARE		20		37		38			SR		30.29
0.00	SPARE		20		39		40		175	SR	PANEL "NPL3"	27.78
0.00	SPARE		20		41		42			SR	VIA 112.5 KVA XFMR "NP3"	26.70
32.4	SUB-TOTALS											91.5

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	6.7	1.25	8.4	CONNECTED		
HEATING	3.2	1.00	3.2	A =	43.8 KVA	158.0 A
COOLING	15.3	1.00	15.3	B =	39.9 KVA	143.9 A
VENTILATION	0.0	1.00	0.0	C =	40.2 KVA	145.0 A
MOTORS	60.0	1.00	60.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	44.3 KVA	159.8 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	40.1 KVA	144.6 A
REC. (>10kVA)	1.2	0.50	0.6	C =	40.6 KVA	146.4 A
WATER HEATER	0.3	1.00	0.3	DEMAND @ 125%		
MISC.	27.2	1.00	27.2	A =	55.4 KVA	199.8 A
SPARE	0.0	1.00	0.0	B =	50.1 KVA	180.7 A
TOTAL (KVA)	123.9		124.9	C =	50.7 KVA	183.0 A

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. BREAKER AND CIRCUIT IS PART OF ALTERNATE#3.

PANEL: NPL3 — SECTION 1 — SQD MFGR

VOLTAGE: 120 / 208 — 3 PHASE — 4 WIRE — TYPE
MOUNTING: SURFACE — 400 AMP — MAIN CIRCUIT BREAKER — 10,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	NOTES	CKT NO	A B C	CKT NO	NOTES	TRIP	WIRE	LOAD SERVED	LOAD KVA
1.13	MOTORIZED DOOR NORTH - 201	12	20		1		2		20	12	MOTORIZED DOOR SOUTH - 201	1.13
1.13	MOTORIZED DOOR NORTH - 201	12	20		3		4		20	12	MOTORIZED DOOR SOUTH - 201	1.13
1.13	MOTORIZED DOOR NORTH - 201	12	20		5		6		20	12	MOTORIZED DOOR SOUTH - 201	1.13
1.20	SHORE POWER NORTH - 201	12	20	7	7		8	7	20	12	SHORE POWER NORTH - 201	1.20
1.20	SHORE POWER NORTH - 201	12	20	7	9		10	7	20	12	SHORE POWER NORTH - 201	1.20
0.20	MECHANICAL CONTROLS - EMS	12	20	7	11		12		20	12	MECHANICAL CONTROLS - EMS	0.50
1.20	SHORE POWER SOUTH - 201	12	20	7	13		14	7	20	12	SHORE POWER SOUTH - 201	1.20
1.20	SHORE POWER SOUTH - 201	12	20	7	15		16	7	20	12	SHORE POWER SOUTH - 201	1.20
1.54	AIR SCRUBBER (AS-1)	12	20	9	17		18	9	20	12	AIR SCRUBBER (AS-2)	1.54
1.54	AIR SCRUBBER (AS-3)	12	20	9	19		20	9	20	12	AIR SCRUBBER (AS-4)	1.54
1.54	AIR SCRUBBER (AS-5)	12	20	9	21		22	9	20	12	AIR SCRUBBER (AS-6)	1.54
0.72	REC - 201 & EXTERIOR	12	20		23		24		20	12	REC - 201 & EXTERIOR	0.72
0.62	IFH-1 & IFH-2	12	20		25		26		20	12	FAN F-12	1.13
0.54	REC - ROOF - EMS	12	20		27		28		20	12	FAN F-13	0.67
0.90	REC - 207	12	20		29		30		20	12	REC - 207	0.72
1.08	REC - 202,203,204,205,208	12	20		31		32		20	12	REC - 206	1.08
0.67	FAN F-14	12	20		33		34		20	12	FAN F-15	0.67
0.25	WH2	12	20		35		36		20	12	DRY SPRINKLER COMPRESSOR	1.64
1.80	TUMBLER - 203	12	20		37		38		20	12	AIR SCRUBBER PANEL - 201	0.50
1.85	EXTRACTOR - 203	12	20		39		40		20	12	AIR SCRUBBER PANEL - 209	0.50
1.85		12			41		42		30	10	VACUUM - 202	2.50
23.3	SUB-TOTALS											23.6

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	3.2	1.00	3.2	A =	30.3 KVA	252.2 A
COOLING	0.0	1.00	0.0	B =	27.8 KVA	231.4 A
VENTILATION	0.0	1.00	0.0	C =	26.7 KVA	222.3 A
MOTORS	42.9	1.00	42.9	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	30.1 KVA	250.7 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	27.6 KVA	230.2 A
REC. (>10kVA)	1.2	0.50	0.6	C =	26.4 KVA	219.8 A
WATER HEATER	0.3	1.00	0.3	DEMAND @ 125%		
MISC.	27.2	1.00	27.2	A =	37.6 KVA	313.4 A
SPARE	0.0	1.00	0.0	B =	34.6 KVA	287.7 A
TOTAL (KVA)	84.8		84.2	C =	33.0 KVA	274.8 A

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. PROVIDE CLASS A GFI (6mA-PERSONNEL) BRKR (250' MAX).
8. PROVIDE AFI (ARC-FAULT INTERRUPTING) BREAKER.
9. BREAKER AND CIRCUIT IS PART OF ALTERNATE #2.
10. PROVIDE FEED-THRU LUGS.
11. LOAD TOTAL INCLUDES FEED-THRU SECTIONS.

PANEL: NPL3 — SECTION 2 — SQD MFGR

VOLTAGE: 120 / 208 — 3 PHASE — 4 WIRE — TYPE
MOUNTING: SURFACE — 400 AMP — MAIN LUGS ONLY — 10,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	NOTES	CKT NO	A B C	CKT NO	NOTES	TRIP	WIRE	LOAD SERVED	LOAD KVA
1.13	MOTORIZED DOOR NORTH - 209	12	20		43		44		20	12	MOTORIZED DOOR SOUTH - 209	1.13
1.13	MOTORIZED DOOR NORTH - 209	12	20		45		46		20	12	MOTORIZED DOOR SOUTH - 209	1.13
1.13	MOTORIZED DOOR NORTH - 209	12	20		47		48		20	12	MOTORIZED DOOR SOUTH - 209	1.13
1.20	SHORE POWER NORTH - 209	12	20	7	49		50	7	20	12	SHORE POWER NORTH - 209	1.20
1.20	SHORE POWER NORTH - 209	12	20	7	51		52	7	20	12	SHORE POWER NORTH - 209	1.20
1.00	BACKFLOW - DOMESTIC	12	20		53		54		20	12	BACKFLOW - FIRE SERVICE	1.00
1.20	SHORE POWER SOUTH - 209	12	20	7	55		56	7	20	12	SHORE POWER SOUTH - 209	1.20
1.20	SHORE POWER SOUTH - 209	12	20	7	57		58	7	20	12	SHORE POWER SOUTH - 209	1.20
1.54	AIR SCRUBBER (AS-7)	12	20	9	59		60	9	20	12	AIR SCRUBBER (AS-8)	1.54
1.54	AIR SCRUBBER (AS-9)	12	20	9	61		62	9	20	12	AIR SCRUBBER (AS-10)	1.54
1.54	AIR SCRUBBER (AS-11)	12	20	9	63		64	9	20	12	AIR SCRUBBER (AS-12)	1.54
0.72	REC - 209 & EXTERIOR	12	20		65		66		20	12	REC - 209 & EXTERIOR	0.90
0.62	IFH-3 & IFH-4	12	20		67		68		20	12	FAN F-16	1.13
0.72	REC - 205	12	20		69		70		20	12	FAN F-17	0.67
0.72	REC - 205	12	20		71		72		20	12	FUTURE TRAFFIC CONTROLLER	0.50
1.08	REC - 205	12	20		73		74			10		1.00
0.25	GATE MOTOR LOCKS	12	20		75		76		15	10	GATE MOTORS	1.00
0.00	SPARE		20		77		78			10		1.00
0.00	SPARE		20		79		80					0.00
0.00	SPARE		20		81		82		125		SPARE	0.00
0.00	SPARE		20		83		84					0.00
17.9	SUB-TOTALS											20.0

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	2.6	1.00	2.6	A =	14.0 KVA	116.2 A
COOLING	0.0	1.00	0.0	B =	12.8 KVA	106.3 A
VENTILATION	0.0	1.00	0.0	C =	11.2 KVA	93.0 A
MOT