PENDER COUNTY COURTHOUSE
INTERIOR RENOVATIONS
BURGAW, NORTH CAROLINA

BID DOCUMENTS
03/29/20
7702-185550

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G-006	SECOND FLOOR LIFE SAFETY PLAN			
G-007	THIRD FLOOR LIFE SAFETY PLAN			

CIVIL

SEPI
5030 New Center Drive, Suite B
Wilmington, NC 28403
tel: 910.523.5715
email: marcuri@sepiinc.com

SHEET NO.	SHEET NAME	SHT REV NO.	SHT REV DATE	REVISION DESCRIPTION
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DEMOLITION AND ABATEMENT

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101 North Third Street, Suite 500
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EEC, INC.
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Raleigh, NC 27615
tel: 919.846.7076
email: mshrimanker@eecincorporated.com

SHEET NO.	SHEET NAME	SHT REV NO.	SHT REV DATE	REVISION DESCRIPTION
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ARCHITECTURAL

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STRUCTURAL

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S3.01	SECTIONS & DETAILS			

PLUMBING

CHEATHAM & ASSOCIATES
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Willington, NC 28405
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email: cgilman@cheathampa.com

SHEET NO.	SHEET NAME	SHT REV NO.	SHT REV DATE	REVISION DESCRIPTION
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MECHANICAL

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SHEET NO.	SHEET NAME	SHT REV NO.	SHT REV DATE	REVISION DESCRIPTION
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ELECTRICAL

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email: mciarrocca@cheathampa.com

SHEET NO.	SHEET NAME	SHT REV NO.	SHT REV DATE	REVISION DESCRIPTION
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UDS SHEET DESIGNATORS AND SHEET ORDER

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B	GEOTECHNICAL	E	ELECTRICAL
C	CIVIL	T	TELECOM
L	LANDSCAPE	R	RESOURCE
S	STRUCTURAL		
A	ARCHITECTURAL		
I	INTERIORS		
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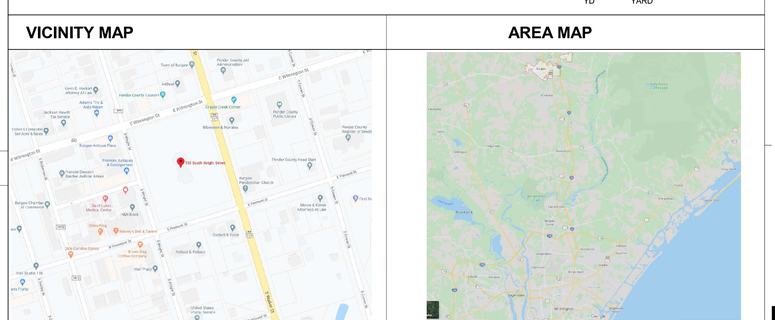
A-121
LEVEL 1 LEVEL 2 LEVEL 3 LEVEL 4 SEQUENCE

MATERIAL LEGEND

(NOT ALL MATERIALS APPLICABLE)

PLAN AND SECTION				ELEVATION	
EARTH	PLASTER, CEMENT, SAND, GROUT	SPRAY-ON FIREPROOFING		BRICK	
POROUS FILL (STONE OR GRAVEL)	STEEL, IRON	BATT/LOOSE FILL INSULATION		CERAMIC TILE	
ROCK	ALUMINUM	EXTRUDED POLYSTYRENE		CONCRETE / PLASTER / STUCCO	
LIGHTWEIGHT CONCRETE (OR CONCRETE FILL)	WOOD (FINISH)	ACOUSTICAL TILE		GLASS	
STRUCTURAL CONCRETE (CAST IN PLACE, ETC.)	WOOD (ROUGH)	GYPSUM WALLBOARD		SHINGLES/SIDING	
BRICK (COMMON OR FACE)	WOOD BLOCKING	CARPET AND PAD			
CONC. MASONRY UNITS (C.M.U.)	PLYWOOD				

GRAPHIC SYMBOL LEGEND



ABBREVIATIONS

A/C	AIR CONDITION(ING)	EOS	EDGE OF SLAB	LF	LINEAR FEET	RM	ROOM
ADMIN	ADMINISTRATION	EQ	EQUAL	LVR	LOUVER	RO	ROUGH OPENING
AFF	ABOVE FINISHED FLOOR	EQUIP	EQUIPMENT	MAINT	MAINTENANCE	ROW	RIGHT OF WAY
ALT	ALTERNATE	EWC	ELECTRIC WATER COOLER	MATL	MATERIAL	S	SOUTH
ALUM	ALUMINUM	EXIST	EXISTING	MAX	MAXIMUM	SC	SOLID CORE
APPROX	APPROXIMATE(LY)	EXP JT	EXPANSION JOINT	MECH	MECHANICAL	SD	STORM DRAIN
ARCH	ARCHITECT(URAL)	EXT	EXTERIOR	MEZZ	MEZZANINE	SECT	SECTION
AUTO	AUTOMATIC	F/F	FACE TO FACE	MFG	MANUFACTURING	SF	SQUARE FEET
AUX	AUXILIARY	FD	FLOOR DRAIN	MFR	MANUFACTURER	SIM	SIMILAR
AV	AUDIOVISUAL	FE	FIRE EXTINGUISHER	MIN	MINIMUM	SPEC	SPECIFICATION
BITUM	BITUMINOUS	FEC	FIRE EXTINGUISHER CABINET	MISC	MISCELLANEOUS	SPKR	SPEAKER
BL	BUILDING LINE	FF EL	FINISH FLOOR ELEVATION	MO	MASONRY OPENING	SQ	SQUARE
BLDG	BUILDING	FHC	FIRE HOSE CABINET	MR	MOISTURE RESISTANT	SS	STAINLESS STEEL
BN	BULL NOSE	FIN FLR	FINISHED FLOOR	MTD	MOUNTED	STD	STANDARD
BOS	BOTTOM OF STEEL	FLR	FLOOR, FILLER	MTG	MOUNTING	STOR	STORAGE
BOT	BOTTOM	FOC	FACE OF CURB	MTL	METAL	SUSP	SUSPENDED
CAB	CABINET	FOF	FACE OF FINISH	N	NORTH	SYS	SYSTEM
CJ	CONTROL JOINT	FOM	FACE OF MASONRY	NIC	NOT IN CONTRACT	T	TREAD
CL	CENTER LINE	FOS	FACE OF SLAB	NOM	NOMINAL	TEL	TELEPHONE
CLG	CEILING	FOW	FACE OF WALL	NON COMB	NON-COMBUSTIBLE	TEMP	TEMPORARY
CLG HT	CEILING HEIGHT	FT	FOOT, FEET	NTS	NOT TO SCALE	TFF	TOP OF FINISH FLOOR
CLO	CLOSET	FTG	FOOTING	OC	ON CENTER	THK	THICKNESS
CLR	CLEAR(ANCE)	FURN	FURNISH, FURNITURE	OD	OUTSIDE DIAMETER	THRU	THROUGH
CMU	CONCRETE MASONRY UNIT	GA	GAGE	OPP	OPPOSITE	TO	TOP OF
COL	COLUMN	GALV	GALVANIZED	OPT	OPTION(AL)	TOB	TOP OF BEAM
CONC	CONCRETE	GC	GENERAL CONTRACTOR	PCF	POUNDS PER CUBIC FEET	TOC	TOP OF CONCRETE, CURB
CONF	CONFERENCE	GYP BD	GYPSUM BOARD	PLAM	PLASTIC LAMINATE	TOF	TOP OF FOOTING
CONT	CONTINUE, CONTINUOUS	GYP PLAS	GYPSUM PLASTER	PLF	POUNDS PER LINEAR FEET	TOJ	TOP OF JOIST
CORR	CORRIDOR	HC	HANDICAP	PLYWD	PLYWOOD	TOM	TOP OF MASONRY
CU FT	CUBIC FOOT	HD	HEAVY DUTY	PNL	PANEL	TOP	TOP OF PARAPET
CU YD	CUBIC YARD	HDWD	HARDWOOD	PR	PAIR	TOS	TOP OF SLAB
DEMO	DEMOLISH	HDWR	HARDWARE	PREFAB	PREFABRICATED	TOW	TOP OF WALL
DEPT	DEPARTMENT	HM	HOLLOW METAL	PREFIN	PREFINISH	TRTD	TREATED
DET	DETAIL	HORIZ	HORIZONTAL	PRKG	PARKING	TV	TELEVISION
DF	DRINKING FOUNTAIN	HT	HEIGHT	PSF	POUNDS PER SQUARE FOOT	TYP	TYPICAL
DIA	DIAMETER	HVAC	HEATING, VENTILATION & AIR CONDITIONING	PSI	POUNDS PER SQUARE INCH	UL	UNDERWRITERS LABORATORIES
DIAG	DIAGONAL	ID	INSIDE DIAMETER	PT	PAINT, POST-TENSIONED, PRE-TREATED	UNO	UNLESS NOTED OTHERWISE
DIM	DIMENSION	INCL	INCLUDE(D), (ING)	PVC	POLYVINYL CHLORIDE (PLASTIC)	VERT	VERTICAL
DIV	DIVISION	INFO	INFORMATION	QTR	QUARTER	VEST	VESTIBULE
DS	DOWNSPOUT	INSUL	INSULATION	QTY	QUANTITY	VIF	VERIFY IN FIELD
E	EAST	INT	INTERIOR	R	RADIUS, RISER	W	WEST, WIDE
EA	EACH	JAN CLO	JANITOR CLOSET	RCP	REFLECTED CEILING PLAN	W/	WITH
EIFS	EXTERIOR INSULATION & FINISH SYSTEM	KIT	KITCHEN	RD	ROOF DRAIN	W/O	WITHOUT
EJ	EXPANSION JOINT	KO	KNOCKOUT	REF	REFRIGERATOR, REFERENCE	W/W	WALL TO WALL
EL	ELEVATION	LAB	LABORATORY	REQD	REQUIRED	WC	WATER CLOSET
ELEC	ELECTRIC(AL)	LAM	LAMINATE	RL	ROOF LEADER	WD	WOOD
ELEV	ELEVATOR	LAU	LAUNDRY			WP	WORKING POINT, WATERPROOFING
ENCL	ENCLOSE(D)	LAV	LAVATORY			WR	WATER REPELLENT
						WT	WEIGHT
						WWF	WELDED WIRE FABRIC
						YD	YARD

VICINITY MAP

AREA MAP

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REGISTERED ARCHITECT
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SEAL

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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: TMR
CHECKED BY: CHBJ

PROJECT INFORMATION SHEET

G-001

BID DOCUMENTS

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 4:34:08 PM

2018 APPENDIX B BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS (Includes: New Construction, Upfits, Renovations, Additions)

(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES) (UPDATED 3-24-16)

a. Project Information - (Required information for all projects)

Name of Project: Pender County Courthouse Interior Renovation

Address: 100 S. Wright Street, Burgaw, NC Zip Code 28425

Proposed Use: Courthouse and Municipal Offices

Owner or Authorized Agent: Allen Vann Phone #: 910-259-1200 E-Mail avann@pendercountync.gov

Owned By: ■ City/ County ☐ Private ☐ State

Code Enforcement Jurisdiction: ☐ City Town of Burgaw ☐ County ☐ State

b. Project Summary / Alternative Means of Compliance - (Required information for all projects)

Building description: This building is an historic courthouse built in 1936. It is a three-story, "H"-shaped, brick veneered Georgian Revival style building. It consists of a hipped roofed main block flanked by projecting gable-roofed wings.

Scope of work details: (If phased construction, please see plan submittal guidelines.)

The scope of work is to include: repairs to interior walls caused by hurricane damage, abatement of lead and/or asbestos as needed, new finishes, sealing crawlspace, security improvements, new mechanical systems, ADA improvements, functional improvements and site work.

Does this project have air rights, easements, an assumed or deeded property line, no build easements or other circumstances similar to the aforementioned? Yes ____ No _X_ If yes, please provide a copy of the official documents.

Renovation projects only: If you are using the NC Existing Building Code or NFPA 101 as an alternative for Code compliance please schedule a preliminary review before submitting your project for review.

Notes for Plans Examiner and Inspectors: Please reproduce the evaluation form on the plans.

If applicable to your project: Alternative Means of Compliance/Engineering Judgment:

(Approval needed from the Code Administrator is required before submitting)

Check if applicable to your project:

☐ Industrial equipment with declaration document attached. [See www.Meckpermit.com (Electrical Services)]

☐ RTAP (Revisions to approved plans.)[See www.Meckpermit.com (Commercial Plan Review Services)]

c. Design Professional Information - (Required information for all projects)

LEAD DESIGN PROFESSIONAL: LS3P - Charles Boney, Jr.

DESIGNER	FIRM	NAME	LICENSE#	TELEPHONE#	E-MAIL
Architectural	LS3P	Charles Boney / Tessa Romanowski	4276	910.397.3631	tessaromanowski@ls3p.com
Civil	SEPI, Inc.	Mark Arcuri	24419	910.523.5715	marcuri@sepiinc.com
Electrical	Cheatham & Assoc.	Mark Ciarrocca	17593	910.452.4210	mciarrocca@cheathampa.com
Fire Alarm	Cheatham & Assoc.	Mark Ciarrocca	17593	910.452.4210	mciarrocca@cheathampa.com
Plumbing	Cheatham & Assoc.	Casey Gilman	043164	910.452.4210	cgilman@cheathampa.com
Mechanical	Cheatham & Assoc.	Ken Lynch	17655	910.452.4210	office@cheathampa.com
Sprinkler-Standpipe					
Structural	Woods Engineering	Adam Sisk	041563	910.343.8007	adam@woodseng.com
Retaining Walls >5' High					
Other	EEC, Inc. (Hazardous Material)	Mike Shrimanker	40010	919.846.1016	mshrimanker@eecincorporated.com

d. Type of work being performed - (Required information for all projects)

What type of work is being performed?

New Construction:
(A project from the site work through the completion of work required for tenant occupancy) This includes Shell buildings.

Addition: (An Existing Building that is adding heated or unheated space. This could be an addition to the footprint or a vertical expansion)

☐ Upfit: (First Time Interior Completion)
(Upfit – the first time interior completion of a virgin (never occupied) shell space in a newly constructed building. The applicant must provide a copy of the approved shell)

Alteration/Renovation: (Previously Occupied Space) This includes Change of Use.

e. Code Data - NCBC - (See section f. for NC Rehab Code or NC Existing Building Code)

Building Code: ■ 2018 North Carolina State Building Code (NCSBC)

Check all that apply: ☐ New building ☐ Shell building
☐ First time interior completion (upfit)
☐ Addition

Existing Building Data: (for upfits or additions)
Year of construction 1936 Previous use courthouse and municipal offices

f. REHAB Code (Existing Building Code)

☐ 2012 NC REHAB CODE Information Scope of Work / work area must be listed and delineated on plans.
Check all that apply: ☐ Repair ☐ Renovation ☐ Alteration ☐ Reconstruction ☐ Change of use ☐ Addition

Justifications for using the REHAB code:

■ 2018 NC EXISTING BUILDING CODE (NCEBC)

Check all that apply: ☐ Repair ☐ Alteration Level 1 ■ Alteration Level 2 ☐ Alteration Level 3
☐ Change of Occupancy ☐ Addition

Alteration/Renovations projects: Please see 410.7 of the NC Existing Building Code for compliance for Accessibility for Existing Buildings. A letter from the designer will be required to be reproduced on the plans to verify how compliance will be achieved. This can be placed on the plans after the Appendix B.

Existing Building Data: (for NC Rehab or NC Existing Building Code)
Last known legal Occupancy use courthouse Historic Property: ■ Yes ☐ No
Original Building Construction Date: 1936 Date of Preliminary Meeting: January 2020

Reviewer's Notes for Field Inspector:

g. Basic Building Data - (Required information for all projects)

Construction Type: (Table 601) ☐ I-A ☐ II-A ☐ III-A ☐ IV-HT ☐ V-A
☐ I-B ☐ II-B ■ III-B ☐ V-B

Mixed Construction: ■ No ☐ Yes Types:

Sprinklers: (Section 903) ■ No ☐ Partial ☐ Yes ☐ NFPA 13-07 ☐ NFPA 13R-07 ☐ NFPA 13D-07

Standpipes: (Section 905) ■ No ☐ Yes Class: ☐ I ☐ II ☐ III ☐ Wet ☐ Dry NFPA 14-07

Fire District: ☐ No ☐ Yes (Primary) (Appendix D)

Flood Hazard Area: (Appendix G) ■ No ☐ Yes

Building Height: (feet) 52 (Table 503) Stories: 3

Gross Building Area:

Floor	Existing (SQ FT)	New (SQ FT)	Alt. / Re	Sub-Total
6th Floor				
5th Floor				
4th Floor				
3rd Floor	3433		2762	
2nd Floor	6549		5269	
Mezzanine	575		0	
1st Floor	8147		6465	
Basement	737		737	
Total	19,441		15,233	

h. Allowable Area / Occupancy Classification - (Required information for all projects)

Occupancy(s): (Chapter 3)
- Assembly (303) ☐ A-1 ☐ A-2 ■ A-3 ☐ A-4 ☐ A-5
- Business (304) ■ B
- Educational (305) ☐ E
- Factory (306) ☐ F-1 Moderate ☐ F-2 Low
- Hazardous (307) ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
- Institutional (308) ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4; I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
- Mercantile (309) ☐ M
- Residential (310) ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
- Storage (311) ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled; ☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
- Utility and Misc. (312) ☐ U

Accessory Occupancies: (<10%): (508) If Applicable
- Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
- Business ☐ B
- Educational ☐ E
- Factory ☐ F-1 Moderate ☐ F-2 Low
- Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
- Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4; I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
- Mercantile ☐ M
- Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
- Storage ■ S-1 Moderate ☐ S-2 Low ☐ High-piled; ☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
- Utility & Misc. (312) ☐ U

Incidental Uses: If applicable- areas with additional requirements (Table 508.2.5):
- ■ Furnace room where any piece of equipment is over 400,000 Btu per hour input
- ☐ Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
- ☐ Refrigerant machine room
- ☐ Hydrogen cutoff rooms, not classified as Group H
- ☐ Incinerator rooms
- ☐ Paint shops, not classified as Group H, located in occupancies other than Group F
- ☐ Laboratories and vocational shops, not classified as Group H, located in a Group E or I-2 occupancy
- ☐ Laundry rooms over 100 square feet
- ☐ Group I-3 cells equipped with padded surfaces
- ☐ Group I-2 waste and linen collection rooms
- ☐ Waste and linen collection rooms over 100 square feet
- ☐ Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
- ☐ Rooms containing fire pumps ☐ Rooms containing Life-Safety generator ☐ Rooms containing primary transformers
- ☐ Group I-2 storage rooms over 100 square feet
- ☐ Group I-2 commercial kitchens
- ☐ Group I-2 laundries equal to or less than 100 square feet
- ☐ Group I-2 rooms or spaces that contain fuel-fired heating equipment

Special Uses: If Applicable 402 403 404 405 406 407 408 409 410 411 412 413 ☐ 414 415 416 417 418 419 420 421 422 423 424 425 ☐ 426 427

Special Provisions: If Applicable 509.2 509.3 509.4 509.5 509.6 509.7 509.8 509.9

Mixed Occupancy/Use: (506.5) If Applicable No Yes Separation: - Hr. Exception: _Storage is incidental

- ■ Incidental Use Separation (508.2.5)
  This separation is not exempt as a Non-Separated Use (see exceptions).
- ■ Non-Separated Use (508.3)
  The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
- ☐ Separated Use (508.4) - See below for area calculations
  For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1. If applicable to this project please provide a key plan with all occupancies identified with square footage.

(Actual Area of Occupancy A / Allowable Area of Occupancy A) + (Actual Area of Occupancy B / Allowable Area of Occupancy B) ≤ 1

3,267 / 9,500 + 12,486 / 19,000 = .34 + .66 = 1.00 < 1.00

STORY NO	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503 AREA [5]	(C) AREA FOR OPEN SPACE INCREASE [1]	(D) AREA FOR SPRINKLER INCREASE [2]	(E) ALLOWABLE AREA OR UNLIMITED [3]	(F) MAXIMUM BUILDING AREA [4]
1	offices	8,147	19,000	70,300	38,000	N/A	OOO
2	courtrooms/offices	6,549	9,500	35,150	19,000	N/A	OOO
3	offices	4,008	19,000	70,300	38,000	N/A	OOO

1 Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width. 519'
b. Total Building Perimeter = 519' (P).
c. Ratio (F/P) = 1 (F/P).
d. W = Minimum width of public way = 148' (W).
e. Percent of frontage increase I_f = 100 (F/P - 0.25) x W/30 = 370 (%)

2 The sprinkler increase per Section 506.3 is as follows:
a. Multi-story buildings = 200 percent
b. Single story buildings = 300 percent

3 Unlimited area applicable under conditions of Section 507.

4 Maximum Building Area = total number of stories in the building x E (506.4), Maximum of 3.

5 The maximum area of open parking garage must comply with Table 406.3.5. The maximum area of air traffic control towers must comply with Table 412.1.2.

h. Allowable Height (Chapter 5) - (Required for Additions, New Construction)

	ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS	SHOWN ON PLANS	CODE REFERENCE
Type of Construction	Type IIIB		Type IIIB	602.3
Building Height in Feet	55'	Feet = H + 20' = 75'	52'	Table 504.3
Building Height in Stories	2 abv. grade	Stories + 1 = 3	2	Table 504.4

j. Fire Protection Requirements (Chapter 7) - (Required information for all projects)

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING** Req'd	RATING** Provided (w/___* Reduction)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural frame, including columns, girders, trusses	>30	0					
Bearing walls (see section 601-602 if rated)	--	2	2	--	--	--	
Exterior	--	2	2	--	--	--	
North	--	2	2	--	--	--	
East	--	2	2	--	--	--	
West	--	2	2	--	--	--	
South	--	2	2	--	--	--	
Interior	--	0	0	--	--	--	
Nonbearing walls and partitions (see section 601-602 if rated)							
Exterior walls	--			--			
North	--			--			
East	--			--			
West	--			--			
South	--			--			
Interior walls and partitions	--	0		--			
Floor Construction Including supporting beams and joists	--	0		--			
Roof construction Including supporting beams and joists	--	0		--			
Shaft Enclosures-Exit	--	1	1	--			
Shaft Enclosures-Other than Exit	--	1	1	--			
Corridor Separation	--						
Occupancy Separation	--						
Party/Fire Wall Separation	--						
Smoke Barrier Separation	--						
Tenant Separation	--						
Incidental Use Separation	--						

* Indicate section number permitting reduction

k. Percentage of Wall Opening Calculations - (New Construction, Addition and Change of Use) (Table 705.8)

ELEV.	FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
NORTH	30' or greater	Unprotected, Non sprinklered	No Limit	15%
SOUTH	30' or greater	Unprotected, Non sprinklered	No Limit	16%
EAST	30' or greater	Unprotected, Non sprinklered	No Limit	12%
WEST	30' or greater	Unprotected, Non sprinklered	No Limit	12%

l. Wall Legends - (Required for all Projects)

CHECK IF THE FOLLOWING ARE PRESENT AND INDICATED BY A WALL LEGEND ON ALL PLANS

Fire Walls 706 ■ Fire Barriers 707 ☐ Shaft Enclosure 708 Fire Partitions 709 Smoke Barriers 710 ☐
Smoke Partitions 711 ☐ No rated walls are present ☐

m. Life Safety Systems (Existing or new systems) - (Required for all Projects)

- Emergency Lighting: (1006) ☐ No ■ Yes
- Exit Signs: (1011) ☐ No ■ Yes
- Fire Alarm: (907, NFPA 72-07) ☐ No ■ Yes
- Smoke Detection Systems: (907) ☐ No ■ Yes ☐ Partial ______
- Panic Hardware: (1008.1.10) ☐ No ■ Yes
- Life Safety Systems Generator: (2702.2) ☐ No ■ Yes

n. Life Safety Plan check list for compliance -- (Required for all projects) Check items that are applicable to your project

- ■ Fire and/or smoke rated wall locations (Chapter 7)
- ☐ Assumed and real property line locations
- ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
- ☐ Existing structures within 30' of the proposed building
- ■ Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
- ■ Occupant loads for each area
- ■ Exit access travel distances (1016)
- ■ Common path of travel distances (1014.3 & 1028.8)
- ■ Dead end lengths (1018.4)
- ■ Clear exit widths for each exit door
- ■ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
- ■ Actual occupant load for each exit door
- ☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- ■ Location of doors with panic hardware (1008.1.10)
- ☐ Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
- ☐ Location of doors with electromagnetic egress locks (1008.1.9.8)
- ■ Location of doors equipped with hold-open devices
- ☐ Location of emergency escape windows (1029)
- ■ The square footage of each fire area (902)
- ■ The square footage of each smoke compartment (407.4)
- ☐ Note any code exceptions or table notes that may have been utilized regarding the items above

o. Exit Requirements—(Required for all Projects)

NUMBER AND ARRANGEMENTS OF EXITS (TABLE 1021.1)

FLOOR, ROOM OR SPACE DESIGNATION	MINIMUM NUMBER OF EXITS[2]: REQUIRED T1021.1 (SINGLE EXIT 1006.2.1)	SHOWN ON PLANS	TRAVEL DISTANCE: ALLOWABLE TRAVEL DISTANCE (TABLE 1017.2)	ACTUAL TRAVEL DISTANCE SHOWN ON PLANS	ARRANGEMENT MEANS OF EGRESS (SECTION 1017.1.1): REQUIRED DISTANCE BETWEEN EXIT DOORS	ACTUAL DISTANCE SHOWN ON PLANS
BASEMENT	1	2	200'	39'-1"	17'-8 1/2"	21'-6"
1ST FLOOR	2	4	200'	112'-8"	80'-9"	148'-9"
2ND FLOOR	2	2	200'	71'-11"	80'-9"	109'-0"
3RD FLOOR - NORTH WING	2	1	200'	45'-2"	36'-2 1/2"	n/a
3RD FLOOR - SOUTH WING	1	1	200'	68'-11"	36'-2 1/2"	n/a

1 Corridor dead ends (Section 1018.4)
2 Buildings with single exits (Table 1021.2) Spaces with one means of egress (Table 1015.1)
3 Commom Path of Travel (Section 1014.3)

OCCUPANT LOAD AND EXIT WIDTH (TABLE 1004.1.2)

USE GROUP OR SPACE DESCRIPTION[7]	(a) AREA[1] sq. ft.	(b) AREA[1] PER OCCUPANT	CALCULATED OCCUPANT LOAD (a ÷ b)	(c) EGRESS WIDTH PER OCCUPANT (TABLE 1005.3.1 and 1005.3.2): STAIR	LEVEL	EXIT WIDTH (in)[2,3,4,5,6] REQUIRED WIDTH (SECTION 1005.3.1) (a ÷ b) x c: STAIR	LEVEL	ACTUAL WIDTH SHOWN ON PLANS: STAIR	LEVEL
Courtroom (A3)	1921	210 seats + 40sf/occ	232	0.3	0.2	70	47	180	243
Mag. Courtroom (A3)	611	32 seats + 40sf/occ	38	0.3	0.2	12	8	180	36
Business (B)	BY AREA	100	116	0.3	0.2	35	24	122/162	894
Storage (S-1)	BY AREA	300	13	0.3	0.2	4	3	42	386
Mezzanine (A3)	501	96 fixed seats	96	0.3	0.2	29	20	114	60

1 See Table 1004.1.1 to determine whether net or gross is applicable.
See definition "Area, Gross" and "Area, Net" (Section 1002)
2 Minimum stairway width (Section 1009.1); min. corridor width (Section 1018.2); min. door width (Section 1008.1.1).
3 Minimum width of exit passageway (Section 1023.2)
4 See Section 1004.5 for converging exits.
5 The loss of one means of egress shall not reduce the available capacity to less than 50 percent of the total required (Section 1005.1)
6 Assembly occupancies (Section 1028)
7 Spaces within occupancies or use groups shall be calculated independently. (Ex. Lobbies, lounges, break rooms, conference rooms.)

p. Accessible Dwelling Units and sleeping units - (Only for R-1, R-2 occupancy) (1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

q. Accessible Parking - (Projects that are New Construction, Addions, Change of Use) (1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES: REQUIRED	PROVIDED	# OF ACCESSIBLE SPACES PROVIDED: REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH ACCESS AISLE	TOTAL # ACCESSIBLE PROVIDED
TOTAL					

r. Structural Design – (Primarily for New Construction, Additions and Change of Use)
If adding dead loads or live loads to the building structural system information in any project shall be required. This information may be located on the structural sheets. The structural sheet must be in the same format as noted in this section. If it is on the structural sheets, please indicate here.
(Located on Structural Sheet Number ____: Yes ____ No ____)

DESIGN LOADS:
Importance Factors: (ASCE/SEI 7-05-11.5) Wind ____ Snow ____ Seismic ____

Live Loads: Roof: (1603.1.2, 1607.11, 1611) ____ psf
Floor: (1603.1.1,1607.10, T 1607.10) ____ psf
Live Load Reductions: (1603.1.1, 1607.9, 1608.2) ____ psf
Ground Snow Load: (1608.2) ____ psf

Wind Load: Basic Wind Speed: (1609.3) ____ mph (ASCE-7)
Exposure Category: (1609.4)
Wind Base Shears (for MWFRS)(Engineer Cal's) Vx=___ Vy=____

SEE STRUCTURAL PLANS

SEISMIC DESIGN CATEGORY (1613.1) ☐ A ☐ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration: (Engineer cal's) S_s ____%g S_1 ____%g
Site Classification (Table 1613.5.2) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data
Basic structural system (check one)
☐ Bearing Wall ☐ Dual w/ Special Moment Frame
☐ Building Frame ☐ Dual w/ Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Seismic Base Shear: (Engineer Cal's) Vx=____ Vy=____
Analysis Procedure ☐ Simplified ☐ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored?

LATERAL DESIGN CONTROL: ☐ Earthquake ☐ Wind

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report as a reference document) ____ psf
Presumptive Bearing Capacity ____ psf
Pile size, type, and capacity ____

SPECIAL INSPECTIONS REQUIRED: ☐ Yes ☐ No

s. Special Inspections - (If applicable to your project)

http://charmeck.org/mecklenburg/county/LUESA/CodeEnforcement/Tools/Forms/Documents/SI Scope.pdf

SCHEDULE OF SPECIAL INSPECTION SERVICES

☐ No special inspections required for this project ☐ Special inspections required

The following sheets comprise the required schedule of special inspections for this project. The construction divisions which require special inspections for this project are as follows:

- ☐ IT-1 Verification of Soils
- ☐ IT-2 Excavation and Fill
- ☐ IT-3 Piling and Drilling Piers
- ☐ IT-4 Modular Retaining Walls
- ☐ IT-5 Reinforced Concrete
- ☐ IT-6 Post Tension Slab
- ☐ IT-7 Pre-cast Concrete Erection
- ☐ IT-8 Pre-Stressed Concrete
- ☐ IT-9 Inspection of Pre-cast Fabricators
- ☐ IT-10 Inspection of Structural Steel
- ☐ IT-11 Structural Masonry
- ☐ IT-12 Welding
- ☐ IT-13 High Strength Bolts & Steel Framing Insp.
- ☐ IT-14 Spray Fire-Resistance Materials
- ☐ IT-15 Exterior Insulation and Finish System
- ☐ IT-16 Seismic Resistance
- ☐ IT-17 Smoke Control
- ☐ IT-18 Detention Basin
- ☐ IT-19 Special Cases

Check the above boxes for the special inspection required for this project and list below specific special inspections required under Chapter 17. For questions regarding Special Inspections please see www.Meck-SI.com.

t. Plumbing Fixtures Requirements - (New Construction, Additions, Upfits, Alterations and Change of Use or if increasing occupant load)

If using fixtures one floor above or one floor below, show calculations to justify the count (TABLE 2902.1)

OCCUPANCY USE GROUP AND/OR SPACE DESIGNATION	WATERCLOSETS MALE	WATERCLOSETS FEMALE	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	SHOWERS /TUBS	DRINKING FOUNTAINS
A-3	1	3	1	2	2	n/a	2
B	3	5	2	4	4	n/a	4
S-1	2	3	1	3	3	n/a	0
TOTAL REQUIRED	6	11	4	9	9	n/a	6
TOTAL PROVIDED	8	11	3	9	9	n/a	

u. Special Approvals (If applicable to your project)

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, ICC, etc., describe below)

v. Energy Summary (New Construction, Additions, Change of use and upfits)

BUILDING ENVELOPE:

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the North Carolina Energy Conservation Code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Climate Zone: (North Carolina Energy Conservation Code NCECC 301.1) 3 4 5

Method of Compliance:
- ☐ Prescriptive (NCECC)
- ☐ Performance (NCECC or COMcheck) Report must be reproduced on drawings.
- ☐ Prescriptive (ASHRAE 90.1-2010 with addenda 2013 supplement)
- ☐ Performance (ASHRAE 90.1-2010)

THERMAL ENVELOPE: (NCECC Chapter 4 and or 5)

Roof/Ceiling Assembly (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
Skylights in each assembly
U-Value of skylight:
Total percentage of skylights in each assembly

Exterior Walls (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
Openings (windows or doors with glazing) ____ % of above grade walls
U-Value of assembly:
Solar heat gain coefficient:
Projection Factor:
Door U-values:

Walls below grade (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:

Floors over unconditioned space (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:

Floor slabs on grade (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
Horizontal/Vertical requirement:
Slab Heated:

SEE MECHANICAL PLANS

MECHANICAL SUMMARY (NCECC 503) **This information may be located on the mechanical sheets. The mechanical sheet must be in the same format as noted in this section. If it is on the mechanical sheets, please indicate here. (Located on Mechanical Sheet Number ____: Yes ___ No ___)**

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT
Thermal Zone: 3A
winter dry bulb:
summer dry bulb:
Interior design conditions
winter dry bulb:
summer dry bulb:
relative humidity:
Building heating load:
Building cooling load:
Mechanical Spacing Conditioning System
Unitary
description of unit:
heating efficiency:
cooling efficiency:
size category of unit:
Boiler
Size category. If oversized, state reason.:
Chiller
Size category. If oversized, state reason.:
List equipment efficiencies:

ELECTRICAL SUMMARY (NCECC 505) **This information may be located on the electrical sheets. The electrical sheet must be in the same format as noted in this section. If it is on the electrical sheets, please indicate here. (Located on Electrical Sheet Number ____: Yes ___ No ___)**

ELECTRICAL SYSTEM AND EQUIPMENT
Method of Compliance:
Energy Code: ☐ Prescriptive ☐ Performance
ASHRAE 90.1: ☐ Prescriptive ☐ Performance

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

SEE ELECTRICAL PLANS

Additional Required Prescriptive Compliance
- ☐ 506.2.1 More Efficient Mechanical Equipment
- ☐ 506.2.2 Reduced Lighting Power Density
- ☐ 506.2.3 Energy Recovery Ventilation Systems
- ☐ 506.2.4 Higher Efficiency Service Water Heating
- ☐ 506.2.5 On-Site Supply of Renewable Energy
- ☐ 506.2.6 Automatic Daylighting Control Systems

LS3P ENGAGE DESIGN TRANSFORM

9 March 2020

Mr. Louis Hesse
Building Inspector
Town of Burgaw, NC

RE: **Pender County Courthouse Accessibility**

Dear Mr. Hesse,

Our current renovations will bring the Courthouse into compliance with the Americans with Disabilities Act via the following accessibility provisions:

1.) Exterior: an accessible ramp to the North entrance is already in place. This ramp leads to entry doors routinely manned by a sheriff's deputy. In the event of security lockdown, this deputy is available to provide access through the 34+" wide doorway.
2.) Interior doorways: existing 34" and 36" wide doorways provide a 32" clear opening.
3.) Public gang toilets: the existing public bathrooms on the ground floor provide accessible toilet stalls and an accessible urinal, and were constructed in compliance with previous ADA requirements.
4.) Individual (existing) toilets: existing individual toilets are being modified to provide access.
5.) Individual (new) toilets: Three new toilets are provided on the second floor. Two of these will be accessible. New toilets are provided on the third floor, north and south. Each of these is accessible.
6.) Cell toilets: one toilet will be modified in Cell B to provide the required width for an individual toilet.
7.) Elevator Access: the existing elevator in the north wing was installed under previous accessibility codes, but does not access the south wing third level. A new elevator will be installed in the South wing to exceed the minimum accessible cab dimensions of 51" x 68", with a 36" minimum door opening.
8.) Courtroom access: accessible seating areas will be provided in the courtroom, and an accessible route exists to all public areas with the following exceptions:
a. Witness stand: the existing witness stand is on an elevated platform. Floor space exists in front of the witness stand that will accommodate a witness in a wheelchair. We believe that the changes necessary to create an accessible witness position will interfere with the historic fabric of the courtroom.
b. Jury access: the existing jury seating area is on an elevated platform. Floor space exists in front of the jury area that will accommodate a juror in a wheelchair, and a doorway to the jury room provides an accessible route. We believe that the changes necessary to create an accessible juror's position will interfere with the historic fabric of the courtroom.
c. Judge's bench: this raised platform is an original feature of the courtroom. We believe alteration of this feature will interfere with the historic fabric of the courtroom.

101 N. THIRD STREET SUITE 500 WILMINGTON, NORTH CAROLINA 28401 910.790.9901 PH 910.790.3111 FAX LS3P.COM

The expenses incurred providing other accessible features (toilets, elevator, etc.) will exceed 20% of the project budget, and items 8.a, b, and c will be disproportionate to other renovations planned. (ADA: see 202.4 on disproportionality)

Sincerely,

Charles H. Boney, Jr., FAIA
Principal | Studio Leader
LS3P

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

PENDER COUNTY NC

LS3P
101 NORTH THIRD STREET SUITE 500
WILMINGTON, NORTH CAROLINA 28401
TEL. 910.790.9901 FAX 910.790.3111
WWW.LS3P.COM

LS3P ASSOCIATES LTD. REGISTERED ARCHITECTURAL COMPANY CERT. NO. 50417 NORTH CAROLINA WILMINGTON, NORTH CAROLINA

CHARLES H. BONEY, JR. REGISTERED ARCHITECT 4276 NORTH CAROLINA WILMINGTON, N.C.

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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: TMR
CHECKED BY: CHBj

BUILDING CODE SUMMARY_NC

G-002

BID DOCUMENTS

Design No. U419

September 28, 2018

Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr (See Items 4 & 5 through 5K)

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

1. Floor and Ceiling Runners — (Not Shown) — For use with Item 2 — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

1A. Framing Members* — Floor and Ceiling Runner — Not Shown — In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™ Track

CRACO MFG INC — SmartTrack25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™ Track

FUSION BUILDING PRODUCTS — Viper25™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper25™ Track

1B. **Framing Members*** — Floor and Ceiling Runner — Not Shown — In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™ Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

FUSION BUILDING PRODUCTS — Viper20™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track

1C. **Framing Members*** — Floor and Ceiling Runners — (Not Shown) — In lieu of Item 1 — Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

1D. **Floor and Ceiling Runners** — (Not Shown) — For use with Item 2A — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.
1E. Framing Members* — Floor and Ceiling Runners — (Not Shown, As an alternate to Item 1) — For use with Items 2E, 5F or 5G or 5I only, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1F. **Framing Members*** — Floor and Ceiling Runner — Not Shown — In lieu of Item 1 — For use with Item 2F, proprietary channel shaped runners, minimum width to accommodate stud size, with 1-1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
SUPER STUD BUILDING PRODUCTS — The Edge

1G. **Framing Members*** — Floor and Ceiling Runner — For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max.
STUDCO BUILDING SYSTEMS — CROCSTUD Track

1H. **Floor and Ceiling Runners** — (Not Shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.018 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track VT100

FUSION BUILDING PRODUCTS — Viper20™ Track VT100

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track VT100

1I. **Framing Members*** — Floor and Ceiling Runners — (Not Shown, As an alternate to Item 1) — For use with Items 2H, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
TELLING INDUSTRIES L L C — TRUE-TRACK™

1J. **Framing Members*** — Floor and Ceiling Runner — Not Shown — In lieu of Item 1 — For use with Item 2I, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.
TELLING INDUSTRIES L L C — Viper25™ Track

1K. **Framing Members*** — Floor and Ceiling Runner — Not Shown — In lieu of Item 1 — For use with Item 2J, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
TELLING INDUSTRIES L L C — Viper20™ Track

1L. **Framing Members*** — Floor and Ceiling Runner — Not Shown — In lieu of Item 1 — For use with Item 2N, proprietary channel shaped runners, 1-1/4 in. wide by min. 3-1/2 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
STEEL INVESTMENT GROUP L L C — AlphaTRAK

1M. **Framing Members*** — Floor and Ceiling Runners — Not Shown — As an alternate to Item 1 — For use with Item 2O, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
RONDO BUILDING SERVICES PTY LTD — Rondo Wall Track

1N. **Framing Members*** — Floor and Ceiling Runners — Not Shown — As an alternate to Item 1 — For use with Item 2P, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
OEG BUILDING MATERIALS — OEG Track

1O. **Framing Members*** — Floor and Ceiling Runner — Not Shown — In lieu of Item 1 — For use with Item 2Q, proprietary channel shaped runners, min width to accommodate stud size, fabricated from min. 25 MSG (0.018 in. min. bare metal thickness), attached to floor and ceiling with fasteners spaced 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X Track

2. **Steel Studs** — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

2A. **Steel Studs** — (As an alternate to Item 2, For use with Items 5B, 5E, 5H, 5J and 5K) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2B. **Framing Members*** - Steel Studs — (As an alternate to Item 2, For use with Items 5C, 5I or 5K) — Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™

CRACO MFG INC — SmartStud25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™

FUSION BUILDING PRODUCTS — Viper25™

IMPERIAL MANUFACTURING GROUP INC — Viper25™

2C. **Framing Members*** — Steel Studs — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

FUSION BUILDING PRODUCTS — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2D. **Framing Members*** — Steel Studs — In lieu of Item 2 — Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

2E. **Framing Members*** — Steel Studs — (Not Shown, As an alternate to Item 2) — For use with Items 5F or 5G or 5I or 5K only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2F. **Framing Members*** — Steel Studs — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep fabricated from min 0.015 in. (min bare metal thickness) galvanized steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.
SUPER STUD BUILDING PRODUCTS — The Edge

2G. **Framing Members*** — Steel Studs — Not Shown — In lieu of Item 2 — proprietary channel shaped studs, minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height.
STUDCO BUILDING SYSTEMS — CROCSTUD

2H. **Framing Members*** — Steel Studs — (Not Shown, As an alternate to Item 2) — Fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
TELLING INDUSTRIES L L C — TRUE-STUD™

2I. **Framing Members*** — Steel Studs — (As an alternate to Item 2, For use with Items 5C or 5L or 5K) — Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.
TELLING INDUSTRIES L L C — Viper25™

2J. **Framing Members*** — Metal Studs — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights
TELLING INDUSTRIES L L C — Viper20™

2K. **Framing Members*** — Steel Studs — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
EB METAL INC — NITROSTUD

2L. **Framing Members*** — Steel Studs — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
OLMAR SUPPLY INC — PRIMESTUD

2M. **Framing Members*** — Steel Studs — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™

2N. **Framing Members***— Steel Studs — As an alternate to Item 2 — proprietary channel shaped steel studs, min depth 3-1/2 in. and as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in length than assembly height.
STEEL INVESTMENT GROUP L L C — AlphaSTUD

2O. **Framing Members*** — Steel Studs — As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
RONDO BUILDING SERVICES PTY LTD — Rondo Lipped Wall Stud

2P. **Framing Members*** — Steel Studs — As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, min 25 MSG galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
OEG BUILDING MATERIALS — OEG Stud

2Q. **Framing Members*** — Steel Studs — Not Shown — In lieu of Item 2 — For use with Item 1O, proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 25 MSG (0.018 in. min. bare metal thickness). Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X

3. **Wood Structural Panel Sheathing** — (Optional, For use with Item 5 Only) — (Not Shown) — 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, gypsum panels attached over OSB or plywood panels and fastener lengths for gypsum panels increased by min. 1/2 in.

4. **Batts and Blankets*** — (Required as indicated under Item 5) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5.
See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

4A. **Batts and Blankets*** — (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

4B. **Batts and Blankets*** — For use with Item 5K. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

4C. **Fiber, Sprayed*** — (Optional) and as an alternate to Batts and Blankets (Item 4B) where insulation is required - Spray applied granulated mineral fiber material. The fiber is applied with adhesive at a minimum density of 4.0 pcf to completely fill the wall cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5. **Gypsum Board*** — Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Wallboard Protection on Each Side of Wall

RATING	MIN. STUD DEPTH	NO. OF LAYER & THKNS OF PANEL	MIN. THKNS. OF INSULATION (ITEM 3)
1	3-1/2	1 LAYER, 5/8 IN THINK	OPTIONAL
1	2-1/2	1 LAYER, 1/2 IN THICK	1-1/2 IN.
1	1-5/8	1 LAYER, 3/4 IN THICK	OPTIONAL
2	1-5/8	2 LAYERS, 1/2 IN THICK	OPTIONAL
2	1-5/8	2 LAYERS, 5/8 IN THICK	OPTIONAL
2	3-1/2	1 LAYER, 3/4. IN THICK	3 IN.
3	1-5/8	3 LAYERS, 1/2 IN THICK	OPTIONAL
3	1-5/8	2 LAYERS, 3/4 IN THICK	OPTIONAL
3	1-5/8	3 LAYERS, 5/8 IN THICK	OPTIONAL
4	1-5/8	4 LAYERS, 5/8 IN THICK	OPTIONAL
4	1-5/8	4 LAYERS, 1/2 IN THICK	OPTIONAL
4	2-1/2	2 LAYERS, 3/4 IN THICK	2 IN.

CGC INC — 1/2 in. thick Type C, IP-X2 or IPC-AR; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX or WRC; 3/4 in. thick Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type SCX, SGX, SHX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR; 3/4 in. thick Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX, WRC or; 3/4 in. thick Types IP-X3 or ULTRACODE

When Item 7B, Steel Framing Members*, is used, Nonbearing Wall Rating is limited to 1 Hr. Min. stud depth is 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6.

5A. **Gypsum Board*** — (As an alternate to Item 5) — 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 6.
CGC INC — Type SHX.

UNITED STATES GYPSUM CO — Type FRX-G, SHX.

USG MEXICO S A DE C V — Type SHX.

5B. **Gypsum Board*** — (Not Shown) — As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) — Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2A with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).
RAY-BAR ENGINEERING CORP — Type RB-LBG

5C. **Gypsum Board*** — (For Use With Item 2B) — Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory.
CGC INC — Type SCX.

UNITED STATES GYPSUM CO — Type SCX, SGX.

USG BORAL DRYWALL SFZ LLC — Type SCX

USG MEXICO S A DE C V — Type SCX

5D. **Gypsum Board*** — (As an alternate to Item 5) — 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.
CGC INC — Type USGX

UNITED STATES GYPSUM CO — Type USGX

USG BORAL DRYWALL SFZ LLC — Type USGX

USG MEXICO S A DE C V — Type USGX

5E. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

5F. **Gypsum Board*** — (As an alternate to Item 5) — For use with Items 1E and 2E and limited to 1 Hour Rating only, Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the steel studs with 1 in. long Type S screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the field. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in.
UNITED STATES GYPSUM CO — 5/8 in. thick Type SCX, SGX

USG BORAL DRYWALL SFZ LLC — 5/8 in. thick Type SCX, SGX

5G. **Gypsum Board*** — (As an alternate to Item 5) — For use with Items 1E and 2E only, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and fastened to the steel studs as described in Item 6. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

RATING, Hr	MIN. STUD DEPTH	NO. OF LAYER & THKNS OF PANEL	MIN. THKNS. OF INSULATION (ITEM 3)
2	3-1/2	1 LAYER, 5/8 IN THINK	OPTIONAL
2	2-1/2	1 LAYER, 1/2 IN THICK	1-1/2 IN.
3	1-5/8	1 LAYER, 3/4 IN THICK	OPTIONAL
3	1-5/8	2 LAYERS, 1/2 IN THICK	OPTIONAL
4	1-5/8	2 LAYERS, 5/8 IN THICK	OPTIONAL
4	3-1/2	1 LAYER, 3/4. IN THICK	3 IN.

CGC INC — 1/2 in. thick Type C, IP-X2 or IPC-AR;, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or; 3/4 in. thick Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type SCX, SGX, SHX, IP-X1, AR, C, , FRX-G, IP-AR, IP-X2, IPC-AR, ULIX; 3/4 in. thick Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or; 3/4 in. thick Types IP-X3 or ULTRACODE

5H. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 or 3/4 in thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) - Nom 5/8 or 3/4 in. may be used as alternate to all 5/8 or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSG steel studs Item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 11A) or Lead Discs (see Item 12A).
MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

5I. **Gypsum Board*** — (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 5. Steel stud minimum depth shall be as indicated in Item 5.
CGC INC — Type ULX

UNITED STATES GYPSUM CO — Type ULX

USG MEXICO S A DE C V — Type ULX

5J. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

5K. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) need not be staggered. The number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Rating	Min. Stud Depth, in. Items 2 through 2O	No. of Layers & Thkns of Panel	MIN. THKNS. OF INSULATION (ITEM 4B)
1	3-1/2	1 LAYER, 5/8 IN THINK	3-1/2 IN.
2	2-1/2	1 LAYER, 1/2 IN THICK	OPTIONAL
3	1-5/8	1 LAYER, 3/4 IN THICK	OPTIONAL
4	1-5/8	2 LAYERS, 1/2 IN THICK	OPTIONAL

UNITED STATES GYPSUM CO — 5/8 in. thick Type ULIX

6. **Fasteners** — (Not Shown) — For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). Single layer systems: 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. Two layer systems: First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer.Three-layer systems: First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. Four-layer systems: First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

7. **Furring Channels** — (Optional, Not Shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 5A.

7A. **Framing Members*** — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

7B. **Framing Members*** — (Optional, Not Shown) — As an alternate to Item 7, for single or double layer systems, furring channels and Steel Framing Members on only one side of studs as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 5. Not for use with Item 5A.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax

7C. **Framing Members*** — (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Ca) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.
PLITEQ INC — Type GENIECLIP

7D. **Steel Framing Members*** — (Optional on one or both sides, not shown, for single or double layer systems) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. Steel Framing Members* — Used to attach furring channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

7E. **Steel Framing Members*** — (Optional on one or both sides, not shown, for single or double layer systems) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 7Eb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

7F. **Steel Framing Members*** — (Optional on one or both sides, not shown, for single or double layer systems) — Resilient channels and Steel Framing Members as described below:

a. **Resilient Channels** — Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 5. Not for use with Item 5A and 5E.

b. **Steel Framing Members*** — Used to attach resilient channels (Item 7Fa) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

8. **Joint Tape and Compound** — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge.

9. **Siding, Brick or Stucco** — (Optional, Not Shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies, installed over gypsum panels. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

10. **Caulking and Sealants*** — (Optional, Not Shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.
UNITED STATES GYPSUM CO — Type AS

11. **Lead Batten Strips** — (Not Shown, For Use With Item 5B) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at remaining stud locations. Required behind vertical joints.

11A. **Lead Batten Strips** — (Not Shown, For Use With Item 5H) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations.

12. **Lead Discs or Tabs** — (Not Shown, For Use With Item 5B) — Used in lieu of or in addition to the lead batten strips (Item 11) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5B) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

12A. **Lead Discs** — (Not Shown, for use with Item 5H) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

13. **Lead Batten Strips** — (Not Shown, For Use With Item 5E) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5E) and optional at remaining stud locations.

14. **Lead Tabs** — (Not Shown, For Use With Item 5E) — 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5E) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2018-09-28

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Design No. U905

Bearing Wall Rating — 2 HR.
Nonbearing Wall Rating — 2 HR
Load Restricted for Canadian Applications — See Guide BXUV7

1. Concrete Blocks* — Various designs. Classification D-2 (2 hr).
See Concrete Blocks category for list of eligible manufacturers.

2. Mortar — Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. Portland Cement Stucco or Gypsum Plaster — Add 1/2 hr to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. Attached to concrete blocks (Item 1).

4. Loose Masonry Fill — If all core spaces are filled with loose dry expanded slag, expanded clay or shale (Rotary Kiln Process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to classification.

5. Foamed Plastic* — (Optional-Not Shown) — 1-1/2 in. thick max, 4 ft wide sheathing attached to concrete blocks (Item 1).

THE DOW CHEMICAL CO — Type Thermax

*Bearing the UL Classification Mark

Last Updated on 2004-03-17

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Design No. I501

September 19, 2017

Unrestrained Assembly Rating - 1 Hr

Load Restriction - Limited to the Dead Weight of the Assembly.

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1. **Perimeter Channels** — Used to support steel studs at both ends of wall structure. Min. 6 in. deep with min. 2 in. legs and formed from min. No. 20 MSG galv. steel (0.0329 in. thick bare metal thickness). Perimeter channels attached to wall structure with fasteners spaced not greater than 24 in. O.C. at both the top and bottom of the vertical leg. Maximum clear span from vertical leg to vertical leg of the perimeter channels is 8 ft., 2-1/4 in.

2. **Steel Studs** — Min. 6 in. wide with min. 1-5/8 in. legs containing folded back flanges and formed from min. No. 20 MSG galv. steel (0.0329 in. thick bare metal thickness). Studs to be cut 1/2 in. to 3/4 in. less than the clear span between the vertical legs of the perimeter channels. Studs spaced a max. 16 in. O.C. At each end of the stud, the un-faced side shall be secured to the perimeter channel with one 1/2 in. long pan-head steel screw. Studs are used at each end of the horizontal barrier to terminate the assembly at the adjoining wall. These end studs shall be secured to the adjoining wall in the same manner as the perimeter channels (Item1).

3. **Steel Strap** — Min 4 in. wide formed from min. No. 20 MSG galv. Steel (0.0329 in. thick bare metal thickness). Secured perpendicular to the studs at the centerline of the span using two 1/2 in. long pan-head steel screws. Strips to overlap one full stud bay at splice locations. As an alternate to the steel strap, Perimeter Channels (Item 1) may be substituted and installed in the same manner as the steel straps. If a continuous piece is not used, the abutted legs are installed on each side of the centerline of the span and overlap one full stud bay.

4. **Gypsum Board*** — Three layers of nom. 5/8 in. thick, 46 to 54 in. wide, gypsum board installed with long dimension perpendicular to the steel studs. Base layer installed with end joints in adjacent rows staggered min. 32 in. Boards secured to studs and perimeter channels with 1-1/4 in. long Type S steel screws spaced max. 16 in. O.C. Middle layer installed with end joints in adjacent rows staggered min. 32 in. Boards secured to the studs and perimeter channels with 1-5/8 in. long Type S steel screws spaced max. 16 in. O.C. Middle layer joints staggered a min. 16 in. from base layer joints Face layer installed with end joints in adjacent rows staggered min. 32 in. Boards secured to the studs and perimeter channels with 2-1/4 in. long Type S steel screws spaced max. 12 in. O.C. Face layer joints staggered a min. 16 in. from middle layer joints.
AMERICAN GYPSUM CO — Types AGX-1, AG-C, LightRoc.

5. **Joint Tape and Compound** — Not Shown - (Optional- Not Required On Joints. Required On Screw Heads), - Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, nom. 2 in. wide, embedded in first layer of compound over all joints.

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Last Updated on 2017-09-19

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CHECKED BY:	**CHB**

U.L. DETAILS

G-003

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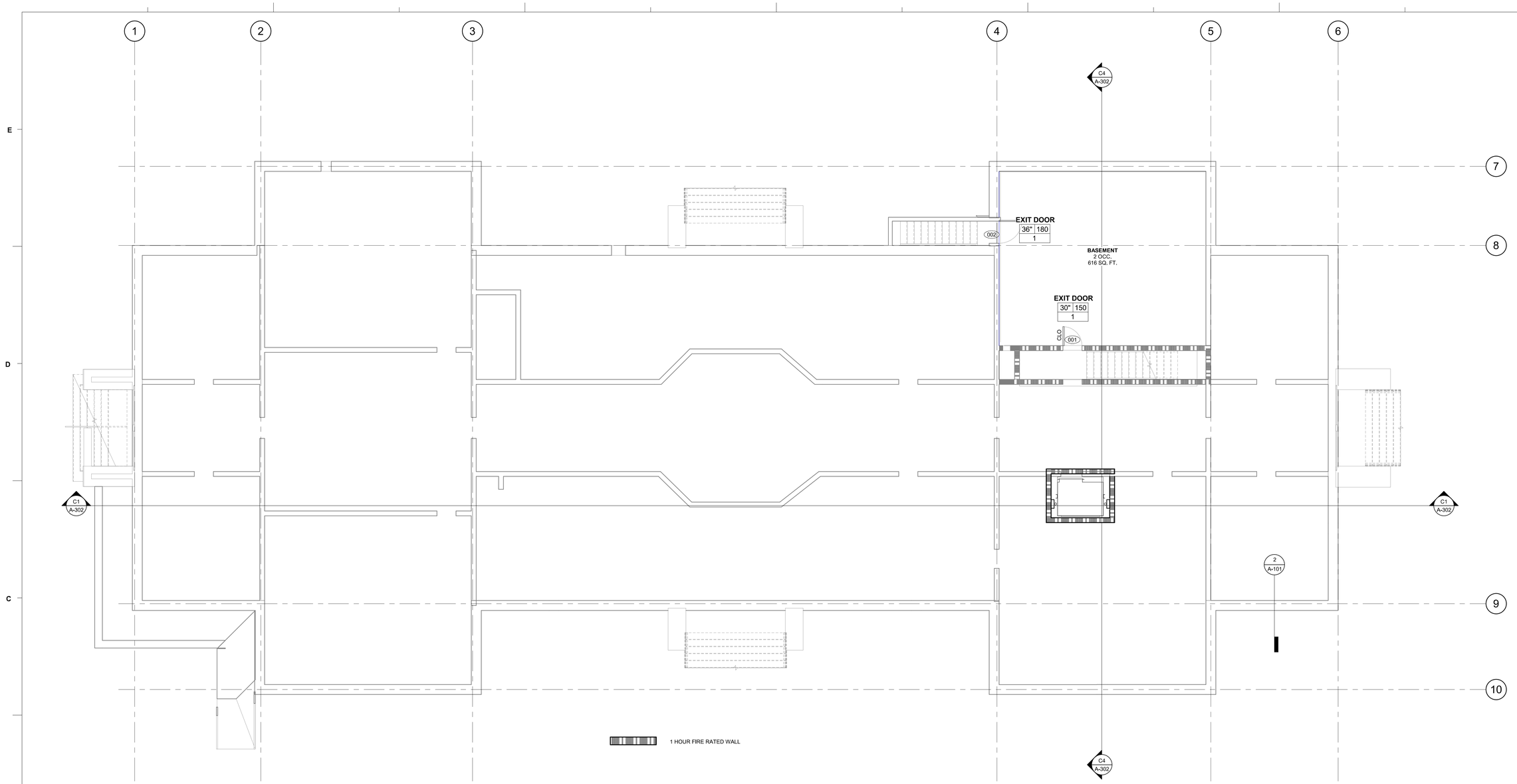

1 BASEMENT LIFESAFETY PLAN
3/16" = 1'-0"

LIFE SAFETY AREA OCCUPANCY KEY

Occupancy Type	Area per Occupant
Assembly - Concentrated	7 SF
Assembly - Standing Space	5 SF
Assembly - Unconcentrated	15 SF
Business	100 SF
Courtrooms	40 SF
Dormitories	50 SF
Educational - Classroom	20 SF
Educational - Vocational	50 SF
Exercise Rooms	50 SF
Institutional - Inpatient	240 SF
Institutional - Outpatient	100 SF
Institutional - Sleeping Areas	120 SF
Kitchens - Commercial	200 SF
Library - Reading	50 SF
Library - Stack	100 SF
Locker Rooms	50 SF
Mechanical Room	300 SF
Parking Garages	200 SF
Residential	200 SF
Stages and Platforms	15 SF
Storage Areas	300 SF

LIFE SAFETY LEGEND
12" = 1'-0"

LIFE SAFETY PLAN LEGEND

EGRESS TRAVEL PATH:
DISTANCE NOTED IS ACTUAL.
ALLOWABLE DISTANCE IS 300'-0"

ROOM NAME
1 OCC — OCCUPANCY LOAD
150 SF — ROOM AREA
OCC Type / SF per OCC — OCCUPANCY LOAD FACTOR AND METHOD
OCCUPANCY GROUP

EXIT DOOR
34" 170 — EXIT CAPACITY (DOOR EGRESS WIDTH / .2)
111 — ANTICIPATED LOAD
EGRESS WIDTH

EXIT STAIR
48" 160 — EXIT CAPACITY (STAIR EGRESS WIDTH / .3)
137 — ANTICIPATED LOAD
EGRESS WIDTH

HO HOLD OPEN
CLO CLOSER
PD PANIC DEVICE
FEC FIRE EXTINGUISHER CABINET WITH FIRE EXTINGUISHER
EXIT SIGN

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: Author
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BASEMENT LIFE SAFETY PLAN

G-004

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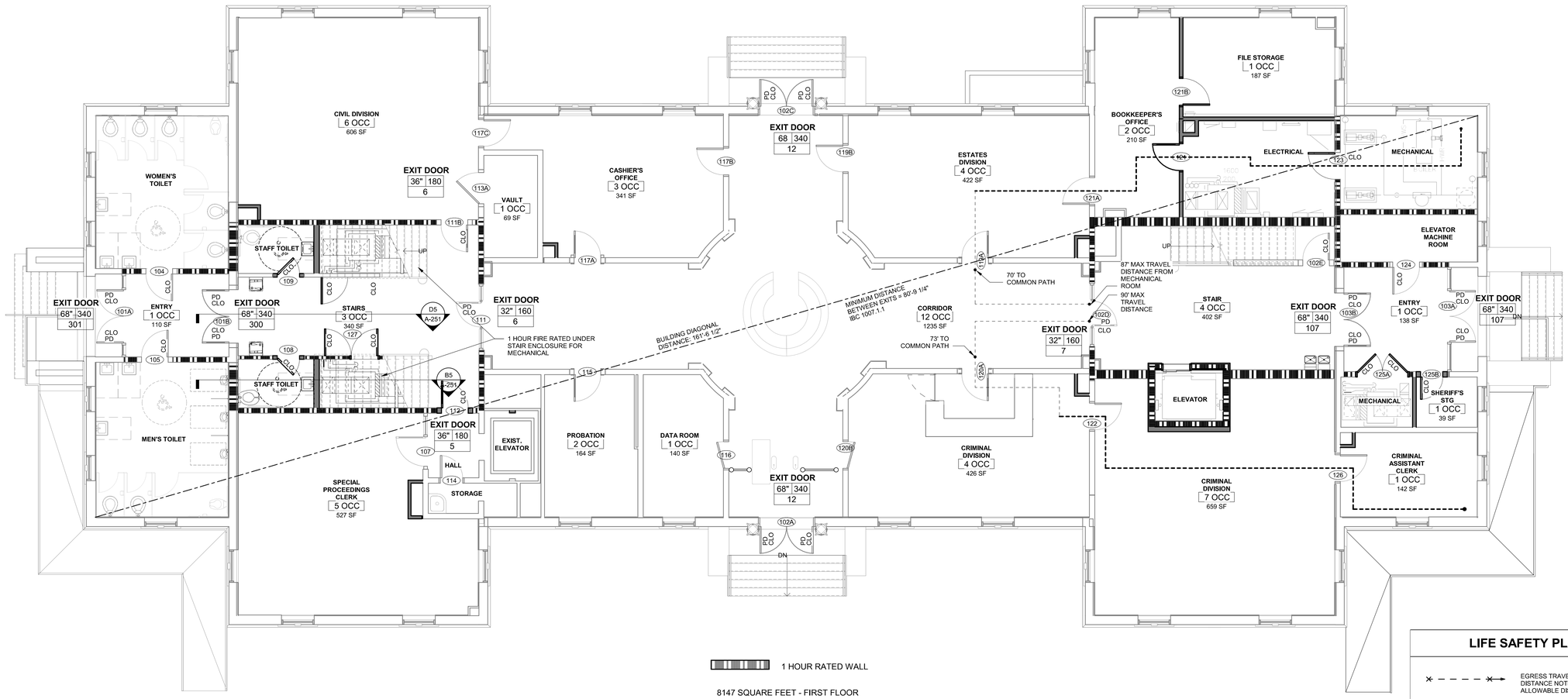

1 HOUR RATED WALL

8147 SQUARE FEET - FIRST FLOOR

1 FIRST FLOOR LIFE SAFETY PLAN

3/16" = 1'-0"

LIFE SAFETY PLAN LEGEND

EGRESS TRAVEL PATH:
DISTANCE NOTED IS ACTUAL.
ALLOWABLE DISTANCE IS 300'-0"

ROOM NAME
1 OCC — OCCUPANCY LOAD
150 SF — ROOM AREA
OCC Type / SF per OCC — OCCUPANCY LOAD FACTOR AND METHOD
OCCUPANCY GROUP

EXIT DOOR
34" 170 — EXIT CAPACITY (DOOR EGRESS WIDTH / .2)
111 — ANTICIPATED LOAD
EGRESS WIDTH

EXIT STAIR
48" 160 — EXIT CAPACITY (STAIR EGRESS WIDTH / .3)
137 — ANTICIPATED LOAD
EGRESS WIDTH

HO HOLD OPEN
PD PANIC DEVICE
CLO CLOSER
FEC FIRE EXTINGUISHER CABINET WITH FIRE EXTINGUISHER
EXIT SIGN

LIFE SAFETY AREA OCCUPANCY KEY

Occupancy Type	Area per Occupant
Assembly - Concentrated	7 SF
Assembly - Standing Space	5 SF
Assembly - Unconcentrated	15 SF
Business	100 SF
Courtrooms	40 SF
Dormitories	50 SF
Educational - Classroom	20 SF
Educational - Vocational	50 SF
Exercise Rooms	50 SF
Institutional - Inpatient	240 SF
Institutional - Outpatient	100 SF
Institutional - Sleeping Areas	120 SF
Kitchens - Commercial	200 SF
Library - Reading	50 SF
Library - Stack	100 SF
Locker Rooms	50 SF
Mechanical Room	300 SF
Parking Garages	200 SF
Residential	200 SF
Stages and Platforms	15 SF
Storage Areas	300 SF

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

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FIRST FLOOR LIFE SAFETY PLAN

G-005

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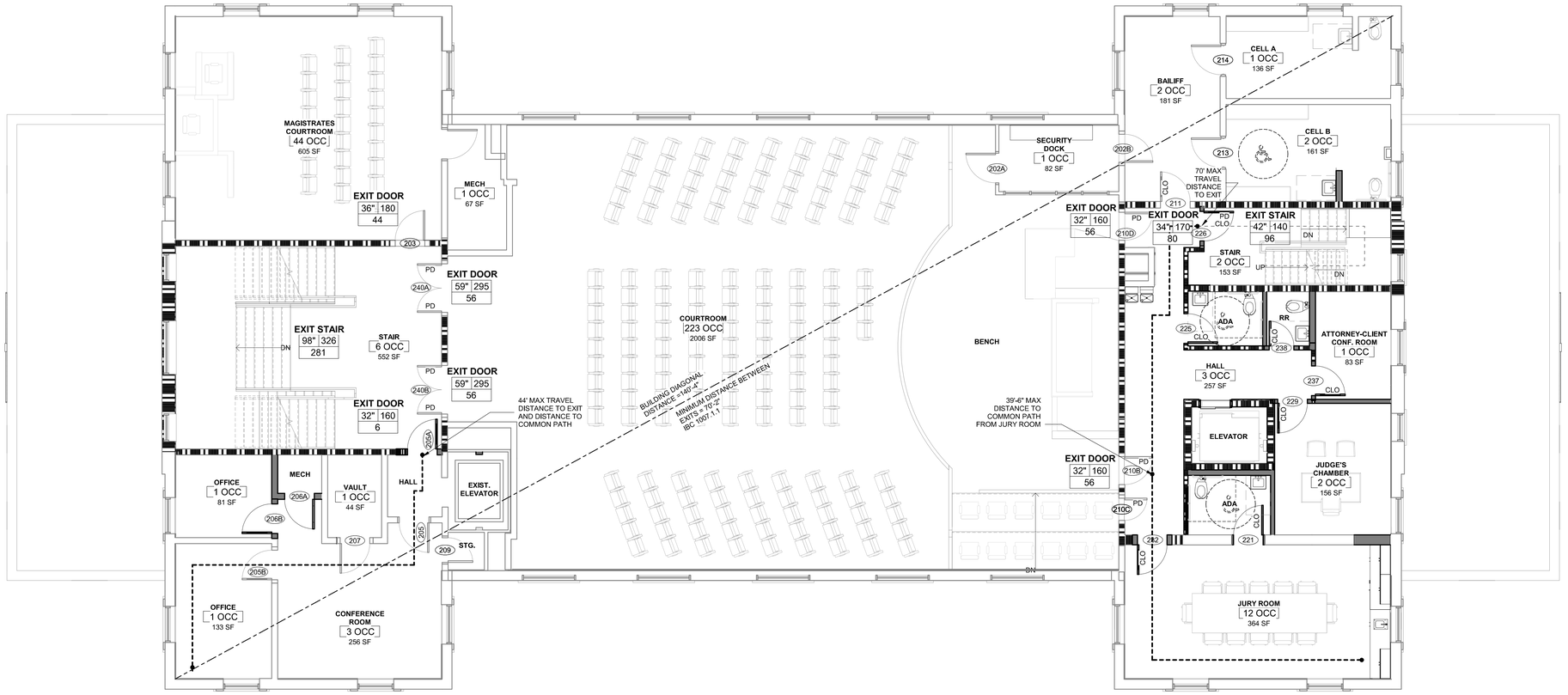

1 HOUR RATED WALL

6549 SQUARE FEET - SECOND FLOOR

1 SECOND FLOOR LIFE SAFETY PLAN

3/16" = 1'-0"

LIFE SAFETY PLAN LEGEND

EGRESS TRAVEL PATH:
DISTANCE NOTED IS ACTUAL.
ALLOWABLE DISTANCE IS 300'-0"

ROOM NAME
1 OCC — OCCUPANCY LOAD
150 SF — ROOM AREA
OCC Type / SF per OCC — OCCUPANCY LOAD FACTOR AND METHOD
OCCUPANCY GROUP

EXIT DOOR
34" 170 — EXIT CAPACITY (DOOR EGRESS WIDTH / .2)
111 — ANTICIPATED LOAD
EGRESS WIDTH

EXIT STAIR
48" 160 — EXIT CAPACITY (STAIR EGRESS WIDTH / .3)
137 — ANTICIPATED LOAD
EGRESS WIDTH

HO HOLD OPEN
CLO CLOSER
PD PANIC DEVICE
FEC FIRE EXTINGUISHER CABINET WITH FIRE EXTINGUISHER
EXIT SIGN

LIFE SAFETY AREA OCCUPANCY KEY

Occupancy Type	Area per Occupant
Assembly - Concentrated	7 SF
Assembly - Standing Space	5 SF
Assembly - Unconcentrated	15 SF
Business	100 SF
Courtrooms	40 SF
Dormitories	50 SF
Educational - Classroom	20 SF
Educational - Vocational	50 SF
Exercise Rooms	50 SF
Institutional - Inpatient	240 SF
Institutional - Outpatient	100 SF
Institutional - Sleeping Areas	120 SF
Kitchens - Commercial	200 SF
Library - Reading	50 SF
Library - Stack	100 SF
Locker Rooms	50 SF
Mechanical Room	300 SF
Parking Garages	200 SF
Residential	200 SF
Stages and Platforms	15 SF
Storage Areas	300 SF

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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SECOND FLOOR LIFE SAFETY PLAN

G-006

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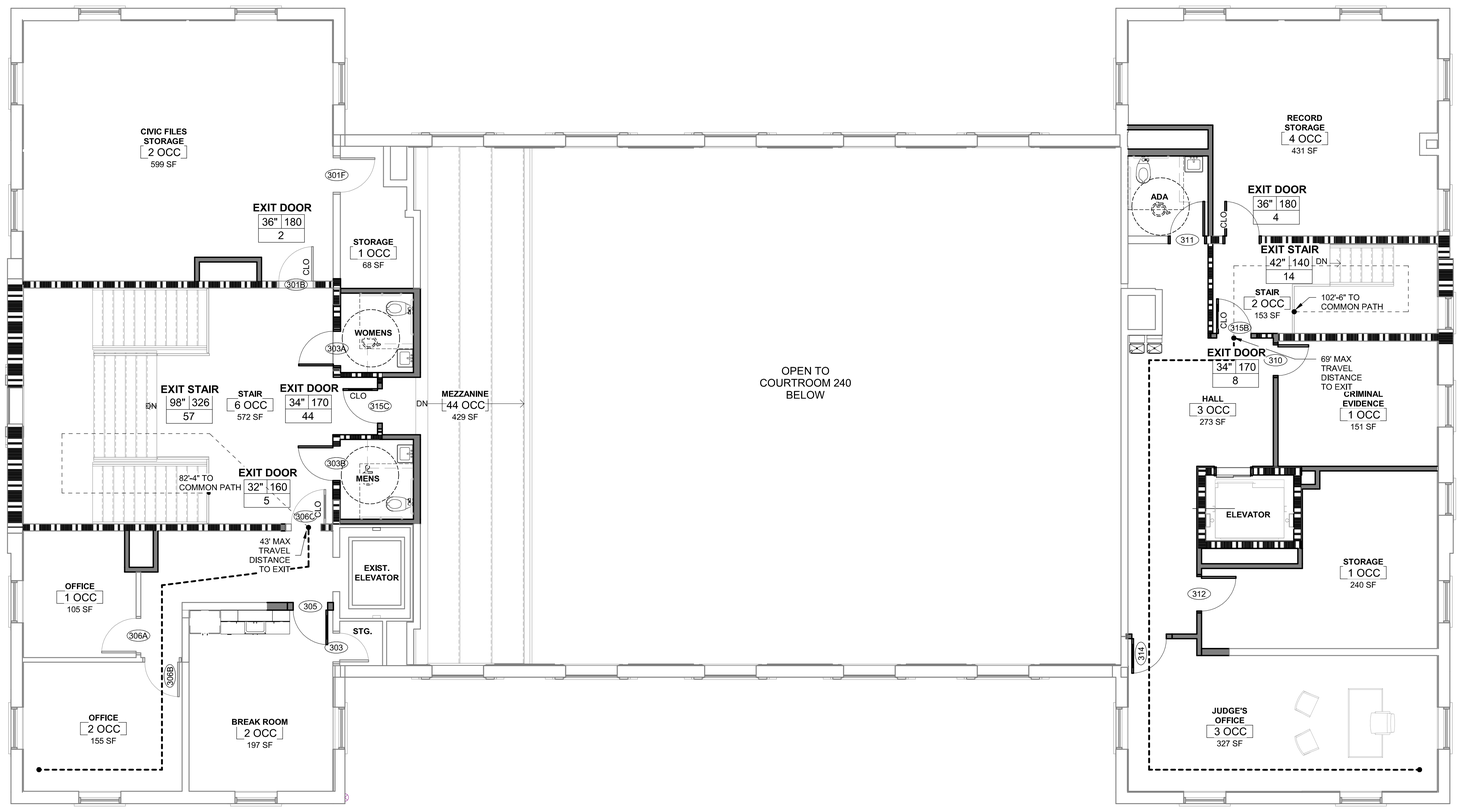

1 HOUR RATED WALL

3433 SQUARE FEET - THIRD FLOOR

1 THIRD FLOOR LIFE SAFETY PLAN

3/16" = 1'-0"

LIFE SAFETY PLAN LEGEND

EGRESS TRAVEL PATH:
DISTANCE NOTED IS ACTUAL.
ALLOWABLE DISTANCE IS 300'-0"

ROOM NAME
1 OCC — OCCUPANCY LOAD
150 SF — ROOM AREA
OCC Type / SF per OCC — OCCUPANCY LOAD FACTOR AND METHOD
OCCUPANCY GROUP

EXIT DOOR
34" 170 — EXIT CAPACITY (DOOR EGRESS WIDTH / .2)
111 — ANTICIPATED LOAD
EGRESS WIDTH

EXIT STAIR
48" 160 — EXIT CAPACITY (STAIR EGRESS WIDTH / .3)
137 — ANTICIPATED LOAD
EGRESS WIDTH

HO HOLD OPEN
CLO CLOSER
PD PANIC DEVICE
FEC FIRE EXTINGUISHER CABINET WITH FIRE EXTINGUISHER
EXIT SIGN

LIFE SAFETY AREA OCCUPANCY KEY

Occupancy Type	Area per Occupant
Assembly - Concentrated	7 SF
Assembly - Standing Space	5 SF
Assembly - Unconcentrated	15 SF
Business	100 SF
Courtrooms	40 SF
Dormitories	50 SF
Educational - Classroom	20 SF
Educational - Vocational	50 SF
Exercise Rooms	50 SF
Institutional - Inpatient	240 SF
Institutional - Outpatient	100 SF
Institutional - Sleeping Areas	120 SF
Kitchens - Commercial	200 SF
Library - Reading	50 SF
Library - Stack	100 SF
Locker Rooms	50 SF
Mechanical Room	300 SF
Parking Garages	200 SF
Residential	200 SF
Stages and Platforms	15 SF
Storage Areas	300 SF

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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DATE: 03/29/20
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CHECKED BY: CHBj

THIRD FLOOR LIFE SAFETY PLAN

G-007

BID DOCUMENTS

BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 3:41:02 PM

E WILMINGTON STREET
(60' PUBLIC RIGHT-OF-WAY)

S WRIGHT STREET
(75' PUBLIC RIGHT-OF-WAY)

S WALKER STREET
(75' PUBLIC RIGHT-OF-WAY)

W COURTHOUSE AVENUE
(40' PUBLIC RIGHT-OF-WAY)

E FREMONT STREET
(90' PUBLIC RIGHT-OF-WAY)

EXISTING PENDER COUNTY COURTHOUSE FFE=53.15'

EX. MH RIM: 48.75' INV 15" RCP (SE): 44.59'
EX. MH RIM: 48.68' INV 15" RCP (SE): 44.08'
EX. MH RIM: 48.21' INV 15" RCP (S): 44.04'
EX. CB RIM: 47.91' INV 15" RCP (NW): 44.91'
EX. CB 1 (REPLACE) RIM 47.88' EXIST INV 15" RCP NW 44.72'
EX. CB RIM: 47.48' INV 12" RCP (SW): 44.84' INV 15" RCP (N): 44.50'
EX. DI 4 EXIST. RIM: 48.84' INV 12" RCP NE 44.84' INV 12" RCP SW 44.50'
EX. DI 7 EX. RIM 49.11' EX. INV 12" RCP NE 47.38'
EX. DI RIM: 48.83

PROP. R/W PER NCDOT TIP PROJECT R-5701
PROP. 15' EASEMENT
S17°25'48"E 26.58'
S71°02'51"W 16.26'
N72°32'34"E 378.00'
N17°25'48"W 27.74'
S72°00'18"W 16.75'
S72°32'34"W 378.00'
S17°25'37"E 452.42'
N17°25'30"W 480.00'

SAWCUT EXISTING SIDEWALK, REMOVE, AND DISPOSE
REMOVE EXISTING ROOF DRAIN AND DISPOSE
EX. CONC WALK
EX. GAZEBO
EX. MONUMENT "OUR HEROES"
EX. HISTORICAL MONUMENT
EX. HISTORIC SURVEY MONUMENT
EX. SWING
EX. PARKING BLOCK (TYP.)
EX. CONDENSER LINES (5)
EX. CHILLER
EX. 12" BRICK WALL TRANSFORMER ENCLOSURE
EX. TRANSFORMER
EX. 6" ROOF DRAIN
EX. ROOF DRAIN
INFORMATION SIGN FOR MONUMENT
BENCH
DRINKING FOUNTAIN
AZALEA BED
OP 2 OUTLETS & BREAKERBOX
OP WITH CONDUITBOX
OP WITH 11 OUTLETS
METER POST
OP 2OUTLETS
OP 11OUTLETS
OP 10 OUTLETS
OP-9OUTLETS
OP 8 OUTLETS
METER
ELCPED
TN

SITE LOCATION MAP
NOT TO SCALE

NAD 83 NC GRID

LEGEND

EXISTING RIGHT OF WAY MONUMENT	RWM
EXISTING CONCRETE MONUMENT	ECM
EXISTING IRON PIPE	EIP
EXISTING IRON ROD	EIR
PK NAIL FOUND	PKF
TRAVERSE NAIL	TN
CALCULATED PROPERTY CORNER	
RIGHT OF WAY	R/W
PROPERTY LINE, SURVEYED	
PROPERTY LINE, NOT SURVEYED	
EXISTING EASEMENT	
EXISTING UNDERGROUND ELECTRIC	uge
EXISTING POWER POLE	
EXISTING LIGHT POLE	
EXISTING OUTLET POST	OP
EXISTING ELECTRIC METER	METER
EXISTING ELECTRIC PEDESTAL	ELCPED
EXISTING GROUND LIGHT	
EXISTING FIBER OPTIC	fo
EXISTING FIBER OPTIC PEDESTAL	
EXISTING STORM PIPE	
EXISTING STORM MANHOLE	st
EXISTING CURB INLET	
EXISTING DROP INLET	
EXISTING GAS LINE	g
EXISTING GAS VALVE	
EXISTING GAS METER	gm
EXISTING WATER LINE	w
EXISTING WATER VALVE	
EXISTING WATER METER	
EXISTING UNDERGROUND TELEPHONE	ugt
EXISTING TELEPHONE PEDESTAL	
EXISTING UNDERGROUND CABLE	c
EXISTING CABLE BOX	catv
EXISTING FIRE HYDRANT	
EXISTING GUY ANCHOR	
EXISTING SANITARY SEWER LINE	SS
EXISTING SANITARY SEWER MANHOLE	SS
EXISTING CONCRETE	
EXISTING LANDSCAPING	
EXISTING TREE DIAMETER, DESCRIPTION AND APPROXIMATE ROOT ZONE	7" OAK

811 Know what's below. before you dig.
3 WORKING DAYS BEFORE YOU DIG FOR THE LOCATION OF UNDERGROUND FACILITIES

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft. Horz.

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

PENDER COUNTY NC

SEPI ENGINEERING & CONSTRUCTION, INC.
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BELHAVEN | CHARLESTON

5030 NEW CENTRE DR. | SUITE B
WILMINGTON, NC 28403
PHONE | 910.523.5715

sepiinc.com

SEPI PROJECT NUMBER: SE19.006.00

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101 NORTH THIRD STREET SUITE 500
WILMINGTON, NORTH CAROLINA 28401
TEL. 910.790.9901 FAX 910.790.3111
WWW.LS3P.COM

NORTH CAROLINA PROFESSIONAL SEAL 044410 ENGINEER MARK T. ARCHER
3/26/2020

SEPI ENGINEERING & CONSTRUCTION, INC. CORPORATE SEAL C-2197 N.C.

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REVISIONS:

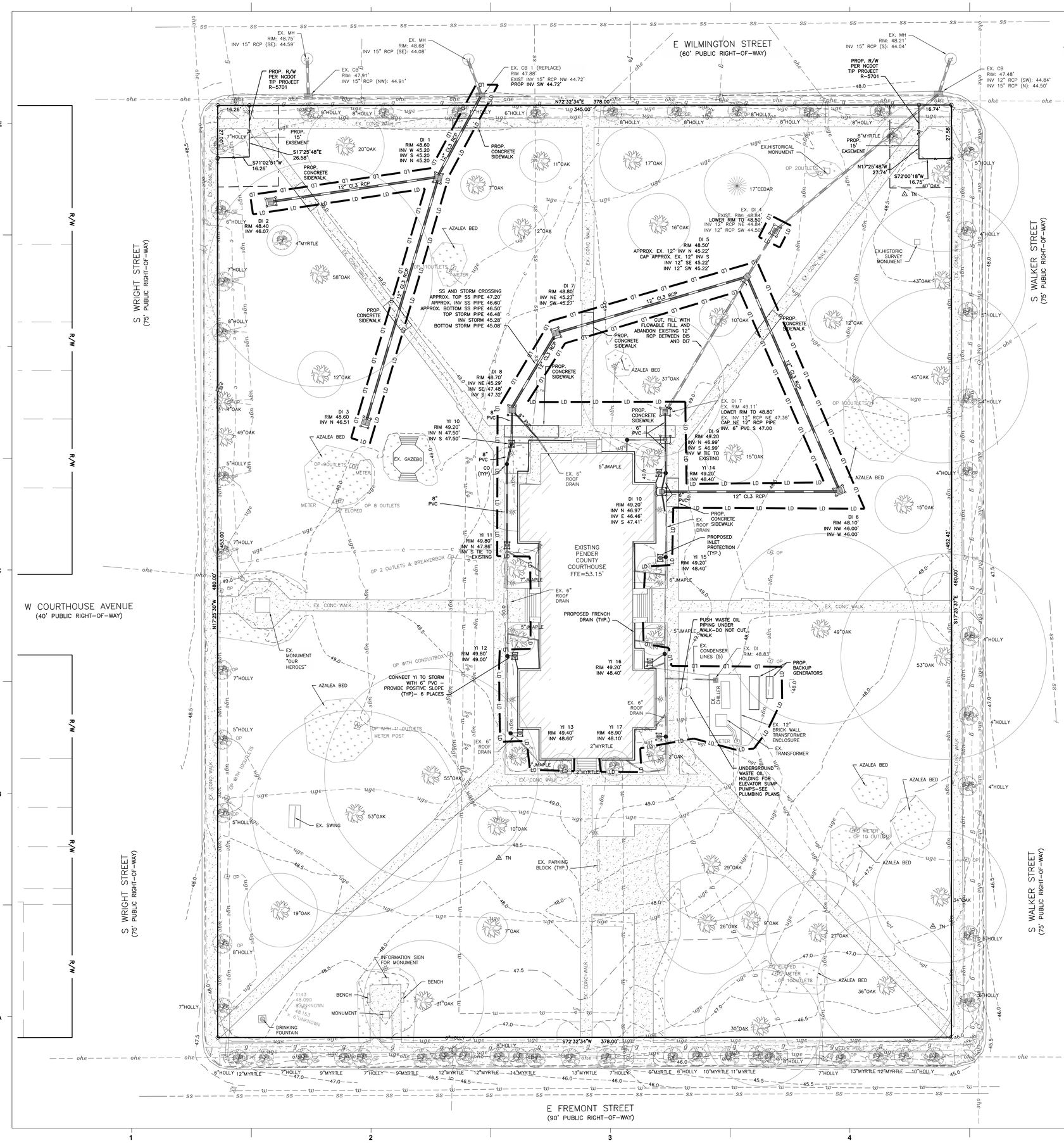
No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/2020
DRAWN BY: JRS
CHECKED BY: MTA

EXISTING CONDITIONS AND DEMOLITION PLAN

C-1

BID DOCUMENTS



LEGEND

EXISTING RIGHT OF WAY MONUMENT	RWM
EXISTING CONCRETE MONUMENT	ECM
EXISTING IRON PIPE	EIP
EXISTING IRON ROD	EIR
PK NAIL FOUND	PKF
TRAVERSE NAIL	TN
CALCULATED PROPERTY CORNER	
RIGHT OF WAY	R/W
PROPERTY LINE, SURVEYED	
PROPERTY LINE, NOT SURVEYED	
EXISTING EASEMENT	
EXISTING UNDERGROUND ELECTRIC	uge
EXISTING POWER POLE	
EXISTING LIGHT POLE	
EXISTING OUTLET POST	OP
EXISTING ELECTRIC METER	METER
EXISTING ELECTRIC PEDESTAL	ELCPED
EXISTING GROUND LIGHT	
EXISTING FIBER OPTIC	fo
EXISTING FIBER OPTIC PEDESTAL	fo
EXISTING STORM PIPE	
PROPOSED STORM PIPE	
PROPOSED FRENCH DRAIN	
EXISTING STORM MANHOLE	st
EXISTING CURB INLET	
EXISTING DROP INLET	
PROPOSED DROP INLET	
PROPOSED YARD INLET	
EXISTING GAS LINE	g
EXISTING GAS VALVE	
EXISTING GAS METER	gm
EXISTING WATER LINE	w
EXISTING WATER VALVE	wv
EXISTING WATER METER	wm
EXISTING UNDERGROUND TELEPHONE	ugt
EXISTING TELEPHONE PEDESTAL	tp
EXISTING UNDERGROUND CABLE	c
EXISTING CABLE BOX	catv
EXISTING FIRE HYDRANT	
EXISTING GUY ANCHOR	
EXISTING SANITARY SEWER LINE	ss
EXISTING SANITARY SEWER MANHOLE	ss
EXISTING CONCRETE	
EXISTING LANDSCAPING	
EXISTING TREE DIAMETER, DESCRIPTION AND APPROXIMATE ROOT ZONE	7" OAK
PROPOSED LIMITS OF DISTURBANCE	LD LD
PROPOSED INLET PROTECTION	

SEEDING SCHEDULE

1. ALL DISTURBED AREAS DUE TO CONSTRUCTION AND ANY SEVERELY ERODED AREAS SHALL BE STABILIZED BY A PERMANENT GRASS COVER. THE SEED SPECIES SHALL BE SELECTED BASED ON THE TYPE SOIL PRESENT, SEASONAL CONDITIONS AND OTHER CONSIDERATIONS. AS AN ALTERNATIVE, THE CONTRACTOR MAY USE THE METHOD AND SCHEDULES SHOWN BELOW; HOWEVER, IT IS RECOMMENDED THAT A SPECIALIST BE CONSULTED WITH ATTENTION GIVEN TO SITE SPECIFIC CONDITIONS.

   a. CULTIVATE AREA TO A DEPTH OF 5 INCHES.
   b. APPLY AGRICULTURAL LIME UP TO 1 TON PER ACRE FOR SOIL DISTURBED LESS THAN 6", AND 2 TONS PER ACRE FOR SOILS DISTURBED GREATER THAN 6".
   c. APPLY 10-20-20 COMMERCIAL FERTILIZER AT THE RATE OF 500 LBS. PER ACRE.
   d. SOW GRASS SEEDS AT THE FOLLOWING RATES PER ACRE.

DRY SOILS (APRIL-SEPTEMBER)		WET SOILS (APRIL-SEPTEMBER)	
BERMUDAGRASS	30 lbs.	BERMUDAGRASS	25 lbs.
CENTIPEDEGRASS	10 lbs.	BAHIAGRASS	25 lbs.
BAHIAGRASS	30 lbs.	CARPETGRASS	25 lbs.
KOBE LESPEDEZA	20 lbs.	ANNUAL RYEGRASS or GERMAN MILLET	25 lbs.
ANNUAL RYEGRASS OR GERMAN MILLET	25 lbs.		

   e. MULCH WITH STRAW AT THE RATE OF 3,250 TO 4,350 LBS. PER ACRE SHOULD PROVIDE 75% COVER. COVER IN EXCESS OF 75% COULD REDUCE PROPER PLANT GROWTH AFTER SEED GERMINATION.
   f. ANCHOR STRAW WITH ASPHALT EMULSION TACK COAT APPLIED AT THE RATE OF 300 GALLONS PER ACRE.

2. WHERE IT IS NOT POSSIBLE TO ESTABLISH A PERMANENT GRASS COVER IN A REASONABLY SHORT PERIOD OF TIME DUE TO SEASONAL CONSIDERATIONS, A TEMPORARY GRASS COVER SHALL BE ESTABLISHED. THE TEMPORARY SEED RATE PER ACRE SHALL BE:

WINTER (SEPTEMBER-APRIL)		SUMMER (MAY-AUGUST)	
ANNUAL RYEGRASS	50 lbs.	GERMAN MILLET	50 lbs.
TALL FESCUE	50 lbs.		

   TEMPORARY COVERS SHALL NOT ELIMINATE THE REQUIREMENT FOR PERMANENT GRASS COVER. WHERE THE SEASON OR OTHER CONDITIONS ARE NOT SUITABLE FOR GROWING A TEMPORARY EROSION RESISTANT COVER, MULCH MAY BE APPLIED; HOWEVER, MULCH USED ALONE SHALL BE FOR THE SHORTEST TIME PRACTICAL. A TEMPORARY OR PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED AS SOON AS CONDITIONS ARE FAVORABLE.
3. TOPSOIL SHALL BE USED OVER ALL SOIL CONDITIONS FOR SUCCESSFUL ESTABLISHMENT OF VEGETATIVE COVER AT A DEPTH OF AT LEAST 4". TOPSOIL TO BE FROM APPROVED NC SOURCE.
4. IRRIGATE AS NECESSARY TO OPTIMIZE PLANT GROWTH.

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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 Inch = 20 ft. Horz.

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

PENDER COUNTY NC

SEPI ENGINEERING & CONSTRUCTION, INC.
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NORTH CAROLINA PROFESSIONAL SEAL 043... ENGINEER MARK T. ARCURI
3/26/2020

SEPI ENGINEERING & CONSTRUCTION, INC. CORPORATE SEAL C-2197 N.C.

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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/2020
DRAWN BY: JRS
CHECKED BY: MTA

EROSION CONTROL, GRADING, AND STORMWATER PLAN

C-2

BID DOCUMENTS

GENERAL NOTES:

- * THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS: 840.01, 840.02, 840.04, 840.05, 840.13, 840.14, 840.15, 840.17, 840.18, 840.19, 840.26, 840.27, 840.28, 840.31, 840.32 AND 840.41.
- * INSTALL PRECAST DRAINAGE STRUCTURES AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 840.
- * DO NOT PLACE PRECAST DRAINAGE STRUCTURES UNDER TRAFFIC OR WHERE TRAFFIC WILL BE DETOURED.
- * USE 4000 PSI CONCRETE.
- * PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
- * LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
- * PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- * CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCKOUT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
- * ALL ELEMENTS PRECAST TO MEET ASTM C913.
- * FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
- * PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
- * WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- * SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-S-21A, AASHTO M-198, TYPE B - BUTYL RUBBER.
- * LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 5'-0" X 5'-0".
- * THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
- * USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.

STRUCTURES

1. PRECAST STRUCTURES SHALL MEET NC DOT 840.45 OR PRIOR APPROVED EQUIVALENT.
2. BRICK BUILT CATCH BASINS CAN ALTERNATIVELY BE USED, AND SHALL MEET NC DOT 840.01, OR PRIOR APPROVED EQUIVALENT.
3. CONCRETE CATCH BASINS CAN ALTERNATIVELY BE USED, AND SHALL MEET NC DOT 840.02, OR PRIOR APPROVED EQUIVALENT.
4. CONCRETE DROP INLETS CAN ALTERNATIVELY BE USED, AND SHALL MEET NC DOT 840.14, OR PRIOR APPROVED EQUIVALENT.
5. BRICK BUILT DROP INLETS CAN ALTERNATIVELY BE USED, AND SHALL MEET NC DOT 840.15, OR PRIOR APPROVED EQUIVALENT.

CASTINGS

1. CATCH BASIN CASTINGS SHALL BE NC DOT 840.03, OR PRIOR APPROVED EQUIVALENT.
2. DROP INLET CASTINGS SHALL BE NC DOT 840.16, OR PRIOR APPROVED EQUIVALENT.
3. STORM DRAIN MANHOLE CASTINGS SHALL BE NC DOT 840.54, OR PRIOR APPROVED EQUIVALENT.

OTHER

1. ORIENTATION OF STORM DRAIN INLETS ON PLAN ARE FOR THE GRATE AND/OR CASTINGS. MINIMUM STRUCTURE SIZE IS 2' X 2' PLAN DIMENSION. CONTRACTOR SHALL PROVIDE BOXES LARGER THAN MINIMUM SIZE, ORIENT THE BOX/STRUCTURE, AND/OR PROVIDE TRANSITION TOPS AS NECESSARY TO ACCEPT THE PIPE SIZES AND TO ACHIEVE THE PIPE ALIGNMENT TO SCALE AS SHOWN ON THE PLAN. PIPES SHALL NOT CONNECT AT BOX CORNERS WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SUMPS SHALL BE ZERO INCHES UNLESS OTHERWISE SHOWN. THERE SHALL BE NO MAN STEPS UNLESS OTHERWISE SHOWN.
2. GROUT BOTTOM OF STRUCTURES TO FORM BOWL-SHAPED INVERT WITH CONTINUOUS POSITIVE SLOPE FROM ALL INLET PIPES TO OUTLET PIPE.

NYLOPLAST DRAIN BASIN

A	PART #	GRATE OPTIONS					
8"	2808AG	PEDESTRIAN/STANDARD		SOLID	BRONZE	DOME	DROP IN
10"	2810AG	PEDESTRIAN/STANDARD		SOLID	BRONZE	DOME	DROP IN
12"	2812AG	PEDESTRIAN	STANDARD	SOLID	BRONZE	DOME	DROP IN
15"	2815AG	PEDESTRIAN	STANDARD	SOLID	BRONZE	DOME	DROP IN
18"	2818AG	PEDESTRIAN	STANDARD	SOLID	N/A	DOME	DROP IN
24"	2824AG	PEDESTRIAN	STANDARD	SOLID	N/A	DOME	DROP IN
30"	2830AG	PEDESTRIAN	STANDARD	SOLID	N/A	DOME	N/A

① - 8" - 30" GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05, WITH THE EXCEPTION OF THE 8" - 15" BRONZE GRATES
② - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
③ - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065
④ - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
⑤ - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012, 7001-110-013, & 7001-110-014.
6 - GRATES SHALL MEET H-10 LOAD RATING FOR 12" - 24" PED
7 - GRATES SHALL MEET H-20 LOAD RATING FOR 30" PED & 12" - 30" STD & SOLID
8 - ALL BRONZE GRATES, DROP IN GRATES, & 8" & 10" PED/STD GRATES & SOLID COVERS ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY
9 - DOME GRATES HAVE NO LOAD RATING

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DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplastus.com
DATE 1-23-06			
APPD BY CJA	PROJECT NO./NAME	TITLE DRAIN BASIN WITH STANDARD GRATE QUICK SPEC INSTALLATION DETAIL	
DATE 1-23-06			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO. 7001-110-144	REV D

YARD INLET
NOT TO SCALE

YARD INLETS SHALL BE NYLOPLAST AS SHOWN OR PRIOR APPROVED EQUIVALENT

NOTE:
THE CRITICAL ROOT ZONE (CRZ) OF A TREE IS WHERE THE MAJORITY OF A TREE'S ROOTS LAY. 85% OF MOST TREE ROOTS ARE FOUND IN THE TOP 24" OF THE SOIL AND SUPPLY THE MAJORITY OF NUTRIENTS AND WATER. GENERALLY, ROOTS SPREAD OUT 2-3X THE HEIGHT OF THE TREE.

NOTE:
CROWN OF THE TREE IS NEEDED FOR LEAF GROWTH TO PRODUCE OXYGEN, FILTER THE AIR, REDUCE WIND AND SOFTEN NOISE. DO NOT DISFIGURE CROWN WITH INTENSIVE PRUNING.

NOTES:

1. PROTECT CRITICAL ROOT ZONE (CRZ) OF TREES PRIOR TO CONSTRUCTION. CLEARLY MARK THE TREES AND ERECT A PROTECTIVE BARRIER AT THE CRZ. BARRIER SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
2. CRZ RADIUS IS 1 FT PER INCH OF TREE DIAMETER AT BREAST HEIGHT (DBH).
3. IF CONSTRUCTION OCCURS WITHIN THE CRZ, AT LEAST 12" OF MULCH AND/OR LOGGING MATTS SHALL BE PLACED WHERE MACHINERY MANEUVERS TO REDUCE SOIL COMPACTION IN THIS ZONE.
4. WHERE SIDEWALKS AND PATHWAYS PASS WITHIN CRZ, EXTRA CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE ROOTS. ALTERNATE CONSTRUCTION METHODS, SUCH AS A REINFORCED SIDEWALK, SHALL BE IMPLEMENTED AS NECESSARY.
5. FOR ALL TREES, CUTTING OF LARGE STRUCTURAL ROOTS LOCATED NEAR THE BASE OF THE TRUNK IS PROHIBITED. DO NOT COMPACT SOIL BENEATH TREES. NO VEHICLE SHALL BE ALLOWED TO PARK UNDER TREES. NO MATERIALS OR EQUIPMENT SHALL BE STORED BENEATH TREES. DAMAGING THE BARK WITH LAWNMOWERS, CONSTRUCTION EQUIPMENT, OR ANYTHING ELSE IS PROHIBITED. CONTRACTOR SHALL REPAIR DAMAGE TO TREES.
6. FAILING TO INSTALL OR MAINTAIN PROTECTION MEASURES SHALL RESULT IN A STOP WORK ORDER AND FINE OF $500/DAY. DISTURBANCE OTHER THAN THAT ALLOWED ON THE APPROVED PLAN WILL REQUIRE OWNER TO POST A LETTER OF CREDIT FOR 3 YRS FOR TREE MITIGATION.

NOTES:

1. THE TREE PROTECTION FENCING SHALL NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
2. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH, MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
3. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER. FOR TREE PROTECTION AREAS LESS THAN 100' IN PERIMETER, PROVIDE NO LESS THAN TWO SIGNS PER PROTECTION AREA.
4. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. MAINTAIN TREE PROTECTION FENCE AND SIGNS THROUGHOUT DURATION OF PROJECT.
5. TREE PROTECTION FENCING AND SIGNAGE SHALL BE REMOVED AFTER CONSTRUCTION.
6. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF WILMINGTON, BASED ON ACTUAL FIELD CONDITIONS.

TREE PROTECTION DURING CONSTRUCTION
NOT TO SCALE

NOTES:

1. JOINT MATERIAL TO COMPLY WITH CURRENT NCDOT STANDARDS.
2. SANITARY SEWER CLEAN-OUTS, WATER METERS, MANHOLES, AND VALVE LIDS TO BE LOCATED OUTSIDE SIDEWALK WHERE FEASIBLE.
3. MINIMUM SIDEWALK WIDTH TO BE 6' MINIMUM IF PLACED AT BACK OF CURB.
4. CONCRETE FOR ALL SIDEWALKS (EXCEPT ANY PORTION CONTAIN WITHIN A DRIVEWAY APRON) SHALL BE CLASS "A" - 3,000 PSI.
5. MINIMUM REPLACEMENT FOR REPAIRS IS A 5' X 5' PANEL
6. 4" STONE BASE MAY BE REQUIRED FOR POOR SOIL CONDITIONS
7. MINIMUM DEPTH FOR TUNNELING BELOW SIDEWALK IS 12"
8. MAX ADJACENT GROUND SLOPE WITHOUT RAILING IS 2:1
9. MIN GRADE FOR PROPER DRAINAGE IS 1% IN AT LEAST 1 DIRECTION. MAX CROSS SLOPE IS 2%. MAX LONGITUDINAL SLOPE IS 8.3%, 10% IF LIMITED BY EXISTING CONDITIONS, OR NO GREATER THAN THE SLOPE OF THE EXISTING ADJACENT ROAD.

SIDEWALK DETAIL
NOT TO SCALE

NOTES:

1. DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
2. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 1-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
3. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A MIN HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.

STANDARD INLET PROTECTION
NOT TO SCALE

FRENCH DRAIN DETAIL
NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL ENSURE BOTTOM OF TRENCH IS SUITABLE FOR PIPE INSTALLATION AND DOES NOT REQUIRE FOUNDATION CONDITIONING STONE.
2. CONTRACTOR TO INSTALL BEDDING AND PIPE BEFORE INSTALLING HAUNCH AND THEN OVERFILL. SOILS SHALL BE INSTALLED IN 6"-8" LIFTS AND COMPACTED TO MIN. % DENSITY AS DETERMINED BY THE STANDARD PROCTOR ASTM D-698-A METHOD.
3. WHERE IN PAVEMENT, CONTRACTOR SHALL ADHERE TO CITY STREET CUT POLICY AND SD 1-04 OR SD 1-05 FOR ROAD AND PAVEMENT REBUILD.
4. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMP (I.E. JUMPING JACK). HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
5. THIS DETAIL IS REPRESENTATIVE AND PIPE TRENCH DESIGN IS SUBJECT TO SPECIFIC SOIL CATEGORY (I, II, III), AND INSTALLATION TYPE (1, 2, 3, 4), AS DIRECTED BY THE ENGINEER AND SITE CONDITIONS.

PIPE TRENCH DETAIL
NOT TO SCALE

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

PENDER COUNTY NC

SEPI ENGINEERING & CONSTRUCTION, INC.
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sepiinc.com

SEPI PROJECT NUMBER: SE19.006.00

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REVISIONS:

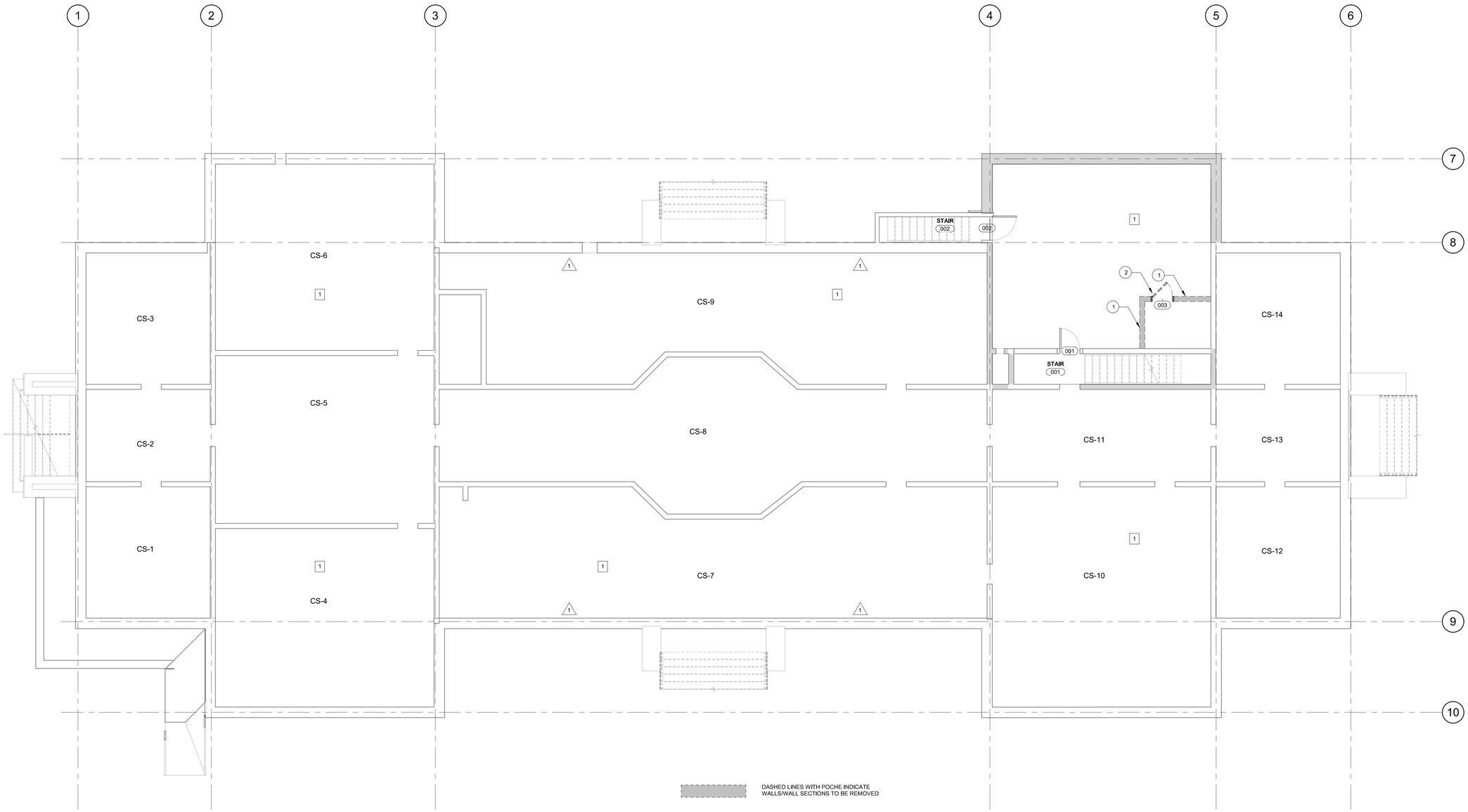
No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/2020
DRAWN BY: JRS
CHECKED BY: MTA

STANDARD DETAILS

C-3

BID DOCUMENTS



B1 DEMO PLAN - CRAWL SPACE/BASEMENT MECHANICAL ROOM
3/16" = 1'-0"

TRUE NORTH

PROJECT NORTH

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4. REMOVE SPRAY-ON ASBESTOS BY SCRAPING, REMOVE TRIM WHERE NECESSARY TO REMOVE ALL SPRAY-ON MATERIAL. ALL REMOVED TRIM MUST BE SAVED TO BE REINSTALLED LATER BY GENERAL CONTRACTOR
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PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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CHARLES H. BRUNSON JR. REGISTERED ARCHITECT NORTH CAROLINA 4270

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REVISIONS:

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PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: TMR
CHECKED BY: CHBj

DEMO PLAN - CRAWLSPACE

D-101

BID DOCUMENTS

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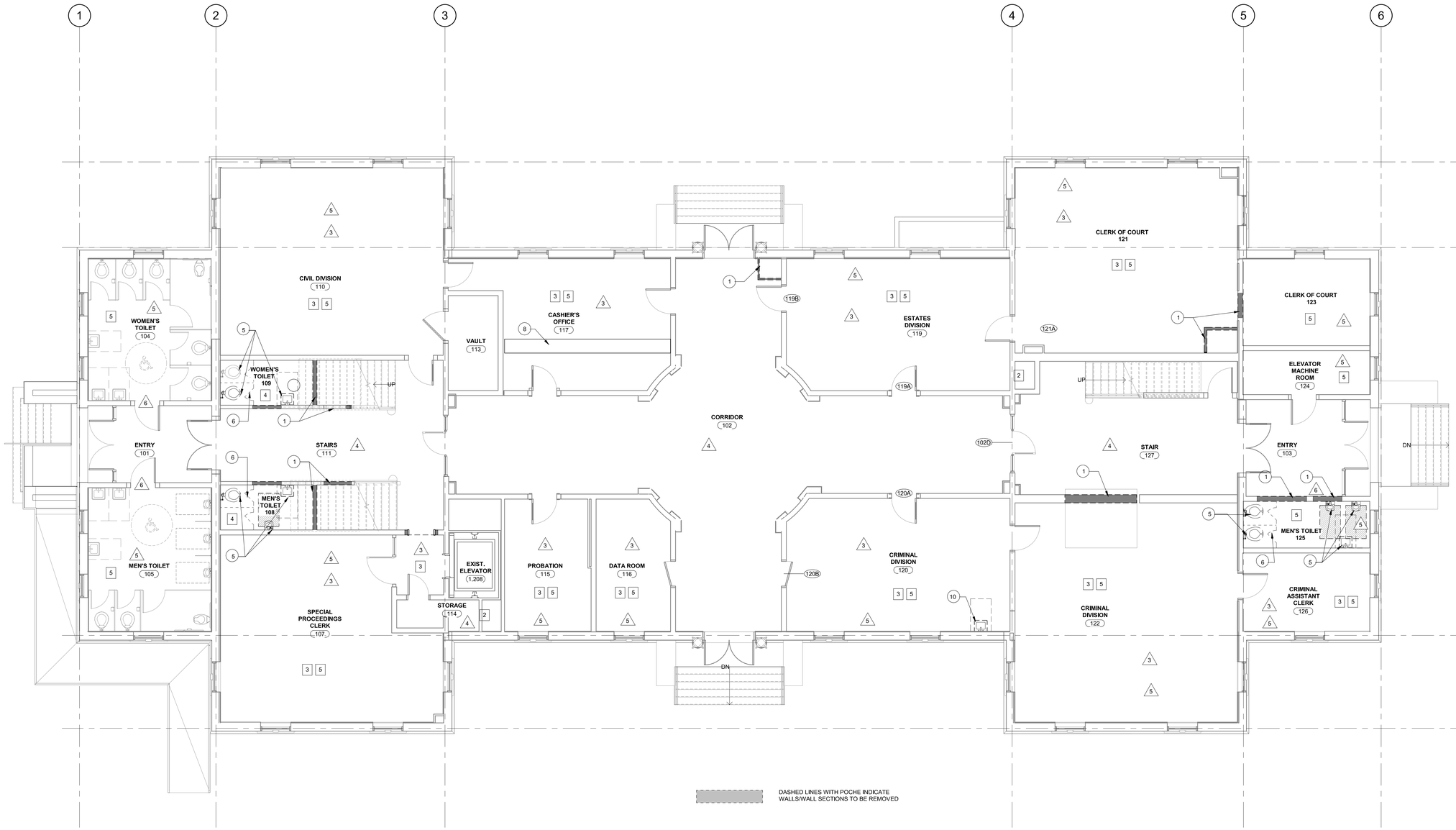

B1 DEMO PLAN - FIRST FLOOR PLAN

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CHARLES H. BOBBITT JR. 4276 REGISTERED ARCHITECT NORTH CAROLINA

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REVISIONS:

No.	Description	Date

TRUE NORTH

PROJECT NORTH

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: TMR
CHECKED BY: CHBj

DEMO PLAN - FIRST FLOOR PLAN

D-102

BID DOCUMENTS

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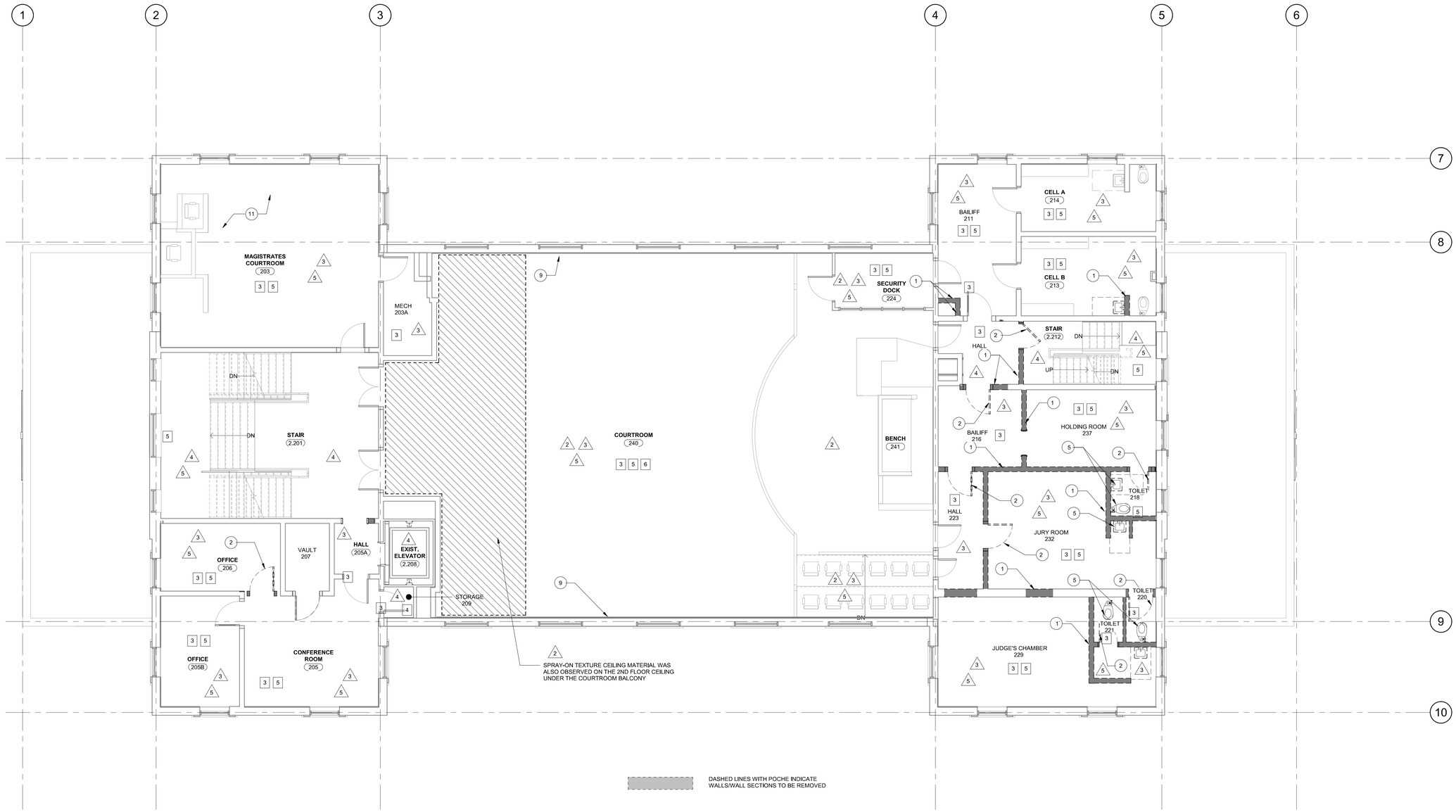

B1 DEMO PLAN - SECOND FLOOR PLAN

3/16" = 1'-0"

TRUE NORTH

PROJECT NORTH

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DEMO PLAN - SECOND FLOOR PLAN

D-103

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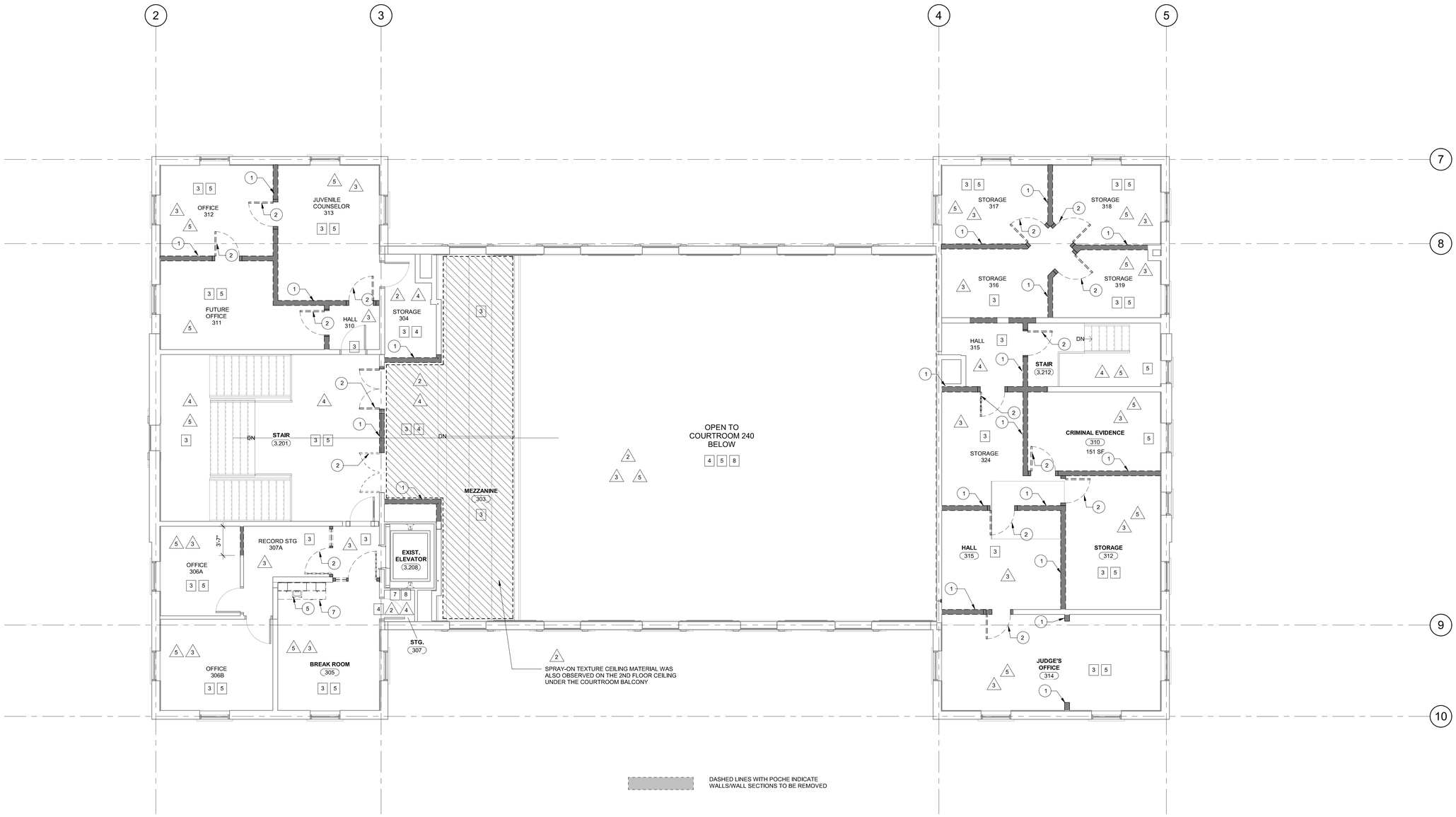

B1 DEMO PLAN -THIRD FLOOR PLAN

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DISCLAIMER: The building surfaces may have lead paint. All contractors are required to comply with OSHA regulations 29 CFR 1926.62 by developing a compliance plan. The project does not include abatement of all lead based or lead containing paint in the building. Where necessary, contractors can use General Contractor's environmental contractor to remediate a spot or location where lead paint interferes with construction work. Cost of remediation will be invoiced against the Lead Removal Allowance.

All Asbestos is identified and will be abated as part of the project. Any suspected areas must be reported to the architect and further investigation will be done by the abatement designer.

INDEX TO ACBM LOCATION NOTES

1. PIPE AND FITTING INSULATION
2. CEILING SPRAY-ON
3. BLACK MASTIC UNDER HARDWOOD FLOOR
4. FLOOR MASTIC UNDER TILE/CARPET
5. WINDOW CAULKING AND WINDOW GLAZING
6. DOOR CAULKING

INDEX TO ASBESTOS NOTES

1. REMOVE ALL DAMAGED ELBOW INSULATION USING GLOVEBAG AND WRAP PIPE(S) ENDS WITH CANVAS LAGGING CLOTH. THESE ARE OLD STEAM/CONDENSATE LINES CHASE.
2. IF CHASES IN THE BUILDING ARE REMOVED, REMOVE PIPE INSULATION WITH PIPES AND CLEAN EACH CHASE INCLUDING BASEMENT.
3. REMOVE FLOOR TILES AND MASTIC. IF MASTIC IS ON WOOD, REMOVE WOOD FLOORING.
4. REMOVE SPRAY-ON ASBESTOS BY SCRAPING. REMOVE TRIM WHERE NECESSARY TO REMOVE ALL SPRAY-ON MATERIAL. ALL REMOVED TRIM MUST BE SAVED TO BE REINSTALLED LATER BY GENERAL CONTRACTOR
5. *PAINT ON WALLS, WINDOWS, WINDOW FRAMES, ETC. SCRAPE ALL LOOSE FLAKING PAINT*. ALL PAINT CHIPS MUST BE COLLECTED SEPARATELY AND DISPOSED OF AS HAZARDOUS WASTE.
6. ERECT SCAFFOLDING UP TO THE CEILING HEIGHT TO SCRAPE CEILING. NO ROLLING SCAFFOLDING WILL BE ACCEPTED.
7. REMOVE LIGHT FIXTURES OR PROTECT FIXTURES AFTER INITIAL CLEANING OF THE FIXTURES.
8. REMOVE HVAC SUPPLY AND RETURN GRILLS. CLEAN AND RETURN TO THE GENERAL CONTRACTOR TO BE REINSTALLED LATER

DEMOLITION PLAN SHEET NOTES

1. NUMBERED KEY NOTES DO NOT IMPLY SEQUENCE. CONTRACTOR TO PERFORM DEMOLITION WORK AS REQUIRED PER WORK SEQUENCE.
2. DEMOLITION DRAWINGS ARE INTENDED TO SHOW GENERAL AREAS OF DEMOLITION AS WELL AS GENERAL EXISTING CONDITIONS. THEY DO NOT SHOW ALL WORK WHICH MAY BE NECESSARY. COMPARE WITH DRAWINGS INDICATING NEW CONSTRUCTION.
3. REFER TO OTHER DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION ON DEMOLITION. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION ON MECHANICAL AND ELECTRICAL DEMOLITION.
4. EXISTING WORK TO REMAIN SHALL BE TEMPORARILY SECURED, BRACED AND STABILIZED UNTIL PERMANENT CONSTRUCTION IS IN PLACE.
5. VERIFY FIELD CONDITIONS PRIOR TO START OF DEMOTION/CONSTRUCTION AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
6. VERIFY THAT CONSTRUCTION INDICATED FOR REMOVAL IS NOT LOAD BEARING OR IS ADEQUATELY SHORED AS INDICATED ON STRUCTURAL DRAWINGS PRIOR TO STARTING ANY WORK.
7. ERECT BARRICADES, FENCES OR OTHER SECURABLE MEANS TO PREVENT UNAUTHORIZED ACCESS INTO CONSTRUCTION ZONES.
8. DO NOT ALLOW MATERIAL AND DEBRIS GENERATED BY DEMOLITION ACTIVITIES TO ACCUMULATE ON THE JOB SITE. REMOVE DAILY AND DISPOSE OF IN A LEGAL MANNER. NO ON-SITE SALE OR BURNING OF REMOVED ITEMS IS PERMITTED.
9. THE CONTRACTOR MUST MAINTAIN ADEQUATE SUPPORT INSULATION, WATERPROOFING, EMERGENCY LIGHTING, SECURITY, ALARMS, ETC. FOR ALL OR PART OF ITEMS WHICH ARE TO REMAIN.
10. TERMINATE AND CAP ANY UTILITY IN WALLS CEILINGS AND FLOORS TO BE REMOVED AND NOT INTENDED FOR REUSE.
11. PREPARE AND PATCH SURFACES THAT RECEIVE NEW FINISHES AS REQUIRED BY REMOVING OR RELOCATING DEVICES, WIRING OR OTHER APPURTENANCES NO LONGER APPROPRIATE FOR THE NEW USE OF THE ROOM.
12. MAINTAIN EXISTING FINISHES, OPERATIONAL CHARACTERISTICS, AND APPEARANCE OF ITEMS SCHEDULED TO REMAIN OR BE REUSED.

INDEX TO DEMOLITION NOTES

1. REMOVE EXISTING WALLS SHOWN DASHED, PATCH EXISTING FLOOR, BASE, WALLS, AND CEILING. SEE FLOOR PLAN AND ROOM FINISH SCHEDULE FOR NEW WORK.
2. REMOVE EXISTING DOOR AND FRAME. PATCH EXISTING WALL, BASE, AND FLOOR. SEE FLOOR PLAN FOR NEW WORK.
3. REMOVE EXISTING DOOR AND FRAME. FILL EXISTING OPENING AND PATCH EXISTING WALL, BASE, AND FLOOR. SEE FLOOR PLANS FOR NEW WORK.
4. REMOVE SECTION OF EXISTING WALL AND ADD NEW CMU OR GYP BD. LINTEL. INSTALL NEW DOOR AND FRAME OR WINDOW AND FRAME. PATCH EXISTING WALL, BASE, AND FLOOR. SEE FLOOR PLAN FOR NEW WORK.
5. REMOVE EXISTING PLUMBING FIXTURES. SEE PLUMBING DRAWINGS FOR CAPPING EXISTING PIPING OR PROVIDING NEW FIXTURES. PATCH EXISTING FLOOR, BASE, AND WALLS. SEE FLOOR PLAN AND ROOM FINISH SCHEDULE FOR NEW WORK.
6. REMOVE EXISTING TOILET PARTITIONS. PATCH EXISTING WALL, BASE AND FLOOR AS NEEDED. SEE FLOOR PLAN FOR NEW WORK.
7. REMOVE EXISTING CASEWORK/SHELVING. PATCH WALL, BASE, AND FLOOR AS NEEDED. SEE FLOOR PLAN FOR NEW WORK.
8. DISASSEMBLE EXISTING CASEWORK PRIOR TO CONSTRUCTION AND REPLACE AS BEFORE ONCE ALL WORK IS COMPLETE.
9. PRIOR TO COMMENCING WORK, CONTRACTOR TO REMOVE EXISTING DRAPES IN COURTROOM; PROFESSIONALLY CLEAN AND REPLACE WHEN ALL WORK IS COMPLETE
10. REMOVE EXISTING SINK, ASSOCIATED PLUMBING AND WALL MIRROR. PATCH AND REPAIR WALL AS NEEDED.
11. CAREFULLY REMOVE EXISTING CEILING TILE IN MAGISTRATES COURTROOM AND RE-USE TO PATCH CEILINGS WHERE TILE IS MISSING. CONTRACTOR SHOULD PLAN TO REPLACE 100 DAMAGED CEILING TILES THROUGHOUT THE BUILDING.

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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DEMO PLAN - THIRD FLOOR PLAN

D-104

BID DOCUMENTS

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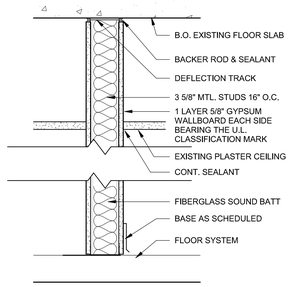

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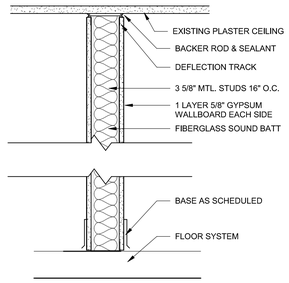

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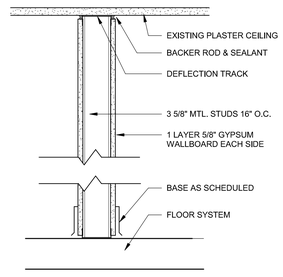

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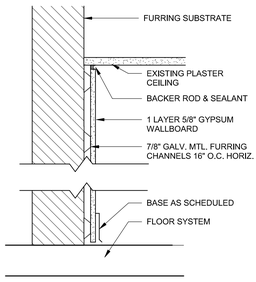

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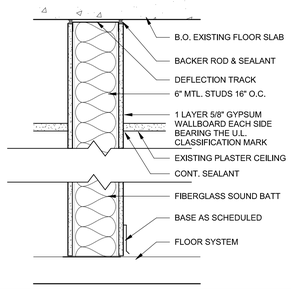

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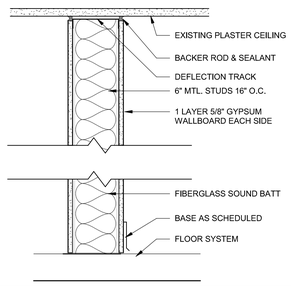

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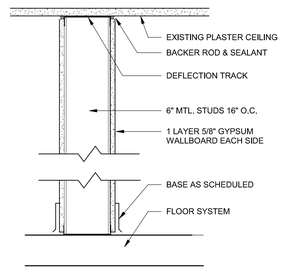

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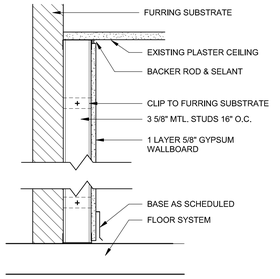

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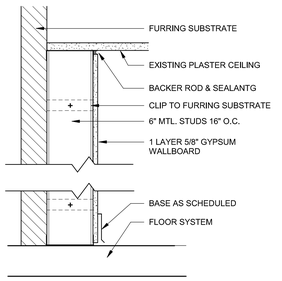

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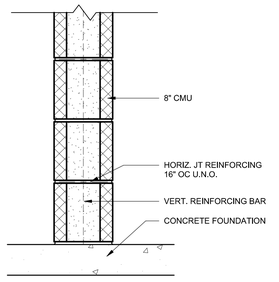

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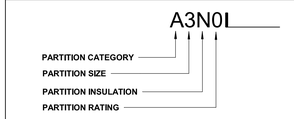
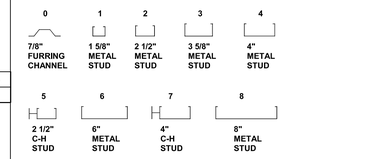


PARTITION CATEGORY

A - METAL STUD	M - MASONRY
C - CHASE	C - CHASE
F - FURRING	S - SHAFT
G - GLASS BLOCK	W - WOOD

PARTITION SIZE

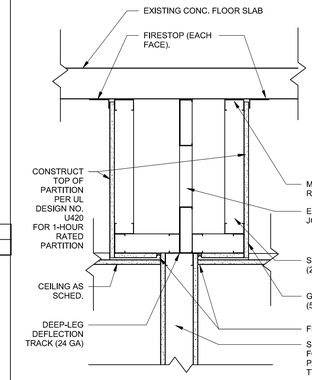


PARTITION INSULATION

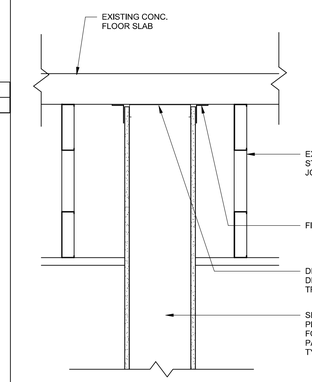
S - SOUND ATTENUATION
N - NON-INSULATED

PARTITION RATING

0 - NON-RATED TO 4" ABOVE CEILING
1 - 1 HOUR FIRE PARTITION
2 - 2 HOUR FIRE PARTITION
3 - 3 HOUR FIRE PARTITION
4 - 4 HOUR FIRE PARTITION
S - SMOKE PARTITION
T - TILE SUBSTRATE PARTITION
X - NON-RATED TO DECK, SEALED TOP & BOTTOM
Y - STRUCTURE TO DECK, FIN MAT'L TO 4" ABOVE CLG



B6 RATED GWB TERM. TO FLOOR @ JOIST
1 1/2" = 1'-0"



NOTE: THIS DETAIL SHALL BE CONSTRUCTED IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN UL SYSTEM DETAIL No. HW-D-0042

A6 RATED GWB TERMINATION TO FLOOR
1 1/2" = 1'-0"

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PARTITION TYPES

A-002

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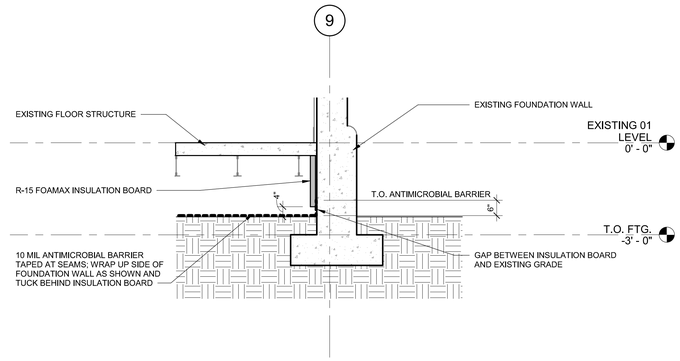
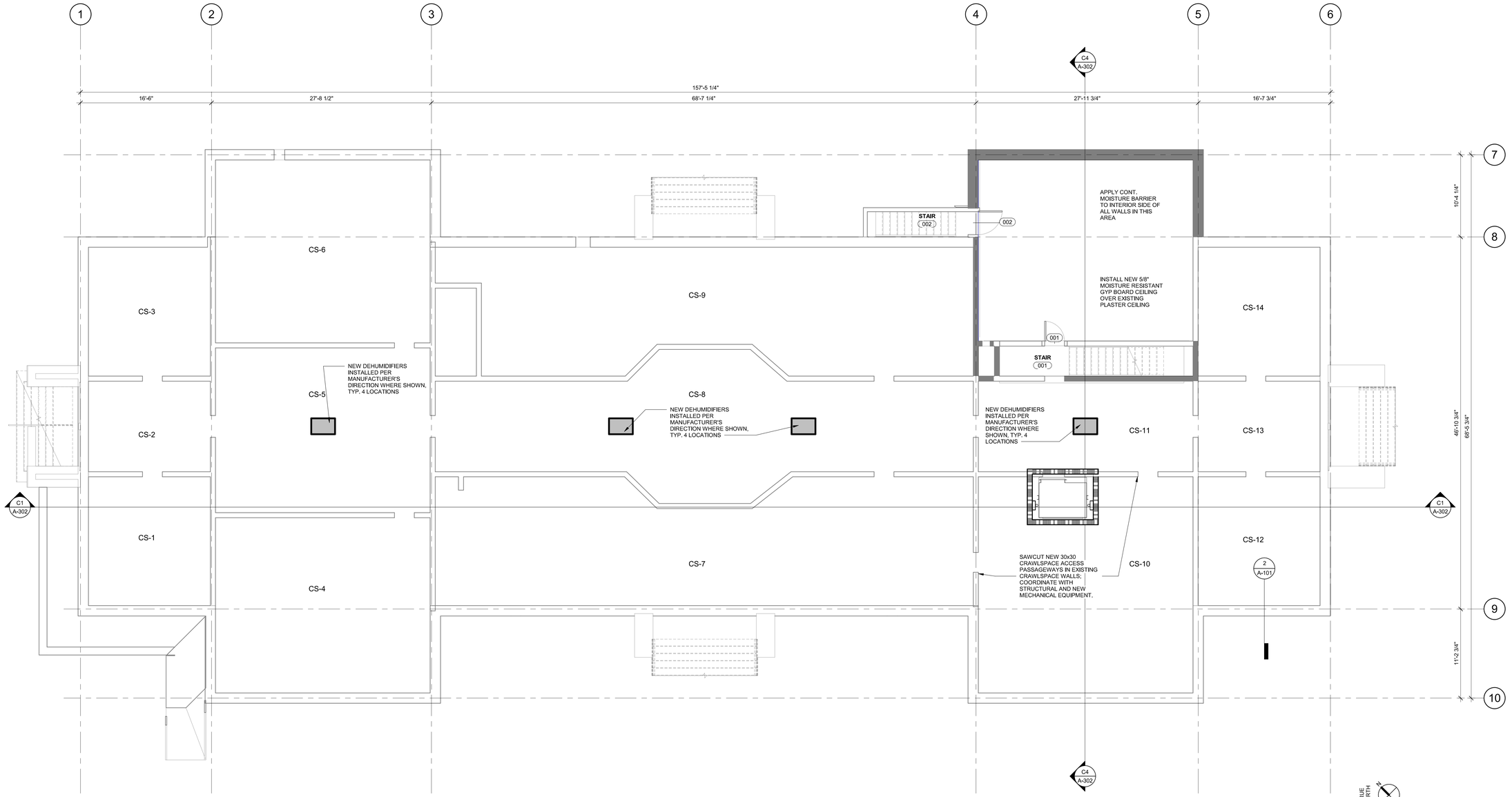


2 FOUNDATION WALL DETAIL
1/2" = 1'-0"



1 PROPOSED PLAN - CRAWL SPACE/MECHANICAL ROOM
3/16" = 1'-0"

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PROPOSED CRAWL SPACE

A-101

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PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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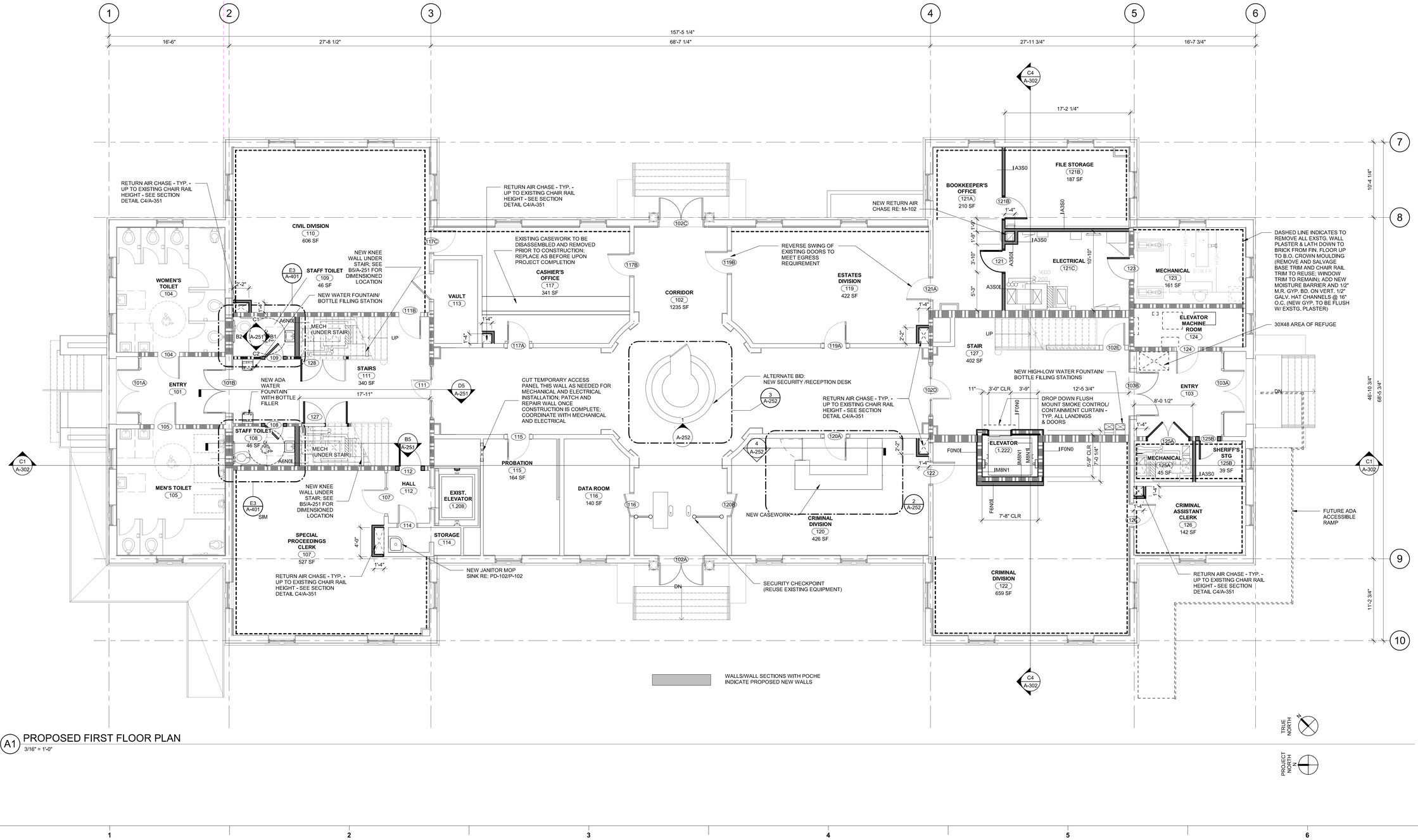

A1 PROPOSED FIRST FLOOR PLAN
3/16" = 1'-0"

TRUE NORTH

PROJECT NORTH

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PROPOSED FIRST FLOOR PLAN

A-102

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PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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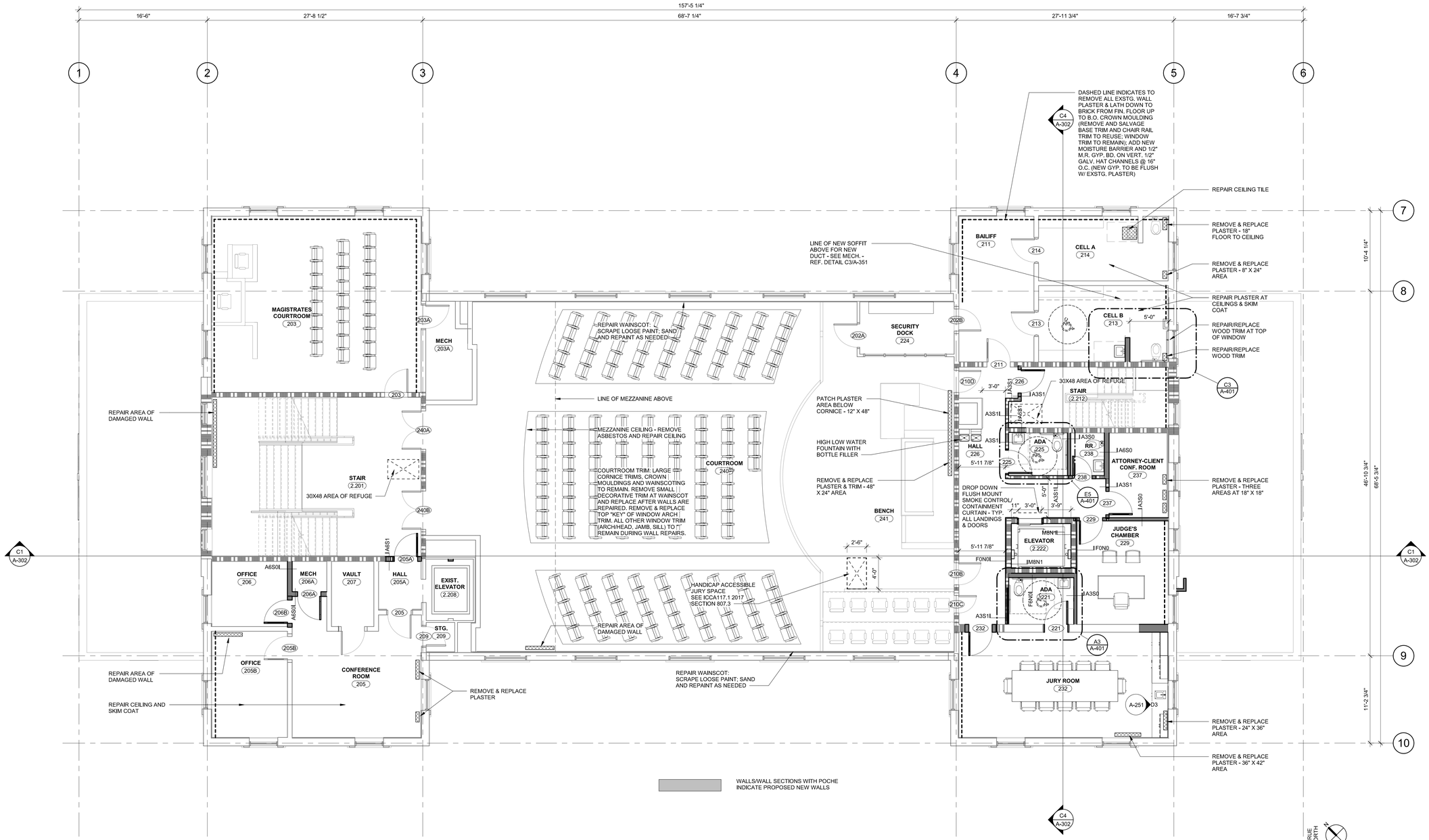

A1 PROPOSED SECOND FLOOR PLAN
3/16" = 1'-0"

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PROPOSED SECOND FLOOR PLAN

A-103

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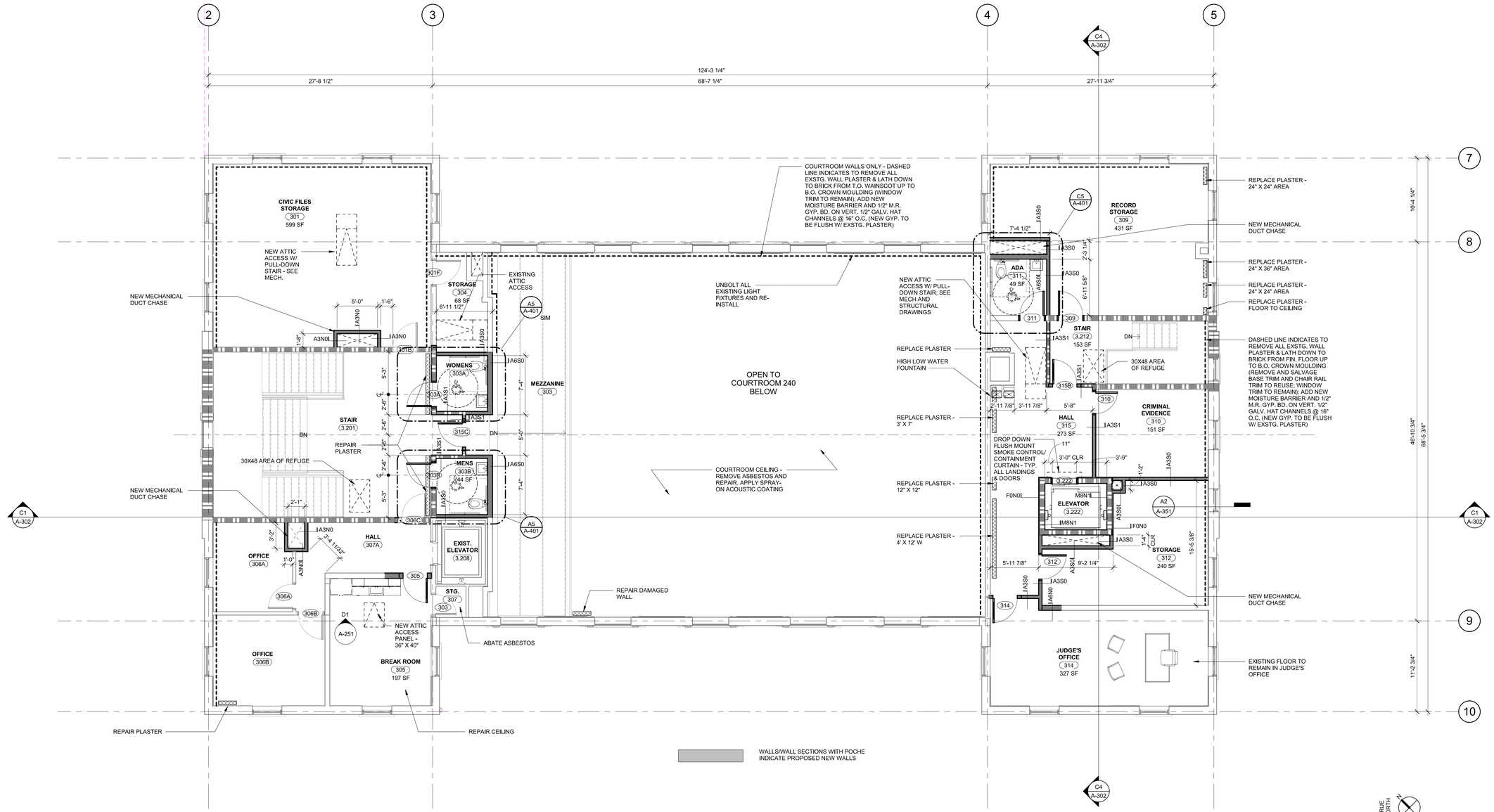

A1 PROPOSED THIRD FLOOR PLAN
3/16" = 1'-0"

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PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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DATE: 03/29/20
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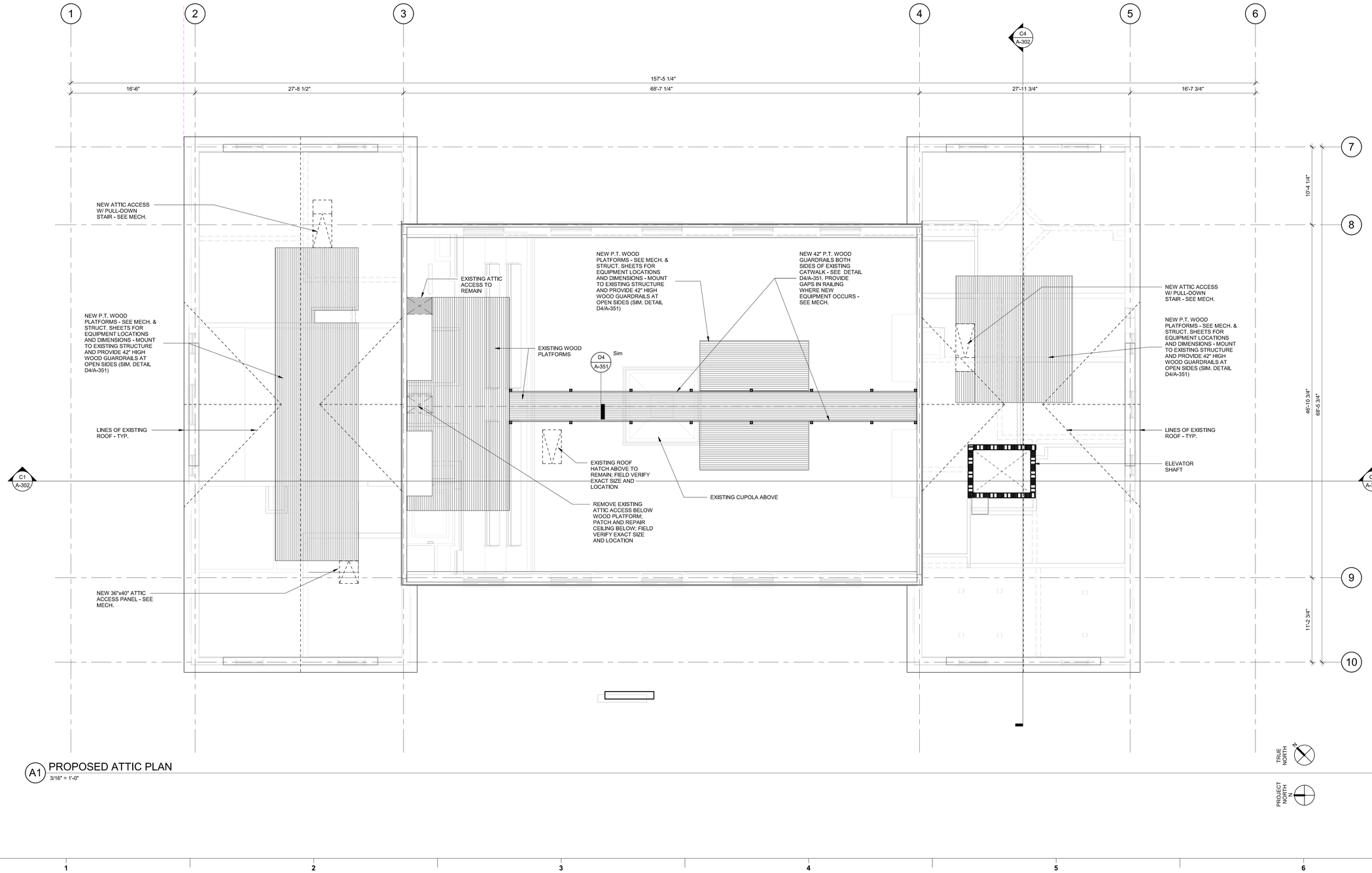
PROPOSED THIRD FLOOR PLAN

A-104

BID DOCUMENTS



A1 PROPOSED ATTIC PLAN
3/16" = 1'-0"

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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PROPOSED ATTIC PLAN

A-105

BID DOCUMENTS

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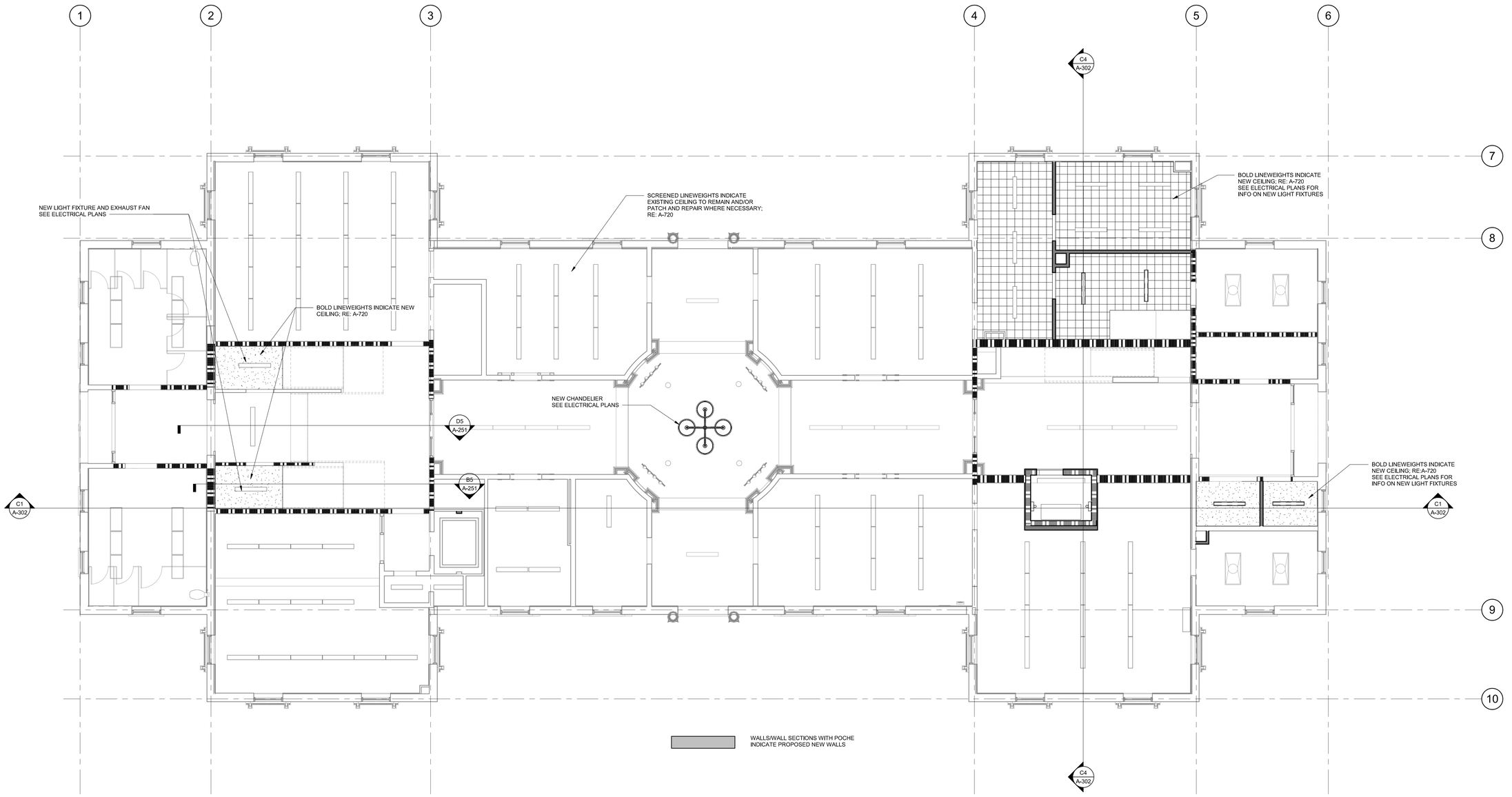

A1 PROPOSED 01 LEVEL RCP
3/16" = 1'-0"

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

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CERT. NO. 50417
NORTH CAROLINA
WILMINGTON, NORTH CAROLINA

CHARLES H. BONEY, JR.
REGISTERED ARCHITECT
4276
WILMINGTON, NC

2020.03.30 17:04:29-04'00'

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PROJECT: 7702-185550
DATE: 03/29/20
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CHECKED BY: CHBj

PROPOSED REFLECTED CEILING PLAN - LEVEL 1

A-124

BID DOCUMENTS

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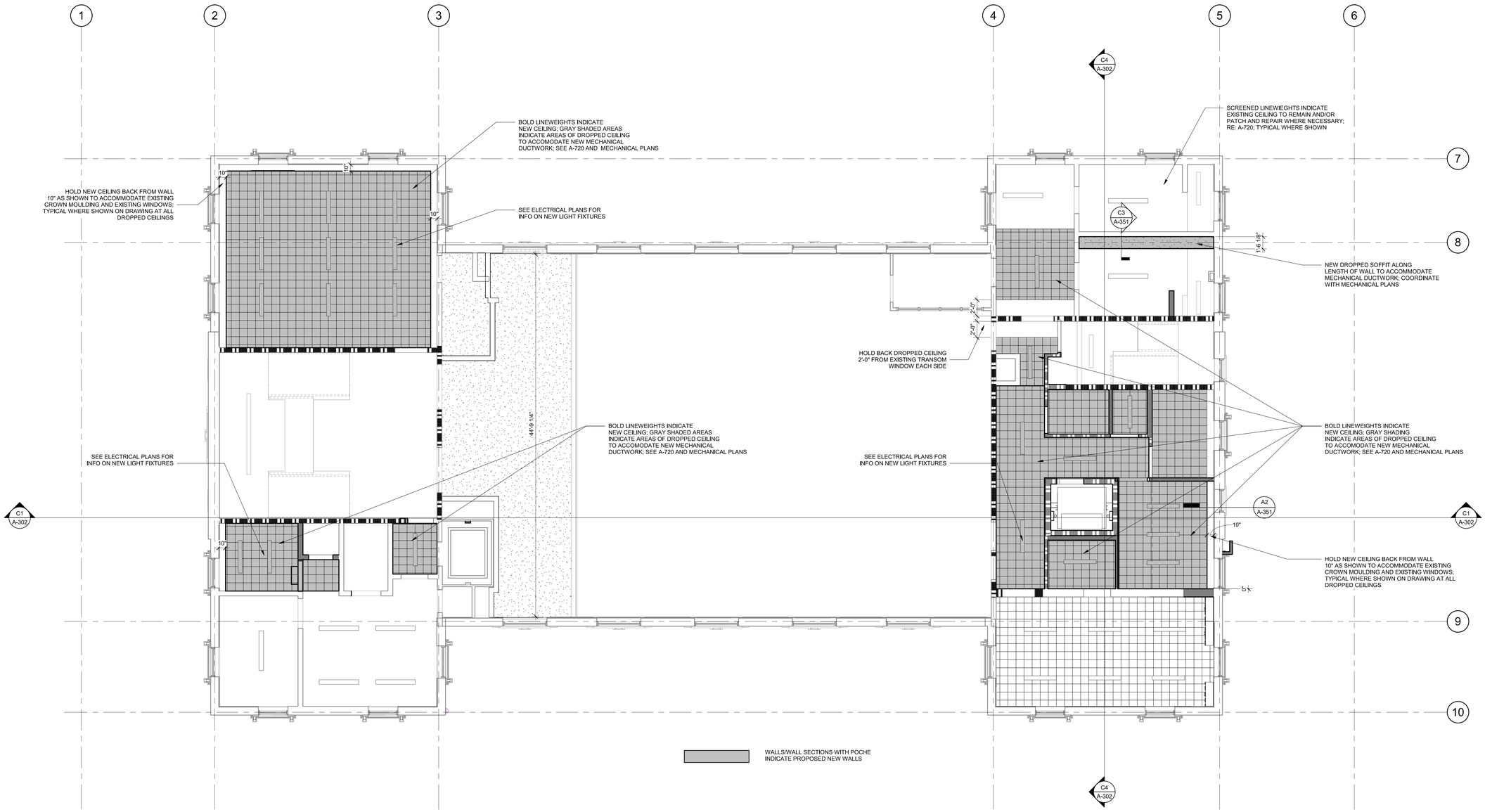

A1 PROPOSED 02 LEVEL RCP

3/16" = 1'-0"

BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 4:50:43 PM

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

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DATE: 03/29/20
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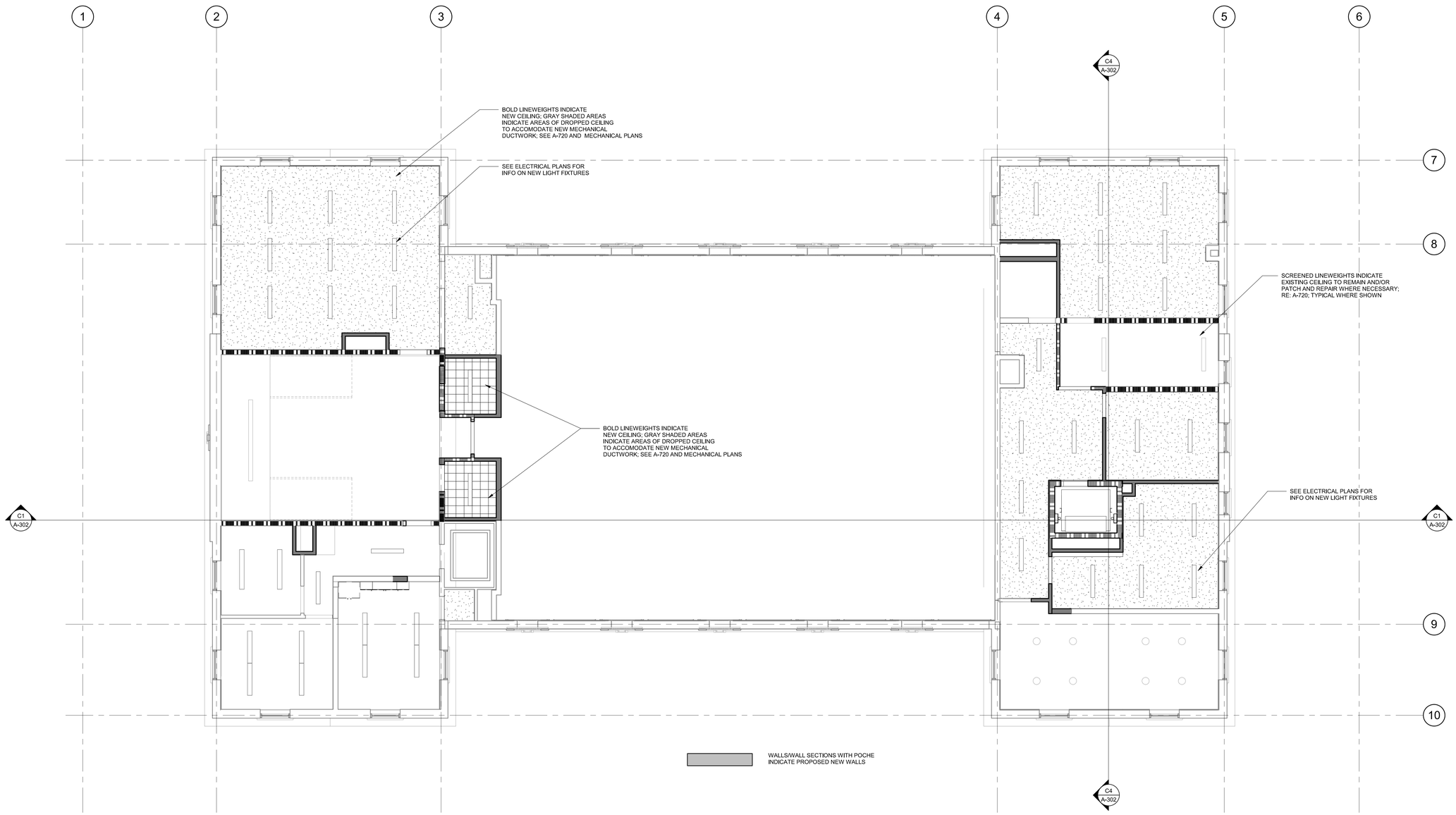
CHECKED BY: CHBJ

PROPOSED REFLECTED CEILING PLAN - LEVEL 2

A-125

BID DOCUMENTS



A1 PROPOSED 03 LEVEL RCP
3/16" = 1'-0"

BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 4:50:03 PM

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

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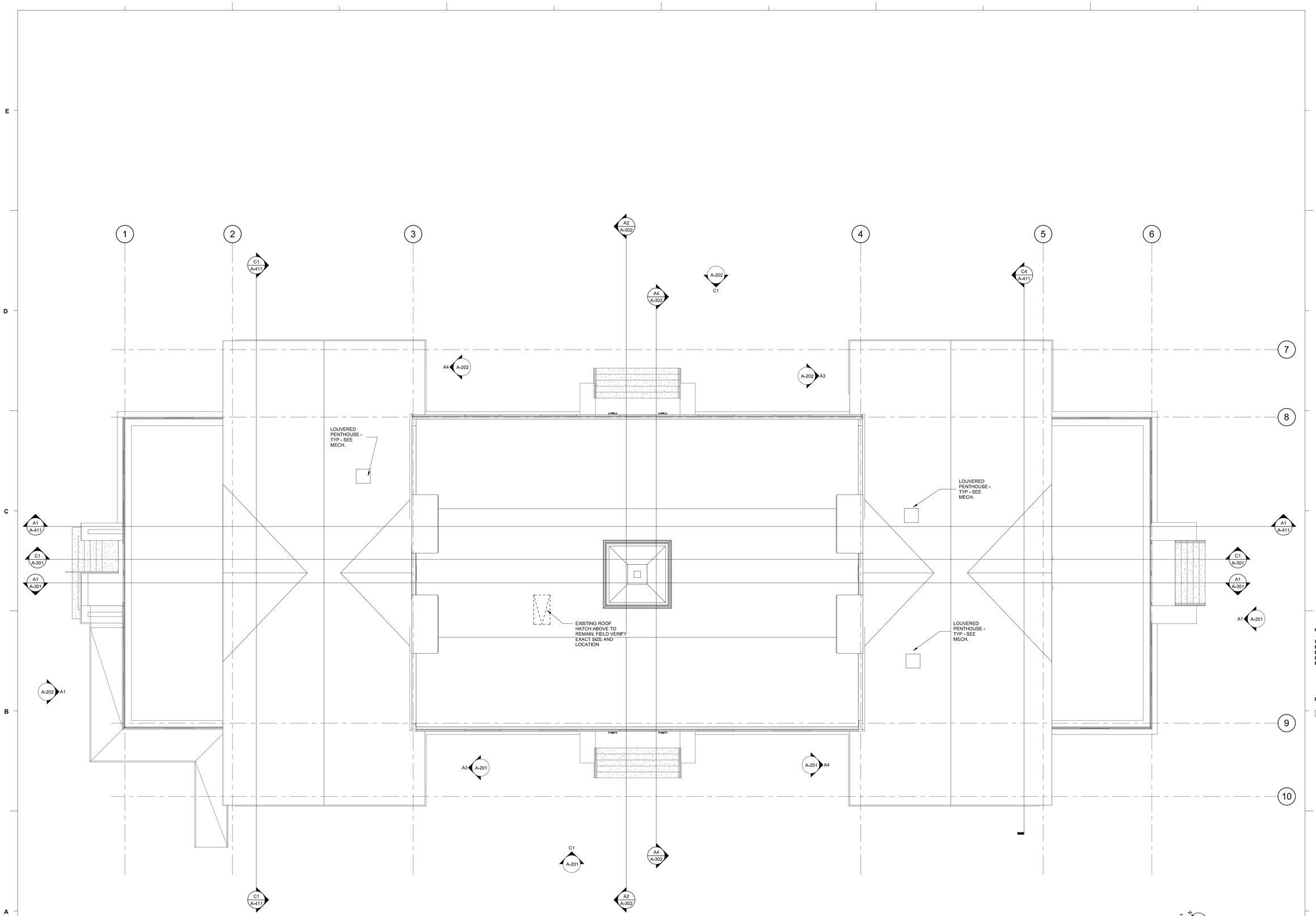
PROPOSED REFLECTED CEILING PLAN - LEVEL 3

A-126

BID DOCUMENTS



A1 ROOF PLAN
3/16" = 1'-0"

BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 3:38:58 PM

PENDER COUNTY COURTHOUSE - EXTERIOR ENVELOPE IMPROVEMENTS

PENDER COUNTY COURTHOUSE

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9276
NORTH CAROLINA
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DATE: 03/29/20
DRAWN BY: TMR
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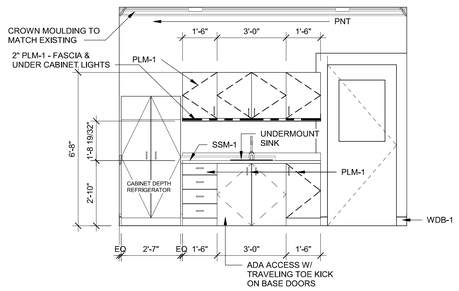
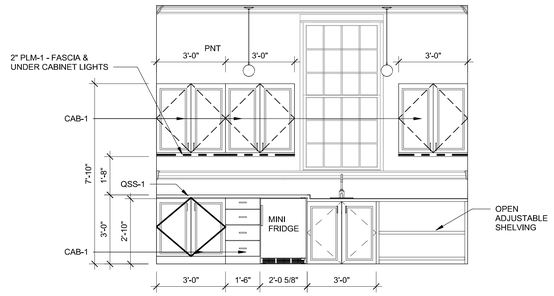
ROOF PLAN

A-151

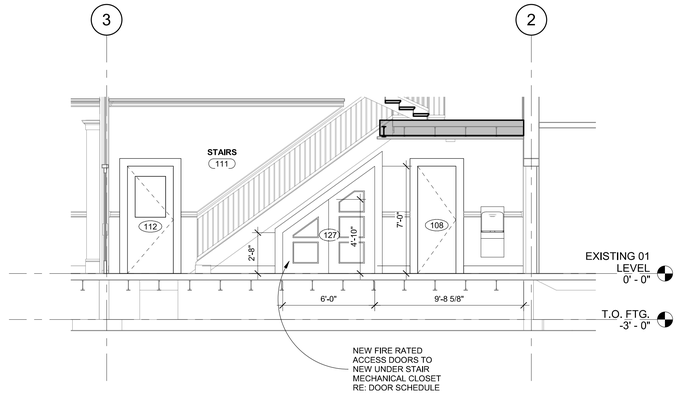
BID DOCUMENTS



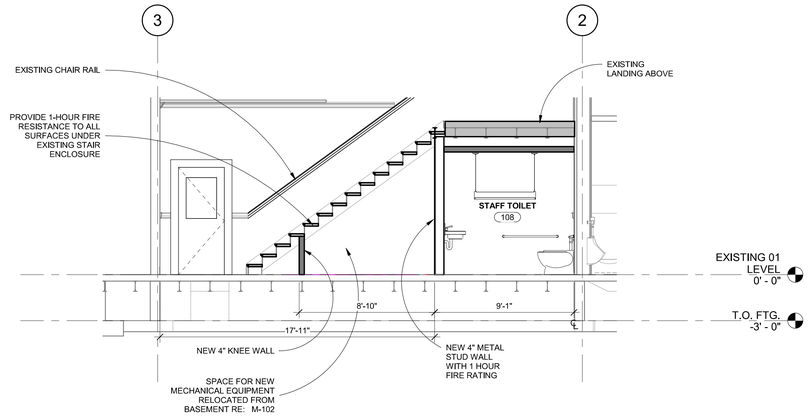
D1 BREAKROOM - NORTH ELEVATION
3/8" = 1'-0"



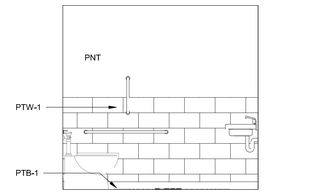
D3 JURY ROOM 232 - EAST ELEVATION
3/8" = 1'-0"



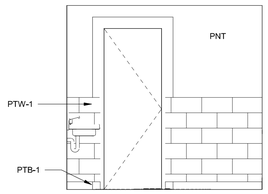
D5 INTERIOR ELEVATION AT MECHANICAL CLOSET UNDER STAIR
1/4" = 1'-0"



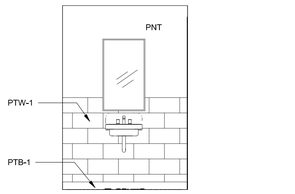
B5 SECTION AT MECHANICAL CLOSET UNDER STAIR
1/4" = 1'-0"



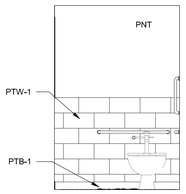
C1 TYP. TOILET - NORTH ELEVATION
3/8" = 1'-0"



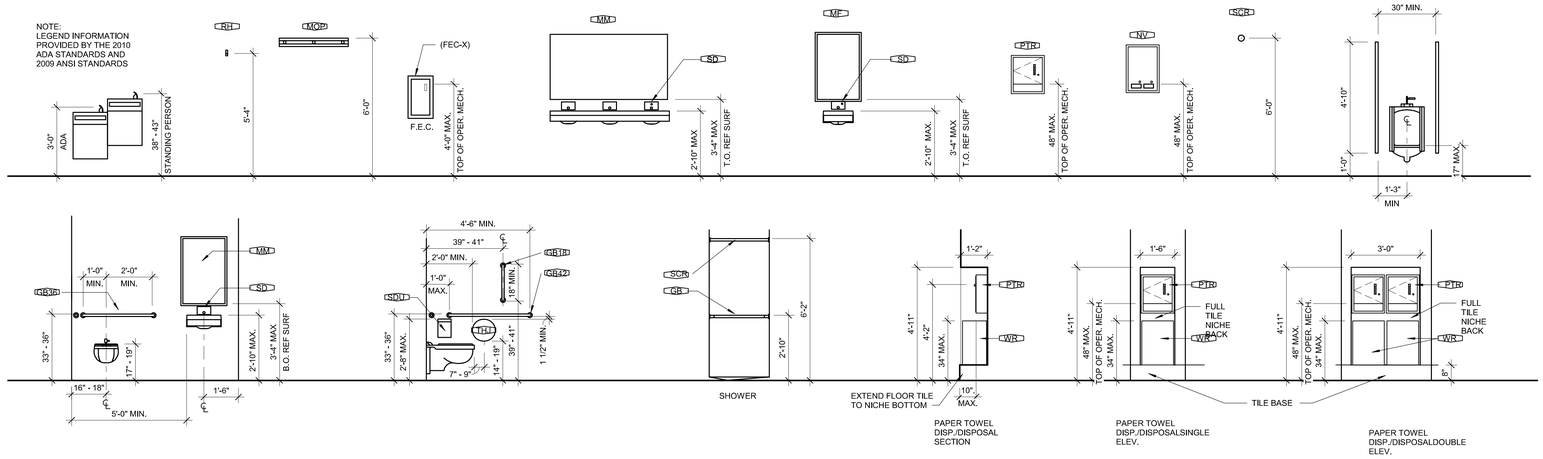
C2 TYP. TOILET - SOUTH ELEVATION
3/8" = 1'-0"



B1 TYP. TOILET - EAST ELEVATION
3/8" = 1'-0"



B2 TYP. TOILET - WEST ELEVATION
3/8" = 1'-0"



TYPICAL MOUNTING HEIGHTS
3/8" = 1'-0"

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

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CHARLES H. HODEY 47716 REGISTERED ARCHITECT NORTH CAROLINA

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PROJECT: 7702-185550
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DRAWN BY: AC/TMR
CHECKED BY: CHBj

INTERIOR ELEVATIONS

A-251

BID DOCUMENTS

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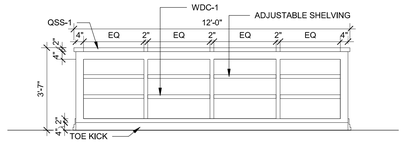
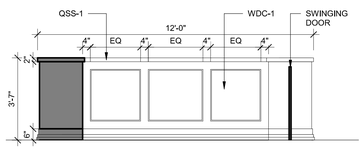
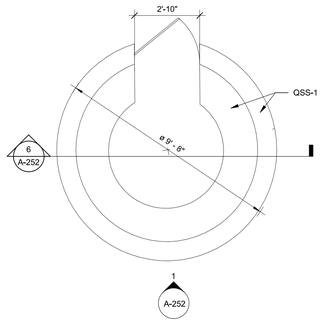
6 SECURITY/ RECEPTION DESK SECTION
3/8" = 1'-0"



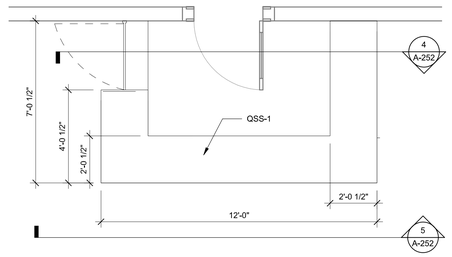
5 CRIMINAL DIVISION ROOM 120 DESK- BACK ELEVATION
3/8" = 1'-0"



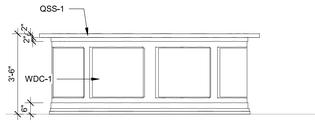
4 CRIMINAL DIVISION ROOM 120 DESK - FRONT ELEVATION
3/8" = 1'-0"



3 SECURITY/ RECEPTION DESK
3/8" = 1'-0"



2 CRIMINAL DIVISION ROOM 120 DESK
3/8" = 1'-0"



1 SECURITY/ RECEPTION DESK - FRONT ELEVATION
3/8" = 1'-0"

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

PENDER COUNTY NC

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CHECKED BY: Checker

INTERIOR ELEVATIONS

A-252

BID DOCUMENTS

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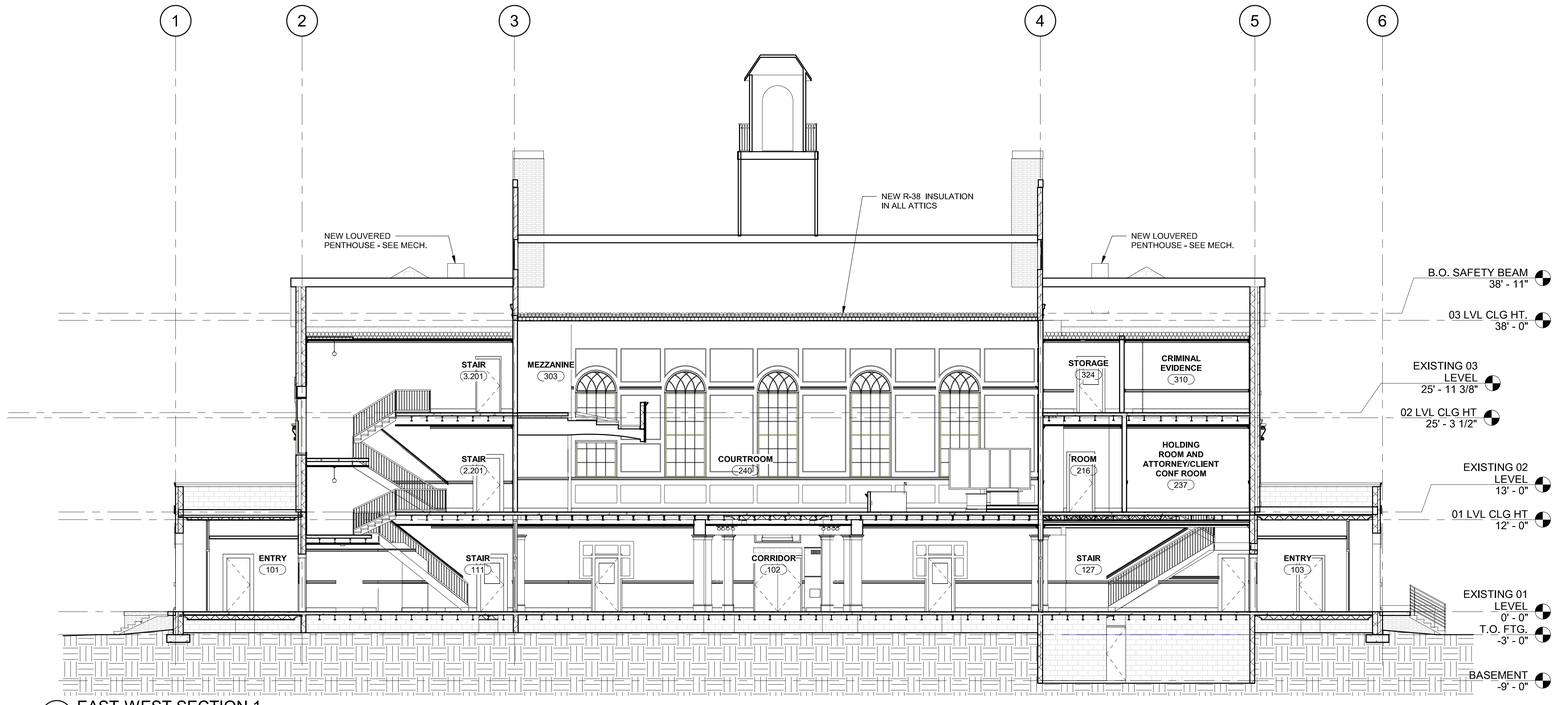
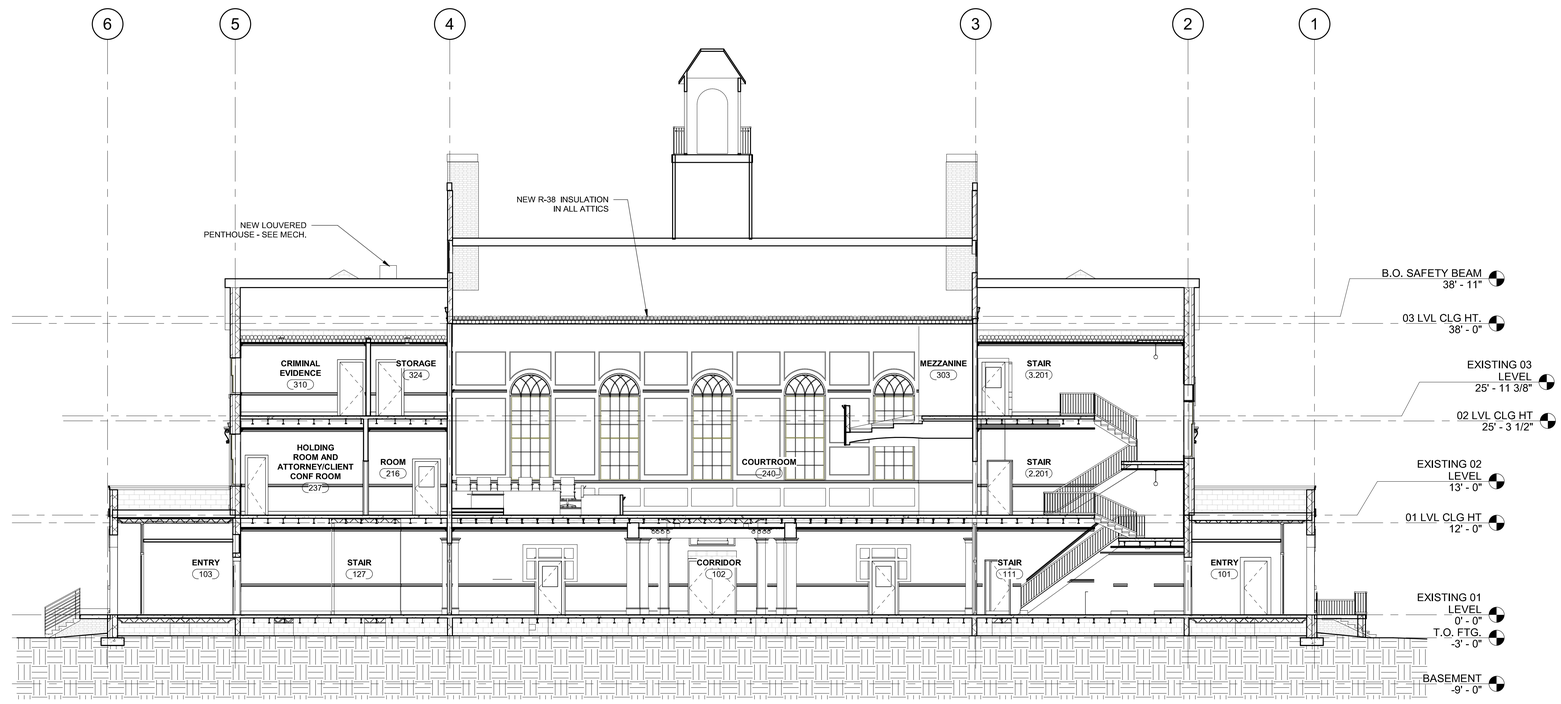


C1 EAST-WEST SECTION 1
1/8" = 1'-0"



A1 EAST-WEST SECTION 2
1/8" = 1'-0"

BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 3:39:14 PM

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

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CHARLES H. BOEHM 24710 REGISTERED ARCHITECT NORTH CAROLINA

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REVISIONS:

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PROJECT: 7702-185550
DATE: 03/29/20
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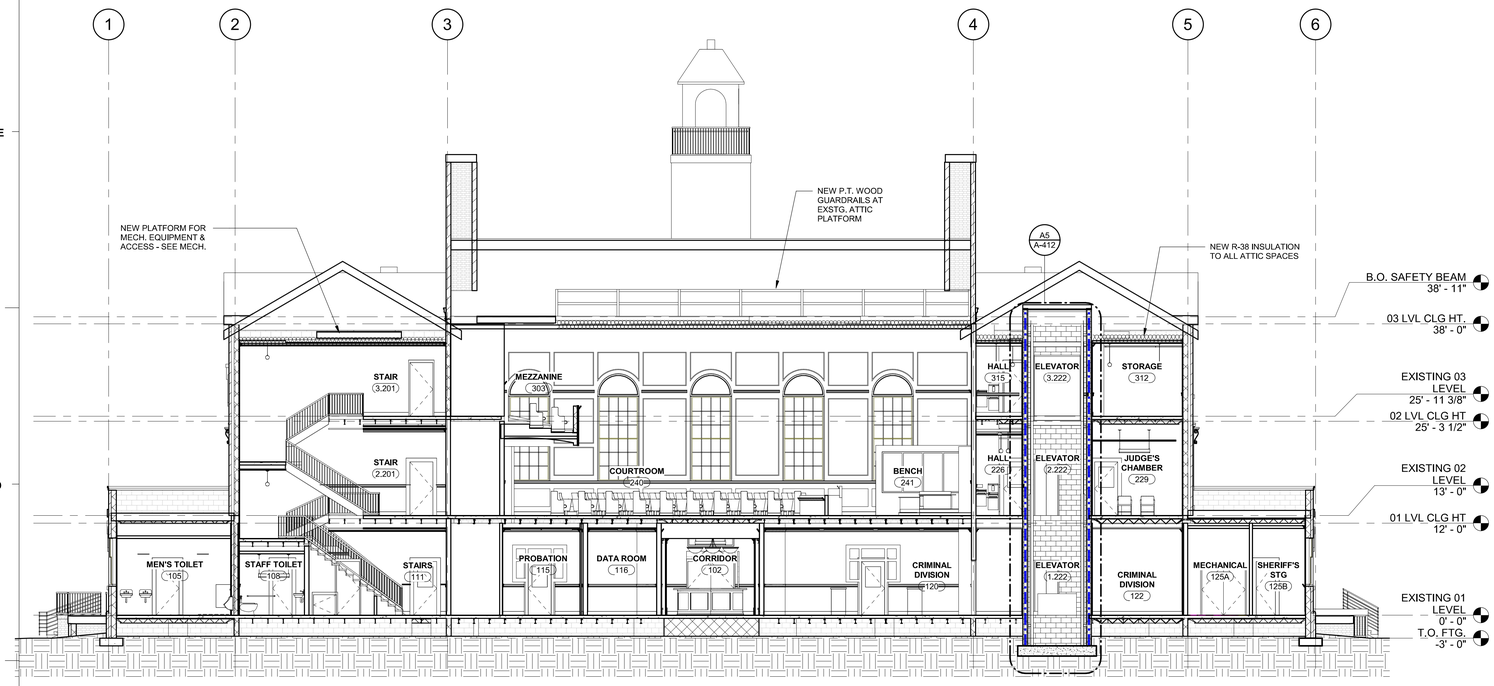
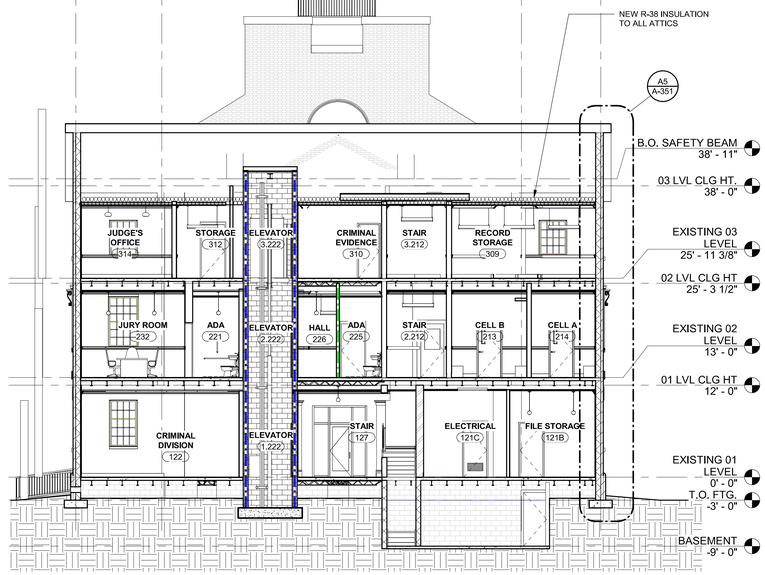
BUILDING SECTIONS

A-301

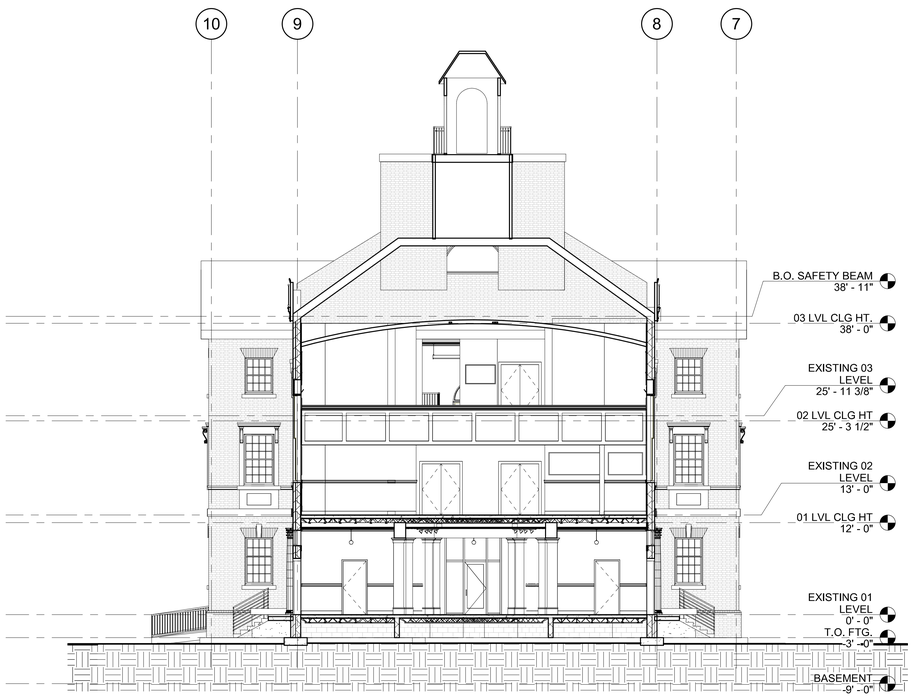
BID DOCUMENTS



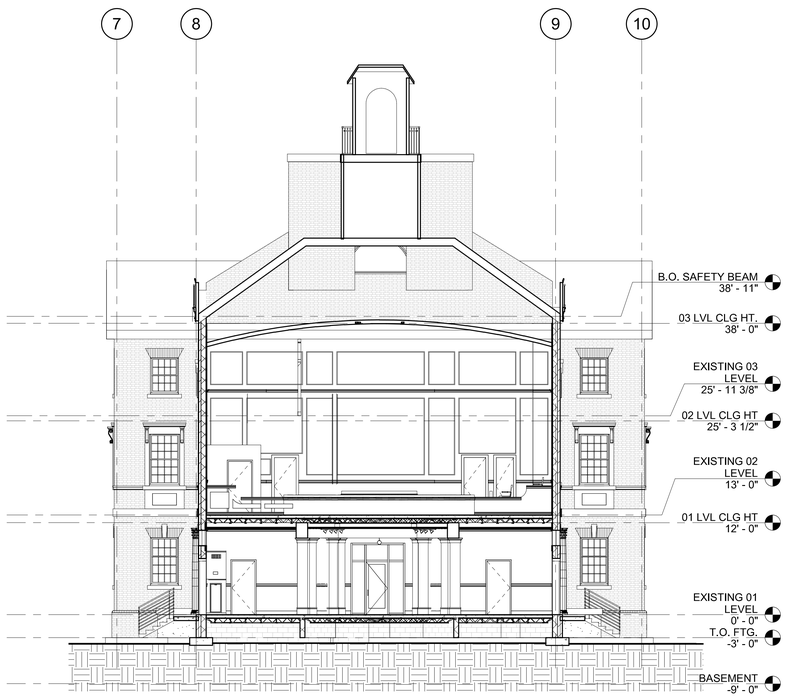
C1 BUILDING SECTION AT NEW ELEVATOR - 2
1/8" = 1'-0"



C4 BUILDING SECTION AT NEW ELEVATOR
1/8" = 1'-0"



A2 NORTH-SOUTH SECTION 1
1/8" = 1'-0"



A4 NORTH-SOUTH SECTION 2
1/8" = 1'-0"

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

PENDER COUNTY NC

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CHECKED BY: CHBj

BUILDING SECTIONS

A-302

BID DOCUMENTS

BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
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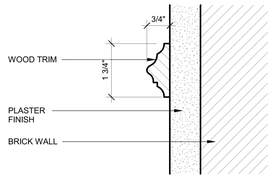
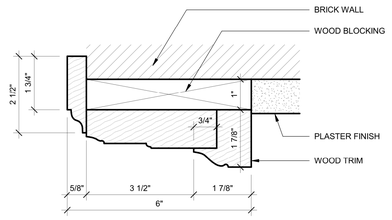
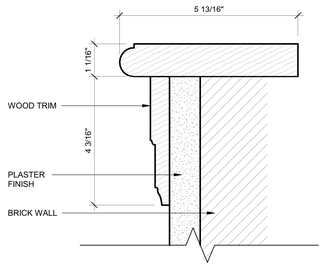


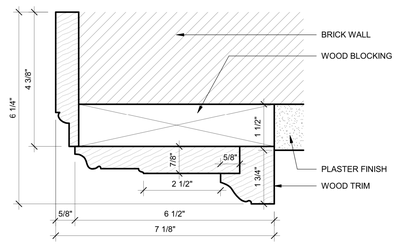
E1 EXISTING DECORATIVE TRIM - COURTROOM
6" = 1'-0"



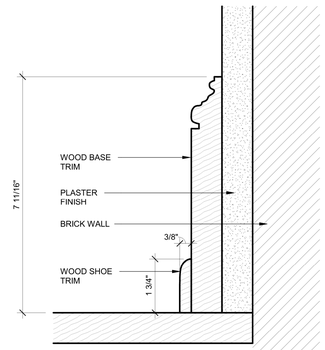
E2 WINDOW JAMB - FIRST FLOOR
6" = 1'-0"



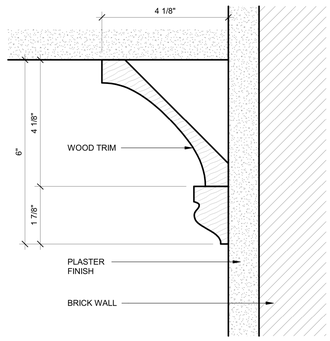
D1 EXISTING WINDOW STOOL - OFFICE
6" = 1'-0"



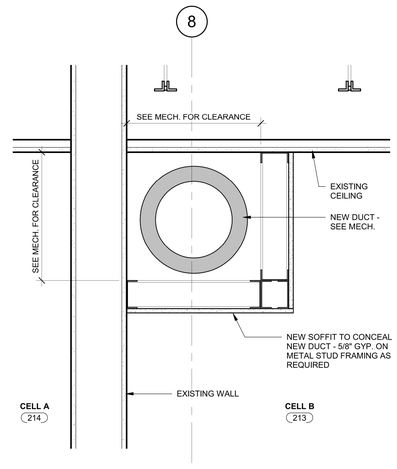
D2 EXISTING WINDOW JAMB - COURTROOM
6" = 1'-0"



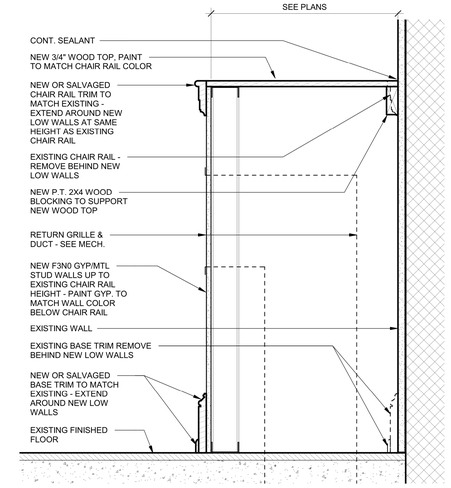
C1 EXISTING BASE TRIM
6" = 1'-0"



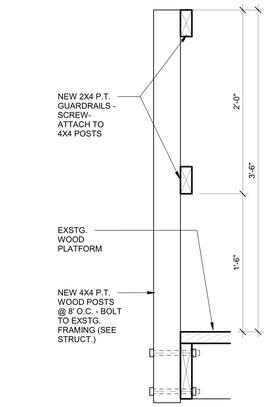
C2 CROWN MOULDING
6" = 1'-0"



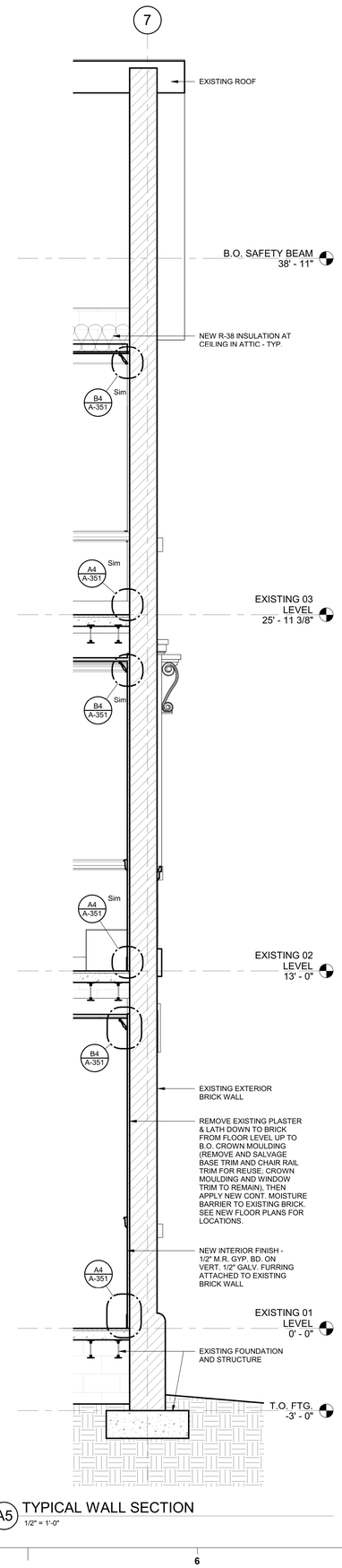
C3 DETAIL - SECTION THRU NEW SOFFIT
1 1/2" = 1'-0"



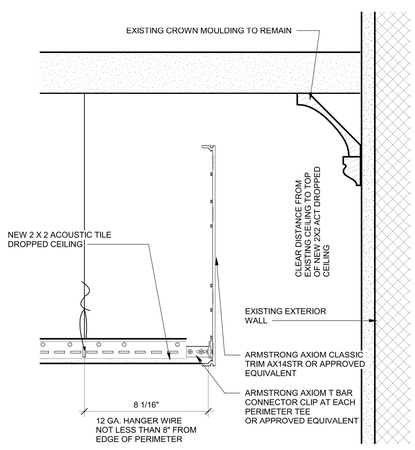
C4 TYPICAL SECTION - RETURN AIR CHASE
1 1/2" = 1'-0"



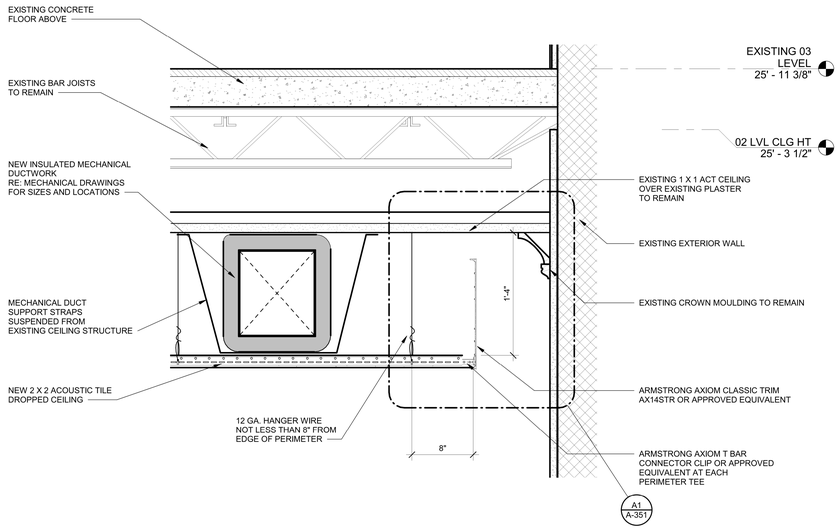
D4 GUARDRAIL AT ATTIC PLATFORM
1 1/2" = 1'-0"



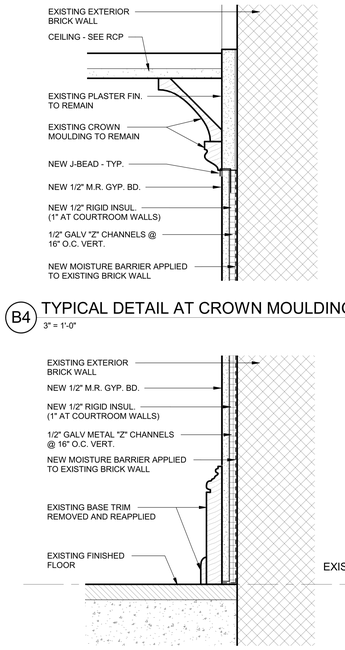
A5 TYPICAL WALL SECTION
1/2" = 1'-0"



A1 DROPPED CEILING EDGE DETAIL
3" = 1'-0"



A2 DROPPED CEILING DETAIL
1 1/2" = 1'-0"



B4 TYPICAL DETAIL AT CROWN MOULDING
3" = 1'-0"

A4 TYPICAL DETAIL AT BASE TRIM
3" = 1'-0"

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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CHARLES H. BONE, JR. REGISTERED ARCHITECT 4276 NORTH CAROLINA WILMINGTON, N.C.

2020.03.30 17:01:48-04'00'

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REVISIONS:

No.	Description	Date

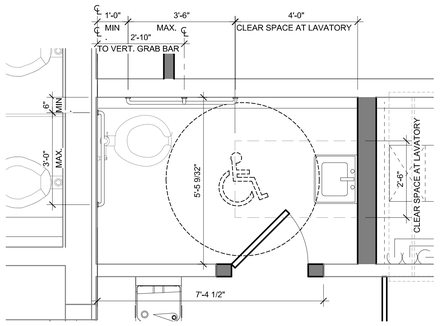
PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: CSW
CHECKED BY: CHB

WALL SECTION, DETAILS & EXISTING TRIM PROFILES

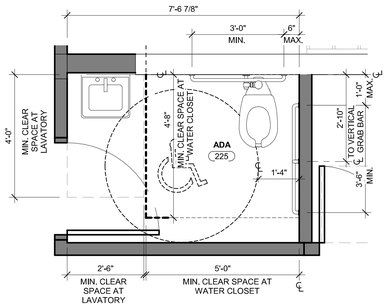
A-351

BID DOCUMENTS

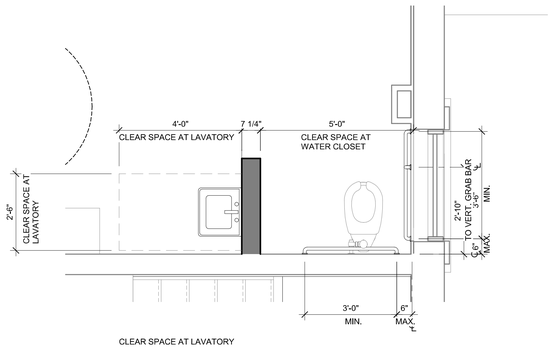
BIM 360://7702-191200 Render Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 4:49:31 PM



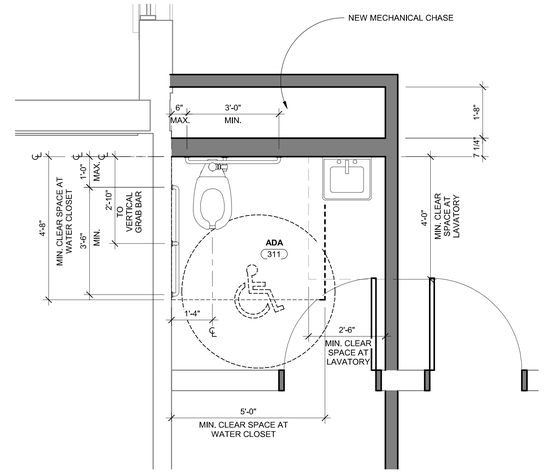
E3 ADA ACCESSIBLE RESTROOM - STAFF TOILET 109
1/2" = 1'-0"



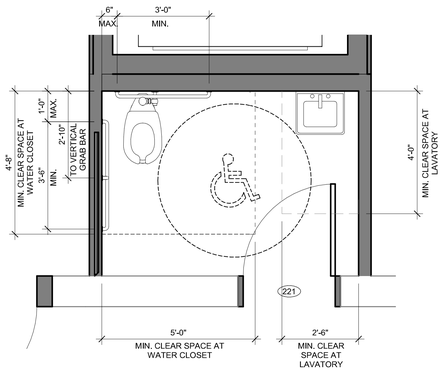
E5 ADA ACCESSIBLE RESTROOM ENLARGED PLAN - ADA 225
1/2" = 1'-0"



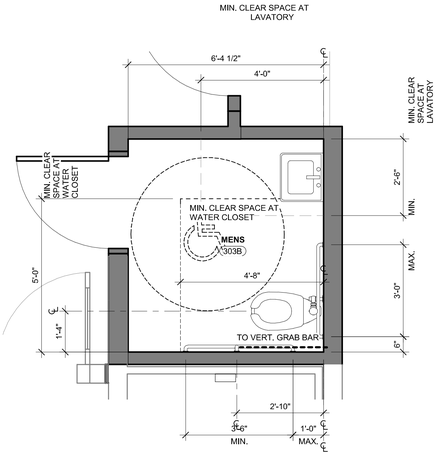
C3 ADA ACCESSIBLE RESTROOM - CELL B 213
1/2" = 1'-0"



C5 ADA ACCESSIBLE RESTROOM ENLARGED PLAN - ADA 311
1/2" = 1'-0"



A3 ADA ACCESSIBLE RESTROOM ENLARGED PLAN - ADA 221
1/2" = 1'-0"



A5 ADA ACCESSIBLE RESTROOM ENLARGED PLAN - MENS 303B
1/2" = 1'-0"

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REVISIONS:

No.	Description	Date

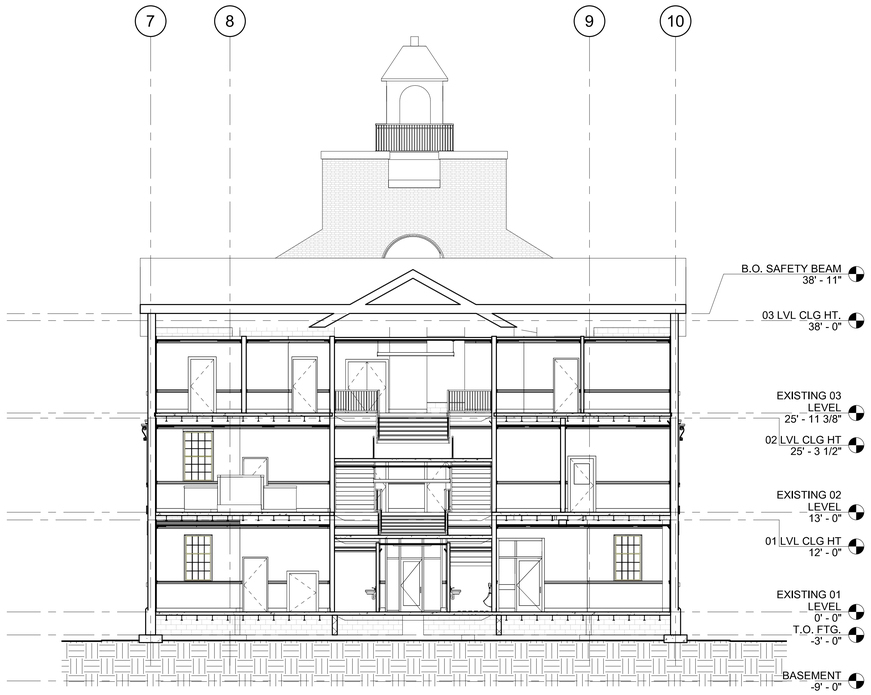
PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: TMR
CHECKED BY: CHBj

ENLARGED PLANS

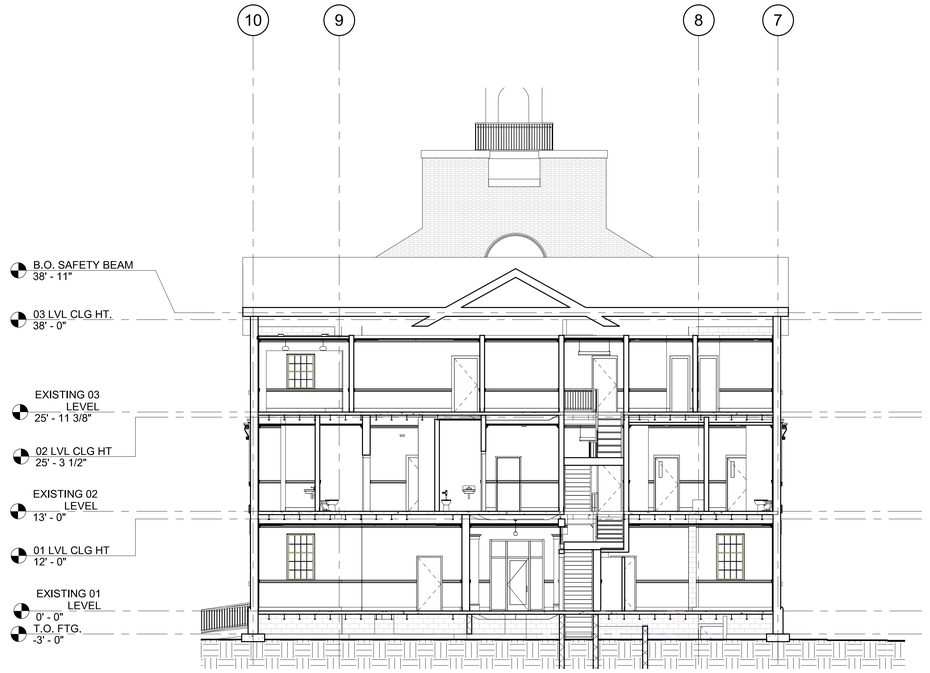
A-401

BID DOCUMENTS

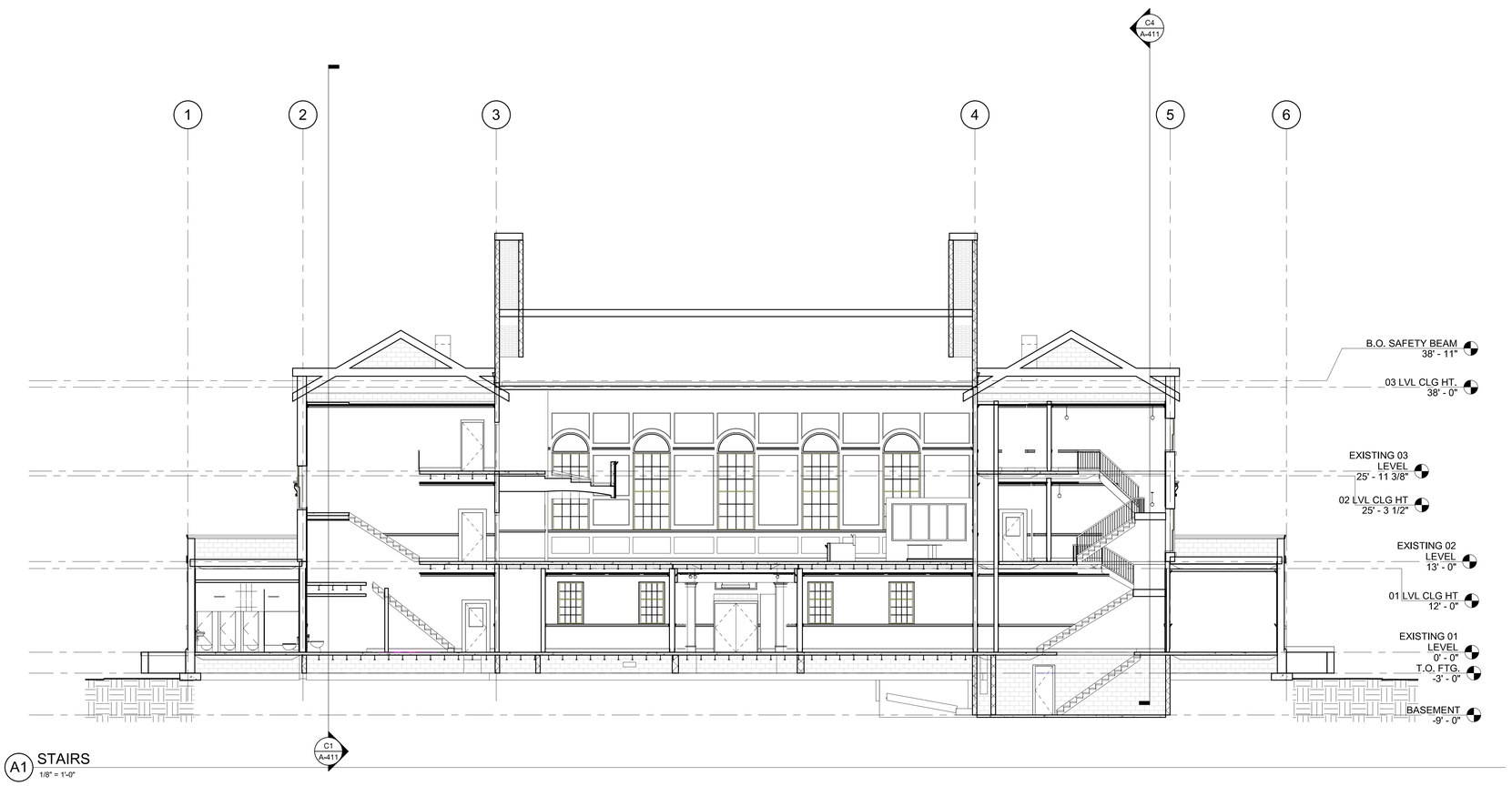
BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 3:39:35 PM



C1 MAIN STAIRCASE
1/8" = 1'-0"



C4 SECOND STAIRCASE
1/8" = 1'-0"



A1 STAIRS
1/8" = 1'-0"

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REVISIONS:

No.	Description	Date

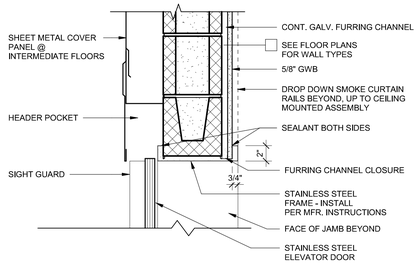
PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: LS3P
CHECKED BY: CHBj

STAIR PLANS & SECTIONS

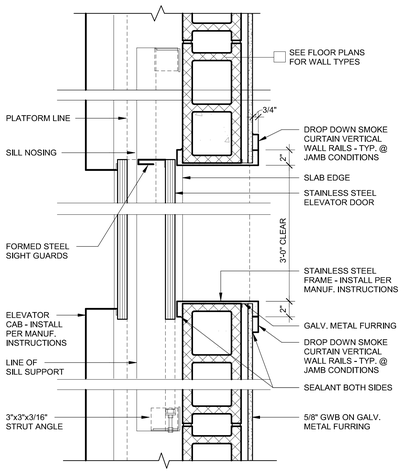
A-411

BID DOCUMENTS

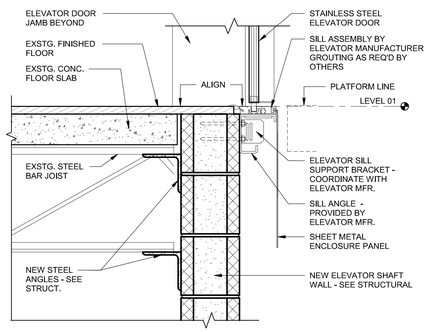
BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 3:39:41 PM



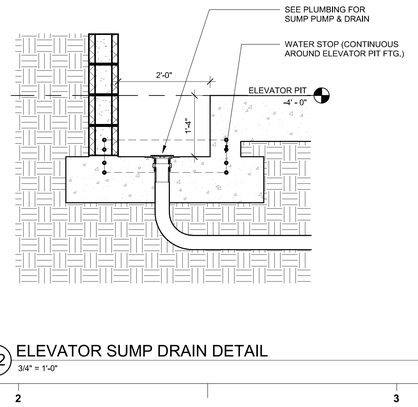
D4 ELEVATOR HEAD
1 1/2" = 1'-0"



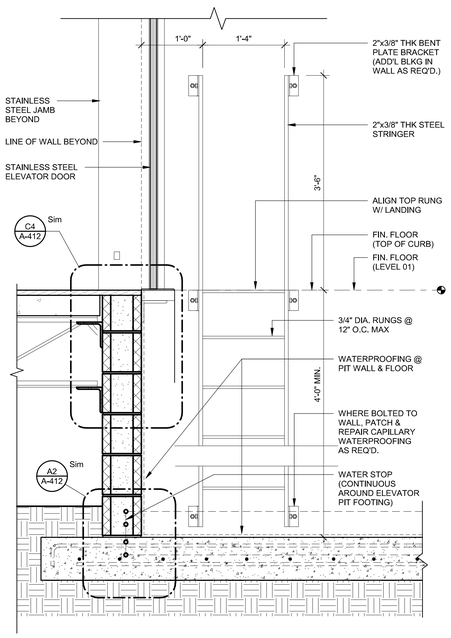
C2 ELEVATOR JAMB
1 1/2" = 1'-0"



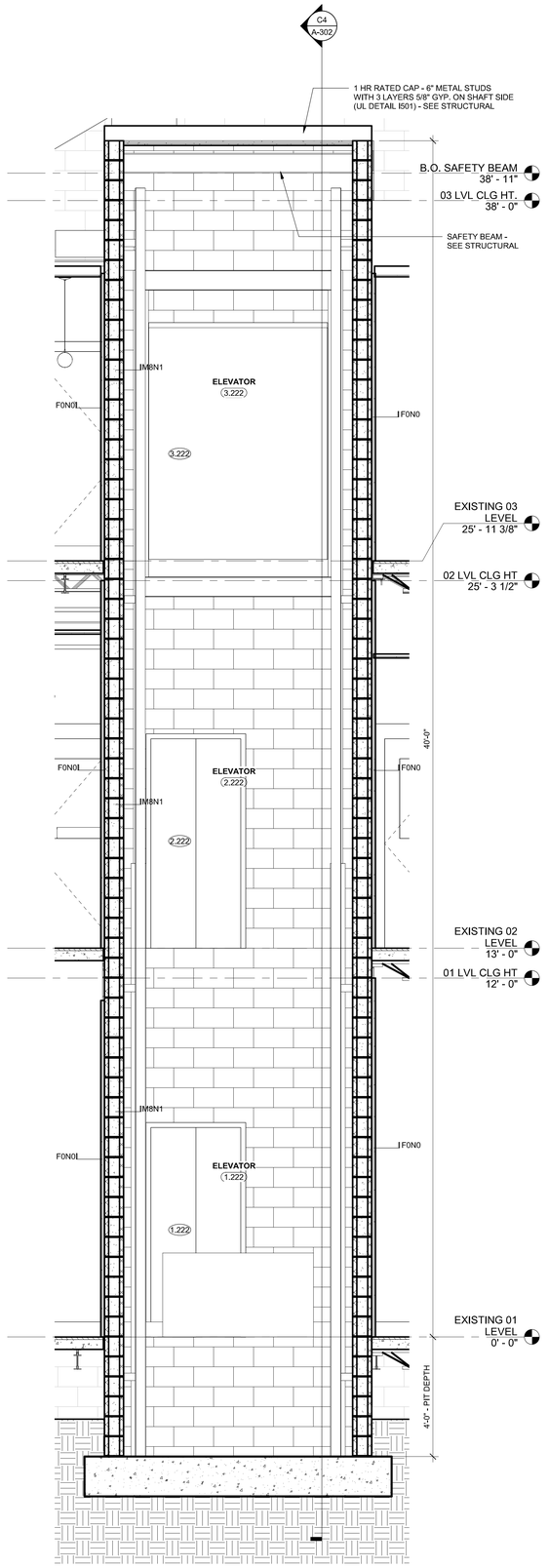
C4 ELEVATOR SILL - TYP. - LEVEL 01, 02 & 03
1 1/2" = 1'-0"



A2 ELEVATOR SUMP DRAIN DETAIL
3/4" = 1'-0"



A4 TYP. ELEVATOR PIT LADDER
1" = 1'-0"



A5 SECTION THRU NEW ELEVATOR
1/2" = 1'-0"

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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: CSW
CHECKED BY: CHB

ELEVATOR SECTION & DETAILS

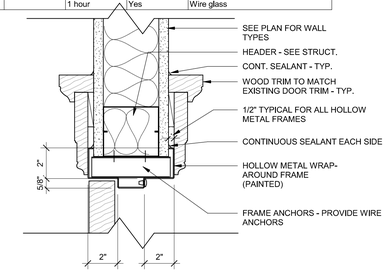
A-412

BID DOCUMENTS

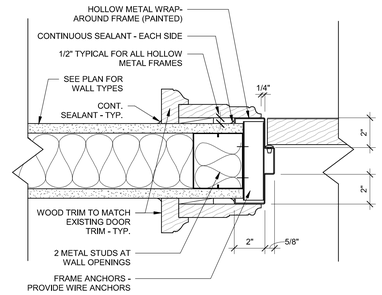
BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
3/30/2020 3:39:44 PM

DOOR AND FRAME SCHEDULE

DOOR NUMBER	Phase Created	Phase Demolished	Type Mark	Type	DOOR		FRAME			Hardware Type	Fire Rating	Closer	REMARKS
					MATL	FINISH	TYPE	HEAD	JAMB				
T.O. FTG.													
001	Existing	None	F	30" x 84"	Hollow Metal						1 hour	Yes	Existing closer
002	Existing	None	F	36" x 84" ex	Hollow Metal							Yes	Existing closer
EXISTING 01 LEVEL													
101A	Existing	None	C (PAIR)	ALUM. STOREFRONT - FIELD VER. SIZE	Alum							Yes	
101B	Existing	None	B (PAIR)	(PR) 36" x 84"	Wood							Yes	left side leaf has existing closer
102A	Existing	None	E (PAIR)	(PR) 36" x 84"	Wood							Yes	
102C	Existing	None	E (PAIR)	(PR) 36" x 84"	Wood							Yes	
102D	Existing	None	G	FIELD VER. SIZE	Alum						1 hour	Yes	
102E	Existing	None	A	36" x 84" FIRE RATED	--						1 hour	Yes	
103A	Existing	None	C (PAIR)	ALUM. STOREFRONT - FIELD VER. SIZE	Alum							Yes	
103B	Existing	None	B (PAIR)	(PR) 36" x 84"	Wood							Yes	left side leaf has existing closer
104	Existing	None	A	36" x 84" FIRE RATED	--						1 hour	Yes	
105	Existing	None	A	36" x 84" FIRE RATED	--						1 hour	Yes	
107	Existing	None	H	FIELD VER. SIZE	Alum								
108	New Construction	None	A	30" x 84" (FIRE RATED)	Wood			B5	A5		1 hour	Yes	
109	New Construction	None	A	30" x 84" (FIRE RATED)	Wood			B5	A5		1 hour	Yes	
111	Existing	None	G	FIELD VER. SIZE	Alum						1 hour	Yes	
111B	Existing	None	B	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	Verify transom above is wire glass
112	New Construction	None	B	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	Wire glass transom above
114	Existing	None	A	30" x 84"	Wood								switch door swing as shown A-101
115	Existing	None	B	32" x 84"	Wood								
116	Existing	None	A	36" x 84"	Wood								
117A	Existing	None	B	32" x 84"	Wood								
117B	Existing	None	A	36" x 84"	Wood								
117C	Existing	None	A	36" x 84"	Wood								
119A	Existing	None	B	32" x 84"	Wood								
119B	Existing	None	A	36" x 84"	Wood								
120A	Existing	None	B	32" x 84"	Wood								
120B	Existing	None	A	36" x 84"	Wood								
121	New Construction	None	L	36" x 84"	Wood			B5	A5				
121A	Existing	None	A	36" x 84"	Wood								
121B	New Construction	None	A	36" x 84"	Wood			B5	A5				
122	Existing	None	A	36" x 84"	Wood								
123	New Construction	None	L	36" x 84" (FIRE RATED)	Wood			B5	A5		1 hour		
124	Existing	None	F	36" x 84"	Hollow Metal						1 hour	Yes	
125A	New Construction	None	D (PAIR)	(PR) 34" x 80" (FIRE RATED)	Wood			B5	A5		1 hour	Yes	
125B	New Construction	None	A	30" x 84" (FIRE RATED)	Wood			B5	A5		1 hour	Yes	
126	Existing	None	A	36" x 84"	Wood								
127	New Construction	None	F (PAIR)	36" x 32 x 58" CUSTOM 1 (FIRE RATED)	Wood			B5	A5		1 hour	Yes	CUSTOM - SEE A/601B
128	New Construction	None	F (PAIR)	36" x 32 x 58" CUSTOM 1 (FIRE RATED)	Wood						1 hour		CUSTOM - SEE A/601B
EXISTING 02 LEVEL													
202A	Existing	None	A	36" x 84"	Wood								
202B	Existing	None	A	34" x 90"	Wood								
203	Existing	None	A	36" x 84" FIRE RATED	--						1 hour	Yes	
203A	Existing	None	A	36" x 84"	Wood								
205	Existing	None	A	36" x 84"	Wood								
205A	New Construction	None	B	32" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	
205B	Existing	None	B	36" x 84"	Wood								
206A	New Construction	None	L	36" x 84"	Wood			B5	A5				
206B	New Construction	None	B	32" x 84"	Wood			B5	A5				
209	Existing	None	A	30" x 84"	Wood								
210B	Existing	None	A	34" x 90"	Wood								
210C	Existing	None	A	27" x 90"	Wood								
210D	Existing	None	A	34" x 90"	Wood								
211	Existing	None	B	32" x 84" FIRE RATED	Wood						1 hour	Yes	Verify transom above is wire glass
213	Existing	None	N	Door-Passage-Single-Vision_Lite	Hollow Metal								
214	Existing	None	N	Door-Passage-Single-Vision_Lite	Hollow Metal								
221	New Construction	None	A	36" x 84"	Wood			B5	A5				
225	New Construction	None	A	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	
226	New Construction	None	B	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	Wire glass
229	New Construction	None	B	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	
232	New Construction	None	B	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	
237	New Construction	None	B	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	
238	New Construction	None	A	30" x 84" (FIRE RATED)	Wood			B5	A5		1 hour	Yes	
240A	Existing	None	D PAIR	59" x 80" ex	Wood						1 hour	Yes	
240B	Existing	None	D PAIR	59" x 80" ex	Wood						1 hour	Yes	
EXISTING 03 LEVEL													
301B	Existing	None	A	36" x 84" FIRE RATED	Wood						1 hour	Yes	
301F	Existing	None	A	36" x 84"	Wood								
303	Existing	None	A	30" x 84"	Wood								
303A	New Construction	None	A	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	
303B	New Construction	None	A	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	
305	New Construction	None	B	32" x 84"	Wood			B5	A5				
306A	Existing	None	A	36" x 84"	Wood								
306B	Existing	None	A	36" x 84"	Wood								
306C	Existing	None	B	32" x 84" FIRE RATED	Wood						1 hour	Yes	Wire glass
309	New Construction	None	A	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	
310	New Construction	None	A	32" x 84"	Wood			B5	A5				
311	New Construction	None	A	36" x 84"	Wood			B5	A5			Yes	
312	New Construction	None	A	36" x 84"	Wood			B5	A5				
314	New Construction	None	B	32" x 84"	Wood			B5	A5				
315B	New Construction	None	B	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	Wire glass
315C	New Construction	None	B	36" x 84" FIRE RATED	Wood			B5	A5		1 hour	Yes	Wire glass



B5 HM DOOR HEAD - INT. METAL STUD WALL
3" = 1'-0"



A5 HM DOOR JAMB - INT. METAL STUD WALL
3" = 1'-0"

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: TMR
CHECKED BY: CHBj

DOOR SCHEDULE, FRAME TYPES, DETAILS

A-601

BID DOCUMENTS

BIM 360://7702-191299 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
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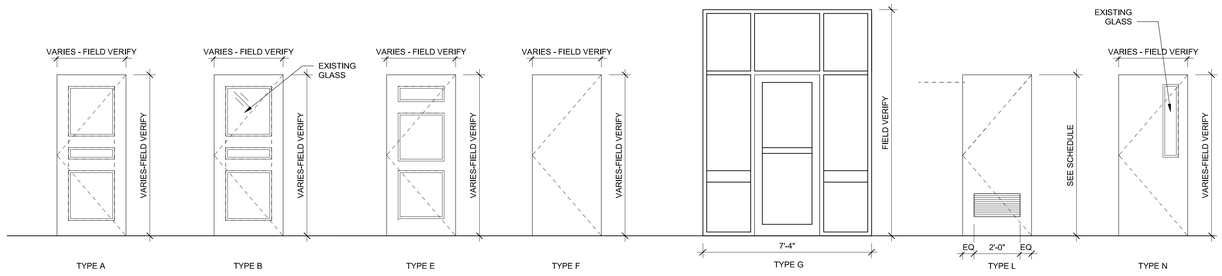
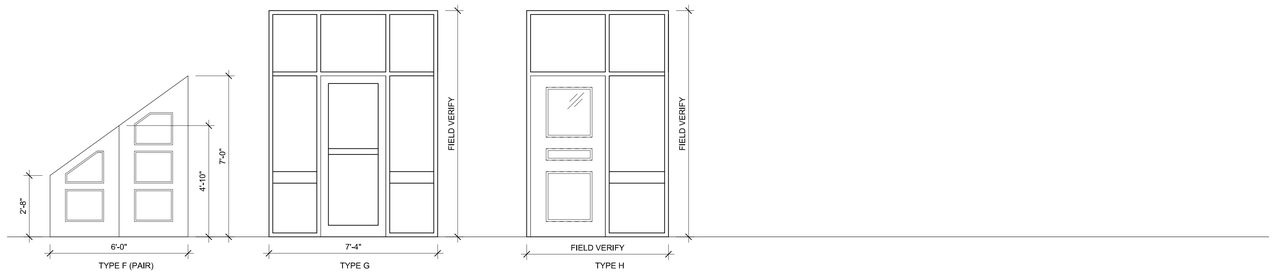
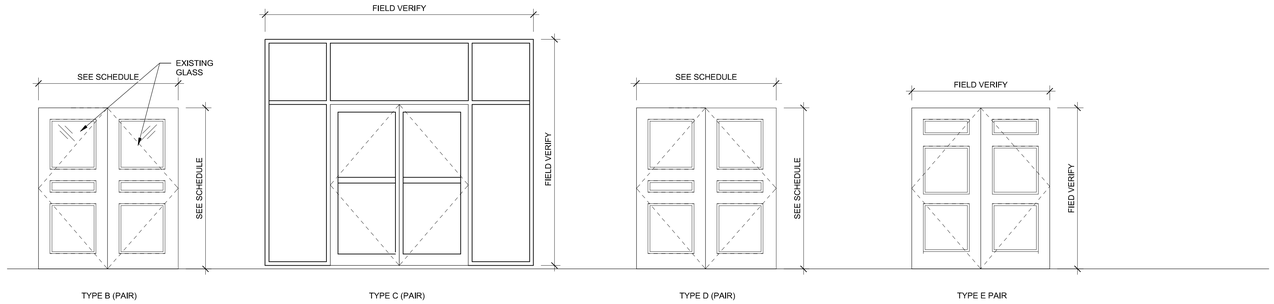


SINGLE DOOR TYPE LEGEND

3/8" = 1'-0"





DOUBLE DOOR TYPE LEGEND

3/8" = 1'-0"

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

LS3P

101 NORTH THIRD STREET SUITE 500
WILMINGTON, NORTH CAROLINA 28401
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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
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DOOR TYPE LEGEND

A-601B

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3/30/2020 3:39:48 PM

ROOM FINISH LEGEND

MATERIAL CODE	DESCRIPTION	MANUFACTURER	PRODUCT NAME	COLOR/ FINISH	SIZE	INSTALLATION FORMAT / COMMENTS	REP CONTACT INFO	NOTES
DIVISION 6 WOOD AND PLASTICS								
CAB-1	CABINETS	LEEDO	ROCKFORD	TBD				
HDW-1	CABINET HARDWARE	JGE SCHAUB & COMPANY	216 NORTHPORT PULL	TBD				WITH WDC-1
PLM-1	PLASTIC LAMINATE, VERTICAL SURFACE	FORMICA		TBD			SHERI REID - SHERI.REID@FORMICA.COM	BREAKROOM CASEWORK
PLM-2	PLASTIC LAMINATE, VERTICAL SURFACE	FORMICA		TBD			SHERI REID - SHERI.REID@FORMICA.COM	ROOM 120 ENTRY DESK
QSS-1	QUARTZ SOLID SURFACING	DEKTON BY COSENTINO		TBD				ROOM 120 COUNTERTOPS & SECURITY DESK
SSM-1	SOLID SURFACE	CORIAN		TBD				BREAKROOM & JURY ROOM COUNTERTOPS
WDB-1	WOOD WALL BASE	TO MATCH EXISTING						
WDC-1	WOOD VENEER			MAPLE WOOD WITH WALNUT STAIN				JURY ROOM 232 CASEWORK & SECURITY DESK
DIVISION 9 FINISHES - CEILINGS								
AC-S	ACOUSTIC CEILING SPRAY OVER EXIST. PLASTER							PATCH/REPAIR PLASTER AFTER ABATEMENT
ACT-1	ACOUSTICAL CEILING TILE, STANDARD							
EX-12-REM	EXISTING 12X12 ACOUSTIC TILE TO REMAIN							
EX-12P	EXISTING 12X12 ACOUSTIC TILE - PATCH							
EX-12R	EXISTING 12X12 ACOUSTIC TILE - REPLACE							
EX-PL	EXISTING PLASTER CEILING TO REMAIN., PAINT							
NEW 24	NEW 24X24 SUSPENDED ACOUST. TILE CEILING	ARMSTRONG	CIRRUS 626		24"X24"			
NEW G	NEW 5/8" GYP BD CEILING, PAINTED							
SCT-1	SUSPENDED CEILING PERIMETER TRIM							
DIVISION 9 FINISHES - FLOORS								
CPT-1	CARPET, TILE	EF CONTRACT	VEIL	TBD	12"X48"	ASHLAR/ 28 OZ WEIGHT W/ NEXUS CUSHION BACK	FAITH KILAFWASRU - FAITH@KINGBOSTROM.COM	MAIN COURTROOM 240
EHW-1	ENGINEERED HARDWOOD FLOORING	NYDREE FLOORING	PLAINSAWN WHITE OAK	TBD	5 1/4" PLANK		FAITH KILAFWASRU - FAITH@KINGBOSTROM.COM	MAIN COURTROOM 240, COURTROOM 201 & JURY ROOM 232
EPX-1 (PTF-3 ALT)	EPOXY FLOORING	STONARD	STONCLAD GS	TBD			JUSTIN CLARKE - JUSTIN.CLARKE@STONHARD.COM	ALT. FOR RESTROOMS ONLY
EPX-2	EPOXY RESURFACING FOR FLOORS (CELLS)	STONARD	STONCLAD GS	TBD			JUSTIN CLARKE - JUSTIN.CLARKE@STONHARD.COM	BAILIFF 211 FLOORS; CELL A & CELL B FLOORS
GTF-1	GROUT, FLOORING	LATICRETE		TBD				
LVP-1	LUXURY VINYL PLANK	TO MARKET	OZOGRIP	TBD	7.08"X47.24"		FAITH KILAFWASRU - FAITH@KINGBOSTROM.COM	
PTF-1 (ALT)	PORCELAIN TILE FLOORING	CROSSVILLE	SHADES BY CROSSVILLE	TBD	24"X24"	MONOLITHIC	ANN HARTLEY - AHARTLEY@MOSAICTILECO.COM	ALT. FOR FIRST FLOOR CORRIDOR 102
PTF-2 (ALT)	PORCELAIN TILE FLOORING	CROSSVILLE	SHADES BY CROSSVILLE	TBD	12"X24"	MONOLITHIC	ANN HARTLEY - AHARTLEY@MOSAICTILECO.COM	ALT. FOR FIRST FLOOR CORRIDOR 102 & STAIR ONLY; ELEVTOR FLOORS
PTF-3	PORCELAIN TILE FLOORING	CROSSVILLE	SHADES BY CROSSVILLE	TBD	12"X24"	BRICK	ANN HARTLEY - AHARTLEY@MOSAICTILECO.COM	NEW RESTROOMS
PTF-4 (ALT)	PORCELAIN TILE FLOORING	CROSSVILLE	SHADES BY CROSSVILLE	TBD	24"X24"	DIAMOND	ANN HARTLEY - AHARTLEY@MOSAICTILECO.COM	ALT. FOR FIRST FLOOR CORRIDOR 102
PTF-5 (ALT)	PORCELAIN TILE FLOORING	CROSSVILLE	SHADES BY CROSSVILLE	TBD	1"X3"		ANN HARTLEY - AHARTLEY@MOSAICTILECO.COM	ALT. FOR FIRST FLOOR CORRIDOR 102
QTF-1	QUARTZ TILE, FLOORING	UPOFLOOR	QUARTZ	TBD	24"X24"		SHAWN CAMPBELL - SCAMPBELL@SPARTANSURFACES.COM	
RST-1	RUBBER STAIR TREAD	JOHNSONITE		TBD		STAIR TREAD W/ RISER FOR VISUALLY IMPAIRED		FOR ALL STAIRS AND LANDINGS
TCT-1 (CPT-1 ALT)	TEXTILE COMPOSITE TILE	EF CONTRACT	SIROCCO - KINETEX	TBD	24"X24"	BRICK	FAITH KILAFWASRU - FAITH@KINGBOSTROM.COM	MAIN COURTROOM 240
DIVISION 9 FINISHES - WALL BASE								
GTB-1	GROUT, BASE	LATICRETE		TBD				
PTB-1	PORCELAIN TILE, BASE	CROSSVILLE	SHADES BY CROSSVILLE		4"X12"		ANN HARTLEY - AHARTLEY@MOSAICTILECO.COM	
DIVISION 9 FINISHES - WALLS								
EPXW-1	EPOXY, WALL	STONARD	STONGLAZE -VSR	TBD			JUSTIN CLARKE - JUSTIN.CLARKE@STONHARD.COM	BAILIFF 211 WALLS; CELL A & CELL B WALLS
GTW-1	GROUT, WALL	LATICRETE		TBD				
PNT-1	PAINT (MPI GLOSS LEVEL 5 SEMI-GLOSS FOR DOORS AND FRAMES)	SHERWIN WILLIAMS		TBD			RUSSELL HANSEN - RUSSELL.E.HANSEN@SHERWIN.COM	EPOXY USED ON ALL WET WALLS
PNT-2	PAINT (MPI GLOSS LEVEL 3 EGGSHELL - WALLS)	SHERWIN WILLIAMS		TBD			RUSSELL HANSEN - RUSSELL.E.HANSEN@SHERWIN.COM	OVERALL COLOR U.N.O.; EPOXY USED ON ALL WET WALLS
PNT-3	PAINT (MPI GLOSS LEVEL 3 EGGSHELL - WALLS)	SHERWIN WILLIAMS		TBD			RUSSELL HANSEN - RUSSELL.E.HANSEN@SHERWIN.COM	ACCENT COLOR; EPOXY USE ON ALL WET WALLS
PNT-4	PAINT (MPI GLOSS LEVEL 3 EGGSHELL - WALLS)	SHERWIN WILLIAMS		TBD			RUSSELL HANSEN - RUSSELL.E.HANSEN@SHERWIN.COM	ACCENT COLOR; EPOXY USE ON ALL WET WALLS
PTW-1	PORCELAIN TILE, WALL	CROSSVILLE	SHADES BY CROSSVILLE	TBD	12"X24"		ANN HARTLEY - AHARTLEY@MOSAICTILECO.COM	ALL NEW RESTROOMS
DIVISION 12 FURNISHINGS								
BLD-1	HORIZONTAL LOUVER BLINDS	HUNTER DOUGLAS		TBD				
DIVISION 14 CONVEYANCES								
WPE-1	WALL PANELS, ELEVATOR	FORMICA		TBD			SHERI REID - SHERI.REID@FORMICA.COM	

ROOM FINISH SCHEDULE

ROOM				WALL FINISH					
NUMBER	NAME	BASE	FLOORING	NORTH	SOUTH	EAST	WEST	CEILING	REMARKS
EXISTING 01 LEVEL									
1.208	EXIST. ELEVATOR	--	PTF-2	WPE-1	WPE-1	WPE-1	WPE-1	EXIST.	REMOVE & REPLACE EXIST. FL. & WALL PANELS
1.222	ELEVATOR	--	PTF-2	WPE-1	WPE-1	WPE-1	WPE-1		
101	ENTRY	--	--	--	--	--	--	PNT-	EXISTING FINISHES TO REMAIN
102	CORRIDOR	PTB-1	PTF-1, PTF-2, PTF-4, PTF-5	PNT-	PNT-	PNT-	PNT-		SEE FINISH PLAN SHEET A-721
103	ENTRY	--	--	--	--	--	--	PNT-	EXISTING FINISHES TO REMAIN
104	WOMEN'S TOILET	--	--	PNT-	PNT-	PNT-	PNT-	PNT-	EXISTING TILE FLOOR & PARTITIONS TO REMAIN
105	MEN'S TOILET	--	--	PNT-	PNT-	PNT-	PNT-	PNT-	EXISTING TILE FLOOR & PARTITIONS TO REMAIN
107	SPECIAL PROCEEDINGS CLERK	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	PATCH EXIST. CEILING TILES
108	STAFF TOILET	PTB-1	PTF-3	PNT-	PNT-	PNT-	PNT-	PNT-	DEMO & REPLACE EXIST. TILE FLOOR
109	STAFF TOILET	PTB-1	PTF-3	PNT-	PNT-	PNT-	PNT-	PNT-	DEMO & REPLACE EXIST. TILE FLOOR
110	CIVIL DIVISION	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
111	STAIRS	PTB-1	PTF-1, PTF-2, RST-1	PNT-	PNT-	PNT-	PNT-	PNT-	
112	HALL	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
113	VAULT	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	PNT-	
114	STORAGE	WDB-1	QTF-1	PNT-	PNT-	PNT-	PNT-	NEW G	
115	PROBATION	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
116	DATA ROOM	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
117	CASHIER'S OFFICE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
119	ESTATES DIVISION	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
120	CRIMINAL DIVISION	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
121A	BOOKKEEPER'S OFFICE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
121B	FILE STORAGE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
121C	ELECTRICAL	WDB-1	QTF-1	PNT-	PNT-	PNT-	PNT-	NEW G	
122	CRIMINAL DIVISION	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
123	MECHANICAL	WDB-1	QTF-1	PNT-	PNT-	PNT-	PNT-	NEW G	
124	ELEVATOR MACHINE ROOM	WDB-1	QTF-1	PNT-	PNT-	PNT-	PNT-	NEW G	
125A	MECHANICAL	WDB-1	QTF-1	PNT-	PNT-	PNT-	PNT-	NEW G	
125B	SHERIFF'S STG	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW G	
126	CRIMINAL ASSISTANT CLERK	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12p	
127	STAIR	PTB-1	PTF-1, PTF-2, RST-1	PNT-	PNT-	PNT-	PNT-	PNT-	
EXISTING 02 LEVEL									
2.201	STAIR	PTB-1	PTF-1, PTF-2, RST-1	PNT-	PNT-	PNT-	PNT-	PNT-	
2.208	EXIST. ELEVATOR	--	PTF-2	WPE-1	WPE-1	WPE-1	WPE-1	--	
2.212	STAIR	PTB-1	PTF-2, RST-1	PNT-	PNT-	PNT-	PNT-	PNT-	
2.222	ELEVATOR	--	PTF-2	WPE-1	WPE-1	WPE-1	WPE-1	--	
203	MAGISTRATES COURTROOM	WDB-1	EHW-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
203A	MECH	WDB-1	QTF-1	PNT-	PNT-	PNT-	PNT-	NEW G	
205	CONFERENCE ROOM	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
205A	HALL	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12	
205B	OFFICE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12	
206	OFFICE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
206A	MECH	WDB-1	QTF-1	PNT-	PNT-	PNT-	PNT-	NEW G	
207	VAULT	--	--	PNT-	PNT-	PNT-	PNT-	PNT-	
209	STG.	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW G	
209	STG.	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW G	
211	BAILIFF	EPX-2	EPX-2	PNT-	PNT-	PNT-	PNT-	NEW 24	
213	CELL B	EPX-2	EPX-2	PNT-	PNT-	PNT-	PNT-	EX-12P	
214	CELL A	EPX-2	EPX-2	PNT-	PNT-	PNT-	PNT-	EX-12P	
221	ADA	PTB-1	PTF-3	PNT-	PNT-	PNT-	PNT-	NEW G	
224	SECURITY DOCK	WDB-1	CPT-1	PNT-	PNT-	PNT-	PNT-	NONE	
225	ADA	PTB-1	PTF-3	PNT-	PNT-	PNT-	PNT-	NEW G	
226	HALL	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
229	JUDGE'S CHAMBER	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
232	JURY ROOM	WDB-1	EHW-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
237	ATTORNEY-CLIENT CONF. ROOM	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
238	RR	PTB-1	PTF-3	PNT-	PNT-	PNT-	PNT-	NEW G	
240	COURTROOM	WDB-1	CPT-1, EHW-1	PNT-	PNT-	PNT-	PNT-	AC-S	
241	BENCH	WDB-1	CPT-1	PNT-	PNT-	PNT-	PNT-	AC-S	
EXISTING 03 LEVEL									
3.201	STAIR	PTB-1	PTF-1, PTF-2, RST-1	PNT-	PNT-	PNT-	PNT-	PNT-	
3.208	EXIST. ELEVATOR	--	PTF-2	WPE-1	WPE-1	WPE-1	WPE-1	--	
3.212	STAIR	PTB-1	PTF-2, RST-1	PNT-	PNT-	PNT-	PNT-	PNT-	
3.222	ELEVATOR	--	PTF-2	WPE-1	WPE-1	WPE-1	WPE-1	--	
301	CIVIC FILES STORAGE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
301A	HALL	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	
303	MEZZANINE	WDB-1	CPT-1	PNT-	PNT-	PNT-	PNT-	PNT-	
303A	WOMENS	PTB-1	PTF-3	PNT-	PNT-	PNT-	PNT-	NEW G	
303B	MENS	PTB-1	PTF-3	PNT-	PNT-	PNT-	PNT-	NEW G	
304	STORAGE	WDB-1	QTF-1	PNT-	PNT-	PNT-	PNT-	NEW G	
305	BREAK ROOM	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
306A	OFFICE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
306B	OFFICE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	EX-12P	
307	STG.	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW G	
307A	HALL								
309	RECORD STORAGE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW G	
310	CRIMINAL EVIDENCE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW G	
311	ADA	PTB-1	PTF-3	PNT-	PNT-	PNT-	PNT-	NEW G	
312	STORAGE	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW G	
314	JUDGE'S OFFICE	WDB-1	EXISTING TO REMAIN	PNT-	PNT-	PNT-	PNT-	EXIST.	
315	HALL	WDB-1	LVP-1	PNT-	PNT-	PNT-	PNT-	NEW 24	

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

PENDER COUNTY NC

LS3P
101 NORTH THIRD STREET SUITE 500
WILMINGTON, NORTH CAROLINA 28401
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LS3P ASSOCIATES LTD. REGISTERED ARCHITECTURAL COMPANY CERT. NO. 50417 NORTH CAROLINA WILMINGTON, NORTH CAROLINA

CHARLES H. BONEY JR REGISTERED ARCHITECT 4276 WILMINGTON, N.C.

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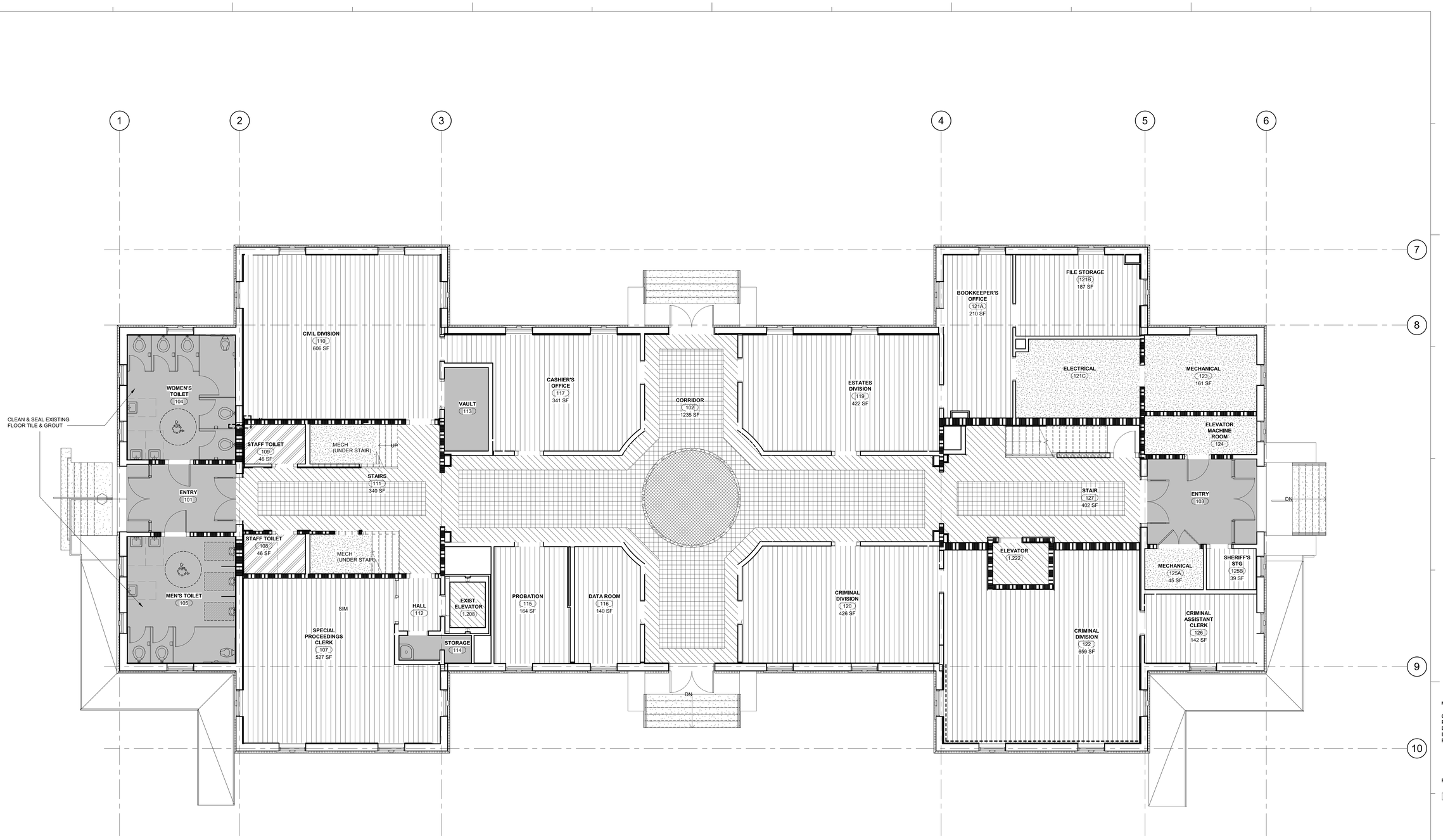
PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: AC
CHECKED BY: CHBj

ROOM FINISH LEGEND AND SCHEDULE

A-720

BID DOCUMENTS



B1 LEVEL 1 - FINISH PLAN
3/16" = 1'-0"

LEGEND

QTF-1	PTF-1	PTF-5
EHW-1	PTF-2	
LVP-1	PTF-3	
CPT-1	PTF-4	
EXISTING TO REMAIN	EPX-2	

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

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LS3P ASSOCIATES LTD. REGISTERED ARCHITECTURAL COMPANY NORTH CAROLINA CERT. NO. 50417 WILMINGTON, NORTH CAROLINA

CHARLES H. BOBBITT JR. NORTH CAROLINA 18797 REGISTERED ARCHITECT

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DATE: 03/29/20
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FINISH PLAN - LEVEL 1

A-721

BID DOCUMENTS

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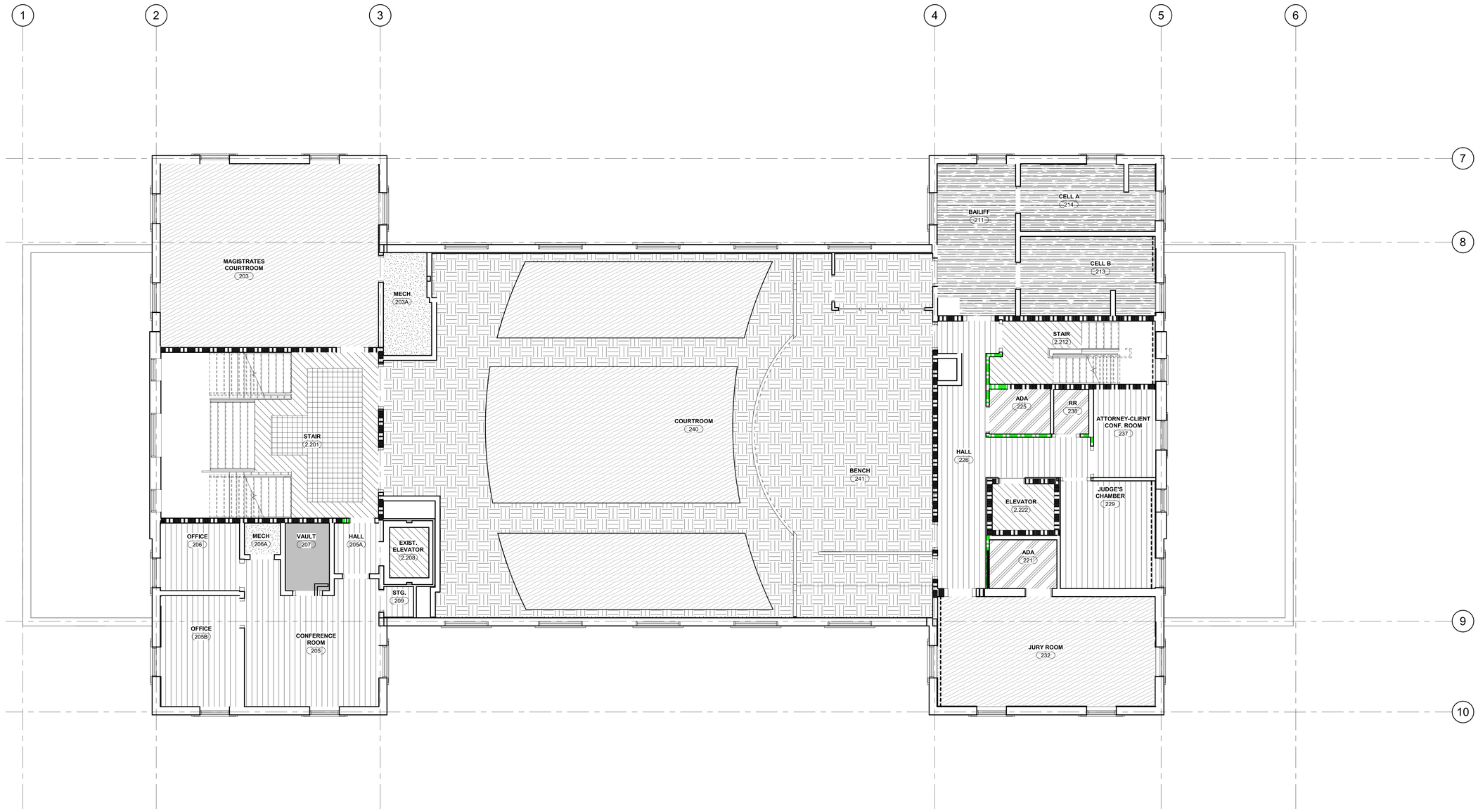
3/30/2020 3:39:57 PM



B1 LEVEL 2 - FINISH PLAN
3/16" = 1'-0"

LEGEND

QTF-1	PTF-1	PTF-5
EHW-1	PTF-2	
LVP-1	PTF-3	
CPT-1	PTF-4	
EXISTING TO REMAIN	EPX-2	

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

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LS3P ASSOCIATES LTD. REGISTERED ARCHITECTURAL COMPANY CERT. NO. 50417 NORTH CAROLINA WILMINGTON, NORTH CAROLINA

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CHARLES H. BONEY, JR. REGISTERED ARCHITECT 4276 NORTH CAROLINA WILMINGTON, N.C.

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FINISH PLAN - LEVEL 2

A-722

BID DOCUMENTS

BIM 360://7702-191290 Pender Co Courthouse Int Reno 2019/PenderCountyCH_Int Renov_2019.rvt
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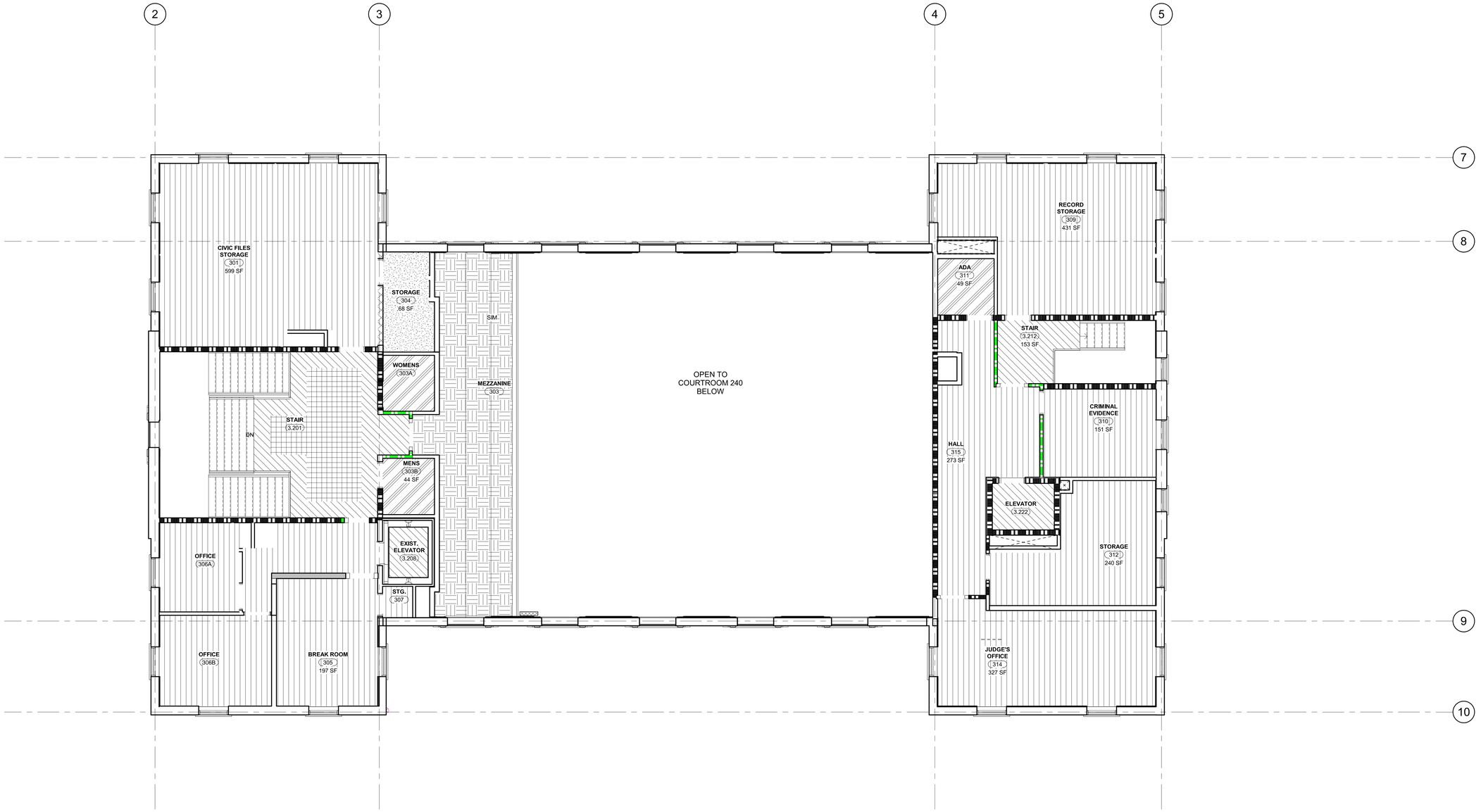

B1 LEVEL 3 - FINISH PLAN
3/16" = 1'-0"

LEGEND

QTF-1	PTF-1	PTF-5
EHW-1	PTF-2	
LVP-1	PTF-3	
CPT-1	PTF-4	
EXISTING TO REMAIN	EPX-2	

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

PENDER COUNTY COURTHOUSE

PENDER COUNTY NC

LS3P

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LS3P ASSOCIATES LTD. REGISTERED ARCHITECTURAL COMPANY CERT. NO. 50417 NORTH CAROLINA WILMINGTON, NORTH CAROLINA

2020.03.30 16:27:39-04'00'

CHARLES H. BONEY, JR. REGISTERED ARCHITECT 4276 NORTH CAROLINA WILMINGTON, N.C.

MEMBERS OF THE AMERICAN INSTITUTE OF ARCHITECTS

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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: AC
CHECKED BY: CHBj

FINISH PLAN - LEVEL 3

A-723

BID DOCUMENTS

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1.0 CODES AND STANDARDS:

1.1 "2018 North Carolina State Building Code" and "International Building Code", 2015.

1.2 "Minimum Design Loads for Buildings and other Structures" SEI/ASCE 7-10.

1.3 "Building Code Requirements for Structural Concrete (ACI 318-14)" American Concrete Institute 2014.

1.4 "Manual of Standard Practice", Concrete Reinforcing Steel Institute, latest edition.

1.5 "Specification for Structural Steel Buildings (AISC 360-10)" American Institute of Steel Construction, 2011 – 14th Edition

1.6 "Structural Welding Code – Steel (AWS D1.1)" and "Structural Welding Code – Reinforcing Steel (AWS D1.4)", American Welding Society.

1.7 "Specification for the Design of Cold-Formed Steel Structural Members", American Iron and Steel Institute (AISI), S100-12.

1.8 "Building Code Requirements for Masonry Structures", ACI 530-13, ASCE 5-13, TMS 402-13.

1.9 "Standard Specifications for Joist Girders (JG-10)", "Standard Specifications for Open Web Steel Joists, K-Series (K-10)", "Standard Specifications for Long Span Steel Joist, LH Series and Deep Longspan Steel Joists, DLH Series (LH/DLH-1.1)", Steel Joist Institute

1.10 "National Design Specification for Wood Construction with 2015 NDS Supplement," ANSI/AWC NDS-2015.

2.0 DESIGN LOADS:
Project Located in: City of Burgaw, County of Pender, State of North Carolina.

2.1 Risk Category = III

2.2 Gravity Loads: (Reduced where allowed)

GRAVITY LOADS		
Location	Uniform (psf)	Concentrated (lbs) (Over 2.5'x2.5')
Roof Loads:		
Dead Load	20	
Live Load	20	300
Floor Loads:		
Dead Load	50	
Floor Live Loads:		
Office	81	2000
Assembly	100	
Mechanical & Electrical Rooms	150	
Storage	125	

2.3 Drifting Snow Loads per N.C. Building Code.

Pg = 10 psf
I = 1.1
Ce = 0.9
Ct = 1.0

2.4 Wind Loads per N.C. State Building Codes, 2018 edition (IBC 2015) & ASCE 7-10 (3-second gust)

Main Wind Force Resisting System:
V 148 mph
Exposure Category "B"

Building is enclosed & Internal Pressure coefficient (GCpi) = +0.18 & -0.18
Topographic Factor Kzt = 1.0
Wind Directionality Factor, Kd = 0.85

Calculated Wind Base Shear (For MWFRS)
Vx = N/A Vy = N/A

Per Section 403.4 of IBEC Alterations to existing buildings.

Alterations are permitted to be made to any structure without requiring the structure to comply with Sections 1609 provided the alteration complies with requirements for new structures and the following conditions are met:

1. The alteration does not increase the seismic force in any element by more than 10% or decrease the strength of any existing member by more than 10%.
2. The alteration does not decrease the design strength of any existing structural element to resist seismic forces by more than 10%

The alteration does not increase forces or decrease strength therefore the existing structure is not required to comply with Section 1609.

Components and Cladding:
V 148 mph
Exposure Category "B"

Components and Cladding Wind Pressure (psf)									
Walls	Area < 10ft²		< 20ft²		Area < 50ft²		Area < 100ft²		Area < 500ft²
Zone 4	44.2	-47.9	42.2	-46.0	39.6	-43.3	37.6	-41.3	33.0	-36.7
Zone 5	44.2	-59.2	42.2	-55.1	39.6	-49.9	37.6	-46.0	33.0	-36.7
Roof	Area < 10ft²		Area < 20ft²		Area < 50ft²		Area < 100ft²		Area < 500ft²	
Zone 1	40.4	-44.2	39.3	-41.9	37.8	-39.0	36.7	-36.7	36.7	-36.7
Zone 2	40.4	-51.6	39.3	-49.4	37.8	-46.4	36.7	-44.2	36.7	-44.2
Zone 3	40.4	-51.6	39.3	-49.4	37.8	-46.4	36.7	-44.2	36.7	-44.2

Notes:
1. Areas noted are effective wind areas as per ASCE 7-10, 26.2 definitions.
2. See figures below for Zone locations.
3. Plus and minus signs signify pressures acting toward and away from surfaces, respectively.
4. Design pressures shown in table are strength design wind pressures. Allowable stress design wind pressures may be calculated by factoring the pressures by 0.6.
5. Design pressures for effective wind areas between those noted in schedule may be interpolated.
6. Tributary area = greater of LxW or Lx1/3.
7. Deflections may be calculated based on 42% of these loads.

2.5 Seismic Loads per 2018 North Carolina State Building Code (IBC 2015) & ASCE 7-10

Risk Category = III
Site class = "D" (assumed)
Spectral Response Coefficients:
SDS = 0.211g
SD1 = 0.138g

Seismic Design Category = C
Seismic Importance Factor = 1.25
Basic Seismic – Force – Resisting System

Design Base Shear Vx = N/A Vy = N/A
Building Height Limit = N/A
Analysis Procedure – N/A

PER SECTION 403.4 of IEBC Alterations to existing buildings.

Alterations are permitted to be made to any structure without requiring the structure to comply with Sections 1613 provided the alteration complies with requirements for new structures and the following conditions are met:

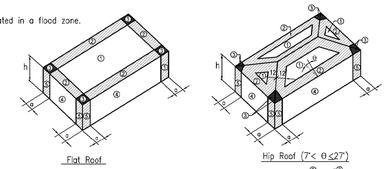
1. The alteration does no increase the seismic force in any element by more than 10 percent or decrease the strength of any existing member by more than 10 percent.
2. The alteration does not decrease the design strength of any existing structural element to resist seismic forces by more than 10%.

The alteration does not increase forces or decrease strength therefore the existing structure is not required to comply with Section 1613

2.6 Guardrail designed per North Carolina State Building Code, Section 1607.8

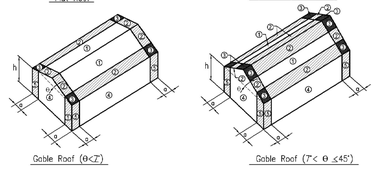
Guardrail:
Uniform load = 50 plf, any direction – per 1607.8.1
Concentrated load = 200 lbs, any direction – per 1607.8.1.1
Intermediate Rail: (all those expect handrail) per 1607.8.1.2

2.7 Flood Loads:
Project is not located in a flood zone.



Flat Roof

Hip Roof (7° < Θ ≤27°)



Gable Roof (0<Θ≤7°)

Gable Roof (7° < Θ ≤45°)

a = 8ft "corner zone"

3.0 FOUNDATIONS:

3.1 Foundation design is based upon a presumptive bearing capacity of 2,000 psf., as allowed by 2018 NCSBC Section 1806. A qualified geotechnical engineer shall be present to verify bearing capacity and the results shall be sent to the engineer.

3.2 Footings shall bear on strata capable of sustaining a minimum bearing pressure of 2,000 psf.

3.3 Top of footing (T/FTG) elevations are shown on the drawings or are to be determined by the Contractor in the field in accordance with the guidelines set forth in the drawings.

3.4 Bottom of exterior footings, grade beams and walls shall bear at a minimum depth of 1'-0" below final grade for frost protection.

3.5 Testing and Inspection:
a. All areas to have slabs on grade shall be proof rolled in accordance with and under observation of the Geotechnical Engineer and approved prior to preparation for concrete placement.

b. All foundation bearing strata shall be inspected and approved by the Geotechnical Engineer prior to any concrete placement.

c. Geotechnical Engineer shall be the sole judge as to suitability of all foundation and/or slab bearing strata.

d. Footing bearing elevations shall be adjusted in the field as required to meet the design bearing pressures by additional excavation or compaction and/or backfilling or by other means acceptable to the Geotechnical Engineer.

3.6 Undercutting to remove existing fill beneath footings and slab shall be performed at the direction of the Geotechnical Engineer.

3.7 Engineered Fill: All fill material shall be selected in accordance with the Geotechnical Report Material shall be a clean, low plastic soil with a plasticity index less than 30 (less than 15 is preferred), liquid limit less than 50, and unit weight of 120 pcf (+ 5 pcf)

3.8 Compaction: All fill shall be placed in loose lifts not exceeding 8 inches in thickness and compacted to a minimum of 96 percent Standard Proctor (ASTM D-698) except that the top 12 inches shall be compacted to a minimum of 98 percent Standard Proctor. Moisture shall be controlled to within 3 percent above or below optimum content.

3.9 Remove all topsoil and organic materials. The stripping should extend at least 10' beyond the proposed construction limits.

3.10 Contractor shall review all construction considerations as outlined in the Geotechnical report and bid accordingly.

4.0 CONCRETE:

4.1 Concrete Strength:
All concrete shall be in accordance with the American Concrete Institute (ACI) 301 and 318.

4.2 Concrete shall have a 28 day compressive strength and density as follows:
a. Footings, Grade Beams, and Interior Slab-on-grade.....3,000psi, Density = ±145pcf
b. Exterior Slab on Grade.....4,000psi, Density = ±145pcf
c. CMU Grout Fill.....3,000psi pea gravel mix, Density = ±145pcf, Slump 8"-11" or grout per Structural Masonry Notes, this sheet.

4.3 Concrete Mix Designs:
a. Submittals: Submit written reports of each proposed concrete mix not less than 15 days prior to the start of work.
b. Mix designs, including water, cement ratios and slumps, shall be prepared in accordance with ACI 301-05, Section 4, Cement shall conform to ASTM C 150 Type 1 or at contractor's option, ASTM C 595 Type IP where fly ash is permitted. Normal weight aggregate shall conform to ASTM C 33 and light weight aggregate shall conform to ASTM C 330. No admixtures containing calcium chloride shall be permitted in any concrete.
c. Aggregate size shall be #67 stone for supported slabs or other formed concrete elements; #57 stone for slabs on grade and footings or other concrete elements formed from and poured against earth; #89 stone for masonry grout.
d. Water reducing admixture shall be used in all concrete.
e. Air entraining admixture in accordance with ACI 301 shall be used in all concrete exposed freezing and thawing during construction or service conditions.
f. Concrete subjected to freezing/thawing shall have a maximum water/cement ratio of 0.45 and shall contain the amount of air entraining agent specified in ACI 301-05 Section 4.

4.4 Curing:
See specifications for curing method options and apply within two (2) hours after completion of finishing to all concrete flatwork and walls, U.N.O., other than footings and grade beams.

4.5 Use a non-corrosive, non-chloride accelerating admixture in concrete exposed to temperatures below 40 degrees. Uniformly heat the water and aggregates to a temperature of not less than 50 degrees. Place and cure concrete in accordance with ACI 306.

4.6 When hot weather conditions exist, place and cure concrete in accordance with ACI 301. Cool ingredients before mixing to maintain concrete temp. at time of placement below 90 degrees.

4.7 Reinforcing in all abutting concrete, including footings shall be continuous through or around all corners or intersections. Dowels or splices shall be equal in size and spacing to the reinforcing in the abutting members.

4.8 Refer to architectural drawings for door and window openings, drips, reglets, washes, masonry anchors, brick ledge elevations, slab depressions and miscellaneous embedded plates, bolts, anchors, angles, etc.

4.9 Refer to plumbing, mechanical and electrical drawings for underfloor, perimeter and other drains and for sleeves, outlet boxes, conduit, anchors, etc. The various trades are responsible for their items.

4.10 Base plates, anchor rods, support angles and other steel exposed to earth or granular fill shall be covered with a minimum of 3" of concrete.

4.11 Fill slabs, not shown on the structural drawings, shall be reinforced with a minimum of 3.0 lbs/yd³ of synthetic macro-fibers – see plan notes, unless noted otherwise on other drawings.

4.12 Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values equal to ½ of the overall flatness and levelness values.
b. The composite F(F) and F(L) numbers shall be measured and reported within 72 hours after completion of slab concrete finishing operations and before removal of any supporting shores.

4.13 Non-shrink grout shall be pre-mixed, non-corrosive, non-metallic, non-staining containing silica sands, Portland cement, shrinkage compensating and water reducing agents. Product shall only require the addition of water. Minimum compressive strength shall be 2500 psi after one day and 7000 psi after 28 days. Grout shall be free of gas producing or air releasing and oxidizing agents and contain no corrosive iron, aluminum or gypsum.

4.14 Provide concrete grout – not mortar – for reinforced masonry lintel and bond beams where indicated on drawing or as scheduled.

4.15 Tolerance for anchor rods and other embedded items shall be per the AISC Code of Standard Practice Section 7.5.

4.16 Unless otherwise shown in the architectural drawings, provide 3/4-inch chamfers at all column, wall, slab or beam edges that are exposed to view in the finished structure.

4.17 Concrete cover for cast-in-place concrete reinforcement:
Concrete cast against & permanently exposed to earth:.....3 Inches
Concrete exposed to earth or weather:
No. 6 through No. 18 Bars:.....2 Inches
No. 5 Bar and smaller:.....1½" Inches
Concrete not exposed to weather or in contact with ground:
Slabs, Walls, Joists:
No. 11 Bar and smaller:.....¾" Inches
Beams, Columns:
Primary Reinforcement, Ties, Stirrups:.....1½" Inches

5.0 REINFORCING STEEL:

5.1 Reinforcing shall be domestic new billet steel conforming to ASTM A615, Grade 60 or 60S including stirrups and ties, except that reinforcing which is required to be welded shall conform to ASTM A706.

5.2 Field bending of concrete reinforcing steel is not permitted.

5.3 Welded wire mat and fabric shall conform to ASTM A184 and A185 respectively and shall be provided in flat sheets. Welded wire mat/fabric shall be lapped 0'-6" at all splices.

5.4 Bar Splices:

	f'c = 3,000psi		f'c = 4,000psi		f'c = 5,000psi	
Bar Size	Ld (in)	Class "B" Lap Splice (in)	Ld (in)	Class "B" Lap Splice (in)	Ld (in)	Class "B" Lap Splice (in)
#3	17	22	15	19	13	17
#4	22	29	19	25	17	23
#5	28	36	24	31	22	28
#6	33	43	29	37	26	34
#7	48	63	42	54	38	49
#8	55	72	48	62	43	56

1. Values are based on normal weight concrete.
2. Ld = minimum embed of rebar
3. Class "B" lap splice refers to minimum distance bars must be lapped for a full tension splice.

6.0 STRUCTURAL MASONRY:

6.1 All structural masonry shall conform to ACI 530 standards as appropriate to the material.

6.2 Concrete Masonry Units (CMU):
a. Units shall be lightweight cellular units conforming to ASTM C 90, Grade N-2. Concrete masonry net area unit strength shall be no less than 2,000psi in accordance with ASTM C 140, with a unit weight not exceeding 95 pcf.
b. Design compressive strength of CMU (fm) = 2,000psi.

6.3 Mortar shall conform to ASTM C 270. Mortar shall be type "S" and shall conform to the ASTM C270 proportion requirements.

6.4 Neither type "N" mortar nor masonry cement shall be used as part of the lateral force resisting system.

6.5 Grouting:
a. Grout shall conform to ASTM C476 as specified by proportion. Masonry grout shall conform to the ASTM proportion requirements for coarse grout with a slump of 8 to 11 inches. Contractor may substitute grout with pea gravel concrete masonry fill, see note 4.2 this sheet.
b. All bond beams shall be filled with grout and reinforced as indicated on the drawings (details or schedules). Mortar fill is not permitted.
c. All masonry wall cells or cavities indicated as reinforced shall be grouted for the full height of the wall, unless specifically noted otherwise on the drawings. Unreinforced walls indicated as grouted shall be grouted full height, unless specifically noted otherwise. Mortar fill is not permitted.
d. All masonry cells or cavities below grade shall be grouted solid unless specifically noted otherwise on the drawings. Mortar fill is not permitted.
e. Vertical grouting shall be low lift or high lift as follows:
(1) Low lift grouting shall be used for all cavity walls and may be used for all walls at the option of the Contractor. Lifts shall not exceed 4'-0" in height.
(2) High lift grouting is permissible only for filling of cellular masonry units and shall not exceed 12'-8" in height. Clean out holes shall be provided at the base of each grouted cell.
f. Grouting shall be stopped 1-1/2" below the top of a course to form a key at the joint.
g. Grouting of masonry beams or lintels shall be done in one continuous operation.
h. Consolidate pours with mechanical vibrator and reconsolidate by mechanical vibration after initial water loss and settlement has occured.
i. Mechanical vibrator shall be a low velocity vibrator with a ¾" head.

6.6 Masonry Reinforcing:
a. Foundation dowels may slope a maximum of 1:6 to align with wall cavities or vertical CMU cores. Greater slopes will require replacement of the foundation dowels.
b. Spliced reinforcing shall be lapped a length calculated per IBC 2107.5 OR 15" OR as shown on drawings, whichever is greatest. All splices shall be wired together.
c. Vertical reinforcing bars shall have a minimum clearance of ¼" from masonry and shall be held in position top and bottom and at intervals not exceeding 4'-0". Accessories for such support shall be used. Provide "AA Wire Products Company" (or approved equal) Rebar Positioner AA225 or AA239 for vertical bars and AA240 for horizontal bars or approved equal products from other suppliers.
d. Horizontal joint reinforcing shall be lapped no less than 6" all splices, including corners and tees where no control joint is used.
e. All horizontal joint reinforcing shall stop at control joints.
f. Horizontal reinforcing in bond beams shall be continuous through control joints.
g. All CMU walls shall have joint reinforcing @ 16"o.c. All joint reinforcing shall have (2) 9 gauge (0.148"ø or W1.7) side rods & cross rods @ 16"o.c.

6.7 Masonry contractor shall provide for and coordinate with other trades for placement of all items to be embedded or built into the masonry.

MINIMUM SPLICING LENGTH (Ld) FOR MASONRY	
BAR SIZE	SPLICE LENGTH
#3	16"
#4	22"
#5	26"
#6	43"
#7	60"

7.0 GENERAL WOOD FRAMING NOTES:

7.1 All pressure treated 2x material shall be SYP #2 or better and shall be treated in accordance with AWPA Standard U1 to the requirements of Use Category 3B (UC3B) or Use Category 4A (UC4A).
All pressure treated Parallam shall be Truss Joist MacMillan, Wolmanized Parallam PSL, or approved equal.
All pressure treated Glulam (GL) members shall be Rosboro Treated X-Beam 2400f$_b$-1.9E or approved equal.
All Glulams shall be Rosboro 24F-V4 or better.
All 2x framing shall be SYP#2 or better, U.N.O.

7.2 Floor deck/diaphragm
– Floor deck shall be 3/4-inch exterior grade tongue and groove Advantech or approved equal.
– Place long direction perpendicular to framing
– Stagger end joints
– Glue and nail panels down with 10d common

Provide the following nail pattern:
@ 6" O.C. @ panel edge
@ 12" O.C. @ interior of panel.

7.3 All strap and tie connections shall have z-max (g185) triple zinc coating (or hot-dipped galvanized). All nails shall be hot-dipped galvanized.

7.4 Do not bend coil straps.

7.5 Unless noted otherwise, connect all building components per table 2304.9.1 – fastening schedule, per IBC 2015.

8.0 CONSTRUCTION AND SAFETY:

8.1 Woods Engineering P.A.'s responsibility is limited to the details and information shown on these drawings. It is the responsibility of the Contractor to provide adequate safety measures required by local codes as well as OSHA Standards for the Construction Industry.
This should include, but not be limited to the following:
Shoring to protect new as well as existing structures.
Necessary Scaffolding.
Material Handling Equipment.
Trench Boxing.

9.0 SPECIAL INSPECTIONS:

9.1 Refer to Sheet S1.02 for all Special Inspections requirements.

10.0 SHOP DRAWING SUBMITTAL:

10.1 See Project Manual

10.2 Contractor shall submit Electronic copies (PDF format) of each shop drawing for review. Shop drawings shall be reviewed by the Contractor prior to submission to the Engineer. The Contractor shall allow 10 working days for shop drawing approval.

ABBREVIATIONS

@	AT	HT	HIP TRUSS
&	AND	IFM	INSIDE FACE OF MASONRY
AB	ANCHOR BOLTS	INT	INTERIOR
ACI	AMERICAN CONCRETE INSTITUTE	JBE	JOIST BEARING ELEVATION
ADDL	ADDITIONAL	JT	JOINT
AFF	ABOVE FINISHED FLOOR	K	KIP-S
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	KB	KICKER BRACE
		KSI	KIPS PER SQUARE INCH
AISI	AMERICAN IRON AND STEEL INSTITUTE	(L)	LONG SIDE REINFORCEMENT
		LB	LONG BAR
ALT	ALTERNATE	LBS	POUNDS
ARCH	ARCHITECTS – ARCHITECTURAL	LLH	LONG LEG HORIZONTAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	LLV	LONG LEG VERTICAL
		LO	LOW
AWS	AMERICAN WELDING SOCIETY	LOC	LOCATION
B, BOTT	BOTTOM	LWC	LIGHT WEIGHT CONCRETE
BCX	BOTTOM CHORD EXTENSION	MAX	MAXIMUM
BFF	BELOW FINISHED FLOOR	MC	MOMENT CONNECTION
BLDG	BUILDING	MECH	MECHANICAL
BM	BEAM	MFR	MANUFACTURER
BOS	BOTTOM OF STEEL	MID	MIDDLE
BRG	BEARING	MIN	MINIMUM
BTWN	BETWEEN	MISC	MISCELLANEOUS
CFS	COLD FORMED STEEL	MOW	MIDDLE OF WALL
CJ	CONTRACTION JOINT	MP	MASONRY PILASTER
CL	CENTERLINE	¢	NAILS – PENNY
CLR	CLEAR	No	NUMBER
CMU	CONCRETE MASONRY UNITS	NS	NEAR SIDE
COL	COLUMN	NTS	NOT TO SCALE
CONC	CONCRETE	NWC	NORMAL WEIGHT CONCRETE
CONN	CONNECTION	OC	ON CENTER
CONST JT	CONSTRUCTION JOINT	OFB	OUTSIDE FACE OF BRICK
CONT	CONTINUOUS	OFM	OUTSIDE FACE OF MASONRY
CONTR	CONTRACTOR	OFS	OUTSIDE FACE OF STUD
CSJ	COMPOSITE STEEL JOIST	OPNG	OPENING
CTRD	CENTERED	OPP	OPPOSITE HAND
DBA	DEFORMED BAR ANCHOR	PEBS	PRE-ENGINEERED BUILDING SUPPLIER
DD	DELEGATED DESIGN		
DEFL	DEFLECTION	PED	PEDESTAL
DEPR	DEPRESSION – DEPRESSED	PL	PLATE
DET	DETAIL	PSF	POUNDS PER SQUARE FOOT
DIAG	DIAGONAL	PSI	POUNDS PER SQUARE INCH
ø	DIAMETER	PSL	PARALLEL STRAND LUMBER
DIM	DIMENSION	PLF	POUNDS PER LINEAR FOOT
DIST	DISTANCE	PT	PRESSURE TREATED
DWG(S)	DRAWING(S)	REF	REFERENCE
DWL(S)	DOWEL(S)	REINF	REINFORCING
EA	EACH	REQD	REQUIRED
ELEV	ELEVATION	(S)	SHORT SIDE REINFORCEMENT
EMBED	EMBEDDED – EMBEDMENT	SB	SHORT BAR
ENG	ENGINEER	SCHD	SCHEDULE
EOR	ENGINEER OF RECORD	SF	STEP FOOTING
EQ	EQUAL	SIM	SIMILAR
EQUIP	EQUIPMENT	SOG	SLAB ON GRADE
EF	EACH FACE	SPEC(S)	SPECIFICATION(S)
EJ	EXPANSION JOINT	SPF	SPRUCE PINE FUR
EOD	EDGE OF DECK	SQ	SQUARE
EOM	EDGE OF MASONRY	STD	STANDARD
EOS	EDGE OF SLAB	STIFF	STIFFENER
EOW	EDGE OF WALL	STIRR	STIRRUP
EW	EACH WAY	STL	STEEL
EXIST	EXISTING	STR	STRUCTURAL
EXP	EXPANSION	SW	SHEAR WALL
EXT	EXTERIOR	SYP	SOUTHERN YELLOW PINE
FDN	FOUNDATION	T	TOP
FFE	FINISHED FLOOR ELEVATION	TCX	TOP CHORD EXTENSION
FS	FAR SIDE	TOC	TOP OF CONCRETE
FTG	FOOTING	TOS	TOP OF STEEL
GA	GAUGE	TOW	TOP OF WALL
GALV	GALVANIZED	TYP	TYPICAL
GT	GIRDER TRUSS	UNO	UNLESS NOTED OTHERWISE
HD	HEADED	VB	VEHICLE BARRIER
HI	HIGH	VERT	VERTICAL
HORIZ	HORIZONTAL	VIF	VERIFY IN FIELD
HSS	HOLLOW STRUCTURAL SECTION	W	WITH
		WWF	WELDED WIRE FABRIC

DO NOT SCALE DIGITAL OR HARD COPIES OF THESE DRAWINGS:

Unless Specifically Noted – Drawings, Plans, Sections, Details, Etc. are a graphic representation of the framing conditions and/or requirements.
Rebar lengths, bends & etc. SHALL NOT be determined by scaling any drawings included in this set of documents. Lengths & sizes shall be determined by the schedules only, or specifically requested if not numerically shown. Submit a written request to Woods Engineering, PA if further clarification is needed.

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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WOODS ENGINEERING, P.A. CORPORATE SEAL No. C-1806 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 041563 ENGINEER ADAM L. SISK

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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: HHH
CHECKED BY: ALS

GENERAL NOTES

S1.01

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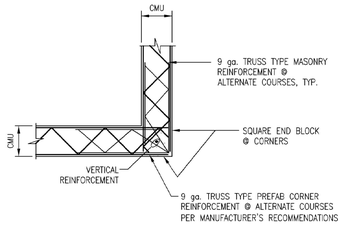
SCHEDULE FOR SPECIAL INSPECTIONS

BUILDING COMPONENTS OR MATERIAL	MATERIAL SUBMITTAL	INSPECTION / MONITORING	INSPECTION FREQUENCY	INSPECTOR QUALIFICATIONS	TEST REQUIREMENTS	TEST FREQUENCY	INSPECTION AGENCY
SOILS	1. ALLOWABLE SOIL BEARING = 2000psf 2. FILL MATERIAL SPECIFICATIONS. 3. VAPOR BARRIER	1.–2. INSPECT SOILS PER ATTACHED 2015 IBC, TABLE 1705.6 FOR REQUIRED VERIFICATION AND INSPECTION. 3. INSPECT VAPOR BARRIER INSTALLATION. SEE PROJECT & MANUFACTURER SPECS.	ALL INSPECTIONS ARE PERIODIC EXCEPT FILL PLACEMENT AND COMPACTION WHICH IS CONTINUOUS.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. PROVIDE VISUAL AND DCP TESTS PER ASTM STP-399 2. SUBGRADE DENSITY VERIFICATION	1. EACH ISOLATED FOOTING AND AT 20' INTERVALS FOR CONTINUOUS FOOTINGS. 2. AS REQUIRED TO VERIFY ENTIRE BUILDING PAD.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.
CONCRETE	1. SUBMIT CONCRETE MIX DESIGN. 2. SUBMIT MATERIAL CERTIFICATION 3. SUBMIT REBAR SHOP DRAWINGS.	INSPECT CONCRETE CONSTRUCTION PER ATTACHED 2015 IBC, TABLE 1705.3	AS OUTLINED PER TASK IN TABLE 1705.3	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. TEST CONCRETE FOR COMPRESSIVE STRENGTH, SLUMP, AIR CONTENT, TEMPERATURE AND BATCH TO PLACEMENT TIME.	1. SAMPLES FOR STRENGTH TESTS FOR EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 150 YD^3 OF CONCRETE, NOR LESS THAN ONCE FOR EACH 5,000FT^2 OF SURFACE AREA FOR SLABS OR WALLS.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.
STEEL	1. SUBMIT ANCHOR BOLT SETTING PLAN. 2. SUBMIT STEEL SHOP DRAWINGS. 3. SUBMIT MATERIAL CERTIFICATES. 4. FABRICATOR CERTIFICATE OF COMPLIANCE WITH 2015 IBC, 1705.2.	INSPECT STEEL PER ATTACHED TABLE BELOW	AS OUTLINED PER TASK IN TABLE BELOW	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. VISUAL INSPECTION BY A QUALIFIED STEEL INSPECTOR. 2. MOMENT CONNECTIONS FIELD WELDED. 3. ALL FIELD BOLTING SHALL BE SNUG TIGHT.	INSPECT ALL FIELD CONNECTIONS. CONTINUOUS INSPECTION OF ALL MOMENT CONNECTIONS REQUIRED.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.
MASONRY	1. SUBMIT MATERIAL CERTIFICATIONS.	INSPECT MASONRY PER ATTACHED ACI 530-13, TABLE 1.19.2. LEVEL B REQUIRED VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION.	AS OUTLINED PER TASK IN TABLE BELOW.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. TEST GROUT (PEA GRAVEL CONCRETE) FOR SLUMP & COMPRESSIVE STRENGTH.	1. SAMPLES FOR STRENGTH TESTS FOR EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 150 YD^3 OF CONCRETE, NOR LESS THAN ONCE FOR EACH 5,000FT^2 OF SURFACE AREA FOR SLABS OR WALLS.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.
WOOD	1. SUBMIT MATERIAL CERTIFICATES. 2. SHEAR WALL HOLDOWN MATERIAL CERTIFICATES	1. INSPECT WOOD PLATES AND ROOF TRUSSES FOR GRADE AND SPACING PER APPROVED CONSTRUCTION DOCUMENTS. 2. INSPECT ROOF & BRACING LAYOUT, TYPE AND SPACING PER SHOP DRAWINGS. 3. VERIFY WOOD FRAMING INSTALLATION WITH APPROVED CONSTRUCTION DOCUMENTS. 4. INSPECT WOOD SHEAR WALL, FASTENING, BOLTING AND ANCHORING PER APPROVED CONSTRUCTION DOCUMENTS. 5. INSPECT ROOF DECK NAILING & VERIFY DECK TYPE. 6. INSPECT PARAPET STUDS AND CONNECTIONS PER APPROVED CONSTRUCTION DOCUMENTS.	1.–6. PERIODIC.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. VISUAL ONLY.	1. PERIODIC	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.

REQUIRED VERIFICATION & INSPECTION OF STEEL CONSTRUCTION

VERIFICATION & INSPECTION TASK	CONTINUOUS	PERIODIC
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:		
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	–	X
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	–	X
2. INSPECTION OF HIGH-STRENGTH BOLTING:		
a. SNUG-TIGHT JOINTS.	–	X
b. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION.	–	X
c. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION.	X	–
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:		
a. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360	–	X
b. FOR OTHER STEEL, INDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	–	X
c. MANUFACTURER'S CERTIFIED TEST REPORTS.	–	X
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:		
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.	–	X
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	–	X
5. INSPECTION OF WELDING:		
a. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:		
1) COMPLETE AND PARTIAL PENETRATION GROOVE WELDS.	X	–
2) MULTIPASS FILLET WELDS.	X	–
3) SINGLE-PASS FILLET WELDS > 5/16"	X	–
4) PLUG AND SLOT WELDS.	X	–
5) SINGLE-PASS FILLET WELDS ≤ 5/16"	–	X
6) FLOOR AND ROOF DECK WELDS.	–	X
b. REINFORCING STEEL:		
1) VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.	–	X
2) REINFORCING STEEL-RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT.	X	–
3) SHEAR REINFORCEMENT.	X	–
4) OTHER REINFORCING STEEL	–	X
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:		
a. DETAILS SUCH AS BRACING AND STIFFENING.	–	X
b. MEMBER LOCATIONS.	–	X
c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	–	X

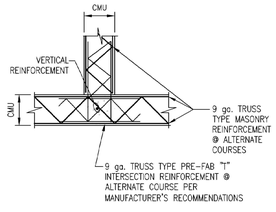
(a) OBSERVE ON A RANDOM BASIS, OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS. PERFORM THESE TASKS FOR EACH WELDED JOINT, BOLTED CONNECTION, OR STEEL ELEMENT
(b) SEE AISC 360 QUALITY ASSURANCE INSPECTION REQUIREMENTS



TYPICAL CMU CORNER

DETAIL "B"

SCALE: 3/4" = 1'-0"



TYPICAL CMU INTERSECTION

DETAIL "C"

SCALE: 3/4" = 1'-0"

REQUIRED LEVEL B VERIFICATION & INSPECTION OF MASONRY CONSTRUCTION FREQUENCY CHART

VERIFICATION & INSPECTION TASK	CONTINUOUS	PERIODIC
1. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED.	–	x
2. VERIFICATION OF f'_m AND f'_{mc} PRIOR TO CONSTRUCTION EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE.	–	X
3. VERIFICATION OF SLUMP FLOW AND VSI AS DELIVERED TO THE SITE FOR SELF-CONSOLIDATING GROUT.	X	–
4. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:		
a. PROPORTIONS OF SITE-PREPARED MORTAR.	–	X
b. CONSTRUCTION OF MORTAR JOINTS.	–	X
c. LOCATION OF REINFORCEMENT, CONNECTORS, PRESTRESSING TENDONS AND ANCHORAGES.	–	X
d. PRESTRESSING TECHNIQUE.	–	X
e. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES.	–	X
5. DURING CONSTRUCTION THE INSPECTION PROGRAM SHALL VERIFY:		
a. SIZE AND LOCATION OF STRUCTURAL ELEMENTS.	–	X
b. TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION.	–	X
c. SPECIFIED SIZE, GRADE AND TYPE OF REINFORCEMENT, ANCHOR BOLTS, PRESTRESSING TENDONS AND ANCHORAGES.	–	X
d. WELDING OF REINFORCING BARS.	X	–
e. PREPARATION, CONSTRUCTION AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F).	–	X
f. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE.	X	–
6. PRIOR TO GROUTING, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:		
a. GROUT SPACE IS CLEAN.	–	X
b. PLACEMENT OF REINFORCEMENT AND CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES.	–	X
c. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS.	–	X
d. CONSTRUCTION OF MORTAR JOINTS.	–	X
7. GROUT PLACEMENT SHALL BE VERIFIED TO ENSURE COMPLIANCE:	X	–
a. GROUTING OF PRESTRESSING BONDED TENDONS.	X	–
8. PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS SHALL BE OBSERVED.	–	X

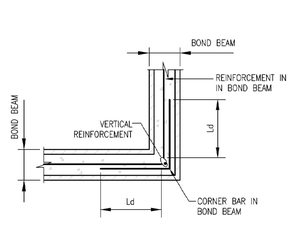
NOTE: SEE IBC 2015, SECTION 1705.4 FOR REFERENCE STANDARDS.

(a) FREQUENCY REFERS TO THE FREQUENCY OF INSPECTION, WHICH MAY BE CONTINUOUS DURING THE TASK LISTED OF PERIODICALLY DURING THE LISTED TASK, AS DEFINED IN THE TABLE
(b) REQUIRED FOR THE FIRST 5000 ft^2 OF AAC MASONRY
(c) REQUIRED AFTER THE FIRST 5000 ft^2 OF AAC MASONRY
(d) SEE TABLE 1.19.2 OF TMS 402/ACI 530/ASCE 3-13 FOR REFERENCE STANDARDS

REQUIRED VERIFICATION & INSPECTION OF CONCRETE CONSTRUCTION FREQUENCY CHART

VERIFICATION & INSPECTION TASK	CONTINUOUS	PERIODIC
1. INSPECTION OF REINFORCING STEEL INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT	–	X
2. REINFORCING BAR WELDING: a. VERIFY WEDABILITY OF REINFORCING BARS OTHER THAN ASTM A 706 b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16", and c. INSPECT ALL OTHER WELDS.	– X	X X
3. INSPECTION OF ANCHORS CAST IN CONCRETE	–	X
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS a. ADHESIVE ANCHORS INSTALLED HORIZONTALLY OR UPWARDLY INCLUDED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a	X	 X
5. VERIFY USE OF REQUIRED DESIGN MIX.	–	X
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	–
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	–
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	–	X
9. INSPECTION OF PRESTRESSED CONCRETE: a. APPLICATION OF PRESTRESSING FORCES. b. GROUTING OF BONDED PRESTRESSING TENDONS	X X	– –
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	–	X
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	–	X
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	–	X

NOTE: SEE IBC 2015, TABLE 1705.3 FOR REFERENCE STANDARDS.

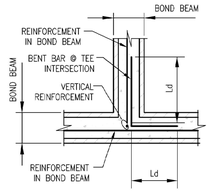


TYPICAL BOND BEAM REINFORCING

DETAIL "D"

SCALE: 3/4" = 1'-0"

NOTE: TRUSS TYPE REINFORCEMENT SHOWN, HOWEVER LADDER OR TRUSS TYPES ARE ACCEPTABLE.



TYPICAL BOND BEAM INTERSECTION REINFORCING

DETAIL "E"

SCALE: 3/4" = 1'-0"

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

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TYPICAL DETAILS & SPECIAL INSPECTIONS

S1.02

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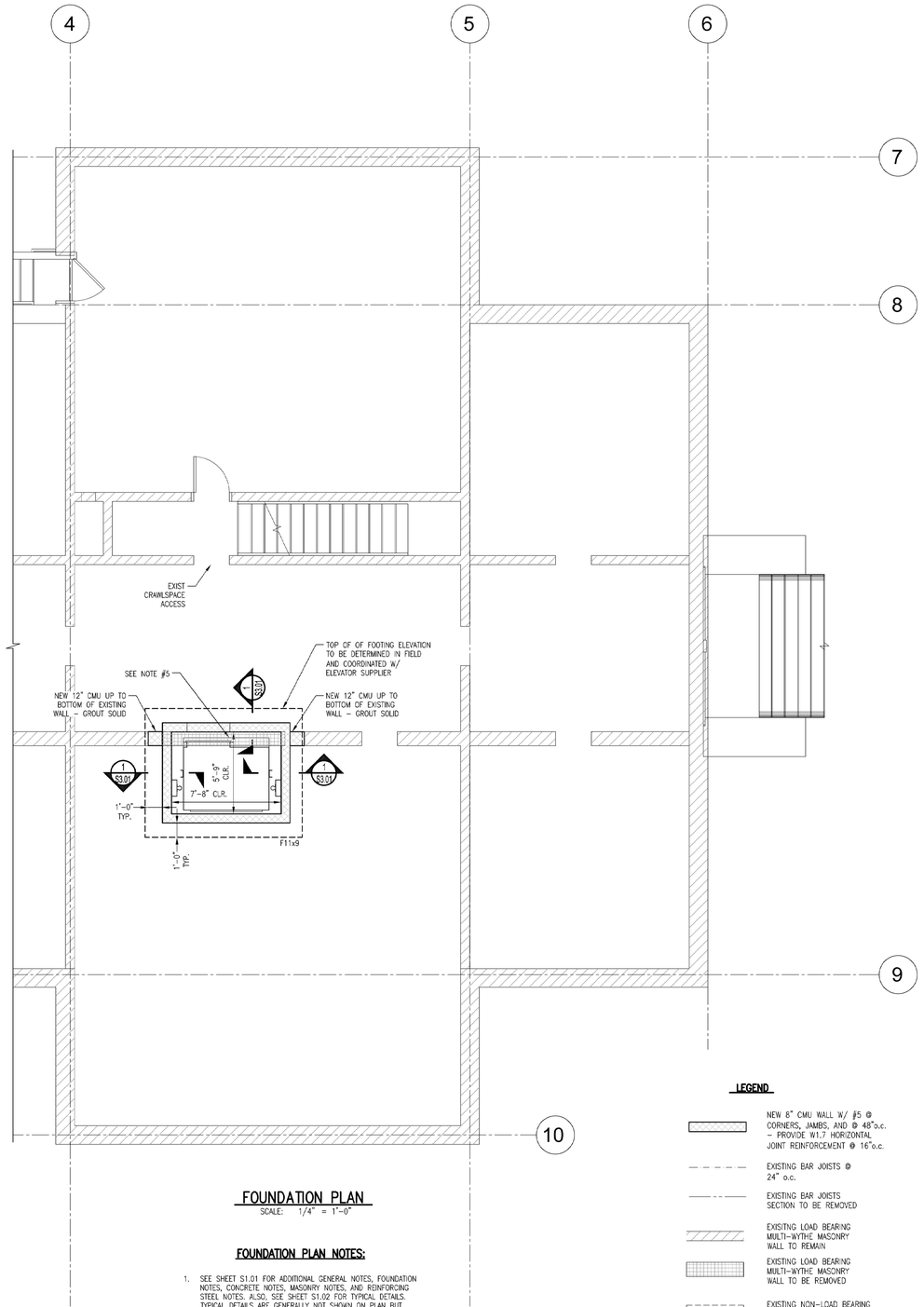


FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

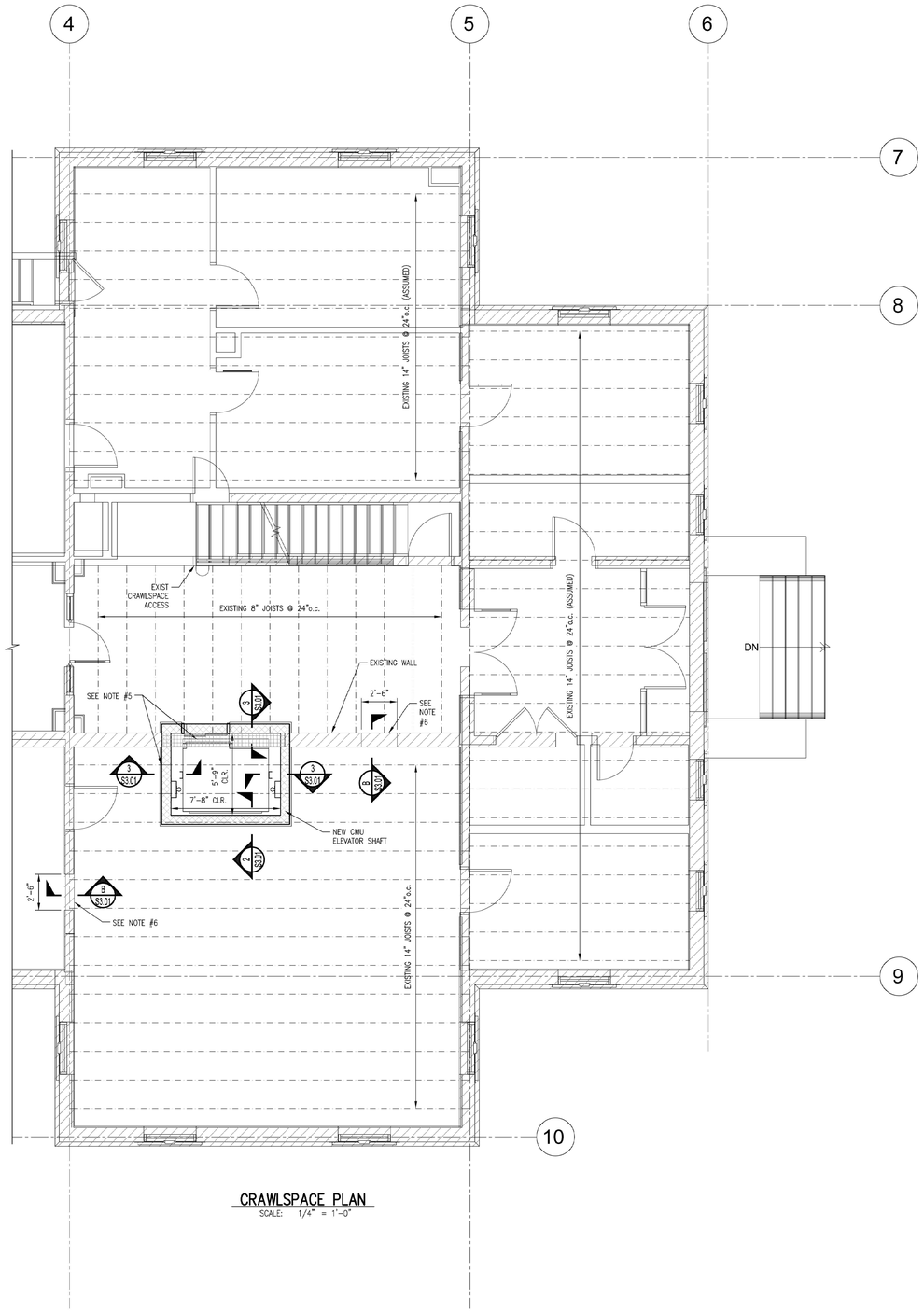
FOUNDATION PLAN NOTES:

1. SEE SHEET S1.01 FOR ADDITIONAL GENERAL NOTES, FOUNDATION NOTES, CONCRETE NOTES, MASONRY NOTES, AND REINFORCING STEEL NOTES. ALSO, SEE SHEET S1.02 FOR TYPICAL DETAILS. TYPICAL DETAILS ARE GENERALLY NOT SHOWN ON PLAN BUT RATHER ARE INTENDED TO DEFINE TYPICAL CONSTRUCTION CONDITIONS.
2. DATUM ELEVATION = TOP OF EXISTING 1st FLOOR SLAB ELEVATION = ASSUMED 0'-0" = ±???' M.S.L. OTHER ELEVATIONS ARE NOTED AS (+ OR -) FROM DATUM ELEVATION.
3. TOP OF FOOTINGS SHALL BE (+ OR -) FROM DATUM ELEVATION, U.N.O.
4. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND OTHER DISCIPLINE DRAWINGS FOR OPENINGS AND DEPRESSIONS NOT SHOWN ON THESE DRAWINGS.

LEGEND

- NEW 8" CMU WALL W/ #5 @ CORNERS, JAMBS, AND @ 48"o.c. - PROVIDE W1.7 HORIZONTAL JOINT REINFORCEMENT @ 16"o.c.
- EXISTING BAR JOISTS @ 24" o.c.
- EXISTING BAR JOISTS SECTION TO BE REMOVED
- EXISTING LOAD BEARING MULTI-WYTHE MASONRY WALL TO REMAIN
- EXISTING LOAD BEARING MULTI-WYTHE MASONRY WALL TO BE REMOVED
- EXISTING NON-LOAD BEARING MULTI-WYTHE MASONRY WALL TO BE REMOVED
- MH1: 8" CMU HEADER WITH (1)#5 x CONT. - GROUT (1) COURSE ABOVE
- MH2: 8" CMU HEADER WITH (2)#5 x CONT. - GROUT (2) COURSE ABOVE

SPREAD & STRIP FOOTING SCHEDULE			
MARK	SIZE length x width x thickness	REINFORCEMENT (BOTTOM BARS EACH WAY UNO)	REMARKS
F11x9	11'-0" x 9'-0" x 1'-0"	#5 @ 12o.c. EACH WAY	-



CRAWLSPACE PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES:

1. SEE SHEET S1.01 FOR ADDITIONAL GENERAL NOTES, STEEL NOTES, MASONRY NOTES, AND REINFORCING STEEL NOTES. ALSO, SEE SHEET S1.02 FOR TYPICAL DETAILS. TYPICAL DETAILS ARE GENERALLY NOT SHOWN ON PLAN BUT RATHER ARE INTENDED TO DEFINE TYPICAL CONSTRUCTION CONDITIONS.
2. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND OTHER DISCIPLINE DRAWINGS FOR OPENINGS AND DEPRESSIONS NOT SHOWN ON THESE DRAWINGS.
3. TYPICAL FLOOR SLAB IS ASSUMED 4" THICK CONCRETE ON WIRE LATHE.
4. ALL MISCELLANEOUS STEEL TO BE A36.
5. SHORE EXISTING JOIST AT JOIST PANEL POINT. REMOVE EXISTING JOIST, CONCRETE FLOOR, AND LOAD BEARING MASONRY WALL AS REQUIRED FOR ELEVATOR OPENING IN FLOOR. SEE DETAILS ON S3.01 FOR MORE INFORMATION.
6. NEW OPENING CUT INTO EXISTING CRAWLSPACE WALL. SEE DETAIL B-B SHEET S3.01.

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CRAWLSPACE & FOUNDATION PLANS

S2.01

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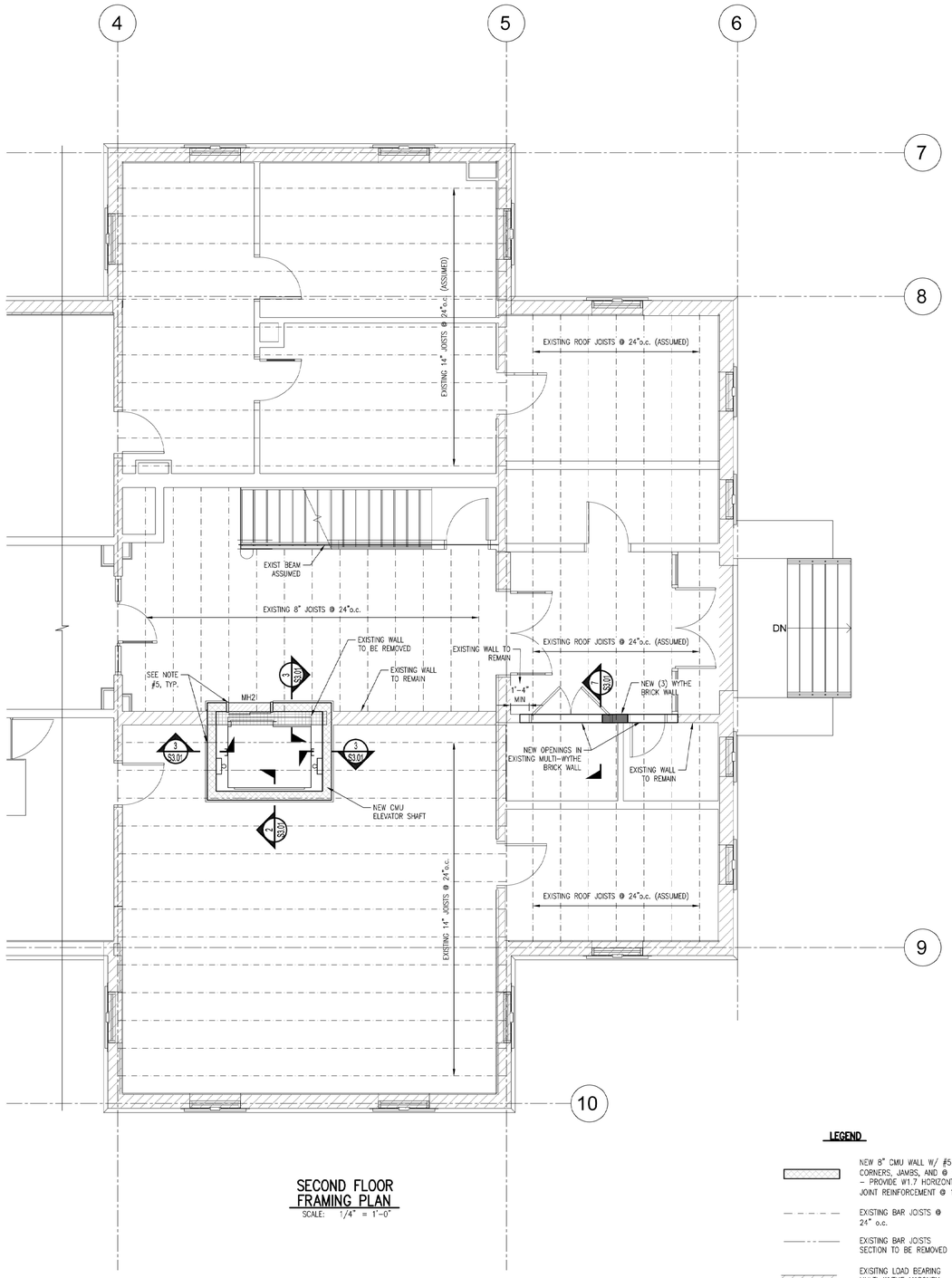
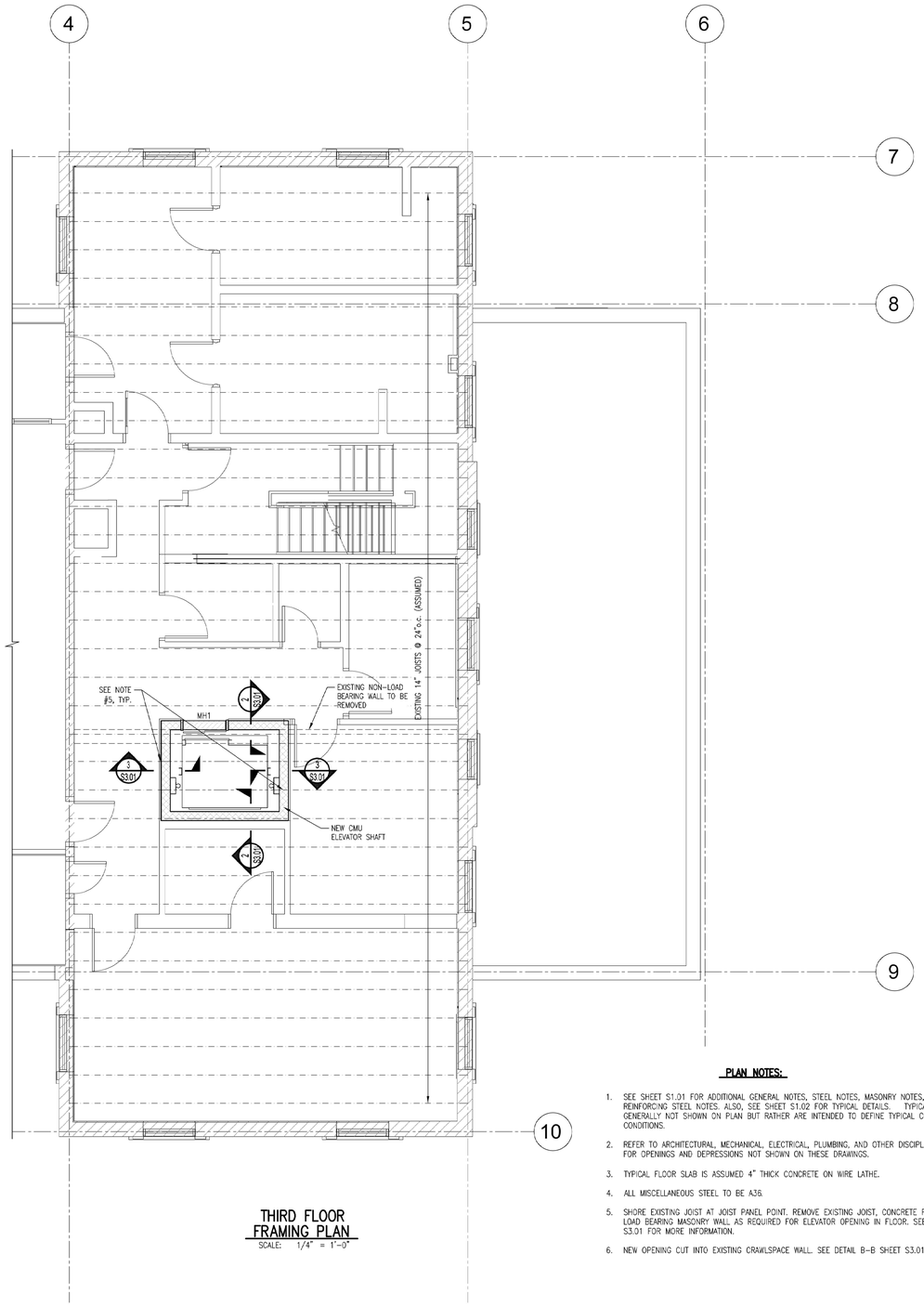


SECOND FLOOR FRAMING PLAN

SCALE: 1/4" = 1'-0"



THIRD FLOOR FRAMING PLAN

SCALE: 1/4" = 1'-0"

LEGEND

- NEW 8" CMU WALL W/ #5 @ CORNERS, JAMBS, AND @ 48"o.c. – PROVIDE W1.7 HORIZONTAL JOINT REINFORCEMENT @ 16"o.c.
- EXISTING BAR JOISTS @ 24" o.c.
- EXISTING BAR JOISTS SECTION TO BE REMOVED
- EXISITNG LOAD BEARING MULTI-WYTHE MASONRY WALL TO REMAIN
- EXISTING LOAD BEARING MULTI-WYTHE MASONRY WALL TO BE REMOVED
- EXISTING NON-LOAD BEARING MULTI-WYTHE MASONRY WALL TO BE REMOVED
- MH1 — 8" CMU HEADER WITH (1)#5 x CONT. – GROUT (1) COURSE ABOVE
- MH2 — 8" CMU HEADER WITH (2)#5 x CONT. – GROUT (2) COURSE ABOVE

PLAN NOTES:

1. SEE SHEET S1.01 FOR ADDITIONAL GENERAL NOTES, STEEL NOTES, MASONRY NOTES, AND REINFORCING STEEL NOTES. ALSO, SEE SHEET S1.02 FOR TYPICAL DETAILS. TYPICAL DETAILS ARE GENERALLY NOT SHOWN ON PLAN BUT RATHER ARE INTENDED TO DEFINE TYPICAL CONSTRUCTION CONDITIONS.
2. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND OTHER DISCIPLINE DRAWINGS FOR OPENINGS AND DEPRESSIONS NOT SHOWN ON THESE DRAWINGS.
3. TYPICAL FLOOR SLAB IS ASSUMED 4" THICK CONCRETE ON WIRE LATHE.
4. ALL MISCELLANEOUS STEEL TO BE A36.
5. SHORE EXISTING JOIST AT JOIST PANEL POINT. REMOVE EXISTING JOIST, CONCRETE FLOOR, AND LOAD BEARING MASONRY WALL AS REQUIRED FOR ELEVATOR OPENING IN FLOOR. SEE DETAILS ON S3.01 FOR MORE INFORMATION.
6. NEW OPENING CUT INTO EXISTING CRAWLSPACE WALL. SEE DETAIL B-B SHEET S3.01.

PENDER COUNTY COURTHOUSE - INTERIOR RENOVATIONS

WOODS ENGINEERING
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Wilmington, NC 28401 www.woodseng.com

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WILMINGTON, NORTH CAROLINA 28401
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WOODS ENGINEERING, INC. CORPORATE SEAL No. C-1806 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 041563 ENGINEER ADAM L. SISK

NORTH CAROLINA PROFESSIONAL SEAL 041563 ENGINEER ADAM L. SISK

Digitally signed by Adam L. Sisk, PE, SE
Location: Wilmington, NC
Reason: I attest to the accuracy and integrity of this document
Contact Info: adam@woodseng.com; (910) 343-8007
Date: 2020.03.30 15:08:10-04'00'

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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: HHH
CHECKED BY: ALS

FLOOR FRAMING PLANS

S2.02

S:\WoodsEng\Projects\LS3P\NCW CIS Reno\Arch\9-27-2019\Latest Revit Model (1)\NCW- CIS Reno_Ph II_2018.rvt
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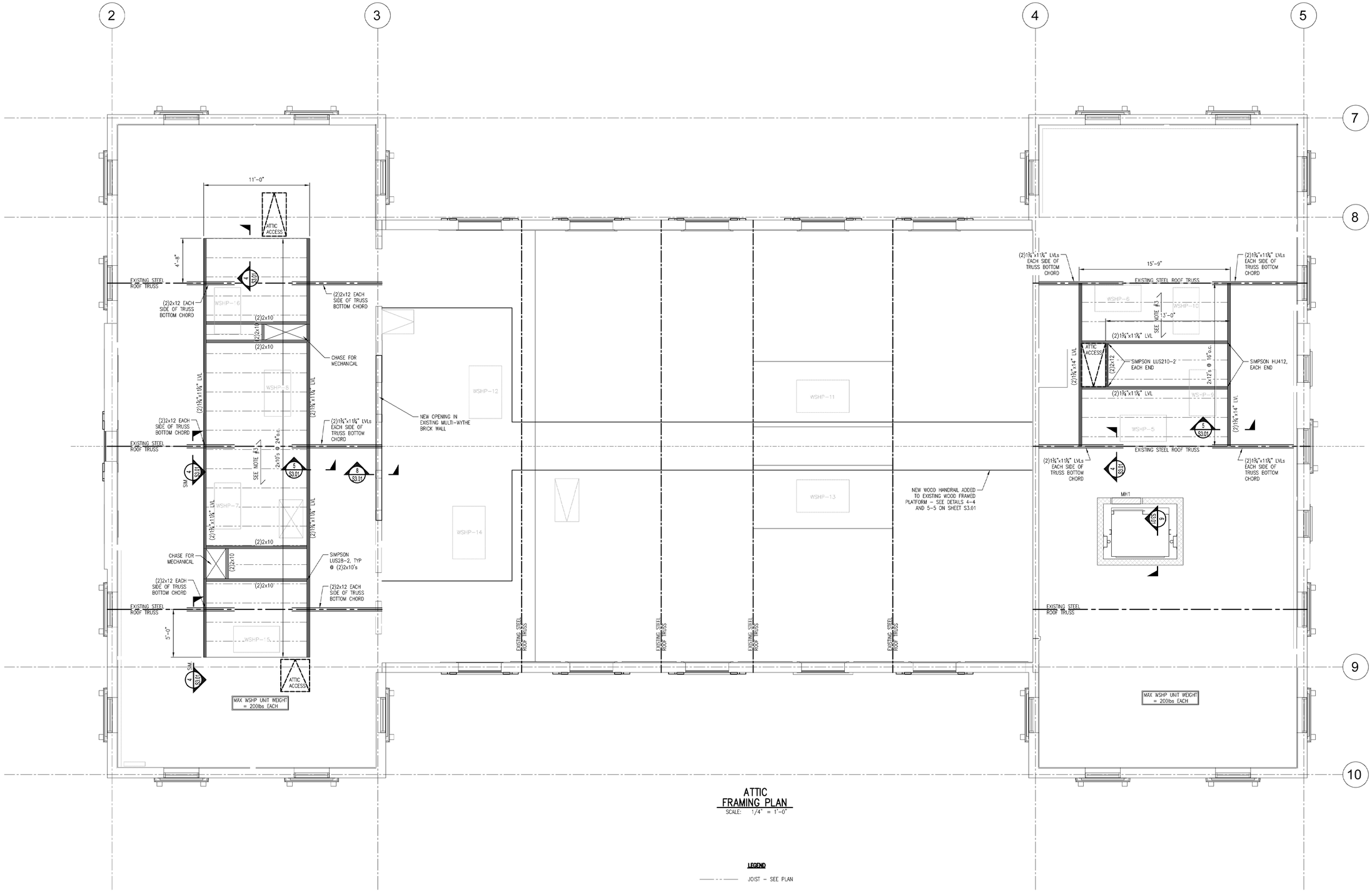

ATTIC FRAMING PLAN

SCALE: 1/4" = 1'-0"

LEGEND

- JOIST – SEE PLAN
- BEAM – SEE PLAN
- EXISTING LOAD BEARING MULTI-WYTHE MASONRY WALL TO REMAIN

PLAN NOTES:

1. SEE SHEET S1.01 FOR ADDITIONAL GENERAL NOTES, STEEL NOTES, MASONRY NOTES, AND REINFORCING STEEL NOTES. ALSO, SEE SHEET S1.02 FOR TYPICAL DETAILS. TYPICAL DETAILS ARE GENERALLY NOT SHOWN ON PLAN BUT RATHER ARE INTENDED TO DEFINE TYPICAL CONSTRUCTION CONDITIONS.
2. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND OTHER DISCIPLINE DRAWINGS FOR OPENINGS AND DEPRESSIONS NOT SHOWN ON THESE DRAWINGS.
3. ATTIC PLATFORM SUBFLOOR IS ¾" THICK PLYWOOD OR OSB.

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No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: HHH
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ATTIC FRAMING PLAN

S2.03

S:\WoodsEng\Projects\LS3P\UNCW CIS Reno\Arch\9-27-2019\Latest Revit Model (1)\UNCW- CIS Reno_Ph II_2018.rvt
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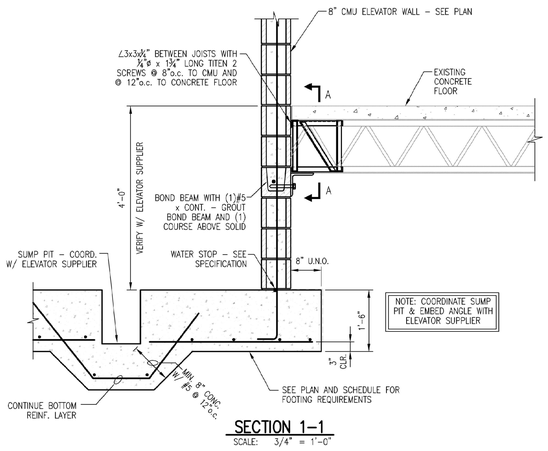

SECTION 1–1
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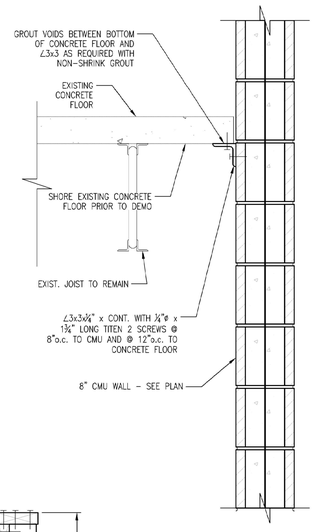

SECTION 2–2
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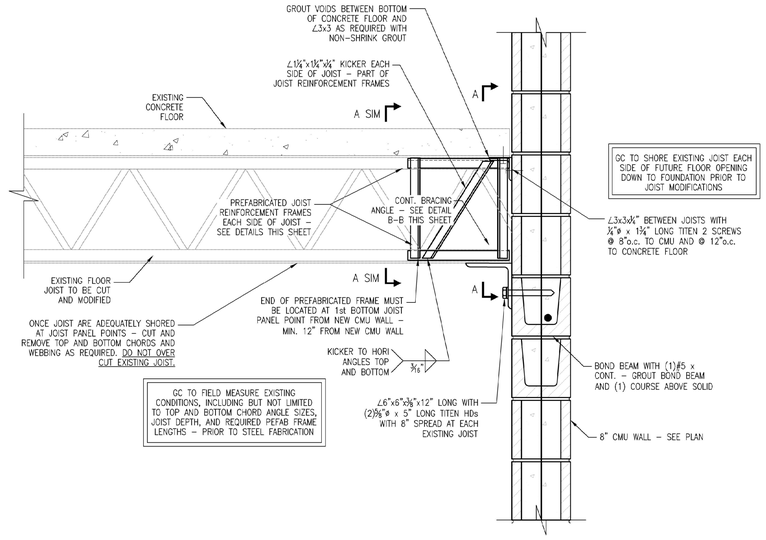

SECTION 3–3
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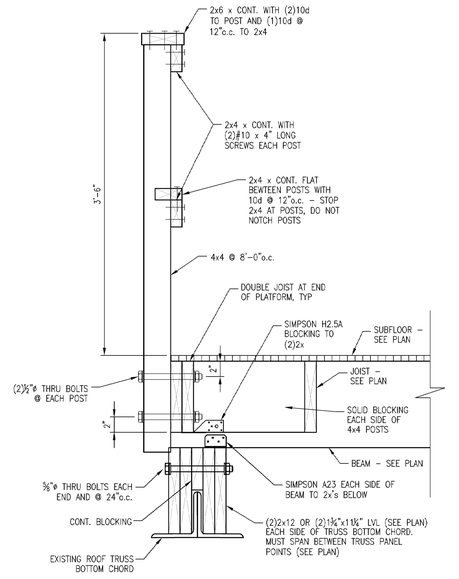

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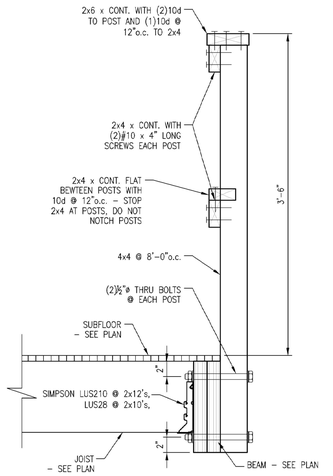

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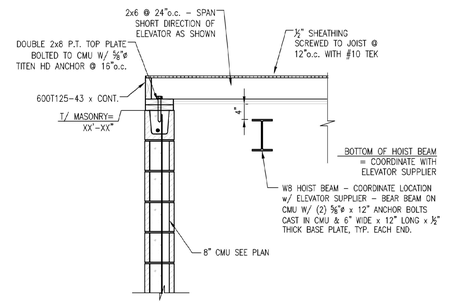
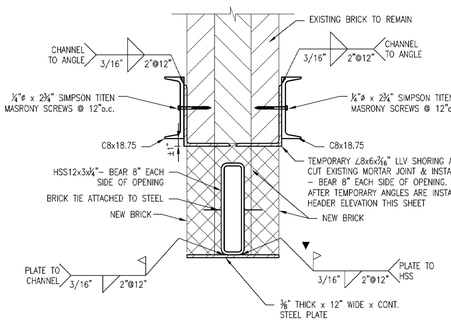


SECTION 6–6
SCALE: 3/4" = 1'-0"



SECTION 7–7
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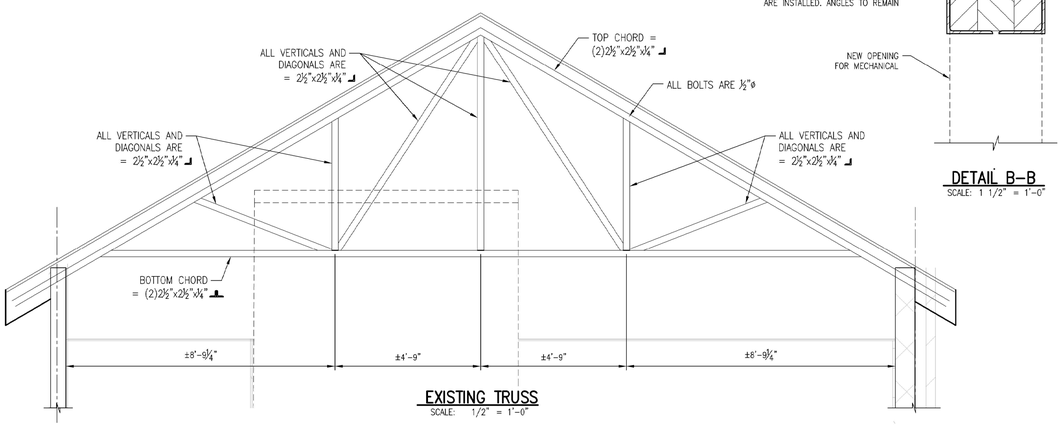
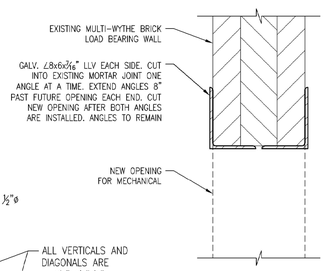
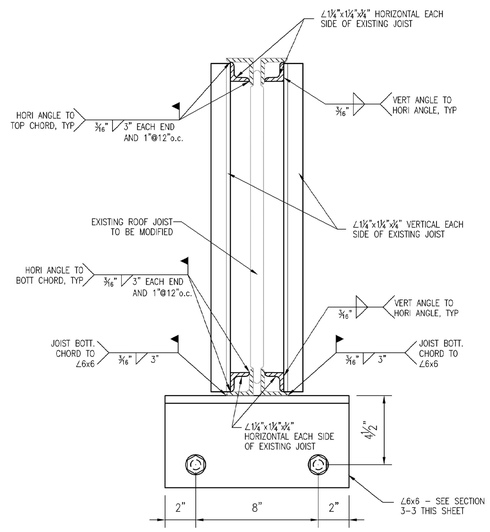


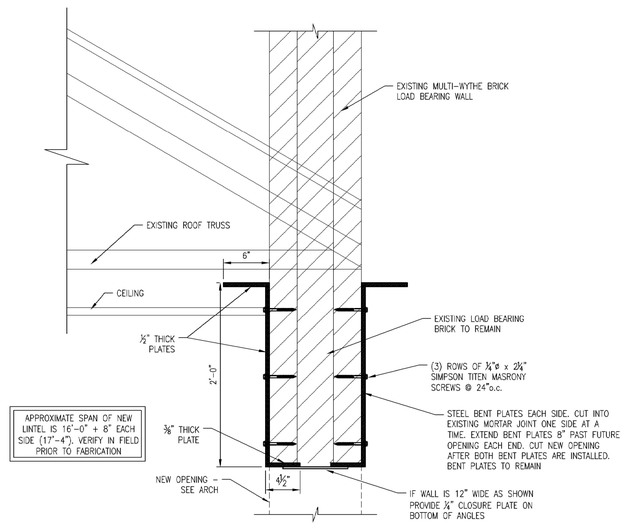
EXISTING TRUSS
SCALE: 1/2" = 1'-0"



DETAIL B–B
SCALE: 1 1/2" = 1'-0"



DETAIL A–A
SCALE: 3" = 1'-0"



SECTION 8–8
SCALE: 1 1/2" = 1'-0"

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WOODS ENGINEERING, INC. CORPORATE SEAL No. C-1806 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 041563 ENGINEER ADAM L. SISK

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REVISIONS:

No.	Description	Date

PROJECT: 7702-185550
DATE: 03/29/20
DRAWN BY: HHH
CHECKED BY: ALS

SECTIONS & DETAILS

S3.01

S:\WoodsEng\Projects\LS3P\UNCW CIS Reno\Arch\9-27-2019\Latest Revit Model (1)\UNCW- CIS Reno_Ph II_2018.rvt
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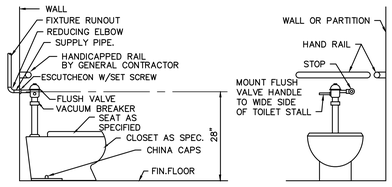
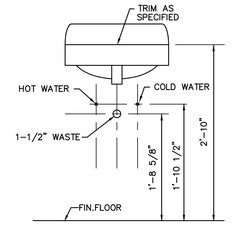
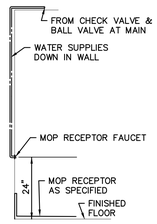


A P-001 ADULT ADA WATER CLOSET (WC-1) DETAIL
NO SCALE

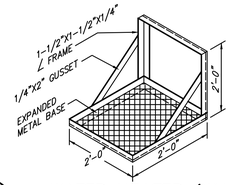


B P-001 ADULT ADA LAVATORY (L-1) ROUGH-IN ELEVATION
NO SCALE



C P-001 MOP RECEPTOR (MR-1) DETAIL
NO SCALE

NOTE:
1. PRIME & PAINT PRIOR TO INSTALLATION. SECURE TO WALL WITH 1/4" TOGGLE BOLTS.
2. PLUMBING CONTRACTOR SHALL CONSULT WITH STRUCTURAL ENGINEER AND VERIFY THAT FRAME WILL SUPPORT 400 LBS.



D P-001 WATER HEATER (WH-2) WALL MOUNTING BRACKET
NO SCALE

PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	ROUGH-IN SIZES			REMARKS
		WASTE	C.W.	H.W.	
WC-1	WATER CLOSET-ADA	4"	1-1/4"	–	DETAIL A/P-001
L-1	LAVATORY-ADA-METERING	1-1/2"	1/2"	1/2"	DETAIL B/P-001
L-2	LAVATORY-ADA-MANUAL	1-1/2"	1/2"	1/2"	DETAIL B/P-001
SK-1	BREAK ROOM SINK	1-1/2"	1/2"	1/2"	
FD-1	FLOOR DRAIN	3"	–	–	
MR-1	MOP RECEPTOR	3"	1/2"	1/2"	DETAIL C/P-001
EWC-1	ELECTRIC WATER COOLER W/BOT FIL	2"	1/2"	–	DUAL HEIGHT/DETAIL E/P-001
EWC-2	ELECTRIC WATER COOLER W/O BOT FIL	2"	1/2"	–	DUAL HEIGHT/DETAIL E/P-001
EWC-3	ELECTRIC WATER COOLER	2"	1/2"	–	STANDING/DETAIL F/P-001
EWC-4	ELECTRIC WATER COOLER	2"	1/2"	–	WHEELCHAIR/DETAIL G/P-001

1. LAVATORIES WITH HW SHALL HAVE MIXING VALVES INSTALLED SUCH THAT WATER TEMPERATURE IS LIMITED TO 110F. MIXING VALVES SHALL CONFORM TO ASSE 1070 OR CSA B125.3, SEE SPECIFICATIONS.

WATER HEATER SCHEDULE

SYMBOL	DESCRIPTION	ROUGH-IN SIZES		TEMP. SETTING	STORAGE CAPACITY	RECOVERY	FUEL	LOAD	ELEC.	LOCATION	DETAIL
		CW	HW								
WH-1	TANK TYPE – SOUTH	3/4"	3/4"	110°F	20 GAL	14 GPH	ELECTRIC	2.5 kW	208V, 1Ø	MECH. 001	DETAIL E/P-001
WH-2	TANK TYPE – NORTH	3/4"	3/4"	110°F	30 GAL	35 GPH	ELECTRIC	6 kW	208V, 3Ø	STORAGE 105	DETAIL E/P-001

CIRCULATOR PUMP SCHEDULE

SYMBOL	GPM	THD	ELECTRICAL		LOCATION	SERVICE	CONTROL
			HP	VOLTAGE			
CP-1	1	6	1/40	115 V., 1ø	MECHANICAL 123	H.W. RETURN	AQUASTAT, TIME CLOCK
CP-2	2	12	1/25	115 V., 1ø	STORAGE 114	H.W. RETURN	AQUASTAT, TIME CLOCK

GAS REGULATOR SCHEDULE

SYMBOL	LOCATION	SERVING	CAPACITY			REMARKS
			CFH	INLET PRESSURE	OUTLET PRESSURE	
REG 1	MECHANICAL 123	BOILER #1	700	2 PSIG	11" W.C.	LIMITED VENTING

LEGEND

X X X	PIPING TO BE REMOVED (LINE SYMBOL INDICATES SERVICE)
EW	EXISTING WASTE PIPING TO REMAIN
EV	EXISTING VENT PIPING TO REMAIN
ECW	EXISTING COLD WATER PIPING TO REMAIN
EHW	EXISTING HOT WATER PIPING TO REMAIN
EG	EXISTING FUEL GAS PIPING (NATURAL) TO REMAIN
W	WASTE PIPING BELOW FINISHED FLOOR
V	VENT PIPING
WO	WASTE OIL PIPING
CW	COLD WATER PIPING
HW	HOT WATER PIPING
G	NATURAL GAS PIPING
	BALL/BUTTERFLY VALVE
	BALANCING VALVE
	GAS VALVE
	CHECK VALVE
	SOLENOID VALVE
	VALVE IN RISE
	PIPE ELBOW TURNED DOWN
	PIPE ELBOW TURNED UP
	PIPE TEE TURNED DOWN
	PIPE TEE TURNED UP
	CAP
	UNION
	STRAINER
	DOUBLE CHECK VALVE BACKFLOW PREVENTER
	REDUCED PRESSURE BACKFLOW PREVENTER
'A'	SHOCK ARRESTER, 'A' INDICATES PLUMBING DRAINAGE INSTITUTE STANDARD SIZE
	ASME PRESSURE TEMPERATURE RELIEF VALVE
VTR	VENT THRU ROOF
CO	CLEANOUT
ECO	EXTERIOR CLEANOUT
WCO	WALL CLEANOUT
FCO	FLOOR CLEANOUT
EXFCO	EXISTING FLOOR CLEANOUT
EXECO	EXISTING EXTERIOR CLEANOUT
EXCO	EXISTING CLEANOUT
AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFG	BELOW FINISHED GRADE
INV.	INVERT ELEVATION
CNTE	CONNECT TO EXISTING
	TERMINATION POINT OF DEMOLITION
	POINT OF NEW CONNECTION TO EXISTING
	EXISTING FIXTURE TO BE REMOVED
	EXISTING FIXTURE TO REMAIN
	NEW FIXTURE
	CEILING ACCESS PANEL AS SPECIFIED

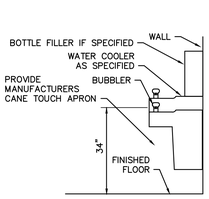
NUMBER INDICATES PLAN OR SECTION — LETTER INDICATES ELEVATION OR DETAIL
SHEET NUMBER WHERE PLAN, SECTION, ELEVATION OR DETAIL IS DRAWN

GENERAL NOTES:

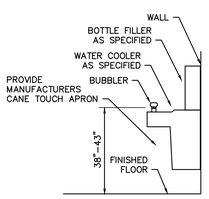
1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DEMOLITION DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.

HAZARDOUS MATERIALS

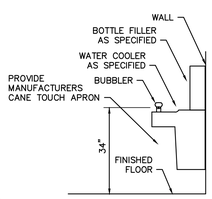
1. THE AREAS OF WORK SCOPE HAVE BEEN TESTED FOR ASBESTOS AND LEAD PAINT. A COPY OF THE TEST RESULTS ARE PROVIDED BY THE OWNER IN THE FRONT END OF SPECIFICATIONS.
2. IN THE EVENT THAT ASBESTOS IS DISCOVERED DURING CONSTRUCTION, THE CONTRACTOR SHALL STOP WORK IMMEDIATELY, EVACUATE THE AREA, AND CONTACT THE OWNER AND/OR ARCHITECT FOR ASSISTANCE.
3. IN THE EVENT THAT LEAD PAINT IS DISCOVERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE OWNER AND/OR ARCHITECT AND PROCEED WITH WORK IN ACCORDANCE WITH THE REQUIREMENTS AND GUIDELINES OF OSHA, THE EPA, AND LOCAL AHJ.



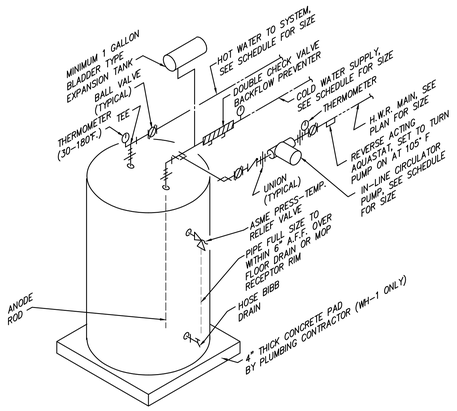
E P-001 DUAL HEIGHT ELECTRIC WATER COOLER (EWC-1 & EWC-2)
NO SCALE



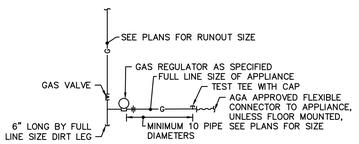
F P-001 STANDING HEIGHT ELECTRIC WATER COOLER (EWC-3)
NO SCALE



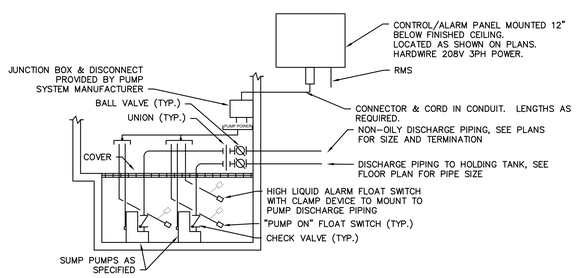
G P-001 WHEELCHAIR ACCESSIBLE ELECTRIC WATER COOLER (EWC-4)
NO SCALE



H P-001 WATER HEATER PIPING DETAIL (WH-1 & 2)
NO SCALE



J P-001 TYPICAL GAS PIPING CONNECTION
SCALE



K P0.1 ELEVATOR SUMP PUMP PIPING AND WIRING SCHEMATIC
NO SCALE

TOTAL CONNECTED LOAD

WASTE FIXTURE UNITS =	116.5 F.U.
COLD WATER DEMAND =	104.5 GPM
HOT WATER DEMAND =	23.3 GPM
GAS LOADS	
BUILDING HEATING DEMAND =	700 MBH
TOTAL CONNECTED LOAD =	700 MBH

PENDER COUNTY COURTHOUSE

PENDER COUNTY

PENDER COUNTY NC

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FAX: (910) 452-4211
OFFICE@CHEATHAMPA.COM
NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 043164 ENGINEER CASEY D. GILMAN

No.	Description	Date

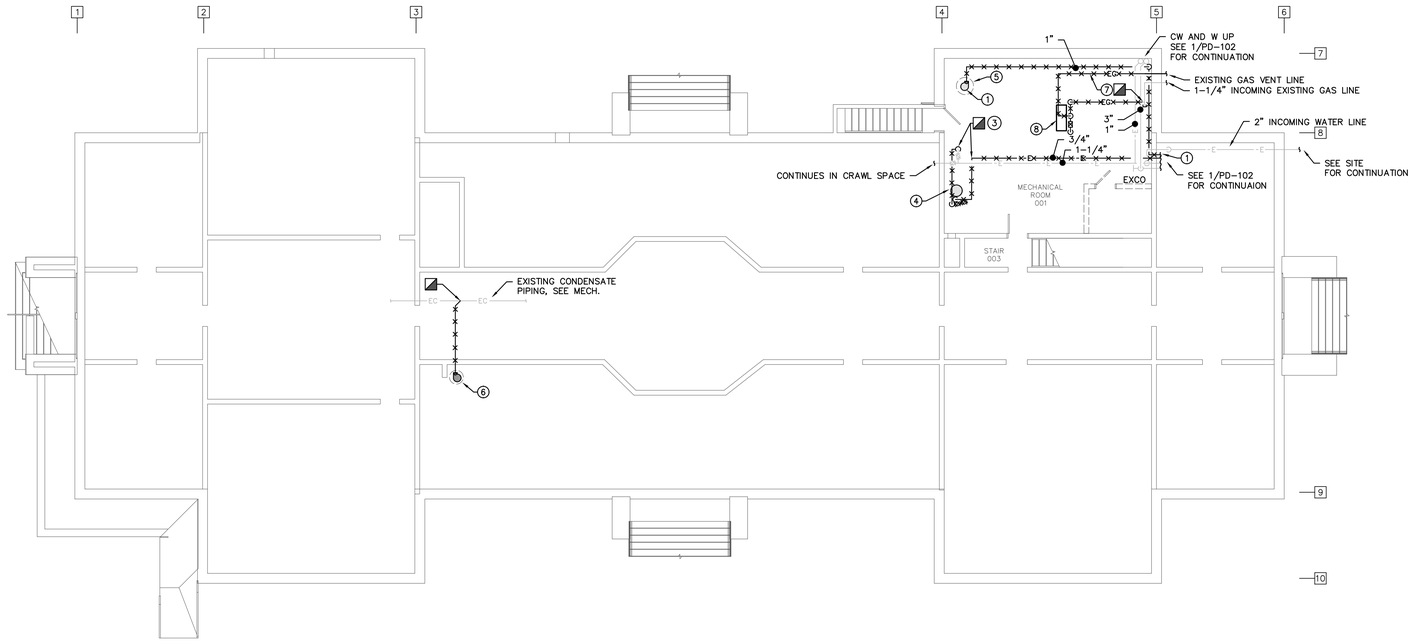
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: SAL/CG
CHECKED BY: CG

PLUMBING LEGEND, SCHEDULE, AND DETAILS

P-001

OF 9

BID DOCUMENTS



1 PD-101 PLUMBING CRAWL SPACE PLAN – DEMOLITION
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 8"=1'-0"
0 2 4 8 16

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE EXISTING SUMP PUMP AND ASSOCIATED DISCHARGE PIPING AS INDICATED. SEE PD-102 FOR CONTINUATION OF DEMOLITION.
2. NOT USED
3. REMOVE ECW PIPING SERVING EXISTING WATER HEATER AS INDICATED AND CAP. REMOVE EHW PIPING SERVING EXISTING WATER HEATER ENTIRELY.
4. REMOVE EXISTING 10 GALLON, 1.5 KW ELECTRIC WATER HEATER AND ALL ASSOCIATED COMPONENTS.
5. EXISTING SUMP PIT TO REMAIN.
6. REMOVE EXISTING ELEVATOR SUMP PUMP. SUMP PUMP TO BE REPLACED. REMOVE ASSOCIATED DISCHARGE PIPING AS INDICATED AND CAP.
7. REMOVE EXISTING GAS PIPING BACK TO POINT INDICATED AND CAP. PIPING TO BE REUSED. REMOVE EXISTING GAS VENT PIPING ENTIRELY.
8. EXISTING BOILER, SEE MECHANICAL.

GENERAL NOTE:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING BIDDING PHASE, PRIOR TO SUBMITTING BID AND DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.
2. FIELD VERIFY THAT PIPING INDICATED TO BE DEMOLISHED DOES NOT SERVE FIXTURES THAT ARE TO REMAIN PRIOR TO REMOVING PIPING.
3. CAP ALL PIPING ABANDONED IN WALL ON ALL OPEN ENDS.
4. EXISTING VENT PIPING IS UNKNOWN. REMOVE VENT PIPING SERVING FIXTURES TO BE DEMOLISHED BACK TO MAIN AND CAP. DO NOT REMOVE VENT PIPING SERVING FIXTURES THAT ARE TO REMAIN.
5. PROVIDE AS-BUILT DRAWINGS INDICATING ALL INSTALLATION DEVIATIONS FROM CONTRACT DRAWINGS.
6. COORDINATE PATCHING OF WALLS, CEILING AND FLOORS WITH ARCHITECTURAL.
7. SEE ARCHITECTURAL PLANS FOR RATED WALLS AND/OR FLOORS.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 55194 ENGINEER CASEY D. GILMAN

No.	Description	Date

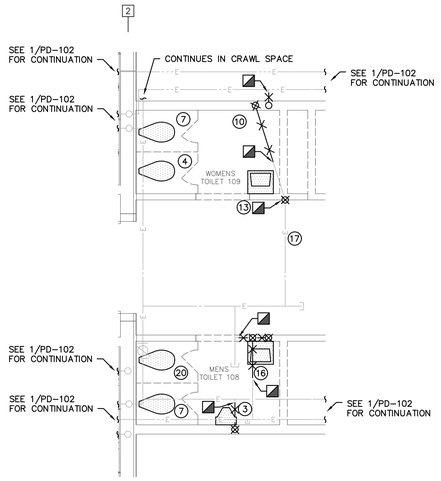
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: SAL/CG
CHECKED BY: CG

PLUMBING
DEMOLITION
CRAWL SPACE
FLOOR PLAN

PD-101

OF 9

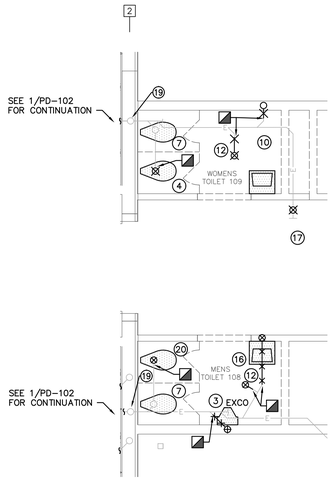
BID DOCUMENTS



5 PD-102 WOMENS 110 & MENS 109 DOMESTIC WATER

SCALE: 1/4" = 1'-0"

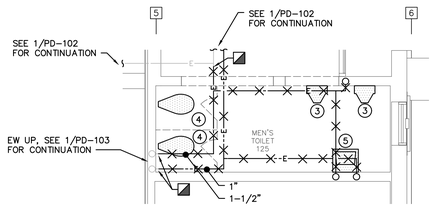
GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)



4 PD-102 WOMENS 110 & MENS 109 WASTE & VENT

SCALE: 1/4" = 1'-0"

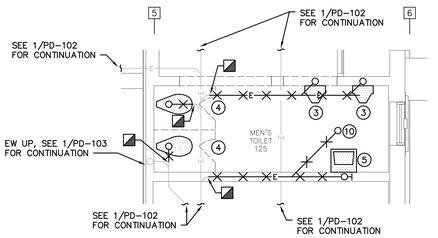
GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)



3 PD-102 MENS 121 DOMESTIC WATER

SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)



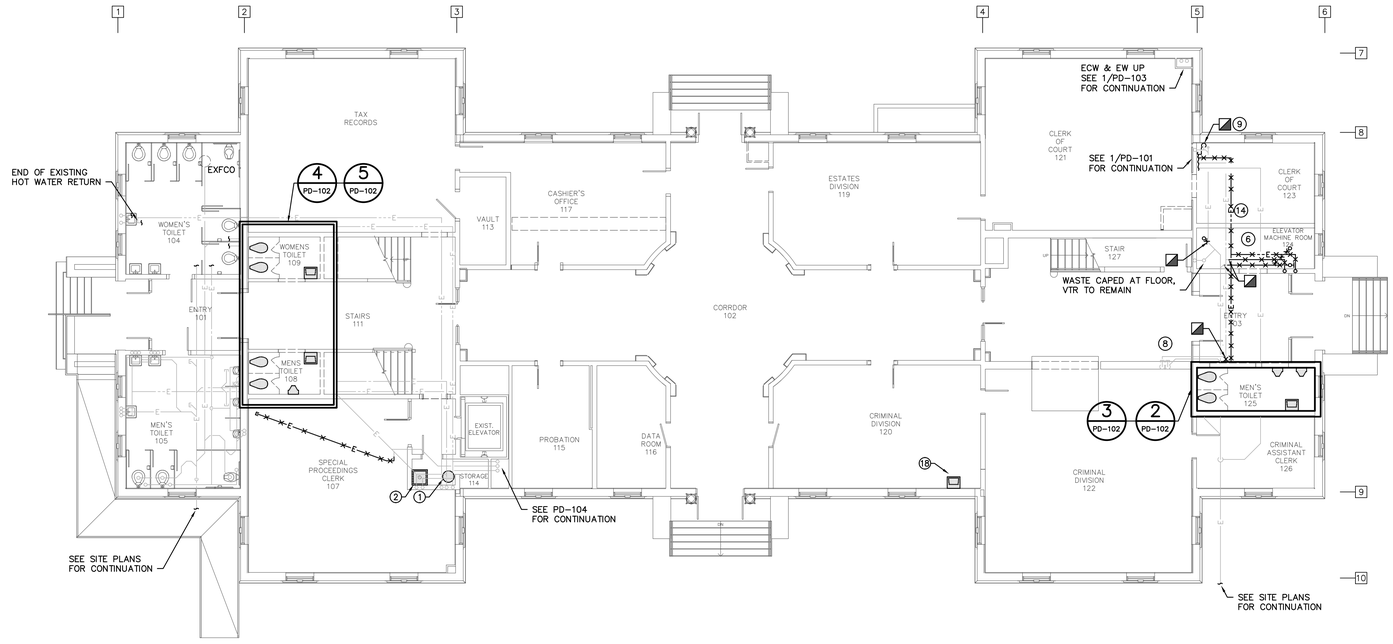
2 PD-102 MENS 121 WASTE & VENT

SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE EXISTING 19 GAL, 2.5KW WATER HEATER. REMOVE EXISTING INSULATION FROM ASSOCIATED PIPING. WATER HEATER TO BE REPLACED AND ASSOCIATED PIPING TO BE RECONNECTED.
2. REMOVE EXISTING MOP RECEPTOR. MOP RECEPTOR TO BE REPLACED. EXISTING ROUGH-INS TO BE REWORKED AND REUSED, PROTECT FROM DAMAGES DURING CONSTRUCTION.
3. REMOVE EXISTING URINAL AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE AND DOMESTIC WATER AS INDICATED AND CAP. NOTE THAT SOME PIPING IS LOCATED IN CRAWL SPACE.
4. REMOVE EXISTING WATER CLOSET AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE AS INDICATED AND CAP. REMOVE ASSOCIATED DOMESTIC WATER PIPING. NOTE THAT SOME PIPING IS LOCATED IN CRAWL SPACE.
5. REMOVE EXISTING LAVATORY AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE AND DOMESTIC WATER AS INDICATED AND CAP. NOTE THAT SOME PIPING IS LOCATED IN CRAWL SPACE.
6. REMOVE EXISTING PIPING SERVING PREVIOUSLY DEMOLISHED RESTROOMS AS INDICATED AND CAP AT MAINS IN CRAWL SPACE. EXISTING MECH ROOM 119 TO REMAIN, NO WORK. PROTECT MECH ROOM 119 FROM DAMAGES DURING PIPING DEMOLITION. ABANDON P-TRAP IF CEMENTED TO MECH ROOM 119 FLOOR AND CAP IN CRAWL SPACE. ABANDON DOMESTIC WATER PIPING IN WALL AND CAP IN CRAWL SPACE.
7. REMOVE EXISTING WATER CLOSET AND ALL ASSOCIATED COMPONENTS. EXISTING WASTE TO BE REWORKED AND REUSED. FIELD VERIFY EXISTING DOMESTIC WATER ROUTING AND REWORK AS NEEDED. NOTE THAT SOME PIPING IS LOCATED IN CRAWL SPACE. SEE P-102 FOR NEW WORK.
8. EXISTING ROUGH-INS TO BE TESTED FOR FUNCTIONALITY. ROUGH-INS TO REMAIN IF FOUND TO BE IN GOOD WORKING ORDER. IF NOT FOUND TO BE IN GOOD WORKING ORDER REMOVE EXISTING ROUGH-INS AND REPLACE. REWORK EXISTING ROUGH-INS TO BE CONCEALED BEHIND NEW WATER COOLER LOCATION. SEE P-102 FOR NEW WORK.
9. REMOVE EXISTING SUMP DISCHARGE PIPING FROM EXISTING WASTE MAIN AND CAP. REMOVE EXISTING SUMP DISCHARGE PIPING BACK TO MECHANICAL ROOM 001 IN CRAWL SPACE. SEE PD-101 FOR CONTINUATION OF DEMOLITION.
10. REMOVE EXISTING LAVATORY AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE AND DOMESTIC HOT WATER AS INDICATED AND CAP. EXISTING DOMESTIC COLD WATER TO BE RECONNECTED. NOTE THAT SOME PIPING IS LOCATED IN CRAWL SPACE.
11. REMOVE EXISTING LAVATORY AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING DOMESTIC COLD WATER AS INDICATED AND CAP. REMOVE EXISTING DOMESTIC HOT WATER AND WASTE AS INDICATED. WASTE AND HW TO BE RECONNECTED. NOTE THAT SOME PIPING IS LOCATED IN CRAWL SPACE.
12. REMOVE EXISTING FLOOR DRAIN AND ASSOCIATED WASTE AS INDICATED AND CAP. COORDINATE FLOOR PATCHING WITH ARCHITECTURAL.
13. REMOVE EXISTING WATER COOLER AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE AND DOMESTIC WATER BACK TO MAINS AND CAP.
14. REMOVE EXISTING HW PIPING AS INDICATED.
15. CONFIRM THAT EXISTING PIPING IS NO LONGER SERVING ANY EXISTING FIXTURES BEFORE DISCONNECTING. DISCONNECT EHW AND ECW IN CRAWL SPACE AND CAP AT WALL. ABANDON EXISTING PIPING IN WALL. SEE PD-103 FOR CONTINUATION.
16. REMOVE EXISTING LAVATORY AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE AND DOMESTIC COLD WATER AS INDICATED AND CAP. EXISTING DOMESTIC HOT WATER TO BE RECONNECTED. NOTE THAT SOME PIPING IS LOCATED IN CRAWL SPACE.
17. REMOVE EXISTING WATER COOLER AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE TO BEHIND WALL AND CAP. EXISTING VENT TO REMAIN. REMOVE EXISTING DOMESTIC WATER AND CAP.
18. REMOVE EXISTING SINK AND ALL ASSOCIATED COMPONENTS. REMOVE ASSOCIATED WASTE PIPING ENTIRELY BACK TO MAIN IN CRAWL SPACE AND CAP. REMOVE VENT AND DOMESTIC WATER PIPING BACK TO INSIDE OF WALL AND CAP.
19. FIELD VERIFY EXISTING VENT RISE SERVING RESTROOM AND REUSE DURING RENOVATION.
20. REMOVE EXISTING WATER CLOSET AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE AS INDICATED. WASTE TO BE RECONNECTED. REMOVE EXISTING DOMESTIC WATER PIPING. NOTE THAT SOME PIPING IS LOCATED IN THE CRAWL SPACE.



PIPING SHOWN ON THIS SHEET IS IN CRAWL SPACE BELOW FIRST FLOOR

1 PD-102 PLUMBING FIRST FLOOR PLAN – DEMOLITION

SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0" (0 2 4 8 16)

GENERAL NOTE:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING BIDDING PHASE, PRIOR TO SUBMITTING BID AND DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.
2. FIELD VERIFY THAT PIPING INDICATED TO BE DEMOLISHED DOES NOT SERVE FIXTURES THAT ARE TO REMAIN PRIOR TO REMOVING PIPING.
3. CAP ALL PIPING ABANDONED IN WALL ON ALL OPEN ENDS.
4. EXISTING VENT PIPING IS UNKNOWN. REMOVE VENT PIPING SERVING FIXTURES TO BE DEMOLISHED BACK TO MAIN AND CAP. DO NOT REMOVE VENT PIPING SERVING FIXTURES THAT ARE TO REMAIN.
5. PROVIDE AS-BUILT DRAWINGS INDICATING ALL INSTALLATION DEVIATIONS FROM CONTRACT DRAWINGS.
6. COORDINATE PATCHING OF WALLS, CEILING AND FLOORS WITH ARCHITECTURAL.
7. SEE ARCHITECTURAL PLANS FOR RATED WALLS AND/OR FLOORS.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 043164 ENGINEER CASEY D. GILMAN

No.	Description	Date

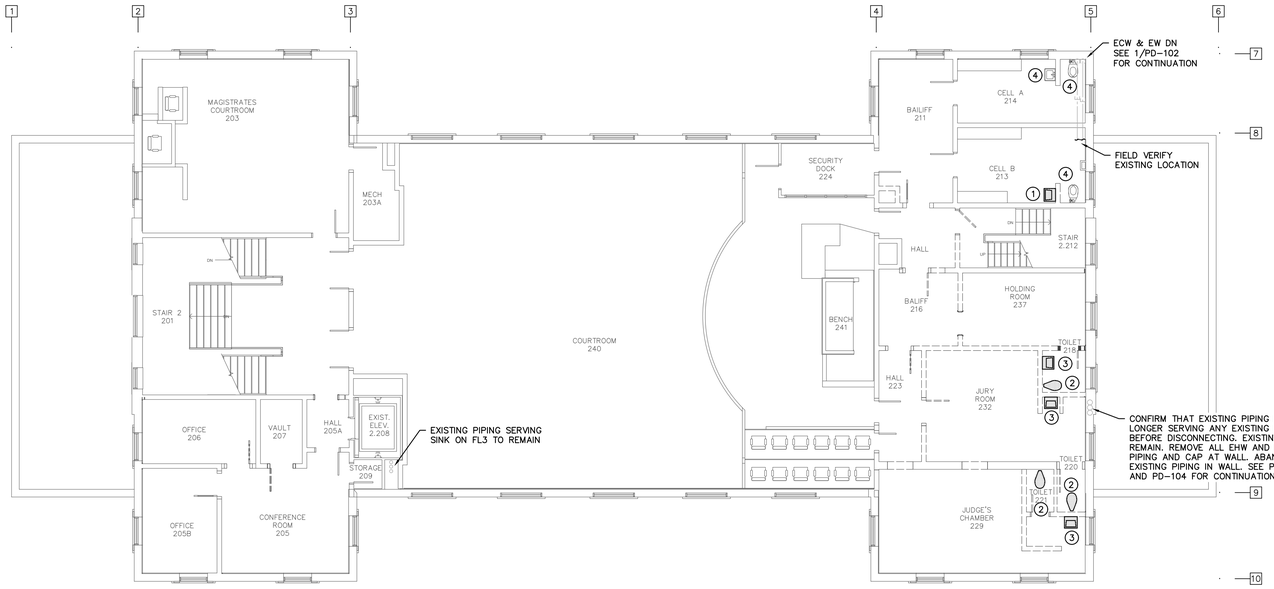
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: SAL/CG
CHECKED BY: CG

PLUMBING DEMOLITION FIRST FLOOR PLAN

PD-102

OF 9

BID DOCUMENTS



1 PD-103 PLUMBING SECOND FLOOR PLAN – DEMOLITION

SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"
0 2 4 8 16

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE EXISTING PENAL LAVATORY. LAVATORY TO BE RELOCATED, PROTECT FROM DAMAGES DURING CONSTRUCTION. EXISTING DOMESTIC WATER, WASTE, AND VENT TO BE REWORKED FOR NEW LOCATION. SEE P-103 FOR NEW WORK.
2. REMOVE EXISTING WATER CLOSET AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE, VENT, AND DOMESTIC WATER ENTIRELY.
3. REMOVE EXISTING LAVATORY AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING WASTE, VENT, AND DOMESTIC WATER ENTIRELY.
4. EXISTING FIXTURE TO REMAIN. PROTECT FROM DAMAGES DURING CONSTRUCTION.

GENERAL NOTE:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING BIDDING PHASE, PRIOR TO SUBMITTING BID AND DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.
2. FIELD VERIFY THAT PIPING INDICATED TO BE DEMOLISHED DOES NOT SERVE FIXTURES THAT ARE TO REMAIN PRIOR TO REMOVING PIPING.
3. CAP ALL PIPING ABANDONED IN WALL ON ALL OPEN ENDS.
4. EXISTING VENT PIPING IS UNKNOWN. REMOVE VENT PIPING SERVING FIXTURES TO BE DEMOLISHED BACK TO MAIN AND CAP. DO NOT REMOVE VENT PIPING SERVING FIXTURES THAT ARE TO REMAIN.
5. PROVIDE AS-BUILT DRAWINGS INDICATING ALL INSTALLATION DEVIATIONS FROM CONTRACT DRAWINGS.
6. COORDINATE PATCHING OF WALLS, CEILING AND FLOORS WITH ARCHITECTURAL.
7. SEE ARCHITECTURAL PLANS FOR RATED WALLS AND/OR FLOORS.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 043164 ENGINEER CASEY D. GILLMAN

No.	Description	Date

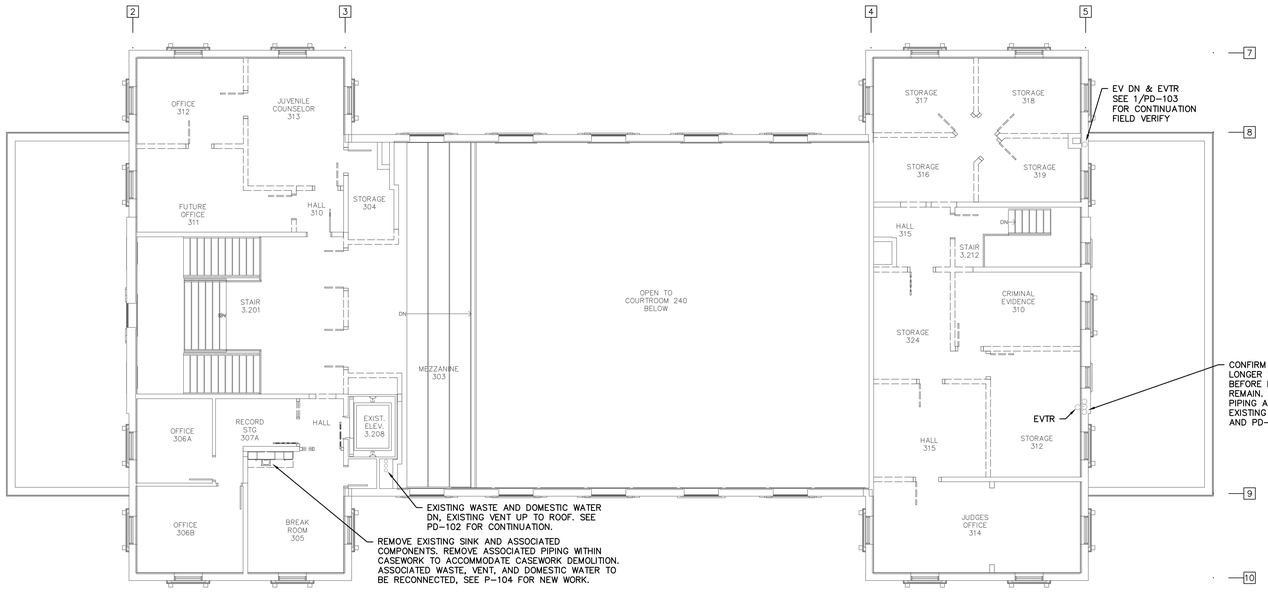
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: SAL/CG
CHECKED BY: CG

PLUMBING DEMOLITION SECOND FLOOR PLAN

PD-103

OF 9

BID DOCUMENTS



1 / PD-104 PLUMBING THIRD FLOOR PLAN – DEMOLITION

SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1"=1'-0"

0 2 4 8 16

GENERAL NOTE:

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2. FIELD VERIFY THAT PIPING INDICATED TO BE DEMOLISHED DOES NOT SERVE FIXTURES THAT ARE TO REMAIN PRIOR TO REMOVING PIPING.
3. CAP ALL PIPING ABANDONED IN WALL ON ALL OPEN ENDS.
4. EXISTING VENT PIPING IS UNKNOWN. REMOVE VENT PIPING SERVING FIXTURES TO BE DEMOLISHED BACK TO MAIN AND CAP. DO NOT REMOVE VENT PIPING SERVING FIXTURES THAT ARE TO REMAIN.
5. PROVIDE AS-BUILT DRAWINGS INDICATING ALL INSTALLATION DEVIATIONS FROM CONTRACT DRAWINGS.
6. COORDINATE PATCHING OF WALLS, CEILING AND FLOORS WITH ARCHITECTURAL.
7. SEE ARCHITECTURAL PLANS FOR RATED WALLS AND/OR FLOORS.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043194 3/27/20 CASEY D. GILMAN

No.	Description	Date

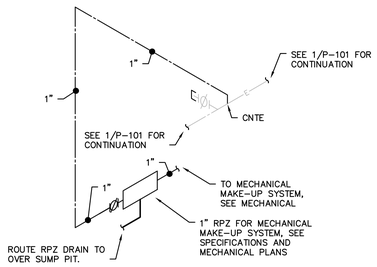
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: SAL/CG
CHECKED BY: CG

PLUMBING DEMOLITION THIRD FLOOR PLAN

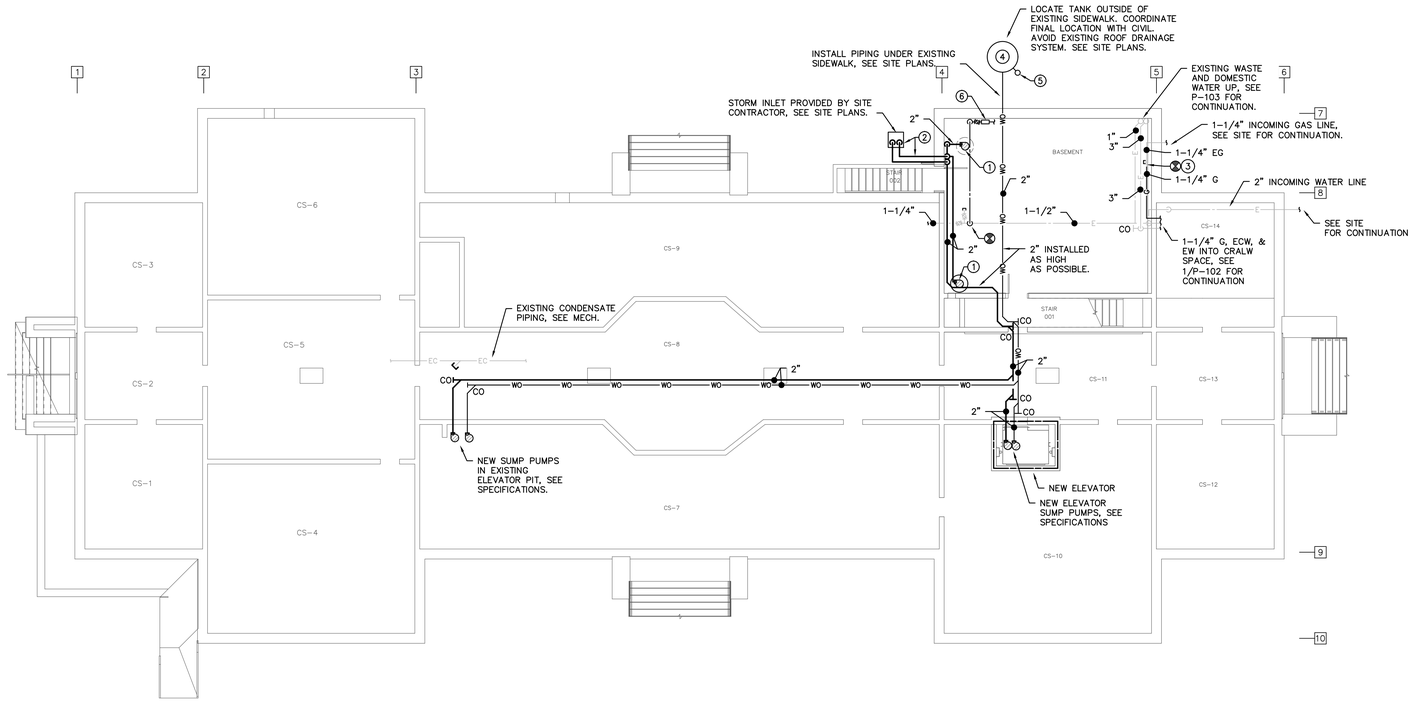
PD-104

OF 9

BID DOCUMENTS



A / P-101 MECHANICAL RPZ DETAIL
NO SCALE



1 / P-101 PLUMBING CRAWL SPACE PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1"=1'-0"
0 2 4 8 16

KEYED NOTES: (THIS SHEET ONLY)

1. 1/2 HP SUMP PUMP IN SUMP PIT TO PREVENT FLOODING, SEE SPECIFICATIONS.
2. 2" SUMP DISCHARGE PIPING AFG TO STORM INLET, SEE SITE PLANS.
3. REMOVE EXISTING CAP AND CONNECT 1-1/4" GAS TO EXISTING 1-1/4" GAS PIPING.
4. MINIMUM 220 GALLON WASTE OIL HOLDING TANK.
5. PROVIDE VENT FOR HOLDING TANK, TERMINATING 24" AFG, WITH GOOSENECK TURNED DOWN WITH SCREEN.
6. PROVIDE RPZ WITH VALVE FOR MECHANICAL MAKE-UP SYSTEM CONNECTION. AVOID INTERFERENCE WITH MECHANICAL PUMP, COORDINATE FINAL LOCATION WITH MECHANICAL. SEE M-106 AND DETAIL A/P-101.

GENERAL NOTE:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING BIDDING PHASE, PRIOR TO SUBMITTING BID AND DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.
2. FIELD VERIFY THAT PIPING INDICATED TO BE DEMOLISHED DOES NOT SERVE FIXTURES THAT ARE TO REMAIN PRIOR TO REMOVING PIPING.
3. CAP ALL PIPING ABANDONED IN WALL ON ALL OPEN ENDS.
4. EXISTING VENT PIPING IS UNKNOWN. REMOVE VENT PIPING SERVING FIXTURES TO BE DEMOLISHED BACK TO MAIN AND CAP. DO NOT REMOVE VENT PIPING SERVING FIXTURES THAT ARE TO REMAIN.
5. PROVIDE AS-BUILT DRAWINGS INDICATING ALL INSTALLATION DEVIATIONS FROM CONTRACT DRAWINGS.
6. COORDINATE PATCHING OF WALLS, CEILING AND FLOORS WITH ARCHITECTURAL.
7. SEE ARCHITECTURAL PLANS FOR RATED WALLS AND/OR FLOORS.

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JOB # 19060

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL 043164 CASEY D. GILMAN

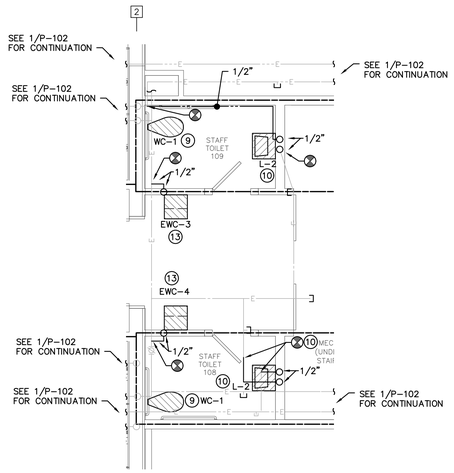
No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: SAL/CG
CHECKED BY: CG

PLUMBING CRAWL SPACE FLOOR PLAN

P-101
OF 9

BID DOCUMENTS



5 P-102 WOMENS 110 & MENS 109 DOMESTIC WATER

SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)

4 P-102 WOMENS 110 & MENS 109 WASTE & VENT

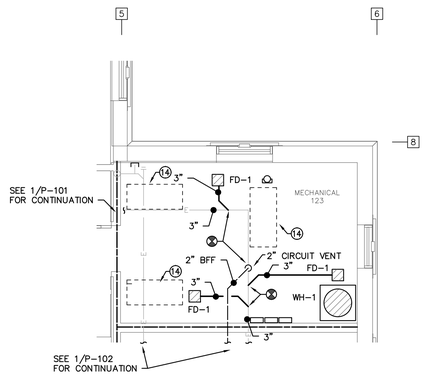
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)

3 P-102 MECHANICAL 123 DOMESTIC WATER & GAS

SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)



2 P-102 MECHANICAL 123 WASTE & VENT

SCALE: 1/4" = 1'-0"

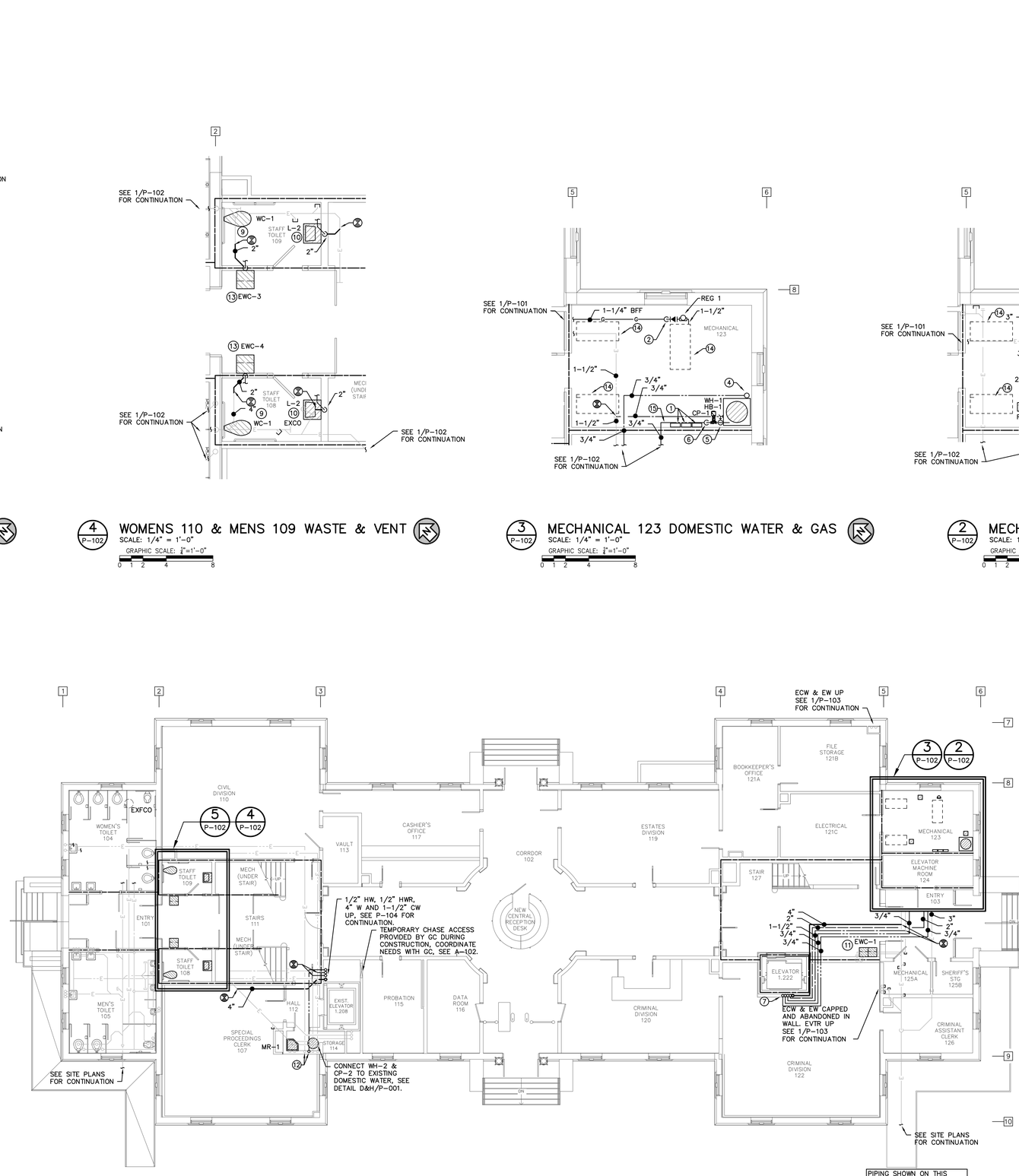
GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)

A P-102 HOT WATER RETURN DETAIL

NO SCALE

KEYED NOTES: (THIS SHEET ONLY)

1. (2) SUMP PUMP CONTROLLERS AND (1) OIL HOLDING TANK HIGH LEVEL ALARM PANEL. COORDINATE FINAL CONNECTION WITH ELECTRICAL CONTRACTOR.
2. 1-1/4" G UP FROM CRAWL SPACE TO REG 1. 1-1/2" G FROM REG 1 TO BOILER (700 CFH), SEE MECHANICAL.
3. CONNECT FD-1 TO EXISTING 3" WASTE IN CRAWL SPACE.
4. 3/4" HW UP FROM CRAWL SPACE TO WH-1.
5. 3/4" CW UP FROM CRAWL SPACE. MOUNT HB-1 TO PIPE, PROVIDE BALL VALVE UPSTREAM OF HOSE BIBB IN RISE.
6. 3/4" HWR UP FROM CRAWL SPACE TO WH-1.
7. 2" V, 4" W, 3/4" HWR, 3/4" HW, AND 1-1/2" CW UP, SEE P-103 FOR CONTINUATION.
8. CONTINUED IN CRAWL SPACE.
9. REWORK EXISTING WASTE, VENT, AND DOMESTIC WATER AND CONNECT TO WC-1.
10. REWORK EXISTING WASTE, VENT, AND DOMESTIC WATER AS INDICATED AND CONNECT TO LAVATORY. FIELD VERIFY NEAREST VENT RISE SERVING RESTROOM AND CONNECT TO LAVATORY.
11. CONNECT TO EXISTING ROUGH-INS TESTED AND REWORKED DURING DEMOLITION TO EWC-1. PROVIDE MANUFACTURER'S CANE TOUCH APRON.
12. CONNECT HWR TO EHWR IN STORAGE 114 PER DETAIL A/P-102.
13. 2" W, 2" V, AND 1/2" CW TO ELECTRIC WATER COOLER. FIELD VERIFY EXISTING VENT RISE SERVING RESTROOM AND CONNECT TO ELECTRIC WATER COOLER. PROVIDE MANUFACTURER'S CANE TOUCH APRON.
14. MECHANICAL EQUIPMENT, SEE MECHANICAL.
15. 3/4" HWR BFF IN CRAWL SPACE.



1 P-102 PLUMBING FIRST FLOOR PLAN

SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0" (0 2 4 8 16)

GENERAL NOTE:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING BIDDING PHASE, PRIOR TO SUBMITTING BID AND DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.
2. FIELD VERIFY THAT PIPING INDICATED TO BE DEMOLISHED DOES NOT SERVE FIXTURES THAT ARE TO REMAIN PRIOR TO REMOVING PIPING.
3. CAP ALL PIPING ABANDONED IN WALL ON ALL OPEN ENDS.
4. EXISTING VENT PIPING IS UNKNOWN. REMOVE VENT PIPING SERVING FIXTURES TO BE DEMOLISHED BACK TO MAIN AND CAP. DO NOT REMOVE VENT PIPING SERVING FIXTURES THAT ARE TO REMAIN.
5. PROVIDE AS-BUILT DRAWINGS INDICATING ALL INSTALLATION DEVIATIONS FROM CONTRACT DRAWINGS.
6. COORDINATE PATCHING OF WALLS, CEILING AND FLOORS WITH ARCHITECTURAL.
7. SEE ARCHITECTURAL PLANS FOR RATED WALLS AND/OR FLOORS.

PENDER COUNTY COURTHOUSE

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 043164 ENGINEER CASEY D. GILMAN

No.	Description	Date

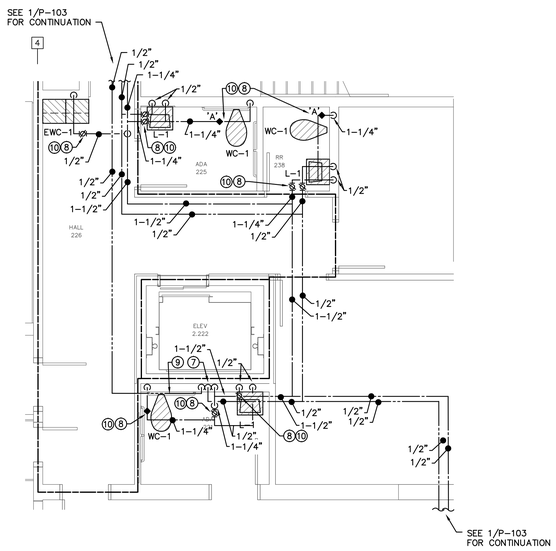
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: SAL/CG
CHECKED BY: CG

PLUMBING FIRST FLOOR PLAN

P-102

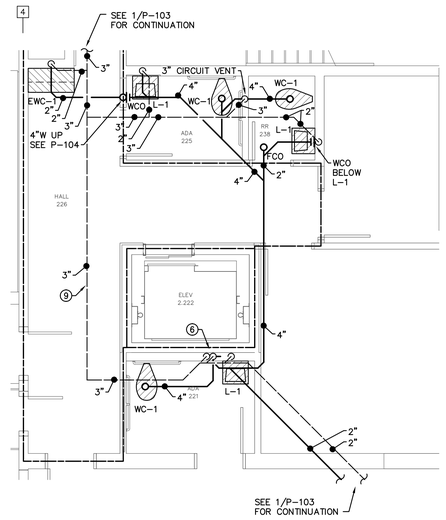
OF 9

BID DOCUMENTS



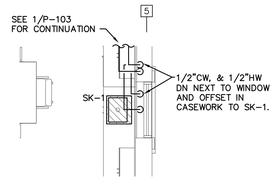
5 P-103 ENLARGED SECOND FLOOR DOMESTIC WATER
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)



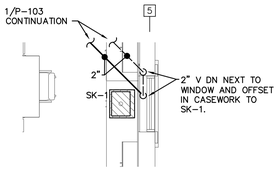
4 P-103 ENLARGED SECOND FLOOR WASTE & VENT
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)



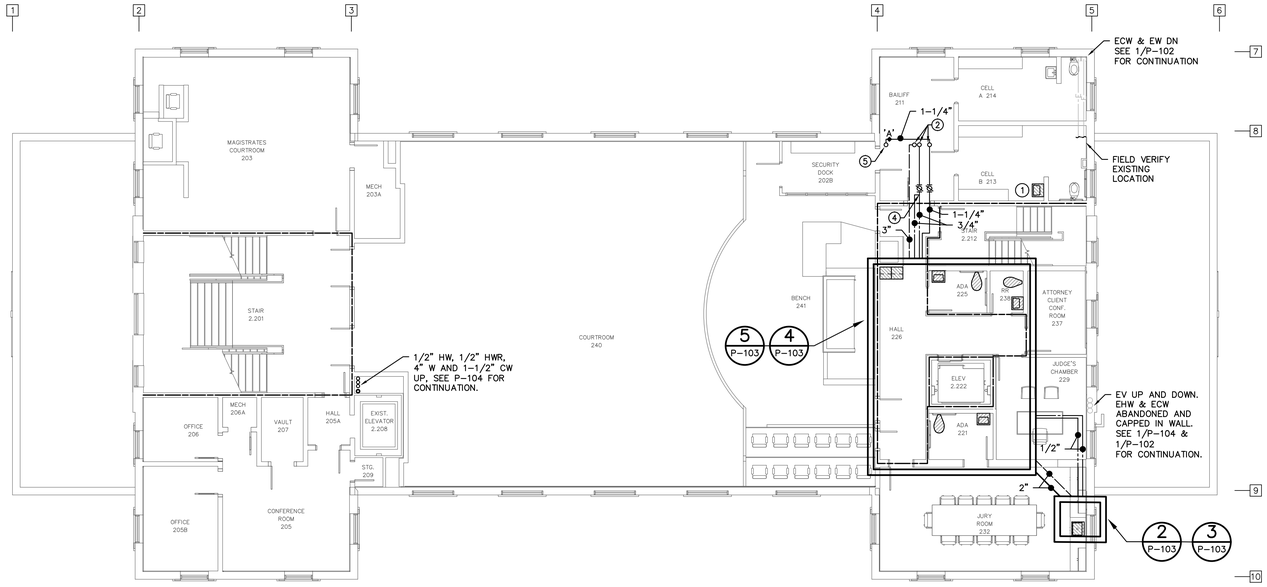
3 P-103 ENLARGED SINK DOMESTIC WATER
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)



2 P-103 ENLARGED SINK WASTE AND VENT
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)



1 P-103 PLUMBING SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0" (0 2 4 8 16)

KEYED NOTES: (THIS SHEET ONLY)

1. EXTEND EXISTING COLD WATER, VENT, AND WASTE FROM DEMOLITION AND RECONNECT TO EXISTING PENAL SINK.
2. 1/2" CW AND 1/2" HW UP TO L-2, 3" V UP, SEE P-104 FOR CONTINUATION. INSTALL PIPING ABOVE DUCTWORK, SEE MECHANICAL.
3. NOT USED
4. CONNECT 3/4" HWR TO 3/4" HW BEFORE RISING TO SECOND FLOOR. INSTALL PIPING ABOVE DUCTWORK. INSTALL BALL VALVES IN ACCESSIBLE LOCATION, SEE MECHANICAL.
5. 1-1/4" CW UP TO WC-1, SEE P-104 FOR CONTINUATION. INSTALL PIPING ABOVE DUCTWORK. INSTALL SHOCK ARRESTOR IN ACCESSIBLE LOCATION, SEE MECHANICAL.
6. 4" W & 2" V DN, SEE P-102 FOR CONTINUATION.
7. 3/4" HWR, 3/4" HW, AND 1-1/2" CW DN, SEE P-102 FOR CONTINUATION.
8. INSTALL SHOCK ARRESTOR 'A' (IF INDICATED) AND BALL VALVES IN EASILY ACCESSIBLE LOCATION.
9. INSTALL PIPING ABOVE DUCTWORK.
10. INSTALL PIPING BELOW DUCTWORK.

GENERAL NOTE:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING BIDDING PHASE, PRIOR TO SUBMITTING BID AND DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.
2. FIELD VERIFY THAT PIPING INDICATED TO BE DEMOLISHED DOES NOT SERVE FIXTURES THAT ARE TO REMAIN PRIOR TO REMOVING PIPING.
3. CAP ALL PIPING ABANDONED IN WALL ON ALL OPEN ENDS.
4. EXISTING VENT PIPING IS UNKNOWN. REMOVE VENT PIPING SERVING FIXTURES TO BE DEMOLISHED BACK TO MAIN AND CAP. DO NOT REMOVE VENT PIPING SERVING FIXTURES THAT ARE TO REMAIN.
5. PROVIDE AS-BUILT DRAWINGS INDICATING ALL INSTALLATION DEVIATIONS FROM CONTRACT DRAWINGS.
6. COORDINATE PATCHING OF WALLS, CEILING AND FLOORS WITH ARCHITECTURAL.
7. SEE ARCHITECTURAL PLANS FOR RATED WALLS AND/OR FLOORS.

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NC LICENSE # C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 043184 ENGINEER CASEY D. GILLIAM

No.	Description	Date

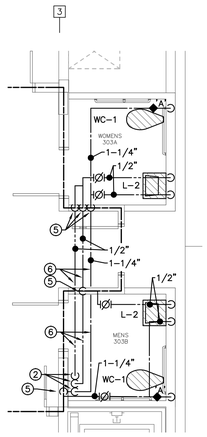
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: SAL/CG
CHECKED BY: CG

PLUMBING SECOND FLOOR PLAN

P-103

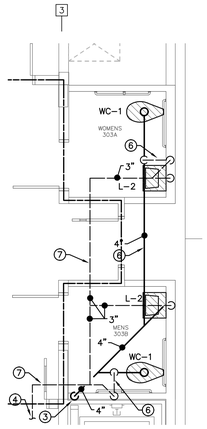
OF 9

BID DOCUMENTS



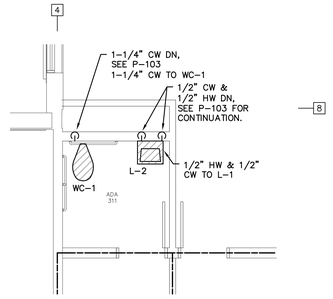
5 P-104 TOILET A DOMESTIC WATER
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0"
0 1 2 4 8



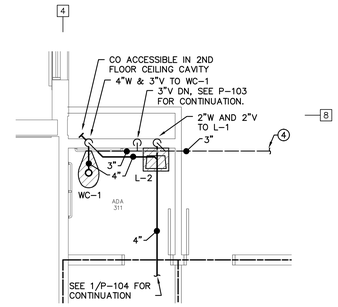
4 P-104 TOILET A WASTE & VENT
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0"
0 1 2 4 8



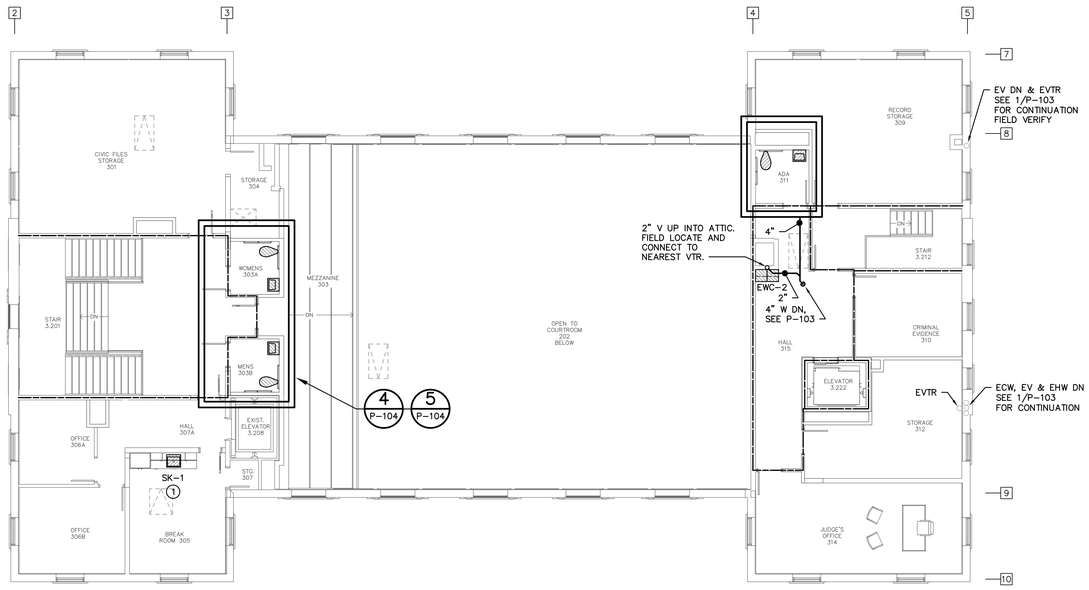
3 P-104 ADA 311 DOMESTIC WATER
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0"
0 1 2 4 8



2 P-104 ADA 311 WASTE & VENT
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0"
0 1 2 4 8



1 P-104 PLUMBING THIRD FLOOR PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"
0 2 4 8 16

KEYED NOTES: (THIS SHEET ONLY)

1. REWORK EXISTING WASTE, VENT, AND DOMESTIC WATER FROM DEMOLITION AND CONNECT TO SK-1.
2. 1/2" HW, 1/2" HWR, AND 1-1/4" CW UP FROM CRAWL SPACE, SEE P-102 FOR CONTINUATION.
3. 4" W DN TO CRAWL SPACE, SEE P-102 FOR CONTINUATION.
4. FIELD LOCATE AND CONNECT EXISTING VTR.
5. PIPING UP FROM BFF.
6. PIPING BFF.
7. CONCEAL VENT PIPING ABOVE EXISTING CEILING OR RISE INTO ATTIC SPACE.

GENERAL NOTE:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING BIDDING PHASE, PRIOR TO SUBMITTING BID AND DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.
2. FIELD VERIFY THAT PIPING INDICATED TO BE DEMOLISHED DOES NOT SERVE FIXTURES THAT ARE TO REMAIN PRIOR TO REMOVING PIPING.
3. CAP ALL PIPING ABANDONED IN WALL ON ALL OPEN ENDS.
4. EXISTING VENT PIPING IS UNKNOWN. REMOVE VENT PIPING SERVING FIXTURES TO BE DEMOLISHED BACK TO MAIN AND CAP. DO NOT REMOVE VENT PIPING SERVING FIXTURES THAT ARE TO REMAIN.
5. PROVIDE AS-BUILT DRAWINGS INDICATING ALL INSTALLATION DEVIATIONS FROM CONTRACT DRAWINGS.
6. COORDINATE PATCHING OF WALLS, CEILING AND FLOORS WITH ARCHITECTURAL.
7. SEE ARCHITECTURAL PLANS FOR RATED WALLS AND/OR FLOORS.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043164 CASEY D. GILMAN

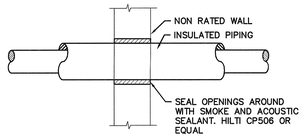
No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: SAL/CG
CHECKED BY: CG

PLUMBING THIRD FLOOR PLAN

P-104
OF 9

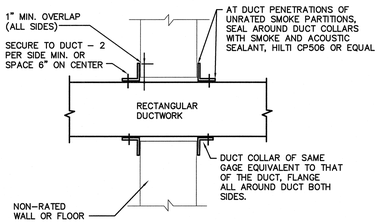
BID DOCUMENTS



NON-RATED WALLS

A M-001 PIPE PENETRATION DETAIL

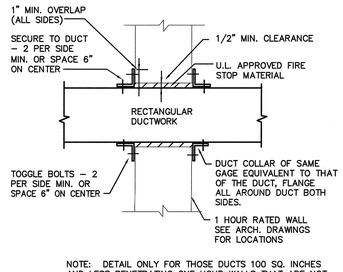
NO SCALE



NON-RATED WALLS

B M-001 DUCT PENETRATION DETAIL

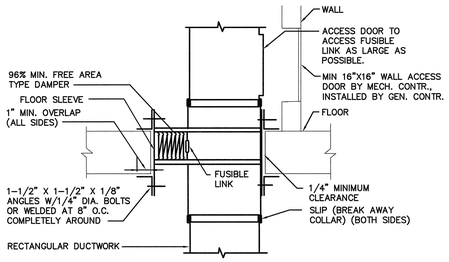
NO SCALE



NOTE: DETAIL ONLY FOR THOSE DUCTS 100 SQ. INCHES AND LESS PENETRATING ONE HOUR WALLS THAT ARE NOT INDICATED TO HAVE FIRE DAMPERS.

C M-001 1 HOUR WALL PENETRATION

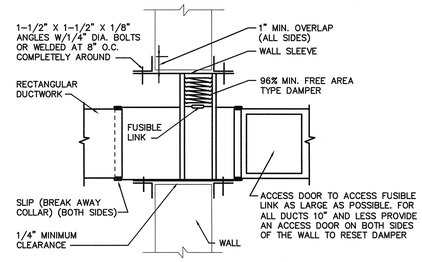
NO SCALE



NOTE: DETAIL FOR REFERENCE ONLY. DAMPERS SHALL BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

D M-001 TYPICAL HORIZONTAL FIRE DAMPER DETAIL

NO SCALE



NOTE: DETAIL FOR REFERENCE ONLY. DAMPERS SHALL BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

E M-001 TYPICAL VERTICAL FIRE DAMPER DETAIL

NO SCALE

LEGEND

- REMOVE EXISTING DUCTWORK
- REMOVE EXISTING PIPING, LINE SYMBOL INDICATES SERVICE
- EXISTING DUCTWORK TO REMAIN
- ES — EXISTING LOOP SUPPLY PIPING
- ER — EXISTING LOOP RETURN PIPING
- EREF — EXISTING REFRIGERANT PIPING
- EHWS — EXISTING HOT WATER SUPPLY PIPING
- EHWR — EXISTING HOT WATER RETURN PIPING
- ECWR — EXISTING CONDENSER WATER RETURN
- ECWS — EXISTING CONDENSER WATER SUPPLY
- HWS — HOT WATER SUPPLY PIPING
- HWR — HOT WATER RETURN PIPING
- S — LOOP SUPPLY PIPING
- R — LOOP RETURN PIPING
- CWS — CONDENSER WATER SUPPLY PIPING
- CWR — CONDENSER WATER RETURN PIPING
- C — AIR CONDITIONING CONDENSATE PIPING
- EG — EG — EXISTING GAS PIPING
- G — G — G — GAS PIPING
- BALL VALVE
- MULTIPURPOSE VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- 2-WAY CONTROL VALVE
- SQUARE HEAD COCK
- AUTOMATIC FLOW CONTROL VALVE
- GAS VALVE
- VALVE IN RISE OR DROP
- UNION
- PRESSURE TEMPERATURE RELIEF VALVE WITH FULL SIZE DISCHARGE PIPING TO WITHIN 6" OF FLOOR DRAIN
- STRAINER WITH BALL VALVE BLOWDOWN, NIPPLE AND CAP

- RECTANGULAR DUCTWORK
- SUPPLY AIR DUCTWORK TURNED DOWN
- SUPPLY AIR DUCTWORK TURNED UP
- RETURN AIR/EXHAUST AIR TURNED DOWN
- RETURN AIR/EXHAUST AIR TURNED UP
- CEILING RETURN AIR/ EXHAUST AIR REGISTER
- CEILING SUPPLY AIR DIFFUSER
- TH HP-2 — HEATING AND COOLING TEMP & RH SENSOR WITH # INDICATING UNIT
- TS C — COOLING THERMOSTAT
- DISCONNECT SWITCH
- 1 — KEYED NOTE SYMBOL
- TS — TEMPERATURE SENSOR
- CO2 — CARBON DIOXIDE SENSOR
- FAR — FIRE ALARM RELAY
- RH — RELATIVE HUMIDITY SENSOR
- F/D — EXISTING FLOOR MOUNTED FIRE DAMPER
- F/D — EXISTING WALL MOUNTED FIRE DAMPER
- SA — SUPPLY AIR
- RA — RETURN AIR
- EX.A. — EXHAUST AIR
- EXFD — EXISTING FLOOR DRAIN
- EXFCO — EXISTING FLOOR CLEANOUT
- OA — OUTSIDE AIR
- NO — NORMALLY OPEN
- NC — NORMALLY CLOSED
- MD — MANUAL DAMPER
- MOD — MOTOR OPERATED DAMPER
- AFF — ABOVE FINISHED FLOOR
- AFG — ABOVE FINISHED GRADE
- FIN. FL. — FINISHED FLOOR
- CONC. — CONCRETE
- CONT. — CONTINUATION
- CONTR. — CONTRACTOR
- TERMINATION POINT OF DEMOLITION
- POINT OF NEW CONNECTION TO EXISTING
- 1 HOUR WALL DESIGNATION

DUCT CLEANING

A. CLEAN INTERIOR OF REUSED EXISTING DUCT SYSTEMS TO REMAIN IN ACCORDANCE WITH NADCA ACR BY NADCA CERTIFIED SUBCONTRACTOR TO THE HVAC CONTRACTOR.
B. SYSTEMS AND COMPONENTS TO BE CLEANED:
   1. AIR DEVCES FOR SUPPLY, RETURN, AND EXHAUST AIR INCLUDING EXISTING REGISTERS, GRILLES, AND DIFFUSERS.
   2. DUCTWORK:
      a. SUPPLY–AIR DUCTS, INCLUDING TURNING VANES AND REHEAT COILS, TO THE AIR–HANDLING UNIT.
      b. RETURN–AIR DUCTS TO THE AIR–HANDLING UNIT.
      c. TRANSFER DUCTS.
      d. EXHAUST SYSTEMS.
C. PROTECT NEW DUCTWORK, NEW AIR DEVICES, NEW HVAC UNITS AND THEIR COILS, ETC. DURING THE CLEANING PROCESS. DEENERGIZE EQUIPMENT DURING THE CLEANING PROCESS. ANY NEW WORK FOUND TO BE DIRTY AS A PART OF THE CLEANING PROCESS SHALL BE CLEANED IN ACCORDANCE WITH SECTION 230130.
D. SEE SPECIFIACTION SECTION 230130 FOR COMPLETE DESCRIPTION OF SCOPE OF WORK AND REQUIREMENTS.

HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.

GENERAL NOTES:

1. HVAC CONTRACTOR SHALL FIELD VERIFY ALL RELEVANT DIMENSIONS, CLEARANCES, LOCATIONS AND ELEVATIONS WITH NEW AND EXISTING CONDITIONS PRIOR TO ORDERING, FABRICATION, AND INSTALLATION OF HIS WORK. DISCREPANCIES OR INTERFERENCE'S SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER AS SOON AS POSSIBLE. THE DRAWINGS DIAGRAMMATICALLY INDICATE THE GENERAL LOCATION OF DUCTS, PIPING AND EQUIPMENT AND DO NOT SHOW ALL OFFSETS, FITTINGS, SUPPORTS,BOLTS, CONNECTIONS, ETC. REQUIRED FOR A COMPLETE SYSTEM. WHILE THE DRAWINGS ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE, IF IT IS FOUND NECESSARY TO CHANGE THE LOCATION OF ANY WORK TO ACCOMMODATE THE CONDITIONS AT THE BUILDING, INCLUDING EXISTING UTILITIES TO REMAIN (PIPING, ELECTRICAL CONDUIT, ETC.), SUCH CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER, AND AS DIRECTED BY THE ENGINEER. WHILE SOME OFFSETS MAY BE SHOWN ON DRAWING, THE DRAWINGS DO NOT SHOW ALL OFFSETS, SUPPORTS, ETC.
2. ALL SUPPLY AND RETURN CONNECTIONS TO AHU SHALL BE MADE WITH A FLEXIBLE DUCT CONNECTION.
3. PIPING, DUCTWORK, ETC., SHALL NOT BE SUPPORTED FROM BAR JOIST BRIDGING OR ROOFDECK. EQUIPMENT SUPPORTED BY BAR JOISTS SHALL HAVE SUPPORTS ATTACHED AS CLOSE AS POSSIBLE TO BAR JOIST PANEL POINTS.
4. ALL DUCT JOINTS SHALL BE SEALED AS SPECIFIED.
5. IN AREAS WITH GYPBOARD CEILINGS, HVAC CONTRACTOR SHALL INSTALL EQUIPMENT, DUCTWORK AND PIPE HANGERS PRIOR TO GYPBOARD INSTALLATION.
6. HVAC CONTRACTOR/ CONTROLS CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR PROVISIONS OF POWER TO DDC CONTROL SYSTEM CONTROL PANELS, CONTROLLERS, ETC.. NOT SHOWN ON M OR E DRAWINGS. ELECTRICAL CONTRACTOR WILL PROVIDE POWER TO GENERAL POINTS, JUNCTION BOXES, ETC., AND POWER WIRING FROM THOSE POINTS TO EQUIPMENT SHALL BE BY THE HVAC CONTRACTOR/CONTROL CONTRACTOR.
7. ALL PIPING PENETRATIONS THROUGH RATED WALLS SHALL BE FIRE STOPPED USING PIPE PENETRATIONS DETAILS AS SPECIFIED. ALL DUCT PENETRATIONS THRU RATED AND NONRATED WALLS SHALL BE PER DETAILS SHOWN ON SHEET M–001.
8. MECHANICAL EQUIPMENT AND PIPING TO BE REUSED SHALL BE STORED AND PROTECTED DURING CONSTRUCTION. ANY DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED.
9. ALL THERMOSTATS, SENSORS AND SWITCHES FOR MECHANICAL SYSTEMS AND HVAC CONTROL PANEL SHALL BE MOUNTED 44" AFF.
10. ALL PIPING BRANCHES SHALL BE TAKEN OFF OF THE TOP OF PIPE MAINS.
11. COORDINATE MECHANICAL DUCTWORK AND PIPING TO AVOID ALL ELECTRICAL PANELS. COORDINATE LOCATIONS WITH ELECTRICAL CONTRACTOR.
12. MAINTAIN 7'–0" CLEAR IN ALL MECHANICAL ROOMS AND ATTIC AND PLATFORMS.
13. AIR HANDLING UNIT ARRANGEMENT IS SO SERVICING IS TOWARDS THE CLEAR INSIDE AISLE OR PLATFORM..
14. INSTALL ALL MANUAL DAMPERS AND MOTORIZES DAMPERS TO BE EASILY ACCESSIBLE.
15. SEE SCHEDULES FOR INDIVIDUAL PIPE SIZES TO EQUIPMENT NOT SHOWN ON DRAWINGS.
16. WHERE INDICATED FOR DUCTWORK, GRILLES, REGISTERS AND DIFFUSERS ARE TO BE REUSED, CONTRACTOR SHALL PROTECT DURING CONSTRUCTION AND REPLACE ANY THAT ARE DAMAGED OR BENT. FULLY CLEAN BEFORE REINSTALLING/REUSING. SEE DUCT CLEANING NOTES THIS SHEET.
17. WHERE DUCTWORK CONFIGURATION CAUSES OBSTRUCTIONS FOR SUPPORT PROVISIONS OF OTHER SYSTEMS INSTALLED UNDER DUCTWORK, AS PART OF CONSTRUCTION COORDINATION AMONG CONTRACTORS, MAKE PROVISIONS FOR OTHER CONTRACTORS TO UTILIZE DUCTWORK SUPPORT COMPONENTS. WHERE THIS IS NECESSARY, COORDINATE ADDITIONAL LOADING INTRODUCED BY OTHER SYSTEMS TO INSURE SUPPORT COMPONENTS ARE SUITABLY RATED FOR ALL LOADS TO BE SUPPORTED.
18. TEST AND BALANCE WORK SHALL BE AS SPECIFIED AND SHALL INCLUDE:
    A. CHECK AND BALANCE WATER FLOWS TO EACH NEW OR EXISTING WATER SOURCE HEAT PUMP, BOILER, PUMPS, HEAT EXCHANGER, AND COOLING TOWER.
    B. CHECK AND BALANCE AIR FLOWS FOR EACH NEW OR EXISTING WATER SOURCE HEAT PUMP.
    C. CHECK AND BALANCE EACH SUPPLY AND RETURN GRILLE, REGISTER OR DIFFUSER.
    D. CHECK AND BALANCE EXHAUST FANS.
    E. CHECK AND BALANCE ALL PORTIONS OF THE EQUIPMENT AND AIR DISTRIBUTION FOR NEW OR RENOVATED WORK.
18. HEATING AND AIR CONDITIONING CONTRACTOR SHALL PROVIDE FLUSHING AND CLEANING OF NEW PIPING AND NEW EQUIPMENT AND JUST FLUSHING OF EXISTING PIPING SYSTEMS AND EXISTING EQUIPMENT. EXISTING PIPING AND EQUIPMENT SHALL NOT BE FLUSHED WITH CHEMICAL CHEMICALS. COORDINATE CLEANING CHEMICALS WITH THE PENDER COUNTY'S CHEMICAL TREATMENT CONTRACTOR. SYSTEM TREATMENT AND TREATMENT CHEMICALS SHALL BE BY THE PENDER COUNTY'S CHEMICAL TREATMENT CONTRACTOR (SKY ENTERPRISES – KEN CATLET 919–285–9309).

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE

☐ COMPLIANCE PER CHAPTER 4 NORTH CAROLINA ENERGY CONSERVATION CODE – SECTIONS C403.2 (MANDATORY), C403.3 ECONOMIZERS (PRESCRIPTIVE) AND C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS.
- ☐ C406.2 MORE EFFICIENT HVAC PERFORMANCE
- ☐ C406.3 REDUCED LIGHTING POWER DENSITY
- ☐ C406.4 ENHANCED LIGHTING CONTROLS
- ☐ C406.5 ON–SITE RENEWABLE ENERGY
- ☐ C406.6 DOAS PROVISION FOR CERTAIN HVAC
- ☐ C406.7 HIGH ENERGY SERVICE WATER HEATING

☐ COMPLIANCE PER CHAPTER 4 NORTH CAROLINA ENERGY CONSERVATION CODE – SECTIONS C403.2 (MANDATORY), C403.3 ECONOMIZERS (PRESCRIPTIVE), C403.4 HYDRONIC AND MULTIPLE ZONE (PRESCRIPTIVE) AND C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS.
- ☒ C406.2 MORE EFFICIENT HVAC PERFORMANCE
- ☐ C406.3 REDUCED LIGHTING POWER DENSITY
- ☐ C406.4 ENHANCED LIGHTING CONTROLS
- ☐ C406.5 ON–SITE RENEWABLE ENERGY
- ☐ C406.6 DOAS PROVISION FOR CERTAIN HVAC
- ☐ C406.7 HIGH ENERGY SERVICE WATER HEATING

☐ COMPLIANCE PER CHAPTER 4 NORTH CAROLINA ENERGY CONSERVATION CODE – SECTIONS C402.5, C403.2, C404, C405.2, C405.3, C405.5, C405.6 AND C407 TOTAL BUILDING PERFORMANCE. THE BUILDING ENERGY COST SHALL BE EQUAL TO OR LESS THAT 85 PERCENT OF THE STANDARD REFERENCE DESIGN BUILDING.

☐ COMPLIANCE PER ANSI/ASHRAE/IESNA 90.1–2013.

☐ COMPLIANCE PER NORTH CAROLINA SPECIFIC COMCHECK OR ASHRAE 90.1–2013 COMCHECK.

CLIMATE ZONE 3A

EXTERIOR DESIGN CONDITIONS
winter dry bulb: 20°F
summer dry bulb: 92°F DB/76°F WB

INTERIOR DESIGN CONDITIONS
winter dry bulb: 70°F
summer dry bulb: 75°F
relative humidity: 50%

BUILDING HEATING LOAD: BLOCK LOAD = 573.6 MBH

BUILDING COOLING LOAD: BLOCK LOAD = 52.3 TONS

MECHANICAL SPACING CONDITIONING SYSTEM
Unitary
description of unit:
heating efficiency:
cooling efficiency:
heat output of unit:
cooling output of unit:
} SEE SCHEDULES ON SHEET M–601

Boiler: EXISTING – RELOCATED
total boiler output. If oversized, state reason.
Chiller: NA – COOLING TOWER – EXISTING
total chiller capacity. If oversized, state reason.

LIST EQUIPMENT EFFICIENCIES: SEE SCHEDULES ON SHEET M–601

EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS)
motor horsepower:
number of phases:
minimum efficiency:
motor type:
# of poles:
} SEE SCHEDULES ON SHEET M–601

DESIGNER STATEMENT

To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the North Carolina Energy Conservation Code.

SIGNED: _____
NAME: Kenneth Lynch, PE
TITLE: Professional Engineer

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PENDER COUNTY

PENDER COUNTY NC

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NC LICENSE# C–1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17585 ENGINEER KENNETH LYNCH

No.	Description	Date

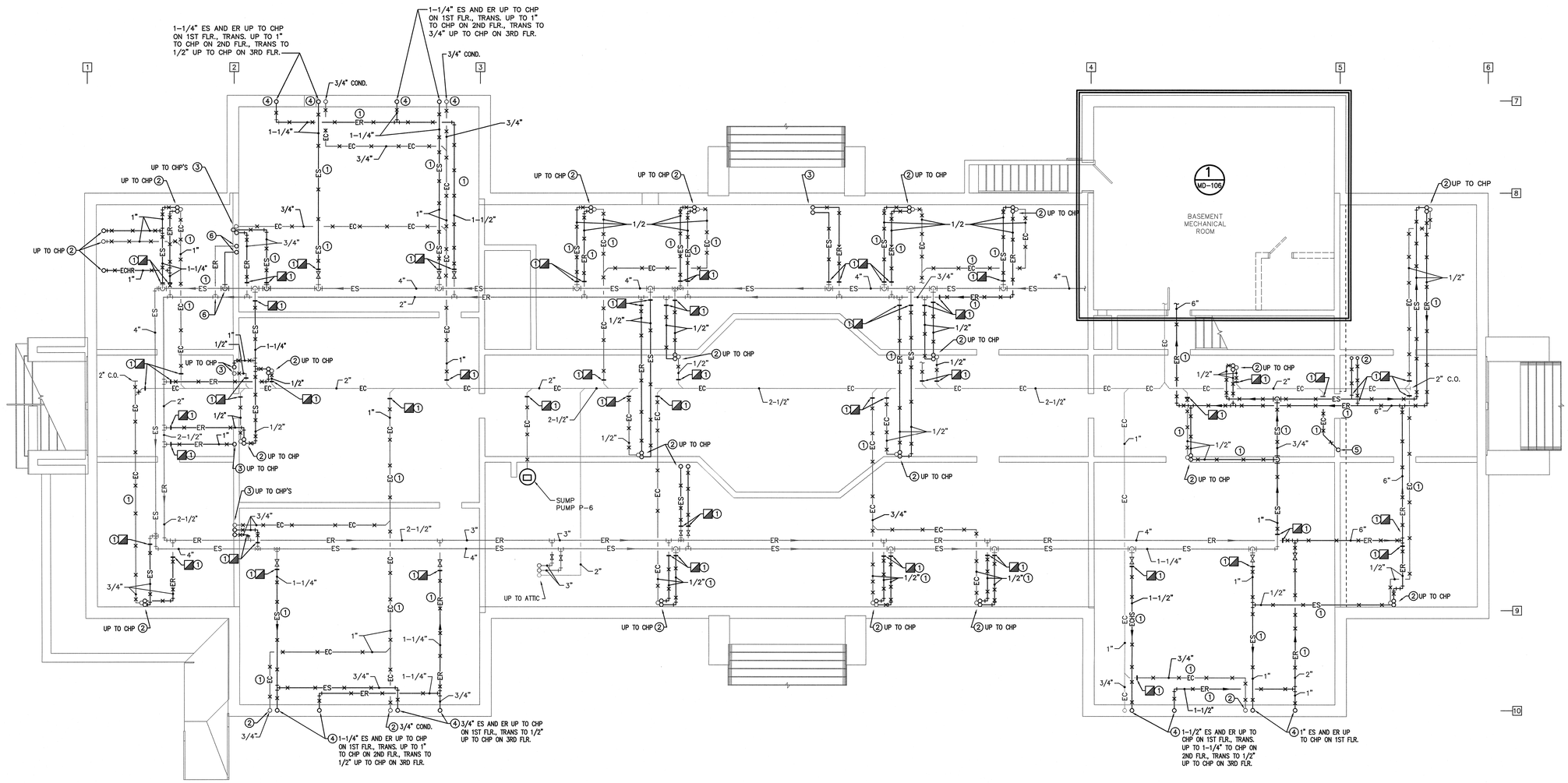
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: TWT
CHECKED BY: KL

MECHANICAL LEGEND, ENERGY SCHEDULE & FIRE PENETRATION DETAILS

M-001

OF 17

BID DOCUMENTS



1 MD-101 MECHANICAL CRAWL SPACE PLAN – DEMOLITION

SCALE: 3/16" = 1'-0"

GRAPHIC SCALE

4' 2' 0 4' 8' 12'

SCALE: 3/16"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE PIPE AND ASSOCIATED PIPE HANGERS AT LOCATION SHOWN. ANY PIPING NOT REUSED SHALL BE CAPPED WATERTIGHT.
2. REMOVE PIPE UP TO CONSOLE WATER SOURCE HEAT PUMP ON FIRST FLOOR. GENERAL CONTRACTOR TO PATCH FLOOR TO MATCH EXISTING.
3. ABANDON PIPE UP TO CONSOLE WATER SOURCE HEAT PUMP ON SECOND FLOOR.
4. ABANDON PIPE RISE IN WALL UP TO WATER SOURCE HEAT PUMP ON FIRST, SECOND AND THIRD FLOOR.
5. ABANDON CONDENSATE PIPING IN WALL.
6. WSHP PIPING UP TO EXISTING WSHP OVER TOILETS (NEW LABEL WSHP-17) TO REMAIN. FIELD VERIFY EXACT SIZE AND LOCATION. PROTECT DURING CONSTRUCTION, REPAIR OR REPLACE ANY DAMAGED PIPING AND INSULATION DURING CONSTRUCTION.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17655 ENGINEER KENNETH T. LYNCH

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KCL, TWT
CHECKED BY: KL

MECHANICAL CRAWL SPACE FLOOR PLAN - DEMOLITION

MD-101

OF 17

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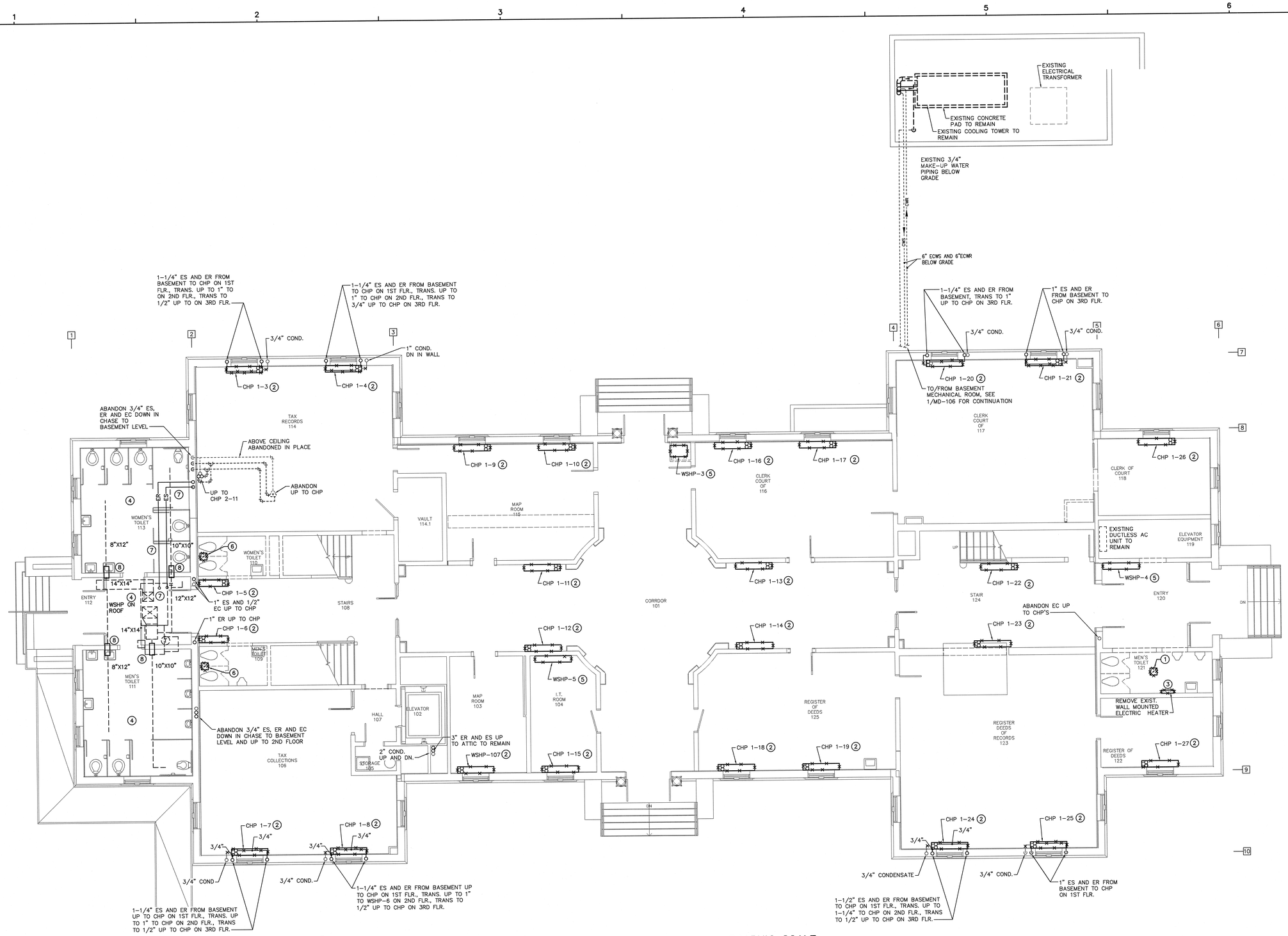

1 MD-102 MECHANICAL FIRST FLOOR PLAN – DEMOLITION
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE
4' 2' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE EXHAUST GRILLE. 12"x12" DUCTWORK UP TO ROOF TO REMAIN AND BE REUSED.
2. REMOVE CONSOLE HEAT PUMP AND ALL RELATED PIPING. REMOVE PIPING WHERE ABLE OR CAP PIPING BEHIND WALL. GENERAL CONTRACTOR TO PATCH AND REPAIR FLOOR AND WALL WHERE PIPING AND UNIT HAVE BEEN REMOVED. RECOVER REFRIGERANT AS SPECIFIED. OWNER DOES NOT WANT REFRIGERANT.
3. REMOVE EXISTING WALL MOUNTED ELECTRIC HEATER.
4. EXISTING SUPPLY AIR AND EXHAUST AIR TO REMAIN, SEE M-102 FOR NEW WORK. EXISTING DUCATWORK TO BE CLEANED.
5. REMOVE WATER SOURCE HEAT PUMP, ALL RELATED PIPING AND ALL ACCESSORIES COMPLETE. CAP PIPING BEHIND WALL. GENERAL CONTRACTOR TO PATCH AND REPAIR FLOOR AND WALL WHERE PIPING AND UNIT HAVE BEEN REMOVED. RECOVER REFRIGERANT AS SPECIFIED. OWNER DOES NOT WANT REFRIGERANT.
6. EXHAUST FAN AND DUCTWORK TO BE REMOVED. REMOVE POWER BACK TO SOURCE.
7. PROTECT WSHP PIPING TO UNIT ON ROOF TO REMAIN. REPAIR OR REPLACE ANY DAMAGED PIPING OR INSULATION DURING CONSTRUCTION.
8. REMOVE DUCTWORK AS NECESSARY TO INSTALL NEW WALL FIRE DAMPER AND PROPER ACCESS DOORS. SEE M-102 FOR NEW INFORMATION.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17658 KENNETH H. LYNN

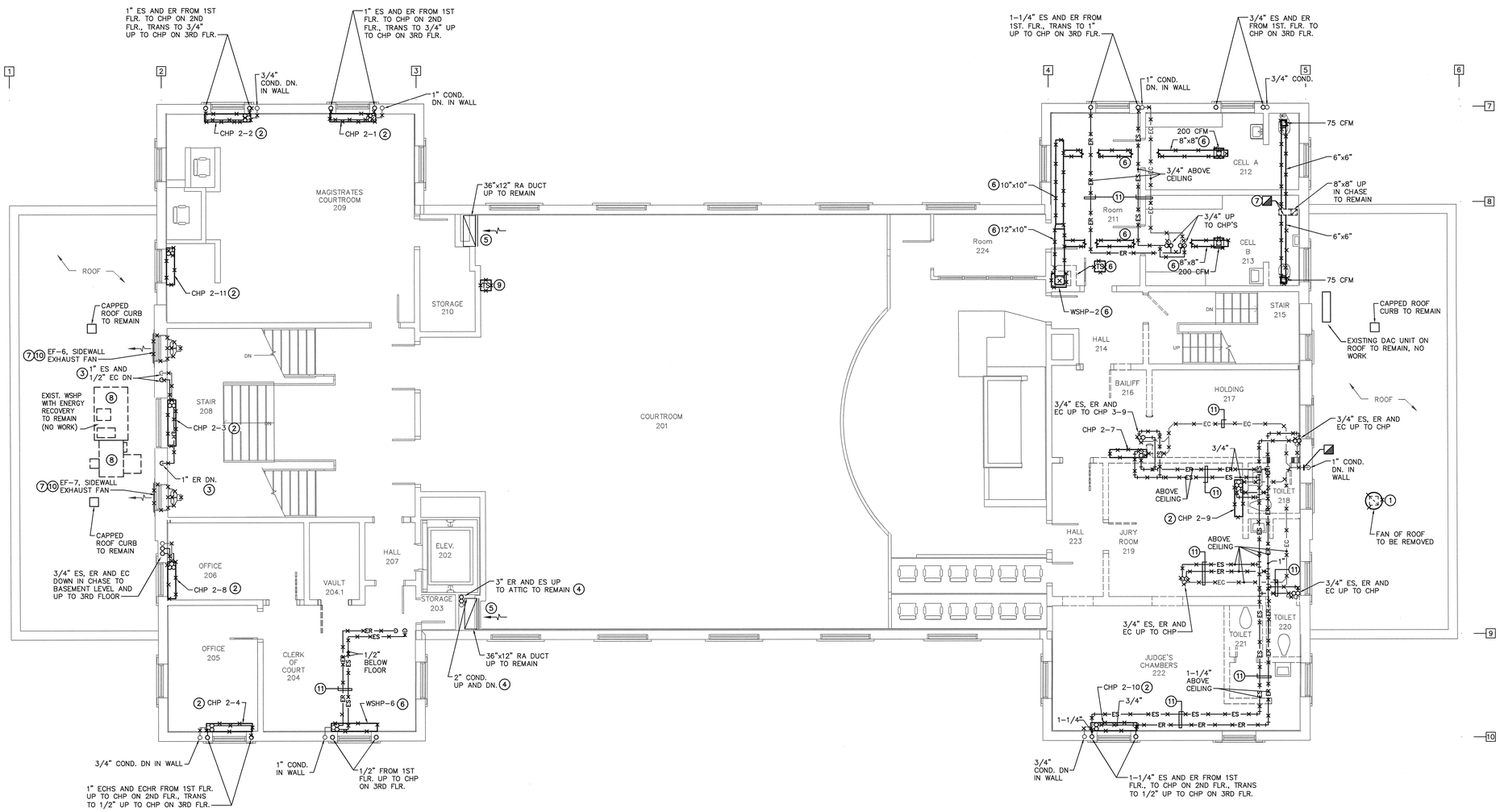
No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KCL, TWT
CHECKED BY: KL

MECHANICAL FIRST FLOOR PLAN - DEMOLITION

MD-102
OF 17

BID DOCUMENTS



1 MD-103 MECHANICAL SECOND FLOOR PLAN – DEMOLITION

SCALE: 3/16" = 1'-0"

GRAPHIC SCALE

4' 2' 0 4' 8' 12'

SCALE: 3/16"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE FAN ON ROOF. ROOF CURB TO REMAIN AND BE REUSED.
2. REMOVE CONSOLE HEAT PUMP AND ALL RELATED PIPING. CAP PIPING BEHIND WALL. GENERAL CONTRACTOR TO PATCH AND REPAIR FLOOR AND WALL WHERE PIPING AND UNIT HAVE BEEN REMOVED. RECOVER REFRIGERANT AS SPECIFIED. OWNER DOES NOT WANT REFRIGERANT.
3. REMOVE EXISTING PIPING TO BEHIND WALL AND CAP. GENERAL CONTRACTOR TO PATCH AND PAINT WALLS AND FLOORS WHERE PIPING HAS BEEN REMOVED.
4. PIPING TO REMAIN.
5. SIDEWALL RETURN AIR GRILLE AND DUCTWORK TO REMAIN AND BE CLEANED.
6. REMOVE WATER SOURCE HEAT PUMP, DUCTWORK, PIPING AND ALL RELATED ACCESSORIES. CAP PIPING BEHIND WALL. GENERAL CONTRACTOR TO PATCH AND REPAIR FLOOR AND WALL WHERE PIPING AND UNIT HAVE BEEN REMOVED. RECOVER REFRIGERANT AS SPECIFIED. OWNER DOES NOT WANT REFRIGERANT..
7. REMOVE EXHAUST AND DUCTWORK AS SHOWN.
8. EXISTING ROOF MOUNTED WATER SOURCE HEAT PUMP WITH ENERGY RECOVERY SYSTEM TO REMAIN AND BE REUSED. PROTECT DURING CONSTRUCTION.
9. REMOVE TEMPERATURE SENSOR. CONDUIT TO REMAIN AND BE REUSED.
10. EXISTING LOUVER TO REMAIN. BLANK OFF BACK SIDE OF LOUVER WITH INSULATED PANEL WEATHERTIGHT.
11. REMOVE PIPING ABOVE CEILING OR IF CEILING IS NOT BEING REMOVED, ABANDON IN PLACE. VERIFY WITH ARCHITECTURAL DRAWING.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17655 KENNETH TWYNN LYTCH

No.	Description	Date

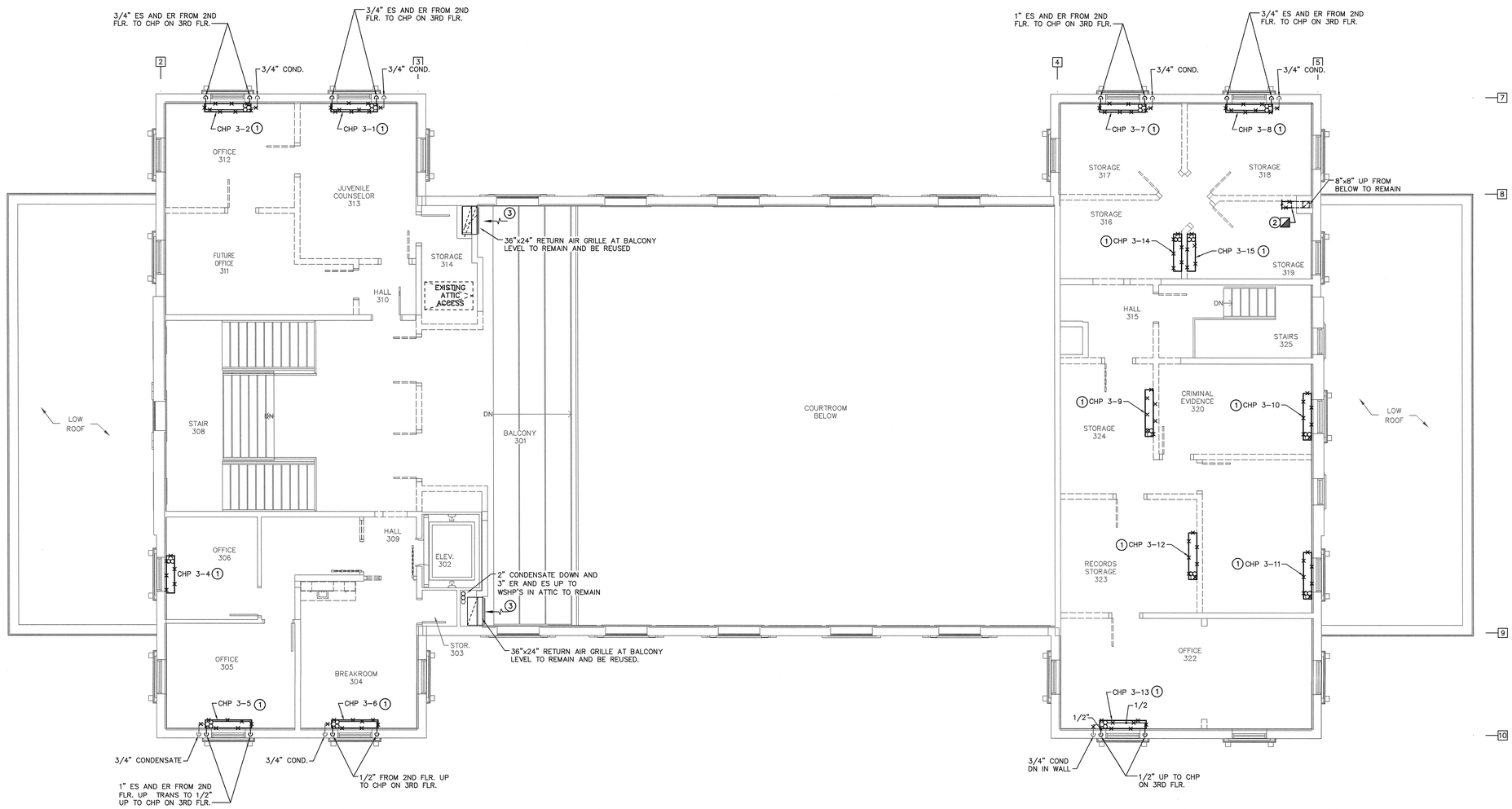
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: TWT, KCL
CHECKED BY: KL

MECHANICAL SECOND FLOOR PLAN - DEMOLITION

MD-103

OF 17

BID DOCUMENTS



1 / MD-104 MECHANICAL THIRD FLOOR PLAN – DEMOLITION

SCALE: 3/16" = 1'-0"

GRAPHIC SCALE

4' 2' 0 4' 8' 12'

SCALE: 3/16"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE CONSOLE HEAT PUMP AND ALL RELATED PIPING. CAP PIPING BEHIND WALL. GENERAL CONTRACTOR TO PATCH AND REPAIR FLOOR AND WALL WHERE PIPING AND UNIT HAVE BEEN REMOVED. RECOVER REFRIGERANT AS SPECIFIED. OWNER DOES NOT WANT REFRIGERANT.
2. REMOVE DUCTWORK TO EXHAUST FAN IN ATTIC. REMOVE EXHAUST FAN AND ALL RELATED ACCESSORIES COMPLETE. VERIFY LOCATION IN ATTIC. REMOVE POWER BACK TO SOURCE.
3. EXISTING RETURN AIR GRILLE AND DUCTWORK TO REMAIN AND BE REUSED. CLEAN AS DEFINED ON M-001.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL 17656 ENGINEER KENNETH H. LYCH

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KCL, TWT
CHECKED BY: KL

MECHANICAL THIRD FLOOR PLAN - DEMOLITION

MD-104

OF 17

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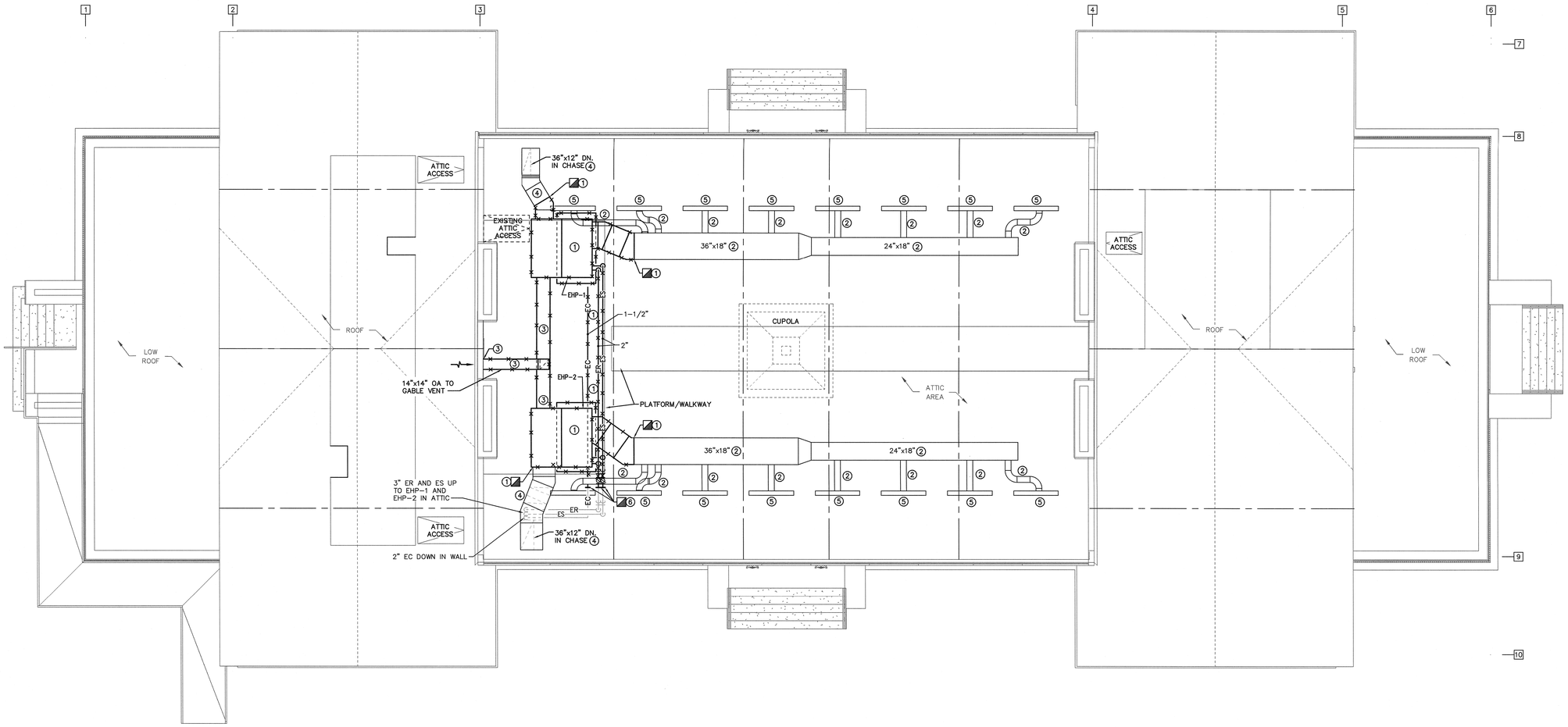

1 / MD-105 MECHANICAL ATTIC PLAN – DEMOLITION
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE
4' 2' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE WSHP (EHP-1 & EHP-2), DUCTWORK, PIPING, OUTSIDE AIR DUCTWORK AND ALL ACCESSORIES. RECOVER REFRIGERANT FROM UNITS AS SPECIFIED. OWNER DOES NOT WANT REFRIGERANT. SUPPLY AND RETURN DUCT TO REMAIN AS SHOWN.
2. EXISTING TO DUCT REMAIN. DUCTWORK TO REMAIN SHALL BE CLEANED.
3. REMOVE OUTSIDE AIR DUCTWORK FROM UNIT TO GABEL VENT.
4. RETURN AIR DUCTWORK DOWN TO COURTROOM TO REMAIN AND BE REUSED. DUCTWORK TO REMAIN SHALL BE CLEANED.
5. CEILING SUPPLY AIR SLOT DIFFUSER AND PLENUM BOX TO REMAIN AND BE REUSED. PLENUM BOX AND DIFFUSER SHALL BE CLEANED.
6. REMOVE PIPING TO POINTS INDICATED.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17655 ENGINEER KENNETH H LYNCH

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KCL, TWT
CHECKED BY: KL

MECHANICAL ATTIC PLAN - DEMOLITION

MD-105
OF 17

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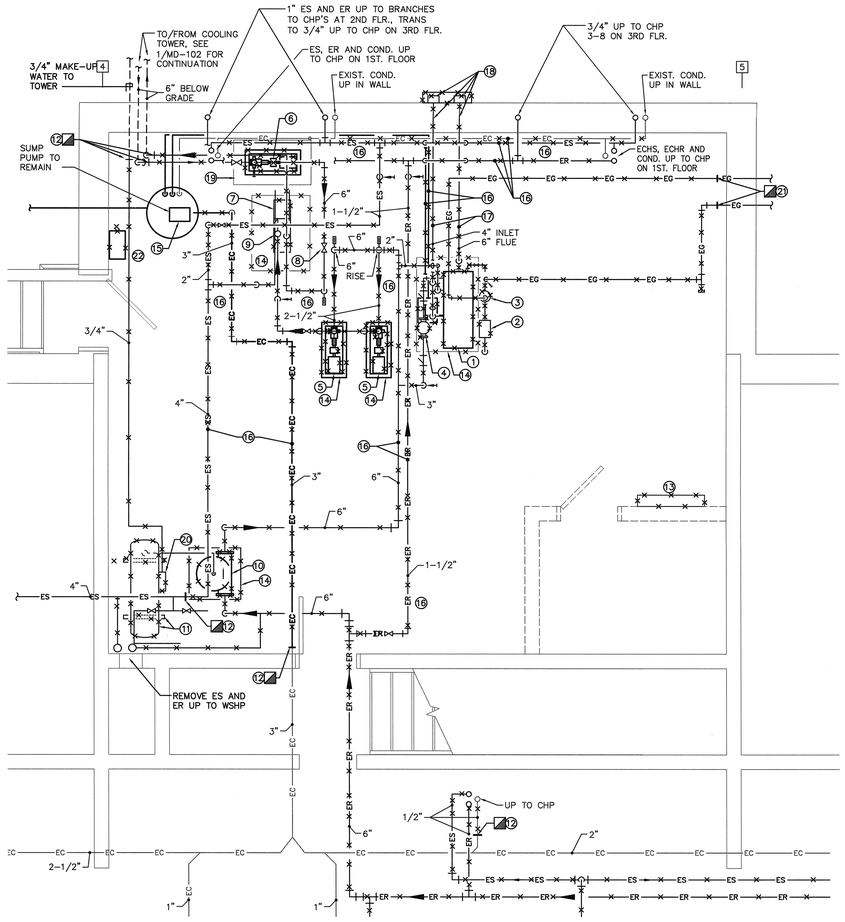

1 MD-106 MECHANICAL BASEMENT PLAN – DEMOLITION

SCALE: 3/8" = 1'-0"

GRAPHIC SCALE

2' 0 2' 4' 6'

SCALE: 3/8"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. EXISTING BOILER TO BE REMOVED AND RELOCATED TO BOILER ROOM, SEE PLAN 2/M-106.
2. EXISTING GAS VALVE TO BE REMOVED AND RELOCATED TO BOILER ROOM, SEE PLUMBING PLANS.
3. EXISTING GAS REGULATOR TO BE REMOVED AND RELOCATED TO BOILER ROOM, SEE PLUMBING PLANS.
4. EXISTING BOILER PUMP P-4 TO BE REMOVED AND RELOCATED TO BOILER ROOM, SEE PLAN 2/M-106.
5. EXISTING PUMPS P-2 & P-3 TO BE REMOVED AND RELOCATED TO BOILER ROOM, SEE PLAN 2/M-106.
6. EXISTING PUMP P-1 TO BE REMOVED AND TURNED OVER TO OWNER.
7. EXISTING HEAT EXCHANGER HE-1 TO BE RELOCATED IN MECHANICAL ROOM, SEE PLAN 1/M-106.
8. EXISTING VALVE TO BE REMOVED.
9. EXISTING STRAINER TO BE REMOVED.
10. REMOVE EXISTING AIR SEPARATOR, AND ALL ACCESSORIES COMPLETE.
11. REMOVE EXISTING WALL MOUNTED EXPANSION TANK, WALL BRACKET AND ALL ACCESSORIES COMPLETE.
12. REMOVE PIPING AS SHOWN. CAP PIPING NOT BEING REUSED.
13. EXISTING CHEMICAL FEED SYSTEM AND ASSOCIATED PIPING AND PUMPS, TO BE RELOCATED. SEE PLAN 2/M-106.
14. REMOVE EXISTING CONCRETE SLAB.
15. EXISTING SUMP PUMP TO REMAIN.
16. REMOVE EXISTING WATER PIPING, CONDENSATE PIPING AND GAS PIPING.
17. REMOVE EXISTING BOILER INLET AND OUTLET VENT PIPE. GENERAL CONTRACTOR TO PATCH EXTERIOR WALL TO MATCH EXISTING.
18. REMOVE BOILER INLET AND OUTLET WALL VENT, SEAL WALL PENETRATION WEATHER TIGHT. GENERAL CONTRACTOR TO PATCH EXTERIOR WALL TO MATCH EXISTING.
19. CONCRETE SLAB TO REMAIN.
20. REMOVE PRESSURE REDUCING MAKE-UP WATER STATION.
21. GAS PIPING TO BE REMOVED TO POINT INDICATED. SEE PLUMBING PLANS.
22. EXISTING VSD FOR COOLING TOWER FAN TO BE REMOVED AND RELOCATED. SEE PLAN 2/M106.

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JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17655 KENNETH W. LYNCH

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KCL, TWT
CHECKED BY: KL

ENLARGED MECHANICAL ROOM - DEMOLITION

MD-106

OF 17

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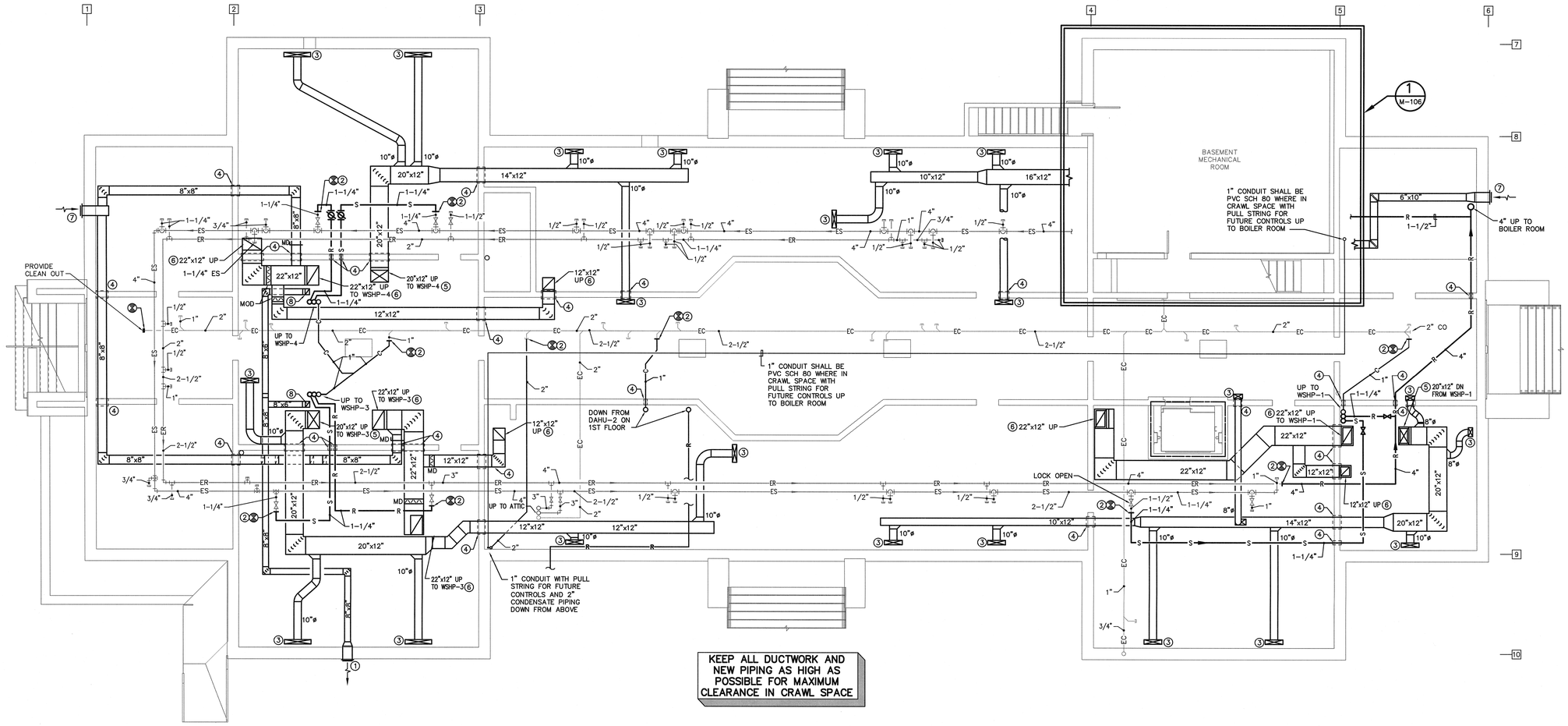

1 / M-101 MECHANICAL CRAWLSPACE PLAN – RENOVATION
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE
4' 2' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. REUSE EXISTING VENT GRILLE FOR EXHAUST (APPROX. SIZE IS 13"x9"). PROVIDE PLENUM BOX FULL SIZE OF VENT GRILLE. FIELD VERIFY EXACT SIZE AND LOCATION AND COORDINATE WITH GENERAL CONTRACTOR.
2. CONNECT NEW PIPING TO EXISTING. PROVIDE TRANSITION IN PIPE SIZE AS NECESSARY.
3. UP TO FLOOR REGISTER ON 1ST FLOOR. PROVIDE INSULATED BOOT ON BACKSIDE OF FLOOR REGISTER. COORDINATE LOCATION WITH EXISTING CONDITIONS.
4. GENERAL CONTRACTOR TO CUT OPENINGS IN EXISTING WALL AND PROVIDE LINTEL SUPPORT AS NECESSARY FOR OPENING FOR DUCTWORK. PROVIDE PIPE SLEEVE THROUGH WALL FOR HVAC PIPES.
5. DUCT DOWN FROM WSHP ABOVE. FIELD VERIFY EXACT LOCATION.
6. DUCT UP THROUGH FLOOR INTO NEW CHASE ABOVE. CHASE BY GENERAL CONTRACTOR. FIELD VERIFY EXACT LOCATION.
7. REUSE EXISTING VENT GRILLE FOR OUTSIDE AIR INTAKE (APPROX. SIZE IS 13"x9"). PROVIDE INSULATED PLENUM BOX FULL SIZE OF VENT GRILLE. FIELD VERIFY EXACT SIZE AND LOCATION AND COORDINATE WITH GENERAL CONTRACTOR.
8. 8"x6" EXHAUST DUCT DOWN FROM FAN ON 1ST FLOOR, SEE M-102 FOR CONT.

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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17655 KENNETH H. LYNCH

No.	Description	Date

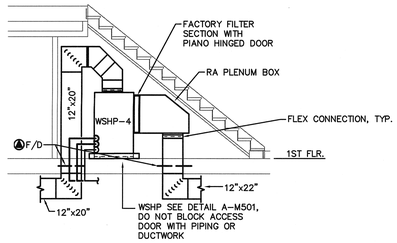
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: DB
CHECKED BY: KL

MECHANICAL CRAWLSPACE PLAN - RENOVATION

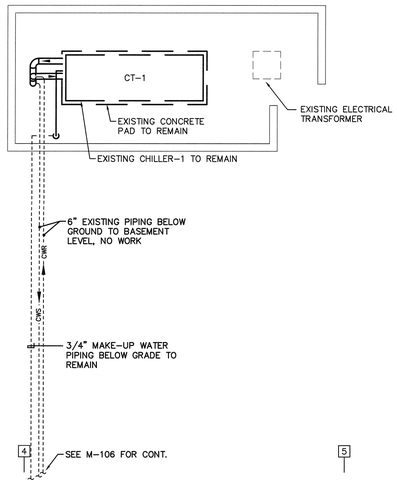
M-101

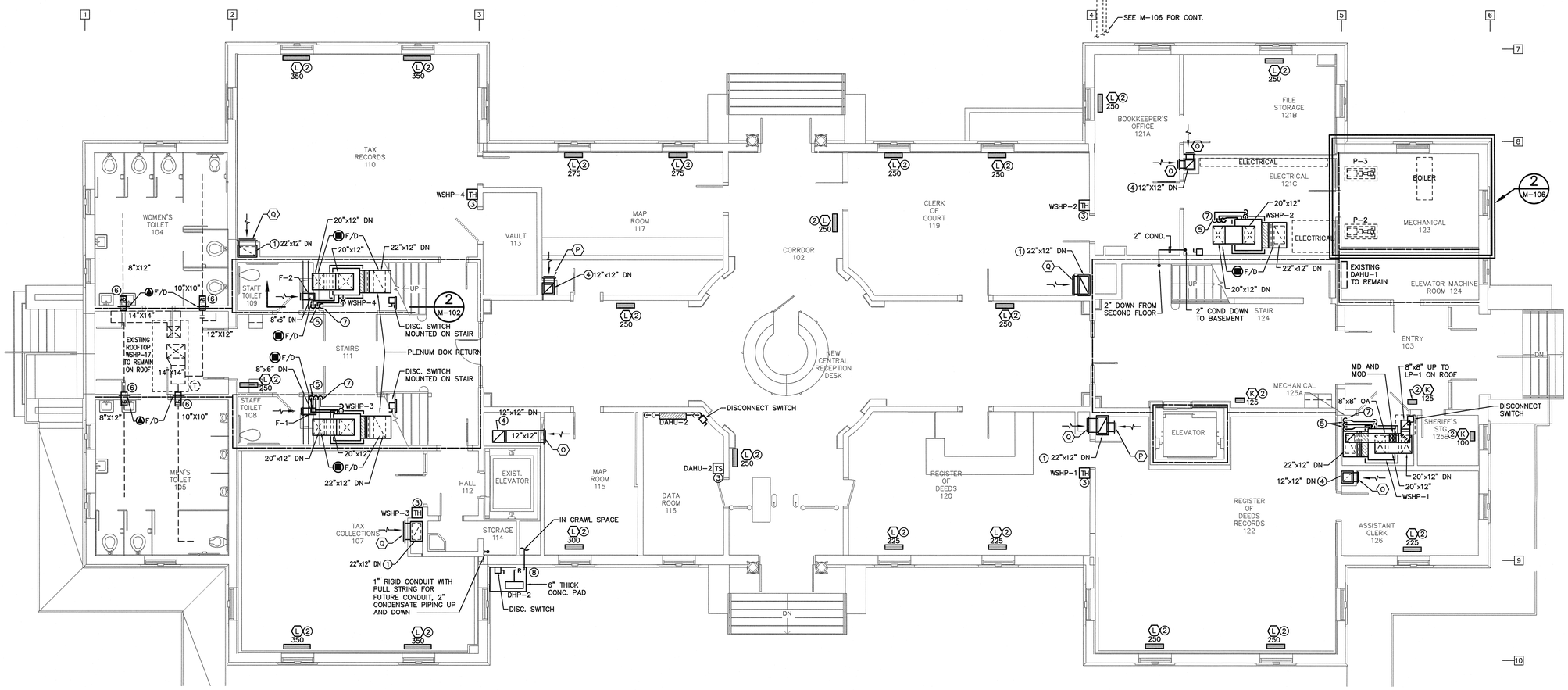
OF 17

BID DOCUMENTS



2 M-102 SECTION
SCALE: 1/4" = 1'-0"





KEYED NOTES: (THIS SHEET ONLY)

1. 22"x12" RETURN AIR DUCT DOWN TO BASEMENT AREA, SEE M-101 FOR CONTINUATION. CHASE BY GENERAL CONTRACTOR, SEE ARCHITECTURAL PLANS.
2. NEW FLOOR REGISTER WITH FULL SIZE INSULATED PLENUM BOX. FIELD VERIFY EXACT LOCATION AND COORDINATE WITH EXISTING CONDITIONS.
3. NEW LOCATION OF THERMOSTAT.
4. 12"x12" RETURN AIR DUCT DOWN TO BASEMENT AREA, SEE 1/M-106 FOR CONTINUATION. CHASE BY GENERAL CONTRACTOR, SEE ARCHITECTURAL PLANS.
5. PIPING TO AND FROM BASEMENT LEVEL. SEE M-101 FOR CONTINUATION.
6. REMOVE EXISTING DUCTWORK AS NECESSARY TO INSTALL WALL FIRE DAMPER IN EXISTING DUCTWORK AND PROVIDE THE PROPER ACCESS DOOR. EXISTING DUCT SIZES ARE BASED OF EXISTING DRAWINGS AND ALL SIZES WILL NEED TO BE FIELD VERIFIED PRIOR TO ORDERING. FIELD VERIFY EXACT SIZES, NUMBER AND LOCATIONS OF EXISTING DUCTS THAT REQUIRE FIRE DAMPERS.
7. SPILL CONDENSATE INTO HUB DRAIN, HUB DRAIN CONDENSATE DOWN TO BASEMENT LEVEL, SEE DETAIL SHEET M-501.
8. SUPPORT REFRIGERANT PIPING ON CONDENSATE PAD EVERY 24" MIN. O.C.. PROVIDE ALUMINUM JACKET COVER OVER INSULATED REFRIGERANT PIPING. ALL REFRIGERANT PIPING INSULATION SHALL BE 1-1/2" ON EXTERIOR AS SPECIFIED.

1 M-102 MECHANICAL FIRST FLOOR PLAN – RENOVATION
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE
4' 2' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

PENDER COUNTY COURTHOUSE

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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17625 ENGINEER KEVIN T. H.

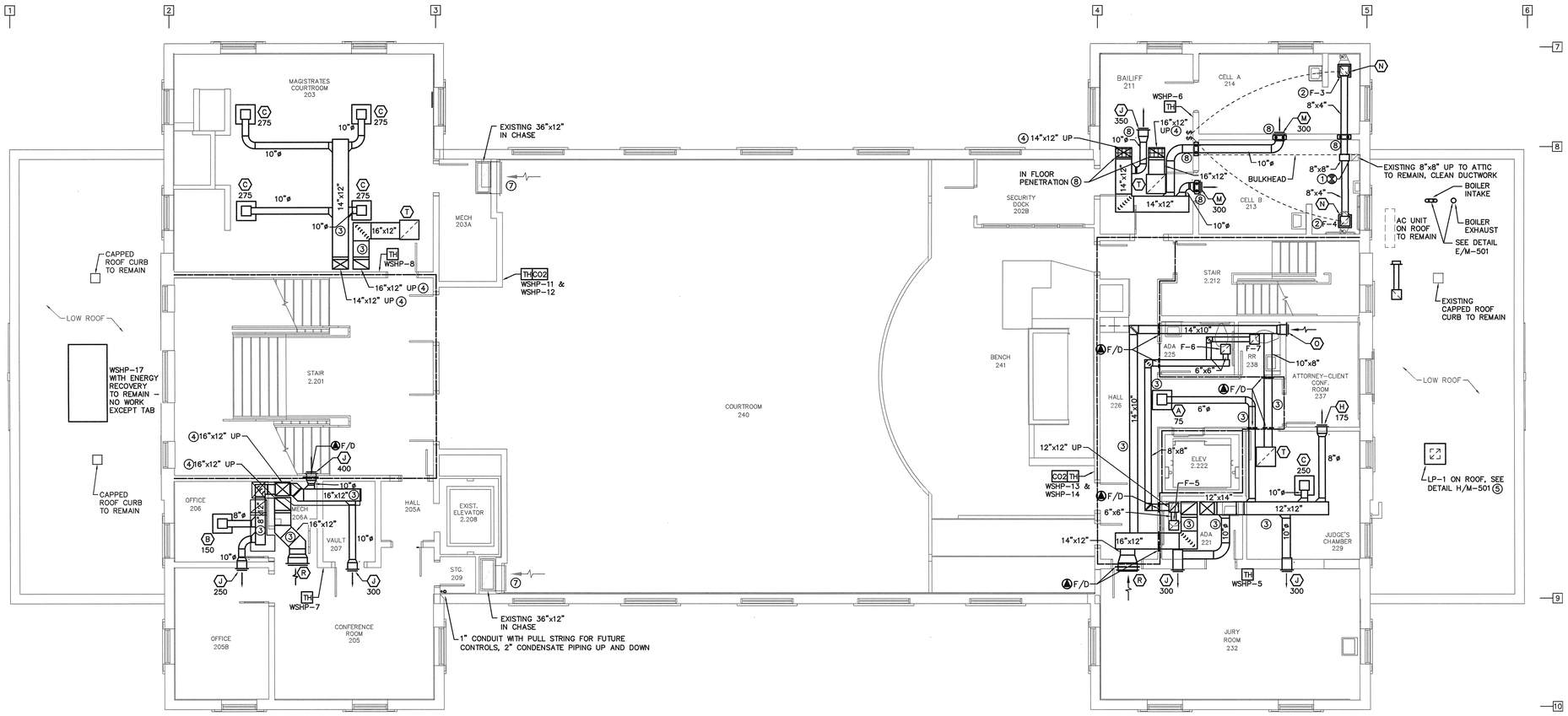
No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: TWT
CHECKED BY: KL

MECHANICAL FIRST FLOOR PLAN - RENOVATION

M-102
OF 17

BID DOCUMENTS



1 M-103 MECHANICAL SECOND FLOOR PLAN – RENOVATION

SCALE: 3/16" = 1'-0"

GRAPHIC SCALE

4' 2' 0 4' 8' 12'

SCALE: 3/16"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. CONNECT NEW DUCTWORK TO EXISTING.
2. FAN TO BE MOUNTED DIRECTLY ABOVE SECURITY REGISTER IN CEILING.
3. DUCTWORK ABOVE CEILING.
4. DUCTWORK UP TO ATTIC, SEE M-104 FOR CONTINUATION. COORDINATE LOCATION WITH EXISTING CONDITIONS.
5. NEW LOUVERED PENTHOUSE ON ROOF. REUSE EXISTING ROOF CURB, PROVIDE CURB ADAPTER AS NECESSARY.
6. EXISTING RETURN AIR DUCTWORK TO REMAIN.
7. EXISTING SIDEWALL RETURN AIR GRILLE AND DUCTWORK TO BE REUSED. CLEAN GRILLE AND DUCTWORK, SEE INSTRUCTIONS ON SHEET M-001.
8. SECURITY BARRIER GRILLE WITH WALL SLEEVE IN DUCTWORK. SECURE GRILLE IN WALL WITH ANGLE FRAME ON BOTH SIDES OF WALL SECURED TO DUCTWORK.

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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17655 ENGINEER KENNETH H. WHITE

No.	Description	Date

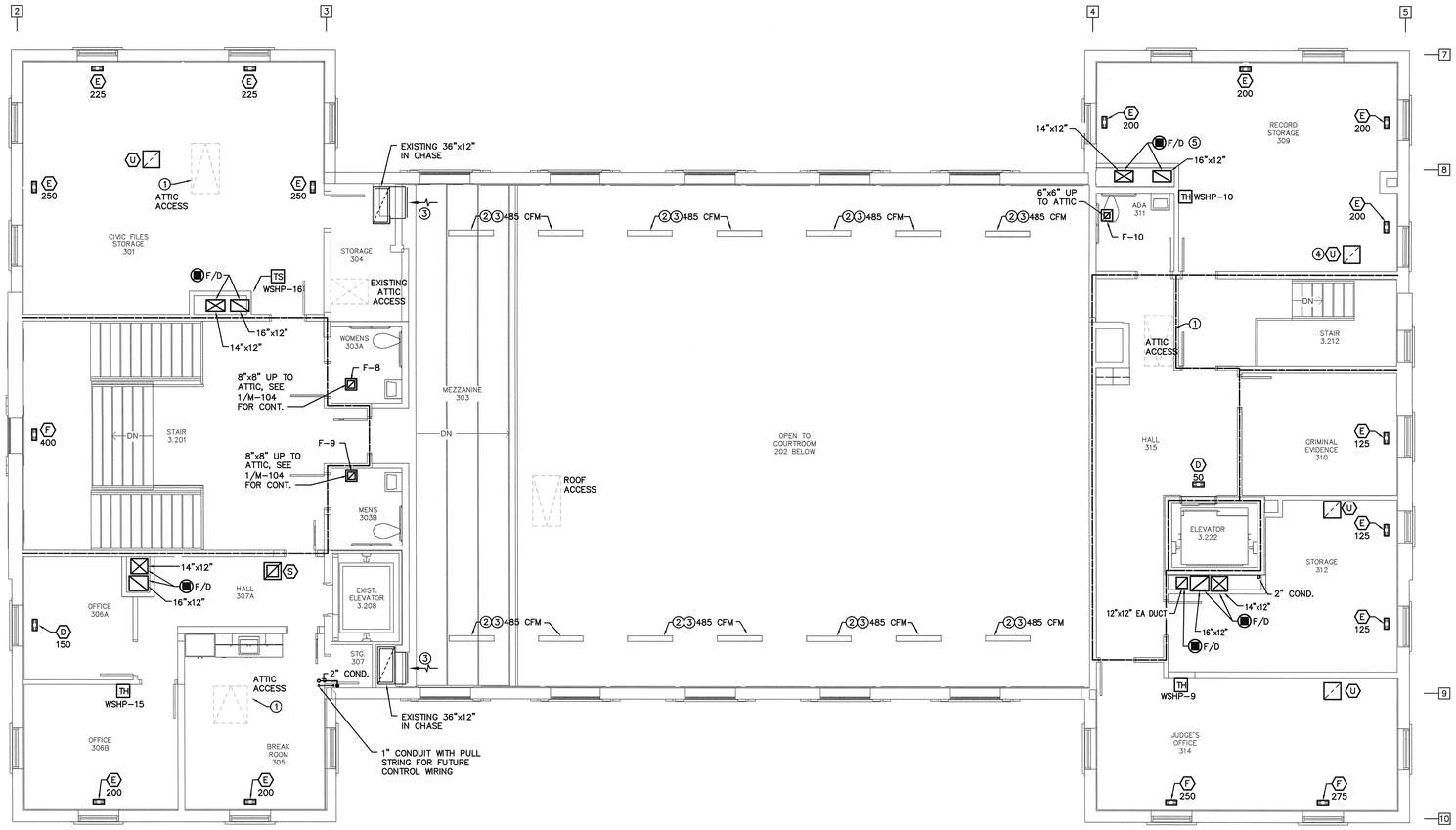
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KCL, TWT
CHECKED BY: KL

MECHANICAL SECOND FLOOR PLAN - RENOVATION

M-103

OF 17

BID DOCUMENTS



1 M-104 MECHANICAL THIRD FLOOR PLAN – RENOVATION
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE
4' 2' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. ATTIC ACCESS DOOR, COORDINATE LOCATION WITH EXISTING CONDITIONS, AND NEW MECHANICAL PLATFORM. SEE ARCHITECTURAL DRAWINGS.
2. EXISTING CEILING SUPPLY AIR GRILLE AND PLENUM BOX TO BE REUSED. CLEAN GRILLE TO BE REUSED.
3. EXISTING SIDEWALL RETURN AIR GRILLE AND DUCTWORK TO BE REUSED. CLEAN GRILLE AND DUCTWORK, SEE INSTRUCTIONS ON SHEET M-001.
4. SECURITY BARRIER GRILLE WITH WALL SLEEVE IN DUCTWORK. SECURE GRILLE IN WALL WITH ANGLE FRAME ON BOTH SIDES OF WALL SECURED TO DUCTWORK.
5. WALL ACCESS DOORS FOR FLOOR FIRE DAMPERS TO BE LOCKABLE, DOORS BY GC.

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NC LICENSE# C-1073

JOB # 19060

No.	Description	Date

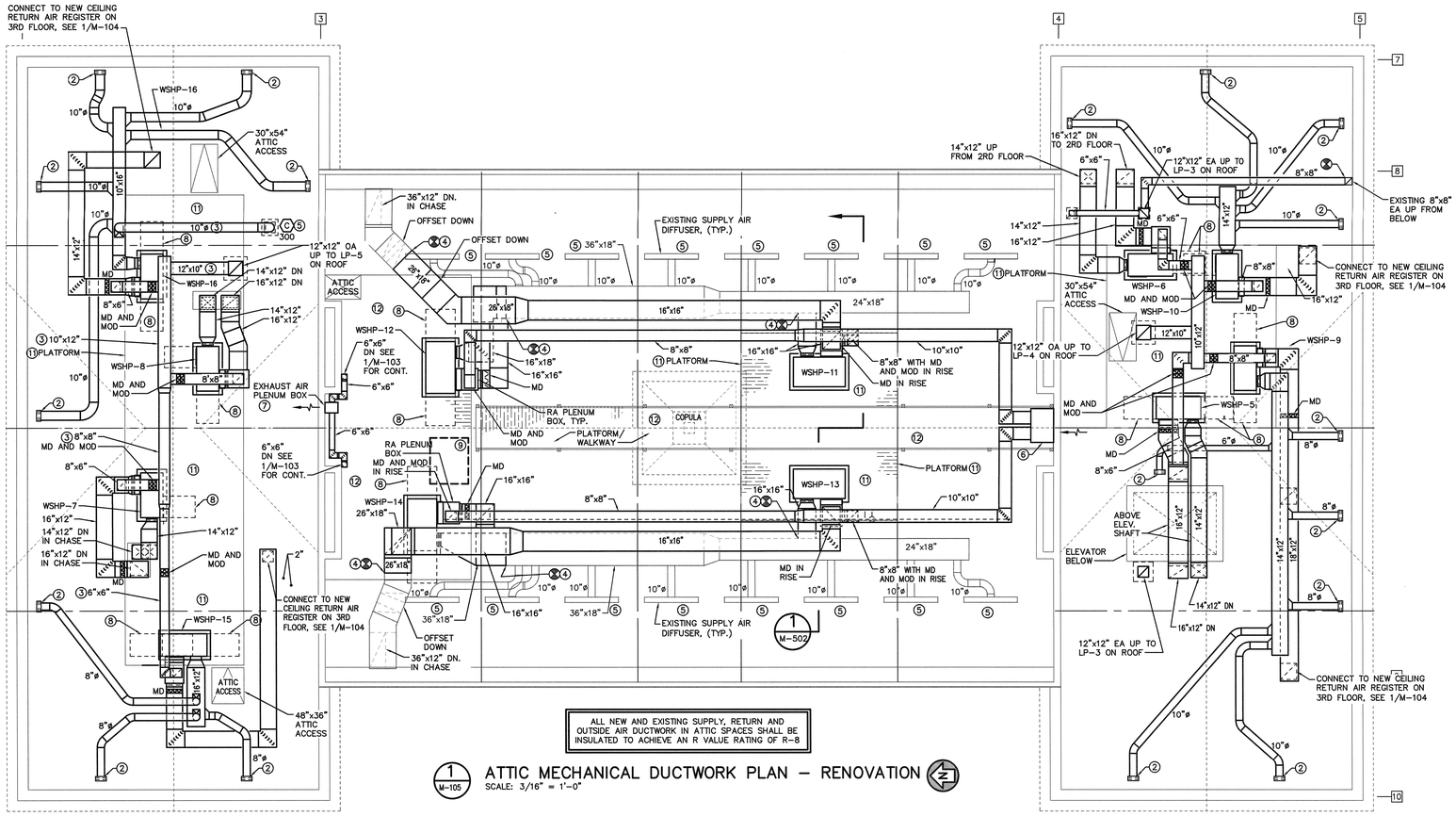
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: TWT
CHECKED BY: KL

MECHANICAL THIRD FLOOR PLAN - RENOVATION

M-104

OF 17

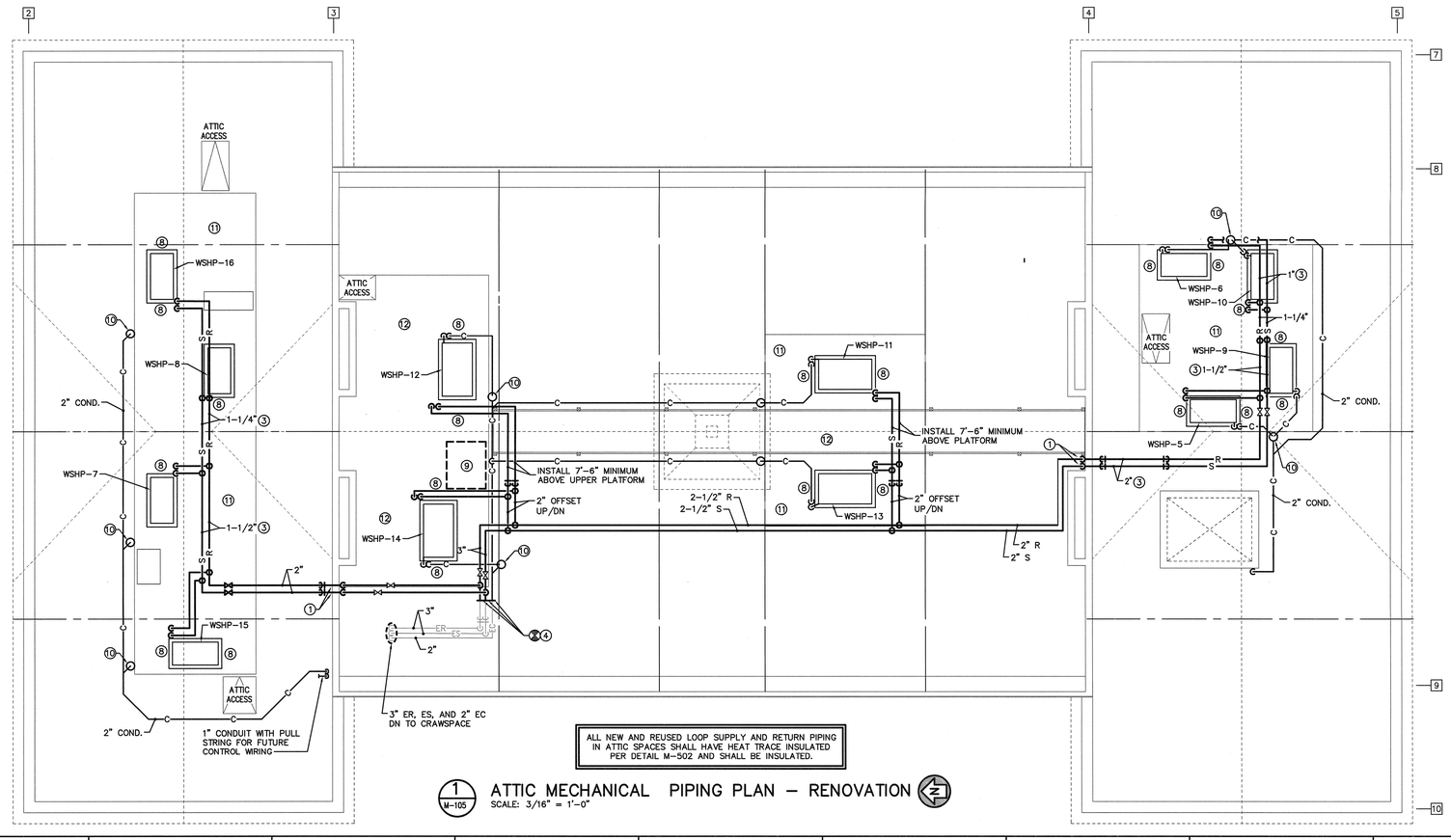
BID DOCUMENTS



ALL NEW AND EXISTING SUPPLY, RETURN AND OUTSIDE AIR DUCTWORK IN ATTIC SPACES SHALL BE INSULATED TO ACHIEVE AN R VALUE RATING OF R-8

1 M-105 ATTIC MECHANICAL DUCTWORK PLAN – RENOVATION

SCALE: 3/16" = 1'-0"



ALL NEW AND REUSED LOOP SUPPLY AND RETURN PIPING IN ATTIC SPACES SHALL HAVE HEAT TRACE INSULATED PER DETAIL M-502 AND SHALL BE INSULATED.

1 M-105 ATTIC MECHANICAL PIPING PLAN – RENOVATION

SCALE: 3/16" = 1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. CONTRACTOR TO COORDINATE PIPING BETWEEN ATTICS.
2. DOWN TO CEILING SUPPLY AIR REGISTER ON 3RD FLOOR. PROVIDE INSULATED BOOT ON BACKSIDE OF CEILING SUPPLY AIR REGISTER. COORDINATE LOCATION WITH EXISTING CONDITIONS.
3. INSTALL AS HIGH AS POSSIBLE.
4. CONNECT NEW DUCT TO EXISTING.
5. DOWN TO EXISTING CEILING SUPPLY AIR REGISTER ON 3RD FLOOR. CLEAN ALL DUCTS AND DIFFUSERS TO REMAIN. SEE M-001 FOR DETAILS.
6. OUTSIDE AIR PLENUM BOX, OPEN END COVERED WITH BIRD SCREEN.
7. EXHAUST AIR PLENUM BOX, OPEN END COVERED WITH BIRD SCREEN.
8. WSHP CLEARANCE SPACE. MINIMUM 36" FROM ACCESS PANEL. ALL PIPING CONNECTIONS SHALL NOT INTERFERE WITH ACCESS TO THE WSHP'S. VERIFY ALL CLEARANCES WITH UNIT MANUFACTURER.
9. EXISTING LADDER TO ROOF ACCESS TO REMAIN. ALL DUCTWORK, PIPING AND MECHANICAL EQUIPMENT SHALL NOT BLOCK ACCESS TO THE ROOF LADDER.
10. PROVIDE HUB DRAIN AND SPILL CONDENSATE INTO DRAIN. SEE DETAIL M-501 (SIMILAR).
11. NEW MECHANICAL PLATFORM, SEE STRUCTURAL DRAWINGS.
12. EXISTING PLATFORM TO REMAIN.

GRAPHIC SCALE

4' 2' 0 4' 8' 12'

SCALE: 3/16"=1'-0"

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JOB # 19060

PROFESSIONAL SEAL 17655 ENGINEER KENNETH L. CHEATHAM NORTH CAROLINA

No.	Description	Date

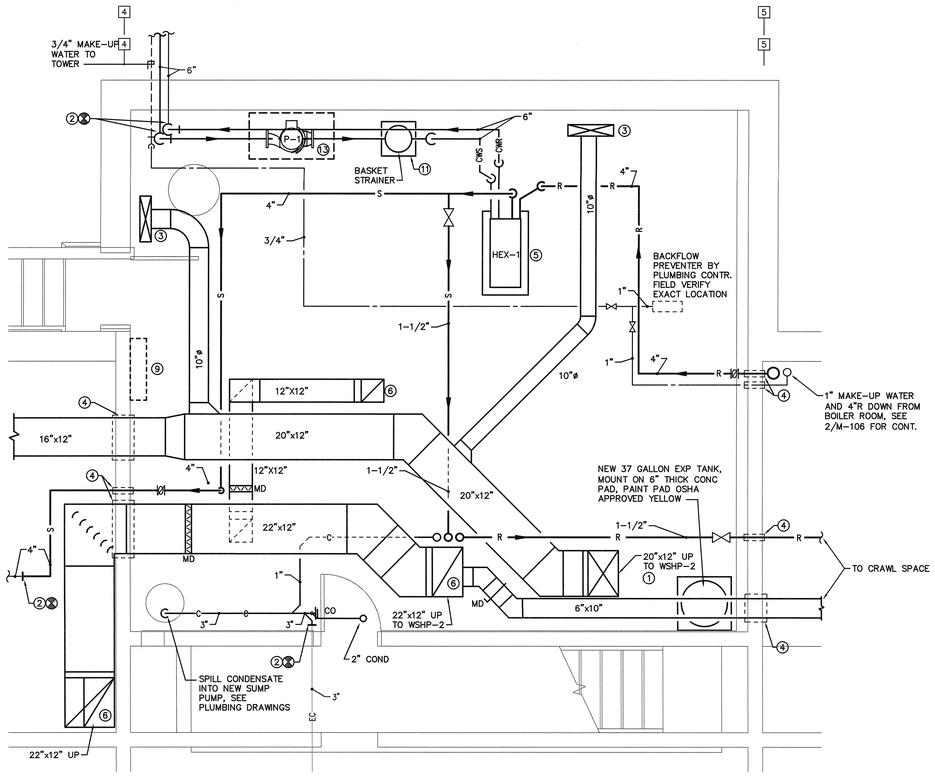
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: TWT
CHECKED BY: KL

MECHANICAL ATTIC PLAN - RENOVATION

M-105

OF 17

BID DOCUMENTS

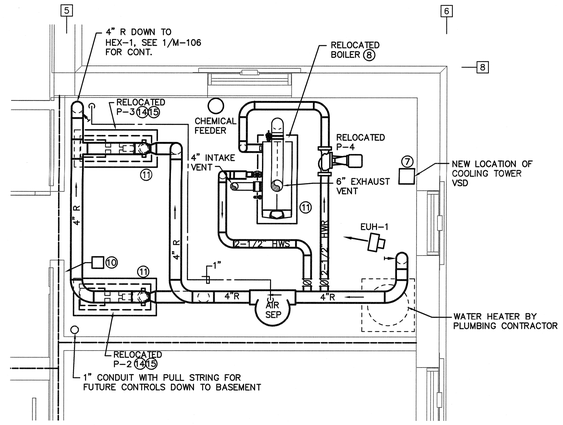


1 M-106 ENLARGED BASEMENT PLAN – RENOVATION

SCALE: 3/8" = 1'-0"

KEEP ALL DUCTWORK AND NEW PIPING AS HIGH AS POSSIBLE FOR MAXIMUM CLEARANCE IN BASEMENT AND CRAWL SPACE

RELOCATED/REUSED EQUIPMENT SHALL HAVE NEW DISCONNECTS AND STARTERS

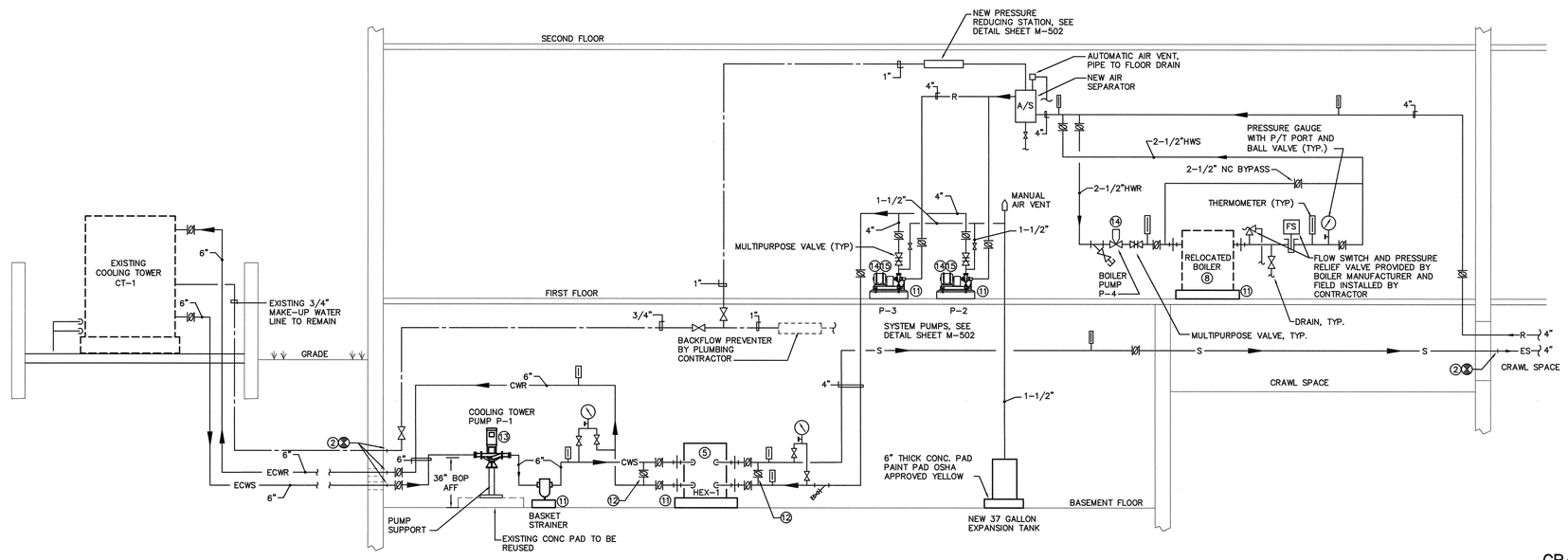


2 M-106 MECHANICAL FIRST FLOOR PLAN – RENOVATION

SCALE: 3/8" = 1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. DUCT DOWN FROM WSHP ABOVE. FIELD VERIFY EXACT LOCATION.
2. CONNECT NEW PIPING TO EXISTING. PROVIDE TRANSITION IN PIPE SIZE AS NECESSARY,
3. UP TO FLOOR GRILLE ON 1ST FLOOR. PROVIDE BOOT ON BACKSIDE OF FLOOR GRILLE.
4. GENERAL CONTRACTOR TO CUT OPENINGS IN EXISTING WALL AND PROVIDE LINTEL SUPPORT AS NECESSARY FOR LARGE OPENINGS AND PROVIDE PIPE SLEEVES FOR PIPES.
5. NEW LOCATION OF EXISTING HEAT EXCHANGER. PROVIDE 4" THICK CONCRETE PAD, PAINT PAD OSHA APPROVED YELLOW, SEE SCHEMATIC FOR ALL VALVING A/M-106.
6. DUCT UP THROUGH FLOOR INTO NEW CHASE ABOVE. CHASE BY GENERAL CONTRACTOR. FIELD VERIFY EXACT LOCATION.
7. RELOCATED VSD FOR COOLING TOWER FAN.
8. SEISMICALLY RESTRAIN BOILER AS SPECIFIED.
9. RELOCATED TOWER CHEMICAL FEED STATION. MOUNT CONTROLS AND PUMPS 6'-0" ABOVE FINISHED FLOOR. RECONNECT TO COOLING TOWER LOOP.
10. PROVIDE BOILER EMERGENCY STOP BUTTON AND CONNECT TO RELOCATED BOILER.
11. 4" THICK CONCRETE PAD BY HVAC CONTRACTOR, PAINT PAD OSHA APPROVED YELLOW. SEE M-502 FOR PUMP DETAIL.
12. 2-1/2" FLUSHING NC BYPASS.
13. NEW COOLING TOWER PUMP P-1, PROVIDE PUMP SUPPORT TO LIFT PUMP INLET TO BE 36" AFF. MOUNT PUMP ON EXISTING CONCRETE PAD. SEE M-502 FOR PUMP DETAIL.
14. REUSE EXISTING PUMP.
15. LASER ALIGN PUMP AFTER RELOCATED PER SPECIFICATIONS.
16. PROVIDE DRAIN WITH NEUTRALIZATION KIT OFF OF BOILER.



A M-106 WSHP PIPING SCHEMATIC – RENOVATION

SCALE: NONE

GRAPHIC SCALE

2' 0 2' 4' 6'

SCALE: 3/8"=1'-0"

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17658 ENGINEER KENNETH LYNCH

No.	Description	Date

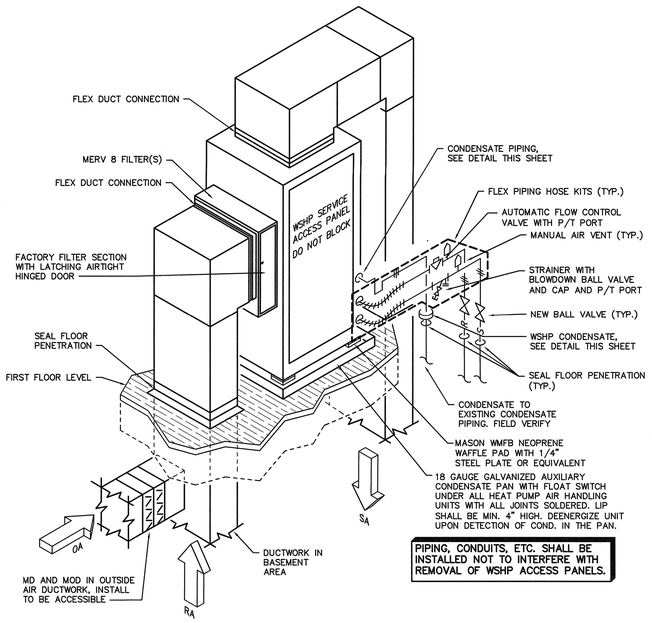
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: TWT
CHECKED BY: KL

ENLARGED MECHANICAL PLANS - RENOVATION

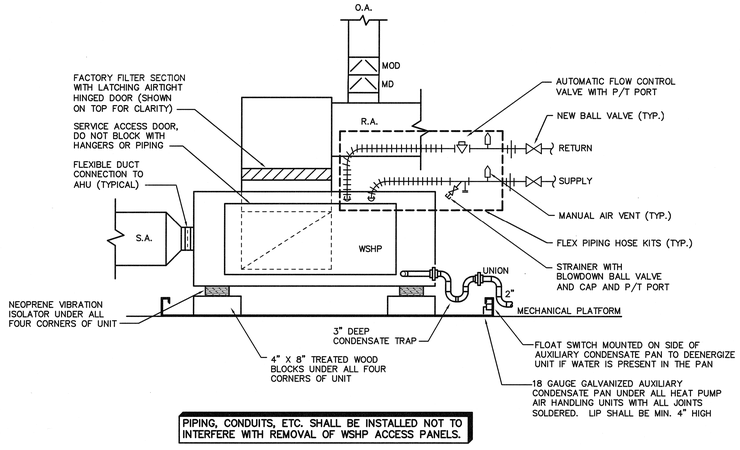
M-106

OF 17

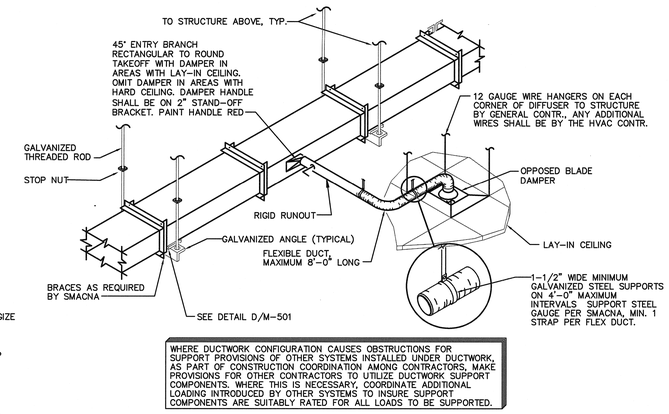
BID DOCUMENTS



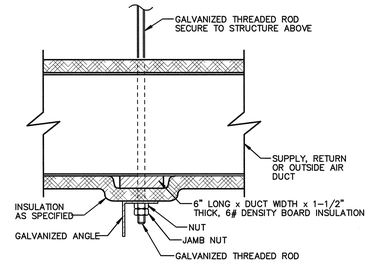
A M-501 VERTICAL WATER SOURCE HEAT PUMP UNIT DETAIL
SCALE: NONE



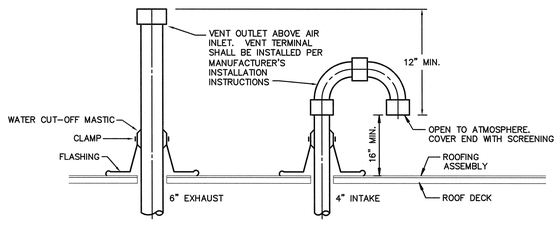
B M-501 HORIZONTAL WATER SOURCE HEAT PUMP UNIT DETAIL
SCALE: NONE



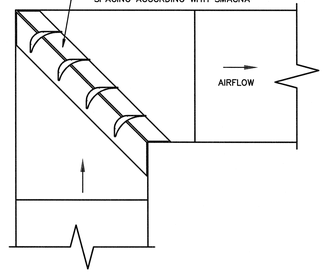
C M-501 TYPICAL SUPPLY DUCT DETAIL
SCALE: NONE



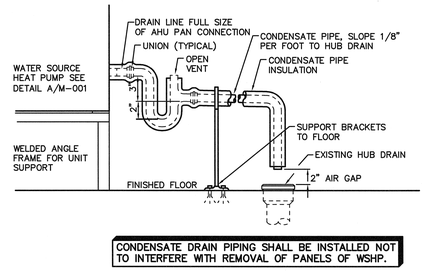
D M-501 TYPICAL DUCT HANGER DETAIL
SCALE: NONE



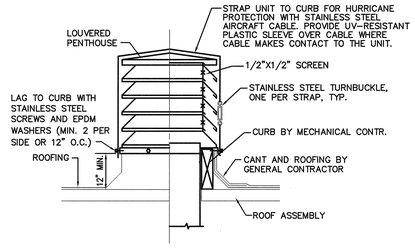
E M-501 BOILER VENTS THRU ROOF DETAIL
SCALE: NONE



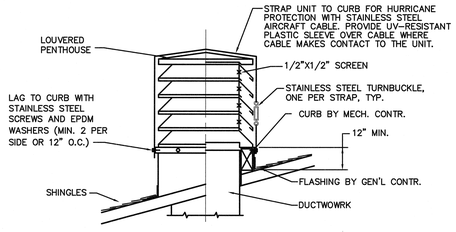
F M-501 TYPICAL DUCT ELBOW WITH TURNING VANES DETAIL
SCALE: NONE



G M-501 WATER SOURCE HEAT PUMP SUPPORT AND CONDENSATE PIPING DETAIL
SCALE: NONE



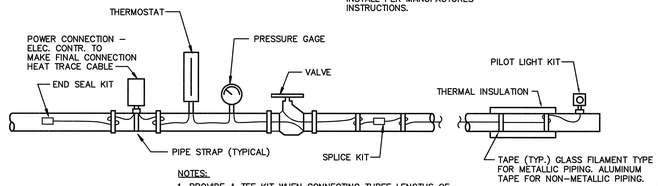
H M-501 LOUVERED PENTHOUSE DETAIL
SCALE: NONE



K M-501 LOUVERED PENTHOUSE DETAIL
SCALE: NONE

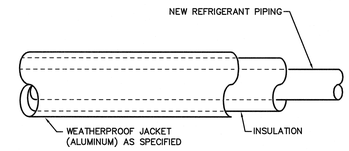
HEAT TRACE CABLE SIZING CHART	
PIPE SIZE	MIN. WATTS PER FOOT
3/4" – 4"	5
5" – 10"	8

HEAT TRACE CABLE: 120V SELF-REGULATING TYPE WITH POWER CONNECTION KIT AND THERMOSTAT SET AT 40°F (# INDICATED WATTS/FOOT FROM CABLE SIZING CHART). HVAC CONTR. TO PROVIDE AND INSTALL HEAT TRACE CABLE AND ALL ACCESSORIES. INSTALL PER MANUFACTURES INSTRUCTIONS.



NOTES:
1. PROVIDE A TEE KIT WHEN CONNECTING THREE LENGTHS OF HEAT TRACE CABLE TOGETHER.
2. INSTALL HEAT TRACE CABLE ON ALL DEVICES PER UNIT MFGR. RECOMENDATIONS. THIS INCLUDES BUT IS NOT LIMITED TO PUMP, TEES, ELBOWS, AND SUPPORTS EXPOSED ON EXTERIOR.
3. INSTALL HEAT TRACE CABLE ON PIPING.

L M-501 HEAT TRACE DETAIL
SCALE: NONE



M M-501 EXTERIOR REFRIGERANT PIPING
NO SCALE

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17656 ENGINEER KENNETH L. TWT

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: TWT
CHECKED BY: KL

MECHANICAL DETAILS

M-501

OF 17

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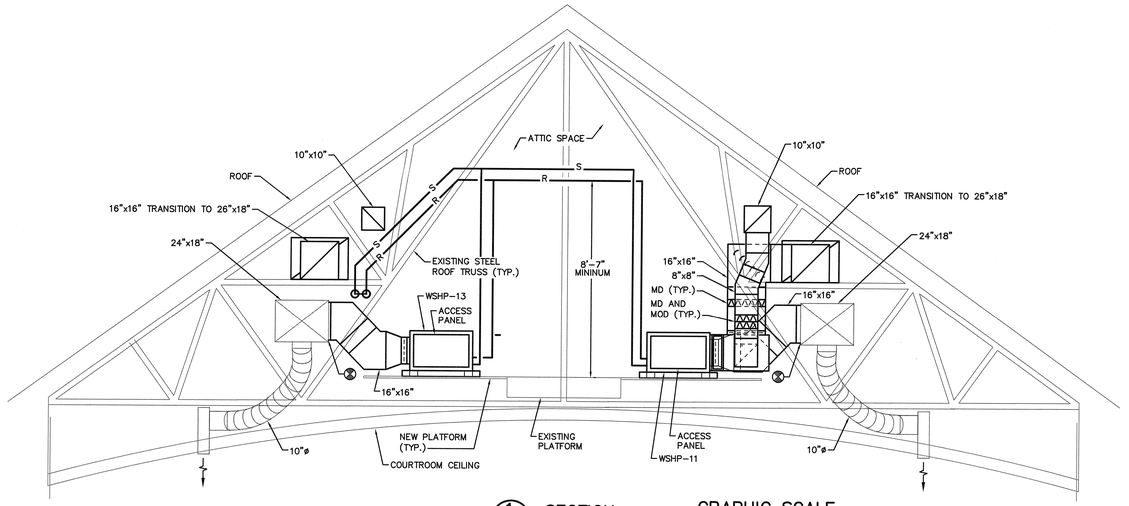
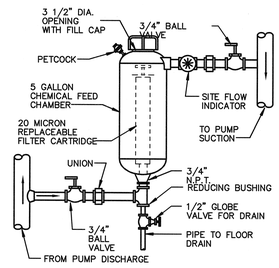
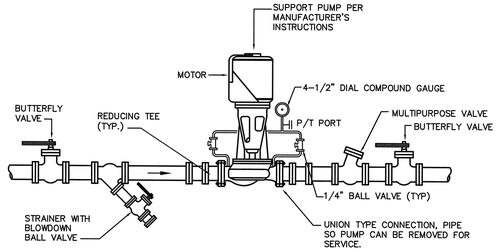


1 / M-502 SECTION
SCALE: 3/8" = 1'-0"

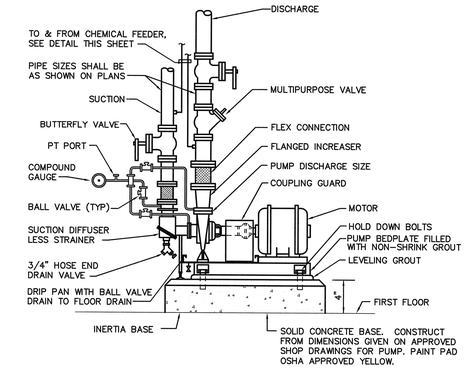
GRAPHIC SCALE
2' 0 2'
SCALE: 3/8"=1'-0"



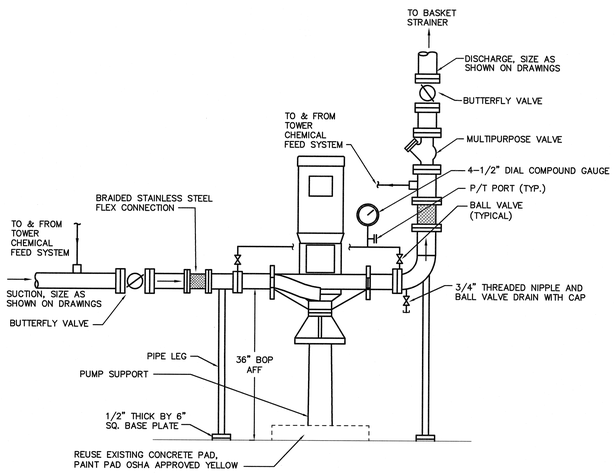
A / M-502 BY-PASS CHEMICAL FEEDER DETAIL
SCALE: NONE



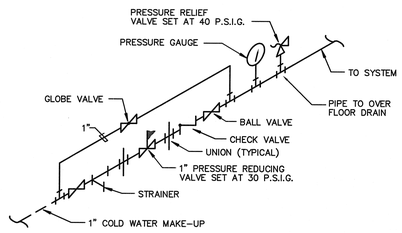
B / M-502 INLINE PUMP DETAIL (P-4)
NO SCALE



C / M-502 BASE MOUNTED PUMP DETAIL (P-2 & P-3)
NO SCALE



D / M-502 SPLIT COUPLED VERTICAL INLINE PUMP DETAIL (P-1)
NO SCALE



E / M-502 PRESSURE REDUCING STATION DETAIL
SCALE: NONE

PENDER COUNTY COURTHOUSE

PENDER COUNTY

PENDER COUNTY NC

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17655 ENGINEER KENNETH W. LYNCH

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: TWT
CHECKED BY: KL

MECHANICAL DETAILS

M-502
OF 17

BID DOCUMENTS

COOLING TOWER

SYMBOL	WATER GPM	MAX. SPRAY PRESS AT INLET HEADER & HEIGHT	WATER TEMP		OUTSIDE WET BULB °F	ELECTRICAL				EXISTING TOWER	REMARKS
			IN °F	OUT °F		MOTOR HP	VOLTAGE & PHASE	SUMP HTR. KW	VOLTAGE & PHASE		
CT-1	200 ②	5.51 PSIG	95.0	85.0	80.0	15 ①	208V-3ø	14.4	208V-3ø	BAC MODEL VTO-107L	INSTALLED MARCH 2011

① WITH EXISTING VARIABLE SPEED DRIVE LOCATED INSIDE BUILDING.

① TAB TO NEW PERFORMANCE CONDITIONS.

PLATE AND FRAME HEAT EXCHANGER

SYMBOL	SYSTEM WATER				TOWER WATER				BASIS OF DESIGN	AREA	REMARKS
	GPM	MAX. PD.	EWT °F	LWT °F	GPM	MAX. PD.	EWT °F	LWT °F			
HEX-1	170	25.0 FT	100.0	90.0	200	25.0 FT	85.0	95.0	N/A	N/A	EXISTING B&G AP20 BY5444 (95 PLATES) (2018) ①

① TAB TO NEW PERFORMANCE CONDITIONS.

PUMP SCHEDULE

SYMBOL	GPM	HEAD IN FEET	RPM	MINIMUM % EFFICIENCY	ELECTRICAL		TYPE	MIN. SIZE		REMARKS
					HP	VOLTAGE		SUCTION	DISCHARGE	
P-1	200	60	1760	77	7.5	208V-3ø	SPLIT COUPLE VERTICAL INLINE	3"	3"	COOLING TOWER PUMP ②
P-2	170 ①	80	1760	–	7.5	208V-3ø	BASE MOUNTED CENTRIFUGAL	2-1/2"	2"	EXISTING SYSTEM PUMP – B&G e1510
P-3	170 ①	80	1760	–	7.5	208V-3ø	BASE MONTED CENTRIFUGAL	2-1/2"	2"	EXISTING SYSTEM PUMP – B&G e1510
P-4	45 ①	25	1760	–	3/4	208V-1ø	VERTICAL INLINE	2"	2"	EXISTING BOILER PUMP – B&G 90-34

① TAB TO NEW PERFORMANCE CONDITIONS.
② WITH TEFC MOTOR AND MAX NPSHR OF 5'-0".

DUCTLESS SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE

AIR HANDLING UNIT SECTION						OUTDOOR HEAT PUMP SECTION							REMARKS
SYMBOL	AIR QUANTITY		EXT. S.P. "H20 ①	ELECTRICAL		SYMBOL	ELECTRICAL			COOLING CAPACITY BTUH ②	HEATING CAPACITY BTUH ③	MIN. SEER	
	TOTAL CFM	OUTSIDE CFM		FAN FLA	VOLTAGE & PHASE		MCA	MOCP	VOLTAGE & PHASE				
DAHU-1	UNK	UNK	UNK	UNK	UNK	DHP-1	UNK	UNK	UNK	UNK	UNK	UNK	EXISTING TO REMAIN – ELEVATOR EQUIPMENT ROOM
DAHU-2	650	–	–	1.0	208V-1ø	DHP-2	19	26	208V-1ø	10,000-24,000	15,700	21.4	MOUNT 8'-0" AFF – IT ROOM

① EXT. S.P. INCLUDES SUPPLY & RETURN AIR DUCTWORK. FILTERS IN UNIT ARE NOT INCLUDED IN THIS FIGURE.

② CAPACITY WHEN MATCHED WITH INDOOR HEATING PUMP SECTION AT AHRI CONDITIONS.

③ CAPACITY AT 17°F OUTSIDE AIR TEMPERATURE.

UNIT HEATER SCHEDULE

SYMBOL	CFM	BTU/HR	ELECTRICAL		MOUNTING HEIGHT	REMARKS
			KW	VOLTAGE		
EUH-1	400	11,200	3.3	208V-3ø	8'-0"	BOILER ROOM ①②

① BASED ON 60°F EAT AND 105°F LAT.

② UNIT HEATER WITH UNIT MOUNTED THERMOSTAT AND FUSED DISCONNECT.

REGISTER, GRILLE & DIFFUSER SCHEDULE

SYMBOL	C.F.M.	NECK SIZE	TYPE	RUNOUT SIZE	REMARKS
(A)	50-100	6"X6"	2'X2' LAY-IN CEILING SA DIFFUSER	6"ø	
(B)	125-225	9"X9"	2'X2' LAY-IN CEILING SA DIFFUSER	8"ø	
(C)	250-400	12"X12"	2'X2' LAY-IN CEILING SA DIFFUSER	10"ø	
(D)	50-100	12"X6"	CEILING SA REGISTER	6"ø	
(E)	125-225	14"X6"	CEILING SA REGISTER	8"ø	
(F)	250-400	16"X8"	CEILING SA REGISTER	10"ø	
(G)	50-150	10"X6"	SIDEWALL SA REGISTER	8"ø	
(H)	175-225	12"X6"	SIDEWALL SA REGISTER	8"ø	
(J)	250-400	16"X8"	SIDEWALL SA REGISTER	10"ø	
(K)	50-200	6"X18"	LINEAR FLOOR REGISTER	8"ø	
(L)	225-400	6"X30"	LINEAR FLOOR REGISTER	10"ø	
(M)	250-300	12"X12"	SIDEWALL SECURITY REGISTER	10"ø	
(N)	250-300	12"X12"	CEILING SECURITY REGISTER	10"ø	
(O)	0-300	10"X14"	SIDEWALL RA GRILLE	–	
(P)	200-550	12"X18"	SIDEWALL RA GRILLE	–	
(Q)	575-850	18"X24"	SIDEWALL RA GRILLE	–	
(R)	300-700	24"X12"	SIDEWALL RA GRILLE	–	
(S)	550-1600	20"X30"	SIDEWALL RA GRILLE	–	
(T)	250-1500	22"X22"	2'X2' LAY-IN RA GRILLE	–	
(U)	500-900	18"X18"	CEILING RA REGISTER	–	

PIPE INSULATION THICKNESS SCHEDULE

PIPE SIZE	INSULATION THICKNESS		REMARKS
	HOT WATER	LOOP SUPPLY & RETURN ①	
3/4"	1"	1-1/2"	
1"	1-1/2"	1-1/2"	
1-1/4"	1-1/2"	1-1/2"	
1-1/2"	1-1/2"	1-1/2"	
2"	2"	1-1/2"	
2-1/2"	2"	1-1/2"	
3"	2"	1-1/2"	
4"	2"	1-1/2"	
5"	2"	1-1/2"	
6"	2"	1-1/2"	

① IN ATTIC SPACES.

WATER SOURCE HEAT PUMP SCHEDULE

SYMBOL	AIR QUANTITY		EXT. S.P. "H20 ③	CAPACITY		EER FULL LOAD ④	COP ⑤	GPM	MAX. P.D. FT.	RUNOUT SIZES	ELECTRICAL			BASIS OF DESIGN	UNIT	REMARKS
	TOTAL CFM	OUTSIDE CFM		COOLING MBTUH ①	HEATING MBTUH ②						MCA	MOCP	VOLTAGE			
WSHP-1	1500	200	0.55	46.0	60.0	15.0	5.0	11.0	8.0	1-1/4"	21.5	30	208V-3ø	TRANE EXV048	VERTICAL	WITH FACTORY HGRH COIL
WSHP-2	1500	200	0.55	46.0	60.0	15.0	5.0	11.0	8.0	1-1/4"	21.5	30	208V-3ø	TRANE EXV048	VERTICAL	WITH FACTORY HGRH COIL
WSHP-3	1500	200	0.55	46.0	60.0	15.0	5.0	11.0	8.0	1-1/4"	21.5	30	208V-3ø	TRANE EXV048	VERTICAL	WITH FACTORY HGRH COIL
WSHP-4	1500	200	0.55	46.0	60.0	15.0	5.0	11.0	8.0	1-1/4"	21.5	30	208V-3ø	TRANE EXV048	VERTICAL	WITH FACTORY HGRH COIL
WSHP-5	1100	150	0.55	34.0	45.0	15.0	5.0	8.0	5.5	1-1/4"	15.3	20	208V-3ø	TRANE EXH036	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-6	950	125	0.50	29.5	37.0	15.0	5.0	7.0	9.2	1"	20.9	30	208V-1ø	TRANE EXH030	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-7	1100	150	0.50	34.0	45.0	15.0	5.0	8.0	5.5	1-1/4"	15.3	20	208V-3ø	TRANE EXH036	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-8	1100	200	0.45	34.0	45.0	15.0	5.0	8.0	5.5	1-1/4"	15.3	20	208V-3ø	TRANE EXH036	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-9	950	125	0.45	29.5	37.0	15.0	5.0	7.0	9.2	1"	20.9	30	208V-1ø	TRANE EXH030	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-10	1100	150	0.50	34.0	45.0	15.0	5.0	8.0	5.5	1-1/4"	15.3	20	208V-3ø	TRANE EXH036	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-11	1700	150-325 ⑥	0.50	58.0	76.0	13.0	4.3	14.0	7.5	1-1/4"	28.0	40.0	208V-3ø	TRANE EXH060	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-12	1700	150-325 ⑥	0.50	58.0	76.0	13.0	4.3	14.0	7.5	1-1/4"	28.0	40.0	208V-3ø	TRANE EXH060	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-13	1700	150-325 ⑥	0.50	58.0	76.0	13.0	4.3	14.0	7.5	1-1/4"	28.0	40.0	208V-3ø	TRANE EXH060	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-14	1700	150-325 ⑥	0.50	58.0	76.0	13.0	4.3	14.0	7.5	1-1/4"	28.0	40.0	208V-3ø	TRANE EXH060	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-15	950	125	0.45	29.5	37.0	15.0	5.0	7.0	9.2	1"	20.9	30	208V-1ø	TRANE EXH030	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-16	950	150	0.45	29.5	37.0	15.0	5.0	7.0	9.2	1"	20.9	30	208V-1ø	TRANE EXH030	HORIZONTAL	WITH FACTORY HGRH COIL
WSHP-17	900	900	0.50	26.7	33.9	UNK	UNK	6.0	5.8	1-1/4"	19.8	30	208V-3ø	EXISTING	ROOF MOUNTED	EXISTING WITH ENERGY RECOVERY

① TOTAL COOLING CAPACITY BASED ON 90°F EWT/100°F LWT, 78°F EADB/ 65°F EAWB.

② TOTAL HEATING CAPACITY BASED ON 70°F EWT, 68°F EADB.

③ EXT. S.P. INCLUDES SUPPLY & RETURN AIR DUCTWORK & GRILLES. FILTERS IN UNIT ARE NOT INCLUDED IN THIS FIGURE.

④ MIN EER SHALL BE 12.0 PER AHRI/ASHRAE 13256-1.

⑤ MIN COP SHALL BE 4.2 PER AHRI/ASHRAE 13256-1.

⑥ MIN. OUTSIDE AIR CFM INDICATED IS FOR OCCUPIED MODE. WHEN CO2 SENSOR FOR DCV SENSES GREATER OCCUPANCY OF SPACE, OUTSIDE AIR CFM SHALL INCREASE TO MAX INDICATED.

BOILER SCHEDULE

SYMBOL	OUTPUT MBH	MINIMUM THERMAL EFFICIENCY	GAS FIRING RATE①		WATER TEMP		FLOW RATE GPM	BOILER WATER PRESSURE	TRIM	BURNER		BOILER	REMARKS
			CFH	PRESS.	EWT	LWT				HP	VOLTAGE		
BOILER#1	653	93%	700.0	11" W.C.	60°F	90°F	45	50 PSIG	WATER	②	120V-1ø	EXISTING LOCHINVAR KBN701	

① NATURAL GAS.

② 2.7 AMPS/15 AMP CIRCUIT.

POWER VENTILATOR SCHEDULE

SYMBOL	CFM	ESP	RPM	TIP SPEED	ELECTRICAL		TYPE	DRIVE	CONTROL	ROOF OPENING	LOCATION	REMARKS
					①	VOLTAGE						
F-1	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	②	–	STAFF TOILET 108	WITH BACKDRAFT DAMPER – SIDEWALL INSTALL CONF.
F-2	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	②	–	STAFF TOILET 109	WITH BACKDRAFT DAMPER – SIDEWALL INSTALL CONF.
F-3	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	SWITCH ON WALL	–	CELL A, 2ND FLOOR	WITH BACKDRAFT DAMPER ③
F-4	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	SWITCH ON WALL	–	CELL B, 2ND FLOOR	WITH BACKDRAFT DAMPER ③
F-5	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	②	–	ADA TOILET 221	WITH BACKDRAFT DAMPER
F-6	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	②	–	ADA TOILET 225	WITH BACKDRAFT DAMPER
F-7	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	②	–	REST ROOM 238	WITH BACKDRAFT DAMPER
F-8	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	②	–	WOMEN'S TOILET 303A	WITH BACKDRAFT DAMPER
F-9	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	②	–	MEN'S TOILET 303B	WITH BACKDRAFT DAMPER
F-10	75	0.5	800	1650	80	115V-1ø	CEILING EXHAUST	DIRECT	②	–	ADA TOILET 311	WITH BACKDRAFT DAMPER

① WATTS.

② VIA LIGHTING CONTROL SYSTEM'S OCCUPANCY SENSOR

③ CEILING EXHAUST FAN TO BE MOUNTED DIRECTLY ABOVE A SECURITY REGISTER IN THE CEILING OF THE CELL ROOM.

LOUVERED PENTHOUSE SCHEDULE

SYMBOL	CFM	THROAT SIZE	MAXIMUM AIR PRESS. DROP "H20	TYPE	SERVING UNITS
LP-1	200	12"X12"	0.10	OUTSIDE AIR INTAKE	WSHP-1
LP-2	225	12"X12"	0.10	EXHAUST AIR RELIEF	F-3, F-4 AND F-10
LP-3	225	12"X12"	0.10	EXHAUST AIR RELIEF	F-5, F-6 AND F-7
LP-4	550	12"X12"	0.10	OUTSIDE AIR INTAKE	WSHP-5, 6, 9 AND 10
LP-5	625	12"X12"	0.10	OUTSIDE AIR INTAKE	WSHP-7, 8, 15 AND 16

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17655 ENGINEER KENNETH H. LYNCH

No.	Description	Date

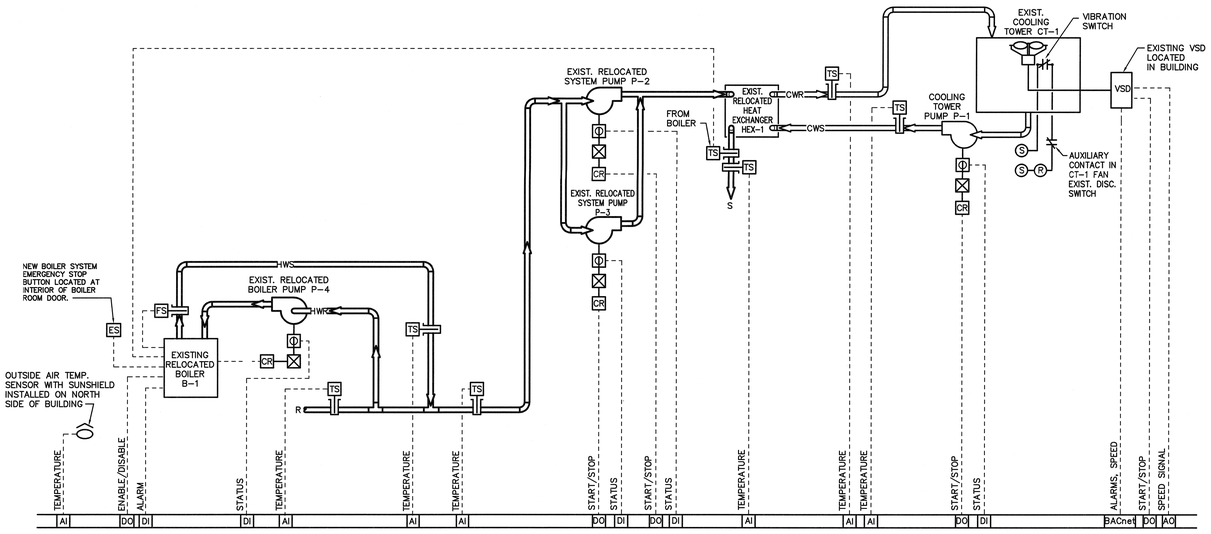
PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: DB
CHECKED BY: KL

MECHANICAL SCHEDULES

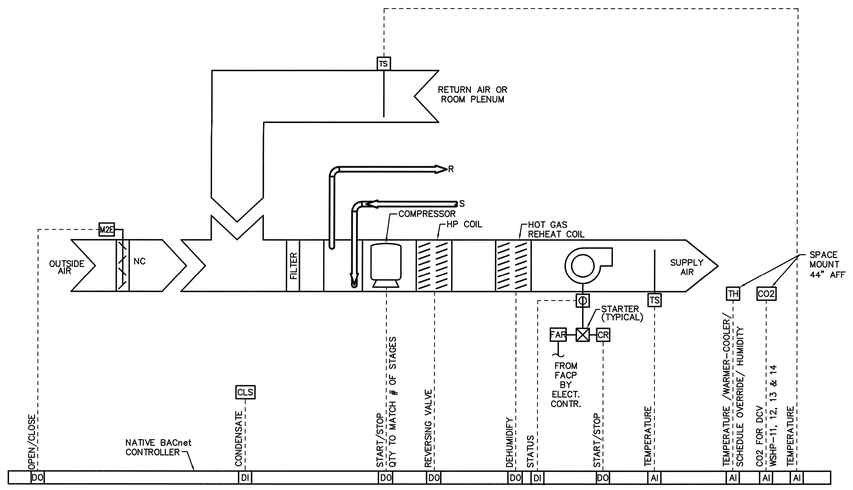
M-601

OF 17

BID DOCUMENTS



WATER SOURCE HEAT PUMP LOOP



WATER SOURCE HEAT PUMP

SEQUENCE OF OPERATION

HEAT PUMP WATER LOOP SYSTEM

A. BASED ON TIME OF DAY SCHEDULE OR CALL FOR HEATING OR COOLING BY A WATER SOURCE HEAT PUMP, ENERGY MANAGEMENT SYSTEM SHALL START LEAD SYSTEM PUMP. IF PROOF OF FLOW IS NOT DETERMINED, ALARM SHALL BE GENERATED AND LAG SYSTEM PUMP SHALL BE STARTED. ENERGY MANAGEMENT SYSTEM SHALL MONITOR AND DISPLAY PUMP COMMAND AND STATUS. THE BAS SHALL GENERATE AN ALARM IF THE PUMP FAILS TO START. LEAD PUMP SHALL ROTATE ON WEEKLY BASIS.

B. IF HEAT PUMP WATER LOOP TEMPERATURE IS BELOW SETPOINT, HOT WATER HEATING SYSTEM SHALL BE ENABLED AND OPERATE AS SPECIFIED HEREINAFTER.

C. COOLING TOWER AND CONDENSER WATER PUMP SHALL BE ENABLED IF HEAT PUMP WATER LOOP SUPPLY TEMPERATURE RISES ABOVE 87°F (ADJUSTABLE). IF PROOF OF FLOW IS NOT DETERMINED, ALARM SHALL BE GENERATED. ENERGY MANAGEMENT SYSTEM SHALL MONITOR AND DISPLAY PUMP COMMAND AND STATUS. ONCE WATER FLOW IS PROVEN, COOLING TOWER FAN VFD SHALL BE ENERGIZED AND VARY FAN SPEED TO MAINTAIN TOWER CONDENSER WATER SUPPLY SETPOINT OF 85°F (ADJUSTABLE). COOLING TOWER SHALL SHUT DOWN AND AN ALARM GENERATED TO THE BAS UPON RECEIVING A STATUS SIGNAL FROM THE TOWER'S VIBRATION SWITCH, AUXILIARY CONTACT IN TOWER'S FAN DISCONNECT SWITCH, OR VFD'S. TOWER MAKEUP WATER TO BASIN SHALL BE THROUGH EXISTING VALVE. COOLING TOWER BASIN ELECTRIC HEATERS SHALL OPERATE IN STAGES TO PREVENT FREEZING WITHOUT INPUT FROM THE ENERGY MANAGEMENT SYSTEM. ENERGY MANAGEMENT SYSTEM SHALL MONITOR AND DISPLAY COOLING TOWER FAN COMMAND AND STATUS.

D. THE ENERGY MANAGEMENT SYSTEM SHALL GENERATE AN ALARM IF THE HEAT PUMP WATER LOOP OR COOLING TOWER WATER LOOP SUPPLY TEMPERATURES ARE OUTSIDE THE OPERATING LIMITS.

E. IN ADDITION TO THE SEQUENCE NOTED ABOVE, THE BAS SHALL MONITOR THE FOLLOWING DIGITAL AND ANALOG INPUT POINTS:
   1. COOLING TOWER FAULTS
   2. COOLING TOWER STATUS
   3. HEAT PUMP LOOP WATER SUPPLY AND RETURN TEMPERATURES
   4. PUMP COMMAND AND STATUS

F. THE ENERGY MANAGEMENT SYSTEM SHALL GENERATE AN ALARM UPON:
   1. COOLING TOWER FAULTS
   2. VARIABLE FREQUENCY DRIVE FAULTS
   3. ABNORMAL PUMP STATUS
   4. ABNORMAL SYSTEM TEMPERATURES

HOT WATER HEATING SYSTEM WITH CONDENSING BOILERS

A. HOT WATER HEATING SYSTEM SHALL BE ENABLED IF HEAT PUMP WATER LOOP SUPPLY TEMPERATURE DROPS BELOW 70°F (ADJUSTABLE).

B. HOT WATER HEATING SYSTEM SHALL BE DISABLED IF HEAT PUMP WATER LOOP SUPPLY TEMPERATURE RISES ABOVE 75°F (ADJUSTABLE).

C. BOILER AND BOILER PUMP START SEQUENCE AND BOILER DISCHARGE TEMPERATURE SHALL BE CONTROLLED BY THE BOILER'S INTERNAL CONTROLS TO MAINTAIN HEAT PUMP LOOP SUPPLY TEMPERATURE SETPOINT OF 70°F (ADJUSTABLE). AN ALARM SIGNAL SHALL BE SENT TO THE ENERGY MANAGEMENT SYSTEM IF THE SUPPLY WATER TEMPERATURE DROPS BELOW 65°F (ADJUSTABLE). BOILER PUMP SHALL RUN WHEN THE RESPECTIVE BOILER IS COMMANDED TO RUN.

D. AT EXIT DOOR FROM BOILER ROOM IS AN EXISTING SHUT OFF SWITCH TO BE HARD WIRED TO EACH BOILER TO SHUT DOWN ALL BOILERS UPON ACTIVATION. SWITCH SHALL BE LABELED 'BOILER EMERGENCY SHUT-SOWN'.

E. IN ADDITION TO THE SEQUENCE NOTED ABOVE THE ENERGY MANAGEMENT SYSTEM SHALL MONITOR THE FOLLOWING DIGITAL AND ANALOG INPUT POINTS:
   1. HOT WATER SYSTEM FAULT AND ALARM AT EACH BOILER.
   2. HOT WATER SUPPLY AND RETURN TEMPERATURES IN THE HOT WATER CIRCUIT.
   3. BOILER ALARM.
   4. OUTDOOR AIR TEMPERATURE AND HUMIDITY.

SEQUENCE OF OPERATION

WATER SOURCE HEAT PUMP

A. OCCUPIED MODE:
   1. UNIT SUPPLY FAN SHALL BE STARTED AND STOPPED BY THE ENERGY MANAGEMENT SYSTEM UNDER A TIME OF DAY SCHEDULE. THIS SCHEDULE SHALL BE MODIFIED BY A START STOP OPTIMIZATION PROGRAM (SSTO).
   2. UPON PROOF OF AIR FLOW THRU THE SUPPLY FAN, AS SENSED BY A RESPECTIVE CURRENT SENSING RELAY, THE NORMALLY CLOSED OUTSIDE AIR DAMPER SHALL BE OPEN.
   3. WHEN THE SPACE TEMPERATURE RISES ABOVE THE COOLING SET-POINT OF 75°F (ADJUSTABLE), THE COMPRESSOR(S) (IN STAGES FOR UNITS 6 TONS CAPACITY AND GREATER) SHALL BE ENERGIZED IN COOLING TO MAINTAIN THE SPECIFIED SPACE TEMPERATURE SET-POINT.
   4. WHEN THE SPACE TEMPERATURE FALLS BELOW THE HEATING SET-POINT OF 68°F (ADJUSTABLE), THE COMPRESSOR(S) SHALL BE ENERGIZED IN HEATING TO MAINTAIN THE SPECIFIED SPACE TEMPERATURE SET-POINT.
   5. HUMIDITY CONTROL: UPON A RISE IN SPACE HUMIDITY LEVEL ABOVE 65% RH (ADJUSTABLE), THE UNIT SHALL OPERATE IN DEHUMIDIFICATION MODE.
   6. UNIT ALARMS TO BAS SHALL BE THROUGH BACnet INTERFACE.
   7. FOR WSHP-11, 12, 13 AND 14 SERVING THE COURTROOM AREA, PROVIDE DEMAND CONTROL VENTILATION SEQUENCE. DURING THE OCCUPIED PERIOD AND UPON SIGNAL FROM SPACE CO2 SENSOR RELATIVE TO ITS SETPOINT, THE OUTSIDE AIR DAMPERS SHALL REPOSITION TO MAINTAIN A GREATER VENTILATION RATE OF OUTSIDE AIR TO THE SPACE. DCV VENTILATION RATE IS INDICATED IN WSHP SCHEDULE ON DRAWING M-601.

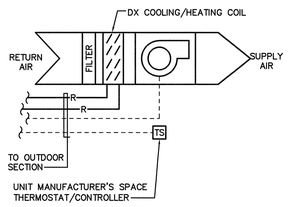
B. UNOCCUPIED MODE:
   1. UNIT SHALL BE DISABLED UNLESS THE TEMPERATURE DROPS BELOW THE NIGHTTIME LOW LIMIT SETPOINT IN THE WINTER OR RISES ABOVE THE HIGH LIMIT IN THE SUMMER, AT WHICH POINT THE UNIT SHALL OPERATE IN PREPARATORY MODE.
   2. WHEN UNIT IS DISABLED, THE SUPPLY FAN IS OFF, AND THE OUTDOOR AIR DAMPERS ARE CLOSED.

C. PREPARATORY MODE:
   1. UNIT SUPPLY FAN SHALL BE ON. OUTDOOR AIR DAMPERS SHALL BE CLOSED. UNIT'S COMPRESSOR SHALL OPERATE TO MAINTAIN SPACE TEMPERATURE AND HUMIDITY SET-POINTS AT WALL MOUNTED SPACE SENSORS.

D. SAFETIES:
   1. THE ELECTRICAL CONTRACTOR WILL PROVIDE A FIRE ALARM SYSTEM RELAY ADJACENT TO EACH FAN CONTROL THROUGH WHICH THE CONTRACTOR SHALL HARDWIRE POWER TO THE UNIT WHETHER OR NOT UNIT'S CONTROLS ARE IN AUTO OR MANUAL MODES. ANY SIGNAL FROM THE FIRE ALARM SYSTEM WILL MAKE RELAY BREAK OPERATING POWER FOR THE UNIT.
   2. UPON HIGH LEVELS OF CONDENSATE IN PAN, COOLING SHALL BE DEENERGIZED.

E. NOTE THAT WHSP-11 & 12 AND WHSP-13 & 14 SHARE SPACE SENSORS AND CO2 SENSORS.

F. EXISTING REUSED WHSP-17 WITH ENERGY RECOVERY SECTION SHALL HAVE ITS EXISTING SEQUENCE OF OPERATION AND CONTROLS REMAIN, EXCEPT SHALL HAVE CONTROLS AND/OR DEVICES CHANGED FOR SCHEDULE OF OPERATION PROGRAMMING CAPABILITY.



DUCTLESS SPLIT SYSTEM HEAT PUMP

SEQUENCE OF OPERATION

1. MANUFACTURER FURNISHED WALL MOUNTED HARD WIRED THERMOSTAT SHALL CONTROL UNIT.

PENDER COUNTY COURTHOUSE

PENDER COUNTY

PENDER COUNTY NC

LS3P

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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17655 ENGINEER KENNETH LYNCH

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: DB
CHECKED BY: KL

MECHANICAL CONTROL DIAGRAMS

M-701

OF 17

BID DOCUMENTS

ELECTRICAL NOTES

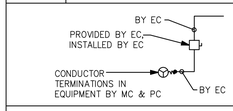
1. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
2. PERMITS FOR ELECTRICAL WORK SHALL BE OBTAINED BY AND PAID BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL PAY FOR ANY ADDITIONAL FEES FOR INSPECTIONS, TESTS, AND OTHER SERVICES AS REQUIRED FOR THE COMPLETION OF THE WORK.
3. THE ELECTRICAL CONTRACTOR AND ANY OF HIS SUBCONTRACTORS SHALL VISIT THE PROJECT SITE TO WITNESS EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE SCOPE OF THE WORK REQUIRED PRIOR TO SUBMITTING PROPOSALS. WORK REQUIRED BY EXISTING JOB CONDITIONS NOT INDICATED ON DRAWINGS SHALL BE INCLUDED IN THE BID.
4. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO RESULT IN THE PRODUCTION OF A COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, EQUIPMENT, AND OTHER SERVICES AS NECESSARY TO COMPLETE THE WORK.
5. DISCREPANCIES IN THE DRAWINGS AND SPECIFICATIONS THAT WILL AFFECT THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE **ARCHITECT,** ENGINEER, AND/OR OWNER PRIOR TO SUBMITTING PROPOSALS.
6. UNLESS NOTED OTHERWISE, ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND INCLUDE A 3RD PARTY LABEL (I.E.: UL, CSA, ETL, ETC.) LISTING APPROVAL FOR ITS INSTALLED APPLICATION.
7. REVIEW PLANS OF OTHER TRADES FOR COORDINATION OF WORK AND FOR RELATED AND ADJOINING WORK.
8. REVIEW COMPLETE PLAN SET FOR CONSTRUCTION TYPE, FINISHES, HEADROOM, ROOF FINISHES, CEILINGS, ETC. REVIEW COMPLETE PLAN SET FOR PROJECT PHASING AND STAGING. REVIEW COMPLETE PLAN SET FOR WORK COVERED BY ALTERNATE BID ITEMS.
9. COORDINATE DEVICE AND EQUIPMENT MOUNTING HEIGHTS WITH OTHER DISCIPLINE DRAWINGS, CASEWORK DETAILS & SUBMITTALS, EQUIPMENT DETAILS & SUBMITTALS, ETC.
10. PENETRATIONS OF FIRE-RATED WALLS, FLOORS, CEILINGS, AND PARTITIONS SHALL BE FIRE STOPPED IN ACCORDANCE WITH REQUIREMENTS OF THE STATE BUILDING CODE. COORDINATE WORK TO INSURE THAT FIRE STOPPING IS COMPLETED.
11. PENETRATIONS OF SMOKE PARTITIONS SHALL BE SEALED IN ACCORDANCE WITH REQUIREMENTS OF THE STATE BUILDING CODE. COORDINATE WORK TO INSURE THAT SMOKE PARTITION SEALING IS COMPLETED.
12. PENETRATIONS OF EXTERIOR BUILDING WALLS, FLOORS, OR ROOFS SHALL BE SEALED WATERTIGHT. INTERIORS OF RACEWAY PENETRATIONS THROUGH EXTERIOR WALLS SHALL BE SEALED WITH NON-HARDENING ELECTRICAL PUTTY.
13. CUTTING AND PATCHING TO INSTALL DEVICES AND EQUIPMENT SHALL BE PERFORMED WITH FINISHES RESTORED TO THEIR ORIGINAL CONDITION. SUCH WORK SHALL BE COMPLETED TO A DEGREE THAT IS ACCEPTABLE TO THE **ARCHITECT,** ENGINEER, AND/OR OWNER.
14. SEE SPECIFICATIONS FOR DIVISION OF RESPONSIBILITY FOR PROVIDING DISCONNECTS, STARTERS, DRIVES, ETC. FOR EQUIPMENT SUPPLIED BY OTHER SUBCONTRACTORS.
15. COORDINATE PRECISE LOCATION OF HVAC EQUIPMENT WITH THE MECHANICAL CONTRACTOR.
16. FOR HVAC EQUIPMENT, VERIFY CIRCUIT BREAKER RATINGS, FUSE RATINGS, AND WIRE SIZES. IF RATINGS DIFFER FROM THOSE INDICATED ON THE DRAWINGS, NOTIFY THE ARCHITECT, ENGINEER, AND OWNER FOR DIRECTION. PROVIDE OVERCURRENT PROTECTION IN ACCORDANCE WITH EQUIPMENT MANUFACTURER NAMEPLATE DATA. IF THE EQUIPMENT LISTING LABEL REQUIRES FUSED PROTECTION, ENSURE THAT FUSES IN A FUSED DISCONNECT SWITCH AT THE EQUIPMENT ARE SIZED AS INDICATED ON THE EQUIPMENT LABEL.
17. VERIFY PROPER SIZING OF OVERLOAD DEVICES IN STARTERS BASED ON EQUIPMENT NAMEPLATE DATA.
18. IF HORSEPOWER OR LOAD RATINGS OF EQUIPMENT DIFFER FROM THOSE INDICATED ON THE DRAWINGS, NOTIFY THE ARCHITECT, ENGINEER, AND OWNER FOR DIRECTION.
19. PROVIDE NATIONAL ELECTRICAL CODE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT. COORDINATE RESOLUTION OF CONFLICTS WITH OTHER TRADES.
20. RECEPTACLE, SWITCH, DATA/TELEPHONE OUTLETS SHALL BE FLUSH MOUNTED IN FINISHED SPACES WITH NEW WALLS AND SURFACE MOUNTED IN FINISHED SPACES WITH EXISTING WALLS.
21. WHERE INSTALLED IN PLENUM SPACES, CABLES SHALL BE PLENUM-RATED OR INSTALLED IN METAL RACEWAY.
22. PRIOR TO ORDERING LIGHT FIXTURES, CONTRACTOR SHALL VERIFY TYPE OF CEILING OR WALL BY REVIEW OF ARCHITECTURAL FINISH SCHEDULES AND PROVIDE SUITABLE TRIM AND APPURTENANCES TO MOUNT FIXTURES IN TYPE OF CEILING OR WALL INDICATED.
23. RECESSED LIGHT FIXTURES INSTALLED IN CEILINGS HAVING INSULATION INSTALLED OVER CEILING AND FIXTURES (AS INDICATED IN ARCHITECTURAL PLANS, OR FOUND AS EXISTING CONDITIONS) SHALL BE U.L. RATED FOR DIRECT CONTACT WITH INSULATION.
24. EXIT AND EMERGENCY LIGHTS SHALL BE CONNECTED TO THE NEAREST UNSWITCHED CIRCUIT THAT SERVES LIGHT FIXTURES WITHIN THE SAME SPACE.
25. NO MOUNTING HARDWARE SHALL BE ATTACHED TO ROOF DECKS. ATTACHMENTS SHALL BE MADE TO THE ROOF SUPPORTING STRUCTURE.
26. WHERE WORKING IN EXISTING BUILDINGS, FACILITIES, OR STRUCTURES; PROTECT AND MAINTAIN IN OPERATION EXISTING LIFE SAFETY SYSTEMS, PUBLIC ADDRESS SYSTEMS, ELECTRICAL SYSTEMS, ETC. IF SHUTDOWNS ARE REQUIRED, NOTIFY THE ARCHITECT, ENGINEER, AND OWNER FOR COORDINATION WELL IN ADVANCE OF ANY SYSTEM SHUTDOWN. WHERE AN OUTAGE OF EXTENDED DURATION IS NOT ACCEPTABLE TO THE OWNER, PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO MAINTAIN SERVICE.
27. WHERE WORKING IN EXISTING BUILDINGS, FACILITIES, OR STRUCTURES; EXISTING ABANDONED CIRCUITS USED TO CONNECT NEW LOADS IN THE SAME AREA SHALL BE CLEARLY IDENTIFIED ON AS-BUILT MARK-UP DRAWINGS WITH REGARD TO PANEL-CIRCUIT AND CIRCUITRY ROUTING CONFIGURATION.
28. ABANDONED CIRCUITRY (RACEWAY & CONDUCTORS) SHALL BE REMOVED IN ITS ENTIRETY FROM ITS SOURCE. ABANDONED LOW VOLTAGE CABLING SHALL BE REMOVED IN ITS ENTIRETY UNLESS OTHERWISE NOTED.
29. PANEL BUS MATERIAL: COPPER.
30. SHARED NEUTRAL CONDUCTORS SHALL NOT BE USED UNLESS SPECIFICALLY INDICATED SO ON HOMERUN CIRCUITRY DESIGNATIONS.
31. PANEL BREAKER CONFIGURATIONS SHALL BE INSTALLED AS INDICATED ON THE PANEL SCHEDULES OR AS NOTED. BREAKER POSITION REVISIONS WILL NOT BE ACCEPTED UNLESS APPROVED IN WRITING BY THE ENGINEER.
32. LOAD CIRCUITS SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS. CIRCUITRY REVISIONS WILL NOT BE ACCEPTED UNLESS APPROVED IN WRITING BY THE ENGINEER.

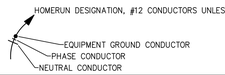
ABBREVIATIONS

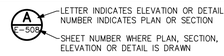
ADA	AMERICAN DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLER UNIT
AIC	AMPS INTERRUPTING CAPABILITY
BKR	BREAKER
BSPCP	BASEMENT SUMP PUMP CONTROL PANEL
C	CONDUIT
C/B	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CLG	CEILING
CKT	CIRCUIT
COMP	COMPRESSOR
CU	COPPER
DAHU	DUCTLESS AIR HANDLING UNIT
DHP	DUCTLESS HEAT PUMP
DIA	DIAMETER
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSED
ESPCP	ELEVATOR SUMP PUMP CONTROL PANEL
EXSTG	EXISTING
FACP	FIRE ALARM CONTROL PANEL
G	EQUIPMENT GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HP	HEAT PUMP
HP	HORSEPOWER
IMC	INTERMEDIATE METAL CONDUIT
K	KILO (THOUSAND)
LED	LIGHT EMITTING DIODE
LTG	LIGHTING
LTS	LIGHTS
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MLO	MAIN LUG ONLY
MSB	MAIN SWITCHBOARD
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
NTS	NOT TO SCALE
OTHLAP	OIL TANK HIGH LEVEL ALARM PANEL
P	PHASE OR POLE
PC	PLUMBING CONTRACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PVC	POLYVINYL CHLORIDE
REC	RECEPTACLE
RECPT	RECEPTACLE
REQ.	REQUIRED
RGC	RIGID GALVANIZED CONDUIT
RGS	RIGID GALVANIZED STEEL
S.S.	STAINLESS STEEL
SSAHU	SPLIT SYSTEM AIR HANDLING UNIT
SYS	SYSTEM
S/N	SOLID NEUTRAL
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT-AMPS
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
W	WIRE
W/	WITH
WP	WEATHERPROOF
WSHP	WATER SOURCE HEAT PUMP
XFMR	TRANSFORMER

MISC. ELECTRICAL SYMBOL LEGEND

- ENCLOSED CIRCUIT BREAKER, NEMA 1 (UNO), AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT RATING.
- EQUIPMENT CONNECTION
- SAFETY SWITCH DISCONNECT, HEAVY-DUTY, FUSED AT NAMEPLATE RATING OF EQUIPMENT SERVED, NEMA 1 INSIDE, NEMA 3R OUTSIDE (UNO), AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT BREAKER RATING.
- PANELBOARD, SEE PANEL SCHEDULE
- GROUND ROD, 3/4" X 10' COPPER CLAD. WHERE TWO RODS ARE INDICATED, SPACE A MINIMUM OF 20' APART.







HAZARDOUS MATERIALS

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WARNING

Maximum Available Fault Current:
20,251 Symmetrical RMS Amperes
Date: 03/27/2020
Based on :
Utility Transformer: 300 kVA (Maxiumum)
Utility Transformer: 3.5% Impedance (Minimum)
Service Feeder: #400 kCMIL (4 SETS)(Maximum) Copper
Service Feeder Length: 80' (Minimum)
Motor Load: 46 kVA (Maximum)

NOTE
THE CONTRACTOR SHALL OBTAIN INSTALLED SERVICE TRANSFORMER DATA AND AVAILABLE FAULT CURRENT DATA FROM THE UTILITY COMPANY. FORWARD INFORMATION TO THE ENGINEER FOR ASSESSMENT OF REVISIONS TO THE LABEL DATA.

A / E-001 FAULT CURRENT LABEL FOR SERVICE EQUIPMENT
NO SCALE

ELECTRICAL SHEET LIST

SHEET NUMBER	SHEET TITLE
E-001	COVER SHEET
ED-101	ELECTRICAL – CRAWL SPACE DEMOLITION PLAN
ED-102	ELECTRICAL – FIRST FLOOR DEMOLITION PLAN
ED-103	ELECTRICAL – SECOND FLOOR DEMOLITION PLAN
ED-104	ELECTRICAL – THIRD FLOOR DEMOLITION PLAN
ED-105	ELECTRICAL – ATTIC DEMOLITION PLAN
E-101	ELECTRICAL – CRAWL SPACE ELECTRIC PLAN
E-102	ELECTRICAL – FIRST FLOOR POWER PLAN
E-103	ELECTRICAL – SECOND FLOOR POWER PLAN
E-104	ELECTRICAL – THIRD FLOOR POWER PLAN
E-105	ELECTRICAL – ATTIC ELECTRIC PLAN
E-112	ELECTRICAL – FIRST FLOOR LIGHTING PLAN
E-113	ELECTRICAL – SECOND FLOOR LIGHTING PLAN
E-114	ELECTRICAL – THIRD FLOOR LIGHTING PLAN
E-122	ELECTRICAL – FIRST FLOOR AUXILIARY SYSTEMS PLAN
E-123	ELECTRICAL – SECOND FLOOR AUXILIARY SYSTEMS PLAN
E-124	ELECTRICAL – THIRD FLOOR AUXILIARY SYSTEMS PLAN
E-501	ELECTRICAL – DETAILS
E-502	ELECTRICAL – DETAILS
E-601	ELECTRICAL – LUMINAIRE SCHEDULE
E-602	ELECTRICAL – PANEL SCHEDULES
E-701	ELECTRICAL – RISER DIAGRAMS

RECEPTACLE LEGEND

SYMBOL	NEMA	VOLTS	DESCRIPTION
	5-20R	120V 1P 2W	DUPLEX, MTD 18" AFF UNO
BLK HTR	5-20R	120V 1P 2W	POWER FOR GENERATOR BLOCK HEATER
G	5-20R	120V 1P 2W	DUPLEX GFCI, MTD 6" ABOVE COUNTER HEIGHT UNO
G	5-20R	120V 1P 2W	DUPLEX GFCI, MTD 18" AFF UNO
MW	5-20R	120V 1P 2W	DUPLEX GFCI FOR MICROWAVE; VERIFY MICROWAVE TYPE; MOUNT 6" ABOVE COUNTER HEIGHT FOR COUNTER TOP MICROWAVE -OR- MOUNT FLUSH IN BACK OF UPPER CABINET FOR SUSPENDED MICROWAVE.
R	5-20R	120V 1P 2W	DUPLEX FOR REFRIGERATOR; MOUNT 48" AFF UNO. SUPPLY FROM GFCI TYPE C/B.
UCR	5-20R	120V 1P 2W	DUPLEX FOR UNDERCOUNTER REFRIGERATOR; SUPPLY FROM GFCI TYPE C/B; COORDINATE MOUNTING HEIGHT WITH CASEWORK DRAWINGS.
ARA		120V 1P 2W	POWER FOR AREA OF RESCUE ASSISTANCE MASTER CONSOLE
AUX		120V 1P 2W	J-BOX FOR AUXILIARY POWER, MOUNTED 42" AFF UNO
HT	5-20R	120V 1P 2W	POWER FOR HEAT TRACE; COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
SC		120V 1P 2W	POWER FOR SMOKE CURTAIN ACTIVATION. COORDINATE LOCATION WITH SMOKE CURTAIN VENDOR.
	5-20R	120V 1P 2W	QUAD, MTD 18" AFF UNO
BATT CHG	5-20R	120V 1P 2W	POWER FOR GENERATOR BATTERY CHARGER, BATTERY HEATER, & WINDING HEATER
G	5-20R	120V 1P 2W	QUAD GFCI FOR DEHUMIDIFIER, MTD ON FLOOR JOISTS
EWC	5-20R	120V 1P 2W	QUAD ELECTRIC WATER COOLER OUTLET; SUPPLY FROM GFCI TYPE C/B; COORDINATE MTG LOCATION TO CONCEAL OUTLET WHEN COOLER IS INSTALLED.
		120V 1P 2W	EXHAUST FAN; SEE MECHANICAL SCHEDULE. PROVIDE POWER PACK FOR SWITCHING WITH CEILING OCCUPANCY SENSOR.

SWITCH LEGEND

SYMBOL	DESCRIPTION	NOTES
$D	DIMMER SWITCH	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO
$OD	OCCUPANCY SENSOR WALL SWITCH, DIMMER; DUAL TECHNOLOGY	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO
$01	OCCUPANCY SENSOR WALL SWITCH, SINGLE CKT, DUAL TECHNOLOGY	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO
OS	OCCUPANCY SENSOR, LOW VOLTAGE, DUAL TECHNOLOGY; CEILING MTD	INCORPORATE POWER PACK FOR CIRCUITRY SWITCHING, SEE WIRING DIAGRAMS
$	TOGGLE SWITCH, SINGLE POLE	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO; WHERE USED AS AN EQUIPMENT DISCONNECT, PROVIDE LOCKABLE TYPE COVER.
$3	3-WAY SWITCH	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO

PA & SECURITY LEGEND

SYMBOL	DESCRIPTION	MOUNTING	NOTES
ASMT	AREA OF RESCUE ASSISTANCE MASTER STATION	WALL	PROVIDE MANUFACTURER'S REQUIRED CABLING / CIRCUITRY BETWEEN MASTER & REMOTE STATIONS
ASRS	AREA OF RESCUE ASSISTANCE REMOTE STATION	WALL	
CE	SECURITY CAMERA – EXISTING	WALL / CEILING	PROVIDE NEW CAT 6 CABLE AND CAMERA. CONTRACTOR TO COORDINATE WITH OWNER FOR SPEC ON NEW POE CAMERAS
CR	CARD READER	WALL	4" SQUARE BOX RECESSED; STUB 3/4"C TO 6" ABOVE CEILING
ES	ELECTRIC STRIKE	DOOR FRAME	FOR SINGLE DOOR, PROVIDE 1/2" FLEXIBLE METALLIC CONDUIT CONCEALED IN DOOR FRAME TO JUNCTION BOX MTD ABOVE CEILING.

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION	MOUNTING
F 15	HORN/STROBE, 15 CANDELA	CEILING
CM	CONTROL / RELAY MODULE	
CM FC	CONTROL / RELAY MODULE FOR FIRE CURTAIN ACTIVATION	LOCATE WITHIN 3' OF UNIT
FACP	FIRE ALARM CONTROL PANEL	
H	HEAT DETECTOR	CEILING
F 15	HORN/STROBE, 15 CANDELA	WALL
F	PULL STATION	WALL
S	SMOKE DETECTOR	CEILING
S E	SMOKE DETECTOR	WALL
S 15	STROBE, 15 CANDELA	WALL

DATA & TELEPHONE OUTLET LEGEND

SYMBOL	DESCRIPTION	MOUNTING	NOTES
AP	DATA OUTLET FOR ACCESS POINT	4" SQUARE BOX MOUNTED 24" ABOVE CEILING	INSTALL (1) CAT 6A CABLE TO IT ROOM. MOUNT OWNER PROVIDED EQUIPMENT AT CEILING OR WALL MOUNTED IF INDICATED. PROVIDE PATCH CORD FROM OUTLET TO EQUIPMENT.
	DATA / TELEPHONE OUTLET	REUSE EXISTING BOX AND RACEWAY	CONTRACTOR TO FIELD VERIFY ALL EXISTING LOCATIONS AND CABLE PATHWAYS. CABLE PATHWAYS TO BE REUSED WHERE POSSIBLE. REPLACE EXISTING WIREMOLD IF DAMAGED DURING INSTALLATION OF NEW CABLES. INSTALL (2) CAT 6 CABLES TO IT ROOM; OTHERWISE, # INDICATES QUANTITY OF CABLES IF > 2
N	DATA / TELEPHONE OUTLET	WALL, 18" AFF UNO; 5" SQUARE, 2.875" DEEP BOX, 64 CUBIC INCHES, WITH CABLE MANAGEMENT POSTS. DESIGN BASIS: STEEL CITY #82181T SERIES	STUB 1"C TO 6" ABOVE CEILING INSTALL (2) CAT 6 CABLES TO IT ROOM; OTHERWISE, # INDICATES QUANTITY OF CABLES IF > 2
	EQUIPMENT RACK, 19" X 7'	FLOOR	

ELECTRICAL LOAD SUMMARY

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	28.1	35.2	(125%)	CONTINUOUS	21.6	27	(125%)
LARGEST MOTOR	17.5	4.36	(25%)	NONCONTINUOUS	18	18	(100%)
MOTORS	59.2	59.2	(100%)	HEATING	48.5	48.5	(100%)
RECEPTACLES	45	27.5	(50%>10)	COOLING	38.8	0	(0%)
KITCHEN EQUIPMENT	1	1	(100%)	DIVERSE	186	66.1	(36%)
				TOTAL LOAD		287	
				BALANCED 3-PHASE AMPS		796	

PENDER COUNTY COURTHOUSE

PENDER COUNTY
PENDER COUNTY NC

LS3P
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TEL. 910.790.9901 FAX 910.790.3111
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FAX: (910) 452-4211
OFFICE@CHEATHAMPA.COM
NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 17539 MICHAEL F. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-NOTES, LEGENDS, SHEET LIST, LOAD SUMMARY

E-001

BID DOCUMENTS

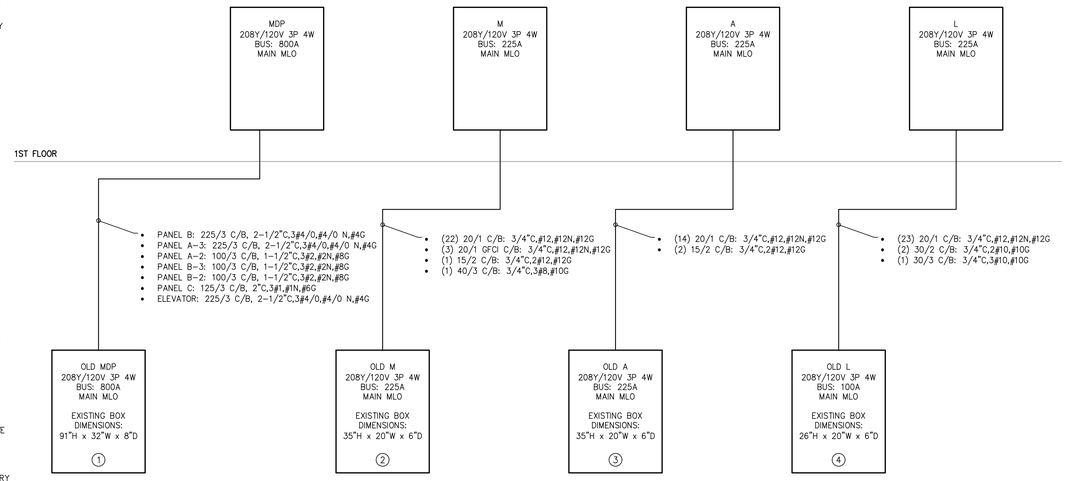
HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

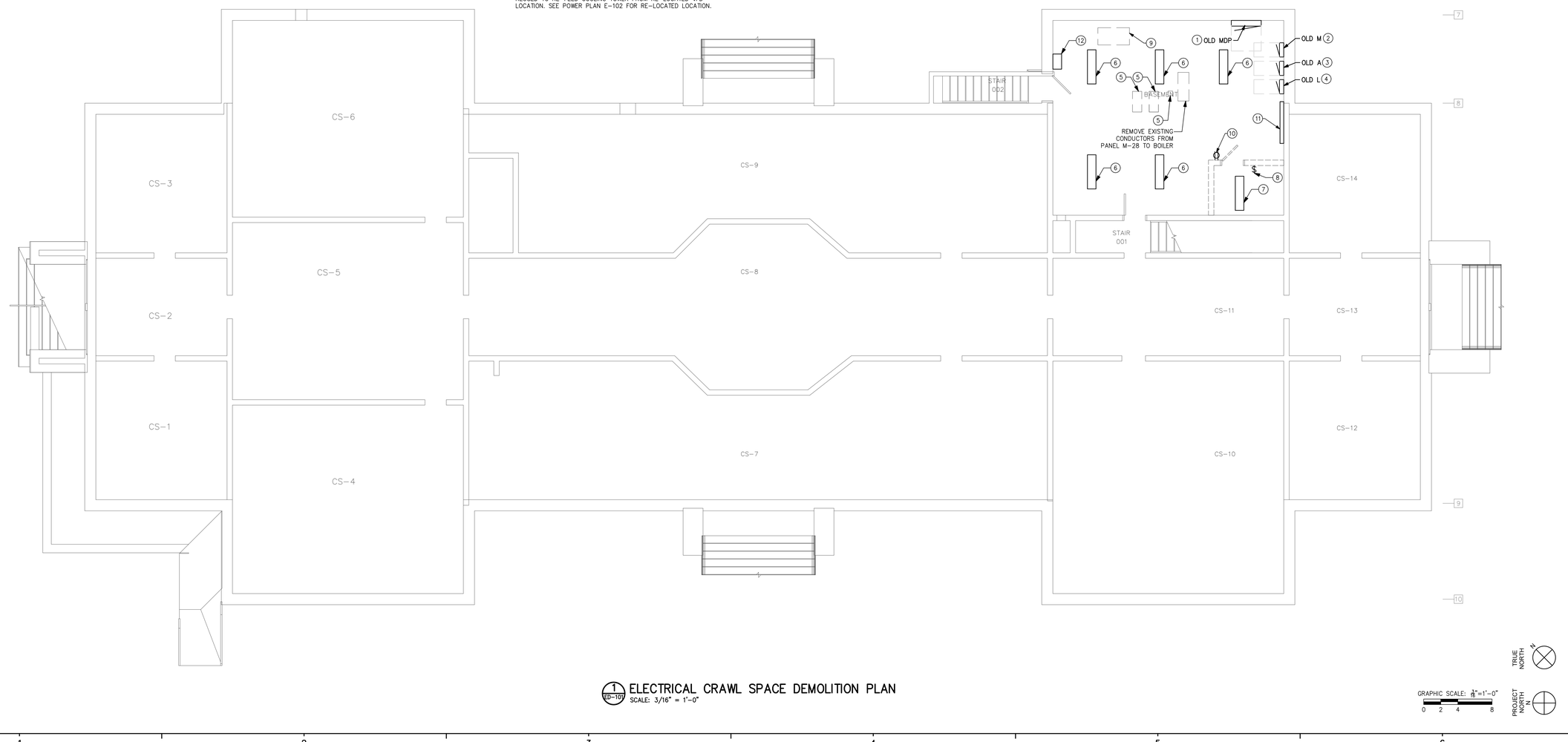
ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.

DEMOLITION KEYED NOTES:

1. PANEL MDP: REMOVE EXISTING CIRCUIT BREAKERS IN PANEL. PROVIDE SUBMERSIBLE POLARIS TYPE CONNECTORS TO EXTEND CIRCUITRY FROM OLD PANEL TO NEW PANEL ON FIRST FLOOR. PROVIDE 8" BOX EXTENDER AND NEW BLANK COVER. CIRCUITRY REQUIREMENTS FOLLOW:
   - PANEL B: 225/3 C/B, 2-1/2"C,3#4/0,#4/0 N,#4G
   - PANEL A-3: 225/3 C/B, 2-1/2"C,3#4/0,#4/0 N,#4G
   - PANEL A-2: 100/3 C/B, 1-1/2"C,3#2,#2N,#8G
   - PANEL B-3: 100/3 C/B, 1-1/2"C,3#2,#2N,#8G
   - PANEL B-2: 100/3 C/B, 1-1/2"C,3#2,#2N,#8G
   - PANEL C: 125/3 C/B, 2"C,3#1,#1N,#6G
   - ELEVATOR: 225/3 C/B, 2-1/2"C,3#4/0,#4/0 N,#4G
2. PANEL M: REMOVE EXISTING CIRCUIT BREAKERS IN PANEL. PROVIDE SUBMERSIBLE POLARIS TYPE CONNECTORS TO EXTEND CIRCUITRY FROM OLD PANEL TO NEW PANEL ON FIRST FLOOR. PROVIDE 6" BOX EXTENDER AND NEW BLANK COVER. SEE NEW PANEL SCHEDULE FOR CIRCUIT BREAKER QUANTITIES AND LOCATIONS. CIRCUITRY REQUIREMENTS FOLLOW:
   - (22) 20/1 C/B: 3/4"C,#12,#12N,#12G
   - (3) 20/1 GFCI C/B: 3/4"C,#12,#12N,#12G
   - (1) 15/2 C/B: 3/4"C,2#12,#12G
   - (1) 40/3 C/B: 3/4"C,3#8,#10G
3. PANEL A: REMOVE EXISTING CIRCUIT BREAKERS IN PANEL. PROVIDE SUBMERSIBLE POLARIS TYPE CONNECTORS TO EXTEND CIRCUITRY FROM OLD PANEL TO NEW PANEL ON FIRST FLOOR. PROVIDE 6" BOX EXTENDER AND NEW BLANK COVER. SEE NEW PANEL SCHEDULE FOR CIRCUIT BREAKER QUANTITIES AND LOCATIONS. CIRCUITRY REQUIREMENTS FOLLOWS:
   - (14) 20/1 C/B: 3/4"C,#12,#12N,#12G
   - (2) 15/2 C/B: 3/4"C,2#12,#12G
4. PANEL L: REMOVE EXISTING CIRCUIT BREAKERS IN PANEL. PROVIDE SUBMERSIBLE POLARIS TYPE CONNECTORS TO EXTEND CIRCUITRY FROM OLD PANEL TO NEW PANEL ON FIRST FLOOR. PROVIDE 6" BOX EXTENDER AND NEW BLANK COVER. SEE NEW PANEL SCHEDULE FOR CIRCUIT BREAKER QUANTITIES AND LOCATIONS. CIRCUITRY REQUIREMENTS FOLLOW:
   - (23) 20/1 C/B: 3/4"C,#12,#12N,#12G
   - (2) 30/2 C/B: 3/4"C,2#10,#10G
   - (1) 30/3 C/B: 3/4"C,3#10,#10G
5. FIELD CONFIRM SOURCE FOR EXISTING PUMP CIRCUITRY. REMOVE EXISTING PUMP AND ASSOCIATED CIRCUITRY BACK TO SOURCE.
6. REMOVE EXISTING LIGHT FIXTURE.
7. REMOVE EXISTING LIGHT FIXTURE. REMOVE ASSOCIATED CIRCUITRY BACK SO SOURCE.
8. REMOVE EXISTING SWITCH. REMOVE ASSOCIATED CIRCUITRY TO JUNCTION BOX ABOVE CEILING.
9. EXISTING PUMP P-1 IS FED FROM PANEL M-1,3,5. REMOVE ASSOCIATED CIRCUITRY FROM PANEL M TO PUMP P-1.
10. REMOVE EXISTING DUPLEX. REMOVE CIRCUITRY BACK TO SOURCE PANEL.
11. REMOVE ABANDON TEL/DATA EQUIPMENT LOCATED ON WALL AFTER COORDINATION WITH OWNER AND SERVICE PROVIDERS.
12. EXISTING COOLING TOWER CT-1 IS FED FROM PANEL M-7,9,11. REMOVE EXISTING LINE SIDE CIRCUITRY FROM PANEL M TO EXISTING VFD. REMOVE EXISTING LOAD SIDE CONDUCTORS FROM VFD TO COOLING TOWER; UNDERGROUND CONDUIT IS TO BE REUSED TO RE-FEED COOLING TOWER FROM RE-LOCATED VFD LOCATION. SEE POWER PLAN E-102 FOR RE-LOCATED LOCATION.



A ED-101 ELECTRICAL PANEL CIRCUITRY REWORK RISER DIAGRAM
SCALE: NO SCALE



1 ED-101 ELECTRICAL CRAWL SPACE DEMOLITION PLAN
SCALE: 3/16" = 1'-0"

PENDER COUNTY COURTHOUSE

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NC LICENSE # C-1073

JOB # 19060

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL 17993 MARK S. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: XXXX
CHECKED BY: M. CIARROCCA

ELECTRICAL-CRAWL SPACE DEMOLITION PLAN

ED-101

BID DOCUMENTS

HAZARDOUS MATERIALS

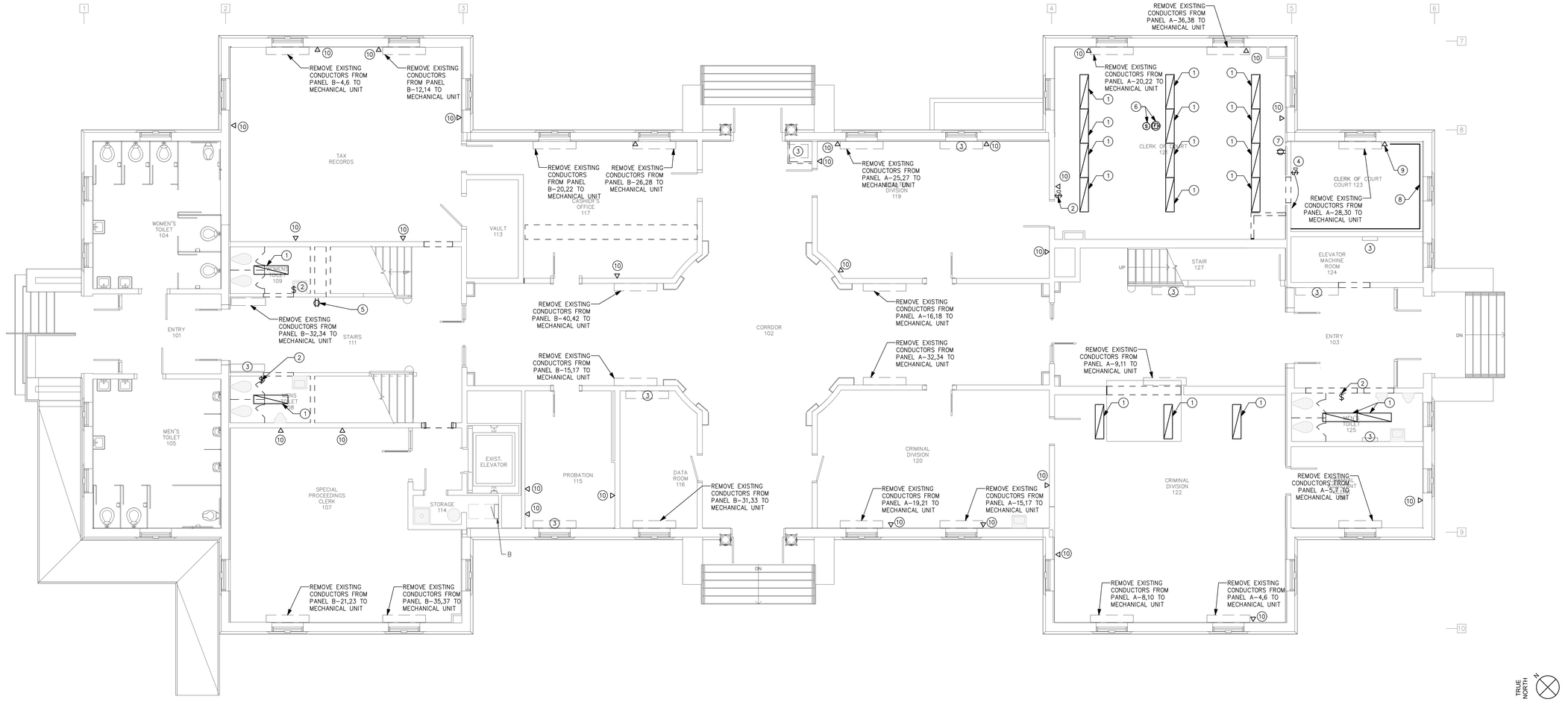
THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.

DEMOLITION NOTES:
WHERE NOTED TO REMOVE CONDUCTORS, LEAVE EXISTING CONDUIT. PROVIDE PULL STRING, LABEL BOTH ENDS.

KEYED NOTES:

1. REMOVE EXISTING LIGHT FIXTURE. REMOVE ASSOCIATED CIRCUITRY TO JUNCTION BOX ABOVE CEILING.
2. REMOVE EXISTING SWITCH. REMOVE ASSOCIATED CIRCUITRY TO JUNCTION BOX ABOVE CEILING.
3. FIELD CONFIRM SOURCE FOR EXISTING MECHANICAL UNIT CIRCUITRY. REMOVE EXISTING MECHANICAL UNIT AND ASSOCIATED CONDUCTORS BACK TO SOURCE. LEAVE EXISTING CONDUIT. PROVIDE PULL STRING, LABEL BOTH ENDS.
4. REMOVE EXISTING SWITCH AND REWORK CIRCUITRY TO OPPOSITE SIDE OF DOOR.
5. REMOVE EXISTING EWC RECEPTACLE BACK TO JUNCTION BOX IN CEILING. REUSE HOMERUN CIRCUITRY FOR NEW EWC. SEE NEW WORK PLAN FOR LOCATION OF NEW EWC.
6. RELOCATE EXISTING FIRE ALARM DEVICE TO ACCOMMODATE NEW WALL CONSTRUCTION. SEE E-122 FOR NEW LOCATION.
7. REMOVE EXISTING RECEPTACLE. REWORK EXISTING WIREMOLD TO ACCOMMODATE NEW WALL CONSTRUCTION.
8. REMOVE EXISTING RECEPTACLE WIREMOLD AND ASSOCIATED CIRCUITRY.
9. REMOVE EXISTING DATA OUTLET AND CABLING BACK TO SOURCE.
10. REMOVE EXISTING DATA CABLING BACK TO SOURCE. INSTALL NEW CABLING TO IT ROOM. SEE AUXILIARY SYSTEMS PLAN E-122 FOR CABLING COUNT. REUSE EXISTING PATHWAYS AND WIREMOLD.



1 E-102 ELECTRICAL FIRST FLOOR DEMOLITION PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0" (0 2 4 8)

TRUE NORTH

PROJECT NORTH

PENDER COUNTY COURTHOUSE

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JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17013 M. A. CIARROCCA 3/29/20

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-FIRST FLOOR DEMOLITION PLAN

ED-102

BID DOCUMENTS

HAZARDOUS MATERIALS

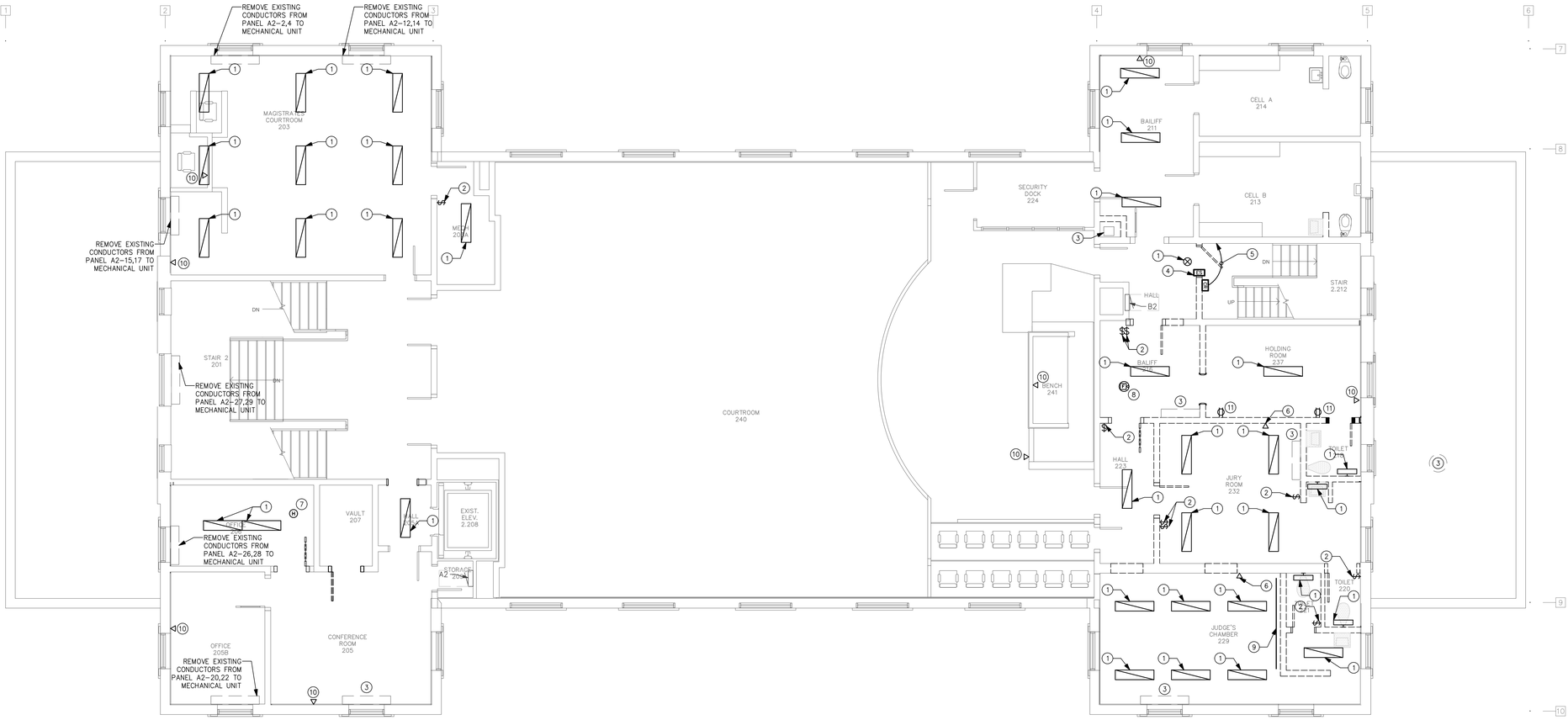
THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.

DEMOLITION NOTES:
WHERE NOTED TO REMOVE CONDUCTORS, LEAVE EXISTING CONDUIT. PROVIDE PULL STRING, LABEL BOTH ENDS.

KEYED NOTES:

1. REMOVE EXISTING LIGHT FIXTURE. REMOVE ASSOCIATED CIRCUITRY TO JUNCTION BOX ABOVE CEILING..
2. REMOVE EXISTING SWITCH. REMOVE ASSOCIATED CIRCUITRY TO JUNCTION BOX ABOVE CEILING.
3. FIELD CONFIRM SOURCE FOR EXISTING MECHANICAL UNIT CIRCUITRY. REMOVE EXISTING MECHANICAL UNIT AND ASSOCIATED CONDUCTORS BACK TO SOURCE. LEAVE EXISTING CONDUIT. PROVIDE PULL STRING, LABEL BOTH ENDS.
4. REMOVE EXISTING ELECTRIC STRIKE AND ASSOCIATED CABLING BACK TO SOURCE.
5. RELOCATE EXISTING CARD READER TO LOCATION INDICATED.
6. REMOVE EXISTING DATA OUTLET AND CABLING BACK TO SOURCE.
7. RELOCATE EXISTING FIRE ALARM DEVICE TO ACCOMMODATE NEW WALL CONSTRUCTION. SEE E-123 FOR NEW LOCATION.
8. REMOVE EXISTING FIRE ALARM DEVICE AND ASSOCIATED CIRCUITRY.
9. REMOVE EXISTING DATA WIREMOLD AND ASSOCIATED CIRCUITRY TO ACCOMMODATE WALL DEMOLITION.
10. REMOVE EXISTING DATA CABLING BACK TO SOURCE. INSTALL NEW CABLING TO IT ROOM. SEE AUXILIARY SYSTEMS PLAN E-123 FOR CABLING COUNT. REUSE EXISTING PATHWAYS AND WIREMOLD.
11. REMOVE EXISTING RECEPTACLE AND ASSOCIATED CIRCUITRY.



1 ELECTRICAL SECOND FLOOR DEMOLITION PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 3/16"=1'-0"
0 2 4 8

TRUE NORTH
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PENDER COUNTY COURTHOUSE

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17593 ENGINEER MARK A. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-SECOND FLOOR DEMOLITION PLAN

ED-103

BID DOCUMENTS

HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

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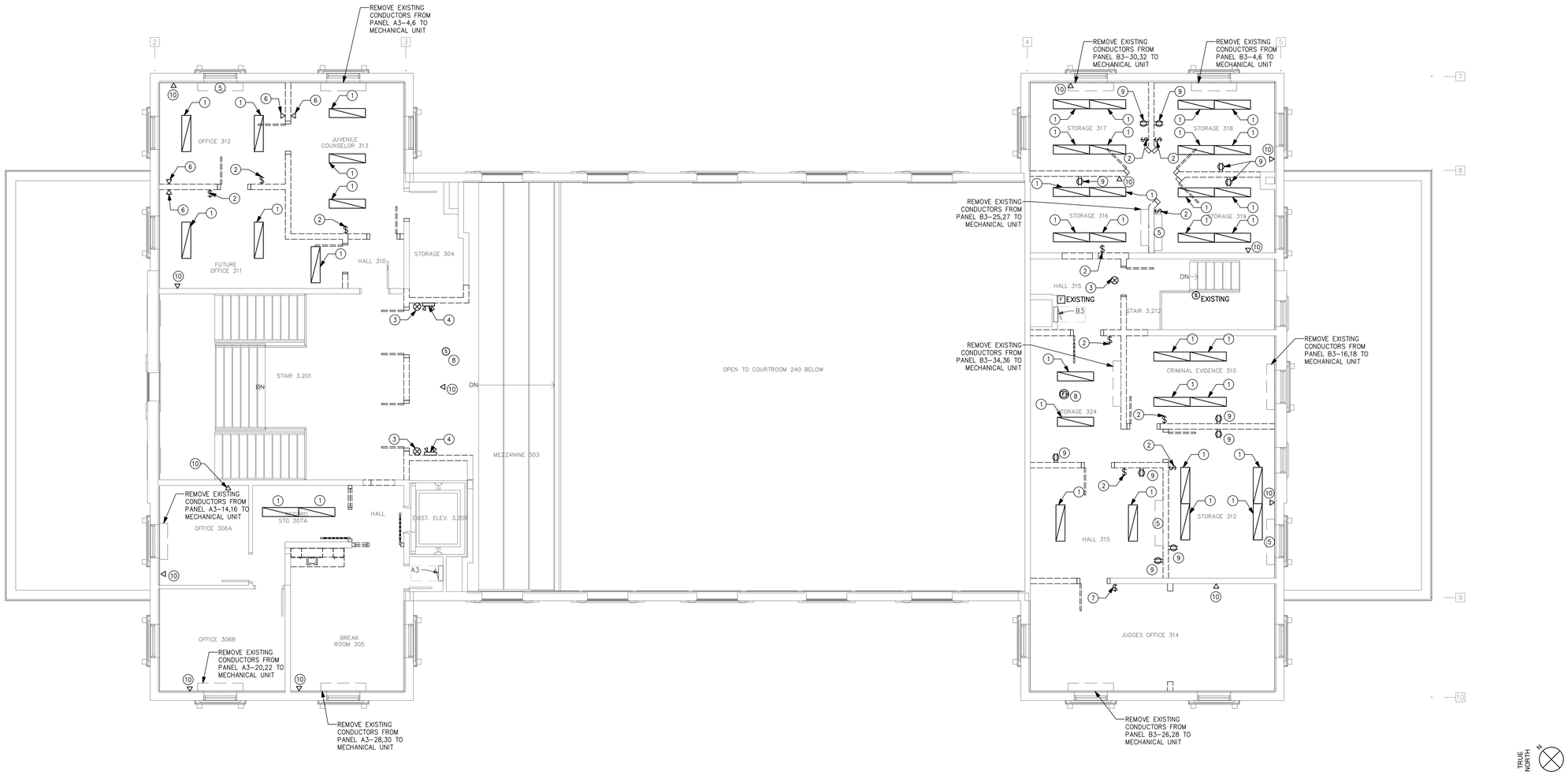
DEMOLITION NOTES:
WHERE NOTED TO REMOVE CONDUCTORS, LEAVE EXISTING CONDUIT. PROVIDE PULL STRING, LABEL BOTH ENDS.

KEYED NOTES:

1. REMOVE EXISTING LIGHT FIXTURE. REMOVE ASSOCIATED CIRCUITRY TO JUNCTION BOX ABOVE CEILING..
2. REMOVE EXISTING SWITCH. REMOVE ASSOCIATED CIRCUITRY TO JUNCTION BOX ABOVE CEILING.
3. REMOVE EXISTING EXIT SIGN. REMOVE ASSOCIATED CIRCUITRY TO JUNCTION BOX ABOVE CEILING.
4. REMOVE EXISTING EGRESS FIXTURE. REMOVE ASSOCIATED CIRCUITRY TO JUNCTION BOX ABOVE CEILING.
5. FIELD CONFIRM SOURCE FOR EXISTING MECHANICAL UNIT CIRCUITRY. REMOVE EXISTING MECHANICAL UNIT AND ASSOCIATED CONDUCTORS BACK TO SOURCE. LEAVE EXISTING CONDUIT. PROVIDE PULL STRING, LABEL BOTH ENDS.
6. REMOVE EXISTING DATA OUTLET AND CABLING BACK TO SOURCE.
7. REMOVE EXISTING SWITCH AND REWORK CIRCUITRY TO NEW LOCATION INDICATED ON NEW WORK PLAN. SEE E-114.
8. REMOVE EXISTING FIRE ALARM DEVICE AND ASSOCIATED CIRCUITRY.
9. REMOVE EXISTING RECEPTACLE AND ASSOCIATED CIRCUITRY.
10. REMOVE EXISTING DATA CABLING BACK TO SOURCE. INSTALL NEW CABLING TO IT ROOM. SEE AUXILIARY SYSTEMS PLAN E-124 FOR CABLING COUNT. REUSE EXISTING PATHWAYS AND WIREMOLD.



1 ED-104 ELECTRICAL THIRD FLOOR DEMOLITION PLAN
SCALE: 3/16" = 1'-0"

TRUE NORTH
PROJECT NORTH
GRAPHIC SCALE: 3/16"=1'-0"
0 2 4 8

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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17773 MARK A. CIARROCCA 12/16/2020

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-THIRD FLOOR DEMOLITION PLAN

ED-104

BID DOCUMENTS

HAZARDOUS MATERIALS

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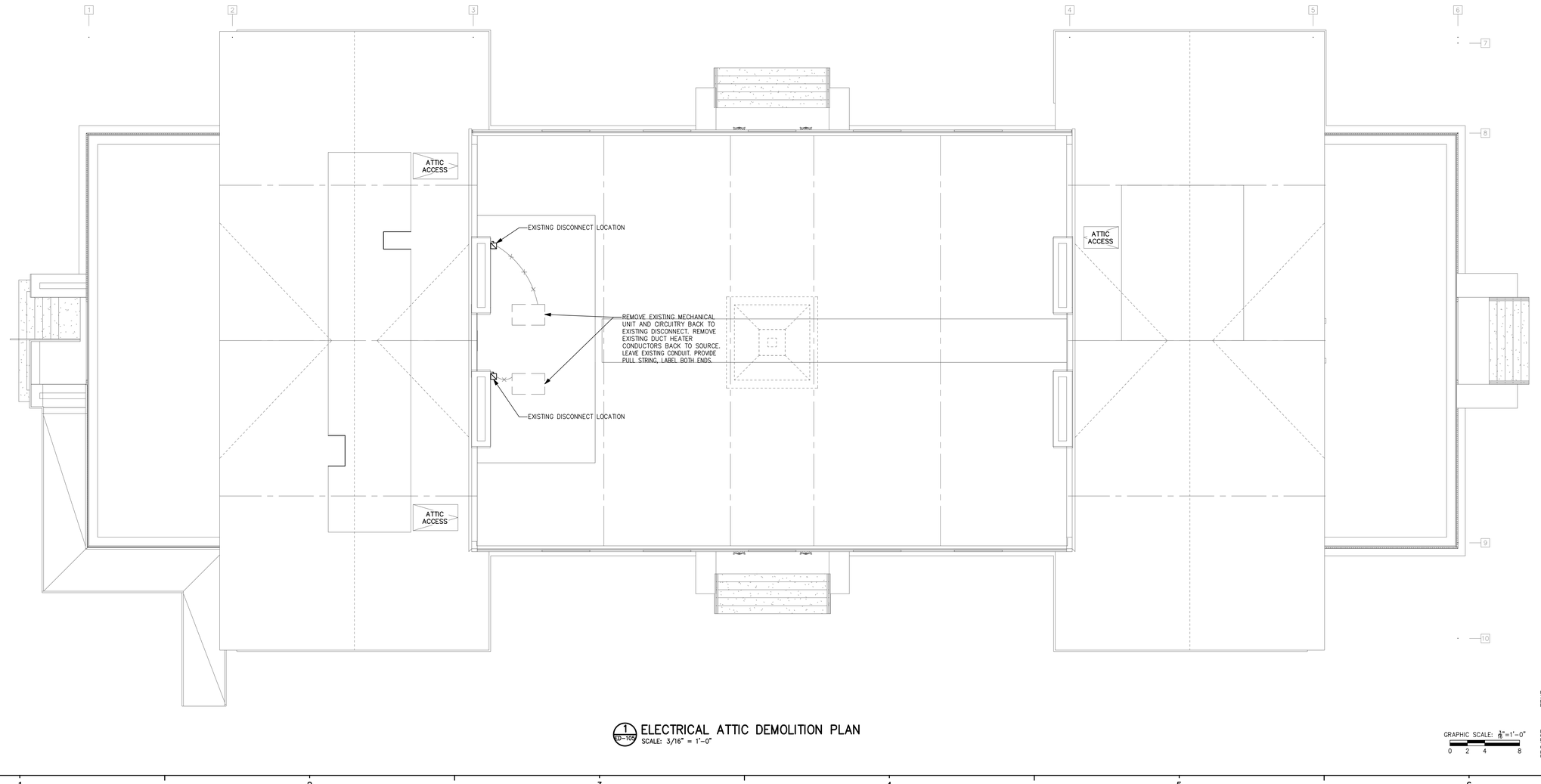

1 ED-105 ELECTRICAL ATTIC DEMOLITION PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 3/16"=1'-0"
0 2 4 8

TRUE NORTH N
PROJECT NORTH N

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JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17593 MARK A. CIARROCCA 27 MAR 2020

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-ATTIC DEMOLITION PLAN

ED-105

BID DOCUMENTS

HAZARDOUS MATERIALS

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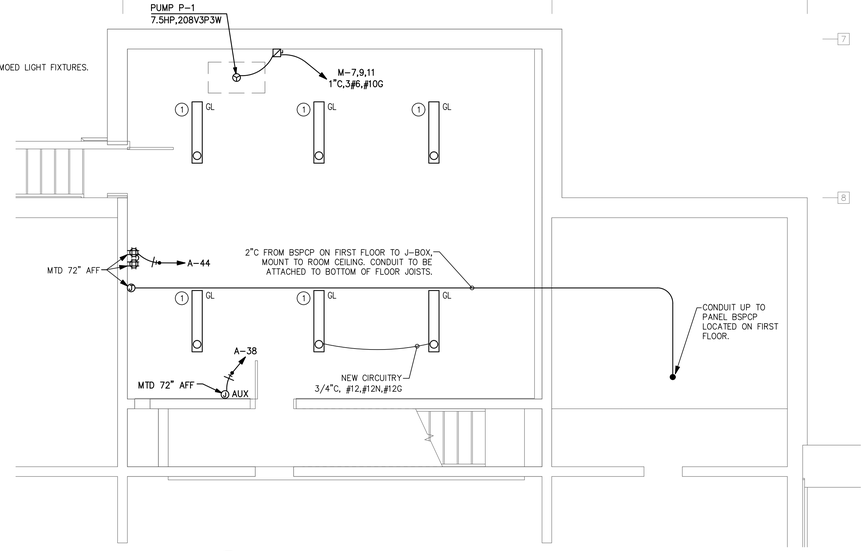
ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.

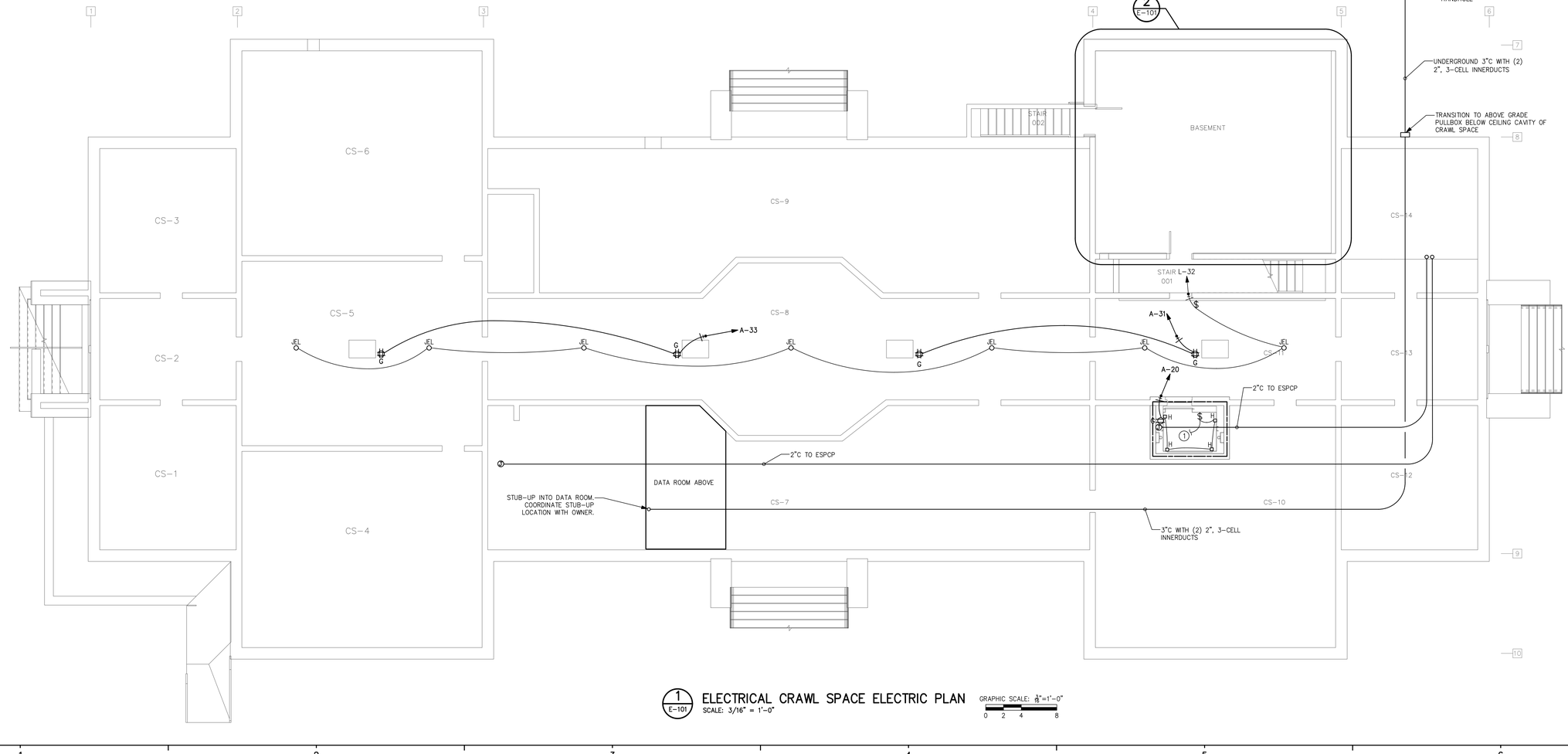
KEYED NOTES:

1. REUSE EXISTING CIRCUITRY FROM DEMOED LIGHT FIXTURES.



2/E-101 ELECTRICAL CRAWL ENLARGED ELECTRIC PLAN
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0"
0 1 2 4 8



1/E-101 ELECTRICAL CRAWL SPACE ELECTRIC PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 3/16"=1'-0"
0 2 4 8

TRUE NORTH
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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 17532 MICHAEL A. CIARROCCA 7/11/2020

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-CRAWL SPACE ELECTRIC PLANS

E-101

BID DOCUMENTS

HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

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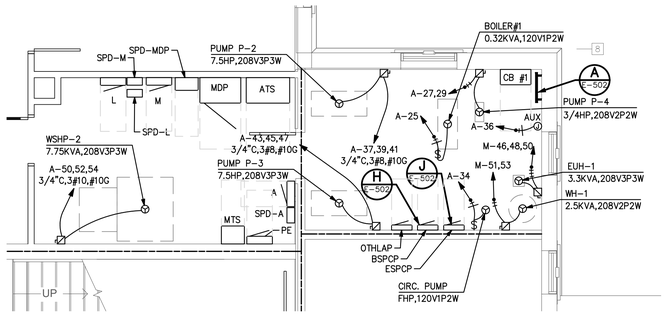
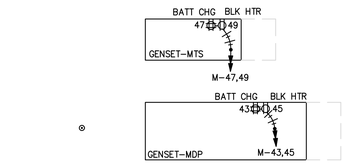


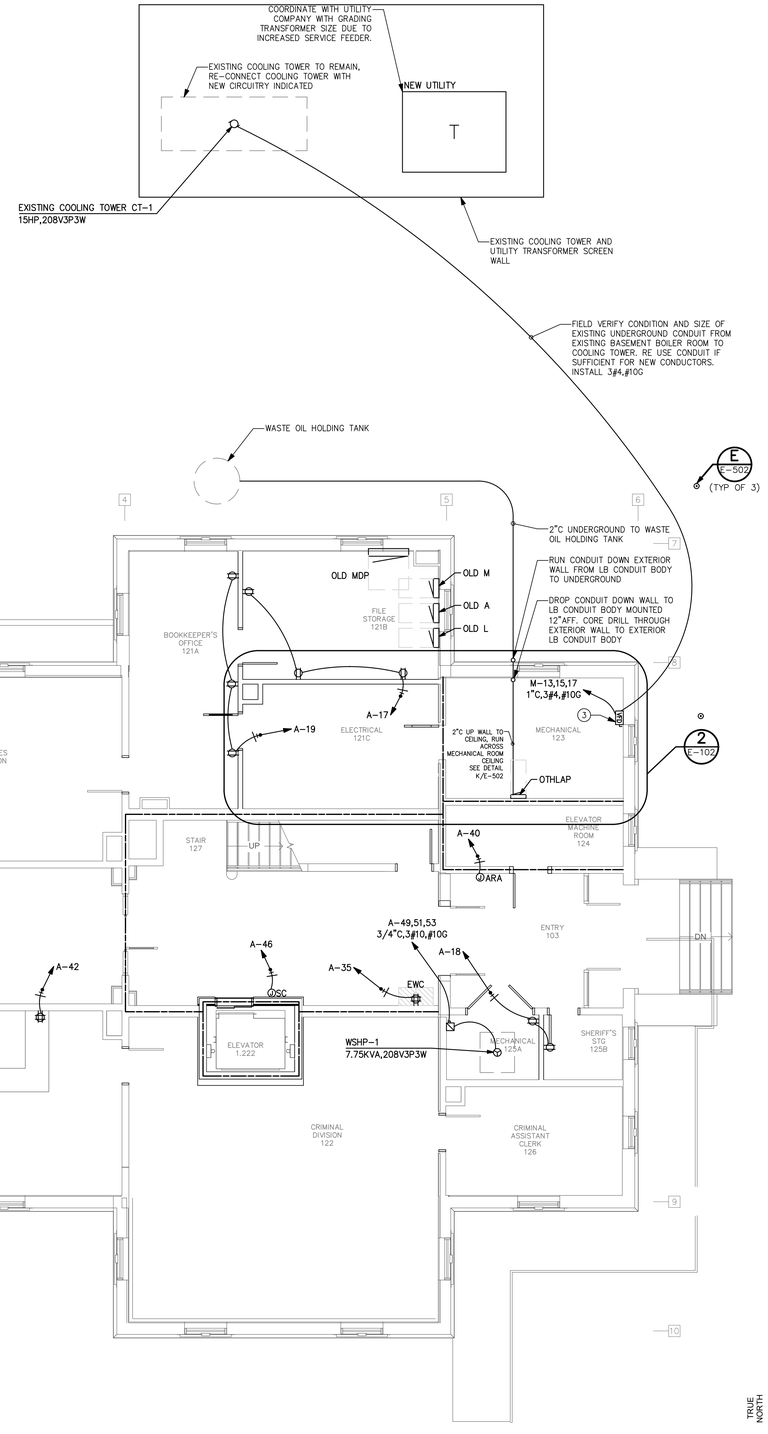
1 E-102 ELECTRICAL ENLARGED FIRST FLOOR POWER PLAN
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0"
0 1 2 4 8

KEYED NOTES:

1. EXISTING PANEL "B"; SQUARE D TYPE NOOD, 120/208V 3P4W.
   MOVE EXISTING 1P/20AMP BREAKER AND EXISTING CIRCUIT 19 TO SPACE 15.
   MOVE EXISTING 1P/20AMP BREAKER AND EXISTING CIRCUIT 24 TO SPACE 20.
   PROVIDE THE FOLLOWING BREAKERS:
   - (1) 3P/30AMP BREAKER IN SPACES 17,19,21 FOR NEW HVAC UNIT WSHP-3.
   - (1) 1P/20AMP SPARE BREAKER IN SPACE 23, LABEL AS SPARE.
   - (1) 3P/30AMP BREAKER IN SPACES 31,33,35 FOR NEW HVAC UNIT WSHP-4.
   - (1) 1P/20AMP GCFI BREAKER IN SPACE 29 FOR NEW EWC. REUSE EXISTING CIRCUITRY WHERE AVAILABLE FROM DEMOED EWC.
   - (1) 1P/20AMP BREAKER IN SPACE 37 FOR NEW RECEPTACLES.
   - (1) 3P/30AMP BREAKER IN SPACES 22,24,26 FOR WH-2.
   - (1) 2P/25AMP BREAKER IN SPACES 4,6 FOR DHP-2.
2. COORDINATE MOUNTING WITH ARCHITECT. DEVICE SHALL BE FED FROM CRAWL SPACE.
3. LOCATION OF RE-LOCATED VFD FOR COOLING TOWER CT-1.





1 E-102 ELECTRICAL FIRST FLOOR POWER PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 1/4"=1'-0"
0 2 4 8

TRUE NORTH N
PROJECT NORTH N

PENDER COUNTY COURTHOUSE

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OFFICE@CHEATHAMPA.COM
NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17013 MICHAEL A. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-FIRST FLOOR POWER PLAN

E-102

BID DOCUMENTS

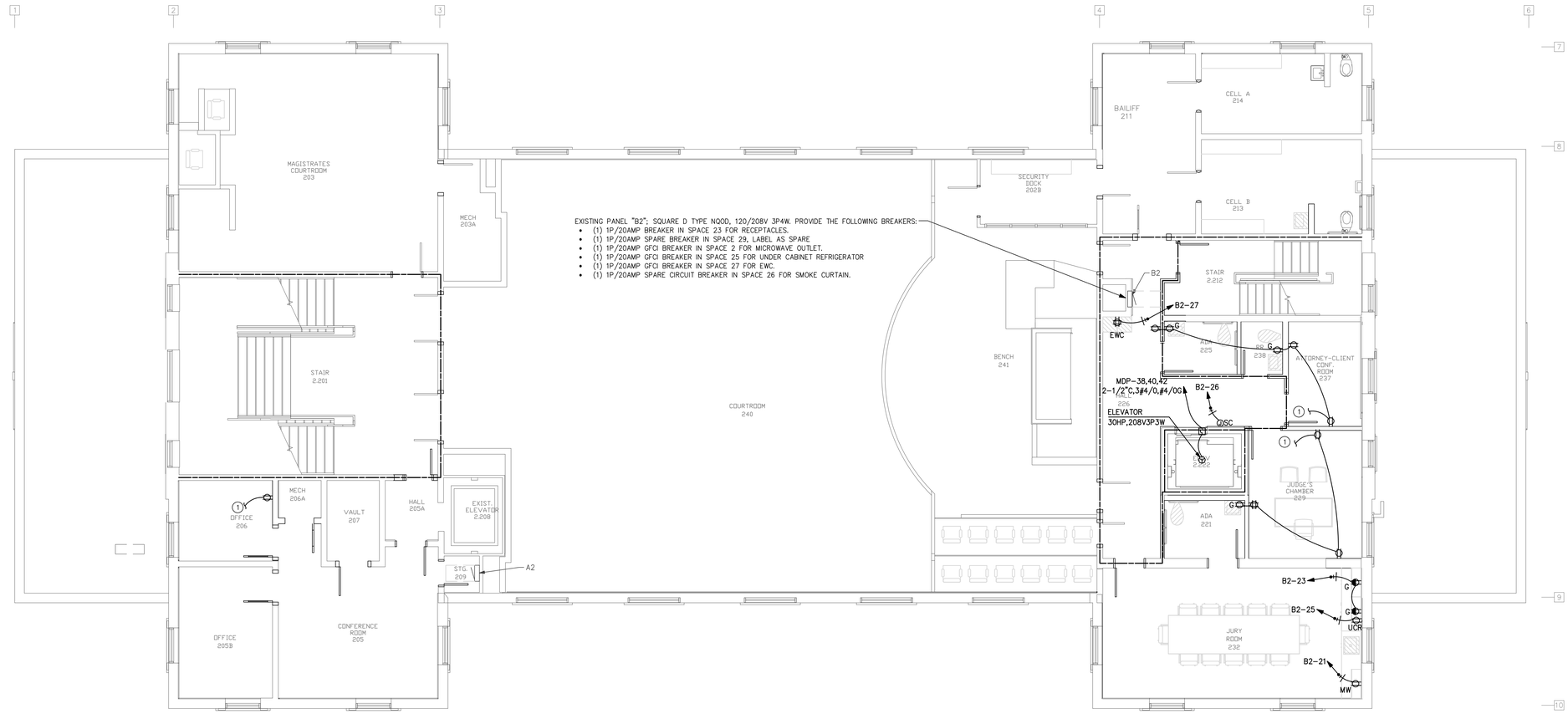
HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.

KEYED NOTES:

1. EXTEND NEW RECEPTACLE CIRCUITRY TO EXISTING RECEPTACLE PREVIOUSLY SERVING AREA. CONTRACTOR TO INDICATE ON AS-BUILT MARKUPS PANEL AND CIRCUIT NUMBER.



1 E-103 ELECTRICAL SECOND FLOOR POWER PLAN
SCALE: 3/16" = 1'-0"

TRUE NORTH N

GRAPHIC SCALE: 3/16"=1'-0"
0 2 4 8

PROJECT NORTH N

PENDER COUNTY COURTHOUSE

PENDER COUNTY

PENDER COUNTY NC

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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17595 MICHAEL A. CIARROCCA 3/29/2020

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-SECOND FLOOR POWER PLAN

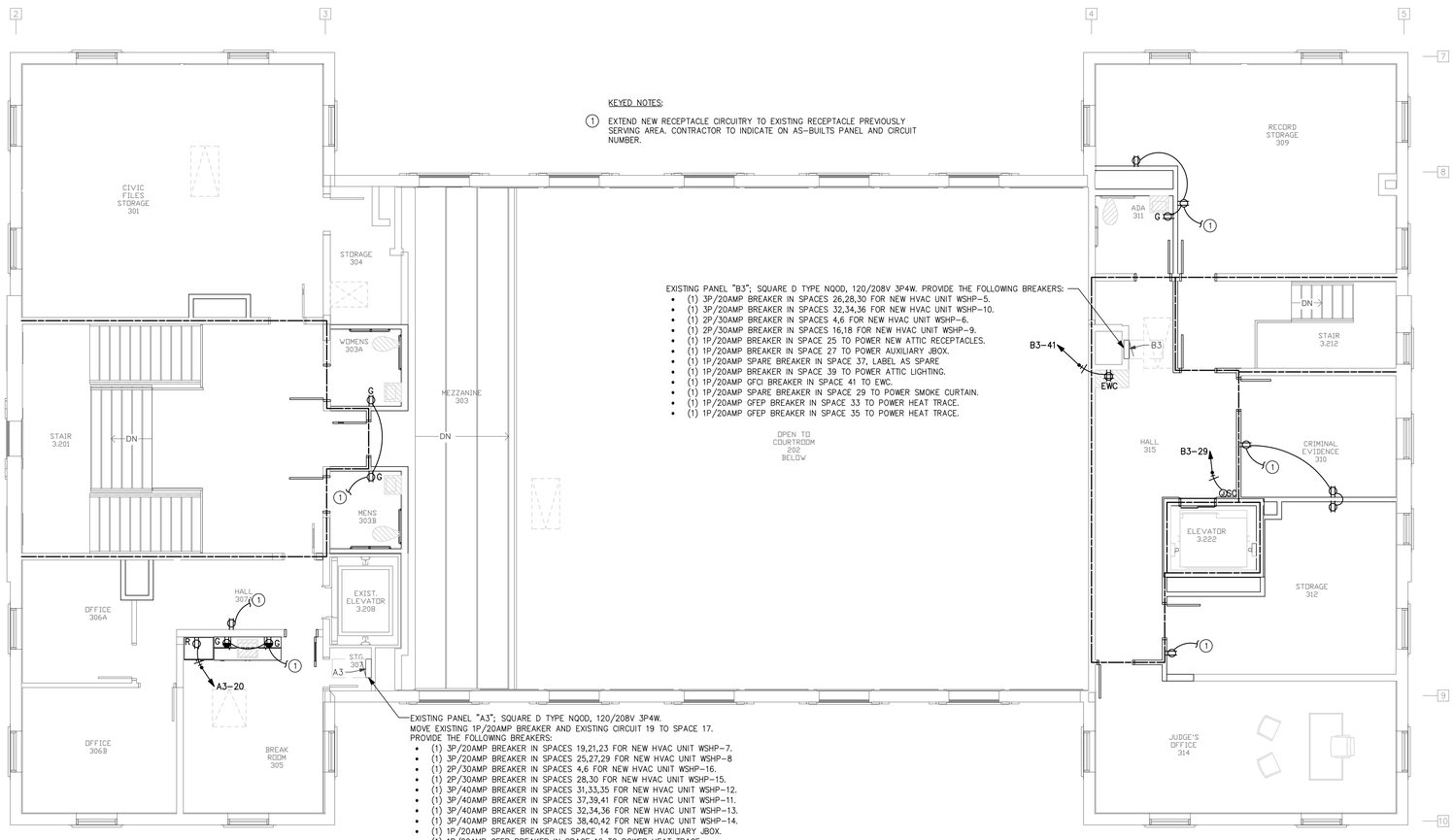
E-103

BID DOCUMENTS

HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.



KEYED NOTES:

1. EXTEND NEW RECEPTACLE CIRCUITRY TO EXISTING RECEPTACLE PREVIOUSLY SERVING AREA. CONTRACTOR TO INDICATE ON AS-BUILTS PANEL AND CIRCUIT NUMBER.

EXISTING PANEL "B3"; SQUARE D TYPE NQOD, 120/208V 3P4W. PROVIDE THE FOLLOWING BREAKERS:
- (1) 3P/20AMP BREAKER IN SPACES 26,28,30 FOR NEW HVAC UNIT WSHP-5.
- (1) 3P/20AMP BREAKER IN SPACES 32,34,36 FOR NEW HVAC UNIT WSHP-10.
- (1) 2P/30AMP BREAKER IN SPACES 4,6 FOR NEW HVAC UNIT WSHP-6.
- (1) 2P/30AMP BREAKER IN SPACES 16,18 FOR NEW HVAC UNIT WSHP-9.
- (1) 1P/20AMP BREAKER IN SPACE 25 TO POWER NEW ATTIC RECEPTACLES.
- (1) 1P/20AMP BREAKER IN SPACE 27 TO POWER AUXILIARY JBOX.
- (1) 1P/20AMP SPARE BREAKER IN SPACE 37, LABEL AS SPARE
- (1) 1P/20AMP BREAKER IN SPACE 39 TO POWER ATTIC LIGHTING.
- (1) 1P/20AMP GFCI BREAKER IN SPACE 41 TO EWC.
- (1) 1P/20AMP SPARE BREAKER IN SPACE 29 TO POWER SMOKE CURTAIN.
- (1) 1P/20AMP GFEP BREAKER IN SPACE 33 TO POWER HEAT TRACE.
- (1) 1P/20AMP GFEP BREAKER IN SPACE 35 TO POWER HEAT TRACE.

EXISTING PANEL "A3"; SQUARE D TYPE NQOD, 120/208V 3P4W.
MOVE EXISTING 1P/20AMP BREAKER AND EXISTING CIRCUIT 19 TO SPACE 17.
PROVIDE THE FOLLOWING BREAKERS:
- (1) 3P/20AMP BREAKER IN SPACES 19,21,23 FOR NEW HVAC UNIT WSHP-7.
- (1) 3P/20AMP BREAKER IN SPACES 25,27,29 FOR NEW HVAC UNIT WSHP-8
- (1) 2P/30AMP BREAKER IN SPACES 4,6 FOR NEW HVAC UNIT WSHP-16.
- (1) 2P/30AMP BREAKER IN SPACES 28,30 FOR NEW HVAC UNIT WSHP-15.
- (1) 3P/40AMP BREAKER IN SPACES 31,33,35 FOR NEW HVAC UNIT WSHP-12.
- (1) 3P/40AMP BREAKER IN SPACES 37,39,41 FOR NEW HVAC UNIT WSHP-11.
- (1) 3P/40AMP BREAKER IN SPACES 32,34,36 FOR NEW HVAC UNIT WSHP-13.
- (1) 3P/40AMP BREAKER IN SPACES 38,40,42 FOR NEW HVAC UNIT WSHP-14.
- (1) 1P/20AMP SPARE BREAKER IN SPACE 14 TO POWER AUXILIARY JBOX.
- (1) 1P/20AMP GFEP BREAKER IN SPACE 16 TO POWER HEAT TRACE.
- (1) 1P/20AMP BREAKER IN SPACE 22 TO POWER ATTIC LIGHTS
- (1) 1P/20AMP GFCI BREAKER IN SPACE 20 TO POWER REFRIGERATOR.

1 E-104 ELECTRICAL THIRD FLOOR POWER PLAN
SCALE: 3/16" = 1'-0"

TRUE NORTH

GRAPHIC SCALE: 3/16"=1'-0"
0 2 4 8

PROJECT NORTH

PENDER COUNTY COURTHOUSE

PENDER COUNTY

PENDER COUNTY NC

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JOB # 19060

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL 17993 MICHAEL A. CIARROCCA 11/19/2020

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-THIRD FLOOR POWER PLAN

E-104

BID DOCUMENTS

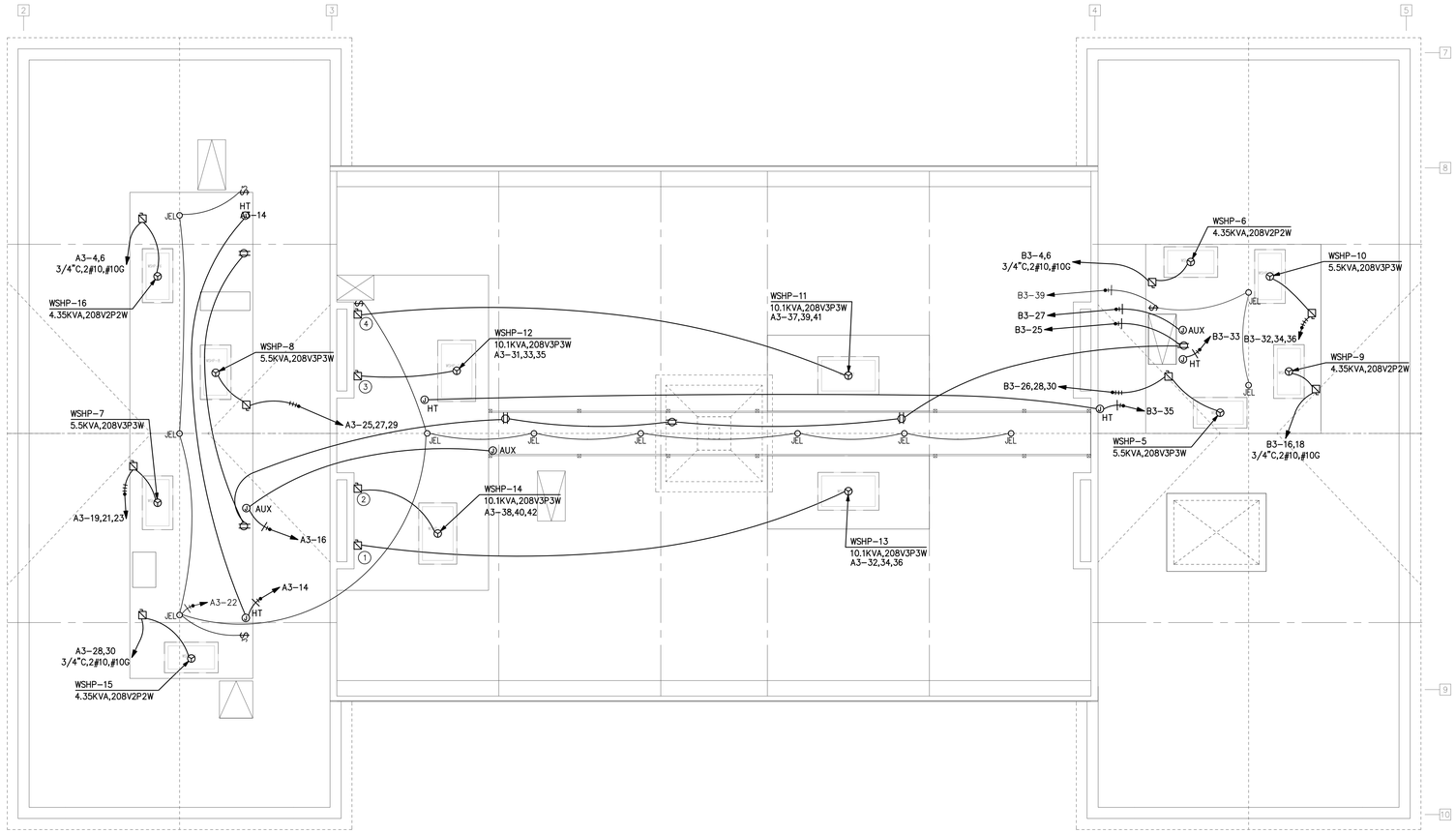
HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.

KEYED NOTES:

1. PANEL SCHEDULE INDICATES EXISTING DISCONNECT LABELED "A" IS FED FROM A3-32,34,36. REPLACE EXISTING DISCONNECT "A" WITH NEW 60AMP DISCONNECT. INSTALL 3/4"C 3#8,#10G FROM DISCONNECT TO NEW UNIT WSHP-13. LINE CIRCUITRY TO REMAIN. SIZE FUSES AT EQUIPMENT NAMEPLATE.
2. RECORD DRAWINGS INDICATE EXISTING DISCONNECT LABELED "B" IS FED FROM A3-38,40,42. REPLACE EXISTING DISCONNECT "B" WITH NEW 60AMP DISCONNECT. INSTALL 3/4"C 3#8,#10G FROM DISCONNECT TO NEW UNIT WSHP-14. LINE CIRCUITRY TO REMAIN. SIZE FUSES AT EQUIPMENT NAMEPLATE.
3. PANEL SCHEDULE INDICATES EXISTING DISCONNECT LABELED "C" IS FED FROM A3-31,33,35. REPLACE EXISTING DISCONNECT "C" WITH NEW 60AMP DISCONNECT. INSTALL 3/4"C 3#8,#10G FROM DISCONNECT TO NEW UNIT WSHP-12. LINE CIRCUITRY TO REMAIN. SIZE FUSES AT EQUIPMENT NAMEPLATE.
4. RECORD DRAWINGS INDICATE EXISTING DISCONNECT D IS FED FROM A3-37,39,41. REPLACE EXISTING DISCONNECT "D" WITH NEW 60AMP DISCONNECT. INSTALL 3/4"C 3#8,#10G FROM DISCONNECT TO NEW UNIT WSHP-11. LINE CIRCUITRY TO REMAIN. SIZE FUSES AT EQUIPMENT NAMEPLATE.



1 E-105 ELECTRICAL ATTIC PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 1/16"=1'-0"
0 2 4 8

TRUE NORTH N
PROJECT NORTH N

PENDER COUNTY COURTHOUSE

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JOB # 19060

NORTH CAROLINA PROFESSIONAL SEAL 17593 MARK A. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-ATTIC ELECTRIC PLAN

E-105

BID DOCUMENTS

HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

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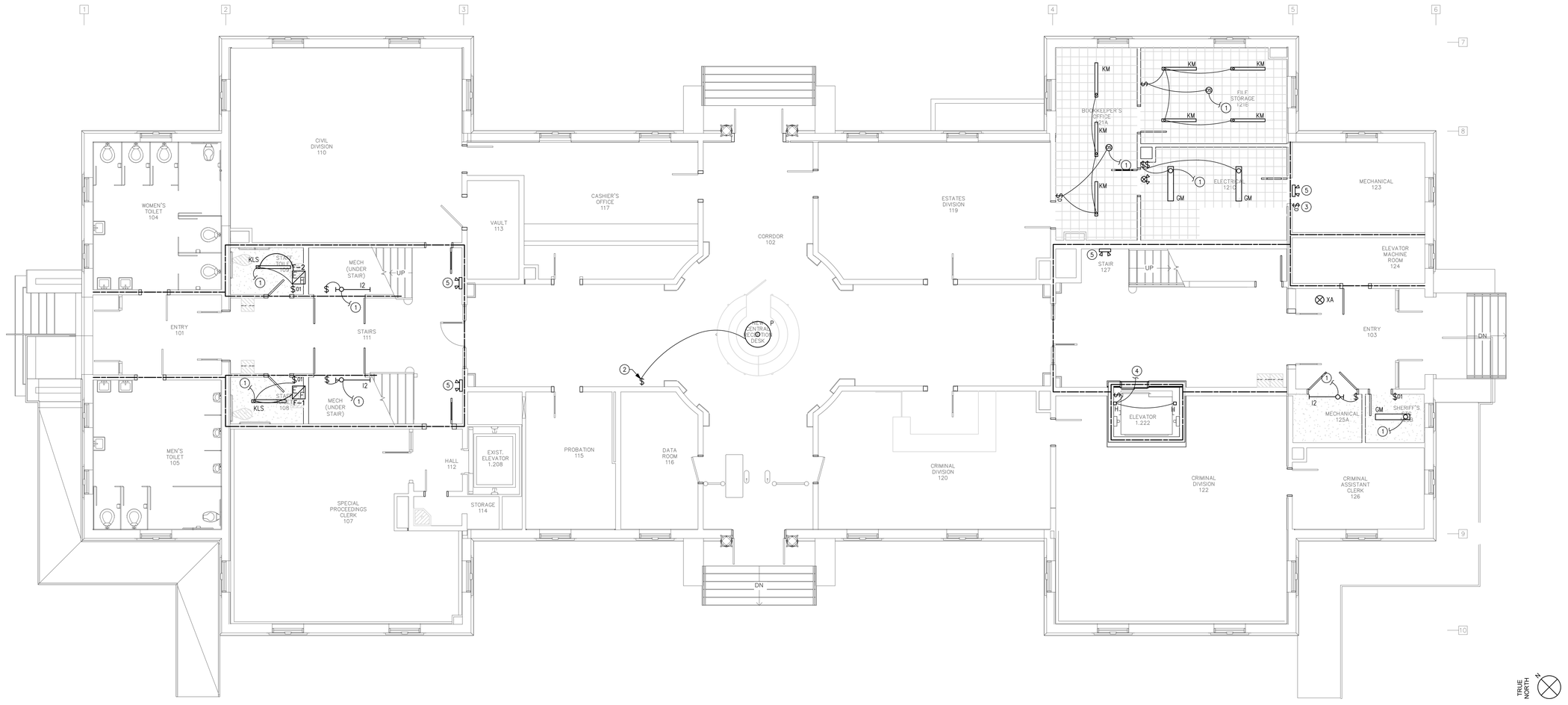
KEYED NOTES:

1. CONNECT TO LIGHTING CIRCUIT PREVIOUSLY SERVING SPACE.
2. INSTALL NEW LINE VOLTAGE DIMMER SWITCH IN EXISTING BLANK SWITCH LOCATION. CONTRACTOR TO REUSE EXISTING CIRCUITRY TO PENDANT IF AVAILABLE.
3. LOCATION OF RELOCATED EXISTING DIMMER SWITCH.
4. FED FROM RECEPTACLE CIRCUIT IN THE ELEVATOR PIT. SEE E-101.
5. CONNECT EGRESS FIXTURE TO UN-SWITCHED LEG OF EXISTING ROOM CIRCUITRY.



1 E-112 ELECTRICAL FIRST FLOOR LIGHTING PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 3/16"=1'-0"
0 2 4 8

TRUE NORTH N
PROJECT NORTH N

PENDER COUNTY COURTHOUSE

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JOB # 19060

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER MARK A. CIARROCCA 17093 3/27/2020

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-FIRST FLOOR LIGHTING PLAN

E-112

BID DOCUMENTS

HAZARDOUS MATERIALS

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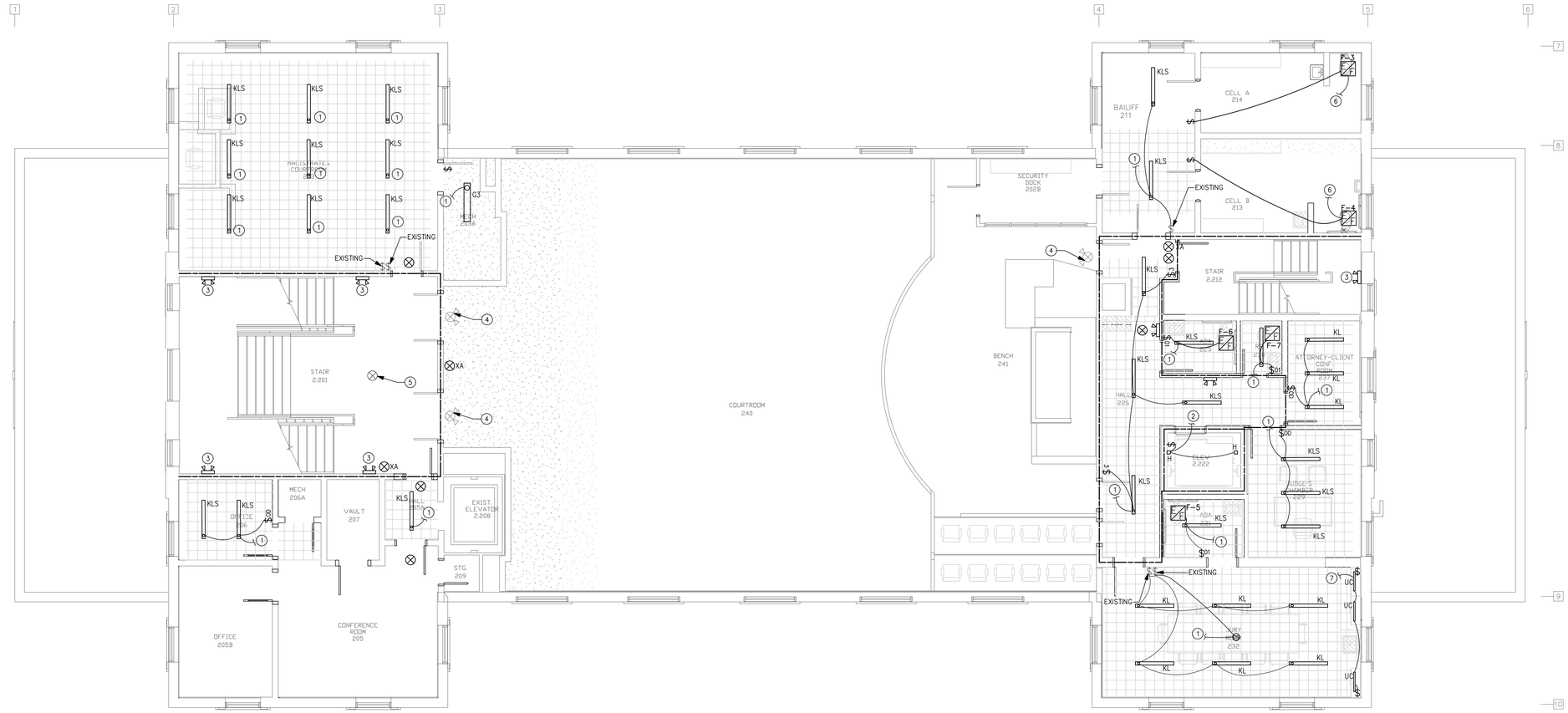
KEYED NOTES:

1. CONNECT TO LIGHTING CIRCUIT PREVIOUSLY SERVING SPACE.
2. FED FROM RECEPTACLE CIRCUIT IN THE ELEVATOR PIT. SEE E-101.
3. CONNECT EGRESS FIXTURE TO UN-SWITCHED LEG OF EXISTING ROOM CIRCUITRY.
4. EXISTING COMBO EXIT/EMERGENCY EXIT LIGHT.
5. EXISTING EXIT SIGN.
6. EXHAUST FAN WILL BE CONTROLLED BY NEW SWITCH LOCATED OUTSIDE CELL BLOCK. CONNECT EXHAUST FAN TO LIGHTING CIRCUIT SERVING SPACE.
7. CIRCUIT UNDER CABINET LIGHTS TO RECEPTACLE CIRCUIT IN SPACE.



1 E-113 ELECTRICAL SECOND FLOOR LIGHTING PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 3/16"=1'-0"
0 2 4 8

TRUE NORTH N
PROJECT NORTH N

PENDER COUNTY COURTHOUSE

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JOB # 19060

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 17539 MICHAEL A. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: XXXXX
CHECKED BY: M. CIARROCCA

ELECTRICAL-SECOND FLOOR LIGHTING PLAN

E-113

BID DOCUMENTS

HAZARDOUS MATERIALS

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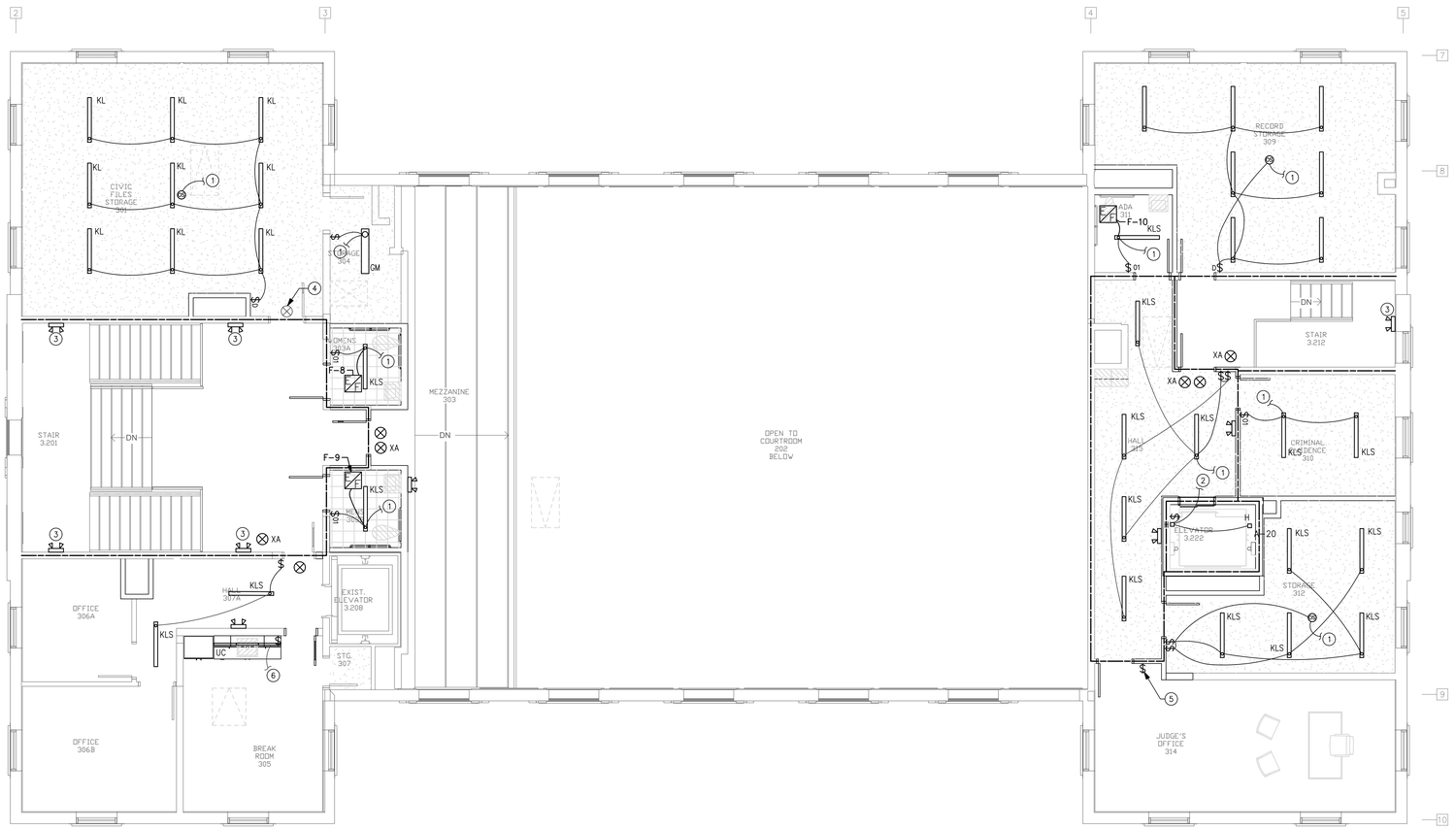
KEYED NOTES:

1. CONNECT TO LIGHTING CIRCUIT PREVIOUSLY SERVING SPACE.
2. FED FROM RECEPTACLE CIRCUIT IN THE ELEVATOR PIT. SEE E-101.
3. CONNECT EGRESS FIXTURE TO UN-SWITCHED LEG OF EXISTING ROOM CIRCUITRY.
4. EXISTING EXIT SIGN.
5. NEW LOCATION FOR EXISTING SWITCH.
6. CIRCUIT UNDER CABINET LIGHTS TO RECEPTACLE CIRCUIT IN SPACE.



1 E-114 ELECTRICAL THIRD FLOOR LIGHTING PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 0 2 4 8

TRUE NORTH

PROJECT NORTH

PENDER COUNTY COURTHOUSE

PENDER COUNTY

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JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17058 M. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: XXXXX
CHECKED BY: M. CIARROCCA

ELECTRICAL-THIRD FLOOR LIGHTING PLAN

E-114

BID DOCUMENTS

HAZARDOUS MATERIALS

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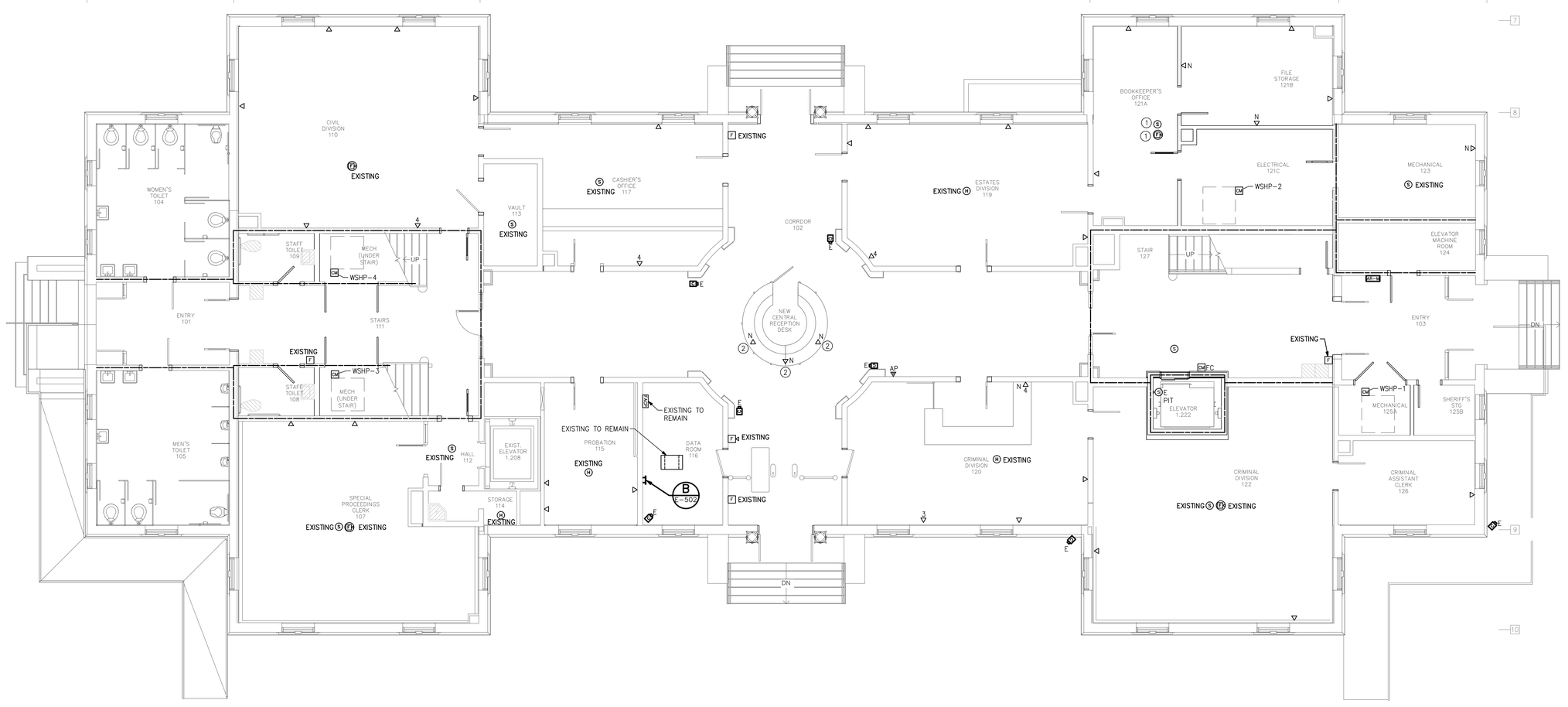
KEYED NOTES:

1. RELOCATED EXISTING FIRE ALARM DEVICE.
2. COORDINATE MOUNTING WITH ARCHITECT. DEVICE SHALL BE FED FROM CRAWL SPACE.

FIRE ALARM OPERATION MATRIX

	CONTROL UNIT ANNUNCIATION								NOTIFICATION					CONTROL					
SYSTEM INPUTS	A: ACTIVATE COMMON ALARM SIGNAL INDICATOR	B: ACTIVATE AUDIBLE ALARM SIGNAL	C: ACTIVATE COMMON SUPERVISORY / SIGNAL INDICATOR	D: ACTIVATE AUDIBLE SUPERVISORY SIGNAL	E: ACTIVATE COMMON TROUBLE SIGNAL INDICATOR	F: ACTIVATE AUDIBLE COMMON TROUBLE SIGNAL	G: ACTIVATE COMMON FIRE ALARM DRILL SIGNAL INDICATOR	H: ACTIVATE AUDIBLE FIRE ALARM DRILL SIGNAL	I: ACTIVATE BUILDING FIRE ALARM EVACUATION SIGNALS	J: ACTIVATE BUILDING CO ALARM EVACUATION SIGNALS	K: DISPLAY / PRINT CHANGE OF STATUS	L: TRANSMIT FIRE ALARM SIGNAL TO MONITORING CENTER	M: TRANSMIT SUPERVISORY SIGNAL TO MONITORING CENTER	N: TRANSMIT TROUBLE SIGNAL TO MONITORING CENTER	O: RELEASE MAGNETICALLY HELD FIRE DOORS	P: RECALL ELEVATORS TO PRIMARY RECALL FLOOR	Q: RECALL ELEVATORS TO ALTERNATE RECALL FLOOR	R: SWITCH ALL LIGHTING ON BY LIGHTING CONTROL PANEL(S)	S: SHUT DOWN ALL BUILDING AIR HANDLERS
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1 MANUAL PULL STATIONS	X	X							X		X	X			X			X	X
2 SMOKE/HEAT DETECTORS	X	X							X		X	X			X			X	X
3 HEAT DETECTOR - ELEVATOR MECH. ROOM	X	X							X		X	X			X	X		X	X
4 SMOKE DETECTOR- ELEVATOR MECH. ROOM	X	X							X		X	X			X			X	X
5 SMOKE DETECTOR - PRIMARY FLOOR ELEVATOR LOBBY	X	X									X	X			X		X	X	X
6 SMOKE DETECTOR - ALTERNATE FLOOR ELEVATOR LOBBY	X	X									X	X			X			X	X
7 HEAT DETECTOR - ELEV. PIT	X	X									X	X			X		X	X	X
8 SPRINKLER WATERFLOW	X	X							X		X	X			X			X	X
9 FIRE PUMP RUNNING	X	X									X	X			X			X	X
10 HOOD SUPPRESSION SYS. RELEASE	X	X									X				X		X	X	X
11 FIRE ALARM DRILL BUTTON ACTIVATION	X	X							X	X	X				X			X	
12 SPRINKLER CONTROL VALVE			X	X							X			X					
13 SPRINKLER SYSTEM LOW TEMPERATURE			X	X							X			X					
14 SPRINKLER SYSTEM LOW AIR PRESSURE			X	X							X			X					
15 FIRE PUMP FAILURE TO START			X	X							X			X					

COORDINATE EXISTING FIRE ALARM SYSTEM MATRIX WITH THE ONE INDICATED ABOVE.
REPORT ANY CONFLICTS TO THE ARCHITECT/ENGINEER FOR DIRECTION.
IT IS NOT THE INTENT TO MODIFY THE EXISTING FIRE ALARM DEVICE MATRIX TO CONFORM TO THIS MATRIX, RATHER TO INCORPORATE THE NEW FIRE ALARM DEVICES INTO THE EXISTING FIRE ALARM MATRIX UNLESS THE EXISTING MATRIX IS NON CODE COMPLIANT OR NOTED OTHERWISE.
MATRIX DATA FOR ELEVATOR INPUT/OUTPUTS REFER TO THE NEW ELEVATOR ONLY.



1 E-122 ELECTRICAL FIRST FLOOR AUXILIARY SYSTEMS PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 3/16"=1'-0" (0 2 4 8)

TRUE NORTH N

PROJECT NORTH N

PENDER COUNTY COURTHOUSE

PENDER COUNTY

PENDER COUNTY NC

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NC LICENSE # C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17550 MARK A. CIARROCCA 3/29/20

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL- FIRST FLOOR AUXILIARY SYSTEMS PLAN

E-122

BID DOCUMENTS

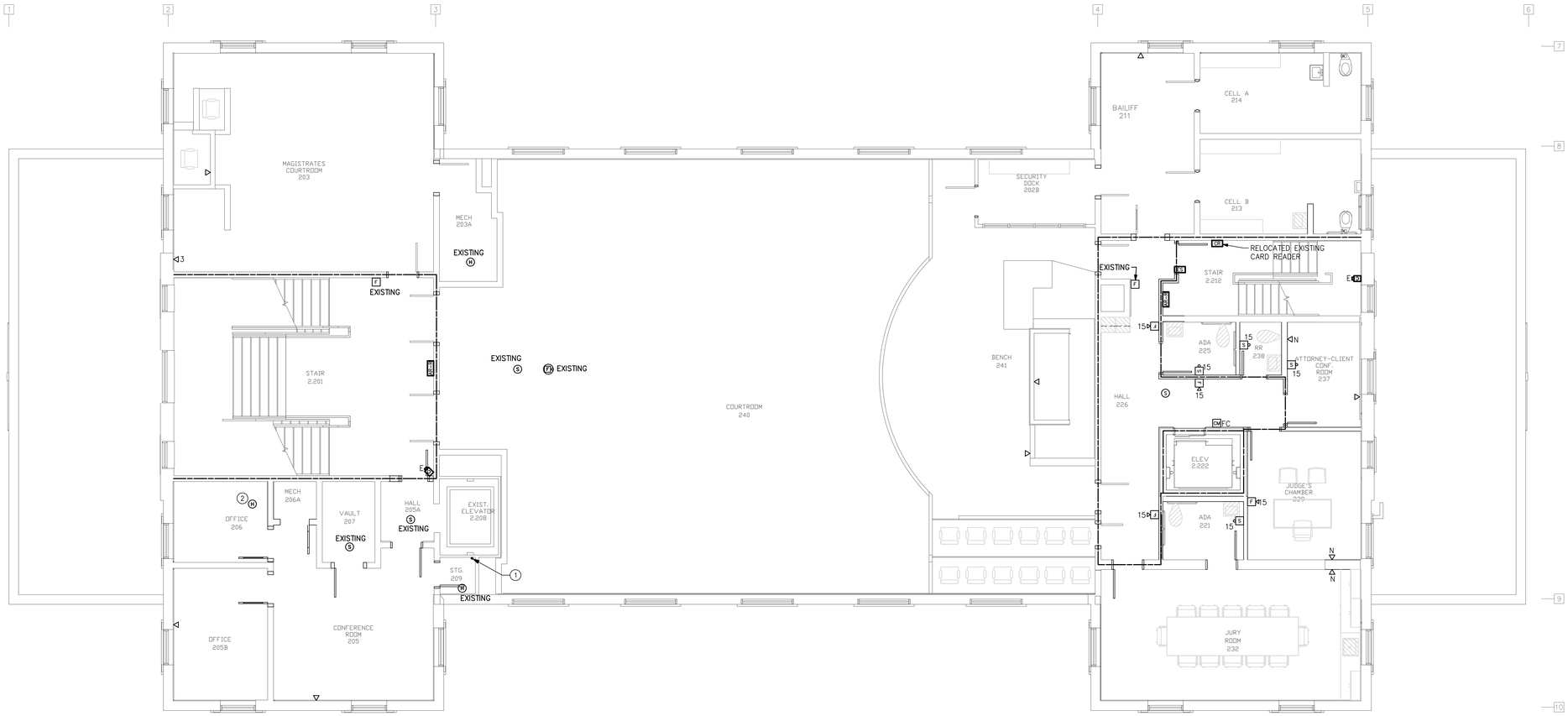
HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.

KEYED NOTES

1. EXISTING THRU FLOOR DATA PENETRATION
2. RELOCATED EXISTING FIRE ALARM DEVICE.



1 E-123 ELECTRICAL SECOND FLOOR AUXILIARY SYSTEMS PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 3/16"=1'-0"
0 2 4 8

TRUE NORTH N
PROJECT NORTH N

PENDER COUNTY COURTHOUSE

PENDER COUNTY

PENDER COUNTY NC

LS3P

101 NORTH THIRD STREET SUITE 500
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TEL. 910.790.9901 FAX 910.790.3111
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CHEATHAM & ASSOCIATES, P.A.
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3412 ENTERPRISE DRIVE
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(910) 452-4210
FAX: (910) 452-4211
OFFICE@CHEATHAMPA.COM
NC LICENSE# C-1073

JOB # 19060

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-SECOND FLOOR AUXILIARY SYSTEMS PLAN

E-123

BID DOCUMENTS

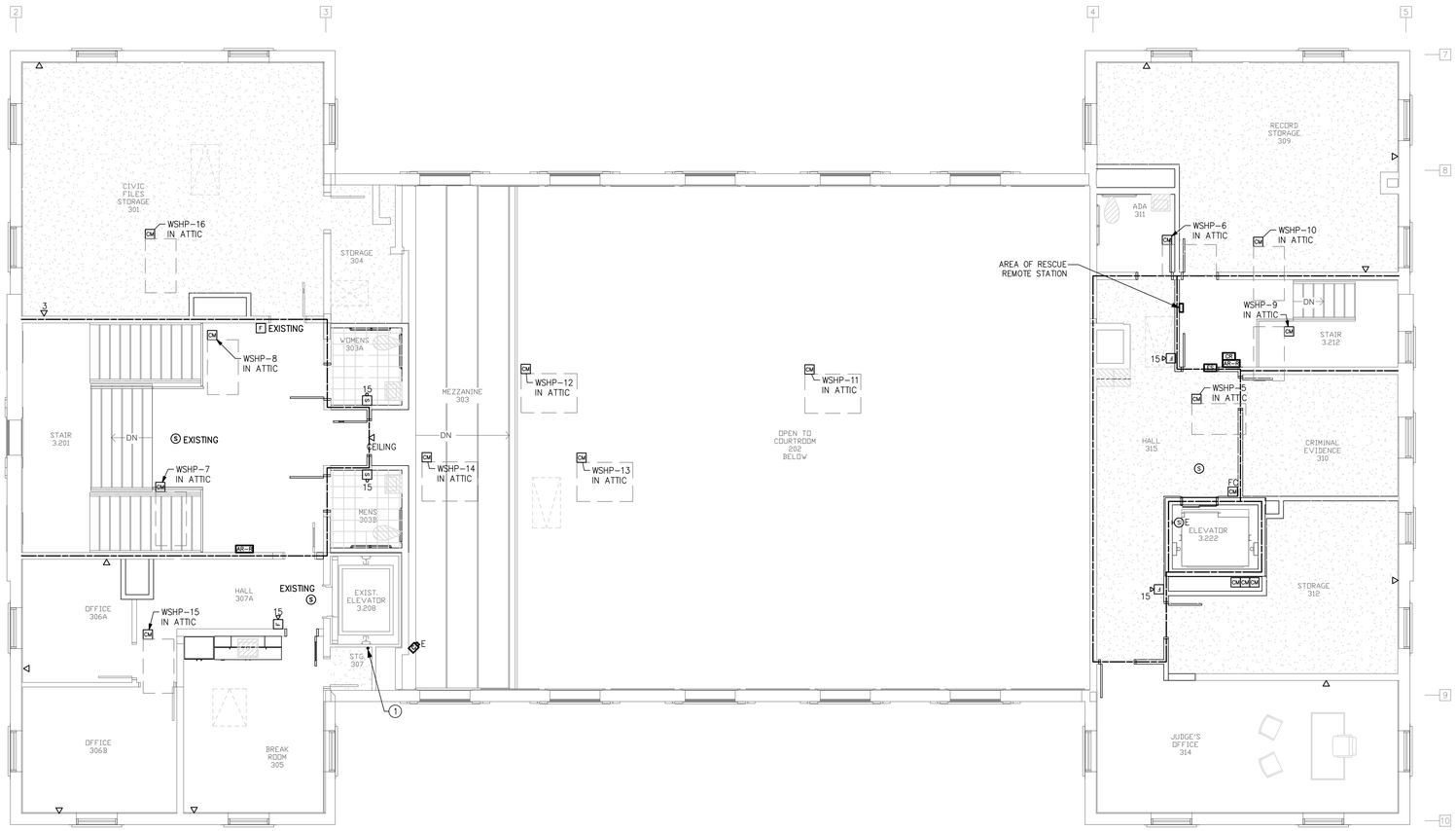
HAZARDOUS MATERIALS

THE BUILDING SURFACES MAY HAVE LEAD PAINT. ALL CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REGULATIONS 29 CFR 1926.62 BY DEVELOPING A COMPLIANCE PLAN. THE PROJECT DOES NOT INCLUDE ABATEMENT OF ALL LEAD BASED TO LEAD CONTAINING PAINT IN THE BUILDING. WHERE NECESSARY, CONTRACTORS CAN USE GENERAL CONTRACTOR'S ENVIRONMENTAL CONTRACTOR TO REMEDIATE A SPOT OR LOCATION WHERE LEAD PAINT INTERFERES WITH CONSTRUCTION WORK. COST OF REMEDIATION WILL BE INVOICED AGAINST THE LEAD REMOVAL ALLOWANCE.

ALL ASBESTOS IS IDENTIFIED AND WILL BE ABATED AS PART OF THE PROJECT. ANY SUSPECTED AREAS MUST BE REPORTED TO THE ARCHITECT AND FURTHER INVESTIGATION WILL BE DONE BY THE ABATEMENT DESIGNER.

KEYED NOTES

1. EXISTING THRU FLOOR DATA PENETRATION



1 E-124 ELECTRICAL THIRD FLOOR AUXILIARY SYSTEMS PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"
0 2 4 8

TRUE NORTH
PROJECT NORTH

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PENDER COUNTY

PENDER COUNTY NC

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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17053 MARK A. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-THIRD FLOOR AUXILIARY SYSTEMS PLAN

E-124

BID DOCUMENTS

MANUAL TRANSFER SWITCH

MTS:	#1	MANUAL TRANSFER SWITCH DESIGNATION
NORMAL SOURCE:	PANEL "4M"/CKT #	NORMAL SOURCE DESIGNATION
STANDBY SOURCE:	GENSET C/B 225A	STANDBY SOURCE DESIGNATION
RATING:	260A	RATING DESIGNATION
VOLTAGE:	480/277V,3PH,4W	VOLTAGE & PHASE DESIGNATION

PANELBOARD

PANEL DESIGNATION	PANEL: P2	
SOURCE DESIGNATION	SOURCE: PANEL "P1"/CKT #	
RATING DESIGNATION	RATING: 225 AMPS	
VOLTAGE & PHASE DESIGNATION	VOLTAGE: 120/208V,3PH,4W	

HEIGHT AS REQUIRED (TYPICAL)

LENGTH AS REQUIRED (TYPICAL)

SWITCHBOARD

SWITCHBOARD:	MSB	SWITCHBOARD DESIGNATION
SOURCE:	UTILITY/CB #	SOURCE DESIGNATION
RATING:	1000 AMPS	RATING DESIGNATION
VOLTAGE:	480/277V,3PH,4W	VOLTAGE & PHASE DESIGNATION

EQUIPMENT SAFETY SWITCH/ENCLOSED CIRCUIT BREAKER/MOTOR STARTER/VFD

EQUIPMENT DESIGNATION	ENCL C/B: #1	
SOURCE DESIGNATION	SOURCE: PANEL"P"/CKT #	
RATING DESIGNATION	RATING: 200 AMPS	
VOLTAGE & PHASE DESIGNATION	VOLTAGE: 480/277V,3PH,4W	

AUTOMATIC TRANSFER SWITCH

ATS:	#1	AUTOMATIC TRANSFER SWITCH DESIGNATION
NORMAL SOURCE:	PANEL "4M"/CKT #	NORMAL SOURCE DESIGNATION
STANDBY SOURCE:	GENSET C/B 225A	STANDBY SOURCE DESIGNATION
RATING:	260A	RATING DESIGNATION
VOLTAGE:	480/277V,3PH,4W	VOLTAGE & PHASE DESIGNATION

DISCONNECT

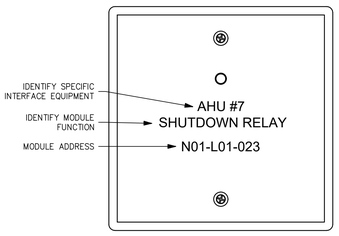
DISCONNECT DESIGNATION	DISCONNECT: DOAS #1	
SOURCE DESIGNATION	SOURCE: PANEL"4M"/CKT #	
RATING DESIGNATION	RATING: 200 AMPS	
VOLTAGE & PHASE DESIGNATION	VOLTAGE: 480V,3PH,3W	

LIGHTING INVERTER

LTG INV:	INV25	LIGHTING INVERTER DESIGNATION
SOURCE:	PANEL "4M"/CKT #	SOURCE DESIGNATION
RATING:	125kW	RATING DESIGNATION
VOLTAGE:	277V,1PH,2W	VOLTAGE & PHASE DESIGNATION

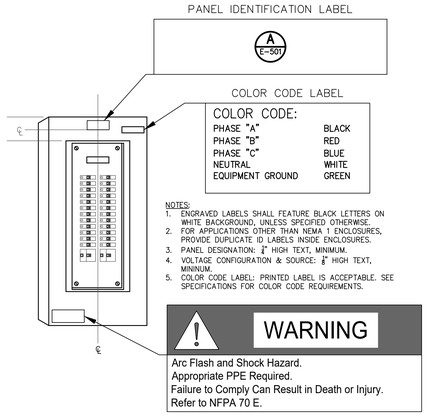
NOTES:
1. ENGRAVED PLASTIC FOR NAMEPLATE.
2. HIGH PERFORMANCE, DOUBLE COATED TAPE WITH ADHESIVE TO ATTACH LABELS. DESIGN BASIS: 3M #06383 OR APPROVED EQUIVALENT.
3. 3/8" ENGRAVED LETTERS EQUIPMENT NAME DESIGNATION AND 1/4" ENGRAVED LETTERS ON ALL OTHER DESIGNATIONS.

A E-501 TYPICAL NAMEPLATE DETAILS
NO SCALE



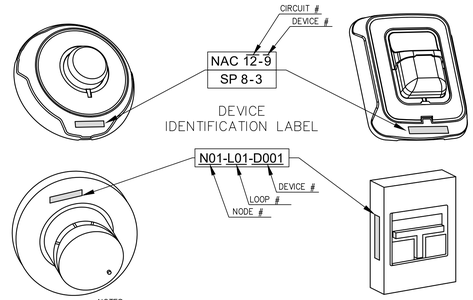
NOTES:
1. NODE DESIGNATION MAY BE OMITTED FOR SINGLE NODE APPLICATIONS
2. NAMING CONVENTION SHALL EMULATE FACP DISPLAY
3. 3/8" HIGH BLACK ON CLEAR, BOLD FONT, P-TOUCH TYPE LABELS
4. LABELS SHALL BE APPLIED STRAIGHT & LEVEL TO DEVICE ORIENTATION
5. EXCESS LABEL MATERIAL SHALL BE TRIMMED

D E-501 CONTROL/RELAY MODULE LABELING DETAIL
NO SCALE



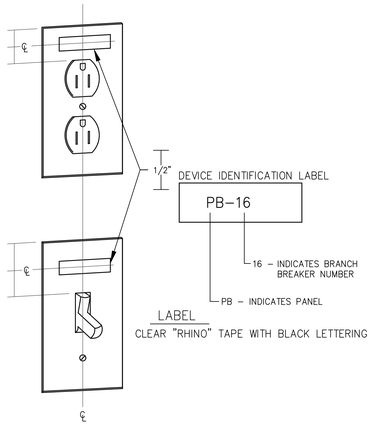
NOTES:
1. ENGRAVED LABELS SHALL FEATURE BLACK LETTERS ON WHITE BACKGROUND, UNLESS SPECIFIED OTHERWISE.
2. FOR APPLICATIONS OTHER THAN NEMA 1 ENCLOSURES, PROVIDE DUPLICATE ID LABELS INSIDE ENCLOSURES.
3. PANEL DESIGNATION: ¾" HIGH TEXT, MINIMUM.
4. VOLTAGE CONFIGURATION & SOURCE: ⅜" HIGH TEXT, MINIMUM.
5. COLOR CODE LABEL: PRINTED LABEL IS ACCEPTABLE. SEE SPECIFICATIONS FOR COLOR CODE REQUIREMENTS.

B E-501 TYPICAL PANELBOARD IDENTIFICATION
NO SCALE

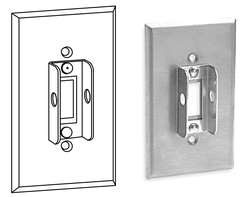


NOTES:
1. NODE DESIGNATION MAY BE OMITTED FOR SINGLE NODE APPLICATIONS.
2. ADDRESSABLE DEVICE ADDRESS NAMING CONVENTION SHALL EMULATE FACP DISPLAY.
3. NOTIFICATION DEVICE LABEL SHALL MATCH AS-BUILT DRAWING CIRCUITRY LABELS.
4. LABEL TEXT SHALL BE A SIZE WHERE EASILY READ FROM FLOOR LEVEL. (3/8" MIN)
5. BLACK ON CLEAR, BOLD FONT, P-TOUCH TYPE LABELS.
6. LABELS SHALL BE APPLIED STRAIGHT & LEVEL TO DEVICE ORIENTATION.
7. EXCESS LABEL MATERIAL SHALL BE TRIMMED.
8. MOUNT LABEL ON FLAT DEVICE BASE SURFACE.

C E-501 TYPICAL FIRE ALARM DEVICE IDENTIFICATION
NO SCALE

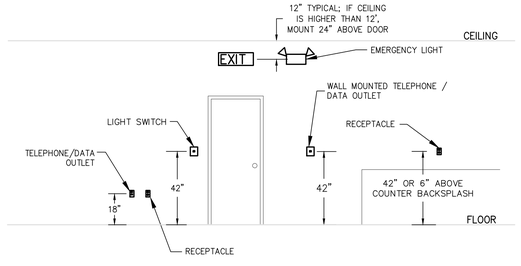


E E-501 WIRING DEVICE IDENTIFICATION LABEL
NO SCALE

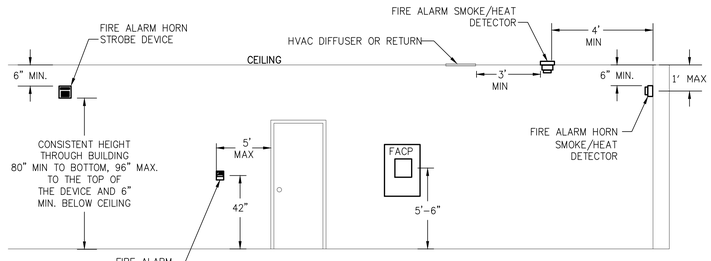


TYPICALLY USED FOR 120V EQUIPMENT DISCONNECTS INCLUDING, WATER HEATERS, CIRCULATION PUMPS, DAHU'S, ETC.

F E-501 LOCKABLE TOGGLE SWITCH COVER
NO SCALE



G E-501 MOUNTING HEIGHTS OF DEVICES
NO SCALE



NOTES:
1. PROVIDE FLEXIBLE CONDUIT CONNECTION TO DEVICES THAT PROVIDES SUFFICIENT SLACK TO MOVE DEVICES UP TO 4' HORIZONTALLY IN ANY DIRECTION FROM WHERE DEVICES ARE INDICATED ON THE PLANS.
2. MOUNT DEVICES IN APPROVED BOXES.

H E-501 MOUNTING HEIGHTS OF DEVICES DETAIL – FIRE ALARM
NO SCALE

PENDER COUNTY COURTHOUSE

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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17753 3/29/20 M. A. CIARROCCA

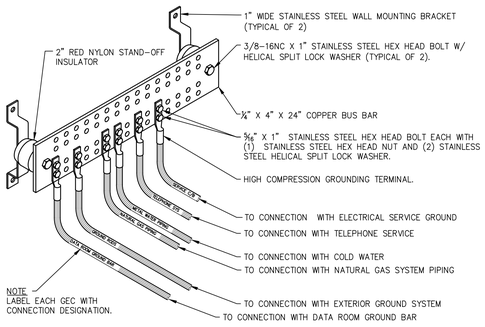
No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: XXXXX
CHECKED BY: M. CIARROCCA

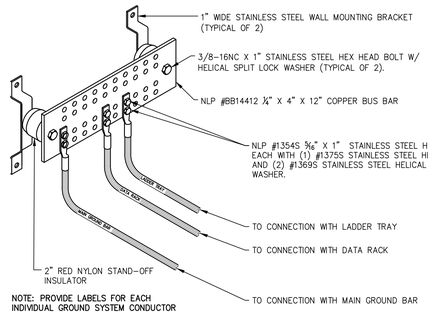
ELECTRICAL-DETAILS

E-501

BID DOCUMENTS

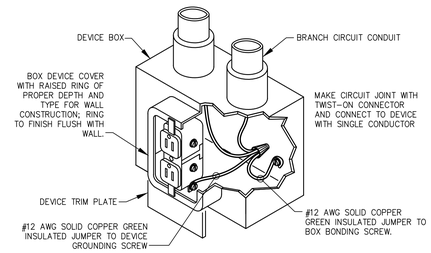


A E-502 MAIN GROUND BAR
NO SCALE

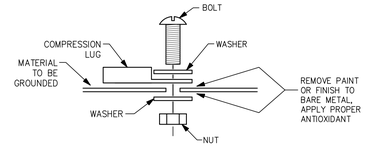


NOTE: PROVIDE LABELS FOR EACH INDIVIDUAL GROUND SYSTEM CONDUCTOR

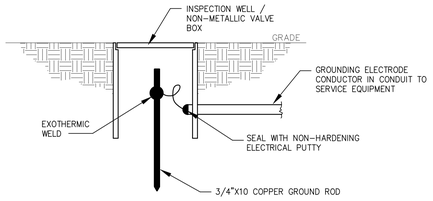
B E-502 DATA ROOM GROUND BAR
NO SCALE



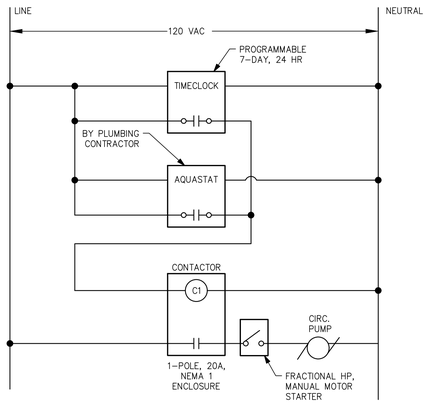
C E-502 OUTLET GROUNDING DETAIL
SCALE: N/A



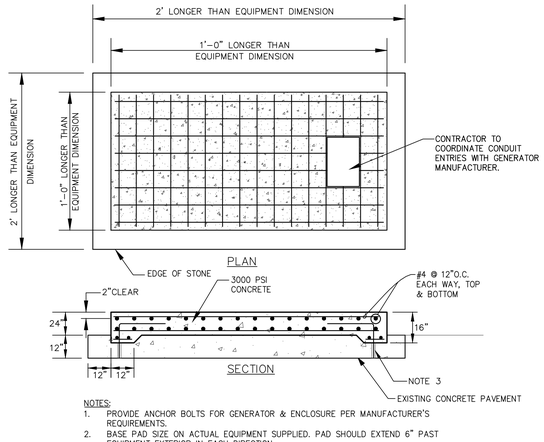
D E-502 GROUNDING LUG DETAIL
NO SCALE



E E-502 GROUND ROD & INSPECTION WELL
NO SCALE

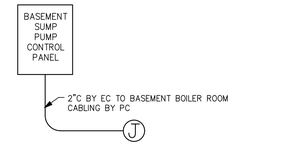


F E-502 CIRCULATION PUMP CONTROL SCHEMATIC
NO SCALE

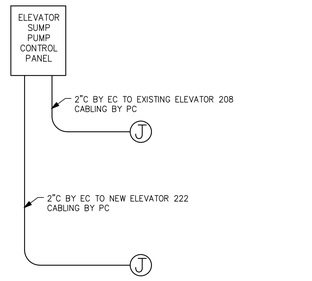


NOTES:
1. PROVIDE ANCHOR BOLTS FOR GENERATOR & ENCLOSURE PER MANUFACTURER'S REQUIREMENTS.
2. BASE PAD SIZE ON ACTUAL EQUIPMENT SUPPLIED. PAD SHOULD EXTEND 6" PAST EQUIPMENT EXTERIOR IN EACH DIRECTION.
3. #4 REBAR ADHESIVE ANCHOR W/ 4" COVER FROM EACH EDGE AND MIN. 2.75" EMBEDMENT IN SLAB. BEND AND TIE TO REBAR WITH 6" HOOK. (TYP.).

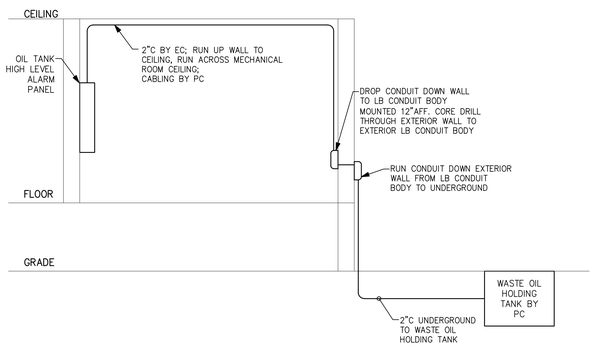
G E-502 GENERATOR PAD DETAIL
NO SCALE



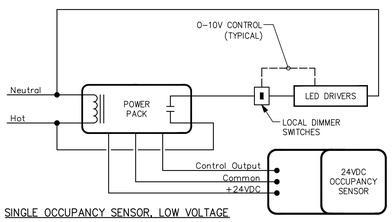
H E-502 BSPCP CONNECTION DIAGRAM
NO SCALE



J E-502 ESPCP CONNECTION DIAGRAM
NO SCALE

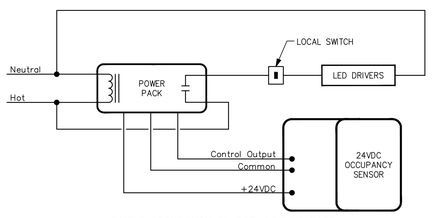


K E-502 OIL TANK ALARM CONNECTION DIAGRAM
NO SCALE



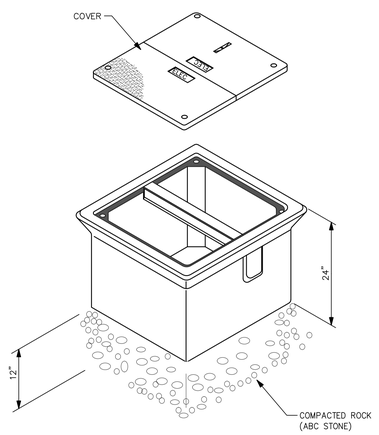
SINGLE OCCUPANCY SENSOR, LOW VOLTAGE

L E-502 OCCUPANCY SENSOR WIRING FOR DIMMING LEVEL LIGHTING CONTROL
NO SCALE



SINGLE OCCUPANCY SENSOR, LOW VOLTAGE

M E-502 OCCUPANCY SENSOR WIRING LIGHTING CONTROL
NO SCALE



N E-502 TYPICAL HANDHOLE DETAIL
NO SCALE
DESIGN BASIS: QUAZITE COVER #PG2424HH00
QUAZITE BOX #PG2424BA24

PENDER COUNTY COURTHOUSE

PENDER COUNTY

PENDER COUNTY NC

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JOB # 19060

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 17550 MICHAEL A. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: XXXXX
CHECKED BY: M. CIARROCCA

ELECTRICAL-DETAILS

E-502

BID DOCUMENTS

LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	DESCRIPTION	LAMP	BALLAST	VOLTS	MOUNTING	MANUFACTURER / MODEL	NOTES	CALLOUT
EG		EMERGENCY EGRESS, BATTERY	(2) 4W MR 16 LED	BATTERY	120V 1P 2W	WALL; MTD 8'-0" AFF	EMERGLITE #COMPACT PREMIER SERIES CHLORIDE #TPU SERIES LIGHTALARMS #COMPACT GRANDE SERIES	CONNECT TO NEAREST UNSWITCHED LIGHT CIRCUIT IN SAME SPACE. THESE FIXTURES ARE NOT TAGGED WITH "EG" ON THE DRAWINGS; ONLY THE SYMBOL IS USED. DESIGN CRITERIA: 70 FT SPACING, UTILIZING 6 FT WIDE PATH, 80/50/20 REFLECTANCES, MAINTAINING 1 FC AVG AND 0.1 FC MININUM.	EG
GL		4' GASKETED	(1) 40W LED	LED DRIVER	120V 1P 2W	SURFACE	WILLIAMS #96 SERIES DAYBRITE #V2 SERIES METALUX #4VT SERIES	4000 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. STAINLESS STEEL MOUNTING HARDWARE & LENS CLAMPS.	GL
GM		4' GASKETED	(1) 45W LED	LED DRIVER	120V 1P 2W	SURFACE	WILLIAMS #96 SERIES DAYBRITE #V2 SERIES METALUX #4VT SERIES	5300 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. STAINLESS STEEL MOUNTING HARDWARE & LENS CLAMPS.	GM
H		4' GASKETED LED, VERTICALLY MOUNTED	(1) 40W LED	LED DRIVER	120V 1P 2W	WALL; 8'-0" AFF	PARAMOUNT #CO SERIES PHILIPS EQUIVALENT FAILSAFE #HVSL2 SERIES	4000 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. STAINLESS STEEL MOUNTING HARDWARE & LENS CLAMPS. VERTICALLY MOUNTED. COORDINATE LOCATION WITH ELEVATOR INSTALLER / VENDOR / INSPECTOR.	H
I2		4' INDUSTRIAL	(1) 30W LED	LED DRIVER	120V 1P 2W	OVER DOOR	COLUMBIA #LCL SERIES DAYBRITE #CSS SERIES METALUX #SNLED SERIES	3700 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. WIRE GUARD.	I2
JEL		ATTIC LIGHT	(1) 18W LED	LED DRIVER	120V 1P 2W	PENDANT; MTD 9' TO BOTTOM OF FIXTURE	HUBBELL #VW1 SERIES BOCK #VWBLG215 SERIES CROUSE-HINDS #EVLED SERIES	3/4" CONDUIT HUB; SILVER GRAY FINISH; CLEAR GLASS GLOBE; DIE CAST GUARD. COORDINATE LIGHT FIXTURE LOCATION WITH MECHANICAL DUCTWORK.	JEL
KL		DIRECT/INDIRECT PENDANT	(1) 38W LED	LED DIMMABLE DRIVER	120V 1P 2W	PENDANT; 9'-0' AFF	FINELITE #HP-4ID-B-B SERIES LEDALITE #TRUGROOVE SERIES NEO-RAY #DEFINE 4 SERIES	4000 NOMINAL LUMENS. 60/40 DIRECT/INDIRECT RATIO PER 4 FOOT. 3500K COLOR TEMPERATURE.	KL
KLS		DIRECT SURFACE MOUNT	(1) 30W LED	LED DIMMABLE DRIVER	120V 1P 2W	SURFACE	FINELITE #HP-4ID-B-B SERIES LEDALITE #TRUGROOVE SERIES NEO-RAY #DEFINE 4 SERIES	3000 NOMINAL LUMENS. 3500K COLOR TEMPERATURE.	KLS
KM		4' DIRECT/INDIRECT PENDANT	(1) 44W LED	LED DIMMABLE DRIVER	120V 1P 2W	PENDANT; 9'-0' AFF	FINELITE #HP-4ID-B-H SERIES LEDALITE #TRUGROOVE SERIES NEO-RAY #DEFINE 4 SERIES	5000 NOMINAL LUMENS. 60/40 DIRECT/INDIRECT RATIO PER 4 FOOT. 3500K COLOR TEMPERATURE.	KM
P		30" PENDANT	(3) 100W INCANDESCENT	ELECTRONIC	120V 1P 2W	PENDANT	ILEX LIGHTING #P-2170 PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	COORDINATE MOUNTING HEIGHT WITH ARCHITECT.	P
UC		24", UNDER CABINET STRIP	(1) 12W LED	LED DRIVER	120V 1P 2W	SURFACE	STARFIRE #LUC SERIES PRE-APPROVED EQUIVALENT FAIL-SAFE #UCL SERIES	SURFACE MOUNT UNDER CABINETS. DAISY CHAIN MULTIPLE FIXTURES TOGETHER. WHITE FINISH.	UC
X		EXIT SIGN, BATTERY BACKUP	(2) 1W LED	BATTERY	120V 1P 2W	UNIVERSAL	EMERGLITE #PREM SERIES CHLORIDE EQUIVALENT LIGHTALARMS #QLXN500R	120/277V INPUT; CONNECT TO NEAREST UNSWITCHED LIGHT CIRCUIT IN SAME SPACE. THESE FIXTURES ARE NOT TAGGED WITH "X" ON THE DRAWINGS; ONLY THE SYMBOL IS USED.	X
XA		AREA OF RESCUE ASSISTANCE, BATTERY BACKUP	(2) 1W LED	BATTERY	120V 1P 2W	UNIVERSAL	EMERGLITE #PREM SERIES CHLORIDE EQUIVALENT LIGHTALARMS #QLXN500R	CONNECT TO NEAREST UNSWITCHED LIGHT CIRCUIT IN SAME SPACE. FIXTURE GRAPHICS TO READ "AREA OF RESCUE ASSISTANCE".	XA

PENDER COUNTY COURTHOUSE

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JOB # 19060

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 17355 M. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-LUMINAIRE SCHEDULE

E-601

BID DOCUMENTS

MDP

ROOM: ELECTRICAL ROOM
MOUNTING: FLOOR
FED FROM: ATS
NOTE:

VOLTS: 208Y/120V 3P 4W
BUS AMPS: 1000
NEUTRAL: 100%

AIC: 22,000
MAIN BKR: MLO
LUGS: STANDARD

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	100/3	PANEL L	9.5			2	90/3	TRANSFER SWITCH MTS	1.2		
3	|			7.38		4	|			1.2	
5	|				7.81	6	|				0
7	225/3	PANEL M	24.4			8	–/3	SPACE	0		
9	|			24.2		10	|			0	
11	|				24.6	12	|				0
13	225/3	PANEL A	17.9			14	–/3	SPACE	0		
15	|			18.8		16	|			0	
17	|				18.1	18	|				0
19	100/3	PANEL A2	1.29			20	–/3	SPACE	0		
21	|			1.35		22	|			0	
23	|				3.2	24	|				0
25	225/3	PANEL A3	22			26	–/3	SPACE	0		
27	|			23.9		28	|			0	
29	|				24.8	30	|				0
31	225/3	PANEL B	10.9			32	–/3	SPACE	0		
33	|			11.6		34	|			0	
35	|				11.1	36	|				0
37	100/3	PANEL B2	2.47			38	225/3	(**) ELEVATOR	11.1		
39	|			5.32		40	|			11.1	
41	|				3.31	42	|				11.1
43	225/3	PANEL B3	9.08			44	125/3	OLD PANEL C	1.67		
45	|			14.3		46	|			1.67	
47	|				15.7	48	|				1.67
49	60/3	SPD-MDP	0			50	225/3	OLD ELEVATOR	18		
51	|			0		52	|			18	
53	|				0	54	|				18
								TOTAL CONNECTED KVA BY PHASE	130	139	139
								TOTAL CONNECTED AMPS BY PHASE	1,080	1,160	1,160

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	28.1	35.2	(125%)	CONTINUOUS	21.6	27	(125%)
LARGEST MOTOR	17.5	4.36	(25%)	NONCONTINUOUS	18	18	(100%)
MOTORS	59.2	59.2	(100%)	HEATING	48.5	48.5	(100%)
RECEPTACLES	45	27.5	(50%>10)	COOLING	38.8	0	(0%)
KITCHEN EQUIPMENT	1	1	(100%)	DIVERSE	186	66.1	(36%)
				TOTAL LOAD		287	
				BALANCED 3–PHASE AMPS		796	

(**) THERMAL ONLY C/B; VERIFY WITH ELEVATOR VENDOR IF INVERSE TIME/THERMAL ONLY C/B IS REQUIRED

A

ROOM: ELECTRICAL ROOM
MOUNTING: SURFACE
FED FROM: MDP
NOTE:

VOLTS: 208Y/120V 3P 4W
BUS AMPS: 225
NEUTRAL: 100%

AIC: 18,000
MAIN BKR: MLO
LUGS: STANDARD

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	20/1	(**) REC RM #126	0.6			2	30/3	SPD-A	0		
3	20/1	(**) REC RM #120		0.6		4	|			0	
5	20/1	(**) REC RM #120			0.6	6	|				0
7	20/1	(**) REC RM #119	0.6			8	20/1	(**) REC RM #122	0.8		
9	20/1	(**) REC RM #121		1		10	20/1	(**) REC RM #122		0.6	
11	20/1	(**) FAN & HEATER RM #124			1	12	20/1	(**) REC RM #119			1
13	20/1	(*) EWC	0			14	20/1	(**) REC RM #121	0.6		
15	20/1	(**) FAN & HEATER RM #125		1		16	20/1	(**) REC RM #123		0.4	
17	20/1	REC			0.54	18	20/1	REC			0.36
19	20/1	REC	0.54			20	20/1	ELEV SHAFT LTG, REC–GFCI	0.36		
21	20/1	SPARE		0		22	20/1	REC		0.72	
23	20/1	SPARE			0	24	20/1	REC			0.72
25	20/1	BOILER#1	0.324			26	15/2	(**) HEAT PUMP RM #122	0.6		
27	20/2	PUMP P–4		0.828		28	|			0.6	
29	|				0.828	30	15/2	(**) REC BAILIFF			0.1
31	20/1	REC	1.28			32	|		0.1		
33	20/1	REC		1.28		34	20/1	CIRC. PUMP		0.1	
35	20/1	(*) REC–EWC			1.2	36	20/1	AUX J–BOX			0.15
37	35/3	PUMP P–2	3.05			38	20/1	AUX J–BOX	0.15		
39	|			3.05		40	20/1	AREA OF RESCUE ASSISTANCE SYSTEM		0.2	
41	|				3.05	42	20/1	REC			0.36
43	35/3	PUMP P–3	3.05			44	20/1	REC	0.72		
45	|			3.05		46	20/1	SMOKE CURTAIN		0.18	
47	|				3.05	48	20/1	SPARE			0
49	30/3	WSHP–1	2.58			50	30/3	WSHP–2	2.58		
51	|			2.58		52	|			2.58	
53	|				2.58	54	|				2.58
								TOTAL CONNECTED KVA BY PHASE	17.9	18.8	18.1
								TOTAL CONNECTED AMPS BY PHASE	149	156	151

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	0.18	0.225	(125%)	NONCONTINUOUS	1.7	1.7	(100%)
LARGEST MOTOR	9.15	2.29	(25%)	HEATING	11.3	11.3	(100%)
MOTORS	20	20	(100%)	COOLING	8.07	0	(0%)
RECEPTACLES	13.9	11.9	(50%>10)	DIVERSE	7.75	5.43	(70%)
				TOTAL LOAD		52.9	
				BALANCED 3–PHASE AMPS		147	

(*) PROVIDE GFCI TYPE C/B; (**) LOADS RECONNECTED FROM OLD PANEL A

L

ROOM: ELECTRICAL ROOM
MOUNTING: SURFACE
FED FROM: MDP
NOTE:

VOLTS: 208Y/120V 3P 4W
BUS AMPS: 100
NEUTRAL: 100%

AIC: 18,000
MAIN BKR: MLO
LUGS: STANDARD

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	30/3	SPD–L	0			2	20/1	(**) LTS RM #123,124,125,126	0.6		
3	|			0		4	20/1	(**) LTS RM #121 EGRESS, LTG		1.14	
5	|				0	6	20/1	(**) LTS RM #119			0.4
7	20/1	(**) LTS COMPUTER RM, WOMENS BATH (NORTH) EXH FAN, LTG	0.162			8	20/1	(**) LTS RM #120	0.4		
9	20/1	(**) LTS RM #110		0.5		10	20/1	(**) LTS OUTSIDE UPLIGHTS		0.8	
11	20/1	(**) LTS RM #110,113 & VAULT			0.5	12	20/1	(**) LTS RM #122 LTG			0.78
13	20/1	(**) FIRE ALARM SYSTEM	0.4			14	20/1	(**) LTS HALL	0.6		
15	20/1	(**) LTS EMERGENCY / STAIRS		0.3		16	20/1	(**) LTS RM #118		0.3	
17	20/1	(**) LTS NORTH END HALL			1.1	18	20/1	(**) TIME CLOCK			0.1
19	20/1	(**) LTS RM #106, MENS BATH EXH FAN, LTG	0.862			20	30/2	(**) CAB PANEL	2.5		
21	20/1	(**) LTS RM#107		0.4		22	|			2.5	
23	20/1	(**) LTS RM #115			0.3	24	30/2	(**) ELEVATOR ROOM A/C			2.5
25	20/1	(**) LTS HALLWAY	1			26	|		2.5		
27	20/1	(**) LTS CHANDELIER LTG		0.1		28	20/1	(**) MISC. LOAD		1	
29	20/1	(**) LTS OUTSIDE UP LIGHTS			0.8	30	20/1	(**) MISC. LOAD			1
31	30/3	(**) LTS OUTSIDE	0.133			32	20/1	(*) LTG	0.14		
33	|			0.133		34	20/1	SPARE		0	
35	|				0.133	36	20/1	SPARE			0
37	30/3	(**) LIGHTING CONTACTOR	0.2			38	20/1	SPARE	0		
39	|			0.2		40	20/1	SPARE		0	
41	|				0.2	42	20/1	SPARE			0
								TOTAL CONNECTED KVA BY PHASE	9.5	7.38	7.81
								TOTAL CONNECTED AMPS BY PHASE	79.1	62.6	66.2

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	14.1	17.6	(125%)	CONTINUOUS	5.4	6.75	(125%)
LARGEST MOTOR	5	1.25	(25%)	HEATING	5	5	(100%)
MOTORS	0.2	0.2	(100%)	COOLING	5	0	(0%)
				TOTAL LOAD		30.8	
				BALANCED 3–PHASE AMPS		85.5	

(*) PROVIDE GFCI TYPE C/B; (**) LOADS RECONNECTED FROM OLD PANEL L

M

ROOM: ELECTRICAL ROOM
MOUNTING: SURFACE
FED FROM: MDP
NOTE:

VOLTS: 208Y/120V 3P 4W
BUS AMPS: 225
NEUTRAL: 100%

AIC: 18,000
MAIN BKR: MLO
LUGS: STANDARD

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	30/3	SPD–M	0			2	20/1	SPARE	0		
3	|			0		4	20/1	SPARE		0	
5	|				0	6	20/1	SPARE			0
7	60/3	PUMP P–1	3.05			8	40/3	(**) COOLING TOWER HEATER	4.67		
9	|			3.05		10	|			4.67	
11	|				3.05	12	|				4.67
13	60/3	COOLING TOWER CT–1 FAN	9.49			14	20/1	(**) HEAT TAPE COOLING TOWER	0.2		
15	|			9.49		16	20/1	PANEL OTHLAP		0	
17	|				9.49	18	20/1	(**) ELEVATOR LTS & ALARM			0.4
19	20/1	SPARE	0			20	20/1	(*) REC CRAWL SPACE	0.2		
21	20/1	SPARE		0		22	20/1	SPARE		0	
23	20/1	SPARE			0	24	20/1	(**) BOILER			0.4
25	20/1	(**) PUMP P5	0.7			26	20/1	(**) RM #122 DEDICATED CIRCUIT	0.6		
27	20/1	(**) REC ELEVATOR		0.2		28	20/1	(*) REC CRAWL SPACE		0.2	
29	20/1	(**) TELEPHONE SYSTEM			0.4	30	20/1	(*) REC CRAWL SPACE			0.2
31	20/1	(**) REC BASEMENT	0.4			32	15/2	(**) AIR UNIT SOUTH SIDE	0.5		
33	20/1	(**) LTS BASEMENT		0.6		34	|			0.5	
35	20/1	(**) CLERKS OFFICE			0.6	36	20/1	(**) REC SERVER			0.4
37	20/1	(**) ELEVATOR EXHAUST FAN	0.4			38	20/1	(**) REC EQUIPMENT IN TRAFFIC COURT	0.6		
39	20/1	(**) COOLING TOWER PANEL		0.4		40	20/1	SPARE		0	
41	20/1	(**) COOLING TOWER PANEL			0.4	42	20/1	SPARE			0
43	20/1	REC–BATTERY CHARGER	1			44	20/1	SPARE	0		
45	20/1	REC–BLOCK HEATER		1.5		46	20/3	EUH–1		1.1	
47	20/1	REC–BATTERY CHARGER			1	48	|				1.1
49	20/1	REC–BLOCK HEATER	1.5			50	|		1.1		
51	20/2	WH–1		1.25		52	20/2	ESPCP		1.2	
53	|				1.25	54	|				1.2
								TOTAL CONNECTED KVA BY PHASE	24.4	24.2	24.6
								TOTAL CONNECTED AMPS BY PHASE	203	201	205

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	0.8	1	(125%)	RECEPTACLES	3.8	3.8	(50%>10)
LARGEST MOTOR	17.5	4.36	(25%)	CONTINUOUS	12	15	(125%)
MOTORS	31.5	31.5	(100%)	NONCONTINUOUS	4	4	(100%)
				DIVERSE	21	0.5	(2%)
				TOTAL LOAD		60.2	
				BALANCED 3–PHASE AMPS		167	

(*) PROVIDE GFCI TYPE C/B; (**) LOADS RECONNECTED FROM OLD PANEL M

PE

ROOM: ELECTRICAL ROOM
MOUNTING: SURFACE
FED FROM: MTS
NOTE:

VOLTS: 208Y/120V 3P 4W
BUS AMPS: 100
NEUTRAL: 100%

AIC: 14,000
MAIN BKR: MLO
LUGS: STANDARD

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	20/2	BSPCP	1.2			2	20/1	SPARE	0		
3	|			1.2		4	20/1	SPARE		0	
5	20/1	SPARE			0	6	20/1	SPARE			0
7	20/1	SPARE	0			8	20/1	SPARE	0		
9	20/1	SPARE		0		10	20/1	SPARE		0	
11	20/1	SPARE			0	12	20/1	SPARE			0
13	20/1	SPARE	0			14	20/1	SPARE	0		
15	20/1	SPARE		0		16	20/1	SPARE		0	
17	20/1	SPARE			0	18	20/1	SPARE			0
19	20/1	SPARE	0			20	20/1	SPARE	0		
21	20/1	SPARE		0		22	20/1	SPARE		0	
23	20/1	SPARE			0	24	20/1	SPARE			0
								TOTAL CONNECTED KVA BY PHASE	1.2	1.2	0
								TOTAL CONNECTED AMPS BY PHASE	10	10	0

	CONN KVA	CALC KVA			CALC KVA
LARGEST MOTOR	1.2	0.3	(25%)	TOTAL LOAD	2.7
MOTORS	2.4	2.4	(100%)	BALANCED 3–PHASE AMPS	7.49

PENDER COUNTY COURTHOUSE

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NC LICENSE# C-1073

JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17593 MARK A. CIARROCCA 27 MAR 2020

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-PANEL SCHEDULES

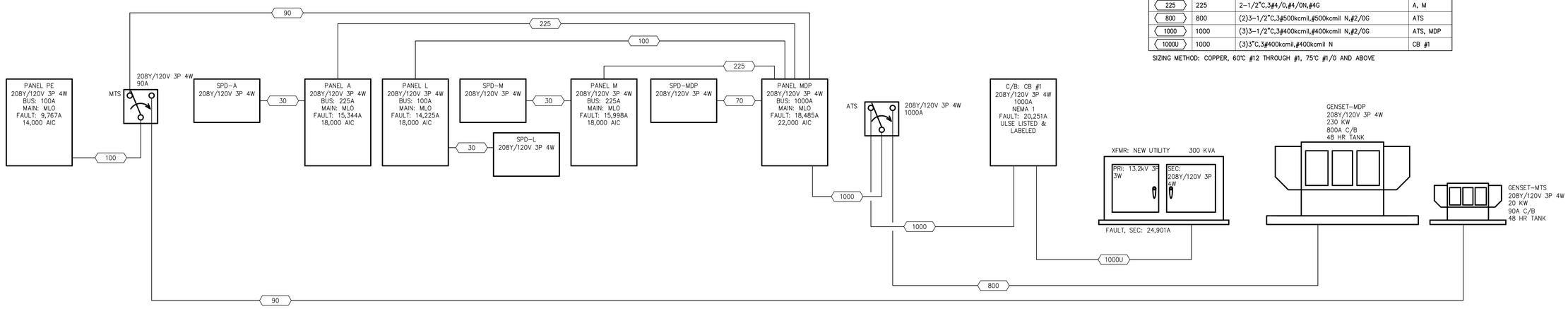
E-602

BID DOCUMENTS

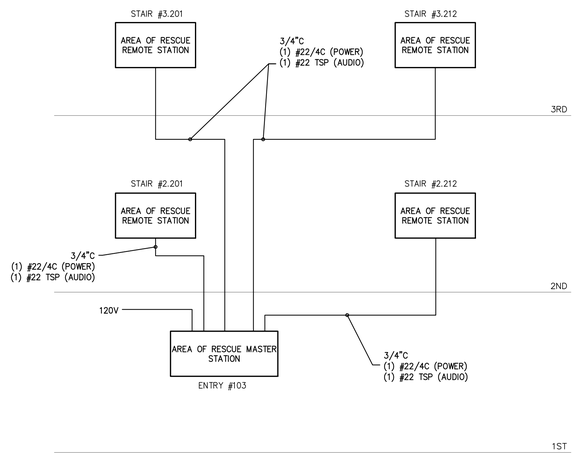
FEEDER SCHEDULE

ID	FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
20/2	20	3/4"C,2#12,#12N,#12G	ESPCP
30	30	3/4"C,3#10,#10N,#10G	SPD-A, SPD-L, SPD-M
70	70	1-1/4"C,3#4,#4N,#4G	SPD-MDP
90	90	1-1/4"C,3#3,#3N,#8G	MTS, MTS
100	100	1-1/2"C,3#2,#2N,#8G	L, PE
225	225	2-1/2"C,3#4/0,#4/0N,#4G	A, M
800	800	(2)3-1/2"C,3#500kcmil,#500kcmil N,#2/0G	ATS
1000	1000	(3)3-1/2"C,3#400kcmil,#400kcmil N,#2/0G	ATS, MDP
1000U	1000	(3)3"C,3#400kcmil,#400kcmil N	CB #1

SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C #1/0 AND ABOVE

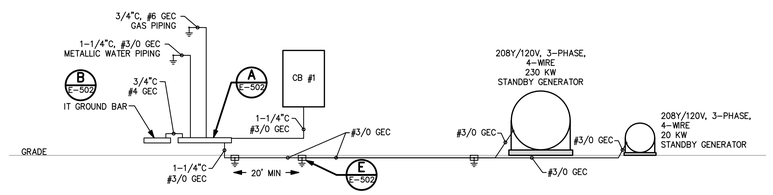


A E-701 ELECTRICAL RISER DIAGRM
SCALE: NO SCALE



C E-701 AREA OF RESCUE ASSISTANCE RISER
NO SCALE

NOTE:
COORDINATE EXACT CABLING REQUIREMENTS WITH MANUFACTURER AND VENDOR.



B E-701 ELECTRICAL GROUNDING SYSTEM RISER DIAGRAM
SCALE: N/A

PENDER COUNTY COURTHOUSE

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JOB # 19060

NORTH CAROLINA PROFESSIONAL ENGINEER 17599 MICHAEL A. CIARROCCA

No.	Description	Date

PROJECT: 7702-185550
DATE: 3/29/20
DRAWN BY: KAF/MPS/FM/DCB
CHECKED BY: M. CIARROCCA

ELECTRICAL-RISER DIAGRAMS

E-701

BID DOCUMENTS