LILLINGTON HWY 210 FIRE DEPARTMENT

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)

Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING

Name of Project: LILLINGTON HWY 210 FIRE DEPARTMENT
Address: 2873 NC 210 NORTH, Lillington, North Carolina Zip Code 27546
Proposed Use: Fire Department w/ Sleeping Quarters
Owner/Authorized Agent: BOBBITT
Phone # 919-851-1980 E-Mail PERMITTING@BOBBITT.COM
Owned By: Town of Lillington ■ City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: ■ City Lillington ☐ County ☐ State

LEAD DESIGN PROFESSIONAL: BOBBITT A&E, PLLC

DESIGNER	FIRM	NAME	LICENSE#	TELEPHONE#	E-MAIL
Architectural	- BOBBITT A&E, PLLC	LESTER C. PARKER, AIA	12353	919-851-2196	LES.PARKER@BOBBITT.COM
Civil	- STEWART ENGINEERING	ROY PAUL LORENZEN	15834	919-380-8750	RLORENZEN@STEWARTINC.COM
Electrical	- ALIGN ENGINEERING	RICHARD D. COPELAND JR.	36841	919-275-1935	RICK@AE-NC.COM
Fire Alarm	- ALIGN ENGINEERING	RICHARD D. COPELAND JR.	36841	919-275-1935	RICK@AE-NC.COM
Plumbing	- ALIGN ENGINEERING	R. EMMETT WILLIS	34327	919-275-1935	EMMETT@AE-NC.COM
Mechanical	- ALIGN ENGINEERING	NATHAN R. ROMBLAD	37491	919-275-1935	NATHAN@AE-NC.COM
Sprinkler Standpipe	- UNDER SEPERATE PERMIT				
Structural	- STEWART ENGINEERING	THOMAS WILLIAM MCLANE	46260	919-380-8750	TMCLANE@STEWARTINC.COM
Retaining Walls >5' High	-	-	-	-	-
Other	-	-	-	-	-

("Other" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE: ■ New Building ☐ Addition ☐ 1st Time Interior Completions ☐ Shell/Core* ☐ Phased Construction*
*Contact the local inspection jurisdiction for possible additional procedures and requirements.

~~**2018 NC EXISTING BUILDING CODE:** ☐ Prescriptive ☐ Alteration Level I ☐ Historic Property (check all that apply) ☐ Repair ☐ Alteration Level II ☐ Change of Use ☐ Chapter 14 ☐ Alteration Level III~~
CONSTRUCTED: (date) - **CURRENT OCCUPANCY(S)** (Ch.3): -
RENOVATED: (date) - **PROPOSED OCCUPANCY(S)** (Ch.3): -
OCCUPANCY CATEGORY (Table 1604.5): **Current:** - **Proposed:** -

BASIC BUILDING DATA
Construction Type: ☐ I-A ☐ I-B ☐ II-A ■ II-B ☐ III-A ☐ III-B ☐ IV ☐ V-A ☐ V-B
Sprinklers: ☐ No ☐ Partial ■ Yes ■ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ■ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Primary Fire District: ■ No ☐ Yes **Flood Hazard Area:** ■ No ☐ Yes
Special Inspections Required: ☐ No ■ Yes (If special inspections are required, contact the local inspection jurisdiction for additional procedures and requirements.)

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor	-	-	-
2nd Floor	-	-	-
Mezzanine	0	706	706
1st Floor	0	8,346	8,346
Basement	-	-	-
TOTAL	0	8,346 bldg. area, 9,066 fire area	9,066

ALLOWABLE AREA

Primary Occupancy Classification(s):
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☐
Educational ☐
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 Condition: ☐ 1 ☐ 2 ☐ I-3 Condition: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ I-2 Condition: ☐ 1 ☐ 2 ☐ I-4
Mercantile ☐
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 and Miscellaneous ☐

Accessory Occupancy Classification(s):
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ■ 546 SF / 9,066 SF = **6.02%**
Educational ☐
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 Condition: ☐ 1 ☐ 2 ☐ I-3 Condition: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ I-2 Condition: ☐ 1 ☐ 2 ☐ I-4
Mercantile ☐
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 and Miscellaneous ☐

Residential area classified as a single dwelling unit with multiple sleeping units

Incidental Uses (Table 509):
- ☐ 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 machinery room
- ☐ Hydrogen fuel gas rooms, not classified as Group H
- ☐ Incinerator rooms
- ☐ Paint shops, not classified as Group H, located in occupancies other than Group F
- ☐ In Group E occupancies, laboratories and vocational shops not classified as Group H
- ☐ In Group I-2 occupancies, laboratories not classified as Group H
- ☐ In ambulatory care facilities, laboratories not classified as Group H
- ☐ Laundry rooms over 100 square feet
- ☐ In Group I-2, laundry rooms over 100 square feet
- ☐ In Group I-2, laundries equal to or less than 100 square feet
- ☐ In Group I-2, commercial kitchens
- ☐ In Group I-2, rooms or spaces that contain fuel-fired heating equipment
- ☐ Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces
- ☐ Group I-2, physical plant maintenance shops
- ☐ In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cu.ft. or greater
- ☐ In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet
- ☐ In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet
- ☐ Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterrupted power supplies
- ☐ Fuel Storage rooms in public schools and boiler rooms in public schools
- ☐ Storage rooms underneath grandstands or bleacher seats containing combustable or flammable materials

Special Uses (Chapter 4 - List Code Sections):
☐ 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 ☐ 428 ☐ 429 ☐ 430 ☐ 430 ☐ 430 ☐ 430

2018 NC Administrative Code and Policies

Special Provisions: (Chapter 5):
☐ 510.2 ☐ 510.3 ☐ 510.4 ☐ 510.5 ☐ 510.6 ☐ 510.7 ☐ 510.8 ☐ 510.9
Mixed Occupancy: ☐ No ■ Yes Separation: 0 Hr. Exception: non-separated
☐ Incidental Use Separation (509.4.1)
■ Non-Separated Use (508.3)
☐ 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.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

- / - + - / - + ... = - ≤1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,2]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1	R2 (WORST CASE)	8,360	64,000	(NOT USED)	64,000
	S2		104,000		

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 = - (F)
   b. Total Building Perimeter = - (P)
   c. Ratio (F/P) = - (F/P)
   d. W = Minimum width of public way = - (W)
   e. Percent of frontage increase $I_f = 100[F/P-0.25] \times W/30 =$ - (%)
2. Unlimited area applicable under conditions of Section 507.
3. Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
4. The maximum area of open parking garages must comply with Table 406.5.4 . The maximum area of air traffic control towers must comply with Table 412.3.1
5. Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	75 FT	22 FT	-
Building Height in Stories (Table 504.4)	4	1	-

[1] Provide code reference if the"Shown on Plans" quantity is not based on Table 504.3 or 504.4.

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W - * REDUCTION)	DETAIL# AND SHEET#	DESIGN# FOR RATED ASSEMBLY	SHEET# FOR RATED PENETRATION	SHEET# FOR RATED JOINTS
Structural Frame, including columns, girders, trusses	15'	0	0	-	-	-	-
Bearing Walls	N/A	-	-	-	-	-	-
Exterior	-	-	-	-	-	-	-
North	-	-	-	-	-	-	-
East	-	-	-	-	-	-	-
West	-	-	-	-	-	-	-
South	-	-	-	-	-	-	-
Interior	-	0	0	-	-	-	-
Nonbearing Walls and Partitions	-	0	0	-	-	-	-
Exterior walls	-	-	-	-	-	-	-
North	>30'	0	0	-	-	-	-
East	>30'	0	0	-	-	-	-
West	>30'	0	0	-	-	-	-
South	15'	0	0	-	-	-	-
Interior walls and partitions	-	0	0	-	-	-	-
Floor Construction Including supporting beams and joists		0	0	-	-	-	-
Floor Ceiling Assembly		0	0	-	-	-	-
Columns Supporting Floors		-	-	-	-	-	-
Roof Construction, including supporting beams and joists		0	0	-	-	-	-
Roof Ceiling Assembly		0	0	-	-	-	-
Columns Supporting Roof		0	0	-	-	-	-
Shaft Enclosures- Exit		-	-	-	-	-	-
Shaft Enclosures- Other		-	-	-	-	-	-
Corridor Separation		-	-	-	-	-	-
Occupancy/Fire Barrier Separation		-	-	-	-	-	-
Party/Fire Wall Separation		-	-	-	-	-	-
Smoke Barrier Separation		-	-	-	-	-	-
Smoke Partition		-	-	-	-	-	-
Tenant/Dwelling Unit/ Sleeping Unit Separation	1/2-HR	1-HR	U419& U905/T1.3	U419 & U905	SEE PME	SEE SECTIONS	
Incidental Use Separation	-	-	-	-	-	-	

*Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
10 FT+	UP, S	45%	<10%
30 FT+	UP, S	UNLIMITED	NO LIMIT
-	-	-	-

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ■ Yes
Exit Signs: ☐ No ■ Yes
Fire Alarm: ☐ No ■ Yes (notification only)
Smoke Detection Systems: ☐ No ☐ Yes ■ Partial @ residential
Panic Hardware: ■ No ☐ Yes
Carbon Monoxide Detection: ☐ No ■ Yes @ residential

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: T1.2

■ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations (if not on the site plan)
■ Exterior wall opening area with respect to distance to assumed property lines (705.8)
■ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
■ Occupant loads for each area
■ Exit access travel distances (1017)
■ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
■ Dead end lengths (1020.4)
■ Clear exit widths for each exit door
■ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
■ 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 (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.10)
☐ Location of doors equipped with hold-open devices
☐ Location of emergency escape windows (1030)
■ The square footage of each fire area (202)
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS (SECTION 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
1	1	1	1	1	0	0	1

ACCESSIBLE PARKING (SECTION 1106)

LOT OR PARKING AREA	TOTAL# OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132"ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	
Entire Lot	13	13	1	-	1	2
TOTAL	-	(see Totals above)	-	-	-	-

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

USE	WATERCLOSETS			URINALS	LAVATORIES			SHOWERS /TUBS	DRINKING FOUNTAINS		Service Sink
	MALE	FEMALE	UNISEX		MALE	FEMALE	UNISEX		Regular	Accessible	
Residential			1				1	2	0.1	0.1	0
Business			1				1	0	0.06	0.06	0
Storage			0.2				0.2	0	0.02	0.02	0
Total required:	0	0	3	0	0	0	3	2	1	1	0
Total provided:	0	0	4	1	0	0	4	3	1	1	2

PLUMBING FIXTURE NOTES:
[check family/ assisted toilet room requirement NCSBC 1109.2.1]

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, ICC, etc., describe below)
- REFER TO S0.4 FOR STRUCTURAL SPECIAL INSPECTIONS. REFER TO S0.1 AND MEP 1.1 FOR SEISMIC INFORMATION AND REQIREMENTS.

CODE REVIEW NOTES

- Kitchen is for Residential fire station staff use only. Not designed to serve the Public.

ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy 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.

Existing building envelope complies with code: ■ N/A ☐ YES
Exempt Building: ☐ NO ■ YES (Provide code or statutory reference) NCGS 143-138 (b18) for primary occupancy of Storage and 2018 NC-ECC C101.2 exception 2.
Climate Zone: ☐ 3A ■ 4A ☐ 5A

DESIGN U-VALUES: (SEE EXTERIOR FINISH FORM FOR COLORS AND ADDITIONAL INFORMATION)

PEMB:
- Roof: Thermal Blocks w/ R-30 (WMP-VR R-19 + WMP-VR R-11)

EXTERIOR STUD WALLS: R-19 (5 1/2" FIBERGLASS UNFACED)

OPENINGS:
GLASS @ STOREFRONT & HM DOOR [VITRO Solarban R67 (2) + Clear = basis of design]:
- 1" IGU @ WINDOWS = U-0.28
- 3/4" IGU @ DOORS: = U-0.40

HM EXTERIOR DOORS: R-2.5 Polyurethane core

OHD's (see Exterior Finish Form)

SHEET INDEX

ABBREVIATIONS

@	AT	FB	FLOOR BOX	PEMB	PRE-ENGINEERED MTL BLDG	UL	UNDERWRITERS LABORATORY
AB	ANCHOR BOLT	FD	FLOOR DRAIN	PERF	PERFORATED	UON	UNLESS OTHERWISE NOTED
ACT	ACOUSTICAL CEILING TILE	FDC	FIRE DEPT. CONNECTION	PIV	POST INDICATOR VALVE		
ADA	AMERICAN DISABILITIES ACT	FEB	FIRE EXSTINGUISHER	PC	PLUMBING CONTRACTOR	VB	VAPOR BARRIER
ADJ	ADJUSTABLE		BRACKET	PL	PLATE	VERT	VERTICAL
AFF	ABOVE FINISH FLOOR	FEC	FIRE EXSTINGUISHER	PE	PLUMBING ENGINEER	VIF	VERIFY IN FIELD
AHU	AIR HANDLING UNIT		CABINET	PEOR	PLUMBING ENGINEER OF RECORD		
AHJ	AUTHORITY HAVING JURISDICTION	FF	FINISH FLOOR	PLUMB	PLUMBING	W/	WITH
ALUM	ALUMINUM	FOM	FACE OF MASONRY	PLYWD	PLYWOOD	WC	WATER CLOSET
ANOD	ANODIZED	FOS	FACE OF STUD	P#	PAINT	WD	WOOD
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	FT	FEET	POLYETH	POLYETHYLENE	WWF	WELDED WIRE FABRIC
		FTG	FOOTING	PR	PAIR		
BFF	BELOW FINISH FLOOR	GC	GENERAL CONTRACTOR	PTD	PAINTED	WWM	WELDED WIRE MESH
BL	BUILDING LINE	GA	GUAGE	PVC	POLYVINYL CHLORIDE		
BLDG	BUILDING	GALV	GALVANIZED				
BOT	BOTTOM	GEN	GENERATOR	R	RADIUS		
		GWB	GYPSUM WALL BOARD	R&S	ROD AND SHELF		
CSCI	CONTRACTOR SUPPLIED, CONTRACTOR INSTALLED	HB	HOSE BIB	RCP	REFLECTED CEILING PLAN		
CJ	CONTROL JOINT	HM	HOLLOW METAL	RD	ROOF DRAIN		
CL	CENTERLINE	HORZ	HORIZONTAL	RDL	ROOF DRAIN LEADER		
CLG	CEILING	HR	HOUR	RECEPT	RECEPTACLE		
CLO	CLOSET			REQD	REQUIRED		
CLR	CLEAR	ID	INSIDE DIAMETER	RO	ROUGH OPENING		
CMU	CONCRETE MASONRY UNIT	IN	INCH	ROW	RIGHT OF WAY		
CO	CLEAN OUT	INSTAL	INSTALLATION				
COL	COLUMN	INSUL	INSULATION	SCH	SCHEDULE		
CONC	CONCRETE	INT	INTERIOR	SC	SOLID CORE WOOD		
CORR	CORRIDOR			SEOR	STRUCTURAL ENGINEER OF RECORD		
CS	COUNTERSUNK	JB	JOIST BEARING	SF	SQUARE FEET		
CSJ	CONSTRUCTION JOINT	JT	JOINT	SHEATH	SHEATHING		
CW	CURTAINWALL	L	LONG	SIM	SIMILAR		
				SP	SPACES		
DTL	DETAIL	MATL	MATERIAL	SQ	SQUARE		
DEPT	DEPARTMENT	MAX	MAXIMUM	SS	STAINLESS STEEL		
DIA	DIAMETER	MC	MECH CONTRACTOR	SSG	STRUCTURAL SILICON GLAZING		
DISP	DISPENSER	MB	MASONRY - BRICK	STL	STEEL		
DN	DOWN	MECH	MECHANICAL	STRUC	STRUCTURAL		
DR	DOOR	MFR	MANUFACTURER	ST&R	STAIR TREADS AND RISERS		
DS	DOWNSPOUT	MIN	MINIMUM	STD	STANDARD		
DWG	DRAWING	MO	MASONRY OPENING	SUSP	SUSPENDED		
		MTD	MOUNTED				
E/W	EACH WAY	MTL	METAL	T&G	TONGUE AND GROOVE		
EC	ELECTRICAL CONTRACTOR	NIC	NOT IN CONTRACT	TCA	TILE COUNCIL OF AMERICA		
EEOR	ELEC ENGINEER OF RECORD	NOM	NOMINAL	TELE	TELEPHONE		
EES	EMERGENCY EYE WASH AND SHOWER	OC	ON CENTER	TEMP	TEMPERED		
EIFS	EXTERIOR INSULATION FINISH SYSTEM	OD	OUTSIDE DIAMETER	TEXD	TEXTURED		
ELEC	ELECTRICAL	OFOI	OWNER FURNISHED, OWNER INSTALLED	TOC	TOP OF CURB		
ELEV	ELEVATION	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED	TOS	TOP OF STEEL		
EJ	EXPANSION JOINT	OPP	OPPOSITE	TV	TELEVISION		
EQ	EQUAL	OSC	OVERFLOW SCUPPER	TYP	TYPICAL		
EXT	EXISTING	OZ	OUNCE				
EWC	ELECTRIC WATER COOLER						

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

APPROVAL:
DATE:

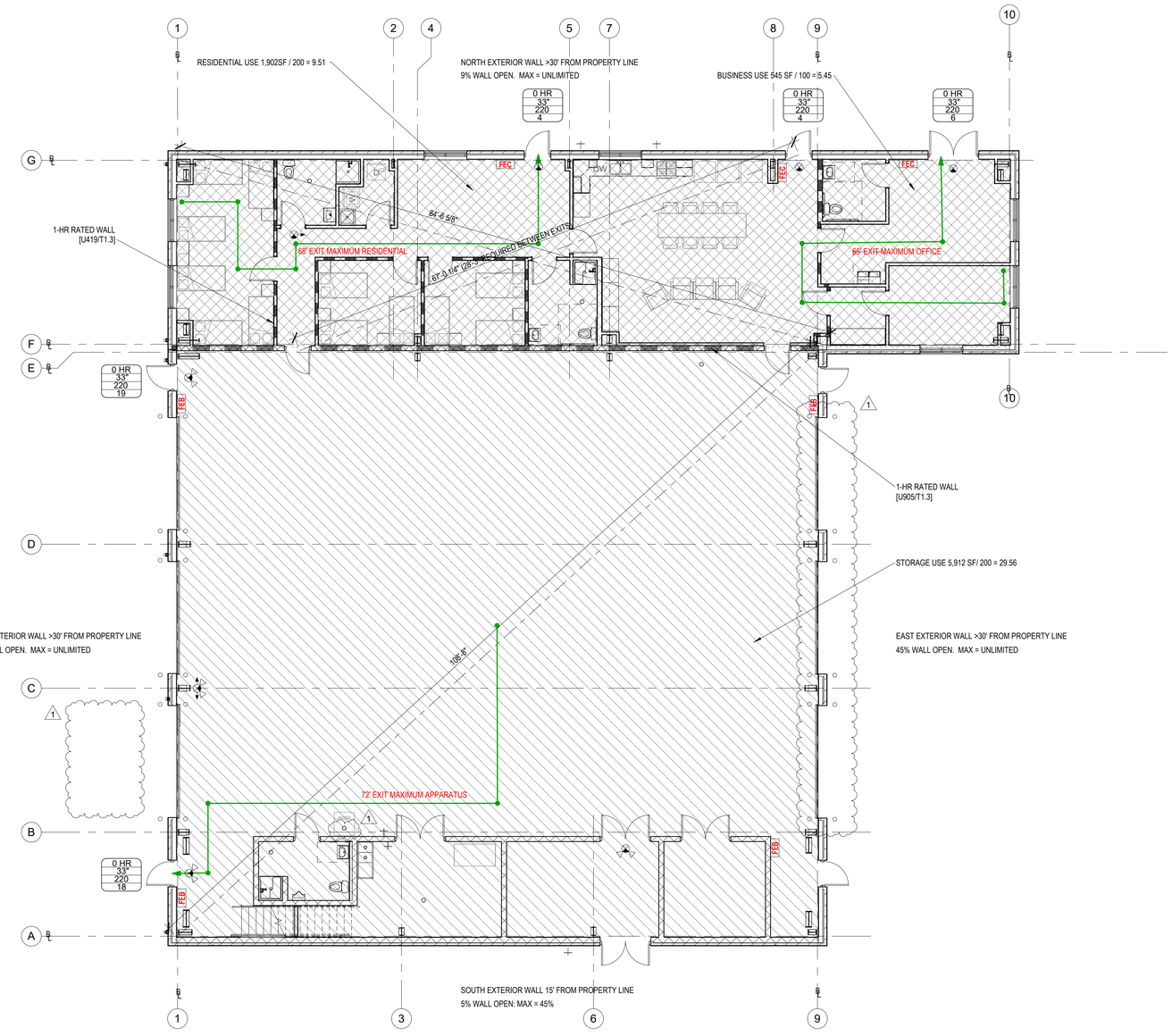
COORDINATOR: JGF
DRAWN BY: MT
CHK BY: BDG, LCP

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

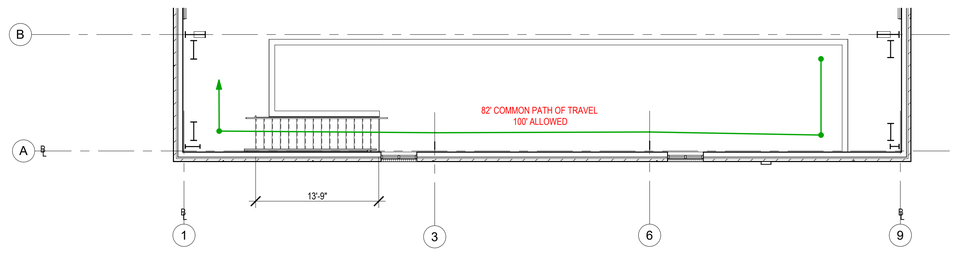
24 X 36
As indicated
10/21/2024
24-0013
TITLE SHEET

T1.1
OF 3

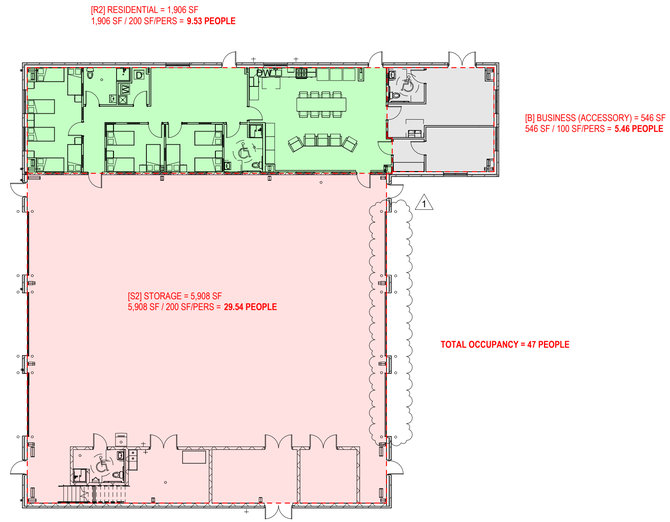
Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING



1 LIFE SAFETY PLAN
1/8" = 1'-0"



2 LIFE SAFETY MEZZANINE
1/8" = 1'-0"



3 OCCUPANCY KEYPLAN
1/16" = 1'-0"

FIRE EXTINGUISHER MOUNTING
- SURFACE MOUNT **(FEB)**: TO BE EXPOSED EXTINGUISHERS (No cabinet)
- SEMI-RECESSED **(FEC)**: TO BE IN CABINETS MEETING GUIDELINES BELOW

Projection Requirements
The federal regulations for ADA Standards for Accessible Design Section: Protruding Objects Section (28 CFR 36, 4.4.1) specify that "objects projecting from walls with their leading edges between 27" and 80" (685 mm and 2030 mm) above the finished floor (AFF) shall protrude no more than 4 " (100mm) into walks, halls, corridors, passageways, or aisles. Please note that a surface-mounted cabinet installed in such a way that any part of it falls between 27" and 80" AAF would not meet ADA requirements.

Mounting Heights
The NFPA and ADA have created guidelines for the mounting of cabinets and extinguishers to provide safety and/or easy access to the equipment. ADA guidelines specify reach ranges for building occupants who require access to equipment such as fire extinguishers and other fire safety devices. According to the ADA Standards (28 CFR 36, 4.2.5 and 4.2.6 neither the extinguisher handle nor the cabinet handle can be mounted higher than 48" AFF for applications which allow for only a forward approach in a wheelchair to the object; and, no higher than 54" AFF, or those applications which allow for a parallel approach.

Typical install:
center handle
38" above floor

DOOR TAG LEGEND

0 HR	DOOR RATING
33"	EGRESS WIDTH
220	EGRESS CAPACITY
nnn	OCCUPANT LOAD

EXIT PATH LEGEND
PATH OF TRAVEL LENGTH

RATED WALL TYPE LEGEND
1-HOUR FIRE BARRIER (U419/T1.2)
1-HOUR FIRE BARRIER (U905/T1.2)

SYMBOL LEGEND
EXIT SIGN

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

BOBBITT

COORDINATOR: JGF
DRAWN BY: MT
CHK BY: BDG, LCP

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

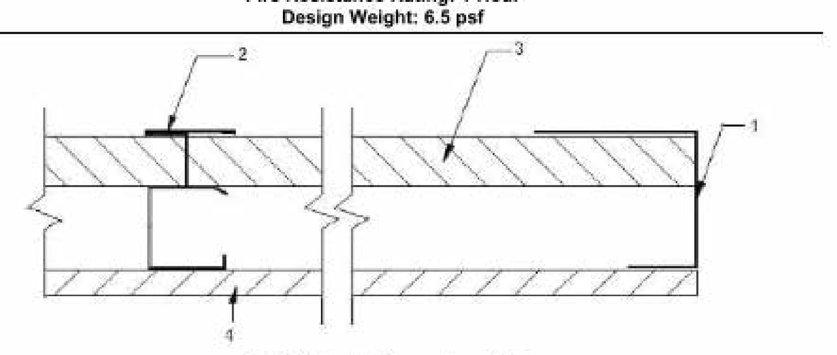
24 X 36
As indicated
10/21/2024
24-0013
LIFE SAFETY PLAN

T1.2
OF 3

Division 09 – Finishes
09 21 16 Gypsum Board Assemblies
09 21 16.23 Gypsum Board Shaft Wall Assemblies

Page 1 of 2

ClarkDietrich™ Building Systems
Design No. CD/WA 60-01
Non-Load Bearing Shaftwall Assembly
ASTM E119 and CAN/ULC S101
Fire Resistance Rating: 1 Hour
Design Weight: 6.5 psf



STC Rating, As Shown Above: 35
STC Rating: As Shown Above with 1 in. thick 3 pcf mineral fiber insulation in cavity: 39
STC Rating: As Shown Above with 1-1/2 in. thick R5.8 fiberglass insulation in cavity: 43

1. **FLOOR, CEILING, CORNER AND INTERSECTION RUNNERS*:** Tabbed 'J' shaped runner with unequal legs, 2-1/2 in. min. deep, fabricated from min. 0.019 in. thick galvanized steel. Position runners with short leg towards room side of wall. Runners attached to structural members with steel fasteners located not greater than 24 in. on center (oc). Tabbed 'J' runners have tabs at 12 in. oc and are manufactured by ClarkDietrich Building Systems.
2. **STEEL STUDS*:** 'C-T' shaped slotted web studs, 1-1/2 in. wide by 2-1/2 in. min. deep, fabricated from min. 0.019 in. thick galvanized steel. Cut to length 1/2 in. less than the opening's height and spaced 24 in. max. oc and between 1 in. thick gypsum shaftliner panels. Studs are manufactured by ClarkDietrich Building Systems.
3. **GYPSUM SHAFTLINER:** 1 in. thick CertainTeed M2Tech Shaftliner Type X (complying with ASTM C1396), or 1 in. thick Continental™ Shaftliner Type X* drywall (complying with ASTM C1396), or 1 in. thick Continental Mold Defense® Shaftliner Type X* drywall (complying with ASTM C1396), or 1 in. thick Continental Weather Defense® Platinum Shaftliner Type X* drywall (complying with ASTM C1396), or 1 in. thick Georgia-Pacific Gypsum Shaft Liner Type X* (complying with ASTM C1396), or 1 in. thick Georgia-Pacific Gypsum DensGlass® Ultra Shaft Liner Type X* (complying with ASTM C1396), or 1 in. thick National Gypsum Gold Bond Shaftliner (complying with ASTM C1396), or 1 in. thick United States Gypsum Shaft Wall Liner (complying with ASTM C1396), supplied in nominal 24 in. widths. The panels are inserted against the long leg of the 'J' runners and into the 1 in. deep recess of the studs. Free edges of end panels are retained by bending tabbed 'J' runner tabs (12 in. oc) at a 90° angle.
4. **GYPSUM BOARD:** 5/8 in. thick CertainTeed Type X gypsum board (complying with ASTM C1396), or 5/8 in. thick Continental Firecheck Type X gypsum board (complying with ASTM C1396), or 5/8 in. thick Georgia-Pacific Gypsum Toughrock Fireguard X gypsum board (complying with ASTM C1396), or 5/8 in. thick National Gypsum Gold Bond Fire-Shield gypsum board (complying with ASTM C1396), or 5/8 in. thick USG Sheetrock

Date Revised: July 8, 2016
Project No. G102619004

Intertek
Valued Quality. Delivered.

Division 09 – Finishes
09 21 16 Gypsum Board Assemblies
09 21 16.23 Gypsum Board Shaft Wall Assemblies

Page 2 of 2

Firecode X gypsum board (complying with ASTM C1396), applied parallel to the studs on the room side with min. 1 in. long Type S drywall screws 12 in. oc. Gypsum board joints are finished with paper tape and joint compound (complying with ASTM C475). Exposed screw heads are finished with joint compound (complying with ASTM C475).

Limitations: Gypsum Shaftliner and Gypsum Board must be by same manufacturer.

*Component bearing the Warnock Hersey Certification Mark, manufacturing information of these components is proprietary to the listed component's manufacturer.

Date Revised: July 8, 2016
Project No. G102619004

Intertek
Valued Quality. Delivered.

Inertek# CD/WA 60-01

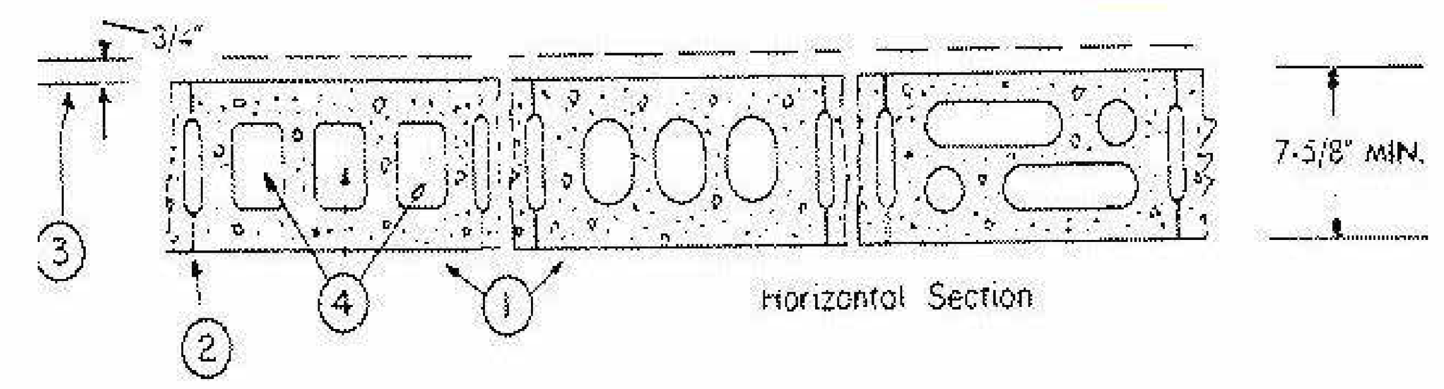
Design No. U905

September 30, 2010

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).

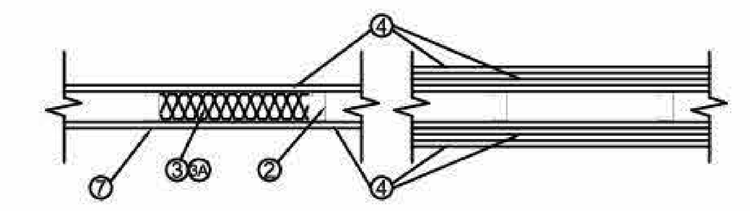
THE DOW CHEMICAL CO — Type Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel and Thermax Heavy Duty Plus (HDP)

*Bearing the UL Classification Mark

Last Updated on 2010-09-30

UL# U905

Design No. U419
October 09, 2003
Nonbearing Wall Ratings -- 1, 2, 3 or 4 Hr (See Items 3 & 4)



1. **Floor and Ceiling Runners** -- (Not shown) -- Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min width to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

2. **Steel Studs** -- Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min width as indicated under Item 4, min 1-1/4 in. flanges and 1/4 in. return, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

3. **Batts and Blankets*** -- (Required as indicated under Item 4) -- Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 4. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.
3A. **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.

4. **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 Layers & Thkns of Panel	Min Thkns of Insulation (Item 3)
1	3-1/2	1 layer, 5/8 in. thick	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.

CANADIAN GYPSUM COMPANY -- 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 Type IP-X3, ULTRACODE, ULTRACODE SHC or ULTRACODE WRC.

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

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 Type IP-X3, ULTRACODE, ULTRACODE SHC or ULTRACODE WRC.

4A. **Gypsum Board*** -- (As an alternate to Item 4) -- 5/8 in. thick, 2 ft. wide, tongue and groove edge, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 5. Joint covering (Item 7) not required.
CANADIAN GYPSUM COMPANY -- Type SHX.
UNITED STATES GYPSUM CO -- Type SHX.
USG MEXICO S A DE C V -- Type SHX.

5. **Fasteners** -- (Not shown) -- Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 6). **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., 5/8 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.

6. **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 4A.
6A. **Steel Framing Members (Not Shown)*** -- (Optional on one or both sides, not shown, for single or double layer systems) -- As an alternate to Item 6, 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 5. Not for use with Item 4A.
b. **Steel Framing Members*** -- Used to attach furring channels (Item 6a) to studs (Item 2). Clips spaced max. 48 in. OC., and 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.
PAC INTERNATIONAL INC -- Type RSIC-1.

7. **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.

8. **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.

9. **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

*Bearing the UL Classification Mark

UL# U419

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

BOBBITT

COORDINATOR: JGF
DRAWN BY: JGF
CHK BY: BDG, LCP

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
10/21/2024
24-0013
UL DETAILS

T1.3
OF 3

LILLINGTON FIRE STATION HWY 210

2873 NC 210 NORTH, LILLINGTON, NC 27546

SITE PLAN SUBMITTAL

ISSUED DATE: OCTOBER 25, 2024

ADDENDUM #1 NOVEMBER 13, 2024
REVISION 2 MARCH 03, 2025
REVISION 3 APRIL 17, 2025

VICINITY MAP
SCALE: 1" = 300'

SITE DATA	
PROJECT NAME:	LILLINGTON FIRE STATION HWY 210
SITE ADDRESS:	2873 NC 210 NORTH, LILLINGTON, NC 27546
COUNTY:	HARNETT
PARCEL PIN #:	0661-13-0467.000
PARCEL OWNER:	TOWN OF LILLINGTON (2)
PARCEL AREA:	27,144 SF
TOTAL SITE GROSS ACREAGE:	0.62AC
NET ACREAGE:	0.62 AC (0 RIGHT OF WAY DEDICATION)
CURRENT ZONING:	CD-NMX
PROPOSED ZONING:	CD-NMX
EXISTING LAND USE:	VACANT
PROPOSED LAND USE:	COMMERCIAL
FLOOD PLAIN DATA:	3720066000J
RIVER BASIN:	CAPE FEAR RIVER
WATER SUPPLY WATERSHED	WS-IV PA (2)
CONSTRUCTION TYPE:	NEW
MAX BUILDING HEIGHT:	55'
PROPOSED BUILDING HEIGHT:	22'
PROPOSED BUILDING SQUARE FOOTAGE:	8,346 SF
TREE CONSERVATION AREA::	0 SF
TOTAL LIMITS OF DISTURBANCE::	0.81 AC/ 35443.8 SF
EXISTING IMPERVIOUS AREA:	0.005 AC/ 230 SF
PROPOSED IMPERVIOUS AREA:	0.477 AC/ 20,763 SF
PARKING DATA:	
REQUIRED PARKING:	0 SPACES
PROPOSED PARKING:	13 SPACES
TOTAL PARKING:	13 SPACES

(2)

UTILITIES IMPROVEMENTS QTY	
PRIVATE SEWER	
4" SEWER SERVICE	89 LF
PRIVATE WATER	
6" FIRE LINE	246 LF
2" WATER SERVICE	30 LF

Sheet List Table	
Sheet #	Sheet Name
C0.00	COVER SHEET
C0.10	GENERAL NOTES
C1.00	EXISTING CONDITIONS SURVEY
C1.01	EXISTING CONDITIONS (POST TOWNHOME DEVELOPMENT)
C2.00	DEMOLITION PLAN
C3.00	SITE PLAN
C3.10	PAVING PATTERNS PLAN
C3.90	SITE DETAILS I
C3.91	SITE DETAILS II
C3.92	SITE DETAILS III
C4.00	EROSION CONTROL NOTES
C4.01	EROSION CONTROL PLAN PHASE 1
C4.02	EROSION CONTROL PLAN PHASE 2
C5.00	GRADING AND STORM DRAINAGE PLAN
C5.40	DRAINAGE MAP
C5.50	IMPERVIOUS MAP (PRE AND POST)
C6.00	UTILITY PLAN
C6.90	UTILITY DETAILS I
C6.91	UTILITY DETAILS II
L7.00	CODE PLANTING PLAN
L7.90	PLANTING & SOILS DETAILS
E2.3	SITE PLAN - PHOTOMETRICS

CLIENT

BOBBITT
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
919.800.4632 (T)

CIVIL ENGINEERING - LANDSCAPE ARCHITECTURE - GEOMATICS

STEWART
223 S. WEST STREET FIRM LICENSE #: C-1051
SUITE 1100 www.stewartinc.com
RALEIGH, NC 27603 PROJECT #: C23050
T 919.380.8750

STEWART INC. - CIVIL
CONTACT: ROY P. LORENZEN, PE
CIVIL ENGINEER
919.866.4813 (T)
919.380.8752 (F)
RLORENZEN@STEWARTINC.COM

STEWART INC. - LANDSCAPE ARCHITECTURE
CONTACT: TEIDD DUNCAN, PLA
LANDSCAPE ARCHITECT
980.875.1991 (T)
919.380.8752 (F)
TDUNCAN@STEWARTINC.COM

STEWART INC. - GEOMATICS
CONTACT: FRANK G. MUNDY, II, PLS
DIRECTOR OF GEOMATICS
919.866.4806 (T)
919.380.8752 (F)
FMUNDY@STEWARTINC.COM

GEOTECHNICAL

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SOUTHERN ENGINEERING
CONTACT: DON BROWN, PE
919.321.9407 (T)
WWW.SOUTHERNENGINEERINGPC.COM

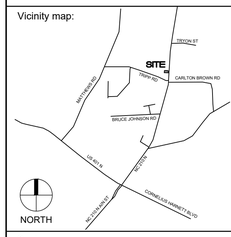
L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-C0.00 Cover.dwg Apr 17, 2025 - 4:38pm

STEWART
223 S. WEST ST., #1100 FIRM LICENSE #: C-1051
RALEIGH, NC 27603 www.stewartinc.com
T 919.380.8750 PROJECT #: C23050

BOBBITT

Client:
BOBBITT
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:



Seal:

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 15834 ENGINEER ROY PAUL LORENZEN 3.03.2025

Scale:

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS
3	17 APR 2025	REVD PER OWNER COMMENTS

Title:

COVER SHEET

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL

C0.00

GENERAL NOTES:

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE OFFICE OF STATE CONSTRUCTION, DEPARTMENT OF INSURANCE, NCDENR, AND ALL OTHER APPLICABLE LOCAL, STATE AND FEDERAL GUIDELINES. ALL UTILITY CONSTRUCTION SHALL COMPLY WITH APPLICABLE LOCAL JURISDICTIONAL STANDARDS AND SPECIFICATIONS.
2. EXISTING SURVEY INFORMATION INCLUDING TOPOGRAPHIC INFORMATION PROVIDED BY STEWART , UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING, COORDINATING AND PAYMENT FOR ALL NECESSARY LOCATING SERVICES INCLUDING INDEPENDENT LOCATING SERVICES. THE CONTRACTOR SHALL PROVIDE NOTICE OF EXCAVATION TO NOTIFICATION CENTER AND FACILITY OWNERS (PER NC STATUTE) NO LESS THAN 3 BUSINESS DAYS AND NO MORE THAN 12 WORKING DAYS PRIOR TO BEGINNING DEMOLITION, EXCAVATION OR ANY OTHER FORM OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS. NO EXCAVATION OR DEMOLITION SHALL BE STARTED WITHOUT ALL UTILITIES BEING LOCATED.
4. ALL SUB-SURFACE UTILITIES IDENTIFIED ON THE CONSTRUCTION DOCUMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATION BASED ON SURVEY INFORMATION GATHERED FROM FIELD INSPECTION AND/OR ANY OTHER APPLICABLE RECORD DRAWINGS WHICH MAY BE AVAILABLE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
5. EXISTING IMPROVEMENTS DAMAGED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED OR REPLACED TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COORDINATING PERMITS, INSPECTIONS, CERTIFICATIONS AND OTHER REQUIREMENTS WHICH MUST BE MET UNDER THIS CONTRACT.
7. THE CONTRACTOR SHALL MAINTAIN “AS-BUILT” DRAWINGS TO RECORD THE ACTUAL LOCATION OF ALL PIPING PRIOR TO CONCEALMENT, VALVE AND MANHOLE CHANGES, AND HARDSCAPE OR LANDSCAPE CHANGES. DRAWINGS SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE AT REGULAR INTERVALS, OR AS REQUESTED THROUGHOUT THE PROJECT FOR RECORD KEEPING.
8. IF DEPARTURES FROM THE PROJECT DRAWINGS OR SPECIFICATIONS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THERE OF SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER'S REPRESENTATIVE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION OF ANY EXISTING UTILITY LINES REQUIRED TO COMPLETE ANY PORTION OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE COORDINATION AND COSTS OF THE RELOCATION AND ASSOCIATED WORK.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS AND RUBBISH CAUSED BY THE CONTRACTOR. ALL DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE ON A DAILY BASIS.
11. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND/OR METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
12. ROADWAYS (TEMPORARY OR PERMANENT) MUST BE CAPABLE OF SUPPORTING FIRE FIGHTING APPARATUS (85,000 LBS) DURING ALL PHASES OF CONSTRUCTION ONCE VERTICAL CONSTRUCTION HAS BEGUN.

EXISTING CONDITION NOTES:

1. THIS SURVEY MAP IS INTENDED TO REPRESENT THE EXISTING CONDITIONS/TOPOGRAPHY ON A PORTION OF THE PROPERTY AND ALL ENCUMBRANCES UPON THE PROPERTY MAY NOT BE SHOWN.
2. HORIZONTAL DATUM IS NAD 83-2011 AND VERTICAL DATUM IS NAVD88.
3. THIS DRAWING DOES NOT CONFORM TO N.C. GS47-30 AND THEREFORE IS NOT FOR RECORDATION.
4. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
5. EXISTING CONDITIONS SURVEY INFORMATION BASED ON SURVEY BY STEWART INC ON 02/01/2024 .
6. TREES SHOWN HEREON MAY NOT REPRESENT ALL VEGETATION ON THE SUBJECT PROPERTY.
7. THE SUBJECT PROPERTY LIES IN ZONES X (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE AND FUTURE CONDITIONS 1% ANNUAL CHANCE FLOODPLAIN). BASED ON THE FLOOD INSURANCE RATE MAP COMMUNITY MAP NUMBER 3720066000J DATED OCTOBER 3, 2006 FRIS.NC.GOV.
8. NO WETLANDS HAVE BEEN IDENTIFIED WITHIN THE PROJECT OR PARCEL SHOWN.

DEMOLITION NOTES:

1. THE CONTRACTOR SHALL REMOVE CONCRETE (WHERE REQUIRED) TO THE FIRST COLD JOINT OR SAW CUT TO OBTAIN A CLEAN EDGE.
2. THE CONTRACTOR SHALL SAWCUT EXISTING ASPHALT (WHERE REQUIRED) TO OBTAIN A CLEAN EDGE.
3. CLEANOUTS AND WATER VALVES LOCATED IN AREAS OF DEMOLITION OR SUBSEQUENT CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND RAISED TO BE FLUSH WITH NEW GRADE.
4. ANY UTILITY SERVICES SHOWN TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY PROVIDER. CONTRACTOR IS RESPONSIBLE FOR APPROPRIATE SEQUENCING OF UTILITY DEMOLITION WITH THE RESPECTIVE UTILITY AGENCIES.
5. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITIES PRIOR TO BEGINNING DEMOLITION OPERATIONS. NOTIFY "NORTH CAROLINA ONE CALL" (TELEPHONE 1-800-632-4949) AT LEAST 48 HOURS PRIOR TO START OF DEMOLITION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL."
6. CLEAN SOILS SHALL BE UTILIZED FOR BACKFILL. COMPACTION OF THESE SOILS SHALL BE PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
7. ALL ITEMS DESIGNATED TO BE REMOVED SHALL BE REMOVED COMPLETELY, INCLUDING ALL SUBGRADE MATERIALS DIRECTLY ASSOCIATED WITH ITEMS TO BE REMOVED.
8. ALL ITEMS DESIGNATED TO BE REMOVED SHALL BE DISPOSED OF LEGALLY OFF-SITE UNLESS OTHERWISE NOTED ON THIS PLAN.
9. REFER TO LANDSCAPE AND EROSION CONTROL DRAWINGS FOR TREE PROTECTION PLAN AND REQUIREMENTS.
10. ALL DEMOLITION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL JURISDICTIONAL CODES OR REQUIREMENTS.
11. TREE PROTECTION FENCING SHALL BE IN PLACE PRIOR TO BEGINNING DEMOLITION
12. EROSION CONTROL PERMIT SHALL BE OBTAINED AND ONSITE PRIOR TO BEGINNING DEMOLITION.
13. ITEMS DESIGNATED TO BE SALVAGED AND/OR RE-USED SHALL BE REMOVED BY THE CONTRACTOR AND PROVIDED TO THE OWNER. COORDINATE STORAGE LOCATION WITH OWNER'S REPRESENTATIVE.
14. WHERE UTILITIES ("TO BE REMOVED") IMPACT THE FOOTPRINT OF THE NEW BUILDING, THE CONTRACTOR SHALL EXECUTE AND REMOVE AN ADDITIONAL 2 FEET OF SOILS TO EITHER SIDE OF THE PIPE, AND 1 FOOT BELOW. CLEAN SUITABLE SOIL SHALL BE UTILIZED FOR BACKFILL AND COMPACTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
15. DEMOLITION AND SUBSEQUENT CONSTRUCTION OF STORM DRAINAGE PIPING SHALL BE PERFORMED IN SUCH A MANNER THAT THE OLD PIPE AND STRUCTURES REMOVED DO NOT IMPACT DRAINAGE UPSTREAM OF THE SYSTEM. PROVISIONS SHALL BE MADE TO MAINTAIN STORM WATER DRAINAGE PATTERNS DURING CONSTRUCTION.
16. DEMOLITION AND SUBSEQUENT CONSTRUCTION OF UTILITIES (WATER, SEWER, ETC) SHALL BE PERFORMED IN SUCH A MANNER THAT THE OLD PIPE AND STRUCTURES REMOVED DO NOT IMPACT OR MINIMIZE SERVICE INTERRUPTION TO EXISTING FACILITIES TO REMAIN. PROVISIONS SHALL BE MADE TO MAINTAIN SERVICE DURING CONSTRUCTION.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL DAMAGES TO THE EXISTING DRIVEWAY, PARKING LOT, SIDEWALK AND CURB AND GUTTER AS A RESULT OF CONSTRUCTION ACTIVITY AND TRAFFIC. CONTRACTOR SHALL MAINTAIN A PRE-CONSTRUCTION VIDEO OR PHOTO DOCUMENTATION TO SHOW NO DAMAGES OCCURRED.
18. ALL MATERIALS, FURNISHINGS, UTILITIES, AND PAVEMENT THAT ARE NOT SCHEDULED TO BE DEMOLISHED AND ARE DAMAGED BY THE CONTRACTOR AS A RESULT OF THE DEMOLITION OR CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
19. WHERE UTILITIES ARE SHOWN TO BE "REMOVED", CONTRACTOR SHALL INCLUDE NECESSARY PLUG OR VALVES TO ENSURE UTILITY LINES TO REMAIN WILL CONTINUE TO BE IN SERVICE. COORDINATE NECESSARY SHUT DOWN AND REMOVAL WITH THE LOCAL JURISDICTION OR UTILITY OWNER.
20. CONTRACTOR SHALL PROVIDE PEDESTRIAN INGRESS / EGRESS TO ALL EXISTING BUILDINGS, PARKING LOTS, AND PATHS OF PEDESTRIAN TRAVEL THROUGHOUT THE CONSTRUCTION PERIOD

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SITE NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF THE CONSTRUCTION LAYDOWN AREA, PERIMETER FENCE, AND ASSOCIATED GATES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF THE CONSTRUCTION LAYDOWN AREA PERIMETER FENCE AND ASSOCIATED GATES AT THE COMPLETION OF THE PROJECT.
2. THE CONTRACTOR SHALL REFERENCE THE DESIGN PLANS FOR DIMENSIONS, JOINT LOCATIONS, AND INLAY SPECIFICATIONS NEAR BUILDINGS AND IN COURTYARDS. CONTRACTOR SHALL PROVIDE JOINTS IN WALKWAYS AND HARDSCAPE PER DETAILS OR AS INDICATED ON LANDSCAPE/HARDSCAPE PLAN SHEETS.

OR

THE CONTRACTOR SHALL REFERENCE THE ARCHITECTURAL PLANS FOR DIMENSIONS, JOINTS AND INLAY SPECIFICATIONS NEAR THE BUILDING AND COURTYARD. THE CONTRACTOR SHALL PROVIDE JOINTS IN WALKWAYS EVERY TEN (10) FEET MAXIMUM, OR AS INDICATED ON ARCHITECTURAL PLANS SHEETS.

3. ALL CONSTRUCTION TRAFFIC SHALL ENTER SITE FROM ______ UNLESS OTHERWISE APPROVED IN WRITING FROM THE OWNER'S REPRESENTATIVE FOR AN ALTERNATE POINT OF ACCESS.
4. REFER TO ARCHITECTURAL PLANS FOR BUILDING INFORMATION.
5. ALL DIMENSIONS ARE IN DECIMAL FEET TO OUTSIDE FACE OF BUILDINGS, TO CENTERLINES, AND/OR FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO ANY CONSTRUCTION.
7. ALL WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE FROM DRAWINGS.
8. ALL UTILITIES WITH SURFACE ACCESS SHALL BE LOCATED WITHIN THE PAVING PATTERN AND SHALL BE COORDINATED WITH LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION. REFER TO LAYOUT DRAWINGS.
9. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE NOTED.
10. ALIGN ALL JOINTS, CORNERS, AND EDGES AS SHOWN
11. CONTRACTOR SHALL REFER TO AND COORDINATE WITH ARCHITECTURAL, STRUCTURAL, AND MEP DRAWINGS AT ALL TIMES PRIOR TO AND DURING CONSTRUCTION.
12. ALL CURB TAPERS ARE SIX (6') FEET LONG UNLESS OTHERWISE SHOWN ON PLAN.
13. WHERE NEW SIDEWALK ADJOINS EXISTING WALK, PROVIDE EXPANSION JOINT BY DRILLING INTO THE FACE OF THE EXISTING WALK FOR PLACEMENT OF DOWELS. TIE NEW SIDEWALKS INTO NEAREST EXISTING PAVEMENT JOINT; MATCH WIDTH OF EXISTING WALKWAY.
14. WHERE SIDEWALK OR WALKWAYS ARE ADJACENT TO PARKING SPACES THE WALKWAY SHALL BE A MINIMUM 6.5' WIDE AS MEASURED FROM THE FACE OF CURB.
15. MAXIMUM RUNNING SLOPE FOR WALKING SURFACES CANNOT BE GREATER THAN 1:20 AND CROSS SLOPES CANNOT BE GREATER THAN 1:48. HANDICAP SPACES SURFACE SLOPES SHALL NOT EXCEED 1:48 IN ALL DIRECTIONS.
16. SIGHT TRIANGLES - NOTHING OVER 30" HIGH SHALL BE ALLOWED WITHIN THE SIGHT DISTANCE TRIANGLES.
17. THE SITE SHALL BE FULLY STABILIZED (90% COVERAGE) PRIOR TO ISSUANCE OF A BUILDING CERTIFICATE OF OCCUPANCY OR PROJECT APPROVAL
18. HANDICAP RAMPS SHALL BE INSTALLED PER LATEST EDITION OF THE NC BUILDING CODE AND ANSI 117.11 WITH DETECTABLE WARNING DOMES WITH A COLOR CONTRAST OF 70% MINIMUM. SEE DETAILS AND GRADING SPOT ELEVATIONS, IF THE EXISTING CONDITIONS PRECLUDE THE ABILITY TO PROVIDE A MAXIMUM SLOPE 1/12 FOR 6-FEET OR A MAXIMUM CROSS SLOPE OF 1:48 AND A 36” MINIMUM LANDING, THE CONTRACTOR SHALL NOTIFY ENGINEER OR OWNER REPRESENTATIVE PRIOR TO INSTALLATION.

OR

HANDICAP RAMPS SHALL BE INSTALLED PER THE PLANS AND SPECIFICATIONS AND THE NC BUILDING CODE. A MAXIMUM SLOPE OF 1/12 FOR 6-FEET AND A MAXIMUM CROSS SLOPE OF 1:48 SHALL BE PROVIDED. IF EXISTING CONDITIONS PRECLUDE THIS REQUIREMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION

19. THE TESTING AGENCY SHALL BE RESPONSIBLE FOR PROVIDING THE ASPHALT AND CONTRACTOR CERTIFICATION MEMO TO NCDOT FOR ALL ROADWAY IMPROVEMENTS WITHIN THE PUBLIC RIGHT-OF-WAY.

GRADING AND STORM DRAINAGE NOTES:

1. CONTRACTOR SHALL REPORT ANY GRADE DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION OPERATIONS.
2. THE MAXIMUM SLOPE ALONG ANY HANDICAP ACCESSIBLE PATHWAY SHALL NOT EXCEED 5.0% AND SHALL NOT EXCEED A 2.0% CROSS SLOPE. HANDICAP RAMPS INDICATED ON PLANS SHALL BE A MAXIMUM OF 1/12 SLOPES WITH A MAXIMUM RISE OF 30” BETWEEN LANDINGS. NON-CURB CUT RAMPS SHALL HAVE HANDRAILS AND GUARDS PER DETAILS WITH 5' LANDINGS AT THE BOTTOM AND TOP OF RAMP.
3. ALL PROPOSED ELEVATIONS SHOWN ARE EDGE OF PAVEMENT ELEVATIONS UNLESS OTHERWISE SPECIFIED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL NEWLY CONSTRUCTED STORM DRAINAGE IMPROVEMENTS AND RECEIVING STORM DRAINAGE SYSTEMS REMAIN CLEAN OF SEDIMENT AND DEBRIS. PRIOR TO OWNER ACCEPTANCE OF SYSTEM, THE CONTRACTOR SHALL COORDINATE AND PROVIDE A VISUAL OBSERVATION VIDEO OF ALL STORM DRAINAGE IMPROVEMENTS 12" AND LARGER. THE VISUAL OBSERVATION SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE TWO (2) DVD COPIES OF THE ENTIRE DRAINAGE VISUAL OBSERVATION.
5. PRIOR TO ISSUANCE OF A BUILDING CERTIFICATE OF OCCUPANCY THE CONTRACTOR SHALL PROVIDE THE OWNER WITH THE VIDEO INSPECTION OF THE STORM SEWER SYSTEM. (BOTH PUBLIC AND PRIVATE). THIS SUBMITTAL MAY NEED TO BE REVIEWED AND ACCEPTED BY THE LOCAL JURISDICTION PRIOR TO THE ISSUANCE OF THE BUILDING CO.
6. REFER TO THE EROSION CONTROL DETAILS SHEET FOR THE SEQUENCE OF CONSTRUCTION
7. INTERIM GRADING SHALL BE PROVIDED THAT ENSURES THE PROTECTION OF STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, AND WASHOUT.
8. INTERIM GRADING SHALL BE PROVIDED TO DIRECT WATER AWAY FROM BUILDINGS AND PREVENT PONDING.
9. TIE ROOF LEADERS WHERE POSSIBLE TO UNDERGROUND STORM SYSTEM. CONTRACTOR TO FIELD VERIFY LOCATE AND INSTALL WHERE POSSIBLE OR AS SHOWN ON PLANS. WHERE ROOF LEADERS DAYLIGHT AT GRADE A SPLASH BLOCK APPROVED BY THE OWNER'S REPRESENTATIVE SHALL BE INSTALLED.
10. MAXIMUM SLOPE ACROSS ANY HANDICAPPED PARKING SPACE AND AISLE SHALL NOT EXCEED 2% IN ANY DIRECTION.
11. PROPOSED CONTOURS ARE APPROXIMATE. SPOT ELEVATIONS AND ROADWAY PROFILES SHALL BE USED IN CASE OF DISCREPANCY.
12. PLACE BACKFILL AND FILL MATERIALS IN LAYER NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS. PLACE BACKFILL AND FILL MATERIALS EVENLY ON ALL SIDES TO REQUIRED ELEVATIONS, AND UNIFORMLY ALONG THE FULL LENGTH OF EACH STRUCTURE. COMPACT SOIL TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL UP TO TWO FEET OF FINISHED GRADE. COMPACT SOIL TO NOT LESS THAN 98 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL FOR THE FINAL TWO FEET.
13. SITE GRADING IMMEDIATELY ADJACENT TO FOUNDATION OF BUILDING SHALL SLOPE NOT LESS THAN 1/20 AWAY FOR MINIMUM DISTANCE OF 10 FEET. ALTERNATIVE METHOD SHALL BE PROVIDED TO DIVERT WATER AWAY FROM FOUNDATION VIA SWALES SLOPED AT A MINIMUM OF 2% OR IMPERVIOUS SURFACES SLOPED AWAY A MINIMUM OF 2% AWAY FROM BUILDING.
14. CONTRACTOR SHALL ADJUST RIM ELEVATIONS OF EXISTING MANHOLES, METERS, VALVES, ETC. AS REQUIRED TO MEET NEW FINISHED GRADES.
15. CONTRACTOR SHALL SLOPE GRADES TO ASSURE POSITIVE STORMWATER FLOW TO KEEP WATER FROM POOLING ALONG CURBS AND WALLS.
16. TOP OF WALL ELEVATIONS INDICATE THE ELEVATION AT THE TOP OF THE CAP, UNLESS OTHERWISE NOTED.
17. BOTTOM OF WALL ELEVATIONS INDICATE THE ELEVATION OF THE FINISHED GRADE.

UTILITY NOTES:

1. UNLESS OTHERWISE NOTED, ALL MANHOLES SHALL BE PRE-CAST CONCRETE STRUCTURES.
2. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF UNDERGROUND UTILITIES (WATER, SEWER, STORM, ELECTRICAL, GAS, OR OTHER) FOR THIS PROJECT WITH THE BUILDING PLANS. THE UTILITY CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE INSTALLATION OF ALL UTILITY SERVICES TO WITHIN FIVE (5) FEET OF THE BUILDING CONNECTION POINT.
3. THE CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS ON SITE AND UTILITY PROVIDERS DURING CONSTRUCTION TO ENSURE SMOOTH TRANSITION BETWEEN DISCIPLINES.
4. THE CONTRACTOR SHALL COORDINATE ALL PEDESTRIAN AND VEHICULAR INTERRUPTIONS WITH OWNER'S REPRESENTATIVE AT LEAST 72 HOURS PRIOR TO BEGINNING WORK.
5. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK INSIDE THE PUBLIC RIGHT OF WAY PRIOR TO RECEIPT AND COMPLIANCE WITH ALL APPLICABLE NCDOT PERMITS. ADDITIONALLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY FLAGGERS AND TRAFFIC CONTROL DURING ALL WORK INSIDE THE PUBLIC RIGHTS OF WAY.
6. THE CONTRACTOR SHALL NOT RE-USE ANY FIRE HYDRANT REMOVED AS PART OF THIS PROJECT. ANY FIRE HYDRANT SHOWN TO BE REMOVED OR RELOCATED SHALL BE REPLACED WITH A NEW FIRE HYDRANT MEETING THE LOCAL JURISDICTIONAL REQUIREMENTS AND STANDARDS.
7. ALL EXISTING SUB-SURFACE UTILITIES IDENTIFIED ON THE CONSTRUCTION DOCUMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATION BASED ON SURVEY INFORMATION GATHERED FROM FIELD INSPECTION AND/OR ANY OTHER APPLICABLE RECORD DRAWINGS WHICH MAY BE AVAILABLE. DEPTHS OF EXISTING UTILITIES SHOWN IN PROFILE VIEWS ARE BASED ON STANDARD ASSUMPTIONS. THE CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATION, DEPTH, SIZE AND MATERIAL OF ANY AND ALL SUB-SURFACE CONDITIONS REFERENCED IN THESE PLANS PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
8. ELEVATIONS OF UTILITIES ARE GIVEN TO THE EXTENT OF INFORMATION AVAILABLE, WHERE ELEVATIONS ARE NOT GIVEN AT POINTS OF EXISTING UTILITY CROSSINGS, SUCH ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR AND REPORTED TO THE ENGINEER, WHEN UNKNOWN LINES ARE EXPOSED, THEIR LOCATIONS AND ELEVATIONS SHALL ALSO BE REPORTED TO THE ENGINEER.
9. UNDERGROUND UTILITIES SHOWN ON THIS PLAN SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION OF PARKING AREA, DRIVES, CURB AND GUTTER OR CONCRETE WALKS / PADS. IF UTILITIES SHOWN ON THIS PLAN CANNOT BE INSTALLED PRIOR TO INSTALLATION OF IMPERVIOUS (ASPHALT / CONCRETE) CONDUIT SHALL BE INSTALLED FOR THE “FUTURE” UTILITY INSTALLATION.
10. AS-BUILT DOCUMENTATION REQUIREMENTS: PRIOR TO APPROVAL FROM LOCAL JURISDICTION OR ENGINEER THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS (IN BOTH PAPER AND ELECTRONIC FORMAT (CAD / PDF) PREPARED AND SEALED BY A PROFESSIONAL LAND SURVEYOR SHOWING ALL UTILITY INSTALLATION. HORIZONTAL AND VERTICAL INFORMATION SHALL BE PROVIDED FOR WATER, SEWER, STORM INCLUDING ALL STRUCTURES, VALVES, HYDRANTS, AND OTHER APPURTENANCES.

PROPOSED UTILITY SEPARATION:

1. WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT HORIZONTAL SEPARATION IN WHICH CASE;
    - a. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER; OR
    - b. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE OF A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP TO THE SEWER.
2. CROSSING A WATER MAIN OVER A SEWER. WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION, IN WHICH CASE BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
3. CROSSING A WATER MAIN UNDER A SEWER. WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
4. SEPARATION OF SANITARY SEWERS AND STORM SEWERS:
    - a. A 24" VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN STORM SEWER AND SANITARY SEWER LINES OR BOTH THE SANITARY AND THE STORM LINES SHALL BE CONSTRUCTED OF FERROUS MATERIALS.

SEWER NOTES:

1. SANITARY SEWER CLEANOUTS LOCATED IN PAVEMENT AREAS SHALL BE HEAVY DUTY TRAFFIC BEARING CASTINGS.
2. UNLESS OTHERWISE NOTED, ALL SANITARY SEWER MANHOLES ARE 4' DIA.
3. MANHOLES LOCATED IN PAVEMENT, CONCRETE OR OTHER TRAFFIC AREAS SHALL BE SET AT GRADE. MANHOLES LOCATED IN OTHER AREAS (I.E. GRASS OR WOODED AREAS) SHALL HAVE THEIR RIMS RAISED SIX INCHES ABOVE THE SURROUNDING GRADE. MANHOLES SUBJECT TO POSSIBLE WATER INFILTRATION SHALL HAVE WATERTIGHT, BOLTED LIDS.
4. MINIMUM REQUIRED SLOPES FOR SEWER SERVICES:
    4" SEWER SERVICE - 2.00% SLOPE
    6" SEWER SERVICE - 1.00% SLOPE
    8" SEWER SERVICE - 0.50% SLOPE
5. UNLESS OTHERWISE NOTED, LOCATE SANITARY SERVICE CLEANOUTS AT ALL HORIZONTAL OR VERTICAL CHANGES IN DIRECTION. MAXIMUM SPACING BETWEEN CLEANOUTS SHALL BE 75 FEET.
6. SEWER LINES LESS THAN 3 FEET OF COVER SHALL BE CLASS 50 DUCTILE IRON PIPE. SEWER LINES WITH GREATER THAN 3 FEET OF COVER SHALL BE AS NOTED BELOW:
    4" SEWER SERVICE - SCH 80
    6" SEWER SERVICE - SCH 80
    8" SEWER SERVICE - SDR-35
7. SEWER LINES UNDER CONSTRUCTION SHALL BE PROTECTED FROM DIRT, DEBRIS OR OTHER CONTAMINANTS ENTERING THE NEW SYSTEM. A MECHANICAL PLUG SHALL BE UTILIZED BOTH IMMEDIATELY UPSTREAM OF THE NEW CONSTRUCTION AND AT THE FIRST MANHOLE DOWNSTREAM IN THE EXISTING SYSTEM. EXISTING STRUCTURES, PIPING AND APPURTENANCES SHALL BE PROTECTED FROM ANY INFLOW OF WATER, DIRT OR DEBRIS DUE TO NEW CONSTRUCTION CONNECTING TO OR IN THE VICINITY OF THE EXISTING SYSTEM. CONTRACTOR TO REMOVE DEBRIS AND PLUG PRIOR TO OCCUPANCY.
8. ALL MANHOLES COVERS SHALL BE PAINTED TO LOCAL JURISDICTIONAL REQUIREMENTS.

WATER NOTES:

1. AS INDICATED, ALL WATERLINES SHALL BE DUCTILE IRON PIPE MEETING THE REQUIREMENTS OF ANSI-AWWA C151 PRESSURE CLASS 350 OR SOFT COPPER TYPE K PIPE PER ASTM B88. IF PVC WATERLINE IS INDICATED ON THE PLANS IT SHALL MEET THE REQUIREMENTS OF AWWA C-900; CLASS 200.
2. ALL WATERLINES SHALL HAVE A MINIMUM OF 3.5 FEET OF COVER.
3. TESTING NOTES:
    PRESSURE:
    LEAKAGE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE LEAKAGE SPECIFIED IN AWWA C 600.
    MINIMUM TEST PRESSURE SHALL BE 150 PSI FOR DOMESTIC AND 200 PSI FOR FIRE PROTECTION.
    BACTERIOLOGICAL:
    TWO SAMPLES FOR BACTERIOLOGICAL SAMPLING SHALL BE COLLECTED AT LEAST 24 HOURS APART. IF CONTAMINATION IS INDICATED, THEN THE DISINFECTION PROCEDURE AND TESTING SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.
4. THE CHLORINE IN HEAVILY CHLORINATED WATER FLUSHED FROM MAINS NEEDS TO BE NEUTRALIZED BEFORE DISCHARGE. CONTRACTORS SHALL NEUTRALIZE HEAVILY CHLORINATED WATER FLUSHED FROM MAINS PRIOR TO DISCHARGE OR TRANSPORT ALL HEAVILY CHLORINATED WATER OFFSITE FOR PROPER DISPOSAL.
5. PAINT VALVE COVERS, FIRE HYDRANTS AND OTHER WATER APPARATUS TO MEET THE LOCAL JURISDICTIONAL REQUIREMENTS.

PAVING PATTERN NOTES:

1. END ALL UNIT PAVING PATTERNS WITH A FULL OR HALF SIZE PAVER UNLESS OTHERWISE NOTED. USE OVERSIZE PAVERS WHERE PATTERN ENDS ON A UNIT SMALLER THAN HALF SIZE.
2. LAYOUT OF UNIT PAVING PATTERNS AND CONCRETE JOINTS AS INDICATED ON THIS PLAN. REFERENCE LAYOUT PLANS FOR FURTHER PAVING LAYOUT INFORMATION.
3. PAVERS ABUTTING TRUNCATED DOMES SHALL BE A CONTRASTING COLOR.
4. ALIGN ALL TRUNCATED DOME PAVER JOINTS WITH ABUTTING PAVER JOINTS.
5. PROVIDE CONTINUOUS EXPANSION JOINTS BETWEEN BACK OF CURB AND ADJOINING PAVEMENT.
6. PROVIDE CONTINUOUS EXPANSION JOINT BETWEEN ALL VERTICAL SURFACES AND ADJOINING PAVEMENT.
7. ALL DIMENSIONS MEASURED TO CENTERLINE OF JOINTS.
8. ALL WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE FROM DRAWINGS.
9. ALL ANGLES 90 DEGREES UNLESS OTHERWISE NOTED.
10. ALIGN ALL JOINTS, CORNERS AND EDGES AS SHOWN.
11. FINAL LAYOUTS TO BE APPROVED BY LANDSCAPE ARCHITECT.

SIGNAGE, STRIPING AND MARKING NOTES:

1. ALL INTERNAL SIGNAGE SHALL BE COORDINATED WITH OWNER FOR ACTUAL LOCATION AT TIME OF INSTALLATION. SIGNAGE LEADING ONTO PUBLIC THOROUGHFARE SHALL BE INSTALLED AT RIGHT OF WAY PER DOT STANDARDS
2. ALL PAVEMENT STRIPING (EXCEPT INDIVIDUAL PARKING BAY STRIPING) SHALL BE THERMOPLASTIC REFLECTIVE PAINT. MATERIALS AND DIMENSIONS SHALL CONFORM TO NCDOT STANDARDS AND SPECIFICATIONS. PARKING BAY STRIPING SHALL BE WHITE REFLECTIVE PAINT.
3. CROSSWALKS SHALL BE CONSTRUCTED OF THERMOPLASTIC MATERIALS AND CONSTRUCTED IN ACCORDANCE WITH STATE DOT SPECIFICATIONS. CONTRACTOR TO INSTALL CROSSWALKS IN SUCH A MANNER THAT CROSSWALKS ARE ALIGNED BETWEEN HANDICAP/WALKWAY ACCESS POINTS OR PERPENDICULAR TO THE ROADWAY / DRIVE LANE.
4. ADA SYMBOLS SHOWN THESE DRAWINGS ARE FOR LOCATION PURPOSES ONLY AND NOT INTENDED TO BE PAINTED. CONTRACTOR RESPONSIBLE FOR INSTALLING ALL REQUIRED ADA SIGNAGE

LANDSCAPE NOTES:

1. VERIFY ALL QUANTITIES AND REPORT ANY DISCREPANCIES OR INACCURACIES IN THE PLANS TO THE OWNER'S REPRESENTATIVE PRIOR TO PLANTING.
2. LANDSCAPE WORK SHALL INCLUDE THE FURNISHING, INSTALLATION, AND WARRANTY OF ALL PLANTING MATERIALS WITHIN THE PROJECT AREA.
3. THE LANDSCAPE CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL EXISTING AND NEW UNDERGROUND UTILITIES PRIOR TO EXCAVATION FOR PLANTING. DAMAGES TO UTILITIES CAUSED BY THE LANDSCAPE OPERATION SHALL BE CORRECTED BY THE LANDSCAPE CONTRACTOR AT NO COST TO THE OWNER.
4. LANDSCAPING SHALL REMAIN CLEAR FROM ANY FIRE HYDRANTS ON THE SITE.
5. ALL TREES TO BE A MINIMUM OF 2" IN CALIPER AND MUST MEET THE AMERICAN STANDARD FOR NURSERY STOCK.
6. TREE PROTECTION NOTE: TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE OR ISSUANCE OF A GRADING PERMIT AND SHALL INCLUDE WARNING SIGNS POSTED IN BOTH ENGLISH AND SPANISH, AS FOLLOWS: "NO TRESPASSING/TREE PROTECTION AREA/PROHIBIDO ENTRAR / ZONA PROTECTORA PARA LOS ÁRBOLES."
7. PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE OF THE TREE SAVE AREA AT THE SAME TIME AS OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE. NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED AREA.
8. ROOT ZONE PROTECTION AREA: VARIES BASED ON LOCAL JURISDICTION HAVING AUTHORITY. CONTRACTOR SHALL COMPLY WITH LOCAL JURISDICTIONAL REQUIREMENTS. NO DISTURBANCE ALLOWED WITHIN THIS AREA. AREA MUST BE PROTECTED WITH BOTH TREE PROTECTION FENCING AND WARNING SIGNS.
9. SEED BED PREPARATION: ALL AREAS TO BE SEEDED ARE TO BE RECEIVE A MINIMUM OF 2" OF APPROVED TOPSOIL. ALL DEBRIS, ROCKS, ETC. LARGER THAN .5" ARE TO BE REMOVED. ALL LARGE CONCENTRATIONS OF GRAVEL & DEBRIS REGARDLESS OF SIZE ARE TO BE REMOVED PRIOR TO SEEDING OR PLANTING.
10. ALL PLANT BED AREAS ARE TO RECEIVE A MINIMUM OF 6" OF APPROVED TOPSOIL.
11. SOIL SHOULD BE TESTED AND AMENDED WITH LIME AND FERTILIZER FOR HARDWOOD TREES ACCORDING TO NCDA PROCEDURES. SCARIFY PLANT PIT WALLS. CONSULT LANDSCAPE ARCHITECT FOR ALTERNATE COMPLIANCE.
12. SHREDDED HARDWOOD MULCH 3" DEEP EXCEPT AT CROWN OF PLANT UNLESS OTHERWISE NOTED. FLARE AT CROWN SHOULD BE REVEALED. BACKFILL CONSISTS OF THOROUGHLY BROKEN UP NATIVE SOIL. TOTAL VOLUME OF BACKFILL SHOULD BE AMENDED WITH UP TO ONE THIRD PINE BARK MULCH. PIECES SHOULD BE NO LARGER THAN WHAT PASSES THROUGH A ONE INCH SCREEN. IF ADDITIONAL SOIL IS REQUIRED FOR BACKFILL DUE TO DETRIMENTAL SUBSOIL DRAINAGE CONDITIONS, USE SOIL SIMILAR TO EXISTING NATIVE SOIL. ADDITIONAL SOIL TO BE APPROVED BY LANDSCAPE ARCHITECT. MAXIMUM SAUCER HEIGHT IS 6 INCHES.
13. TOP OF ROOTBALL TO BE RAISED 2-3 INCHES ABOVE EXISTING GRADE.
14. FOR B&B PLANTS, NATURAL FIBER BURLAP SHOULD BE TURNED DOWN BY 1/3 TOTAL HEIGHT OF ROOT BALL. PLASTIC FIBER BURLAP AND WIRE BASKETS SHOULD BE REMOVED TO 2/3'S OF TOTAL HEIGHT OF ROOT BALL.
15. CONTRACTOR IS RESPONSIBLE FOR KEEPING THE TREE UPRIGHT AND PLUMB THROUGHOUT THE WARRANTY PERIOD. IF STABILIZATION IS NECESSARY SEE STAKING IN TREE DETAIL, ORANGE FLAGGING TAPE SHOULD BE ATTACHED TO SUPPORT WIRE. STAKING SHOULD BE REMOVED BY CONTRACTOR AT END OF ONE YEAR WARRANTY PERIOD OR AS DIRECTED BY GROUNDS MANAGEMENT.
16. USE STANDARD "GATOR" BAGS FOR WATERING TREES IN AREAS NOT UNDER IRRIGATION. INCORPORATE TERRA-SORB (OR EQUAL) AS PER MANUFACTURERS RECOMMENDATIONS, FOR AREAS NOT UNDER IRRIGATION.
17. USE "BIO-BARRIER" OR EQUIVALENT ACCORDING TO MANUFACTURER'S RECOMMENDATION FOR TREES THAT WILL BE PLANTED WITHIN 10' OF PAVEMENT
18. LANDSCAPING/C.O. STANDARDS NOTE: ALL LANDSCAPING MUST BE IN PLACE PRIOR TO REQUEST FOR A CERTIFICATE OF COMPLIANCE.

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BOBBITT

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BOBBITT
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:

Seal:
PRELIMINARY - DO NOT USE FOR CONSTRUCTION
15834
3.03.2025
ROY PAUL LORENZEN

Scale:

Project:
LILLINGTON FIRE STATION HWY 210

Issued for:
SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS
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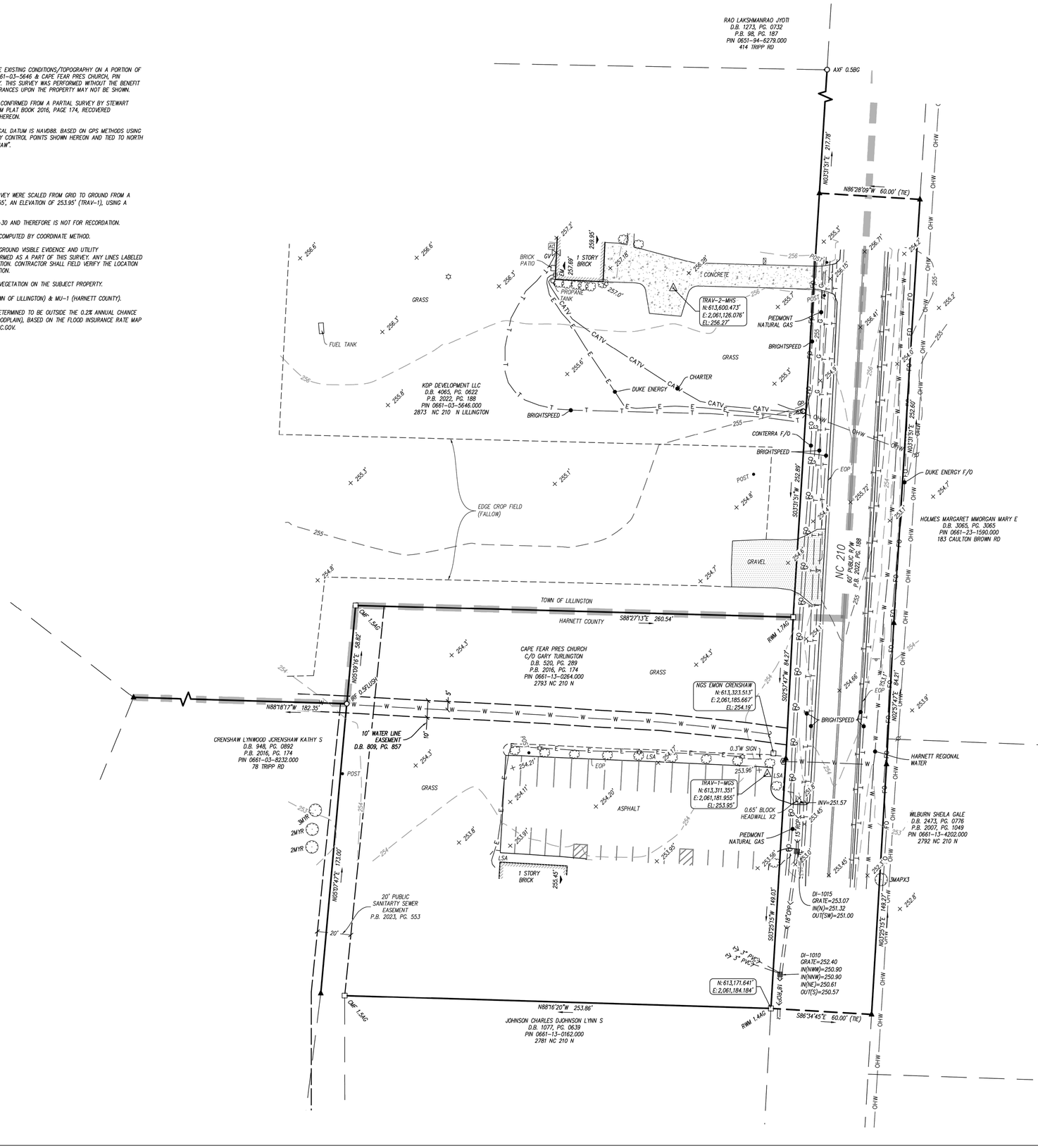
Title:
GENERAL NOTES

Project number: C23050
Issued Date: 06.14.2024
Drawn by: RPL
Approved by: RPL
Sheet #:
C0.10

GENERAL NOTES

1. THIS SURVEY MAP IS INTENDED TO REPRESENT THE EXISTING CONDITIONS/TOPOGRAPHY ON A PORTION OF THE PROPERTY OF KDP DEVELOPMENT LLC, PIN 0661-03-5646 & CAPE FEAR PRES CHURCH, PIN 0661-13-0264, AND IS NOT A BOUNDARY SURVEY. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT AND THEREFORE ALL ENCUMBRANCES UPON THE PROPERTY MAY NOT BE SHOWN.
2. THE PROPERTY LINES SHOWN HEREON HAVE BEEN CONFIRMED FROM A PARTIAL SURVEY BY STEWART ENGINEERING. PROPERTY LINES SHOWN TAKEN FROM PLAT BOOK 2016, PAGE 174, RECOVERED MONUMENTATION AND OTHER REFERENCES LISTED HEREON.
3. HORIZONTAL DATUM IS NAD 83 (2011) AND VERTICAL DATUM IS NAVD88. BASED ON GPS METHODS USING REAL-TIME KINEMATIC SOLUTIONS FOR THE SURVEY CONTROL POINTS SHOWN HEREON AND TIED TO NORTH CAROLINA GEODETIC SURVEY MONUMENTS "CRENSHAW".

   "CRENSHAW (PUBLISHED)"
   N 613323.48'
   E 2061185.68'
   EL 254.1'
4. THE INITIAL STATE PLANE POSITIONS FOR THIS SURVEY WERE SCALED FROM GRID TO GROUND FROM A PROJECT LOCATION OF N:613311.351' E:2061181.955', AN ELEVATION OF 253.95' (TRAV-1), USING A COMBINED FACTOR OF 0.99987072.
5. THIS DRAWING DOES NOT CONFORM TO N.C. GS47-30 AND THEREFORE IS NOT FOR RECORDATION.
6. ALL DISTANCES ARE IN U.S. SURVEY FEET. AREA COMPUTED BY COORDINATE METHOD.
7. UTILITIES SHOWN HEREON ARE BASED ON ABOVE-GROUND VISIBLE EVIDENCE AND UTILITY DESIGNATION/MARKING SERVICES (LEVEL B) PERFORMED AS A PART OF THIS SURVEY. ANY LINES LABELED AS OLC OR OLD ARE BASED ON RECORD INFORMATION. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL UTILITIES BEFORE COMMENCING CONSTRUCTION.
8. TREES SHOWN HEREON MAY NOT REPRESENT ALL VEGETATION ON THE SUBJECT PROPERTY.
9. THE SUBJECT PROPERTY IS ZONED "CD-NMX" (TOWN OF LILLINGTON) & MU-1 (HARNETT COUNTY).
10. THE SUBJECT PROPERTY LIES IN ZONE X (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE AND FUTURE CONDITIONS 1% ANNUAL CHANCE FLOODPLAIN), BASED ON THE FLOOD INSURANCE RATE MAP NUMBER 3720066000J DATED 10/03/2006. FRIS.NC.GOV.
11. SITE ADDRESS: 2793 & 2873 NC 210 N



LEGEND

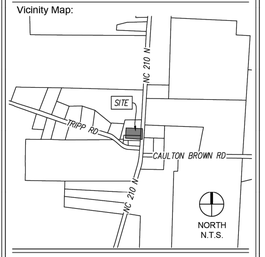
△	CONTROL POINT
○ AXF	AXLE FOUND
○ IPF	IRON PIPE FOUND
○ IRF	IRON ROD FOUND
□ CMF	CONCRETE MON FOUND
□ RMM	R/W MON FOUND
MGS	MAGNAIL SET
MHS	MAGHUB SET
▲	CALCULATED POINT
▦	STORM CATCH BASIN
Ⓦ	WATER METER
○ GP	GAS MARKER
⋈ GV	GAS VALVE
⊡ EM	POWER METER
☼	LIGHT POLE
⌀	UTILITY POLE
AC	AIR CONDITIONER
100.00'	FINISH FLOOR ELEV.
▯	MAILBOX
⊸	SIGN
• POST	FENCE POST
	BUSH
MAP	MAPLE
MYR	MYRTLE
T	UNDERGROUND TELE COMM
FO	UNDERGROUND FIBER OPTIC LINE
G	UNDERGROUND GAS LINE
E	UNDERGROUND ELECTRIC LINE
W	UNDERGROUND WATER LINE
	STORM DRAIN LINE
CATV	CABLE TELEVISION
OHW	OVERHEAD WIRES
	UNKNOWN DESTINATION
	JURISDICTIONAL BOUNDARY
	CONCRETE SURFACE
	GRAVEL SURFACE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
CPP	CORRUGATED PLASTIC PIPE

I, JORDAN M. SCHOFF, CERTIFY THAT THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT THIS GROUND SURVEY WAS PERFORMED AT THE 95 PERCENT CONFIDENCE LEVEL TO MEET FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC/PLANIMETRIC SURVEY TO THE ACCURACY OF CLASS A AND VERTICAL ACCURACY WHEN APPLICABLE TO THE CLASS B STANDARD, AND THAT THE ORIGINAL DATA WAS OBTAINED ON JANUARY 29TH, 2024; THAT THE SURVEY WAS COMPLETED ON FEBRUARY 1ST, 2024; THAT CONTOURS SHOWN AS [CONTINUOUS LINES] MAY NOT MEET THE STATED STANDARD; AND ALL COORDINATES ARE BASED ON NAD83(2011) AND ALL ELEVATIONS ARE BASED ON NAVD 88.

DocuSigned by:
Jordan M. Schoff
JORDAN M. SCHOFF, PLS # 4939
E13E49EF03AC48B... 2/1/2024

STEWART
5410 OLD POOLE RD
RALEIGH, NC 27610
T 919.380.8750
FIRM LICENSE #: C-1051
www.stewartinc.com
PROJECT #: G24004

Vicinity Map:



NORTH
NAD83(2011)

0 15 30 60

SCALE: 1" = 30'

Title:

EXISTING CONDITIONS SURVEY FOR:

LILLINGTON FIRE STATION

NEILLS CREEK TOWNSHIP, TOWN OF LILLINGTON
HARNETT COUNTY, NORTH CAROLINA
DATE: 02/01/2024 SCALE: 1"=30'
CONTOUR INTERVAL = 1 FOOT
PREPARED FOR: BOBBITT

Revisions:

No.	Date	Description
--	--	--

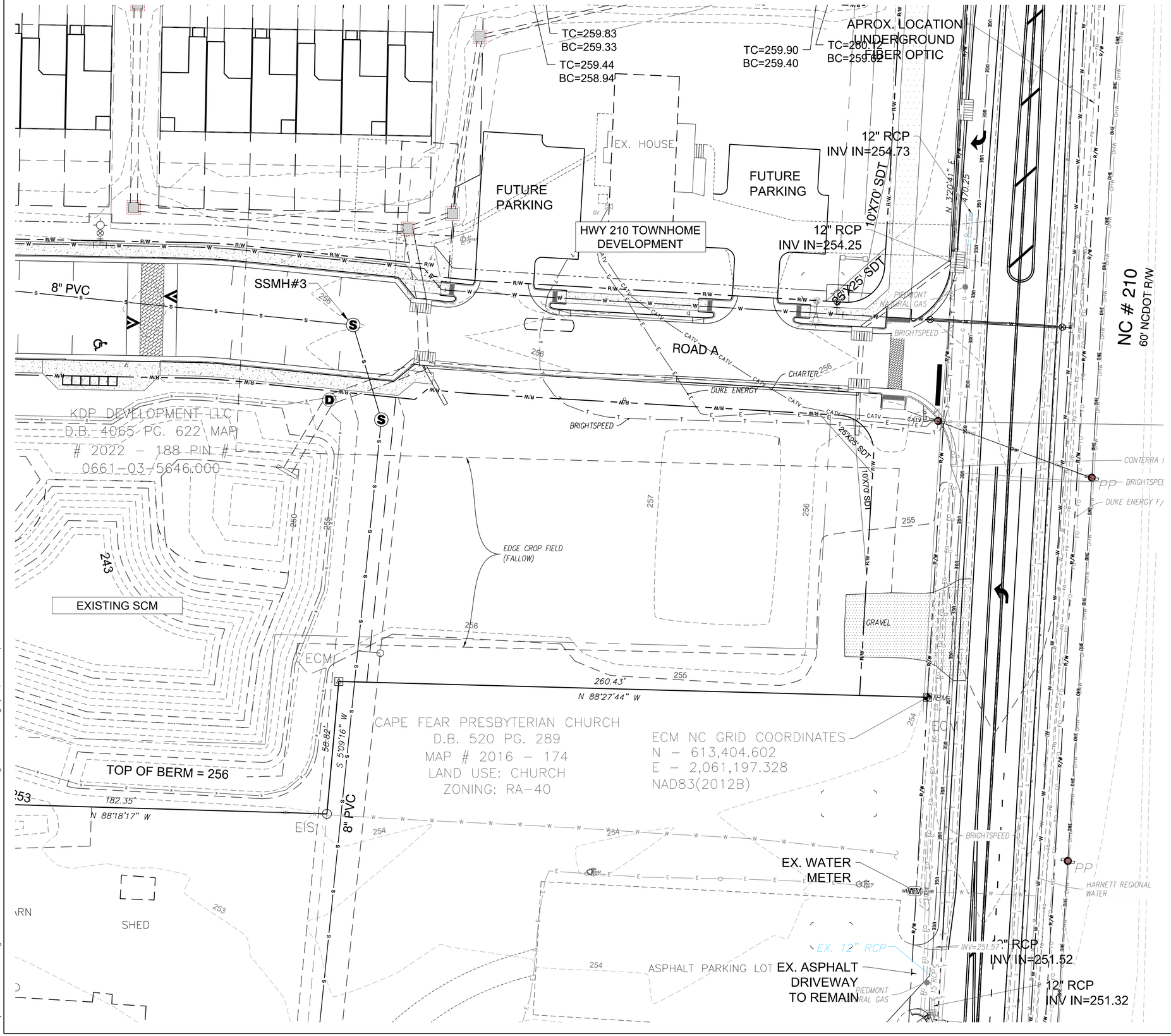
Seal:

NORTH CAROLINA PROFESSIONAL SEAL L-4939 LAND SURVEYOR JORDAN M. SCHOFF

Project #: G24004 Sheet:
Date: 02/01/2024
Drawn by: WJT
Checked by: JMS

1 of 1

G:\Projects\2024\G24004 - Lillington Fire Station\DWG\G24004_EX.dwg Feb 01, 2024 - 2:39pm



SURVEY LEGEND:

SYMBOL	DESCRIPTION
	SURVEY CONTROL POINT
EIP	EXISTING IRON PIPE
ECM	EXISTING CONCRETE MONUMENT
	COMPUTED POINT
D	STORM DRAIN MANHOLE
	STORM DRAIN CURB INLET
S	SANITARY SEWER MANHOLE
	SANITARY SEWER CLEANOUT
	SANITARY FORCEMAIN VALVE
	HYDRANT
WV	WATER VALVE
WM	WATER METER
W	WATER MANHOLE
W	WATER VAULT
W	WELL
GV	GAS VALVE
GM	GAS METER
T	TELEPHONE MANHOLE
TPED	TELEPHONE PEDESTAL
TV	TV MANHOLE
CATV	TV PEDESTAL
FOWP	FIBER OPTIC WITNESS POST
FO	FIBER OPTIC BOX
E	ELECTRIC MANHOLE
EM	ELECTRIC METER
EB	ELECTRIC BOX
	UTILITY POLE
	GUY POLE
	GUY WIRE
	LIGHT POLE
MH	MANHOLE
TS	TRAFFIC SIGNAL BOX
	TRAFFIC SIGNAL POST
MW	MONITORING WELL
BOR	BORING LOCATION
	BOLLARD
	SIGN
FF=267.18'	FINISHED FLOOR ELEVATION
	DECIDUOUS TREE
	EVERGREEN TREE
	BUSH
X	WIRE FENCE
O	CHAIN LINK FENCE
T	UNDERGROUND TELEPHONE LINE
FO	UNDERGROUND FIBER OPTIC LINE
G	UNDERGROUND GAS LINE
E	UNDERGROUND ELECTRIC LINE
W	UNDERGROUND WATER LINE
SS	SANITARY SEWER LINE
	STORM DRAIN LINE
OHW	OVERHEAD WIRES
U	UNIDENTIFIED LINE
	UNKNOWN DESTINATION
	CONCRETE SURFACE
DIP	DUCTILE IRON PIPE
PVC	POLYVINYL CHLORIDE PIPE
HDPE	HIGH-DENSITY POLYETHYLENE PIPE
RCP	REINFORCED CONCRETE PIPE
CMP	CORRUGATED METAL PIPE
CB	CATCH BASIN

TREE LEGEND:

IO	AMERICAN HOLLY
JV	EASTERN RED CEDAR
LI	CREPE MYRTLE
MG	SOUTHERN MAGNOLIA
PO	EASTERN SYCAMORE
PT	LOBLOLLY PINE
QR	RED OAK

EXAMPLE: 10QR = 10" RED OAK

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND EXISTING CONDITIONS NOTES.
2. INFORMATION SHOWN ON THIS PLAN COMPILED FROM PROJECT SURVEY BY STEWART INC AND EXISTING CONDITIONS (POST CONSTRUCTION) FOR PROJECT TITLED "NC HWY 210 TOWNHOMES" BY OTHERS.

STEWART
223 S. WEST ST., #1100
RALEIGH, NC 27603
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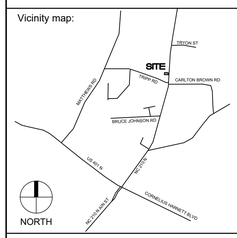
FIRM LICENSE #: C-1051
www.stewartinc.com
PROJECT #: C23050

BOBBITT

Client:
BOBBITT
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:



Seal:
PRELIMINARY - DO NOT USE FOR CONSTRUCTION

Scale:
0 10 20 40
SCALE: 1" = 20'
NORTH

Project:
LILLINGTON FIRE STATION HWY 210

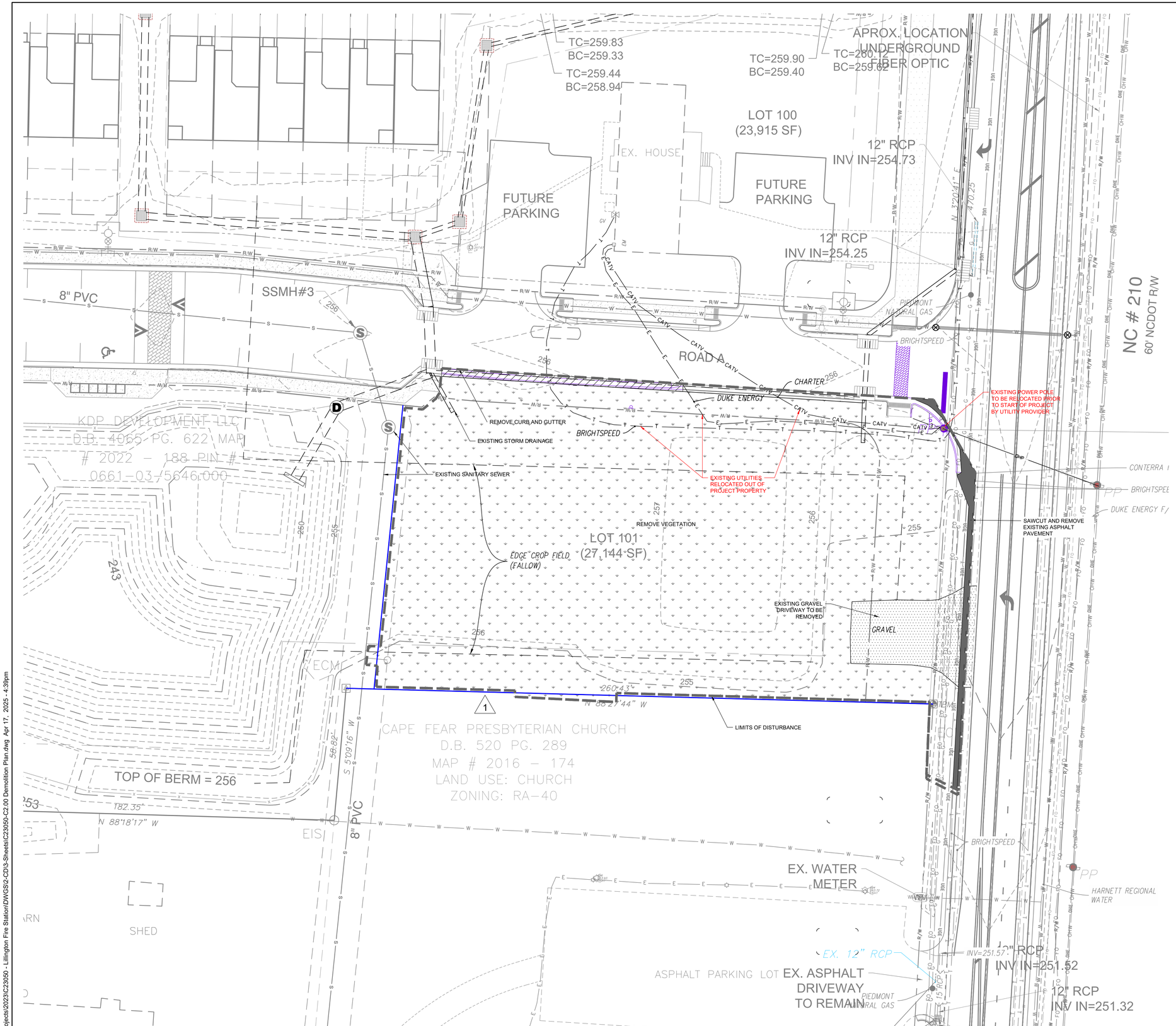
Issued for:
SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:
EXISTING CONDITIONS (POST TOWNHOME DEVELOPMENT)

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: --
Approved by: --
C1.01

L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-C1.00 Existing Conditions Plan.dwg Apr 17, 2025 - 4:39pm



LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

DEMOLITION LEGEND:

SYMBOL	DESCRIPTION
	REMOVE GRAVEL
	REMOVE VEGETATION
	REMOVE SIGN
	REMOVE CURB & GUTTER

NOTES:

1. SEE SHEET L0.10 FOR GENERAL AND DEMOLITION NOTES.

STEWART
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PROJECT #: C23050

BOBBITT

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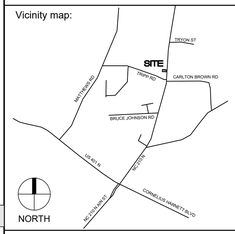
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:



Seal:

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15834 3.03.2025 RUV PAUL LORENZEN

Scale:

0 10 20 40

SCALE: 1" = 20'

NORTH

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

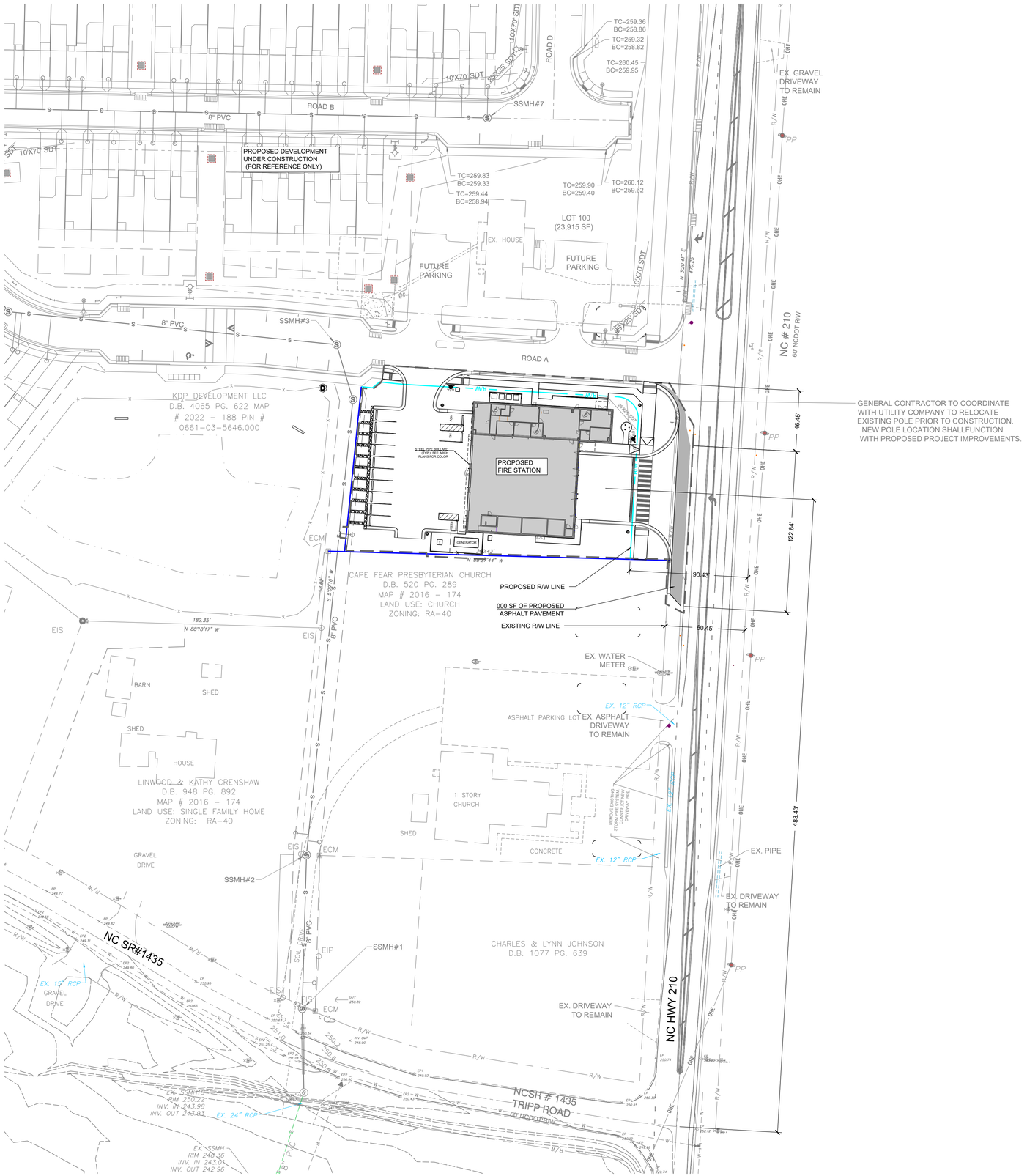
Title:

DEMOLITION PLAN

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL

C2.00

L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-C2.00 Demolition Plan.dwg Apr 17, 2025 - 4:39pm



LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

SITE LEGEND:

SYMBOL	DESCRIPTION
	PROPOSED BUILDING
	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT
	PROPOSED STD. CURB & GUTTER
	PROPOSED VALLEY CURB & GUTTER
	PROPOSED STOP BAR
	PROPOSED 10' WIDE HI-VIZ CROSSWALK
	PROPOSED SIGN
H/C	PROPOSED ADA PARKING SPACE
	PROPOSED BOLLARD
P/A	PLANTED AREA
R/W	RIGHT OF WAY LINE
	PROPERTY LINE
	SETBACK / EASEMENT

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND SITE NOTES.

NMX ZONING DIMENSIONS							
MAX BUILDING HEIGHT	LOT SIZE	LOT WIDTH	DENSITY	FRONT	SIDE STREET	SIDE	REAR
				SETBACK	SETBACK	SETBACK	SETBACK
4 STORIES	NO MIN.	NO MIN.	NO MAX.	15' MAX.	12' MAX.	NO MIN.	NO MIN.

STEWART
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PROJECT #: C23050

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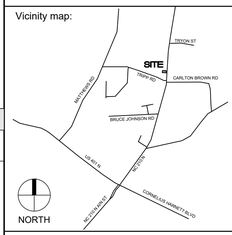
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:



Seal:

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 15904 ENGINEER PAUL LORENZEN 3.03.2025

Scale:

0 20 40 80
SCALE: 1" = 40'
NORTH

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

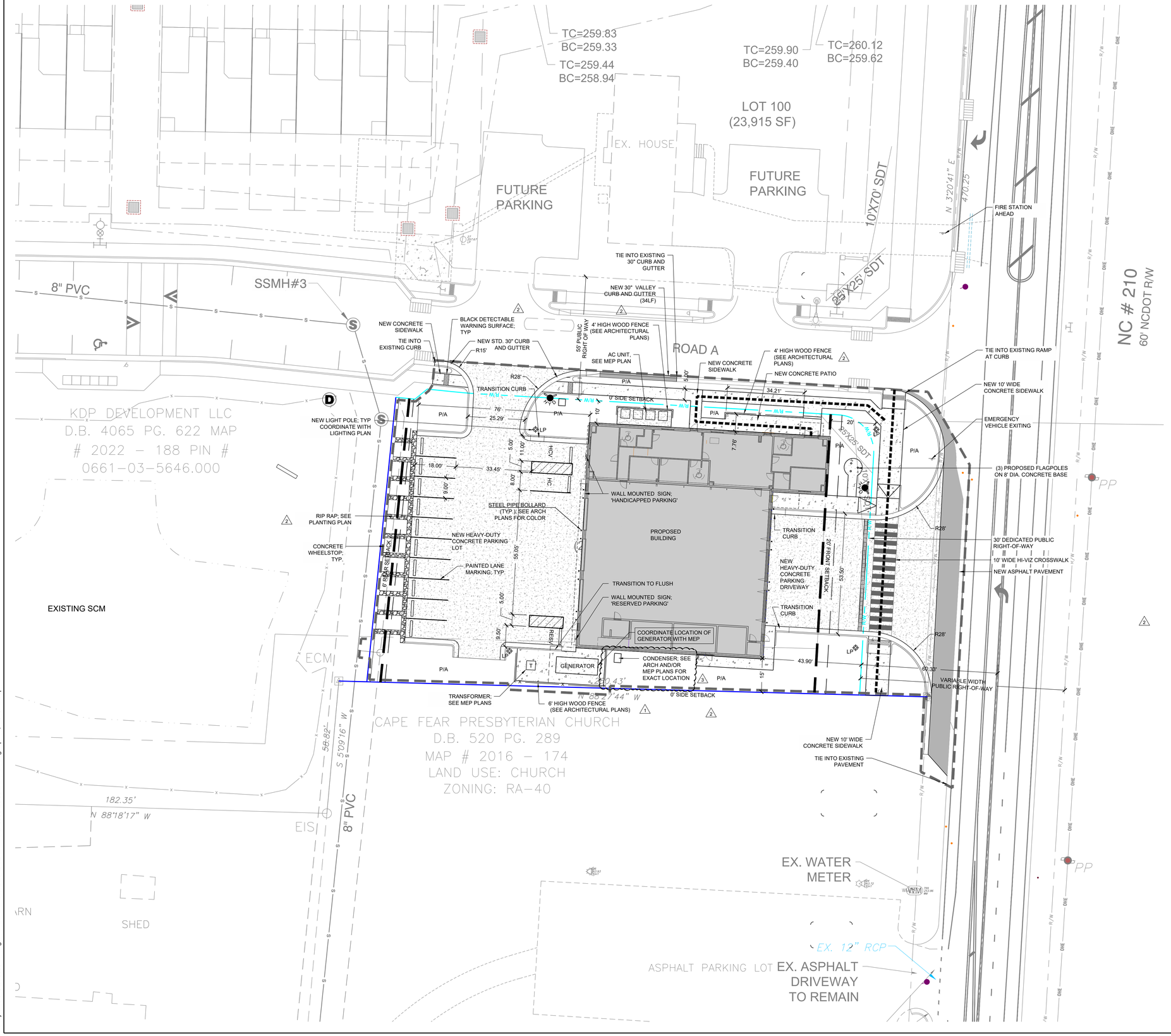
No.	Date	Description
1	17 APR 2025	NCDOT DRIVEWAY PERMIT

Title:

OVERALL SITE PLAN

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL
C3.00

L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-C3.00 Site Plan.dwg Apr 17, 2025 - 4:40pm



LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

SITE LEGEND:

SYMBOL	DESCRIPTION
	PROPOSED BUILDING
	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT
	PROPOSED STD. CURB & GUTTER
	PROPOSED VALLEY CURB & GUTTER
	PROPOSED STOP BAR
	PROPOSED 10' WIDE HI-VIZ CROSSWALK
	PROPOSED SIGN
H/C	PROPOSED ADA PARKING SPACE
	PROPOSED BOLLARD
P/A	PLANTED AREA
R/W	RIGHT OF WAY LINE
	PROPERTY LINE
	SETBACK / EASEMENT

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND SITE NOTES.
2. COORDINATE SITE LIGHTING LOCATIONS WITH LIGHTING DESIGNER. SEE SHEET E2.3
3. DUMPSTER AND MECHANICAL UTILITIES SCREENING PER TOWN OF LILLINGTON:

4.08.8 DUMPSTERS AND MECHANICAL UTILITIES SCREENING

- **A.** All dumpsters, loading docks, outdoor storage areas and utility structures, which are visible from a public street or adjacent property line, shall be screened unless already screened by an intervening buffer yard. Such equipment shall be considered out of view if it is within the 45 degree angles projected from the building edges.
- **B.** Screening shall consist of evergreen shrubs, fencing, walls or berms, and shall comply with all other standards of this section.
- **C.** All screening of utilities shall comply with the requirements of the utility provider.
- **D.** Where possible, enclosures for dumpsters are encouraged to be constructed with materials that are compatible with the design and materials of the principal building. Screening may be created through the use of:
  1. Solid-wood fence, or fabricated metal fence, each with shrub plantings placed around the enclosure (they do not need to completely screen the enclosure) that grow as high, or nearly as high, as the fence to provide an attractive separation, or
  2. Brick fence, brick/split face block, or decorative block (plantings not required).

NMX ZONING DIMENSIONS

MAX BUILDING HEIGHT	LOT SIZE	LOT WIDTH	DENSITY	FRONT SETBACK	SIDE STREET SETBACK	SIDE SETBACK	REAR SETBACK
4 STORIES	NO MIN.	NO MIN.	NO MAX.	15' MAX.	12' MAX.	NO MIN.	NO MIN.

STEWART
223 S. WEST ST., #1100
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FIRM LICENSE #: C-1051
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PROJECT #: C23050

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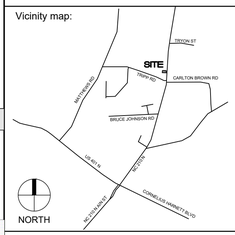
PHONE 919.800.4632

Vicinity map:



Seal:

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 15934 ENGINEER PAUL LORENZEN 3.03.2025

Scale:

0 10 20 40
SCALE: 1" = 20'
NORTH

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

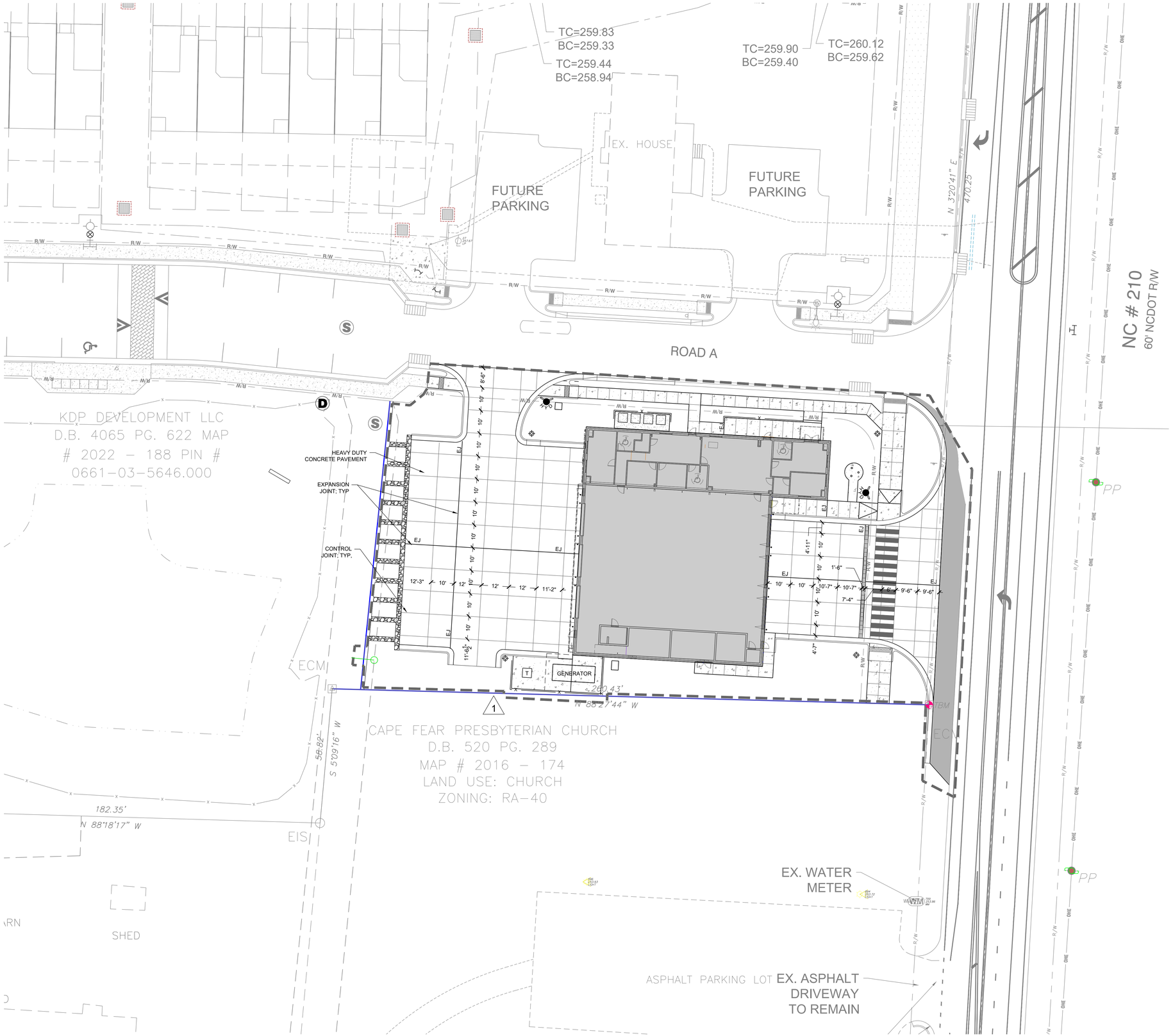
No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS
3	17 APR 2025	REVD PER OWNER COMMENTS

Title:

SITE PLAN

Project number: C23050
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL
Sheet #: C3.01

L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-C3.00 Site Plan.dwg Apr 17, 2025 - 4:40pm



LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

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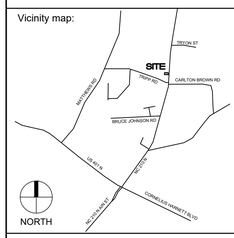
Vicinity map:



Seal:
PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 15934 3.03.2025 ENGINEER PAUL LORENZEN

Scale:
0 10 20 40
SCALE: 1" = 20'
NORTH

Project:
LILLINGTON FIRE STATION HWY 210

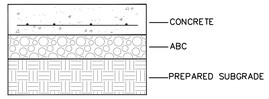
Issued for:
SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:
PAVING PATTERNS PLAN

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: --
Approved by: --
C3.10

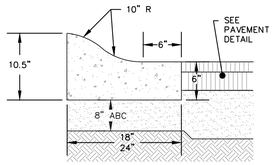
L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-L4.10 Paving Patterns Plan.dwg Apr 17, 2025 - 4:40pm



PAVEMENT SHALL BE CONSTRUCTED OF 4500 PSI CONCRETE. REINFORCEMENT BARS SHALL BE ONE (1) ROW AT 12" O.C. EACH WAY AS INDICATED BELOW. SURFACE FINISHES AND JOINT TO SCALE SHALL BE AS INDICATED ON PLANS AND DETAILS.

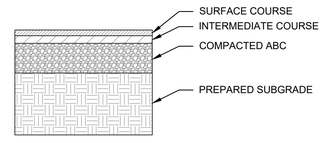
PAVEMENT TYPE	ABC	REINF.	CONCRETE
HEAVY DUTY CONCRETE	6"	1 ROW – #4 REBAR SPACED 12" O.C. EACH WAY	8"
SIDEWALK	–	----------	4"

1 CONCRETE PAVEMENT — NTS
SECTION



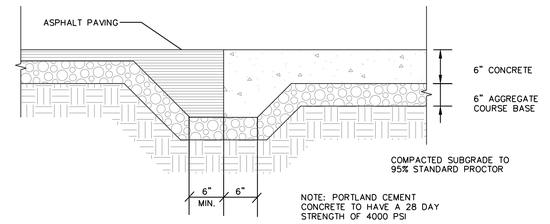
TYPICAL SECTION VIEW

TYPICAL NOTES
1. CONCRETE STRENGTH = 4000 PSI

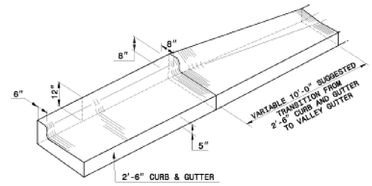


	SURFACE	INTERMEDIATE	STONE
PAVEMENT TYPE	S9.5B	I19.0B	ABC
STND. DUTY	3"	--	6"
HVY. DUTY	2"	2.5"	8"

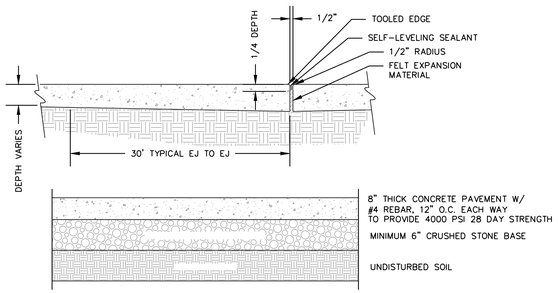
2 ASPAHLT PAVEMENT — NTS
SECTION



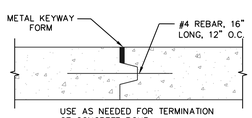
3 ASPHALT TO CONCRETE TRANSITION — NTS
SECTION



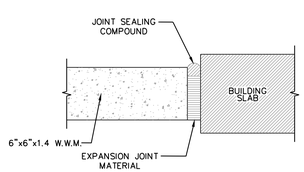
5 TRANSITON CURB — NTS
SECTION



TYPICAL CONCRETE SLAB SECTION



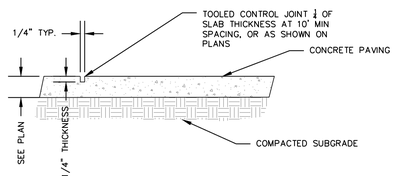
KEYED CONSTRUCTION JOINT



NOTE: PROVIDE KEYED CONSTRUCTION JOINTS OR ISOLATION JOINTS AS REQUIRED EVERY 15' OR LESS. DO NOT EXCEED SLABS OVER 15'x15' WITHOUT JOINT.

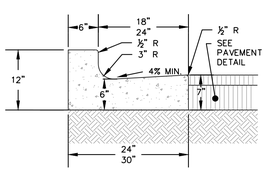
ISOLATION JOINT

6 EXPANSION JOINT — NTS
SECTION



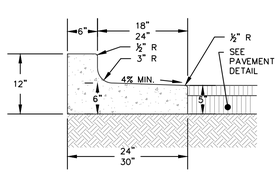
NOTES:
1. ALL SURFACES TO RECEIVE MEDIUM BROOM FINISH PERPENDICULAR TO DIRECTION OF WALK.
2. PROVIDE TOOLED CONTROL JOINTS NOT MORE THAN 10'-0" ON CENTER OR AS INDICATED ON THE PLANS.

9 CONTROL JOINT — NTS
SECTION



TYPICAL CURB & GUTTER SECTION

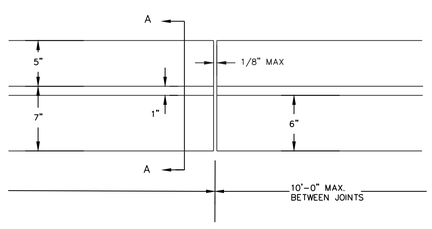
NOTE: GUTTER IS TO BE INSTALLED WHERE FLOW IS DIRECTED TOWARD CURB (UTILIZE GRADING PLANS).



TYPICAL CURB & SPILL GUTTER SECTION

NOTE: SPILL GUTTER TO BE INSTALLED EVERYWHERE FLOW GOES AWAY FROM CURB (UTILIZE GRADING PLANS).

TYPICAL NOTES
1. CONCRETE STRENGTH = 4000 PSI



FRONT VIEW

7 STANDARD CURB AND GUTTER — NTS
SECTION

8 CONCRETE SLAB — NTS
SECTION

STEWART
223 S. WEST ST., #1100
RALEIGH, NC 27603
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FIRM LICENSE #: C-1051
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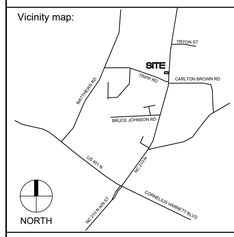
PROJECT #: C23050

BOBBITT

Client:
BOBBITT
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:



Seal:
PRELIMINARY - DO NOT USE FOR CONSTRUCTION

Scale:

SCALE: AS NOTED

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

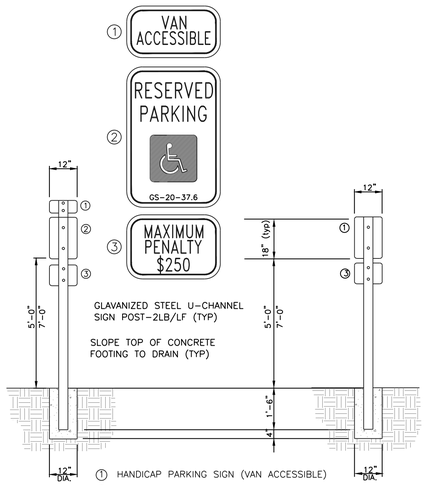
No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:

SITE DETAILS I

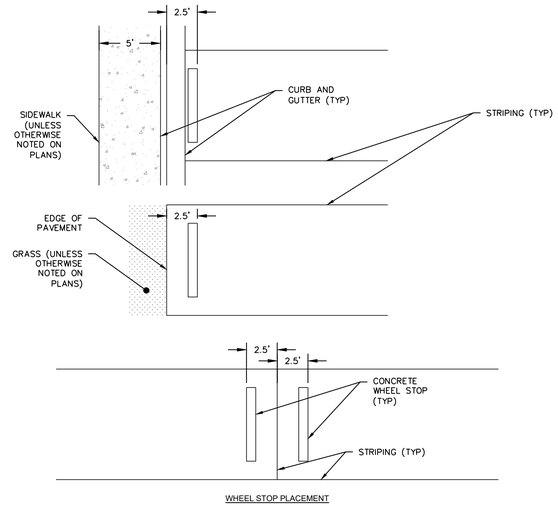
Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL
C3.90

L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-C3.90 Site Details.dwg Apr 17, 2025 - 4:40pm

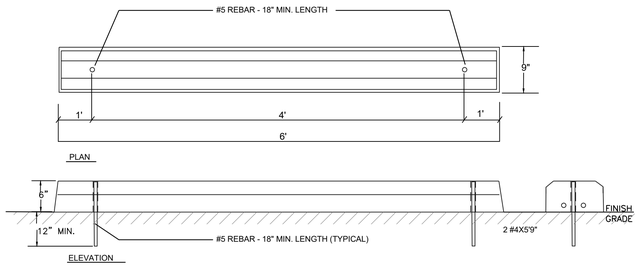


NOTE:
1. THE RESERVED PARKING SIGN IS TO BE 5'-0" IF THE PEDESTRIAN PATH DOES NOT PASS UNDER OR AROUND SIGN.
2. THE RESERVED PARKING SIGN IS TO BE 7'-0" IF THE PEDESTRIAN PATH GOES BY, UNDER, OR AROUND THE SIGN.

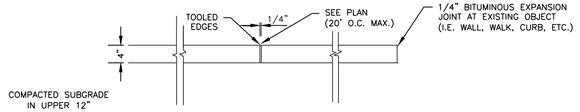
1 ADA PARKING SIGN
SECTION — NTS



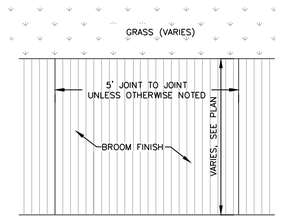
WHEEL STOP PLACEMENT



3 CONCRETE WHEELSTOP
SECTION — NTS



TYP. CONTROL JOINT NOTED AS CJ ON PLAN — TYP. EXPANSION JOINT NOTED AS EJ ON PLAN — EJ @ WALL

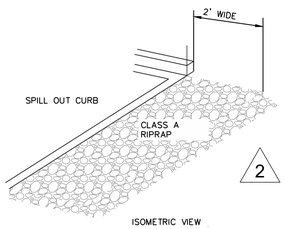


PLAN VIEW

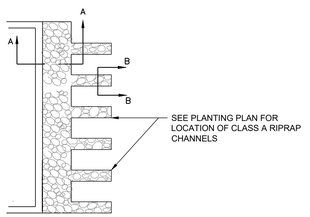
NOTE:
4" THICK CONC., 4000 PSI

USE 1/4" BITUMINOUS EXPANSION JOINT EVENLY SPACED A MAX. OF 50' O.C. AND WHENEVER CONCRETE WALK MEETS FIXED OBJECTS (IE. CURBS, BLDG. ECT.)

2 CONCRETE SIDEWALK
SECTION — NTS



ISOMETRIC VIEW



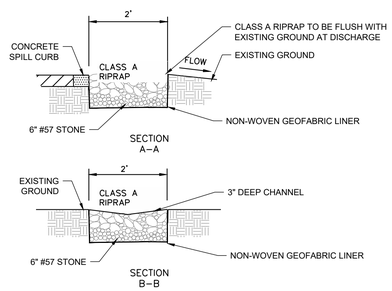
PLAN

NOTES:

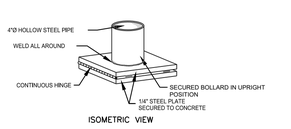
SEE PLANS FOR DIMENSIONS

1. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

2. CLASS A RIPRAP 6" THICK MIN.

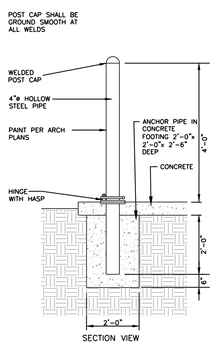


4 CURB CUT
SECTION — NTS



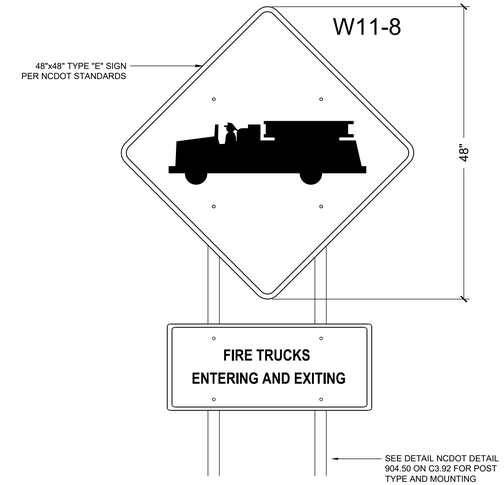
ISOMETRIC VIEW

PLAN VIEW



SECTION VIEW

5 STEEL PIPE BOLLARD
SECTION — NTS



6 EMERGENCY EXIT SIGN
SECTION — NTS

STEWART
223 S. WEST ST., #1100
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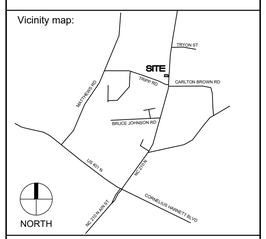
FIRM LICENSE #: C-1051
www.stewartinc.com
PROJECT #: C23050

BOBBITT

Client:
BOBBITT
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:



NORTH

Seal:

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 15834 ENGINEER ROY PAUL LORENZEN 3.03.2025

Scale:

SCALE: AS NOTED

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS
3	17 APR 2025	REVD PER OWNER COMMENTS
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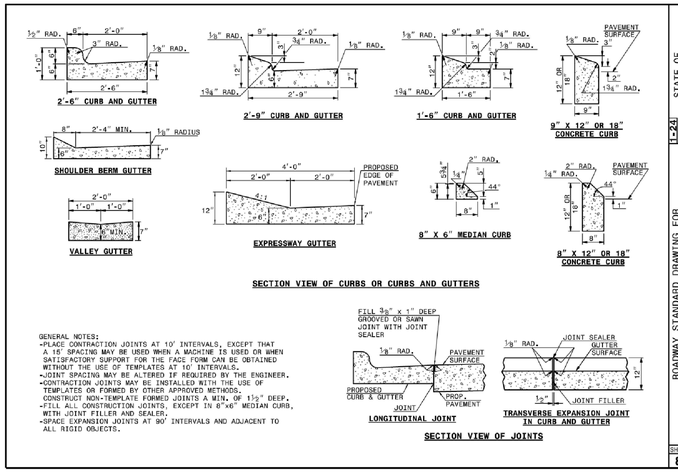
Title:

SITE DETAILS II

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL

C3.91

L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-C3.90 Site Details.dwg Apr 17, 2025 - 4:41pm

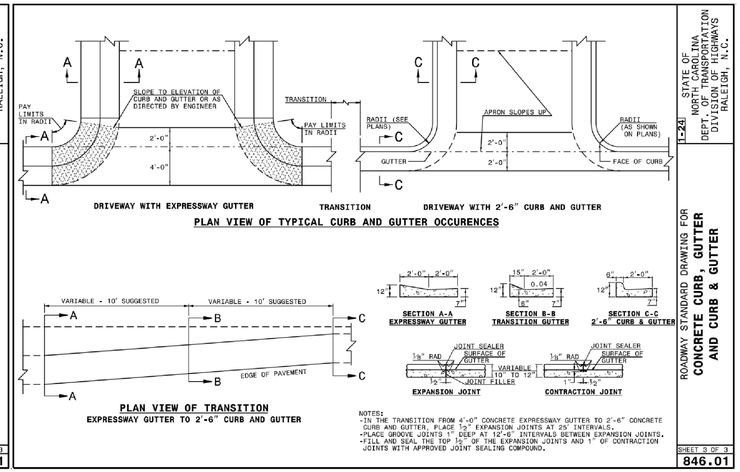


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-24

ROADWAY STANDARD DRAWING FOR
CONCRETE CURB, GUTTER AND CURB & GUTTER

SHEET 1 OF 3
846.01



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

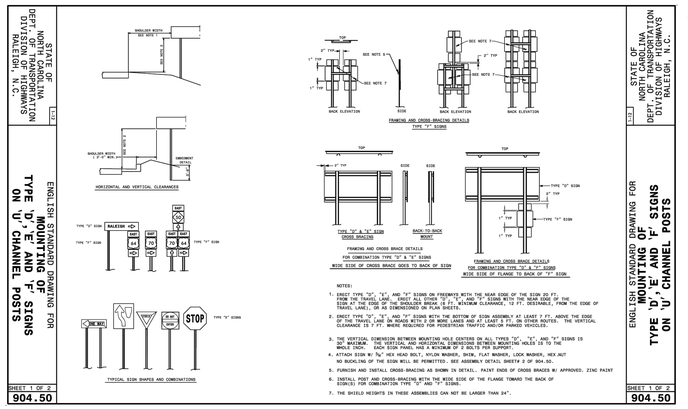
1-24

ROADWAY STANDARD DRAWING FOR
CONCRETE CURB, GUTTER AND CURB & GUTTER

SHEET 3 OF 3
846.01

1 ADA PARKING SIGN
SECTION

NTS



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-23

ENGLISH STANDARD DRAWING FOR
MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

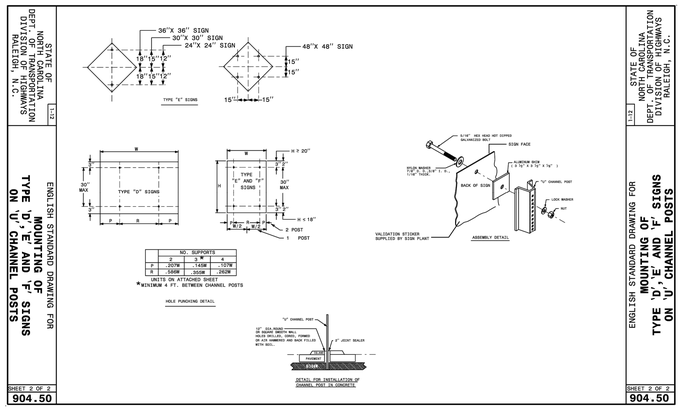
SHEET 1 OF 2
904.50

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-13

ENGLISH STANDARD DRAWING FOR
MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 1 OF 2
904.50



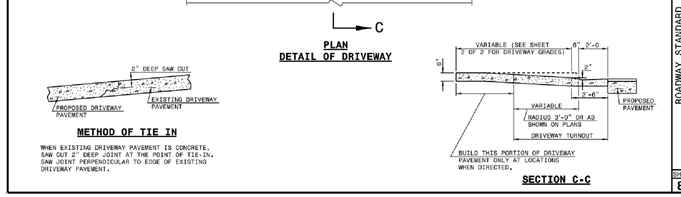
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-23

ENGLISH STANDARD DRAWING FOR
MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 2 OF 2
904.50

3

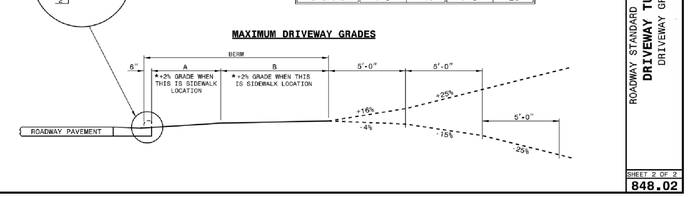


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-24

ROADWAY STANDARD DRAWING FOR
DRIVEWAY TURNOUT
RADIUS TYPE

SHEET 1 OF 2
848.02

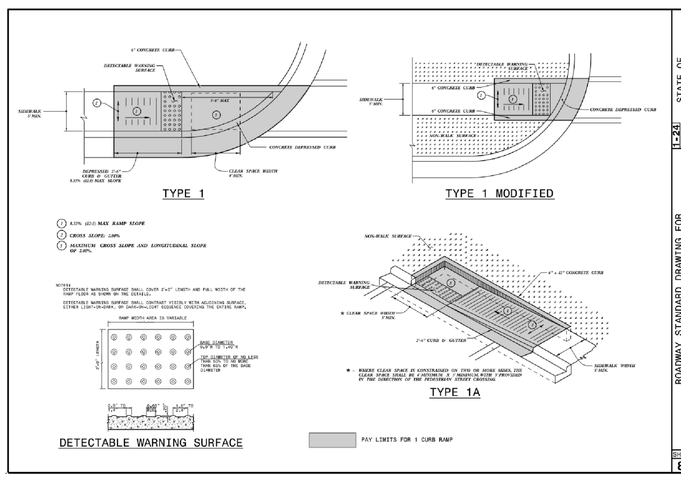


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-24

ROADWAY STANDARD DRAWING FOR
DRIVEWAY TURNOUT
DRIVEWAY GRADES

SHEET 2 OF 2
848.02

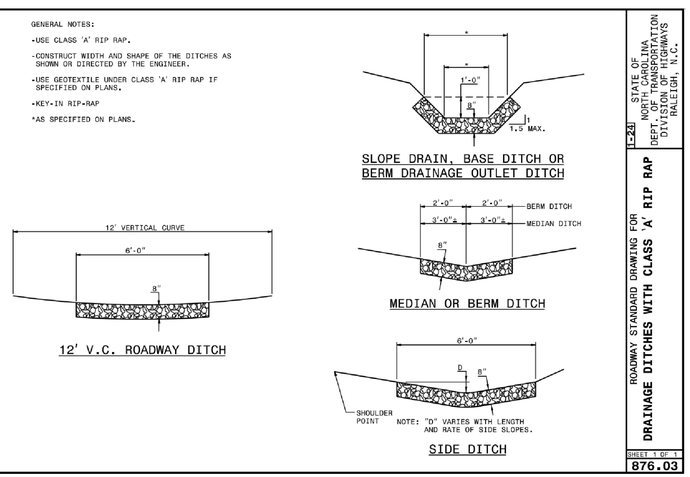


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-24

ROADWAY STANDARD DRAWING FOR
CURB RAMP
DIRECTIONAL RAMP

SHEET 6 OF 13
848.06



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-24

ROADWAY STANDARD DRAWING FOR
DRAINAGE DITCHES WITH CLASS 'A' RIP RAP

SHEET 1 OF 1
876.03

STEWART
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RALEIGH, NC 27603
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FIRM LICENSE #: C-1051
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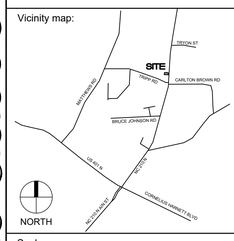
PROJECT #: C23050

BOBBITT

Client:
BOBBITT
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:



Seal:

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15934 3.03.2025 PAUL LORENZEN

Scale:

SCALE: AS NOTED

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS
3	17 APR 2025	REV'D PER OWNER COMMENTS

Title:

SITE DETAILS III

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL

C3.92

L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-C3.90 Site Details.dwg Apr 17, 2025 - 4:41pm

SEEDING PREPARATION:

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONED, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY ALL AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW).
5. CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM, REASONABLY UNIFORM 4 TO 6 INCHES DEEP SEEDBED IS PREPARED.
6. SEED ON A FRESHLY PREPARED SEED BED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESENDING WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED , REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESENDING WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 50% DAMAGED , REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES AND LANDSCAPING PLANS.
10. SEE LANDSCAPING PLANS FOR PERMANENT SEEDING, MULCHING, AND FERTILIZING RATES. ALL AREAS NOT DESIGNATED TO RECEIVE PLANTS SHALL BE SEEDED PER THE LANDSCAPING PLANS.

TEMPORARY SEEDING PREPARATION:

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL THREE INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO SIX INCHES DEEP.
3. REMOVE ALL LOOSE ROCK, ROOTS AND OTHER OBSTRUCTIONS, LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER AND SUPER PHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE ADMIXTURE BELOW).
5. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED FOUR TO SIX INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RE-SEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE MORE THAN 60% DAMAGED, RE-ESTABLISH FOLLOWING THE ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. CONSULT S&EC ENVIRONMENTAL ENGINEERS ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

SEEDING SCHEDULE

SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1)

DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE 25 LBS/ACRE
MAR 1 - APR 15	TALL FESCUE	300 LBS/ACRE
APR 15 - JUN 30	HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUL 1 - AUG 15	TALL FESCUE	120 LBS/ACRE
	***BROWNTOP MILLET	35 LBS/ACRE
	***OR SORGHUM-SUDAN HYBRIDS	30 LBS/ACRE

SLOPES (3:1 TO 2:1)

DATE	TYPE	PLANTING RATE
MAR 1 - JUN 1	***BROWNTOP MILLET	50 LBS/ACRE
(MAR 1 - APR 15)	ADD TALL FESCUE OR ADD HULLED COMMON BERMUDAGRASS	120 LBS/ACRE (MAR 1 - JUN 30) 25 LBS/ACRE
JUN 1 - SEP 1	***TALL FESCUE AND ***BROWNTOP MILLET ***OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE
SEP 1 - MAR 1	ANNUAL RYE AND TALL FESCUE ADD ABRUZZI RYE	70 LBS/ACRE 120 LBS/ACRE (NOV 1 - MAR 1) 25 LBS/ACRE

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

***TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING, OTHERWISE FESCUE MAY BE SHADED OUT.

ADMIXTURES:

AGRICULTURAL LIMESTONE: 2 TONS/ACRE

FERTILIZER: 1,000 LBS/ACRE - 10-10-10

SUPERPHOSPHATE: 500 LBS/ACRE - 20% ANALYSIS

MULCH: 2 TONS/ACRE - SMALL GRAIN STRAW

ANCHOR: ASPHALT EMULSION AT 300 GALS/ACRE

EROSION CONTROL NOTES:

1. REFER TO C3.00 FOR GENERAL NOTES.
2. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN BEST LOCATION BASED ON FIELD CONDITIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF CONSTRUCTION ENTRANCES AS NECESSARY TO PREVENT THE TRACKING OF SEDIMENT OFF-SITE. THE OWNER IS RESPONSIBLE FOR MAINTENANCE OF ALL PERMANENT EROSION CONTROL METHODS AFTER CONSTRUCTION IS COMPLETE, IF ANY PERMANENT METHODS ARE REQUIRED.
5. APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
6. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR AND ESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.
7. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE LIMITS OF DISTURBANCE (L.O.D.) SHALL BE PERMITTED. THE L.O.D. SHALL BE MAINTAINED BY THE ESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.
8. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
9. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G., ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.).
10. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT. COPIES OF THE WRITTEN INSPECTION REPORTS SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE TWICE PER WEEK AND AFTER RAINS OF GREATER THAN 0.5". RAIN GAUGE REQUIRED ON SITE.
11. ANY AREAS OF EXPOSED SOILS THAT WILL NOT BE DISTURBED FOR FOURTEEN DAYS SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).
12. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN FORTY EIGHT (48) HOURS FOLLOWING A STORM EVENT.
13. AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
14. STABILIZED CONSTRUCTION ENTRANCES AND ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
15. WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE A MINIMUM THICKNESS OF 2 TO 3 INCHES.
16. INTERIM SLOPES MAY BE GRADED TO A MAXIMUM SLOPE OF 2:1 (HORIZONTAL: VERTICAL); CUT SLOPES SHALL BE LIMITED TO A MAXIMUM SLOPE OF 1.5:1.
17. THE SURFACE OF AREAS SLOPES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL THAT ARE TO RECEIVE INTERIM FILL SHALL BE PLOWED, FURROWED, TILLED OR BROKEN UP PRIOR TO PLACING FILL SO THAT FILL MATERIAL WILL BOND WITH EXISTING . " SURFACE. INTERIM FILL SHALL BE PLACED AS SPECIFIED FOR PERMANENT FILLS AND IN LIFTS NOT GREATER THAN 6".
18. PROVIDE DUST CONTROL MEASURES INCLUDING, BUT NOT LIMITED TO, WETTING DOWN TO CONTROL DUST ON SITE, IN ORDER TO PREVENT ANNOYANCE/AND OR DAMAGE TO ADJACENT SITES. CALCIUM CHLORIDE OR ANY OTHER CHEMICAL MATERIAL MAY NOT BE USED ON SUBGRADES OF AREAS TO BE SEEDED OR PLANTED.
19. SEDIMENT LADEN RUNOFF FROM EXCAVATIONS SHALL NOT BE PUMPED DIRECTLY TO STORM DRAINAGE.
20. INSPECTOR REFERS TO LOCAL JURISDICTIONAL (NCDENR OR LOCAL) LAND QUALITY INSPECTOR OR HIS REPRESENTATIVE. FIELD INSPECTIONS MAY REQUIRE ADDITIONAL SEDIMENTATION AND EROSION CONTROL MEASURES AS DEEMED NECESSARY BY THE INSPECTOR.
21. CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL DEVICES SHALL CONFORM TO THE STANDARDS SET FORTH IN THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES LAND QUALITY SECTION EROSION AND SEDIMENT CONTROL PLANNING LAND DESIGN MANUAL.
22. NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM: THE PERSON RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES IS REQUIRED TO INSPECT THE PROJECT AFTER EACH PHASE OF THE PROJECT AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCAC 4B.0131 TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FORM HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML

SEQUENCE OF CONSTRUCTION ACTIVITIES:

1. OBTAIN GRADING PERMIT.
2. DETERMINE AND MARK LIMITS OF DISTURBANCE.
3. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. THE EROSION CONTROL INSPECTOR, ARCHITECT, ENGINEER, AND CONTRACTOR SHALL BE PRESENT TO SATISFY REQUIREMENTS.
4. INSTALL CONSTRUCTION ENTRANCE, TREE PROTECTION FENCING, SILT FENCE, PERIMETER EROSION CONTROL DEVICES AND ALL REQUIRED BASINS AND TRAPS.
5. SCHEDULE SITE INSPECTION.
6. UPON APPROVAL TO PROCEED BY THE EROSION CONTROL INSPECTOR, HARVEST ANY TIMBER.
7. CONSTRUCT REMAINING EROSION CONTROL MEASURES AS REQUIRED.
8. REMOVE AND/OR STORE TOPSOIL.
9. BEGIN GRADING OPERATIONS.
10. CLEAN SEDIMENT BASINS/TRAPS WHEN ONE-HALF FULL.
11. ALL STREETS SURROUNDING THE PROJECT SHALL BE KEPT CLEAN AT ALL TIMES.
12. PLACE TEMPORARY SEEDING ON ALL DISTURBED AREAS THAT WILL BE IDLE 14 DAYS OR LONGER.
13. PERMANENT SURFACE STABILIZATION SHALL BE INSTALLED FOR ALL AREAS WITHIN 14 DAYS AFTER FINAL GRADE HAS BEEN REACHED. AS NECESSARY, FERTILIZE, WATER AND RESEED AS REQUIRED TO ESTABLISH AND MAINTAIN A VIGOROUS STAND OF GRASS.
14. AFTER COMPLETION OF CONSTRUCTION AND THE SITE IS STABILIZED, REMOVE ALL ACCUMULATED SEDIMENT FROM SEDIMENT TRAPPING MEASURES AND DISPOSE BY MEANS DEEMED ACCEPTABLE BY THE ENGINEER. SCHEDULE SITE INSPECTION. UPON APPROVAL BY THE EROSION CONTROL INSPECTOR, REMOVE TEMPORARY EROSION CONTROL MEASURES, SMOOTH AREA AND APPLY APPROPRIATE STABILIZATION.
15. STORMWATER PERMIT INSPECTION REPORTS SHALL BE PERFORMED BY THE CONTRACTOR UNTIL NOTIFIED OTHERWISE BY THE EROSION CONTROL INSPECTOR.

NOTES:

1. INSPECTOR REFERS TO LOCAL JURISDICTIONAL (NCDENR OR LOCAL) LAND QUALITY INSPECTOR OR HIS REPRESENTATIVE. FIELD INSPECTIONS MAY REQUIRE ADDITIONAL SEDIMENTATION AND EROSION CONTROL MEASURES AS DEEMED NECESSARY BY THE INSPECTOR.
2. CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL DEVICES SHALL CONFORM TO THE STANDARDS SET FORTH IN THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES LAND QUALITY SECTION EROSION AND SEDIMENT CONTROL PLANNING LAND DESIGN MANUAL.
3. NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM: THE PERSON RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES IS REQUIRED TO INSPECT THE PROJECT AFTER EACH PHASE OF THE PROJECT AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCAC 4B.0131 TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FORM HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML

TREE PROTECTION NOTES:

1. TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE OR ISSUANCE OF A GRADING PERMIT. OR OBTAIN A GRADING PERMIT THEN TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE
2. TREE PROTECTION FENCING SHALL INCLUDE WARNING SIGNS POSTED IN BOTH ENGLISH AND SPANISH, AS FOLLOWS: "NO TRESPASSING/TREE PROTECTION AREA/PROHIBIDO ENTRAR / ZONA PROTECTORA PARA LOS ÁRBOLES."
3. PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE ON THE TREE ROOTS OUTSIDE OF THE TREE SAVE AREA. THIS SHALL OCCUR AT THE SAME TIME THAT OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE.
4. NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED TREE AREA.
5. TREE PROTECTION AREA: EQUALS ONE FOOT OF RADIUS FOR EVERY INCH OF DIAMETER OF EXISTING TREES, OR SIX FOOT RADIUS, WHICHEVER IS GREATER. NO DISTURBANCE ALLOWED WITHIN THIS AREA.

TOTAL AREA OF DISTURBANCE

0.81 AC/ 35443.8 SF

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PROJECT #: C23050

BOBBITT

Client:
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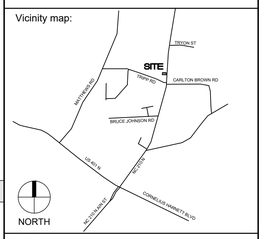
Vicinity map:



Seal:

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15934 3.03.2025 PAUL LORENSEN

Scale:

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

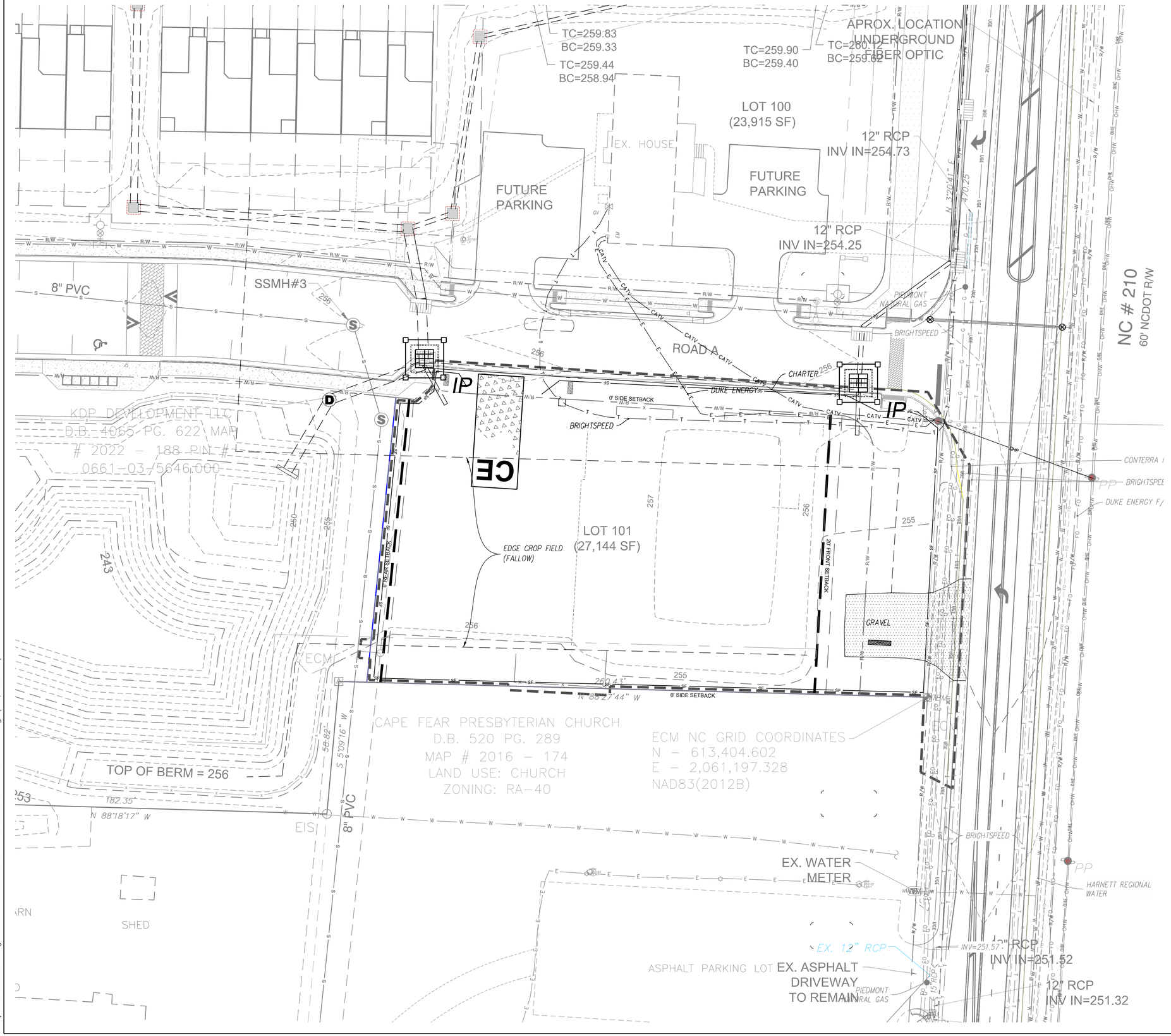
No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:

EROSION CONTROL NOTES

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL

C4.00



LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

EROSION CONTROL LEGEND:

SYMBOL	DESCRIPTION
IP	BLOCK & GRAVEL INLET PROTECTION
IP	SILT FENCE & WIRE INLET PROTECTION
	SILT FENCE OUTLET
	CHECK DAM
	RIP RAP DISSIPATER
CE	TEMPORARY CONSTRUCTION ENTRANCE
SF	SILT FENCE
DD	DIVERSION DITCH
	100 YEAR FLOOD ELEVATION

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND SITE NOTES.
2. SEE SHEET C4.00 FOR EROSION CONTROL NOTES.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA EROSION CONTROL SPECIFICATIONS.

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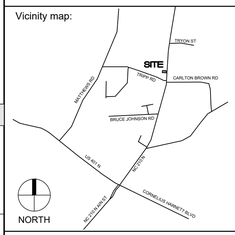

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Scale:
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SCALE: 1" = 20' NORTH

Project:
LILLINGTON FIRE STATION HWY 210

Issued for:
SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:
EROSION CONTROL PLAN PHASE 1

Project number: C23050
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL
Sheet #: C4.01

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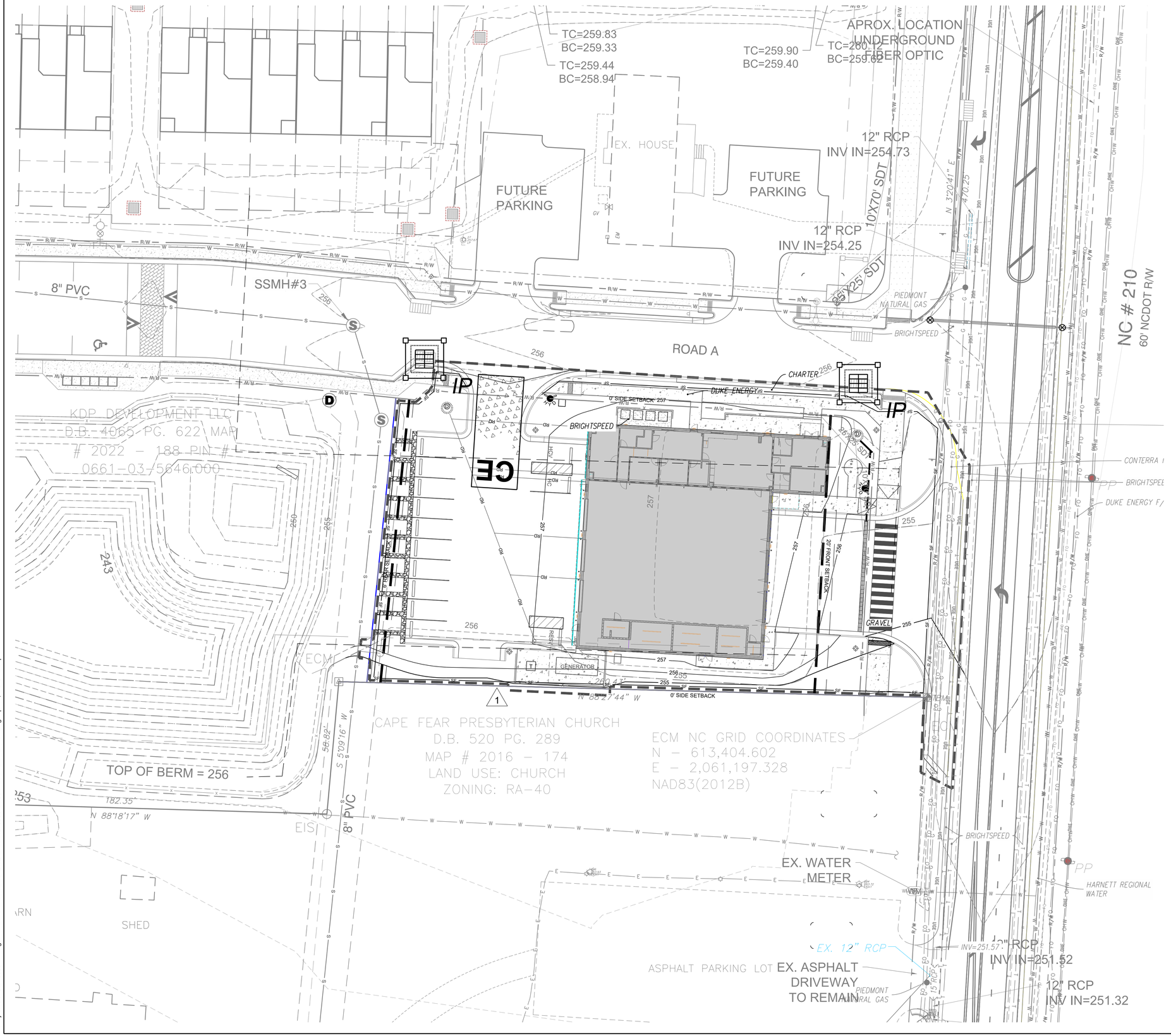

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

EROSION CONTROL LEGEND:

SYMBOL	DESCRIPTION
IP	BLOCK & GRAVEL INLET PROTECTION
IP	SILT FENCE & WIRE INLET PROTECTION
	SILT FENCE OUTLET
	CHECK DAM
	RIP RAP DISSIPATER
CE	TEMPORARY CONSTRUCTION ENTRANCE
SF	SILT FENCE
DD	DIVERSION DITCH
	100 YEAR FLOOD ELEVATION

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND SITE NOTES.
2. SEE SHEET C4.00 FOR EROSION CONTROL NOTES.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA EROSION CONTROL SPECIFICATIONS.

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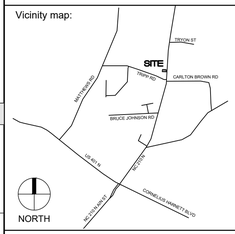
Vicinity map:



Seal:

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15934 3.03.2025 PAUL LORENZEN

Scale:

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SCALE: 1"=20' NORTH

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:

EROSION CONTROL PLAN PHASE 2

Project number: C23050 Sheet #: C4.02
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL

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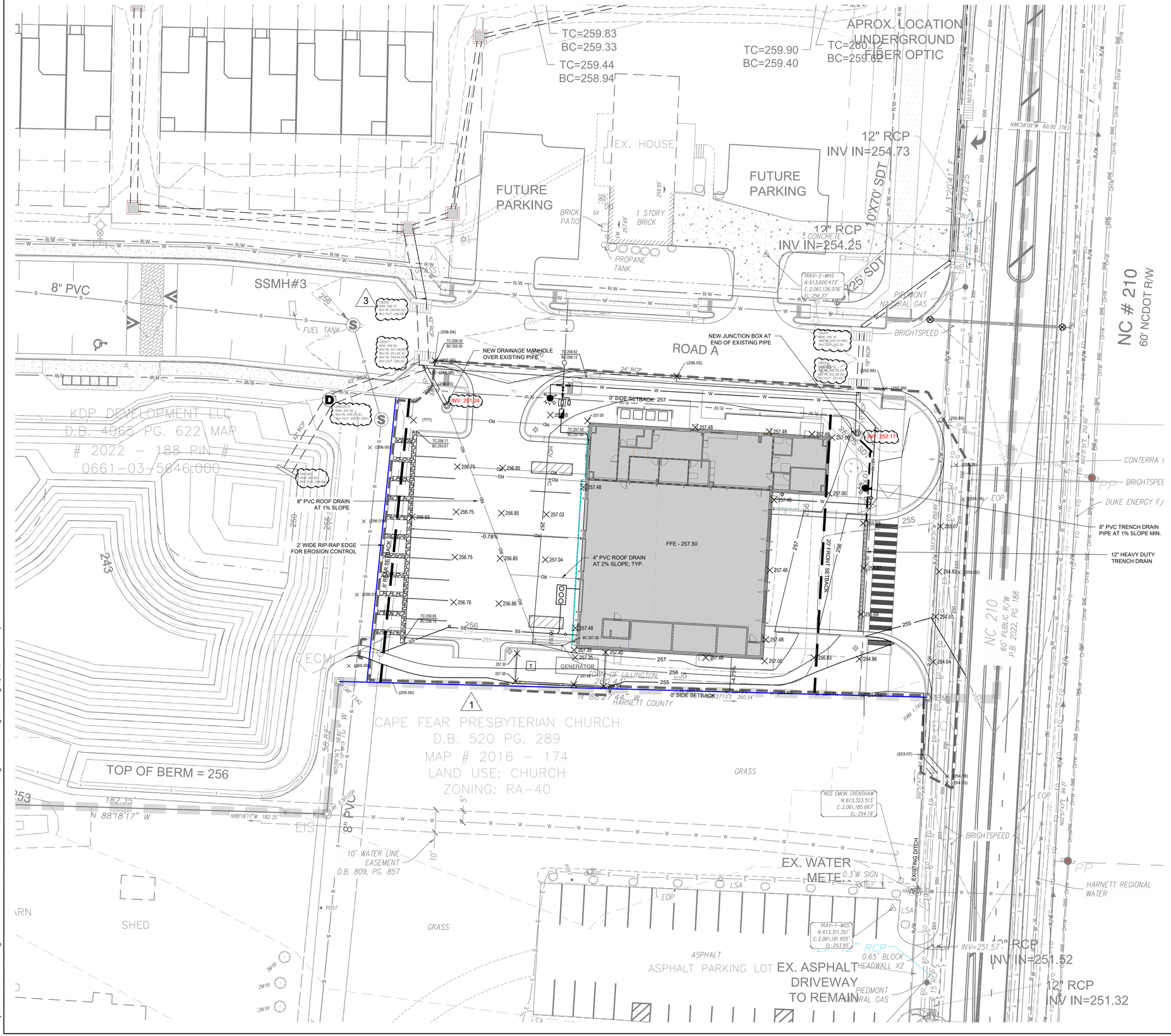

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
▬ ▬ ▬ ▬	LIMITS OF DISTURBANCE
—— — — ——	PROPERTY LINE
— — — —	EASEMENT
— — — —	SETBACK
——BZ——	RIPARIAN BUFFER (50')
——TP——	TREE PROTECTION FENCE
■■■■■■	ACCESSIBLE ROUTE

GRADING LEGEND:

SYMBOL	DESCRIPTION
Ⓓ	PROPOSED JUNCTION BOX
▣	PROPOSED CATCH BASIN
⊞	PROPOSED AREA DRAIN
	RIPRAP DISSIPATOR
→	FLOW DIRECTION
44.50	PROPOSED ELEVATION
TC 44.50 BC 44.00	TOP/BOTTOM OF CURB
TW 46.00 BW 44.00	TOP/BOTTOM OF WALL
▬▬▬	PROPOSED STORM DRAINAGE
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
—— — 200 — ——	EXISTING MAJOR CONTOUR
— — — —	EXISTING MINOR CONTOUR

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND GRADING NOTES.

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Vicinity map:

Seal:

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USE FOR CONSTRUCTION

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Scale:

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SCALE: 1" = 20'
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Project:

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Issued for:

SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS
3	17 APR 2025	REV'D PER OWNER COMMENTS
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Title:

GRADING AND STORM DRAINAGE PLAN

Project number: C23050
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL
Sheet #: C5.00

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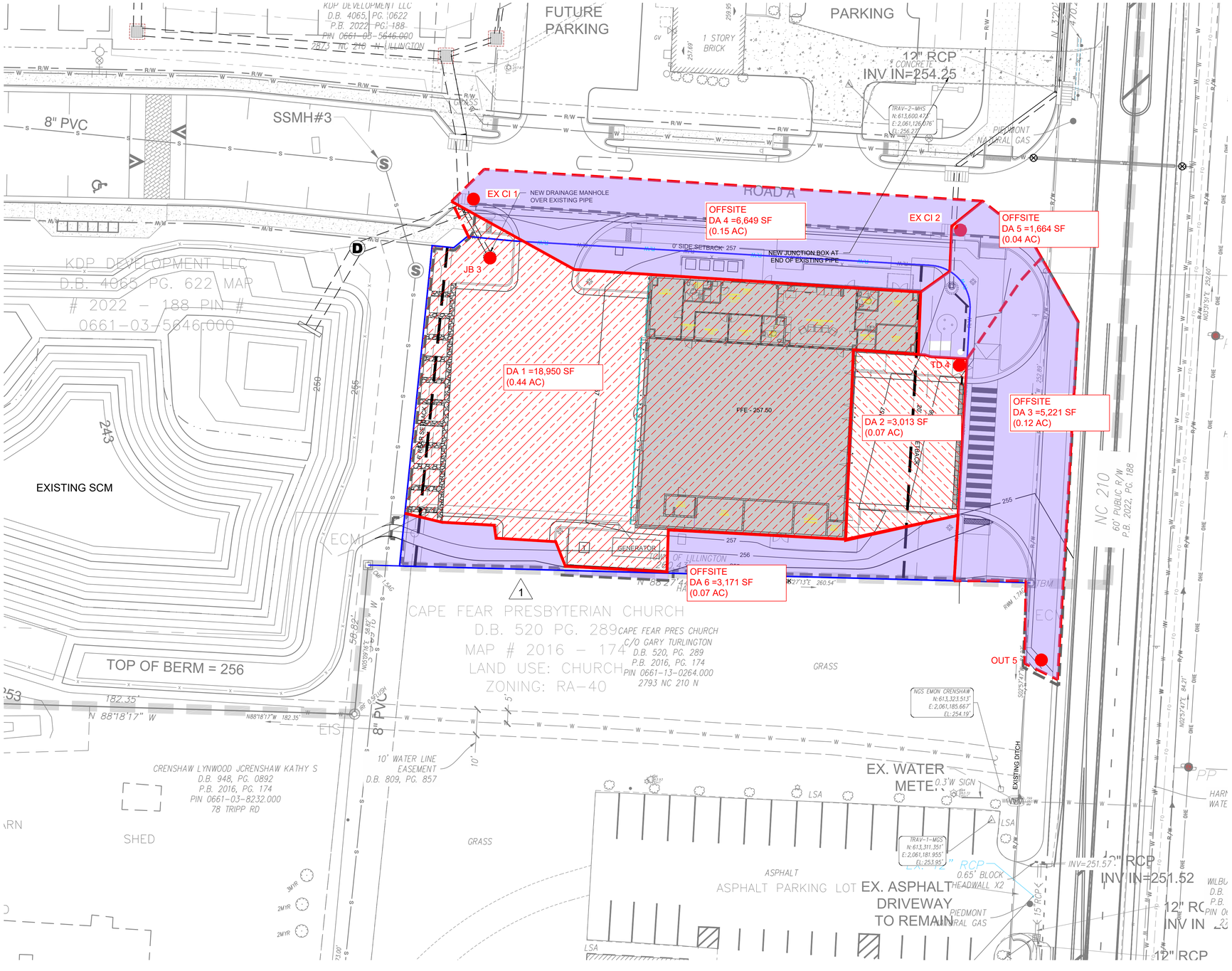

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

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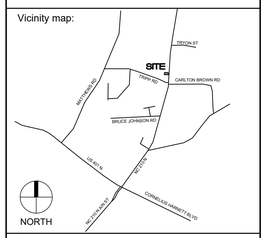

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Scale:
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SCALE: 1" = 20'
NORTH

Project:
LILLINGTON FIRE STATION HWY 210

Issued for:
SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:
DRAINAGE MAP

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL
C5.40

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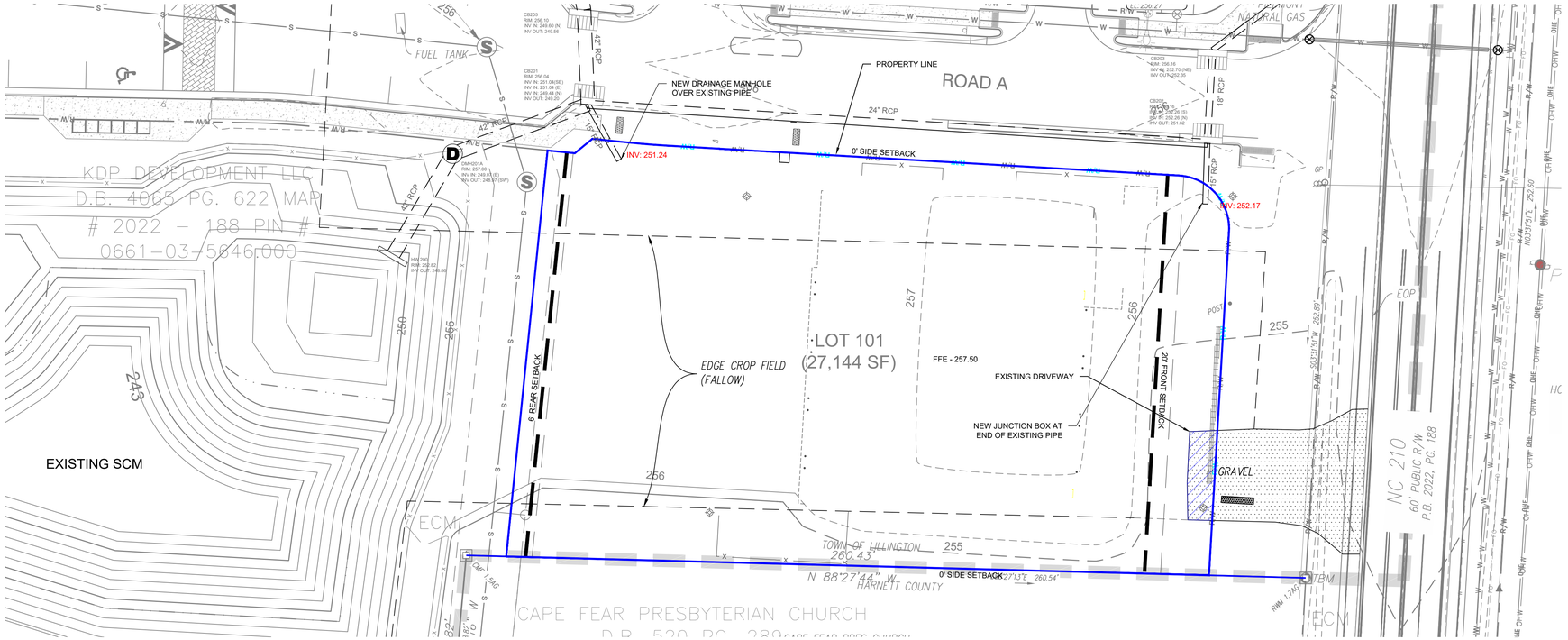
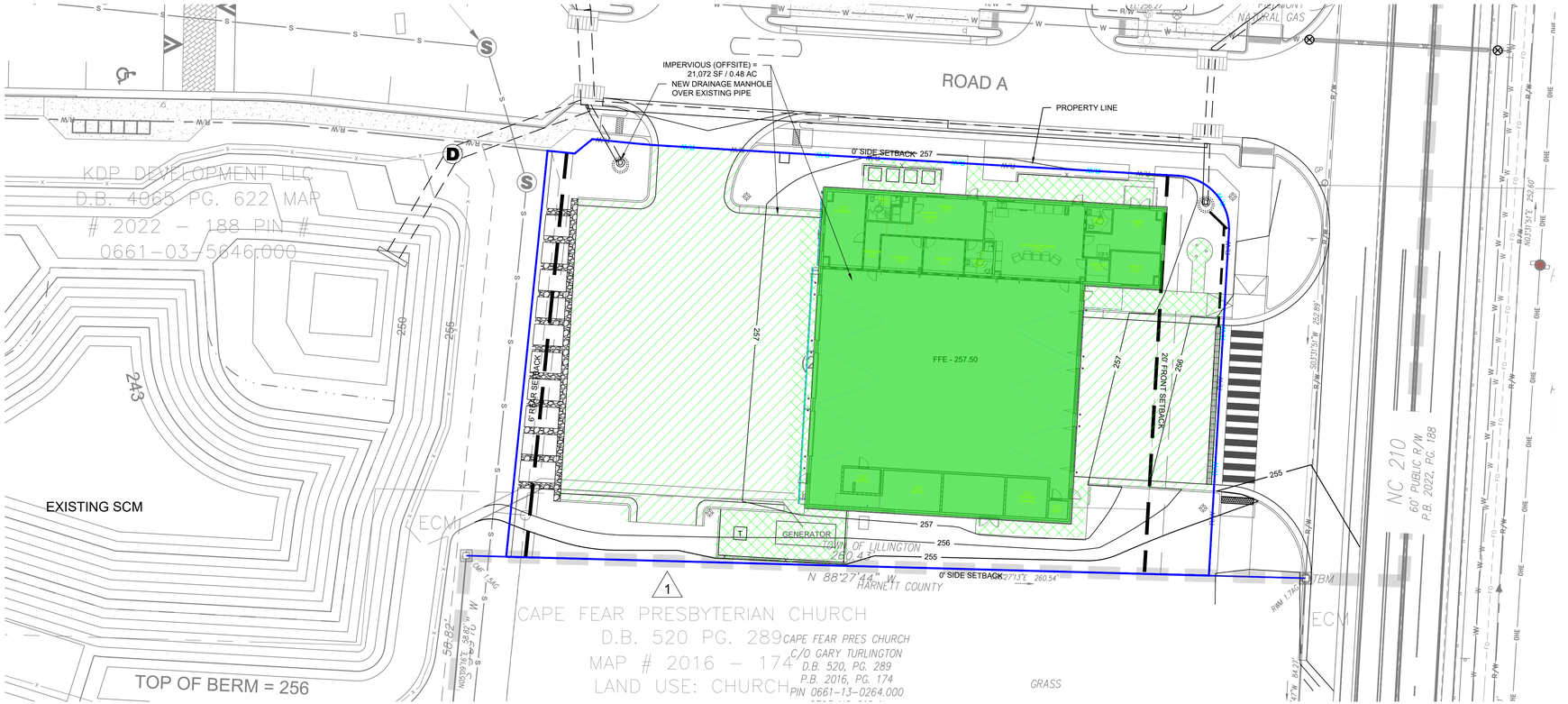


PRE-DEVELOPMENT IMPERVIOUS



POST DEVELOPMENT IMPERVIOUS

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

Property Area =	27,144 sf		
	0.6 ac		

Pre-development Impervious*

Total Impervious -	230	sf =	0.005 ac
Total Pervious -	26,914	sf =	0.618 ac
Percent Impervious -	0.85%		

Existing Impervious Remaining

- Buildings	0 sf
- Parking/Drives	0 sf
- Sidewalk/Concrete	0 sf
TOTAL	0 sf

Existing Impervious Removed

- Buildings	0 sf
- Parking/Drives	230 sf
- Sidewalk/Concrete	0 sf
TOTAL	230 sf

Impervious Area Added

- Buildings	8,801 sf
- Parking/Drives	9,566 sf
- Sidewalk/Concrete	2,587 sf
TOTAL	20,954 sf

Total Impervious Area

- Buildings	8,801 sf
- Parking/Drives	9,566 sf
- Sidewalk/Concrete	2,587 sf
TOTAL	20,954 sf

Total Post-Development Impervious

Total Impervious -	20,954	sf =	0.481 ac
Total Pervious -	6,190	sf =	0.142 ac
Percent Impervious -	77.20%		

Preliminary notes from Townhome project by others (for reference only)

Proposed Onsite Impervious = 5.64 AC
+ Contingency Impervious Added for this Study = 0.10 AC

Total Proposed Onsite Impervious for this Study = 5.74 AC

Proposed Offsite Impervious (NC 21) =0 0.16 AC

Residential Lot 1 Impervious Allocation = 0.19 AC
Fire Station Lot 2 Impervious Allocation = 0.30 AC

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FIRM LICENSE #: C-1051
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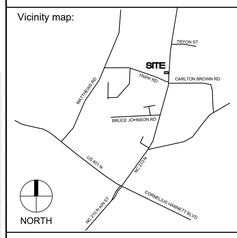
PROJECT #: C23050

BOBBITT

Client:
BOBBITT
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:



Seal:

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15834 3.03.2025 ROY PAUL LORENZEN

Scale:

0 10 20 40
SCALE: 1" = 20'
NORTH

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

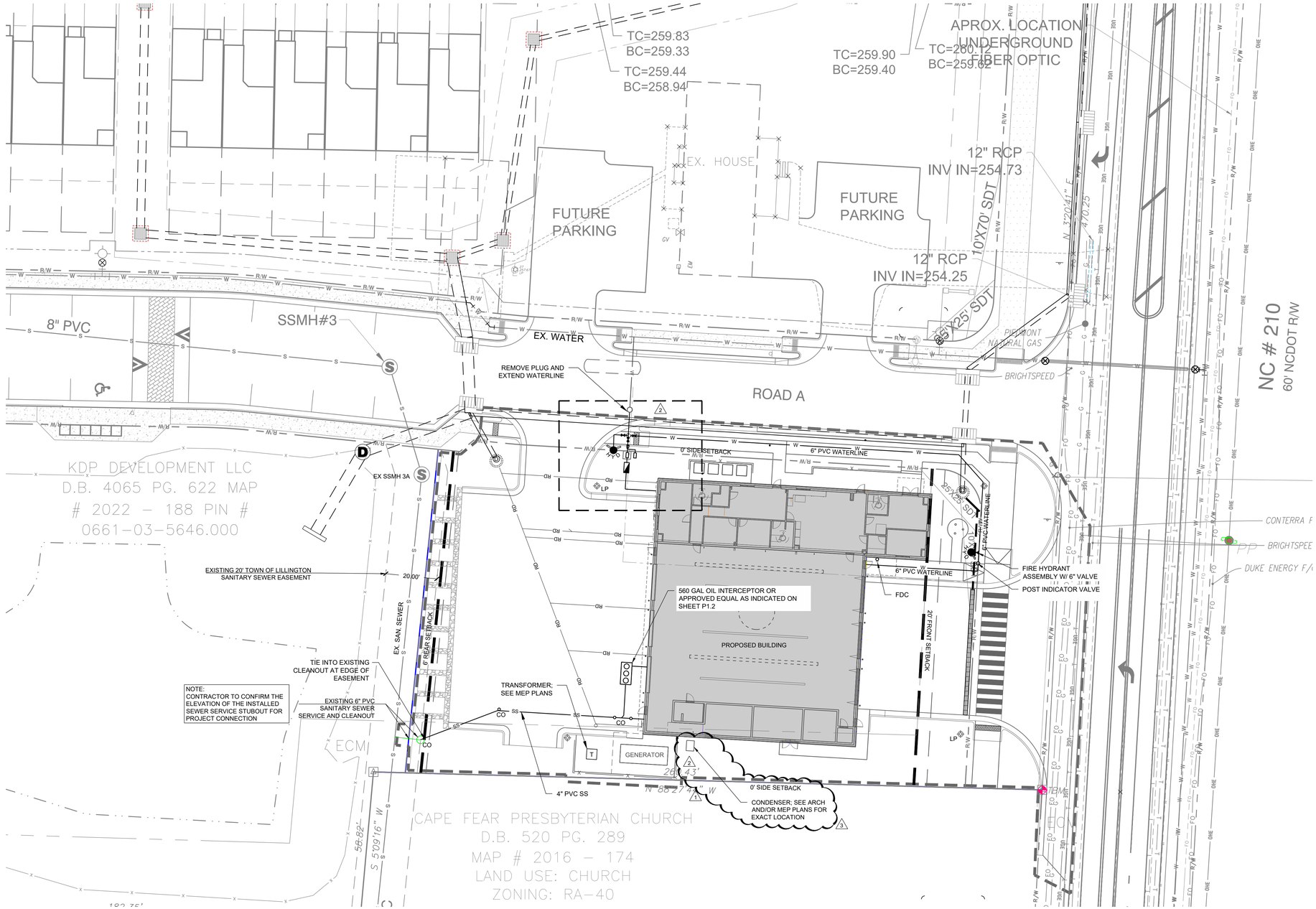
Title:

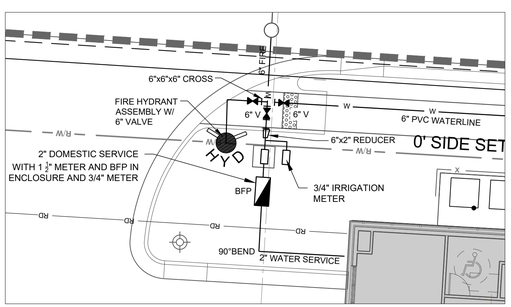
IMPERVIOUS MAP (PRE AND POST)

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL

C5.50

L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-C5.00 Grading & Storm Drainage Plan.dwg Apr 17, 2025 - 4:43pm





UTILITY ENLARGEMENT

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
R/W	RIGHT OF WAY LINE

UTILITY LEGEND:

SYMBOL	DESCRIPTION
FDC	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
S	EXISTING SANITARY SEWER MANHOLE
S	PROPOSED SANITARY SEWER MANHOLE
CO	PROPOSED CLEANOUT
FDC	PROPOSED FIRE DEPARTMENT CONNECTION (FDC)
BFP	PROPOSED BACKFLOW PREVENTER
PIV	PROPOSED POST INDICATOR VALVE (PIV)
W	EXISTING WATER LINE
W	PROPOSED WATER LINE
SS	EXISTING SANITARY SEWER LINE
SS	PROPOSED SANITARY SEWER LINE

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND UTILITY NOTES.

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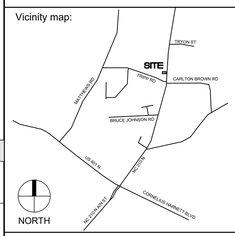


Seal:
PRELIMINARY - DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15934 3.03.2025 PAUL LORENZEN

Scale:
0 10 20 40
SCALE: 1" = 20'
NORTH

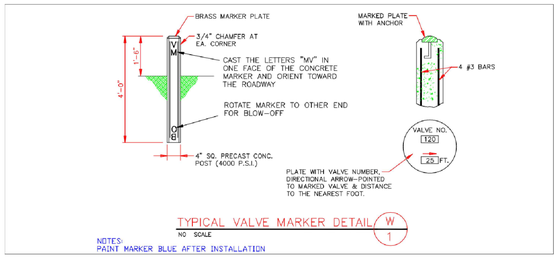
Project:
LILLINGTON FIRE STATION HWY 210

Issued for:
SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS
3	17 APR 2025	REV'D PER OWNER COMMENTS

Title:
UTILITY PLAN

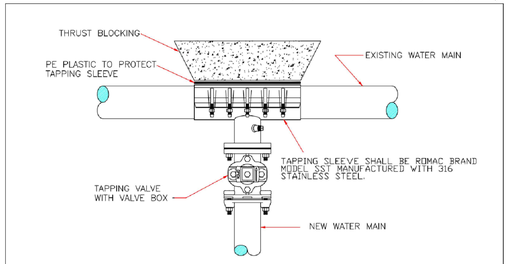
Project number: C23050
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL
Sheet #: C6.00



TYPICAL VALVE MARKER DETAIL W 1

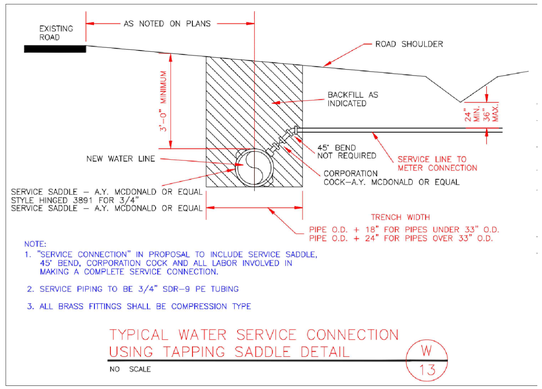
NO SCALE

NOTES:
PAINT MARKER BLUE AFTER INSTALLATION



TYPICAL TAPPING SLEEVE AND VALVE ASSEMBLY DETAIL W 5

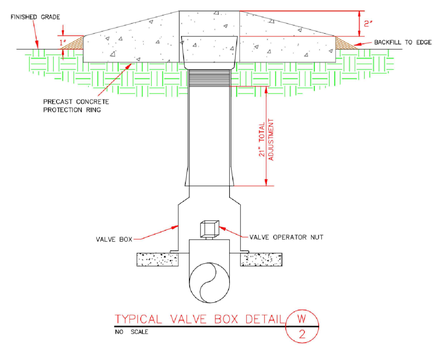
NO SCALE



NOTE:
1. "SERVICE CONNECTION" IN PROPOSAL TO INCLUDE SERVICE SADDLE, 45° BEND, CORPORATION COCK AND ALL LABOR INVOLVED IN MAKING A COMPLETE SERVICE CONNECTION.
2. SERVICE PIPING TO BE 3/4" SDR-9 PE TUBING
3. ALL BRASS FITTINGS SHALL BE COMPRESSION TYPE

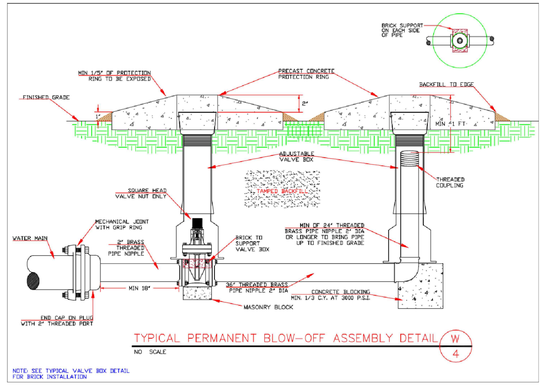
TYPICAL WATER SERVICE CONNECTION USING TAPPING SADDLE DETAIL W 13

NO SCALE



TYPICAL VALVE BOX DETAIL W 2

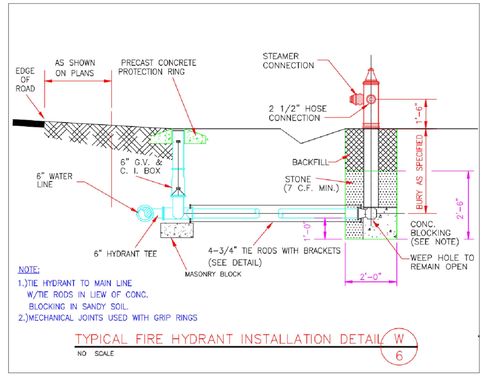
NO SCALE



TYPICAL PERMANENT BLOW-OFF ASSEMBLY DETAIL W 4

NO SCALE

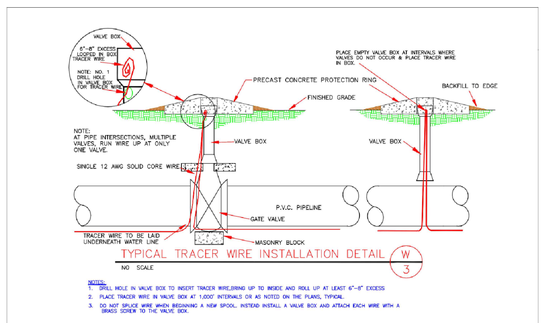
NOTE: SEE TYPICAL VALVE BOX DETAIL FOR BRICK INSTALLATION



NOTE:
1.)TIE HYDRANT TO MAIN LINE W/TIE RODS IN LIEW OF CONC. BLOCKING IN SANDY SOIL.
2.)MECHANICAL JOINTS USED WITH GRIP RINGS

TYPICAL FIRE HYDRANT INSTALLATION DETAIL W 6

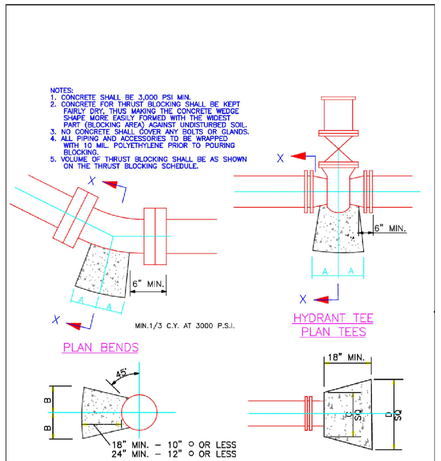
NO SCALE



TYPICAL TRACER WIRE INSTALLATION DETAIL W 3

NO SCALE

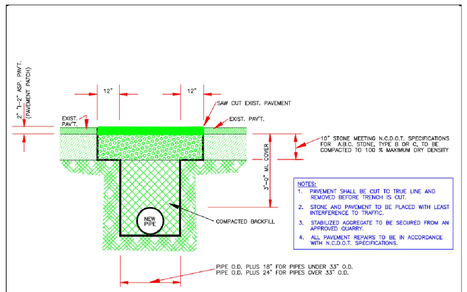
NOTES:
1. DRILL HOLE IN VALVE BOX TO INSERT TRACER WIRE,BRING UP TO INSIDE AND ROLL UP AT LEAST 6"-8" EXCESS
2. PLACE TRACER WIRE IN VALVE BOX AT 1,000' INTERVALS OR AS NOTED ON THE PLANS, TYPICAL
3. DO NOT SPLICE WIRE WHEN BEGINNING A NEW SPOOL. INSTEAD INSTALL A VALVE BOX AND ATTACH EACH WIRE WITH A BRASS SCREW TO THE VALVE BOX.



PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	8"	9"	10"	16"
6"	10"	12"	8"	10"	6"	8"	8"	8"	10"	10"	12"	18"
8"	15"	13"	10"	10"	8"	8"	8"	8"	10"	12"	12"	24"
10"	16"	14"	10"	12"	6"	10"	6"	10"	11"	14"	14"	25"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
14"	22"	18"	14"	16"	10"	14"	10"	14"	16"	18"	18"	34"
16"	26"	20"	16"	18"	12"	16"	12"	16"	18"	20"	20"	36"

TYPICAL THRUST BLOCK DETAIL W 7

NO SCALE



NOTES:
1. PAVEMENT SHALL BE CUT TO TRUE LINE AND REMOVED BEFORE TRENCH IS CUT.
2. STONE AND PAVEMENT TO BE PLACED WITH LEAST INTERFERENCE TO TRAFFIC.
3. STABILIZED AGGREGATE TO BE SECURED FROM AN APPROVED QUARRY.
4. ALL PAVEMENT REPAIRS TO BE IN ACCORDANCE WITH N.C.D.O.T. SPECIFICATIONS.

TYPICAL TRENCH IN BITUMINOUS SURFACE AREAS DETAIL W 10

NO SCALE

1 HRW WATER DETAILS NTS

SECTION

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RALEIGH, NC 27603
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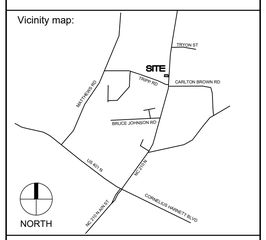
Vicinity map:



Seal:

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 15934 ENGINEER PAUL LORENZEN 3.03.2025

Scale:

SCALE: AS NOTED

Project:

LILLINGTON FIRE STATION HWY 210

Issued for:

SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:

UTILITY DETAILS I

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL

C6.90

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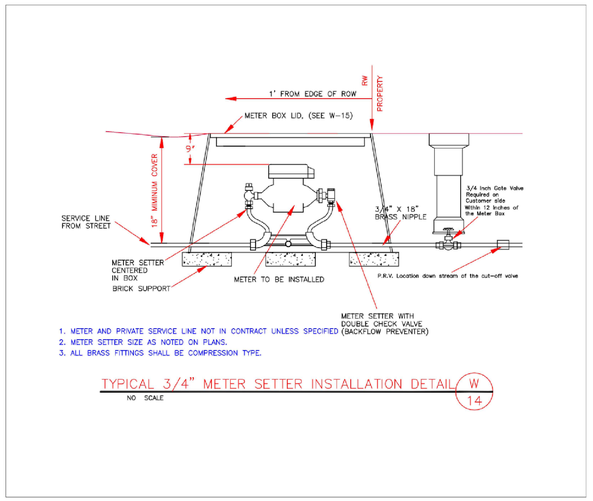
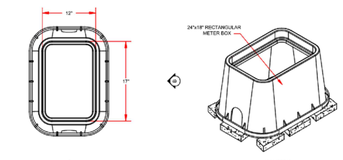
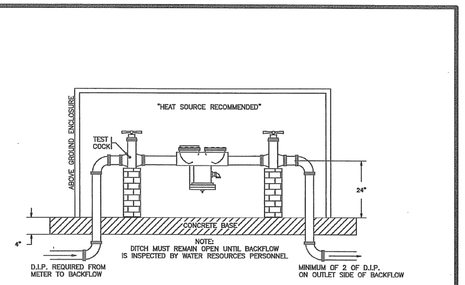


1. METER AND PRIVATE SERVICE LINE NOT IN CONTRACT UNLESS SPECIFIED
2. METER SETTER SIZE AS NOTED ON PLANS.
3. ALL BRASS FITTINGS SHALL BE COMPRESSION TYPE.

TYPICAL 3/4" METER SETTER INSTALLATION DETAIL W-14
NO SCALE



TYPICAL METER BOX DETAIL FOR 3/4" SERVICE W-15
NO SCALE

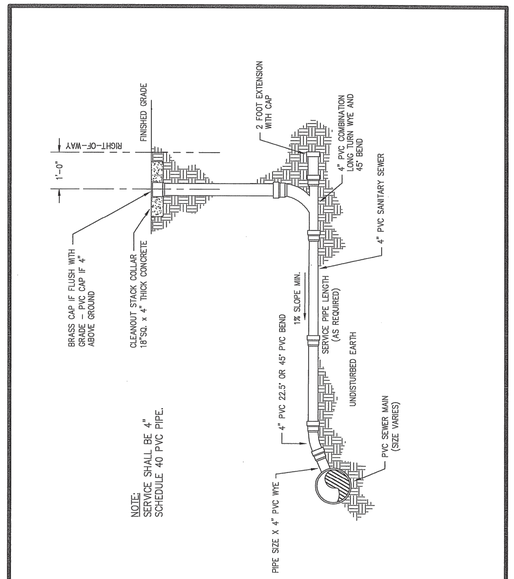


NOTES:

1. THE BACKFLOW DEVICE SHALL BE WITHIN 10 FEET OF AND ON THE PROPERTY SIDE OF THE METER.
2. ALL REDUCED PRESSURE BACKFLOW DEVICES SHALL BE INSTALLED ABOVE GROUND, IN HORIZONTAL POSITION.
3. SHUT OFF VALVES SHALL BE RESILIENT SEAT GATE VALVES WITH FLANGED ENDS AND HAND WHEEL.
4. ALL INTERIOR AND EXTERIOR IRON SURFACES SHALL HAVE EPOXY COATINGS TO CONFORM TO ANSI/AWWA C-550, OR MANUFACTURED OF STAINLESS STEEL.
5. THE BACKFLOW DEVICE SHALL HAVE 4 TEST COCKS WITH ONE INSTALLED ON THE CITY SIDE OF THE INLET GATE VALVE.
6. APPROVED UNITS: HERSEY, WILKINS, FEBCO, WATTS, CONBRACO, AND AMES.
7. APPROVED ABOVE GROUND ENCLOSURES: "HOT BOX", HYDROCOWL, SMI OR BFP MODEL, ENCLOSURES MUST HAVE A DRAIN.
8. TANDEM BACKFLOWS REQUIRED IF SERVING MULITPLE USERS OR SERVICE CONNOT BE INTERUPTED.

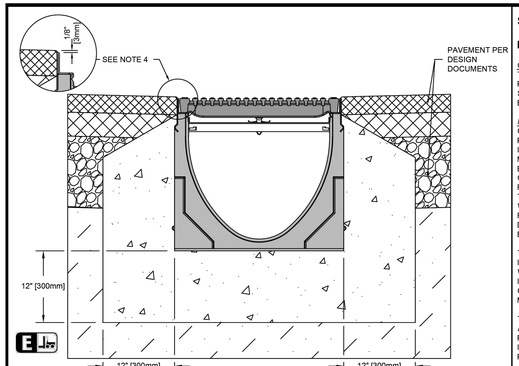
			TOWN OF LILLINGTON PUBLIC WORKS		
			3"– 8" REDUCED PRESSURE BACKFLOW PREVENTER DETAIL	SCALE	DRAWING #
				N.T.S.	W–15
DATE	BY	DESCRIPTION			
		REVISIONS			

2 BACKFLOW PREVENTER DETAIL NTS
SECTION



			TOWN OF LILLINGTON PUBLIC WORKS		
			4" SEWER SERVICE CONNECTION WITH CLEAN OUT DETAIL (NEW INSTALLATION)	SCALE	DRAWING #
				N.T.S.	S–4
DATE	BY	DESCRIPTION			
		REVISIONS			

3 SEWER SERVICE WITH CLEANOUT DETAIL NTS
SECTION



NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

KS300 KLASSIKDRAIN - LOAD CLASS E

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE KS300 CHANNEL SYSTEM WITH STAINLESS STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN STAINLESS STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
DILUTE ACID AND ALKALI RESISTANT	YES
B117 SALT SPRAY TEST COMPLIANT	YES

THE SYSTEM SHALL BE 12" (300mm) NOMINAL INTERNAL WIDTH WITH A 14.2" (390mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'QUICKLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

KS3-E-HAP	KS300 - KLASSIKDRAIN - LOAD CLASS: E Haunched Asphalt Pavement	**ACO Polymer Products, Inc.**
DATE: 08/25/15	INSTALLATION DRAWING - ACO DRAIN	825 W. Beechcraft St, Casa Grande, AZ 85122, Tel: 520-421-9988, Fax: 520-421-9899 9470 Pinecone Dr., Mentor, OH 44060, Tel: 440-639-7230, Fax: 440-639-7235 4211 Pleasant Rd., Fort Mill, SC 29708, Tel: 440-639-7230, Fax: 803-802-1063

Arizona Tel: 888-490-9552 e-mail: sales@acousa.com Ohio Tel: 800-543-4764 www.acousa.com South Carolina Tel: 800-543-4764

4 TRENCH DRAIN DETAIL NTS
SECTION

load max 134,885lb

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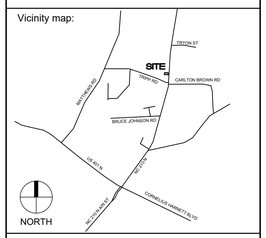

Seal:
PRELIMINARY - DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15934 3.03.2025 PAUL LORENZEN

Scale:
SCALE: AS NOTED

Project:
LILLINGTON FIRE STATION HWY 210

Issued for:
SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:
UTILITY DETAILS II

Project number: C23050
Issued Date: 10.25.2024
Drawn by: MTJ
Approved by: RPL
Sheet #: C6.91

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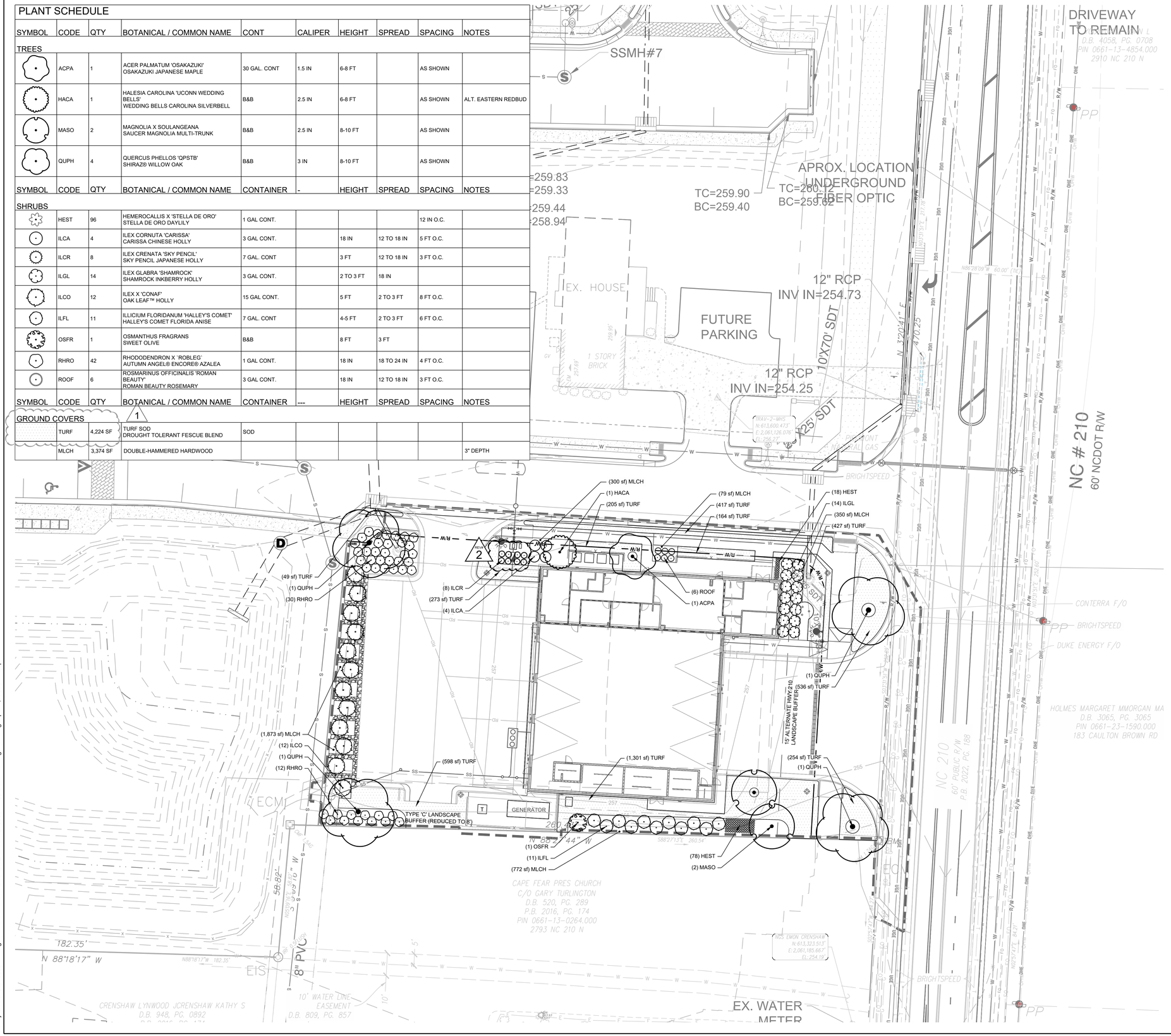
PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CALIPER	HEIGHT	SPREAD	SPACING	NOTES
TREES									
	ACPA	1	ACER PALMATUM 'OSAKAZUKI' OSAKAZUKI JAPANESE MAPLE	30 GAL. CONT	1.5 IN	6-8 FT		AS SHOWN	
	HACA	1	HALESIA CAROLINA 'UCONN WEDDING BELLS' WEDDING BELLS CAROLINA SILVERBELL	B&B	2.5 IN	6-8 FT		AS SHOWN	ALT. EASTERN REDBUD
	MASO	2	MAGNOLIA X SOULANGEANA SAUCER MAGNOLIA MULTI-TRUNK	B&B	2.5 IN	8-10 FT		AS SHOWN	
	QUPH	4	QUERCUS PHELLOS 'QPSTB' SHIRAZ® WILLOW OAK	B&B	3 IN	8-10 FT		AS SHOWN	
SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONTAINER	-	HEIGHT	SPREAD	SPACING	NOTES
SHRUBS									
	HEST	96	HEMEROCALLIS X 'STELLA DE ORO' STELLA DE ORO DAYLILY	1 GAL CONT.				12 IN O.C.	
	ILCA	4	ILEX CORNUTA 'CARISSA' CARISSA CHINESE HOLLY	3 GAL CONT.		18 IN	12 TO 18 IN	5 FT O.C.	
	ILCR	8	ILEX CRENATA 'SKY PENCIL' SKY PENCIL JAPANESE HOLLY	7 GAL. CONT		3 FT	12 TO 18 IN	3 FT O.C.	
	ILGL	14	ILEX GLABRA 'SHAMROCK' SHAMROCK INKBERRY HOLLY	3 GAL CONT.		2 TO 3 FT	18 IN		
	ILCO	12	ILEX X 'CONAF' OAK LEAF™ HOLLY	15 GAL CONT.		5 FT	2 TO 3 FT	8 FT O.C.	
	ILFL	11	ILLICIUM FLORIDANUM 'HALLEY'S COMET' HALLEY'S COMET FLORIDA ANISE	7 GAL. CONT		4-5 FT	2 TO 3 FT	6 FT O.C.	
	OSFR	1	OSMANTHUS FRAGRANS SWEET OLIVE	B&B		8 FT	3 FT		
	RHRO	42	RHODODENDRON X 'ROBLEG' AUTUMN ANGEL® ENCORE® AZALEA	1 GAL CONT.		18 IN	18 TO 24 IN	4 FT O.C.	
	ROOF	6	ROSMARINUS OFFICINALIS 'ROMAN BEAUTY' ROMAN BEAUTY ROSEMARY	3 GAL CONT.		18 IN	12 TO 18 IN	3 FT O.C.	
SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONTAINER	---	HEIGHT	SPREAD	SPACING	NOTES
GROUND COVERS									
	TURF	4,224 SF	TURF SOD DROUGHT TOLERANT FESCUE BLEND	SOD					
	MLCH	3,374 SF	DOUBLE-HAMMERED HARDWOOD						3" DEPTH



LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND PLANTING NOTES.

LANDSCAPE CALCULATIONS:

BUFFERS/STREETSCAPE

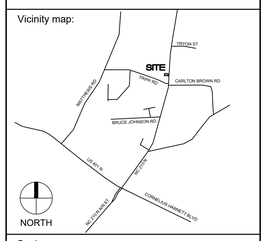
HWY 210 FRONTAGE:	42 LF
ROAD A FRONTAGE:	145 LF
PARKING LOT EAST:	127 LF
SOUTH PROPERTY LINE:	219 LF

STEWART
223 S. WEST ST., #1100
RALEIGH, NC 27603
T 919.380.8750
FIRM LICENSE #: C-1051
www.stewartinc.com
PROJECT #: C23050

BOBBITT

Client:
BOBBITT
600 GERMANTOWN ROAD
RALEIGH, NC 27607
CONTACT: NEAL CONLEY
PHONE 919.800.4632

Vicinity map:



Seal:
PRELIMINARY - DO NOT USE FOR CONSTRUCTION

Scale:
0 10 20 40
SCALE: 1" = 20'
NORTH

Project:
LILLINGTON FIRE STATION HWY 210

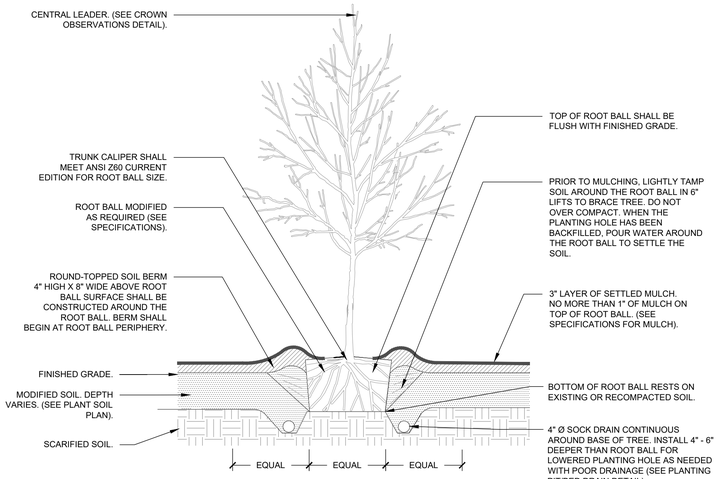
Issued for:
SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

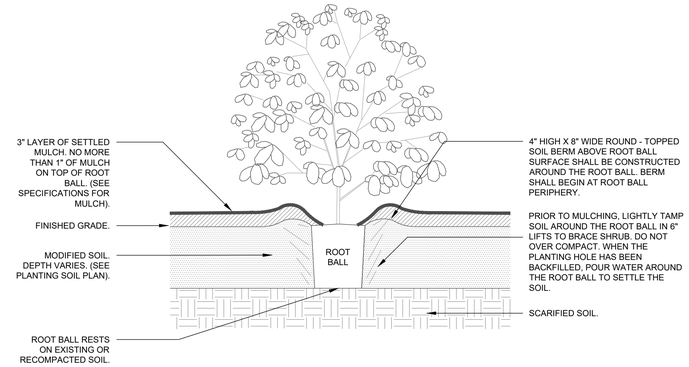
Title:
CODE PLANTING PLAN

Project number: C23050 Sheet #:
Issued Date: 10.25.2024
Drawn by: --
Approved by: --
L7.00

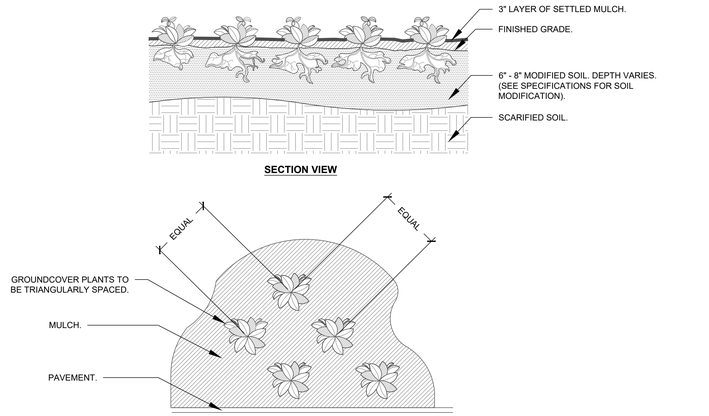
L:\Projects\2023\C23050 - Lillington Fire Station\DWGS\2-CD\3-Sheets\C23050-L7.00 Code Planting Plan.dwg Apr 17, 2025 - 4:44pm



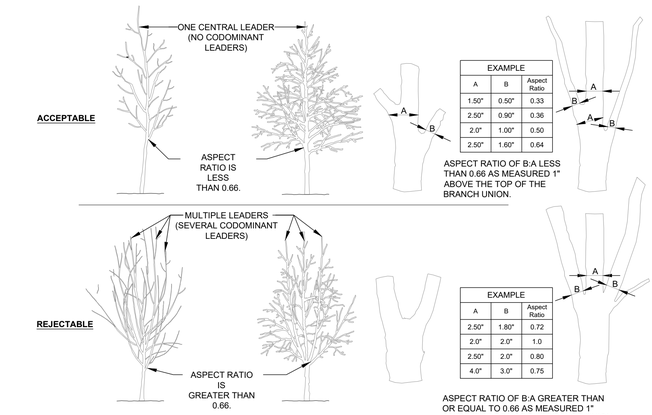
1 TREE (TYPICAL) — NTS
SECTION



2 SHRUB (TYPICAL) — NTS
SECTION



3 GROUNDCOVER PLANTING (TYPICAL) — NTS
PLAN



EXAMPLE		
A	B	Aspect Ratio
1.50"	0.50"	0.33
2.50"	0.90"	0.36
2.0"	1.00"	0.50
2.50"	1.60"	0.64

ASPECT RATIO OF B:A LESS THAN 0.66 AS MEASURED 1" ABOVE THE TOP OF THE BRANCH UNION.

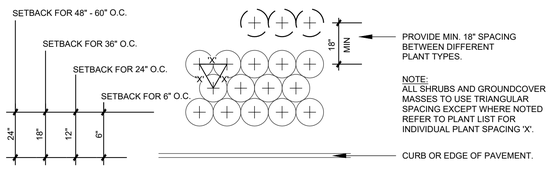
EXAMPLE		
A	B	Aspect Ratio
2.50"	1.80"	0.72
2.0"	2.0"	1.0
2.50"	2.0"	0.80
4.0"	3.0"	0.75

ASPECT RATIO OF B:A GREATER THAN OR EQUAL TO 0.66 AS MEASURED 1" ABOVE THE TOP OF THE BRANCH UNION.

4 CROWN OBSERVATIONS - HIGH BRANCHED — NTS
SECTION

NOTES:

1. SEE PLANTING LEGEND FOR GROUNDCOVER SPECIES, SIZE AND SPACING DIMENSION.
2. SMALL ROOTS (¼" OR LESS) THAT GROW AROUND, UP OR DOWN THE ROOT BALL PERIPHERY ARE CONSIDERED A NORMAL CONDITION IN CONTAINER PRODUCTION AND ARE ACCEPTABLE. HOWEVER THEY SHOULD BE ELIMINATED AT THE TIME OF PLANTING. ROOTS ON THE PERIPHERY CAN BE REMOVED AT THE TIME OF PLANTING (SEE ROOT BALL SHAVING DETAIL).
3. SETTLE SOIL AROUND ROOT BALL OF EACH GROUNCOVER PRIOR TO MULCHING.
4. WHEN GROUNDCOVER PLANTINGS ARE USED IN MASSES, ENTIRE BED SHALL BE EXCAVATED AND TILLED WITH SOIL AMENDMENTS PER SPECIFICATIONS.
5. CONTRACTORS SHALL ASSURE PERCOLATION OF A ALL PLANTING PITS PRIOR TO INSTALLATION.



5 SHRUB AND GROUNDCOVER SPACING — NTS
SECTION

6 TREE STAKING - LODGE POLES — NTS
PLAN

7 GRAVEL BAND WITH STEEL EDGING — NTS
SECTION

PLANTING NOTES:

1. DO NOT STAKE TREES EXCEPT WHERE SPECIFIED BY LANDSCAPE ARCHITECT. STAKING IS REQUIRED FOR TREES PLANTED ON SLOPES.
2. WHERE SEVERAL TREES WILL BE PLANTED CLOSE TOGETHER SUCH THAT THEY WILL LIKELY SHARE ROOT SPACE, TILL IN SOIL AMENDMENTS TO A DEPTH OF 4-6" OVER THE ENTIRE AREA.
3. FOR CONTAINER GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
4. FOR FIELD GROWN TREES, CUT BURLAP, ROPE AND WIRE BASKET AWAY FROM TOP AND SIDES OF ROOT BALL.
5. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
6. THE PLANTING PROCESS IS SIMILAR FOR DECIDUOUS AND EVERGREEN TREES.
7. DO NOT WRAP TRUNK; MARK NORTH SIDE OF TREE IN THE NURSERY AND LOCATE TO THE NORTH IN THE FIELD.
8. WIDTH OF PLANTING HOLE IS 3X ROOT BALL AT THE SURFACE, SLOPING TO 2X THE ROOT BALL DIAMETER AT THE DEPTH OF THE ROOT BALL.
9. BEFORE PLANTING, ADD 3-4" OF WELL COMPOSTED LEAVES, RECYCLED YARD WASTE OR OTHER COMPOST AND TILL INTO TOP 6" OF PREPARED SOIL. ADD COMPOST AT 20-35% BY VOLUME TO BACKFILL.
10. PERFORM PERCOLATION TEST FOR EACH TREE PIT TO CONFIRM THAT WATER DRAINS OUT OF THE SOIL. PROVIDE GRAVEL SUMP FILTER FABRIC & VENT PIPE IF DRAINAGE DOES NOT OCCUR WITHIN 24 HOURS. INCLUDE ALL SUMPS IN BASE BID. SHOULD SUMPS NOT BE NECESSARY AFTER PERCOLATION TEST, PROVIDE CHANGE ORDER DEDUCT TO OWNER.
11. IF PLANTING HOLES ARE DUG WITH A LARGE AUGER BREAKING DOWN THE SIDES WITH A SHOVEL CAN ELIMINATE GLAZING AND CREATE THE PREFERRED SLOPING SIDE.
12. TREES SHALL HAVE SINGLE LEADERS. TREES WITH 2 LEADERS WILL BE REJECTED.
13. DO NOT PLACE MULCH IN CONTACT WITH TRUNK.
14. PROVIDE GATOR BAGS FOR ALL TREES WHERE IRRIGATION IS NOT PROVIDED.

8 PLANTING NOTES — NTS

9 DETAIL NAME — NTS
SECTION

STEWART
223 S. WEST ST., #1100
RALEIGH, NC 27603
T 919.380.8750
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BOBBITT

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RALEIGH, NC 27607
CONTACT: NEAL CONLEY
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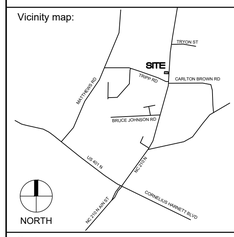
Vicinity map:



Seal:
PRELIMINARY - DO NOT USE FOR CONSTRUCTION

Scale:
SCALE: AS NOTED

Project:
LILLINGTON FIRE STATION HWY 210

Issued for:
SITE PLAN SUBMITTAL

No.	Date	Description
1	13 NOV 2024	ADDENDUM #1
2	03 MAR 2025	REVISION TO TOL SITE PLAN COMMENTS

Title:
PLANTING & SOILS DETAILS

Project number: C23050
Issued Date: 10.25.2024
Drawn by: AEN
Approved by: TAD
Sheet #: L7.90

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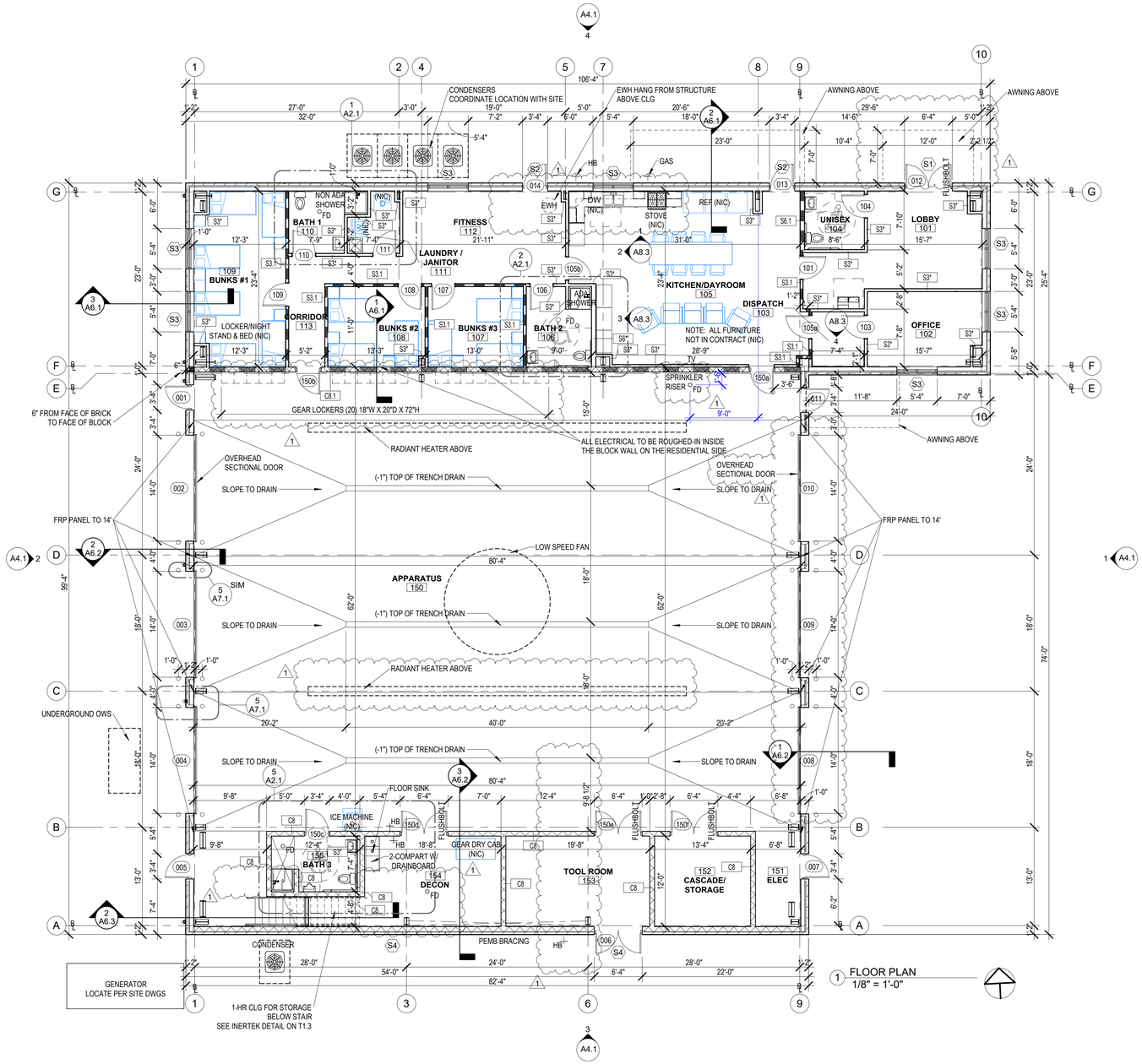
Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING



WALL TYPE MARK LEGEND:

WALL RATING
(1, 2, 3 HOUR)

WALL THICKNESS:
(NOM. WALL THICKNESS)
2 = 2 1/2"
3 = 3 5/8"
6 = 6"

S 6.1

WALL CONSTRUCTION
(WOOD, STEEL, ETC)

CONSTRUCTION:
C = C.M.U.
S = STEEL STUD
W = WOOD STUD
A = ACOUSTIC
F = FURRING / CHASE
P = PARTIAL HEIGHT WALL
L = LAYER
* = 6" ABOVE CEILING

STUD WALL REQUIREMENTS:

- INSTALL BOX HEADERS AT INTERIOR STUD WALL OPENINGS 36" OR GREATER. MATCH STUD GAGE OF WALL.
36" - 60": 6" HEADER
60" - 84": 8" HEADER

- AT WALLS 16'-0" HIGH OR GREATER, INSTALL BRIDGING AT 4'-0" O.C.

- ALL INTERIOR WALLS TO BE INSULATED FULL HEIGHT OF THE WALL.
  - 3 5/8": 3 1/2" SOUND BATTS
  - 6": 5 1/2" SOUND BATTS

-5/8" GWB FULL HEIGHT OF STUDS BOTH SIDES UNLESS OTHERWISE NOTED.

1 - INSTALL 5/8" WATER-RESISTANT GWB AT ALL TOILET ROOM, SHOWER, AND BREAK ROOM WALLS, WITHIN 18" OF SINKS AND DRINKING FOUNTAINS, AND AT ALL APPARATUS WALLS. MINIMUM 8'-0" AFF.

- BRACE INTERIOR WALLS TO STRUCTURE ABOVE PER ASCE 7-10 SECTION 13.5.8

- PROVIDE DEFLECTION TRACK SUBMITTAL.

- SEE TYPICAL PARTITION SECTIONS.

- SEE WALL SECTIONS FOR EXTERIOR WALLS.

- SILL GASKET AT EXTERIOR WALLS. SEE DETAIL.

- COORDINATE BLOCKING FOR CASEWORK AND EQUIPMENT.

- STUD WALL DIMENSIONS ARE TO FACE-OF-STUD UNLESS OTHERWISE NOTED.

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

BOBBITT

COORDINATOR: JGF

DRAWN BY: MT

CHK BY: BDG, LCP

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
As indicated

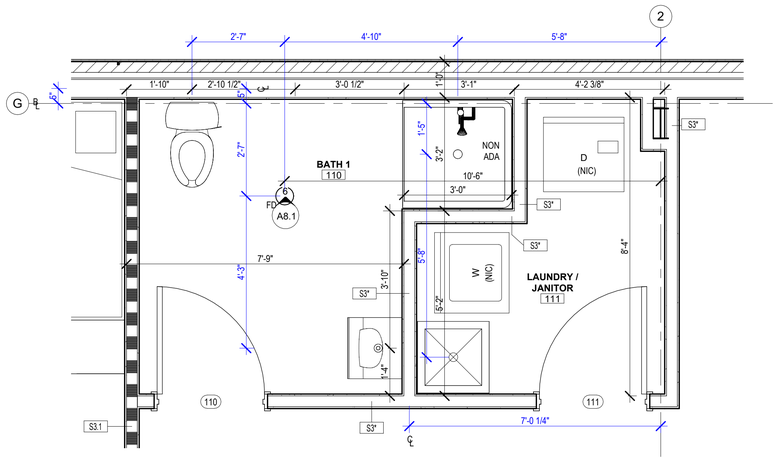
10/21/2024

24-0013

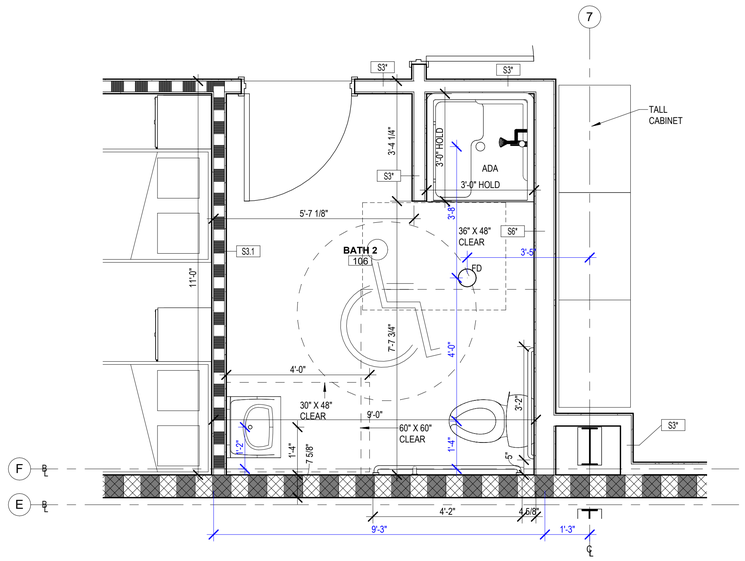
FLOOR PLAN

A1.1
OF 13

Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING

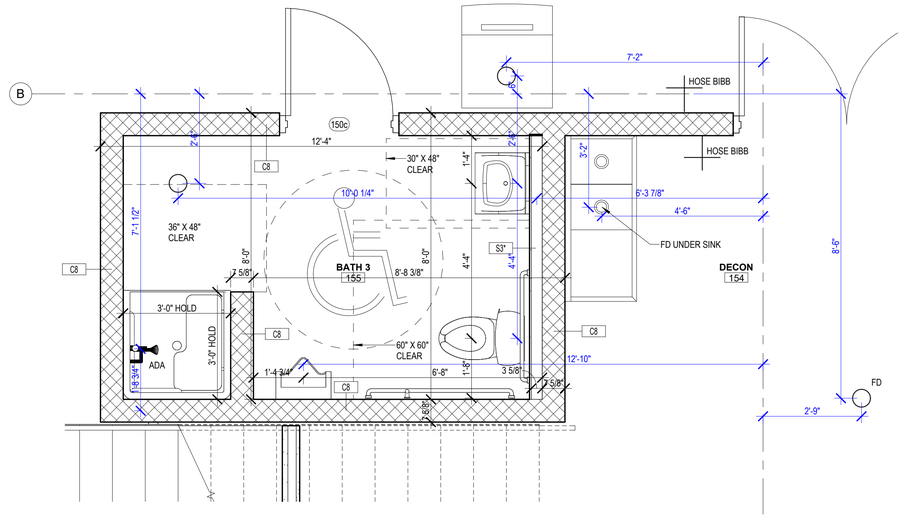


1 BATH 110 PLAN
1/2" = 1'-0"



2 BATH 106 PLAN
1/2" = 1'-0"

SEE A7.2 FOR ACCESSORY MOUNTING HEIGHTS



5 BATH 155 PLAN
1/2" = 1'-0"

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

BOBBITT

COORDINATOR: JGF

DRAWN BY: MT

CHK BY: BDG, LCP

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
1/2" = 1'-0"

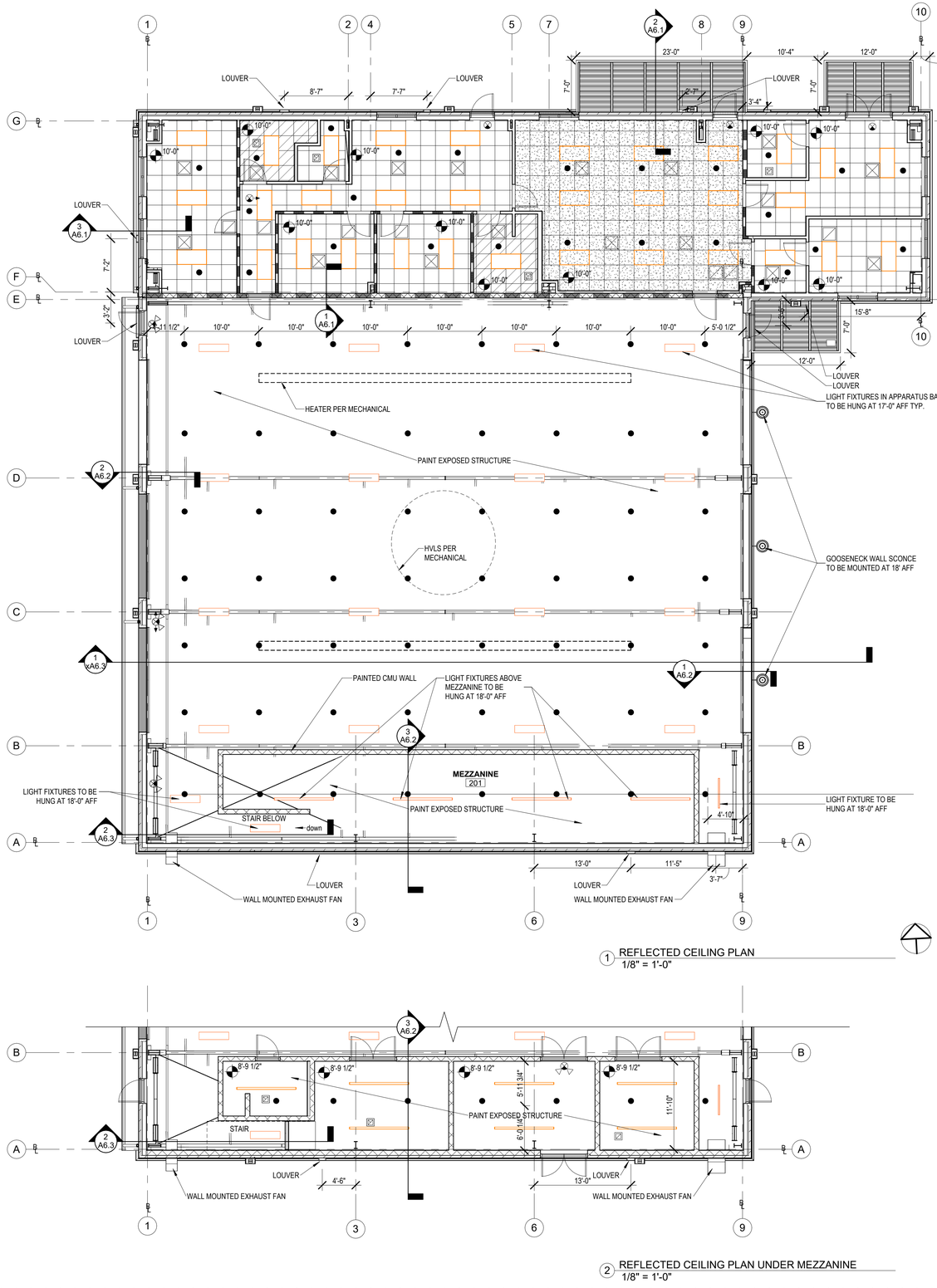
10/21/2024

24-0013

ENLARGED PLANS

A2.1
OF 13

Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING



1 REFLECTED CEILING PLAN
1/8" = 1'-0"

2 REFLECTED CEILING PLAN UNDER MEZZANINE
1/8" = 1'-0"

CEILING PLAN LEGEND

- LED LIGHT FIXTURE
- 2x2 CALLA HEALTH ZONE ACT
- 2X2 ACT
- 2X2 VINYL WRAPPED GWB
- LED LIGHT FIXTURE
- EXIT SIGN/LIGHT
- LED LIGHT FIXTURE
- LED LIGHT FIXTURE
- WALL PACK LIGHT FIXTURE
- 2X2 SUPPLY LOUVER
- 2X2 RETURN LOUVER
- EXHAUST FAN
- SPRINKLER

SEE INTERIORS, MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DRAWINGS FOR FULL COORDINATION OF ALL CEILING FIXTURES

APPROVAL:
DATE:

BOBBITT A&E, PLLC
REGISTERED ARCHITECTURAL COMPANY
CERT. NO. 52503
NORTH CAROLINA
RALEIGH, NC

JASON C. PARKER
REGISTERED ARCHITECT
CERT. NO. 12353
04/28/2025
NORTH CAROLINA
RALEIGH, NC

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

BOBBITT

COORDINATOR: JGF

DRAWN BY: MT

CHK BY: BDG, LCP

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
1/8" = 1'-0"

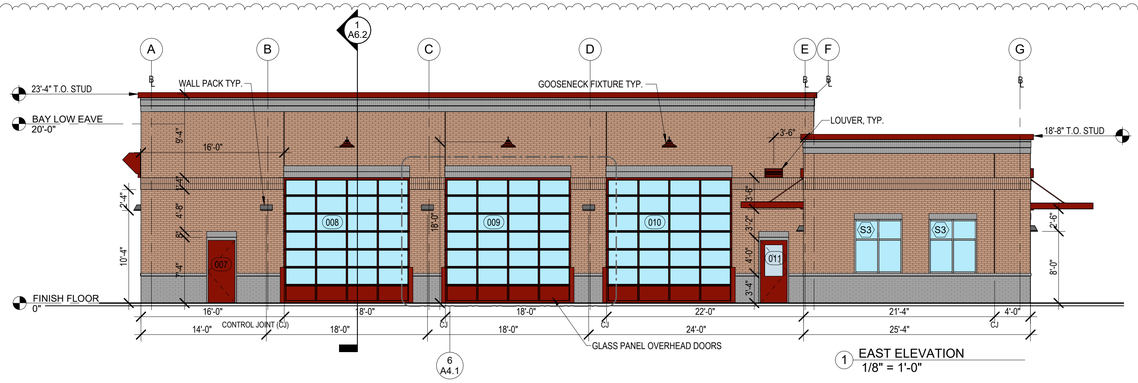
10/21/2024

24-0013

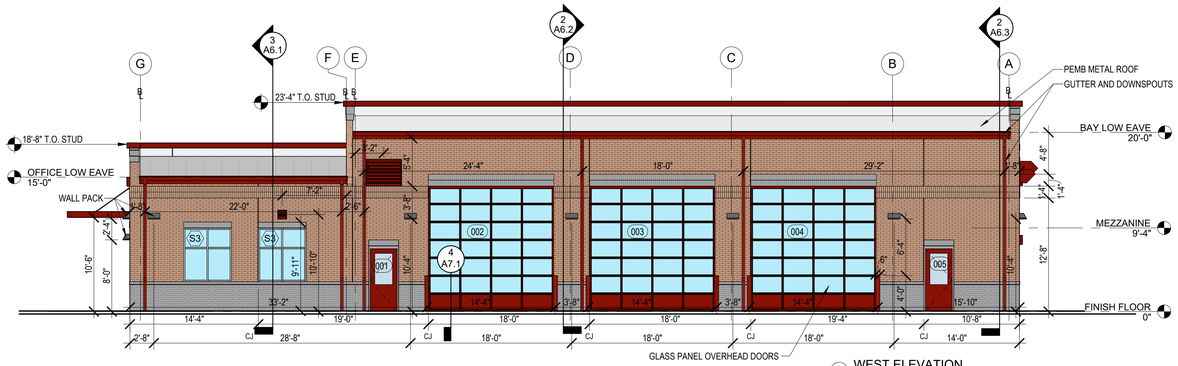
REFLECTED CEILING PLAN

A3.1
OF 13

Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING

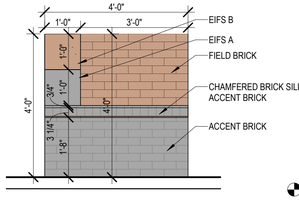


1 EAST ELEVATION
1/8" = 1'-0"

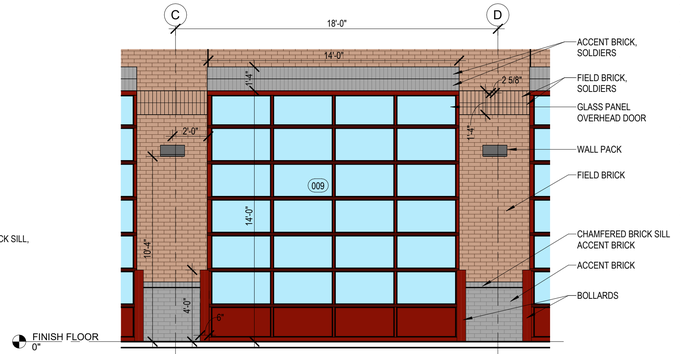


2 WEST ELEVATION
1/8" = 1'-0"

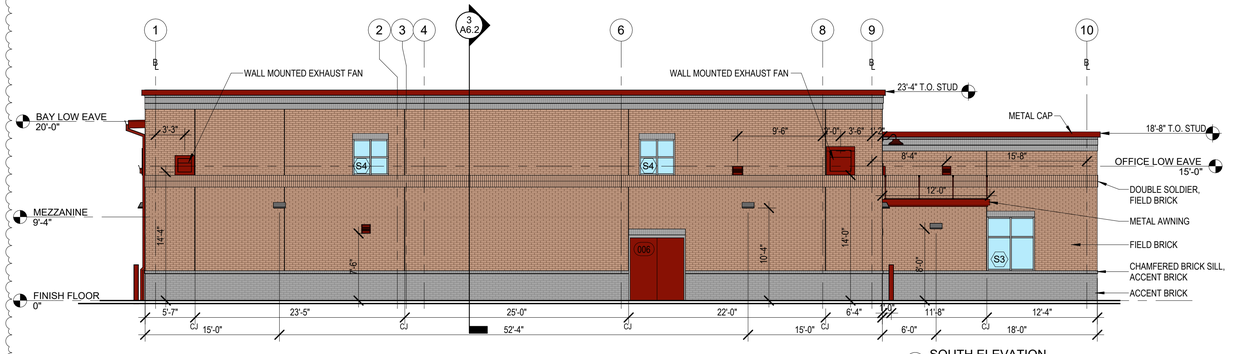
5 REAR PERSPECTIVE



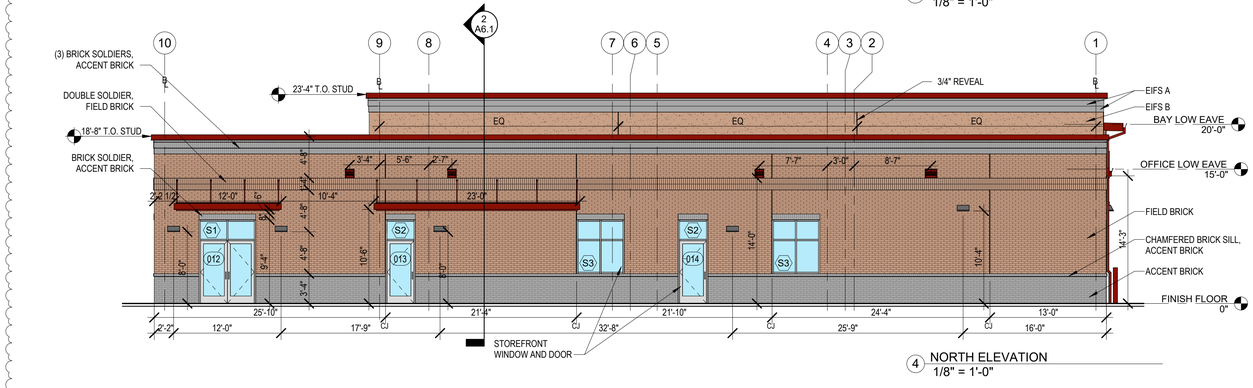
7 SAMPLE WALL PANEL
1/2" = 1'-0"



6 EAST ELEVATION TYPICAL OVERHEAD DOOR
1/4" = 1'-0"



3 SOUTH ELEVATION
1/8" = 1'-0"



4 NORTH ELEVATION
1/8" = 1'-0"

Date(s) of selection: 02/26/2025
Job name: Lillington Hwy 210 Fire Department
Job number: 24-0013
Project manager:
Exterior designer: Les Parker

BOBBITT

EXTERIOR FINISH SELECTIONS
(Manufacturer, size/finish, model #, name)

Field Brick:	Lee Brick, Modular "740 Scottsdale"
Mortar:	Spec Mix SM400 "Medium Buff"
Accent Brick:	Palmetto Brick, Modular ".75 Greystone" Wirecut Texture
Mortar:	Spec Mix SM400 "Medium Buff"
Control Joint:	Match Brick Color
Masonry Lintels:	Finish to Match Brick Color
EIFS A Drainable System Color:	Dryvit #383 "Honey Twist", Sandpebble Texture
EIFS B Drainable System Color:	Dryvit #356 "Red Clay", Sandpebble Texture
Exterior Storefront and Doors:	Clear Anodized Aluminum with Thermal Break
Window Tint:	Glass @ Storefront & HM Door [VITRO Solarban R67 (2) + Clear = Basis of Design]: 1" IGU @ Windows = U-0.28 3/4" IGU @ Doors: = U-0.40
Window Sill:	Match Storefront Color
Louver / Fan:	Kynar Factory Finish "Coronado Red" When Available
Wall Packs:	Manufacturer Dark Bronze - See Electrical Drawings for Type
HM Doors:	Finish to Match "Cool Brick Red"
HM Frames:	Finish to Match "Cool Brick Red"
Overhead Door (Sectional):	RAL Powdercoat Finish to Match "Cool Brick Red"
Trim and Coping:	Color Similar to "Cool Brick Red"
Metal Trim at Overhead Doors:	Finish to Match Storefront
Exterior Door Hardware:	Brushed Nickel US 26D
Steel Bollards:	Finish to Match "Cool Brick Red"
Awning:	Finish Metal Color to Match "Cool Brick Red"
PEMB Gutters:	Butler, "Cool Brick Red"
PEMB Downspouts:	Butler, "Cool Brick Red"
PEMB Roof panel:	Butler, MR-24 "Galvalume"

Owner or Representative signature and date

1

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

BOBBITT

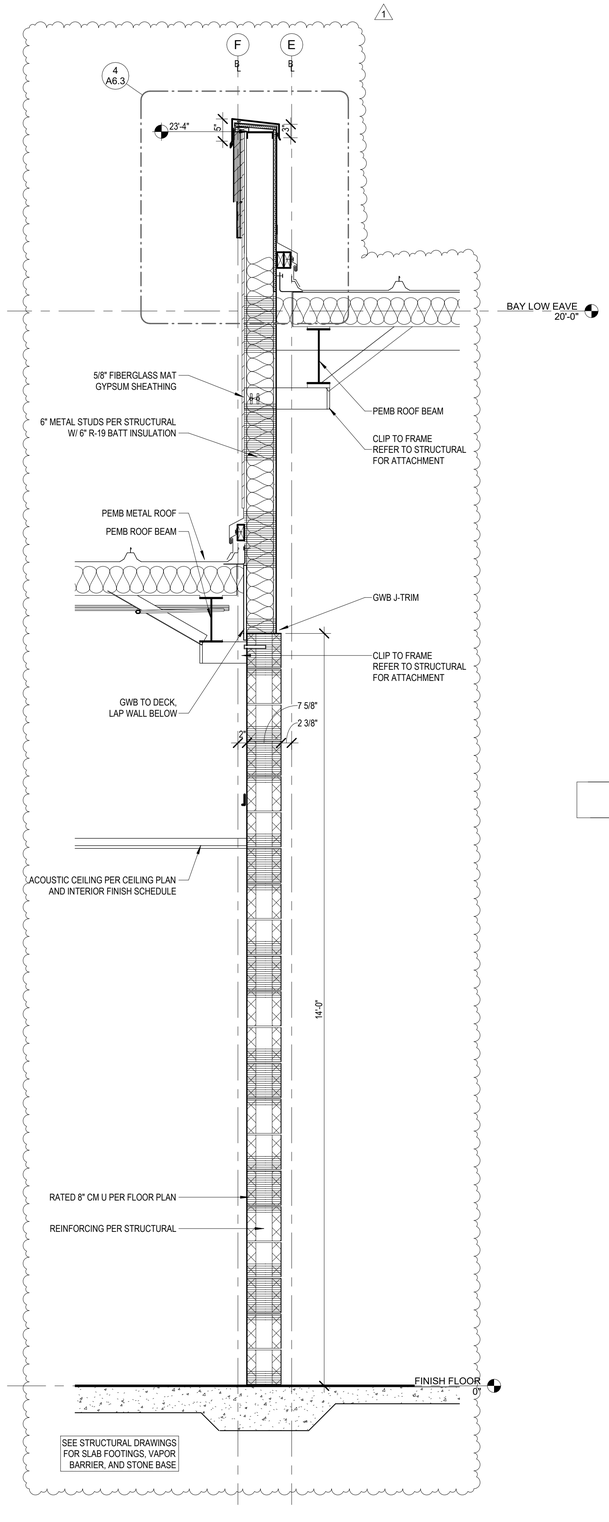
COORDINATOR: JGF
DRAWN BY: MT
CHK BY: BDG, LCP

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

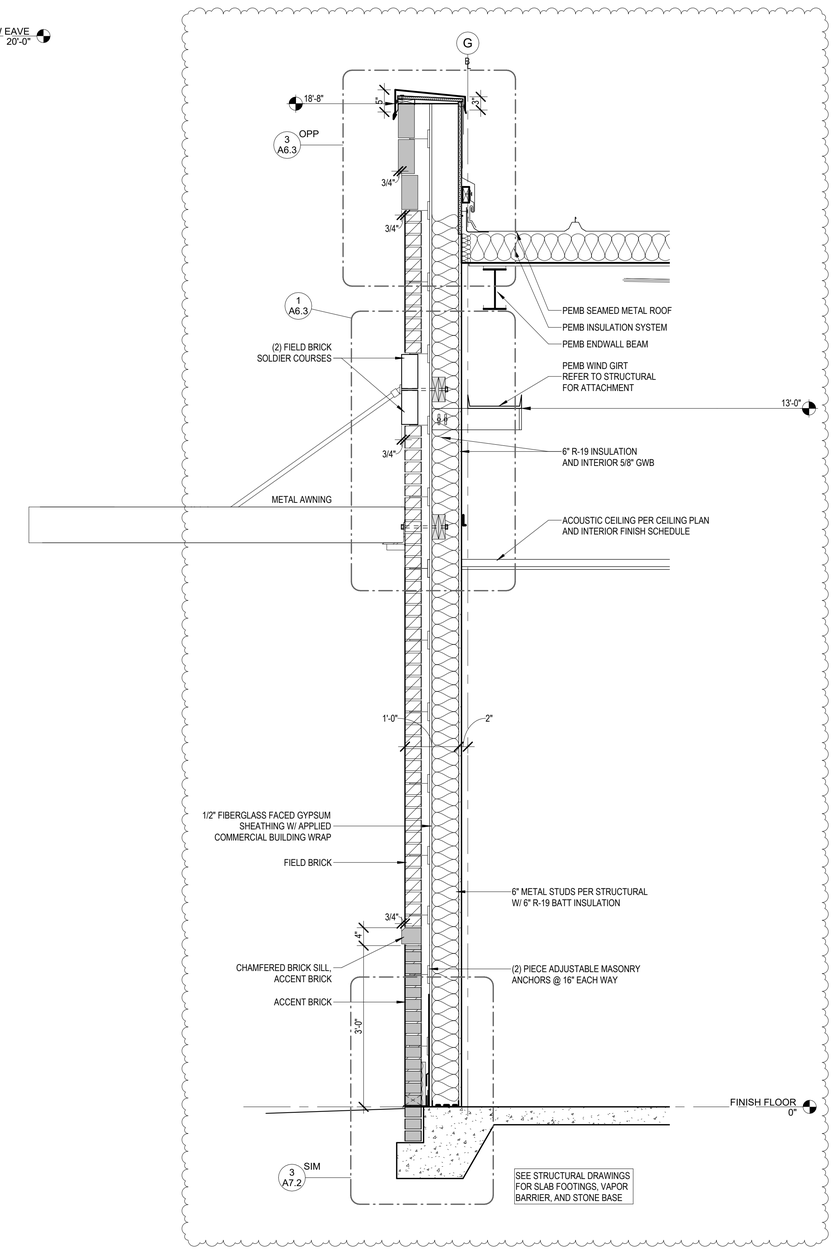
24 X 36
As indicated
10/21/2024
24-0013
ELEVATIONS

A4.1
OF 13

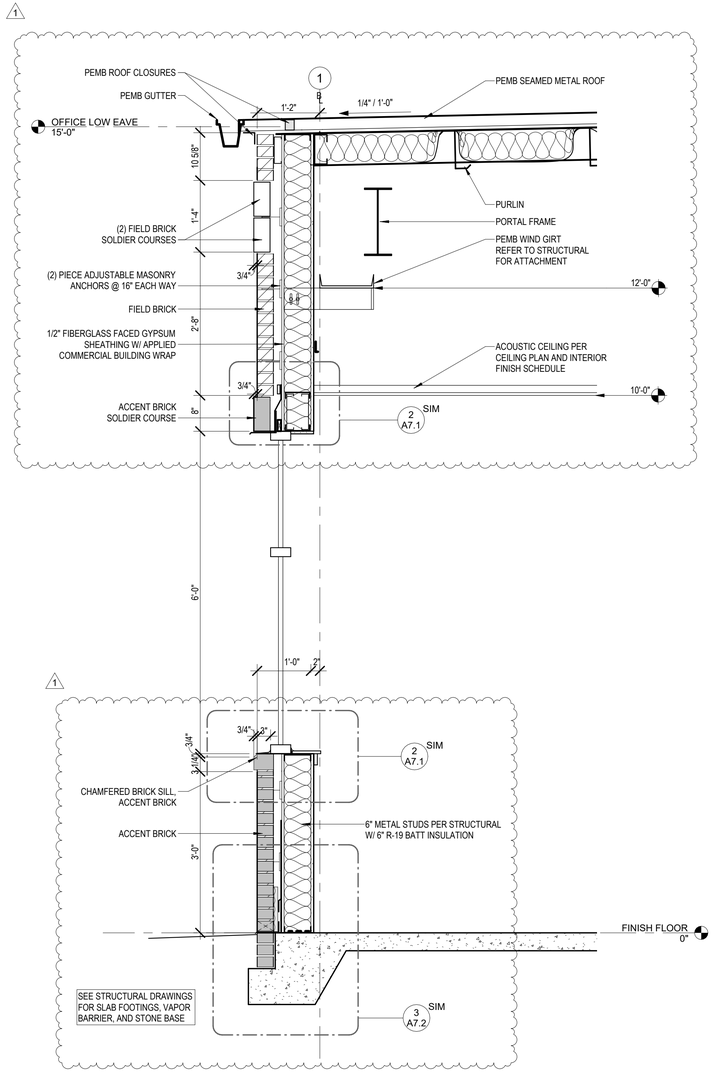
Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING



1 SECTION AT ROOF TRANSITION
3/4" = 1'-0"



2 OFFICE GABLE SECTION
3/4" = 1'-0"



3 OFFICE LOW EAVE SECTION
3/4" = 1'-0"

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

BOBBITT

COORDINATOR:
JGF

DRAWN BY:
MT

CHK BY:
BDG, LCP

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
3/4" = 1'-0"

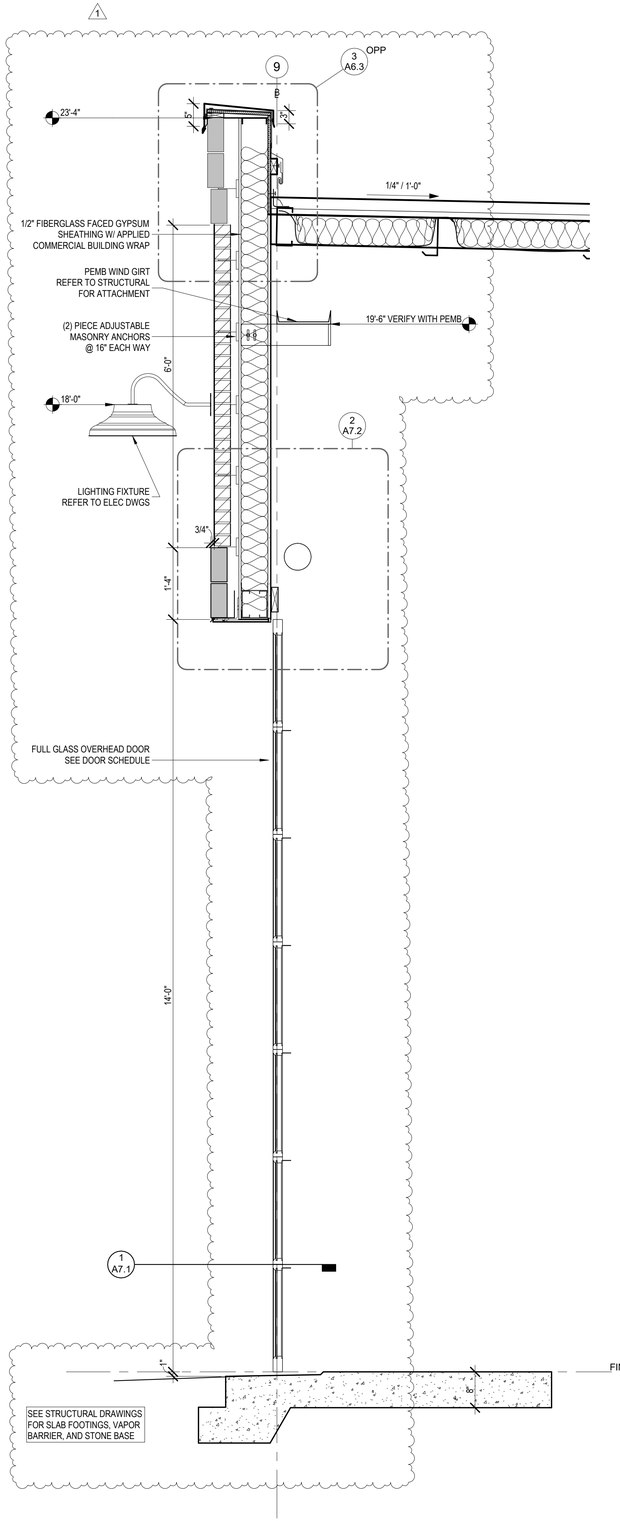
10/21/2024

24-0013

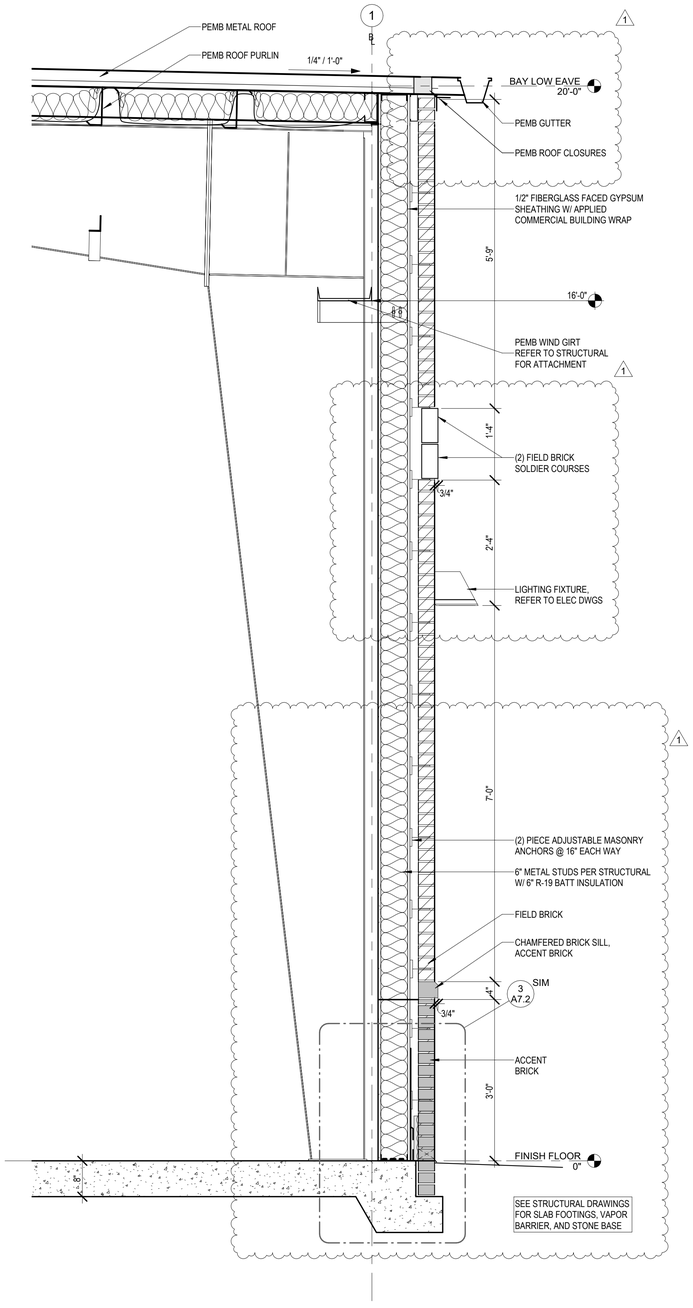
OFFICE WALL
SECTIONS

A6.1
OF 13

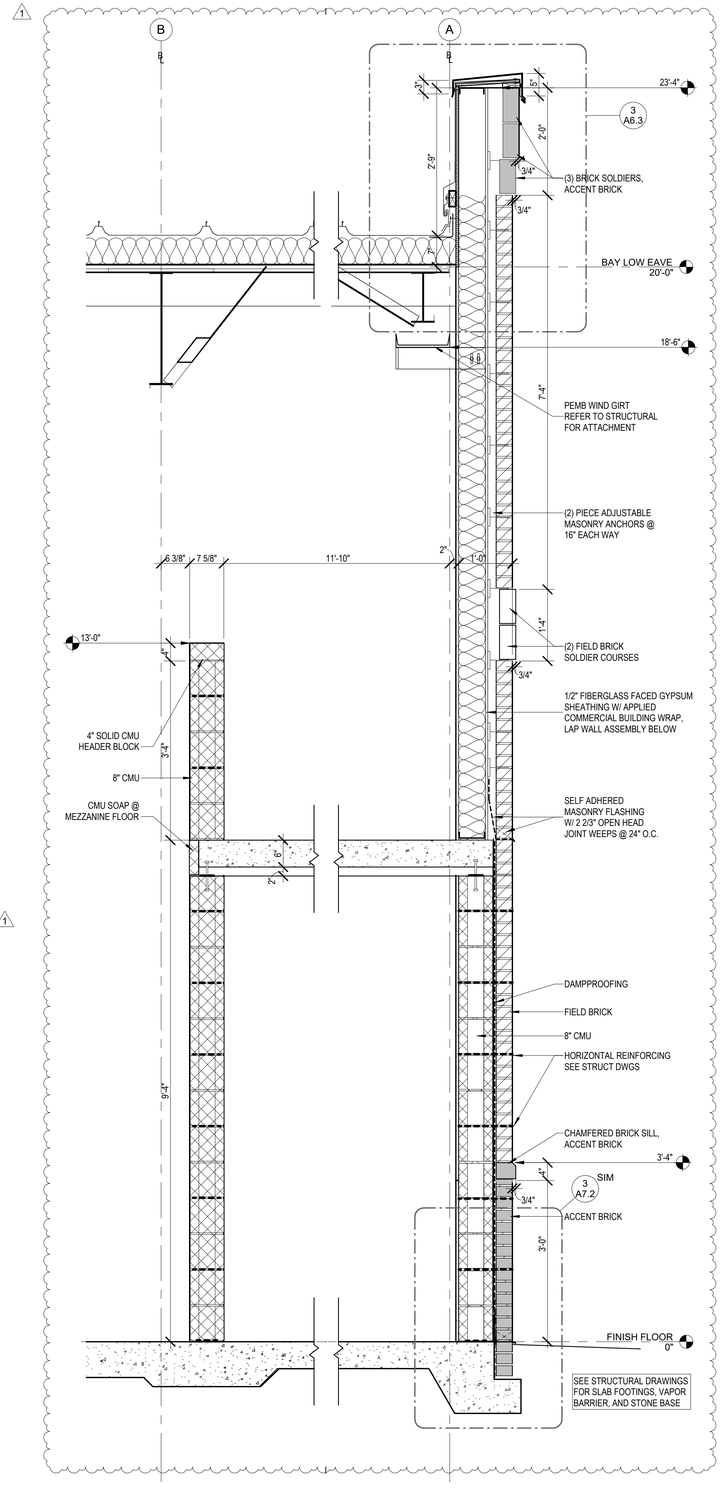
Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING



1 APPARATUS HIGH EAVE SECTION
3/4" = 1'-0"



2 APPARATUS LOW EAVE SECTION
3/4" = 1'-0"



3 APPARATUS GABLE & MEZZANINE SECTION
3/4" = 1'-0"

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

BOBBITT

COORDINATOR: JGF

DRAWN BY: MT

CHK BY: BDG, LCP

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
3/4" = 1'-0"

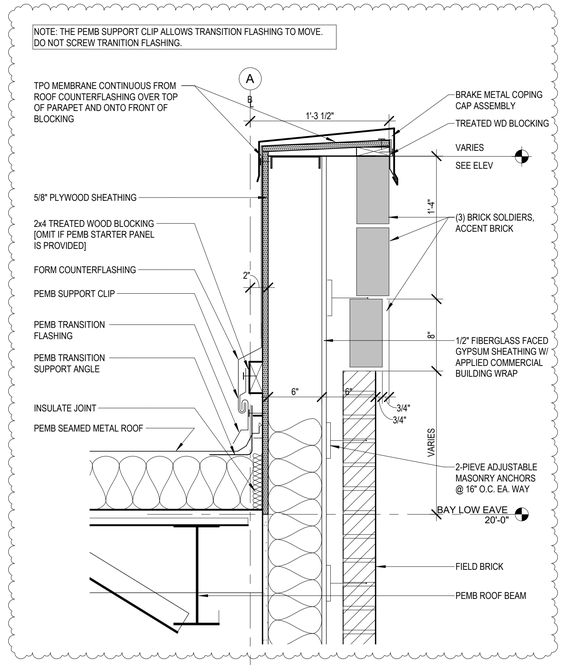
10/21/2024

24-0013

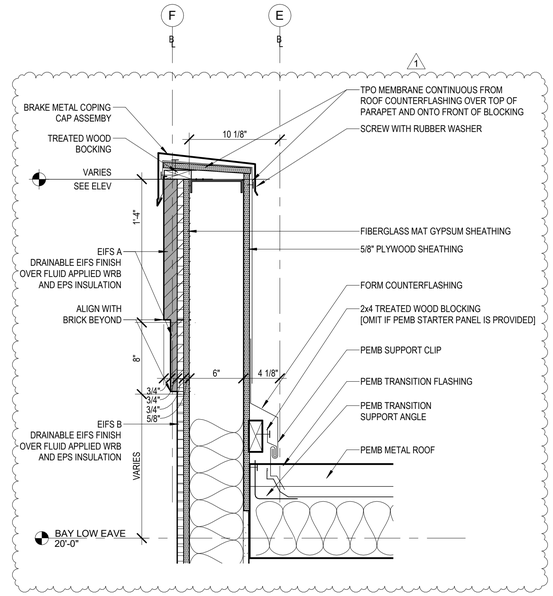
APPARATUS SECTIONS

A6.2
OF 13

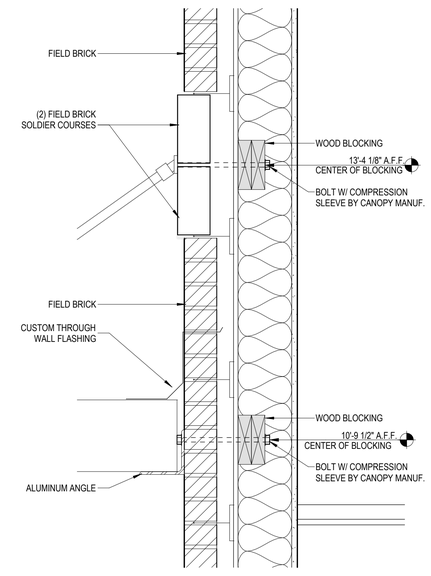
Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING



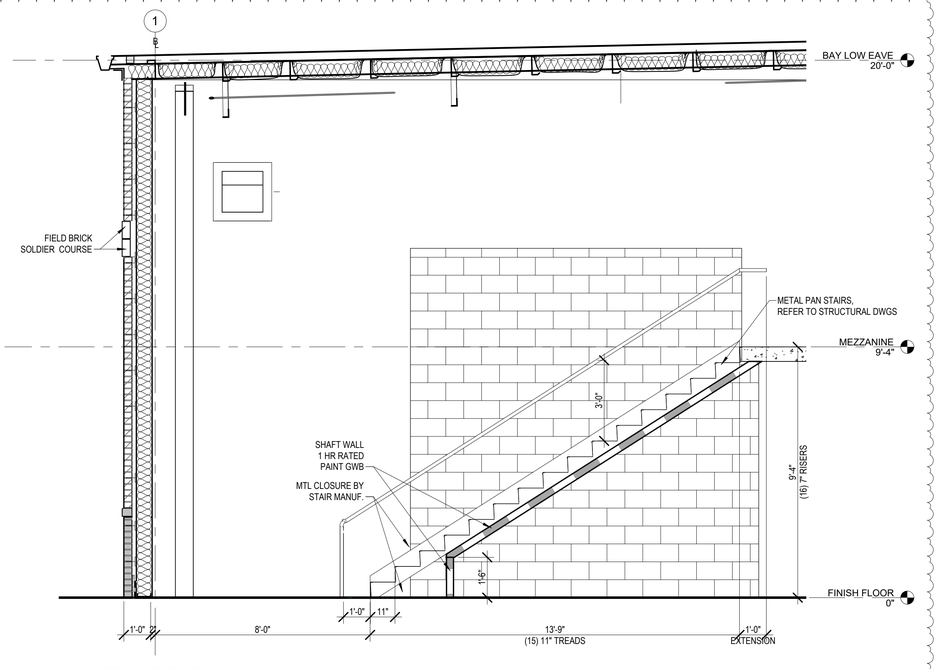
3 APPARATUS GABLE SECTION DETAL
1 1/2" = 1'-0"



4 SECTION AT ROOF TRANSITION DETAIL
1 1/2" = 1'-0"



1 AWNING ATTACHMENT AND BLOCKING DETAIL
1 1/2" = 1'-0"



2 MEZZANINE STAIR
3/8" = 1'-0"

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

BOBBITT

COORDINATOR: JGF

DRAWN BY: MT

CHK BY: BDG, LCP

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
As indicated

10/21/2024

24-0013

DETAILS

A6.3
OF 13

Revisions			
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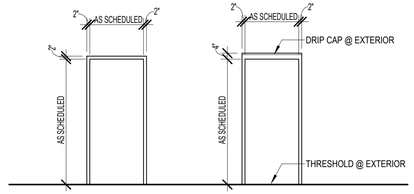
DOOR AND WINDOW GLAZING AND INSULATION GENERAL NOTES:

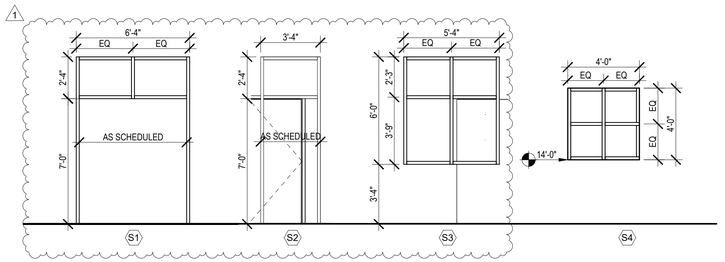
GLASS @ STOREFRONT & HM DOOR [VITRO Solarban R67 (2) + Clear = basis of design]:
- 1" IGU @ WINDOWS = U-0.28
- 3/4" IGU @ DOORS: = U-0.40

HM EXTERIOR DOORS: R-2.5 Polyurethane core

"T" DENOTES TEMPERED GLASS



FRAME LEGEND
1/4" = 1'-0"

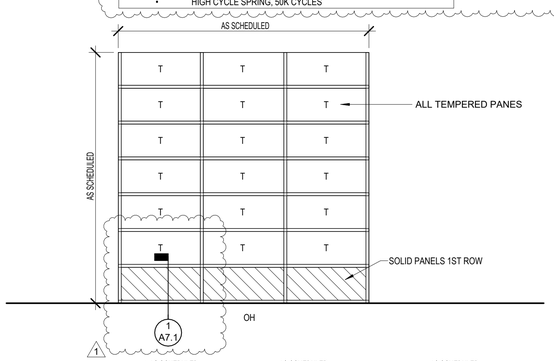


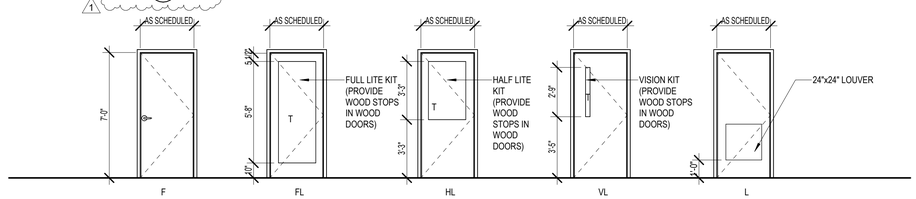
WINDOW LEGEND
1/4" = 1'-0"

DOOR SCHEDULE

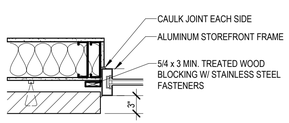
#	TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR MATERIAL	DOOR FINISH	FIRE RATING	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	HARDWARE/ COMMENTS	#
001	HL	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT	0	2	HM	EXT PAINT	Mortise Lockset, Closer, Weatherseal, Sweep	001
002	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF	0	MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator	002
003	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF	0	MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator	003
004	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF	0	MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator	004
005	HL	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT	0	2	HM	EXT PAINT	Mortise Lockset, Closer, Weatherseal, Sweep	005
006	(2) F	6'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT	0	2	HM	EXT PAINT	Mortise Lockset, Closer, Weatherseal, Flushbolts, Sweep	006
007	F	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT	0	2	HM	EXT PAINT	Mortise Lockset, Closer, Weatherseal, Sweep	007
008	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF	0	MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator	008
009	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF	0	MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator	009
010	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF	0	MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator	010
011	HL	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT	0	2	HM	EXT PAINT	Mortise Lockset, Closer, Weatherseal, Sweep	011
012	(2) FL	6'-0"	7'-0"	STOREFRONT	ANODIZED ALUM	0	S1	SFRONT	MANUF	*Std Manuf. Hardware w/ Paddle Deadbolt Release, Flushbolt on Inactive Leaf, Sweep	012
013	F	3'-0"	7'-0"	STOREFRONT	ANODIZED ALUM	0	S1	SFRONT	MANUF	*Std Manuf. Hardware w/ Paddle Deadbolt Release, Sweep	013
014	F	3'-0"	7'-0"	STOREFRONT	ANODIZED ALUM	0	S1	SFRONT	MANUF	*Std Manuf. Hardware w/ Paddle Deadbolt Release, Sweep	014
101	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-5	Passage, Closer, Kickplate Push Side, Wall Stop, Threshold	101
103	FL	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-5	Office Lock, Wall Stop	103
104	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-5	Privacy, Closer, Kickplate Push Side	104
105a	FL	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-5	Office Lock, Closer, Overhead Stop, Threshold	105a
105b	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-5	Mortise Lockset, Closer, Kickplate Push Side, Wall Stop	105b
106	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-5	Privacy, Closer, Kickplate Push Side, Wall Stop, Threshold	106
107	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-5	Passage, Closer, Kickplate Push Side, Wall Stop, Threshold	107
108	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-5	Passage, Closer, Kickplate Push Side, Wall Stop, Threshold	108
109	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-5	Passage, Closer, Kickplate Push Side, Overhead Stop, Threshold	109
110	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-5	Privacy, Closer, Kickplate Push Side, Wall Stop, Threshold	110
111	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-5	Passage, Kickplate Push Side, Wall Stop, Threshold	111
150a	F	3'-0"	7'-0"	INSUL HOLLOW METAL	P-1	0	2	HM	P-5	Mortise Lockset, Closer, Weatherstrip, Threshold, Sweep, Overhead Stop	150a
150b	F	3'-0"	7'-0"	INSUL HOLLOW METAL	P-1	0	2	HM	P-5	Mortise Lockset, Closer, Weatherstrip, Threshold, Sweep, Overhead Stop	150b
150c	F	3'-0"	7'-0"	INSUL HOLLOW METAL	P-1	0	2	HM	P-5	Passage, Closer, Kickplate Push Side, Overhead Stop, Threshold	150c
150d	(2) F	6'-0"	7'-0"	INSUL HOLLOW METAL	P-1	0	2	HM	P-5	Mortise Lockset, Flushbolt Inactive Leaf, Overhead Stop	150d
150e	(2) F	6'-0"	7'-0"	INSUL HOLLOW METAL	P-1	0	2	HM	P-5	Mortise Lockset, Flushbolt Inactive Leaf, Overhead Stop	150e
150f	(2) F	6'-0"	7'-0"	INSUL HOLLOW METAL	P-1	0	2	HM	P-5	Mortise Lockset, Flushbolt Inactive Leaf, Overhead Stop	150f

BASIS OF DESIGN: CLOPAY 904U
- STANDARD LIFT
- FRAME COLOR: SEE EXTERIOR FINISH SELECTIONS
- GLAZING: LOW-E, CLEAR, 3/4" INSULATED, TEMPERED
- AUTOMATIC OPERATION W/ INTERIOR SIDE BOLT
- WEATHERSEAL PACKAGE
- HIGH CYCLE SPRING, 50K CYCLES

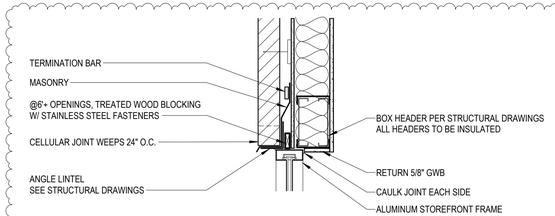




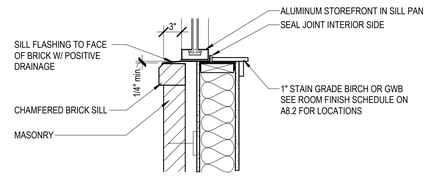
DOOR LEGEND
1/4" = 1'-0"



JAMB - METAL STUD FRAMING

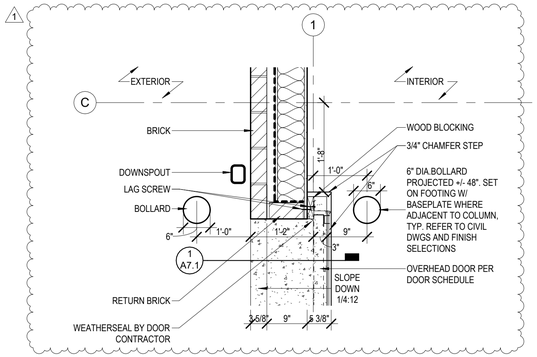


HEAD - METAL STUD FRAMING

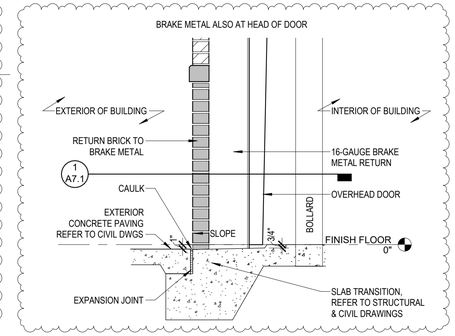


SILL

2 EXTERIOR STOREFRONT OPENING DETAILS
1" = 1'-0"



OVERHEAD DOOR OPENING RETURN DETAIL



PAVING JOINT DETAIL

1 OVERHEAD DOOR DETAILS - SILL
3/4" = 1'-0"

APPROVAL:
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2400 Weston Parkway
Cary, North Carolina 27513

BOBBITT

COORDINATOR: JGF

DRAWN BY: MT

CHK BY: BDG, LCP

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
As indicated

10/21/2024

24-0013

DOORS AND WINDOWS

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Revisions			
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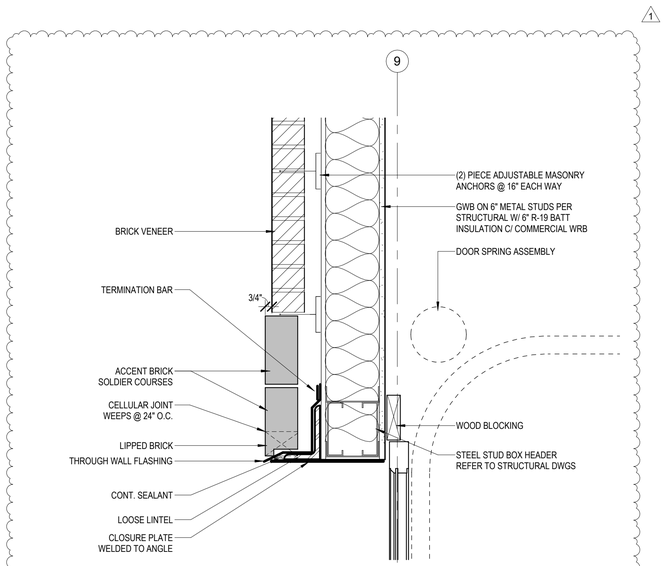
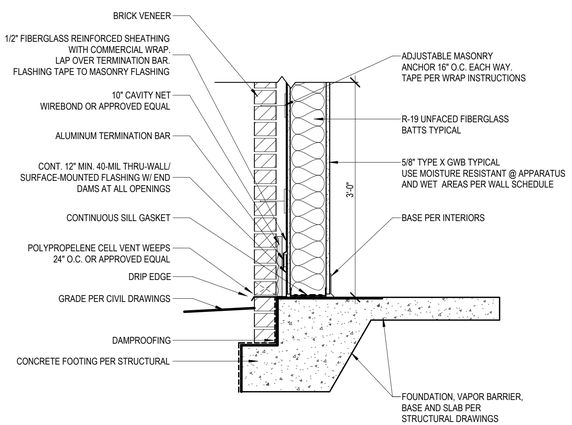
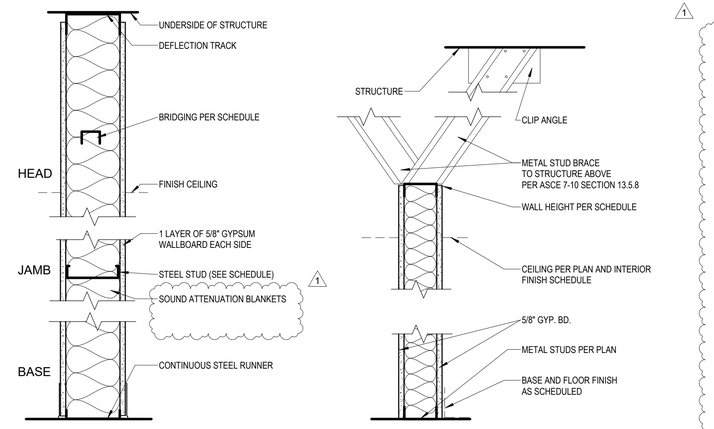


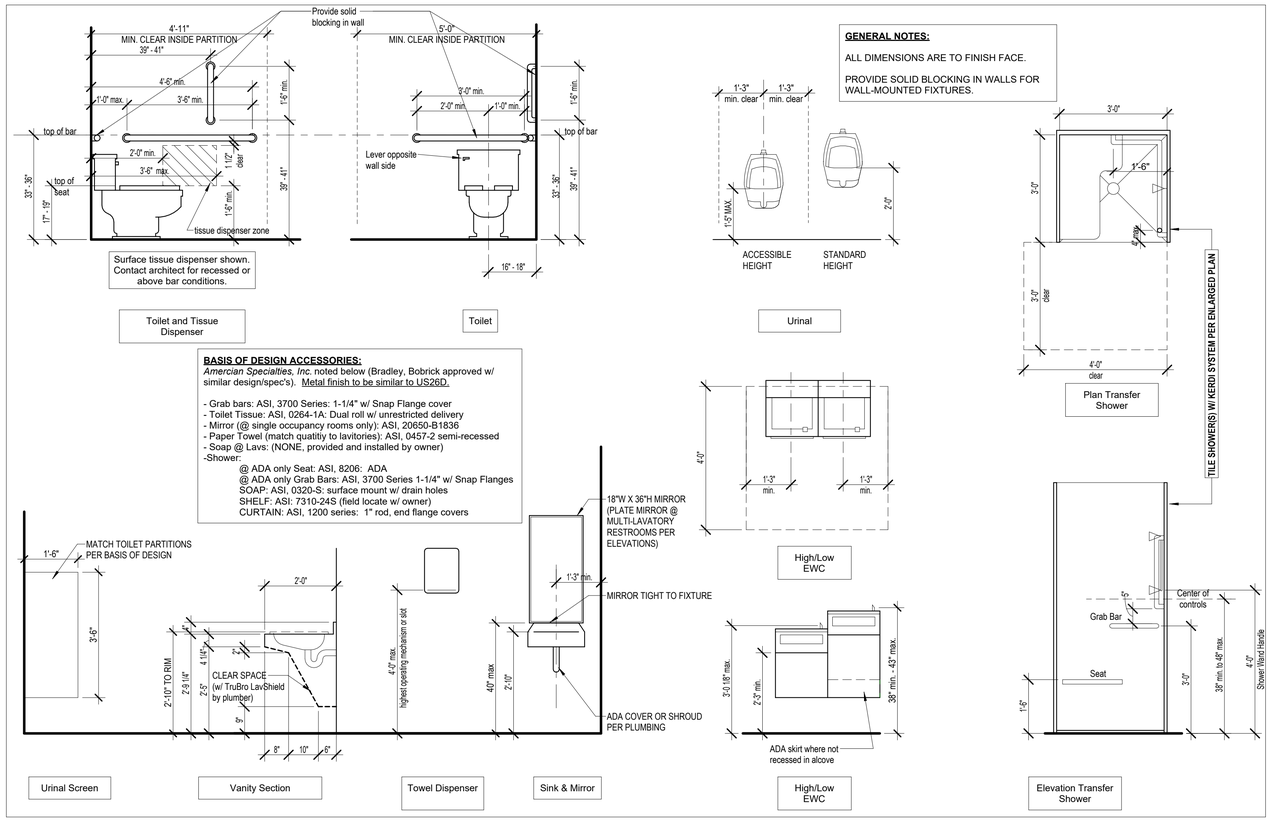
2 OVERHEAD DOOR DETAIL - HEADER
1 1/2" = 1'-0"



3 BRICK ON STUDS WALL BASE
1" = 1'-0"



1 INTERIOR PARTITION SECTIONS
1 1/2" = 1'-0"



GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE.

PROVIDE SOLID BLOCKING IN WALLS FOR WALL-MOUNTED FIXTURES.

A ACCESSORY MOUNTING LOCATIONS
1/2" = 1'-0"

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BOBBITT

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LILLINGTON FIRE STATION NO 3
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DETAILS

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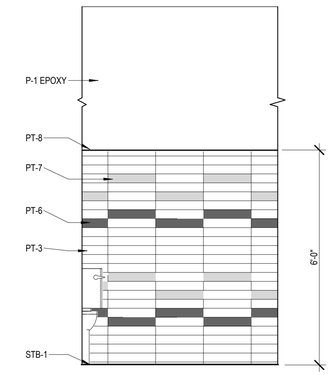
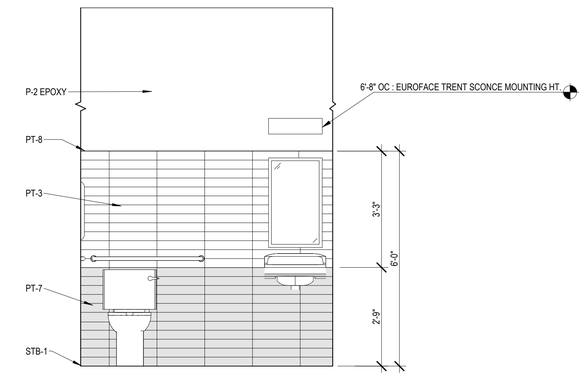
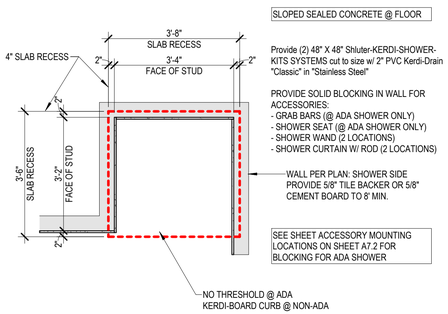


6 TYP. BATHROOM 1 & 2 WALL TILE DETAIL
1/2" = 1'-0"

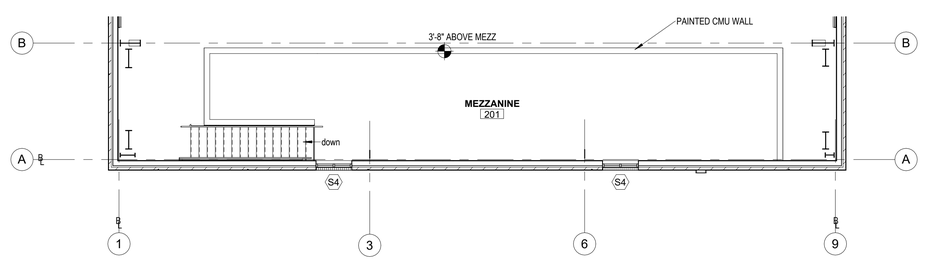


5 TYP. UNISEX BATHROOM WALL TILE DETAIL
1/2" = 1'-0"



3 TILE SHOWER
1/2" = 1'-0"

2 FLOORING PLAN
1/8" = 1'-0"



1 MEZZANINE FLOORING PLAN
1/8" = 1'-0"

Accent Paint Legend

- P-3 FULL HEIGHT
- P-4 UP TO 64" AFF - P-1 TO CEILING
- P-3 UP TO 64" AFF - P-2 TO CEILING
- P-5 EPOXY UP TO 8'-0" - P-1 EPOXY TO CEILING
- FRP-1 TO 14'-0" AFF
- FRP-1 TO 4'-0" AFF

Accent Tile Legend

- PT- 5 FULL HEIGHT
- PT- 6 FULL HEIGHT
- PT- 7 FULL HEIGHT
- WALL TILE UP TO 72" AFF (SEE ELEVATION)

Flooring Legend

- CONC-1
- CPT-1
- CPT-2
- LVT-1
- PT- 1
- PT- 2
- PT-4
- PT- 5

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APPROVAL:
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FLOORING PLAN

A8.1
OF 13

Revisions			
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DETAILED INTERIOR FINISH LEGEND

NIC = NOT IN CONTRACT
1. WALL FINISH - LEVEL 4 (TYP.)
2. TYP. HARDWARE FOR CABINETRY & DOORS

ACOUSTICAL CEILING TILE (ACT):

ACT-1: MANUFACTURER: ARMSTRONG
COLLECTION: DUNE
COLOR: WHITE
ITEM #: 1773B
SIZE: 24"x24"
INSTALLATION: 15/16" SQUARE LAY-IN
GRID: WHITE
LOCATION: KITCHEN/DAYROOM
REP: CAREY B. MCMAHAN - CBMCMAHAN@ARMSTRONGCEILINGS.COM - 919.201.1196

ACT-2: MANUFACTURER: ARMSTRONG
COLLECTION: CALLA HEALTH ZONE AIRASSURE
COLOR: WHITE
ITEM #: 2228
SIZE: 24"x24"
INSTALLATION: 15/16" SQUARE LAY-IN
GRID: WHITE
LOCATION: KITCHEN/DAYROOM
REP: CAREY B. MCMAHAN - CBMCMAHAN@ARMSTRONGCEILINGS.COM - 919.201.1196

ACT-3: MANUFACTURER: ARMSTRONG
COLLECTION: KITCHEN ZONE
COLOR: WHITE
ITEM #: 673
SIZE: 24"x24"
INSTALLATION: 15/16" SQUARE LAY-IN
GRID: WHITE **ALUMINUM GRID**
LOCATION: SHOWERS
REP: CAREY B. MCMAHAN - CBMCMAHAN@ARMSTRONGCEILINGS.COM - 919.201.1196

CONCRETE (CONC):

CONC-1: PER STRUCTURAL PLANS

CARPET (CPT):

CPT-1: MANUFACTURER: MOHAWK
COLLECTION: SUBSTRATUM
STYLE: NATURAL NETWORKS BT597
COLOR: 868 YARROW
SIZE: 24"x24"
INSTALLATION: QUARTER TURN GRID
LOCATION: PER FINISH SCHCEDULE
SEE TRAN FOR FLOOR TRANSITIONS
REP: LORI ZETO - LORI_ZETO@MOHAWKIND.COM - 919.302.6652

CPT-2: MANUFACTURER: MOHAWK
COLLECTION: REWILDED REFUGE
STYLE: BT604 CITY CANOPY
COLOR: 978 BENTWAY
SIZE: 12"x36"
INSTALLATION: HERRINGBONE
LOCATION: PER FINISH SCHCEDULE
SEE TRAN FOR FLOOR TRANSITIONS
REP: LORI ZETO - LORI_ZETO@MOHAWKIND.COM - 919.302.6652

LUXURY VINYL TILE (LVT):

LVT-1: MANUFACTURER: MOHAWK
COLLECTION: SECOND HOME WOOD
COLOR: ELEVATOR GRAY
WEAR LAYER: 20 mil
SIZE: 8"x48"
INSTALLATION: STAGGER
LOCATION: PER FINISH SCHEDULE
SEE TRAN FOR FLOOR TRANSITIONS
REP: LORI ZETO - LORI_ZETO@MOHAWKIND.COM - 919.302.6652

PORCELAIN TILE (PT):

PT-1: MANUFACTURER: BEST TILE
COLLECTION: COVENTRY
COLOR: COTTON
SIZE: 2"x2"
FINISH: MATTE
GROUT: EPOXY LATICRETE - DUSTY GREY
LOCATION: SHOWER FLOOR PER FINISH SCHEDULE
REP: NANCY PETERS - NPETERS@BESTTILE.COM - 919.986.6256

PT-2: MANUFACTURER: BEST TILE
COLLECTION: COVENTRY
COLOR: COTTON
SIZE: 12"x24"
FINISH: MATTE
GROUT: EPOXY LATICRETE - DUSTY GREY
INSTALLATION: GRID
LOCATION: BATHROOM FLOORS PER SCHEDULE
SEE TRAN FOR FLOOR TRANSITIONS
REP: NANCY PETERS - NPETERS@BESTTILE.COM - 919.986.6256

PT-3: MANUFACTURER: BEST TILE
COLLECTION: COVENTRY
COLOR: COTTON
SIZE: 3"x16"
FINISH: GLOSSY
GROUT: EPOXY LATICRETE - DUSTY GREY
INSTALLATION: SEE ELVATIONS
LOCATION: PER FINISH FLOOR PLAN & SCHEDULE
REP: NANCY PETERS - NPETERS@BESTTILE.COM - 919.986.6256

PT-4: MANUFACTURER: BEST TILE
COLLECTION: COVENTRY
COLOR: OCEAN
SIZE: 2"x2"
FINISH: MATTE
GROUT: EPOXY LATICRETE - DUSTY GREY
LOCATION: SHOWER FLOOR BATHROOM 3
REP: NANCY PETERS - NPETERS@BESTTILE.COM - 919.986.6256

PT-5: MANUFACTURER: BEST TILE
COLLECTION: COVENTRY
COLOR: OCEAN
SIZE: 12"x24"
FINISH: MATTE
GROUT: EPOXY LATICRETE - DUSTY GREY
INSTALLATION: GRID
LOCATION: BATHROOM 3 FLOORS AND WALLS
SEE TRAN FOR FLOOR TRANSITIONS
REP: NANCY PETERS - NPETERS@BESTTILE.COM - 919.986.6256

PT-6: MANUFACTURER: BEST TILE
COLLECTION: COVENTRY
COLOR: OCEAN
SIZE: 3"x16"
FINISH: GLOSSY
GROUT: EPOXY LATICRETE - DUSTY GREY
INSTALLATION: SEE ELVATIONS
LOCATION: PER FINISH FLOOR PLAN & SCHEDULE
REP: NANCY PETERS - NPETERS@BESTTILE.COM - 919.986.6256

PT-7: MANUFACTURER: BEST TILE
COLLECTION: COVENTRY
COLOR: PINE GREEN
SIZE: 3"x16"
FINISH: GLOSSY
GROUT: EPOXY LATICRETE - DUSTY GREY
INSTALLATION: SEE ELVATIONS
LOCATION: PER FINISH FLOOR PLAN & SCHEDULE
REP: NANCY PETERS - NPETERS@BESTTILE.COM - 919.986.6256

PT-8 (BULLNOSE): MANUFACTURER: BEST TILE
COLLECTION: COVENTRY
COLOR: COTTON
SIZE: 3"x24"
FINISH: MATTE
GROUT: EPOXY LATICRETE - DUSTY GREY
LOCATION: 64" AFF PER FINISH SCHEDULE
REP: NANCY PETERS - NPETERS@BESTTILE.COM - 919.986.6256

PT-9 (BULLNOSE): MANUFACTURER: BEST TILE
COLLECTION: COVENTRY
COLOR: OCEAN
SIZE: 3"x24"
FINISH: MATTE
GROUT: EPOXY LATICRETE - DUSTY GREY
LOCATION: 64" AFF PER FINISH SCHEDULE
REP: NANCY PETERS - NPETERS@BESTTILE.COM - 843.323.5768

SCHLUTER TILE BASE (STB):

STB-1: (COVE) MANUFACTURER: SCHLUTER SYSTEMS
COLLECTION: DILEX-EHK
COLOR: TSGB GREIGE
LOCATION: COVE BASE
REP: AMANDA SCWARZ - ASHWARZ@GSTILE.COM - 843.323.5768

LAMINATE (LAM):

LAM-1: MANUFACTURER: WILSONART
COLLECTION: STANDARD LAMINATE
COLOR: D92-80 DOVE GREY
FINISH: MATTE
LOCATION: CASEWORK
REP: APRIL BRICKLE - BRICKLA@WILSONART.COM - 540.537.3431

LAM-2: MANUFACTURER: WILSONART
COLLECTION: STANDARD LAMINATE
COLOR: 4924-38 WHITE CARRARA
FINISH: FINE VELVET
LOCATION: COUNTERTOPS
REP: APRIL BRICKLE - BRICKLA@WILSONART.COM - 540.537.3431

RUBBER BASE (RB):

RB-1: MANUFACTURER: ROPPE
COLLECTION: PINNACLE WITH STANDARD TOE
COLOR: 175 SLATE
SIZE: 4"
LOCATION: THROUGHOUT PER PLANS
REP: BLAIR BRYSON - BBRYSON@WMBIRD.COM - 980-288-9138

WOOD STAIN (ST): Provide samples for prefinished door approval

ST-1: MANUFACTURER: MASONITE ARCHITECTURAL
COLLECTION: ASPIRO SERIES
COLOR: NUTMEG
SPECIES: ROTARY WHITE BIRCH
LOCATION: DOORS PER FINISH SCHEDULE

TILE TRIM (TRIM):

TRIM-1: MANUFACTURER: SCHLUTER SYSTEMS
COLLECTION: JOLLY
COLOR: TSBG GREIGE
LOCATION: BACKSPLASH TRIM @ KITCHEN
REP: PAULINE HABER - PHABER@GSTILE.COM - 843.323.5768

TRIM-2: MANUFACTURER: SCHLUTER SYSTEMS
COLLECTION: JOLLY
COLOR: TSBG GREIGE
LOCATION: OUT TILE CORNERS PER FINISH SCHEDULE
REP: PAULINE HABER - PHABER@GSTILE.COM - 843.323.5768

FIBER REINFORCED PLASTIC (FRP):

FRP-1 MANUFACTURER: CRANE COMPOSITE
COLLECTION: GLASBORD
STYLE: SMOOTH
COLOR: 636 GRAY
LOCATION: PER FINISH SCHEDULE
NOTE: PROVIDE TOP J-TRIM & VERTICAL MEETING TRIMS

FLOOR TRANSITION (TRAN):

TRAN-1: MANUFACTURER: MOHAWK
COLLECTION: UNIVERSAL TRANSITIONS
STYLE: CRA02
COLOR: 966 PEPPER GRAY
LOCATION: TRANSITION BETWEEN CPT AND LVT
REP: LORI ZETO - LORI_ZETO@MOHAWKIND.COM - 919.302.6652

TRAN-2: MANUFACTURER: MOHAWK
COLLECTION: REDUCERS
STYLE: CRA07
COLOR: 966 PEPPER GRAY
LOCATION: TRANSITION BETWEEN LVT AND CONCRETE
REP: LORI ZETO - LORI_ZETO@MOHAWKIND.COM - 919.302.6652

TRAN-3: MANUFACTURER: SCHLUTER SYSTEMS
COLLECTION: RENO-U
COLOR: AE SATIN NICKEL
LOCATION: TRANSITION BETWEEN LVT AND TILE
REP: AMANDA SCWARZ - ASHWARZ@GSTILE.COM - 843.323.5768

PAINT (P):

P-1: MANUFACTURER: SHERWIN WILLIAMS
COLOR: SW7646 FIRST STAR
LOCATOR #: 256-C6
FINISH: EGGSHELL (**EPOXY @ APPARATUS**)
LOCATION: THROUGHOUT PER FINISH SCHEDULE
REP: STEVE GOODE - STEVEN.R.GOODE@SHERWIN.COM - 980.207.9410

P-2: MANUFACTURER: SHERWIN WILLIAMS
COLOR: SW9183 STARDEW
LOCATOR #: 221-C3
FINISH: EGGSHELL
LOCATION: BATHROOMS, BUNKROOMS, LAUNDRY
REP: STEVE GOODE - STEVEN.R.GOODE@SHERWIN.COM - 980.207.9410

P-3: MANUFACTURER: SHERWIN WILLIAMS
COLOR: SW9140 BLUSTERY SKY
LOCATOR #: 221-C5
FINISH: EGGSHELL
LOCATION: UP TO 64" AFF PER FINISH FLOOR PLAN
REP: STEVE GOODE - STEVEN.R.GOODE@SHERWIN.COM - 980.207.9410

P-4: MANUFACTURER: SHERWIN WILLIAMS
COLOR: SW9136 LULLABY
LOCATOR #: 221-C1
FINISH: EGGSHELL
LOCATION: UP TO 64" AFF PER FINISH FLOOR PLAN
REP: STEVE GOODE - STEVEN.R.GOODE@SHERWIN.COM - 980.207.9410

P-5: MANUFACTURER: SHERWIN WILLIAMS
COLOR: SW7649 SILVERPLATE
LOCATOR #: 239-C5
FINISH: EGGSHELL (**EPOXY PER FINISH FLOOR PLAN, SEMI-GLOSS @ DOORFRAMES**)
LOCATION: BATH 3, DOOR FRAMES/TRIM PER FINISH SCHEDULE
REP: STEVE GOODE - STEVEN.R.GOODE@SHERWIN.COM - 980.207.9410

P-6: MANUFACTURER: SHERWIN WILLIAMS
COLOR: SW7005 PURE WHITE
LOCATOR #: 255-C1
FINISH: FLAT - DRYFALL APPLICATION
LOCATION: EXPOSED CEILING PER FINISH SCHEDULE
REP: STEVE GOODE - STEVEN.R.GOODE@SHERWIN.COM - 980.207.9410

OWNER SIGNATURE -

FINISHES NOT FINAL UNTIL SIGNED OFF BY OWNER

ROOM FINISH SCHEDULE

#	ROOM NAME	FLOOR FINISH	WALL BASE	WALLS	SILLS	CEILING	CASEWORK	DOOR FINISH	DOOR FRAMES	SWITCH/ OUTLET PLATES	SPECIAL	#
101	LOBBY	CPT-1	RB-1	P-1, P-4, SEE FINISH FLOOR PLAN	GWB (P-1)	ACT-1		ST-1	P-5	WHITE	TRAN-1	101
102	OFFICE	CPT-2	RB-1	P-5, P-3	GWB (P-1)	ACT-1		ST-1	P-5	WHITE		102
103	DISPATCH	CPT-2	RB-1	P-5, P-3		ACT-1	LAM-2	ST-1	P-5	WHITE	TRAN-1	103
104	UNISEX	PT-2	STB-1, PT-8	P-2, PT-3, PT-7, SEE 5/A8.1		ACT-1		ST-1	P-5	WHITE		104
105	KITCHEN/DAYROOM	LVT-1	RB-1	P-1, P-4, SEE FINISH FLOOR PLAN		ACT-2	LAM-1, LAM-2	ST-1	P-5	WHITE		105
106	BATH 2	PT-2, PT-1 @ SHOWER	STB-1	P-2, PT-3, PT-6, PT-7, TRIM-2, SEE 6/A8.1		ACT-3		ST-1	P-5	WHITE	TRAN-3	106
107	BUNKS #3	CPT-2	RB-1	P-1, P-2, P-3, SEE FINISH FLOOR PLAN	GWB (P-1)	ACT-1		ST-1	P-5	WHITE	TRAN-1	107
108	BUNKS #2	CPT-2	RB-1	P-1, P-2, P-3, SEE FINISH FLOOR PLAN	GWB (P-1)	ACT-1		ST-1	P-5	WHITE	TRAN-1	108
109	BUNKS #1	CPT-2	RB-1	P-1, P-2, P-3, SEE FINISH FLOOR PLAN	GWB (P-1)	ACT-1		ST-1	P-5	WHITE	TRAN-1	109
110	BATH 1	PT-2, PT-1 @ SHOWER	STB-1	P-2, PT-3, PT-6, PT-7, TRIM-2, SEE 6/A8.1		ACT-3		ST-1	P-5	WHITE	TRAN-3	110
111	LAUNDRY / JANITOR	CONC-1	RB-1	P-2		ACT-1		ST-1	P-5	WHITE	48"x48" WHITE FRP @ MOP SINK	111
112	FITNESS	LVT-1	RB-1	P-1, P-4, SEE FINISH FLOOR PLAN	GWB (P-1)	ACT-1		ST-1	P-5	WHITE	TRAN-2	112
113	CORRIDOR	LVT-1	RB-1	P-1, FRP-1, SEE FINISH FLOOR PLAN		ACT-1			P-5		TRAN-2	113
150	APPARATUS	CONC-1, CONC-2	N/A	P-1, P-5 EPOXY, FRP-1		OPEN, P-6		MANUF., P-5 SEMI-GLOSS@ PERSONNEL DOORS	MANUF.	GALVANIZED	SEAL-1	150
151	ELEC	CONC-1, CONC-2	N/A	P-1, P-5 EPOXY		OPEN, P-6		P-5 SEMI-GLOSS	P-5	GALVANIZED	SEAL-1	151
152	CASCADE/ STORAGE	CONC-1	N/A	P-1 EPOXY		OPEN, P-6		P-5 SEMI-GLOSS	P-5	GALVANIZED	SEAL-1	152
153	TOOL ROOM	CONC-1	N/A	P-1 EPOXY		OPEN, P-6		P-5 SEMI-GLOSS	P-5	GALVANIZED	SEAL-1	153
154	DECON	CONC-1	N/A	P-1 EPOXY		OPEN, P-6		P-5 SEMI-GLOSS	P-5	GALVANIZED	SEAL-1	154
155	BATH 3	PT-5, PT-4 @ SHOWER	STB-1, PT-9	P-5 EPOXY		OPEN, P-6		P-5 SEMI-GLOSS	P-5	GALVANIZED	SEAL-1	155
201	MEZZANINE	CONC-1	N/A	P-1 EPOXY		OPEN, P-6				GALVANIZED	SEAL-1	201

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

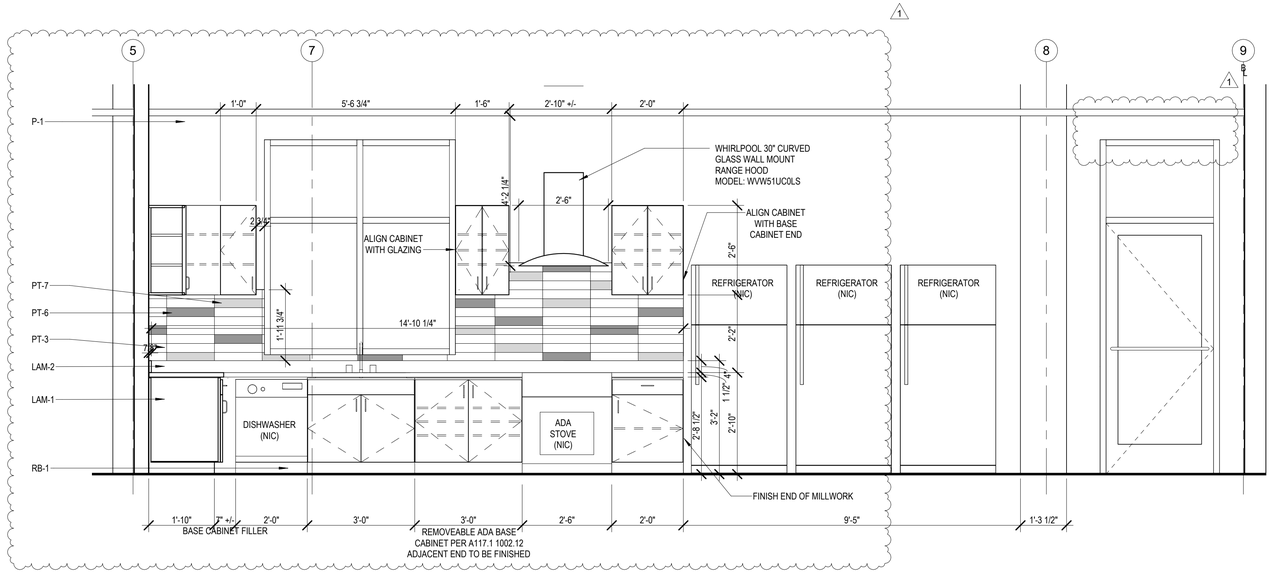
COORDINATOR: JGF
DRAWN BY: SR
CHK BY: BDG, LCP

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

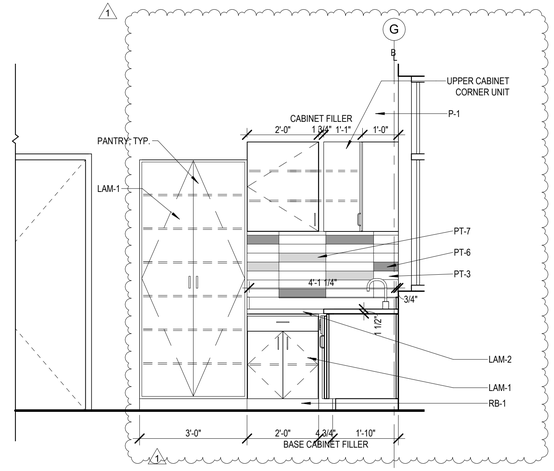
24 X 36
12" = 1'-0"
10/21/2024
24-0013
FINISH SCHEDULE

A8.2
OF 13

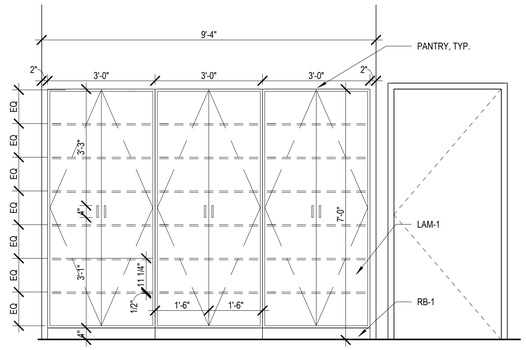
Revisions			
#	Date	By	Description
1	18 APR 2025	MT	VALUE ENGINEERING



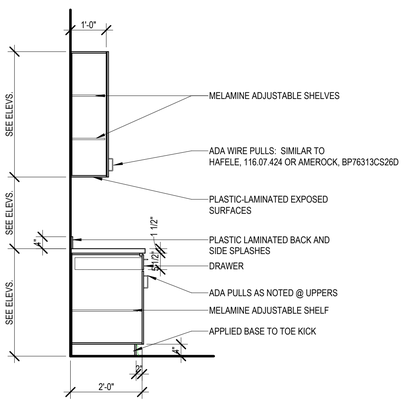
1 KITCHEN ELEVATION NORTH
1/2" = 1'-0"



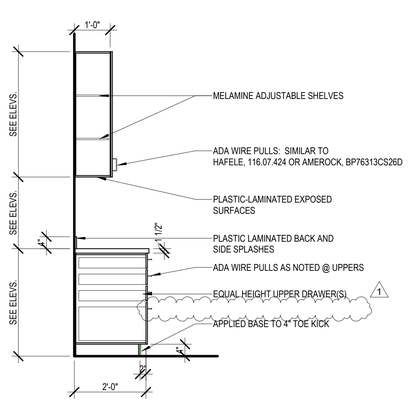
2 KITCHEN ELEVATION WEST
1/2" = 1'-0"



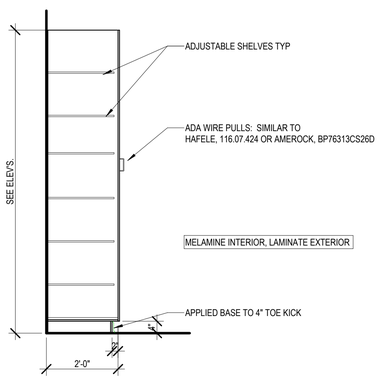
3 DAYROOM ELEVATION WEST
1/2" = 1'-0"



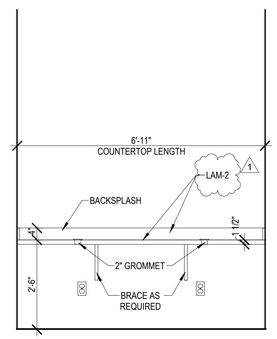
6 CABINET SECTION
1/2" = 1'-0"



7 CABINET SECTION W/ DRAWERS
1/2" = 1'-0"



8 PANTRY SECTION
1/2" = 1'-0"



4 DISPATCH ELEVATION SOUTH
1/2" = 1'-0"

CASEWORK NOTES

LOWER AND UPPER CABINETRY TO BE EUROPEAN STYLE CONCEALED ***SOFT CLOSE HINGE*** CONSTRUCTION WITH MELAMINE INTERIOR AND PLASTIC LAMINATE EXTERIORS. VERIFY WITH FINISH SCHEDULE.

WATER-RESISTANT (MR10 MIN.) SUBSTRATE UNDER LAMINATE @ WET LOCATIONS.

COUNTERTOPS AND BACKSPLASHES TO BE PLASTIC LAMINATE WITH SQUARE EDGE TRIM (UNLESS NOTED OTHERWISE)

ALL UPPER CABINETS TO HAVE SHELVES AS INDICATED BY DASHED LINES IN ELEVATIONS (2 ROWS MINIMUM).

BUILT-IN COUNTERS TO BE PLASTIC LAMINATE COUNTERTOP WITH SQUARE EDGE TRIM AND PLASTIC LAMINATE AND STEEL RADIUS SUPPORTS AS NECESSARY VERIFY W/ INTERIOR FINISH SCHEDULE. INTERIOR SCHEDULE SUPERCEDE THESE NOTES.

ALL EXPOSED ENDS AND UNDERSIDE OF UPPER CABINET TO BE PLASTIC LAMINATE.

PROVIDE WALL BLOCKING AS REQUIRED.

SEE STANDARD CABINET SECTIONS.

COORDINATE WITH ELECTRICAL / DATA OUTLETS.

CONSTRUCTION DOCUMENT
APPROVED FOR PERMITTING

APPROVAL:
DATE:

BOBBITT A&E, PLLC
2400 Weston Parkway
Cary, North Carolina 27513

BOBBITT

COORDINATOR: JGF

DRAWN BY: SR

CHK BY: BDG, LCP

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
1/2" = 1'-0"

10/21/2024

24-0013

INTERIOR ELEVATIONS

A8.3
OF 13

Revisions			
#	Date	By	Description

GENERAL

1. THESE GENERAL NOTES ARE NOT INTENDED TO REPLACE SPECIFICATIONS (IF PROVIDED). SEE SPECIFICATIONS FOR REQUIREMENTS IN ADDITION TO THE GENERAL NOTES.
2. DO NOT SCALE DIMENSIONS FROM DRAWINGS. THE CONTRACTOR SHALL REQUEST NECESSARY DIMENSIONS NOT SHOWN ON THE DRAWINGS.
3. WHERE A DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS EVEN THOUGH NOT SPECIFICALLY REFERENCED ON THE DRAWINGS.
4. WHERE A CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS OCCURS THE MORE STRINGENT REQUIREMENT SHALL APPLY.
5. IF ANY BIDDER IS IN DOUBT AS TO THE INTENT OF THE DRAWINGS OR SPECIFICATIONS, THEY SHALL REQUEST AN INTERPRETATION IN WRITING PRIOR TO THE SCHEDULED BID DATE.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND GRADE CONDITIONS (BOTH NEW AND EXISTING), REPORTING ANY DISCREPANCIES TO THE ENGINEER OF RECORD PRIOR TO FABRICATION OR PROCEEDING WITH STRUCTURAL WORK.
7. THE CONTRACTOR SHALL COMPARE THE STRUCTURAL DRAWINGS WITH THE ARCHITECTURAL DRAWINGS, AND REPORT ANY DISCREPANCIES TO THE ENGINEER OF RECORD PRIOR TO FABRICATION OR PROCEEDING WITH STRUCTURAL WORK.
8. SEE ARCHITECTURAL DRAWINGS FOR FLOOR ELEVATIONS, FLOOR SLOPES, AND THE LOCATION OF DEPRESSED FLOOR AREAS.

CONTRACTOR RESPONSIBILITY

1. THE STRUCTURAL DRAWINGS AND SPECIFICATIONS (IF PROVIDED) REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE. ALL APPLICABLE SAFETY REGULATIONS TO BE FOLLOWED STRICTLY.
2. THE STRUCTURE HAS BEEN DESIGNED TO RESIST DESIGN LOADS ONLY AS A COMPLETED STRUCTURE. APPLICATIONS OF CONSTRUCTION LOADS TO THE PARTIALLY COMPLETED STRUCTURE SHALL BE CONSIDERED BY THE CONTRACTOR AND SO INCLUDED IN THE DESIGN OF SHORING, BRACING, FORMWORK, AND ANY OTHER SUPPORTING ELEMENTS PROVIDED FOR CONSTRUCTION OF THE STRUCTURE. DURING ERECTION AND UNTIL ALL PERMANENT CONNECTIONS ARE MADE, THE CONTRACTOR MUST PROVIDE TEMPORARY BRACING FOR THE STRUCTURE IN ALL DIRECTIONS UNTIL THE STRUCTURAL WORK IS COMPLETE.
3. ALL INTERIOR HANGING COMPONENTS (CEILING, DUCTWORK, PIPING, EQUIPMENT, ETC.) SHALL BE COORDINATED BY THE CONTRACTOR TO ENSURE LOADS APPLIED TO THE STRUCTURE DO NOT EXCEED THE LIMITS SHOWN IN THE DESIGN CRITERIA OR ELSEWHERE IN THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY OF THE CONNECTIONS TO THE SUPPORTING STRUCTURAL ELEMENTS AND THE ADEQUACY OF THE HANGING SYSTEM TO SUPPORT THE COMPONENTS.
4. ALL ARCHITECTURAL, ELECTRICAL, MECHANICAL, AND PLUMBING COMPONENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS, THAT FRAME TO THE UNDERSIDE OF STRUCTURE ABOVE, SHALL BE DETAILED AND FRAMED BY THE CONTRACTOR TO ALLOW FOR DEFLECTION OF THE STRUCTURAL FRAMING. SEE THE DESIGN CRITERIA FOR THE LIMITS USED IN THE DESIGN.
5. PRINCIPAL OPENINGS IN THE STRUCTURE ARE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ALL REQUIRED OPENINGS. SUPPORT FRAMING FOR ALL OPENINGS SHALL BE PROVIDED AND INSTALLED PER TYPICAL DETAILS HEREIN WHETHER SHOWN ON THESE DRAWINGS OR NOT. THE CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF ALL OPENINGS WITH ALL SUBCONTRACTORS AND THEIR APPROVED SHOP DRAWINGS PRIOR TO CONSTRUCTION.
6. ALL EXTERIOR WALL AND ROOF COMPONENTS AND CLADDING ENGINEERED BY THE COMPONENT MANUFACTURER ARE TO BE DESIGNED BY THE MANUFACTURER'S ENGINEER FOR COMPONENTS AND CLADDING WIND LOADS NOTED IN THE DESIGN CRITERIA.
7. ALL ARCHITECTURAL, ELECTRICAL, MECHANICAL, AND PLUMBING COMPONENTS ARE TO BE ATTACHED AS REQUIRED BY ASCE/SEI 7 CHAPTER 13, "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". EACH INDIVIDUAL CONTRACTOR RESPONSIBLE FOR THE COMPONENT MUST PROVIDE PROJECT SPECIFIC DESIGN AND DOCUMENTATION PREPARED BY AN ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED. CHAPTER 13 DEFINES THE FORCE REQUIRED TO SUPPORT THE COMPONENT FOR THE ANCHORAGE AND BRACING. THE COST OF PREPARING THIS INFORMATION AND DESIGN SHALL BE INCLUDED IN EACH CONTRACTOR'S BID THAT IS PROVIDING THE COMPONENT.
8. SEVERAL ITEMS NOTED HEREIN (WHERE CHECKED) AND IN THE SPECIFICATIONS REQUIRE THE CONTRACTOR TO ENGAGE A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED, TO PROVIDE DESIGN AND/OR DETAILING OF STRUCTURAL ELEMENTS. SEE INDIVIDUAL NOTES AND SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. DELEGATED DESIGN ELEMENTS INCLUDE, BUT ARE NOT LIMITED TO:
   - ☐ SPECIALTY FOUNDATION SYSTEM
   - ☐ POST-TENSIONED CONCRETE (LAYOUT AND STRESSING)
   - ☐ STRUCTURAL PRECAST CONCRETE
   - ☐ ARCHITECTURAL PRECAST CONCRETE
   - ☐ STRUCTURAL STEEL (CONNECTIONS)
   - ☒ PREFABRICATED METAL BUILDING
   - ☒ STEEL STAIRS AND RAILINGS
   - ☐ STEEL JOISTS AND STEEL JOIST GIRDERS
   - ☐ ROOF ANCHORS
   - ☒ NON-LOAD BEARING COLD-FORMED STEEL
   - ☐ LOAD BEARING COLD-FORMED STEEL
   - ☐ LIGHT GAUGE COLD-FORMED STEEL TRUSSES
   - ☐ PREFABRICATED WOOD TRUSSES
   - ☐ ANCHOR TIE-DOWN SYSTEM FOR WOOD SHEAR WALLS
9. THIS PROJECT REQUIRES SPECIAL INSPECTIONS AS DESCRIBED IN CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE. SEE STATEMENT OF SPECIAL INSPECTIONS FOR REQUIRED INSPECTIONS. CONTRACTOR SHALL COORDINATE WITH SPECIAL INSPECTOR ALL WORK REQUIRING SPECIAL INSPECTIONS AND TESTING.

DESIGN CRITERIA

1. PROJECT LOCATION: 2873 NC-210 | LILLINGTON, NC 27546
2. APPLICABLE CODES:
   2018 NORTH CAROLINA BUILDING CODE (2015 INTERNATIONAL BUILDING CODE WITH REVISIONS)
   MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE/SEI 7-10)
   BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)
   SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360-10)
   NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS (AISI S100-12)
3. RISK CATEGORY: IV
4. DEFLECTION:
   FLOOR FRAMING: L/240 FOR TOTAL LOADING (1.50" FOR 30' SPAN), L/360 FOR LIVE LOADING (1.00" FOR 30' SPAN)
   ROOF FRAMING: L/180 FOR TOTAL LOADING (2.00" FOR 30' SPAN), L/240 FOR LIVE LOADING (1.50" FOR 30' SPAN)
   MEMBERS SUPPORTING BRICK: L/600 FOR LIVE LOADING (0.60" FOR 30' SPAN)
   STRUCTURAL DRIFT LIMITS: WIND, H/600 (USING V = 0 MPH AND MEAN RECURRENCE INTERVAL OF 50 YEARS)
   SEISMIC, PER ASCE 7 12.12
5. LIVE LOADS:

	UNIFORM (PSF)	CONCENTRATED (LB)
PUBLIC AREAS, LOBBIES	100	2,000
RESIDENTIAL	40	NA
ROOF	20	300
STAIRS	100	300
STORAGE	125	NA

6. SNOW LOAD:
   GROUND SNOW LOAD: p_g = 10 PSF
   IMPORTANCE FACTOR: I_s = 1.2
   SNOW EXPOSURE FACTOR: C_e = 1.00
   THERMAL FACTOR: C_t = 1.00
   FLAT SNOW ROOF LOAD: p_f = 17 PSF
7. WIND LOAD:
   BASIC DESIGN WIND SPEED: V = 125 MPH (ALLOWABLE STRESS DESIGN WIND SPEED, V_{asd} = 97 MPH)
   EXPOSURE CATEGORY: C
   INTERNAL PRESSURE COEFFICIENTS: ±0.18
   BASE SHEAR (1.0xW): V_x = BY PEMB V_y = BY PEMB
   COMPONENTS AND CLADDING -
   ALL EXTERIOR WALL AND ROOF COMPONENTS AND CLADDING ENGINEERED BY THE COMPONENT MANUFACTURER ARE TO BE DESIGNED BY THE MANUFACTURER'S ENGINEER FOR COMPONENTS AND CLADDING WIND LOADS AS DETERMINED PER THE GOVERNING BUILDING CODE FOR THE ULTIMATE DESIGN WIND SPEED AND EXPOSURE CATEGORY LISTED ABOVE. ALTERNATIVELY, THE COMPONENT MANUFACTURER MAY USE THE WORST-CASE PRESSURES (PSF) BELOW:

ZONE		EFFECTIVE WIND AREA (SF)			
		10	50	100	500
ROOF	1	+16 -60	+16 -50	+16 -47	+16 -38
	2	+34 -79	+31 -66	+28 -61	+25 -50
	3	+34 -79	+31 -66	+28 -61	+25 -50
WALL	4	+34 -37	+31 -34	+28 -31	+25 -28
	5	+34 -45	+31 -38	+28 -35	+25 -28

8. SEISMIC LOAD:
   DESIGN METHOD - EQUIVALENT LATERAL FORCE PROCEDURE
   S_S: 18.7 %g
   S_1: 8.7 %g
   S_{DS}: 0.2 %g
   S_{D1}: 0.14 %g
   IMPORTANCE FACTOR: I_e = 1.5
   SITE CLASS: D
   SEISMIC DESIGN CATEGORY: D
   SEISMIC FORCE-RESISTING SYSTEM - BY PEMB SUPPLIER
   RESPONSE MODIFICATION COEFFICIENT: R_x = BY PEMB R_y = BY PEMB
   DEFLECTION AMPLIFICATION FACTOR: C_{dx} = BY PEMB C_{dy} = BY PEMB
   SEISMIC RESPONSE COEFFICIENT: C_{sx} = BY PEMB C_{sy} = BY PEMB
   BASE SHEAR (1.0xE): V_x = BY PEMB V_y = BY PEMB
9. FUTURE LOADS:
   UNLESS SPECIFICALLY NOTED, THERE ARE NO PROVISIONS MADE FOR FUTURE FLOORS, ROOFS, OR OTHER LOADS.

FOUNDATIONS

1. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL INVESTIGATION REPORT BY:
   SOUTHERN ENGINEERING AND TESTING, P.C., DATED JANUARY 29, 2024 (SE&T PROJECT NO.: 24-838)
   THE DESIGN NET ALLOWABLE SOIL BEARING PRESSURE IS 3,000 PSF BASED ON THIS REPORT.
2. ALL RECOMMENDATIONS AS OUTLINED IN THE GEOTECHNICAL INVESTIGATION REPORT AND AS NOTED ON THE DRAWINGS MUST BE FOLLOWED IN PREPARATION OF THE SUBGRADE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD. THE CONTRACTOR SHALL OBTAIN THE REPORT FROM THE OWNER AND BE FAMILIAR WITH THE RECOMMENDATIONS CONTAINED THEREIN PRIOR TO THE START OF CONSTRUCTION. IF CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFER FROM THOSE DESCRIBED IN THE REPORT, THE OWNER SHALL NOTIFY THE GEOTECHNICAL ENGINEER OF RECORD SO THE RECOMMENDATIONS CAN BE REEVALUATED.
3. FOOTINGS SHALL BE CARRIED TO LOWER ELEVATIONS THAN THOSE SHOWN ON THE DRAWINGS IF REQUIRED BY THE GEOTECHNICAL ENGINEER OR TESTING LAB TO REACH SOIL CAPABLE OF PROVIDING THE DESIGN NET ALLOWABLE SOIL BEARING PRESSURE. ALL EXPANSIVE AND/OR LOOSE SOILS BELOW STRUCTURAL FOUNDATIONS SHALL BE REMOVED AND REPLACED AS DIRECTED HEREIN.
4. MINIMUM SUBGRADE PREPARATION REQUIREMENTS ARE AS FOLLOWS:
   1. PREPARE SUBGRADE AND UNDERFLOOR FILL TO A POINT THAT EXTENDS 3'-0" (MINIMUM) BEYOND THE LIMITS OF THE FOUNDATIONS.
   2. COMPACT ALL FILL UNDER BUILDING TO 98% MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698.
   3. PLACE IN LIFTS OF 8" (MAXIMUM) LOOSE THICKNESS WHEN USING LARGE RIDING COMPACTORS (REDUCE THICKNESS AS NECESSARY FOR SMALLER EQUIPMENT).
   4. SLABS ON GRADE SHALL BE SUPPORTED ON A BASE LAYER OF POROUS FILL (WASHED STONE OR CLEAN SAND) WITH A MINIMUM THICKNESS OF 4".
5. FIELD COMPACTION SHALL BE VERIFIED WITH AT LEAST ONE TEST PER 2,000 SQUARE FEET PER LIFT (AT LEAST ONE PER LIFT), IN ACCORDANCE WITH ASTM D1556 (SAND-CONE METHOD), ASTM D6938 (NUCLEAR METHODS, SHALLOW DEPTH), ASTM D2167 (RUBBER BALLOON METHOD), AND/OR ASTM D2937 (DRIVE-CYLINDER METHOD). SEE SPECIFICATIONS FOR OTHER TESTING REQUIREMENTS.
6. WALLS RETAINING SOIL SHALL BE TEMPORARILY BRACED DURING BACKFILLING AND UNTIL ALL SUPPORTING SOIL AND SLABS ARE IN PLACE AND ARE AT DESIGN STRENGTH UNLESS NOTED OTHERWISE ON PLANS AND DETAILS.
7. WALLS RETAINING SOIL HAVE BEEN DESIGNED UTILIZING THE FOLLOWING PARAMETERS:
   MOIST SOIL UNIT WEIGHT: 120 PCF
   PASSIVE PRESSURE COEFFICIENT: 2.77
   COEFFICIENT OF FRICTION: 0.30
8. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF ALL SUCH CONDITIONS PRIOR TO CONSTRUCTION.

CONCRETE | REINFORCING STEEL

1. ALL CONCRETE DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REFERENCED EDITION OF THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318).
2. CONCRETE MIXTURES AS REQUIRED (BASED ON CLASS DESIGNATION):

CLASS A - FOOTINGS	NWC	3,000 PSI	
CLASS C - INTERIOR SLABS ON GRADE	NWC	4,000 PSI	
CLASS E - INTERIOR LWC SLABS ON METAL DECK	LWC	4,000 PSI	
CLASS F - EXTERIOR SLABS ON GRADE, PADS, TOPPINGS	NWC	4,500 PSI	
CLASS I - INTERIOR METAL PAN STAIRS/LANDINGS	NWC	2,500 PSI	(SEE **STEEL STAIRS AND RAILINGS** NOTES)

3. REINFORCING:
   TYPICAL - ASTM A615, GRADE 60
   REINFORCING TO BE WELDED - ASTM A706
   DEFORMED BAR ANCHORS - ASTM A496
   WELDED WIRE FABRIC - ASTM A1064 (FLAT SHEETS ONLY)
4. GROUT UNDER BASE PLATES TO BE HIGH STRENGTH (5,000 PSI), NON-SHRINK.
5. REFER TO THE DRAWINGS FOR REINFORCING LAP REQUIREMENTS. WHERE LAP SPLICES ARE NOT SHOWN, LAP PER ACI 318 OR CRSI STANDARDS.
6. LAP WELDED WIRE FABRIC SHEETS 8" MINIMUM.
7. CLEAR COVER FROM FACE OF CONCRETE:
   CAST IN PLACE CONCRETE (MEASURE TO OUTERMOST REINFORCING) -

CONCRETE CAST AGAINST AND EXPOSED TO EARTH	3"
CONCRETE EXPOSED TO EARTH/WEATHER	2" FOR #6 BARS AND LARGER, 1 1/2" ELSE
CONCRETE NOT EXPOSED TO EARTH/WEATHER	3/4" FOR SLABS AND WALLS, 1 1/2" (TO TIES) FOR BEAMS AND COLUMNS

8. PROVIDE REINFORCING IN SLABS ON GRADE, 1 1/2" FROM TOP OF SLAB:
   4" SLABS: 6x6-W2.1xW2.1
   6" SLABS: #3@12"OC EACH WAY
   8" SLABS: #4@12"OC EACH WAY
9. WHERE SCHEDULED BARS ARE NOT PRESENT, PROVIDE CONTINUOUS #5 TOP AND BOTTOM BARS TO SUPPORT STIRRUPS AS REQUIRED FOR THE LENGTH OF THE STIRRUP SPACING IN ALL BEAMS.
10. WALL FOOTING REINFORCING SHALL BE CONTINUOUS THROUGH ADJACENT COLUMN FOOTINGS.
11. PROVIDE VERTICAL DOVETAIL SLOTS AT 24"OC WITH TIES AT 16"OC VERTICALLY IN ALL CONCRETE WALLS BACKING-UP MASONRY VENEER.
12. BAR SUPPORTS FOR CONCRETE EXPOSED TO VIEW SHALL HAVE PLASTIC COATED LEGS OR BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. MECHANICAL AND ELECTRICAL CONDUIT IN SLABS ON GRADE SHALL RUN UNDER TOP LAYER OF SLAB REINFORCING. PROVIDE A MINIMUM OF 1-1/2" CLEAR BETWEEN INDIVIDUAL CONDUITS AND REINFORCING. IF MAXIMUM SIZE OF CONDUIT EXCEEDS ONE THIRD OF THE SLAB DEPTH, ADDITIONAL FRAMING OR REINFORCING MAY BE NECESSARY AT ENGINEER'S DISCRETION.
14. MECHANICAL AND ELECTRICAL CONDUIT IN ELEVATED SLABS IS NOT ALLOWED UNLESS SPECIFICALLY REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO PLACEMENT.
15. HEADED CONCRETE ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A108, GRADES 1010, 1015, 1017, OR 1020. STUDS SHALL BE AUTOMATICALLY END WELDED IN THE SHOP OR FIELD IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
16. EMBED PLATES MUST BE SET IN THE FORM BEFORE POURING CONCRETE, NOT PLACED INTO TOP OF WET CONCRETE. THE CONTRACTOR SHALL CONTACT THE ARCHITECT FOR CORRECTIVE DETAILS FOR ANY EMBED PLATES LEFT OUT OF CONCRETE POURS.
17. FOR SLABS ON GRADE, SLAB AND FOOTING REINFORCING SHALL BE HELD IN PLACE BY BAR SUPPORTS WITH SAND PLATES, OR PRECAST CONCRETE BAR SUPPORTS AS DESCRIBED IN CHAPTER 3 OF THE CRSI MANUAL OF STANDARD PRACTICE. BAR SUPPORTS SHALL BE SPACED AT A MAXIMUM OF 4'-0"OC BOTH WAYS. ROCKS, CMU, OR CLAY BRICK WILL NOT BE USED AS SUPPORTS.
18. THE CONTRACTOR SHALL ASSUME CONCRETE OVERAGES IN ELEVATED DECK POURS DUE TO MEMBER AND DECK DEFLECTIONS. UNLESS SHOWN ON PLANS, BEAMS ARE NOT CAMBERED. CONCRETE OVERAGES MAY BE CALCULATED BY THE CONTRACTOR FOR BEAM DEFLECTIONS EQUALING L/300 INCLUDING ADDITIONAL DEFLECTIONS DUE TO PONDING AND DECK DEFLECTIONS PER SDI.
19. REBAR SHALL NOT BE HEATED WITH A TORCH IN THE FIELD.
20. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER FAR ENOUGH IN ADVANCE (48 HOURS) OF EACH CONCRETE POUR TO ALLOW AMPLE TIME TO CHECK THE LAYOUT OF THE STEEL BEFORE THE BEGINNING OF THE ACTUAL POUR, BUT NOT PRIOR TO 90% OF THE STEEL HAVING BEEN PLACED.

CONCRETE CONSTRUCTION JOINTS

1. CONTRACTOR SHALL PROVIDE NECESSARY CONSTRUCTION JOINTS IN MONOLITHIC CONCRETE POURS SO THAT THE QUALITY OF PLACEMENT AND FINISH MEETS THE REQUIREMENTS OF PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT A PLAN SHOWING THE LOCATION OF ALL CONSTRUCTION JOINTS TO THE STRUCTURAL ENGINEER FOR APPROVAL.
2. THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE POURS. ALL VERTICAL CONSTRUCTION JOINTS IN SLABS AND BEAMS SHALL BE MADE WITH BULKHEADS. ADDITIONAL REINFORCING AT CONSTRUCTION JOINTS SHALL BE AS SPECIFIED BY THE STRUCTURAL ENGINEER. SEE TYPICAL CONSTRUCTION JOINT DETAILS.

STRUCTURAL MASONRY

1. ALL MASONRY DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REFERENCED EDITION OF THE BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES (TMS 402|602).
2. LOAD BEARING MASONRY WALLS, PILASTERS, PIERS, RETAINING WALLS, FOUNDATION WALLS AND ANY OTHER MASONRY SO DESIGNATED ON DRAWINGS IS CONSIDERED HERE TO BE STRUCTURAL MASONRY.
3. REQUIRED COMPRESSIVE STRENGTH OF MASONRY UNITS:
   SOLID CLAY UNITS - 6,200 PSI
   CONCRETE UNITS - 2,000 PSI ON NET AREA
4. CONCRETE MASONRY UNITS (CMU) SHALL BE LIGHT WEIGHT (105 PCF) CONFORMING TO ASTM C90. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR UNIT SIZE, FACE, COLOR, JOINTING, ETC.
5. MORTAR SHALL BE TYPE S, ASTM C270.
6. GROUT FOR REINFORCED MASONRY SHALL BE FINE GROUT, ASTM C476. MINIMUM 28-DAY COMPRESSIVE STRENGTH SHALL BE 2,000 PSI.
7. MINIMUM 28-DAY COMPRESSIVE STRENGTH (f'_m) OF THE MASONRY WALLS SHALL BE 2,000 PSI. MASONRY STRENGTH SHALL BE DETERMINED BY THE UNIT STRENGTH METHOD OR THE PRISM TEST METHOD AS DESCRIBED BY ACI 530.
8. REINFORCING:
   TYPICAL - ASTM A615, GRADE 60
   ALL REINFORCING TO BE WELDED - ASTM A706
9. REFER TO THE DRAWINGS FOR REINFORCING LAP TYPICAL DETAIL AND SCHEDULE REQUIREMENTS.
10. MAXIMUM HEIGHT TO WHICH MASONRY SHALL BE LAID BEFORE GROUTING IS 5 FEET ABOVE CONSTRUCTION SURFACE OR PREVIOUSLY GROUTED MASONRY. IF GROUT POUR HEIGHT EXCEEDS 5 FEET, THEN "HIGH LIFT" GROUTING PROCEDURE MUST BE FOLLOWED. PROVIDE CLEANOUT OPENINGS AT THE BOTTOM OF EACH GROUT POUR HEIGHT. CLEANOUT OPENINGS SHALL BE PROVIDED AT EACH CELL TO BE FILLED WITH GROUT.
11. ALL GROUT PLACED OVER 12" IN HEIGHT SHALL BE MECHANICALLY CONSOLIDATED DURING GROUTING. GROUT SHALL BE RECONSOLIDATED BY MECHANICAL VIBRATION AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.
12. MAXIMUM GROUT LIFT (GROUT POURED IN ONE CONTINUOUS OPERATION) IS 5 FEET. THIS LIMIT ALSO APPLIES TO "HIGH LIFT" GROUTING.
13. REINFORCE MASONRY WHERE SHOWN ON STRUCTURAL DRAWINGS. TIE REINFORCING IN POSITION AND PLACE GROUT AROUND REINFORCING. DO NOT PUSH REINFORCING DOWN INTO PREVIOUSLY PLACED GROUT FILL. SET BOLTS SIMILARLY.
14. TIE MASONRY WYTHES WITH HORIZONTAL REINFORCING AS SPECIFIED.
15. PROVIDE VERTICAL BARS, SIZE MATCHING WALL REINFORCING, AT ALL CORNERS, ENDS OF WALLS, EACH SIDE OF CONTROL JOINTS AND EACH SIDE OF WALL OPENINGS. TIE EACH BAR TO THE FOUNDATION WITH A MATCHING DOWEL.
16. ALL CORNERS OF STRUCTURAL MASONRY WALLS SHALL BE CONSTRUCTED BY INTERLOCKING COURSES. AT INTERSECTIONS WHERE SEQUENCING OR BLOCK COURSING PROHIBITS INTERLOCKED CONSTRUCTION SEE ALTERNATE DETAILS HEREIN.
17. ALL LINTELS TO BEAR 8" MINIMUM EACH SIDE OF OPENING, UNLESS NOTED OTHERWISE.
18. GROUT ALL MASONRY WALLS AND CAVITY BELOW GRADE SOLID. GROUT ALL WALLS ABOVE GRADE AT THE REINFORCED CELLS (MINIMUM) OR AS INDICATED IN SPECIFIC SECTIONS.
19. ONE 3/4"Ø (MAXIMUM) VERTICAL CONDUIT ALLOWED IN ANY REINFORCED CELL PROVIDED 1" CLEAR IS MAINTAINED BETWEEN REINFORCING AND CONDUIT. NO OTHER VERTICAL OR HORIZONTAL CONDUITS, PIPES, OR SLEEVES SHALL BE LOCATED IN REINFORCED CELLS UNLESS OTHERWISE APPROVED BY THE STRUCTURAL ENGINEER. CONTRACTOR SHALL COORDINATE LAYOUT TO AVOID REINFORCED CELLS.

APPROVAL:
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09-19-2024

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-

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
1" = 1'-0"

09/19/2024

24-0013

GENERAL NOTES

S0.1
OF 20

Revisions			
#	Date	By	Description

STRUCTURAL STEEL

1. DESIGN, FABRICATION, AND ERECTION SHALL BE PER THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (ANSI/AISC 360).
2. STRUCTURAL STEEL MATERIALS:
   WIDE FLANGE SHAPES (W SECTIONS) - ASTM A992, GRADE 50 (FY=50 KSI)
   CHANNELS AND ANGLES - ASTM A36 (FY=36 KSI)
   PLATES AND BARS - ASTM A36 (FY=36 KSI) OR ASTM A572, GRADE 50 (FY=50 KSI) AS INDICATED ON THE DRAWINGS.
   SQUARE AND RECTANGULAR TUBES - ASTM A500, GRADE B (FY=46 KSI)
   PIPES OR ROUND TUBES - ASTM A53, GRADE B (FY=35 KSI) OR ASTM A500, GRADE B (FY=42 KSI)
3. A QUALIFIED FABRICATOR SHALL HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE IN FABRICATING STRUCTURAL STEEL LIKE THAT INDICATED FOR THIS PROJECT AND SUFFICIENT CAPACITY TO FABRICATE THE STRUCTURAL STEEL WITHOUT DELAYING THE WORK, AND SHALL MEET ONE OF THE FOLLOWING:
   A. FABRICATOR PARTICIPATES IN THE AISC QUALITY CERTIFICATION PROGRAM AND IS DESIGNATED AN AISC-CERTIFIED PLANT, CATEGORY (BU) OR IS ACCREDITED BY THE IAS FABRICATOR INSPECTION PROGRAM FOR STRUCTURAL STEEL (ACCREDITATION CRITERIA 172).
   B. FABRICATOR HAS AN ESTABLISHED AND MAINTAINED QUALITY CONTROL PROGRAM TO ENSURE THAT THE WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS IN ANSI/AISC 303, ANSI/AISC 360, AND THE CONTRACT DOCUMENTS. PROGRAM SHALL AT A MINIMUM ADDRESS INSPECTION OF THE ITEMS NOTED IN ANSI/AISC 360 N2.
4. A QUALIFIED ERECTOR SHALL HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE IN ERECTING STRUCTURAL STEEL LIKE THAT INDICATED FOR THIS PROJECT AND SUFFICIENT CAPACITY TO ERECT THE STRUCTURAL STEEL WITHOUT DELAYING THE WORK, AND SHALL MEET ONE OF THE FOLLOWING:
   A. ERECTOR PARTICIPATES IN THE AISC QUALITY CERTIFICATION PROGRAM AND IS DESIGNATED AN AISC-CERTIFIED ERECTOR, CATEGORY (CSE).
   B. ERECTOR HAS AN ESTABLISHED AND MAINTAINED QUALITY CONTROL PROGRAM TO ENSURE THAT THE WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS IN ANSI/AISC 303, ANSI/AISC 360, AND THE CONTRACT DOCUMENTS. PROGRAM SHALL AT A MINIMUM ADDRESS INSPECTION OF THE ITEMS NOTED IN ANSI/AISC 360 N2.
5. BEAM SIMPLE SHEAR, BRACED FRAME, AND ALL MOMENT CONNECTIONS NOT DETAILED ON STRUCTURAL DRAWINGS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER RETAINED BY THE STEEL SUPPLIER AND REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED. THE CONNECTION ENGINEER SHALL SUBMIT A SIGNED AND SEALED LETTER STATING THEY HAVE REVIEWED THE STEEL SHOP DRAWINGS AND THE CONNECTIONS ARE CONSISTENT WITH THEIR CALCULATIONS AND INTENT.
6. THE CONNECTIONS FOR NON-COMPOSITE BEAMS SHALL BE DESIGNED FOR REACTIONS SHOWN ON DRAWINGS OR FOR REACTIONS DETERMINED BY USING THE MAXIMUM TOTAL UNIFORM LOAD TABULATED IN PART 3 OF THE AISC STEEL CONSTRUCTION MANUAL FOR THE SECTION, SPAN, AND STRENGTH OF STEEL SPECIFIED. THE CONNECTIONS FOR COMPOSITE BEAMS SHALL BE DESIGNED FOR REACTIONS SHOWN ON DRAWINGS OR AS DICTATED BY THE TYPICAL COMPOSITE SLAB DETAIL.
7. SIMPLE SHEAR CONNECTIONS SHALL BE MADE WITH ASTM A325 3/4"Ø BOLTS (MINIMUM), TIGHTENED TO A SNUG-TIGHT CONDITION PER AISC REQUIREMENTS.
8. ALL WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY CODE. USE E70 SERIES ELECTRODES FOR ALL STRUCTURAL STEEL WELDS. WHERE STEEL MEMBERS ARE WELDED AND NO SIZE IS SPECIFIED, PROVIDE FULL LENGTH FILLET WELDS BOTH SIDES OF MEMBER. SIZE OF FILLETS SHALL BE 3/16" FOR MEMBER THICKNESS UP TO 5/16", AND THE MEMBER THICKNESS MINUS 3/16" FOR ALL THICKER MATERIALS.
9. ANCHOR AND THREADED RODS SHALL CONFORM TO ASTM F1554, GRADE 36, 55, OR 105 AS INDICATED ON THE DRAWINGS. CONTRACTOR TO COORDINATE INSTALLATION OF ITEMS TO BE EMBEDDED IN OR ATTACHED TO OTHER CONSTRUCTION WITHOUT DELAYING THE WORK.
10. STEEL SHALL BE PRIMED WITH FABRICATOR'S STANDARD LEAD- AND CHROMATE-FREE, NON-ASPHALTIC, RUST-INHIBITING PRIMER COMPLYING WITH MPI#79 (MINIMUM COAT OF 3 MILS, MAXIMUM OF 5 MILS). CONTRACTOR TO COORDINATE SELECTION OF PRIMER WITH TOPCOATS TO BE APPLIED TO ENSURE THE TWO ARE COMPATIBLE. MEMBERS TO RECEIVE FIREPROOFING OR TO BE ENCASED IN CONCRETE SHALL NOT BE PRIMED.
11. SEE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL ITEMS REQUIRED TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
12. STRUCTURAL STEEL SHALL BE PUNCHED FOR WOOD BLOCKING, NAILERS, CLIPS AND TIES IN ACCORDANCE WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
13. CAP ALL OPEN HSS OR PIPE MEMBERS OUTSIDE THE BUILDING ENVELOPE WITH A 1/4" (MINIMUM) FITTED PLATE, UNO.
14. ERECTOR SHALL SET STRUCTURAL STEEL IN LOCATIONS AND TO ELEVATIONS IN ACCORDANCE WITH ANSI/AISC 303 AND 360. MAINTAIN THE FRAME WITHIN ERECTION TOLERANCES PER ANSI/AISC 303.
15. PROMPTLY PACK SHRINKAGE-RESISTANT GROUT SOLIDLY BETWEEN BEARING SURFACES AND PLATES SO NO VOIDS REMAIN.
16. SPLICING OF STRUCTURAL STEEL MEMBERS IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER AS TO LOCATION AND TYPE OF SPLICE TO BE MADE. ANY MEMBER HAVING A SPLICE NOT SHOWN AND DETAILED ON SHOP DRAWINGS WILL BE REJECTED. THERMAL CUTTING MAY NOT BE USED IN THE FIELD DURING ERECTION.
17. QUALITY CONTROL INSPECTION TASKS SHALL BE PERFORMED BY BOTH THE FABRICATOR AND ERECTOR IN ACCORDANCE WITH ANSI/AISC 360 N5. NON-DESTRUCTIVE TESTING (NDT) OF WELDED JOINTS PROVIDED DURING FABRICATION SHALL BE IN ACCORDANCE WITH N5.5 AND PERFORMED BY AN INDEPENDENT AND QUALIFIED TESTING AGENCY OR THE FABRICATOR'S QCI. ALL TESTING REPORTS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW.
18. AT THE COMPLETION OF FABRICATION AND ERECTION, THE FABRICATOR AND ERECTOR SHALL EACH SUBMIT A CERTIFICATE OF COMPLIANCE TO THE OWNER STATING THE MATERIALS SUPPLIED AND WORK PERFORMED ARE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
19. NON-DESTRUCTIVE TESTING (NDT) OF WELDED JOINTS PROVIDED DURING ERECTION SHALL BE IN ACCORDANCE WITH N5.5 AND PERFORMED BY AN INDEPENDENT AND QUALIFIED TESTING AGENCY. ALL TESTING REPORTS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW.
20. ALL STEEL EXPOSED TO VIEW SHALL BE CLASSIFIED AS ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS) AS DEFINED BY ANSI/AISC 303 AND SHALL BE TREATED AS SUCH.

PREFABRICATED METAL BUILDING

1. DESIGN, FABRICATION, AND ERECTION SHALL BE PER THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360). DESIGN AND CONSTRUCTION OF THE PREFABRICATED METAL BUILDING IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
2. DESIGN CRITERIA:
   MAXIMUM HORIZONTAL DRIFT - H/600 (H = MEAN HEIGHT OF STRUCTURE)
   MINIMUM COLLATERAL LOAD - 10 PSF PLUS ROOF TOP MECHANICAL UNITS, HANGING EQUIPMENT, STAGE CURTAINS, BASKETBALL GOALS, ETC.
3. A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED SHALL BE RESPONSIBLE FOR THE DESIGN OF THE PREFABRICATED METAL BUILDING MEMBERS AND THEIR CONNECTIONS. THIS WORK SHALL ALSO INCLUDE ALL MEMBERS AND BRACES REQUIRED TO BRACE EXTERIOR WALLS.
4. ALL SHOP DRAWINGS SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED AND SHALL BE SUBMITTED FOR RECORD PURPOSES UPON REQUEST.
5. ALL ANCHOR BOLTS SHALL BE DESIGNED BY THE METAL BUILDING SUPPLIER AND SUPPLIED BY THE CONTRACTOR. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 36 AS A MINIMUM. SUBMIT SHOP DRAWINGS FOR ALL ANCHOR BOLTS INDICATING THE REACTIONS IMPOSED ON THE FOUNDATION.
6. FOUNDATION DESIGN ASSUMES PINNED BASE CONNECTIONS FROM THE METAL BUILDING COLUMNS TO THE FOUNDATION.
7. FOUNDATIONS HAVE BEEN DESIGNED FOR REACTIONS INDICATED ON THE DRAWINGS. SUBMIT BASE REACTIONS FOR FOUNDATION DESIGN VERIFICATION AND POSSIBLE FOUNDATION RE-DESIGN. CONTRACTOR SHALL PROVIDE UNIT COSTS FOR POSSIBLE FOUNDATION REVISION.

NON-LOAD BEARING COLD-FORMED STEEL (METAL STUDS)

1. ALL STRUCTURAL MEMBERS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REFERENCED EDITION OF THE NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS BY THE AMERICAN IRON AND STEEL INSTITUTE.
2. ALL METAL STUDS, HEADERS, AND ACCESSORIES SHALL BE MADE OF THE MINIMUM TYPE, SIZE, GAUGE, AND SPACING SHOWN ON DRAWINGS.
3. MINIMUM YIELD STRENGTH (FY) FOR STUDS IS 33 KSI FOR 18 GA (43 MILS) AND 20 GA (33 MILS) MATERIALS, AND 50 KSI FOR 12 GA (97 MILS), 14 GA (68 MILS), AND 16 GA (54 MILS) MATERIALS.
4. ALL THE COLD-FORMED STEEL STRUCTURAL MEMBERS SHALL COME FROM A SINGLE SOURCE MANUFACTURER. ONLY MANUFACTURERS WHO ARE MEMBERS OF THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) OR THE STEEL FRAMING INDUSTRY ASSOCIATION (SFIA) WILL BE ACCEPTED. THE INSTALLATION SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. SUBMIT SHOP DRAWINGS FOR ALL COLD-FORMED METAL FRAMING USED TO SUPPORT CEILINGS AND EXTERIOR CLADDING. SHOP DRAWINGS SHALL INDICATE PLACING OF ALL FRAMING MEMBERS SHOWING TYPE, SIZE, GAUGE, NUMBER, LOCATION AND SPACING. THEY SHALL ALSO INDICATE SUPPLEMENTAL STRAPPING, BRACING, SPLICES, BRIDGING, ACCESSORIES AND DETAILS REQUIRED FOR PROPER INSTALLATION.
6. SHOP DRAWINGS SHALL SHOW SIZE AND LENGTH OF WELDS FOR ALL WELDED CONNECTIONS AND TYPE, SIZE AND NUMBER OF SCREWS FOR ALL SCREWED CONNECTIONS. SUBMIT MANUFACTURER'S DATA GIVING STRENGTH VALUES FOR SCREWS USED.
7. ALL STUDS, TRACK, BRIDGING AND ACCESSORIES SHALL BE FORMED FROM STEEL HAVING A G-60 GALVANIZED COATING MEETING THE REQUIREMENTS OF ASTM A653 AND C955. ALL ACCESSORIES SHALL BE FORMED FROM STRUCTURAL QUALITY STEEL WITH MINIMUM YIELD STRENGTH OF 50 KSI.
8. A MINIMUM LENGTH OF 10" OF UNPUNCHED STEEL IS REQUIRED AT BOTH ENDS OF STUDS. NO PUNCHING HOLES OF ANY SIZE IS PERMITTED IN THESE 10". NO CUTTING OF THE STUD FLANGE IS PERMITTED.
9. BOTH STUD FLANGES SHALL BE ATTACHED TO THE TOP AND BOTTOM TRACK WITH (2)#10 SCREWS EACH SIDE.
10. SPLICES IN STUDS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS.
11. MULTIPLE STUD "COLUMNS" SHALL BE WELDED TOGETHER IN GROUPS OF AT LEAST TWO STUDS WITH 2" WELD TOP AND BOTTOM AND 1" WELD AT 24"OC BOTH SIDES IN BETWEEN.
12. TRACK SPLICES WITHIN A PANEL/WALL MUST BE SECURELY ANCHORED TO A COMMON ELEMENT (I.E. STUD, HEADER, ETC.), BUTT-WELDED TOGETHER, OR SPLICED WITH STUD MATERIAL SECURELY FASTENED TO TRACK ON BOTH SIDES OF SPLICE.
13. LATERAL BRIDGING SHALL BE USED TO RESIST TORSIONAL FORCES IN THE METAL STUDS. BRIDGING SHALL BE 2 1/2"-18 GA (43 MILS) FLAT STRAPS, SCREW ATTACHED TO BOTH FLANGES OF EACH STUD WITH SOLID BLOCKING REQUIRED AT 8'OC (MAX) AND ADJACENT TO EACH OPENING. BLOCKING MAY BE MADE FROM MATCHING GAUGE STUDS ATTACHED WITH 16 GA (54 MILS) CLIP ANGLES WITH (2)#10 SCREWS INTO EACH FLANGE.
14. ACCEPTABLE BRIDGING ALTERNATE IS COLD-FORMED CHANNELS (1 1/2" CHANNEL IN 3 5/8" OR 4" STUDS AND 2 1/2" CHANNEL IN 6" STUDS) WELDED TO THE OUTER EDGE OF PUNCHOUTS WITH 1/4" MINIMUM WELD.
15. BRIDGING IS TO BE PLACED AT NO MORE THAN 4'-0"OC VERTICALLY.
16. INSTALL DOUBLE STUDS AT EVERY INTERRUPTION (I.E. PLUMBING CHASES, ETC.).
17. MINIMUM TRACK FASTENINGS SHALL BE 0.138"Ø POWDER ACTUATED FASTENERS (PAFs) SPACED 16"OC FOR WALLS (UNO), WITH 1 1/4" MINIMUM PENETRATION INTO CONCRETE.
18. VOIDS BENEATH TRACK SHALL NOT BE PERMITTED. CONTRACTOR SHALL PROVIDE A LEVEL SLAB WITHIN ACI 117 TOLERANCES. WHERE UNEVENNESS OF SUPPORTING FLOOR PREVENTS CONTINUOUS SOLID BEARING, PANEL OR TRACK SHALL BE LEVELED BY PLACING MORTAR OR GROUT BENEATH TRACK.
19. VERTICAL DEFLECTION CLIPS ARE REQUIRED TO BE CAPABLE OF ACCOMMODATING UPWARD AND DOWNWARD VERTICAL DISPLACEMENT OF THE STRUCTURE THROUGH POSITIVE MECHANICAL ATTACHMENT TO STUD WEB. MECHANICAL ATTACHMENT TO STRUCTURE AND SCREW ATTACHMENT TO STUD WEB USING STEP-BUSHINGS TO PERMIT FRICTIONLESS VERTICAL MOVEMENT. CONNECTORS TO BE TESTED IN ACCORDANCE TO ICC AC621 CRITERIA AND HOLD A VALID ICC-ES EVALUATION SERVICE REPORT TO BE ACCEPTABLE.
20. HEADERS SHALL BE CONSTRUCTED OF UNPUNCHED STUDS. SHEAR SHALL BE TRANSFERRED BY FULL BEARING ON JACK STUDS OR BY SHEAR PLATES. SHEAR PLATES SHALL BE 16 GA (54 MILS) MINIMUM.
21. REFER TO ARCHITECTURAL PLANS FOR NON-LOAD BEARING WALLS.

ADHESIVE AND MECHANICAL POST-INSTALLED ANCHORS

1. ANCHOR BOLTS, REINFORCING STEEL, THREADED RODS, STAIR HANDRAILS, AND OTHER EMBEDDED STEEL ITEMS SHALL BE SET INTO HARDENED CONCRETE WITH ADHESIVE OR MECHANICAL POST-INSTALLED ANCHORS ONLY WHERE DETAILED ON THE DRAWINGS OR WHERE APPROVED BY THE ENGINEER OF RECORD.
2. PRE-APPROVED MANUFACTURERS ARE HILTI, SIMPSON STRONG-TIE, AND DEWALT. WHERE DETAILS INDICATE SPECIFIC ADHESIVE OR MECHANICAL POST-INSTALLED ANCHORS, IT IS ACCEPTABLE AT THE CONTRACTOR'S OPTION TO SUBMIT AN ALTERNATE SIMILAR PRODUCT PROVIDED BY A DIFFERENT MANUFACTURER AS LONG AS THE MANUFACTURER'S DATA PROVIDES EQUIVALENT LOAD CAPACITY TO THE ANCHOR SPECIFIED. THE CONTRACTOR SHALL PROVIDE SIGNED AND SEALED CALCULATIONS THAT DEMONSTRATE THE ALTERNATE PRODUCT IS CAPABLE OF MEETING THE PERFORMANCE OF THE SPECIFIED ANCHOR. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC-ESR SHOWING COMPLIANCE WITH THE GOVERNING BUILDING CODE FOR SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, AND THE AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE, INSTALLATION TEMPERATURE, MOISTURE CONDITION OF CONCRETE, AND DRILLING METHODS.
3. BASIS OF DESIGN FOR ADHESIVE ANCHORS DETAILED ON THE DRAWINGS INCLUDES THE FOLLOWING PARAMETERS: CRACKED CONCRETE; WATER-SATURATED CONCRETE; BASE MATERIAL BETWEEN 25 AND 100 DEGREES FAHRENHEIT; AND HOLES MADE BY HAMMER DRILL, HOLLOW DRILL BIT SYSTEM, OR CORE-DRILLING.
4. INSTALL ANCHORS PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING. HEED ALL LABEL WARNINGS. INSTALL IN ACCORDANCE WITH APPLICABLE SAFETY LAWS. ALL HOLES SHALL BE DRILLED WITH A DIAMETER NO LARGER THAN 1/8" GREATER THAN THE DIAMETER OF THE ANCHOR BEING INSTALLED. ALL HOLES SHALL BE CLEANED WITH COMPRESSED AIR AND SHALL BE DRY PRIOR TO INSTALLATION OF ADHESIVE. HOLES SHALL BE FREE OF ALL DELETERIOUS MATERIAL SUCH AS LAITANCE, DUST, DIRT, AND OIL.
5. ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.
6. WHERE ADHESIVE ANCHORS ARE TO BE INSTALLED IN HOLLOW MATERIAL WITH UNKNOWN CAPACITY, THE CONTRACTOR SHALL INSTALL THE ANCHOR IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. THE ADHESIVE SHALL BE INSTALLED IN THE HOLLOW BASE MATERIAL USING SCREEN TUBES SUPPLIED BY THE MANUFACTURER. THE ADHESIVE SHALL BE CAPABLE OF SUSTAINING MINIMUM TENSION AND SHEAR LOAD CAPACITIES NOTED ON THE DRAWINGS MULTIPLIED BY A FACTOR OF SAFETY OF 4. ALL HARDWARE AND MATERIAL SHALL BE SUPPLIED BY THE ANCHOR MANUFACTURER.
7. CONTRACTOR PERFORMING ADHESIVE WORK SHALL BE AN APPROVED CONTRACTOR BY THE MANUFACTURER FURNISHING THE ADHESIVE MATERIALS, AND SHALL HAVE NO LESS THAN FIVE YEARS EXPERIENCE IN THE VARIOUS TYPES OF ADHESIVE RELATED WORK REQUIRED IN THIS PROJECT. ALTERNATIVELY, THE CONTRACTOR SHALL ARRANGE FOR A REPRESENTATIVE OF THE ANCHOR MANUFACTURER TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL ANCHOR PRODUCTS SPECIFIED. DOCUMENTATION THAT ALL PERSONNEL INSTALLING ANCHORS ARE TRAINED SHALL BE SUBMITTED TO THE ENGINEER OF RECORD PRIOR TO THE COMMENCEMENT OF ANCHOR INSTALLATION.
8. THE ULTIMATE TENSION AND SHEAR CAPACITIES SHALL BE DETERMINED BY A JOB SITE TEST PERFORMED ON A MINIMUM OF FIVE INSTALLED SAMPLES WHICH ARE REPRESENTATIVE OF THE ACTUAL INSTALLATIONS. TESTING SHALL BE PERFORMED BY THE ADHESIVE ANCHOR MANUFACTURER OR HIS APPROVED REPRESENTATIVE AND SHALL BE DOCUMENTED FOR THE DESIGN PROFESSIONAL.

APPROVAL:
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NORTH CAROLINA PROFESSIONAL SEAL 046260 ENGINEER THOMAS WILLIAM MCLANE

09-19-2024

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COORDINATOR: JGF

DRAWN BY: VNA

CHK BY: TWM
-

LILLINGTON FIRE STATION NO 3

2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
1" = 1'-0"

09/19/2024

24-0013

GENERAL NOTES

S0.2
OF 20

Revisions			
#	Date	By	Description

ABBREVIATIONS

@	AT
&	AND
Ø	DIAMETER
AB	ANCHOR BOLTS
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
ADH	ADHESIVE
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALT	ALTERNATE
ARCH	ARCHITECT'S / ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
B/ or BOT	BOTTOM
BCX	BOTTOM CHORD EXTENSION
BFB	BOTTOM FLANGE BRACE
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BM	BEAM
BOS	BOTTOM OF STEEL
BRG	BEARING
BTWN	BETWEEN
CANT	CANTILEVER
CJ	CONTROL JOINT
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST JT	CONSTRUCTION JOINT
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CTRD	CENTERED
d	NAILS (PENNY)
DBA	DEFORMED BAR ANCHOR
DEFL	DEFLECTION
DEPR	DEPRESSION / DEPRESSED
DET	DETAIL
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTANCE
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
EA	EACH
EE	EACH END
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEV	ELEVATOR
EMBED	EMBEDDED / EMBEDMENT
ENGR	ENGINEER
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FDN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
FOM	FACE OF MASONRY
FOW	FACE OF WALL
FS	FAR SIDE
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GT	GIRDER TRUSS
HD	HEADED
HI	HIGH
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
INT	INTERIOR
JT	JOINT
K	KIP(S)
KB	KNEE BRACE
KSI	KIPS PER SQUARE INCH
LB	LONG BAR
LBS	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LO	LOW
LOC	LOCATION
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
LWC	LIGHT WEIGHT CONCRETE
MAX	MAXIMUM
MC	MOMENT CONNECTION
MCJ	MASONRY CONTROL JOINT
MECH	MECHANICAL
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MOW	MIDDLE OF WALL
MP	MASONRY PILASTER
No or #	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OC	ON CENTER
OPNG	OPENING
OPP	OPPOSITE HAND
PAF	POWDER ACTUATED FASTENER
PED	PEDESTAL
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
P-T	POST-TENSIONED
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
SB	SHORT BAR
SCHD	SCHEDULE
SIM	SIMILAR
SOG	SLAB ON GRADE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
STD	STANDARD
STIFF	STIFFENER
STIRR	STIRRUP(S)
STL	STEEL
STR	STRUCTURAL
T/	TOP
TCX	TOP CHORD EXTENSION
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
WWF	WELDED WIRE FABRIC
WP	WORK POINT

SYMBOL LEGEND

SYMBOL	MEANING
	SPOT ELEVATION. ELEVATION RELATIVE TO REFERENCE ELEVATION.
<No>	TOP OF FOOTING, GRADE BEAM, PILE CAP, OR DRILLED PIER. ELEVATION RELATIVE TO REFERENCE ELEVATION.
<No> <No>	STEP IN TOP OF FOOTING ELEVATION, SEE "TYPICAL STEP IN WALL FOOTING" DETAIL. ELEVATION RELATIVE TO REFERENCE ELEVATION.
No	DEPRESSED OR RAISED SLAB ELEVATION, SEE "TYPICAL STEP IN SLAB ON GRADE" DETAIL. ELEVATION RELATIVE TO REFERENCE ELEVATION.
[No]	TOP OF WALL OR PEDESTAL. ELEVATION RELATIVE TO REFERENCE ELEVATION.
(No) | [+No]	TOP OF STEEL/JOIST BEARING ELEVATION | TOP OF STEEL ABOVE STEEL/JOIST BEARING ELEVATION.
	SLOPED | STEPPED SLAB.
F#	SPREAD FOOTING TYPE, SEE SCHEDULE.
P#	CONCRETE PEDESTAL TYPE, SEE SCHEDULE.
CB# WxD	CONCRETE BEAM TYPE, SEE SCHEDULE. "W" INDICATES BEAM WIDTH AND "D" INDICATES BEAM DEPTH (IN INCHES).
CJ# WxD	CONCRETE JOIST TYPE, SEE SCHEDULE. "W" INDICATES NOMINAL JOIST WIDTH AND "D" INDICATES JOIST DEPTH (IN INCHES).
CSW#	CONCRETE SHEAR WALL TYPE, SEE SCHEDULE.
MP#	MASONRY PILASTER TYPE, SEE "TYPICAL MASONRY PILASTERS" DETAIL.
ML#	MASONRY LINTEL TYPE, SEE "TYPICAL LOAD BEARING LINTELS" DETAIL.
BP#	STEEL BEARING PLATE TYPE, SEE "TYPICAL STEEL BEAM BEARING" DETAIL.
MSW#	MASONRY SHEAR WALL TYPE, SEE SCHEDULE.
S1	SPAN DIRECTION OF COMPOSITE SLAB, SEE "TYPICAL COMPOSITE SLAB" DETAIL. CONSTRUCTION SHALL BE 3 1/4" LIGHT WEIGHT CONCRETE ON 3"-19GA COMPOSITE METAL DECK (6 1/4" TOTAL THICKNESS). TOP OF STEEL ELEVATION 6 1/4" BELOW FINISHED FLOOR ELEVATION, UNO.
V#, M#, L#, A#, T#	STEEL BEAM DESIGN END REACTIONS (WHERE APPLICABLE). "V" INDICATES VERTICAL SHEAR, "M" INDICATES BENDING MOMENT, "H" INDICATES LATERAL SHEAR, "A" INDICATES AXIAL TENSION/COMPRESSION, AND "T" INDICATES TORSION. ALL LOADS ARE FACTORED FOR STRENGTH DESIGN IN UNITS OF KIP AND KIP-FT. ALL LOADS SHALL BE CONSIDERED REVERSIBLE, UNO.
H#	HAIRPIN REBAR IN SLAB ON GRADE, SEE TYPICAL HAIRPIN DETAIL

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DRAWN BY: VNA

CHK BY: TWM
-

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LILLINGTON, NORTH CAROLINA

24 X 36
1" = 1'-0"

09/19/2024

24-0013

ABBREVIATIONS & SYMBOL LEGEND

S0.3
OF 20

Revisions			
#	Date	By	Description

STATEMENT OF SPECIAL INSPECTIONS

THIS STATEMENT OF SPECIAL INSPECTIONS IS SUBMITTED AS A CONDITION FOR PERMIT ISSUANCE IN ACCORDANCE WITH THE SPECIAL INSPECTION REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE. IT INCLUDES A SCHEDULE OF SPECIAL INSPECTION SERVICES APPLICABLE TO THIS PROJECT, THE NAME OF THE SPECIAL INSPECTOR, THE IDENTITY OF OTHER APPROVED AGENCIES RETAINED FOR CONDUCTING SPECIAL INSPECTIONS, AND THE REQUIRED INSPECTOR QUALIFICATIONS. THIS STATEMENT OF SPECIAL INSPECTIONS WAS PREPARED BY THE DESIGNERS OF RECORD.

THE SPECIAL INSPECTOR SHALL KEEP RECORDS OF ALL SPECIAL INSPECTIONS AND TESTS AND SHALL FURNISH REPORTS TO THE CONTRACTOR, OWNER, AND THE DESIGNERS OF RECORD. REPORTS SHALL INDICATE IF THE WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. DISCOVERED DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF SUCH DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND THE DESIGNERS OF RECORD. THE SPECIAL INSPECTIONS PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS OR HER RESPONSIBILITIES. JOB SITE SAFETY AND MEANS AND METHODS OF CONSTRUCTION ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

MONTHLY INTERIM REPORTS SHALL BE SUBMITTED TO THE CONTRACTOR, OWNER, AND THE DESIGNERS OF RECORD. A FINAL REPORT OF SPECIAL INSPECTIONS DOCUMENTING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS, TESTING, AND CORRECTION OF ANY DISCREPANCIES SHOULD BE SUBMITTED PRIOR TO ISSUANCE OF A CERTIFICATE OF USE AND OCCUPANCY.

PROJECT INFORMATION

CODE ENFORCEMENT PROJECT #:	---		
PERMIT #:	---		
PROJECT NAME:	LILLINGTON FIRE STATION 3		
PROJECT ADDRESS:	2873 NC 210 NORTH | LILLINGTON, NC		
OWNER:	NAME		
OWNER ADDRESS:	STREET ADDRESS | CITY, STATE ZIP		
SPECIAL INSPECTOR OF RECORD:	TBD		
SPECIAL INSPECTOR ADDRESS:	STREET ADDRESS | CITY, STATE ZIP		

DESIGN TEAM

STRUCTURAL (RDPIRC) FIRM:	STEWART	ENGINEER OF RECORD:	Thomas W. McLane, PE
ARCHITECTURAL FIRM:	BOBBITT	ARCHITECT OF RECORD:	Jeff Ford, AIA
MECHANICAL FIRM:	---	ENGINEER OF RECORD:	NAME, PE

SCHEDULE OF SPECIAL INSPECTIONS

THE INSPECTION AND TESTING AGENTS SHALL BE ENGAGED BY THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT, AND NOT BY THE CONTRACTOR OR SUBCONTRACTOR WHOSE WORK IS TO BE INSPECTED OR TESTED. ANY CONFLICT OF INTEREST MUST BE DISCLOSED TO THE OWNER, PRIOR TO COMMENCING WORK.

PRIOR TO STARTING WORK THE OWNER SHALL BE PROVIDED WITH THE NAME AND RESUME FOR THE DESIGNATED SPECIAL INSPECTOR FOR THE PROJECT. THE DESIGNATED SPECIAL INSPECTOR SHALL BE A PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED AND BE APPROVED BY THE OWNER. INDIVIDUALS PROVIDING INSPECTIONS SHALL MEET THE FOLLOWING MINIMUM CRITERIA OF CERTIFICATION AND/OR DOCUMENTED EXPERIENCE. WORK EXPERIENCE MUST BE RELATED TO THE FIELD FOR WHICH THE INSPECTOR IS BEING UTILIZED. WORK EXPERIENCE MAY BE GAINED BY WORKING FOR AN INSPECTION/TESTING AGENCY, AN ENGINEERING FIRM, OR A CONTRACTOR AS A TECHNICIAN, INSPECTOR OR ENGINEER.

THE DESIGNATED SPECIAL INSPECTOR SHALL BE RESPONSIBLE FOR COLLECTING AND APPROVING DOCUMENTATION OF QUALIFICATIONS FOR ALL INSPECTORS. COPIES OF DOCUMENTATION OF QUALIFICATIONS, INCLUDING THE QUALIFICATIONS OF THE INDEPENDENT TESTING LABORATORY IF THEY ARE PROVIDING SPECIAL INSPECTION SERVICES, SHALL BE MAINTAINED BY THE SPECIAL INSPECTOR AND BE MADE AVAILABLE FOR OWNER REVIEW AS REQUESTED.

THE FOLLOWING TABLES COMPRISE THE REQUIRED SCHEDULE OF SPECIAL INSPECTIONS FOR THIS PROJECT. THE INSPECTION FREQUENCY INDICATED ON THE TABLES ARE "C" CONTINUOUS, "P" PERIODIC, AND "O" RANDOMIZED ON A DAILY BASIS. THE CONSTRUCTION DIVISIONS WHICH REQUIRE SPECIAL INSPECTIONS FOR THIS PROJECT ARE AS FOLLOWS:

REQD	ITEM	DIVISION	PRIMARY INSPECTOR/SUPERVISOR
☐	IT-1	SPECIAL CASES AND SPECIFIC ELEMENTS ALWAYS REQUIRED	AS IDENTIFIED BY THE RDPIRC
☒	IT-2A	STRUCTURAL STEEL AND HIGH-STRENGTH BOLTING	ICC STRUCTURAL STEEL AND BOLTING INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE)
☒	IT-2B	WELDING OF STRUCTURAL STEEL	ICC STRUCTURAL WELDING SPECIAL INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE), OR AWS D1.1 CERTIFIED WELDING INSPECTOR, OR NDT LEVEL III CERTIFICATE
☒	IT-2C	COLD-FORMED STEEL DECKING	ICC STRUCTURAL STEEL AND BOLTING INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE), OR ICC STRUCTURAL WELDING SPECIAL INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE), OR ICC COMMERCIAL BUILDING INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE)
☐	IT-2D	OPEN-WEB STEEL JOISTS AND JOIST GIRDERS	ICC STRUCTURAL STEEL AND BOLTING INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE)
☒	IT-2E	COLD-FORMED STEEL FRAMING	ICC STRUCTURAL STEEL AND BOLTING INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE), OR ICC STRUCTURAL WELDING SPECIAL INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE), OR ICC COMMERCIAL BUILDING INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE)
☒	IT-3	CONCRETE CONSTRUCTION	ICC REINFORCED CONCRETE SPECIAL INSPECTOR CERTIFICATE AND ACI CONCRETE FIELD TESTING TECHNICIAN CERTIFICATE, GRADE 1, OR ACI CONCRETE CONSTRUCTION SPECIAL INSPECTOR CERTIFICATE, OR NICET CONCRETE TECHNICIAN LEVEL III CERTIFICATE IN CONSTRUCTION MATERIALS TESTING
☒	IT-4	MASONRY CONSTRUCTION	ICC STRUCTURAL MASONRY SPECIAL INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE)
☐	IT-5	WOOD CONSTRUCTION	ICC COMMERCIAL BUILDING INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE)
☒	IT-6	SOILS	NICET SOILS TECHNICIAN LEVEL II CERTIFICATE IN CONSTRUCTION MATERIALS TESTING, OR NICET GEOTECHNICAL ENGINEERING TECHNICIAN LEVEL II CONSTRUCTION OR GENERALIST CERTIFICATE, OR ICC SOILS SPECIAL INSPECTOR CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE), OR ENGINEER-IN-TRAINING (EIT) WITH ONE YEAR OF RELATED EXPERIENCE, OR GEOLOGIST-IN-TRAINING (GIT) WITH ONE YEAR OF RELATED EXPERIENCE
☐	IT-7	DRIVEN DEEP FOUNDATIONS	NICET SOILS TECHNICIAN LEVEL II CERTIFICATE IN CONSTRUCTION MATERIALS TESTING, OR NICET GEOTECHNICAL ENGINEERING TECHNICIAN LEVEL II CONSTRUCTION OR GENERALIST CERTIFICATE, OR ENGINEER-IN-TRAINING (EIT) WITH ONE YEAR OF RELATED EXPERIENCE, OR GEOLOGIST-IN-TRAINING (GIT) WITH ONE YEAR OF RELATED EXPERIENCE
☐	IT-8	CAST-IN-PLACE DEEP FOUNDATIONS	SEE IT-7
☐	IT-9A	HELICAL PILE FOUNDATIONS	SEE IT-7
☐	IT-9B	RAMMED AGGREGATE PIERS AND STONE COLUMNS	SEE IT-7
☐	IT-10	FABRICATED ITEMS	AS NOTED HEREIN FOR EACH COMPONENT TYPE
☐	IT-11	WIND RESISTANCE	AS NOTED HEREIN FOR EACH COMPONENT TYPE
☒	IT-12	SEISMIC RESISTANCE	AS NOTED HEREIN FOR EACH COMPONENT TYPE
☒	IT-13A	SEISMIC RESISTANCE, STRUCTURAL STEEL AND HIGH-STRENGTH BOLTING	AS NOTED HEREIN FOR EACH COMPONENT TYPE
☒	IT-13B	SEISMIC RESISTANCE, WELDING OF STRUCTURAL STEEL	AS NOTED HEREIN FOR EACH COMPONENT TYPE
☒	IT-13C	SEISMIC RESISTANCE, NON-DESTRUCTIVE TESTING OF WELDED JOINTS	AS NOTED HEREIN FOR EACH COMPONENT TYPE
☐	IT-13D	SEISMIC RESISTANCE, STEEL DRIVEN DEEP FOUNDATIONS (H-PILES)	AS NOTED HEREIN FOR EACH COMPONENT TYPE
☐	IT-14	SPRAYED FIRE-RESISTANT MATERIALS	ICC SPRAY-APPLIED FIREPROOFING SPECIAL INSPECTOR CERTIFICATE, OR ICC FIRE INSPECTOR I CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE)
☐	IT-15	MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS	SEE IT-14
☒	IT-16	EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)	AWCI EIFS INSPECTOR CERTIFICATE
☒	IT-17	FIRE-RESISTANT PENETRATIONS AND JOINTS	ICC FIRE INSPECTOR I CERTIFICATE (PLUS ONE YEAR OF RELATED EXPERIENCE)
☐	IT-18	SMOKE CONTROL	REGISTERED PROFESSIONAL ENGINEER (MECHANICAL OR FIRE PROTECTION) AND CERTIFICATION AS AIR BALANCER, OR AABC TECHNICIAN CERTIFICATION (PLUS ONE YEAR OF RELATED EXPERIENCE)

IT-2A: STRUCTURAL STEEL AND HIGH-STRENGTH BOLTING

INSPECTION TASK	FREQ	REFERENCE
1. FABRICATOR CERTIFICATION/VERIFICATION OF QUALITY CONTROL PROCEDURES		
A. VERIFY FABRICATOR QUALIFICATIONS.	C	IBC 1704.2.5.1
B. REVIEW MATERIAL TEST REPORTS AND CERTIFICATIONS.	C	AISC 360 N5.2
C. COLLECT CERTIFICATES OF COMPLIANCE FROM THE STEEL FABRICATOR AT COMPLETION OF FABRICATION.	C	IBC 1704.5
2. INSPECTIONS PRIOR TO HIGH-STRENGTH BOLTING AT PRE-TENSIONED AND SLIP-CRITICAL JOINTS:		
A. COLLECT MANUFACTURER'S CERTIFICATIONS FOR FASTENER MATERIALS.	C	AISC 360 TABLE N5.6-1
B. VERIFY FASTENERS ARE MARKED PER ASTM REQUIREMENTS.	P	AISC 360 TABLE N5.6-1
C. ENSURE CORRECT FASTENERS AND BOLTING PROCEDURES ARE SELECTED FOR JOINT DETAILS. VERIFY GRADE, TYPE, AND BOLT LENGTH (IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE).	P	AISC 360 TABLE N5.6-1
D. VERIFY CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION (WHEN SPECIFIED), COMPLY WITH THE CONTRACT DOCUMENTS.	P	AISC 360 TABLE N5.6-1
E. OBSERVE AND DOCUMENT PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL FOR FASTENER ASSEMBLIES AND METHODS.	P	AISC 360 TABLE N5.6-1
F. VERIFY THE PROTECTED STORAGE FOR BOLTS, NUTS, WASHERS, AND OTHER FASTENER COMPONENTS.	P	AISC 360 TABLE N5.6-1
3. INSPECTIONS DURING HIGH-STRENGTH BOLTING AT PRE-TENSIONED AND SLIP-CRITICAL JOINTS:		
A. ENSURE CORRECT FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS/NUTS (WHEN SPECIFIED) ARE POSITIONED AS REQUIRED.	P	AISC 360 TABLE N5.6-2
B. VERIFY JOINT BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO PRE-TENSIONING.	P	AISC 360 TABLE N5.6-2
C. VERIFY FASTENER COMPONENTS NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING.	P	AISC 360 TABLE N5.6-2
D. ENSURE FASTENERS ARE PRE-TENSIONED IN ACCORDANCE WITH RCSC, PROGRESSING FROM THE MOST RIGID POINT TOWARDS FREE EDGES.	P	AISC 360 TABLE N5.6-2
4. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS AFTER HIGH-STRENGTH BOLTING IS COMPLETE.	C	AISC 360 TABLE N5.6-3
5. VISUALLY INSPECT FOR CRACKS THE EXPOSED CUT SURFACES OF GALVANIZED STRUCTURAL STEEL MAIN MEMBERS AND EXPOSED CORNERS OF GALVANIZED RECTANGULAR HSS MEMBERS.	P	AISC 360 N5.7
6. STRUCTURAL DETAILS		
A. VERIFY DIAMETER, GRADE, TYPE, AND LENGTH OF ANCHOR RODS AND OTHER EMBEDDED ITEMS. THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE SHALL BE VERIFIED AND DOCUMENTED PRIOR TO PLACEMENT OF CONCRETE.	P	AISC 360 N5.8
B. INSPECT THE FABRICATED STEEL OR ERECTED STEEL FRAME TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE CONTRACT DOCUMENTS.	P	AISC 360 N5.8

IT-2B: WELDING OF STRUCTURAL STEEL

INSPECTION TASK	FREQ	REFERENCE
1. INSPECTIONS PRIOR TO WELDING:		AISC 360 N5.4
A. COLLECT AND REVIEW WELDING PROCEDURE SPECIFICATION (WPS) AND VERIFY MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES.	C	AISC 360 TABLE N5.4-1
B. CONFIRM WELD MATERIAL TYPE AND GRADE.	P	AISC 360 TABLE N5.4-1
C. CONFIRM METHOD OF WELDER IDENTIFICATION. REVIEW WELDER QUALIFICATION AND CONTINUITY RECORDS.	P	AISC 360 TABLE N5.4-1
D. INSPECT FIT-UP FOR GROOVE AND FILLET WELDS, INCLUDING JOINT GEOMETRY.	P	AISC 360 TABLE N5.4-1
E. INSPECT FIT-UP FOR CJP GROOVE WELDS OF HSS T-, Y-, AND K- JOINTS WITHOUT BACKING, INCLUDING JOINT GEOMETRY.	P	AISC 360 TABLE N5.4-1
F. INSPECT CONFIGURATION AND FINISH OF ACCESS HOLES.	P	AISC 360 TABLE N5.4-1
2. INSPECTIONS DURING WELDING:		AISC 360 N5.4
A. VERIFY WELDER QUALIFICATIONS.	P	AISC 360 TABLE N5.4-2
B. VERIFY PROPER CONTROL AND HANDLING OF WELDING CONSUMABLES, INCLUDING PACKAGING AND EXPOSURE.	P	AISC 360 TABLE N5.4-2
C. MONITOR THAT ENVIRONMENTAL CONDITIONS, INCLUDING WIND SPEED, PRECIPITATION AND TEMPERATURE, ARE WITHIN DEFINED LIMITS.	P	AISC 360 TABLE N5.4-2
D. MONITOR PROPER IMPLEMENTATION OF WPS, INCLUDING SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, SELECTED WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED, AND PROPER POSITION.	P	AISC 360 TABLE N5.4-2
E. INSPECT WELDING TECHNIQUES, INCLUDING INTERPASS AND FINAL CLEANING, EACH PASS WITHIN PROFILE LIMITATIONS, EACH PASS MEETING QUALITY REQUIREMENTS, AND NO WELDING OVER CRACKED TACK WELDS.	P	AISC 360 TABLE N5.4-2
F. INSPECT PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS.	C	AISC 360 TABLE N5.4-2
3. INSPECTIONS AFTER WELDING:		AISC 360 N5.4, N5.5
A. VERIFY WELDS HAVE BEEN CLEANED.	P	AISC 360 TABLE N5.4-3
B. CONFIRM THE INSTALLED SIZE, LENGTH, AND LOCATION OF WELDS MATCHES THE CONTRACT DOCUMENTS.	C	AISC 360 TABLE N5.4-3
C. VERIFY WELDS MEET VISUAL ACCEPTANCE CRITERIA, INCLUDING CRACK PROHIBITION, WELD/BASE-METAL FUSION, CRATER CROSS SECTION, WELD PROFILES, WELD SIZE, UNDERCUT, AND POROSITY.	C	AISC 360 TABLE N5.4-3
D. CONFIRM ARC STRIKES COMPLY WITH PART 5.28 OF AWS D1.1.	C	AISC 360 TABLE N5.4-3
E. VISUALLY OBSERVE WEB K-AREA FOR CRACKS WITHIN 3" OF WELDED DOUBLER PLATES, CONTINUITY PLATES, AND STIFFENERS.	C	AISC 360 TABLE N5.4-3
F. INSPECT WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES FOR CRACKS.	C	AISC 360 TABLE N5.4-3
G. CONDUCT ULTRASONIC TESTING (UT) OF CJP GROOVE WELDS IN MATERIALS ≥ 5/16":		
100% OF WELDS WHERE PRIMARILY SUPPORTING GRAVITY LOADS (I.E. CANTILEVERS)	C	AISC 360 N5.5
100% OF WELDS SUBJECT TO FATIGUE	C	AISC 360 N5.5c, TABLE A-3.1
10% OF REMAINING WELDS IN RISK CATEGORY II STRUCTURES	C	AISC 360 N5.5
100% OF REMAINING WELDS IN RISK CATEGORY III AND IV STRUCTURES.	C	AISC 360 N5.5
H. VERIFY BACKING AND WELD TABS ARE REMOVED (AS REQUIRED) PER CONTRACT DOCUMENTS.	C	AISC 360 TABLE N5.4-3
I. OBSERVE AND INSPECT WELD REPAIR ACTIVITIES.	C	AISC 360 TABLE N5.4-3
J. DOCUMENT ACCEPTANCE/REJECTION OF WELDED JOINTS AND MEMBERS.	C	AISC 360 TABLE N5.4-3, N5.5g

IT-2C: COLD-FORMED STEEL DECKING

INSPECTION TASK	FREQ	REFERENCE
1. PRIOR TO DECK PLACEMENT, VERIFY DECK AND ACCESSORIES (INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE MATERIAL THICKNESS) COMPLY WITH THE CONTRACT DOCUMENTS. DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES.	C	SDI QA/QC TABLE 1.1
2. INSPECTION TASKS AFTER DECK PLACEMENT:		
A. VERIFY THE INSTALLATION OF DECK AND ACCESSORIES COMPLIES WITH THE CONTRACT DOCUMENTS.	C	SDI QA/QC TABLE 1.2
B. VERIFY THAT DECK MATERIAL MILL CERTIFICATIONS COMPLY WITH THE CONTRACT DOCUMENTS.	C	SDI QA/QC TABLE 1.2
C. DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES.	C	SDI QA/QC TABLE 1.2
3. INSPECTION TASKS PRIOR TO DECK WELDING:		
A. COLLECT WELDING PROCEDURE SPECIFICATION (WPS).	P	SDI QA/QC TABLE 1.3
B. COLLECT MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES.	P	SDI QA/QC TABLE 1.3
C. VERIFY MATERIAL TYPE AND GRADE.	P	SDI QA/QC TABLE 1.3
D. CHECK WELDING EQUIPMENT.	P	SDI QA/QC TABLE 1.3
4. INSPECTION TASKS DURING DECK WELDING:		
A. VERIFY WELDER QUALIFICATIONS.	P	SDI QA/QC TABLE 1.4
B. VERIFY PROPER CONTROL AND HANDLING OF WELDING CONSUMABLES.	P	SDI QA/QC TABLE 1.4
C. MONITOR ENVIRONMENTAL CONDITIONS.	P	SDI QA/QC TABLE 1.4
D. MONITOR PROPER IMPLEMENTATION OF WPS.	P	SDI QA/QC TABLE 1.4
5. INSPECTION TASKS AFTER DECK WELDING:		
A. VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP AND PERIMETER WELDS.	C	SDI QA/QC TABLE 1.5
B. VERIFY WELDS MEET VISUAL ACCEPTANCE CRITERIA.	C	SDI QA/QC TABLE 1.5
C. OBSERVE WELD REPAIR ACTIVITIES.	C	SDI QA/QC TABLE 1.5
D. DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES.	C	SDI QA/QC TABLE 1.5
6. INSPECTION TASKS PRIOR TO MECHANICAL FASTENING:		
A. VERIFY MANUFACTURER INSTALLATION INSTRUCTIONS AVAILABLE FOR MECHANICAL FASTENERS.	P	SDI QA/QC TABLE 1.6
B. VERIFY PROPER TOOLS AVAILABLE FOR FASTENER INSTALLATION.	P	SDI QA/QC TABLE 1.6
C. VERIFY PROPER STORAGE OF MECHANICAL FASTENERS.	P	SDI QA/QC TABLE 1.6
7. INSPECTION TASKS DURING MECHANICAL FASTENING:		
A. OBSERVE FASTENER SPACING AND POSITION.	P	SDI QA/QC TABLE 1.7
B. VERIFY FASTENERS ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.	P	SDI QA/QC TABLE 1.7
8. INSPECTION TASKS AFTER MECHANICAL FASTENING:		
A. VERIFY SPACING, TYPE AND INSTALLATION OF SUPPORT, SIDELAP, AND PERIMETER FASTENERS.	C	SDI QA/QC TABLE 1.8
B. VERIFY REPAIR ACTIVITIES.	C	SDI QA/QC TABLE 1.8
C. DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES.	C	SDI QA/QC TABLE 1.8

IT-2E: COLD-FORMED STEEL FRAMING

INSPECTION TASK	FREQ	REFERENCE
1. FABRICATOR CERTIFICATION/VERIFICATION OF QUALITY CONTROL PROCEDURES		
A. VERIFY FABRICATOR QUALIFICATIONS.	C	IBC 1704.2.5.1
B. COLLECT CERTIFICATES OF COMPLIANCE FROM THE STEEL FABRICATOR AT COMPLETION OF FABRICATION.	C	IBC 1704.5
2. FOR TRUSSES CLEAR SPANNING 60 FEET OR MORE, VERIFY THAT THE TEMPORARY INSTALLATION RESTRAINT/BRACING AND THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING ARE INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE.	P	IBC 1705.2.4

IT-3: CONCRETE CONSTRUCTION

	INSPECTION TASK	FREQ	REFERENCE
☒	1. INSPECT REINFORCEMENT, INCLUDING POST-TENSIONING TENDONS (IF APPLICABLE), AND VERIFY PLACEMENT.	P	IBC 1908.4 | ACI 318 20, 25.2, 25.3, 26.6.1-26.6.3
☒	2. REINFORCING BAR WELDING:		
	A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706 AND COLLECT REPORTS.	P	IBC 1704.5 | ACI 318 26.6.4
	B. INSPECT SINGLE-PASS FILLET WELDS ≤ 5/16".	P	ACI 318 26.6.4
	C. INSPECT ALL WELDS OTHER THAN SINGLE-PASS FILLET WELDS ≤ 5/16".	C	ACI 318 26.6.4
☒	3. CONCRETE ANCHORS:		
	A. INSPECT ANCHORS CAST IN CONCRETE.	P	ACI 318 17.8.2
	B. INSPECT ADHESIVE ANCHORS INSTALLED IN HARDENED CONCRETE WITH HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS THAT RESIST SUSTAINED TENSION LOADS. PERIODIC INSPECTION REQUIRED FOR ALL OTHER CONDITIONS.	C	ACI 318 17.8.2, 17.8.2.4
	C. INSPECT MECHANICAL ANCHORS INSTALLED IN HARDENED CONCRETE.	P	ACI 318 17.8.2
☒	4. COLLECT MIX DESIGNS AND VERIFY THE CORRECT MIX USED DURING INSTALLATION.	P	IBC 1904.1, 1904.2, 1908.2, 1908.3 | ACI 318 19, 26.4.3, 26.4.4
☒	5. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	C	IBC 1908.10 | ACI 318 26.4, 26.12 | ASTM C31, C172
☒	6. INSPECT CONCRETE AND SHOTCRETE (IF APPLICABLE) PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	C	IBC 1908.6-1908.8 | ACI 318 26.5
☐	7. COLLECT REPORTS OF PRECONSTRUCTION TESTS FOR SHOTCRETE WHEN PRECONSTRUCTION TESTS ARE REQUIRED BY IBC 1908.4.	C	IBC 1704.5, 1908.5
☒	8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	P	IBC 1908.9 | ACI 318 26.5.3-26.5.5
☐	9. INSPECTIONS FOR POST-TENSIONED CONCRETE:		
	A. OBSERVE APPLICATION OF POST-TENSIONING FORCE.	C	ACI 318 26.10
	B. INSPECT GROUTING OF BONDED POST-TENSIONING TENDONS.	C	ACI 318 26.10
☐	10. VERIFY CONCRETE STRENGTH PRIOR TO STRESSING OF POST-TENSIONING TENDONS AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM POST-TENSIONED/MILD BEAMS AND STRUCTURAL SLABS.	P	ACI 318 26.11.2
☐	11. INSPECT ERECTION OF PRECAST MEMBERS.	P	ACI 318 26.9
☒	12. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	P	ACI 318 26.11.1.2(b)
☐	13. COLLECT MILL TEST REPORTS FOR ASTM A615 REBAR USED IN SPECIAL REINFORCED CONCRETE MOMENT FRAMES AND SPECIAL REINFORCED CONCRETE SHEAR WALLS.	C	IBC 1704.5 | ACI 318 20.2.2.5

APPROVAL:
DATE:

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09-19-2024

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LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
1" = 1'-0"

09/19/2024

24-0013

SPECIAL INSPECTIONS

S0.4
OF 20

Revisions			
#	Date	By	Description

IT-4: MASONRY CONSTRUCTION (LEVEL C)

INSPECTION TASK	FREQ	REFERENCE
1. TEST AND VERIFY f'_m AND f'_{AAC} PRIOR TO CONSTRUCTION AND FOR EVERY 5,000 SF DURING CONSTRUCTION.	C	ACI 530 TABLE 3.1.3 | ACI 530.1 1.5
2. TEST AND VERIFY PROPORTIONS OF MATERIALS IN PREMIXED/PREBLENDED MORTAR AND GROUT OTHER THAN SELF-CONSOLIDATING, AS DELIVERED TO SITE.	C	ACI 530 TABLE 3.1.3
3. TEST AND VERIFY SLUMP FLOW AND VISUAL STABILITY INDEX AS DELIVERED TO SITE FOR SELF-CONSOLIDATING GROUT.	C	ACI 530 TABLE 3.1.3 | ACI 530.1 1.5B.1.b.3
4. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS.	P	ACI 530 TABLE 3.1.3 | ACI 530.1 1.5
5. VERIFY COMPLIANCE FOR THE FOLLOWING:		
A. PROPORTIONS OF SITE-PREPARED MORTAR AND GROUT.	P	ACI 530.1 2.1, 2.4G.1b, 2.6A-C
B. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS.	P	ACI 530 6.1 | ACI 530.1 2.4, 3.4
C. PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS.	P	ACI 530.1 3.3B
D. PLACEMENT OF REINFORCEMENT AND CONNECTORS.	C	ACI 530 6.1, 6.2.1, 6.2.6, 6.2.7 ACI 530.1 3.2E, 3.4, 3.6A
E. GROUT SPACE IS CLEAN, AND CLEANOUTS ARE PROVIDED WHEN REQUIRED.	C	ACI 530.1 3.2D, 3.2F
F. PLACEMENT OF GROUT.	C	ACI 530.1 3.5, 3.6C
G. SIZE AND LOCATION OF STRUCTURAL ELEMENTS.	P	ACI 530.1 3.3F
H. TYPE, SIZE, AND LOCATION OF ANCHORS INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION.	C	ACI 530 1.2.1(e), 6.1.4.3, 6.2.1
I. WELDING OF REINFORCEMENT.	C	ACI 530 8.1.6.7.2, 9.3.3.4(c), 11.3.3.4(b)
J. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD (<40°F) WEATHER OR HOT (>90°F) WEATHER.	P	ACI 530.1 1.8C, 1.8D
K. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS.	C	ACI 530.1 3.3B.9, 3.3F.1b
L. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY.	C	ACI 530.1 2.1C.1
6. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS.	C	ACI 530.1 1.4B.2.a.3, 1.4B.2.b.3, 1.4B.2.c.3, 1.4B.3, 1.4B.4

LEVEL C INSPECTION IS REQUIRED FOR ENGINEERED MASONRY IN RISK CATEGORY IV STRUCTURES. ENGINEERED MASONRY STRUCTURES ARE THOSE DESIGNED IN ACCORDANCE WITH PORTIONS OF ACI 530 OTHER THAN PART 4 OR APPENDIX A.

IT-6: SOILS

INSPECTION TASK	FREQ	REFERENCE
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	P	IBC 1705.6
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	P	IBC 1705.6
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	P	IBC 1705.6
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT HEIGHTS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	C	IBC 1705.6
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY.	P	IBC 1705.6

IT-12: SEISMIC RESISTANCE

	INSPECTION TASK	FREQ	REFERENCE
☒	1. PRIOR TO ANY WORK TAKING PLACE, EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A SEISMIC FORCE-RESISTING SYSTEM (SFRS) OR COMPONENT SHALL SUBMIT A WRITTEN STATEMENT OF CONTRACTOR RESPONSIBILITY.	C	IBC 1704.4
☒	2. STRUCTURAL STEEL (SEE IT-13 TABLES). [SDC ≥ D OR SDC ≥ B WHERE R > 3]		IBC 1705.12.1
☐	3. STRUCTURAL WOOD [SDC ≥ C] (*)		
	A. VERIFY FIELD GLUING OPERATIONS OF ELEMENTS OF THE SFRS.	C	IBC 1705.12.2
	B. INSPECT NAILING, ANCHORING, AND FASTENING OF COMPONENTS WITHIN THE SFRS INCLUDING SHEAR WALLS, DIAPHRAGMS, DRAG STRUTS, BRACES, AND HOLD-DOWNS.	P	IBC 1705.12.2
☐	4. COLD-FORMED STEEL FRAMING CONSTRUCTION [SDC ≥ C] (*)		
	A. INSPECT WELDING OPERATIONS AT ELEMENTS OF THE SFRS.	P	IBC 1705.12.3
	B. INSPECT SCREW ATTACHMENT, BOLTING, ANCHORING, AND FASTENING OF ELEMENTS WITHIN THE SFRS.	P	IBC 1705.12.3
	C. INSPECT SPECIAL BOLTED MOMENT FRAMES. [SDC ≥ D]	P	IBC 1705.12.9
☐	5. VERIFY ERECTION AND FASTENING OF EXTERIOR CLADDING, NON-BEARING WALLS, AND VENEER TALLER THAN 30' ABOVE FINISHED GRADE. [SDC ≥ D]	P	IBC 1705.12.5
☒	6. CONFIRM ANCHORAGE OF ACCESS FLOORS. [SDC ≥ D]	P	IBC 1705.12.5.1
☒	7. CONFIRM ANCHORAGE OF STORAGE RACKS AT LEAST 8' TALL. [SDC ≥ D]	P	IBC 1705.12.7
☒	8. COLLECT CERTIFICATES OF COMPLIANCE FOR QUALIFYING EQUIPMENT, SUPPORTS, ATTACHMENTS, AND COMPONENTS; VERIFY CORRECTNESS OF LABELS AND INSTALLATION. [SDC ≥ C]	C	IBC 1705.12.4, 1705.13.2 | ASCE 7 13.2.1, 13.2.2
	9. PLUMBING, MECHANICAL, AND ELECTRICAL COMPONENTS		
☒	A. VERIFY ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY AND STANDBY POWER SYSTEMS. [SDC ≥ C]	P	IBC 1705.12.6
☒	B. VERIFY INSTALLATION AND ANCHORAGE OF PIPE AND DUCT SYSTEMS CARRYING HAZARDOUS MATERIALS AND ASSOCIATED MECHANICAL UNITS. [SDC ≥ C]	P	IBC 1705.12.6
☒	C. CONFIRM THE INSTALLATION AND ANCHORAGE OF VIBRATION ISOLATION SYSTEMS WITH NOMINAL CLEARANCES ≤ 1/4". [SDC ≥ C]	P	IBC 1705.12.6
☒	D. INSPECT AND TEST SEISMIC ISOLATION SYSTEMS AT SEISMICALLY ISOLATED STRUCTURES. [SDC ≥ B]	P	IBC 1705.12.8, 1705.13.4 | ASCE 7 17.8

INSPECTION IS NOT REQUIRED FOR STRUCTURES OF LIGHT-FRAME CONSTRUCTION WHERE $S_{DS} \leq 0.5$ AND THE BUILDING HEIGHT ≤ 35', NOR FOR SFRS OF REINFORCED MASONRY/CONCRETE WHERE $S_{DS} \leq 0.5$ AND THE BUILDING HEIGHT ≤ 25'. (*) INSPECTION IS NOT REQUIRED FOR STRUCTURAL SHEATHING IN SHEAR WALLS, PANELS, AND DIAPHRAGMS WHERE THE FASTENER SPACING > 4"OC.

SEISMIC FORCE-RESISTING SYSTEMS AND COMPONENTS/CONNECTIONS SUBJECT TO INSPECTION INCLUDE:

IT-13A: SEISMIC RESISTANCE, STRUCTURAL STEEL AND HIGH-STRENGTH BOLTING

INSPECTION TASK	FREQ	REFERENCE
1. INSPECTIONS PRIOR TO HIGH-STRENGTH BOLTING:		
A. ENSURE CORRECT FASTENERS AND BOLTING PROCEDURES ARE SELECTED FOR JOINT DETAILS.	O	AISC 341 TABLE J7.1
B. VERIFY CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION (WHEN SPECIFIED), COMPLY WITH THE CONTRACT DOCUMENTS.	O	AISC 341 TABLE J7.1
C. OBSERVE AND DOCUMENT PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL FOR FASTENER ASSEMBLIES AND METHODS.	O	AISC 341 TABLE J7.1
D. VERIFY PROPER STORAGE PROVIDED FOR ALL FASTENER COMPONENTS.	O	AISC 341 TABLE J7.1
2. INSPECTIONS DURING HIGH-STRENGTH BOLTING:		
A. ENSURE CORRECT FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS (WHEN SPECIFIED) ARE POSITIONED AS REQUIRED.	O	AISC 341 TABLE J7.2
B. VERIFY JOINT BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO PRE-TENSIONING.	O	AISC 341 TABLE J7.2
C. VERIFY FASTENER COMPONENTS NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING.	O	AISC 341 TABLE J7.2
D. ENSURE FASTENERS ARE PRE-TENSIONED IN ACCORDANCE WITH RCSC, PROGRESSING FROM THE MOST RIGID POINT TOWARDS FREE EDGES.	O	AISC 341 TABLE J7.2
3. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS AFTER HIGH-STRENGTH BOLTING IS COMPLETE.	O	AISC 341 TABLE J7.3
4. VERIFY CONTOUR, FINISH, AND DIMENSIONAL TOLERANCES OF REDUCED BEAM SECTIONS (RBS).	O	AISC 341 TABLE J8.1
5. ENSURE NO HOLES OR UNAPPROVED ATTACHMENTS ARE MADE BY THE FABRICATOR OR ERECTOR IN THE PROTECTED ZONE.	O	AISC 341 TABLE J8.1

INSPECTION IS ONLY REQUIRED FOR SDC ≥ D, OR SDC ≥ B WHERE R > 3.

IT-13B: SEISMIC RESISTANCE, WELDING OF STRUCTURAL STEEL

INSPECTION TASK	FREQ	REFERENCE
1. INSPECTIONS PRIOR TO WELDING:		
A. CONFIRM WELD MATERIAL TYPE AND GRADE.	O	AISC 341 TABLE J6.1
B. CONFIRM METHOD OF WELDER IDENTIFICATION.	O	AISC 341 TABLE J6.1
C. INSPECT FIT-UP AND JOINT GEOMETRY FOR GROOVE WELDS, INCLUDING JOINT PREPARATION, DIMENSIONS, ALIGNMENT, ROOT OPENING, ROOT FACE AND BEVEL, CLEANLINESS OF STEEL SURFACES, TACK WELD QUALITY AND LOCATION, AND BACKING TYPE AND FIT.	O	AISC 341 TABLE J6.1
D. INSPECT ACCESS HOLE CONFIGURATION AND FINISH.	O	AISC 341 TABLE J6.1
E. INSPECT FIT-UP FOR FILLET WELDS, INCLUDING DIMENSIONS, ALIGNMENT, ROOT GAPS, CLEANLINESS OF STEEL SURFACES, TACK WELD QUALITY AND LOCATION.	O	AISC 341 TABLE J6.1
2. INSPECTIONS DURING WELDING:		
A. MONITOR PROPER IMPLEMENTATION OF WELDING PROCEDURE SPECIFICATION (WPS), INCLUDING SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, WELDING MATERIALS SELECTED, SHIELDING GAS TYPE AND FLOW RATE, PREHEAT APPLICATION, INTERPASS TEMPERATURE MAINTAINED, WELD POSITION (F, V, H, OH), AND INTERMIX OF FILLER METALS AVOIDED (UNLESS APPROVED BY THE RDPIRC).	O	AISC 341 TABLE J6.2
B. VERIFY WELDER QUALIFICATIONS.	O	AISC 341 TABLE J6.2
C. VERIFY PROPER CONTROL AND HANDLING OF WELDING CONSUMABLES, INCLUDING PACKAGING AND EXPOSURE.	O	AISC 341 TABLE J6.2
D. MONITOR THAT ENVIRONMENTAL CONDITIONS, INCLUDING WIND SPEED, PRECIPITATION AND TEMPERATURE, ARE WITHIN DEFINED LIMITS.	O	AISC 341 TABLE J6.2
E. VERIFY WELDING TECHNIQUES, INCLUDING INTERPASS AND FINAL CLEANING, EACH PASS WITHIN PROFILE LIMITATIONS, AND EACH PASS MEETS QUALITY REQUIREMENTS.	O	AISC 341 TABLE J6.2
F. INSPECT WELDING TECHNIQUES, INCLUDING NO WELDING OVER CRACKED TACK WELDS.	O	AISC 341 TABLE J6.2
3. INSPECTIONS AFTER WELDING:		
A. VERIFY WELDS HAVE BEEN CLEANED.	O	AISC 341 TABLE J6.3
B. CONFIRM THE INSTALLED SIZE, LENGTH, AND LOCATION OF WELDS MATCHES THE CONTRACT DOCUMENTS.	C	AISC 341 TABLE J6.3
C. VERIFY WELDS MEET VISUAL ACCEPTANCE CRITERIA, INCLUDING CRACK PROHIBITION, WELD/BASE-METAL FUSION, CRATER CROSS SECTION, WELD PROFILES AND SIZE, UNDERCUT, AND POROSITY.	C	AISC 341 TABLE J6.3
D. INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3" OF THE WELD FOR DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS AND BE PERFORMED NO SOONER THAN 48 HOURS FOLLOWING COMPLETION OF THE WELDING.	C	AISC 341 TABLE J6.3
E. CONFIRM PLACEMENT OF REINFORCING OR CONTOURING FILLET WELDS.	C	AISC 341 TABLE J6.3
F. VERIFY BACKING AND WELD TABS ARE REMOVED (AS REQUIRED), FINISHED, AND FILLET WELDS ADDED.	C	AISC 341 TABLE J6.3
G. OBSERVE AND INSPECT WELD REPAIR ACTIVITIES.	C	AISC 341 TABLE J6.3

INSPECTION IS ONLY REQUIRED FOR SDC ≥ D, OR SDC ≥ B WHERE R > 3.

IT-13C: SEISMIC RESISTANCE, NON-DESTRUCTIVE TESTING OF WELDED JOINTS

INSPECTION TASK	FREQ	REFERENCE
1. PERFORM ULTRASONIC TESTING (UT) ON 100% OF PARTIAL JOINT PENETRATION (PJP) GROOVE WELDS IN COLUMN SPLICES AND COLUMN TO BASE PLATE WELDS.	C	AISC 341 J6.2b
2. COMPLETE JOINT PENETRATION (CJP) GROOVE WELDS IN MATERIALS ≥ 5/16" THICK		
A. PERFORM UT ON 100% OF CJP GROOVE WELDS, EXCEPT FOR ORDINARY MOMENT FRAMES FOR WHICH ONLY DEMAND CRITICAL WELDS NEED BE TESTED.	C	AISC 341 J6.2a, J6.2g | AWS D1.1 TABLE 6.2
B. PERFORM MAGNETIC PARTICLE TESTING (MT) ON 25% OF BEAM-TO-COLUMN CJP GROOVE WELDS, EXCEPT FOR ORDINARY MOMENT FRAMES FOR WHICH ONLY DEMAND CRITICAL WELDS NEED BE TESTED.	P	AISC 341 J6.2a, J6.2h
C. AT THE END OF WELDS WHERE WELD TABS HAVE BEEN REMOVED (EXCLUDING CONTINUITY PLATE WELD TABS), PERFORM MT ON 100% OF BEAM-TO-COLUMN JOINTS RECEIVING UT IN ACCORDANCE WITH ITEM 2.A.	C	AISC 341 J6.2f, J6.2h
3. PROVIDE UT FOR BASE METAL LAMELLAR TEARING AND LAMINATIONS AT BASE METAL THICKNESS ≥ 1 1/2" LOADED IN TENSION IN THROUGH-THICKNESS DIRECTION, IN TEE AND CORNER JOINTS WHERE CONNECTED MATERIAL IS ≥ 3/4" AND CONTAINS CJP GROOVE WELDS.	C	AISC 341 J6.2c | AWS D1.1 TABLE 6.2
4. AT WELDED SPLICES AND CONNECTIONS, PERFORM MT OR PENETRANT TESTING AT THERMALLY CUT SURFACES OF BEAM COPES AND ACCESS HOLES FOR ROLLED SECTIONS WITH tf > 1 1/2" AND BUILT-UP SHAPES WITH tw > 1 1/2".	C	AISC 341 J6.2d
5. PERFORM MT ON WELDS AND ADJACENT AREAS OF REDUCED BEAM SECTION (RBS) CUT SURFACES REPAIRED BY WELDING, OR ON BASE METAL OF RBS CUT SURFACES IF A SHARP NOTCH WAS REMOVED BY GRINDING.	C	AISC 341 J6.2e

INSPECTION IS ONLY REQUIRED FOR SDC ≥ D, OR SDC ≥ B WHERE R > 3.

IT-16: EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

INSPECTION TASK	FREQ	REFERENCE
1. VERIFY THAT EIFS IS INSTALLED IN CONFORMANCE WITH CONTRACT DOCUMENTS.	P	IBC 1705.16
2. IF A WATER-RESISTIVE BARRIER COATING COMPLYING WITH ASTM E2570 IS INSTALLED OVER A SHEATHING SUBSTRATE, VERIFY THAT THE WATER BARRIER AND DRAINAGE STRIP ARE INSTALLED IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.	P	IBC 1705.16.1

INSPECTION IS NOT REQUIRED FOR EIFS APPLICATIONS INSTALLED OVER A WATER-RESISTIVE BARRIER THAT DRAINS TO THE EXTERIOR OR EIFS APPLICATIONS INSTALLED OVER MASONRY OR CONCRETE WALLS.

IT-17: FIRE-RESISTANT PENETRATIONS AND JOINTS

INSPECTION TASK	FREQ	REFERENCE
1. INSPECT THROUGH-PENETRATION FIRESTOP SYSTEMS AT FIRE WALLS, FIRE BARRIERS, SMOKE BARRIERS AND FIRE PARTITION WALLS IN ACCORDANCE WITH ASTM E2174.	P	IBC 714.4.1.2, 1705.17.1
2. INSPECT PENETRATION FIRESTOP SYSTEMS AT PENETRATIONS THROUGH MEMBRANES THAT ARE PART OF A HORIZONTAL ASSEMBLY IN ACCORDANCE WITH ASTM E2174.		
A. VERIFY MATERIALS BEFORE INSTALLATION.	P	IBC 714.5.2, 1705.17.1
B. VERIFY INSTALLATION AGAINST THE CONTRACT DOCUMENTS AND APPROVED MATERIAL/INSTALLATION SUBMITTALS.	P	IBC 714.5.2, 1705.17.1
C. FOR EACH TYPE OF FIRESTOP, WITNESS 10% OF INSTALLATIONS – OR DESTRUCTIVE TESTING ON 2% OF INSTALLATIONS FOR 10,000 SF FLOOR AREA.	P	IBC 714.5.2, 1705.17.1
3. INSTALLATION OF FIRE-RESISTANT JOINT SYSTEMS IN ACCORDANCE WITH ASTM E2393		
A. VERIFY MATERIALS BEFORE INSTALLATION.	P	IBC 715.3, 715.4, 1705.17.2
B. VERIFY INSTALLATION AGAINST THE CONTRACT DOCUMENTS AND APPROVED MATERIAL/INSTALLATION SUBMITTALS.	P	IBC 715.3, 715.4, 1705.17.2
C. FOR EACH TYPE OF JOINT SYSTEM, WITNESS INSTALLATION OF A MINIMUM OF 5% OF THE TOTAL LINEAL FEET BEING INSTALLED – OR DESTRUCTIVE TESTING, DISASSEMBLY, OR VISUAL INSPECTION AT LEAST THE RATE OF 1 SAMPLE FOR EVERY 500 LINEAL FEET BEING INSTALLED.	P	IBC 715.3, 715.4, 1705.17.2

INSPECTION IS ONLY REQUIRED FOR HIGH-RISE BUILDINGS OR BUILDINGS ASSIGNED TO RISK CATEGORY III OR IV. ADDITIONS, CHANGES OF USE, EVALUATIONS PER CHAPTER 14 OF THE IEBC, AND LEVEL 3 ALTERATIONS WITHIN EXISTING HIGH-RISE BUILDINGS OR BUILDINGS ASSIGNED TO RISK CATEGORY III OR IV SHALL ALSO REQUIRE THESE INSPECTIONS.

APPROVAL:
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COORDINATOR: JGF

DRAWN BY: VNA

CHK BY: TWM
-

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
1" = 1'-0"

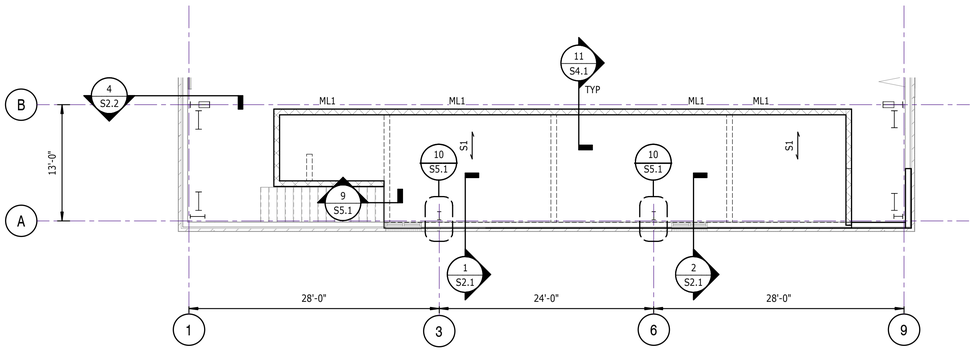
09/19/2024

24-0013

SPECIAL INSPECTIONS

S0.5
OF 20

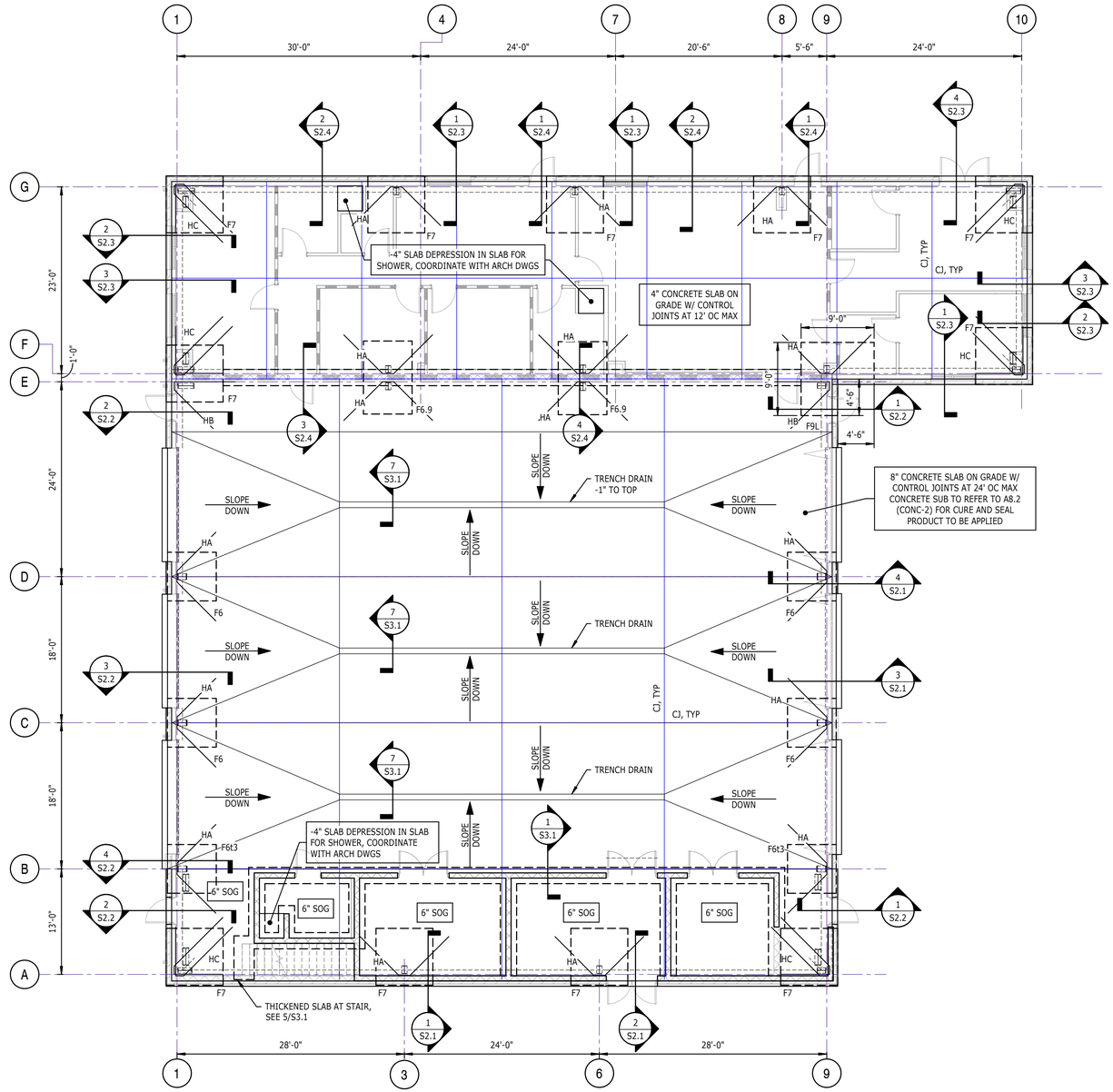
Revisions			
#	Date	By	Description



2 S1.1 MEZZANINE FRAMING PLAN

1/8" = 1'-0"

FLOOR FRAMING PLAN NOTES:
1. SEE S0.1 THROUGH S0.3 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOL LEGEND.
2. SEE S--- FOR TYPICAL SLAB CONSTRUCTION DETAILS.



1 S1.1 FOUNDATION PLAN

1/8" = 1'-0"

FOUNDATION PLAN NOTES:
1. SEE S0.1 THROUGH S0.3 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOL LEGEND.
2. REFERENCE FINISHED FLOOR ELEVATION 0'-0". ACTUAL ELEVATION IS xxxx.xx'
3. SEE 1/S3.1 FOR TYPICAL SLAB CONSTRUCTION DETAILS.
4. CONTRACTOR TO COORDINATE ALL THICKENED SLAB LOCATIONS UNDER CMU PARTITIONS WITH ARCHITECTURAL DRAWINGS.
5. SLOPE EXTERIOR SLABS, SIDEWALKS, AND PAVING AS INDICATED ON THE ARCHITECTURAL DRAWINGS.
6. HA, HB, AND HC INDICATES THE HAIRPIN TYPE. SEE 9/S3.2 FOR DETAILS.

SPREAD FOOTING SCHEDULE

MARK	SIZE			REINFORCEMENT (EACH WAY)	
	WIDTH	LENGTH	DEPTH	TOP	BOTTOM
F6	6'-0"	6'-0"	2'-0"	(7)#7	(7)#7
F6.9	6'-0"	9'-0"	2'-0"	#7@12"OC	#7@12"OC
F6t3	6'-0"	6'-0"	3'-0"	(8)#7	(8)#7
F7	7'-0"	7'-0"	2'-0"	(8)#7	(8)#7
F9L	SEE PLAN	SEE PLAN	2'-0"	#7@12"OC	#7@12"OC

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FLOOR PLANS

S1.1
OF 20

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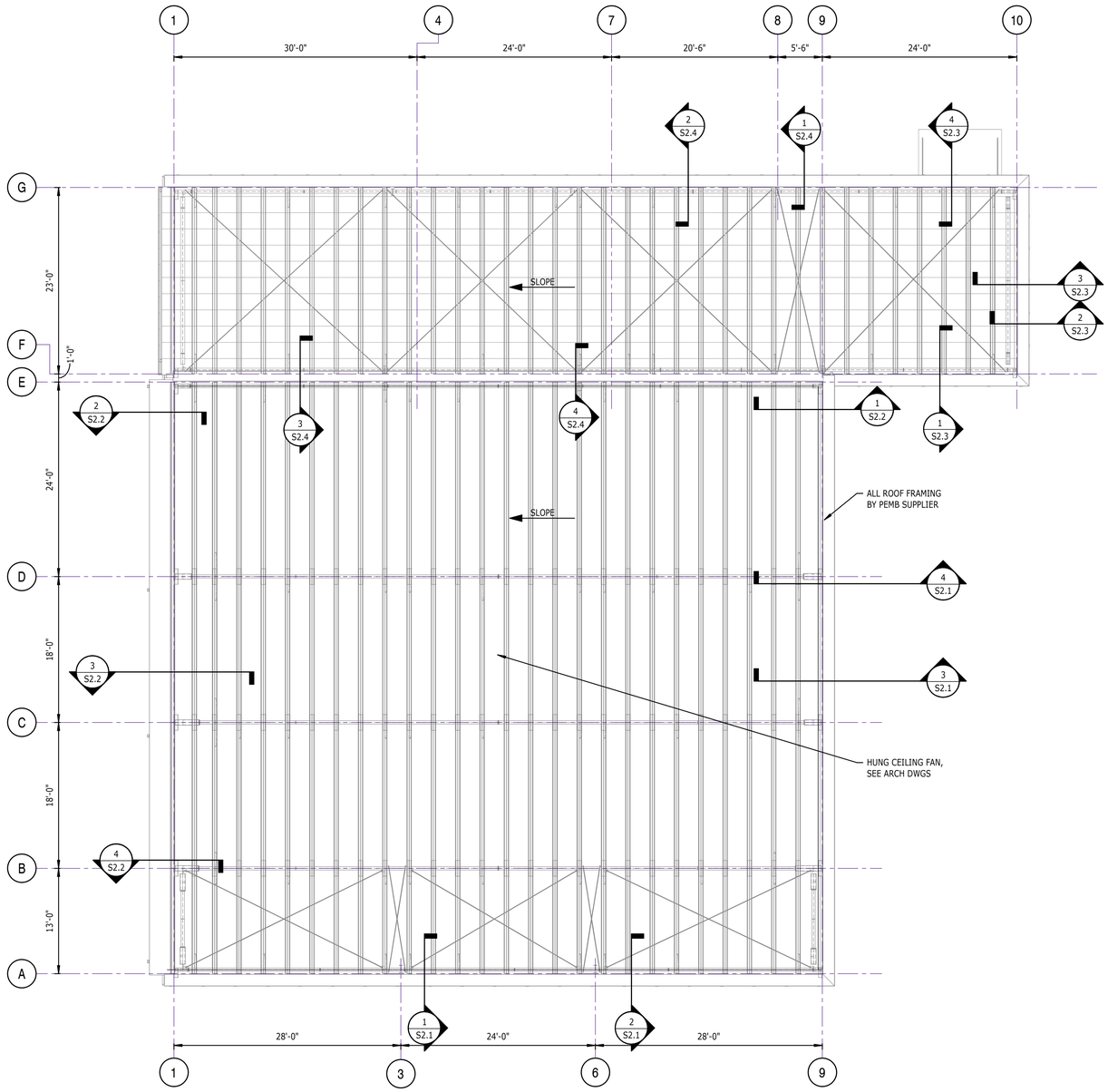

1 S1.2 ROOF FRAMING PLAN

1/8" = 1'-0"

ROOF FRAMING PLAN NOTES:

1. SEE S0.1 THROUGH S0.3 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOL LEGEND.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL ROOF SLOPES.

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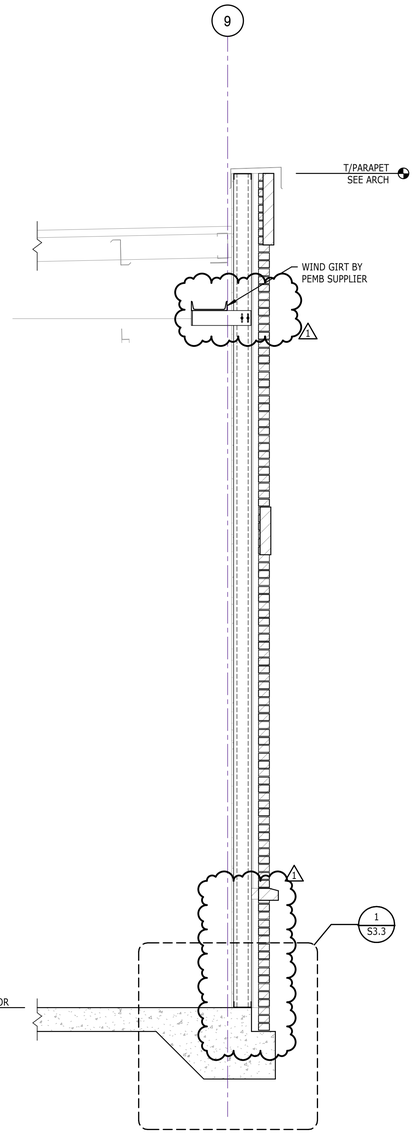
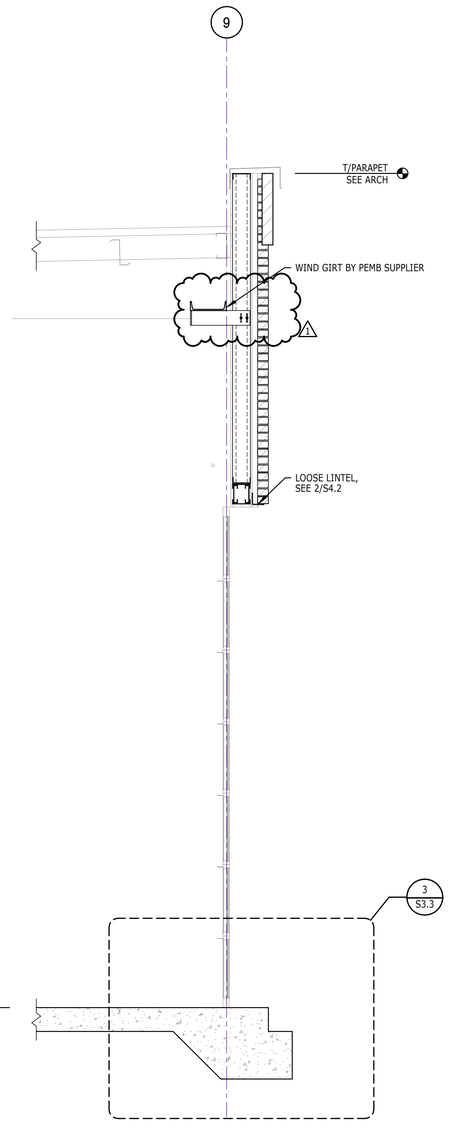
ROOF FRAMING PLAN

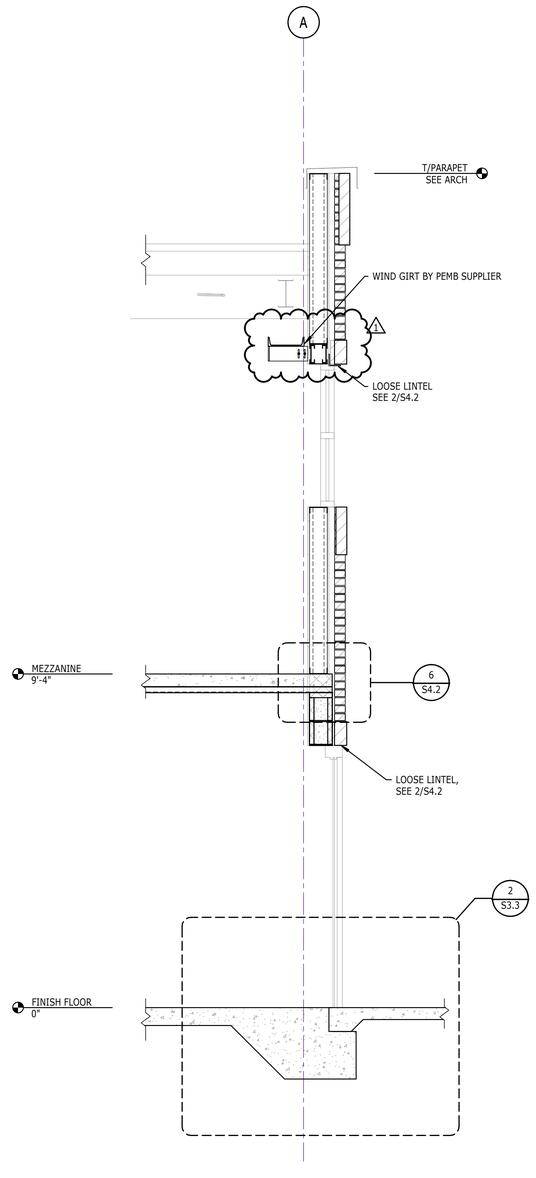
S1.2
OF 20



4 S2.1 SECTION
1/2" = 1'-0"



3 S2.1 SECTION
1/2" = 1'-0"



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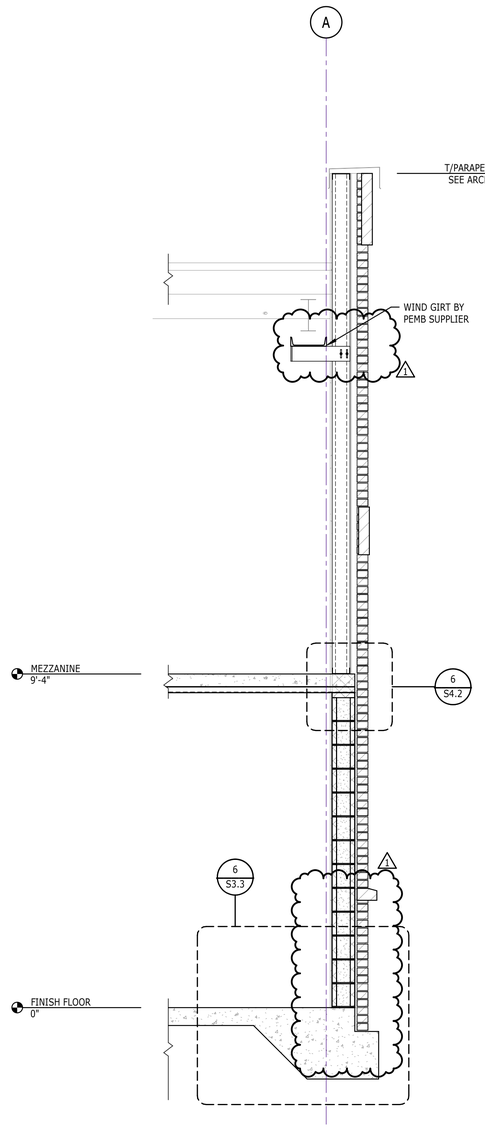

1 S2.1 SECTION
1/2" = 1'-0"

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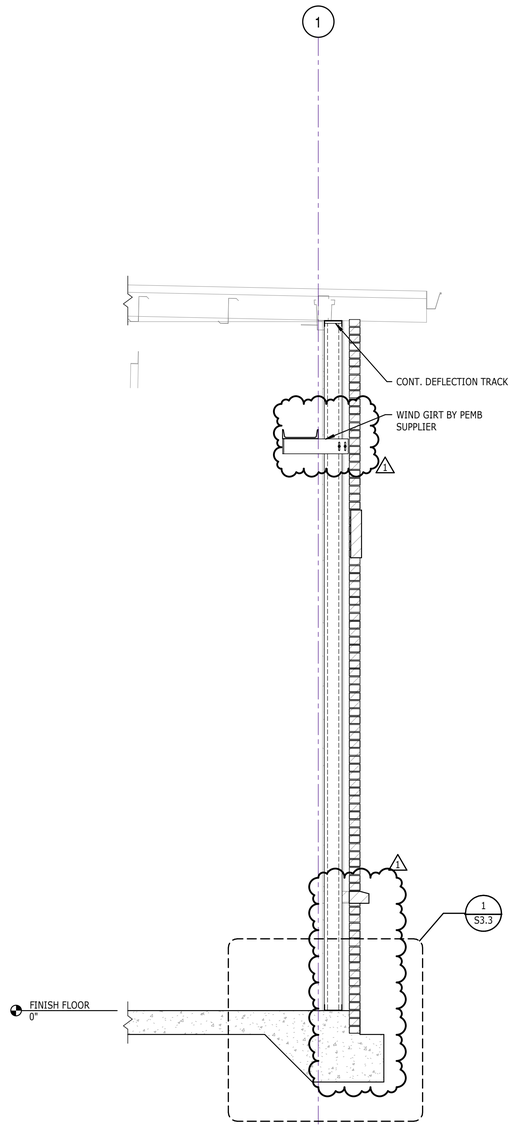
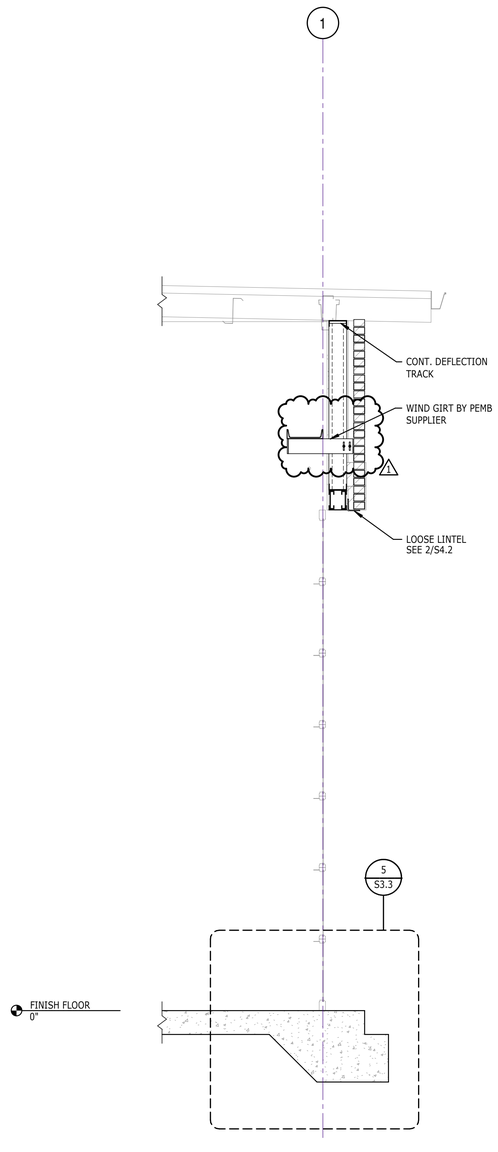


4 S2.2 SECTION
1/2" = 1'-0"



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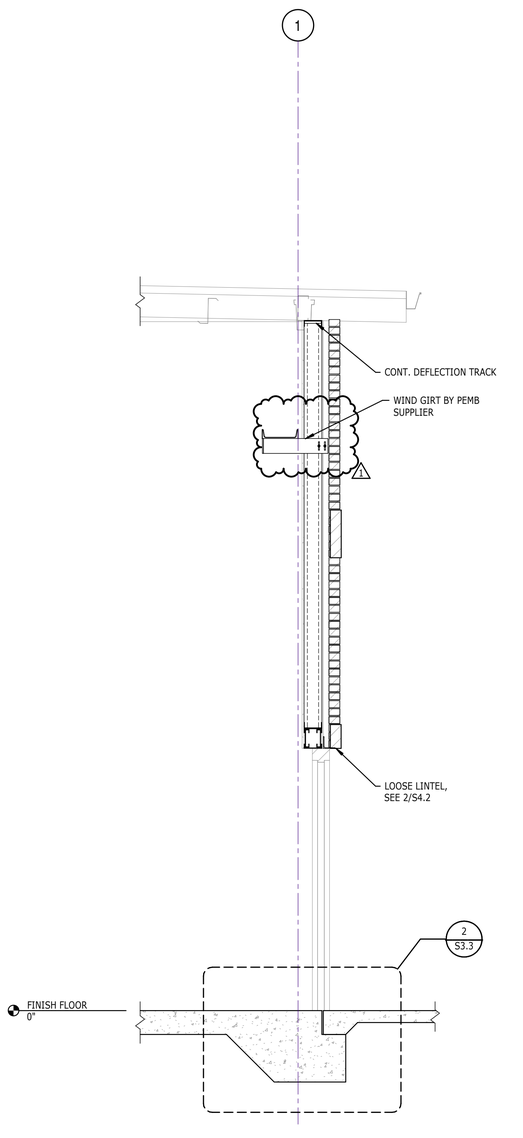
1/2" = 1'-0"



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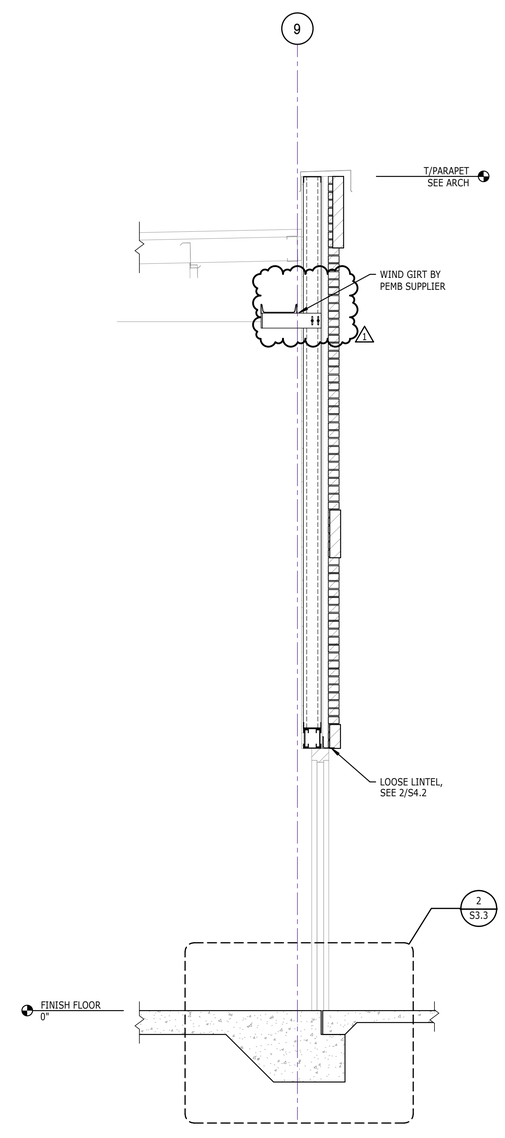

1 S2.2 SECTION
1/2" = 1'-0"

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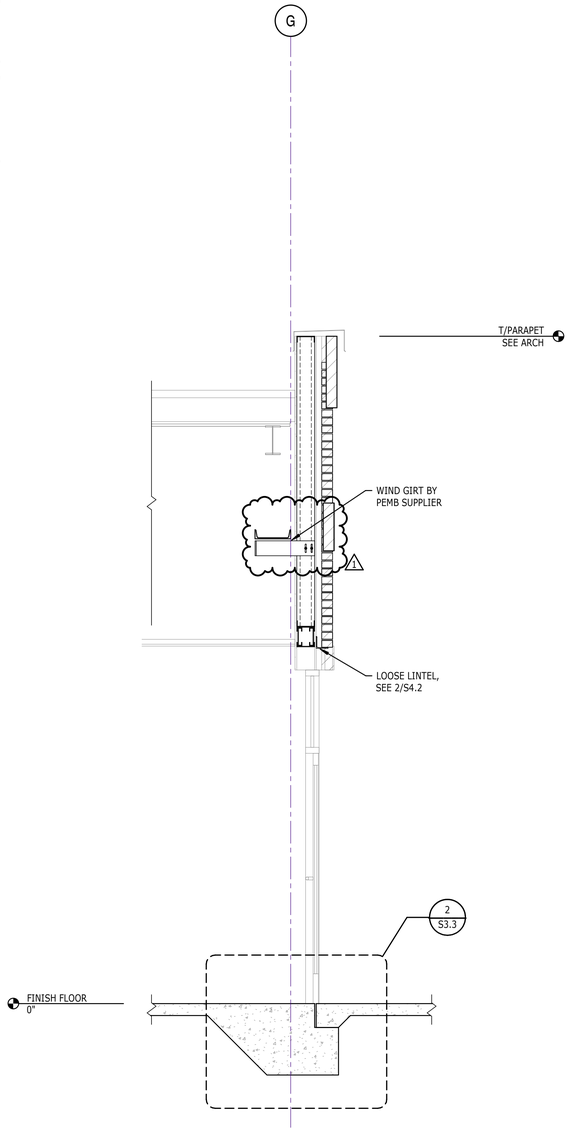

4 S2.3 SECTION
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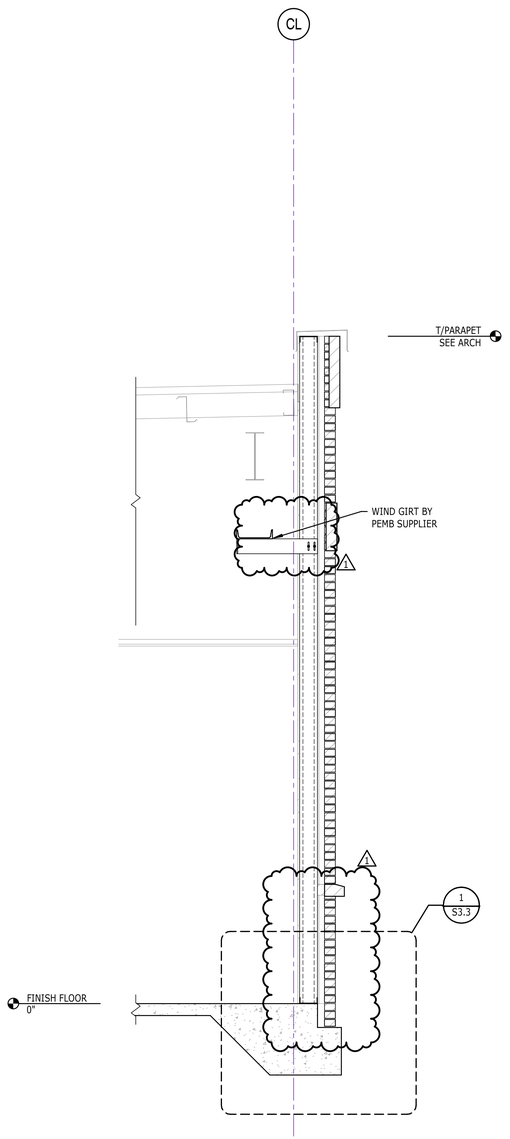

3 S2.3 SECTION
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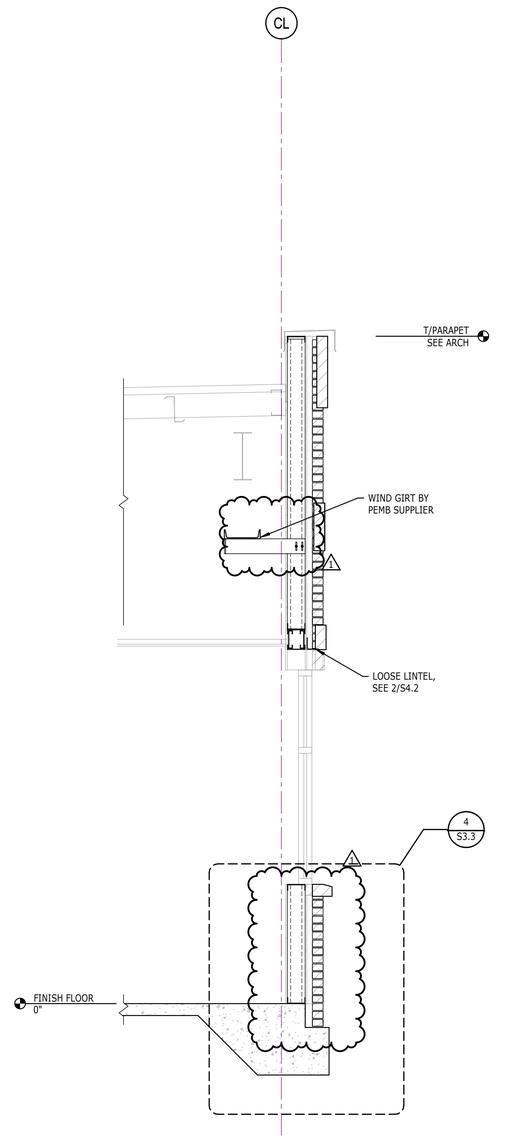

2 S2.3 SECTION
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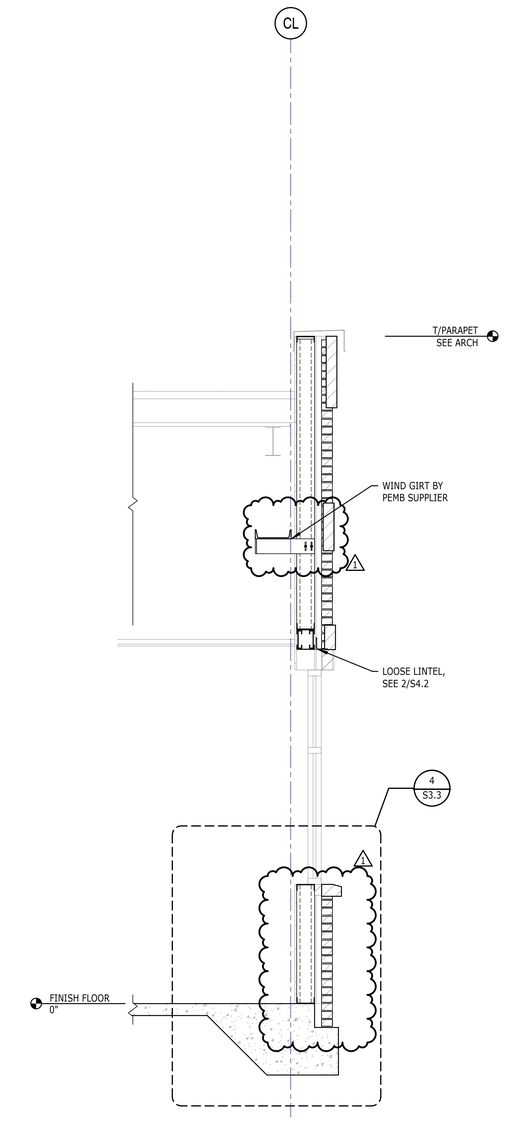

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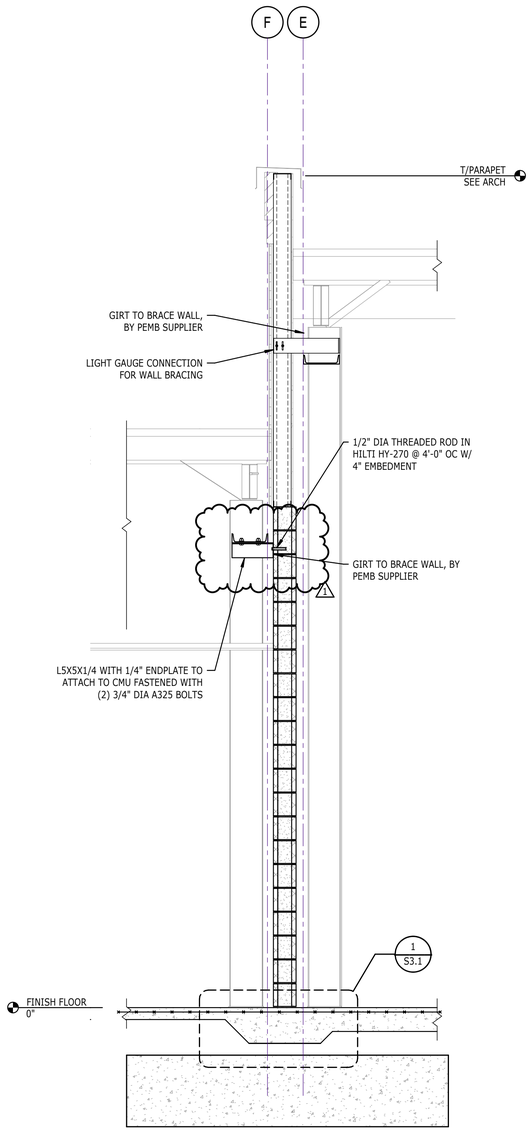
OF 20



4 S2.4 SECTION
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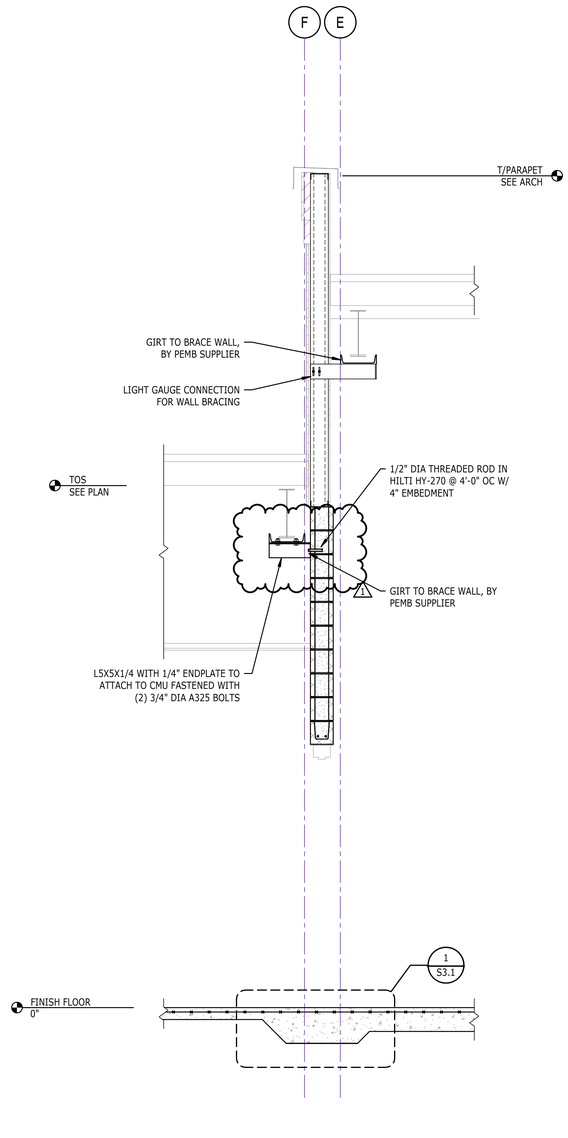

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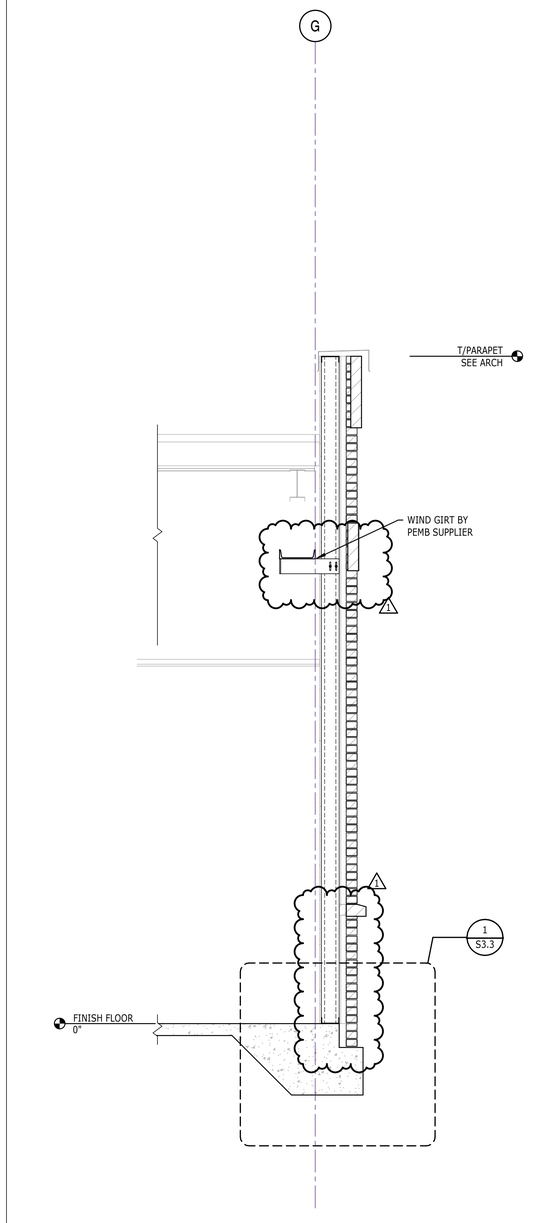

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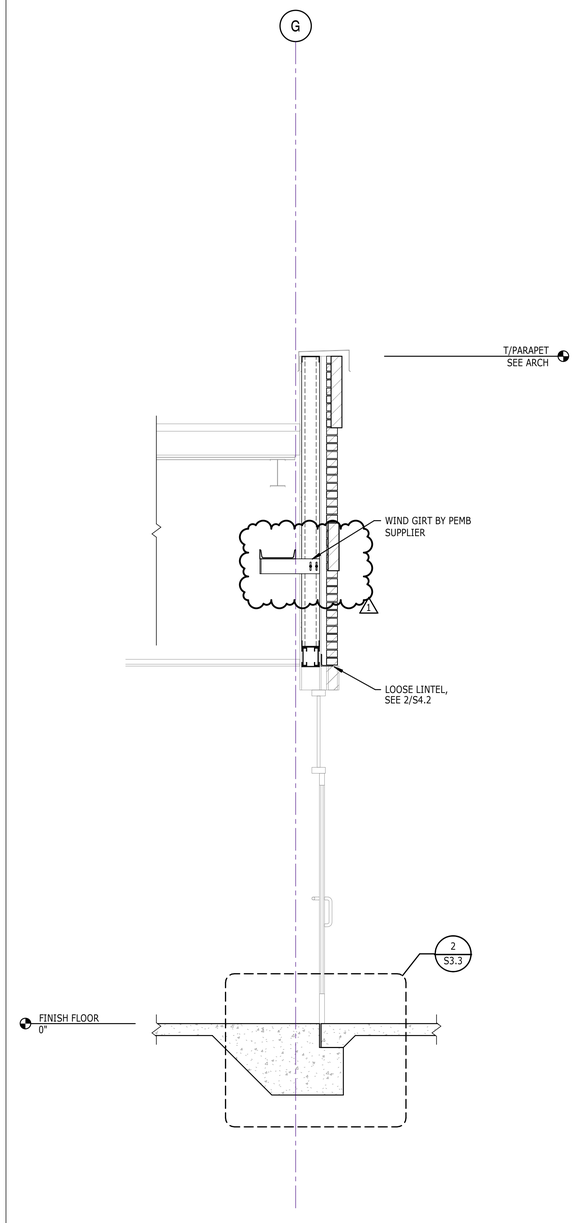

1 S2.4 SECTION
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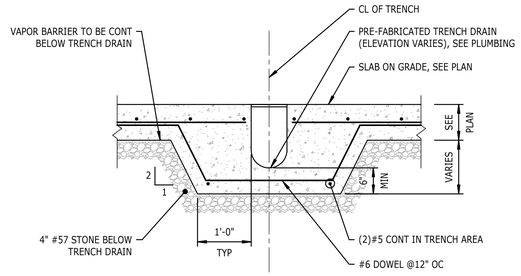
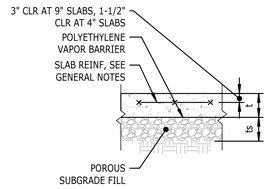
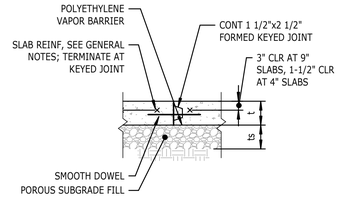


NOTES:
1. COORDINATE TRENCH LOCATIONS AND EXTENTS WITH MEP DRAWINGS.
2. SEE PLUMBING DRAWINGS FOR TRENCH COVER.

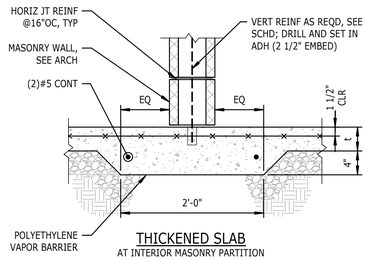
7 S3.1 TRENCH DRAIN IN APPARATUS BAY DETAIL
NTS



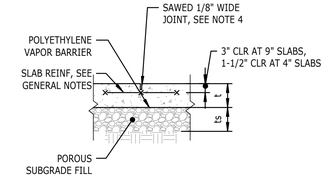
TYPICAL CONSTRUCTION



CONSTRUCTION JOINT
AT POUR BREAK



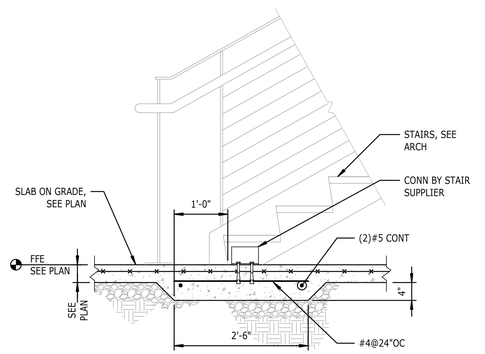
THICKENED SLAB
AT INTERIOR MASONRY PARTITION



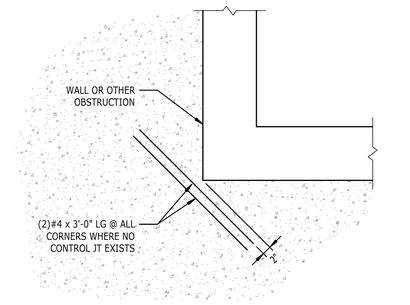
SAWED CONTROL JOINT

NOTES:
1. 't' DENOTES SLAB THICKNESS, SEE PLANS. 'ts' DENOTES POROUS SUBGRADE FILL THICKNESS, SEE "FOUNDATION" GENERAL NOTES.
2. LOCATION OF SLAB ON GRADE CONSTRUCTION JOINTS SHALL BE DETERMINED BY THE CONTRACTOR. JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
3. SEE PLANS FOR LOCATION OF CONTROL JOINTS. WHERE NOT SHOWN ON PLAN, CONTACT THE ENGINEER.
4. CUT JOINTS SHALL BE 1/4t (1/3t FOR FIBER-REINFORCED SLABS) OR 1" DEEP WHICHEVER IS GREATER. SAW CUT CONTROL JOINTS WITHIN 8 HOURS OF SLAB POUR.
5. 15ML-THICK POLYETHYLENE VAPOR BARRIOR TO BE PLACED UNDER ALL SLABS, TURNDOWNS, TRENCHES, TRENCH DRAINS, GRADE BEAMS, ETC.

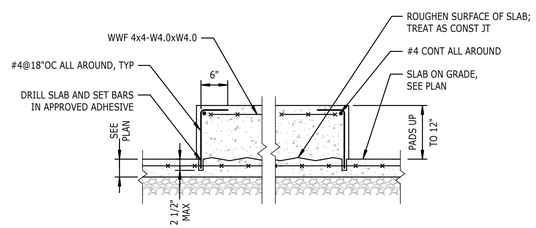
1 S3.1 TYPICAL SLAB ON GRADE
NTS



5 S3.1 TYPICAL THICKENED SLAB AT STAIR STRINGER
NTS

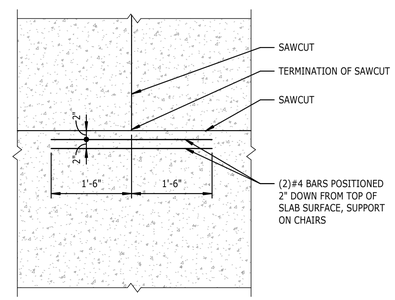


2 S3.1 TYPICAL SLAB AT CORNERS
NTS



NOTES:
1. THE EXACT SIZE, SHAPE, AND LOCATION OF EQUIPMENT (HOUSEKEEPING) PAD(S) SHALL BE DETERMINED BY THE CONTRACTOR AFTER APPROVAL OF EQUIPMENT SHOP DRAWINGS. ANCHOR BOLTS WHERE REQUIRED SHALL BE SIZED AND LOCATED ACCORDING TO MANUFACTURER'S REQUIREMENTS.

6 S3.1 TYPICAL EQUIPMENT PAD
NTS



3 S3.1 TYPICAL AT CONTROL JOINT TERMINATION
NTS

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DRAWN BY: VNA

CHK BY: TWM
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LILLINGTON FIRE STATION NO 3
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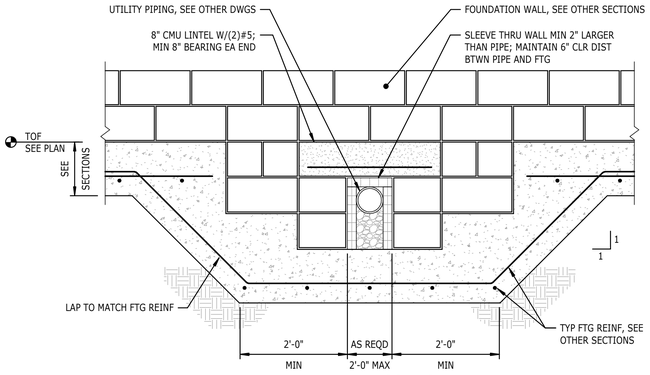
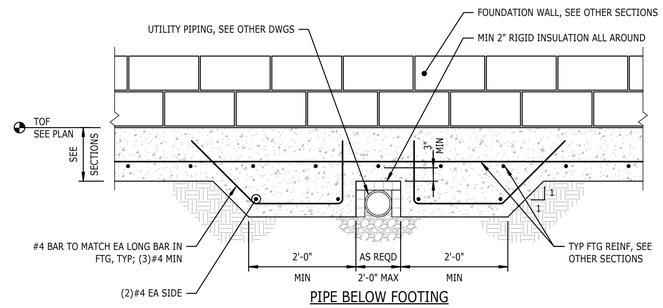
24-0013

SLAB ON GRADE DETAILS

S3.1
OF 20



PIPE THRU FOOTING



PIPE BELOW FOOTING

4 S3.2 TYPICAL UTILITY BELOW FOOTING

NTS

CONCRETE REINFORCING SPLICES			
BAR SIZE	f'c = 3,000 PSI	f'c = 4,000 PSI	f'c = 5,000 PSI
#3	1'-10"	1'-7"	1'-5"
#4	2'-4"	2'-1"	1'-10"
#5	3'-0"	2'-7"	2'-4"
#6	3'-7"	3'-1"	2'-9"
#7	5'-2"	4'-6"	4'-1"
#8	5'-11"	5'-2"	4'-8"
#9	6'-6"	5'-10"	5'-3"
#10	7'-6"	6'-6"	5'-10"
#11	8'-4"	7'-3"	6'-6"

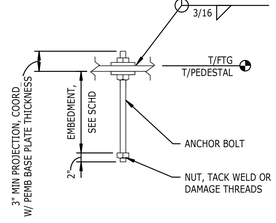
NOTES:
1. FOR CLASS B LAP SPLICE, SPLICE LENGTH = 1.3 x DEVELOPMENT LENGTH.
2. APPLIES TO BOTTOM BARS ONLY (LESS THAN 12" OF FRESH CONCRETE BELOW BAR).
3. APPLIES WHERE THE CLEAR COVER IS GREATER THAN THE BAR DIAMETER.
4. WHEN MORE THAN 12" OF FRESH CONCRETE BELOW SPLICE, THEN INCREASE SPLICE TO 1.3 x SPLICE LENGTH.

1 S3.2 CONCRETE REINFORCING SPLICE SCHEDULE

NTS

ANCHOR BOLT EMBEDMENT SCHEDULE	
ANCHOR BOLT DIAMETER	FTG EMBEDMENT DEPTH (MIN)
3/4" DIA (MIN)	16"

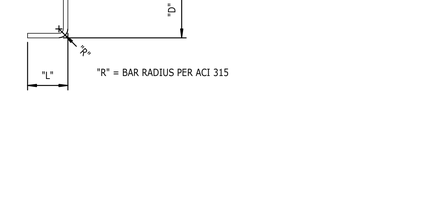
NOTE:
1. ANCHOR BOLT DIA, GRADE, LOCATION, AND PROJECTION BY BLDG MANUF.



8 S3.2 STEEL COLUMN ANCHOR BOLT SCHEDULE

NTS

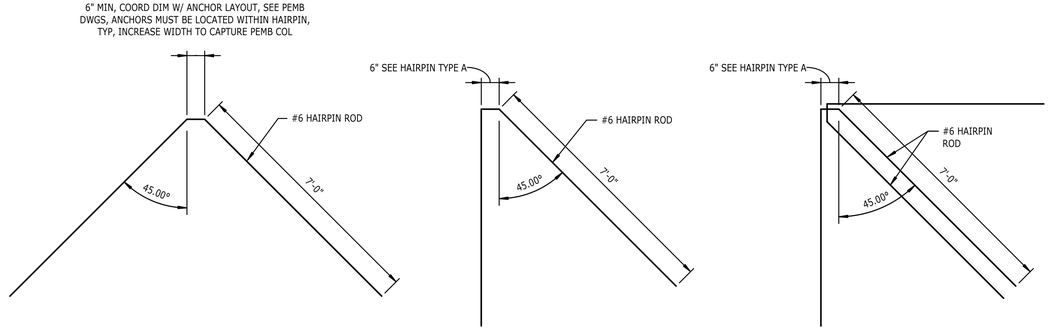
CONCRETE REINFORCING DOWEL EMBEDMENT				
BAR SIZE	LEG DIM, "L"	EMBEDMENT, "D"		
		f'c = 3,000 PSI	f'c = 4,000 PSI	f'c = 5,000 PSI
#3	6"	6"	6"	6"
#4	8"	8"	7"	6"
#5	10"	10"	9"	8"
#6	12"	12"	10"	9"
#7	14"	14"	12"	11"
#8	16"	16"	14"	12"
#9	19"	18"	15"	14"
#10	22"	20"	17"	15"
#11	24"	22"	19"	17"



NOTES:
1. FOR CONCRETE STRENGTHS NOT PROVIDED, USE THE EMBEDMENT LENGTH FOR THE LOWER CONCRETE STRENGTH AS SHOWN IN THE TABLE.
2. DOWEL LENGTHS BASED ON NORMAL WEIGHT CONCRETE. FOR LIGHT WEIGHT, INCREASE DOWEL LENGTH "D" BY 30%.
3. SIDE COVER ON BARS MUST BE GREATER THAN 2 1/2". END COVER ON 90° HOOKED BARS MUST BE GREATER THAN 2".
4. FOR EPOXY-COATED BARS, INCREASE THE DOWEL LENGTH "D" BY 20%.

2 S3.2 DOWEL EMBEDMENT LENGTH SCHEDULE

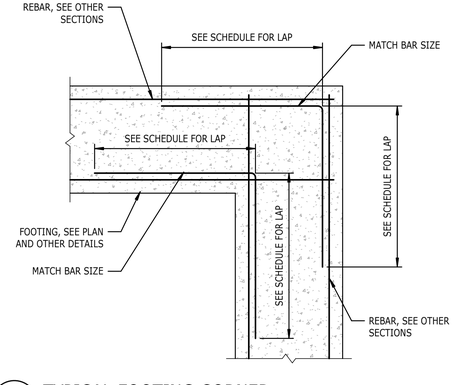
NTS



HAIRPIN TYPE A | HAIRPIN TYPE B | HAIRPIN TYPE C

6 S3.2 HAIRPIN DETAILS

NTS



3 S3.2 TYPICAL FOOTING CORNER

NTS

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LILLINGTON FIRE STATION NO 3

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LILLINGTON, NORTH CAROLINA

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09/19/2024

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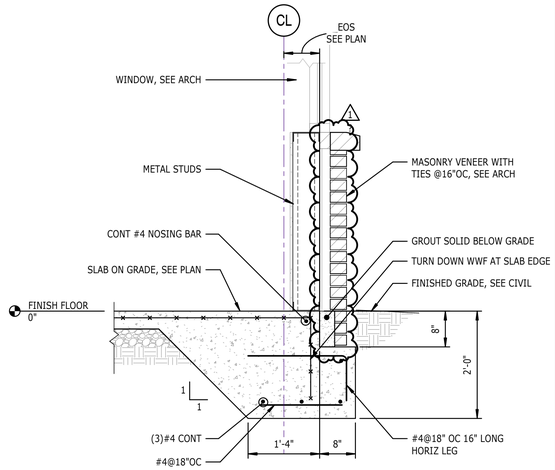
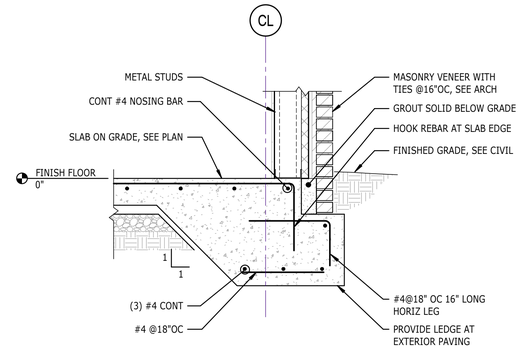
FOUNDATION DETAILS

S3.2
OF 20



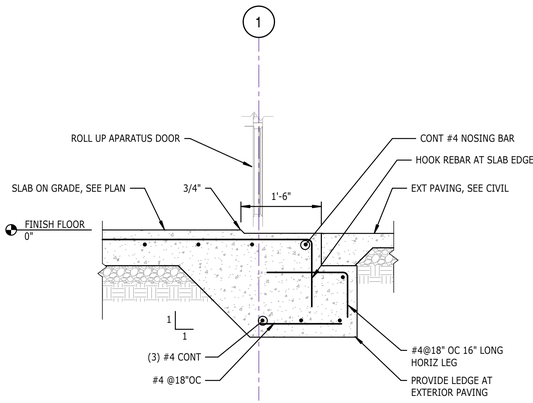
4 S3.3 TYPICAL FOUNDATION AT WINDOW

3/4" = 1'-0"



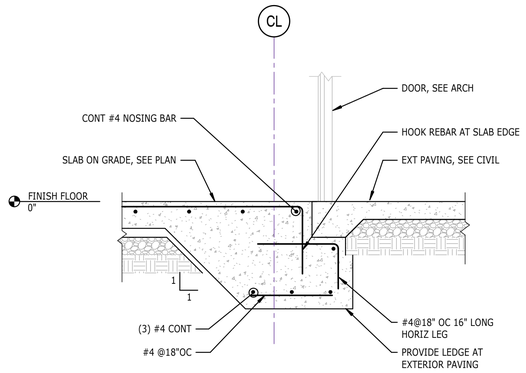
1 S3.3 TYPICAL FOUNDATION AT BRICK

3/4" = 1'-0"



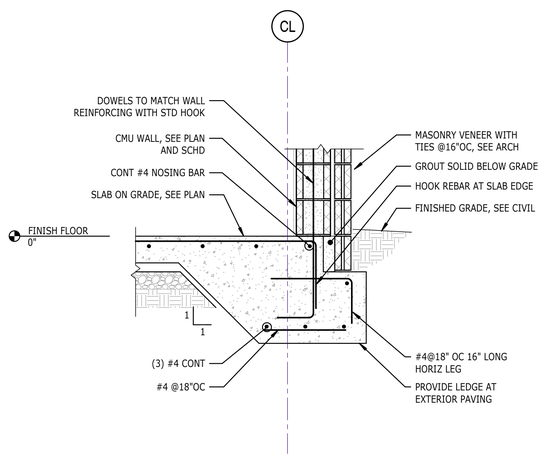
5 S3.3 ROLL UP DOOR EDGE OF SLAB DETAIL

3/4" = 1'-0"



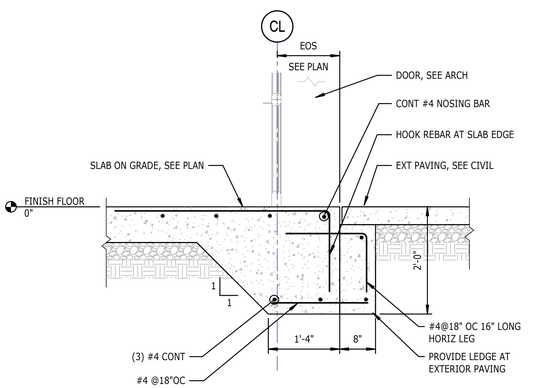
2 S3.3 TYPICAL FOUNDATION AT DOOR

3/4" = 1'-0"



6 S3.3 TYPICAL FOUNDATION AT BRICK

3/4" = 1'-0"



3 S3.3 TYPICAL FOUNDATION AT GARAGE DOOR

3/4" = 1'-0"

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1	18 MAR 2025	TM	VALUE ENGINEERING

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LILLINGTON FIRE STATION NO 3

2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

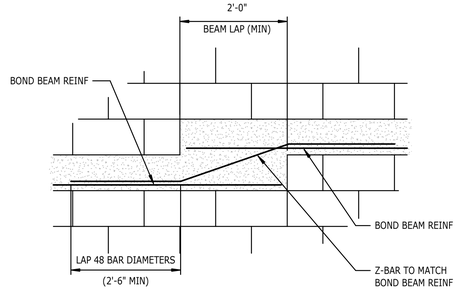
24 X 36
3/4" = 1'-0"

09/19/2024

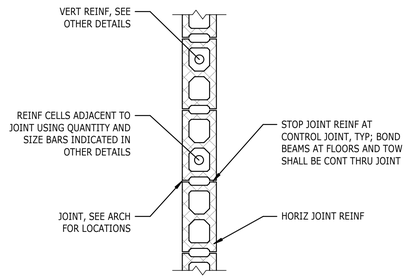
24-0013

FOUNDATION DETAILS

S3.3
OF 20

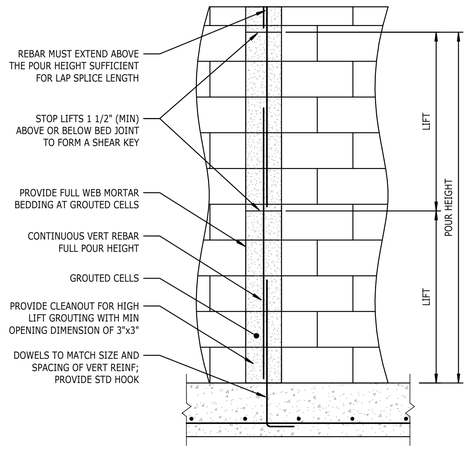


10 S4.1 TYPICAL STEP IN BOND BEAM
NTS



NOTES:
1. PROVIDE DOWELS TO FOUNDATION MATCHING SIZE OF VERTICAL REINFORCING, TYPICAL. SEE GENERAL NOTES OR MINIMUM SPLICE AND EMBEDMENT LENGTH SCHEDULE FOR LAP REQUIREMENTS.
2. ALL CONTROL JOINT LOCATIONS SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS. FOR INTERIOR PARTITION WALLS, JOINTS SHALL HAVE A MAXIMUM SPACING DETERMINED FROM THE LESSER OF 1 1/2 TIMES THE WALL HEIGHT AND 25 FEET. FOR STRUCTURAL WALLS, CONTACT THE ENGINEER OF RECORD IF JOINTS ARE NOT LOCATED ON PLAN.
3. MASONRY WALL CONTROL JOINTS SHALL NOT BE LOCATED WITHIN 24" OF THE EDGES OF WALL OPENINGS.
4. DO NOT INSTALL CONTROL JOINTS IN STAIR OR ELEVATOR CORE WALLS.
5. MASONRY WALL CONTROL JOINTS DO NOT NECESSARILY ALIGN WITH VENEER CONTROL JOINT LOCATIONS. DO NOT INSTALL MASONRY WALL CONTROL JOINTS ONLY AT VENEER JOINT LOCATIONS.
6. WHERE A CONTROL JOINT OCCURS WITHIN A MASONRY SHEAR WALL, END WALL REINFORCING MUST BE INSTALLED ON EACH SIDE OF THE JOINT.

7 S4.1 TYPICAL MASONRY WALL CONTROL JOINT
NTS

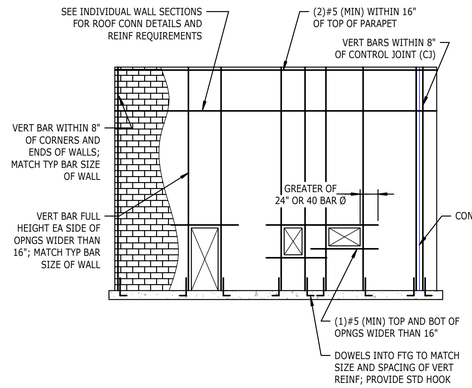


GENERAL GROUTING REQUIREMENTS:
1. ALL REINFORCED CELLS SHALL BE GROUTED SOLID.
2. REINFORCING BARS SHALL BE IN PROPER POSITION PRIOR TO PLACEMENT OF GROUT, NOT PUSHED DOWN INTO PREVIOUSLY PLACED GROUT. SAME REQUIREMENT APPLIES FOR EMBEDDED BOLTS AND FASTENERS.
3. MORTAR BEDDING UNDER THE FIRST COURSE OF BLOCK CELLS TO BE GROUTED SHALL PERMIT GROUT TO COME INTO DIRECT CONTACT WITH FOUNDATION.
4. PLACE MORTAR ON CROSS WEBS ADJACENT TO ALL GROUTED CELLS.
5. MORTAR THAT PROJECTS MORE THAN 1/2" INTO CELLS THAT ARE TO BE GROUTED SHALL BE REMOVED.
6. GROUTED CELLS SHALL BE MECHANICALLY VIBRATED DURING PLACEMENT OF GROUT. TEN MINUTES AFTER PLACING GROUT, EACH GROUTED CELL SHALL BE RECONSOLIDATED WITH A VIBRATOR.
7. METAL LATH SHALL BE PLACED UNDER ALL BOND BEAMS IN ORDER TO CONTAIN GROUT. FELT OR OTHER BOND BREAKING MATERIAL IS NOT PERMITTED. AS AN ALTERNATIVE TO THIS, "U"-SHAPED LINTEL BLOCKS MAY BE USED FOR BOND BEAMS.
8. EITHER LOW LIFT GROUTING OR HIGH LIFT GROUTING PROCEDURES MAY BE UTILIZED, AT THE CONTRACTOR'S OPTION.

LOW LIFT GROUTING PROCEDURE:
1. LAY WALL TO MAXIMUM OF 5'-0".
2. CLEAN MORTAR AND OTHER DEBRIS FROM CELLS TO BE GROUTED.
3. PLACE REINFORCING BARS IN PROPER POSITION.
4. PLACE GROUT UP TO LIFT HEIGHT AND VIBRATE.

HIGH LIFT GROUTING PROCEDURE:
1. CLEANOUT OPENINGS SHALL BE PROVIDED IN THE FACE SHELLS OF THE BOTTOM COURSE OF ALL CELLS TO BE GROUTED. OPENINGS SHALL BE LARGE ENOUGH TO ALLOW REMOVAL OF DEBRIS.
2. LAY WALL TO MAXIMUM POUR HEIGHT AND CLEAN DEBRIS FROM OPENINGS. PLACE REINFORCING BARS IN PROPER POSITION.
3. CLEAN MORTAR AND OTHER DEBRIS FROM CELLS TO BE GROUTED.
4. MASONRY SHALL CURE A MINIMUM OF 4 HOURS PRIOR TO GROUTING.
5. PLACE GROUT TO THE FOLLOWING HEIGHTS: MAXIMUM LIFT HEIGHT IS 5'-0"; MAXIMUM POUR HEIGHT IS 12'-0" UNLESS EXPRESSLY COORDINATED WITH THE STRUCTURAL ENGINEER.
6. AFTER THE LIFT IS POURED, VIBRATE TO ELIMINATE ALL AIR VOIDS. WAIT BETWEEN 3 AND 10 MINUTES, THEN RECONSOLIDATE BY VIBRATING AGAIN. CONTINUE THIS PROCEDURE FOR FULL POUR HEIGHT. RECONSOLIDATE THE PRIOR LIFT BY EXTENDING THE VIBRATOR THROUGH THE CURRENT LIFT INTO THE PREVIOUS LIFT.
7. GROUT SLUMP MUST BE MAINTAINED BETWEEN 10 AND 11 INCHES FOR HIGH LIFT GROUTING.

4 S4.1 TYPICAL MASONRY GROUT REQUIREMENTS
NTS



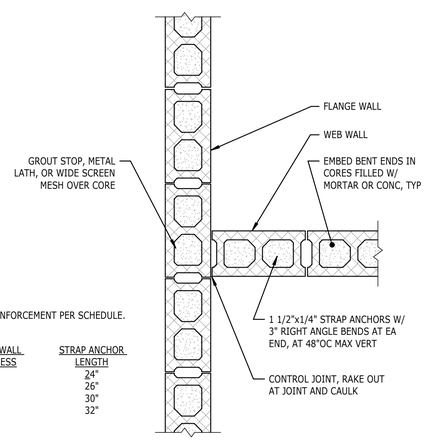
NOTES:
1. REINFORCING SHOWN IS A MINIMUM REQUIREMENT, INDIVIDUAL WALL SECTION REINFORCING REQUIREMENTS (SUCH AS NUMBER OR SIZE OF BARS) SHALL TAKE PRECEDENCE OVER THE REQUIREMENTS SHOWN HEREIN. SEE INDIVIDUAL WALL SECTIONS AND SCHEDULES FOR VERTICAL REINFORCING REQUIREMENTS.
2. ALL DISCONTINUOUS REINFORCEMENT SHALL BE LAPPED PER MINIMUM SPLICE AND EMBEDMENT LENGTH SCHEDULE.
3. VERTICAL STEEL MUST BE SECURED IN PLACE BEFORE THE BLOCKS ARE LAID. ALL VERTICAL REINFORCEMENT SHALL BE CONTINUOUS THROUGH MASONRY LINTELS AND BOND BEAMS, UNO.
4. AT OPENINGS WHERE STEEL BEAM LINTELS ARE PROVIDED, REINFORCE THE JAMB CELL TO THE BEARING ELEVATION OF THE LINTEL, AND REINFORCE THE NEXT ADJACENT CELL PAST THE END OF THE BEAM FULL HEIGHT AS SHOWN IN THIS DETAIL.
5. DETAIL DOES NOT APPLY TO INTERIOR NON-LOAD BEARING PARTITION WALLS.
6. PROVIDE MINIMUM (2) LEGS OF W1.7 HORIZONTAL JOINT REINFORCING @ 16"OC VERTICALLY.

1 S4.1 MINIMUM WALL REINFORCING
NTS

11 S4.1 SECTION AT INTERIOR MEZZ CMU PARAPET
3/4" = 1'-0"

PLAN 8" CMU SECTION

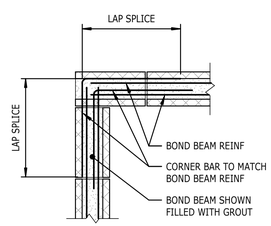
8 S4.1 TYPICAL WALL REINFORCING
NTS



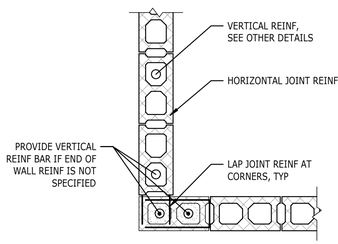
NOTE:
1. WALL REINFORCEMENT PER SCHEDULE.

FLANGE WALL THICKNESS	STRAP ANCHOR LENGTH
8"	24"
12"	26"
14"	30"
16"	32"

12 S4.1 TYPICAL LOAD BEARING WALL INTERSECTION
NTS



9 S4.1 TYPICAL BOND BEAM CORNER
NTS

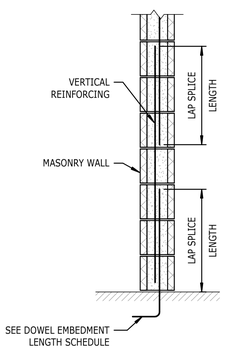


NOTES:
1. PROVIDE DOWELS TO FOUNDATION MATCHING SIZE OF VERTICAL REINFORCING, TYPICAL. SEE GENERAL NOTES OR MINIMUM SPLICE AND EMBEDMENT LENGTH SCHEDULE FOR LAP REQUIREMENTS.

6 S4.1 TYPICAL WALL CORNER
NTS

MINIMUM SPLICE AND EMBEDMENT LENGTH SCHEDULE

BAR SIZE	LAP SPLICE
#3	18"
#4	24"
#5	30"
#6	36"
#7	42"
#8	48"



3 S4.1 MASONRY REINFORCING SPLICE SCHEDULE
NTS

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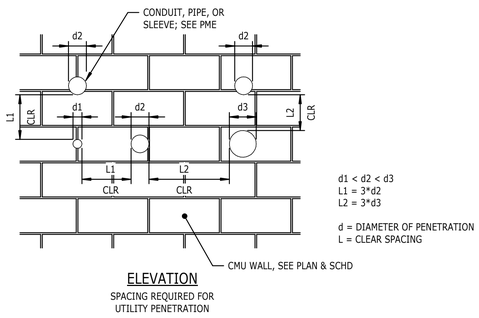
CMU DETAILS

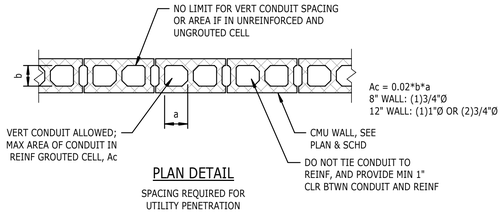
S4.1
OF 20

Revisions			
#	Date	By	Description
1	18 MAR 2025	TM	VALUE ENGINEERING



ELEVATION

SPACING REQUIRED FOR UTILITY PENETRATION



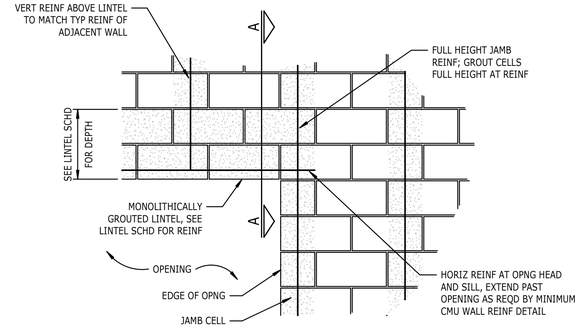
PLAN DETAIL

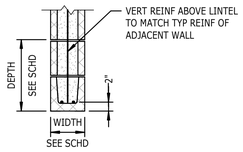
SPACING REQUIRED FOR UTILITY PENETRATION

NOTES:
1. REFER TO PME DRAWINGS FOR ALL TELECOM, CONDUIT, AND PIPES 8"Ø AND SMALLER. CONTRACTOR TO FOLLOW DETAIL SPACING REQUIREMENTS FOR LAYOUT. IF SPACING CANNOT BE MAINTAINED, PENETRATIONS MUST BE GROUPED BELOW CMU LINTEL. SEE ADDITIONAL TYPICAL DETAILS.
2. CONDUITS SHALL NOT PENETRATE BOND BEAMS NOR LINTELS.
3. PIPES WITH LIQUID, GAS, OR VAPORS HIGHER THAN 150°F ARE NOT PERMITTED VERTICALLY WITHIN WALLS.
4. PIPES WITH PRESSURE IN EXCESS OF 55 PSI ARE NOT PERMITTED VERTICALLY WITHIN WALLS.
5. PIPES WITH WATER OR LIQUID SUBJECT TO FREEZING ARE NOT PERMITTED VERTICALLY WITHIN WALLS.

7 / S4.2 ALLOWABLE WALL CONDUIT PENETRATIONS

NTS



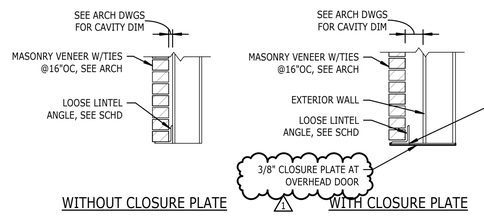


SECTION A-A

1 / S4.2 TYPICAL LINTEL|JAMB CONSTRUCTION

NTS

STEEL LOOSE LINTEL ANGLE SUPPORTING MASONRY VENEER	
CLEAR OPENING	LOOSE LINTEL ANGLE
UP TO 5'-0"	L4x4x3/8
5'-1" TO 8'-0"	L6x4x3/8 (LLV)
8'-1" TO 10'-0"	L7x4x3/8 (LLV)
10'-1" TO 12'-0"	L8x4x1/2 (LLV)
12'-1" TO 15'-0"	L8x4x3/4 (LLV)



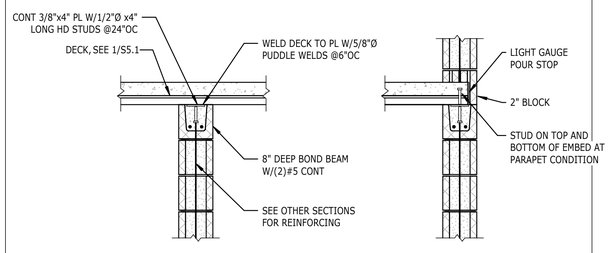
WITHOUT CLOSURE PLATE

WITH CLOSURE PLATE

NOTES:
1. ALL LOOSE LINTELS SHALL BE PAINTED OR GALVANIZED, SEE ARCHITECTURAL DRAWINGS.
2. PROVIDE 6" MINIMUM BEARING FOR OPENINGS UP TO 8'-0" WIDE. PROVIDE 8" MINIMUM BEARING FOR OPENINGS OVER 8'-0" WIDE.
3. SEE ARCHITECTURAL DRAWINGS FOR ANGLE PLACEMENT AND FLASHING.
4. LOOSE LINTEL ANGLES ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR ALL LOCATIONS OF OPENINGS REQUIRING ANGLES.
5. FOR CLEAR OPENING DIMENSIONS GREATER THAN THOSE SHOWN IN THE SCHEDULE, SEE OTHER DETAILS OR CONTACT THE ENGINEER OF RECORD.

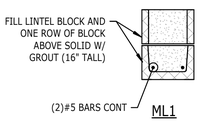
2 / S4.2 STEEL LOOSE LINTEL SCHEDULE

NTS



6 / S4.2 TYPICAL DECK TO SHEAR WALL DETAIL

NTS



NOTES:
1. FOR LINTELS IN CMU WALLS, MATCH CORRESPONDING WALL WIDTH.
2. 1" MINIMUM CLEAR SPACE SHALL BE PROVIDED AROUND ALL REINFORCING.
3. WALL ABOVE LINTEL SHALL BE REINFORCED VERTICALLY SIMILAR TO WALL ON EITHER SIDE OF LINTEL.
4. HORIZONTAL REINFORCING SHALL EXTEND BEYOND EDGE OF OPENING PER LINTEL/JAMB REINFORCING DETAILS.
5. LINTELS OVER OPENINGS NOT SHOWN ON PLAN SHALL BE AS FOLLOWS (INTERIOR OR EXTERIOR WALLS):
   A. FOR OPENINGS UP TO 5'-0", PROVIDE TYPE ML1 LINTEL. FOR OPENINGS UP TO 5'-0" IN CMU + BRICK WALLS, PROVIDE TYP ML1 LINTEL AND SEE LOOSE LINTEL SCHEDULE FOR SIZE OF ANGLE.
   B. FOR OPENINGS 5'-1" TO 10'-0" IN CMU + BRICK WALLS, PROVIDE TYPE ML2 LINTEL WITH 8" BEARING. FOR OPENINGS 5'-1" TO 10'-0 IN CMU WALLS, PROVIDE TYPE ML3 LINTEL WITH 8" BEARING.
6. ALL EXTERIOR LINTELS SHALL BE HOT-DIPPED GALVANIZED.
7. STEEL FABRICATOR TO INSTALL WIRE TIES TO BEAM DURING LINTEL FABRICATION. COORDINATE LOCATION AND SPACING WITH MASONRY CONTRACTOR.

3 / S4.2 TYPICAL LOAD BEARING LINTELS

NTS

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COORDINATOR: JGF

DRAWN BY: VNA

CHK BY: TWM
-

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
3/4" = 1'-0"

09/19/2024

24-0013

CMU DETAILS

S4.2
OF 20

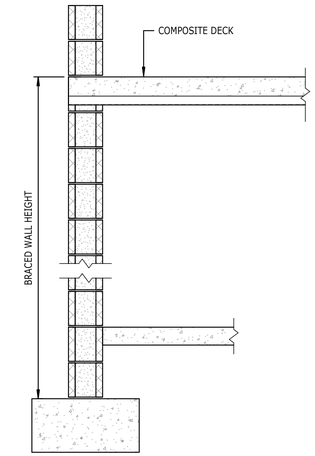
Revisions			
#	Date	By	Description

MASONRY WALL SCHEDULE			
	VERTICAL REINFORCING		HORIZONTAL REINFORCING
	8" CMU		
	VERTICAL REINFORCING	END WALL REINFORCING	
MEZZANINE BEARING WALLS	#5@32"OC	(1)#6	9 GA LADDER TYPE @16"OC

NOTES:
1. PROVIDE DOWELS EXTENDING INTO FOUNDATIONS FOR ALL VERTICAL REINFORCING BARS. SIZE AND LOCATION OF DOWELS TO MATCH VERTICAL REINFORCING.
2. DRILL AND SET IN ADHESIVE ALL VERTICAL REINFORCING FOR INTERIOR NON-BEARING WALLS WITH 2 1/2" EMBED INTO CONCRETE SLAB.
3. ALL NON-LOAD BEARING, NON-SHEAR WALLS, INTERIOR PARTITION WALLS SHALL SPAN EITHER VERTICALLY OR HORIZONTALLY. SEE GUIDELINES BELOW FOR HORIZONTAL AND VERTICAL SPANNING WALLS IN DETAILS.
4. REFER TO PLAN FOR SHEAR WALL LOCATIONS. ENDS OF SHEAR WALLS OCCUR AT WALL INTERRUPTIONS DUE TO COLUMNS, WINDOWS, DOORS, END OF WALLS, CONTROL JOINTS, EXPANSION JOINTS, ETC. REFER TO DETAILS FOR END OF WALL REINFORCING.
5. PROVIDE (2)#5 BARS IN BOND BEAM AT EACH ELEVATED FLOOR LEVEL AT TOPS OF WALLS AND AS INDICATED IN SECTIONS AND SCHEDULES.
6. ALL MASONRY TO BE CONSTRUCTED IN RUNNING BOND BEAM PATTERN WITH INTERLOCKING CORNERS.

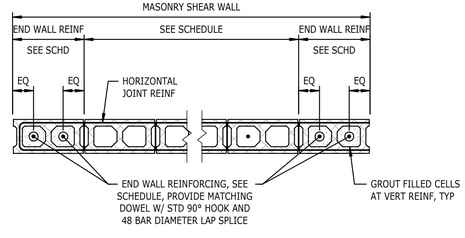
HORIZONTAL SPANNING WALLS:
1. WALLS CAN NOT SPAN HORIZONTALLY GREATER THAN 36 TIMES THE WALL THICKNESS.
2. WALLS TO BE INTERLOCKED WITH "T" TYPE HORIZONTAL LADDER TYPE REINFORCING.
3. PROVIDE MASONRY WIRE TIES @24"OC ON COLUMNS ADJACENT TO HORIZONTALLY SPANNING MASONRY.

VERTICAL SPANNING WALLS:
1. ALL VERTICAL SPANNING WALLS ARE TO BE ANCHORED TO STEEL STRUCTURE PER OTHER DETAILS.
2. ALL WALLS NOT EXTENDING TO STRUCTURE SHALL BE LATERALLY BRACED IN ACCORDANCE WITH OTHER DETAILS.



WALL SECTION
SINGLE-STORY

1 / S4.3 WALL REINFORCING SCHEDULE
NTS



NOTES:
1. ALTERNATE COURSES (LAY BLOCK IN RUNNING BOND).
2. SEE SHEAR WALL SCHEDULE FOR HORIZONTAL REINFORCING.
3. AT 12" CMU BARS MAY BE DOUBLE. TWO BARS PER CELL IS A BAR "SET".

3 / S4.3 TYPICAL SHEAR WALL REINFORCING
NTS

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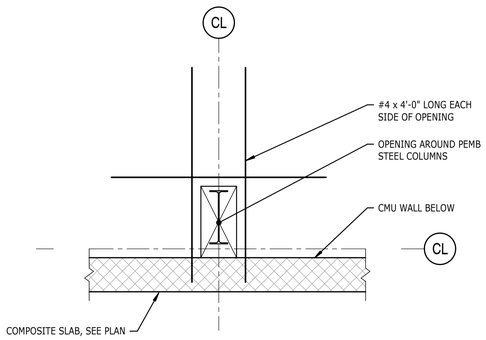
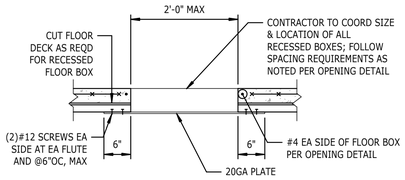
CMU DETAILS

S4.3
OF 20

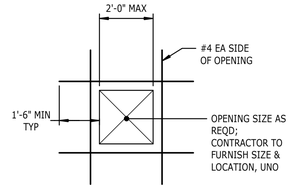


10 / S5.1 OPENINGS IN COMPOSITE SLAB FOR PEMB COLUMNS

NTS



RECESSED FLOOR BOX

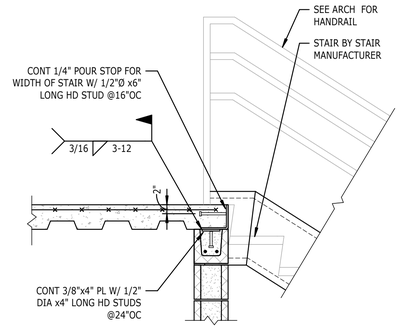


OPENINGS
10" TO 2'-0"

NOTES:
1. PROVIDE REINFORCING AROUND ALL DUCT PENETRATIONS, CHASES, ELECTRICAL BOXES, PLUMBING PIPES, AND OTHER OPENINGS IN SLABS, FOR OPENINGS FROM 10"x10" (OR 10"Ø) TO 2'-0"x2'-0" (OR 24"Ø).
2. OPENINGS THAT ARE SPACED CLOSER THAN (2) TIMES THE OPENING SIZE SHALL BE CONSIDERED ONE OPENING.
3. MINIMUM CLEAR DISTANCE BETWEEN OPENINGS IS 2'-0".
4. ALL OPENINGS 10" TO 2'-0" MAY NOT BE SHOWN ON STRUCTURAL DRAWINGS.
5. OPENINGS GREATER THAN 2'-0" NOT SHOWN ON STRUCTURAL DRAWINGS REQUIRE APPROVAL BY THE ENGINEER OF RECORD.

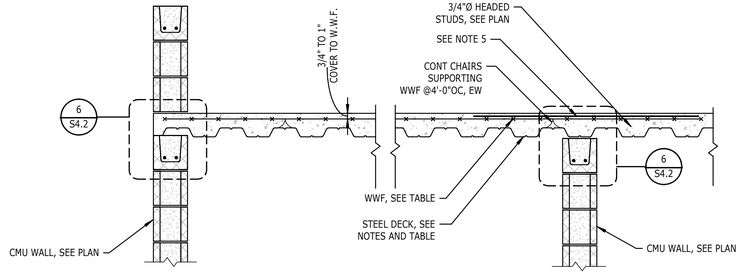
7 / S5.1 TYPICAL FRAMING AROUND SLAB OPENINGS

NTS



9 / S5.1 SECTION AT TOP OF STAIR

3/4" = 1'-0"

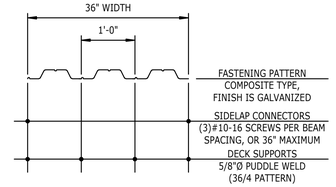


COMPOSITE FLOOR CONSTRUCTION DETAIL

NOTES:
1. THIS DETAIL APPLIES TO DECK SUPPORTED COMPOSITE SLABS, AS INDICATED ON PLANS.
2. WELD DECK TO SUPPORTS PER FLOOR DECKING ATTACHMENT DETAIL.
3. COMPOSITE SLABS HAVE BEEN DESIGNED AS "UNSHORED CONSTRUCTION".
4. THE CONTRACTOR SHALL ASSUME CONCRETE OVERAGES IN ELEVATED DECK POURS DUE TO MEMBER AND DECK DEFLECTIONS. UNLESS SHOWN ON PLANS, BEAMS ARE NOT CAMBERED. CONCRETE OVERAGES MAY BE CALCULATED BY THE CONTRACTOR FOR BEAM DEFLECTIONS EQUALING L/300 INCLUDING ADDITIONAL DEFLECTIONS DUE TO PONDING AND DECK DEFLECTIONS PER SDI.
5. CONCRETE SLABS SHALL BE POURED AS A CONSISTENT SLAB THICKNESS. FINISH SHALL MEET THE MINIMUM FLATNESS REQUIREMENTS.

MINIMUM COMPOSITE STEEL DECK PROPERTIES						
DEPTH	GAGE	Ip	In	Sp	Sn	Fy
2"	22 GA	0.324 in⁴/ft	0.321 in⁴/ft	0.263 in³/ft	0.346 in³/ft	50 ksi
2"	20 GA	0.409 in⁴/ft	0.406 in⁴/ft	0.341 in³/ft	0.346 in³/ft	50 ksi
2"	18 GA	0.559 in⁴/ft	0.558 in⁴/ft	0.495 in³/ft	0.504 in³/ft	50 ksi
3"	22 GA	0.730in⁴/ft	0.729 in⁴/ft	0.414 in³/ft	0.426 in³/ft	50 ksi
3"	20 GA	0.920 in⁴/ft	0.919 in⁴/ft	0.534 in³/ft	0.551 in³/ft	50 ksi
3"	18 GA	1.254 in⁴/ft	1.252 in⁴/ft	0.770 in³/ft	0.797 in³/ft	50 ksi

MINIMUM UNSHORED COMPOSITE STEEL DECK SPANS									
SLAB TYPE	TOTAL DEPTH	DECK DEPTH	DECK GAGE	CONC WEIGHT	SINGLE SPAN	TWO SPAN	THREE SPAN	FIRE RATING RESTRAINED	WWF
S1	6 1/4"	3"	18 GA	LW	12'-6" MAX	14'-10" MAX	14'-7" MAX	2HR	6x6-W1.4xW1.4
--	6 1/4"	2"	20 GA	LW	8'-8" MAX	9'-7" MAX	9'-11" MAX	3HR	6x6-W1.4xW1.4
--	5 1/2"	2"	20 GA	NW	8'-3" MAX	9'-1" MAX	9'-5" MAX	1HR	6x6-W1.4xW1.4
S2	6 1/2"	2"	20 GA	NW	7'-8" MAX	8'-6" MAX	8'-9" MAX	2HR	6x6-W1.4xW1.4
--	6 1/2"	3"	20 GA	NW	10'-4" MAX	11'-0" MAX	11'-4" MAX	1HR	6x6-W1.4xW1.4
--	5 1/2"	3"	20 GA	LW	12'-2" MAX	13'-1" MAX	13'-7" MAX	1HR	6x6-W1.4xW1.4



FLOOR DECK ATTACHMENT DETAIL

1 / S5.1 TYPICAL COMPOSITE SLAB

NTS

Revisions			
#	Date	By	Description

APPROVAL:
DATE:

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CHK BY: TWM
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LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
3/4" = 1'-0"

09/19/2024

24-0013

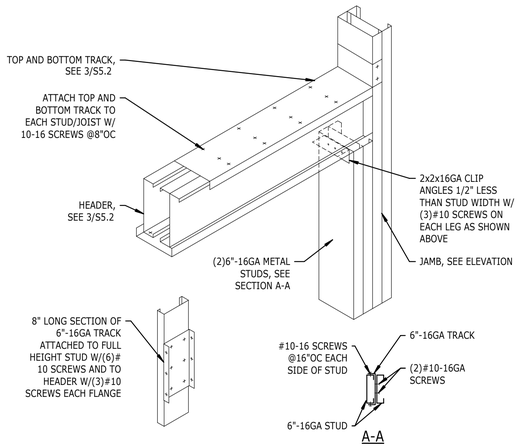
STEEL FRAMING DETAILS

S5.1
OF 20

NON-LOAD BEARING EXTERIOR WALL CONSTRUCTION SCHEDULE						
STORY	TYPE	SIZE/GAUGE	Fy	SPACING	BRIDGING	NOTES
2ND FLOOR TO TOP OF WALL	EXTERIOR	600S162-54	33 KSI	8"OC	4'-0"OC MAX	-
	EXTERIOR, CORNER ZONE	600S162-54	33 KSI	8"OC	4'-0"OC MAX	CORNER ZONE WIDTH IS 8'-0"

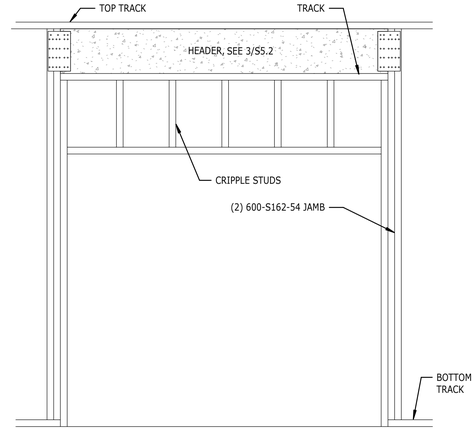
NOTES:
1. 600S___-___
   - STUD GAUGE (MIL)
   - FLANGE WIDTH (IN)
   - STUD DEPTH (IN)
2. "Fy" INDICATES MINIMUM YIELD STRENGTH.
3. SEE S-/--- FOR TYPICAL DETAILS.
4. TOP AND BOTTOM TRACK SHALL BE 54-MIL (16GA) MINIMUM THICKNESS.

7 S5.2 WALL CONSTRUCTION SCHEDULE
NTS

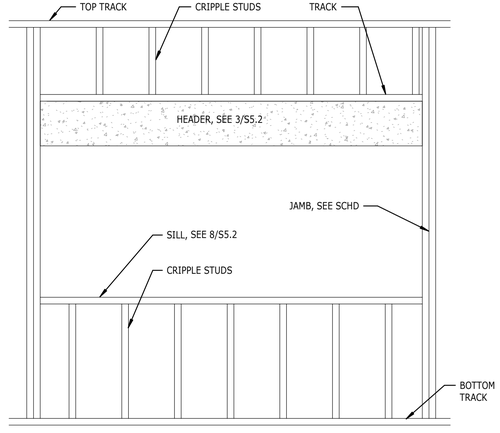


4 S5.2 HEADER AT JAMB
NTS

Revisions			
#	Date	By	Description

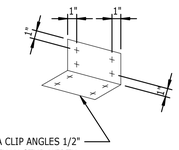


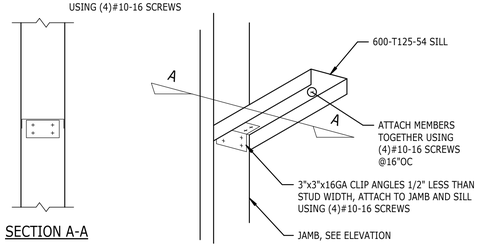
INTERIOR CONDITION



EXTERIOR CONDITION

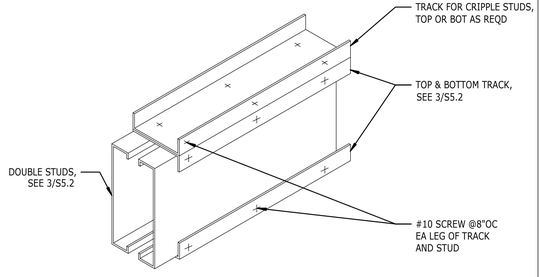
1 S5.2 ELEVATION
NTS



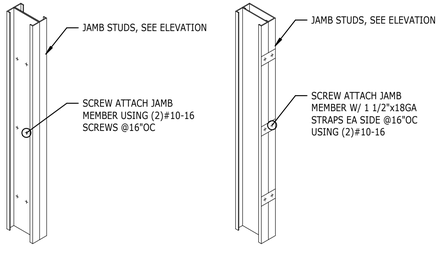


SECTION A-A

8 S5.2 DETAIL
NTS

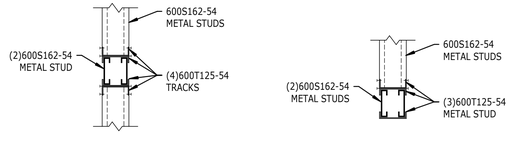


5 S5.2 DETAIL
NTS



NOTE:
1. IN LIEU OF SCREWS/STRAPS SHOWN, MULTIPLE STUDS CAN BE WELDED TOGETHER PER GENERAL NOTES.

6 S5.2 DETAIL
NTS



OPENING UP TO 15'-0"

OPENING UP TO 8'-0"

NOTES:
1. PROVIDE (2) JACK STUDS AND (2) FULL HEIGHT STUDS AT EACH END OF COLD-ROLLED HEADERS, TYPICAL. MULTIPLE STUDS SHALL BE SECURELY FASTENED TOGETHER FULL HEIGHT. SEE DETAIL SEE 4/S5.2
2. PROVIDE WEB STIFFENERS AT POINT LOAD FROM GIRDER TRUSS AND ENDS OF HEADERS.
3. COLD ROLLED HEADER MEMBERS SHALL BE UNPUNCHED SECTIONS.
4. REFER TO ARCHITECTURAL DRAWINGS FOR OPENING DIMENSIONS AND EXACT LOCATIONS.

3 S5.2 LOAD BEARING HEADER SCHEDULE
NTS

APPROVAL:
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COORDINATOR: JGF

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-

LILLINGTON FIRE STATION NO 3
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LILLINGTON, NORTH CAROLINA

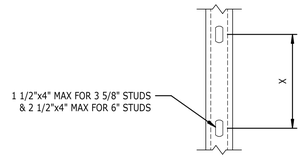
24 X 36
3/4" = 1'-0"

09/19/2024

24-0013

METAL STUD DETAILS

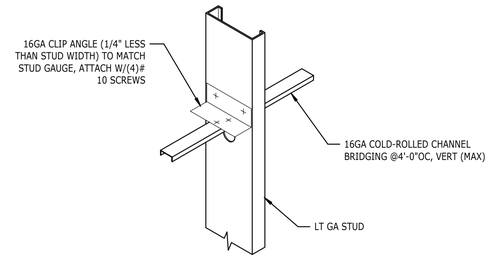
S5.2
OF 20



H	X
UP TO 12'-0"	H/3 MAXIMUM
UP TO 16'-0"	H/4 MAXIMUM

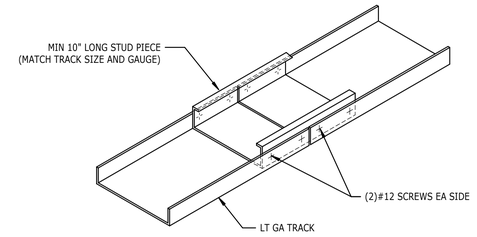
NOTES:
1. ALSO SEE 7/4S-400.

4 S5.3 DETAIL
NTS



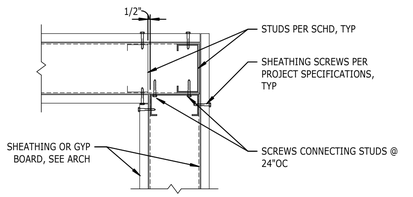
NOTES:
1. ALSO SEE 8/4S-400.

1 S5.3 DETAIL
NTS

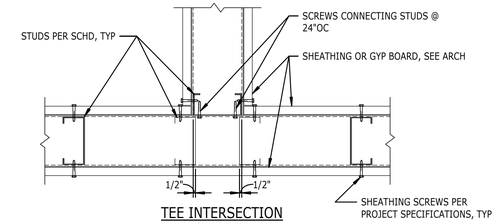


NOTES:
1. SPLICE SHALL OCCUR OVER CENTERLINE OF VERTICAL STUD, TYP.

5 S5.3 DETAIL
NTS

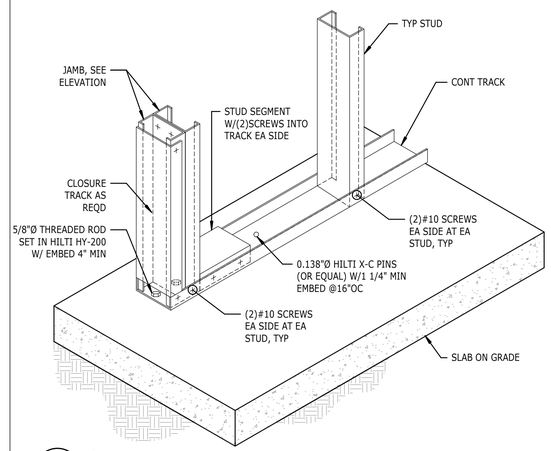


CORNER FRAMING



TEE INTERSECTION

2 S5.3 DETAIL
NTS



3 S5.3 DETAIL
NTS

Revisions			
#	Date	By	Description

APPROVAL:
DATE:

STEWART
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NORTH CAROLINA PROFESSIONAL SEAL 046260 ENGINEER THOMAS WILLIAM MCLINE

09-19-2024

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DRAWN BY: VNA

CHK BY: TWM
-

LILLINGTON FIRE STATION NO 3

2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

24 X 36
3/4" = 1'-0"

09/19/2024

24-0013

METAL STUD DETAILS

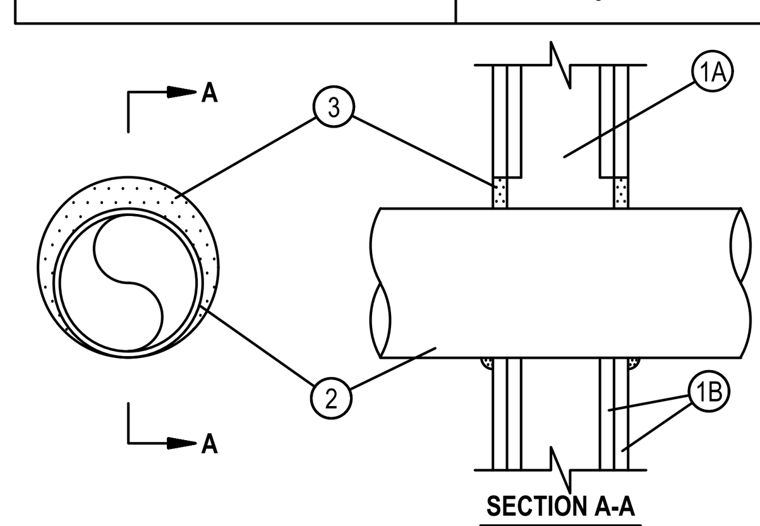
S5.3
OF 20

System No. W-L-1054

WL 1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings —1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating (Without Movement) at Ambient — Less Than 1 CFM/sq ft	FH Ratings —1 and 2 Hr (See Items 1 and 3)
L Rating (Without Movement) at 400°F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
M Rating (Movement) — See Table 1	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 5.1 L/s/m2
	L Rating at 204°C — Less Than 5.1 L/s/m2



1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. For M Rating, steel studs to be min 3-5/8 in. (92 mm) wide. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls. The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly. The M Rating is applicable only to 1 hr rated walls.
2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant

Movement Direction	Penetrant Item	Nominal Penetrant Diameter	Annular Space	Movement	Sealant Depth	F-Rating	L Rating with Movement
Y	2A, 2C*	2 in.	Max 2-1/4 in.	5%	5/8 in.	1 hr	N/A
Z	2A, 2C*	2 in.	2-1/4 in.	0.25 in.	5/8 in.	1 hr	N/A

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

Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 21, 2020

1 Gypsum Framed Walls
1 or 2 Hour Penetration Firestop
Metallic Pipe, Conduit, or Tubing
Scale: None

SEISMIC AND WIND REQUIREMENTS
RISK CATEGORIES I, II & III
INFORMATION FOR IBC-2015 / ASCE 7-10

REFER TO ARCHITECTURAL DRAWINGS TO DETERMINE RISK CATEGORY AND SEISMIC DESIGN CATEGORY. THE SUB-CONTRACTOR SHALL PROVIDE SEISMIC RESTRAINTS ON ALL MECHANICAL COMPONENTS AS REQUIRED PER THE FOLLOWING REQUIREMENTS. THE SUB-CONTRACTOR SHALL SUBMIT DETAILED SEISMIC RESTRAINT SHOP DRAWINGS SHOWING ALL DESIGN COMPONENTS. THE SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A REGISTERED ENGINEER.

COMPONENT IMPORTANCE FACTOR (Ip)

Ip = 1.0

- AIR HANDLING UNITS (FLOOR)
- AIR HANDLING UNITS (SUSP)
- AIR SEPARATOR
- AIR SEPARATORS & EXP. TANKS
- CABINET HEATERS (SUSP)
- CABLE TRAY, BUS DUCT, TRAPEZE SUPPORTED CONDUIT > 10 LB/FT (NOTE 6)
- CEILING DIFFUSERS ≥ 20 LB
- CEILING FANS ≥ 20 LB
- CEILING FANS < 20 LB
- CHILLED WATER PIPING
- CHILLERS (ROOF OR UPPER FLOORS)
- CHILLERS (ON GRADE)
- CONDUIT ≥ 2.5" DIA.
- COOLING TOWERS (ON GRADE)
- COOLING TOWERS (ROOF)
- DOMESTIC WATER
- DUCT
- ELECTRIC WATER HEATERS
- EXPANSION TANK
- FAN COILS
- FAN VAV TERMINAL
- GENERATORS (ON GRADE)
- GENERATORS (UPPER FLOORS)
- HOT WATER PIPING
- INLINE FANS
- INLINE PUMPS < 5 HP
- INLINE PUMPS ≥ 5 HP
- INSTRUMENTATION CABINETS
- MOTOR CONTROL CENTERS
- PACKAGED RTU ≤ 5 TONS
- PACKAGED RTU > 5 TONS
- PANEL BOARDS
- PENDANT LIGHTING
- PUMPS (ON GRADE) < 7.5 HP
- PUMPS (ON GRADE) ≥ 7.5 HP
- PUMPS (UPPER FLOORS)
- RECESSED LIGHTING
- ROOF EXHAUST FANS
- STORM DRAIN PIPING
- SWITCHGEAR
- TRANSFORMERS
- UNIT HEATERS (SUSP)
- UTILITY SETS (FLOOR)
- UTILITY SETS (SUSP.)
- VACUUM PUMPS
- VAV (NON-FAN) TERMINAL < 20 LB
- VAV (NON-FAN) TERMINAL ≥ 20 LB
- WALL MOUNT FANS
- WALL-MOUNTED LIGHTING
- WASTE, VENT PIPING
- WATER SOURCE HEAT PUMP (FLOOR)
- WATER SOURCE HEAT PUMP (SUSP.)
- WATER TO WATER HEAT EXCHANGER

Ip = 1.5

- AIR COMPRESSORS
- BOILERS (ON GRADE)
- BOILERS (UPPER FLOORS)
- COMPRESSED AIR PIPING
- DUCT USED FOR SMOKE CONTROL
- EMERGENCY, STANDBY, LIFE SAFETY COMPONENTS
- FLASH TANK
- GAS PACKAGED RTU ≤ 5 TONS
- GAS PACKAGED RTU > 5 TONS
- GAS PIPING
- GAS UNIT HEATERS (SUSP)
- GAS WATER HEATERS
- KITCHEN HOODS
- STEAM CONDENSATE PIPING
- STEAM PIPING
- STEAM TO WATER HEAT EXCHANGERS
- STEAM WATER HEATERS
- SUSPENDED GAS FURNACE

GENERAL NOTES:
A. PER THE 2015 INTERNATIONAL BUILDING CODE, MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND COMPONENTS, INCLUDING THEIR SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED FOR SEISMIC FORCES IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7-10.
B. EXTERIOR EQUIPMENT (INCLUDING ROOF CURBS, RAILS, SUPPORTS) EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH CHAPTERS 26 TO 29 OF ASCE 7-10.
C. WHERE DESIGN FOR SEISMIC AND WIND LOADS IS REQUIRED, THE MORE DEMANDING FORCE MUST BE USED.
D. REFERENCE THE STRUCTURAL DRAWINGS FOR SITE SPECIFIC INFORMATION ON SEISMIC DESIGN CATEGORY, WIND SPEEDS, ETC.
E. SEE EQUIPMENT SCHEDULES AND DETAILS FOR SPECIFIC COMPONENT IMPORTANCE FACTOR DESIGNATIONS.
F. USE TABLE BELOW TO DETERMINE SEISMIC RESTRAINT REQUIREMENTS FOR EACH COMPONENT.
G. FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL.
H. WHERE SEISMIC RESTRAINT IS REQUIRED, HOUSEKEEPING PADS NEEDED FOR THE INSTALLATION OF EQUIPMENT UNDER THIS CONTRACT MUST BE DESIGNED BY THE SEISMIC ENGINEER. DO NOT POUR ANY HOUSEKEEPING PADS PRIOR TO THE THE RECEIPT OF THE APPROVED SEISMIC SUBMITTAL.
I. SEISMIC RESTRAINTS FOR DUCTWORK, PIPING, CONDUIT, CABLE TRAY AND BUS DUCT MUST BE SHOWN ON LAYOUT DRAWINGS SHOWING SPECIFIC RESTRAINT LOCATIONS ALONG WITH ACCOMPANYING DETAILS AND CALCULATIONS.

SEISMIC DESIGN CATEGORY C

COMPONENT IDENTIFICATION		COMPONENT IMPORTANCE FACTOR (Ip) 1.0: SEISMIC RESTRAINT REQUIREMENT	1.0: ASCE 7-10 REFERENCE	1.5: SEISMIC RESTRAINT REQUIREMENT	1.5: ASCE 7-10 REFERENCE
ROOF MOUNTED		NOT REQUIRED	13.1.4.5	RESTRAIN ALL	13.1.4.5
FLOOR MOUNTED		NOT REQUIRED	13.1.4.5	RESTRAIN ALL	13.1.4.5
WALL MOUNTED		NOT REQUIRED	13.1.4.5	RESTRAIN ALL	13.1.4.5
COMPONENT SUPPORTS		NOT REQUIRED	13.1.4.5	RESTRAIN ALL	13.6.5
SUSPENDED EQUIPMENT	INLINE W/ DUCT/PIPE	NOT REQUIRED	13.1.4.5	RESTRAIN IF >75 LBS PROVIDE FLEX. CONN. (SEE NOTE 1)	13.6.7
	NOT INLINE W/ DUCT/PIPE	NOT REQUIRED	13.1.4.5	RESTRAIN ALL	13.1.4.5
SUSPENDED DUCTILE PIPING (STEEL, ALUMINUM, COPPER, ETC.)		NOT REQUIRED	13.1.4.5	RESTRAINT IF > 2" (SEE NOTE 2)	13.6.8.3.3.a
SUSPENDED NON DUCTILE PIPING (CAST IRON, PLASTIC, CERAMIC)		NOT REQUIRED	13.1.4.5	RESTRAIN ALL (SEE NOTE 2)	13.6.8.3.3
SUSPENDED PIPE ON TRAPEZE		NOT REQUIRED	13.1.4.5	RESTRAIN IF ANY PIPE ON TRAPEZE > 2" RESTRAIN IF TOTAL WEIGHT OF PIPES ON TRAPEZE > 10 LBS/FT (SEE NOTE 2)	13.6.8.3.1
DUCTWORK		NOT REQUIRED	13.6.7	RESTRAIN IF > 6 SQ.FT. AND > 17 LBS/FT (SEE NOTE 2,3)	13.6.7
MULTIPLE DUCTS ON TRAPEZE		NOT REQUIRED	13.6.7	RESTRAIN IF TOTAL WEIGHT OF DUCTS ON TRAPEZE > 10 LBS/FT (SEE NOTE 2,3)	13.6.7
SINGLE CONDUIT		NOT REQUIRED	13.6.5.6	RESTRAIN IF ≥ 2.5" (SEE NOTE 2)	13.6.5.6
CABLE TRAY/BUS DUCT/ TRAPEZED CONDUIT		NOT REQUIRED	13.6.5.6	RESTRAIN IF TOTAL WEIGHT OF RACEWAY > 10 LBS/FT (SEE NOTE 2)	13.6.5.6
PENDANT, LAY-IN, & CAN LIGHTS		REQUIRED (SEE NOTE 4)	13.5.6.2	REQUIRED (SEE NOTE 4)	13.5.6.2
COMPONENT CERTIFICATION		NOT REQUIRED	13.2.2	REQUIRED (SEE NOTE 5)	13.2.2

TABLE NOTES:
1. FLEXIBLE CONNECTIONS REQUIRED FOR PIPE CONNECTIONS ONLY.
2. RESTRAINT IS NOT REQUIRED IF THE PIPING / DUCTWORK / CONDUIT IS SUPPORTED BY HANGERS AND EACH HANGER IN THE PIPING RUN IS 12 IN. OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE. WHERE PIPES ARE SUPPORTED ON A TRAPEZE, THE TRAPEZE SHALL BE SUPPORTED BY HANGERS HAVING A LENGTH OF 12 IN. OR LESS. WHERE ROD HANGERS ARE USED, THEY SHALL BE EQUIPPED WITH SWIVELS, EYE NUTS OR OTHER DEVICES TO PREVENT BENDING IN THE ROD.
3. ALL DUCTWORK, REGARDLESS OF SIZE, DESIGNED TO CARRY TOXIC, HIGHLY TOXIC, OR EXPLOSIVE GASES OR USED FOR SMOKE CONTROL MUST BE RESTRAINED.
4. THE RESTRAINT OF PENDANT, LAY-IN, & CAN LIGHTS IS ADDRESSED IN ASTM C636 & E580.
5. COMPONENT CERTIFICATION MUST BE SUPPLIED BY THE EQUIPMENT MANUFACTURER AT TIME OF SUBMITTAL FOR REVIEW BY ENGINEER OF RECORD.

SEISMIC DESIGN CATEGORIES D, E, F

COMPONENT IDENTIFICATION		COMPONENT IMPORTANCE FACTOR (Ip) 1.0: SEISMIC RESTRAINT REQUIREMENT	1.0: ASCE 7-10 REFERENCE	1.5: SEISMIC RESTRAINT REQUIREMENT	1.5: ASCE 7-10 REFERENCE
ROOF MOUNTED		RESTRAIN ALL (SEE NOTE 1)	13.1.4.6	RESTRAIN ALL	13.1.4.6
FLOOR MOUNTED		RESTRAIN ALL (SEE NOTES 1,2)	13.1.4.6	RESTRAIN ALL	13.1.4.6
WALL MOUNTED		RESTRAIN ALL (SEE NOTE 1,2)	13.1.4.6	RESTRAIN ALL	13.1.4.6
COMPONENT SUPPORTS		RESTRAIN ALL (SEE NOTE 1)	13.6.5	RESTRAIN ALL	13.6.5
SUSPENDED EQUIPMENT	INLINE W/ DUCT/PIPE	RESTRAIN IF >75 LBS PROVIDE FLEX. CONN. (SEE NOTE 3)	13.6.7	RESTRAIN IF >75 LBS PROVIDE FLEX. CONN. (SEE NOTE 3)	13.6.7
	NOT INLINE W/ DUCT/PIPE	RESTRAIN ALL (SEE NOTE 1)	13.1.4.6	RESTRAIN ALL	13.1.4.6
SUSPENDED DUCTILE PIPING (STEEL, ALUMINUM, COPPER, ETC.)		RESTRAIN IF > 3" (SEE NOTE 4)	13.6.8.3.3.c	RESTRAINT IF > 1" (SEE NOTE 4)	13.6.8.3.3.b
SUSPENDED NON DUCTILE PIPING (CAST IRON, PLASTIC, CERAMIC)		RESTRAIN ALL (SEE NOTE 4)	13.6.8.3.3	RESTRAIN ALL (SEE NOTE 4)	13.6.8.3.3
SUSPENDED PIPE ON TRAPEZE		RESTRAIN IF ANY PIPE ON TRAPEZE > 3" RESTRAIN IF TOTAL WEIGHT OF PIPES ON TRAPEZE > 10 LBS/FT (SEE NOTE 4)	13.6.8.3.1	RESTRAIN IF ANY PIPE ON TRAPEZE > 1" RESTRAIN IF TOTAL WEIGHT OF PIPES ON TRAPEZE > 10 LBS/FT (SEE NOTE 4)	13.6.8.3.1
DUCTWORK		RESTRAIN IF > 6 SQ.FT. AND > 17 LBS/FT (SEE NOTE 4,5)	13.6.7	RESTRAIN IF > 6 SQ.FT. AND > 17 LBS/FT (SEE NOTE 4,5)	13.6.7
MULTIPLE DUCTS ON TRAPEZE		RESTRAIN IF TOTAL WEIGHT OF DUCTS ON TRAPEZE > 10 LBS/FT (SEE NOTE 4,5)	13.6.7	RESTRAIN IF TOTAL WEIGHT OF DUCTS ON TRAPEZE > 10 LBS/FT (SEE NOTE 4,5)	13.6.7
SINGLE CONDUIT		RESTRAIN IF ≥ 2.5" (SEE NOTE 4)	13.6.5.6	RESTRAIN IF ≥ 2.5" (SEE NOTE 4)	13.6.5.6
CABLE TRAY/BUS DUCT/ TRAPEZED CONDUIT		RESTRAIN IF TOTAL WEIGHT OF RACEWAY > 10 LBS/FT (SEE NOTE 4)	13.6.5.6	RESTRAIN IF TOTAL WEIGHT OF RACEWAY > 10 LBS/FT (SEE NOTE 4)	13.6.5.6
PENDANT, LAY-IN, & CAN LIGHTS		REQUIRED (SEE NOTE 6)	13.5.6.2	REQUIRED (SEE NOTE 6)	13.5.6.2
COMPONENT CERTIFICATION		NOT REQUIRED	13.2.2	REQUIRED (SEE NOTE 7)	13.2.2

TABLE NOTES:
1. EQUIPMENT 20 LBS. OR LESS IS EXEMPT IF THE COMPONENT IS POSITIVELY ATTACHED TO THE STRUCTURE, AND FLEXIBLE CONNECTIONS ARE PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.
2. RESTRAINTS ARE NOT REQUIRED IF THE COMPONENT WEIGHTS 400 LBS. OR LESS, IS MOUNTED WITH THE CENTER OF MASS AT 4 FT. OR LESS ABOVE A FLOOR, IS POSITIVELY ATTACHED TO THE STRUCTURE, AND HAS FLEXIBLE CONNECTIONS BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.
3. FLEXIBLE CONNECTIONS REQUIRED FOR PIPE CONNECTIONS ONLY.
4. RESTRAINT IS NOT REQUIRED IF THE PIPING / DUCTWORK / CONDUIT IS SUPPORTED BY HANGERS AND EACH HANGER IN THE PIPING RUN IS 12 IN. OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE. WHERE PIPES ARE SUPPORTED ON A TRAPEZE, THE TRAPEZE SHALL BE SUPPORTED BY HANGERS HAVING A LENGTH OF 12 IN. OR LESS. WHERE ROD HANGERS ARE USED, THEY SHALL BE EQUIPPED WITH SWIVELS, EYE NUTS OR OTHER DEVICES TO PREVENT BENDING IN THE ROD.
5. ALL DUCTWORK, REGARDLESS OF SIZE, DESIGNED TO CARRY TOXIC, HIGHLY TOXIC, OR EXPLOSIVE GASES OR USED FOR SMOKE CONTROL MUST BE RESTRAINED.
6. THE RESTRAINT OF PENDANT, LAY-IN, & CAN LIGHTS IS ADDRESSED IN ASTM C636 & E580.
7. COMPONENT CERTIFICATION MUST BE SUPPLIED BY THE EQUIPMENT MANUFACTURER AT TIME OF SUBMITTAL FOR REVIEW BY ENGINEER OF RECORD.

2 Seismic Design Requirements
Scale: None

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P.O. Box 28313, Raleigh, NC 27611

SEAL 37491 9/19/24

APPROVAL:
DATE:

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DRAWN BY:
CHK BY:

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

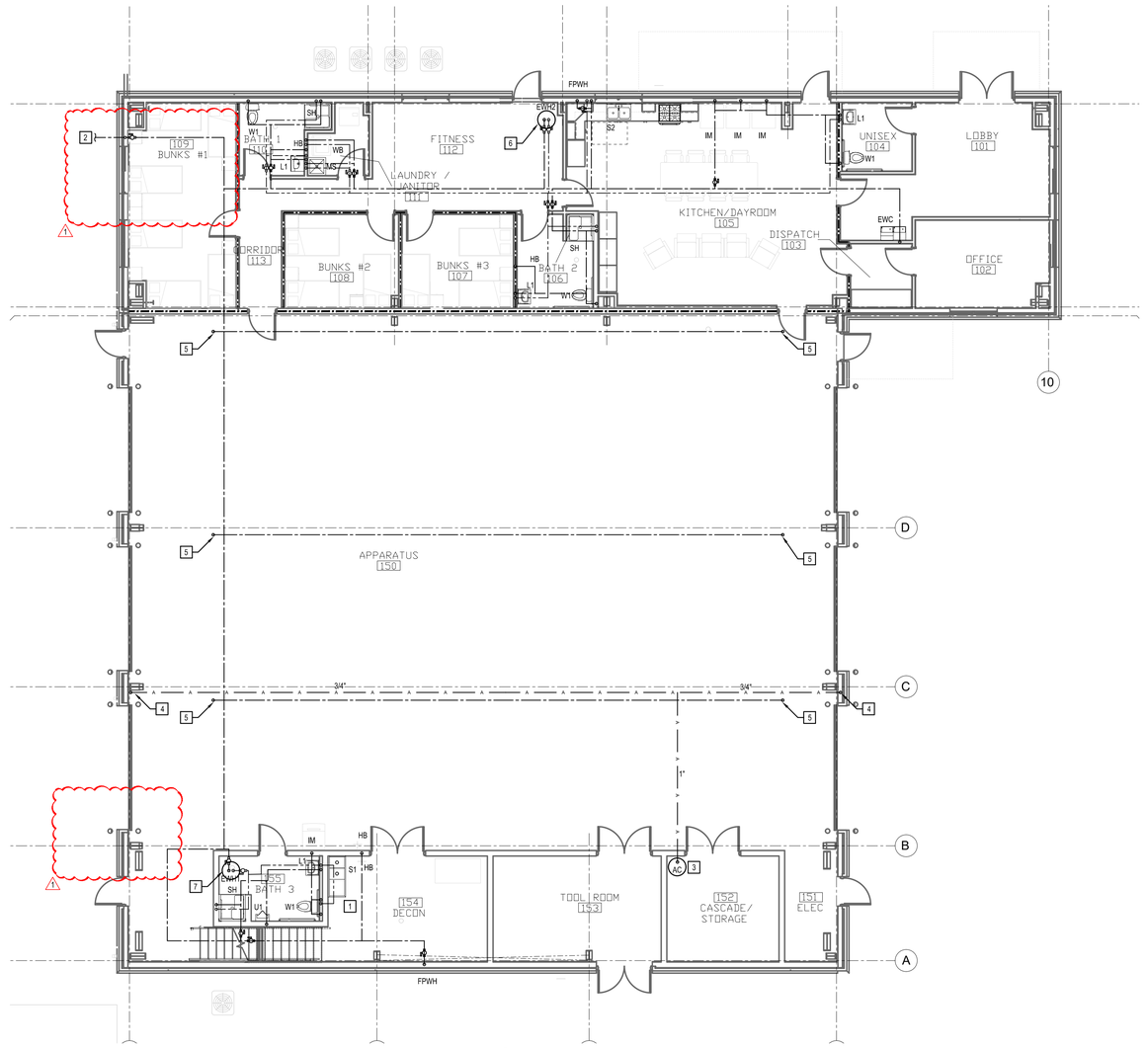
09/19/2024
24-0013
MEP DETAILS
MEP1.1

Plumbing Specifications:

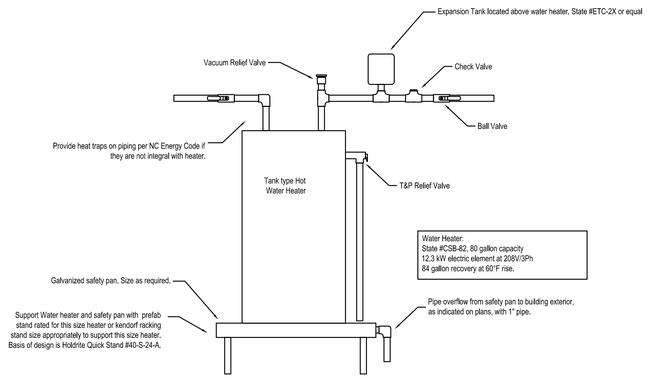
1. These plans are diagrammatic only. Contractor shall provide all necessary offsets, elbows, tees, etc for a complete working system.
2. Contractor shall obtain and pay all fees related to permitting, inspections, taps, etc. Coordinate with GC to confirm none of these costs are covered by them.
3. All work shall be coordinated with all other trades prior to installation. Contractor shall coordinate routing of all piping with existing and new conditions and shall provide any necessary rerouting, offsets, etc. required for a completely coordinated and working system.
4. The plumbing system shall be installed in accordance with 2018 NC plumbing code and local AHJ requirements.
5. New portion of the domestic water system shall be purged of damaging matter and disinfected in accordance with 2018 NC Plumbing code. Remove dirt and debris as work progresses. Submit third-party witness reports of purging and disinfecting activities.
6. All plumbing systems shall be tested as required per 2018 NC Plumbing Code.
7. All piping systems shall be strapped and supported as required by 2018 NC Plumbing Code & the manufacturer's recommendations.
8. Plumbing contractor shall provide cleanouts in compliance with IPC section 708, as well as the following locations:
   - as indicated on plans
   - at the base of the waste stack
   - at every two 90° turns or every four 45° turns
   - on all horizontal waste line, no further than 100 feet apart
9. Plumbing fixtures with automatic or quick-closing valves and kitchen equipment shall have a shock arrestors, piston type water hammer arrestor, sized according to manufacturer's recommendations & PDI standards.
10. All overhead domestic water piping (above slab) shall be type "L" copper with 95/5 lead free solder. All below grade water piping shall be type "K" soft copper. Each complying with ASTM B-88. All piping shall have manufacturers name and the applicable standard to which it was made clearly labeled on each length. Contractor shall use brazed joints on all piping 1 1/2" and larger.
11. Water piping shall be insulated with closed cell (Armacell) type insulation with a smoke density rating not exceeding 50 and a flame density rating not exceeding 25. Thickness for cold water piping insulation shall be 1/2" thick, thickness for hot water & return piping insulation shall be 1" thick.
12. Branch lines and base of risers shall have, shut-off valves. All domestic water ball valves shall be a brass body, full port, with a chrome plated ball, Teflon seals, 600 WOG, for sizes 1/2" thru 3". Sizes above 3" shall be a bronze gate valve, NRS, solid disc, cutoff valve, screw-over bonnet, 400 WOG. Provide valve handle extensions if necessary due to insulation.
13. Storm, waste, and vent piping, above slab, shall be PVC Schedule 40 DWV with piping and fittings conforming to ASTM D-2665.
14. The backflow prevention device shall be installed as required per local AHJ. Purge water piping before setting backflow preventer.
15. Sanitary sewer piping shown is below slab or within walls unless otherwise noted. Sanitary vent piping shown is within wall and above ceiling unless otherwise noted.
16. Domestic water piping shown on drawing is above ceiling or within walls unless otherwise noted.
17. The plumbing contractor shall coordinate all underslab plumbing piping with all structural foundations and footings and all underslab plumbing piping elevation inverts with site utility.
18. All piping penetrations thru new or existing walls and/or floors shall be sealed to equal the rating of the new or existing wall or floor.
19. All vent thru the roof penetrations shall be coordinated with the general contractor. Plumbing contractor shall provide all flashing material required for vent thru roof. Vents thru the roof shall be located a minimum of 10'-0" away from all fresh air intakes.
20. Contractor shall coordinate any plumbing work requiring shutdown with the owner 72 hours in advance. If other users will be affected, coordinate with owner/building management at the beginning of the project to find a workable solution.
21. Plumbing contractor shall provide shop drawings to the engineer for review and approval prior to beginning work.

Plumbing Legend and Abbreviations

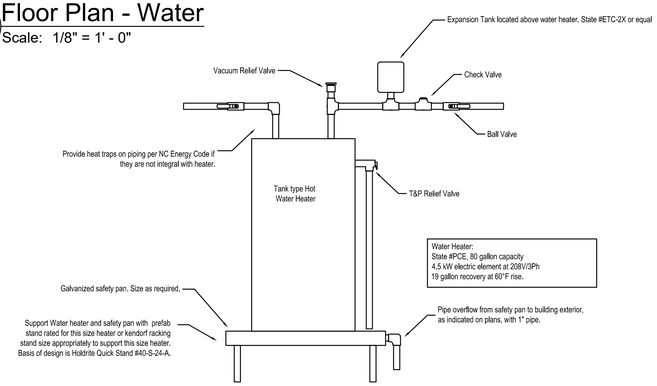
GW	Grease Waste Piping 'GW'
SW	Sanitary Sewer Piping 'W'
	Existing Sanitary Sewer Piping 'EX W'
V	Vent Piping 'V'
	Existing Vent Piping 'EX V'
CW	Cold Water Piping 'CW'
	Existing Cold Water Piping 'EX CW'
HW	Hot Water Piping 'HW'
140	Hot Water Piping 140°F 'HW'
	Existing Hot Water Piping 'EX HW'
HWR	Hot Water Return Piping 'HWR'
	Check Valve
	Ball Valve
PRV	Pressure Reducing Valve 'PRV'
GV	Gate Valve 'GV'
	Tee Turns Up
	Tee from Below
	Ell Turns Up
C	Ell Turns Down
E	Capped Line
	Connect to Existing
ETR	Existing to Remain
EWH	Electric Water Heater
GWH	Gas Water Heater
IWH	Instantaneous Water Heater
RP	Recirculation Pump
VTR	Vent Through Roof
AAV	Air Admittance Valve
RD	Primary Roof Drain
SRD	Secondary Roof Drain



1 Floor Plan - Water
Scale: 1/8" = 1' - 0"



EWH1
2 Water Heater Mounting Detail
Scale: None



EWH2
3 Water Heater Mounting Detail
Scale: None

General Notes:

- The domestic water for the building is protected by an existing 2" RPZ backflow preventer. The backflow preventer is located in a hot box on site.
- Contractor shall provide Schedule 40 PVC-DWV (conforming to ASTM D2665) fittings for S,W, & V indicated on plans.
- Contractor may run 3" waste pipe at 1/8" slope where 2 1/2" or smaller would be acceptable for the DFUs but not allow for the proper code required 1/4" sloping and fit in the given space.
- This building is required to be seismicly rated. See sheet MEP1.1 for Component Importance factors and fire penetration details.

Plan Notes:

1. Provide 3/4" HW & CW connections for washer/extractor
2. See site plan for continuation of 2" water service. RPZ backflwo preventer is in hot box on site.
3. Install air compressor on mezzanine. Air compressor shall be a 5 horsepower reciprocating 2-stage compressor with 80 gallon tank and 15 CFM refrigerated air dryer. Air compressor is owner furnished, contractor installed.
4. Provide air hose reel installed suspended from structure. Hose reel should be equal to Coxreel P Series spring driven hose reel with 1/2" dia. 50' hose.
5. Provide water hose reel installed suspended from structure. Hose reel should be equal to Macnaught DR460G-05 spring driven hose reel with 3/4" dia. 60' hose.
6. Install new water heater in drain pan above ceiling. See water heater detail for EWH2 for more information.
7. Install new water heater in drain pan in mezzanine. See water heater detail for EWH1 for more information.

Wall Ratings and Types Legend

See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.

- New Wall being Constructed
- New Partial Height Wall being Constructed
- One Hour Fire Barrier

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LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

FLOOR PLAN - WATER

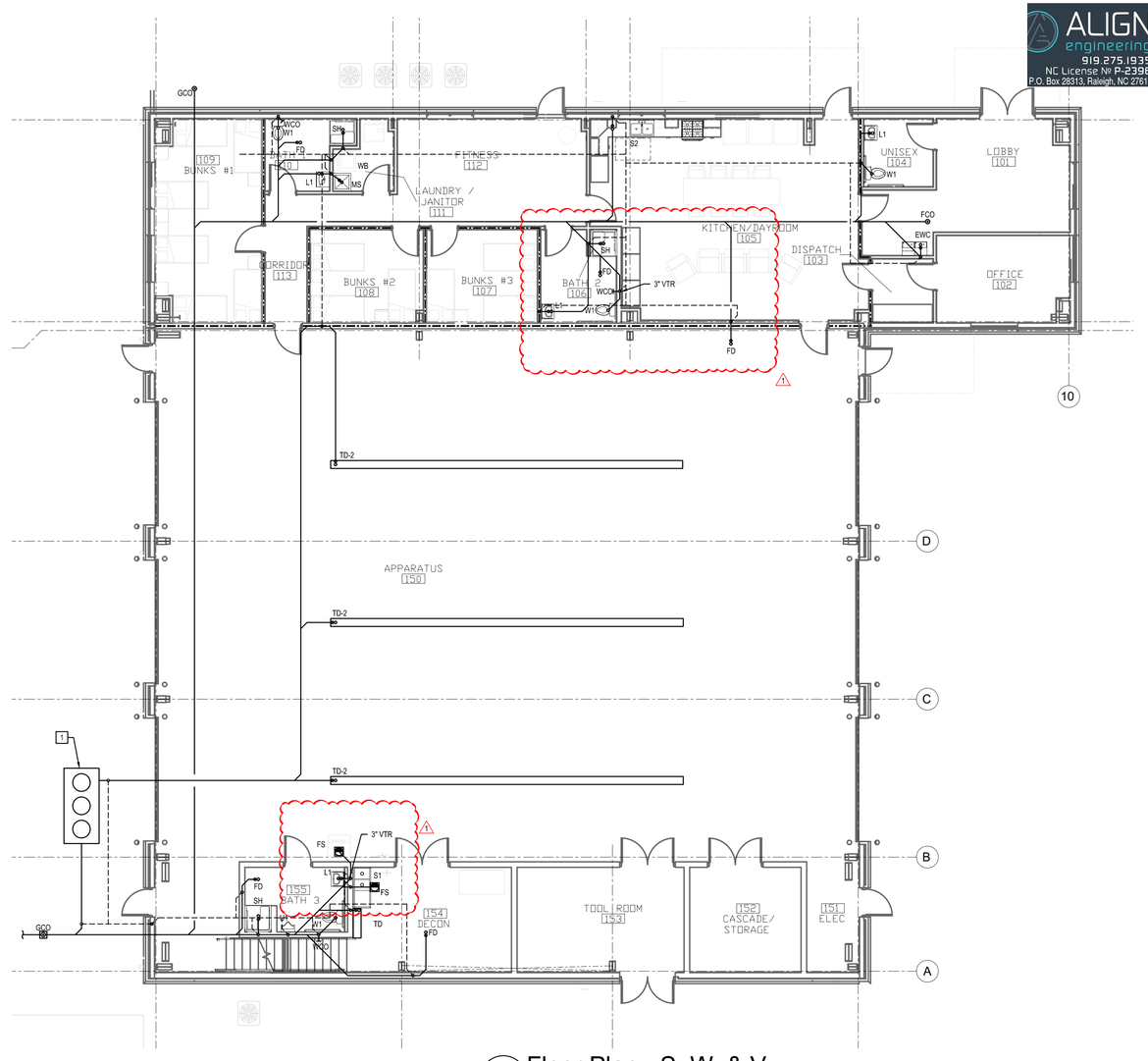
P1.1
OF 4

These drawings will be at the scale indicated when plotted at 24" x 36"

Plumbing Fixtures, Equipment, & Accessories

Tag	Description		Fixture Specification	Water Line & Connection Size CW	HW	W
W1	Water Closet Floor Mounted ADA		Toilet: Kohler Highcliff Ultra #K-96057 white vitreous china water closet with elongated bowl, 1 1/2" top spud, siphon jet flushing, 12" rough-in 16 1/2" high to the seat with 2 bolt caps. Seat: Kohler Lustra #K-4666-SC extra heavy duty white elongated with open front seat Valve: Sloan Regal 111 Manual flushometer, 1.6 GPF.	1"	-	4"
L1	Lavatory Wall Hung ADA		Lavatory Basin: Toto #LT307. Vitreous china, top of rim at 34" AFF for ADA Faucet: Sloan Optima EAF-150,-PLG-ISM, hardwired automatic sensor faucet, 4" centerset faucet, 0.5 GPM flow rate, Mixing Valve: Watts LFUSG-B thermostatic mixing valve at each Faucet. ASSE 1070 approved. Trap & Suppliers: McGuire #8902, 17 gauge 1 1/4" x 1 1/2" P-trap and nipple. McGuire #LFB02 angle supply stops. Mount P-trap such that ADA clearance requirements are maintained. Accessories: Truebro 82192 Lav Guard 2 molded insulation # 101-EZ, 3 piece interlocking trap assembly and 2 piece interlocking hot water angle valve assembly, with nylon type fasteners.	1/2"	1/2"	2"
U1	Urinal Wall Mounted ADA		Urinal: Kohler Dexter #5452-ET-0. 3/4" top spud, siphon jet flushing, Mount urinal 17" AFF for ADA. Valve: Sloan Regal 186 manual flushometer with 0.5 GPF.	3/4"	-	2"
S1	Decon Sink, Double Bowl		Sink Basin: Just #NSFB230-24L-2-J 14ga Stainless steel, floor mount-double bowl. Dimensions 55"x27"x14" deep, 2 holes. Faucet: T&S Brass #S-0231, Stainless, 2 hole faucet on 8" centers with 12" spout. Trap & Suppliers: McGuire #8902, 17 gauge 1 1/4" x 1 1/2" P-trap and nipple. McGuire #LFB02angle supply stops. Indirect drain to floor sink.	1/2"	1/2"	1 1/2"
S2	Break Sink, Double Bowl		Sink Basin: Elkay # LRAD291855, 18 ga Stainless steel, drop-in double bowl. Dimensions 29"x18"x5 1/2" deep, 1 hole. Faucet: Moen Align #7565, Stainless, 1 hole faucet, 1.8 GPM flow rate. Trap & Suppliers: McGuire #8902, 17 gauge 1 1/4" x 1 1/2" P-trap and nipple. McGuire #LFB02angle supply stops. Mount P-trap such that ADA clearance requirements are maintained. Accessories: Truebro 82192 Lav Guard 2 molded insulation # 101-EZ, 3 piece interlocking trap assembly and 2 piece interlocking hot water angle valve assembly, with nylon type fasteners.	1/2"	1/2"	1 1/2"
SH	Shower		Shower: Tile by others. Valve: Delta #T17TH325 single handle, with pressure balancing shower valve and diverter. Fixed shower head as well as handshower head mounted on grab bar, 1.5 GPM shower heads. Drain: Floor drain, See spec below	1/2"	1/2"	2"
EWC/BF ADA	Electric Water Cooler & Bottle filler		Elkay #EZSTL8WSLK dual level, ADA, wall mounted water cooler and and bottle filler: hermetically sealed and air cooled refrigeration unit. Electric push buttons on front and side with vinyl covered steel skirt and stainless steel hood receptor. Mount spout on lower side at 36" AFF and provide cane apron option on higher side of water cooler.	1/2"	-	1 1/2"
WCO	Wall Clean Out		Zurn #Z1446 wall cleanout tee, dura-coated cast iron body, gas and watertight ABS tapered thread plug, and round, smooth stainless steel wall access cover with securing screw.	-	-	see plans
TP	Trap Primer		Watts #200 Flow through trap primer	1/2"	-	-
SA	Shock Absorber		Watts series #15M2 water hammer arrestor, sized to match associated line. Shock absorber shall meet all requirements ASSE 1010, ANSI A1 12.261M as well as the 2018 NCSBC and the 2018 NCSPC, section 604.9	see plans	see plans	-
VB	Vacuum Breaker		Watts #LF7 vacuum breaker, sized to match associated line. Vacuum breaker shall meet all requirements ASSE 1024, as well as the 2018 NCSBC.	-	-	-
IM	Ice Maker Box		Oatey #39152 square, 1/4 turn, copper, hammer, low lead, water outlet box. Wall mount at 24" AFF, confirm height with architect. Plumbing to provide necessary lines and fitting for connection to equipment.	1/2"	-	-
WB	Washer Box		Oatey #38540 washing machine supply box with 1/4 turn, copper, hammer, low lead, valves. Wall mounted 40", confirm height with architect. Plumbing to provide necessary lines and fitting for connection to equipment.	1/2"	1/2"	3"
FD	Floor Drain		Zurn #Z415B floor drain. Dura-Coated cast iron body with bottom outlet, combination invertible membrane clamp and adjustable collar with seepage slots and type "B" polished nickel bronze, light duty heel proof strainer. Connect to trap primer as required.	-	-	3" see plans
MS	Mop Sink		Mop Sink: Fiat #MSB2424 molded stone mop service basin, 24" x 24" x 10" tall sides. Faucet: Chicago faucets #44-897SRXKCCP with integral vacuum breaker, lever type ceramic 1/4 turn handles, and adjustable arms. Polished chrome finish. Faucet to have 3/4" hose thread on spout.	1/2"	1/2"	3"
RP	Recirculation Pump		Taco #007e High Efficiency Circulator with stainless steel lead free casing, aquastat and timer	-	1/2"	-
TD	Trench Drain		ABT Model #PDX with PD 2410 Grate, 2902 Catch Basin, 2903 Trash Bucket and end connection. Cut trench to length with bottom sloped to outlet.	-	-	4"
TD2	Trench Drain		ABT Model #PDX with Traffic rated Grate, 2902 Catch Basin, Sand filter and end connection. Cut trench to length with bottom sloped to outlet.	- 1	-	4"
FS	Floor Sink		Plastic Oddities PDS400H floor sink, 14"x14" with 3" outlet plastic floor sink. Connect to trap primer as required.	-	-	3" see plans
HB	Hose Bibb		Woodford #24 wall hydrant. 3/4" Brass hose threaded nozzle. Provide tamper proof vacuum breaker, Nidel #50H or equal.	3/4"	-	-
FPWH	Freezeless Wall Hydrant		Woodford #24 freezeless wall hydrant. 3/4" Brass hose threaded nozzle. Provide tamper proof vacuum breaker, Nidel #50H or equal.	3/4"	-	-

The intention of the depicted images above are to show the general appearance of the fixtures being specified. Exact representation is not necessarily shown nor are accessories for models or some variation of the model. The fixture specification should take precedent over the photo.



1 Floor Plan - S, W, & V

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

Plan Notes:

1. Provide oil separator equal to Striem OT-500 560 gallon oil interceptor or approved equal.

Wall Ratings and Types Legend

See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.

- New Wall being Constructed
- New Partial Height Wall being Constructed
- One Hour Fire Barrier

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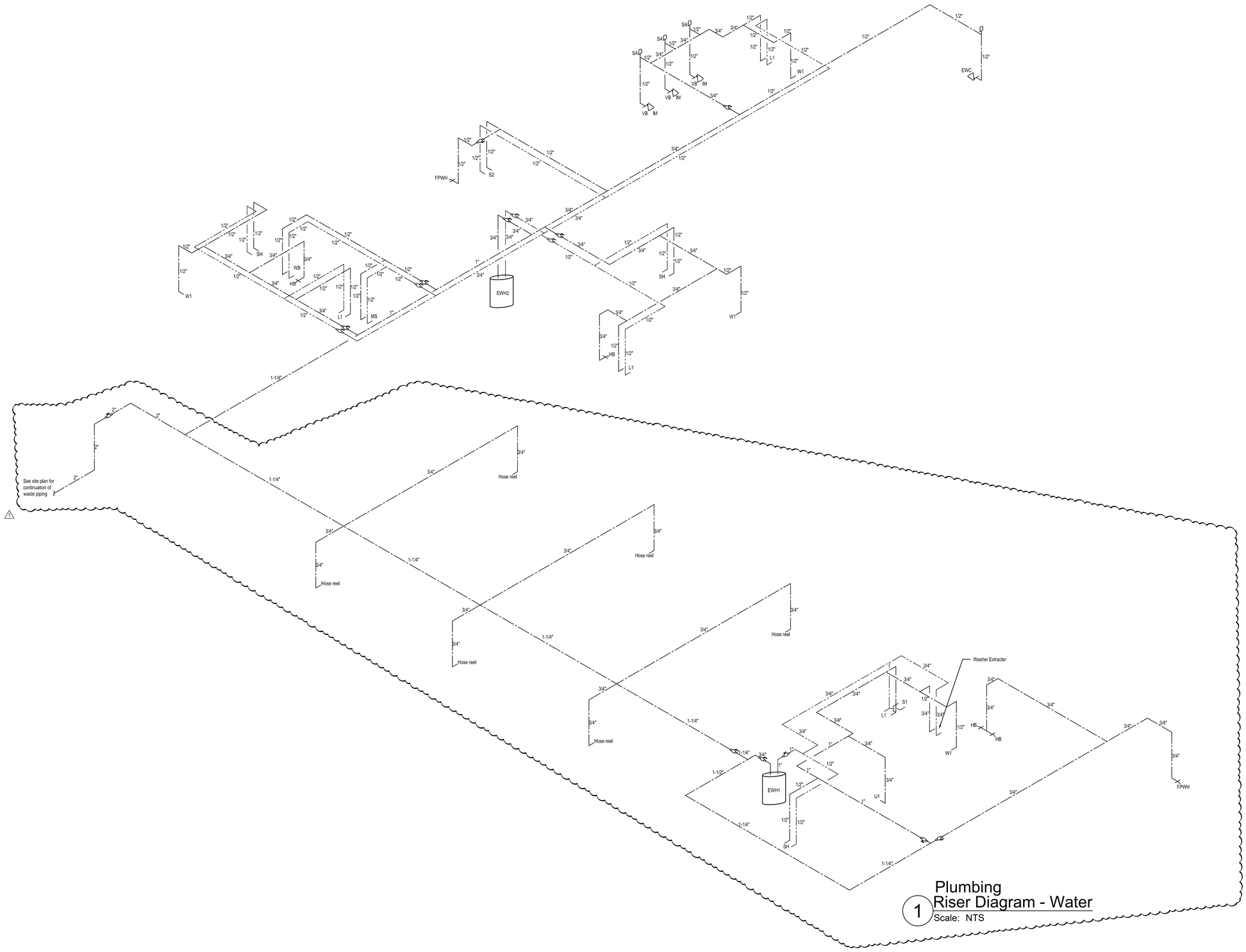
24-0013

FLOOR PLAN - S, W, & V

P1.2
OF 4

These drawings will be at the scale indicated when plotted at 24" x 36"



Plumbing
Riser Diagram - Water
1
Scale: NTS

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PLUMBING RISERS

P2.1
OF 4

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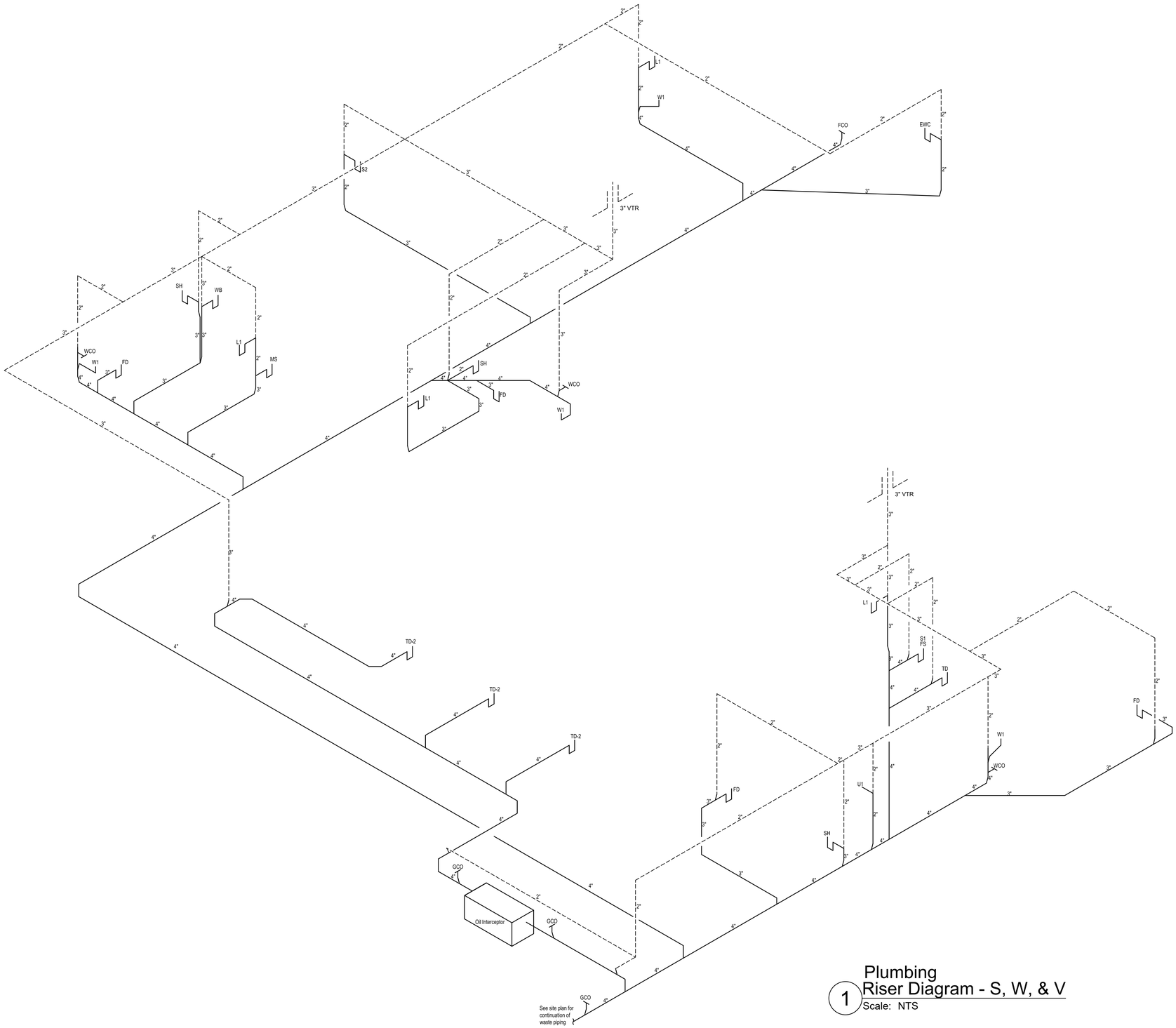

1 Plumbing Riser Diagram - S, W, & V
Scale: NTS

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24-0013

PLUMBING RISERS

P2.2
OF 4

Mechanical Notes and Specifications

General Requirements:

1. The heating and air conditioning contractor (the contractor) shall provide all specified and miscellaneous material and labor as required for a complete and operating system as described by these plans and specifications.
2. All equipment and materials shall be installed in accordance with all local, state, and national codes and recommendations of the manufacturers. If there is a conflict in the above requirements, the more stringent shall be used.
3. The contractor shall obtain and pay for all permits, fees, and inspections necessary to complete their work under this contract.
4. Prior to bidding, the contractor shall visit the site to familiarize themself with existing conditions and resolve any conflicts between existing conditions and these plans with the engineer.
5. All ductwork and equipment shown on these drawings is strictly diagrammatic. All ductwork sizes shown are free area sizes. It shall be the responsibility of the contractor to ensure that items furnished under this contract will fit in the space available. The contractor shall make necessary field measurements to ascertain space requirements, including those for connections, and shall provide such sizes and shapes of equipment that are the true intent and meaning of these drawings and specifications. Any conflicts shall be resolved with the engineer.
6. Prior to construction, the contractor shall coordinate their work with all other trades. All drawings indicate the general arrangement desired. The exact locations and details of construction may be such that variances are required. The drawings do not show all bends, offsets, and fittings that may be required for the complete execution of this contract. Such variances and contingencies shall be allowed for in the contractor's bid and shall be accomplished without additional cost to the owner. Prior to ordering equipment, the contractor shall prepare coordination drawings showing how their equipment is to be located in the space indicated. This drawing shall show the new and existing work of all other trades. The contractor shall contact the other contractors involved for dimensions, locations, and required clearances of the equipment they intend to provide for this job. The aforementioned coordination drawings shall be submitted to the engineer for approval.
7. Do not scale these drawings. Refer to the architectural plans for dimensions.
8. All equipment shall be located and installed to provide maximum space for maintenance and service.
9. All materials used shall be new and free of defects. Where trade names are mentioned, they are given as a reference to the quality of the apparatus required. All materials and equipment shall bear the UL label or equivalent where applicable. Other makes may be used if approved in writing by the engineer. Provide a complete list of materials and equipment proposed for use in this contract to the engineer within ten days following the award of contract. If such list is not submitted, the contractor shall supply the materials and equipment specified or as directed by the engineer. The contractor shall provide digital copies of submittals to the engineer for review and approval prior to ordering equipment.
10. Workmanship shall be first-class and performed by experienced and skilled craftsmen.
11. Coordinate exact location of all diffusers/grilles with lights, sprinkler heads, and other ceiling mounted devices. See the reflected ceiling plan.
12. Upon completion of the work, a certified test and balance shall be performed in accordance with "AABC" requirements. Furnish a final copy of all testing, adjusting, and balancing reports as a part of the operating and maintenance manuals. Indicate deficiencies preventing proper testing, adjusting, and balancing of systems and equipment to achieve specified performance. Adjust air handling systems to within plus or minus 10 percent of design. Adjust total air to all air outlets and inlets to within plus 10 percent and minus 5 percent of design to space. Adjust individual outlets and inlets in space to within plus or minus 10 percent of design. Adjust air handling and distribution systems to obtain required or design supply, return, and exhaust air quantities. Measure air quantities at air inlets and outlets. Vary total system air quantities by adjustment of fan speeds. Provide sheave drive changes to vary fan speed if required. Vary branch air quantities by damper regulation. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across fan. Make allowances for 50 percent loading of filters. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions. At modulating damper locations, take measurements and balance at extreme conditions.
13. As applicable, the contractor shall verify the operation of all existing mechanical equipment in the area of work. All measurements shall be recorded necessary to ascertain the proper operation of the equipment including, but not limited to, amperage, gpm flow, inlet and outlet temperatures, airflow, and inlet and outlet static pressures. Any deficiency in the rated output of the equipment shall be reported to the engineer. In any case, said report shall be submitted to the engineer upon request.
14. All equipment shall be provided with permanent labels for identification. All pipe shall be labeled to indicate pipe function and direction of flow. Provide valve tags for all valves. Coordinate nomenclature and numbering with owner prior to installation.
15. The contractor shall furnish a bound set of operating and maintenance instructions for all equipment to the owner upon completion of project.
16. The contractor shall, at the completion of the work, clean, polish, and/or wash all exposed items of materials, equipment, and fixtures in their contract to leave such items bright and clean. The contractor shall keep the premises clear of debris from their work during construction and leave the area and building clean at completion of the contract.
17. Mechanical and electrical equipment shall operate without objectionable noise or vibration, as determined by the engineer. If such objectionable noise or vibration should be produced and transmitted to occupied portions of the building, the contractor shall make the necessary changes to correct the noise or vibration without additional cost to the owner.
18. The contractor shall provide a complete 1-year warranty on all labor and materials under this contract. Refrigeration compressors provided under this contract shall carry the manufacturer's published 5-year non-prorated warranty.
19. The electrical contractor shall be responsible for all power connections to the equipment provided under this contract.
20. The mechanical contractor shall be responsible for all control wiring for their equipment.
21. Outside air intakes shall be located a minimum of 10 feet from all exhaust discharge and plumbing vents.
22. Replace all filters just prior to acceptance by the owner.
23. Contractors and sub-contractors shall carefully review the construction documents. Information regarding the complete work is dispersed throughout the document set and cannot be accurately determined without reference to the complete document sets.
24. Route refrigerant lines from outdoor condensing units in the most direct path to the air handler. Insulate with foam insulation. Provide long line refrigeration kit as required.
25. Provide an auxiliary drain pan for any air conditioning equipment. Provide the auxiliary drain pan with a float switch that stops the fan upon accumulation of condensate in the pan. Locate all equipment above the ceiling so that adequate slope is provided for all drain lines. If a condensate pump is specified, extend the auxiliary drain pan under the condensate pump. Condensate drain lines in return air plenums shall be made of type 'K' copper pipe. Insulate drain lines to prevent sweating. Route condensate drains as directed on plans.

Materials and Equipment:

Ductwork:

- All sheet metal ductwork, unless otherwise specified, shall be constructed of galvanized steel sheets in accordance with SMACNA gages and standards. Duct shall be constructed for 1" static pressure and sealed to SMACNA Classification "B". Insulate all ductwork, unless otherwise noted, with foil-faced 1 psf density fiberglass duct wrap. Insulation R-value shall be per the 2018 NC Energy Conservation Code. Where specified, duct liner shall be 1" thick, 1.5 pound density acoustical liner.

Flexible Duct:

- Shall be insulated, sound attenuating, low velocity type, and shall comply with NFPA 90A and 90B. Flexible duct shall bear the UL Class 1 air duct label as tested under UL 181. Flexible duct shall be factory-formed, composed of spiral wound corrosion resistant wire bonded to an inner fabric liner. Duct shall be factory insulated with a foil vapor barrier jacket. Insulation R-value shall be per 2018 NC Energy Conservation Code.
- The installation of flex duct shall conform to the requirements of Chapter 3 of the SMACNA HVAC Duct Construction Standards, (latest edition). Bends in flexible duct shall not be less than two duct diameters centerline radius and bends shall not begin within three inches of a sheet metal connection. Duct shall not be compressed. Support duct from the structure at intervals not to exceed ten feet. Maximum permissible sag is 1/2 inch per foot of spacing between supports. Hanger or saddle material in contact with the duct shall be wide enough so that it does not reduce the internal diameter of the duct when the supported section rests on the support and in no case shall be less than 1" wide.

Duct Elbows:

- Use full-radius elbows or square bends with turning vanes.

System Balancing:

- Provide locking quadrant type manual volume damper at each flexible duct runout. Provide splitter dampers at supply tees and extractors at all supply air branches. Provide balancing dampers in all ducts where required for system balancing as shown or as required.

Air Distribution:

- Provide all grilles, registers, and diffusers per the schedule on the drawings. Provide support from the structure for each diffuser and damper installed in a lay-in ceiling. Linear slot diffusers shall be constructed so that each slot may be independently configured to insure a full 180° air control pattern. The contractor shall coordinate finish styles and colors with the architect prior to ordering equipment. The backs of all air distribution shall be insulated from unconditioned space.

Fire Dampers:

- The contractor shall provide fire dampers at all duct penetrations of rated walls as indicated on the drawings or where required by the authority having jurisdiction. Fire dampers shall be UL labeled, Style "B" curtain type, and dynamically rated with integral factory sleeve. Blades shall be located out of the airstream for minimum airflow restriction. Installation shall be in accordance with the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC, (latest edition). Provide suitable access door for testing and servicing damper mechanism. Prior to completion of job, the contractor shall test each damper for proper operation and make adjustments as necessary.

Flexible Duct Connections:

- Furnish and install flexible duct connectors on supply and return connections of all air handling units.

Escutcheons:

- Furnish and install escutcheons in all places where piping or mechanical equipment penetrates a finished wall or ceiling in an exposed location.

Smoke Detectors:

- Smoke detectors shall be provided per the 2018 NC Mechanical Code, Section 606.2.1. Smoke detectors shall be UL listed for duct installation and be located in the return airstream to shut down the supply air fan upon activation. The system shall be wired so that the fan immediately shuts down upon a signal from the fire alarm system and bypasses any built-in time delays. The Fire Alarm Contractor shall furnish the smoke detector, wire the detector to the fire alarm control panel, and provide a shut down relay at the equipment. The Mechanical Contractor shall install the smoke detector in the duct and wire from the shut down relay to the supply fan. Audible and visible alarms shall be provided through the fire alarm system. Duct detectors shall be installed per the manufacturer's recommendations. Coordinate smoke detector requirements with the fire alarm contractor prior to installation.

Access Panels:

- The Mechanical Contractor shall provide access panels as required for access to valves, dampers, controls, or any other item installed under this contract where such item is concealed behind construction which renders the item inaccessible for service or adjustment. Said access panels or doors shall be fire rated as necessary to maintain the integrity of the construction wherein the panel or door is installed.

HVAC Equipment:

- All equipment shall bear the UL, CSA, met or other accredited testing laboratory label where appropriate. All equipment shall conform to the type, size, rating, and performance of that listed on the drawings under this contract. Submit shop drawings per the specifications.

Control Wiring:

- All control wiring shall be run in a metallic raceway. Raceway shall be routed parallel and perpendicular with the building structure. The metallic raceway may be omitted where plenum-rated cable is installed above an accessible ceiling within the building envelope. There shall be no splices in the control system wiring other than at terminal blocks. Wire nuts and crimp splices are not permitted.

Gas Piping:

- All gas piping shall be installed by the mechanical contractor. Gas pipe shall be Schedule 40 black steel. provide all valves, fittings, and controls as required by local, state, and national codes or by manufacturer's written recommendations for a complete and operational system.

1

Refrigerant Piping:

- All refrigerant piping shall be copper, sized per HVAC equipment manufacturer's recommendations. all piping shall be insulated per 2018 NC Energy Conservation Code. All insulated piping exposed to weather shall be provided with a UV resistant coating.

Drawing Legend

	Ceiling Supply Diffuser
	Sidewall Supply Diffuser
	Ceiling Return Grille
	Ceiling Exhaust Grille
	Sidewall Return/Exhaust Grille
WxH	Rectangular Duct (W = Width, H = Height)
D"Ø	Round Duct (D = Diameter)
	Duct Tap with Transition from Hard to Flexible Duct
	Manual Volume Damper
	Rectangular Duct Turns Down
	Rectangular Duct Turns Up
	Round Duct Turns Down
	Round Duct Turns Up
	Fire Damper
SD	Duct Mounted Smoke Detector
SA1 / 200	Diffuser Tag — Diffuser Type / CFM
G	Gas Piping
	Piping Elbow Turns Down
	Piping Elbow Turns Up
	Gas Shutoff Valve
	Medium Pressure Gas Regulator
T	Wall Mounted Thermostat
CO	Carbon Monoxide Sensor
M	Motorized Damper

Marks

AHU	Air Handling Unit
EF	Exhaust Fan
HP	Heat Pump
IRH	Infrared Gas Heater
L	Louver
V	Gravity Ventilator

Garage Ventilation Calculation

Unit Identification	Space Classification	Floor Area (SF)	Required CFM per SF	Minimum CFM per SF	Required CFM	Design CFM	Minimum Design CFM	Remarks
EF-7, EF-8	Garage	5864	0.75	0.05	4398	4500	300	1

1. Per 2018 NC Mechanical Code, Table 403.3.1.1.

Outside Air Calculation

Unit Identification	Space Classification	Floor Area (SF)	People per 1000 SF	Total People	CFM per Person	CFM per SF	Zone Air Dist. Eff.	Required CFM	Design CFM	Remarks
AHU-1	Office Space	196	5	1	5	0.06	0.8	21	60	1
	Main Entry Lobby	251	10	3	5	0.06	0.8	38		1
AHU-2	Conference/Meeting	674	50	34	5	0.06	1.0	180	180	1
AHU-3	Weight Room	188	10	2	20	0.06	1.0	51	140	1
	Dormitory Sleeping Areas	269	20	6	5	0.06	0.8	58		1
	Corridor	187	NA	NA	NA	0.06	0.8	14		1
	Storage	187	NA	NA	NA	0.12	0.8	14		
AHU-4	Dormitory Sleeping Areas	276	20	6	5	0.06	0.8	59	60	1
AHU-5	Storage	630	NA	NA	NA	0.12	0.8	76	200	1

1. Per 2018 NC Mechanical Code, Table 403.3.1.1.

Additional Efficiency Compliance:

This project is complying with Section C406 of the 2018 NC Energy Conservation Code under the provisions of Section C406.1, Option 2. The remaining provisions are therefore not required and have not been included in this design.

Mechanical Systems and Equipment:

Method of Compliance: Prescriptive

Climate Zone: 4A

Exterior Design Conditions:
- Winter Dry Bulb: 16°F
- Summer Dry Bulb: 93°F

Interior Design Conditions:
- Winter Dry Bulb: 70°F
- Summer Dry Bulb: 75°F
- Relative Humidity: 50%

Calculated Space Loads:
- Heating Load: 140,860 BTUH
- Cooling Load: 97,500 BTUH

Space Conditioning System:
- Unitary: The space is served by split-system heat pumps with auxiliary electric heat and natural gas radiant heaters.
- Boiler: Not applicable to this project.
- Chiller: Not applicable to this project.

Equipment Efficiencies:

Refer to mechanical schedules within drawings for efficiencies.

Equipment Schedules with Motors:

Multi-speed motors are used on this project and are included in the efficiency rating of the equipment. See drawings for efficiencies.

Designer Statement:

To the best of my knowledge and belief, the design of this project complies with the mechanical system and equipment requirements of the 2018 NC Mechanical Code.

General Notes:

1. The contractor shall comply with all requirements of the 2018 NC Mechanical Code with regards to all mechanical work.
2. The Mechanical Contractor shall coordinate the installation of all equipment, piping, and ductwork under this contract with the building structure. Contractor shall make adjustments where necessary without additional cost to owner.
3. Coordinate all supply, return, and exhaust grille locations with architectural reflected ceiling plan.
4. Limit all flexible supply duct lengths to a maximum of 8'. Limit all flexible return duct lengths to 4'.
5. Where ducts and/or equipment are shown crossing, the larger duct or equipment shall take precedence. The contractor must provide transitions so that the smaller of the ducts is routed up and over the top of larger ducts.
6. Install fire dampers as required for all ducts penetrating rated partitions.
7. All roof mounted equipment shall be located a minimum of 6 feet from the roof edge. Coordinate all roof work with owner prior to construction.
8. Locate thermostat and/or temperature sensor devices as shown on mechanical plans. Verify that all device locations are acceptable to owner/tenant prior to construction.
9. Insulate all new supply, return, and outside air ductwork concealed above ceilings with exterior duct wrap.
10. Insulate all new supply, return, and outside air ductwork in open to deck ceilings with duct liner insulation.

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NORTH CAROLINA PROFESSIONAL SEAL 37491 ENGINEER NATHAN R. ROMBLAD
4/9/25

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LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

MECHANICAL COVER SHEET

M0.1

High-Volume Low-Speed Fan Schedule

Mark	Manufacturer	Model	Diameter (ft)	Number of Blades	Maximum RPM	Motor (HP)	Drive	Volt/Ph	MOCP	Weight (LBS)	Remarks
HVLS-1	Big Ass Fan	Basic	14	6	109	1.5	Direct	208/1	25	192	1,2,3,4

1. Fan to be installed with a minimum 2'-0" clearance from the underside of the roof deck and on all sides. Verify extension tube length and mounting bracket with manufacturer prior to ordering. Coordinate exact fan mounting height with General Contractor.
2. Provide fan with manufacturer's variable speed wired wall controller. All fans shall be controlled through a single controller. Controls wiring shall be through Cat5 wiring and provided by mechanical contractor. Control wiring shall be within conduit provided by Mechanical Contrator. Electrical contractor shall provide power wiring to variable frequency drive (VFD) and whip to fan.
3. Provide fan with relay to shutdown upon signal from fire alarm system. Wiring by Fire Alarm Contractor.
4. Refer to MEP seismic details for mechanical equipment restraint requirements.

Infrared Gas Heater Schedule

Mark	Manufacturer	Model	Input (MBH)	Tube Length	Overall Length	Fuel	Volt/Ph	Weight (LBS)	Remarks
IRH-1	Space Ray	LTS-175-50-N7	175	50 ft	52' 9"	Nat.Gas	120/1	285	1,2,3,4
IRH-2	Space Ray	LTS-175-50-N7	175	50 ft	52' 9"	Nat.Gas	120/1	285	1,2,3,4

1. Provide with direct spark ignition, 2-stage gas valve, and maintenance-free draft inducer.
2. Provide with manufacturer's wall mounted thermostat.
3. Provide with 4" exhaust flue duct and 6" outside air duct.
4. Refer to MEP seismic details for mechanical equipment restraint requirements.

Air Distribution Schedule

Mark	Manufacturer	Model	Description	Panel Size	Type	Neck Size	Remarks
SA1	Titus	TMS-AA	Aluminum, High Performance, Full Face, Stamped Square, 4-Way	24x24	Lay-In	6"Ø	1,4,5
SB1	Titus	TMS	Steel, High Performance, Full Face, Stamped Square, 4-Way	24x24	Lay-In	8"Ø	1,4,5
SB2	Titus	TMS	Steel, High Performance, Full Face, Stamped Square, 4-Way	24x24	Lay-In	10"Ø	1,4,5
SC1	Titus	300FS	Aluminum, Double Deflection, Short Front Blades, 3/4" Blade Spacing	NA	Surface Mount	10x6	1,2,3,5
SD1	Titus	300RS	Steel, Double Deflection, Short Front Blades, 3/4" Blade Spacing	NA	Duct Mount	10x6	1,2,5
SD2	Titus	300RS	Steel, Double Deflection, Short Front Blades, 3/4" Blade Spacing	NA	Duct Mount	12x6	1,2,5
SD3	Titus	300RS	Steel, Double Deflection, Short Front Blades, 3/4" Blade Spacing	NA	Duct Mount	16x6	1,2,5
RA1	Titus	PAR	Steel, Perforated, Duct Collar	24x24	Lay-In	10"Ø	1,4,5
RA2	Titus	PAR	Steel, Perforated, Duct Collar	24x24	Lay-In	12"Ø	1,4,5
RB1	Titus	350RL	Steel, 35° Deflection, 3/4" Blade Spacing, Parallel to Long Dimension	NA	Duct Mount	12x6	1,2,5
RB2	Titus	350RL	Steel, 35° Deflection, 3/4" Blade Spacing, Parallel to Long Dimension	NA	Duct Mount	20x6	1,2,5
RC1	Titus	350RL	Steel, 35° Deflection, 3/4" Blade Spacing, Parallel to Long Dimension	NA	Surface Mount	14x14	1

1. Verify all ceiling and wall types with architectural plans. Coordinate color with Architect.
2. Provide with integral opposed blade balancing damper.
3. Provide with square-to-round transition as required.
4. Insulate all diffusers and grilles from ceiling space. Provide with foil-faced backpan insulation.
5. Refer to MEP seismic details for mechanical equipment restraint requirements.

Fan Schedule

Mark	Manufacturer	Model	Service	Type	Airflow (CFM)	ESP (in. W.G.)	Motor Size	RPM	Drive	Volt/Ph	Weight (LBS)	Remarks
EF-1	Greenheck	SP-A90	104 Unisex	Ceiling Cabinet	70	0.25	13 W	855	Direct	120/1	20	1,2,4,6
EF-2	Greenheck	SP-A200	106 Bath	Ceiling Cabinet	120	0.25	19 W	650	Direct	120/1	32	1,2,4,6
EF-3	Greenheck	SP-A90	111 Laundry/Janitor	Ceiling Cabinet	70	0.25	13 W	855	Direct	120/1	20	1,2,4,6
EF-4	Greenheck	SP-A200	110 Bath	Ceiling Cabinet	120	0.25	19 w	650	Direct	120/1	32	1,2,4,6
EF-5	Greenheck	SP-A200	155 Bath	Ceiling Cabinet	120	0.25	19 w	650	Direct	120/1	32	1,2,4,6
EF-6	Greenheck	SP-A90	154 Decon	Ceiling Cabinet	70	0.25	13 W	855	Direct	120/1	20	1,2,4,6
EF-7	Greenheck	AER-20-03-0615-VG	150 Apparatus	Wall, Propeller	300	0.25	0.25 HP	720	Direct	120/1	131	3,4,5,6
EF-8	Greenheck	AER-30-03-0610-VG	150 Apparatus	Wall, Propeller	4500	0.25	1.0 HP	888	Direct	120/1	237	3,4,5,6

1. Provide fan with backdraft damper, polystyrene grille, and hanging isolator kit to support fan from structure.
2. Fan to be controlled by wall switch provided by Electrical Contractor.
3. Provide fan with 24V on/off controls contacts, 120/24V controls transformer, cast aluminum propeller fan, integral housing, weather hood, outlet shutter, and inlet guard.
4. Provide fan with speed controller for balancing.
5. Provide Honeywell: Model 301C, CO / NO2 monitoring system with remote sensors, audible/visible alarms, and 120/24V controls transformer as required. Fan shall be controlled through CO / NO2 monitoring system. EF-7 shall be programmed to operate continuously in order to provide minimum required ventilation. EF-8 shall be programmed to engage and open associated louver/damper when exposure levels exceed set point. Refer to manufacturer's installation instructions for exposure limits and alarm levels.
6. Refer to MEP seismic details for mechanical equipment restraint requirements.

Louver Schedule

Mark	Manufacturer	Model	Service	Type	Airflow (CFM)	Size, WxH (in.)	Depth (in.)	Min. Free Area (SF)	Max. P.D. (in. W.G.)	Damper Type	Actuator (Volt/Ph)	Fan Interlock	Remarks
L-1	Greenheck	ESD-435	Intake	Fixed	60	12x12	4	0.3	0.1	Barometric	NA	NA	1,2,3,5
L-2	Greenheck	ESD-435	Exhaust	Fixed	70	12x12	4	0.3	0.1	NA	NA	NA	1,2,3,5
L-3	Greenheck	ESD-435	Intake	Fixed	180	12x12	4	0.3	0.1	Barometric	NA	NA	1,2,3,5
L-4	Greenheck	ESD-435	Intake	Fixed	140	12x12	4	0.3	0.1	Barometric	NA	NA	1,2,3,5
L-5	Greenheck	ESD-435	Exhaust	Fixed	310	16x12	4	0.4	0.1	NA	NA	NA	1,2,3,5
L-6	Greenheck	ESD-435	Intake	Fixed	60	12x12	4	0.3	0.1	Barometric	NA	NA	1,2,3,5
L-7	Greenheck	ESD-435	Exhaust	Fixed	190	12x12	4	0.3	0.1	NA	NA	NA	1,2,3,5
L-8	Greenheck	ESD-435	Intake	Fixed	300	24x12	4	0.7	0.1	Motorized	120/1	EF-7	1,2,4,5
L-9	Greenheck	ESD-435	Intake	Fixed	4500	48x36	4	6.3	0.1	Motorized	120/1	EF-8	1,2,4,5
L-10	Greenheck	ESD-435	Intake	Fixed	200	14x12	4	0.4	0.1	Barometric	NA	NA	1,2,3,5

1. Provide color selection chart with submittals. Final color selection shall be made by architect during submittal review.
2. Louver shall be extruded aluminum with drainable blades. Provide with flanged frame and bird screen.
3. Provide barometric damper with counterbalance.
4. Provide separate field installed damper with electric actuator, linkage, and mounting hardware. Provide 24 volt step down transformer as required. Interlock damper to open with specified fan is engaged.
5. Refer to MEP seismic details for mechanical equipment restraint requirements.

Split System Heat Pump Schedule

Mark	Manufacturer	Tonnage	Model	ARI Cooling (MBH)	ARI Heating (MBH)	SEER2	HSPF2	Volt/Ph	MCA	MOCP	Weight (LBS)	Remarks
HP-1	Trane	1.5	4TWR4018	19.3	19.3	14.3	7.5	208/1	15.0	25	174	1,2,3,4,5
HP-2	Trane	2.0	4TWR4024	23.4	22.6	14.3	7.5	208/1	15.0	25	174	1,2,3,4,5
HP-3	Trane	2.0	4TWR4024	23.4	22.6	14.3	7.5	208/1	15.0	25	174	1,2,3,4,5
HP-4	Trane	1.5	4TWR4018	19.3	19.3	14.3	7.5	208/1	15.0	25	174	1,2,3,4,5
HP-5	Trane	2.0	4TWR4024	23.4	22.6	14.3	7.5	208/1	15.0	25	174	1,2,3,4,5

1. Cooling capacity based on indoor entering air condition of 80°F dry bulb, 67°F wet bulb and outdoor air condition of 95°F dry bulb. Heating capacity based on indoor entering air condition of 70°F dry bulb and outdoor air condition of 47°F dry bulb.
2. Standard unit features shall include filter drier, front seating service valves, internal pressure relief valve, internal thermal overload, suction line accumulator, high pressure switch, and loss of charge switch.
3. Accessory unit features shall include: compressor start assist, crankcase heater, thermostatic expansion valve, and time delay relay.
4. Refrigerant lines shall be sized and approved by the equipment manufacturer based upon field measured piping lengths. Mechanical contractor shall provide lengths, bends, and routing to manufacturer for proper pipe sizing. Provide all of the manufacturer's recommended components. Piping shall be sized so that maximum capacity loss due to line length is 3%. All piping shall be hard copper pipe.
5. Refer to MEP seismic details for mechanical equipment restraint requirements.

Split System Air Handling Unit Schedule

Mark	Manufacturer	Model	SA (CFM)	OA (CFM)	ESP (In. W.G.)	Fan (HP)	Heat (KW)	Heat Stages	Volt/Ph	MCA	MOCP	Weight (LBS)	Remarks
AHU-1	Trane	TEM4A0B18S21	600	60	0.5	1/5	3.60	1	208/1	23.0	25	110	1,2,3,4,5
AHU-2	Trane	TEM4A0B24S21	800	180	0.5	1/5	5.76	1	208/1	36.0	40	110	1,2,3,4,5
AHU-3	Trane	TEM4A0B24S21	800	140	0.5	1/5	5.76	1	208/1	36.0	40	110	1,2,3,4,5
AHU-4	Trane	TEM4A0B18S21	525	60	0.5	1/5	3.60	1	208/1	23.0	25	110	1,2,3,4,5
AHU-5	Trane	TEM4A0B24S21	800	200	0.5	1/5	5.76	1	208/1	36.0	40	110	1,2,3,4,5

1. Provide air handling unit with factory installed electric heater, filter rack, disconnect switch, and single point wiring connection.
2. Provide unit with manufacturer's touchscreen display, 7-day programmable thermostat.
3. Provide unit with 120 Volt, hardwired, plenum rated condensate pump, auxiliary drain pan, and float switch. Pump condensate to nearest dry well.
4. Unit shall shutdown upon signal from fire alarm system. Duct mounted smoke detector shall be furnished and wired by the Fire Alarm Contractor. The Mechanical Contractor shall install the detector in the duct. All controls, including audible/visible alarms, shall be provided by the Fire Alarm Contractor.
5. Refer to MEP seismic details for mechanical equipment restraint requirements.

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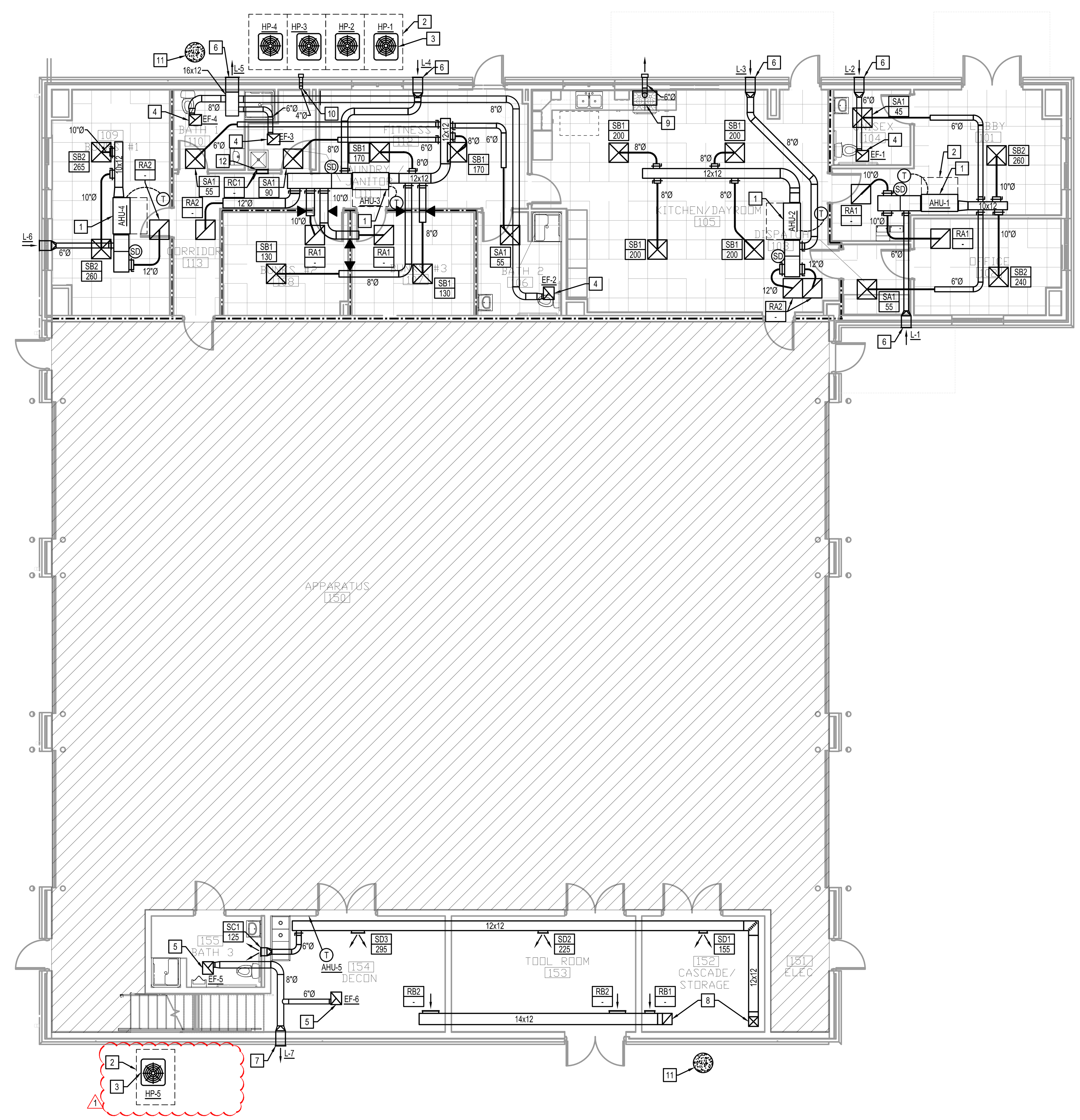
LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

MECHANICAL SCHEDULES

M0.2



1 Floor Plan - Mechanical
Scale: 1/8" = 1' - 0"

Plan Notes:

1. Install air handling unit above ceiling per manufacturer's installation instructions and clearances. Provide return duct same size as unit connection. Route refrigerant piping through ceiling and turn down within exterior wall to heat pump. Pump condensate adjacent to refrigerant piping and spill into nearest dry well. Refer to "Air Handling Unit Hanging Detail" for additional information.
2. Manufacturer's required installation clearances. (Typical)
3. Install new heat pump on concrete housekeeping pad per manufacturer's installation instructions and clearances. Refer to "Heat Pump Mounting Detail" for additional information. (Typical)
4. Install ceiling mounted exhaust fan per manufacturer's installation instructions and clearances.
5. Install ceiling mounted exhaust fan per manufacturer's installation instructions and clearances. Fan shall be suspended within structural joists.
6. Install louver high in exterior wall per manufacturer's installation instructions and clearances. Maintain 10'-0" between outside air intakes and exhaust outlets. Maintain 3'-0" between exhaust outlets and any operable openings into the building.
7. Install louver in exterior wall tight to underside of mezzanine structure per manufacturer's installation instructions and clearances. Maintain 10'-0" between outside air intakes and exhaust outlets. Maintain 3'-0" between exhaust outlets and any operable openings into the building.
8. Route supply and return ducts down through floor of mezzanine. Continue ducts tight to underside of mezzanine structure.
9. Install domestic range hood, furnished by General Contractor, above domestic range per manufacturer's installation instructions and clearances (hood shall not exceed 400 CFM). Route exhaust duct through exterior wall and terminate with manufacturer's approved wall cap. Maintain 10'-0" between exhaust outlets and any outside air intakes. Maintain 3'-0" between exhaust outlets and any operable openings into the building.
10. Provide "Dryer Box" centered behind domestic clothes dryer. Route dryer duct within wall and vent directly through exterior wall. Terminate dryer duct with wall cap including backdraft damper (no bird/insect screen). Wall cap color shall match adjacent exterior wall color. Maintain 10'-0" between outside air intakes and exhaust outlets. Maintain 3'-0" between exhaust outlets and operable openings into the building.
11. Provide dry well at exterior equipment area. Drain all HVAC equipment condensate into nearest dry well. Refer to "Dry Well Detail" for additional information.
12. Provide back-to-back return air grilles, with louvers facing upward to prevent line of sight into duct, centered above laundry room door. Grilles shall have a minimum free area of 100 square inches per 2018 NC Mechanical Code, Section 504.6.

Wall Ratings and Types Legend

See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.

New Wall being Constructed
New Partial Height Wall being Constructed
One Hour Fire Barrier

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LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024
24-0013
FLOOR PLAN - MECHANICAL
M1.1

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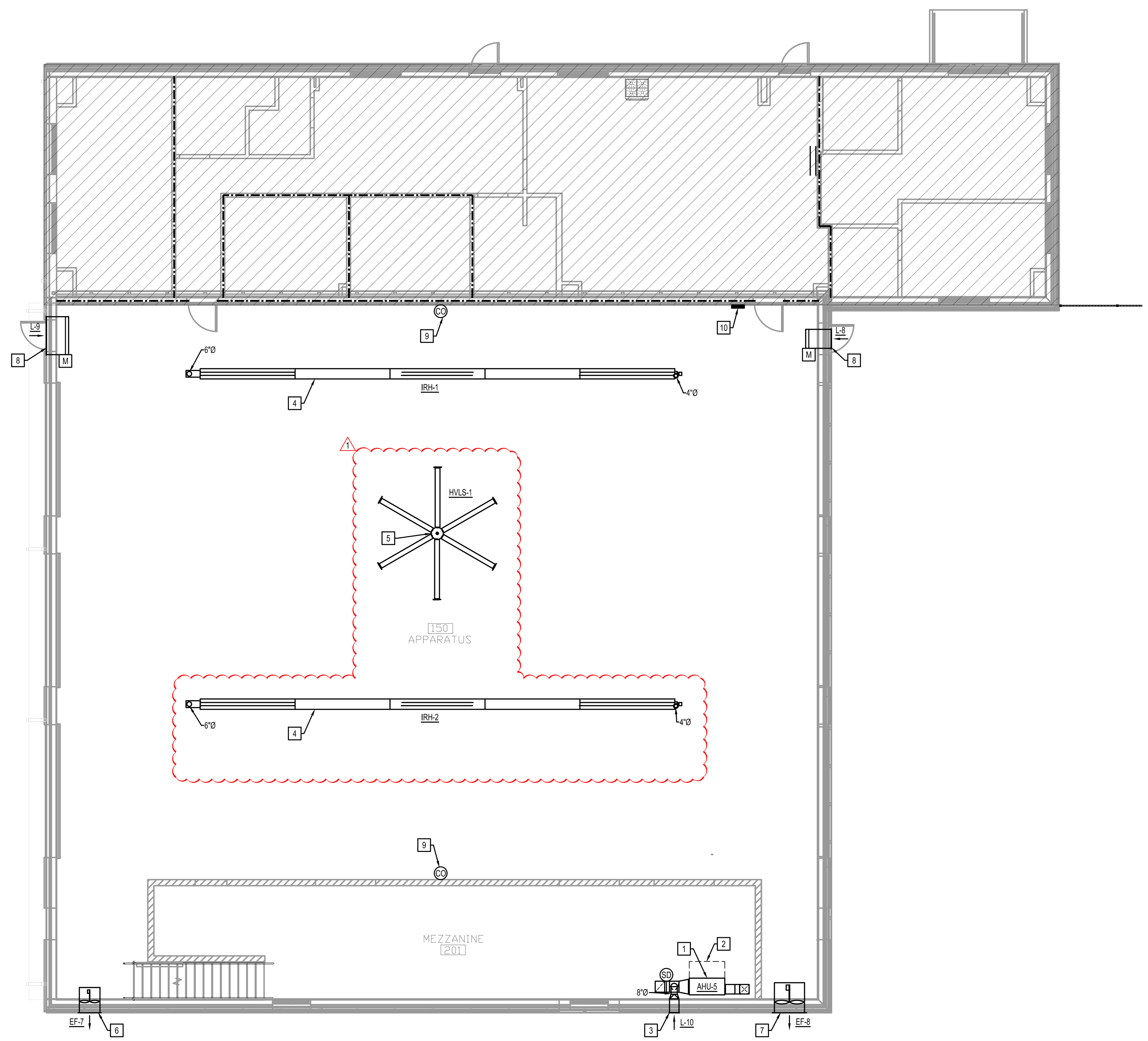

1 Mezzanine Plan - Mechanical
Scale: 1/8" = 1' - 0"

N

Plan Notes:

1. Install air handling unit horizontally on floor of mezzanine per manufacturer's installation instructions and clearances. Route supply and return ducts down through mezzanine floor as indicated. Route outside air duct up to louver high in exterior wall. Route refrigerant piping through ceiling and turn down within exterior wall to heat pump. Pump condensate adjacent to refrigerant piping and spill into dry well. Refer to "Air Handling Unit Hanging Detail" for additional information or support from mezzanine floor.
2. Manufacturer's required installation clearances. (Typical)
3. Install louver high in exterior wall per manufacturer's installation instructions and clearances. Maintain 10'-0" between outside air intakes and exhaust outlets. Maintain 3'-0" between exhaust outlets and any operable openings into the building.
4. Install natural gas infrared heater per manufacturer's installation instructions and clearances. Coordinate final heater mounting height with the general contractor. Route 6"Ø intake duct and 4"Ø flue duct up through roof as indicated and terminate with manufacturer approved roof cap. Maintain 10'-0" between outside air intakes and exhaust terminations.
5. Install high-volume low-speed fan per manufacturer's installation instructions and clearances. Coordinate final fan location and mounting height with the general contractor.
6. Install new wall mounted propeller style exhaust fan high on wall per manufacturer's installation instructions and clearances. Fan intake shall be open to apparatus bay. Refer to architectural/structural drawings for exact location. All structural supports shall be provided by General Contractor. Maintain 10' between outside air intake and any exhaust terminations. Fan shall be programmed through CO/NO2 monitoring system to operate continuously. Fan shall be interlocked with L-8 intake louver motorized damper.
7. Install new wall mounted propeller style exhaust fan high on wall per manufacturer's installation instructions and clearances. Fan intake shall be open to apparatus bay. Refer to architectural/structural drawings for exact location. All structural supports shall be provided by General Contractor. Maintain 10'-0" between outside air intake and any exhaust or plumbing vent terminations. Fan shall be programmed to engage through CO/NO2 monitoring system when exposure set point is exceeded. Fan shall be interlocked with L-9 intake louver motorized damper.
8. Install intake louver high in exterior wall per manufacturer's installation instructions and clearances. Provide minimal duct and motorized damper. Interlock motorized damper with associated exhaust fan, so that damper opens when fan engages. Maintain 10'-0" between outside air intakes and exhaust outlets. Maintain 3'-0" between exhaust outlets and any operable openings into the building.
9. Provide dual detection CO/NO2 gas detector. Provide with manual switch. Install CO sensor at 44" to 48", install NO2 sensor 24" below the highest point in the ceiling. Interlock EF-8 to engage when expose set point is exceeded.
10. Install CO/NO2 monitoring system control panel in accessible location on wall. Monitoring system shall be Honeywell, Model: 301C or equivalent with remote CO/NO2 sensors, audible/visible alarms, and 120/24V controls transformer as required. Garage exhaust fans shall be controlled through the CO/NO2 monitoring system. EF-7 shall be programmed to operate continuously in order to provide the minimum required ventilation. EF-8 shall be programmed to engage and open associated intake damper when exposure levels exceed set point. Refer to manufacturer's installation instructions for exposure limits and alarm levels.

Wall Ratings and Types Legend

See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.

New Wall being Constructed
New Partial Height Wall being Constructed
One Hour Fire Barrier

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SEAL 37491 ENGINEER 4/9/25

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LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024
24-0013
MEZZANINE PLAN - MECHANICAL
M1.2

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LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

FLOOR PLAN - PLYMOVENT

M1.3

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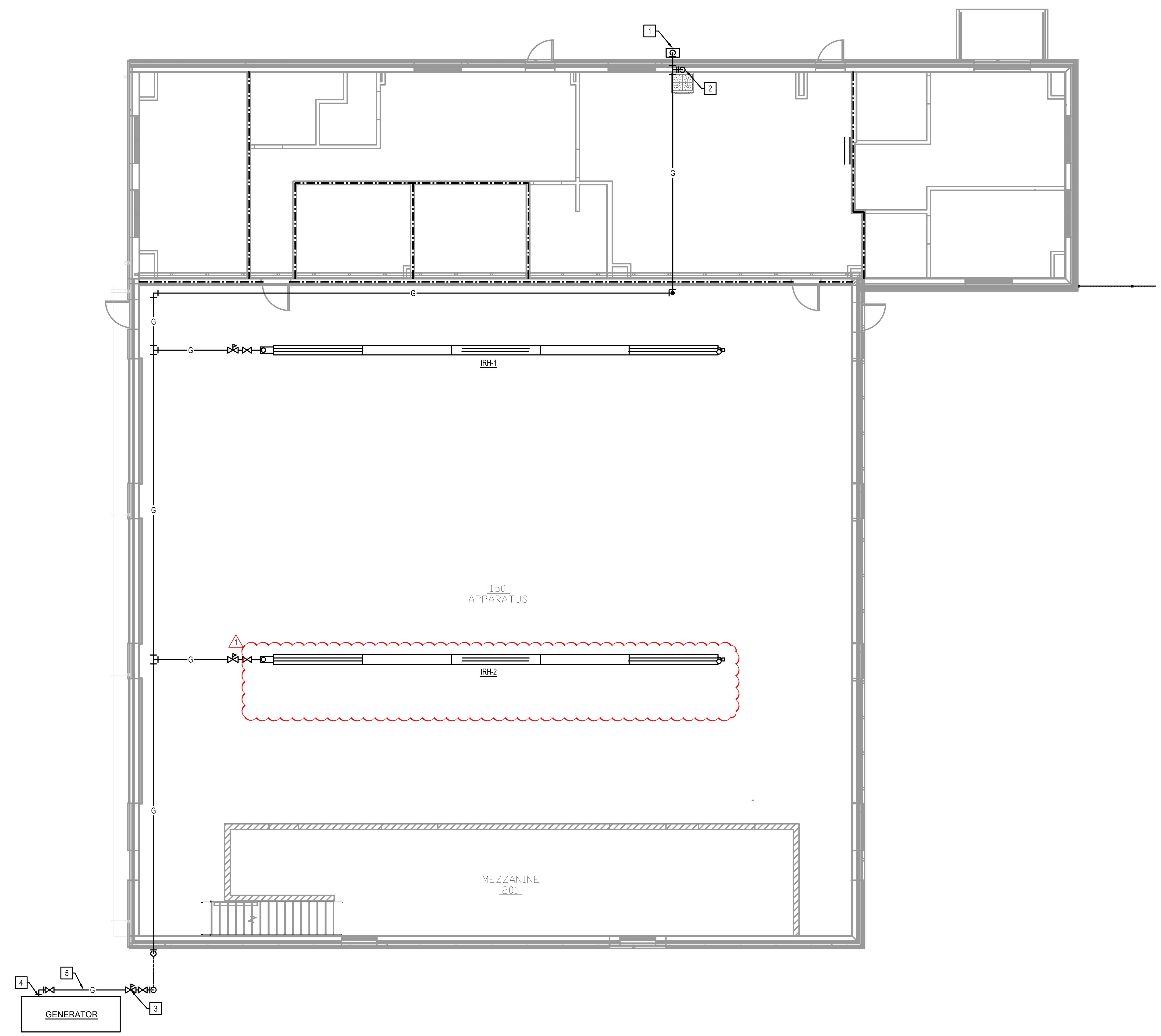

1 Floor Plan - Natural Gas

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

N

Plan Notes:

1. Coordinate installation of new 2 PSI gas meter with gas company. Route piping up exterior wall and turn into building. Continue gas piping through ceiling space as indicated to natural gas appliances. Refer to gas riser for pipe sizing and additional information.
2. Route gas piping down within wall behind natural gas range. Provide vent limiting medium pressure regulator within ceiling space and provide valve box with shutoff valve where piping turns through wall low behind range. Provide corrugated stainless steel tubing for final connection to range natural gas inlet.
3. Select medium pressure regulator and spring based upon 5"-14" water column generator operating fuel inlet pressure and generator manufacturer's sizing guide.
4. Coordinate exact location of gas piping connection to generator with installer and generator orientation. Provide corrugated stainless steel tubing for final connection to generator natural gas inlet. Transition to generator inlet connection as required.
5. Provide a minimum of 10'-0" of piping between medium pressure regulator and generator connection.

Wall Ratings and Types Legend

See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.

New Wall being Constructed

New Partial Height Wall being Constructed

One Hour Fire Barrier

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CHK BY:

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LILLINGTON FIRE STATION NO 3

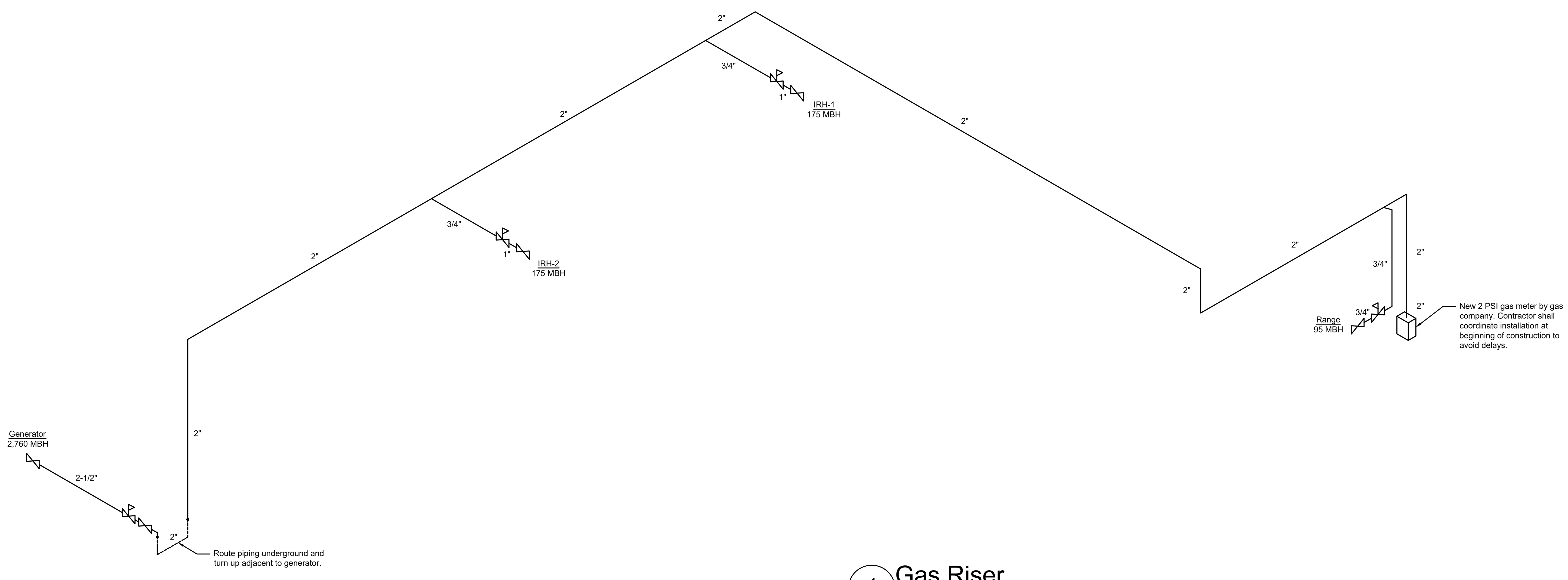
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

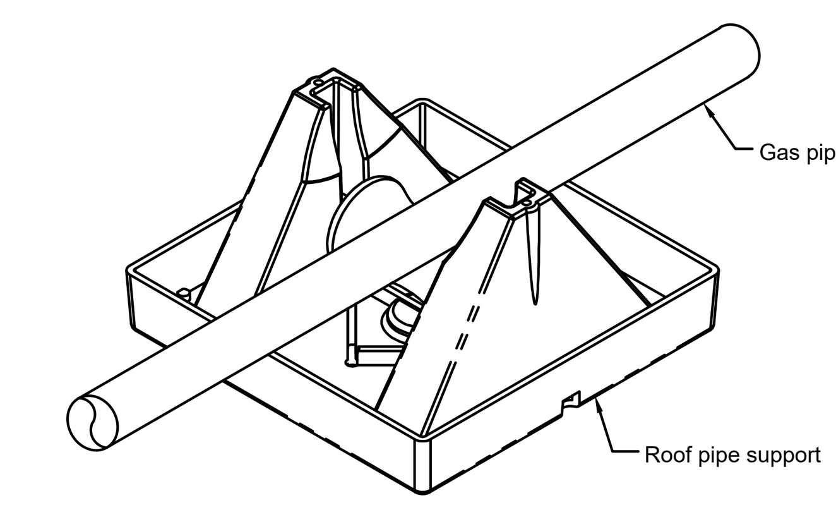
24-0013

FLOOR PLAN - NATURAL GAS

M1.4



1 Gas Riser
Scale: None



Provide MIRO Industries, Inc. Model 3-R-2 pipe support. Provide accessory pipe straps and support pad at each pipe stand. Install and space per manufacturer's recommendations.

Note: Refer to MEP seismic restraint detail for additional information regarding necessary restraints.

2 Gas Pipe Roof Support Detail
Scale: None

2 PSI Gas Service Notes:

Above ground gas piping sizes upstream of medium pressure (MP) regulators are based on an initial pressure of 2 PSI, a pressure drop of 1 PSI, 0.6 specific gravity gas and Schedule 40 pipe. Sizes are based on Table 402.4(5) of the 2018 NC Fuel Gas Code. Gas piping sizes downstream of MP regulators are based on a low pressure system (< 2 psi), a pressure drop of 0.5" water column, 0.6 specific gravity gas and Schedule 40 pipe. Sizes are based on Table 402.4(2) of the 2018 NC Fuel Gas Code.

Underground gas piping sizes upstream of medium pressure (MP) regulators are based on an initial pressure of 2 PSI, a pressure drop of 1 PSI, 0.6 specific gravity gas and Polyethylene Plastic Pipe for underground installation. Sizes are based on Table 402.4(22) of the 2018 NC Fuel Gas Code.

1. All gas piping shall be installed per the requirements of the 2018 NC Fuel Gas Code and NFPA 54.
2. Provide all valves, fittings, and controls as required by local, state, and national codes or by manufacturer's written recommendations for a complete and operational system.
3. Provide all underground gas piping with yellow, 18 AWG tracer wire, suitable for direct burial, for locating.
4. Underground gas piping shall have a minimum burial depth of 12 inches and installed per Section 404 of the 2018 NC Fuel Gas Code.
5. Provide manual shutoff valve for each piece of gas equipment.
6. Contractor shall verify gas requirements for each piece of equipment prior to installing gas piping. Confirm equipment with owner.
7. Above ground gas piping shall be Schedule 40 ASTM A53 or A120, T&C. Where exposed to weather, paint to prevent corrosion.
8. Contractor to verify meter location and maximum line lengths prior to installation. If conditions vary from those shown on the drawings, contact engineer for line sizing.
9. A listed shutoff valve shall be installed immediately ahead of each MP regulator.
10. MP regulators must be installed and vented in accordance with Section 410 of the 2018 NC Fuel Gas Code. Where MP regulators are specified to be installed indoors, vent limited devices shall be utilized to eliminate requirement for venting to outdoors.
11. A test tee fitting shall be installed between the MP regulator and its upstream shutoff valve. A separate test tee fitting shall be installed not less than 10 pipe diameters downstream of the MP regulator outlet. Provide test tee fittings for all new and existing MP regulators.

Gas Connected Load

Mark	Equipment Type	BTUH Input	Remarks
Range	Natural Gas Range	95,000	1,2
IRH-1	Natural Gas Infrared Heater	175,000	1,2
IRH-2	Natural Gas Infrared Heater	175,000	1,2
Generator	Natural Gas Generator	2,760,000	1,2
	Total	3,205,000	

1. Maximum equivalent length from the gas meter to the most remote MP regulator = 300'.
2. Maximum length from any MP regulator to the equipment served = 30'. Transition pipe to equipment inlet as required.

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COORDINATOR:

DRAWN BY:

CHK BY:

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

Gas Piping Details

M2.1

These drawings will be at the scale indicated when plotted at 24" x 36"

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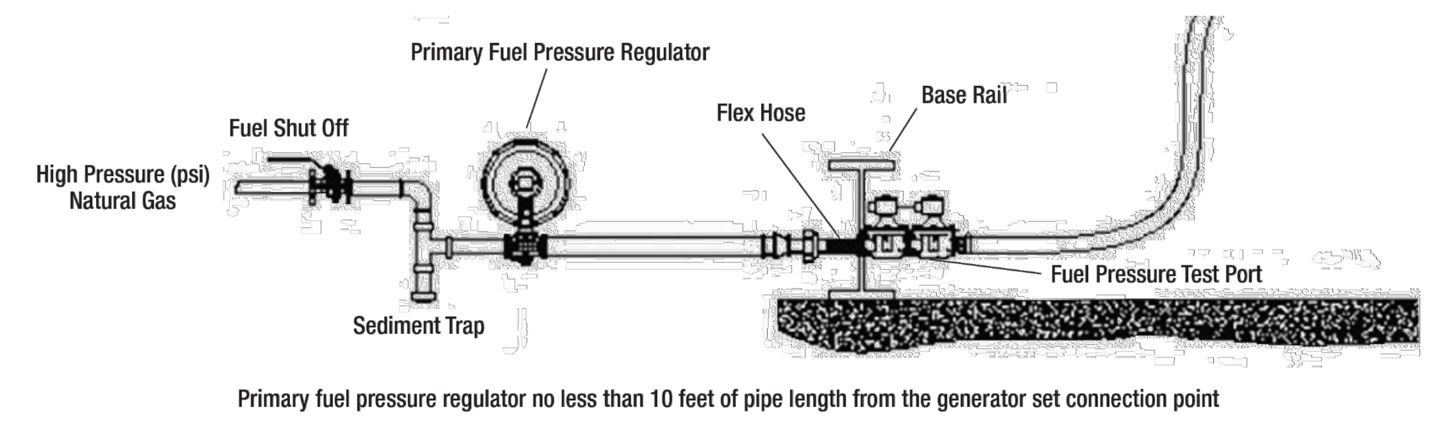
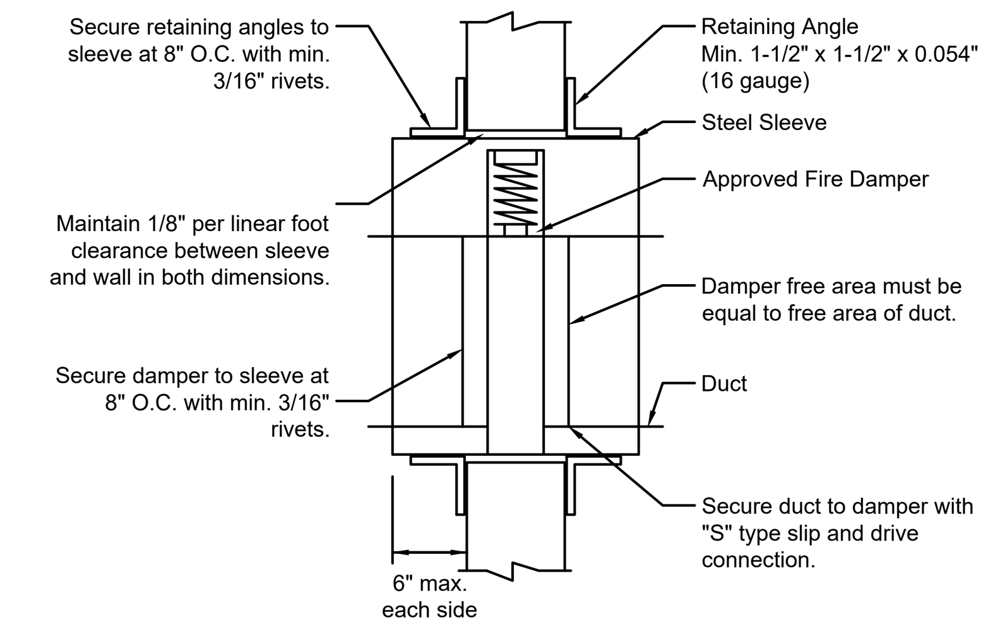


Note: Refer to MEP seismic restraint detail for additional information regarding necessary restraints.

2 Generator Piping Detail
Scale: None

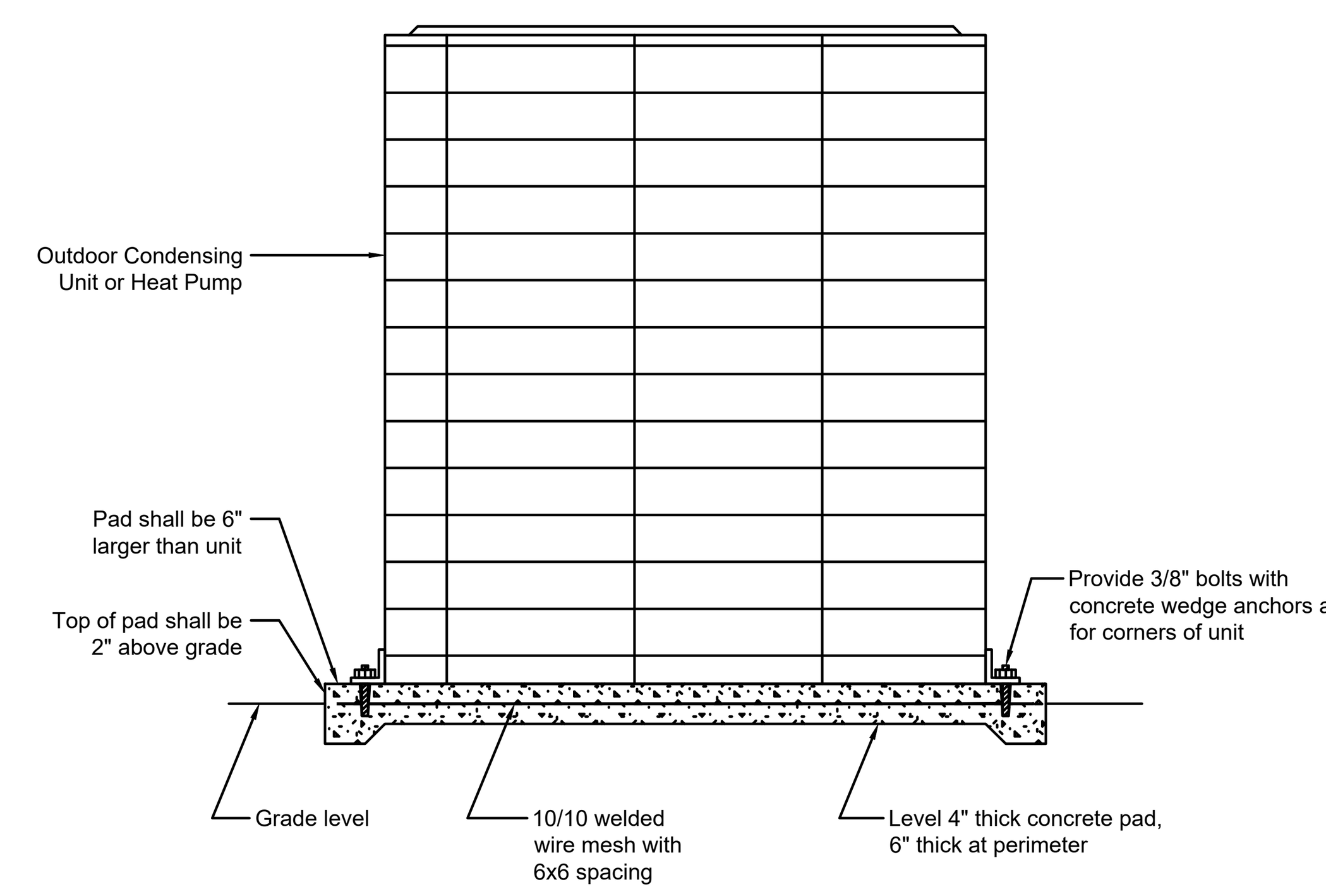


5 Fire Damper Detail
Scale: None

MAXIMUM DRYER VENTING LENGTH	
TOTAL LENGTH OF STRAIGHT 4" RIGID DRYER VENT:	(XXXX) FEET
NUMBER OF ELBOWS (DEDUCTION):	QTY:
4" RADIUS MITERED 45-DEGREE ELBOW (2'-6"):	(XXXX)
4" RADIUS MITERED 90-DEGREE ELBOW (5'-0"):	(XXXX)
TOTAL EQUIVALENT LENGTH OF DRYER VENT:	(XXXX) FEET
MAXIMUM LENGTH OF DRYER VENT (NCMC 504.8.4):	35'-0" FEET
MANUFACTURER'S EXCEPTION: TOTAL EQUIVALENT LENGTH OF DRYER VENT MAY EXCEED 35'-0" WHERE DRYER'S MANUFACTURER'S INSTALLATION INSTRUCTIONS ALLOW. INSTALLATION INSTRUCTIONS MUST INCLUDE A MAXIMUM VENTING LENGTH AND DEDUCTIONS FOR FITTINGS.	

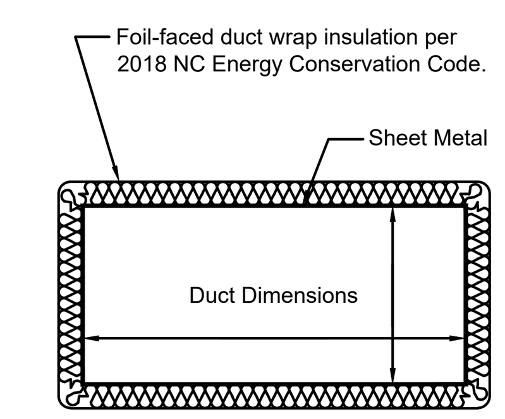
Notes:
1. Mechanical contractor shall provide a 1/16" thick red plastic placard with white 1/4" high lettering indicating each dryer vent installation. The mechanical contractor shall install the placard prior to ceiling installation, but not before dryer vent installation has been completed. Dryers venting systems exceeding 35'-0", or the maximum distance allowable per the dryer manufacturer's installation instructions, are prohibited from being installed.
2. Placard shall include four pre-drilled holes, to be attached adjacent to the wall adjacent to the dryer connection with four screws.
3. All sections including "(XXXX)" must be completed and reflect the dryer vent installation prior to installing placard.
4. Provide placard with pre-drilled holes in each of the four corners. Attach placard to wall within 5'-0" of dryer box with four screws.

1 Dryer Venting Placard Detail
Scale: None



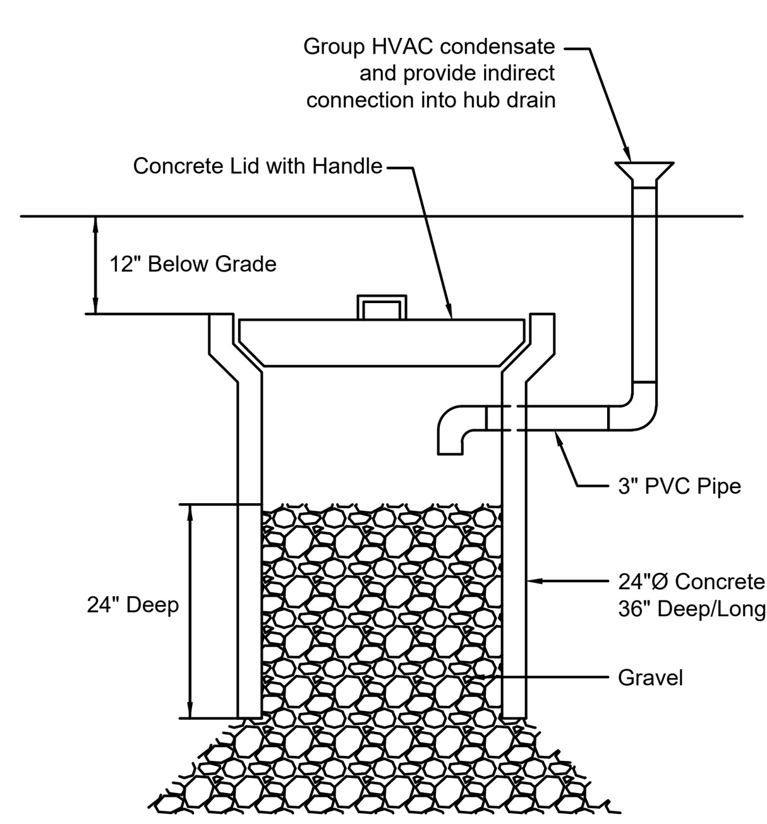
Note: Refer to MEP seismic restraint detail for additional information regarding necessary restraints.

3 Heat Pump Mounting Detail
Scale: None



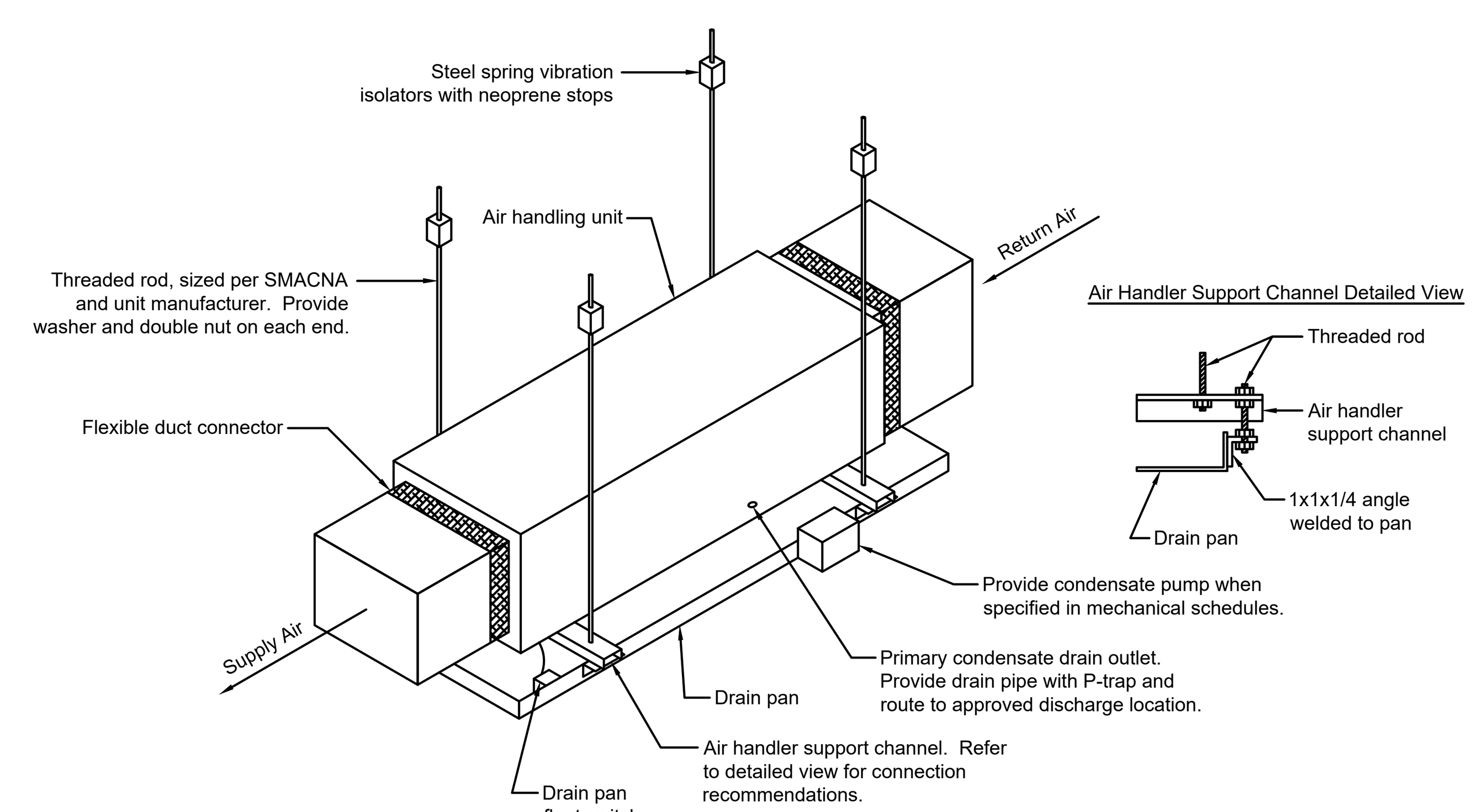
Notes:
- All duct dimensions shown on these drawings are inside clear.
- Provide a minimum of R-6 insulation when duct is located in unconditioned space.
- Provide a minimum of R-8 insulation when duct is located outside the building envelope.

6 Duct Fabrication Detail
Scale: None



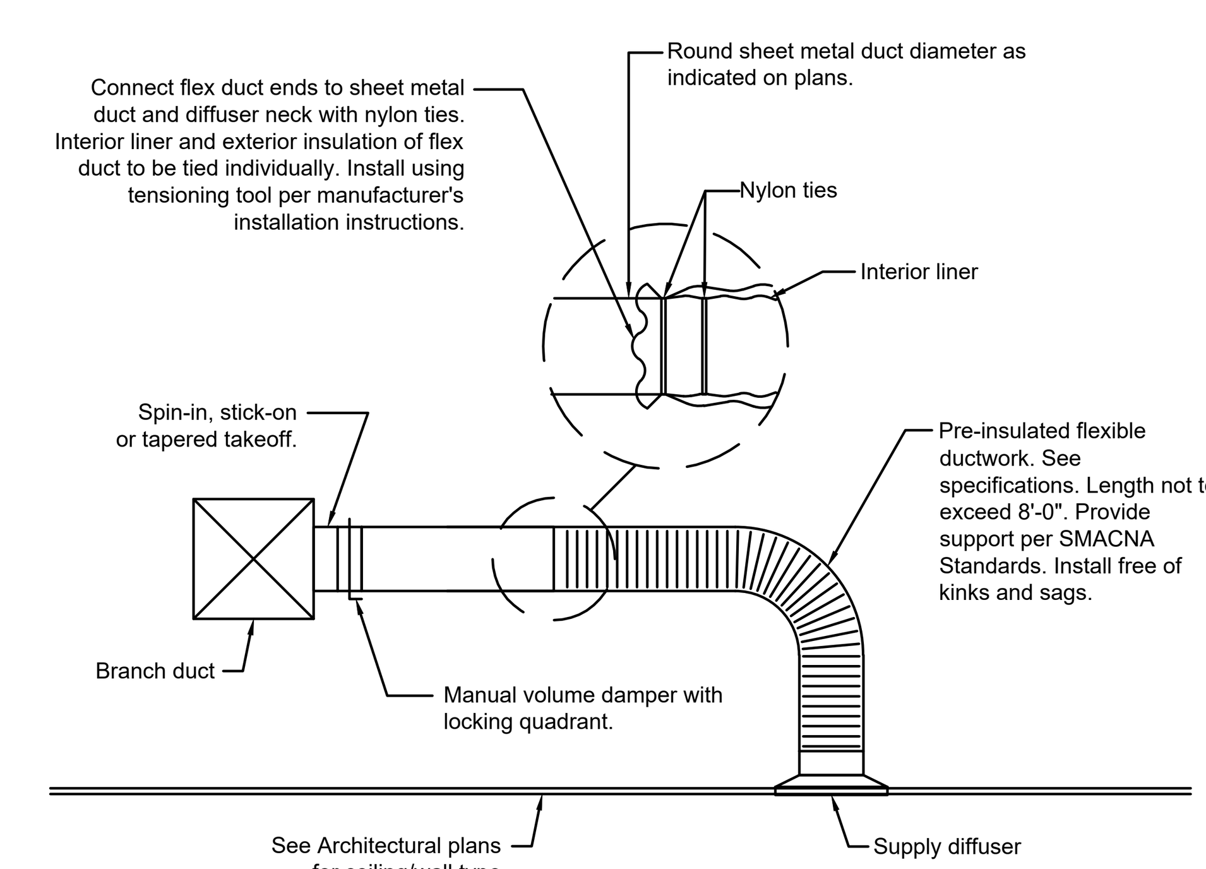
Notes:
- Locate as indicated on mechanical drawings or in location nearest HVAC equipment.
- Coordinate location in order to avoid conflict with building footings and landscaping.

2 Dry Well Detail
Scale: None



Note: Refer to MEP seismic restraint detail for additional information regarding necessary restraints.

4 Air Handling Unit Hanging Detail
Scale: None



7 Flexible Duct Installation Detail
Scale: None

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09/19/2024
24-0013
MECHANICAL DETAILS
M2.2

These drawings will be at the scale indicated when plotted at 24" x 36"

GENERAL NOTES AND REQUIREMENTS.

1. Workmanship shall conform to NECA installation standards including NECA 1.
2. Installation shall comply with National Electrical Code (NEC/ NFPA 70), state building code, and all requirements of the local inspector (furnish inspection certificate). All work shall be by licensed electrical contractor.
3. The contractor shall refer to the architectural plans for floor plan dimensions and not scale these drawings. The location of all wall mounted devices, including mounting heights, shall be field verified with the architect prior to rough-in. Coordinate locations of all light fixtures with the reflected ceiling plans. Light fixtures installed in mechanical areas shall avoid mechanical piping, equipment, ductwork, etc.
4. Contractor shall comply with all requirements of the 2018 NC Building Code and Accessibility Code which are applicable to this project regardless of whether all details are indicated on plans. All receptacles, switches, and other electrical devices required to be ADA accessible shall be mounted per ANSI 117.1 sections 308 AND 309.
5. All electrical equipment shall be installed so that all code required and manufacturer recommended working/ servicing clearances are maintained. Installation shall fully comply with NEC 110.26 and NEC 408.18 for clearance requirements.
6. All wall outlet boxes, receptacles, switches, cover plates, etc. shall be commercial grade, standard or heavy duty except where specified. Verify color/ material for all devices and cover plates prior to order. Provide label for each device identifying the circuit serving the device. Verify if label should be on inside our outside face of cover plate with building management/ tenant. All 15 and 20 amp, 125V and 250V non-locking receptacles shall be listed as tamper resistant, per NEC 406.12, when installed in the following areas: dwelling units in areas specified by NEC 210.52 and 550.13, guest rooms and suites of hotels, child care facilities, preschool and elementary education facilities, and in patient rooms, bathrooms, playrooms and activity rooms of pediatric or similar facilities.
7. The electrical contractor shall coordinate any and all work with other trades involved in the project, prior to installation of electrical equipment, so as to avoid conflicts during construction and to allow for optimum maintenance and working space.
8. All branch circuits shall be in 3/4" minimum zinc-coated EMT, IMC, or RMC as permitted or required by the NEC. LFMC (or FMC as permitted) shall be used for final connections to equipment subject to vibration. A deduct price for MC cable may be offered for approval, where permitted by owner and NEC and conduits completely concealed from view. Schedule 40 PVC conduit may be used for underground feeders/ branch circuits or underground low voltage system conduits located below slab on grade or buried outside of the building, or in concrete block walls. PVC schedule 80 conduit may be used on the building exterior (expansion fittings may be used above grade) where permitted by code. Contractor shall include cost of painting all exposed conduits subject to public view. Conduit sizes noted on these plans are based on EMT conduit. Where other permitted raceway types are used, contractor shall adjust conduit sizes as necessary based on type of raceway used and allowable fill. Provide pull wire in all empty conduit. Junction box covers shall be permanently labeled and conduit shall be labeled every 10'. All labels shall be machine generated onto adhesive labels or tags, or engraved on plastic laminated placards or brass tags.
9. All wire and conduit sizes are based on 75° C THHN/THWN copper conductors unless otherwise noted. All conductors, terminations larger than 30A & devices shall be rated for minimum 75°C. All conductor and conduit sizes are calculated based on installation of no more than 3 current carrying conductors per conduit, neutral(s) included. Unless otherwise noted, contractor shall not install more than 3 current carrying conductors per conduit with the following exception: up to 9 current carrying conductors may be used in a single raceway where permitted by the NEC when minimum #12 AWG (THHN 90°c) is used and when all included circuits are protected upstream by 20 amp overcurrent devices and no other derating conditions exist.
10. All conductors shall be copper type THHN, or XHHW, solid for #10 AWG or #12 AWG, and stranded for all larger sizes. Minimum conductor size shall be #12.
11. Conduits and cables shall be concealed wherever possible by either routing above ceiling, in interstitial spaces or running exposed in unfinished spaces where possible. Conduits may be run exposed in mechanical areas or other areas not subject to public view where approved by the owner. Wherever conduits or cables are approved to be exposed, conduits and cables shall be run parallel or perpendicular to structural elements and shall be run and bundled in groups, and the installation shall be neat and orderly. Even when exposed, conduits and cables shall be routed to minimize view from personnel. Seal all penetrations air tight around all conduits passing through walls or floors. Escutcheon plates shall be used when passing through walls that are visible to the public. Use appropriate penetration protection when conduit passes into or through rated assemblies.
12. Where branch circuit total length is greater than sixty five (65') feet from the panel, see voltage drop schedule for wire size adjustment.
13. All mounting heights indicated are given to the bottom of the device, unless noted otherwise.
14. Where used in these documents, the word "provide" shall mean to furnish and install the item or equipment as well as make the final connection required.
15. All light fixtures shall be supported independently of the suspended ceiling system.
16. The electrical contractor shall provide all necessary disconnects, switches, receptacles, etc. under the electrical bid and shall include all necessary circuits to and make final connections to the equipment furnish by all suppliers. Coordinate closely with other trades.
17. All breakers, disconnect switches, and fuses sizes, indicated for mechanical equipment, shall be verified with equipment supplier and mechanical contractor, before the purchase or installation of that equipment.
18. All disconnect switches are to be fusible type. Fuses shall be the appropriate type for the load served by Bussmann or equal. Unless unsuitable, fuses rated 1200A or higher shall be Class L, fast-acting, and shall have a clearing time of 0.07 seconds at the available fault current per NEC 240.67. Submit fuse trip curves along with available fault current at the service entrance for engineer verification prior to beginning work or ordering equipment. The contractor shall compare all installed equipment nameplate information with the electrical plans/ schedules and notify the engineer immediately of any discrepancies. The contractor shall coordinate all fuse sizes with actual installed equipment nameplate information prior to purchasing or installing fuses. Where the nameplate information does not indicate an overcurrent protection size or maximum ampacity rating, fuses shall be installed per the electrical plans assuming other equipment parameters are in agreement with nameplate data.
19. Provide grounding conductor for all circuits per NEC. Building ground shall meet all requirements of NEC 250.
20. Ground telephone equipment per NEC. If telephone service is not located within 20' of electrical service, then provide separate grounding electrode as required per NEC 800.
21. All multiwire branch circuits shall have multipole breakers as required by NEC 210.7.
22. All circuits 100 amp and larger shall be megger tested prior to energizing. All other circuits shall be tested for continuity prior to energizing.

Testing Requirements:

- Dielectric absorption tests shall be performed with a 2,500 volt DC megger.
- Megger tests shall be performed at a DC voltage of 1,000 volts for 600 volt rated equipment, and at a DC voltage of 500 volts for 120-300 volt rated equipment.
- The megger test shall be performed between each pair of conductors and from each conductor to ground. Each test shall be performed for 15 seconds or until the insulation resistance value stabilizes. The insulation resistance between conductors, and from each conductor to ground, shall be 25 megaohms (120-300V) or 100 megohms (600V) minimum in one minute or less. In addition, the lowest insulation resistance value shall not differ from the highest value by more than 20 percent. If all megger readings for a given circuit or feeder are above 1000-meghoms, the 20% balance requirement may be waived
- Continuity checks shall be performed with a low voltage DC meter, light or bell.
- The resistance to ground shall be measured using either the three point method or the fall-of potential method.
- Test instruments shall be calibrated to national standards to insure accuracy of tests. These calibration reports shall be made available to the Owner when requested. Depending upon frequency of use, the instruments shall be calibrated at least every 12-months.

23. The electrical contractor shall patch any wall, ceiling, or floor opening (or penetration) resulting from demolition or new work in existing areas. Any rated constructions or assemblies affected shall be patched, protected and refinished as necessary to maintain the original appearance as well as the rating.
24. The contractor is responsible for properly disposing of all waste materials, demo materials and other trash. This includes but is not limited to proper disposal of mercury containing lamps, batteries, recyclable materials.
25. Contractor shall provide engineer with shop drawings/ submittal data for lights, switchgear/ panels, floor boxes, fire alarm devices, and any other products deemed necessary for review. Provide these in editable PDF format via email through project manager, GC, architect or other proper channel. Expected review duration, and industry standard, is 2 weeks from date of receipt by engineer. All submissions should include and acknowledge this review duration unless otherwise specifically discussed and agreed upon in advance.
26. It is the sole responsibility of the contractor to coordinate w/ all other trades regarding voltages, loads, circuit breakers, etc. prior to beginning any work.
27. All switchgear/ panels shall be commercial grade from a reputable national manufacturer such as Square D, Eaton, Siemens and ABB. Panels shall be rated as indicated on panel schedules/ electrical riser diagram. If discrepancies are found, contact engineer immediately.
28. Engineer has reserved the right to choose the software package(s) deemed most efficient to deliver these plans for permitting, bid, and construction. Engineer considers any other digital files created during this process as instruments of service, and as such remain the property of the engineer. The contractor should not assume that digital files in any format will be made available during bidding or after award other than PDFs. If digital files are requested, engineer reserves the right to selectively provide them when available and/or may request additional considerations for the time incurred to prepare them.
29. Contractor shall verify all areas that are used as a return plenum with mechanical contractor and provide plenum rated cable for all cables not run in metal conduit. PVC is not allowed in plenum space. This "cable" includes all telecommunications, fire alarm, or control wiring above ceiling.
30. Contractor shall comply with all applicable seismic requirements of the area.
31. All underground raceway entering the building, (i.e. through a foundation wall or through the floor) shall be sealed in accordance with NEC 225.27 and 300.5(F). Raceway seals and sealants shall be approved and listed for the specific application and materials.
32. Contractor shall provide support bushings/conduit stops for vertical branch circuits and feeders where required per NEC 300.19(A).
33. Bi-Directional Antenna system (BDA) could be required for this facility. Contractor shall test the site before and after construction activities per NC Fire Code section 510.4. If it is deemed that a BDA system is necessary based on these tests, a full BDA systems shall be installed that meets all requirements of NC Fire Code section 510.
34. Electrical boxes, conduit, and wiring shall not be recessed into or penetrate structural members. Boxes/conduits shall be surface mounted to structural member and/or recessed in stud wall where possible. Coordinate with architect.
35. All equipment associated with or connected to the electrical, fire alarm or data systems or otherwise included in the drawings/ scope of work shall be listed and labeled by a third party that is acceptable to the AHJ.
36. All non-locking type 125 volt, 15 and 20 amp receptacles that are controlled by an automatic control device or that incorporate control features that remove power from the outlet for the purpose of energy management or building automation shall be labeled per NEC 406.3(E).

Electrical Abbreviations

A	above- indicates a device is to be mounted with the bottom of box 2" above back splash unless noted otherwise.
AFF	above finished floor
AG	combination of 'A' and 'GFCI' (above counter and ground fault circuit interrupter)
ARCH	architect
C	ceiling- indicates a device is to be mounted in flush ceiling tile.
EC	electrical contractor
EX	existing
EXT	exterior
FA	fire alarm
FURN	furniture
G	GFCI- indicates a device with integral ground fault circuit interrupter (GFCI) protection and/or protected by upstream GFCI outlet.
GFI/ GFIC	same as 'G'
H	horizontal orientation of device
HG	hospital grade
IG	device shall have isolated ground and will require isolated ground circuitry back to an isolated ground bar in panelboard.
JB	junction box
MC	MC cable (when referring to NEC, wiring methods, or wiring type)
MC	mechanical contractor (when not referring to NEC wiring methods or type
MECH	mechanical contractor
NTS	not to scale
OC	on center
PC	plumbing contractor
PLUMB	plumbing contractor
S	surface- indicates device is to be surface mounted.
TP	tamper proof device per NEC 406.12
W/	with
WP	indicates a device rated for exterior use and is weatherproof or weather resistant with an approved weatherproof in-use cover.

Voltage Drop Schedule

120 V branch circuits up to 8 amps (1.0 kVA)

Distance of run, in feet			Wire size
1'	-	120'	#12
121'	-	190'	#10
191'	-	300'	#8
301'	-	470'	#6

120 V branch circuits from 8 to 14 amps (1.7 kVA)

Distance of run, in feet			Wire size
1'	-	65'	#12
66'	-	110'	#10
111'	-	170'	#8
171'	-	270'	#6

277 V branch circuits up to 14 amps (3.9 kVA)

Distance of run, in feet			Wire size
1'	-	160'	#12
161'	-	250'	#10
251'	-	390'	#8
391'	-	620'	#6

Contractor shall upsize branch circuit conductors based on load and length as indicated in general notes and schedules are minimum wire sizes and shall be adjusted for length.

Electrical Legend

Symbols shown below are indicative of new devices. See Linetype Legend for distinction of existing and demolition devices.

Floor Plans

Home run to panel/ branch circuit connection- short cross line(s) represent phase conductor(s) (hot), long cross line(s) represent grounded conductor(s) (neutral), equipment grounding conductor (ground) required but not shown. Minimum size per NEC requirements based on circuit breaker / schedule / voltage drop table.

All duplex and quad receptacles shall be NEMA 5-20R unless otherwise noted.

- Duplex receptacle
- Power receptacle
- Quad receptacle
- Isolated ground duplex receptacle

(above: 16" AFF or as otherwise noted)

- USB — 16" AFF or as otherwise noted. Duplex receptacle with (2) USB ports. Nema 5-20R Duplex Cooper TR7756 or equal.
- Telecommunications wall outlet - 16" AFF or as noted (run 3/4" EMT to accessible point above ceiling.) Provide pull wire. Outlet/devices, bushings, and cables provided by tenant/ cabling contractor.
- CR — Card reader- verify mounting height with tenant prior to beginning work. Stub 3/4" EMT to above ceiling with pull wire. Outlet/device and all low voltage wiring by tenant/security contractor. Coordinate with tenant/security contractor.
- P — Junction box above ceiling for furniture systems. Power poles provided by furniture manufacturer/vendor. Verify location and requirements w/ furniture manufacturer/vendor prior to beginning work. Connect furniture systems as required.
- J — Junction box
- Telephone backboard - 4'x8'x3/4" fire-treated plywood. Pull #6 ground wire and terminate with 1/4" x 2" x 12" ground bar with holes every 1". Mount to backboard with stand-off insulators.
- Electrical panel
- Step-down transformer
- Electrical disconnect
- $M — Motor rated switch
- Pump

All lighting control switches shall be mounted at 44" AFF unless otherwise noted.
(All motion sensors shall be set to 30 minute delay)

- $ — Single pole switch
- $D — Dimmer switch (slide type) appropriate for load served
- $S — Line voltage motion-sensing switch. Wattstopper #PW-301
- $3 — 3-way wall switch
- $4 — 4-way wall switch
- $SD — Line voltage motion-sensing 0-10v dimmer switch. Wattstopper #PW-311
- $S — Line voltage dual relay motion-sensing switch. Wattstopper #PW-302. To be connected as double switch control.
- Double switch (used when two switch legs are connected to each fixture for bi-level switching, step dimming or similar.)
- S2 — Low voltage wall/ceiling mounted motion sensor. Wattstopper #DT-200. Mount on wall at 10' AFF where ceilings are not present or are over 10' AFF. Mount to ceiling where ceilings are 10' AFF or lower.
- PP — 120/277V to 24V power pack. Wattstopper #BZ-150
- S2 — Low voltage 360° ceiling mounted motion sensor. Wattstopper #DT-300
- S4 — Low voltage 360° ceiling mounted motion sensor. Wattstopper #DT-305-3
- DH — Low voltage 360° ceiling mounted daylighting sensor. Wattstopper #LS-301.

- Overhead fixture unless otherwise noted. See fixture schedule
- Downlight / pendant style fixture. See fixture schedule.
- Slash or shading indicates fixture connected ahead of switch/controls and to operate as night lights (fixture will be on 24/7 unless otherwise noted)
- Exit sign, faces and arrows as indicated. See fixture schedule.
- Emergency wallpack fixture. See fixture schedule.
- Combo emergency / exit fixture. See fixture schedule.
- Wall sconce/ mount fixture. See fixture schedule.
- Flood light/ track head style fixture. See fixture schedule.
- Pole mounted fixture. See fixture schedule.

Detail Sheets

- P (200/3) — Electrical panelboard; Main breaker or minimum ampacity
- M — Meter in meter base
- CT — CT cabinet
- 200/3, 150A — Frame size/ number of poles; Fusible disconnect, frame and fuse size as indicated or noted.; Fuse size
- T1, 75 KVA — Transformer designation; Transformer size; Transformer, size and designation as indicated. Primary voltage as noted in panel schedule/ for primary feed. Secondary voltage as noted in panel schedule/ for load supplied.
- Service ground

Linetypes

- New device unless otherwise noted
- Existing device to remain
- Existing device to be demolished
- New underslab or underground connection. Existing and demo underground noted with existing or demo linetype. New connections not specifically shown to be underground are not necessarily required to be run overhead unless noted as such.
- Low voltage wiring

Examples of existing and demolition symbols using above linetypes.

- Existing floor box to remain
- Existing duplex receptacle to remain
- Existing panel to remain
- XR — Existing light fixture to remain
- Existing switch to remain
- Existing light fixture to remain
- Existing sign to remain
- Existing duplex receptacle to be demolished
- Existing panel to be demolished or relocated
- XD — Existing light fixture to be demolished or relocated
- Existing switch to be demolished or relocated

See fire alarm legend for fire alarm symbols & specifications

See wall rating legend for wall types and symbols

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NORTH CAROLINA PROFESSIONAL SEAL 36841 ENGINEER RICHARD D. COPELAND JR.
9/19/24

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09/19/2024

24-0013

ELECTRICAL COVER SHEET

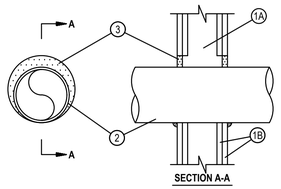
E0.1
OF - 13

WL 1054

System No. W-L-1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings —1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating (Without Movement) at Ambient — Less Than 1 CFM/sq ft	FH Ratings —1 and 2 Hr (See Items 1 and 3)
L Rating (Without Movement) at 400°F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
M Rating (Movement) — See Table 1	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 5.1 L/s/m2
	L Rating at 204°C — Less Than 5.1 L/s/m2



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. For M Rating, steel studs to be min 3-5/8 in. (92 mm) wide. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls. The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly. The M Rating is applicable only to 1 hr rated walls.
2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E.Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant

Movement Direction	Penetrant Item	Nominal Penetrant Diameter	Annular Space	Movement	Sealant Depth	F-Rating	L Rating with Movement
Y	2A, 2C*	2 in.	Max 2-1/4 in.	5%	5/8 in.	1 hr	N/A
Z	2A, 2C*	2 in.	2-1/4 in.	0.25 in.	5/8 in.	1 hr	N/A

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

Hilti Firestop Systems

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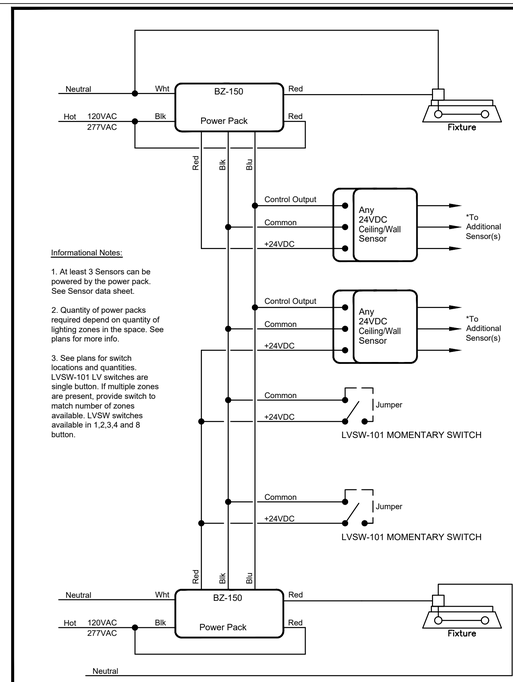
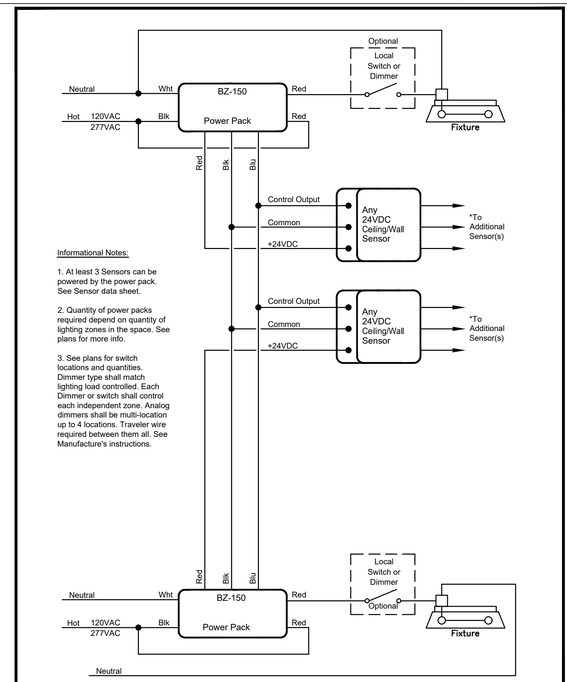
Gypsum Framed Walls
1 or 2 Hour Penetration Firestop
Metallic Pipe, Conduit, or Tubing

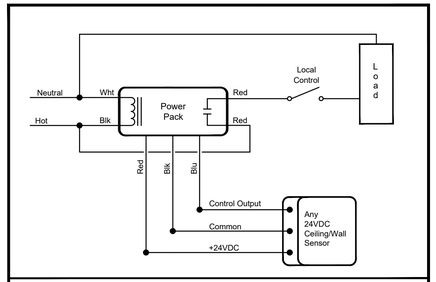
1 Scale: None



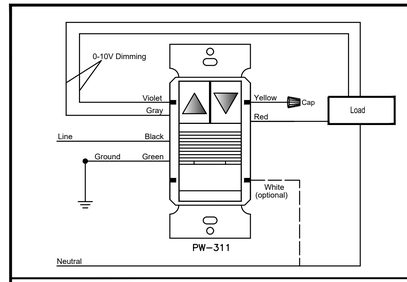
Non-Dimming Multiple Zone, Multiple Sensor and Multiple on/off Switch Control



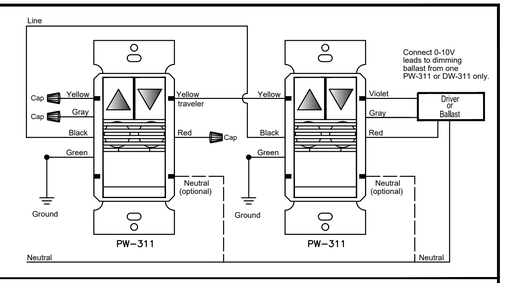
Multiple Zone, Multiple Sensor and Multiple Dimming Switch Control



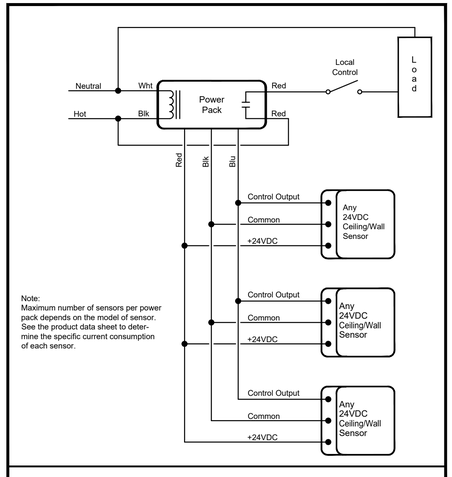
Single Occupancy Sensor Using One Power Pack



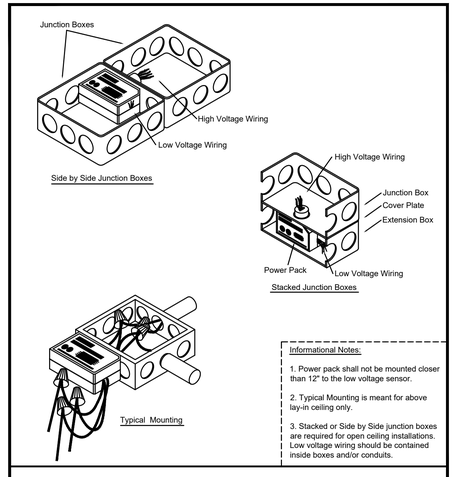
Typical PW-311 or DW-311 Wiring



Typical PW-311 or DW-311 Multi-way Wiring



Multiple Occupancy Sensors Using One Power Pack



Power Pack Installation

* Wiring diagrams/part numbers are based on Wattstopper. Manufacturers or models may be substituted for those indicated where specifications , functions, and configurations are equivalent to the basis-of-design manufacturer. Refer to manufacturer wiring diagrams and instructions for connecting system components and loads. Requirements of Division 26 specifications shall superceded requirements suggested by these details.

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9/19/24

This is not a certified drawing, but a copy of a certified drawing that has been unlocked. This document has been unlocked for the ease of use of the AHJ, contractor, etc. and was originally accompanied with the actual certified document meeting the boards rule for electronic signatures

APPROVAL:
DATE:

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DRAWN BY:

CHK BY:

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

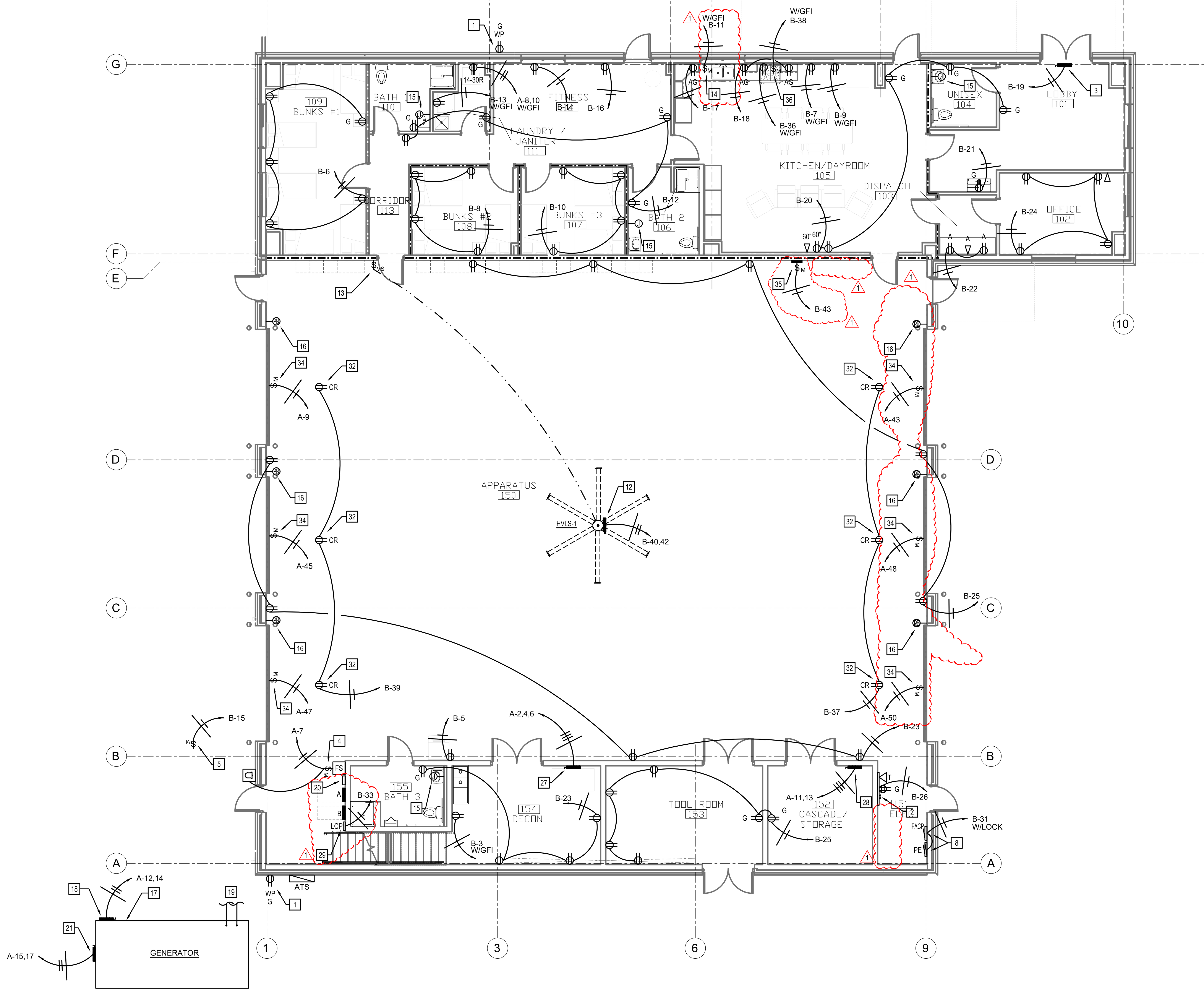
09/19/2024

24-0013

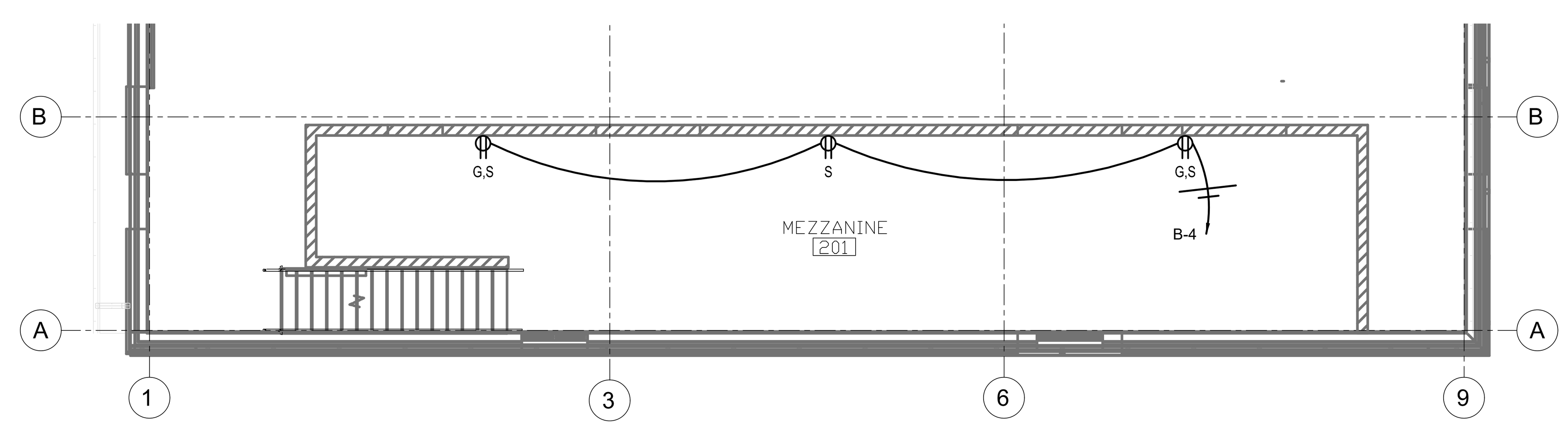
ELECTRICAL COVER SHEET

E0.2
OF - 13

These drawings will be at the scale indicated when plotted at 24" x 36"



1 Floor Plan - Power
Scale: 1/8" = 1' - 0"



2 Mezzanine Plan - Power
Scale: 1/8" = 1' - 0"

Sheet Notes:

1. All electrical boxes mounted in rated walls shall comply with all requirements of the 2018 NCSBC, section 714.3.2. All electrical boxes mounted in rated ceilings/horizontal assemblies shall comply with all requirements of the 2018 NCSBC, section 714.4.2. Devices shown in rated assemblies shall be flush with conduit concealed, unless otherwise indicated. Provide rated boxes, horizontal separation, putty pads, etc. as required for proper installation. Low voltage electrical devices mounted in rated assemblies shall be protected in accordance with the sections listed above as well.
2. Individual branch circuits are shown with a dedicated neutral unless otherwise noted. When multi-wire branch circuits are to be installed, provide multi-pole circuit breakers as required. NEC 210.7
3. See voltage drop schedule for wire sizing information for all branch circuits over 65' in length.
4. All receptacles within 6 feet from the outside edge of any sink shall be GFCI. NEC 210.8(B)(5)
5. All 120V, 15 and 20 A receptacles in this facility shall be listed as tamper resistant.

Plan Notes:

1. WP GFI receptacle on exterior wall for maintenance. Connect to circuit 'B-35' as required. Coordinate exact locations with mechanical. Typical.
2. Stub 2-2" conduits to property line for telephone service. Provide pull wire in each conduit. Coordinate exact location and requirements with telephone company.
3. Provide lockable 30/1 disconnect fused at 20 amps above ceiling/up high on wall for sign circuit per NEC 600.5. Connect as required.
4. Junction box for sprinkler bell. Bell furnished by sprinkler contractor, installed and connected by electrical contractor. Connect to 120/1 circuit through main sprinkler riser flow switch to be energized during a water flow in the sprinkler system. Coordinate with sprinkler contractor.
5. Connect hot box heater as required. Verify heater nameplate requirements as well as voltage drop requirements prior to beginning work. Coordinate with civil/sprinkler.
6. Connect exhaust fan controlled by wall switch as required. Coordinate with mechanical.
7. Connect electric water heater as required. Coordinate with plumbing.
8. Connect fire alarm control panel and power extender to a 120/1 circuit w/ locked breaker.
9. Connect exhaust fan controlled by 24V controls as required. Fan interlocked with louver. Coordinate with mechanical.
10. Door opener control panel. Coordinate exact location and requirements with equipment supplier. Connect as required.
11. Connect air compressor as required. Coordinate exact location and requirements with equipment supplier.
12. Connect HVLS fan as required. Coordinate with mechanical.
13. Low voltage variable speed standard controller. Connect as required. Coordinate exact location and requirements with owner/equipment supplier.
14. Provide motor switch for dishwasher connection in adjacent base cabinet under sink. Coordinate exact requirements with equipment supplier.
15. Junction box for automatic sensors for faucets. Connect to circuit 'B-27'. Verify location prior to beginning work. Connect as required.Typical.
16. Push-button for door opener. Provide junction box and 3/4" conduit to door opener control panel. Coordinate exact location and requirements with equipment supplier. Typical.
17. Approximate location of new generator on concrete pad. See civil for exact location. See structural for concrete pad details. See electrical riser diagram for specification and more information.
18. Connect Generator block heater as required. Coordinate exact location and requirements and location with equipment supplier.
19. Provide 2-1" conduits from generator to ATS for controls. Provide pull wire in each. Coordinate location and requirements with equipment supplier and tenant prior to installation.
20. Generator annunciator panel. Verify location with tenant prior to installation. See riser diagram for annunciator requirements.
21. Connect generator battery charger as required. Coordinate exact requirements and location with equipment supplier.
22. Connect air handler as required. Coordinate with mechanical.
23. Connect heat pump as required. Coordinate with mechanical.
24. Connect condensate pump as required. Coordinate with mechanical.
25. Connect infrared radiant heater as required. Coordinate with mechanical.
26. Connect to circuit 'A-3' with other condensate pumps as required.
27. Connect gear dry cabinet as required. Coordinate exact location and requirements with equipment supplier.
28. Connect fill station as required. Coordinate exact location and requirements with equipment supplier.
29. Lighting control panel. See riser diagram and details for additional information. Connect as required.
30. Connect louver as required. Coordinate with mechanical. (1)
31. Not Used.
32. Connect cord reel at structure as required. (1)
33. Not Used.
34. Connect door opener as required. Coordinate exact location and requirements with equipment supplier.
35. Connect CO/NO2 monitoring control panel as required. Coordinate with mechanical. (1)
36. Connect hood above gas range as required. Coordinate exact location and requirements with architect prior to rough-in.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36841 RICHARD D. COPELAND JR. 4/9/25

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DRAWN BY:

CHK BY:

(1) Value Engineering 4/09/25

LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

FLOOR PLAN - POWER

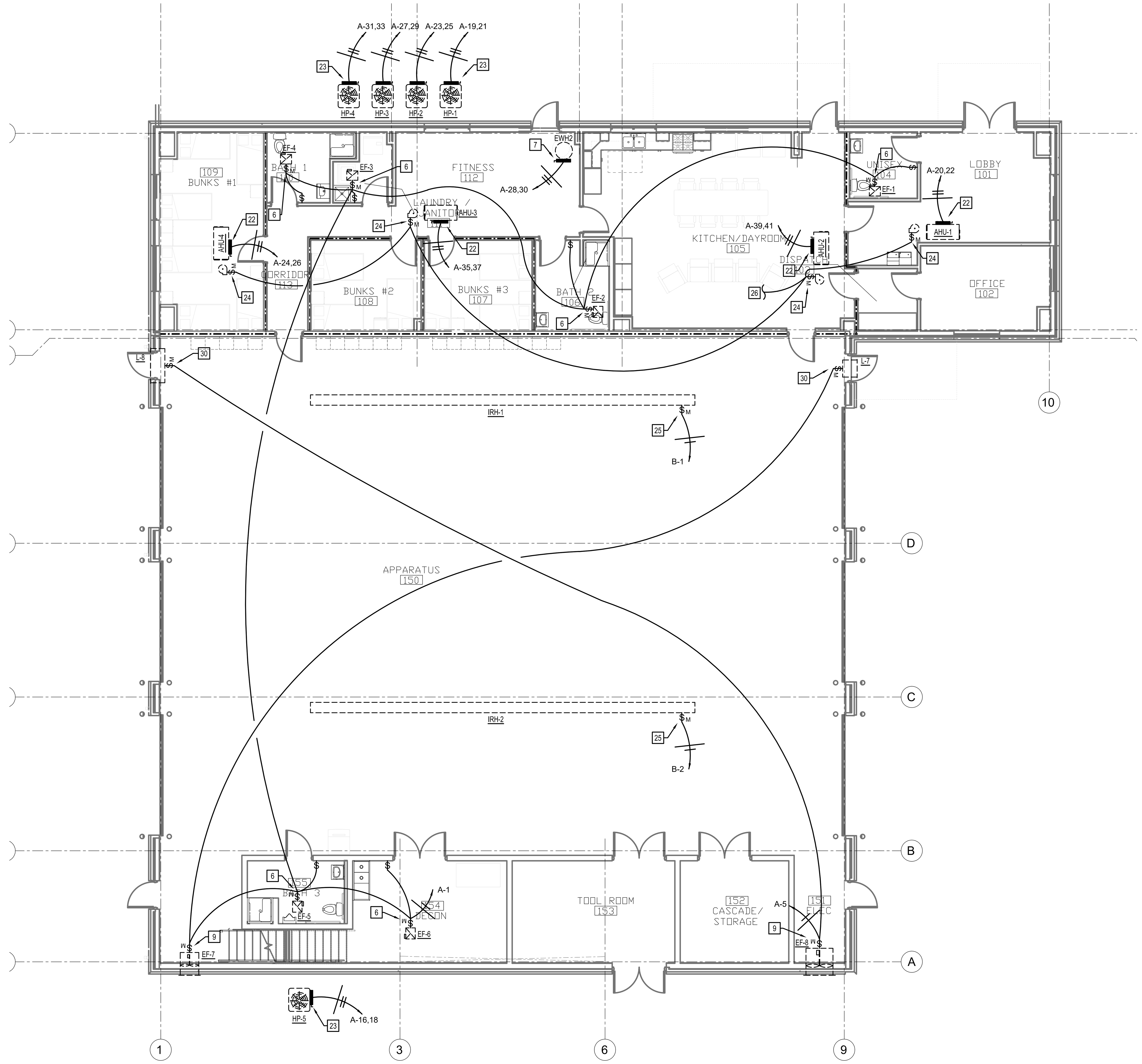
E1.1
OF - 13

Wall Ratings and Types Legend

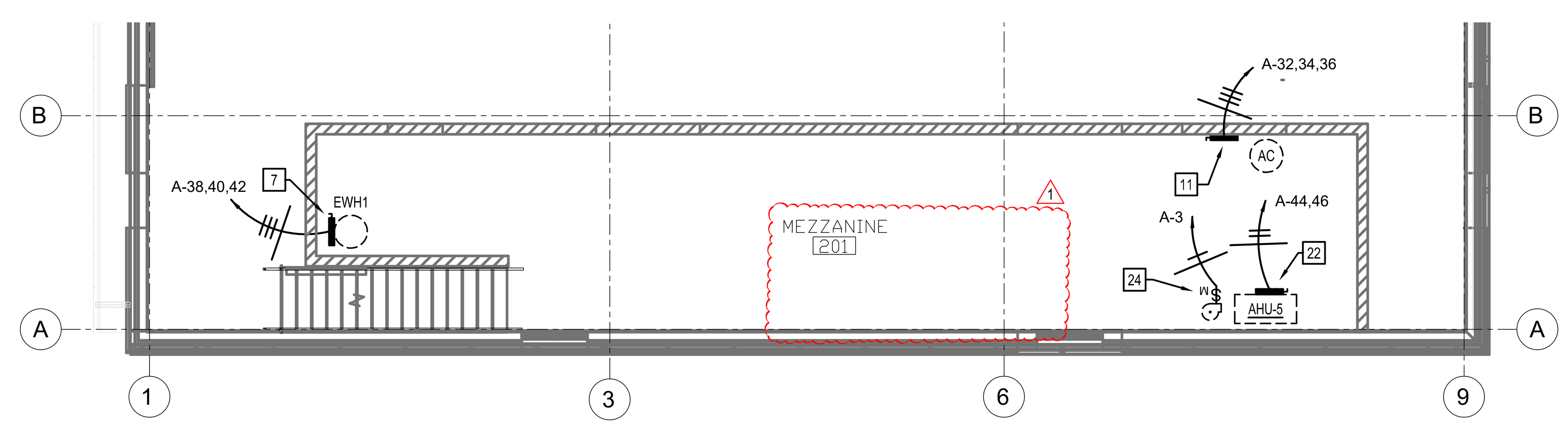
See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.

New Wall being Constructed
New Partial Height Wall being Constructed
One Hour Fire Barrier

These drawings will be at the scale indicated when plotted at 24" x 36"



1 Floor Plan - Mechanical Connections
Scale: 1/8" = 1' - 0"



2 Mezzanine Plan - Mechanical Connections
Scale: 1/8" = 1' - 0"

Sheet Notes:

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36. Connect hood above gas range as required. Coordinate exact location and requirements with architect prior to rough-in.

Wall Ratings and Types Legend

See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.

- New Wall being Constructed
- New Partial Height Wall being Constructed
- One Hour Fire Barrier

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36841 RICHARD D. COPELAND JR. 4/9/25

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design@bobbitt.com

COORDINATOR:

DRAWN BY:

CHK BY:

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LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

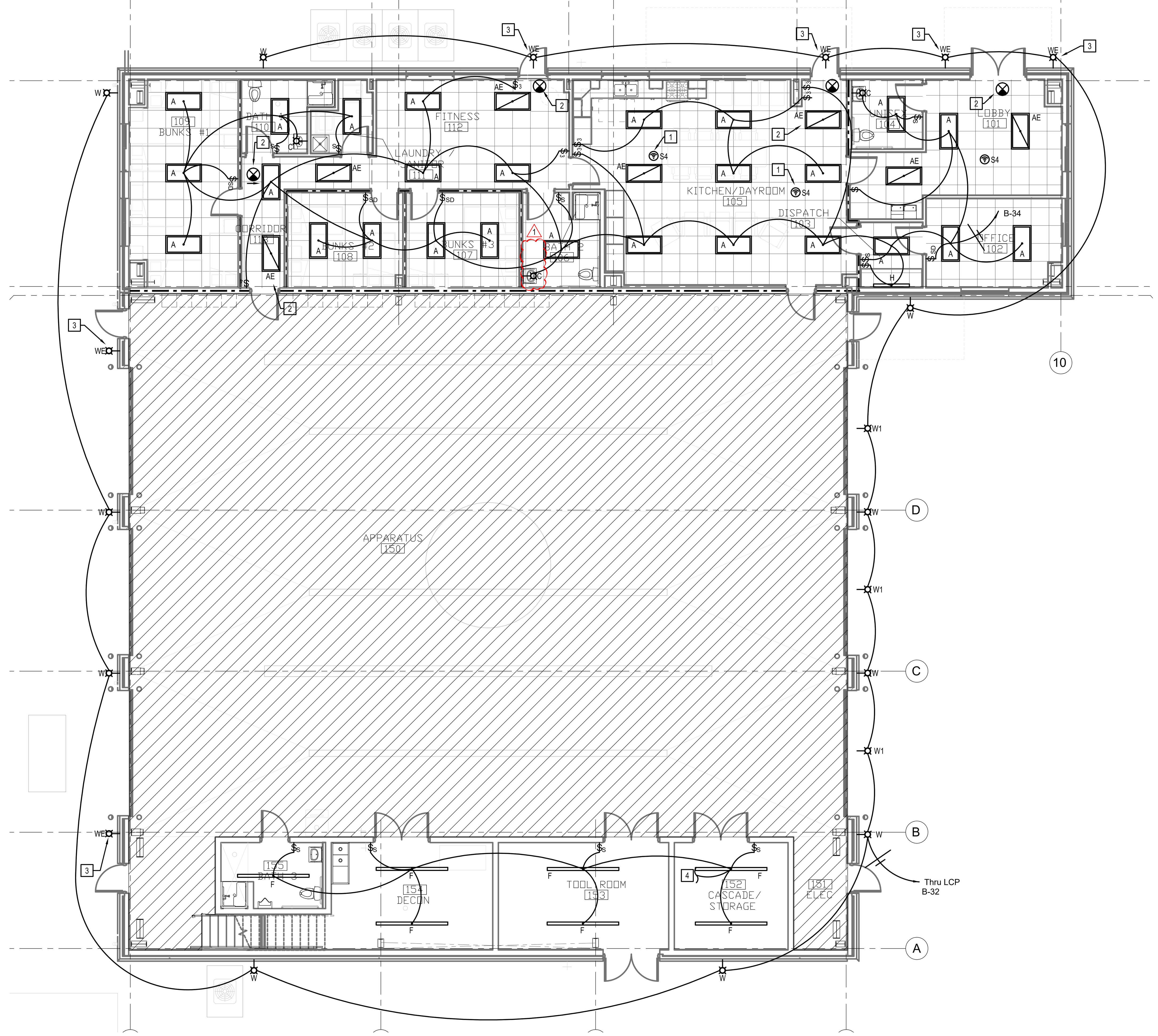
24-0013

FLOOR PLAN - POWER

E1.2

OF - 13

These drawings will be at the scale indicated when plotted at 24" x 36"



1 Floor Plan - Lighting
Scale: 1/8" = 1' - 0"

Sheet Notes:

- All electrical boxes mounted in rated walls shall comply with all requirements of the 2018 NCSBC, section 714.3.2. All electrical boxes mounted in rated ceilings/horizontal assemblies shall comply with all requirements of the 2018 NCSBC, section 714.4.2. Devices shown in rated assemblies shall be flush with conduit concealed, unless otherwise indicated. Provide rated boxes, horizontal separation, putty pads, etc. as required for proper installation. Low voltage electrical devices mounted in rated assemblies shall be protected in accordance with the sections listed above as well.
- Connect wall packs or other normally off emergency lights, exit signs and night lights ahead of local switches and/or controls. (total fixture unswitched). Where lights are not indicated as night lights, fixtures with emergency batteries shall be connected with the battery ahead of switch so that the emergency battery comes on only in the event of power loss. Fixture is normally controlled with the other lights under normal conditions.
- See motion sensor details for specifications and wiring details. All motion sensors, new and existing, shall be set to a 30 minute time delay.
- Lighting controls including occupancy sensors, automatic time switches, automatic shut-off controls, or daylight/ occupant sensing automatic controls, the electrical contractor shall be responsible for testing the lighting controls per section C408.3 of the 2018 NC Energy Conservation Code. Ensure that control devices, components, and systems are calibrated, adjusted and operate in accordance with the approved plans and/or specifications. Sequences of operation shall be functionally tested to ensure they operate in accordance with the approved plans and/or specifications.
- Individual branch circuits are shown with a dedicated neutral unless otherwise noted. When multi-wire branch circuits are to be installed, provide multi-pole circuit breakers as required. NEC 210.7
- See voltage drop schedule for wire sizing information for all branch circuits over 65' in length.
- Circuit breakers used for switching lights shall be rated for switching. NEC 240.83(D)

Plan Notes:

1. Motion sensor to control all lights in this room. See motion sensor wiring diagrams. Provide required power packs to control all lights with override off switches as shown.
2. Connect emergency and exit lights ahead of local switch/controls so that total fixture is unswitched. Connect as required.
3. Contractor shall connect battery in/for light fixture ahead of switch/controls so that emergency ballast/inverter comes on only in the event of power loss. Fixture is switched with other normal lights under normal conditions.
4. Connect to circuit 'B-28' with other lights.

Wall Ratings and Types Legend

See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.

New Wall being Constructed
New Partial Height Wall being Constructed
One Hour Fire Barrier

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CHK BY:

1 Value Engineering 4/09/25

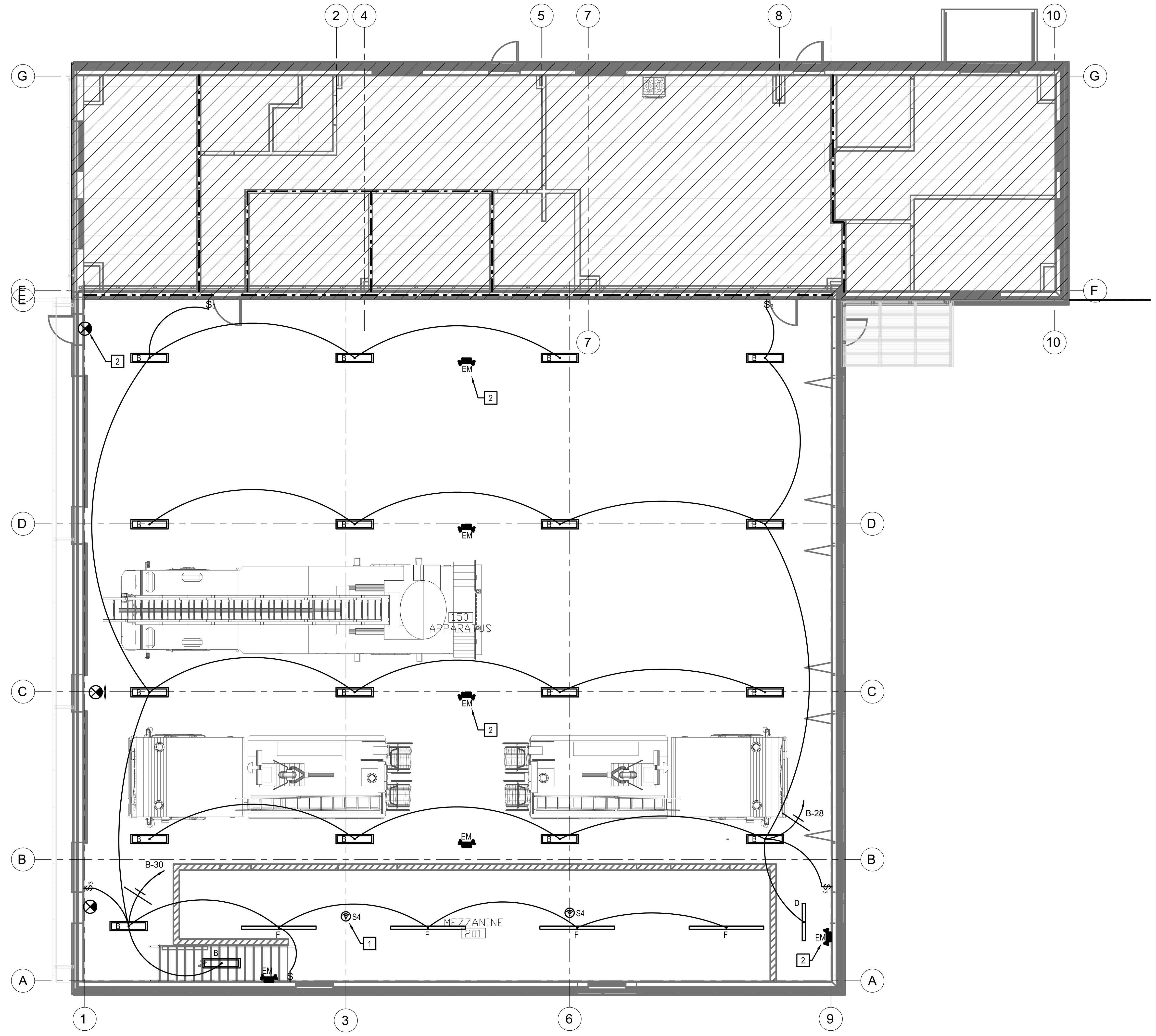
LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

FLOOR PLAN - LIGHTING

E2.1
OF - 13



1 Apparatus Bay/Mezzanine Plan - Lighting
Scale: 1/8" = 1' - 0"

Sheet Notes:

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Plan Notes:

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9/19/24

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DRAWN BY:

CHK BY:

LILLINGTON FIRE STATION NO 3
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LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

FLOOR PLAN - LIGHTING

E2.2
OF - 13

Wall Ratings and Types Legend	
See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.	
New Wall being Constructed	
New Partial Height Wall being Constructed	
One Hour Fire Barrier	

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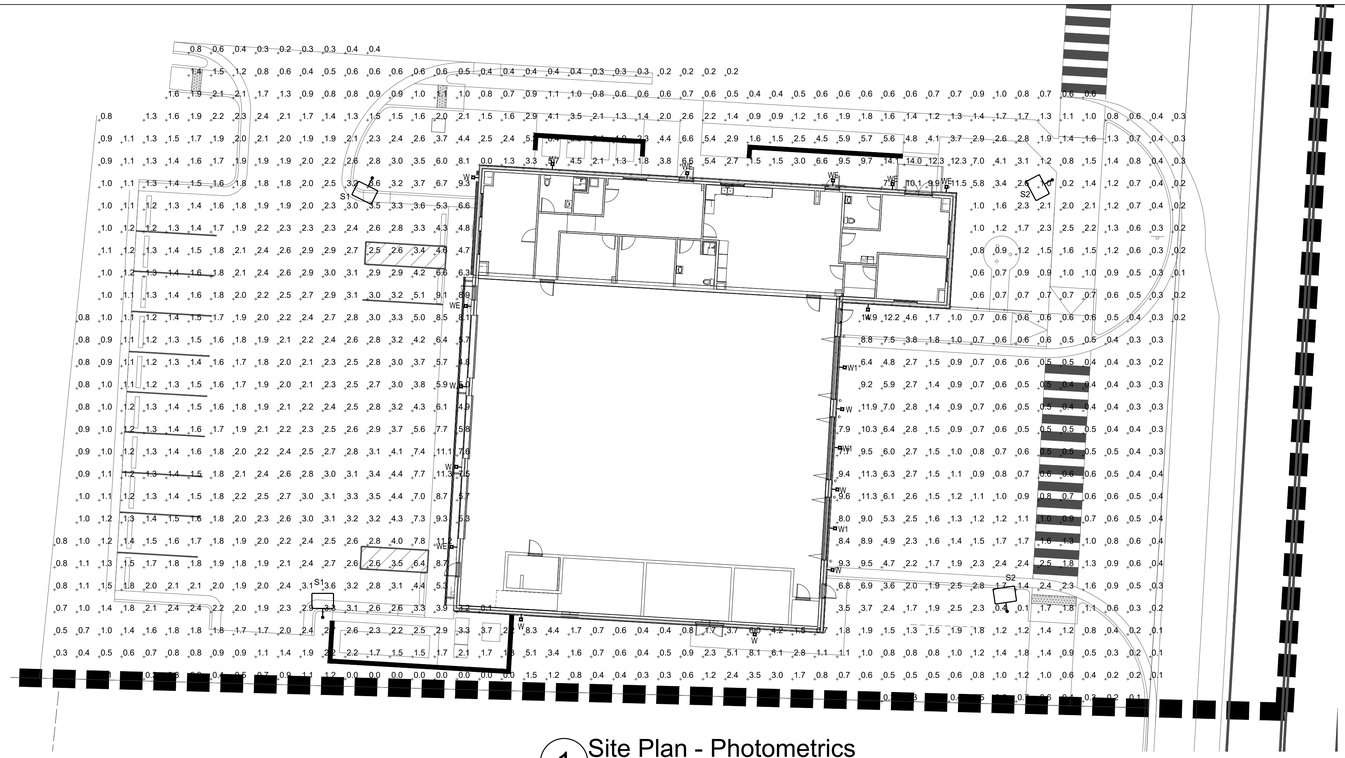

1 Site Plan - Photometrics
Scale: 1/16" = 1' - 0"

Wall Ratings and Types Legend
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New Wall being Constructed
New Partial Height Wall being Constructed
One Hour Fire Barrier

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36841 RICHARD D. COPELAND

9/19/24

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2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

SITE PLAN - PHOTOMETRICS

E2.3
OF - 13

These drawings will be at the scale indicated when plotted at 24" x 36"

Generator Test and Startup Notes

Hire a certified testing agency to conduct tests, inspections, and generate reports for the generator.

Engage a factory-authorized service representative to inspect, test, and calibrate components, assemblies, and installations, including connections.

Conduct manufacturer-recommended tests, including but not limited to:

1. Single-step full-load pickup test.
2. Battery tests:
   - 2.1. Equalize the charging of battery cells per the manufacturer's instructions. Record the voltage of each cell.
   - 2.2. Measure the charging voltage and the voltages between available battery terminals for both full-charge and float-charge conditions. Check electrolyte levels and specific gravity in both states.
   - 2.3. Test the contact integrity of all connectors, and perform both integrity and capacity load tests on the battery.
   - 2.4. Confirm that each battery element accepts a charge after discharge.
   - 2.5. Ensure all measurements meet the manufacturer's specifications.
3. Battery-charger tests: Verify the charge rates for both equalizing and float-charging conditions as specified.
4. System integrity tests: Methodically verify the proper installation, connection, and functionality of each component of the engine-generator system both before and during operation. Check for air, exhaust, and fluid leaks.
5. Exhaust-system back-pressure test: Connect to the exhaust line near the engine manifold and ensure that back pressure at full-rated load stays within the manufacturer's specified limits.
6. Exhaust emissions test: Adhere to applicable government and environmental testing criteria.
7. Voltage and Frequency transient stability tests: Measure voltage and frequency transients for 50% and 100% step-load changes, and confirm performance matches specifications.
8. Harmonic-content tests: Measure the harmonic content of the output voltage under 25% and 100% of rated linear load, ensuring it stays within specified limits.
9. Noise level tests: Measure the A-weighted noise level from the generator installation, including the engine exhaust and cooling-air intake and discharge. Compare the levels with the required values.
10. Coordinate generator tests with tests for transfer switches and run them concurrently.
11. Leak test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
12. Operational test: Once the electrical circuitry is energized, start the unit to verify proper motor rotation and operation.
13. Test and adjust controls and safeties. Replace any damaged or malfunctioning controls and equipment.
14. Remove and replace malfunctioning units and retest according to the specified procedures above.
15. Retest: Address any deficiencies identified during tests and observations, and retest until all specified requirements are satisfied.

Generator Note:

Contractor must submit plans for generator, tank, and shop drawings to the fire marshal for their approval prior to rough-in or installation of the generator. Fire marshal must approve location and specifications for generator prior to beginning work.

Panel: A

Enclosure: NEMA 1
Mounting: Surface
Voltage: 120/208
Poles: 54
Phase: 3
Wires: 4
Panel Bus Rating: 600 Amp Bus
Main Rating: 600/3 Main Breaker
Fed From: Utility
Manufacture: Square D NQ

Load Type	kVA	Breaker Size		ø		Breaker Size	kVA	Load Type
EF-1 thru EF-7	0.8	20/1	1	A	2	30/3	4.8	Gear Dry Cab
Condensate Pumps	0.5	20/1	3	B	4		4.8	
EF-8	1.9	20/1	5	C	6		4.8	
Sprinkler Bell/Flow Switch	0.5	20/1	7	A	8	30/2 (G)	2.5	Dryer
Door Opener	1.0	20/1	9	B	10		2.5	
Fill Station	4.2	20/2	11	C	12	25/2	2.0	Generator Block Heater
	4.1		13	A	14		2.0	
Generator Battery Charger	1.1	20/2	15	B	16	25/2	1.6	HP-5
	1.0		17	C	18		1.5	
HP-1	1.5	25/2	19	A	20	25/2	1.9	AHU-1
	1.6		21	B	22		1.9	
HP-2	1.6	25/2	23	C	24	25/2	1.9	AHU-4
	1.5		25	A	26		1.9	
HP-3	1.5	25/2	27	B	28	30/2	2.3	EWH2
	1.6		29	C	30		2.2	
HP-4	1.6	25/2	31	A	32	20/3	1.8	Air Compressor
	1.5		33	B	34		1.8	
AHU-3	3.0	40/2	35	C	36		1.9	
	3.0		37	A	38	45/3	4.1	EWH1
AHU-2	3.0	40/2	39	B	40		4.1	
	~~3.0~~		41	C	42		4.1	
Door Opener	1.0	20/1	43	A	44	40/2	3.0	AHU-5
~~Door Opener~~	~~1.0~~	20/1	45	B	46		~~3.0~~	
Door Opener	1.0	20/1	47	C	48	20/1	1.0	Door Opener
Automated Bi-fold Door Opener	1.0	20/3	49	A	50	20/1	1.0	Door Opener
	1.0		51	B	52	-		Space
	1.0		53	C	54	-		Space

Demand Load Summary:

Lighting:	4.0 kVA	@ 125%	5.0 kVA	
Largest Motor:	kVA	@ 125%	kVA	
Gen Receptacles:	14.4 kVA	Diversified	12.2 kVA	
Kitchen Equipment:	kVA	Diversified	kVA	
All Other:	125.8 kVA	@ 100%	125.8 kVA	

Phase A:	47.0 kVA	391.5 Amps
Phase B:	46.3 kVA	386.1 Amps
Phase C:	49.7 kVA	414.1 Amps
Total Panel Load:	143.0 kVA	396.9 Amps

- [X] UL SE rated
- [X] Separate Neutral Bar
- [X] Ground bar
- [X] Feed thru lugs
- [ ] Existing Panel

1. All breakers shall be 10,000 AIC and series rated to 30,0000 AIC with breaker feeding this panel.
2. Receptacle diversification taken per NEC 220.44.

Panel: B

Enclosure: NEMA 1
Mounting: Surface
Voltage: 120/208
Poles: 60
Phase: 3
Wires: 4
Panel Bus Rating: 600 Amp Bus
Main Rating: 600A Main Lugs Only
Fed From: Panel A
Manufacture: Square D NQ

Load Type	kVA	Breaker Size		ø		Breaker Size	kVA	Load Type
IRH-1	0.1	20/1	1	A	2	20/1	0.1	IRH-2
Washer- Extractor	1.4	20/1(G)	3	B	4	20/1	0.6	Mezzanine Recs
Ice Machine	1.4	20/1	5	C	6	20/1	1.0	Bunk 109 Recs
Freezer	0.4	20/1(G)	7	A	8	20/1	0.8	Bunk 108 Recs
Fridge	0.8	20/1(G)	9	B	10	20/1	0.8	Bunk 107 Recs
Dishwasher	1.0	20/1(G)	11	C	12	20/1	1.0	Convenience Recs
Washer	1.4	20/1(G)	13	A	14	20/1	1.0	Fitness 112 Rec
Hot Box Heater	1.0	20/1	15	B	16	20/1	1.0	Fitness 112 Rec
Kitchen 105 Counter Rec	1.0	20/1	17	C	18	20/1	1.0	Kitchen 105 Counter Recs
Sign	1.5	20/1	19	A	20	20/1	1.0	TV & Convenience Recs
EWC	0.7	20/1(G)	21	B	22	20/1	0.4	Dispatch Recs
Decon 154 Recs	0.8	20/1	23	C	24	20/1	0.8	Office 102 Recs
Tool Room 153 Recs	1.2	20/1	25	A	26	20/1	0.4	Elec. Quad Rec
Automatic Faucet Sensor	0.4	20/1	27	B	28	20/1	1.5	Bay Lights
Spare		20/1	29	C	30	20/1	1.2	Mezzanine Lights
FACP & Booster	0.5	20/1(L)	31	A	32	20/1	0.2	Exterior Lights
LCP	0.5	20/1	33	B	34	20/1	1.1	Interior Lights
Exterior GFI Maint. Recs.	0.4	20/1	35	C	36	20/1 (G)	0.9	Gas Range
Cord Reels	0.6	20/1	37	A	38	20/1 (G)	0.5	Hood
Cord Reels	0.6	20/1	39	B	40	25/2	1.4	Ceiling Fan
CO Control Panel	0.5	20/1	41	C	42		1.4	
Space		-	43	A	44	-		Space
Space		-	45	B	46	-		Space
Space		-	47	C	48	-		Space
Space		-	49	A	50	-		Space
Space		-	51	B	52	-		Space
Space		-	53	C	54	-		Space
Space		-	55	A	56	-		Space
Space		-	57	B	58	-		Space
Space		-	59	C	60	-		Space

See Panel A for Demand Loads

- [ ] UL SE rated
- [X] Separate Neutral Bar
- [X] Ground bar
- [ ] Feed thru lugs
- [ ] Existing Panel

1. All breakers shall be 10,000 AIC and series rated to 30,0000 AIC with breaker feeding this panel.

Panel Schedule Notes (All Panels, All Sheets):

1. All panel directories shall be completed in accordance with NEC 408.4.
2. Values for demand loads include all code factors such as 125% for continuous loads, 125% largest motor, etc.
3. Breaker sizes shown in panel schedules for new equipment are for reference only, see equipment connection schedule for additional information. Where breaker / fuse size between schedules conflict, the equipment connection schedule shall take precedence. Contractor shall ultimately confirm breaker size with equipment provider
4. Circuit breakers used as overcurrent protection for HVAC equipment shall be "HACR" type.
5. Contractor shall provide identification for new feeders and any new branch circuits per NEC 200.6, 210.5, and 215.12 .
6. Contractor shall label breakers feeding emergency and exit lighting per NEC 700.12(F) .
7. Spare circuits found or created during demolition shall be labeled at the junction box or demolished back to the panel, panel directory shall be updated, and breaker set to the off position.
8. Provide arc flash hazard warning labels as required on all panels affected by this work to comply with NEC 110.16 .
9. Where circuit breakers or fuses are noted to be series rated, the equipment shall be listed per NEC 110.22 as applicable. Tested series combination systems, the placard shall state the following "Caution - Series Combination System Rated _____ Amperes. Identified Replacement Components Required." See NEC 110.22(b) , for engineered series combination systems placarding language.
10. Bolded text indicates a new or changed breaker, label, load on an existing panel. Bolded breakers are new or relocated breakers to location shown.
11. Contractor shall provide multipole breakers in place of all single pole breakers shown, when multiwire branch circuits are installed per NEC 210.4(B) .
12. New circuits in locations determined to be spare or space based on panel directories and other available information from site visit or existing plans. Contractor shall confirm that placement shown does not interfere with existing circuits necessary to remain. Confirm available circuits based on new and demo plans and contact engineer with conflicts.
13. Breakers indicated as (L) shall have a breaker lock provided. 20/1(L) means a 20 amp single pole breaker with lock. Breaker lock shall be accessible from outside of panel and shall not require the removal of panel cover in order to reset the breaker.
14. Breakers indicated as (G) shall have GFCI protection provided. 20/1(G) means a 20 amp single pole breaker with GFCI protection.
15. Circuit breakers used for switching lights shall be listed for switching and marked per NEC 240.83(D) .
16. Shunt trip type breakers shall be 120V shunt trip actuated unless noted otherwise.

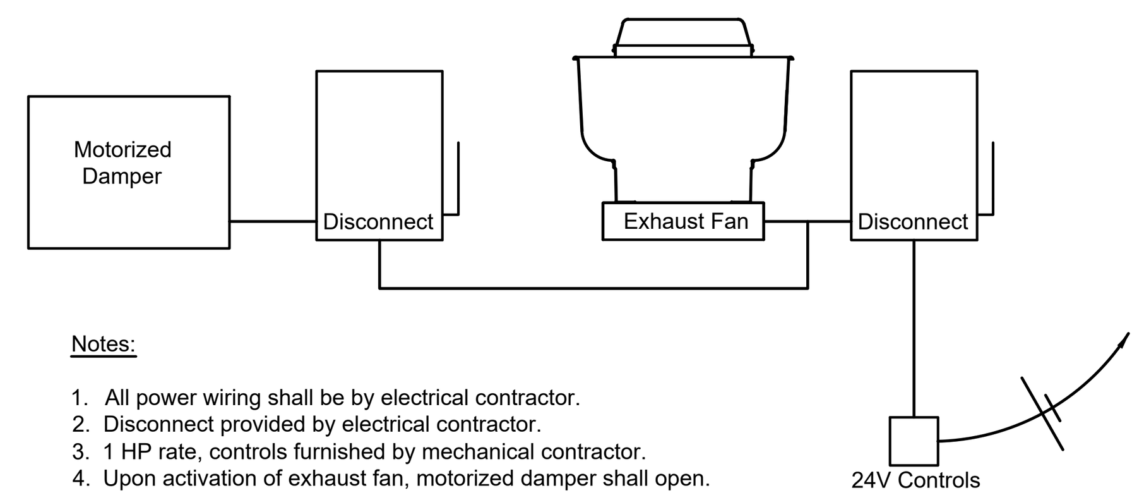
Demand Loads

	Load Type		Load	
	Lights (@ 125%)		5.0	KVA
	Receptacles and Miscellaneous		58.4	KVA
	Heat Pumps (includes 125% factor for largest motor)		15.5	KVA
	Electric Water Heater		16.8	KVA
	Air Handling Units		25.6	KVA
	Fans		6.0	KVA
	Louvers		0.2	KVA
	Sign Circuit		1.5	KVA
	Infrared Gas Heaters		0.2	KVA
	Air Compressor		5.5	KVA
	Fill Station		8.3	KVA
		Total:	143.0	KVA
	396.9 AMPS @ 208V/3Ø			

Electrical Riser Notes

1. Grounds for all services shall be bonded together per NEC 250.58 and shall meet all requirements of NEC 250.104.
2. The design is based on an estimated fault current of 30,000. The contractor shall coordinate with the utility/ power company to confirm the available fault current at the transformer and service entrance conductor length. This information shall be submitted to engineer as part of the gear submittal, prior to beginning work.
3. The service equipment enclosure(s) and new panelboards shall be legibly marked in the field to indicate the available fault current prior to final inspection. NEC 110.24 and 408.6 The electrical contractor shall contact the power company and obtain the actual available fault current at the transformer. The contractor shall contact the engineer with this value, the conductor type, the verified length of conductors from the transformer to the service enclosure, as well as any and all feeders serving the new panel. With this information, the engineer can calculate the available fault current. The resulting calculated value shall be placarded on the exterior of the service enclosure/ new panel and shall read as follows:

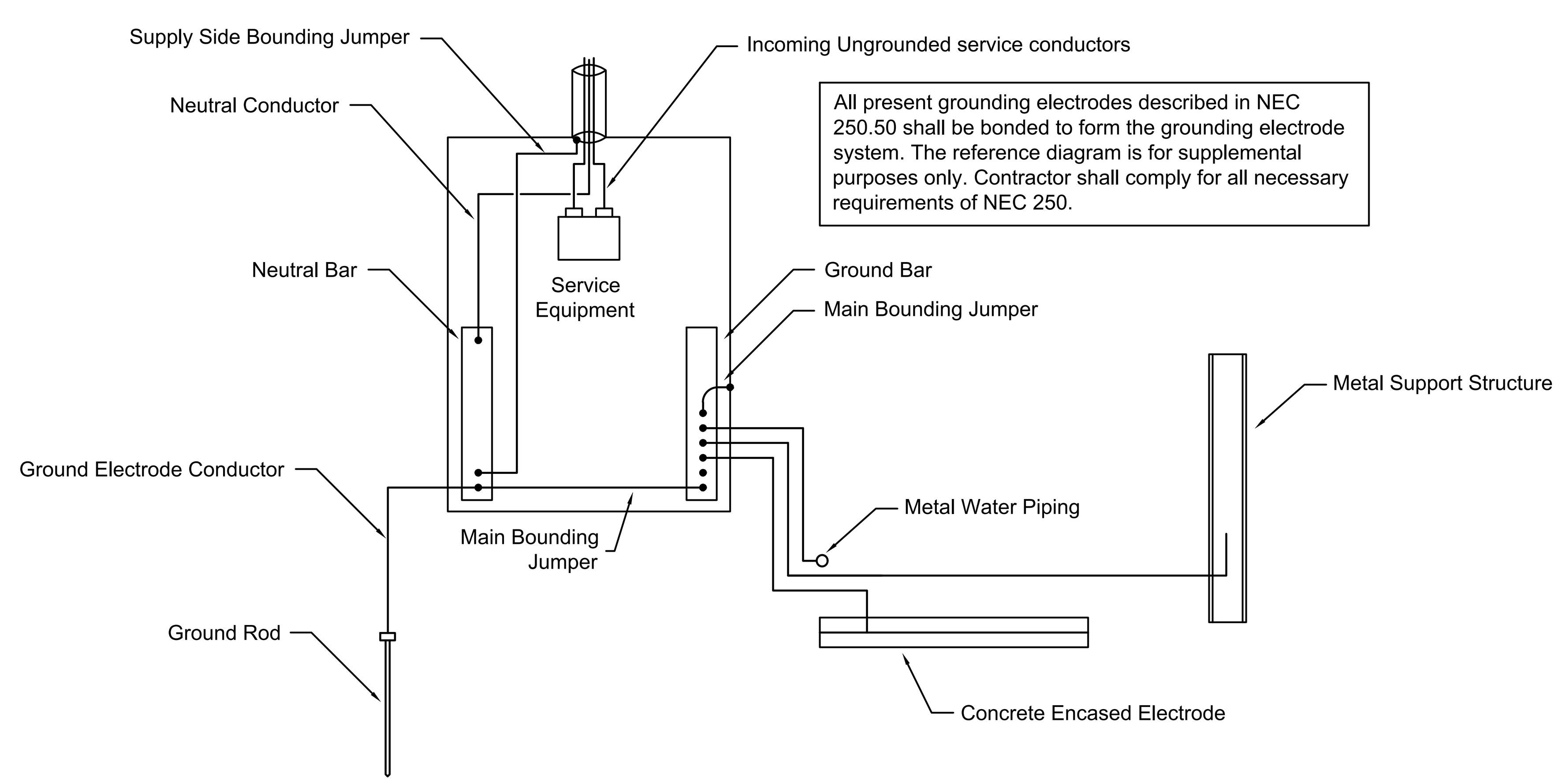
   AVAILABLE FAULT CURRENT: ____________
   CALCULATED DATE: ____________
4. Provide plaques per NEC 230.2(E) and graphic key plans for each service and service disconnecting means for each building service. All disconnecting means for each service shall be grouped. Label each disconnecting means for each service as disconnect # 1 of 1 for service number # 1 of 1. Provide labeling and graphic key plan at main electrical panel (or panels) showing the location and identification of their disconnecting means.
5. Provide signage at the service entrance equipment indicating the location and type of optional standby emergency power source. NEC 702.8
6. Where circuit breakers or fuses are applied in compliance with the series combination ratings marked on the equipment by the manufacturer, the equipment enclosure(s) shall be legibly marked in the field to indicate the equipment has been applied with a series combination rating. The placard shall be readily visible and state the following "CAUTION -- SERIES COMBINATION SYSTEM RATED ____ AMPERES. IDENTIFIED REPLACEMENT COMPONENTS REQUIRED." NEC 110.22
7. New service entrance conductors for panel 'A' shall not be more than twice the nominal width of the service enclosure routed horizontally and shall not be more than the greater of 5' or twice the nominal height of the service enclosure routed vertically inside the building ahead of the main breaker. Service disconnects in panels 'A' shall be labeled on site as service disconnects per NEC 230.70(B).
8. Contractor shall meet all requirements of NEC 250.50 for service grounding. Connect to structural steel, rebar, metal water piping and any other available at the structured served. See service ground detail for more information.



Notes:

1. All power wiring shall be by electrical contractor.
2. Disconnect provided by electrical contractor.
3. 1 HP rate, controls furnished by mechanical contractor.
4. Upon activation of exhaust fan, motorized damper shall open.

3 Fan Interlock Detail
Scale: None

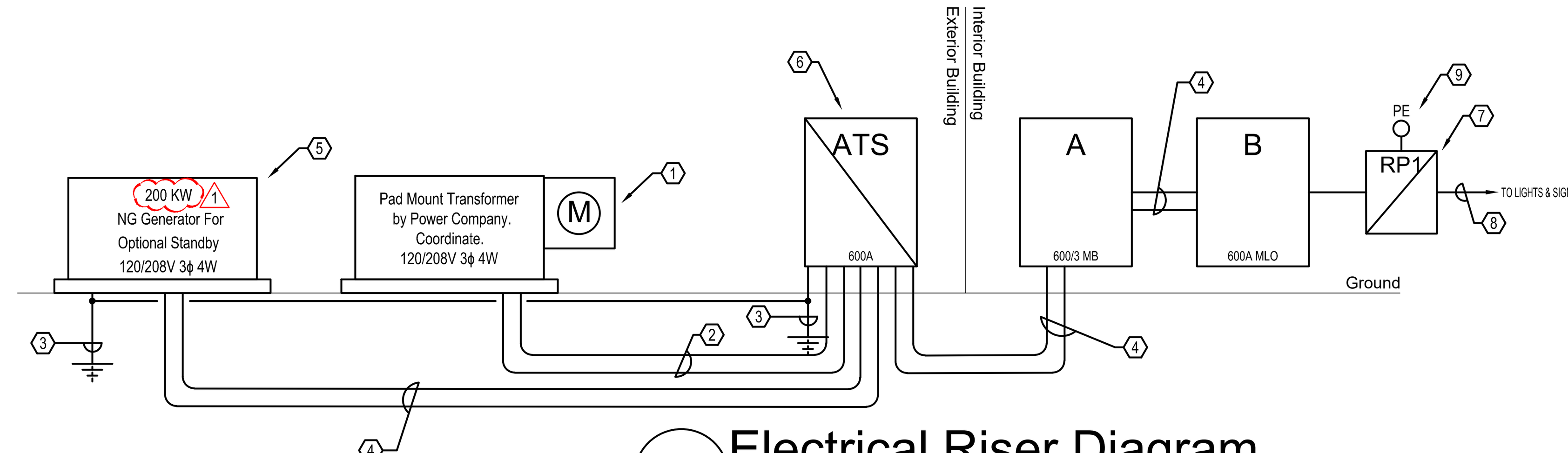


2 Grounding Electrode System Detail
Scale: None

Riser Key Notes:

1. Meter by power company. Coordinate requirements w/ power company.
2. 2 runs of 4-#350 KCM, in 3" conduit. Each run.
3. #3/0 ground. Bond all service grounds together per NEC 250.58 and 250.104
4. 2 runs of 4-#350 KCM, #4 ground, in 3" conduit. Each run.
5. Minimum 200 KW (or as required to serve indicated loads), 208/3V, 60Hz, 0.8 power factor, 1800 RPM, optional standby natural gas generator set w/ brushless synchronous generator (permanent magnet excited w/ volts/hertz voltage regulator & space heater)

   Features shall include:
   - 'Non-walk in' type weather-proof enclosure (sound attenuated as required to meet local ordinances) w/ hinged lockable doors and oil/water drain group.
   - Generator shall meet requirements of U.L. 2200 and be listed as such.
   - Dual-rate battery charger w/ alarm contacts.
   - Radiator w/ engine driven fan.
   - Critical degree exhaust silencer mounted in outside enclosure for corrosion protection provided with flexible fitting and stainless steel components.
   - Electronic isochronous speed control governor
   - Control panel w/ AC metering, engine metering, auto start-stop logic w/ indicators alarm module
   - Provide PMG excitation and digital voltage regulation of +/- 0.25%
   - 600 Amp generator mounted output circuit breaker
   - Structural steel base w/ vibration mounts
   - Lead acid starting batteries w/ battery charger, tray and cables
   - Jacket heater tank-type with isolation valves and adjustable thermostat.
   - Provide separate line item cost for a remote annunciator (8 point minimum) and associated control wiring for a fully functional system. Verify location of annunciator panel with tenant prior to installation.
   - Provide standard 24 month parts & labor warranty for standby usage.
6. New 208V, 3-Phase, 600 Amp, 3 pole, NEMA 3R rated, open transition, automatic transfer switch. Do not bond neutral to ground at ATS.
7. Lighting relay panel. See lighting control system data riser diagram for specifications.
8. Circuits as specified on plans. All tenant lighting loads shall be connected thru lighting control system.
9. Photocell on roof facing north. Adjust sensitivity as required for proper operation.



1 Electrical Riser Diagram
Scale: None

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LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

ELECTRICAL DETAILS

E3.1
OF - 13

These drawings will be at the scale indicated when plotted at 24" x 36"

Equipment Connection Schedule

Tag	Callout	Furnished By	kVA	HP	Voltage	FLA	MCA	Disconnect Size	Provided By	Nema Configuration	Fuse/Breaker Size	Feeder Size	Ground Size	Conduit Size
HP-1	Heat Pump	Mechanical	3.1		208/1	-	15.0	30/2	Elec	3R	25/2	3-#10	1-#10	3/4"
HP-2	Heat Pump	Mechanical	3.1		208/1	-	15.0	30/2	Elec	3R	25/2	3-#10	1-#10	3/4"
HP-3	Heat Pump	Mechanical	3.1		208/1	-	15.0	30/2	Elec	3R	25/2	3-#10	1-#10	3/4"
HP-4	Heat Pump	Mechanical	3.1		208/1	-	15.0	30/2	Elec	3R	25/2	3-#10	1-#10	3/4"
HP-5	Heat Pump	Mechanical	3.1		208/1	-	15.0	30/2	Elec	3R	25/2	3-#10	1-#10	3/4"
AHU-1	Air Handler	Mechanical	3.8		208/1	18.5	-	30/2	Elec	1	25/2	3-#10	1-#10	3/4"
AHU-2	Air Handler	Mechanical	6.0		208/1	28.9	-	60/2	Elec	1	40/2	3-#8	1-#10	3/4"
AHU-3	Air Handler	Mechanical	6.0		208/1	28.9	-	60/2	Elec	1	40/2	3-#8	1-#10	3/4"
AHU-4	Air Handler	Mechanical	3.8		208/1	18.5	-	30/2	Elec	1	25/2	3-#10	1-#10	3/4"
AHU-5	Air Handler	Mechanical	6.0		208/1	28.9	-	60/2	Elec	1	40/2	3-#8	1-#10	3/4"
EWH1	Electric Water Heater	Plumbing	12.3		208/3	34.1	-	60/3	Elec	1	45/3	4-#8	1-#10	3/4"
EWH2	Electric Water Heater	Plumbing	4.5	-	208/1	21.6	-	30/2	Elec	1	30/2	3-#10	1-#10	3/4"
EF-1	Exhaust Fan	Mechanical	0.1	-	120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
EF-2	Exhaust Fan	Mechanical	0.1	-	120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
EF-3	Exhaust Fan	Mechanical	0.1	-	120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
EF-4	Exhaust Fan	Mechanical	0.1	-	120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
EF-5	Exhaust Fan	Mechanical	0.1	-	120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
EF-6	Exhaust Fan	Mechanical	0.1	-	120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
EF-7	Exhaust Fan	Mechanical	0.7	-	120/1	5.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
EF-8	Exhaust Fan	Mechanical	1.9	-	120/1	16.0	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
L-8	Louver	Mechanical	0.1	-	120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
L-9	Louver	Mechanical	0.1	-	120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
IRH-1	Infrared Radiant Heater	Mechanical	0.1		120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
IRH-2	Infrared Radiant Heater	Mechanical	0.1		120/1	0.8	-	$M	Elec	1	20/1	2-#12	1-#12	3/4"
HVLS-1	High Volume Fan	Mechanical	2.8		208/1	13.3	-	30/2	Elec	1	25/2	3-#10	1-#10	3/4"
AC	Air Compressor	Others	5.5	5	208/3	15.2	-	30/3	Elec	1	20/3	4-#12	3/4"	3/4"
-	Fill Station	Others	8.3		208/1	40.0	-	6-50R	Others	1	20/2	3-#8	1-#10	3/4"
-	Block Heater	Others	4.0		208/1	19.2	-	30/2	Elec	1	25/2	3-#10	1-#10	3/4"
-	Battery Charger	Others	2.1		208/1	10.0	-	30/2	Elec	1	20/2	3-#12	3/4"	3/4"
-	Condensate Pump	Mechanical	0.1	-	120/1	0.8	-	$M	Elec	1	15/1	2-#12	1-#12	3/4"

Breaker sizes for all equipment sized at MOCP where applicable.

All disconnects for equipment shall be of fusible type and shall be fused as indicated.

Equipment Connection Schedule

Tag	Callout	Furnished By	KVA	HP	Voltage	FLA	MCA	Disconnect Size	Provided By	Nema Configuration	Fuse/Breaker Size	Feeder Size	Ground Size	Conduit Size	Note
-	Ice Machine	Others	1.4	-	120/1	11.5		5-20R	Electrical	1	20/1	2 - #12	#12	3/4"	-
-	Freezer	Others	0.4	-	120/1	3.7		5-20R	Electrical	1	20/1	2 - #12	#12	3/4"	-
-	Fridge	Others	0.8	-	120/1	6.9		5-20R	Electrical	1	20/1	2 - #12	#12	3/4"	-
-	Washer	Others	1.4	-	120/1	12.0		5-20R	Electrical	1	20/1	2 - #12	#12	3/4"	-
-	Dryer	Others	5.0	-	208/1	24.0		14-30R	Electrical	1	30/2	3 - #10	#10	3/4"	-
-	Washer-Extractor	Others	1.4	-	120/1	12.0		5-20R	Electrical	1	20/1	2 - #12	#12	3/4"	-
-	Gear Dry Cab	Others	14.4	-	208/3	40.0		60/3	Electrical	1	50/3	4 - #8	#10	3/4"	-
-	Dishwasher	Others	1.0	-	120/1	8.0		M	Electrical	1	20/1	2 - #12	#12	3/4"	-
-	Gas Range	Others	1.0	-	120/1	8.0		5-20R	Electrical	1	20/1	2 - #12	#12	3/4"	-
-	Hood	Others	0.5	-	120/1	4.2		M	Electrical	1	20/1	2 - #12	#12	3/4"	-

Electrical contractor shall verify all requirements, mounting height, voltage, load, connection type, etc. with equipment supplier.

Light Fixture Schedule

Mark	Manufacturer	Fixture Description	Voltage	Driver Type	Lamp Type/Quantity	Total Wattage
A	Lithonia #2BLT4-40L-EZ1-LP840	2X4 LED Volumetric Troffer	120/1	1- LED Driver	4000 Lumen LED Light Engine	31
AE	Same as 'A' with battery	2X4 LED Volumetric Troffer	120/1	1- LED Driver	4000 Lumen LED Light Engine	31
B	Lithonia #IBGN-30000LM-SEF-*-ND-MVOLT-GZ10-40K-80CRI-DWH	LED High Bay	120/1	1-LED Driver	30,000 Lumen LED Light Engine	108
BE	Same as 'B' with battery	LED High Bay	120/1	1-LED Driver	30,000 Lumen LED Light Engine	108
C	Eurofase #31801-010	Wall Sconce	120/1	1-LED Driver	1-LED	21
D	Lithonia #CLX L48-4000LM-SEF-*-*-WD-MVOL-EZ1-40K-80CRI-WH	4' LED Linear	120/1	1-LED Driver	4000 Lumen LED Light Engine	32
F	Lithonia CLX #L96-4000LM-SEF-*-*-WD-MVOL-EZ1-40K-80CRI-WH	8' LED Linear	120/1	1-LED Driver	4000 Lumen LED Light Engine	64
H	Elite Lighting #4-OC1-LED-4000L-DIM10-MVOLT-40K-85-*	4' Surface Linear	120/1	1-LED Driver	4000 Lumen LED Light Engine	27
W	Lithonia #WST LED-P1-40K-VW-120	Exterior LED Wall Pack (Full cut-off)	120/1	1- LED Driver	LED	11
WE	Same as 'W' with battery	Exterior LED Wall Pack (Full cut-off)	120/1	1- LED Driver	LED	11
W1	Cocoweb #BOAW18CR-15R-A	Exterior Gooseneck Wall Sconce (Full cut-off)	120/1	1- LED Driver	LED	24
S1	Cooper Lighting Solutions #GAN-AF-03-LED-U-T4W-7030 (by Duke Energy)	25' Site Pole Light (Full cut-off)	120/1	1- LED Driver	LED	150
S2	Holophane #WFCL2 P30 30K XX L3 FPD75 (by Duke Energy)	16' Site Pole Light (Full cut-off)	120/1	1- LED Driver	LED	50
⊗	Isolite #EUG-AC-R-##-MTEB (1 Face)	Emergency Exit Light (w/ Battery)	120/1			
⨂	Isolite #EUG-AC-R-##-MTEB (2 Face)	Emergency Exit Light (w/ Battery)	120/1			

General Notes:

1. All fixtures and components shall comply with NC Building Code, 2018 North Carolina Energy Conservation Code and shall be UL listed. All led drivers shall comply with NEMA 410.
2. All new, relocated, or reswitched fixtures that utilize ballasts shall be provided with a luminaire disconnect where required per NEC section 410.130(G). Use Ideal PowerPlug or equal inside fixture.
3. All fixtures noted as emergency shall have emergency illumination functionality as described below. Batteries must be rated for the environment in which they are installed, in all cases.
   - Interior linear LED and fluorescent fixtures shall have 1,100 lumen (minimum) output, 90 minute battery. LED and fluorescent downlights shall have a 500 lumen (minimum) output, 90 minute battery. Otherwise fixture shall be provided with a full output inverter.
   - Exterior emergency fixtures shall have an integral exterior rated (0° F) or remotely mounted 1,100 lumen (minimum) output, 90 minute battery.
   - Test switches for emergency batteries/inverter shall be integral to the fixture/device served, unless otherwise noted.
   - Emergency fixtures shall operate at least one lamp where multiple emergency fixtures are to be installed in that area, and shall operate at least two lamps where the loss of a single lamp would leave the space in total darkness during emergency operation.
   - Emergency lighting design is based on fixtures lumen outputs as described above. Contractor shall verify all existing emergency batteries to ensure lumen outputs are as indicated and shall replace any batteries rated less outlined above.
   - Emergency lighting units with dedicated emergency heads are spaced based on their unique output. If contractor selects an alternate fixture, they are responsible for ensuring an average of 1 foot candle is provided along the paths of egress for at least 90 minutes.
4. Lamp color temperature for new lamps shall match existing to remain lamps, and all lamp colors for different fixture types and sources shall be consistent throughout the space or area unless specifically noted otherwise. Contractor shall ensure that all interior and exterior lamps are the same color temperature.
5. Light fixtures indicated as dimmable shall be provide with all necessary components (driver, switch etc.) necessary to achieve 5% minimum dimming unless another specific minimum dimming level is noted.

Energy Code Section C406 Compliance:

This project is complying with section C406 for the energy code under the provisions of C406.2 (Reduced lighting power density). The remaining provisions are therefore not required and have not been included in this design.

Electrical System and Equipment: Energy Code Compliance

Compliance Method: Prescriptive

Total Exterior Wattage Calculation per table C405.5.1(2)
Specified vs Allowed: 248.0 vs 1,434.9

Base Site Allowance Zone 3 750 W

Building Entrances and Exits:

Main Entries 30 W/LF for 6 LF of door width
Other Doors 20 W/LF for 24 LF of door width
Entry Canopies 0.40 W/SF for - 62.3 SF

See Light Fixtures Schedule for fixture lamp type, quantity, driver, total fixture wattage and additional information.

Engineer Statement:

To the best of my belief, understanding, and knowledge; the design of electrical system of this building complies with NC State Building Code and the 2018 NC Energy Conservation Code.

Name: Richard D. Copeland, Jr. PE

Electrical System and Equipment: Energy Code Compliance

Compliance Method: Prescriptive

Total Interior Wattage Specified vs Allowed: **3,793 vs 5,919.9**
See Exterior Lighting Summary for exterior lighting energy code calculations (if required)
See Light Fixtures Schedule for interior fixture lamp type, quantity, driver, total fixture wattage and additional information.

Engineer Statement:

To the best of my belief, understanding, and knowledge; the design of electrical system of this building complies with the NC State Building Code and the 2018 NC Energy Conservation Code.

Name: Richard D. Copeland, Jr. PE

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NORTH CAROLINA PROFESSIONAL SEAL 36841 ENGINEER RICHARD D. COPELAND JR. 4/9/25

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09/19/2024

24-0013

ELECTRICAL DETAILS

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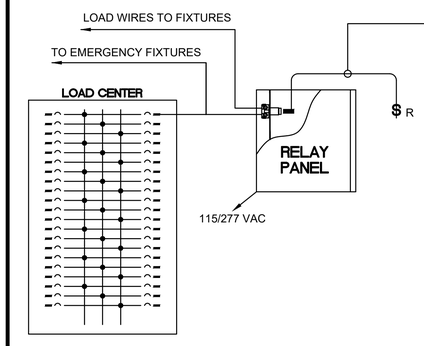
OF - 13

These drawings will be at the scale indicated when plotted at 24" x 36"

1 Lighting Control System Data Riser Detail
Scale: None

TYPICAL RELAY PANEL CONNECTIONS



Low Voltage Override Switch:

3/#20 Wire for Standard

4/#20 Wire for Pilot Switch

Typical standard switch - Leviton #LVS-01 or approved equal. Switch controls one lighting zone.
Multi-button switches may be utilized - Leviton LVS-02 through LVS-08. Each button shall control one zone.
2-pole Relay capability.
Provide engraved labeling indicating zone controlled.
Provide wall cover plates as needed.

The control panel is to allow the lights to come on in the morning and turn off all lights after work hours at preset times designated by the tenant. This timeframe would typically be from 7am to 7pm for a normal business. Should the space be occupied before or after regular business hours, the tenant can override the control panel by means of the low voltage override switches located throughout the space.

The override switch allows the lights to come on for no more than 2 hours to comply with section 505.2.2.2.1 of the 2018 North Carolina Energy Conservation Code. Each override switch shall control no more than 5,000 square feet of space. Five minutes prior to the lights cutting off, the control panel will cause the lights to briefly turn off and turn back on, letting anyone in the space know that the lights will be turning off shortly and that they will need to press the override switch to keep them on.

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Lighting Control System Description

1. The Lighting Control System shall consist of any of the following components: relay panels, Dataline wiring, front end equipment, switches, sensors, and remote override devices. All equipment to be UL certified to meet UL 916.

The lighting control system is a networked system that communicates via RS485. The system must be able to communicate with fully digital centralized relay panels, small distributed relay panels (Available with 0-10Volt dimming outputs), Fully distributed fixture level control by bus connected relays or dimmers, smart breaker panels, digital switches, photocells, various interfaces and operational software. The intent of the specification is to integrate all lighting control into one system. Distributed lighting control shall be provided using networked micro relay panels. Lighting control system shall include all hardware and software. Software shall be resident within the lighting control system. System shall provide local access to all programming functions at the master LCP. Remote access to all programming functions via dial up modem and through any standard computer workstation is permissible in addition to but shall not replace local access at the control panel. Where specified on plans, Lighting control system shall have the capability to be remotely controlled via the internet or building wide Ethernet LAN. Desktop computers are provided by others.

2. The relay panels shall be suitable for mounting in electrical closets and mounted in accordance with national and local electrical codes. The relays will control individual circuits or branch circuits as indicated in the Relay Panel Schedules. All power wiring will be identified at the relay by its controlling circuit breaker and branch letter.

3. Low voltage switches, occupancy sensors, and/or photocells shall be mounted in the spaces as indicated on the Reflected Ceiling Plans. Low voltage wiring from the switches and sensors to the relay panel shall be plenum rated as required by the National Electrical Code and local standards. All wiring shall be compatible with and per LCP manufacturer's specification.

4. Control electronics in the low voltage section shall be capable of driving 2 to 48 relays as specified on plans, control any individual or group of relays, provide individual relay overrides, provide a master override for each panel, store all programming in non-volatile memory, after power is restored return system to the correct state for time of day, provide programmable dual blink warn timers for each relay or zone of relays, and be able to control Normally Open Latching (NOL) or Normally Closed Latching (NCL) relays.

5. Each relay panel shall use UL Listed 30 Amp @ 277VAC Ballast and HID and 20 Amp Tungsten at 120 Vac. 347V Ballast and HID at 20 amps Latching Relay wit 18,000A SCCR at 277Vac. Relays shall be individually replaceable.

6. A Digital Time Clock (DTC) shall control and program the entire lighting control system and supply all time functions and accept modem (RS232) inputs. DTC shall be capable of up to 32 schedules. Each schedule shall consist of one set of On and Off times per day for each day of the week and for each of two holiday lists. The schedules shall apply to any individual relay or group of relays.

The DTC shall be capable of controlling digital devices at up to 127 addresses on a single bus and capable of interfacing digitally with other buses using manufacturer supplied interface cards.

The DTC shall accept control locally using built in button prompts and use of an 8 line 21-space display or from a computer or modem via an on-board RS 232 port. All commands shall be in plain English. The DTC shall be run from non-volatile memory so that all system programming is retained indefinitely and time of day is battery backed up.

DTC shall provide system wide timed overrides. Any relay, group or zone that is overridden ON, before or after hours, shall automatically be swept OFF by the DTC a maximum of 2 hours later.

7. Where specified on plans, system shall come with a pre-Installed modem that allows for remote programming from any location using a PC and free remote control software.

8. All low voltage switches shall be digital and communicate via RS 485. Contact closure style switches, except as specified for connection to the micro relay panel programmable contact closure inputs, shall not be acceptable. The programming for a digital switch shall reside in the switch itself, via double EPROM memory. Any digital switch button function shall be able to be changed locally (at the DTC or a PC) or remotely, via modem, Internet or Ethernet.

Each digital low voltage switch shall be a device that sits on the lighting control system bus. Digital switch shall connect to the system bus using the same cable and connection method required for relay panels. Each button shall be capable of being programmed for On only, Off only, Mix (Some on some off), On/Off (toggle), Raise (Dim up) and Lower (Dim down). Further each button shall be able to be enabled or disabled over the bus. An audible alarm shall be available on all switches that can be programmed to beep on button push or with warning light blinks.

9. Relay Panels will be capable of following standard features: Scheduled ON/OFF, Astronomical Time of Day, Flick Warning, True after hours Time Delay, Telephone overrides, Pulse ON/OFF, common area scenario. Panels will log every relay change by time and initiator for troubleshooting and operational reports.

10. System shall be capable of warning of an impending off sweep by flashing lights Off/On once or twice (programmable) by relay or by zone prior to the lights being turned off. The warning interval times between the flash and the final lights off signal shall be definable for each zone. Additionally an audible signal shall be able to be programmed that gives a mild note on the first flash and a more insistent signal on the second one. Occupant shall be able to override any scheduled Off sweep using local wall switches within the occupied space. Occupant override time shall be locally and remotely programmable and not exceed 2 hours.

11. All components shall be supplied as necessary to ensure the overall operation of the system. Components may include networking devices, dataline power supply, dataline interface portal, and system software.

12. Where specified on plans, a dry contact input interface card that provides 14 programmable dry contact closure inputs shall be provided. Use shielded cable to connect input devices to interface card on runs over 200ft.

13. Where specified on plans, a BACnet interface capability shall be provided that will allow the BAS vendor to interface to the lighting control system, offering individual relay status and control, as well as group control. Relay panel shall retain responsibility of local overrides per switch input.

14. Where specified on plans, a DMX interface capability shall be provided to allow a DMX system to interface with the lighting control panel

15. Where specified on plans, provide photocell package compatible with LCP. Photocells to be mounted in location indicated on the plans. Photocells used for exterior lights shall provide multiple trip points from 1 roof mounted unit. All trip points shall be able to be changed remotely via Internet or dial up modem. Photocells requiring manual trip point adjustment are not acceptable. Photocell used for interior lighting control shall have multiple settings such as start-point, mid-point, off-point, fade-up, fade-down, etc. All settings shall be remotely accessible and adjustable. Systems providing local adjustment only (at the photocell) are not acceptable. Photocells to be certified to comply with the current energy code covering this project at time of submittal of plans for building permit.

16. Manufacturer shall provide a factory authorized technician to confirm proper installation and operation of all system components.

17. Manufacturer shall provide factory authorized application engineer to train owner personnel in the operation and programming of the lighting control system.

18. Manufacturer shall provide system documentation including: a) System 1-line showing all panels, number and type of switches and sensors, dataline, programmable system switches, front end material, b) Drawings for each panel showing hardware configuration and numbering, c) Panel wiring schedules, and d) Typical wiring diagrams for each component. Provide a point-to-point wiring diagram for the entire lighting control system. Diagram must indicate exact mounting location of each system device. Diagram shall indicate the loads controlled by each relay and the identification number for that relay, placement of switches and location of photocell. Original to be given to owner, copies placed inside the door of each LCP.

19. Lighting schedule shall be determined by owner and be programmed by the system installer and shall comply with section 2015 International Energy Conservation Code.

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09/19/2024

24-0013

ELECTRICAL DETAILS

E3.3
OF - 13

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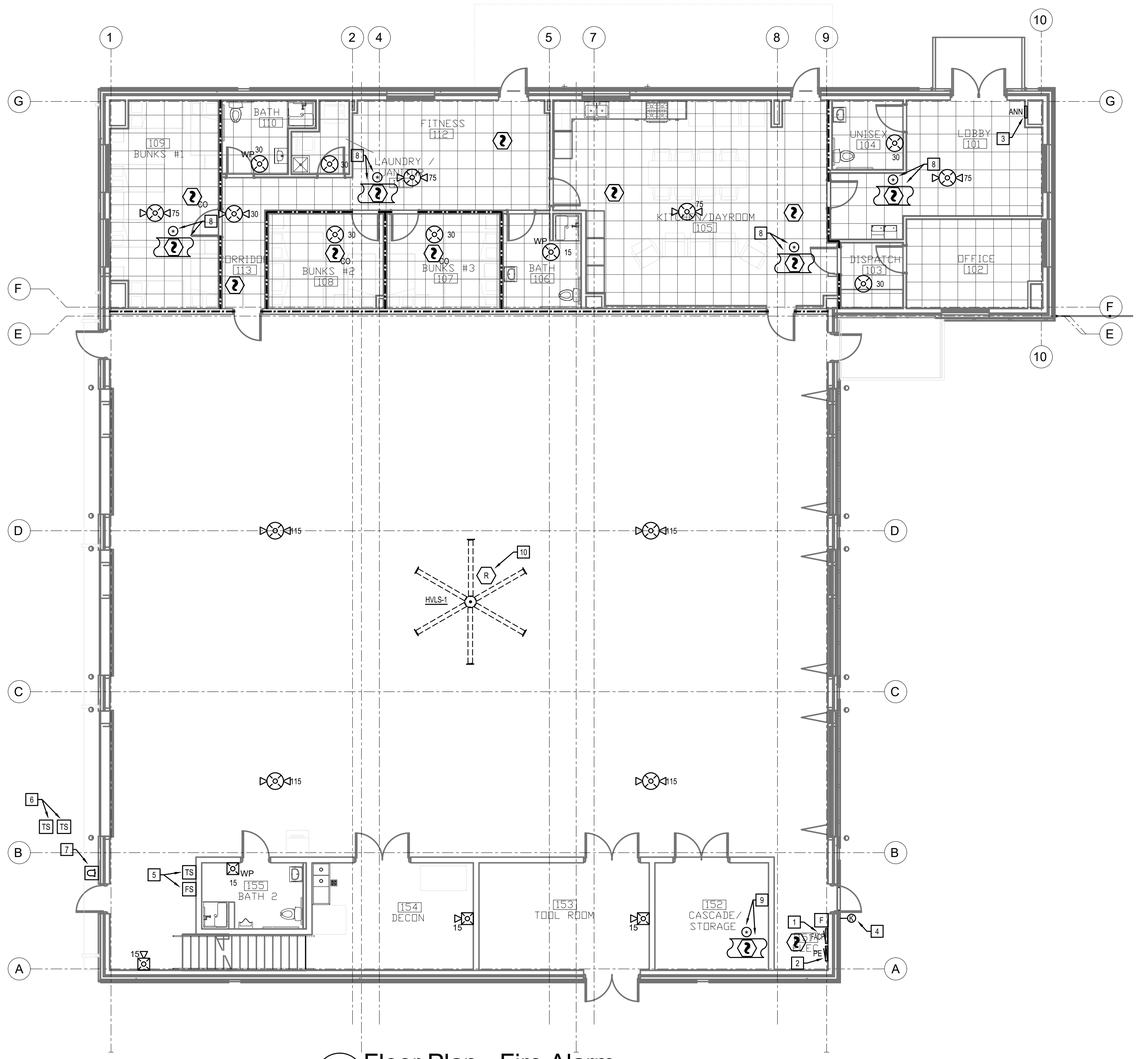

1 Floor Plan - Fire Alarm

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

Sheet Notes:

- All electrical boxes mounted in rated walls shall comply with all requirements of the 2018 NCSBC, section 714.3.2. All electrical boxes mounted in rated ceilings/horizontal assemblies shall comply with all requirements of the 2018 NCSBC, section 714.4.2. Devices shown in rated assemblies shall be flush with conduit concealed, unless otherwise indicated. Provide rated boxes, horizontal separation, putty pads, etc. as required for proper installation. Low voltage electrical devices mounted in rated assemblies shall be protected in accordance with the sections listed above as well.
- The lay-in ceiling is 10'-10" AFF throughout the space and 20'-1/2" AFF in the apparatus bay. Therefore, fire alarm system has been designed based on a maximum ceiling height of 20'-0" AFF in the lay-in areas and 30'-0" in the apparatus bay.

Plan Notes:

1. Fire alarm control panel. See fire alarm riser diagram.
2. Fire alarm power extender. See fire alarm riser diagram.
3. Provide flush fire alarm annunciator and connect as required. Maintain rating around box as required. Confirm location of annunciator with Fire Marshal prior to rough-in.
4. Provide Knox box at location acceptable to the Fire Marshall. Confirm exact location prior to rough- in.
5. Provide tamper and flow switches for sprinkler system. Connect tamper and flow switches to fire alarm control panel as required. Confirm quantities, locations, and requirements with sprinkler contractor prior to rough-in.
6. Connect tamper switches in hot box as required. Provide low voltage surge suppression for circuit.
7. Junction box for sprinkler bell connection. Bell furnished by sprinkler contractor, installed and connected by electrical contractor. Connect to "120/1" circuit through main riser flow switch to be energized upon a water flow in the sprinkler system. Coordinate with sprinkler contractor.
8. Provide duct detector in return air duct and remote led indicator in ceiling grid. Connect as required. Coordinate with mechanical.
9. Provide duct detector in return air duct and remote led indicator at structure. Connect as required. Coordinate with mechanical.
10. Provide relay(s) to HVLS fan to shut down upon activation of fire alarm.

Fire Alarm Synchronization Note:

All fire alarm devices in common sight lines must be visually synchronized and all audible fire alarm devices must be audibly synchronized for a consistent sound throughout. All cost associated with synchronization should be identified and included in any pricing or bids.

Fire Alarm Scope Note:

The scope of fire alarm work for this project is to add a new fire alarm system, notification and initiating devices as indicated on plan to provide code required coverage for the space. The system will utilize horn/strobe notification.

Wall Ratings and Types Legend

See architectural sheets for more information on ratings and additional rated constructions including structure where applicable. Protect all rated constructions as required.

- New Wall being Constructed
- New Partial Height Wall being Constructed
- One Hour Fire Barrier

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24-0013

FLOOR PLAN - FIRE ALARM

FA1.1
OF - 13

These drawings will be at the scale indicated when plotted at 24" x 36"

Addressable Fire Alarm Specifications

General:

The electrical contractor shall provide all specified and necessary material and labor required for a complete and operational Fire Alarm system in accordance with the code, specifications and the contract documents.

All work shall be in accordance with NFPA 72, all manufacturers requirements and recommendations, all city & local and state requirements as well as other applicable requirements or guidelines.

Definitions: "provide" shall mean furnish and install; "furnish" shall mean to supply for installation or use by others; "install" shall mean installation of items furnished by others.

The drawings are diagrammatic and are not intended to show every detail and/or exact locations. Installation shall be adjusted to accommodate interferences encountered in field.

See Fire Alarm System Matrix for required programming/control sequence.

Contractor shall provide and submit shop drawings for approval as required.

Equipment:

Equipment shall be provided as specified in legend and in this section or equal.

1. The Fire Alarm Control Panel (FACP) shall be provided with modules necessary to accomplish the functions specified herein. The panel shall have sealed, maintenance free, lead-calcium battery back up with capacity to power all functions and devices for standby and alarm per NFPA 72 section 4.4.1.5.3. Battery calculations are to be provided as part of submittal data. The panel shall be surface or semi-recessed. The panel shall have addressable detection loops as indicated and/or required plus at minimum 20% spare capacity on each loop. Provide lightning arrestors and transient suppression where recommend by manufacturer. Install lightning arrestors at circuit breaker in panel serving fire alarm panel. Provide auxiliary relays, switches, and modules as required to perform indicated functions. Base system shall have at least 198 intelligent device capacity.

2. Digital Communicator shall be a listed cellular dialer system (with integral 24 hour battery backup) that complies with 2013 NFPA 72, Section 26.6.3 and provides for a second method of communication where required by the AHJ. Note that 2013 NFPA 72 does not permit telephone line(s) as the sole means of communication. If another approved communication method is elected, the fire alarm contractor shall coordinate installation of all necessary communication equipment and provide 24 hour battery backup for all such equipment as part of the fire alarm scope.

3. Remote Annunciator shall be backlit, 80 character minimum, LCD annunciator located as indicated on the plans with the understand that final location shall be approved by the fire marshal.

4. The remote NAC Power Supplies shall be have built-in synchronization for all strobe lights. Each Power Supply shall have battery back-up sized per NFPA 72.

5. Manual Pull Stations shall be addressable, double action devices, with terminal strip. Glass rods are prohibited.

6. Space Smoke Detectors shall be addressable photoelectric type detector. Detectors shall be listed to U.L. standard UL268 and shall be compatible with the control equipment to which they are connected. The detectors shall obtain their power from the fire alarm supervised detection loop. Removal of the detector from its base shall cause a trouble signal to be generated at the control panel indicating the specific location of the issue. Activating the reset switch on the control panel shall reset the detector. The detectors shall have an LED indicator to show the normal and alarm state.

7. Automatic Heat Detectors shall be addressable combination fixed temperature and rate-of-rise type.

8. Audio/Visual devices shall be combination electronic horn and field selectable candela strobe light set as indicated on plans. The device shall comply with the requirements of the American with Disabilities Act.

9. Visual Only devices shall be strobe light with field selectable candela strobe light set as indicated on plans. The device shall comply with the requirements of the American with Disabilities Act.

10. Water flow, Tamper, and, Pressure Switches shall be furnished and installed by the sprinkler contractor and connected by the electrical contractor and monitored by the fire alarm control panel. Monitoring shall be accomplished by use of monitor modules.

11. Duct Mounted Smoke Detectors shall be an addressable photoelectric smoke detector unless otherwise noted. Removal of the detector head shall cause a trouble signal to be generated at the fire alarm control panel indicating the specific detector in trouble. The detector shall obtain its operating power from the supervised detection loop. An LED indicator shall be visible through the cover that indicates the alarm state of the detector. Where indicated furnish a remote indicator/test switch. The duct detector shall be supplied complete with proper size duct sampling tubes and any other required accessories.

12. Control Module shall be located as indicated on the plans and/or as required for control functions and notification applications.

13. Door Holders shall be flush wall mounted, as indicated on the plans, and compatible with control system.

14. Relay Module shall be located as indicated on the plans and/or as required for control functions, IE duct detectors.

MATERIALS:

All materials and equipment shall be new and of the highest quality in the class specified. Where manufacture names are mentioned they are given as a reference to the quality of component required. All materials shall bear UL label or equivalent where applicable. Other makes may be used if equal and the equipment meets all of the requirements of these specifications. All items in the equipment section of these specifications may not be necessary in this system, refer to the drawings for locations and equipment to be used.

Conduit, conductors, boxes, hangers, supports, etc. shall be provided as required.

System description - The fire detection and alarm system shall be the addressable type, with each initiating device individually addressed and reporting to the fire alarm control panel (FACP).

The addressable fire alarm system shall be connected, programmed, and tested only by the manufacturer or by an authorized distributor who stocks a full compliment of spare parts for the system. Technicians performing this service shall be trained and individually certified by the manufacturer for the model of system being installed.

The complete programming for the addressable fire alarm system shall be permanently stored on removable media and archived by the manufacturer or authorized distributor. A backup copy of the program on removable media shall be provided to the owner when the system is commissioned.

The manufacturer or authorized distributor shall maintain software version records on the system installed. The system software shall be upgraded free of charge if the manufacturer releases a new version of the software during the warranty period.

Each signaling line circuit (addressable loop controller) shall have a minimum of 20% spare capacity for future use.

The connections between individual addressable modules and their initiating devices must be supervised.

The system shall have multiple access levels, which permit the owner's authorized personnel to make temporary changes in the system alarm response matrix, without actually changing the system programming. This must include the ability to override selected alarm inputs or system responses to alarms, without affecting the remaining portions of the system.

The manufacturer or authorized distributor must test all software logic functions for the system and provide a written test report of checklist. This documentation must include a system function matrix, which gives the fire alarm control panel response for each initiating device input.

The system shall be nominal 24VDC; non coded, and supervised (including control circuits). All equipment supplied must be listed for the purpose for which it is used, and installed in accordance with any instructions from the manufacturer and/or included in its listing.

The FACP power supply shall have a continuous rating adequate to power all zones and functions in full alarm continuously.

The FACP must have an Alarm Silence switch and be equipped with the subsequent alarm (alarm resound) feature.

The system includes air handling unit shutdown. Silencing the alarm (without resetting) shall not reverse the shutdown. A supervised "AHU Shutdown Defeat" switch must be provided in the FACP, with its "Normal" position indicated.

Systems are to be provided with a separate and independent source of emergency power. Switching to emergency power during alarm shall not cause signal dropout. Batteries must meet the appropriate NFPA capacity requirements.

The system shall be electrically supervised for open or ground fault conditions in detection, alarm and control circuits. Removal of any detection device, alarm appliance, relay, module or standby battery connection shall also result in a trouble signal. Fire alarm signal shall override trouble signals, but any pre-alarm trouble signal shall reappear when the panel is reset.

Execution:

All work shall be installed as required per NFPA 72, manufacturers requirements and recommendations, city & local and state requirements as well as other applicable requirements. All connections at the FACP must be made by the manufacturer's authorized, factory trained representative (rather than by the electrical contractor).

Provide and install the system in accordance with the plans and specifications, all applicable codes and the manufacturer's recommendations. Use conduit where specified/ required. Notification Appliance circuit conductors shall be new, copper type THHN or XHHW and shall be number 14 AWG stranded minimum.

Permanent wire markers shall be used to identify all connections and terminations for each circuit. Identification for all splices shall indicate which conductor leads to the control panel.

Wiring must be in metal conduit (3/4"minimum diameter), or surface metal raceway. Initiating circuit conductors must be new, solid copper, type THHN/THWN, 18 AWG minimum shielded, except that wiring between the FACP and any Remote Annunciator may optionally be listed multi-conductor cable with 18 AWG solid copper conductors. All junction boxes shall be sprayed red and be permanently labeled "Fire Alarm". Wiring color code shall be maintained throughout the installation and labelled on FACP/PE. Provide terminal blocks in all junction boxes where connections are made.

Detection or alarm circuits shall not be installed in raceways containing power or line voltage control wiring. Within the FACP, any AC control wiring must be properly separated from other circuits and the enclosure must have an appropriate warning label to alert service personnel to the hazard.

Location of devices and equipment: All devices shall be located as detailed or indicated. In general devices shall be centered in spaces or above other outlets.

Install lightning arrestor at circuit breaker in panel serving fire alarm panel.

Provide an engraved or other permanent type marker on each device installed indicating the device number and addressable loop number.

Provide framed operating instructions mounted adjacent to the fire alarm control panel.

Smoke detectors shall not be located closer than three feet to an air conditioning supply or return. Locate wall mounted smoke detectors at maximum of twelve inches from ceiling.

Testing shall include all tests noted by NFPA, for electrical systems, and testing/ certification by the fire alarm system supplier. Test results shall be provided to the owner.

Certification for system shall be provided from installer/ supplier of the equipment furnished. Provide instruction manuals and instruction to owner's personnel.

Upon completion of the system testing shall be performed by the contractor and the manufacturer's authorized representative. The test shall include testing of every alarm initiating device for proper response and device indication, every alarm signaling device for effectiveness and all other functions such as HVAC shut down, door release, elevator recall, control of smoke doors/dampers, and pressurization fans. All supervised circuits must also be tested to verify proper supervision (control circuits and remote annunciation lines are among those required to be supervised).

The contractor shall submit the following test documentation:

1. NFPA "Fire Alarm System Certification and Description"
2. Written verification that the fire alarm 100% system test was performed
3. Measured sensitivity of each smoke detector

The system will be inspected and functionally tested by the AHJ. Equipment intended for open area protection or releasing device service may be subjected to simulated or actual test fires, in accordance with ANSI/UL guidelines, to verify proper response.

After successful completion of AHJ inspections and tests and final acceptance, the warranty period begins. In the event of malfunctions or excessive nuisance alarms, the contractor must take prompt corrective action. The engineer may require a repeat of the contractor's 100% system test. Continued improper performance during the warranty period shall be cause to require the Contractor to replace the system and/or its components.

System documentation, training and maintenance:

The contractor shall provide the engineer with electronic copies of the following, to be forwarded to the owner:

1. Full as-built wiring and conduit layouts, including wire color code, and addresses, and showing all interconnections in the system.

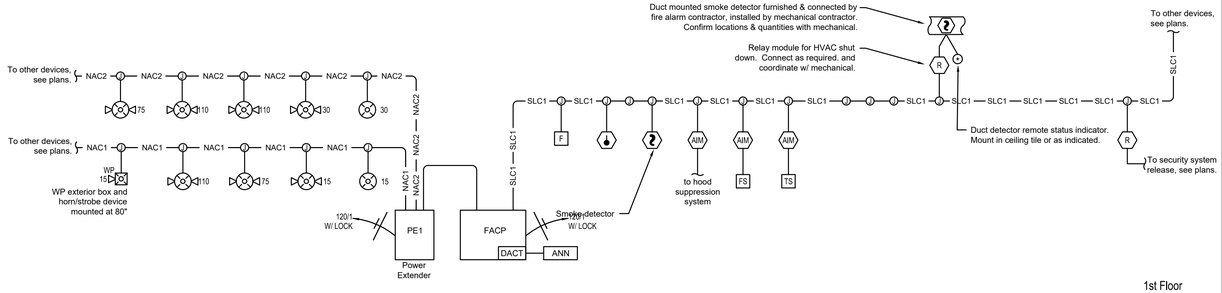
Fire Alarm Legend (NFPA 170 Symbols)

Symbol (New)	Device Common Name	Description/Notes	Model	Model	Model (FCI)	Model (Mircom)
FACP	Fire Alarm Control Panel	24V, addressable system, with 318-point SLC loop	Fire-Lite #MS9200UDLS	Notifier #N16e	Gamewell FCI #E3 Series	FX-3318
PE	Fire Alarm Power Extender	4 notification appliance circuit outputs with total of 8.0 amp full load output (3.0 amp max per circuit).	Fire-Lite #FCPS-24FS8	Notifier #FCPS-24S8	Gamewell FCI #HPF-PS8	QX-Mini
FAAN	Fire Alarm Annunciator Panel	-	Fire-Lite #LCD-80F	Notifier #FDU-80	Gamewell FCI #LCD-SLP	RAM-3318-LCD
DC	Internal Digital Communicator	Mount inside FACP enclosure or provide remote enclosure (Notifier #ABS-8RB) as required.	N/A	Notifier #UDACT	Teleguard #TG7VFS04	
F	Addressable Manual Pull Station	Mount at 44" aff to center of box.	Fire-Lite #BG-12LX	Notifier #NBG-12LX	Gamewell FCI #MS-7AF	MS-710AP
F WP	Manual Pull Station	Rated for outdoor use with backbox. Mount at 44" aff to center of box. Connect via monitor module located within conditioned space.	Fire-Lite #BG-12LOB	Notifier #NBG-12LOB		
	Fire Alarm Smoke Detector	-	Fire-Lite #SD355	Notifier #FSP-851	Gamewell FCI #ASD-PL2F	
CO	Fire Alarm Smoke Detector/Carbon Monoxide Detector Combination Device	Dual purpose fully addressable smoke detector and carbon monoxide device.	System Sensor #i4 Series	System Sensor #i4 Series	System Sensor #i4 Series	System Sensor #i4 Series
	Fire Alarm Heat Detector	Fixed temperature only for elevator shunt trip activation, fixed temp. and rate of rise for all other applications not noted otherwise.	Fire-Lite #H355 series	Notifier #FST-851 SERIES		
	Duct Smoke Detector with Remote Led Indicator	-	Fire-Lite #D350PL W/ Fire-Lite #RTS451	Notifier #FSD-751PL W/ Notifier #RTS451	Gamewell FCI #DNR w/RTS-451KEY	DNR
	Remote Led Indicator	-				
FS	Flow Switch	-	Actual device provided by sprinkler contractor. provide monitor module.	Actual device provided by sprinkler contractor. provide monitor module.	Actual device provided by sprinkler contractor. provide monitor module.	
TS	Tamper Switch	-	Actual device provided by sprinkler contractor. provide monitor module.	Actual device provided by sprinkler contractor. provide monitor module.	Actual device provided by sprinkler contractor. provide monitor module.	
R	Relay Module	-	Fire-Lite #CRF-300	Notifier #FRM-1	AOM-2RF	MIX-500RAP
PR	Pam Relay Module	-	Fire-Lite #PAM-1	Notifier #PAM-1	Notifier #PAM-1	
AIM	Monitor Module	-	Fire-Lite #MMF-300	Notifier #FMM-1	AMM-4F	
ACM	Control Module	-	Fire-Lite #MMF-300	Notifier #FCM-1	AOM-2SF	MIX-M500SAP
XX	Ceiling Mounted Fire Alarm Visual Strobe Only - White	Center device in ceiling tile, device shall be U.L. listed for use in ceilings. Connect as required. Strobe as indicated on plans.	System Sensor Spectralert #SCWL	System Sensor Spectralert #SCWL	System Sensor Spectralert #SCWL	System Sensor Spectralert #SCWL
XX	Ceiling Mounted Fire Alarm Horn/Strobe - White	Center device in ceiling tile, device shall be U.L. listed for use in ceilings. Connect as required. Strobe as indicated on plans.	System Sensor Spectralert #PC2WL	System Sensor Spectralert #PC2WL	System Sensor Spectralert #PC2WL	System Sensor Spectralert #PC2WL

Fire Alarm Symbols Linetype Legend

————	New device or relocated existing device
– – – – – – – –	Existing device to remain
·····	Existing device to be demolished or relocated
— – NAC1 – – NAC1 —	Existing NAC circuitry to remain. Number on line indicates circuit in panel.
— – SLC1 – – SLC1 —	Existing SLC circuitry to remain. Number on line indicates circuit in panel.
— SPK — SPK —	New SPEAKER WIRE circuit. Number on line indicates circuit in panel.
— NAC1 — NAC1 —	New NAC circuit. Number on line indicates circuit in panel.
— SLC1 — SLC1 —	New SLC circuit. Number on line indicates circuit in panel.
EOL	End of line resistor

* New devices shall match existing, verify in field. Engineer has attempted to document existing model numbers for convenience of contractors.



1 Fire Alarm Riser Diagram
Scale: none

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36841 RICHARD D COPELAND

9/19/24

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DATE:

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LILLINGTON FIRE STATION NO 3
2873 NC 210 NORTH
LILLINGTON, NORTH CAROLINA

09/19/2024

24-0013

FIRE ALARM DETAILS

FA2.1
OF - 13

These drawings will be at the scale indicated when plotted at 24" x 36"

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX

SYSTEM OUTPUTS

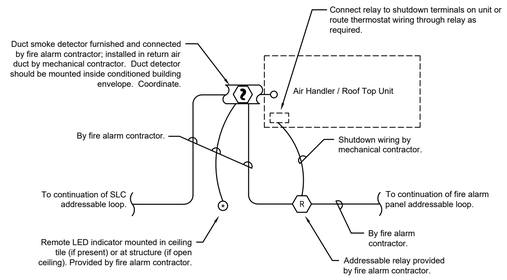
SYSTEM INPUTS		FACP ANNUNCIATION										NOTIFICATION										REQUIRED FIRE SAFETY CONTROL									
		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ZONE OR DEVICE ADDRESS ALARM INDICATOR	ACTUATE GENERAL EVACUATION SIGNAL	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION	RELEASE MAGNETICALLY HELD DOORS	UNLOCK EXITS AND CONTROL DOORS	SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT	-	-	-	-	-	-	-	-	-	-	-	-	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y					
1	FIRE ALARM SYSTEM AC POWER FAILURE					●	●						●														1				
2	FIRE ALARM SYSTEM LOW BATTERY					●	●						●														2				
3	OPEN CIRCUIT					●	●						●														3				
4	GROUND FAULT					●	●						●														4				
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●						●														5				
6	BUILDING MANUAL PULL STATIONS	●	●					●	●	●	●			●	●												6				
7	CORRIDOR SMOKE DETECTORS	●	●					●	●	●	●			●	●												7				
8	AREA SMOKE DETECTORS	●	●					●	●	●	●			●	●												8				
9	HVAC AIR DUCT SMOKE DETECTORS			●	●			●				●				●											9				
10	SPRINKLER TAMPER SWITCH			●	●			●		●		●															10				
11	SPRINKLER WATER FLOW IN BUILDING	●	●					●	●	●	●			●	●												11				
12	SPRINKLER WATER FLOW IN ELEV EQUIP RM OR SHAFT	●	●					●	●	●	●			●	●												12				
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	19				

Fire Alarm Notes:

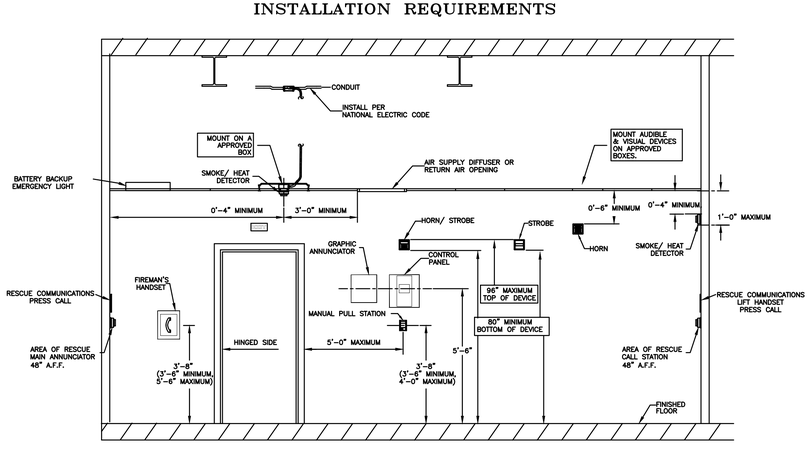
1. See legend for device model numbers.
2. Contractor shall ensure that this installation and design of the fire alarm system complies with all requirements of the 2018 NC Fire Code chapter 9, 2018 NCSBC chapter 9, 2013 NFPA 72, and NFPA 70. Contractor shall review design drawings prior to bid/ rough-in and shall notify engineer immediately of any items they feel may be necessary, omitted, insufficient, etc. Contractor shall be responsible to provide any additional required items necessary for complete and code compliant system prior to beginning work.
3. Contractor shall verify that the existing to remain system is connected to a UL approved central monitoring station as required by the applicable codes at the time of connection. If an approved connection does not exist, the contractor shall provide a listed cellular dialer system (with integral 24 hour battery backup) that complies with 2013 NFPA 72, section 26.6.3 and provide for a second method of communication where required by the AHJ. 2013 NFPA 72 does not permit POTs telephone line(s) as the sole means of communication. If another communication method is elected and approved by the AHJ, the fire alarm contractor shall coordinate installation of all required communication equipment and 24 hour battery backup as part of the fire alarm scope.
4. A decibel level of 15 dBA above average ambient (2013 NFPA 72, Table A.18.4.3) shall be maintained in all occupiable areas measured 5' above the floor using the A-weighted scale. 90 dBA shall be maintained in all mechanical equipment rooms per the 2018 NC Fire Code, section 907.5.2.1.1. The total sound pressure level produced by combining ambient and notification levels shall not exceed 110 dBA anywhere. Devices have been shown to provide the general components necessary to achieve such levels. However, due to site specific attributes including wall construction and sound attenuation, it is the responsibility of the contractor to adjust the level of audible devices as needed and provide additional audible devices where required to meet these audibility requirements.
5. The contractor shall prepare fire alarm shop drawings including a floor plan(s) showing device and circuit layouts with a detailed riser diagram showing each device and all circuitry. Fire alarm shop drawings shall include battery and voltage drop calculations as required by the 2018 NC Fire Code, section 907. Battery calculations shall show battery requirements for the entire system (including any existing loads). If battery calculations show the existing or as designed system as insufficient, contractor shall provide a separately line item price to add a new 8 amp, 4 circuit power extender and connect the required devices to it. Contractor shall submit a plan indicating device layout, riser diagram, battery & voltage drop calculations with device submittal data to engineer for review prior to beginning any work or submitting to the AHJ.
6. Contractor shall provide all documentation and testing required by the local Fire Marshal and state and local codes, including but not limited to:
   1. Acceptance tests per 2018 NC Fire Code, section 907.7.
   2. Required inspections, testing and maintenance required by the 2018 NC Fire Code.
   3. Instructions per 2018 NC Fire Code, section 907.7.3 and record of completion per 2018 NC Fire Code, section 907.7.2.
7. The contractor shall submit fire alarm shop drawings to the AHJ fire prevention office prior to beginning work. No inspections can be scheduled prior to approval of the shop drawings from the Fire Marshal.
8. All audible fire alarm devices must be audibly synchronized and have a consistent audible sound throughout the building. All fire alarm devices in common sight lines must be visually synchronized. Device shall synchronization as required per ADA. Replace devices and/or provide synchronization modules in booster/NAC panels as necessary to achieve synchronization throughout. Existing devices and booster panels shown to remain on these drawings should be considered existing to remain only contractor verifies their ability to synchronize on site, and should be considered new otherwise. All cost related to synchronization should be identified and included in bid.
9. Interlock fire alarm system with security system such that upon activation of the fire alarm system, security system unlocks doors as required by 2018 NCSBC, section 1008.1.9.8, note #4. Coordinate exact requirements with security contractor. Security system shall fail safe open upon power loss.
10. All fire alarm system conductors shall be run in 3/4" EMT conduit, in open ceiling areas, unless noted otherwise. Provide all junction boxes, hangers, fittings, supports etc. as required. JB cover for all fire alarm junction boxes shall be labeled and painted red. Circuits can be combined in common conduit where convenient or as necessary.
11. Pull stations are only provided at required exits.
12. Initiating device circuits shall be loaded to no more than 75% of capacity.
13. Audio/visual circuits shall be loaded no more than 75% of capacity.
14. Provide power extenders as required for notification appliance circuit devices (existing and new).
15. Riser diagram devices are generic and do not represent exact/actual device quantities required for this project. See plans for total quantities.
16. Provide labeling for the entire fire alarm system and device addresses. Provide panel and circuit numbers on a zone map adjacent to the FACP or in location required by the Fire Marshal.
17. The method of functional testing to ensure proper operation of smoke detectors shall be determined by AHJ.
18. Devices shall match the color specified or match the color of any existing devices to remain or be reused in the area of work, if applicable, unless otherwise noted.

General Notes and Requirements:

1. The contractor is responsible to comply with all requirements of the 2018 NCSBC and accessibility code that are applicable to this project regardless of whether all details are indicated on plans.
2. Pull stations shall comply with all requirements of 2018 NCSBC, chapter 11 accessibility code.
3. All boxes mounted in rated walls shall comply with all requirements of the 2018 NCSBC, section 714.3.2. Unless noted otherwise, devices shown in rated walls shall be flush with conduit concealed in wall. Provide horizontal separation, putty pads, rated boxes etc. as required for installation.
4. See architectural ceiling plans for ceiling types. Where new inaccessible gyp. ceilings are being installed the contractor shall not mount any junction boxes, conduit bodies or other equipment or fittings requiring access above the new inaccessible ceiling, and shall relocate all to adjacent areas where accessible area. No access panels in the hard ceiling are allowed without approval.
5. Contractor shall not put an access panel in hard ceiling for any reason. Contractor shall install appropriate junction boxes, etc above the ceiling in areas that can be accessed by the removal of lay-in grid.
6. The word "provide" shall mean to furnish and install the item or equipment and make the final connection necessary.
7. All mounting heights are given to the bottom of the device unless otherwise noted.
8. Do not scale these drawings. The contractor shall refer to the architectural plans for floor plan dimensions. The location of all wall mounted devices, including mounting heights, shall be field verified with the architect prior to installation. Coordinate locations of all light fixtures with the reflected ceiling plans.
9. The contractor shall coordinate any and all work with other trades involved in the project, prior to installation of fire alarm equipment, so as to avoid conflicts during construction and to allow for optimum maintenance and working space.
10. Conduits and cables shall be concealed wherever possible by either routing above ceiling, in interstitial spaces or running exposed in unfinished spaces where feasible/ allowed. Conduits may be run exposed in mechanical areas or other areas not subject to public view where approved by the owner. Wherever conduits or cables are exposed, conduits and cables shall be run parallel or perpendicular to structural elements and shall be run and bundled in groups, and the installation shall be neat and orderly. Even when exposed, conduits and cables shall be routed to minimize view from personnel. Seal all penetrations air tight around conduits passing through walls or floors using appropriate penetration protection when passing through or into rated assemblies.
11. Boxes, conduit, and wiring shall not be recessed into or penetrate structural columns. They shall be surface mounted to column and/or recessed in stud wall where possible. Coordinate with architect/tenant.
12. Junction box covers shall be permanently labeled and conduit shall be labeled every 10'. Contractor shall include cost of painting all exposed conduits subject to public view.
13. The contractor shall patch any ceiling, wall, or floor openings and penetrations resulting from demolition or new work in existing areas.
14. Contractor is responsible for properly disposing of all waste materials, demo materials and other trash. This includes but is not limited to proper disposal recyclable materials.
15. Any necessary core drills shall be coordinated and located with the affected tenant spaces above or below as well as the owner/ building manager, prior to beginning work. Schedule core drills to address security concerns, minimize interruption, etc.
16. Contractor shall verify all areas that are used as a return plenum with mechanical contractor and provide plenum rated cable for all cables not run in metal conduit. This includes all fire alarm or control wiring above ceiling.
17. Contractor shall meet all applicable seismic requirements.
18. Equipment connected to or associated with fire alarm system shall be listed and labeled by a third party acceptable to the authority having jurisdiction.



1 HVAC Unit Shutdown Wiring Diagram
Scale: None



2 Fire Alarm Device Mounting Details
Scale: NTS

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09/19/2024

24-0013

FIRE ALARM DETAILS

FA2.2
OF - 13

These drawings will be at the scale indicated when plotted at 24" x 36"