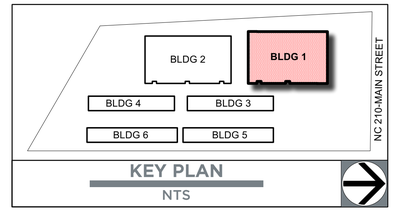
LILLINGTON STORAGE

1781 N MAIN STREET, LILLINGTON, NC 27546



KEY PLAN
NTS

SCHEDULE OF DRAWINGS

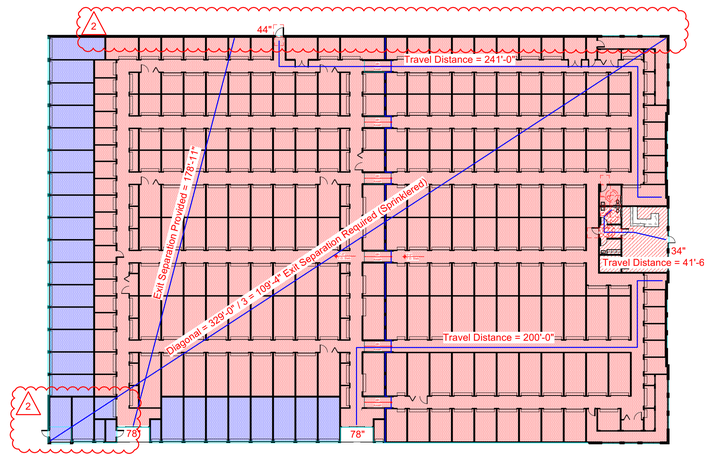
General Notes:

Openings:
1. Provide 2" metal frame head, typical at all doors.
2. Hardware to comply with ICC A117.1, 404.2.6, and 404.2.7.
3. Hardware schedule to be provided for review.
4. All rated doors to be provided with smoke and draft control door labeling per NCBC 2018 716.5.7.3, door closing per NCBC 2018 716.5.9, and latch requirements per NCBC 2018 716.5.9.1.
5. Contractor to verify tempered glass. Provide where required by code.

Finishes:
1. All rooms shall have bare concrete, corrugated metal siding at walls, and no ceiling, U.O.N. in a finish schedule.
2. All finishes shall comply with NCBC 2018 803.11.

Specialties:
1. Provide accessible signage conforming to NCBC 2018 1013, 1111, and ANSI 117.1 407, 504, 703.
2. Provide "Sprinkler Riser Room" and "Fire Alarm Control Panel" or "FACP" signage.
3. Provide fire extinguishers and surface mounted cabinets as required by the fire marshal.
4. Provide a Knox Box (3200 series) in accordance with local requirements. Please contact County Departments of Fire.

GENERAL NOTES
G1.03 N/A



Floor Area:
S-1: 49,012/500 = 98 Occupants
B: 907/100 = 9 Occupants

Egress Width:

34" (Clear) Door Provided = 170 Occupant Capacity
44" (Clear) Door Provided = 220 Occupant Capacity
78" (Clear) Door Provided = 390 Occupant Capacity

Occupant Loads per Door:
S-1: 100 occupants / 3 doors = 33 occupants per door
B: 9 occupants / 1 doors = 9 occupants per door

1018.2.2 - Corridor Width: ***Not less than 44"*** (36" if occupant capacity is less than 50)
1005.2 - Door Encroachment: Door shall not reduce required width by half.
44" required width / 2 = 22" clear req'd
(36" required width / 2 = 18" clear req'd)
(60" provided - 22" = ***38" max. allowable door***)

S-1 *(interior heated)*:	43,277 sq. ft.
S-1 *(unconditioned)*:	5,735 sq. ft.
S-1 (sub-total):	49,012 sq. ft.
B:	907 sq. ft.

Gross Building Square Footage : **49,919 sq. ft.**
(inside face of stud)

LIFE SAFETY PLAN
G1.09 1/32"

PROJECT NORTH

COTHRAN HARRIS ARCHITECTURE
5725 OLEANDER DRIVE, STE E-1
WILMINGTON, NC 28403
910.793.3433

NORTH CAROLINA REGISTERED 4290 ARCHITECT COTHRAN S. HARRIS

LILLINGTON STORAGE
PHASE I - BUILDING 1
ROBERT HIGH DEVELOPMENT
1781 N MAIN STREET, LILLINGTON, NC 27546

COVERSHEET & LIFE SAFETY PLAN

1 09/19/2022 Plan Check Response
2 03/07/2023 Plan Check Response

CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

G1.0

LILLINGTON STORAGE

1781 N MAIN STREET, LILLINGTON, NC 27546

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

Name of Project: Lillington Storage Bldg. 1 (Phase I)
Address: 1781 N Main St. Lillington, NC Zip Code 27546
Owner/Authorized Agent: Robert High Phone # (910) 790 -9490 E-Mail robert@roberthighdevelopement.com
Owned By: Private
Code Enforcement Jurisdiction: County

CONTACT: _____

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	CHA	Cothran Harris	NC 4290	(910)793-3433	charris@cothranharris.com
Civil	Draper Aden Assoc	Andrew Mericle	NC 41595	(919) 467-9708	americle@dda.com
Electrical	CBHF Engineers	Jason Famiglietti	NC 35230	(910) 791-4000	jfam@cbhfengineers.com
Fire Alarm	CBHF Engineers	Jason Famiglietti	NC 35230	(910) 791-4000	jfam@cbhfengineers.com
Plumbing	CBHF Engineers	James Benson	NC 10592	(910) 791-4000	jbenson@cbhfengineers.com
Mechanical	CBHF Engineers	James Benson	NC 10592	(910) 791-4000	jbenson@cbhfengineers.com
Sprinkler-Standpipe				(___)	
Structural	Robert Warr, PE	Robert Warr	NC 32879	(678)310-9191	rwarr@framworksengineering.com
Other				(___)	

2018 NC BUILDING CODE: New Building

2018 NC EXISTING BUILDING CODE: N/A

CONSTRUCTED: (date) _____ **CURRENT OCCUPANCY(S)** (Ch. 3): _____

RENOVATED: (date) _____ **PROPOSED OCCUPANCY(S)** (Ch. 3): _____

OCCUPANCY CATEGORY (Table 1604.5): **Current:** N/A **Proposed:** II

BASIC BUILDING DATA
Construction Type: II-B
Sprinklers: Yes NFPA 13
Standpipes: No
Primary Fire District: No **Flood Hazard Area:** No
Special Inspections Required: No

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
1st Floor	0 sq.ft	49,919 sq. ft	49,919 sq. ft
TOTAL			49,919 sq. ft

ALLOWABLE AREA

Primary Occupancy Classification(s): Storage - S-1 Business
Accessory Occupancy Classification(s): _____
Incidental Uses (Table 509): _____
Special Uses (Chapter 4 – List Code Sections): _____
Special Provisions: (Chapter 5 – List Code Sections): _____
Mixed Occupancy: Yes Non-Separated Use (508.3)

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

_____ + _____ + ... = _____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG. AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1 St. Floor	S-1, IIB	49,012 sq. ft	70,000 sq. ft		70,000 sq. ft
1 St. Floor	B, IIB	907 sq. ft	92,000 sq. ft		92,000 sq. ft

[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)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum3 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 un-sprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	55'	21'-4"	
Building Height in Stories (Table 504.4)	2	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		0					
Bearing Walls	N/A	0 Hr.					
Exterior	N/A	0 Hr.					
North	N/A	0 Hr.					
East	N/A	0 Hr.					
West	N/A	0 Hr.					
South	N/A	0 Hr.					
Interior	N/A	0 Hr.					
Nonbearing Walls and Partitions							
Exterior walls							
North	> 30 Feet	0 Hr.					
East	> 30 Feet	0 Hr.					
West	30 Feet (Assumed property line)	0 Hr.					
South	> 30 Feet						
Interior walls and partitions		0 Hr.					
Floor Construction Including supporting beams and joists		0 Hr.					
Floor Ceiling Assembly		0 Hr.					
Columns Supporting Floors		0 Hr.					
Roof Construction, including supporting beams and joists		0 Hr.					
Roof Ceiling Assembly		0 Hr.					
Columns Supporting Roof		0 Hr.					
Shaft Enclosures - Exit		0 Hr.					
Shaft Enclosures - Other		0 Hr.					
Corridor Separation		0 Hr.					
Occupancy/Fire Barrier Separation		0 Hr.					
Party/Fire Wall Separation		0 Hr.					
Smoke Barrier Separation		0 Hr.					
Smoke Partition		0 Hr.					
Tenant/Dwelling Unit/ Sleeping Unit Separation		0 Hr.					
Incidental Use – Fire Pump Room		0 Hr.					

* 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 (%)
North Elevation: > 30 Feet	UP, S	No Limit	N/A
West Elevation: 30 Feet (Assumed property line).	UP, S	No Limit	N/A
South Elevation: > 30 Feet	UP, S	No Limit	N/A
East Elevation: > 30 Feet	UP, S	No Limit	N/A

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: Yes
Exit Signs: Yes
Fire Alarm: No
Smoke Detection Systems: No
Carbon Monoxide Detection: No

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: G1.09

- ☐ 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 electromagnetic egress locks (1010.1.9.9)
- ☐ 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 PARKING
(SECTION 1106)
(SEE CIVIL)

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE	WATER CLOSETS MALE	WATER CLOSETS FEMALE	WATER CLOSETS UNISEX	URINAL	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWER /TUB	SERVICE SINK	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
Business	9 occupants / 25			0	9 occupants / 40			N/A	n/a	9 occupants	
	0.40 T				0.225 L					n/a[a]	
S-1	98 occupants/100			0	97 occupants/100			N/A	1SS		
	0.98				0.97L		n/a			N/A	
SUBTOTAL	1.38 T				1.2 L						
REQ'D		2T	0			2L	N/A	1SS		n/a[a,d]	

a. Self-service mini-storage facilities are exempt per 2018 NCBC Table 2902.1 – Note M.
b. For business and mercantile occupancies with an occupant load of 25 or fewer, service sinks shall not be required per 2018 NCBC Table 2902.1 – Note 0.
c. Where only one toilet facility for each sex is required, two unisex facilities may be substituted per2018 NCBC 2902.2 exception5.
d. Drinking fountains shall not be required for an occupant load of 15 or fewer per NCBC 2902.6.

NOTE: PER TABLE 403.1 IN THE 2018 NCPC STORAGE FACILITIES ARE EXEMPT FOR DRINKING FOUNTAIN

SPECIAL APPROVALS
(n/a)

ENERGY SUMMARY
N. C. G. S. 143-138 (B18) EXEMPTS THIS BUILDING FROM CONFORMING TO THE ENERGY CODE. PLEASE LET US KNOW IF YOU HAVE ANY QUESTIONS OR NEED ADDITIONAL INFORMATION.

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(SEE STRUCTURAL)

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(SEE MECHANICAL)

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(SEE ELECTRICAL)

END APPENDIX B

COTHRAN HARRIS ARCHITECTURE
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WILMINGTON, NC 28403
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NORTH CAROLINA REGISTERED 4290 ARCHITECT COTHRAN S. HARRIS

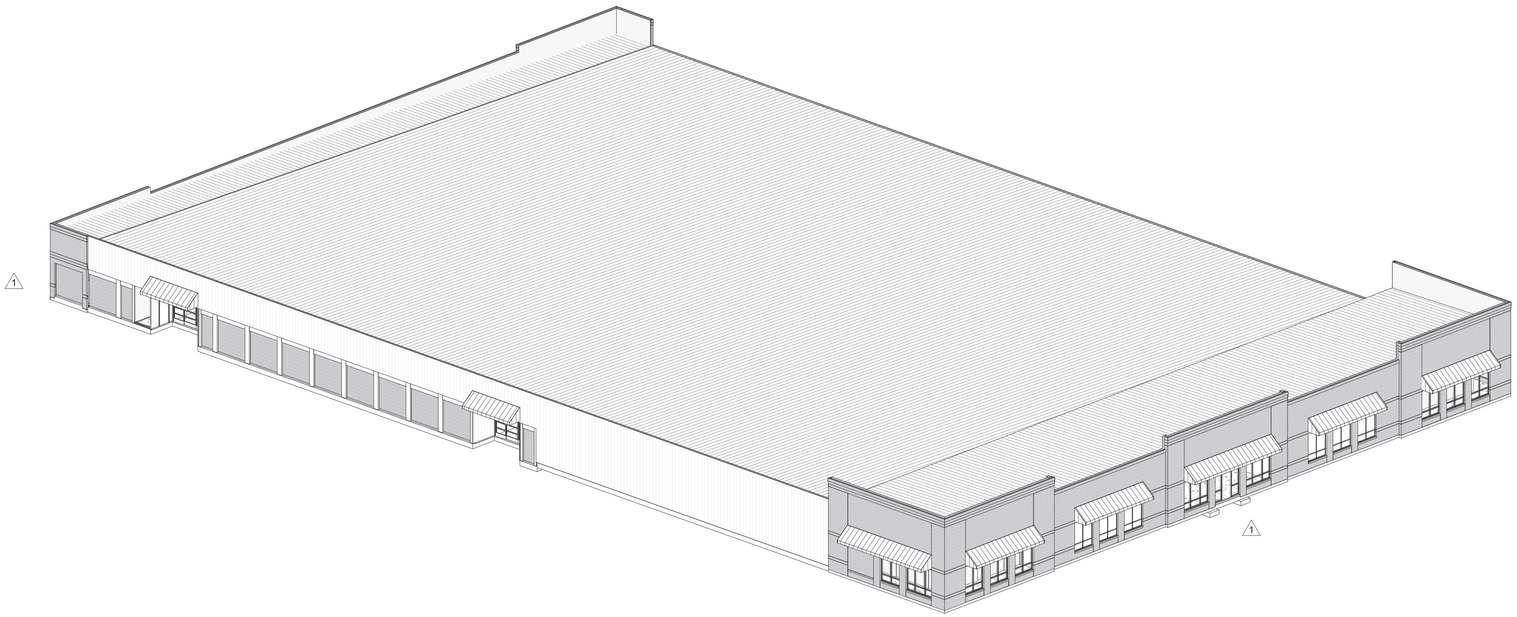
LILLINGTON STORAGE
PHASE I - BUILDING 1
ROBERT HIGH DEVELOPMENT
1781 N MAIN STREET,
LILLINGTON, NC 27546

APPENDIX B
09/19/2022 Plan Check Response
CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

G2.0

LILLINGTON STORAGE
PHASE I - BUILDING 1

1781 N MAIN STREET, LILLINGTON, NC 27546



Drawing Schedule			
Sheet Number	Sheet Name	Current Revision	Current Revision Date
S000	Coversheet	1	10-12-2022
S010	Design Information		
S011	Special Inspections		
S100	Foundation Plan	2	03-10-3023
S201	Partition Plan	2	03-10-3023
S202	Roof Framing Plan	2	03-10-3023
S203	Roofing Plan	1	10-12-2022
S600	Elevations	2	03-10-3023
S800	Foundation and Wall Details	1	10-12-2022
S810	Details		
S840	Steel Details		
S900	Roofing Details		

STORAGE STRUCTURES

3807 Hwy 61
Villa Rica, Ga 30180

PHONE: 770-456-1602
TOLL FREE: 877-456-1602
FAX: 770-456-1662

www.storagestructuresinc.com

Rev. #	Revision Date	Revision Description
1	10-12-2022	Plan Check Response

Robert High Development

LILLINGTON STORAGE

PHASE I - BUILDING 1

1781 N MAIN STREET
LILLINGTON, NC 27546

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 32879 ENGINEER ROBERT A. WARR 03/21/23

ROBERT WARR, P.E.
NC PE# 32879

Robert Warr, PE
3590 Fricks Road
Marietta, GA 30062
(678) 310-9191
rwarr@frameworksengineering.com

Project Number	FE2203556-0
Issue Date	07-14-2022
Drawn By	EM
Checked By	RW
Engineered By	AD

S000

Coversheet

LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC 27546

Loads are applied in accordance with the 2018 North Carolina Building Code (2015 IBC) & ASCE 7-10

Floor Dead Load……40 psf
Basic Wind Speed……117 mph
Exposure "C"
Importance Factor = 1.00

Floor Live Loads:
Typical Rental Unit Storage Areas……125 psf

Roof Live Load……20 psf (Minimum)
Roof Dead Load……10 psf (3 psf collateral)
Snow Load……pg = 15.0 psf / ps = 12.6 psf
Ce = 1.2 Ct = 1.2 Is = 1.0
Uniform Roof Design Snow Load……17.6 psf

Seismic Data: "Life Safety Only"
Seismic: Equivalent Lateral Force Analysis Procedure
Light Framed Bearing Walls with Steel Shear Panels
Steel Framed Office: R = 7.0 Cd = 4.5 Cs = 0.07
Ss = 0.180 S1 = 0.085 Sds = 0.192 Sd1 = 0.136g

Fundamental Period, Ta = 0.124

Risk Category II
Site Class D
Seismic Design Category B

Basic Structural System and Seismic Resisting Systems:
Typical: Light Framed Walls with steel sheet shear panels

STRUCTURAL NOTES
STRUCTURAL GENERAL NOTES AND SPECIFICATIONS:
DIVISION 01 GENERAL:

1. The structure shown on these drawings is structurally sound only in its completed form. The contractor shall brace all earth, forms, concrete, steel, wood, masonry, to resist gravity, earth, wind and construction loads during construction.
2. Contractor shall exercise proper precaution to verify all existing conditions and layout or work. Immediately notify Engineer of any discrepancies. Contractor is responsible for any error resulting from failure to exercise such precaution.
3. Any discrepancies, errors or omissions discovered in the contract documents shall be brought to the attention of the Engineer before proceeding with related work.
4. Otherwise, the correction of such items is the responsibility of the contractor and/or subcontractor.
5. Where a detail, typical detail, section, typical section or a note is shown for one condition, it shall apply for all like or similar conditions unless otherwise noted.
6. Should structural conflicts occur affecting fit-up of structural material, contractor shall notify engineer.
7. Under no circumstances should structural material be modified to accommodate fit-up without the engineer's approval.

Concrete

1. All concrete construction shall conform to ACI 301, Specifications for Structural Concrete for Buildings, ACI Building Code 318, ACI 322 and Guide for Concrete Floor and Slab Construction ACI 302.1 R.
2. When hot or cold weather conditions exist during placement and curing of concrete that would impair the quality and strength of concrete, special measures shall be taken as specified in ACI 305 "Hot Weather Concreting" and ACI 306 "Cold Weather Concreting".
3. Structural concrete shall be as follows, unless otherwise noted, 28 day minimum compressive strength:
   a) Floor-slabs-on-grade: 3,000 PSI
      Slump attained shall be 4" (+ /1").
4. Unless noted otherwise, details of concrete reinforcement and accessories shall be in accordance with ACI 315, Manual of Standard Practice for Detailing Reinforced Concrete Structures and CRSI MSP-1, Manual of Standard Practice, latest edition.
5. Reinforcing steel shall conform to ASTM A615, grade 60, 15. and ASTM A616.
6. Unless otherwise noted, reinforcing lap splices shall be ACI Class B Splices using the following lap lengths:
   #4 Bars = 24"
   #5 Bars = 30"
   #6 Bars = 36"
   #7 Bars = 42"
7. All welded reinforcing steel shall be ASTM A706 and be free of oil, scale, and rust. Welding of bars shall conform to ANSI/AWS D1 .4 "Structural Welding Code ReinforcingSteel".
8. Wire mesh shall conform to ASTM A 185; minimum lap to be 6" Inches.
9. Provide corner bars at corners of concrete walls and footings. Size and spacing of bars shall match size and spacing of longitudinal bars in walls or footings.
10. Concrete slab and design criteria shall be as noted on the structural plans.
11. Place 6 mil (nom.) polyethylene vapor barrier under all building slabs on grade, lap 12" minimum. Material shall conform to ASTM E 1745 Class B & include manufacturer's recommended adhesive or pressure-sensitive tape for joints.
12. Slabs on grade shall be placed using strip placement. Sawed joints (noted as S.J. foundation plan) shall be cut as soon as possible after slab is able to support weight of saw and be cut without raveling. Sawing shall be performed within 4 to 12 hours and absolutely before 24 hours has passed from time after first placement. Saw joint nearest midpoint of strip first and then half-way
between cuts next.
13. Unless noted otherwise, minimum clear cover for reinforcement shall be as follows:
   a. Concrete cast against earth-3"
   b. Formed concrete exposed to earth or weather
      1 /2" for #5 bars and smaller, 2" for #6 bars and larger.
14. Immediately upon final troweling of slabs, coat with curing compound which meets or exceeds ASTM C-309 "Liquid Membrane-Forming Compounds for Curing Concrete." Coverage shall not be less than 1 gallon per 160 square feet of slab area or more if recommended by curing compound manufacturer (minimum of 8 to 10 mils thick).
15. Floors shall be finished to FF 35 and FL 25, minimum.
16. Do not add calcium chloride or other salty compounds to concrete without specific authorization by Structural Engineer. In no case shall calcium chloride exceed 1 percent.
17. Use Portland Cement Type I or II conforming to ASTM C150-92. Aggregates shall be normal weight conforming to ASTM C33.
18. For every vertical or horizontal bar discontinued by an opening, one bar (min. of two bars) shall be added at the side of the openings. Slabs at corners of openings, cutouts and penetrations shall be reinforced with 2-t/4 (3-0" long diagonals unless otherwise noted.
19. Pipes, ducts, conduits, etc. shall not be placed in slabs unless approved by the engineer. (Place all pipes below slab).
20. Concrete exposed to weather shall be air-entrained 3.0% to 5.0% Interior slabs shall have air content of 0% to 3% maximum.

DIVISION 05 METALS
Steel Floor & Roof Deck:

1. Steel Roof Deck shall be formed of 24 Gage Steel conforming to ASTM A-446, with a protective coating of zinc conforming to ASTM A-525.
2. Deck Units shall be erected & anchored in accordance with the manufacturer's specifications & as indicated on these drawings. Steel Deck Institute's recommended specifications shall also be followed.
3. Roof Deck for High Roof over the Office Area shall be 3" x 20 gage galvanized G-60 type N deck conforming to ASTM A653 with a minimum yield strength of 33 ksi.

Light Gage Metal:

1. All members shall conform to the AISI "Specification for the Design of Cold-Formed Steel Structural Members," NAS-01 and shall be of the type and size as indicated on the plans. All structural members shall meet the requirements of 2010 A.I.S.I. general provisions, 50 KSI for 12 and 16 ga. members and 33 KSI for 18 ga. members. all members shall be zinc coated meeting ASTM A1003, G-60 or equal.
2. The physical and structural properties as listed by SSMA shall be the minimum permitted for framing members. Any substitutions must be approved prior to construction by the Engineer.
3. Fastening of components shall be with self-drilling screws or welding in compliance with C1513. Screws and welds shall be of sufficient size to ensure the strength of the connection. All screws shall not be less than 3/4" o.c. or from edge. All welds shall be touched-up with zinc-rich paint.
4. All power-actuated fasteners (PAF) shall be 0.157" dia., U.N.O. Studs may be punched; headers shall not be punched.
5. Top and bottom tracks shall be the same depth and gage, minimum. Fanges should not be less than 2".
6. Splices in framing components, other than runner track, shall not be permitted.
7. Temporary bracing, where required, shall be provided until erection is complete.
8. All framing components shall be cut squarely for attachment to perpendicular members or, as required, for an angular fit against abutting members.
9. Provide additional studs, when necessary, to resist vertical components of loads.
10. The quantity of studs at header openings shall be minimum amount of studs displaced due to opening with half on each side of opening.
11. Multiple studs at stud packs shall be attached at (2) rows, staggered of #10 teks screws at 24" o.c., in a back-to-back configuration. When flange-to-flange is required gusset plates or tracks shall be installed at the above mentioned spacing.
12. Studs shall be installed so the ends are positioned against the inside of the runner track web prior to fastening and shall be attached to both flanges of the upper and lower runner tracks.
13. Provide stiffeners in headers at each point load and at bearing locations, as designated on plans.
14. Attach all ties as detailed and noted in manufacturer technical manuals, provide screw or paf attachments as specified.
15. Materials: All members shall be cold formed from red oxide painted structural quality sheet steel meeting the requirements of ASTM A-446 Grade A, minimum yield of 33 KSI for 18 gage & lighter, & meeting the requirements of ASTM A-446 Grade D, minimum yield of 55 KSI for 16 gage & heavier. All members shall be marked so that supplied materials can be field verified. (ICBO #ER-5409).
16. Installation: a) Wall Studs & Posts: Install studs in continuous tracks, sized to match studs top & bottom, & secure studs to tracks with approved connections, install bridging as indicated on the drawings or with the approval of the Architect/Engineer. b) Do not splice any framing member except as shown on drawings.
17. Connections: a) Welds: Welding shall be in conformance with AWS D1.3-80 utilizing E60XX or E70XX electrodes. Engineer of Record may request non-destructive testing to verify weld quality. b) Screws: Self-drilling & self-tapping, cadmium plated for all exterior uses, of the size required for loadings. Per ICBO #ER-5202. c) Minimum connection shall be with clip L's 4"x4"x12 gage x 0'-4" long with 3-#12 TEKS each leg unless noted or shown otherwise. d) Minimum spacing all screws 1", minimum edge distance is 1/2" unless manufacturer's instructions are more stringent. e) Power Driven Shots: Size & spacing as required to properly anchor the framing members. Use charge as appropriate for actual use (ICBO #2388).

Miscellaneous Structural Steel:

1. Anchor bolts shall conform to F1554 Headed Bolts: Minimum anchor bolt embedment 12 bolt diameters; W-shape members to ASTM A992, Fy = 50 KSI, HSS columns or beams to ASTM A500, Grade B, Fy = 46 KSI; miscellaneous plates, angles, channels, etc. to ASTM A36, Fy = 36 KSI, high strength bolts shall conform to ASTM A325, Type N unless otherwise noted.
2. Unless specifically noted otherwise, fabrication & erection of structural steel shall be in accordance with AISC Specifications, latest edition.
3. Where field & shop welds are indicated on the drawings, they shall be size & type noted. All welding of structural steel shall be done in accordance with latest edition of AWS D1.1-10, Structural Welding Code by AWS corresponding to the AISC Specification used, & all welds including field welds shall be made by certified welders using E70XX electrodes. Proof of certified welders shall be available at job site during times of inspection.
4. Paint all structural steel with one coat of red oxide rust-inhibitive primer 2.5 mils in thickness. the compatibility of primer and any top coat shall be verified before any painting is performed. Touch-up all exposed metal after field installation. all structural steel which is exposed to the elements shall receive two coats of exterior enamel which is compatible to the primed surface.
5. Bolted connections shall be assembled & inspected in accordance with RSC-2009 (Specification for Structural Joints using High-Strength Bolts).

SPECIAL INSPECTION:

1. Owner is responsible for providing an approved inspection & testing agency in the State of the project to provide all inspections & furnish reports for the project as per International and State Building Code.

STORAGE STRUCTURES
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Villa Rica, Ga 30180
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TOLL FREE: 877-456-1602
FAX: 770-456-1662
www.storagestructuresinc.com

Rev. #	Revision Date	Revision Description

Robert High Development

LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC 27546

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Drawn By	EM
Checked By	RW
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S010
Design Information

SHOP DRAWING REVIEW AND SUBMITTAL NOTES

1. REFER TO PROJECT SPECIFICATIONS FOR SUBMITTAL REQUIREMENTS.

SHOP DRAWINGS AND SUBMITTALS WILL BE REVIEWED FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND THE DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS.

SUBMITTAL REVIEW WILL NOT BE CONDUCTED FOR THE PURPOSE OF DETERMINING THE ACCURACY AND COMPLETENESS OF OTHER DETAILED INFORMATION SUCH AS DIMENSIONS AND QUANTITIES, OR FOR SUBSTANTIATING INSTRUCTIONS FOR INSTALLATION OR PERFORMANCE OF EQUIPMENT OR SYSTEMS DESIGNED BY THE CONTRACTOR. ALL OF THIS REMAINS THE RESPONSIBILITY OF THE CONTRACTOR.

REVIEW SHALL NOT CONSTITUTE APPROVAL OF SAFETY PRECAUTIONS OR OF ANY CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES.

APPROVAL OF A SPECIFIC ITEM SHALL NOT INDICATE APPROVAL OF AN ASSEMBLY OF WHICH THE ITEM IS A COMPONENT.

2. DEFERRED SUBMITTALS SHALL BE SUBMITTED TO STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL:

ITEM	
A.	REINFORCING STEEL (REBAR)
B.	CONCRETE MIXES
C.	STRUCTURAL STEEL
D.	METAL DECKING
E.	COLD-FORMED METAL FRAMING

SHOP DRAWINGS ARE TO BE DISTRIBUTED ONLY FROM RETURNED SUBMITTALS BEARING AN INITIALED REVIEW STAMP AND WORK ON THESE ITEMS SHALL NOT PROCEED UNLESS THE STAMP CLEARLY INDICATES THE DRAWINGS ARE "APPROVED", "APPROVED AS NOTED", "REVIEWED", OR "REVIEWED, SEE COMMENTS".

4. CONCRETE IS A PRE-ENGINEERED MATERIAL DESIGNED BY THE SUPPLIER TO MEET THE STRENGTH AND PERFORMANCE CRITERIA SPECIFIED IN THE CONTRACT DOCUMENTS. CONCRETE MIX DESIGNS SHALL BE IN CONFORMANCE WITH ACI 318, CHAPTER 5, AND SHALL BE SUBMITTED TO THE INDEPENDENT TESTING LAB WITH APPROPRIATE HISTORICAL TEST DATA AND ANALYSIS FOR REVIEW AND APPROVAL. SUBMIT MIX DESIGNS AND THE TESTING LAB REVIEW TO THE ARCHITECT/ENGINEER FOR REVIEW.

MANY VARIABLES, INCLUDING MIX COMPONENTS AND ENVIRONMENTAL CONDITIONS AFFECT THE QUALITY OF CONCRETE. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING VARIABLES AND REQUESTING MIX MODIFICATIONS AND SHALL BE SOLELY RESPONSIBLE FOR THE QUALITY OF CONCRETE DELIVERED AND PLACED ON THE SITE.

5. GENERAL CONTRACTOR SHALL PRE-CHECK ALL SHOP DRAWINGS BEFORE SUBMISSION TO THE ENGINEER FOR REVIEW. ALL SUBMITTAL MATERIALS MUST BEAR AN INITIALED REVIEW STAMP OF THE GENERAL CONTRACTOR. SUBMITTALS WITHOUT THE REVIEW STAMP OF THE GENERAL CONTRACTOR WILL BE RETURNED WITHOUT REVIEW AND SHALL NOT BE CAUSE FOR CLAIMS OF DELAY.

6. GENERAL CONTRACTOR SHALL SCHEDULE SUBMITTALS SUFFICIENTLY IN ADVANCE OF THE DATE REQUIRED TO ALLOW REASONABLE TIME FOR DELIVERY, PROCESSING AND REVIEW BY THE DESIGN TEAM. THIS SHALL INCLUDE A MINIMUM OF TEN WORKING DAYS, EXCLUDING DELIVERY TIME, FOR ENGINEER'S PROCESSING AND REVIEW OF SHOP DRAWINGS. INCLUDE TIME FOR CONTRACTOR'S RESUBMISSION AND SUBSEQUENT REVIEW IF NECESSARY.

SHORTER REVIEW PERIODS WILL ONLY BE HONORED WITH PRIOR WRITTEN CONSENT FROM THE ENGINEER. THESE ACCELERATED SERVICES, AND APPROPRIATE COMPENSATION, MUST BE NEGOTIATED WITH THE ENGINEER AND ARCHITECT IN ADVANCE.

TEN DAY REVIEW PERIODS CAN NOT BE HONORED WHEN LARGE QUANTITIES OF SHOP DRAWINGS ARE SUBMITTED AT ONE TIME. WHEN THIS HAPPENS, THE CONTRACTOR SHALL SUBMIT AN ITEMIZED LIST INDICATING PRIORITIES AND REASONABLE RETURN DATES.

7. THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS, INCLUDING THE USE OF ELECTRONIC FILES, BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF THE INDEPENDENT PREPARATION OF SHOP DRAWINGS, SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT AND OBLIGATES HIMSELF TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREON. SUCH USE OF REPRODUCTIONS OF THESE CONTRACT DOCUMENTS WILL NOT BE ALLOWED WITHOUT PRIOR CONSENT FROM THE ENGINEER.

8. WHEN USING ELECTRONIC FORMAT FOR SUBMITTALS, THE CONTRACTOR SHALL PROVIDE ONE PRINTED HARD COPY FOR ENGINEER REVIEW OR EXECUTE AN AGREEMENT FOR REIMBURSING THE ENGINEER FOR PRINTING COSTS FOR ONE COPY.

9. STRUCTURAL FRAMING WAS BASED ON PRELIMINARY CRITERIA FROM ONE ELEVATOR MANUFACTURER AS NOTED ON PLAN. ALTERATIONS MAY BE NECESSARY IF A DIFFERENT ELEVATOR MANUFACTURER IS SELECTED OR IF DIFFERENT REQUIREMENTS ARE PROVIDED IN THE ELEVATOR SUBMITTAL. BASED ON THE EXTENT OF THE CHANGES, ADDITIONAL SERVICES FOR STRUCTURAL REDESIGN AND COSTS OF ADDITIONAL OR MODIFIED FRAMING MAY BE REQUIRED. DURING SELECTION OF ELEVATOR SYSTEMS, GENERAL CONTRACTOR SHALL INCLUDE A CONTINGENCY TO COVER THESE FEES AND COSTS. COSTS OF THE DESIGN AND CONSTRUCTION REVISIONS SHALL BE BORNE BY THE CONTRACTOR.

10. STRUCTURAL FRAMING WAS BASED ON PRELIMINARY MEP EQUIPMENT AS NOTED ON PLAN. IT IS ANTICIPATED THAT COMPETITIVE BIDS ON MEP EQUIPMENT WILL BE TAKEN AND THAT STRUCTURAL MODIFICATIONS MAY BE NECESSARY IF ALTERNATE MEP EQUIPMENT IS SELECTED, OR IF EQUIPMENT IS RELOCATED, SHAFT SIZES ARE CHANGED, OR DIFFERENT REQUIREMENTS ARE PROVIDED IN THE EQUIPMENT SUBMITTAL. BASED ON THE EXTENT OF THE CHANGES, ADDITIONAL SERVICES FOR STRUCTURAL REDESIGN AND COSTS OF ADDITIONAL OR MODIFIED FRAMING MAY BE REQUIRED. DURING SELECTION OF MEP SYSTEMS, GENERAL CONTRACTOR SHALL INCLUDE A CONTINGENCY FOR THIS REVISED DESIGN AND CONSTRUCTION WORK. COSTS OF THE DESIGN AND CONSTRUCTION REVISIONS SHALL BE BORNE BY THE CONTRACTOR.

THIRD PARTY SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE IBC BUILDING CODE CHAPTER 17 AND AS MODIFIED HEREIN.

2. DESIGNATIONS

SI: SPECIAL INSPECTOR QUALIFIED WITH DEMONSTRATED COMPETENCE DOCUMENTED BY CERTIFICATIONS FROM RECOGNIZED AGENCIES SUCH AS AWS, ACI, AISC, AISI, ETC., AS SUBMITTED AND APPROVED BY THE BUILDING OFFICIAL. SPECIAL INSPECTOR MAY BE A FIRM WITH MULTIPLE SPECIALISTS AND A PROJECT MANAGER PROVIDING REPORTS.

TA: TESTING AGENCY QUALIFIED TO TEST AND INSPECT MATERIALS AND ASSEMBLIES. TESTING AGENCY SHALL BE UNDER THE SUPERVISION OF THE SPECIAL INSPECTOR.

GE: GEOTECHNICAL ENGINEER WHO PROVIDED THE ORIGINAL PROJECT GEOTECHNICAL SOILS INVESTIGATION REPORT.

SE: SPECIALTY ENGINEER RESPONSIBLE FOR DESIGNING ASSEMBLIES SUCH AS PRECAST CONCRETE, STEEL JOISTS, COLD FORMED FRAMING ASSEMBLIES, ETC. SPECIALTY ENGINEER SHALL PROVIDE OBSERVATION OF FABRICATED AND INSTALLED ITEMS OF THEIR DESIGN, IN ADDITION TO THE SPECIAL INSPECTION.

3. TA, GE AND SE SHALL SUBMIT RECORDS OF THE INSPECTION RESULTS TO THE SI. THE SI SHALL COMPILE AND SUBMIT INSPECTION RECORDS TO THE ARCHITECT/ENGINEER AND BUILDING OFFICIAL. RECORDS SHALL INCLUDE STATEMENTS OF TESTS, VERIFICATION OF INSTALLED/FABRICATED ITEM COMPLIES WITH CONTRACT DOCUMENTS, REMEDIAL WORK PERFORMED, RETESTS.

4. SI SHALL PROVIDE A DAILY REPORT OF ANY DISCREPANCIES FROM THE CONTRACT DOCUMENTS FOUND ON THE SAME DAY OF THE INSPECTION TO THE ENGINEER OF RECORD. FORMAL REPORTS OF COMPLIANCE CAN FOLLOW BY A MAXIMUM OF 2 WEEKS. SI SHALL PROVIDE AND SIGN A FINAL REPORT WITH A SUMMARY OF ALL TESTS PERFORMED AND IN COMPLIANCE WITH THE SPECIAL INSPECTION REQUIREMENTS OF THE GOVERNING BUILDING CODE TO THE ENGINEER OF RECORD AND BUILDING OFFICIAL.

5. SI, TA & GE SHALL BE PAID BY THE OWNER IN COMPLIANCE WITH THE (INTERNATIONAL) BUILDING CODE.

6. SPECIAL INSPECTION REPORTS AND FINAL REPORT IN ACCORDANCE WITH SECTION 1704.2.4 SHALL BE SUBMITTED TO THE BUILDING OFFICIAL PRIOR TO THE TIME THAT PHASE OF WORK IS APPROVED FOR OCCUPANCY.

SPECIAL INSPECTION REQUIREMENTS - STEEL CONSTRUCTION

TASK	INSPECTION FREQUENCY CONTINUOUS	INSPECTION FREQUENCY PERIODIC	REFERENCED STANDARD	REFERENCE	RESPONSIBLE AGENT
1. INSPECTION OF STEEL FABRICATOR:			AISC QUALITY CERTIFICATION	1704.2	SI
A. VERIFY Q.C. PROCEDURES ARE AISC COMPLIANT AND CURRENT.	-	X			
2. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS, AND WASHERS:			-	-	SI
A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	APPLICABLE ASTM MATERIAL SPECIFICATIONS; AISC 360, SECTION A3.3	-	
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	-	X	-	-	
3. INSPECTION OF HIGH-STRENGTH BOLTING:			AISC 360 SECTION M2.5	1704.3.3	SI/TA
A. BEARING TYPE CONNECTIONS.	-	X			
B. SLIP CRITICAL TYPE CONNECTIONS.	-	X			
4. MATERIAL VERIFICATION OF STRUCTURAL STEEL:			ASTM A6 ASTM A568	1708.4	SI
A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATIONS IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X			
B. MANUFACTURER'S CERTIFIED MILL TEST REPORTS.	-	X			
5. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:			-	-	SI/TA
A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATIONS IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	AISC 360 SECTION A3.5	-	
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE.	-	X	-	-	
6. INSPECTION OF WELDING:			-	-	SI/TA
A. STRUCTURAL STEEL:			AWS D1.1	1704.3.1	
i. COMPLETE AND PARTIAL PENETRATION GROOVE WELDS.	X	-			
ii. MULTI PASS FILLET WELDS.	X	-			
iii. SINGLE-PASS FILLET WELDS > 5/16".	X	-			
iv. SINGLE-PASS FILLET WELDS </= 5/16".	-	X			
v. FLOOR AND DECK WELDS.	-	X	AWS D1.3	-	
vi. STAIR AND RAILING WELDS.	-	X			
vii. SHEAR STUD WELDS.	-	X	AWS D1.1	-	
B. REINFORCING STEEL:			-	-	
I. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A-706.	-	-	AWS D1.4 ACI 318: 3.5.2	-	
II. REINFORCING STEEL-RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL REINFORCED CONCRETE SHEAR WALLS AND SHEAR REINFORCEMENT.	-	-			
III. SHEAR REINFORCEMENT.	-	-			
IV. OTHER REINFORCING STEEL.	-	X			
7. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS:			-	1704.3.2	SI
A. DETAILS SUCH AS BRACING AND STIFFENING.	-	X			
B. MEMBER LOCATIONS.	-	X			
C. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	-	X			

REQUIRED VERIFICATION AND INSPECTION OF METAL DECK CONSTRUCTION

1. SPECIAL INSPECTIONS FOR METAL DECK SHALL BE AS REQUIRED IN THE FOLLOWING TABLE.

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	NOT APPLICABLE	REFERENCED STANDARD		PROJECT SPECIFICATION SECTION
1. MATERIAL VERIFICATION OF METAL DECK:						
a. IDENTIFICATION MARKINGS TO CONFORM TO SDI STANDARDS AND THE APPROVED SHOP DRAWINGS.		X	MANUFACTURER'S APPROVED SHOP DRAWINGS			
2. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:		X		REFER TO TABLE 1704.3, STRUCTURAL STEEL		
5. INSPECTION OF WELDING:		X				
a. STRUCTURAL STEEL:						
1) FLOOR AND DECK WELDS, SPACING AND PATTERN.		X		REFER TO TABLE 1704.3, STRUCTURAL STEEL		

SPECIAL INSPECTION REQUIREMENTS - CONCRETE CONSTRUCTION

TASK	INSPECTION FREQUENCY CONTINUOUS	INSPECTION FREQUENCY PERIODIC	REFERENCED STANDARD	REFERENCE	RESPONSIBLE AGENT
1. INSPECTION OF REINFORCING STEEL AND PLACEMENT.	-	X	ACI 318: 3.5, 7.1-7.7	1913.4	SI
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1704.3, ITEM 5B.	-	X	AWS D1.4 ACI 318: 3.5.2	-	SI
3. INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO PLACEMENT OF CONCRETE.	X	-	-	1911.5	SI/TA
4. VERIFYING USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CHAPT 4, 5.2-5.4	1904.2.2, 1913.2, 1913.3	SI/TA
5. SAMPLING FRESH CONCRETE AND PERFORMING SLUMP, AIR CONTENT, AND DETERMINING THE TEMPERATURE OF CONCRETE AT THE TIME OF MAKING SPECIMENS FOR STRENGTH TESTS.	X	-	ASTM C 172, C 31	1913.10	SI/TA
6. INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 5.6, 5.8 ACI 318: 5.9, 5.10	1913.6, 1913.7, 1913.8	SI
7. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 5.11-5.13	1913.9	SI
8. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: 6.1.1	1906.1	SI/SE/TA

SPECIAL INSPECTION REQUIREMENTS - SOILS AND FOUNDATIONS

TASK	INSPECTION FREQUENCY CONTINUOUS	INSPECTION FREQUENCY PERIODIC	REFERENCED STANDARD	REFERENCE	RESPONSIBLE AGENT
1. SITE PREPARATION:			GEOTECHNICAL REPORT	1704.7, 1803	SI/GE
A. SITE PREPARED IN ACCORDANCE WITH APPROVED GEOTECHNICAL REPORT.	-	X			
2. EXCAVATION:			GEOTECHNICAL REPORT	1704.7	SI/GE
A. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X			
3. FILL PLACEMENT:			GEOTECHNICAL REPORT	1704.7, 1803.5	SI/GE/TA
A. PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.	-	X			
B. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	X	-			
C. PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X			
4. SHALLOW FOUNDATIONS:			GEOTECHNICAL REPORT	1704.7	SI/GE
A. IDENTIFICATION OF SOILS AT AND BELOW FOUNDATION BEARING LEVEL.	-	X			
B. ALLOWABLE BEARING CAPACITY OF FOUNDATION BEARING SOILS.	-	X			

STORAGE STRUCTURES

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Rev. #	Revision Date	Revision Description

Robert High Development

LILLINGTON STORAGE

PHASE I - BUILDING 1

1781 N MAIN STREET
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NORTH CAROLINA PROFESSIONAL SEAL 32879 ENGINEER ROBERT A. WARR 03/21/23

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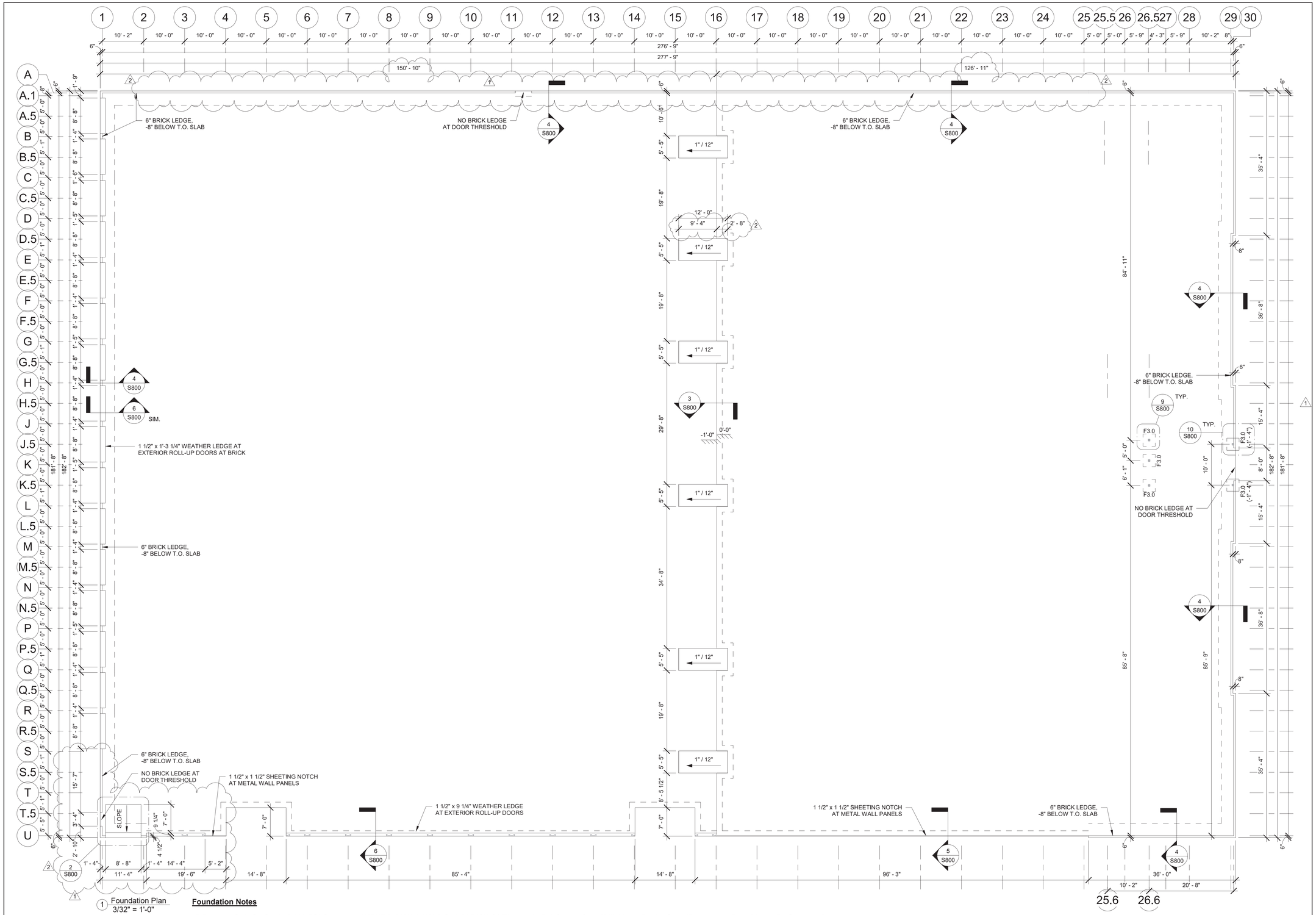
Special Inspections



1 Foundation Plan
3/32" = 1'-0"

Foundation Notes

4" Concrete Slab On Grade 3,000 PSI Concrete w/ WWF 6x6-W1.6xW1.6 Or 1.5 LB/CY Of Fibermesh Reinforcing Over 6MIL Vapor Barrier Over 4" Aggregate Gravel Layer By Concrete Contractor.

4" Aggregate layer Underneath Building Slab May Be Removed As Long As A 95% Compaction Is Achieved In The Slab Underlayment.

Provide (2) #5 Crack Prevention Bars At Each Reentrant Corner, 6'-0" Long, Centered, Mid-Depth Of Slab.

Provide Control Joint Via Saw Cut At 15'-0" o.c. Maximum In Each Direction, See Typical Saw Joint Detail For More Information.

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1	10-12-2022	Plan Check Response
2	03-10-3023	ELEVATION AND PLAN REV.

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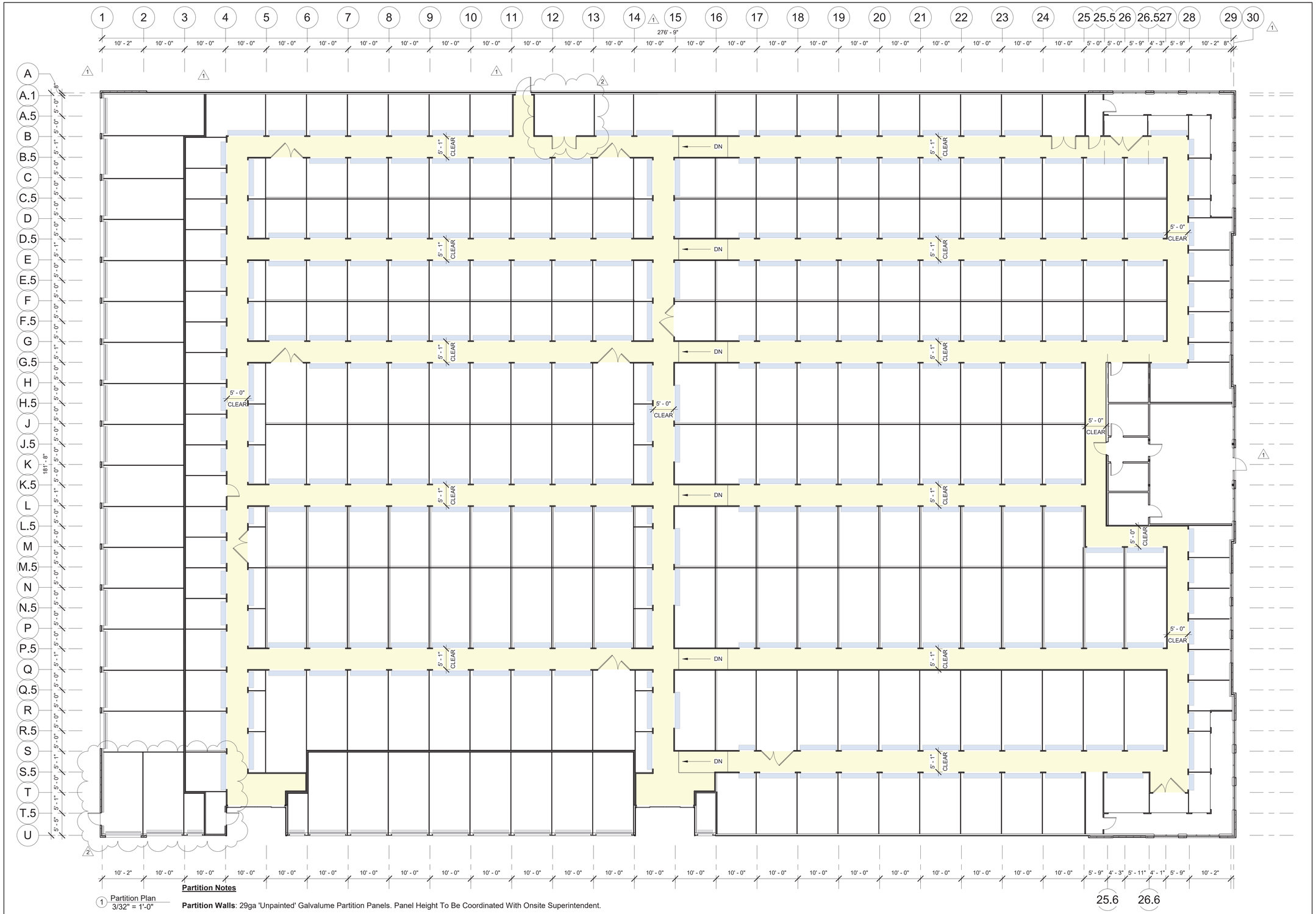
Foundation Plan



1 Partition Plan
3/32" = 1'-0"

Partition Notes

Partition Walls: 29ga 'Unpainted' Galvalume Partition Panels. Panel Height To Be Coordinated With Onsite Superintendent.

Insulated Walls: 29ga 'Unpainted' Galvalume Partition Panels With Liner Panel Installed Up To The Underside of Roof.

Insulation:
Wall: R-19 Vinyl-Reinforced Insulation For Exterior Metal Panel Walls Only. Insulation For Brick Veneer/EIFS Walls By Others.
Roof: R-30 Vinyl-Reinforced Insulation with Thermal Blocks

Exclusions: Roll-Up Doors, Hallway/Corridor Partitions & Interior Buildouts

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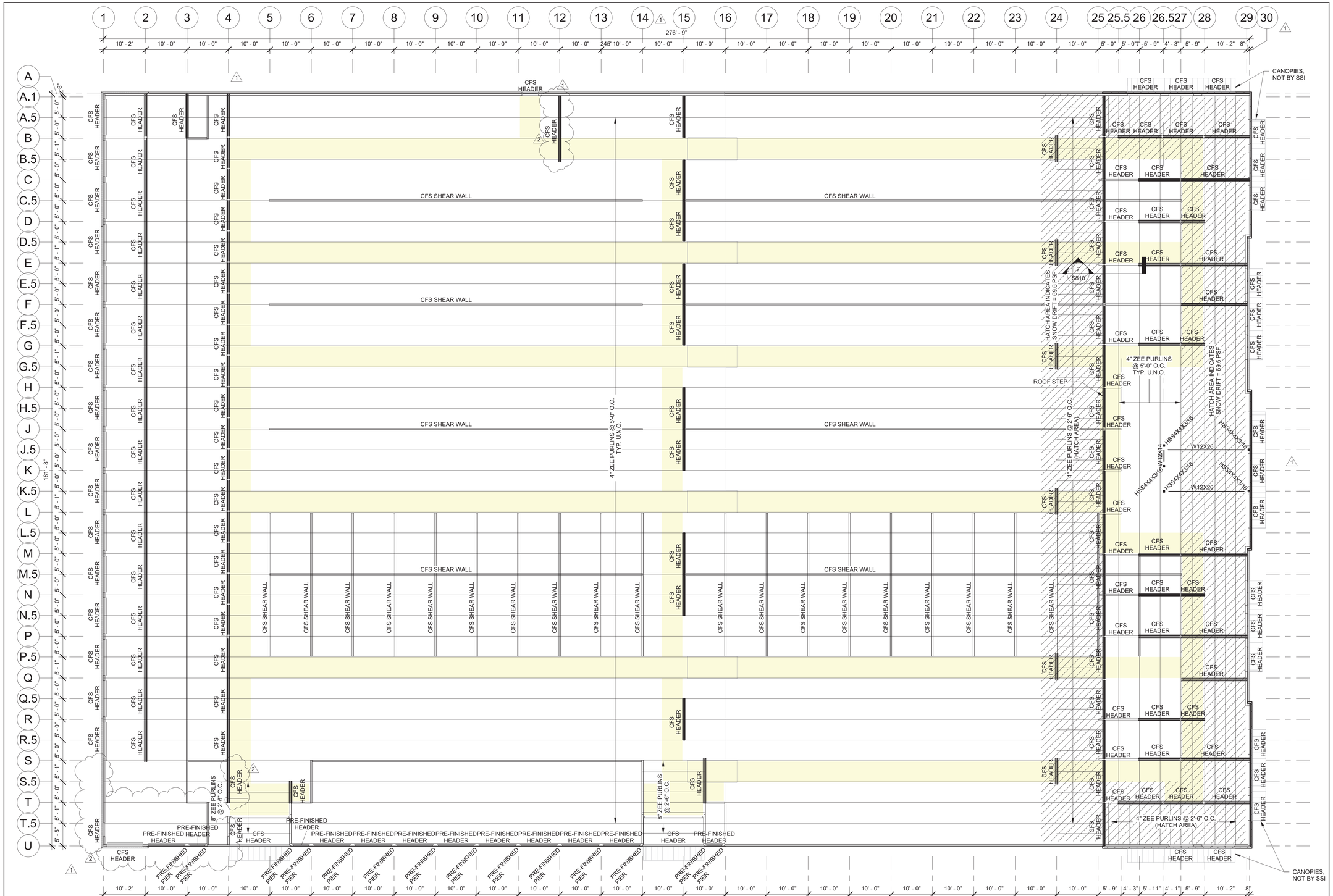
Partition Plan



1 Roof Framing Plan
3/32" = 1'-0"

Post Plan Notes

Interior Framing: 4" x 2" x 16ga Posts On A 5'-0" x 10'-0" Grid Framing System. (U.N.O.)
Zee Purlins Every 5'-0" o.c. (U.N.O.)

Exterior Wall Framing:
Brick Veneer/Stucco: 4" x 2 1/2" x 14ga Cee Columns @ 12" o.c. w/ Mid-Span Bracing In 14ga Top & 16ga Bottom Track.
Metal Panel: 4" x 2" x 16ga Cee Columns @ 30" o.c. w/ Mid-Span Bracing In 14ga Top & 16ga Bottom Track.
Metal Panel (Parapet): 4" x 2 1/2" x 16ga @ 30" o.c. w/ Mid-Span Bracing In 14ga Top & 16ga Bottom Track.

Exterior Floor Track - Punch Holes in Floor Track To Match Post Spacing For Wedge Anchors. Place Wedge Anchor 6" From Each End of Track.

Exclusions: Brick Veneer/EIFS

Exterior Dimensions Are Taken From The Outside Face Of Framing.
Double Posts Are Dimensioned To Center of Main Post Only. All Other Dimensions Are Center To Center of Posts.
Hallways Should Have A Clear Dimension Of 5'-5" Between Post (U.N.O.).
Shaded Areas Indicate Hallways.

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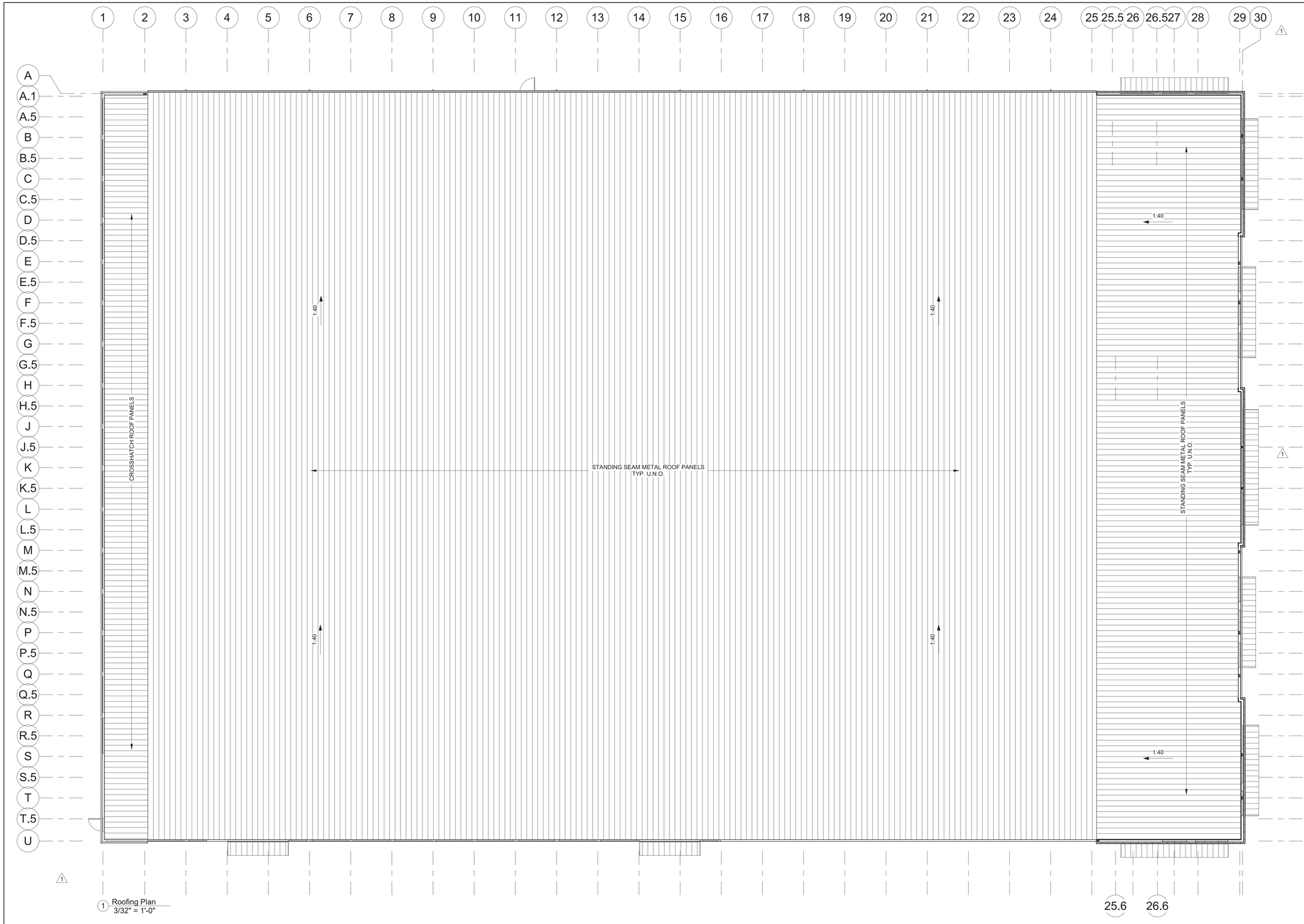
S202

Roof Framing Plan



1 Roofing Plan
3/32" = 1'-0"

Roofing Plan Notes:

18" x 24ga Standing Seam Roof System

'Unpainted' Galvalume Finish

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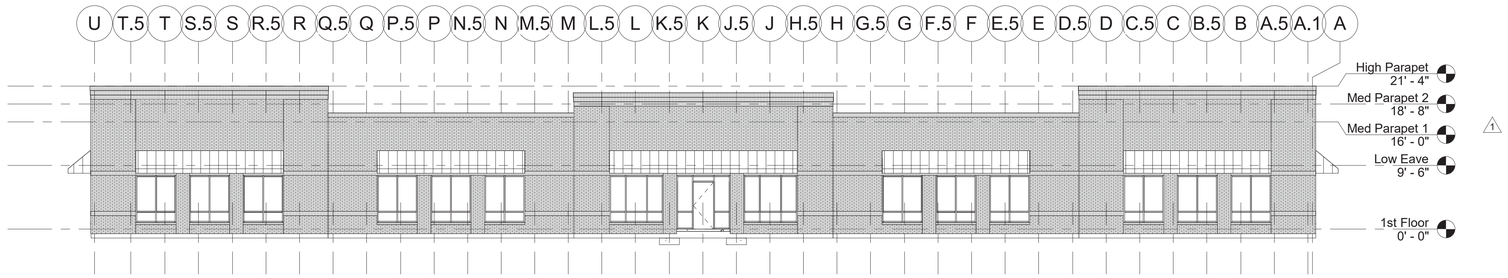
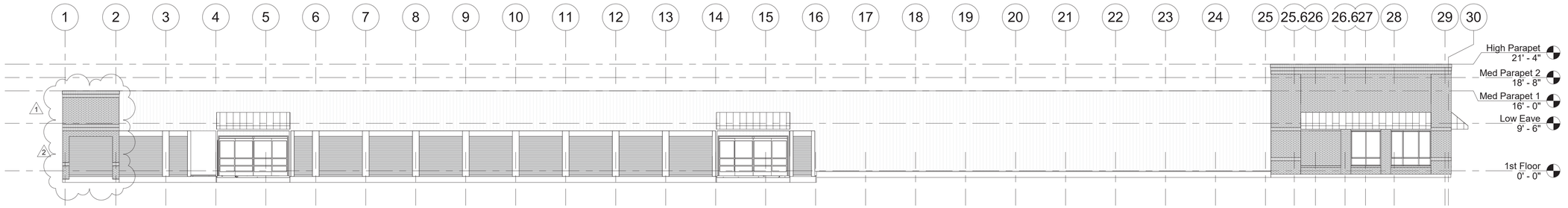
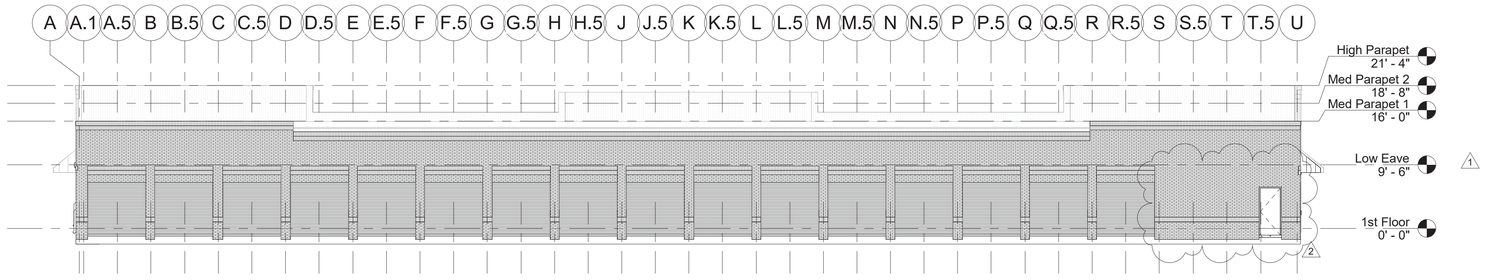
Roofing Plan



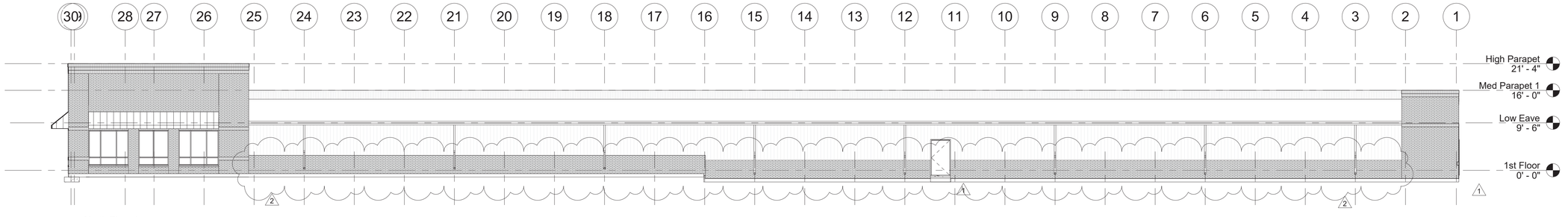
1 East Elevation
3/32" = 1'-0"



2 South Elevation
3/32" = 1'-0"



3 West Elevation
3/32" = 1'-0"



4 North Elevation
3/32" = 1'-0"

STORAGE STRUCTURES

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Rev. #	Revision Date	Revision Description
1	10-12-2022	Plan Check Response
2	03-10-3023	ELEVATION AND PLAN REV.

Robert High Development

LILLINGTON STORAGE

PHASE I - BUILDING 1

1781 N MAIN STREET
LILLINGTON, NC 27546

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 32879 ROBERT A. WARR 03/21/23

ROBERT WARR, P.E.
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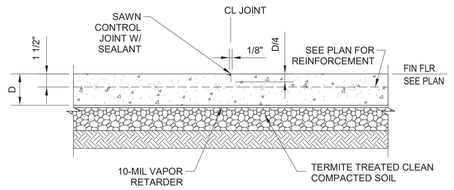
Project Number	FE2203556-0
Issue Date	07-14-2022
Drawn By	EM
Checked By	RW
Engineered By	AD

S600

Elevations

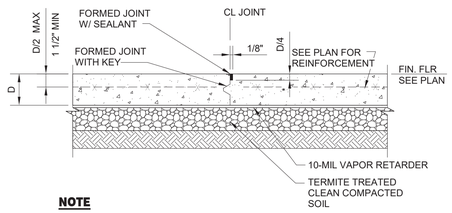


NOTES

1. SEE FOUNDATION PLAN FOR ADDITIONAL SLAB INFORMATION, INCLUDING DEPTH & REINFORCING.
2. SAWCUTTING OF CONTROL JOINTS SHALL BE DONE AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY TO PERMIT CUTTING WITHOUT CHIPPING, SPALLING OR TEARING BUT NOT MORE THAN 8 HOURS AFTER CASTING.
3. CONTRACTOR MAY ELECT TO SAWCUT ANY CJ's AS INDICATED ON PLAN.

SAWCUT CONTROL JOINT

1 TYPICAL SLAB JOINTS
3/4" = 1'-0"

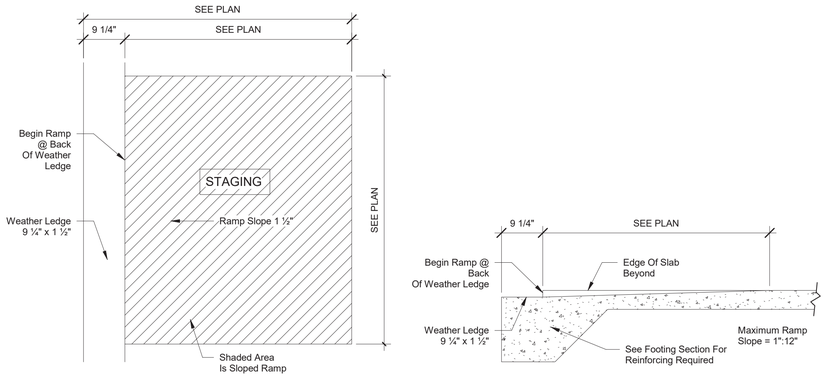


NOTE

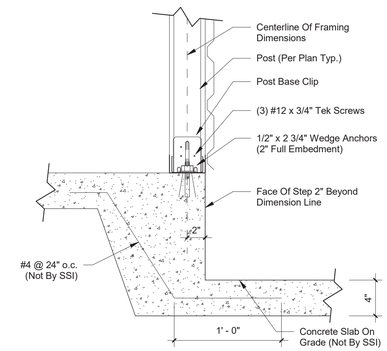
SEE FOUNDATION PLAN FOR ADDITIONAL SLAB INFORMATION, INCLUDING DEPTH & REINFORCING.

CONSTRUCTION JOINT

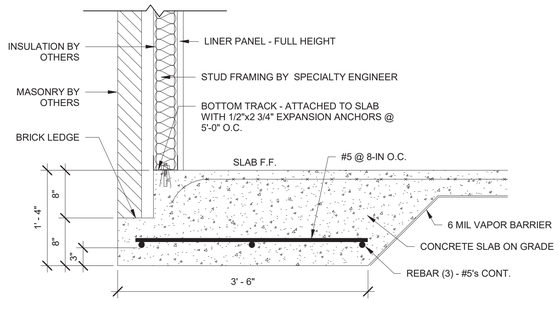
(LOCATE AT EDGE OF ALL POURS AND AT CONTRACTOR'S OPTION)



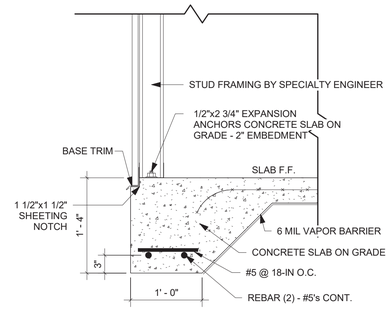
2 Entry Ramp (Weather Ledge)
3/4" = 1'-0"



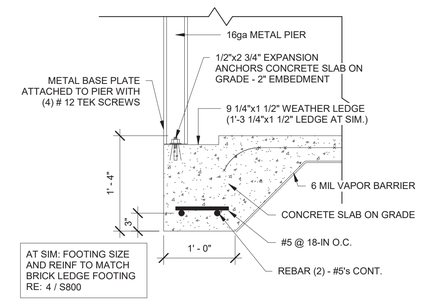
3 Stepdown Design by SSI
1 1/2" = 1'-0"



4 TURN DOWN SLAB @ BRICKLEDGE
1" = 1'-0"

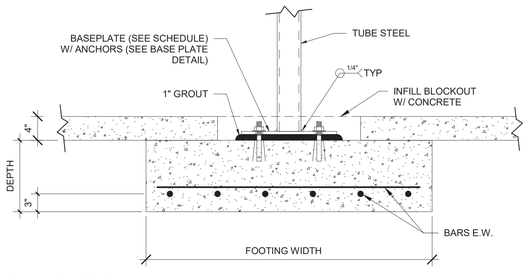


5 TURN DOWN SLAB @ SHEETING NOTCH
1" = 1'-0"

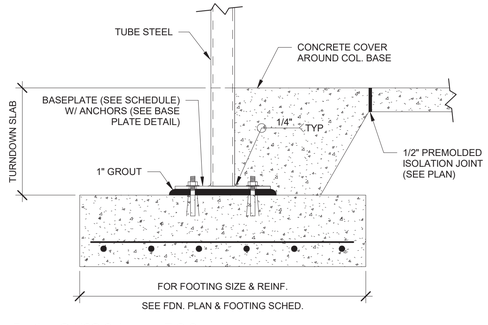


1 6 TURN DOWN SLAB @ WEATHER LEDGE
1" = 1'-0"

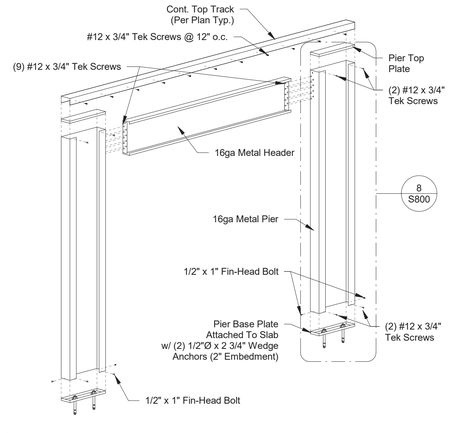
FOOTING SCHEDULE 1500 PSF ALLOWABLE SOIL BEARING CAPACITY			
MARK	SIZE	REINF. (E.W.)	ALLOWABLE LOAD (KIPS)
F3.0	3'-0" x 3'-0" x 1'-0"	(3) #5	10



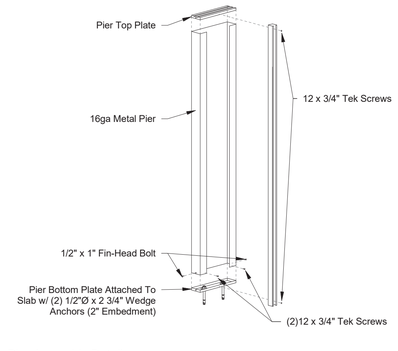
9 Footing @ HSS Columns
1" = 1'-0"



10 Footing @ HSS Columns - E.O.S.
1" = 1'-0"



7 Pier & Header Assembly
3/8" = 1'-0"



8 Pier Assembly Detail
3/8" = 1'-0"

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Rev. #	Revision Date	Revision Description
1	10-12-2022	Plan Check Response

Robert High Development

LILLINGTON STORAGE

PHASE I - BUILDING 1

1781 N MAIN STREET
LILLINGTON, NC 27546

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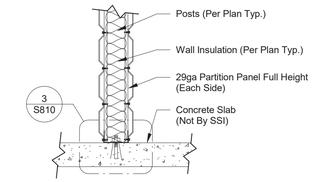
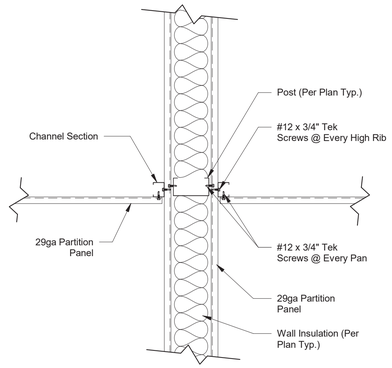
Project Number	FE2203556-0
Issue Date	07-14-2022
Drawn By	EM
Checked By	RW
Engineered By	AD

S800

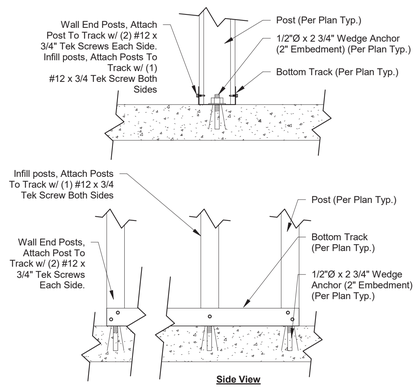
Foundation and Wall Details



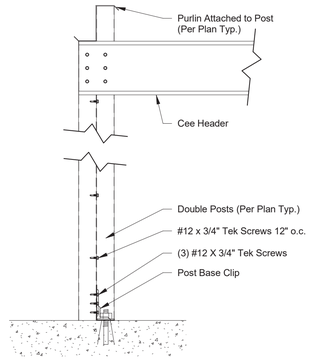
1 Insulated Partition
1" = 1'-0"



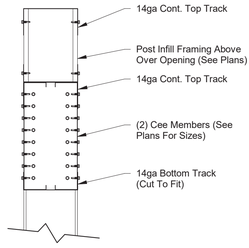
2 Insulated Partition Intersection
1 1/2" = 1'-0"

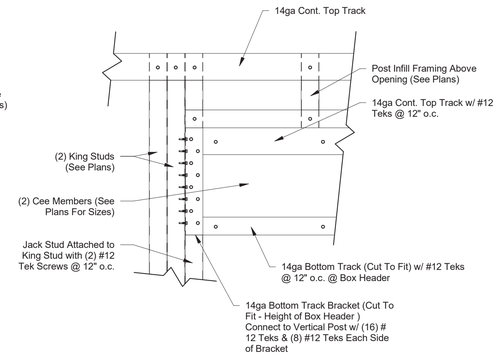


3 Post To Track Detail
1 1/2" = 1'-0"

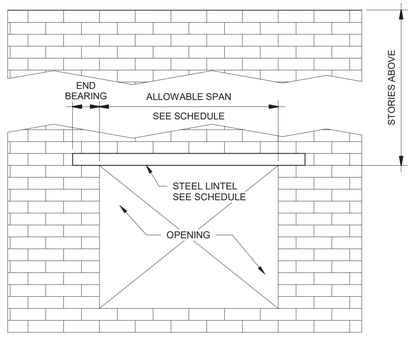


4 Double Post Detail (Single Story & Top Floor)
1 1/2" = 1'-0"



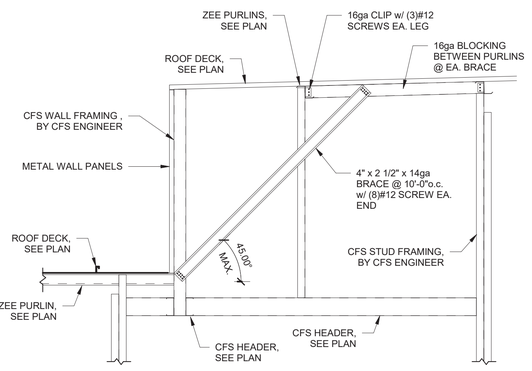


5 Box Header Detail
1 1/2" = 1'-0"

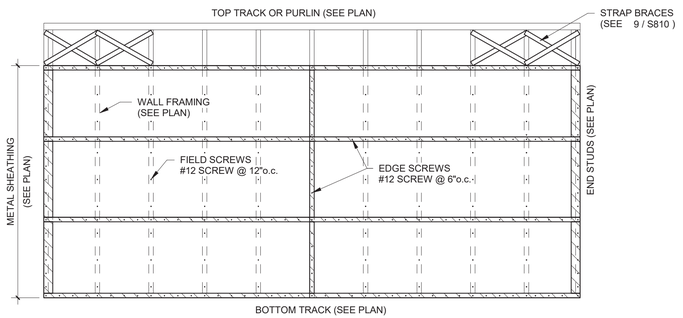


LOOSE LINTEL SCHEDULE			
SIZE	ALLOWABLE SPAN		
	UP TO 5'-0" ABOVE	ONE STORY ABOVE	TWO STORIES ABOVE
3x3x1/4	6'-0"	4'-6"	3'-0"
4x3x1/4	8'-0"	6'-0"	4'-6"
5x3.5x5/16	10'-0"	8'-0"	6'-0"
6x3.5x5/16	14'-0"	9'-6"	7'-0"
8x4x1/2	18'-0"	15'-0"	12'-6"
NOTE: LONG LEG SHALL BE PLACED VERTICAL. MINIMUM END BEARING = 6-IN.			

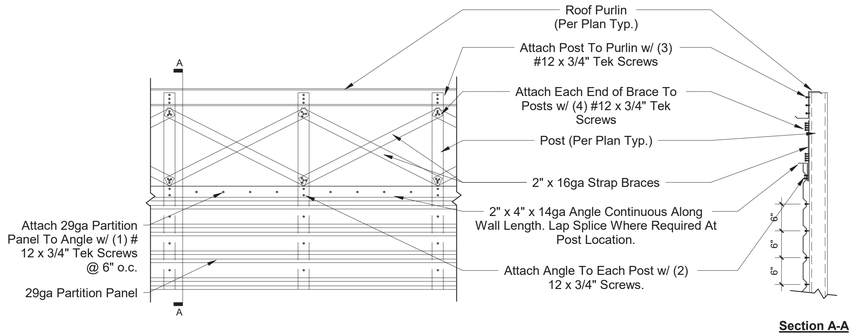
6 LOOSE LINTEL SCHEDULE
1 1/2" = 1'-0"



7 High Roof Brace to Low Roof
1/2" = 1'-0"



8 Shear Wall Attachment
3/8" = 1'-0"



9 Shear Wall X-Strap Above Metal Panel (Top Floor)
3/4" = 1'-0"

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Rev. #	Revision Date	Revision Description

Robert High Development

LILLINGTON STORAGE

PHASE I - BUILDING 1

1781 N MAIN STREET
LILLINGTON, NC 27546

NORTH CAROLINA PROFESSIONAL SEAL 32879 ENGINEER ROBERT A. WARR 03/21/23

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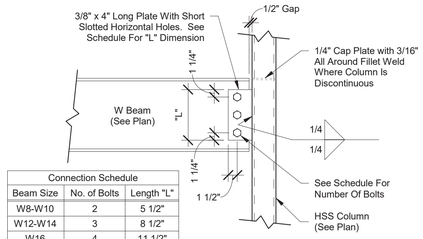
Project Number	FE2203556-0
Issue Date	07-14-2022
Drawn By	EM
Checked By	RW
Engineered By	AD

S810

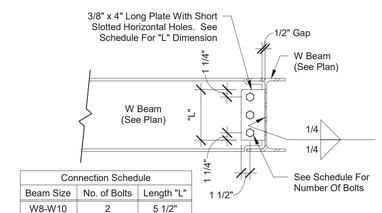
Details



Connection Schedule		
Beam Size	No. of Bolts	Length "L"
W8-W10	2	5 1/2"
W12-W14	3	8 1/2"
W16	4	11 1/2"
W18	5	14 1/2"
W21	6	17 1/2"
W24	7	20 1/2"

Notes:
1. Bolts Are 3/4"Ø A325N Bolts, U.N.O.

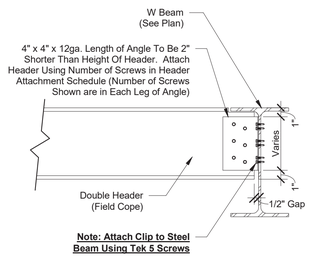
1 Beam to HSS Column Connection
1" = 1'-0"



Connection Schedule		
Beam Size	No. of Bolts	Length "L"
W8-W10	2	5 1/2"
W12-W14	3	8 1/2"
W16	4	11 1/2"
W18	5	14 1/2"
W21	6	17 1/2"
W24	7	20 1/2"

Notes:
1. Bolts Are 3/4"Ø A325N Bolts, U.N.O.

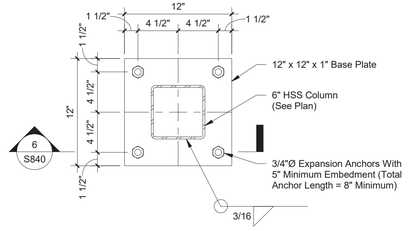
2 Beam to Beam Connection
1" = 1'-0"



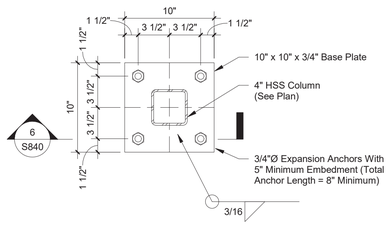
Header Connection Schedule		
Depth (in.)	Gauge	Quantity #12 x 3/4" Tek Screws
6	14-16	8
8	16	8
8	12-14	12
10	16	12
10	12-14	16
12	16	12
12	12-14	16

Notes:
1. Minimum Spacing For #12 Tek is 11/16"; Minimum Edge Distance is 3/8"
2. Install Tek 5 Screws at Steel Beam Connection

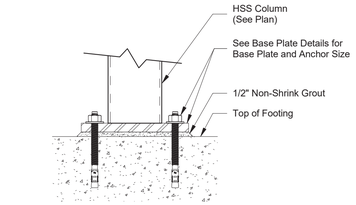
3 Header To Beam Connection
1 1/2" = 1'-0"



4 12" x 12" Base Plate
1 1/2" = 1'-0"

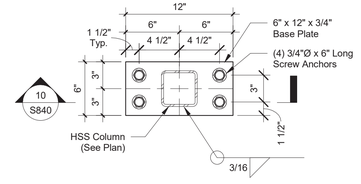


5 10" x 10" Base Plate
1 1/2" = 1'-0"

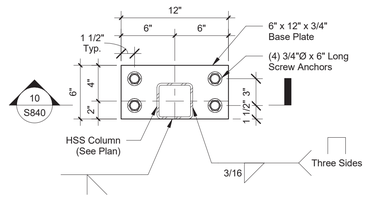


NOTES:
1. Provide Anchor Rod Holes Conforming to Table 14-2 in AISC Steel Construction Manual

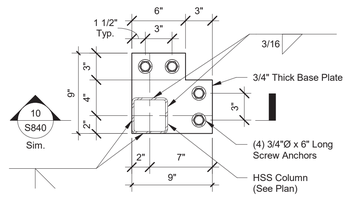
6 Grouted Base Plate Assembly
1 1/2" = 1'-0"



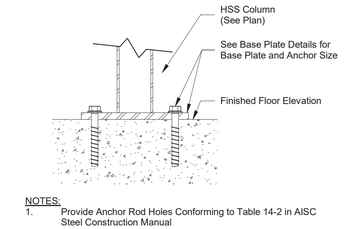
7 6" x 12" Base Plate (HSS Centered)
1 1/2" = 1'-0"



8 6" x 12" Base Plate (HSS Offset)
1 1/2" = 1'-0"

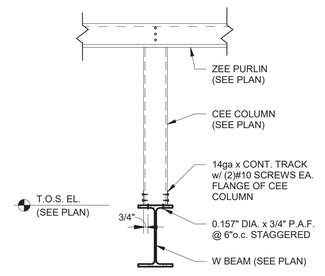


9 Base Plate Corner 4-Hole Offset
1 1/2" = 1'-0"



NOTES:
1. Provide Anchor Rod Holes Conforming to Table 14-2 in AISC Steel Construction Manual

10 F.F.E. Base Plate
1 1/2" = 1'-0"



11 Purlin Bearing on Beam - Knee Wall
1" = 1'-0"

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Rev. #	Revision Date	Revision Description

Robert High Development
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
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Project Number	FE2203556-0
Issue Date	07-14-2022
Drawn By	EM
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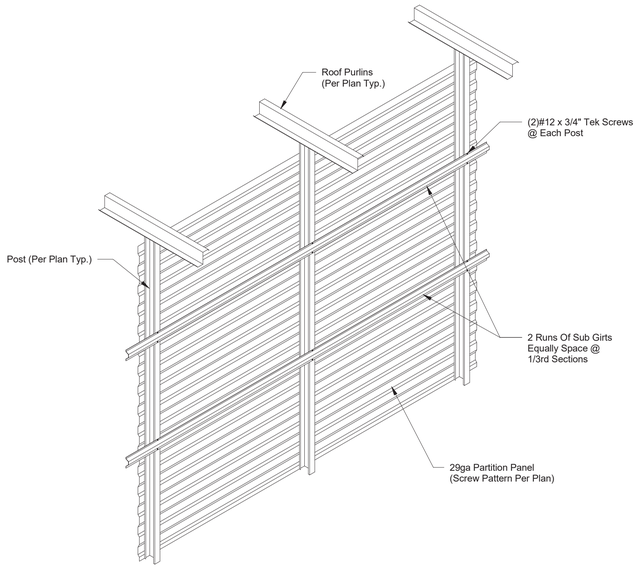
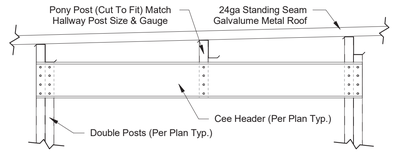
Engineered By	AD

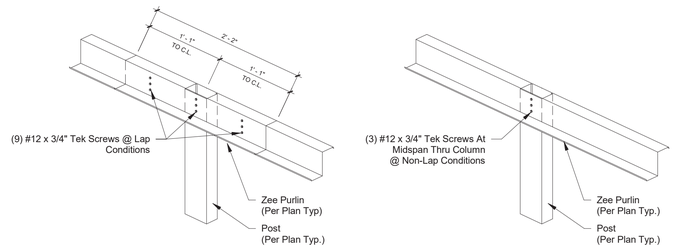
S840
Steel Details



1 Partition Wall (2 Rows Hat Bracing)
1/2" = 1'-0"

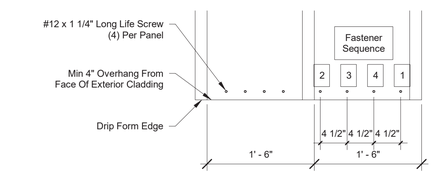


2 Pony Post to Purlin
3/4" = 1'-0"

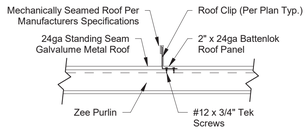


Lap Connection **Non-Lap Connection**

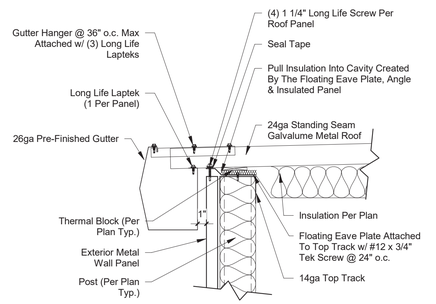
3 Purlin To Post Connection
1" = 1'-0"



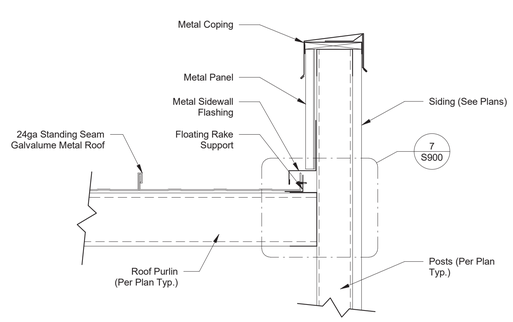
4A Roof Eave (Less than 60'-0")
1" = 1'-0"



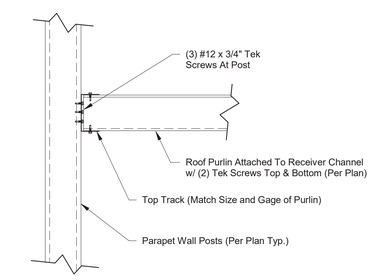
4B Roof Panel Clip - Mechanically Seamed
1" = 1'-0"



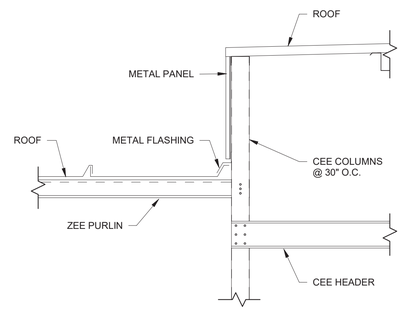
5 Low Eave Installation - Metal Wall Panels
1 1/2" = 1'-0"



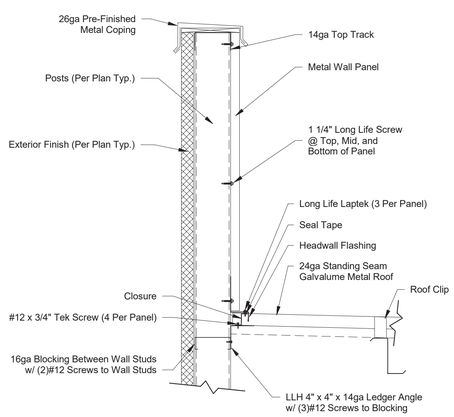
6 Parapet Framing
1 1/2" = 1'-0"



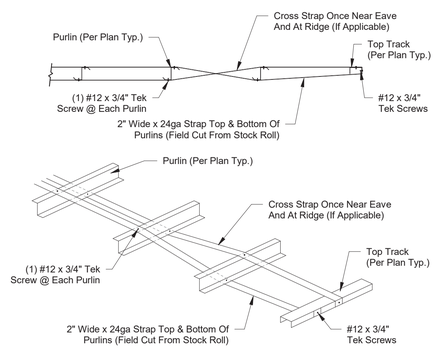
7 Purlin Connection To Parapet End Wall
1 1/2" = 1'-0"



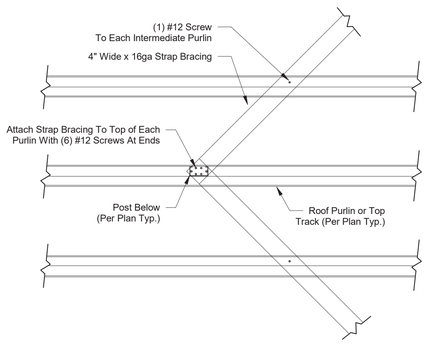
8 Roof Step
3/4" = 1'-0"



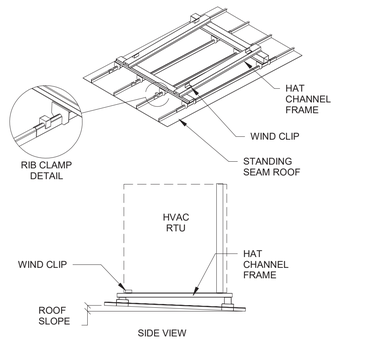
9 Parapet @ High Roof
1" = 1'-0"



10 Purlin Midbay Strapping @ Non-Structural Pier Condition
1/2" = 1'-0"



11 Roof Strap Bracing
3/4" = 1'-0"



12 HVAC ROOF SUPPORT DETAIL
1" = 1'-0"

STORAGE STRUCTURES

3807 Hwy 61
Villa Rica, Ga 30180

PHONE: 770-456-1602
TOLL FREE: 877-456-1602
FAX: 770-456-1662

www.storagestructuresinc.com

Rev. #	Revision Date	Revision Description

Robert High Development

LILLINGTON STORAGE

PHASE I - BUILDING 1

1781 N MAIN STREET
LILLINGTON, NC 27546

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 32879 ROBERT A. WARR
03/21/23

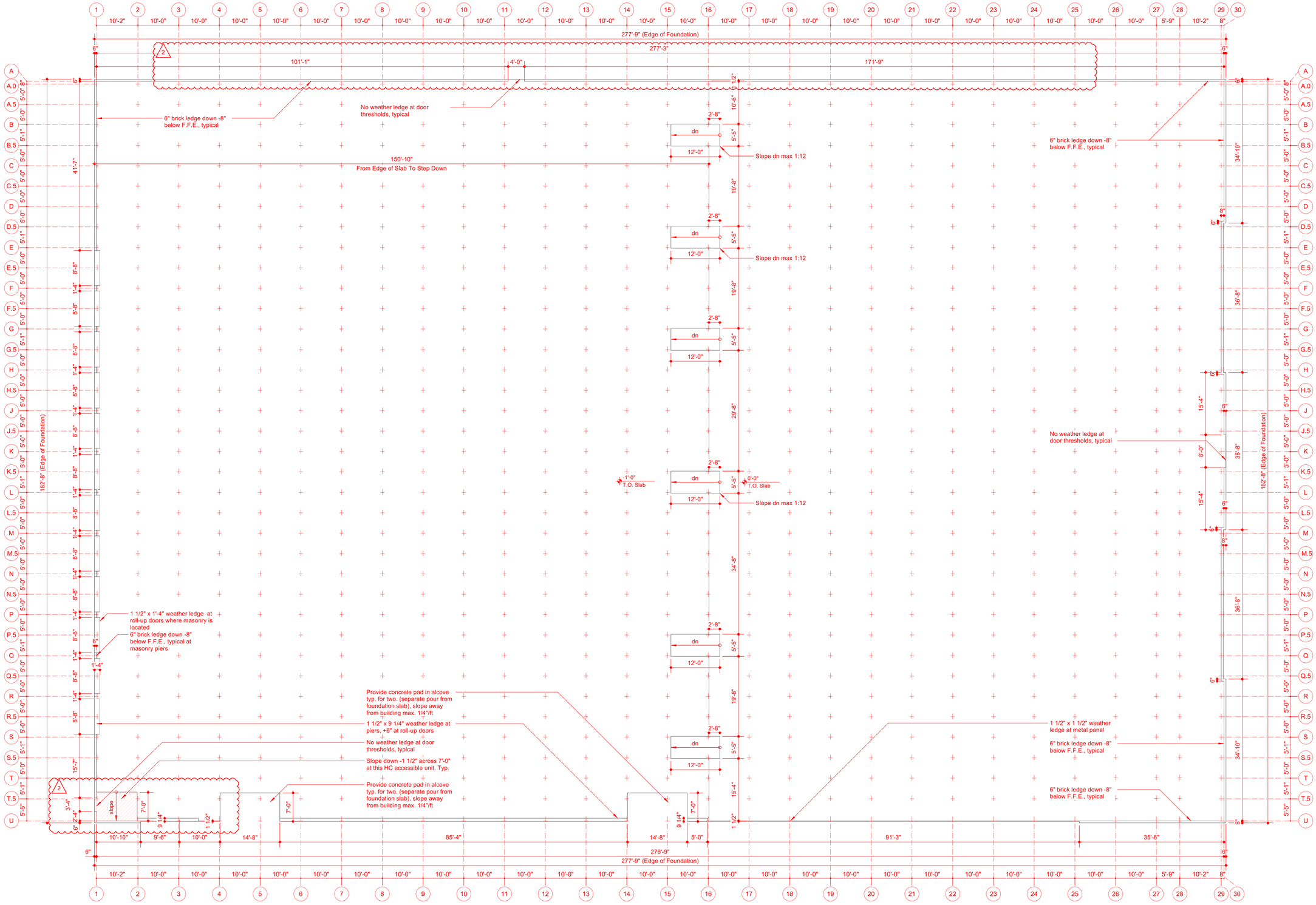
ROBERT WARR, P.E.
NC PE# 32879

Robert Warr, PE
3590 Fricks Road
Marietta, GA 30062
(678) 310-9191
rwarr@frameworksengineering.com

Project Number	FE2203556-0
Issue Date	07-14-2022
Drawn By	EM
Checked By	RW
Engineered By	AD

S900

Roofing Details



SLAB EDGE PLAN

A1.08 3/32"

PROJECT NORTH

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5725 OLEANDER DRIVE, STE E-1
WILMINGTON, NC 28403
910.793.3433

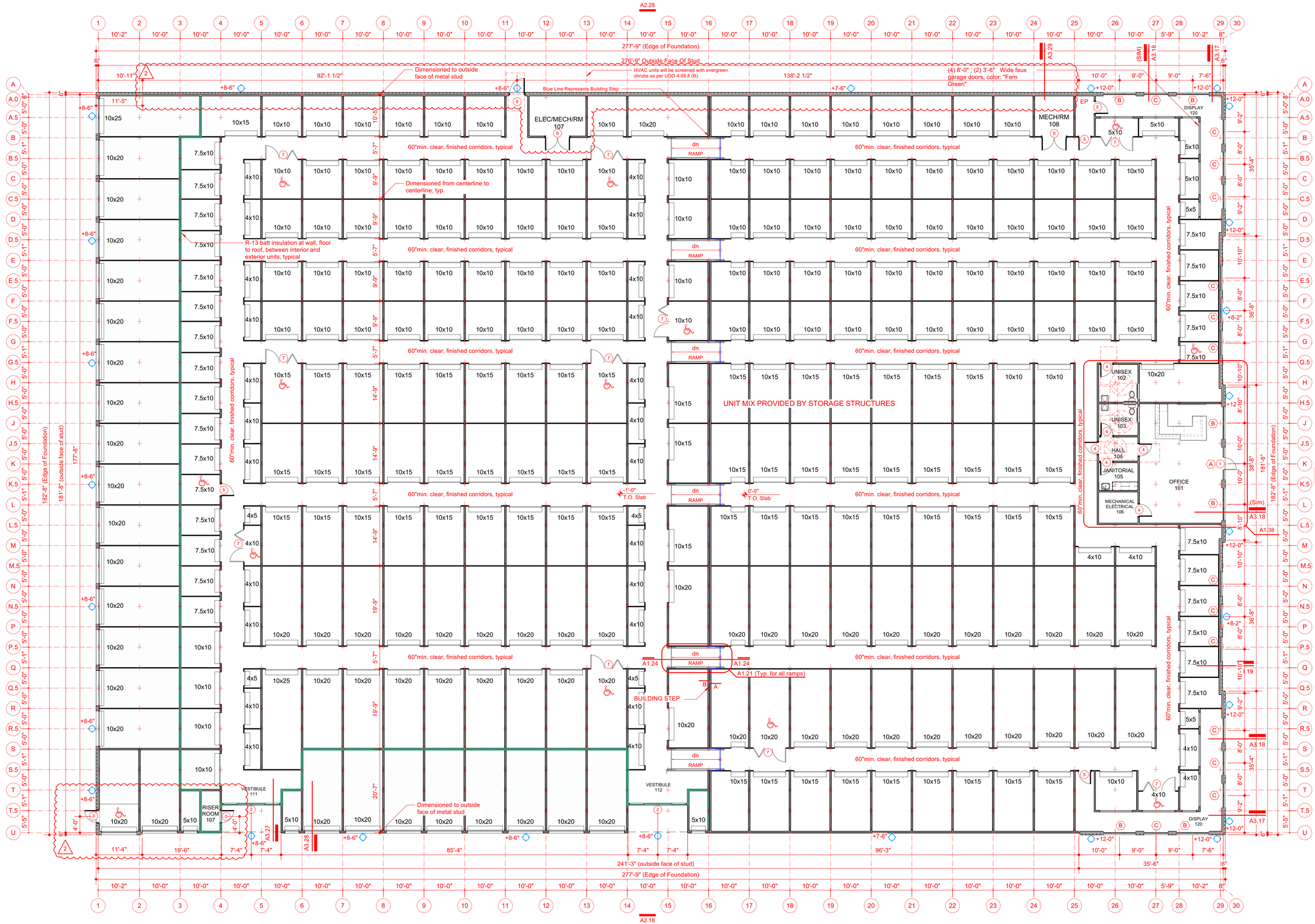
NORTH CAROLINA REGISTERED 4290 ARCHITECT 10/24/22 COTHRAN S. HARRIS

LILLINGTON STORAGE
PHASE I - BUILDING 1
ROBERT HIGH DEVELOPMENT
1781 N MAIN STREET,
LILLINGTON, NC 27546

SLAB EDGE PLAN
1 09/19/2022 Plan Check Response
2 03/07/2023 Plan Check Response

CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

A1.0



WALL LEGEND

- 2" metal stud wall
- 4" metal stud wall
- 4" metal stud wall with batt insulation
- 4" metal stud wall with brick veneer

NOTE: All exterior walls to be insulated R-13 Min. U.O.N.

FLOOR PLAN

A1.18 3/32"

PROJECT NORTH

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910.793.3433

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LILLINGTON STORAGE
PHASE I - BUILDING 1
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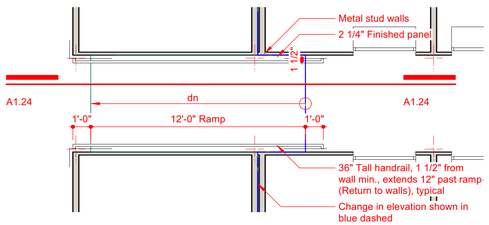
1781 N MAIN STREET,
LILLINGTON, NC 27546

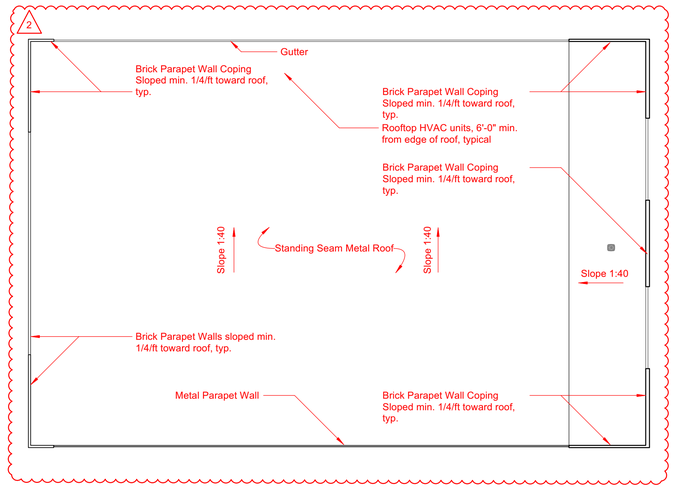
FLOOR PLAN
09/19/2022 Plan Check Response
03/07/2023 Plan Check Response
CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

A1.1



TYPICAL RAMP HANDRAIL DETAIL

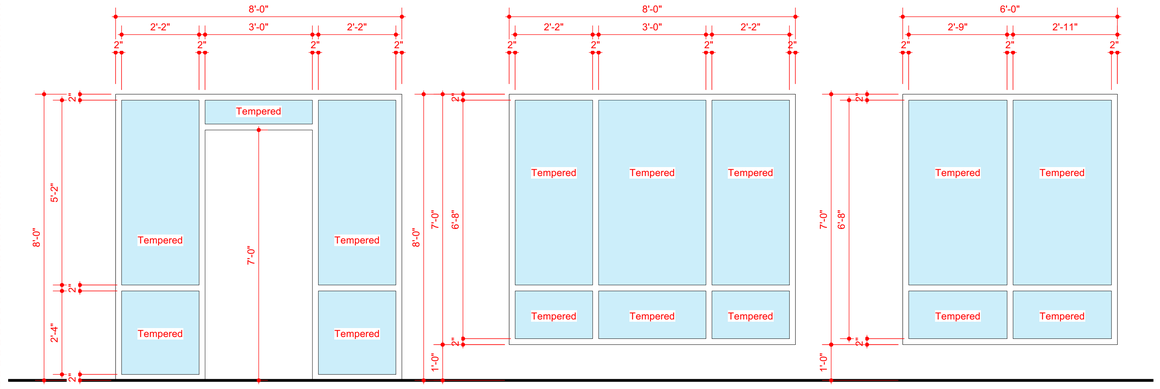
A1.21 1/4"



ROOF PLAN

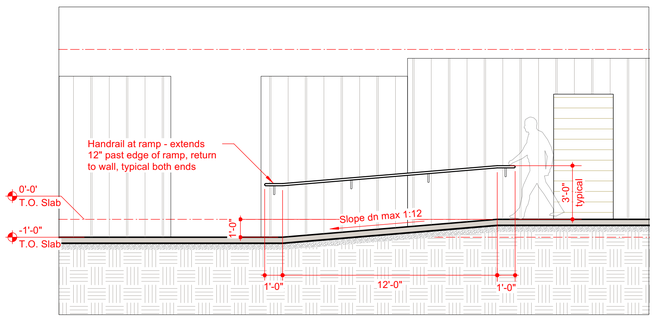
A1.22 1/32"

PROJECT NORTH



WINDOW ELEVATIONS

A1.23 1/2"



TYPICAL RAMP HANDRAIL DETAIL

A1.24 1/4"

DOOR SCHEDULE

Door					Frame		Hardware		Remarks
No.	Size	Elevation	Material	Rating	Elevation	Material	Type	Rating	
1	3'-0" x 7'-0"	1	Alum.		1	Alum.	Verify with contractor		Kawneer TriFab451 single swing door
2	14'-0" x 8'-0"	2	Alum.		2	Alum.	Verify with contractor		Gyro Tech Whisper Slide Bi-parting door. Doors to comply with NCBC 1008.1.4.2
3	3'-0" x 7'-0"	3	H.M.		3	H.M.	Verify with contractor		@ Riser room
4	3'-0" x 7'-0"	4	Wood		4	H.M.	Verify with contractor		@ Office
5	2'-6" x 7'-0"	5	S.M.		5	-	ADA lever hardware		@ HC units
6	PAIR 3'-0" x 7'-0"	6	S.M.		6	-	Verify with contractor		@ Mechanical/electrical rooms
7	(2)2'-6" x 7'-0" + 3'-0" x 7'-0"	7	S.M.		7	-	ADA lever hardware		@ HC units
8	3'-8" x 7'-0"	8	H.M.		8	H.M.	ADA lever hardware		@ Exit door

*Door and Window Note - Contractor and Glass Sub-Contractor to verify glass type, minimum U-value, & SHGC. Tempered or impact resistant requirements as required by local code.

DOOR SCHEDULE

A1.25 1/2"

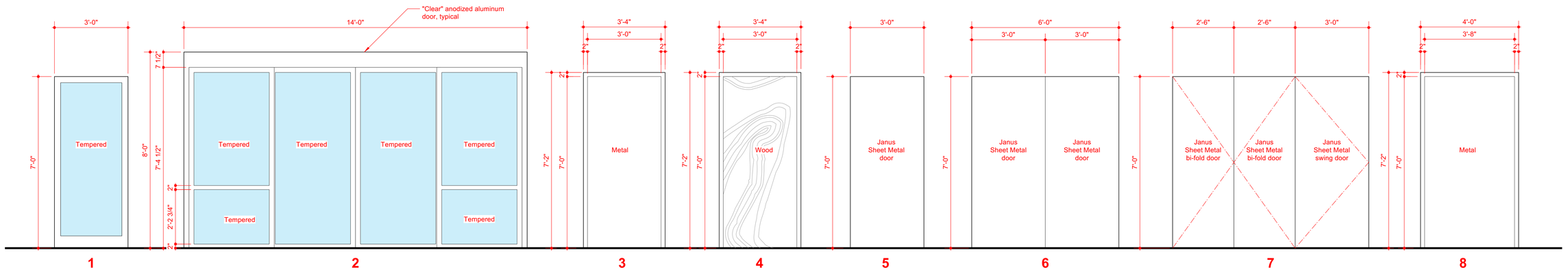
WINDOW SCHEDULE

No.	Brand	Style	Unit Size	Rough Opening	Remarks
A	Kawneer	TriFab 451	8'-0" x 8'-0"	8'-1" x 8'-1"	
B	Kawneer	TriFab 451	8'-0" x 6'-10"	8'-1" x 6'-11"	
C	Kawneer	TriFab 451	6'-0" x 6'-10"	6'-1" x 6'-11"	

*Door and Window Note - Contractor and Glass Sub-Contractor to verify glass type, minimum U-value, & SHGC. Tempered or impact resistant requirements as required by local code.

WINDOW SCHEDULE

A1.26 1/2"



DOOR ELEVATIONS

A1.28 1/2"

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NORTH CAROLINA REGISTERED 4290 ARCHITECT COTHRAN S. HARRIS

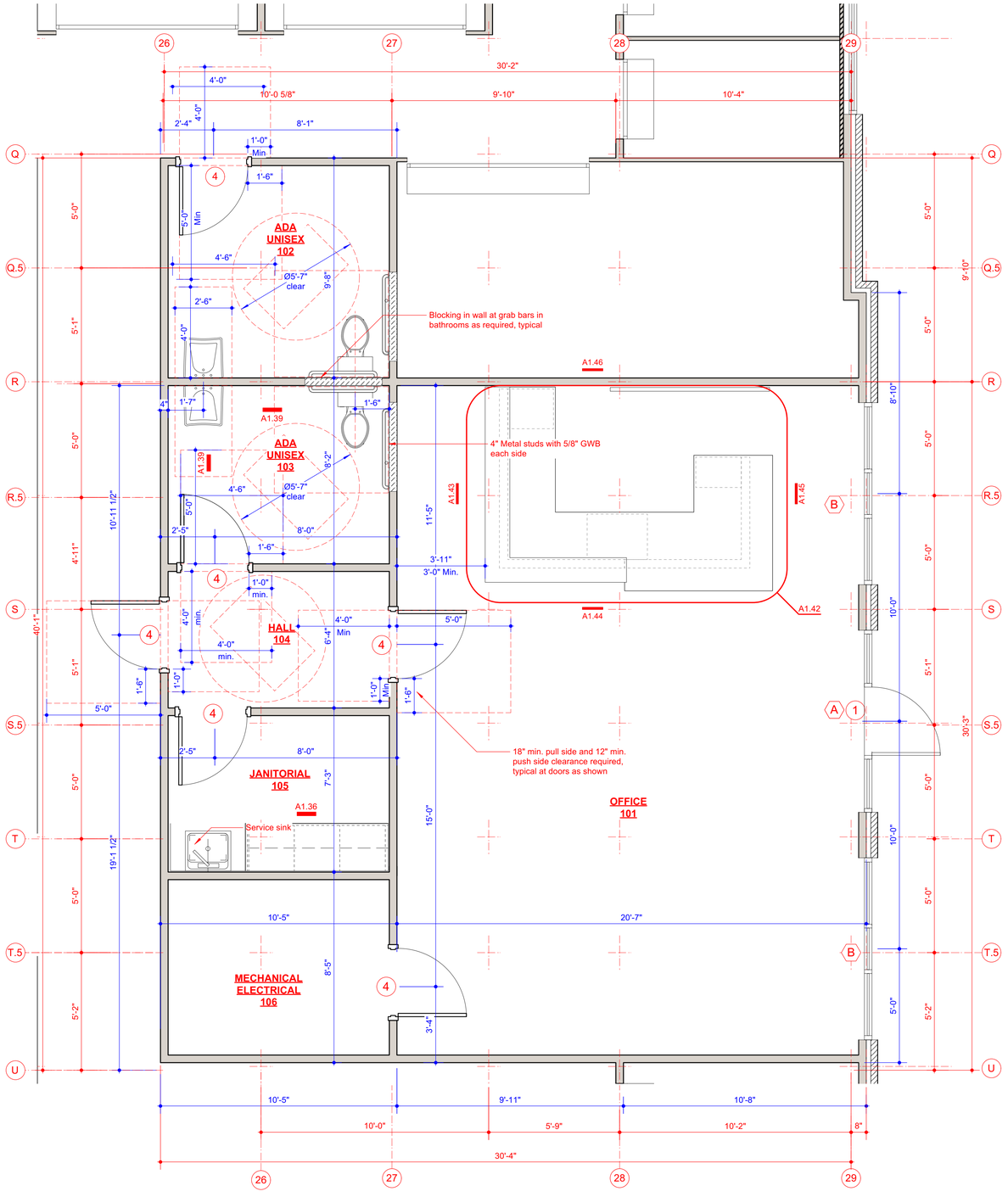
LILLINGTON STORAGE
PHASE I - BUILDING 1
ROBERT HIGH DEVELOPMENT
1781 N MAIN STREET,
LILLINGTON, NC 27546

ROOF PLAN & SCHEDULES

09/19/2022 Plan Check Response
03/07/2023 Plan Check Response

CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

A1.2



ENLARGED PLAN - OFFICE

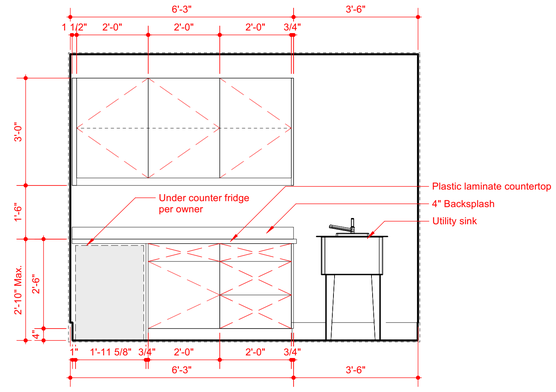
A1.38 1/2"

PROJECT NORTH

No.	FINISH SCHEDULE	FLOOR	BASE	WALLS				CEILING		
				NORTH	SOUTH	EAST	WEST	Material	Height	
101	Office	Concrete	4" Vinyl	Gyp.	Gyp.	Gyp.	Gyp.	ACT	8'-0"	
102	ADA Unisex Bath	Concrete	4" Vinyl	Gyp.	Gyp.	Gyp.	Gyp.	ACT	8'-0"	Epoxy paint (cleanable) surface @ walls
103	ADA Unisex Bath	Concrete	4" Vinyl	Gyp.	Gyp.	Gyp.	Gyp.	ACT	8'-0"	Epoxy paint (cleanable) surface @ walls
104	Hall	Concrete	4" Vinyl	Gyp.	Gyp.	Gyp.	Gyp.	ACT	8'-0"	Epoxy paint (cleanable) surface @ walls
105	Janitorial	Concrete	4" Vinyl	Gyp.	Gyp.	Gyp.	Gyp.	ACT	8'-0"	Epoxy paint (cleanable) surface @ walls
106	Mechanical	Concrete	-	Gyp.	Gyp.	Gyp.	Gyp.	-	-	Unfinished interior Mechanical and Electrical rooms, typ.

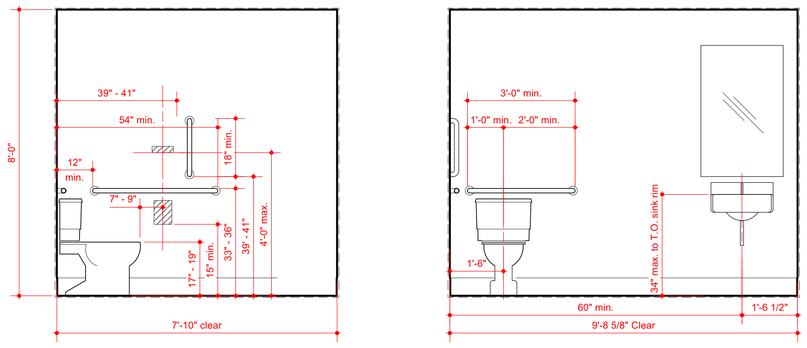
FINISH SCHEDULE

A1.33 N/A



INT.ELEVATIONS - JANITORIAL

A1.36 1/2"



INT.ELEVATIONS - UNISEX

A1.39 1/2"

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LILLINGTON STORAGE

PHASE I - BUILDING 1
ROBERT HIGH DEVELOPMENT, LLC

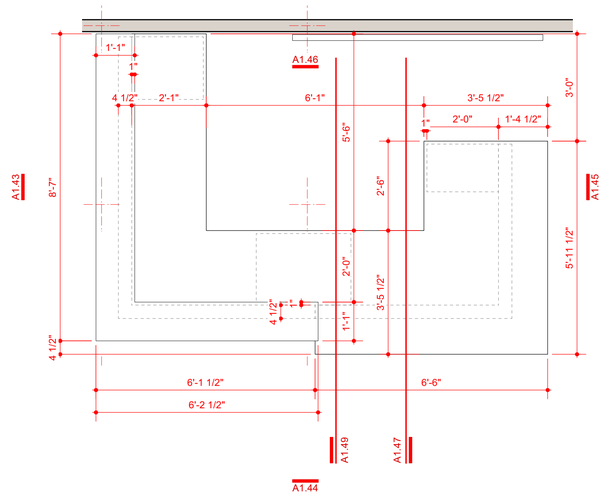
1781 N MAIN STREET,
LILLINGTON, NC 27546

ENLARGED OFFICE PLAN

1 09/19/2022 Plan Check Response

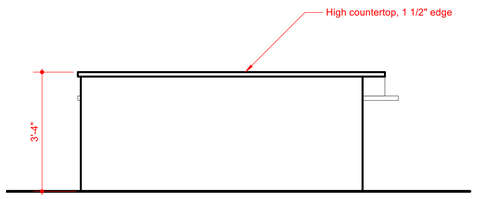
CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

A1.3



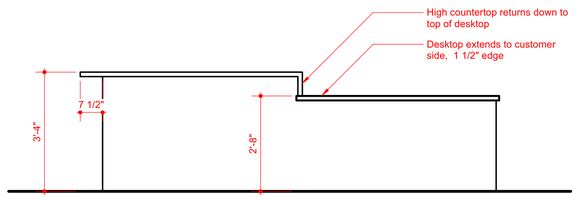
DESK PLAN

A1.42 1/2"



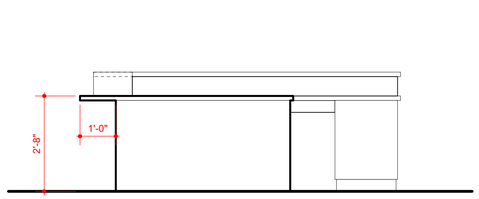
DESK CLOSED SIDE ELEVATION

A1.43 1/2"



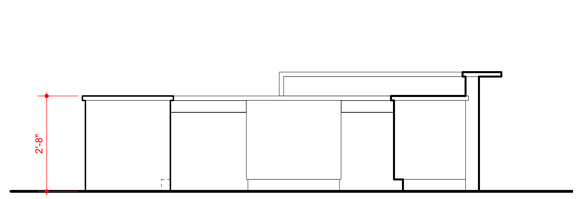
DESK FRONT ELEVATION

A1.44 1/2"



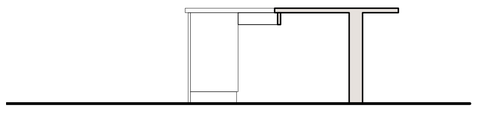
DESK OPEN SIDE ELEVATION

A1.45 1/2"



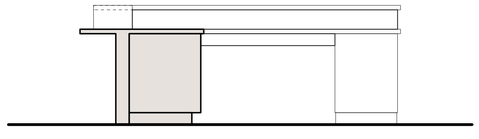
DESK INSIDE ELEVATION

A1.46 1/2"



DESK SECTION

A1.47 1/2"



DESK SECTION

A1.49 1/2"

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LILLINGTON STORAGE
PHASE I - BUILDING 1
ROBERT HIGH DEVELOPMENT
1781 N MAIN STREET,
LILLINGTON, NC 27546

DESK DETAILS

CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

A1.4

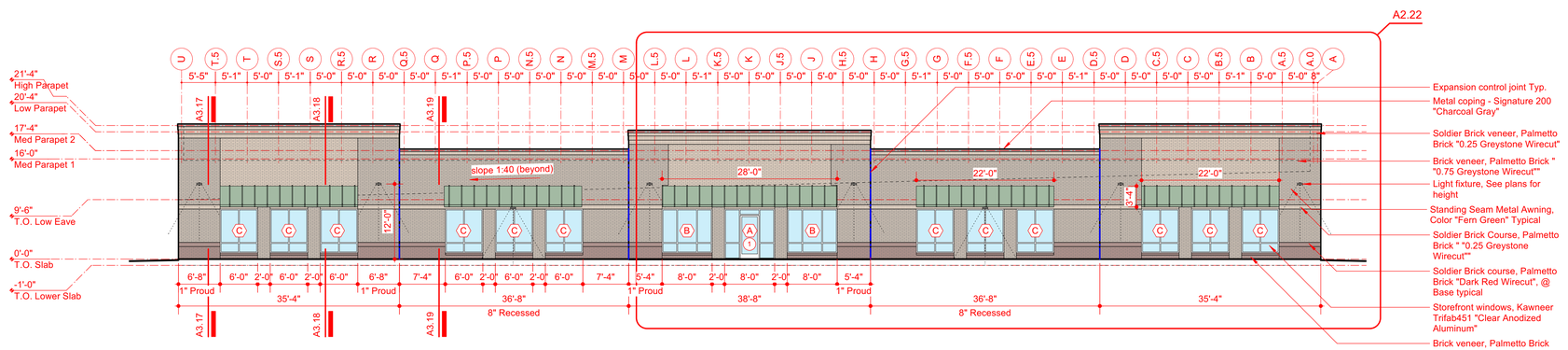
UNIT MIX CALCULATIONS				
	Unit Size	1st Flr	HC units	Comments
Interior				
	4x5	4		
	5x5	2		
	4x10	30	1	ADA compliant hardware
	5x10	4	1	ADA compliant hardware
	5x15	1		
	7.5x10	27	2	ADA compliant hardware
	10x10	104	3	ADA compliant hardware
	10x15	73	3	ADA compliant hardware
	10x20	43	2	ADA compliant hardware
	10x25	1		
Exterior				
	5x10	3		
	10x10	2		
	10x20	26	1	Elect.operable roll-up dr.
	TOTAL	320	13	
			12.4	= 10+2% units over 200

Sizes listed for individual storage units are nominal and center to center of partition walls. There may be adjustments to any such unit to allow for site constraints, structural tolerances, mechanical systems, vertical transportation and other issues encountered both during design and in the field.

5ft wide handicapped units are equipped with 3'-0" wide swing doors with ADA compliant lever hardware, typical. 10ft wide handicapped units are equipped with electronically opperated roll-up doors and 3'-0" wide swing doors with ADA compliant lever hardware, typical. In all handicapped unit locations where a swing door cannot be provided, the roll-up door must be opperable with a battery backup in case of power failure.

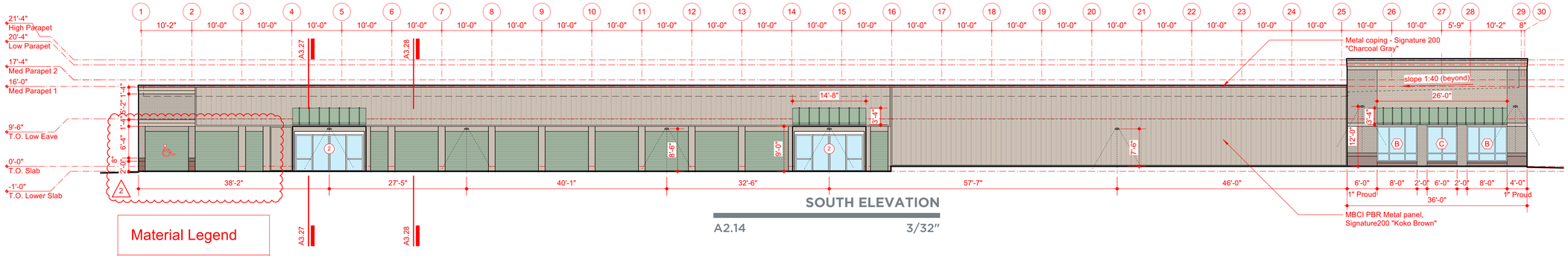
UNIT MIX CALCULATION

A1.01 N/A



EAST ELEVATION

A2.12 3/32"



SOUTH ELEVATION

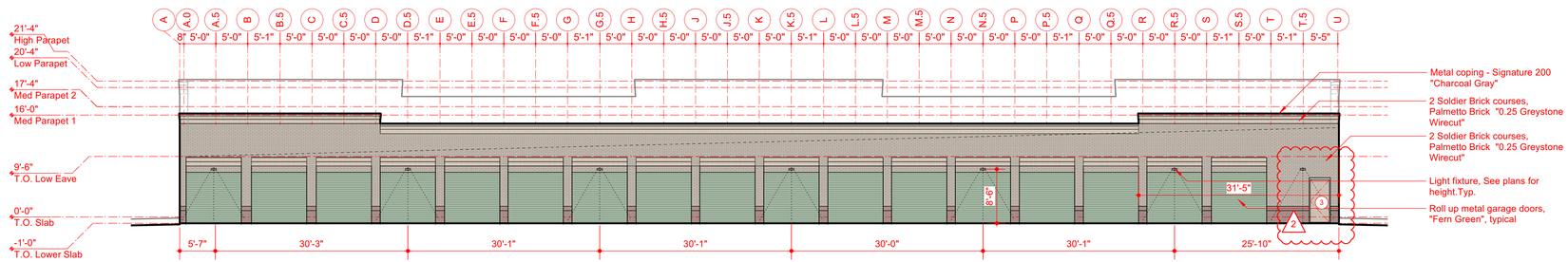
A2.14 3/32"

Material Legend

PALMETTO BRICK

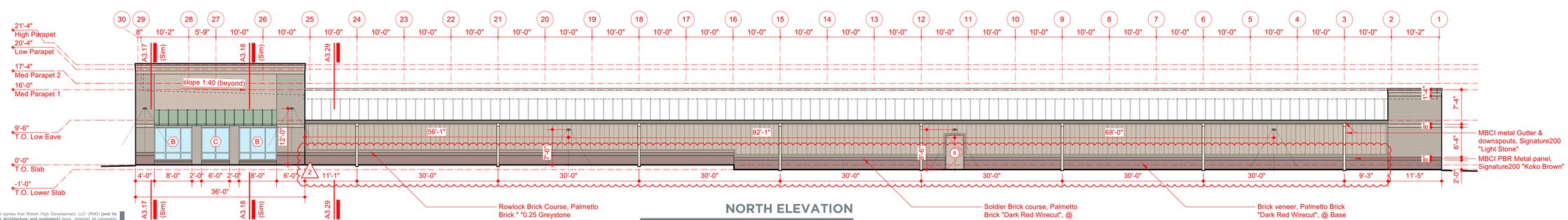
- Metal Coping - Signature 200 "Charcoal Gray"
- Metal gutter,rake & downspouts - Signature 200 "Lightstone"
- Metal Siding Signature 200 "Koko Koko Brown"
- Brick Soldier Course Palmetto Brick "0.25 Greystone wirecut"
- Palmetto Brick "0.25 Greystone wirecut"
- Brick Soldier Course & Rowlock Palmetto Brick ".75 Greystone"
- Brick Veneer - Palmetto Brick ".75 Greystone"
- Roll-up garage doors Color "Fern Green"

NOTE: Colors on elevations are shown for visual representation



WEST ELEVATION

A2.16 3/32"



NORTH ELEVATION

A2.18 3/32"

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LILLINGTON STORAGE
PHASE I - BUILDING 1
ROBERT HIGH DEVELOPMENT
1781 N MAIN STREET,
LILLINGTON, NC 27546

BUILDING ELEVATIONS
1 09/19/2022 Plan Check Response
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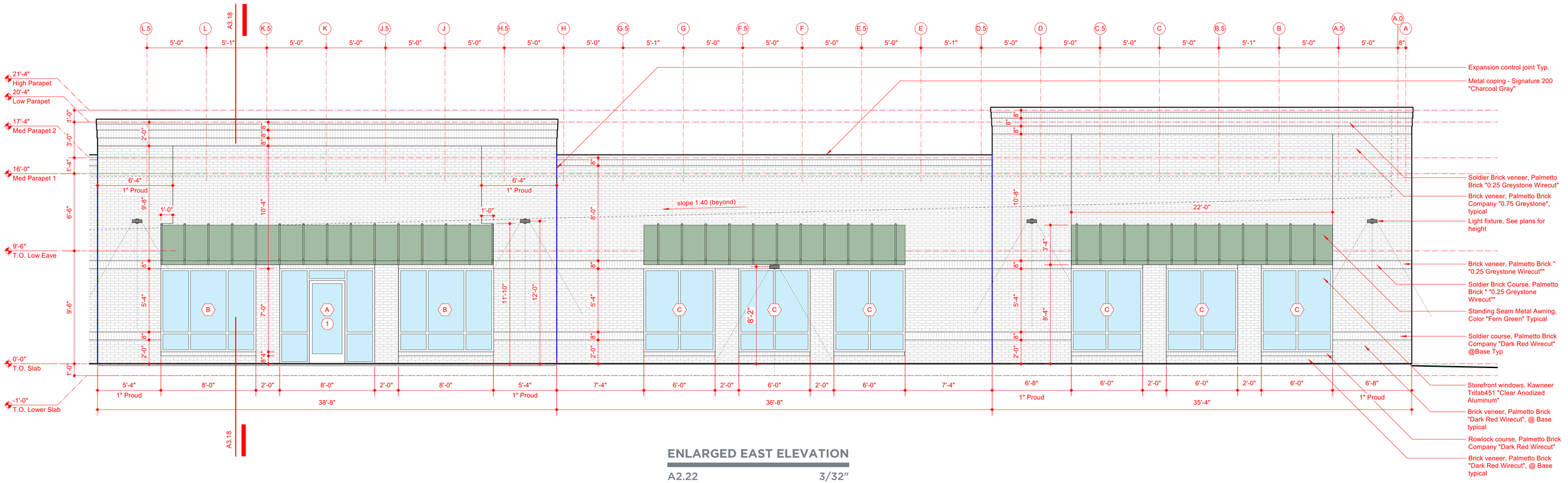
A2.1



ENLARGED EAST ELEVATION

A2.22 3/32"

PALMETTO BRICK

Material Legend

- Metal Coping - Signature 200 "Charcoal Gray"
- Metal gutter,rake & downspouts - Signature 200 "Lightstone"
- Metal Siding Signature 200 "Koko Koko Brown"
- Brick Soldier Course Palmetto Brick "0.25 Greystone wirecut"
- Palmetto Brick "0.25 Greystone wirecut"
- Brick Soldier Course & Rowlock Palmetto Brick ".75 Greystone"
- Brick Veneer - Palmetto Brick ".75 Greystone"
- Roll-up garage doors Signature 200 "Ash Gray"

NOTE: Colors on elevations are shown for visual representation

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LILLINGTON STORAGE
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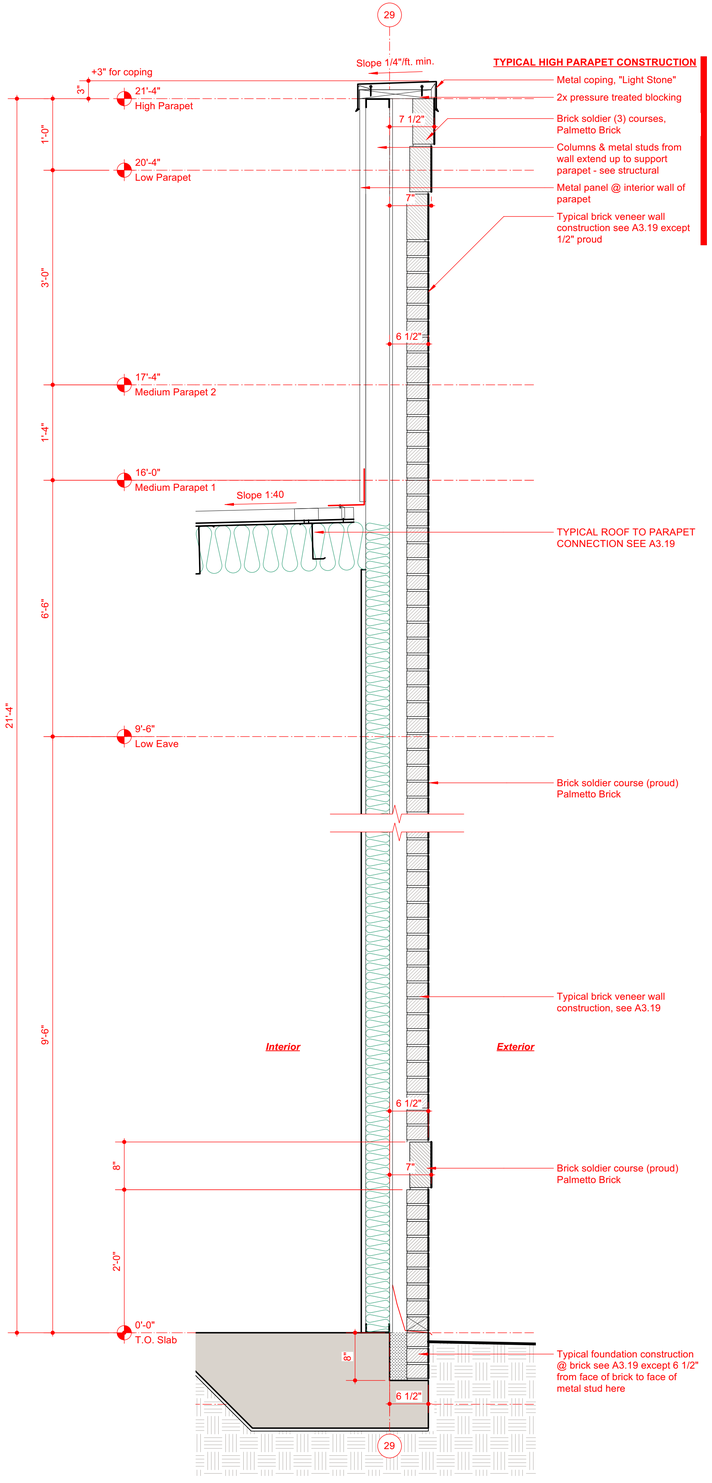
LILLINGTON, NC 27546

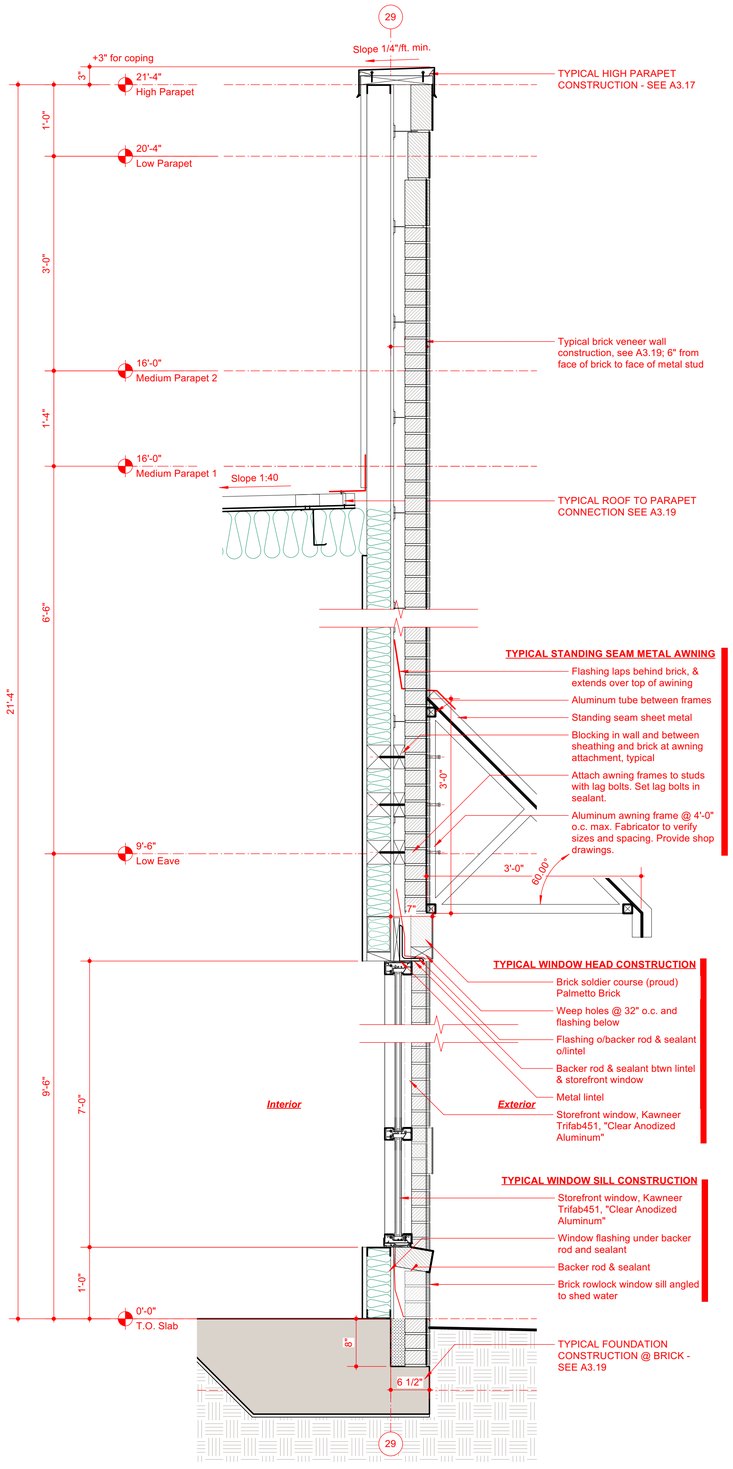
ENLARGED ELEVATION
1 09/19/2022 Plan Check Response
CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

A2.2



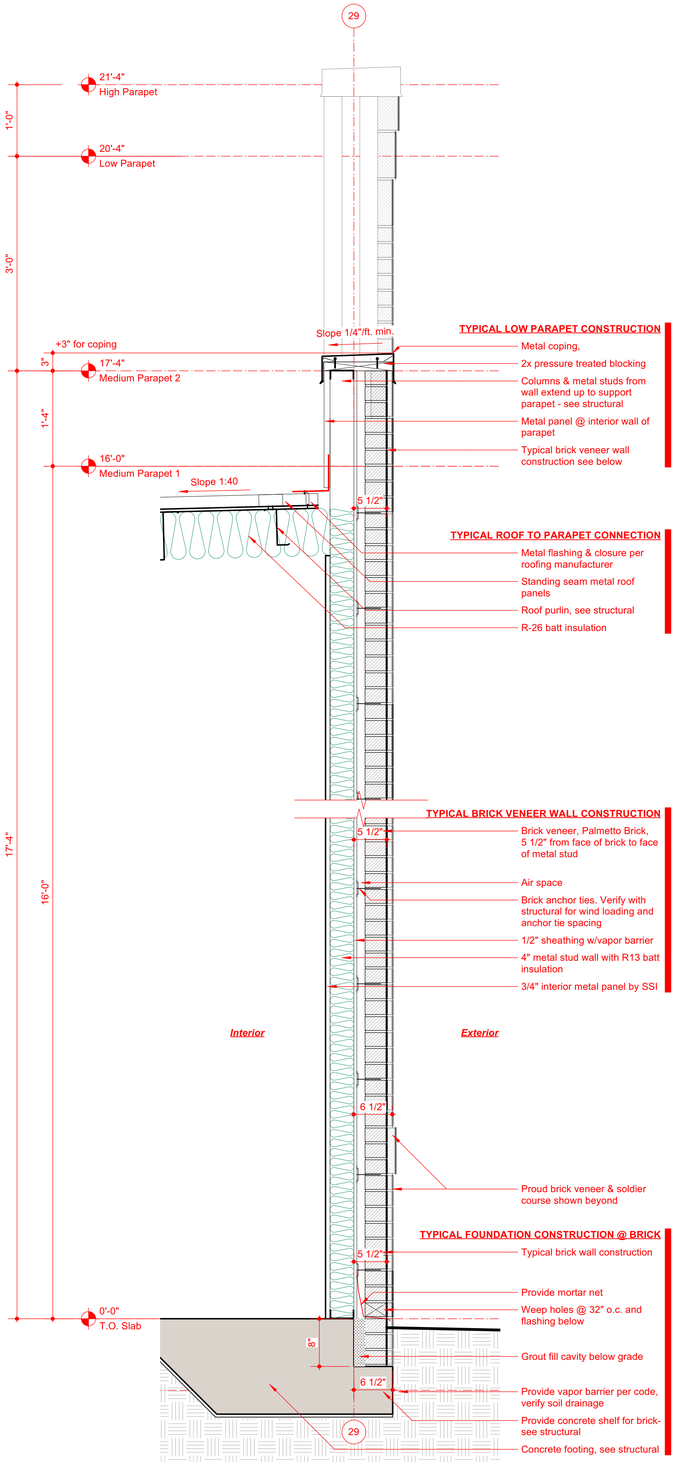
WALL SECTION HIGH PARAPET

A3.17 1″



STOREFRONT & AWNING

A3.18 1″



WALL SECTION MED. PARAPET

A3.19 1″

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LILLINGTON STORAGE
PHASE I - BUILDING 1
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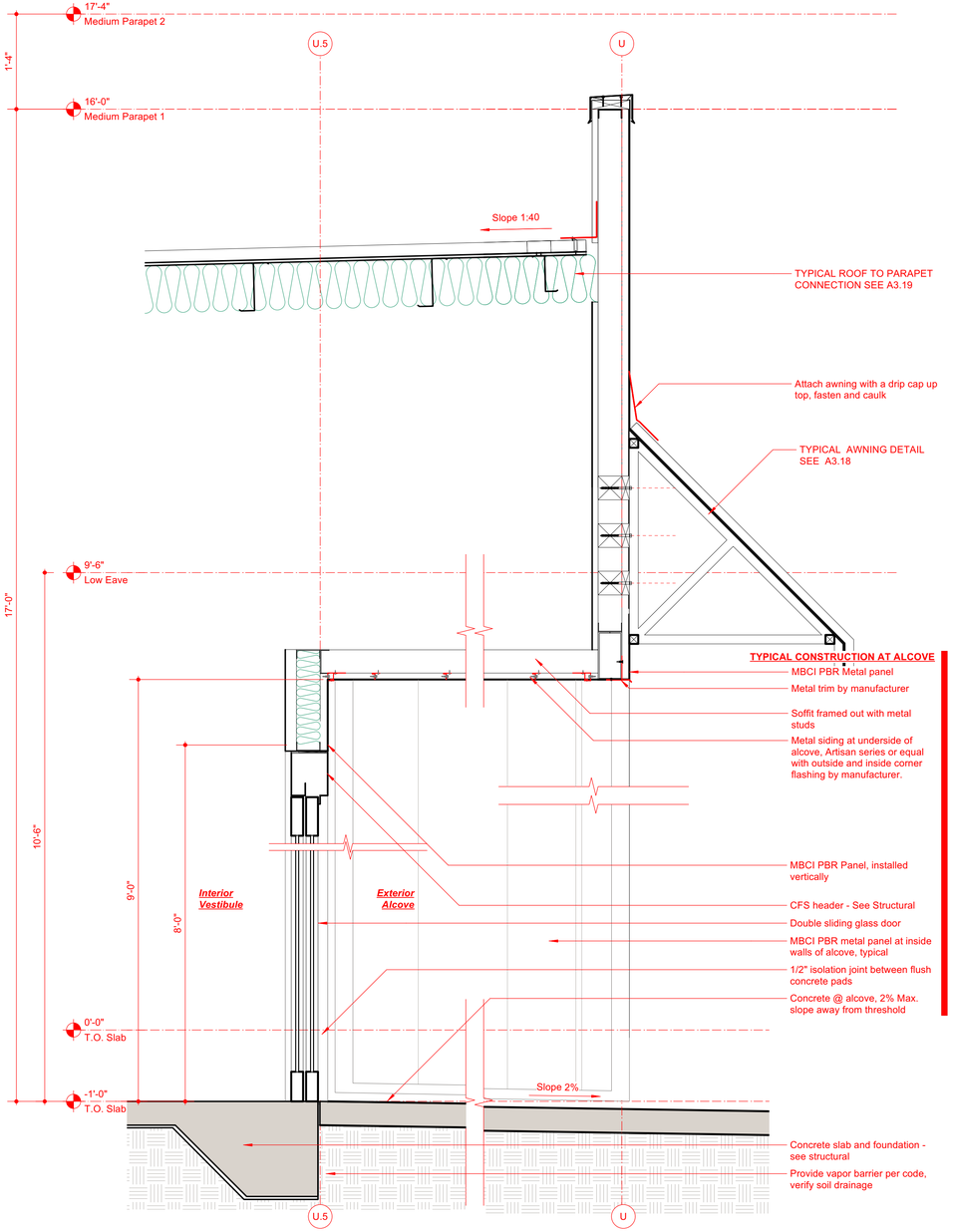
1781 N MAIN STREET,
LILLINGTON, NC 27546

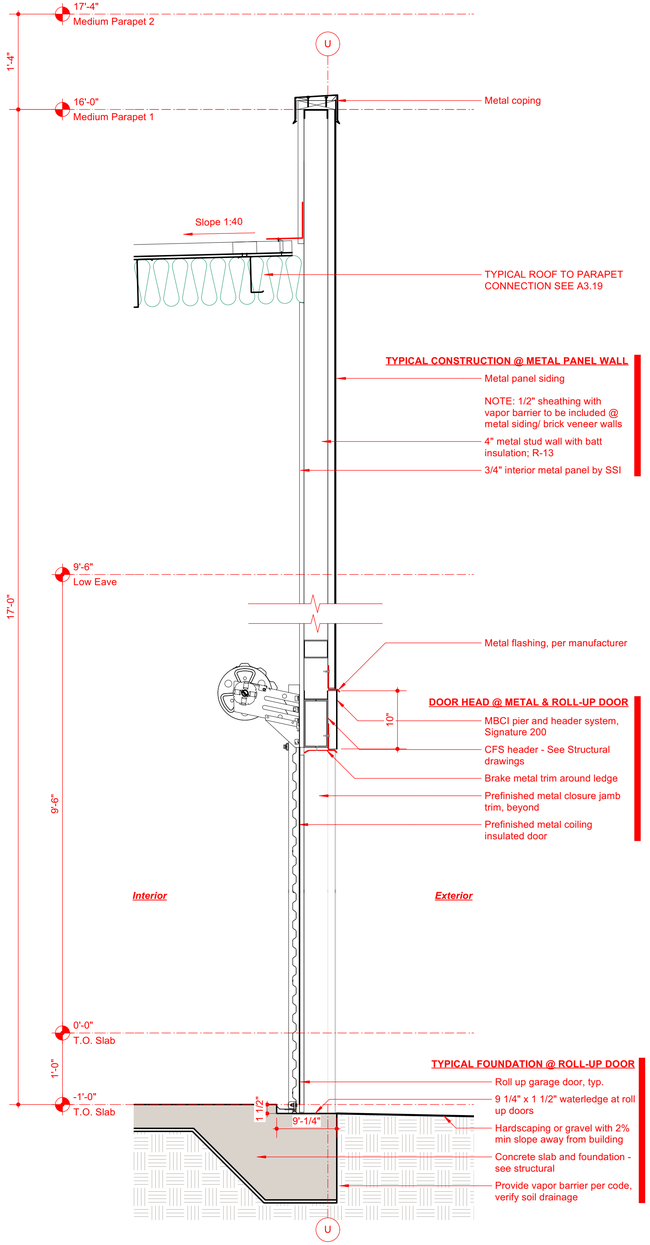
WALL SECTIONS
08/19/2022 Plan Check Response
CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

A3.1



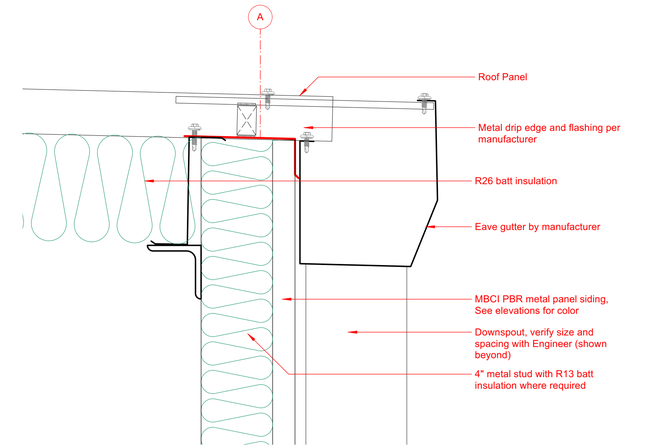
LOADING VESTIBULE / ALCOVE

A3.27 1"



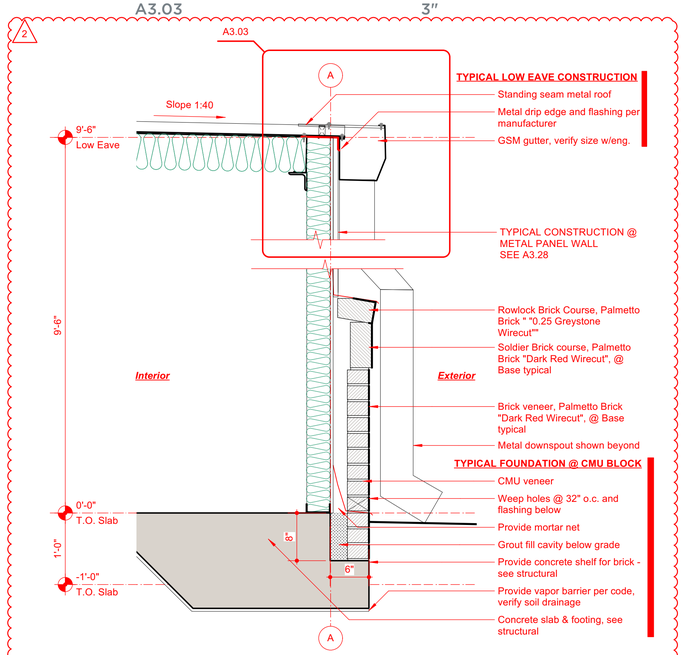
FOUNDATION @ ROLL-UP DOOR/LOW PARAPET

A3.28 1"



DETAIL

A3.03 3"



FOUNDATION @ METAL WALL / LOW EAVE

A3.29 1"

COTHRAN HARRIS ARCHITECTURE
5725 OLEANDER DRIVE, STE E-1
WILMINGTON, NC 28403
910.793.3433

NORTH CAROLINA REGISTERED 4290 ARCHITECT COTHRAN S. HARRIS 12 OCT 22

LILLINGTON STORAGE
PHASE I - BUILDING 1
ROBERT HIGH DEVELOPMENT
1781 N MAIN STREET,
LILLINGTON, NC 27546

WALL SECTIONS

2 03/07/2023 Plan Check Response

CONSTRUCTION DRAWINGS
OCTOBER 12, 2022

A3.2

PLUMBING ABBREVIATIONS

(X)	EXISTING
AAV	AIR ADMITTANCE VALVE
A.F.F.	ABOVE FINISHED FLOOR
A.R.C.I.	ACID RESISTANT CAST IRON
ADA	AMERICANS WITH DISABILITIES ACT
BRZ.	BRONZE
BT	BATHTUB
C.I.	CAST IRON
CO	CLEANOUT
CONC.	CONCRETE
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DIA.	DIAMETER
E.C.I.	ENAMELED CAST IRON
EC	ELECTRICAL CONTRACTOR
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FS	FLOOR SINK
GA.	GAUGE
GAL.	GALLON
GC	GENERAL CONTRACTOR
GCO	GRADE CLEANOUT
GPF	GALLONS PER FLUSH
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GWH	GAS-FIRED WATER HEATER
HB	HOSE BIBB
INCL.	INCLUDED
KS	KITCHEN SINK
LAV	LAVATORY
LP	LIQUID PROPANE
MS	MOP SERVICE BASIN
NAT.	NATURAL GAS
NKL.	NICKEL
NON SIMULT.	NON SIMULTANEOUS
O.F.L.C.	OPEN FRONT LESS COVER
OB	OUTLET BOX
OC	ON CENTER
ORDL	OVERFLOW ROOF DRAIN LEADER
PC	PLUMBING CONTRACTOR
PRESS. BAL.	PRESSURE BALANCED
RCVY.	RECOVERY
RDL	ROOF DRAIN LEADER
SA	WATER HAMMER ARRESTOR
SH	SHOWER
SK	SINK
SLD.	SLIDE
SS	STAINLESS STEEL
TDH	TOTAL DYNAMIC HEAD
UR	URINAL
V	VENT
VB	VACUUM BREAKER
VC	VITREOUS CHINA
VR	VANDAL RESISTANT
VTR	VENT THROUGH ROOF
W	WASTE
WC	WATER CLOSET
WCO	WALL CLEANOUT
WH	WALL HYDRANT

NOTE: NOT ALL ITEMS LISTED MAY BE USED IN THIS PROJECT.

PLUMBING LEGEND

C C	CONDENSATE PIPING
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER CIRCULATION PIPING
	DOMESTIC HOT WATER PIPING
FM	FORCE MAIN PIPING
	SANITARY VENT PIPING
	SANITARY WASTE PIPING
	STORM WATER PIPING
	BACKFLOW PREVENTION DEVICE
	BALL VALVE
	CHECK VALVE
	EXTENT OF DEMOLITION
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FS	FLOOR SINK
	GATE VALVE
	GATE VALVE IN RISER
GCO	GRADE CLEANOUT
HB	HOSE BIBB
	PIPE CAP
	PIPE ELBOW
	PIPE ELBOW DOWN
	PIPE ELBOW UP
	PIPE TEE
	PIPE TEE DOWN
	PIPE TEE UP
SP FM	SUMP PUMP
1	DEMOLITION TAG
1	KEYED NOTE
	POINT OF CONNECTION - NEW TO EXISTING
	PRESSURE REDUCING VALVE
WCO	WALL CLEANOUT
WH	WALL HYDRANT
SA	WATER HAMMER ARRESTOR

NOTE: NOT ALL ITEMS LISTED MAY BE USED IN THIS PROJECT.

PLUMBING LOADS

WASTE (DRAINAGE FIXTURE UNITS)	12
WATER	17.5 GPM

PLUMBING SPECIFICATIONS

PART 1 -- GENERAL

1.1 SCOPE OF WORK: THESE OUTLINE SPECIFICATIONS AND ACCOMPANYING DRAWINGS DESCRIBE SCOPE OF WORK REQUIRED FOR PLUMBING SYSTEMS. LABOR AND MATERIAL SHALL BE PROVIDED AS REQUIRED FOR A COMPLETE, WORKMANLIKE INSTALLATION OF ALL SYSTEMS SHOWN ON DIAGRAMMATIC DRAWINGS AND/OR AS SPECIFIED HEREIN.

1.2 CONTRACTOR: THE WORD "CONTRACTOR", "PLUMBING CONTRACTOR", AND "P.C." AS USED HEREIN SHALL MEAN THE PLUMBING INSTALLER UNLESS OTHERWISE QUALIFIED.

1.3 DRAWINGS: DRAWINGS ARE DIAGRAMMATIC AND MAY NOT COMPLETELY DESCRIBE EVERY DETAIL OF THE INSTALLATION. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR FURNISHING COMPLETE SYSTEMS INCLUDING ALL REQUIRED EQUIPMENT AND ACCESSORIES TO OBTAIN FULLY FUNCTIONING PLUMBING SYSTEMS.

1.4 CODE COMPLIANCE: COMPLY WITH THE LATEST EDITIONS OF THE FOLLOWING STANDARDS AND CODES, INSOFAR AS THEY APPLY:

NORTH CAROLINA STATE BUILDING CODE (CODE), LATEST EDITION AND REVISIONS.

LOCAL JURISDICTION REQUIREMENTS.

1.5 PERMITS AND INSPECTIONS: OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC., REQUIRED FOR THE WORK AND PAY FOR SAME. FURNISH A FINAL CERTIFICATE OF INSPECTION AND APPROVAL FROM THE AUTHORITY HAVING JURISDICTION PRIOR TO ACCEPTANCE OF THE WORK.

1.6 SUPERVISION: PROVIDE SKILLED SUPERINTENDENTS TO SUPERVISE THE WORK FROM THE BEGINNING TO COMPLETION AND FINAL INSPECTION.

1.7 PROGRESS OF WORK: PERFORM WORK IN ACCORDANCE WITH SCHEDULE AND REQUIREMENTS OF THE GENERAL CONTRACTOR. UNDER NO CIRCUMSTANCES SHALL THIS CONTRACTOR DELAY THE OVERALL PROJECT SCHEDULE.

1.8 COORDINATION: COORDINATE PLUMBING WORK WITH THE WORK OF OTHER TRADES. LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE UNLESS SPECIFICALLY DIMENSIONED. ARRANGE PLUMBING SO AS NOT TO INTERFERE WITH THE WORK OF OTHER TRADES. VERIFY ACTUAL BUILDING STRUCTURE PRIOR TO PIPE FABRICATION AND ADJUST LAYOUT AS REQUIRED. INCLUDE ALL OFFSETS IN PIPING, FITTINGS, ETC. AS REQUIRED TO PROPERLY INSTALL EQUIPMENT.

1.9 EQUIPMENT LOCATIONS: DETERMINE EXACT EQUIPMENT AND MATERIALS LOCATIONS TO PROVIDE BEST ARRANGEMENT AND TO FACILITATE PROPER MAINTENANCE AND SERVICING OF EQUIPMENT.

1.10 LISTING AND LABELING: ALL EQUIPMENT SHALL BE LABELED OR LISTED BY UL OR OTHER APPROVED TESTING AGENCY WHERE REQUIRED.

1.11 STORAGE SPACE: CONSULT WITH THE GENERAL CONTRACTOR REGARDING JOB SITE STORAGE FOR PLUMBING MATERIALS TO BE INSTALLED UNDER THIS PROJECT. STORAGE SPACE MUST BE SECURED AND CONTRACTOR'S REPRESENTATIVE MUST BE ON JOB BEFORE ANY MATERIAL MAY BE RECEIVED.

1.12 CLEANUP: REMOVE ALL DEBRIS GENERATED IN THE ACCOMPLISHMENT OF WORK UNDER THIS PROJECT. CLEAN, REPLACE OR REPAIR ALL SURFACES SOILED OR DAMAGED DURING THE COURSE OF THE WORK. REMOVE DEBRIS DAILY SO TO MAINTAIN SAFE WORKING CONDITIONS.

1.13 ELECTRICAL WORK:

A. PERFORM ELECTRICAL WORK FOR PLUMBING EQUIPMENT IN COMPLIANCE WITH PROJECT ELECTRICAL REQUIREMENTS. ELECTRICAL WORK FOR PLUMBING EQUIPMENT NOT SPECIFICALLY INDICATED TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR IN THE ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT SHALL BE FURNISHED BY THE PLUMBING CONTRACTOR AS PART OF HIS WORK.

B. ELECTRICAL DRAWINGS ARE BASED ON ELECTRICAL CHARACTERISTICS INDICATED IN DRAWING PLUMBING EQUIPMENT SCHEDULES. ANY EQUIPMENT FURNISHED BY THE PLUMBING CONTRACTOR WHICH DOES NOT MATCH THE ELECTRICAL CHARACTERISTICS INDICATED IN THE DRAWING SCHEDULES SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR. ANY ADDITIONAL COSTS FOR ELECTRICAL INSTALLATION REQUIRED FOR EQUIPMENT NOT MATCHING THE DRAWING SCHEDULES SHALL BE BORNE BY THE PLUMBING CONTRACTOR.

1.14 PLUMBING WORK IN CONNECTION WITH OTHER CONTRACTS

A. PROVIDE PLUMBING SERVICES AS REQUIRED FOR ITEMS FURNISHED BY OTHER CONTRACTORS OR VENDORS AS SHOWN ON THE PLUMBING DRAWINGS. INCLUDE ROUGH-INS AND FINAL CONNECTIONS TO EQUIPMENT. LOCATIONS OF CONNECTIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SOME ADJUSTMENT OF ACTUAL CONNECTION LOCATIONS SHOULD BE ANTICIPATED. COORDINATE EXACT CONNECTION REQUIREMENTS. MAKE FINAL CONNECTIONS ONLY AFTER APPROVAL OF THE OTHER CONTRACTOR OR VENDOR, IN THE CONTRACTOR'S OR VENDOR'S PRESENCE.

B. SITE UTILITIES- IN GENERAL, WORK UNDER THIS DIVISION COVERS WORK TO FIVE FEET OUTSIDE BUILDINGS. EXTEND AND CONNECT WORK UNDER THIS DIVISION TO SITE UTILITIES AS REQUIRED.

C. OWNER FURNISHED EQUIPMENT- OBTAIN EXACT PLUMBING REQUIREMENTS AND ROUGH-IN LOCATIONS FOR OWNER FURNISHED EQUIPMENT. PROVIDE COMPLETE PLUMBING INSTALLATION FOR PROPER OPERATION OF EQUIPMENT.

1.15 SUBSTITUTIONS: MAJOR FIXTURES, EQUIPMENT, DEVICES, AND SPECIALTIES SHALL BE AS SCHEDULED ON THE DRAWINGS. MANUFACTURERS SHOWN OR NOTED ARE INTENDED FOR REFERENCE AS TO THE QUALITY AND TYPE OF EQUIPMENT DESIRED. COMPARABLE FIXTURES BY OTHER MANUFACTURERS MAY BE ACCEPTED IF, IN THE OPINION OF THE ENGINEER, THE LEVEL OF QUALITY IS EQUIVALENT TO SCHEDULED FIXTURES.

1.16 SUBMITTALS:

A. EQUIPMENT SUBMITTALS: SUBMIT ONE (1) ELECTRONIC COPY OF DESCRIPTIVE DATA FOR PLUMBING EQUIPMENT AND MATERIALS FOR APPROVAL BY THE GENERAL CONTRACTOR. CLEARLY IDENTIFY ALL ITEMS.

B. OPERATING AND MAINTENANCE MANUALS: SUBMIT TWO COPIES OF COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT, INCLUDING NECESSARY CUT SHEETS, CHARTS, WRITTEN INSTRUCTIONS, WIRING DIAGRAMS, FINAL RECORD DRAWINGS, ETC. BIND IN SUITABLE HARD BACK RING BINDERS, PROPERLY INDEXED, AND DELIVER TO THE OWNER PRIOR TO BUILDING OCCUPANCY. IN ADDITION, AFFIX A FOLDER WITH TYPICAL "OWNER'S INSTRUCTIONS" AND "MAINTENANCE INFORMATION" INSIDE THE MECHANICAL EQUIPMENT AS APPLICABLE. THE FOLDER SHALL ALSO INCLUDE A COMPLETE STARTUP LOG FOR THE EQUIPMENT.

1.17 RECORD DRAWINGS: MAINTAIN ONE SET OF "RED-LINED" RECORD DRAWINGS ON SITE AT ALL TIMES AND PROVIDE DRAWINGS TO GENERAL CONTRACTOR PRIOR TO FINAL INSPECTION.

1.18 WARRANTY: WARRANTY THE MATERIALS AND WORKMANSHIP COVERED BY THESE DRAWINGS AND SPECIFICATIONS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. REPAIR AND/OR REPLACE ANY PARTS OF THE WORK THAT MAY PROVE TO BE DEFECTIVE AT NO ADDITIONAL COST TO THE OWNER WITHIN THE WARRANTY PERIOD.

1.19 NEW BUILDINGS AND CONSTRUCTION:

A. WORK UNDER THIS CONTRACT IS TO BE PERFORMED IN A NEW BUILDING. BUILDING LAYOUT INDICATED IS DEVELOPED FROM ARCHITECTURAL PLANS AND LIMITED COORDINATION FOR THE PURPOSES OF DESCRIBING THE WORK. VERIFY ALL EXISTING CONDITIONS AND ADJUST WORK AS REQUIRED TO SUIT ACTUAL FIELD CONDITIONS.

B. PERFORM ALL WORK IN ACCORDANCE WITH SAFETY REGULATIONS.

C. DO NOT CUT ANY STRUCTURAL MEMBERS WITHOUT EXPRESS WRITTEN INSTRUCTIONS FROM GENERAL CONTRACTOR. PROVIDE CUTTING AND PATCHING FOR EXISTING FINISHES AS REQUIRED.

D. COORDINATE INSTALLATION OF PLUMBING SYSTEMS WITH OTHER BUILDING SYSTEMS. ADJUST ARRANGEMENTS AS REQUIRED TO ACCOMMODATE INTERFERENCES.

PART 2 -- MATERIALS

2.1 GENERAL: ALL PLUMBING MATERIALS SHALL CONFORM TO APPLICABLE CODE REQUIREMENTS. [USE PIPING MATERIALS AND METHODS SUITABLE FOR USE IN RETURN AIR PLENUMS AS APPLICABLE.] UNLESS SPECIFICALLY INDICATED OTHERWISE, PROVIDE ALL NEW MATERIALS.

2.2 VALVES:

A. BALL VALVES, 3" AND SMALLER: ASTM B 62, 200 PSI WOG, TWO-PIECE CONSTRUCTION, BRASS BODY, STANDARD PORT, CHROME-PLATED BRASS BALL, REPLACEABLE "TFE" SEATS AND SEALS, VINYL-COVERED HANDLE, SOLDER ENDS.

B. CHECK VALVES, 3" AND SMALLER: MSS-SP-80, 125 PSI CWP, BRONZE BODY, Y-PATTERN, SOLDER ENDS.

2.3 HANGERS, SUPPORTS AND ANCHORS:

A. HANGERS, SUPPORTS AND ANCHORS - B-LINE, GRINNELL, PHD OR EQUAL, MANUFACTURED PRODUCTS. USE CLEVIS OR CLAMP HANGERS WITH THREADED ROD SUPPORTS AND SUITABLE FASTENERS TO BUILDING STRUCTURE. CHAIN, STRAP, PERFORATED STRAP, WIRE HANGERS OR WOOD PLUGS ARE PROHIBITED.

2.4 PIPING

A. DOMESTIC WATER PIPING (INTERIOR - ABOVE GROUND, UNDERGROUND): ASTM F441/F441M, CPVC, SCHEDULE 40; CPVC SCHEDULE 40 SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.

B. DRAIN, WASTE & VENT PIPING: ASTM D2665 PVC-DWV W/ PLAIN ENDS, SCHEDULE 40; SOCKET TYPE FITTINGS; PVC SOLVENT-CEMENTED JOINTS (COMBINATION SOLVENT CEMENTS ARE UNACCEPTABLE). NOT TO BE USED IN PLENUMS.

2.5 PIPE INSULATION

A. PIPE INSULATION - MANSVILLE, KNAUF, OWENS-CORNING OR EQUAL, ASTM C547-77 CLASS 1 PREFORMED GLASS FIBER, 10 PCF MAX DENSITY WITH ALL PURPOSE PAPER AND FOIL JACKET.

B. WHERE DOMESTIC WATER PIPING IS EXPOSED TO VIEW, PROVIDE PVC JACKETING W/ PVC ELBOW JACKETS. PROVIDE VAPOR BARRIER ON ALL PIPE INSULATION.

C. INSULATION SCHEDULE:

DOMESTIC HOT AND COLD WATER

PIPE SIZE	THICKNESS
<1 INCH	1.0 INCH
1-1/4 THROUGH 2 INCHES	1.5 INCH

2.6 ADA INSULATION: TRUBRO OR EQUAL PREFORMED INSULATION COVERS FOR WATER AND WASTE CONNECTIONS UNDER SINKS AND LAVATORIES.

2.7 SPECIALITIES:

A. UNIONS - PROVIDE UNIONS TO PERMIT DISASSEMBLY FOR EQUIPMENT SERVICE, REPAIRS, OR REPLACEMENT. PROVIDE DIELECTRIC UNIONS FOR CONNECTIONS BETWEEN DISSIMILAR METALS.

B. ESCUTCHEONS - PROVIDE CHROME PLATED BRASS ESCUTCHEONS ON ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, OR CEILINGS.

2.8 BACKFLOW PREVENTERS - PROVIDE VACUUM BREAKER BACKFLOW PREVENTERS ON ALL HOSE OUTLETS AND OTHER LOCATIONS AS REQUIRED BY LOCAL AUTHORITY.

2.9 PLUMBING FIXTURES: PROVIDE FIXTURES AS SCHEDULED ON DRAWINGS OR EQUAL. INCLUDE ALL OPTIONS AND ACCESSORIES INDICATED OR AS REQUIRED FOR PROPER INSTALLATION.

PART 3 -- EXECUTION

3.1 PREPARATION: VERIFY EXISTING CONDITIONS. COMPARE DRAWINGS WITH EXISTING CONDITIONS AND ADJUST INSTALLATION TO SUIT. NOTIFY GENERAL CONTRACTOR OF ANY CONDITIONS WHICH WOULD PREVENT INSTALLATION OF PLUMBING WORK IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3.2 INSTALLATION: INSTALL ALL PLUMBING WORK IN ACCORDANCE WITH CODE, MANUFACTURER'S RECOMMENDATIONS AND GOOD INDUSTRY PRACTICE. ARRANGE WORK TO ALLOW EASY ACCESS TO EQUIPMENT FOR SERVICE AND MAINTENANCE.

3.3 INSTALL PLUMBING PIPING PER ACCEPTED INDUSTRY METHODS. PROVIDE PIPE SLEEVES WHERE PIPES PASS THROUGH WALLS.

3.4 PROVIDE ZONE SHUTOFF VALVES FOR WATER SUPPLIES ON BRANCH LINES AS PRESCRIBED BY CODE. LOCATE VALVES SO AS TO BE ACCESSIBLE.

3.5 INSTALL EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS IN EXPOSED INTERIOR SPACES, EXCEPT WHERE OTHERWISE INDICATED.

3.6 SLOPE WASTE PIPING AT 1/4"/FT FOR PIPE SIZES 2-1/2" AND LESS, AND 1/8"/FT FOR PIPE SIZES 3" AND LARGER. COORDINATE FINAL CONNECTIONS W/ GENERAL CONTRACTOR.

3.7 EXCAVATION - PERFORM ALL EXCAVATION, TRENCHING AND BACKFILLING NECESSARY TO INSTALL PLUMBING WORK. COMPLY WITH CODE. EXCAVATE TRENCHES OF UNIFORM WIDTHS TO PROVIDE A WORKING CLEARANCE ON EACH SIDE OF PIPE. EXCAVATE TRENCH WALLS VERTICALLY FROM TRENCH BOTTOM TO 12" HIGHER THAN TOP OF PIPE. SHAPE TRENCH BOTTOMS TO PROVIDE UNIFORM BEARING AND SUPPORT OF PIPES. SHAPE SUBGRADE TO PROVIDE CONTINUOUS SUPPORT FOR BELLS, JOINTS, AND BARRELS OF PIPES. REMOVE STONES AND SHARP OBJECTS TO AVOID POINT LOADING. SUPPORT PIPE ON UNDISTURBED SUBGRADE. BACKFILL WITH MATERIALS FREE OF PARTICLES LARGER THAN 1 INCH. BACKFILL AND COMPACT IN 12" LAYERS. BACKFILL AND COMPACT IN MANNER WHICH AVOIDS DAMAGE OR DISPLACEMENT.

3.8 SUPPORT AND FASTEN ALL ABOVE GROUND HORIZONTAL AND VERTICAL PIPING, EQUIPMENT ETC., SECURELY IN PLACE. SPACE, SECURE AND ADJUST HANGERS WITHOUT DEFLECTION OR SAG.

3.9 PROVIDE STEEL SUPPORTS, ANCHORS, FRAMES, BRACING, PLATES, BOLTS, NUTS, WASHERS, RODS, HANGERS, UPPER ATTACHMENTS, ETC., INCIDENTAL TO INSTALLATION OF WORK AS SPECIFIED OR REQUIRED. USE HANGERS COMPATIBLE TO COPPER PIPE WHERE BARE COPPER PIPE IS SUPPORTED.

3.10 SUPPORT EQUIPMENT FROM THE STRUCTURE IN AN APPROVED MANNER. NO PORTION OF THE STRUCTURE SHALL BE OVER STRESSED BY THE HANGING OPERATION OR BY THE FINAL SUPPORTS. PROVIDE AUXILIARY STRUCTURAL MEMBERS, SUCH AS 3"X3"X1/4" ANGLES, WHERE REQUIRED BETWEEN MEMBERS OF THE STRUCTURE AND SUPPORT EQUIPMENT OR DEVICE OFF ANGLES. ATTACHMENTS THAT ARE INADEQUATE, IN THE OPINION OF THE GENERAL CONTRACTOR, SHALL BE REPLACED AS DIRECTED.

A. PIPE SUPPORT SPACING - AS FOLLOWS OR PER CODE IF MORE STRINGENT:

PVC - 4 FT INTERVALS FOR HORIZONTAL AND VERTICAL RUNS
CPVC - 3 FT INTERVALS FOR HORIZONTAL AND VERTICAL RUNS

3.12 PROVIDE CLEVIS STYLE HANGERS FOR INDIVIDUAL PIPE RUNS. ARRANGE HANGERS FOR WASTE PIPING SUCH THAT REQUIRED PIPE SLOPE IS MAINTAINED ALONG ENTIRE RUN OF PIPE.

3.13 ROUGH-INS - VERIFY FINAL LOCATION FOR ROUGH-INS W/ FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED. DETERMINE EXACT EQUIPMENT AND MATERIALS LOCATIONS TO PROVIDE BEST ARRANGEMENT AND TO FACILITATE PROPER MAINTENANCE AND SERVICING OF EQUIPMENT. DO NOT SCALE DRAWINGS. COORDINATE CLOSELY WITH G.C.

3.14 FLOOR MOUNT WATER CLOSETS - FIRMLY AFFIX FLOOR MOUNTED WATER CLOSETS TO FLOOR AND CAULK TO FLOOR USING WHITE SILICON CAULK.

3.15 WALL HUNG FIXTURES - FIRMLY SUPPORT FROM WALL (PROVIDE ADDITIONAL STRUCTURAL SUPPORT AS REQUIRED) AND CAULK TO WALL WITH WHITE SILICONE CAULK.

3.16 FIRE RATINGS - WHERE PIPING PENETRATES FIRE-RATED CONSTRUCTION, PROVIDE SUITABLE PROTECTION TO MAINTAIN RATING.

3.17 CUTTING & PATCHING - THIS CONTRACTOR IS RESPONSIBLE FOR ANY CUTTING AND PATCHING REQUIRED WHICH IS INCIDENTAL TO THE INSTALLATION OF HIS WORK. CUT, CHANNEL, CHASE, AND DRILL FLOORS, WALLS, PARTITIONS, CEILINGS, AND OTHER SURFACES NECESSARY FOR PLUMBING INSTALLATIONS. PERFORM CUTTING BY SKILLED MECHANICS OF THE TRADES INVOLVED. REPAIR CUT SURFACES USING MATERIALS MATCHING SPECIFIED MATERIALS AND METHODS REQUIRED FOR SURFACE.

3.18 CLEAN-UP: CONTRACTOR SHALL REMOVE ALL DEBRIS DUE TO THIS WORK AND SHALL REPAIR, CLEAN AND REPLACE ALL DAMAGED OR SOILED SURFACES AS A RESULT OF THIS WORK AT NO ADDITIONAL EXPENSE TO THE OWNER. REMOVAL OF DEBRIS SHALL BE DAILY AS REQUIRED TO MAINTAIN SAFE WORKING CONDITIONS.

3.19 TESTING AND START-UP

A. ALL COSTS OF TESTS SHALL BE BORNE BY THIS CONTRACTOR. SHOULD TEST REVEAL ANY DEFECTIVE MATERIAL OR WORKMANSHIP, SUCH WORK SHALL BE REPLACED AND TESTS REPEATED. ALL CORRECTIONS IN PIPING SHALL BE MADE USING NEW MATERIALS.

B. TESTING - TEST ALL PLUMBING SYSTEMS PER REQUIREMENTS OF CODE AND LOCAL AUTHORITY. PROVIDE DOCUMENTATION OF ACCEPTANCE.

C. DISINFECTION - DISINFECT POTABLE WATER SYSTEMS IN ACCORDANCE WITH CODE AND LOCAL AUTHORITY. PROVIDE WRITTEN DOCUMENTATION OF DISINFECTION ACCEPTANCE.

D. START-UP: START-UP, CHECK OUT AND ADJUST ALL PLUMBING WORK FOR PROPER OPERATION. DEMONSTRATE TO GENERAL CONTRACTOR AND LOCAL AUTHORITY THAT ALL SYSTEMS ARE IN COMPLETE SERVICEABLE CONDITION AND WILL FUNCTION AS INTENDED.

E. CLEANING: AFTER ALL FIXTURES, EQUIPMENT, ETC., HAVE BEEN INSTALLED, THE ENTIRE SYSTEM SHALL BE THOROUGHLY CLEANED. ALL PIPE FITTINGS, EQUIPMENT, ETC., SHALL BE CLEANED OF PIPE JOINT COMPOUND, GREASE, METAL SHAVINGS, ETC., WHICH HAVE ACCUMULATED THEREON. ALL DAMAGE OR DISCOLORATION OF FIXTURES OR BUILDING DUE TO FAILURE TO CLEAN UP THOROUGHLY OR FLUSH OUT PIPING PROPERLY SHALL BE CORRECTED WITHOUT ADDITIONAL COST TO THE OWNER.

Revision No:	Description:	Date:
0	ISSUED FOR CONSTRUCTION	06.20.2022

REVISIONS

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10592 JAMES R. BENSON, III

[illegible]

LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

PLUMBING SPECIFICATIONS, LEGEND LOADS AND ABBREVIATIONS

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	WTB
DESIGNED:	WTB
CHECKED:	JRB

DRAWING NO:

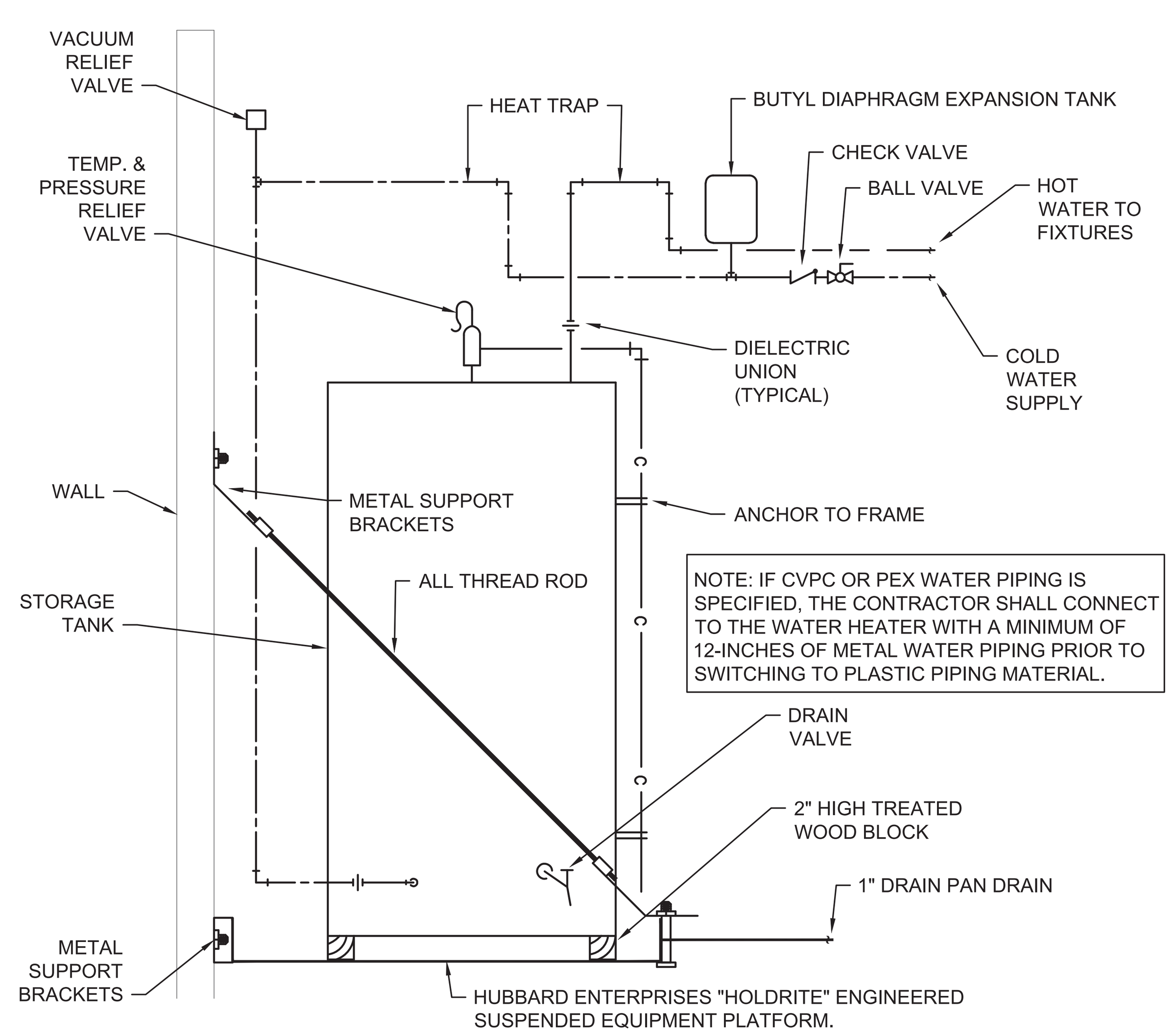
P-001

REVISION:
0

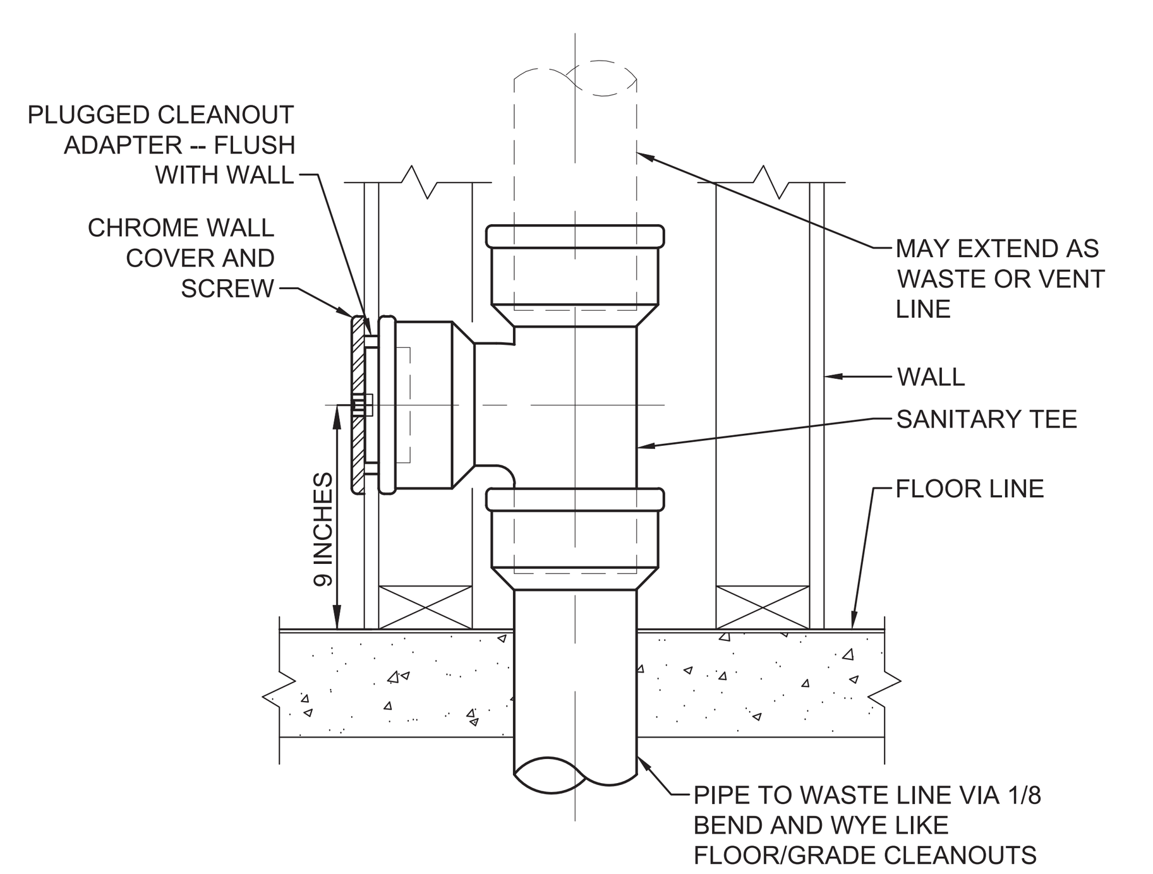
PLUMBING FIXTURE SCHEDULE

DRAWING CODE	FIXTURE		DESCRIPTION	MANUFACTURER	MODEL	ALTERNATE APPROVED MANUFACTURERS	NOTES	PIPE SIZE DCW	PIPE SIZE DHW	PIPE SIZE WASTE	PIPE SIZE VENT
WC1	TANK TYPE WATER CLOSET, FLOOR MTD, 1.6GPF, ADA	BOWL	16.5" HIGH BOWL, ELONGATED, V.C., 2-1/8" TRAPWAY; CADET PRO	AMERICAN STANDARD	215AA.004	ZURN, KOHLER	4,6	1/2"	-	4"	2"
		SEAT	OFLC w/ SELF-SUSTAINING S.S. CHECK HINGE; HEIGHT 17-19" AFF	OLSONITE	95C	BEMIS, CHURCH					
LAV1	LAVATORY WALL HUNG, 0.5GPM, ADA	BOWL	20x18 VITREOUS CHINA, RIM 34" AFF MAX.	AMERICAN STANDARD	0355.012	ZURN, CRANE	1,2,3,6	1/2"	1/2"	2"	2"
		FAUCET	4" CENTERSET, SINGLE LEVER HANDLE, SOLID BRASS CONSTRUCTION, CERAMIC CARTRIDGE, HIGH TEMP LIMIT STOP	MOEN	8413F05	ZURN, DELTA					
		DRAIN	GRID STRAINER	MCGUIRE	155A	DEARBORN, DELTA					
		MX VALVE	LEAD FREE THERMOSTATIC MIXING VALVE - SETPOINT = 90°F INSTALL ON HOT WATER SUPPLY, ASSE 1070	CASH ACME	HG-135	LEONARD, WATTS					
EWH1	TANK TYPE ELECTRIC WATER HEATER, 6 GAL	FIXT	GLASS-LINED TANK, 1500W, 120V/1PH	A.O. SMITH	DEL-6	BRADFORD-WHITE, RHEEM	5	3/4"	3/4"	-	-
		EXP TANK	2 GAL DIAPHRAGM		PMC-2					-	-
LS1	FLOOR MOUNT LAUNDRY SINK	SINK	23x22x12 MOLDED STONE w/ GRID DRAIN	FIAT	FL-1	SWANSTONE, MUSTEE	6,7	1/2"	1/2"	2"	2"
		FAUCET	CHROME PLATED BRASS, 4" WRIST BLADE HANDLES, VANDAL RESISTANT, CERAMIC CARTRIDGE	MOEN	74998	DELTA, ZURN					
HB1	EXTERIOR HOSE BIBB	FIXT	FREEZELESS, POWDER COATED, 3/4"HOSE THREAD, ANTI-SIPHON	WOODFORD	19	ZURN, WATTS	-	3/4"	-	-	-
RPZ	BACKFLOW PREVENTER	FIXT	REDUCED PRESS. ZONE TYPE, LEAD FREE	WATTS	LF009	FEBCO, WILKINS		MATCH			
GCO	GRADE CLEANOUT	FIXT	C.I. BODY, RECESSED BRONZE PLUG.	SIOUX CHIEF	877	ZURN, SMITH	-	-	-	MATCH	-
WCO	WALL CLEANOUT	FIXT	ROUND S/S ACCESS COVER & SCREW, RECESS BRONZE THRD. PLUG	SIOUX CHIEF	870	ZURN, SMITH	-	-	-	MATCH	-

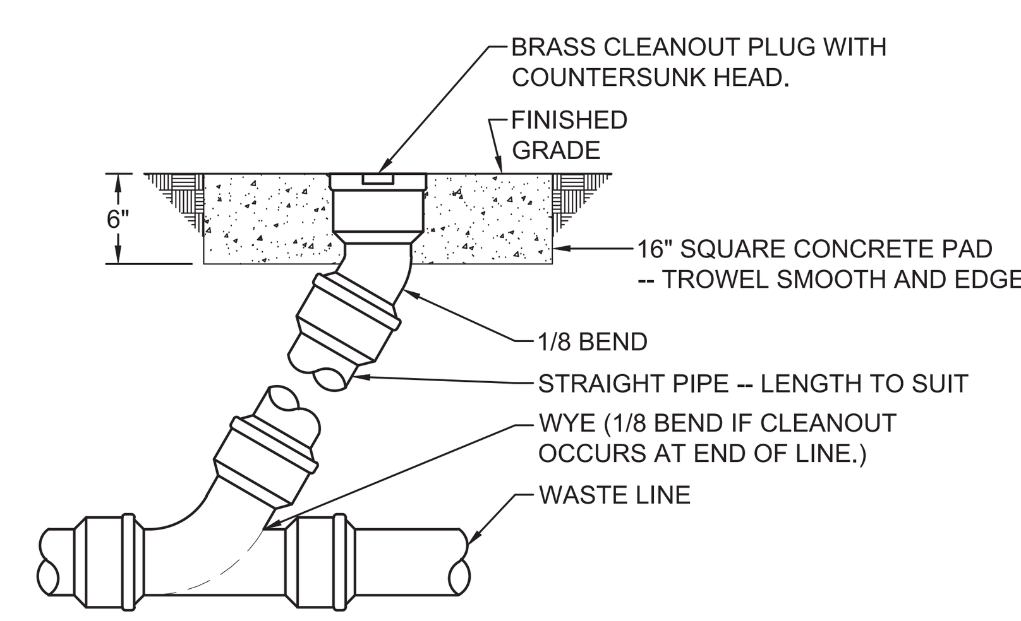
NOTES
1. PROVIDE MATCHING WALL HANGER. COORDINATE WITH G.C. FOR WALL REINFORCING.
2. PROVIDE BRASS 1-1/2" TAILPIECE, CAST BRASS SLIP JOINT P-TRAP WITH CLEANOUT; PROVIDE ADA OFFSET ARRANGEMENT WHERE REQUIRED.
3. PROVIDE ADA INSULATION KIT
4. TRIP LEVER OR FLUSH HANDLE TO BE LOCATED ON WIDE SIDE OF STALL OR TOILET ROOM.
5. FIELD ROUTE 1" DRAIN PAN DRAIN PIPING TO UTILITY SINK
6. PROVIDE 1/2" IPS X 3/8" OD ANGLE BRASS STOP(S) WITH STAINLESS, BRAIDED RISERS.
7. PROVIDE INLINE CHECK VALVES FOR WATER SUPPLY LINES.



A1 **WATER HEATER DETAIL**
NOT TO SCALE

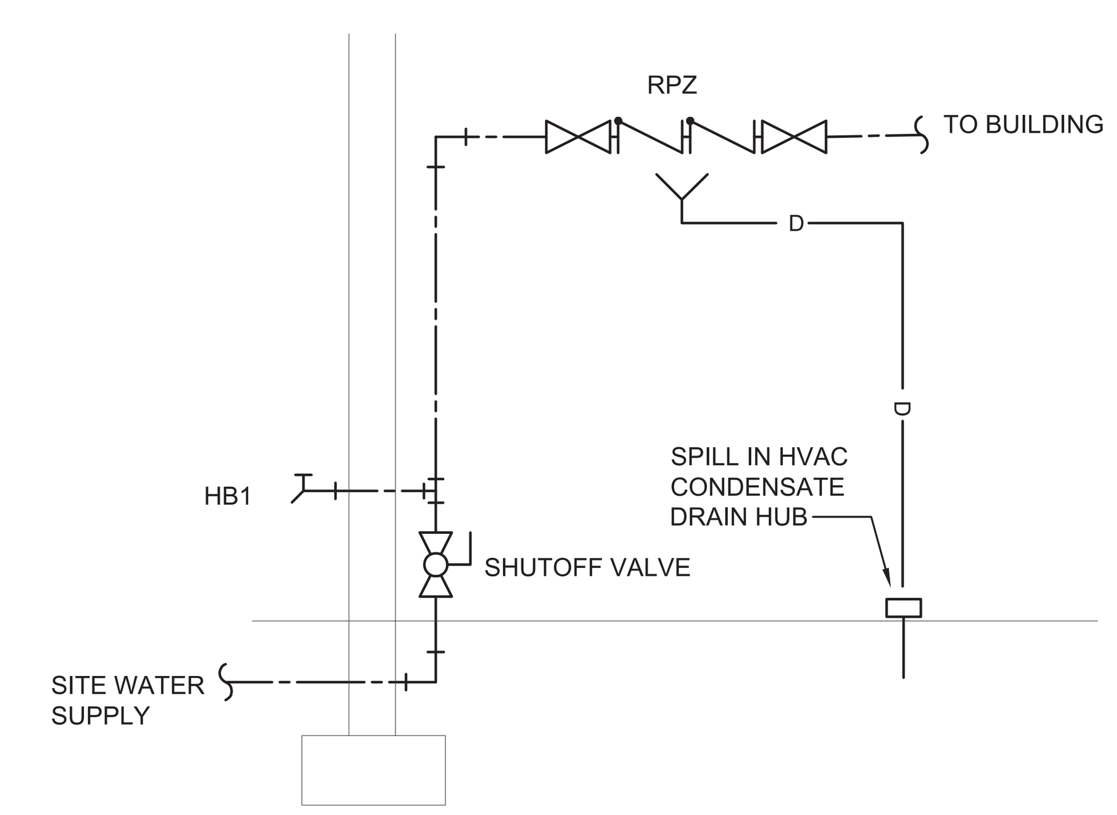


WALL CLEANOUT (WCO)
NOTE: MATCH CLEANOUT PIPING SIZE TO WASTE LINE CONNECTION SIZE.



GRADE CLEANOUT (GCO)
NOTE: MATCH CLEANOUT PIPING SIZE TO WASTE LINE CONNECTION SIZE.

A2 **CLEANOUT DETAILS**
NOT TO SCALE



A4 **WATER SUPPLY DETAIL**
NOT TO SCALE

Revision No:	Description:	Date:
0	ISSUED FOR CONSTRUCTION	06.20.2022

REVISIONS

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10592 JAMES R. BENSON, III

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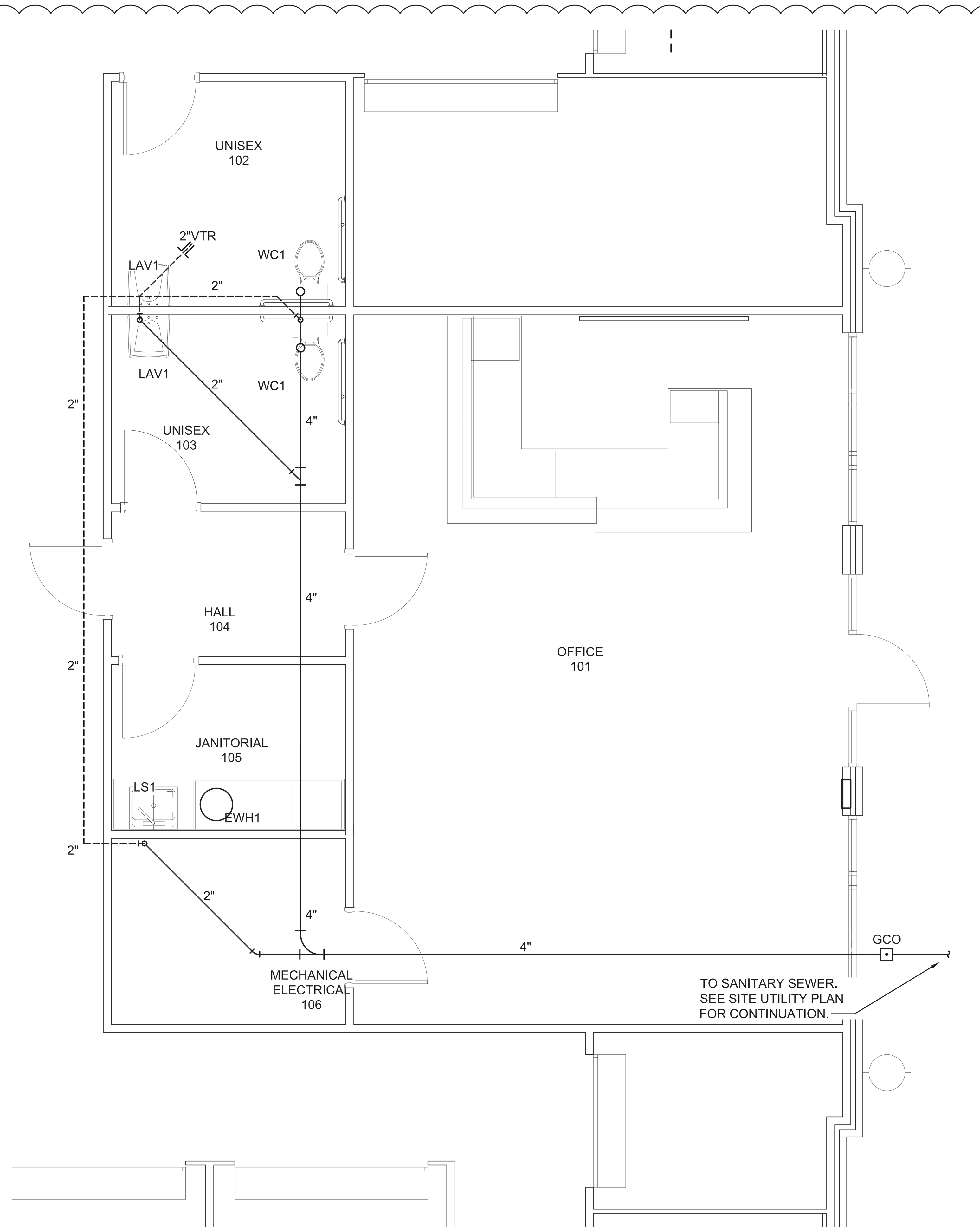
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

PLUMBING SPECIFICATIONS, LEGEND LOADS AND ABBREVIATIONS

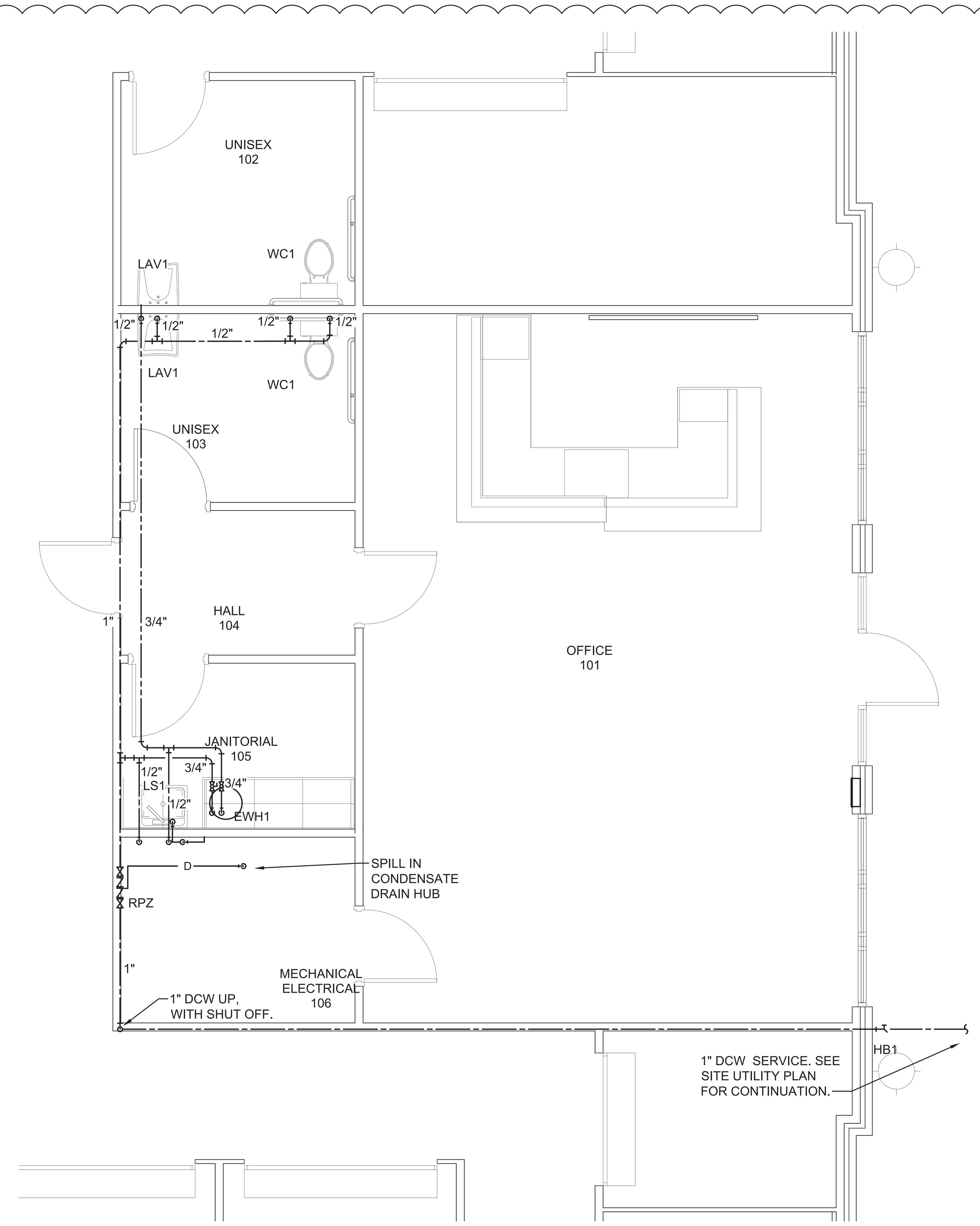
JOB NO: CBHF:22020 RHD:21-7075
DRAWN: WTB
DESIGNED: WTB
CHECKED: JRB

DRAWING NO:
P-002

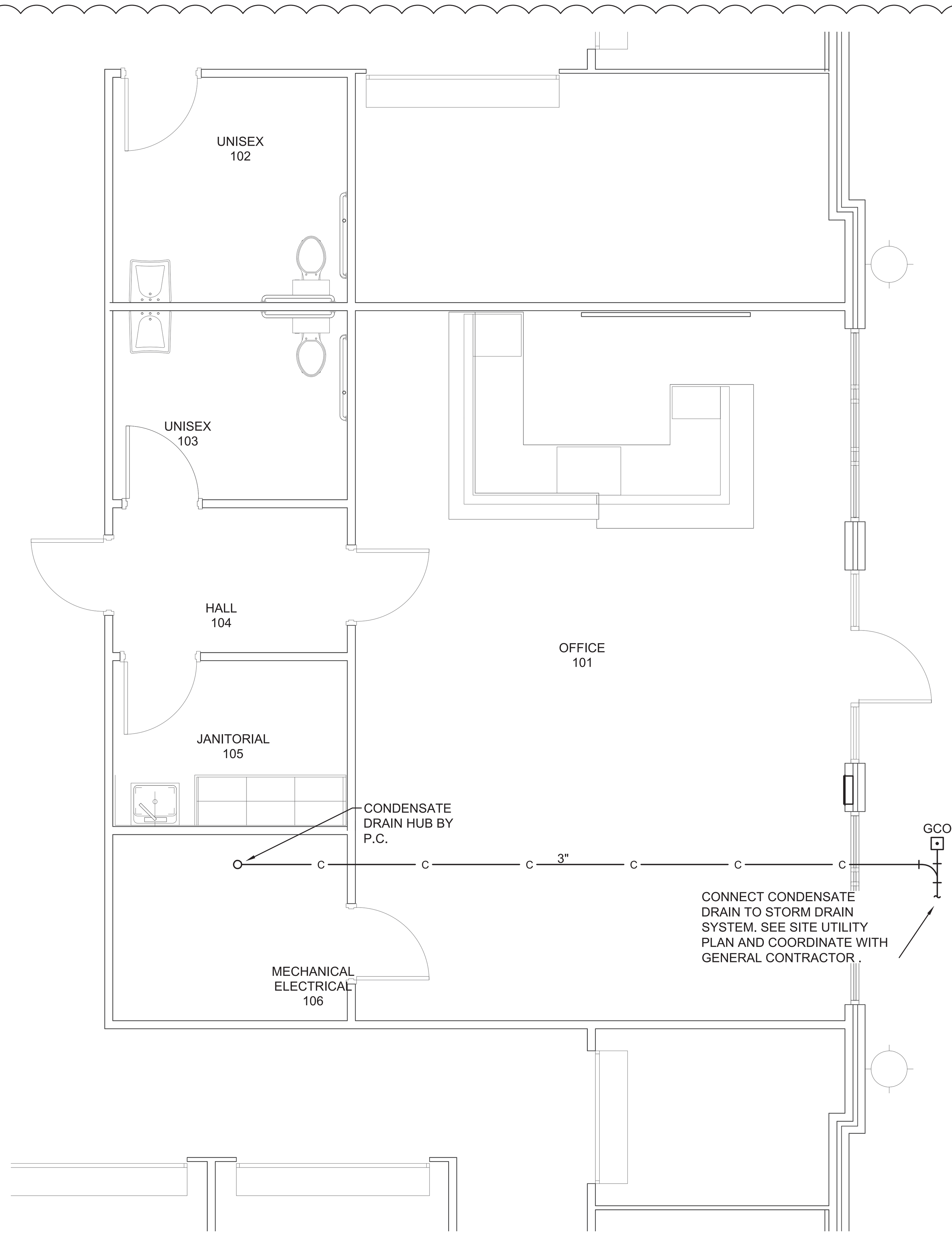
REVISION:
0



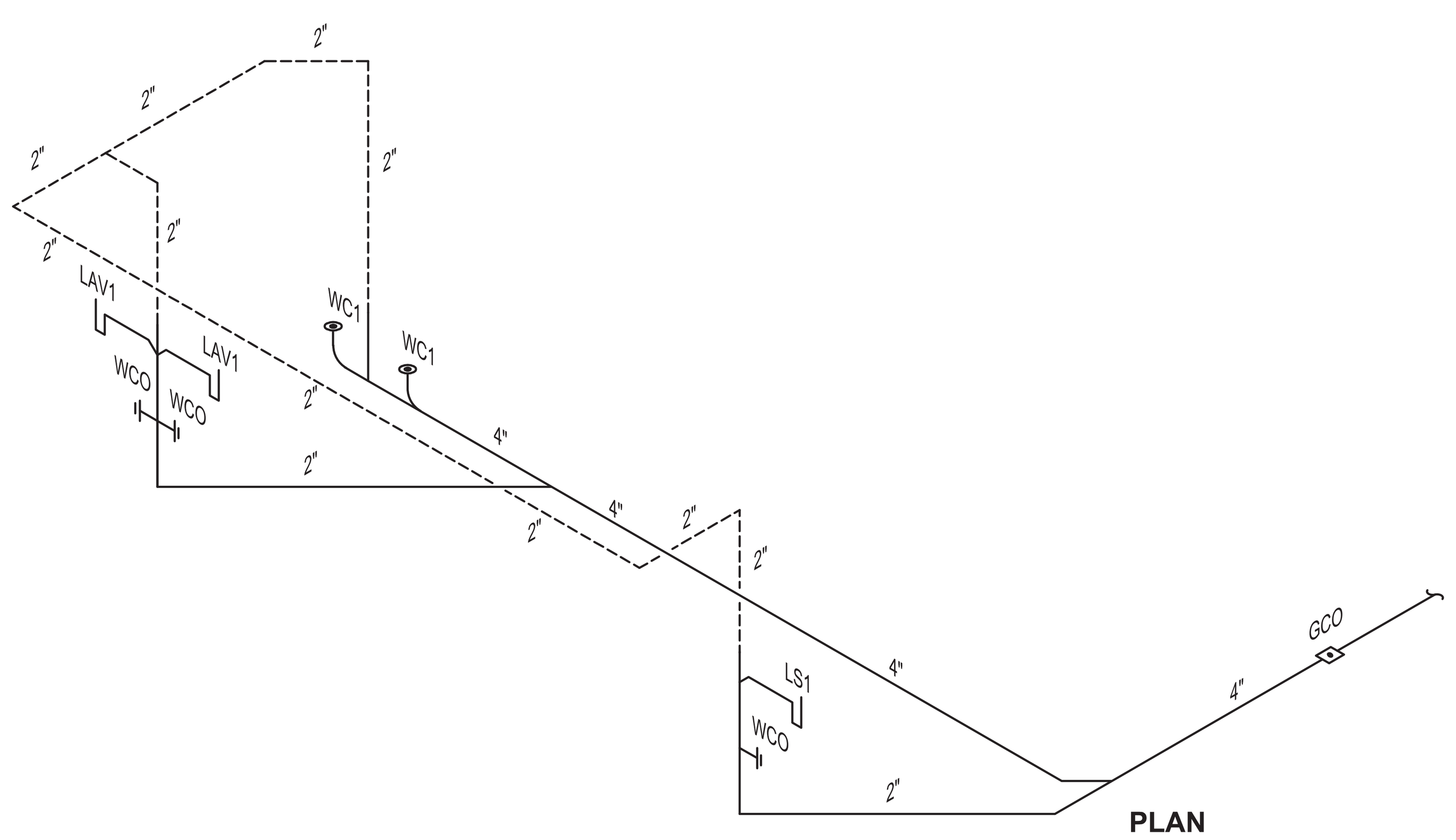
B1 WASTE-VENT PLAN
1/4" = 1'-0"



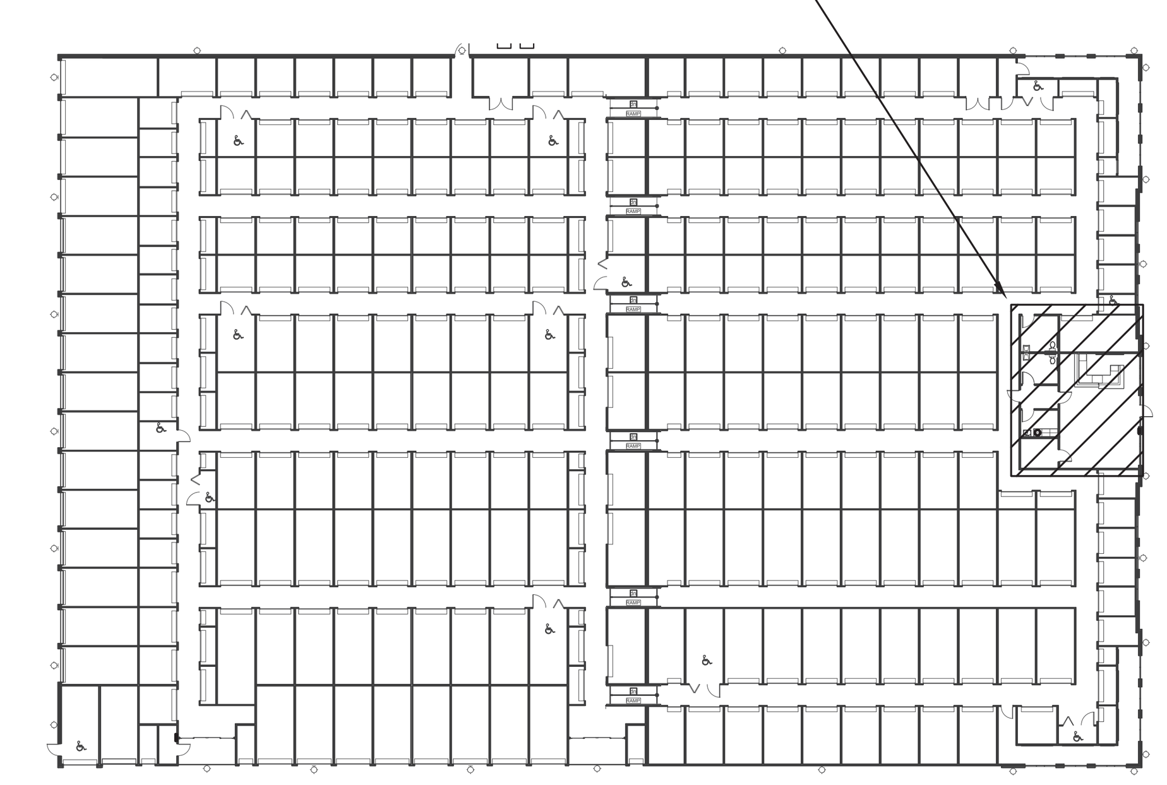
B3 DOMESTIC WATER PLAN
1/4" = 1'-0"



B4 CONDENSATE DRAIN PLAN
1/4" = 1'-0"



A1 WASTE-VENT RISER DIAGRAM
NOT TO SCALE



A5 KEYPLAN
NOT TO SCALE

REVISIONS

Revision No:	Description:	Date:
1	REVISED PER UPDATED FLOOR PLAN	10.06.2022
0	ISSUED FOR CONSTRUCTION	06.20.2022

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LILLINGTON STORAGE
PHASE I - BUILDING 1
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LILLINGTON, NC

WASTE-VENT PLAN, DOMESTIC WATER PLAN CONDENSATE DRAIN PLAN AND WASTE-VENT RISER DIAGRAM

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	WTB
DESIGNED:	WTB
CHECKED:	JRB

DRAWING NO:
P-101

REVISION:
1

MECHANICAL SPECIFICATIONS

PART 1 GENERAL

1.1 SCOPE OF WORK: THESE DRAWINGS AND SPECIFICATIONS DESCRIBE THE SCOPE OF WORK REQUIRED FOR PROJECT MECHANICAL HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL REQUIRED FOR COMPLETE, FULLY FUNCTIONING MECHANICAL SYSTEMS COMPLYING WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.

1.2 CONTRACTOR: THE WORD "CONTRACTOR" AS USED HEREIN SHALL MEAN THE HVAC INSTALLER UNLESS OTHERWISE QUALIFIED.

1.3 DRAWINGS: DRAWINGS ARE DIAGRAMMATIC AND MAY NOT COMPLETELY DESCRIBE EVERY DETAIL OF THE INSTALLATION. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR FURNISHING COMPLETE SYSTEMS INCLUDING ALL REQUIRED EQUIPMENT AND ACCESSORIES TO OBTAIN FULLY FUNCTIONING HVAC SYSTEMS.

1.4 CODE COMPLIANCE: COMPLY WITH THE LATEST EDITIONS OF THE FOLLOWING STANDARDS AND CODES, INSOFAR AS THEY APPLY:

A. ***NORTH CAROLINA*** STATE BUILDING CODE, LATEST EDITION AND REVISIONS (CODE)

B. LOCAL JURISDICTION REQUIREMENTS: INCLUDE ALL WORK TO COMPLY WITH CODES WHETHER INDICATED ON DRAWINGS OR NOT. NOTIFY ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND CODES PRIOR TO BEGINNING WORK.

1.5 PERMITS AND INSPECTIONS: OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC., REQUIRED FOR THE WORK AND PAY FOR SAME. FURNISH A FINAL CERTIFICATE OF INSPECTION AND APPROVAL FROM THE AUTHORITY HAVING JURISDICTION PRIOR TO ACCEPTANCE OF THE WORK.

1.6 MANUFACTURER'S RECOMMENDATIONS: INSTALL ALL EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

1.7 WORKMANSHIP: UTILIZE SKILLED MECHANICS TO OBTAIN A HIGH QUALITY PROFESSIONAL FINISH INSTALLATION WHEN COMPLETED. WORK OF UNACCEPTABLE QUALITY SHALL BE REMOVED AND REWORKED AT NO ADDITIONAL COST. ENGINEER SHALL BE THE JUDGE OF WORKMANSHIP AND THEIR OPINION WILL BE FINAL. IN ADDITION, ANY EXISTING CONSTRUCTION DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR AT NO ADDITIONAL COST.

1.8 SUPERVISION: PROVIDE SKILLED SUPERINTENDENTS TO SUPERVISE THE WORK FROM THE BEGINNING TO COMPLETION AND FINAL INSPECTION.

1.9 PROGRESS OF WORK: PERFORM WORK IN ACCORDANCE WITH SCHEDULE AND REQUIREMENTS OF THE OWNER. UNDER NO CIRCUMSTANCES SHALL THIS CONTRACTOR DELAY THE OVERALL PROJECT SCHEDULE.

1.10 COORDINATION: COORDINATE MECHANICAL WORK WITH THE WORK OF OTHER TRADES. LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE UNLESS SPECIFICALLY DIMENSIONED. LAYOUT MECHANICAL WORK SO AS NOT TO INTERFERE WITH THE WORK OF OTHER TRADES. VERIFY ACTUAL BUILDING STRUCTURE PRIOR TO DUCT FABRICATION AND ADJUST ARRANGEMENT AS REQUIRED. INCLUDE ALL OFFSETS IN DUCTS, FITTINGS, PIPING, ETC. AS REQUIRED TO PROPERLY INSTALL EQUIPMENT.

1.11 EQUIPMENT LOCATIONS: DETERMINE EXACT EQUIPMENT AND MATERIALS LOCATIONS TO PROVIDE BEST ARRANGEMENT AND TO FACILITATE PROPER MAINTENANCE AND SERVICING OF EQUIPMENT.

1.12 LISTING AND LABELING: ALL EQUIPMENT SHALL BE LABELED OR LISTED BY UL OR OTHER APPROVED TESTING AGENCY WHERE REQUIRED.

1.13 STORAGE SPACE: CONSULT WITH THE OWNER REGARDING JOB SITE STORAGE FOR MECHANICAL MATERIALS TO BE INSTALLED UNDER THIS PROJECT. STORAGE SPACE MUST BE SECURED AND CONTRACTOR'S REPRESENTATIVE MUST BE ON JOB BEFORE ANY MATERIAL MAY BE RECEIVED.

1.14 CLEANUP: REMOVE ALL DEBRIS GENERATED IN THE ACCOMPLISHMENT OF WORK UNDER THIS PROJECT. CLEAN, REPLACE OR REPAIR ALL SURFACES SOILED OR DAMAGED DURING THE COURSE OF THE WORK. REMOVE DEBRIS DAILY SO TO MAINTAIN SAFE WORKING CONDITIONS.

1.15 ELECTRICAL WORK

A. PERFORM ELECTRICAL WORK FOR MECHANICAL EQUIPMENT IN COMPLIANCE WITH PROJECT ELECTRICAL REQUIREMENTS. ELECTRICAL WORK FOR MECHANICAL EQUIPMENT NOT SPECIFICALLY INDICATED TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR IN THE ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AS PART OF HIS WORK.

B. ELECTRICAL DRAWINGS ARE BASED ON ELECTRICAL CHARACTERISTICS INDICATED IN DRAWING MECHANICAL EQUIPMENT SCHEDULES. ANY EQUIPMENT FURNISHED BY THE MECHANICAL CONTRACTOR WHICH DOES NOT MATCH THE ELECTRICAL CHARACTERISTICS INDICATED IN THE DRAWING SCHEDULES SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR. ANY ADDITIONAL COSTS FOR ELECTRICAL INSTALLATION REQUIRED FOR EQUIPMENT NOT MATCHING THE DRAWING SCHEDULES SHALL BE BORNE BY THE MECHANICAL CONTRACTOR.

C. LOW VOLTAGE CONTROL WIRING FOR MECHANICAL SYSTEMS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR.

1.16 SUBMITTALS: SUBMIT ONE (1) ELECTRONIC COPY OF DESCRIPTIVE DATA FOR MECHANICAL EQUIPMENT AND MATERIALS INCLUDING GRILLES AND DAMPERS FOR APPROVAL BY THE ENGINEER. CLEARLY IDENTIFY ALL ITEMS.

1.17 OPERATING AND MAINTENANCE MANUALS: SUBMIT TWO COPIES OF COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT, INCLUDING NECESSARY CUT SHEETS, CHARTS, WRITTEN INSTRUCTIONS, WIRING DIAGRAMS, FINAL AS-BUILT DRAWINGS WITH BALANCED AIRFLOWS INDICATED, ETC. BIND IN SUITABLE HARD BACK RING BINDERS, PROPERLY INDEXED, AND DELIVER TO THE OWNER PRIOR TO BUILDING OCCUPANCY. IN ADDITION, AFFIX A FOLDER WITH TYPICAL "OWNER'S INSTRUCTIONS" AND "MAINTENANCE INFORMATION" INSIDE THE MECHANICAL EQUIPMENT AS APPLICABLE. THE FOLDER SHALL ALSO INCLUDE A COMPLETE STARTUP LOG FOR THE EQUIPMENT.

1.18 RECORD DRAWINGS: MAINTAIN ONE SET OF "RED-LINED" RECORD DRAWINGS ON SITE AT ALL TIMES AND PROVIDE DRAWINGS TO ENGINEER PRIOR TO FINAL INSPECTION.

1.19 WARRANTY: WARRANTY THE MATERIALS AND WORKMANSHIP COVERED BY THESE DRAWINGS AND SPECIFICATIONS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. REPAIR AND/OR REPLACE ANY PARTS OF ANY SYSTEM THAT MAY PROVE TO BE DEFECTIVE AT NO ADDITIONAL COST TO THE OWNER WITHIN THE WARRANTY PERIOD. PROVIDE 5 YEAR WARRANTY FOR ALL AIR CONDITIONING COMPRESSORS. FURNISH WARRANTY CERTIFICATES FOR ALL MECHANICAL EQUIPMENT. WARRANTY TO COMMENCE UPON DATE OF ACCEPTANCE OF WORK BY OWNER.

PART 2 MATERIALS

2.1 EQUIPMENT

A. MODELS AS SCHEDULED ON THE DRAWINGS. MANUFACTURERS INDICATED ARE INTENDED TO ESTABLISH THE QUALITY AND TYPE OF EQUIPMENT DESIRED. COMPARABLE EQUIPMENT WILL BE CONSIDERED FOR APPROVAL BY THE ARCHITECT/ENGINEER

B. INCLUDE ALL ACCESSORIES INDICATED OR AS RECOMMENDED BY THE MANUFACTURER FOR PROPER OPERATION.

2.2 DUCTWORK

A. DUCT CONSTRUCTION (SINGLE WALL): GALVANIZED STEEL CONSTRUCTED, BRACED, SUPPORTED AND INSTALLED ACCORDING TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS, 1" PRESSURE CLASS, SEAL CLASS A. SEAL USING APPROVED TYPE DUCT SEALING MASTIC OR TAPE DIPPED IN OR BRUSHED WITH ADHESIVE ("HARDCAST" DT-TAPE W/FTA-20 ADHESIVE OR "UNITED MCGILL" MTD TAPE W/MTD-20 ADHESIVE). "DUCT TAPE" IS UNACCEPTABLE FOR DUCT SEALING. "DUCT-MATE" OR EQUAL TRANSVERSE JOINT CONNECTION METHODS WILL BE ACCEPTABLE ONLY IF A LETTER FROM THE MANUFACTURER IS PRESENTED TO THE ENGINEER STATING THAT THE CONTRACTOR'S INSTALLATION METHODS ARE APPROVED BY THE MANUFACTURER AND THAT ALL MANUFACTURER'S RECOMMENDATIONS WILL BE FOLLOWED. THERE WILL BE NO EXCEPTIONS TO THIS STIPULATION.

B. DUCT SIZES INDICATED ARE INSIDE FREE AREA DIMENSIONS. DUCT DIMENSIONS SHALL BE ADJUSTED TO SUIT FIELD CONDITIONS USING EQUIVALENT SIZE PER ASHRAE STANDARD. RECTANGULAR OR ROUND DUCTWORK MAY BE USED AT CONTRACTOR OPTION PROVIDED EQUIVALENT SIZE PER ASHRAE STANDARD IS USED.

C. BRANCH DUCTS: PROVIDE MANUFACTURED TAKE-OFF FITTINGS (SPIN-IN FITTINGS) WITH EXTRACTOR AND VOLUME DAMPER WITH LOCKING QUADRANT OPERATOR AND INSULATION GUARD, GENERAL ENVIRONMENT CORPORATION OR EQUAL, FOR ALL BRANCH RUNOUTS TO SUPPLY REGISTERS AND DIFFUSERS. UNLESS OTHERWISE NOTED, MATCH SUPPLY BRANCH DUCT SIZE TO DIFFUSER SIZE.

D. ELBOWS: ALL SQUARE BENDS OR ELBOW FITTINGS SHALL BE FITTED WITH APPROVED TYPE DOUBLE THICKNESS TURNING VANES.

E. FLEXIBLE DUCT: FACTORY INSULATED, R-8, MINIMUM, UL 181 CLASS 1. MAXIMUM FLEX DUCT RUNOUT LENGTH NOT TO EXCEED 8' UNLESS OTHERWISE NOTED. INSTALL AND SUPPORT FLEXIBLE DUCTS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

F. FLEXIBLE CONNECTIONS: PROVIDE FLEXIBLE CONNECTOR, VENTFABRICS OR EQUAL, AT ALL MECHANICAL EQUIPMENT CONNECTIONS TO DUCT SYSTEM.

2.3 AIR DISTRIBUTION

A. DIFFUSERS AND REGISTERS: MODELS AS SCHEDULED ON THE DRAWINGS. MANUFACTURERS INDICATED ARE INTENDED TO ESTABLISH THE QUALITY AND TYPE OF EQUIPMENT DESIRED. COMPARABLE EQUIPMENT WILL BE CONSIDERED FOR APPROVAL BY THE ENGINEER. INCLUDE FINISH AND ACCESSORIES AS INDICATED.

B. LOUVERS: MODELS AS SCHEDULED ON THE DRAWINGS OR EQUAL.

2.4 PIPING

A. REFRIGERANT PIPING: TYPE ACR COPPER WITH WROUGHT COPPER FITTINGS AND BRAZED JOINTS. SIZE & INSTALL IN STRICT ACCORDANCE W/ REFRIGERATION EQUIPMENT MANUFACTURER RECOMMENDATIONS.

B. REFRIGERANT ACCESSORIES: PROVIDE FOR EACH REFRIGERANT CIRCUIT:
1. SIGHT GLASS WITH MOISTURE INDICATOR, FILTER DRYER, SOLENOID VALVE AND EXPANSION VALVE.
2. GAUGES, CHARGING VALVES, RELIEF VALVES, LOW LIMIT CONTROLS, AND SPECIALTIES REQUIRED FOR A COMPLETE AND SAFE INSTALLATION.
3. ALL ACCESSORIES AS RECOMMENDED BY THE REFRIGERATION EQUIPMENT MANUFACTURER.
4. VALVES AND SPECIALTIES SHALL BE AS MADE BY MUELLER, HENRY, ALCO, OR EQUAL.

C. CONDENSATE PIPING: SCH 40 PVC W/ SOLVENT WELD JOINTS. PROVIDE TRAP AT COOLING COIL DRAIN CONNECTION. PROVIDE CLEANOUTS AT CHANGE IN DIRECTION. EXTEND CONDENSATE PIPING TO APPROVED DISCHARGE LOCATION.

2.5 INSULATION

A. DUCT INSULATION: R-8 MINIMUM, 2" FIBERGLASS BLANKET INSULATION, ASTM C553, TYPE II, 0.75 PCF CLASS F-1, ASTM 84E FLAME SPREAD/SMOKE DEVELOPED RATING LESS THAN 25/50. PROVIDE WITH FACTORY APPLIED ALL-PURPOSE, LAMINATED GLASS-FIBER-REINFORCED, FLAME-RETARDANT KRAFT PAPER AND ALUMINUM FOIL JACKET. INSTALL ON ALL CONCEALED HVAC SUPPLY, RETURN, MAKE-UP AIR DUCTS AND PLENUMS. NOT REQUIRED FOR EXPOSED DUCT IN CONDITIONED STORAGE AREAS.

B. REFRIGERANT PIPING INSULATION: ELASTOMERIC CLOSED CELL PIPE INSULATION, ARMAFLEX AP OR EQUAL, 1½" THICK. PROTECT ALL EXTERIOR, EXPOSED PIPE INSULATION WITH ARMAFLEX WB FINISH.

C. CONDENSATE DRAIN PIPING INSULATION: ELASTOMERIC CLOSED CELL PIPE INSULATION, ARMAFLEX AP OR EQUAL, 1/2" THICK. PROTECT ALL EXTERIOR, EXPOSED PIPE INSULATION WITH ARMAFLEX WB FINISH.

2.6 CONTROLS

A. HEAT PUMP TEMPERATURE CONTROLS: SEE DRAWING SCHEDULES AND DETAILS.

B. TOILET EXHAUST: SEE DRAWING SCHEDULES AND DETAILS.

2.7 SUPPORTS

A. HANGERS, SUPPORTS, AND ANCHORS: SUPPORT AND FASTEN ALL DUCTWORK, PIPING, EQUIPMENT, ETC., SECURELY IN PLACE USING APPROVED STEEL HANGERS AND FASTENERS. CHAIN, STRAP, PERFORATED STRAP, WIRE HANGERS, OR WOOD PLUGS ARE PROHIBITED.

B. INCLUDE STEEL SUPPORTS, ANCHORS, FRAMES, BRACING, PLATES, BOLTS, NUTS, WASHERS, ETC. INCIDENTAL TO INSTALLATION OF WORK.

C. PROVIDE AUXILIARY STRUCTURAL MEMBERS WHERE REQUIRED BETWEEN MEMBERS OF THE STRUCTURE.

2.8 REFRIGERANT: FURNISH A FULL CHARGE OF REFRIGERANT FOR EACH SYSTEM AND MAINTAIN THE CHARGE FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE AND REPLACE ANY THAT MAY BE LOST (UNLESS LOSS IS DETERMINED TO BE CAUSED BY THE OWNER).

PART 3 EXECUTION

3.1 PREPARATION: REVIEW CONSTRUCTION DOCUMENTS AND VERIFY ARRANGEMENT WITH FIELD CONDITIONS. COORDINATE PROPOSED MECHANICAL EQUIPMENT AND SYSTEMS WITH ASSOCIATED WORK OF OTHER TRADES.

3.2 INSTALLATION: INSTALL ALL MECHANICAL WORK IN ACCORDANCE WITH CODE, MANUFACTURER'S RECOMMENDATIONS AND GOOD INDUSTRY PRACTICE. ARRANGE WORK TO ALLOW EASY ACCESS TO EQUIPMENT FOR SERVICE AND MAINTENANCE.

3.3 DUCTWORK: LAYOUT DUCTWORK TO AVOID INTERFERENCES AND MAXIMIZE USABLE SPACE IN THE BUILDING.

3.4 PIPING: ROUTE PIPING NEATLY, PARALLEL TO BUILDING WALLS. WHERE REQUIRED, SLOPE PIPING FOR PROPER DRAINAGE.

3.5 DUCT INSULATION: INSTALL BLANKET INSULATION TIGHT AND SMOOTH. OVERLAP JOINTS 3 INCHES. SEAL JOINTS, BREAKS, AND PUNCTURES WITH VAPOR BARRIER COMPOUND.

3.6 PIPING INSULATION: INSTALL INSULATION NEATLY. APPLY ADHESIVE TO BOTH FACES OF JOINT TO OBTAIN FULLY ADHERED, VAPOR TIGHT INSTALLATION. FINISH ALL INSULATION EXPOSED TO WEATHER WITH MANUFACTURE APPROVED WEATHERPROOF COATING.

3.7 CONTROLS: INSTALL AND WIRE ALL CONTROLS COMPLETE TO OBTAIN INTENDED SEQUENCE OF OPERATION.

3.8 HANGERS AND SUPPORTS: HANG AND SUPPORT EQUIPMENT, DUCTS AND PIPING IN A SUBSTANTIAL MANNER FROM THE BUILDING STRUCTURE. SPACE HANGERS IN ACCORDANCE WITH CODE AND SO AS TO AVOID EXCESS DEFLECTION OR SAG. PROVIDE SEISMIC DESIGN HANGERS WHERE REQUIRED. NO PORTION OF THE STRUCTURE SHALL BE OVER STRESSED BY THE HANGING OPERATION OR BY THE FINAL SUPPORTS. ATTACHMENTS DEEMED INADEQUATE BY THE ENGINEER SHALL BE REWORKED AS DIRECTED. PROVIDE VIBRATION ISOLATION FOR MOVING MACHINERY.

3.9 REFRIGERANT PIPING TESTS: PLACE REFRIGERANT PIPING UNDER A TEST PRESSURE USING ANHYDROUS CARBON DIOXIDE OR NITROGEN BEFORE DEHYDRATING WITH A VACUUM PUMP TO A VACUUM OF 26 INCHES HG. SEE CONDENSING UNIT, COMPRESSOR OR COMPRESSOR UNIT NAME PLATE FOR TEST PRESSURES. MAINTAIN VACUUM FOR A MINIMUM OF 24 HOURS. REFRIGERATION COMPRESSOR SHALL NOT BE USED FOR THIS PURPOSE. AFTER SYSTEM IS VACUUM TESTED, CHARGE WITH SYSTEM REFRIGERANT AND LEAK TEST ENTIRE CIRCUIT WITH ELECTRONIC TESTER.

3.10 LABELS: LABEL ALL EQUIPMENT AND DEVICES WITH BAKELITE ENGRAVED PLATES SCREWED IN PLACE. "TAPEWRITER" AND ADHESIVE LABELS ARE UNACCEPTABLE.

3.11 START-UP: VERIFY INSTALLATION IS COMPLETE AND READY FOR START-UP. START-UP ALL EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS USING FACTORY CERTIFIED MECHANICS. AFTER START-UP, VERIFY AND DOCUMENT THAT EQUIPMENT IS OPERATING PROPERLY WITHIN MANUFACTURER'S SPECIFIED TOLERANCES.

3.12 TESTING AND BALANCING: BALANCE AIR FLOWS TO OBTAIN AIR QUANTITIES SHOWN ON DRAWINGS. ADJUST DAMPERS FOR ALL AIR OUTLETS AND RECORD VELOMETER READINGS WHICH CORRESPOND TO DESIGN FLOW RATES AT EACH OUTLET. RECORD DESIGN AND FINAL READINGS ON APPROVED FORMS. CONTRACTOR SHALL PROVIDE TECHNICIANS AND MEASURING DEVICES FOR THIS TESTING.

3.13 COMMISSIONING: DEMONSTRATE AND DOCUMENT OPERATION OF ALL MECHANICAL SYSTEMS INSTALLED UNDER THIS CONTRACT. INCLUDE ALL TESTS, TRIAL OPERATIONS, ETC. AS REQUIRED TO PROVE THAT ALL SYSTEMS ARE IN COMPLETE SERVICEABLE CONDITION AND WILL FUNCTION AS INTENDED. ALL COSTS OF COMMISSIONING SHALL BE BORNE BY THIS CONTRACTOR.

3.14 TRAINING: TRAIN OWNER PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF MECHANICAL SYSTEMS. PROVIDE WRITTEN DOCUMENTATION INCLUDING NAMES OF OWNER PERSONNEL ATTENDING TRAINING.

3.15 CLEAN-UP: CLEAN ALL EQUIPMENT AND DEVICES AND INSTALL NEW FILTERS IN EQUIPMENT IMMEDIATELY PRIOR TO OWNER ACCEPTANCE AND OCCUPANCY.

ENERGY CODE EXEMPTION:

N.C.G.S. 143-138 (b18) EXEMPTS THIS BUILDING FROM CONFORMING TO THE ENERGY CODE. PLEASE CONTACT CBHF WITH ANY QUESTIONS.

MECHANICAL LEGEND

AH#	AIR HANDLING UNIT NUMBER
CU#	CONDENSING UNIT NUMBER
D#	DEHUMIDIFIER NUMBER
DAH#	DUCTLESS AIR HANDLING UNIT NUMBER
DHP#	DUCTLESS HEAT PUMP UNIT NUMBER
E#	EXHAUST GRILLE NUMBER
EF#	EXHAUST FAN NUMBER
EUH#	ELECTRIC UNIT HEATER NUMBER
HP#	HEAT PUMP UNIT NUMBER
I#	INTAKE GRILLE NUMBER
L#	LOUVER NUMBER
R#	RETURN GRILLE NUMBER
S#	SUPPLY DIFFUSER NUMBER
COND.	CONDENSATE
REF.	REFRIGERANT
TYP.	TYPICAL
(X)	EXISTING
	DUCT DIFFUSER
T	THERMOSTAT
H	HUMIDISTAT
D	DUCT SMOKE DETECTOR
BDD	BACK DRAFT DAMPER
M	MOTORIZED DAMPER
P	CONDENSATE PUMP
C	CONDENSATE DRAIN
R	REFRIGERANT LINESET
	1-HR FIRE RATED CONSTRUCTION
	2-HR FIRE RATED CONSTRUCTION
	3-HR FIRE RATED CONSTRUCTION
FD	FIRE DAMPER

NOTE: NOT ALL ITEMS MAY BE USED IN THIS PROJECT.

VENTILATION SUMMARY

SPACE NAME	SUPPLY AIR (CFM)	FLOOR AREA (FT²)	REQUIRED OUTDOOR AIR (CFM/FT²)	OCCUPANCY (PEOPLE)	REQUIRED OUTDOOR AIR (CFM/PERSON)	AIR DISTRIBUTION EFFECTIVENESS	REQUIRED OUTDOOR AIR (CFM)	DELIVERED OUTDOOR AIR (CFM)
1ST FLOOR OFFICE	1400	910	0.06	2	5	0.8	81	85
STORAGE	0	0	SEE NOTE	N/A	N/A	N/A	N/A	N/A

NOTE: STORAGE AREAS NOT VENTILATED PER NCMC 401 UNOCCUPIED SPACE.

MECHANICAL SUMMARY (STORAGE)

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT	
CLIMATE ZONE	3A
WINTER DRY BULB:	22°
SUMMER DRY BULB	96°
INTERIOR DESIGN CONDITIONS	
WINTER DRY BULB	45°
SUMMER DRY BULB	75°
RELATIVE HUMIDITY	60% RH*
	*DESIGN- NOT CONTROLLED
BUILDING HEATING LOAD:	145.0 MBH
BUILDING COOLING LOAD:	174.5 MBH
MECHANICAL SPACING CONDITIONING SYSTEM	SEE SCHEDULES
UNITARY	
DESCRIPTION OF UNIT:	SEE SCHEDULES
HEATING EFFICIENCY:	SEE SCHEDULES
COOLING EFFICIENCY:	SEE SCHEDULES
SIZE CATEGORY OF UNIT:	SEE SCHEDULES
BOILER	
SIZE CATEGORY, IF OVERSIZED STATE REASON:	N/A
CHILLER	
SIZE CATEGORY, IF OVERSIZED STATE REASON:	N/A
LIST EQUIPMENT EFFICIENCIES:	SEE SCHEDULES

MECHANICAL SUMMARY (OFFICE)

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT	
CLIMATE ZONE	3A
WINTER DRY BULB:	22°
SUMMER DRY BULB	96°
INTERIOR DESIGN CONDITIONS	
WINTER DRY BULB	70°
SUMMER DRY BULB	75°
RELATIVE HUMIDITY	60% RH*
	*DESIGN- NOT CONTROLLED
BUILDING HEATING LOAD:	19.8 MBH
BUILDING COOLING LOAD:	31.3 MBH
MECHANICAL SPACING CONDITIONING SYSTEM	SEE SCHEDULES
UNITARY	
DESCRIPTION OF UNIT:	SEE SCHEDULES
HEATING EFFICIENCY:	SEE SCHEDULES
COOLING EFFICIENCY:	SEE SCHEDULES
SIZE CATEGORY OF UNIT:	SEE SCHEDULES
BOILER	
SIZE CATEGORY, IF OVERSIZED STATE REASON:	N/A
CHILLER	
SIZE CATEGORY, IF OVERSIZED STATE REASON:	N/A
LIST EQUIPMENT EFFICIENCIES:	SEE SCHEDULES

Revision No.	Description	Date:
0	ISSUED FOR CONSTRUCTION	08.20.2022
	REVISIONS	

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NC# P-0586

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10592 JAMES W. BENSON, III

LILLINGTON STORAGE
PHASE I - BUILDING 1
178 I N MAIN STREET
LILLINGTON, NC

MECHANICAL SUMMARIES, LEGEND AND SPECIFICATIONS

JOB NO:	CBHF.22020 RHD.21-7075
DRAWN:	WTB
DESIGNED:	WTB
CHECKED:	JRB

DRAWING NO:
M-001

REVISION:
0

SPLIT SYSTEM HEAT PUMP SCHEDULE

DRAWING CODE (INDOOR / OUTDOOR)	LOCATION	DESIGN BASIS MANUFACTURER	MODEL (INDOOR/OUTDOOR/HEATER)	ALTERNATE APPROVED MANUFACTURERS	ARI COOLING 80/67/95		ARI HEATING 70/47	EFFICIENCIES		INDOOR UNIT									OUTDOOR UNIT				NOTES	ACCESSORIES
										FAN			AUX HEAT	ELECTRICAL (SINGLE POINT)			WEIGHT	ELECTRICAL			WEIGHT		
					TOTAL (MBH)	SENS (MBH)	TOTAL (MBH)	SEER (BTU/W)	HSPF (BTU/W)	SA (CFM)	OA (CFM)	ESP (IN H2O)	CAP (KW)	VOLTAGE (V/PH/HZ)	MCA (AMPS)	MOCP (AMPS)	(LBS)	VOLTAGE (V/PH/HZ)	MCA (AMPS)	MOCP (AMPS)	(LBS)		
AH1.1 / HP1.1	1ST FLOOR OFFICE / ROOF	RHEEM	RH1T4821/RP1442/RXBH-1724_05	TRANE, YORK	42.5	32.4	39.0	14.0	9	1400	85	0.50	5.4	208/1/60	38.0	40	150	208-230/1/60	24.0	40	201	1	A,B,C,D
AH1.2/ HP1.2	1ST FLOOR STORAGE / ROOF	RHEEM	RH1T6024/RP1460/RXBH-1724_05	TRANE, YORK	56.5	40.8	57.0	14.0	9	1800	NOTE 2	0.70	5.4	208/1/60	40.0	40	167	208-230/1/60	31.0	50	262	1,2	A,B,C
AH1.3 / HP1.3	1ST FLOOR STORAGE / ROOF	RHEEM	RH1T6024/RP1460/RXBH-1724_05	TRANE, YORK	56.5	40.8	57.0	14.0	9	1800	NOTE 2	0.70	5.4	208/1/60	40.0	40	167	208-230/1/60	31.0	50	262	1,2	A,B,C
AH1.4 / HP1.4	1ST FLOOR STORAGE / ROOF	RHEEM	RH1T6024/RP1460/RXBH-1724_05	TRANE, YORK	56.5	40.8	57.0	14.0	9	1800	NOTE 2	0.70	5.4	208/1/60	40.0	40	167	208-230/1/60	31.0	50	262	1,2	A,B,C
AH1.5 / HP1.5	1ST FLOOR STORAGE / ROOF	RHEEM	RH1T6024/RP1460/RXBH-1724_05	TRANE, YORK	56.5	40.8	57.0	14.0	9	1800	NOTE 2	0.70	5.4	208/1/60	40.0	40	167	208-230/1/60	31.0	50	262	1,2	A,B,C

NOTES:
1. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.
2. STORAGE AREA NOT VENTILATED PER NCMC 401, UNOCCUPIED SPACE.

ACCESSORIES:
A. MATCHING AUTO CHANGEOVER HEAT-COOL PROGRAMMABLE THERMOSTAT W/ AUX HEAT LOCKOUT ON OA TEMP & SINGLE POINT POWER CONNECTION FOR AHU.
B. EXTERNAL FILTER RACK.
C. MATCHING ENGINEERED ROOF MOUNTING RAILS AND WIND/SEISMIC RESTRAINTS.
D. MOTORIZED OUTSIDE AIR DAMPER. INTERLOCK TO OPEN ON INDOOR FAN START.

LOUVER SCHEDULE

DRAWING CODE	LOCATION SERVED	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	ALTERNATE APPROVED MFRS	TYPE	DESCRIPTION	MATERIAL	LOUVER DEPTH (IN.)	SIZE (W x H) (IN.)	SERVICE	AIRFLOW (CFM)	PERFORMANCE RATINGS		NOTES	ACCESSORIES
												FREE AREA (SF)	S.P. LOSS (IN.H20)		
L1.1	OFFICE	RUSKIN	ELF15J	VENT PRODUCTS, POTTORFF	FIXED	HORIZONTAL, NONDRAINABLE-BLADE	ALUMINUM	2	16 X 8	INTAKE	140	0.33	0.03	1,2	A
L1.2	OFFICE BATHROOM	RUSKIN	ELF15J	VENT PRODUCTS, POTTORFF	FIXED	HORIZONTAL, NONDRAINABLE-BLADE	ALUMINUM	2	16 X 8	EXHAUST	140	0.33	0.01	1,2	A

NOTES:
1. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.
2. FINISH/COLOR PER ARCHITECT.

ACCESSORIES:
A. PROVIDE BIRDSCREEN.

FAN SCHEDULE

DRAWING CODE	LOCATION	DESIGN BASIS MANUFACTURER	MODEL	ALTERNATE APPROVED MANUFACTURERS	FAN TYPE	SERVICE	AIRFLOW (CFM)	E.S.P. (IN. WG.)	SONES (AMCA)	DRIVE	VOLTAGE (V/PH/HZ)	MOTOR (WATTS)	WEIGHT (LBS)	NOTES	ACCESSORIES
EF1.1	OFFICE BATHROOM	GREENHECK	SP-A110	TWIN CITY, PENNBARRY	CENTRIFUGAL CEILING MOUNT	EXHAUST	70	0.25	0.8	DIRECT	120/1/60	74	18	1,2	A,B
EF1.2	1ST FLOOR BATHROOM	GREENHECK	SP-A110	TWIN CITY, PENNBARRY	CENTRIFUGAL CEILING MOUNT	EXHAUST	70	0.25	0.8	DIRECT	120/1/60	74	18	1,2	A,B

NOTES:
1. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.
2. CONTROL VIA OCCUPANCY SENSOR. SEE ELECTRICAL DRAWINGS.

ACCESSORIES:
A. PROVIDE UNIT MOUNTED SPEED CONTROLLER.
B. BACKDRAFT DAMPER.

REGISTER AND DIFFUSER SCHEDULE

DRAWING CODE	DESIGN BASIS MFR	MODEL	ALTERNATE APPROVED MFRS	NECK SIZE	SERVICE	STYLE	CONSTRUCTION	MOUNTING	FINISH	NOTES	ACCESSORIES
S1	PRICE	620D	METALAIRE, TITUS	8x4	SUPPLY	REGISTER, DOUBLE DEFLECTION	ALUMINUM	DUCT	BARE	1	A
S2	PRICE	ASCD	METALAIRE, TITUS	6Ø	SUPPLY	2'x2' SQUARE CEILING DIFFUSER	ALUMINUM	T-BAR	WHITE	1	-
S3	PRICE	ASCD	METALAIRE, TITUS	8Ø	SUPPLY	2'x2' SQUARE CEILING DIFFUSER	ALUMINUM	T-BAR	WHITE	1	-
S4	PRICE	620	METALAIRE, TITUS	6Ø	SUPPLY	REGISTER, DOUBLE DEFLECTION	ALUMINUM	WALL SURFACE	WHITE	1	A
R1	PRICE	630	METALAIRE, TITUS	22x22	RETURN	LOUVERED GRILLE	ALUMINUM	DUCT	BARE	1	-
R2	PRICE	630	METALAIRE, TITUS	22x22	RETURN	2'x2' LOUVERED GRILLE	ALUMINUM	WALL SURFACE	WHITE	1	-

NOTES:
1. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.

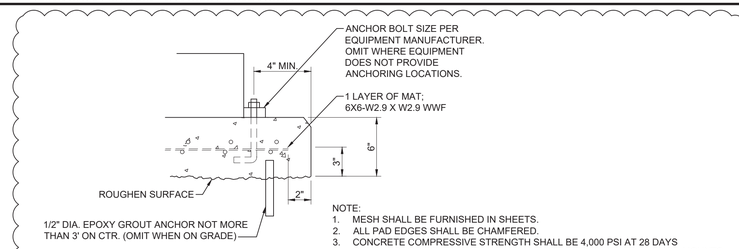
ACCESSORIES:
A. PROVIDE INTEGRAL VOLUME DAMPER.

PACKAGED DEHUMIDIFIER SCHEDULE

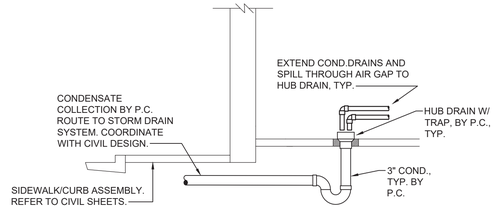
DRAWING CODE	LOCATION	DESIGN BASIS MFR	MODEL	DEHUMID. CAPACITY @ 80°F/60%RH (PINTS/DAY)	INDOOR SECTION							NOTES	ACCESSORIES
					FAN		ELECTRICAL (SINGLE POINT)				WEIGHT (LBS)		
					SA (CFM)	OA (CFM)	ESP (IN H2O)	VOLTAGE (V/PH/HZ)	MCA (AMPS)	MOCP (AMPS)			
D1.1	1ST FLOOR	ULTRA-AIRE	XT155H	155.0	391	0	-	120/1/60	8.0	15	140	1	A,B
D1.2	1ST FLOOR	ULTRA-AIRE	XT155H	155.0	391	0	-	120/1/60	8.0	15	140	1	A,B

NOTES:
1. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.

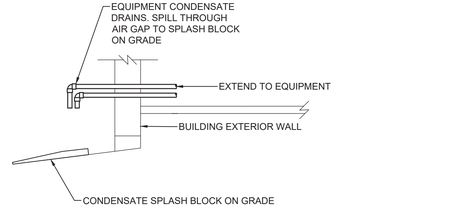
ACCESSORIES
A. OVAL TO ROUND SUPPLY DUCT ADAPTOR.
B. MATCHING DEH3000 WALL MOUNT HUMIDITY CONTROL.



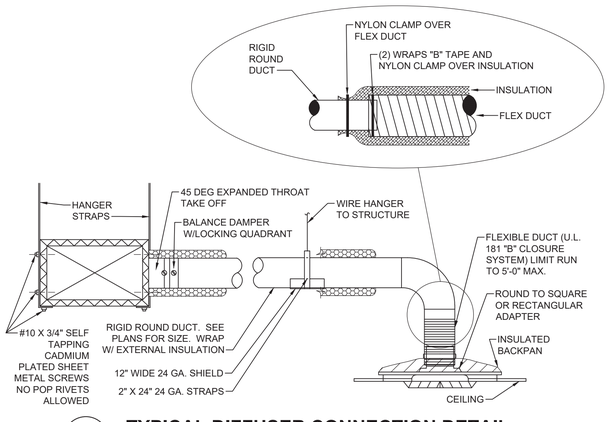
C4 EQUIPMENT PAD-EXTERIOR DETAIL
NOT TO SCALE



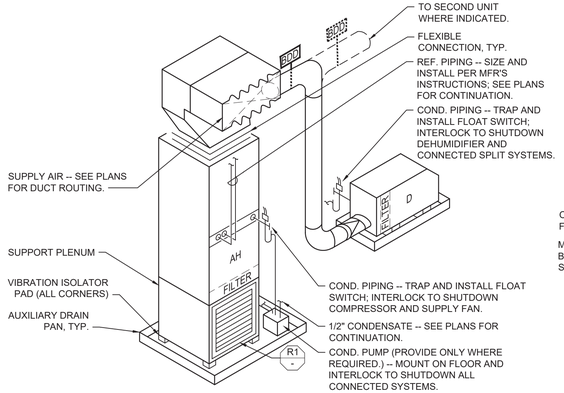
B3 CONDENSATE DRAIN DETAIL
NOT TO SCALE



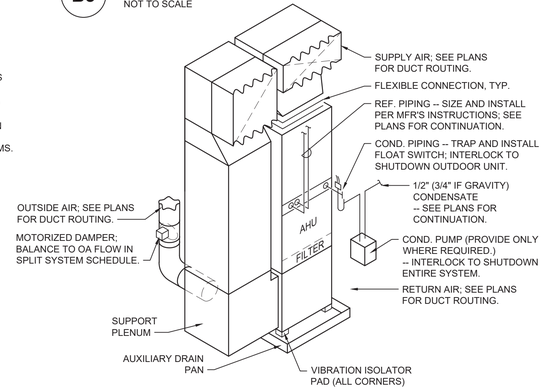
B4 CONDENSATE DRAIN DETAIL
NOT TO SCALE



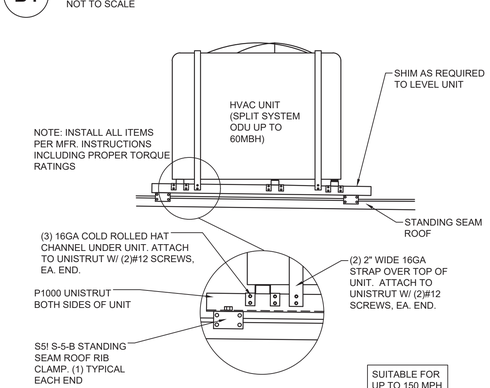
A1 TYPICAL DIFFUSER CONNECTION DETAIL
NOT TO SCALE



A2 TYPICAL AIR HANDLER DETAIL (STORAGE)
NOT TO SCALE



A3 TYPICAL AIR HANDLER DETAIL (OFFICE)
NOT TO SCALE



A4 HVAC UNIT ROOF SUPPORT DETAIL
NOT TO SCALE

Revision No:	Description	Date:
0	ISSUED FOR CONSTRUCTION	08.20.2022
1	REVISED PER PLAN UPDATE AND ODU RELOCATION	09.13.2022

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10592 JAMES R. BENSON II

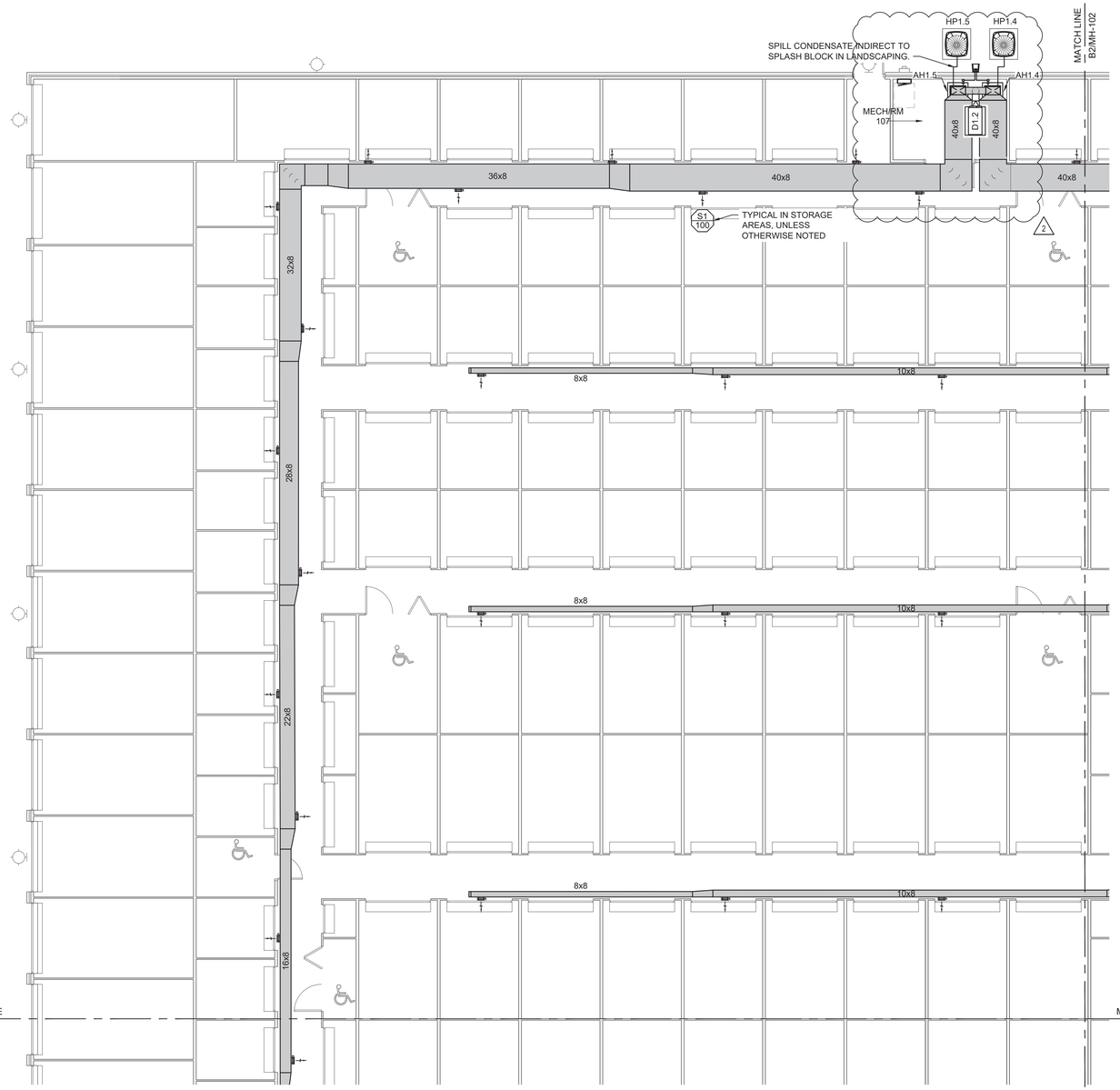
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

MECHANICAL SCHEDULES AND DETAILS

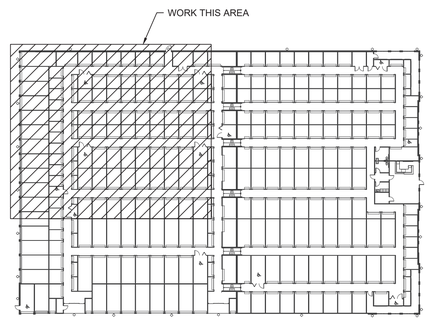
JOB NO:	CBHF.22020 RHD:21-7075
DRAWN:	WTB
DESIGNED:	WTB
CHECKED:	JRB

DRAWING NO:
M-002

REVISION:
1



B2 **PARTIAL FIRST FLOOR PLAN**
1/8" = 1'-0"
0 4' 8' 16'
PLAN NORTH



A5 **KEYPLAN**
NOT TO SCALE
PLAN NORTH

Owner acknowledges and agrees that Robert High Development, LLC (RHD) and CBHF Engineers, PLLC (CBHF) retains all ownership and other rights, title and interests in and to all conceptual, working and final drawings, plans and specifications (collectively, plans and specifications) relating to the Project and all intellectual property rights embodied therein or claimed thereto. Except in connection with the construction, ownership, operation and management of this Project by Owner, this Agreement shall not grant Owner any proprietary rights in the plans and specifications, including, without limitation, any trademarks, trade dress, trade secrets, service marks, trade names, copyrights, licenses, licensed or other proprietary rights of RHD or any such rights granted by third parties or other information, materials or property of RHD. The plans and specifications are protected by federal copyright laws and no reuse of or making thereto shall not to be used, reproduced or copied, in whole or in part, without the prior, written permission of CBHF and RHD.

Revision No:	Description	Date:
2	REVISED PER PLAN UPDATE AND ODU RELOCATION	03.13.2023
1	REVISED PER LIMITED PERMIT	10.20.2022
0	ISSUED FOR CONSTRUCTION	08.20.2022

REVISIONS

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NORTH CAROLINA PROFESSIONAL SEAL 10592 ENGINEER JAMES R. BENSON III

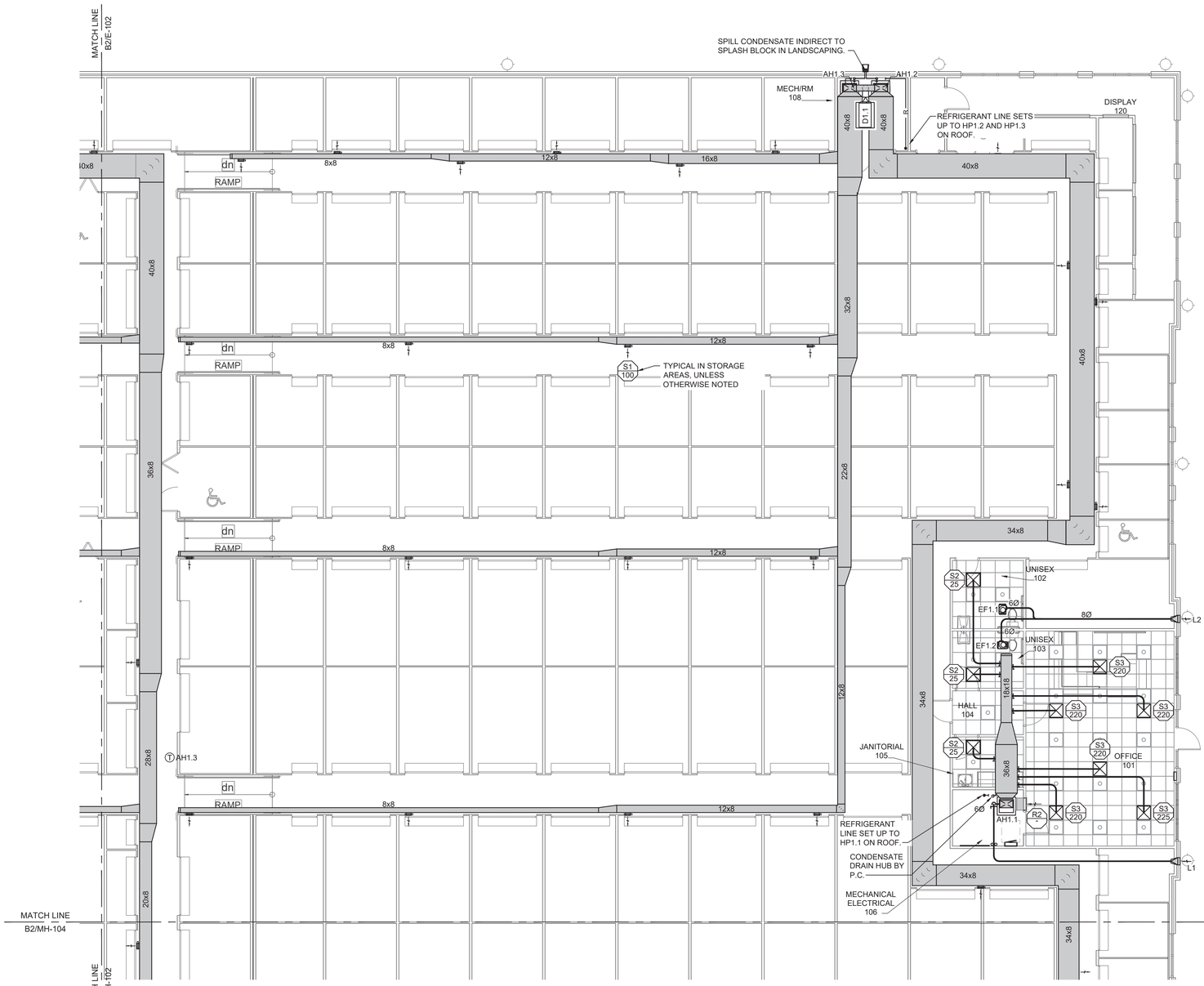
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

MECHANICAL HVAC
PARTIAL FIRST FLOOR PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	WTB
DESIGNED:	WTB
CHECKED:	JRB

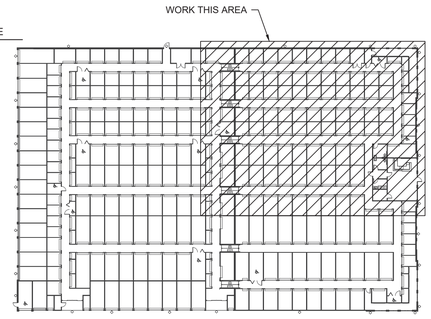
DRAWING NO:
MH101

REVISION:
2



B2 PARTIAL FIRST FLOOR PLAN
1/8" = 1'-0"
0 4' 8' 16'

PLAN NORTH



A5 KEYPLAN
NOT TO SCALE

PLAN NORTH

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Revision No.	Description	Date:
1	REVISED PER UPDATED FLOOR PLAN	10.06.2022
0	ISSUED FOR CONSTRUCTION	08.20.2022

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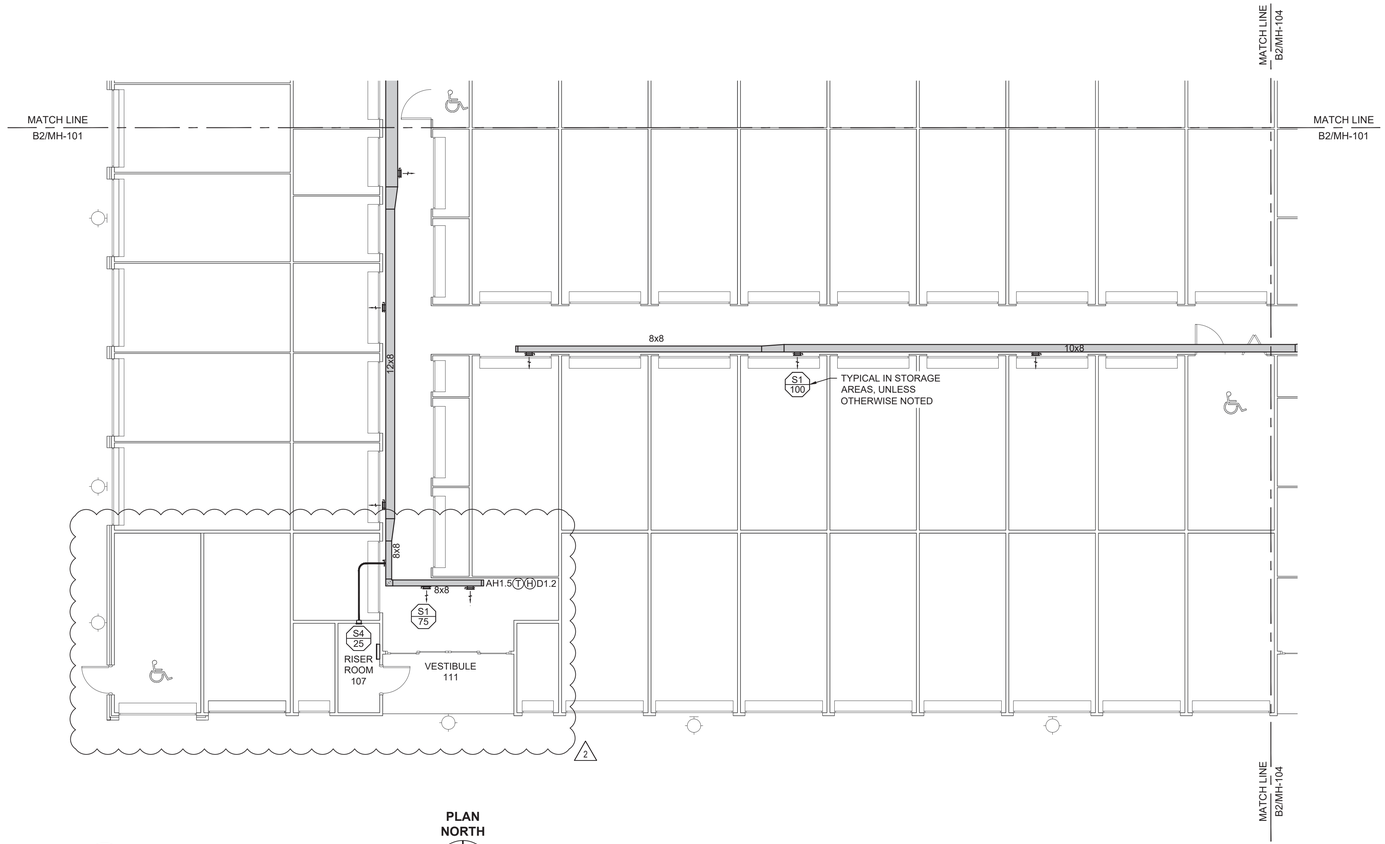
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

MECHANICAL HVAC
PARTIAL FIRST FLOOR PLAN

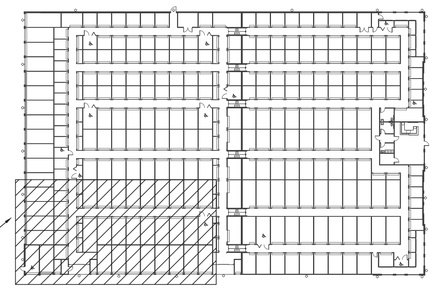
JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	WTB
DESIGNED:	WTB
CHECKED:	JRB

DRAWING NO:
MH102

REVISION:
1



B2 PARTIAL FIRST FLOOR PLAN
1/8" = 1'-0"
0 4' 8' 16'
PLAN NORTH



A5 KEYPLAN
NOT TO SCALE
PLAN NORTH

Revision No:	Description	Date:
2	REVISED PER PLAN UPDATE AND ODU RELOCATION	03.13.2023
1	REVISED PER LIFT STATION WORK PLAN	10.06.2022
0	ISSUED FOR CONSTRUCTION	08.20.2022

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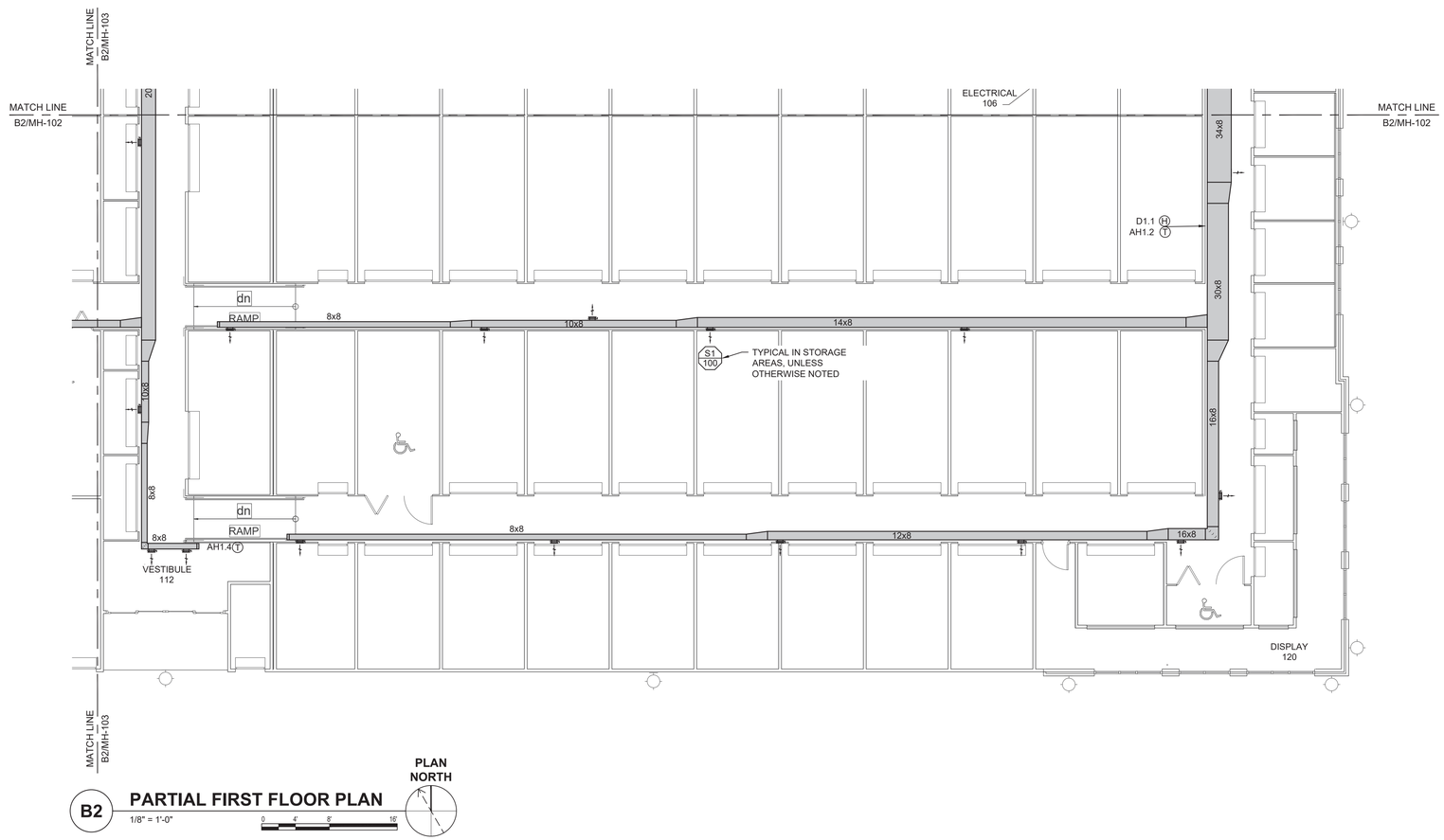
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

MECHANICAL HVAC
PARTIAL FIRST FLOOR PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	WTB
DESIGNED:	WTB
CHECKED:	JRB

DRAWING NO:
MH103

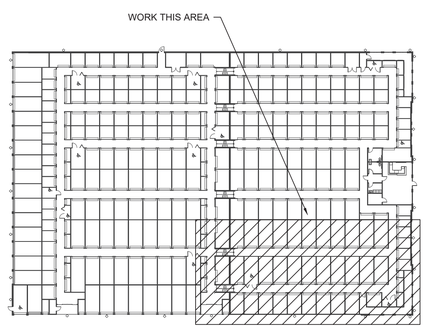
REVISION:
2



B2 PARTIAL FIRST FLOOR PLAN
1/8" = 1'-0"
0 4' 8' 16'

PLAN NORTH

1



A5 KEYPLAN
NOT TO SCALE

PLAN NORTH

Revision No:	Description	Date:
1	REVISED PER UPDATED FLOOR PLAN	10.06.2022
0	ISSUED FOR CONSTRUCTION	08.20.2022

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SEAL 10592
JAMES R. BENSON III

LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

MECHANICAL HVAC
PARTIAL FIRST FLOOR PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	WTB
DESIGNED:	WTB
CHECKED:	JRB

DRAWING NO:
MH104

REVISION:
1

A1 **ROOF PLAN**
3/32" = 1'-0"
0 5' 10' 20'

PLAN NORTH

1

Revision No:	Description	Date:
2	REVISED PER PLAN UPDATE AND ODU RELOCATION	03.13.2023
1	REVISED PER LIFT STOCK PLAN	10.07.2022
0	ISSUED FOR CONSTRUCTION	08.20.2022

REVISIONS

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10592 JAMES R. BENSON III

LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

MECHANICAL HVAC
ROOF PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	WTB
DESIGNED:	WTB
CHECKED:	JRB

DRAWING NO:
MH105

REVISION:
2

LOAD SUMMARY PANEL P1

VOLTAGE	PHASE	
240	1	
LARGEST MOTOR APPROX. AMPS	25	AMPS
LARGEST MOTOR APPROX. AMPS x .25	6	AMPS
HVAC		
AH'S (QTY. 5)	31,296	VA
HP'S (QTY. 5)	28,032	VA
DEHUMIDIFIER (QTY. 2)	1,536	VA
SUB-TOTAL HVAC DEMAND	60,864	VA
SUB-TOTAL HVAC DEMAND	254	AMPS
EQUIPMENT		
HOT BOX BFP	1,500	VA
MOTORIZED DOORS	800	VA
MOTORIZED GATE	1,600	VA
EUH1	1,500	VA
FACP	400	VA
EWH1	1,500	VA
SUB-TOTAL EQUIPMENT DEMAND	7,300	VA
SUB-TOTAL EQUIPMENT DEMAND	30	AMPS
ADD FOR LARGEST MOTOR	6	AMPS
TOTAL EQUIPMENT DEMAND	37	AMPS
LIGHTING		
LIGHTS (INTERIOR, BASED ON NEC 220.12)	13,154	VA
LIGHTS (EXTERIOR)	676	VA
SIGN	1,200	VA
TOTAL LIGHTING LOAD	15,030	VA
TOTAL DEMAND FOR LIGHTING	63	AMPS
RECEPTACLES		
RECEPTACLES	7,380	VA
TOTAL DEMAND FOR RECEPTACLES	7,380	VA
TOTAL DEMAND FOR RECEPTACLES	31	AMPS
TOTAL DEMAND BUILDING AMPS	384	AMPS
TOTAL DEMAND BUILDING AMPS	92,062	VA
TOTAL BUILDING CONNECTED LOAD	90,574	VA

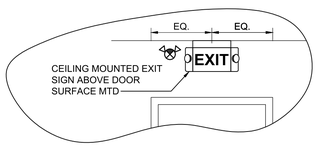
ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	TYPE 'A' 4FT CHANNEL LIGHT FIXTURE, SUSPENDED OR SURFACE MOUNTED (SEE FIXTURE SCHEDULE)
	TYPE 'B' 2x2 LIGHT FIXTURE, RECESSED OR SURFACE MOUNTED (SEE FIXTURE SCHEDULE)
	WALL MOUNTED LIGHT FIXTURE LETTER INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	RECESSED LIGHT FIXTURE LETTER INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	PENDANT LIGHT FIXTURE LETTER INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	POWER & SWITCH LEG
	UNSWITCHED LEG
	CONDUIT, HOME RUN TO PANEL BOARD
	EXIT SIGN, DOUBLE FACE, CEILING MOUNTED, ARROW INDICATES DIRECTION. LETTER INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	EXIT SIGN W/EMERGENCY LIGHTING UNIT, CEILING MOUNTED, ARROW INDICATES DIRECTION. LETTER INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	EXIT SIGN, SINGLE FACE, WALL/END MOUNTED, ARROW INDICATES DIRECTION. LETTER INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	EXIT SIGN, DOUBLE FACE, WALL/END MOUNTED, ARROW INDICATES DIRECTION. INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	EXIT SIGN W/EMERGENCY LIGHTING UNIT, WALL/END MOUNTED, ARROW INDICATES DIRECTION. INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	TYPE 'E' EMERGENCY LIGHTING UNIT, 2-HEAD WITH BATTERY BACK-UP, WALL MOUNTED, "NOT SWITCHED" (SEE FIXTURE SCHEDULE)
PE	PHOTOCELL, REMOTE MOUNTED, 120V, 10 SECOND TIME DELAY, UL WET LOCATION, RATED FOR 1500 W @ 120 VAC AND 4000 W @ 277 VAC (FOR USE WITH LAMP SOURCE(S) SHOWN
$	SWITCH, SINGLE POLE, 120/277VAC, 20A, MOUNTED AT 46" AFF UNLESS OTHERWISE NOTED (SEE ELECTRICAL MOUNTING HEIGHT DETAIL). LOWER CASE LETTER INDICATES FIXTURE SWITCHING (WHEN INDICATED)
$3	3-WAY SWITCH, 120/277 VAC, 20A, MOUNTED AT 46" AFF UNLESS OTHERWISE NOTED
$4	4-WAY SWITCH 120/277 VAC, 20A, MOUNTED AT 46" AFF UNLESS OTHERWISE NOTED
OS	CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, 360° COVERAGE
OS	WALL MOUNTED OCCUPANCY SENSOR, 180° COVERAGE 2 = SECOND CONTACT TO BE PROVIDED FOR CONNECTION TO BUILDING MANAGEMENT
OS	WALL MOUNTED OCCUPANCY SENSOR, SINGLE BUTTON ON/OFF CONTROL, 180° COVERAGE, MOUNTED AT 46" AFF UNLESS OTHERWISE NOTED.
30A/3/3R, W/ 30AF	DISCONNECT SWITCH, FUSED, HEAVY **(GENERAL)** DUTY, SIZE AS INDICATED ON DRAWINGS (SIZE AS INDICATED IN THE EQUIPMENT CONNECTION SCHEDULE) ##A = DISCONNECT SIZE / # = NUMBER OF POLES / # = NEMA RATING, /##AF = FUSE SIZE
CB	ENCLOSED BREAKER, HEAVY DUTY, SIZE AS INDICATED ON DRAWINGS ##A = BREAKER SIZE / # = NUMBER OF POLES / # = NEMA RATING,
MS/##	MANUAL MOTOR STARTER, ELECTRICAL CONTRACTOR SHALL COORDINATE POLES AND SIZE WITH EQUIPMENT ## = AMPERAGE RATING WHEN INDICATED ON DRAWING
	3 UP/STOP/DN PUSHBUTTON CONTROLER

SYMBOL	DESCRIPTION
	RECESSED DEDICATED/PICTURE/CLOCK SINGLE OUTLET, 120VAC, 20A, MOUNTED AS INDICATED ON DRAWING.
	RECEPTACLE, DUPLEX, 120VAC, 20A, MOUNTED 16" AFF, UNLESS OTHERWISE NOTED. (SEE ELECTRICAL MOUNTING HEIGHT DETAIL)
	RECEPTACLE, DUPLEX, 120VAC, 20A, MOUNTED 6" ABOVE COUNTER TOP OR BACK SPLASH.
	RECEPTACLE, QUADPLEX, 120VAC, 20A MOUNTED 16"AFF UNLESS OTHERWISE NOTED (SEE ELECTRICAL MOUNTING HEIGHT DETAIL)
	RECEPTACLE, QUADPLEX, 120VAC, 20A, MOUNTED 6" ABOVE COUNTER TOP OR BACK SPLASH.
	RECEPTACLE, DUPLEX, GROUND FAULT CIRCUIT INTERRUPTER TYPE, 120VAC, 20A, MOUNTED 16" AFF, UNLESS OTHERWISE NOTED. (SEE ELECTRICAL MOUNTING HEIGHT DETAIL)
	RECEPTACLE, DUPLEX, GROUND FAULT CIRCUIT INTERRUPTER TYPE, 120VAC, 20A, MOUNTED 6" ABOVE COUNTER TOP OR BACK SPLASH.
	RECEPTACLE, QUADPLEX, GROUND FAULT CIRCUIT INTERRUPTER TYPE, 120VAC, 20A MOUNTED 16"AFF UNLESS OTHERWISE NOTED (SEE ELECTRICAL MOUNTING HEIGHT DETAIL)
	RECEPTACLE, QUADPLEX, GROUND FAULT CIRCUIT INTERRUPTER TYPE, 120VAC, 20A, MOUNTED 6" ABOVE COUNTER TOP OR BACK SPLASH.
	RECEPTACLE, DUPLEX, 120VAC, 20A CEILING MOUNTED (LAY-IN / GYPBOARD / SUSPENDED)
	**FOR ALL RECEPTACLE TYPES ABOVE: +XX'- INDICATES MOUNTING HEIGHT OF DEVICE IN INCHES AFF (IF GIVEN) (SEE ELECTRICAL MOUNTING HEIGHT DETAIL) WP - LISTED WEATHER-RESISTANT TYPE DEVICE WITH WEATHERPROOF IN USE COVER TR - TAMPER RESISTANT
	COMBINATION DATA/TELEPHONE OUTLET, MOUNTED 18" AFF UNLESS OTHERWISE NOTED. PROVIDE 11/4" CONDUIT TO ABOVE GRID CEILING W/PULL STRING. OUTLETS LOCATED BELOW HARD(GYPBOARD) CEILINGS, ROUTE 1" CONDUIT BACK TO TELEPHONE BACKBOARD OR SERVER LOCATION.
	JUNCTION BOX - WALL MOUNTED +##" - INDICATES MOUNTING HEIGHT OF DEVICE IN INCHES AFF (if given)
	1 HOUR RATED FIRE WALL
	2 HOUR RATED FIRE WALL
	3 HOUR RATED FIRE WALL
	HATCHING INDICATES ITEMS TO BE DEMOLISHED. REMOVE DEVICE, EQUIPMENT, FIXTURE INDICATED, CIRCUIT, AND CONDUIT BACK TO SOURCE UNLESS OTHERWISE NOTED.
1	DEMOLITION KEY NOTE SYMBOL
1	KEY NOTE SYMBOL
1	REVISION DELTA
208/120V	PANELBOARD, SURFACE OR RECESSED MOUNTED AS SHOWN. SIZE, RATINGS, AND MOUNTING AS INDICATED ON PANEL SCHEDULE. CONTRACTOR IS RESPONSIBLE FOR REQUIRED CLEARANCE IN FRONT OF ELECTRICAL PANEL. SEE NEC TABLE 110.26 WORKING SPACES FOR ADDITIONAL CLEARANCE CONDITIONS.
	TRANSFORMER, SIZE AS INDICATED ON DRAWING
	METER
EX / E-XXX	DETAIL, SECTION OR PLAN NUMBER DRAWING SHEET PLAN, DETAIL OR SECTION APPEARS ON ENLARGED PLAN / ELEVATION

TYPICAL ABBREVIATIONS:

A, AMP	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BOF	BOTTOM OF FIXTURE
BRKR	BREAKER
C, CND	CONDUIT
CAB	CABINET
CAT	CATALOG
CL	CHLORINE
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
CP	CONTROL PANEL
CR	CONTROL RELAY, CORROSION RESISTANT
CS	CONTROL SWITCH
CV	CONTROL VALVE
CT	CURRENT TRANSFORMER
CU	COPPER
EF	EXHAUST FAN
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EPRF	EXPLOSION PROOF
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FLA	FULL LOAD AMPS
FLUOR	FLUORESCENT
FLR	FLOOR
FWE	FURNISHED WITH EQUIPMENT
GEN	GENERATOR
G, GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HP	HORSE POWER
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
Hz	HERTZ
IMC	INTERMEDIATE METALLIC CONDUIT
INCAND	INCANDESCENT
JB	JUNCTION BOX
K	THOUSAND
KCMIL	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT AMPERE
KW	KILOWATTS
KWH	KILOWATT-HOURS
LP	LIGHTING PANEL, LIGHT POLE
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N, NEUT	NEUTRAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
P	POLE
PA	PUBLIC ADDRESS
PB	PULL BOX, PUSH-BUTTON
PF	POWER FACTOR
PH,ϕ	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PP	POWER PANEL, POWER POLE
PT	POTENTIAL TRANSFORMER
PWR	POWER
RECPT, RCP	RECEPTACLE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL CONDUIT
RM	ROOM
RTU	REMOTE TELEMETRY UNIT
SCR	DC MOTOR DRIVE
SH	SHEET
SPEC	SPECIFICATION
SS	SELECTOR SWITCH
SST	STAINLESS STEEL
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCH GEAR
TEL	TELEPHONE
TPS	TWISTED PAIR SHIELDED
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UGND	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UTIL	UTILITY
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE, WATT
WH	WATT-HOUR
WP	WEATHERPROOF
XFMR	TRANSFORMER



NOTE:
DETAIL SHOWN FOR REFERENCE ONLY, NOT ALL DEVICES ARE INDICATED ON PLANS.

A1 **ELECTRICAL DEVICES - MOUNTING HEIGHT DETAIL**
NOT TO SCALE

ENERGY CODE EXEMPTION:

N.C.G.S 143-138 (b18) EXEMPTS THIS BUILDING FROM CONFORMING TO THE ENERGY CODE. PLEASE LET US KNOW IF YOU HAVE ANY QUESTIONS OR NEED ADDITIONAL INFORMATION.

RADIO COVERAGE NOTE:

EMERGENCY RESPONDER RADIO COVERAGE REQUIREMENTS SECTION 510 OF THE NFPA FIRE CODE, 2018 EDITION REQUIRES THAT NEW BUILDINGS SHALL HAVE A TEST CONDUCTED TO VERIFY RADIO COVERAGE AND IF REQUIRED SHALL INSTALL EQUIPMENT TO MEET REQUIRED RADIO SIGNAL STRENGTHS. SYSTEM SHALL BE P25 COMPLIANT. A COPY OF PROOF OF COMPLIANCE SHALL BE PROVIDED PRIOR TO CERTIFICATE OF OCCUPANCY.

BDA PROJECT NOTES IN TESTING AND INSTALLATION SEQUENCING

1. A PRELIMINARY SITE SURVEY IS NEEDED TO DETERMINE THE EXISTING dBm SIGNAL STRENGTH.
2. A MORE DETAILED SURVEY WILL MAP THE BUILDING ONCE THE BUILDING IS SUBSTANTIALLY COMPLETED.
3. THE NEXT SIGNAL STRENGTH SURVEY WILL COMPLY WITH THE 2018 NCFC, 510.5.3 AND NFPA 72, 24.5.2.1 (2013 EDITION)
   - EACH FLOOR SHALL BE DIVIDED INTO 20 (APPROXIMATELY) EQUAL TEST AREAS, THE WORST CASE SIGNAL STRENGTH READING SHALL BE RECORDED. PROVIDE 90 PERCENT FLOOR AREA RADIO COVERAGE.
   - CRITICAL AREAS, IF PRESENT, SHALL BE SURVEYED SEPARATE FROM THE EQUAL TEST AREAS;
   --- EXIT PASSAGEWAYS
   --- AHJ MAY REQUIRE ADDITIONAL LOCATIONS.

   -- CRITICAL AREAS SHALL BE PROVIDED WITH 99 PERCENT RADIO COVERAGE.
4. THE MINIMUM SIGNAL STRENGTH OF -95 dBm IS REQUIRED.

Revision No:	Description:	Date:
0	ISSUED FOR CONSTRUCTION	06.20.2022
	REVISIONS	

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03/14/23

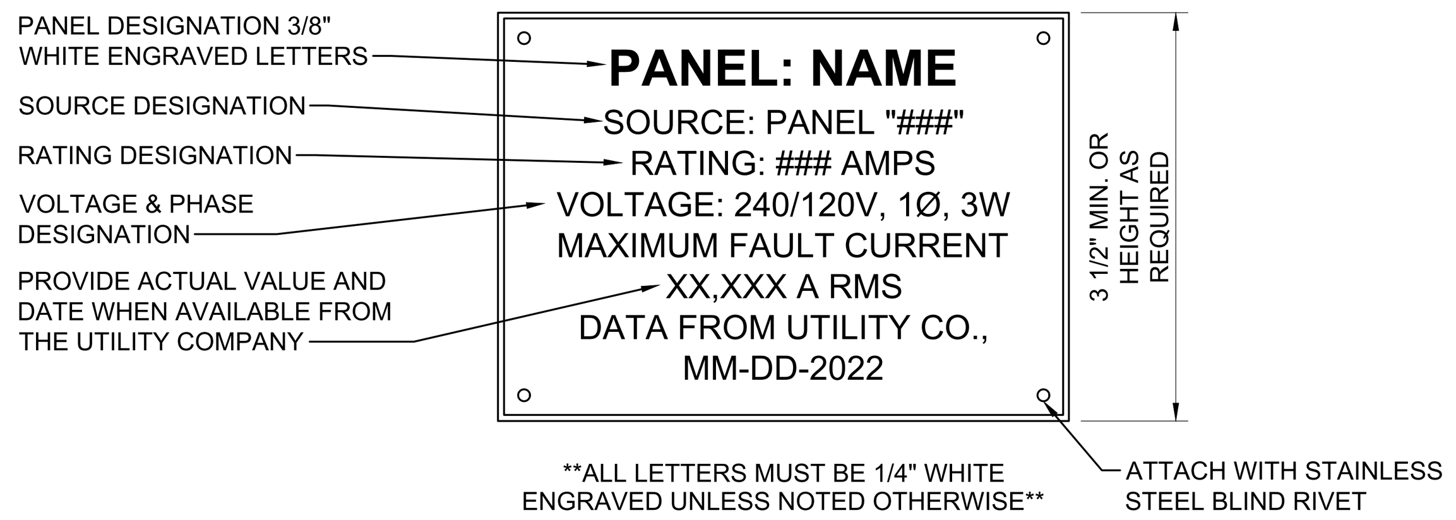
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

ELECTRICAL LEGEND, ABBREVIATIONS, AND LOAD SUMMARIES

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

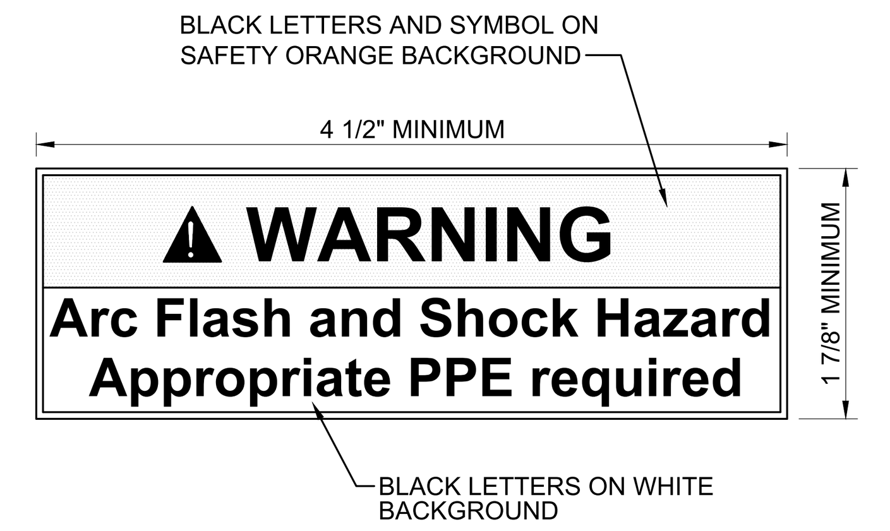
DRAWING NO:
E-001

REVISION:
0



NOTE: SEE SPECS. SECTION 260553 FOR NAMEPLATE MATERIAL AND ENGRAVING COLORS.

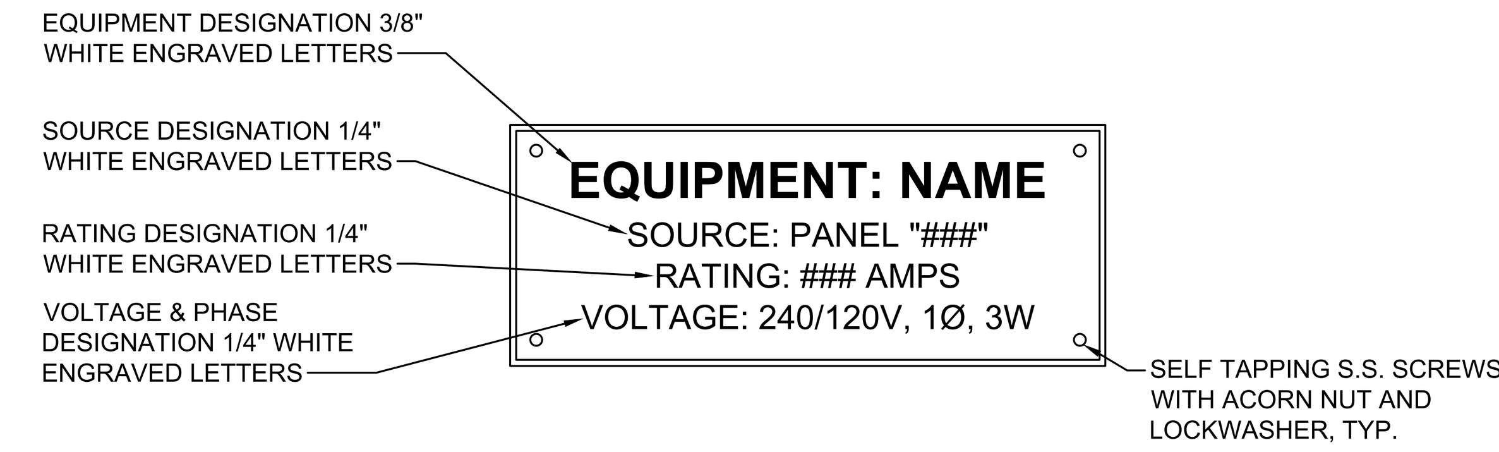
D1 TYPICAL PANELBOARD NAMEPLATE DETAIL
NOT TO SCALE



NOTES:
1. LABEL SHOWN CAN BE SOURCED FROM SAFETYSIGN.COM, OTHER SUPPLIERS ARE COMPLIANTSIGNS.COM & SETON.COM

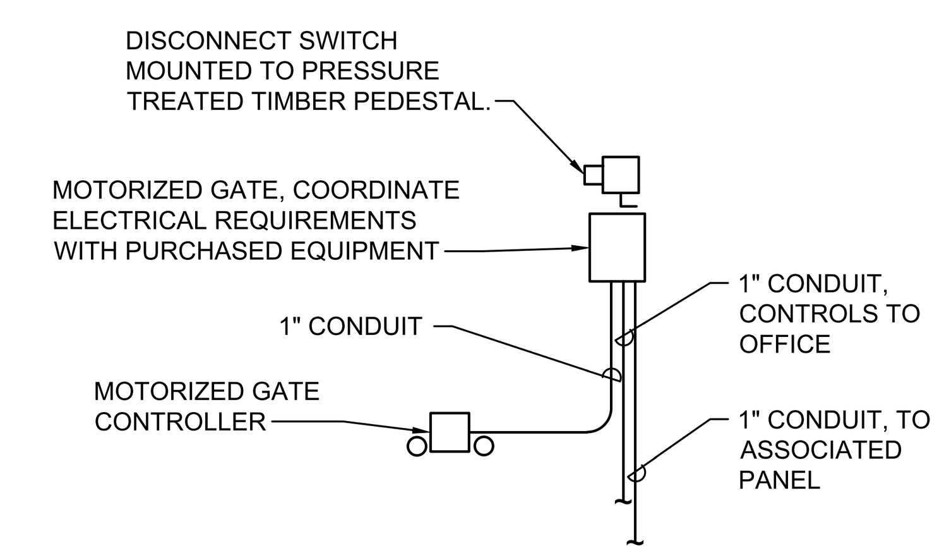
2. THIS WARNING LABEL MINIMALLY COMPLIES WITH NEC, HOWEVER IF ELECTRICAL EQUIPMENT IS LIKELY TO REQUIRE EXAMINATION OR MAINTENANCE WHILE ENERGIZED A DETAILED SHORT CIRCUIT AND ARC FLASH HAZARD ANALYSIS IS RECOMMENDED.

D2 ELECTRICAL EQUIPMENT WARNING LABEL DETAIL
NOT TO SCALE

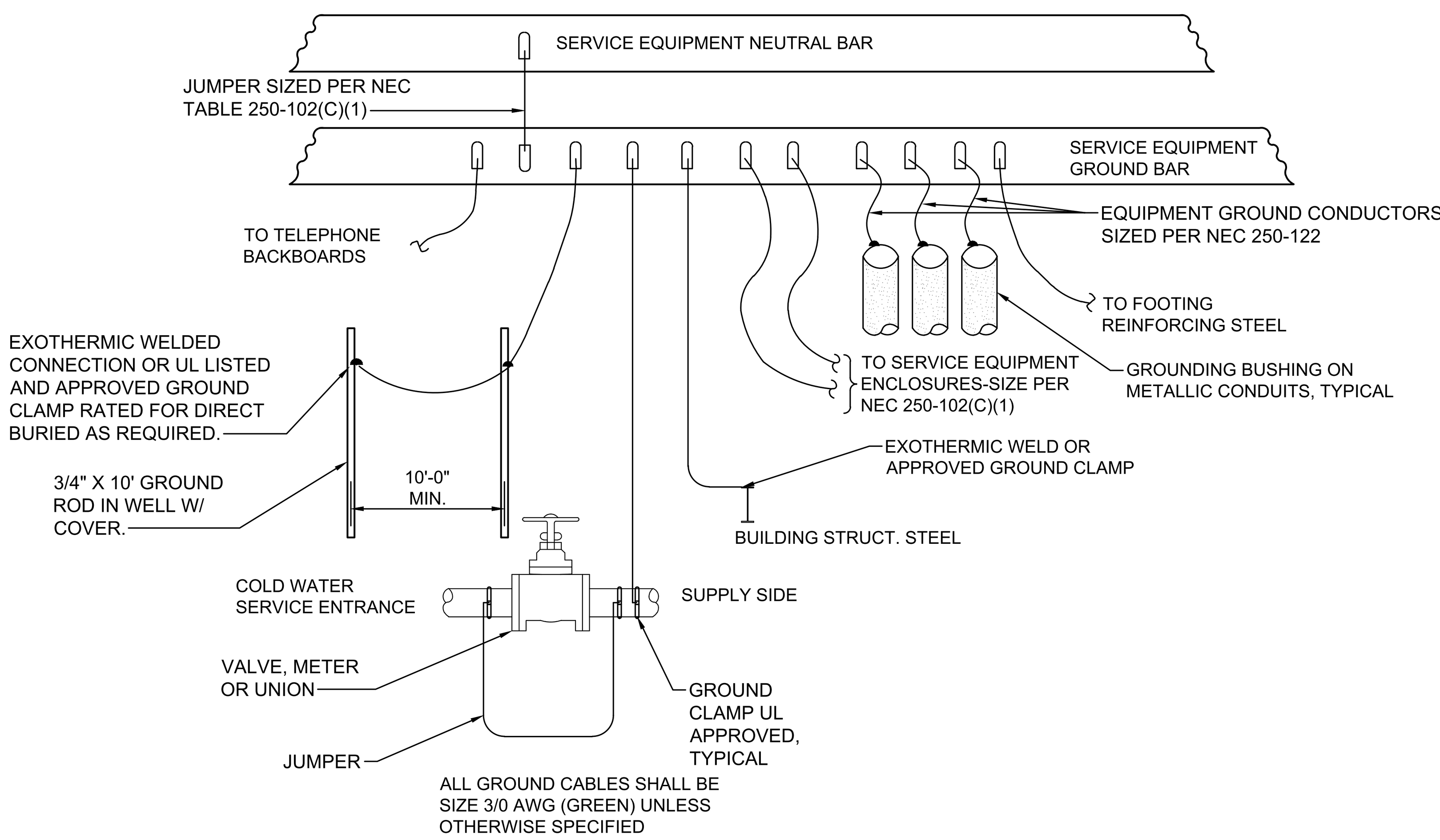


NOTE: SEE SPECS. SECTION 260553 FOR NAMEPLATE MATERIAL AND ENGRAVING COLORS.

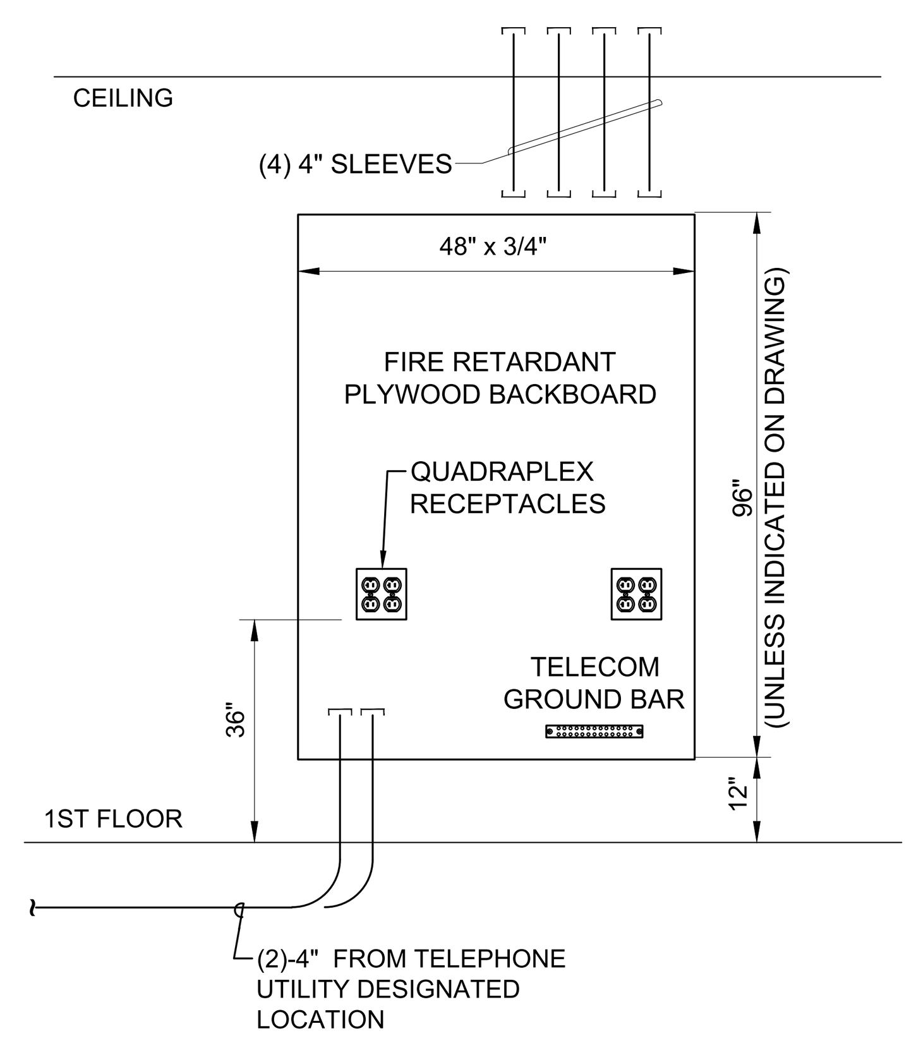
D4 TYPICAL EQUIPMENT NAMEPLATE DETAIL
NOT TO SCALE



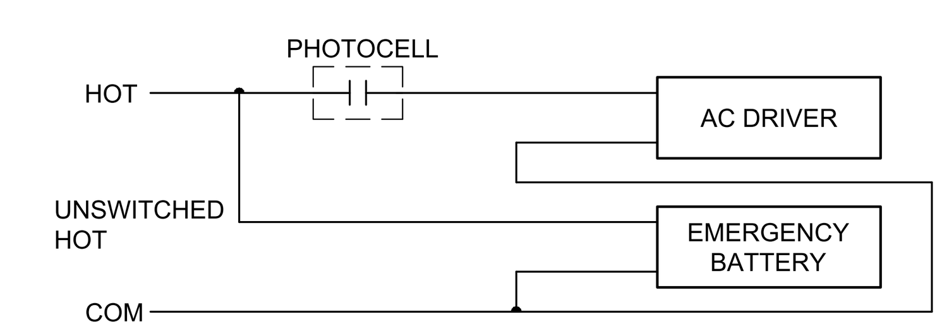
D4 TYPICAL MOTORIZED GATE DETAIL
NOT TO SCALE



B1 SERVICE GROUNDING DETAIL
NOT TO SCALE



B3 TELECOM BACKBOARD DETAIL
NOT TO SCALE



B4 WIRING DIAGRAM - EXTERIOR FIXTURE TYPE "G1 & J"
NOT TO SCALE

Revision No:	Description:	Date:
0	ISSUED FOR CONSTRUCTION	06.20.2022

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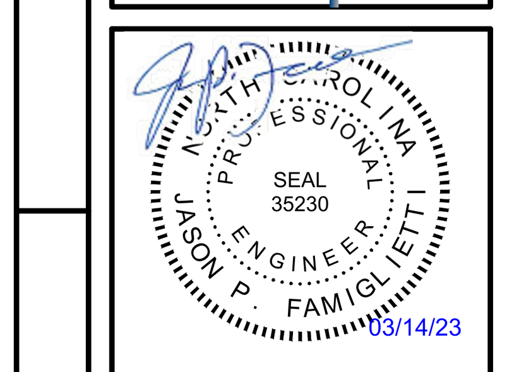
NC# P-0506



LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

ELECTRICAL GENERAL NOTES

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

DRAWING NO:
E-002

REVISION:
0

PANEL P1

SERVICE EQUIPMENT LISTED

TYPE: NEMA 1 LOAD CENTER | 240 V, 1 PH, 3 WIRE | MOUNT: SURFACE | FEED: BOTTOM | PROVIDE IF CHECKED: XX EQUIP. GND BUS, XX NEUTRAL BUS, GUTTER TAPS, SUB-FEED LUGS

LOAD SERVED	LOAD VA	CKT BKR	CKT #	A	B	CKT #	CKT BKR	LOAD VA	LOAD SERVED
AH1.2 (NOTE 1)	3,168	35/2	1	6,144		2	50/2	2,976	HP1.2 (NOTE 1)
"	3,168	|	3		6,144	4	|	2,976	"
AH1.3 (NOTE 1)	3,168	35/2	5	6,144		6	50/2	2,976	HP1.3 (NOTE 1)
"	3,168	|	7		6,144	8	|	2,976	"
AH1.4 (NOTE 1)	3,168	35/2	9	6,144		10	50/2	2,976	HP1.4 (NOTE 1)
"	3,168	|	11		6,144	12	|	2,976	"
AH1.5 (NOTE 1)	3,168	35/2	13	6,144		14	50/2	2,976	HP1.5 (NOTE 1)
"	3,168	|	15		6,144	16	|	2,976	"
D1.1 (NOTE 1)	768	20/1	17	1,488		18	20/1	720	RECS: MECH CLOSETS & ROOF
D1.2 (NOTE 1)	768	20/1	19		768	20	20/1		SPARE
SPARE		20/1	21	946		22	20/1	540	LTG: CORRIDOR
SPARE		20/1	23		1,075	24	20/1	1,075	LTG: CORRIDOR
FACP (NOTE 2)	400	20/1	25	1,312		26	20/1	912	LTG: ELEC, MECH RM, CORRIDOR
REC: RISER ROOM	180	20/1	27		1,384	28	20/1	1,204	LTG: CORRIDOR
SPARE		20/1	29	1,032		30	20/1	1,032	LTG: CORRIDOR
SPARE		20/1	31		206	32	20/1	206	LTG: EXTERIOR
SPARE		20/1	33			34	20/1		SPARE
SPARE		20/1	35			36	20/1		SPARE
SPARE		20/1	37			38	20/1		SPARE
SPARE		20/1	39		13,492	40	150/3	13,492	PANEL P1A
SPARE		20/1	41	13,110		42		13,110	*
NOTE:				42,464	41,501	TOTAL V. AMPS		400	A. BUS (COPPER)
1. HVAC & REFRIG. EQUIP. SHALL USE TYPE HACR BREAKERS.				354	346	CONN. AMPS		400	A. MAIN CIRCUIT BREAKER
2. PROVIDE CIRCUIT BREAKER LOCKING DEVICE FOR FACU ALONG WITH IDENTIFYING CIRCUIT BREAKER IN ACCORDANCE WITH NEC 760.41									

22 KAIC MIN.

PANEL P1A

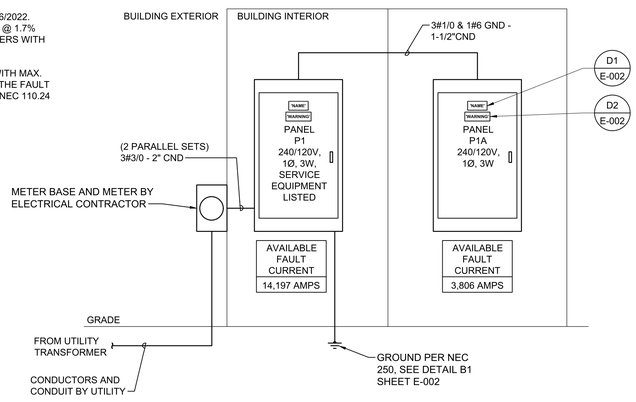
TYPE: NEMA 1 LOAD CENTER | 240 V, 1 PH, 3 WIRE | MOUNT: SURFACE | FEED: BOTTOM | PROVIDE IF CHECKED: XX EQUIP. GND BUS, XX NEUTRAL BUS, GUTTER TAPS, SUB-FEED LUGS

LOAD SERVED	LOAD VA	CKT BKR	CKT #	A	B	CKT #	CKT BKR	LOAD VA	LOAD SERVED
AH1.1 (NOTE 1)	2,976	35/2	1	3,516		2	20/1	540	RECS: MECH CLOSET AND EXTERIOR
"	2,976	|	3		3,336	4	20/1	360	RECS: MECH CLOSET
HP1.1 (NOTE 1)	2,112	35/2	5	2,472		6	20/1	360	RECS: TELEPHONE BACKBOARD
"	2,112	|	7		2,472	8	20/1	360	RECS: TELEPHONE BACKBOARD
LTG: OFFICE	505	20/1	9	1,045		10	20/1	540	RECS: OFFICE
LTG: CORRIDOR	902	20/1	11		1,622	12	20/1	720	RECS: OFFICE
LTG: CORRIDOR & UNITS	1,049	20/1	13	1,769		14	20/1	720	RECS: OFFICE DESK
LTG: CORRIDOR & UNITS	1,140	20/1	15		1,860	16	20/1	720	RECS: TELEVISIONS
LTG: EXTERIOR	470	20/1	17	470		18	20/1		SPARE
MOTORIZED DOORS	800	20/1	19		1,160	20	20/1	360	RECS: SHOW WINDOWS
SPARE		20/1	21	180		22	20/1	180	RECS: JANITOR
SPARE		20/1	23		180	24	20/1	180	RECS: JANITOR
SPARE		20/1	25	360		26	20/1	360	RECS: JANITOR
SPARE		20/1	27		1,500	28	20/1	1,500	EWH1
SPARE		20/1	29	1,200		30	20/1	1,200	SIGN
SPARE		20/1	31		180	32	20/1	180	REC: ELEC/MECH CLOSET
SPARE		20/1	33	180		34	20/1	180	REC: ELEC/MECH CLOSET
SPARE		20/1	35			36	20/1		SPARE
SPARE		20/1	37			38	20/1		SPARE
SPARE		20/1	39		800	40	30/2	800	MOTORIZED GATE
HOT BOX BFP	1,500	20/1	41	2,300		42	|	800	*
NOTE:				13,492	13,110	TOTAL V. AMPS		150	A. BUS (COPPER)
1. HVAC & REFRIG. EQUIP. SHALL USE TYPE HACR BREAKERS.				112	109	CONN. AMPS		150	A. MAIN CIRCUIT BREAKER

10 KAIC MIN.

NOTE:

1. SHORT CIRCUIT CALCULATION COMPLETED ON 06/16/2022. BASED ON A 100KVA PAD MOUNTED TRANSFORMER @ 1.7% IMPEDANCE, AND 2.4 X/R. VERIFY ACTUAL PARAMETERS WITH UTILITY COMPANY PRIOR TO INSTALLATION
2. SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED WITH MAX. AVAILABLE FAULT CURRENT, INCLUDING THE DATE THE FAULT CURRENT CALCULATIONS WERE PERFORMED, PER NEC 110.24



A2 RISER DIAGRAM

NOT TO SCALE

Revision No.	Description	Date:
	ISSUED FOR CONSTRUCTION	08.20.2022
1	REVISED PER UPDATED FLOOR PLAN	03.13.2023

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NC# P-0266

LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

ELECTRICAL SPECIFICATIONS

JOB NO: CBHF.22020 RHD:21-7075
DRAWN: RRD
DESIGNED: RRD
CHECKED: JPF

DRAWING NO:
E-003

REVISION:
1

LIGHTING FIXTURE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER/SERIES	NOM. SIZE	TEMP(oK)	LAMPS	VOLTS	DELIVERED LUMENS	WATTS	COLOR	MOUNTING HEIGHT	BALLAST/ DRIVER	REMARKS
A	LED STRIP FIXTURE 4'	METALUX SLSTP SERIES OR APPROVED EQUAL	4'	4000K	LEDs	120	4760	43	N/A	APPROX 8'-6"	LED DRIVER	5
B	LAY-IN FLAT PANEL FIXTURE 2'X2' SELECTABLE LUMEN AND KELVIN	LITHONIA LIGHTING CPANL SERIES OR APPROVED EQUAL	2'x2'	4000	LEDs	120	2750	21	N/A	RECESSED	LED DRIVER	5
C	SELF CONTAINED SURFACE MOUNTED FIXTURE WITH INTEGRAL OCCUPANCY SENSOR	LEVITON 9864-LED OR APPROVED EQUAL	N/A	4000	LEDs	120	800	9	WHITE	APPROX 8'-0"	LED DRIVER	6
E	EMERGENCY LIGHTING FIXTURE, 2 HEAD, WHITE THERMOPLASTIC HOUSING, 90 MIN BATTERY BACKUP	LITHONIA LIGHTING ELM4L SERIES OR APPROVED EQUAL	N/A	N/A	LEDs 3W EA. HEAD	120	536	14	WHITE	APPROX 8'-0"	LED DRIVER	8
F1	WALL MOUNTED EXTERIOR LED	HUBBELL SG SERIES OR APPROVED EQUAL	N/A	4000	LEDs	120	2263	21	DARK BRONZE	REFER TO ARCH. PLANS	LED DRIVER	3, 5
G1	WALL MOUNTED EXTERIOR LED FIXTURE WITH EMERGENCY 90 MINUTE BATTERY	HUBBELL COMPASS CUSO OR APPROVED EQUAL	N/A	4000	LEDs	120	1600 AC 600 EM	17	DARK BRONZE	REFER TO ARCH. PLANS	LED DRIVER	3, 5, 6
J	6" LED DOWNLIGHT FIXTURE WITH BATTERY BACKUP	LITHONIA LIGHTING LDN6 1500 EL-ELR OR APPROVED EQUAL	N/A	4000	LEDs	120	1,500	26	WHITE	RECESSED	LED DRIVER	3, 5, 6
X	EXIT SIGN - RED LETTERS WHITE THERMOPLASTIC HOUSING, 90 MINUTE BATTERY BACKUP	LITHONIA LIGHTING LQM SERIES OR APPROVED EQUAL	N/A	N/A	LED	120		5	WHITE	REFER TO DETAIL A1/E-001	LED DRIVER	
X1	COMBINATION EXIT SIGN/ EMERGENCY LIGHT, RED LETTERS, THERMOPLASTIC HOUSING, 2 HEAD FIXTURE WITH 90 MINUTE BATTERY	LITHONIA LIGHTING LHQM SERIES OR APPROVED EQUAL	N/A	N/A	LED	120		5	WHITE	REFER TO DETAIL A1/E-001	LED DRIVER	3

REMARKS:
1. BI-LEVEL SWITCHING
2. DAMP LOCATION
3. WET LOCATION
4. WIREGUARD
5. LED REQUIRED SURGE PROTECTION
6. VERIFY FINAL MOUNTING HEIGHT WITH ARCHITECT
7. FINAL COLOR SELECTION BY ARCHITECT
8. EMERGENCY FIXTURE SHALL PROVIDE AT LEAST 1 FC AVERAGE/0.1 FC MIN WITH AT LEAST 30FT SPACING BETWEEN UNITS.

GENERAL NOTES:
- A. THE CONTRACTOR SHALL VERIFY THE LEAD TIME OF ALL PRODUCTS SPECIFIED IN THIS SCHEDULE AT THE TIME OF PACKAGE QUOTE.
- B. DURING THE BID PROCESS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DELIVERY/SCHEDULING ISSUES.
- C. NO SUBSTITUTIONS WILL BE ALLOWED DUE TO THE LACK OF COORDINATION OF DELIVERY DATES AND CONSTRUCTION SCHEDULE AFTER BID.
- D. ALL EXPEDITED EXPENSES SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS.
- E. FIXTURES TO BE INSTALLED IN CEILINGS INDICATED ON THE ARCHITECTURAL PLANS AS HAVING INSULATION IN CONTACT WITH THE CEILING SURFACE SHALL BE IC RATED BY MANUFACTURER.
- F. LIGHTING FIXTURES SHALL MEET THE AESTHETICS, DESCRIPTION AND SPECIFICATIONS, SUBSTITUTIONS SHALL INCLUDE PT. BY PT. CALCULATIONS.
- G. LIGHTING FIXTURES, AS SPECIFIED, HAVE BEEN SO SELECTED TO ACHIEVE REQUIRED/DESIRED FOOTCANDLE LEVELS IN THEIR RESPECTIVE AREA. HENCE SPECIFIC FIXTURE CHARACTERISTICS WHICH MAY CREATE PARTICULAR ILLUMINATION RESULTS ARE ESSENTIAL. ANY DEVIATIONS FROM SPECIFIED FIXTURES SHALL DEEM THE SUBMITTING AGENT AND CONTRACTORS RESPONSIBLE IN PROVIDINGSUCH DEVIATION FOR THE ARCHITECT/ ENGINEER AND OWNER TO MAKE AN INFORMED DECISION.
- H. SUBSTITUTIONS APPROVED BY THE ENGINEER PRIOR TO BID ARE ACCEPTABLE AS LONG AS THEY ARE EQUAL TO THE FIXTURE SPECIFIED, UNLESS OTHERWISE NOTED. THIS INCLUDES LENS, COLORS, REFLECTORS, PHOTOMETRICS, HOUSING MATERIAL, FINISHES, ETC. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER WITH CUT SHEETS FOR APPROVAL. SUBSTITUTE FIXTURES SHALL BE PRICED WITH THE SPECIFIED FIXTURE AND LISTED SEPARATELY SO THE ARCHITECT, ENGINEER AND OWNER CAN MAKE AN INFORMED DECISION
- I. ANY FIXTURE WITH THE TEXT "NL" ADJACENT TO IT SHALL INDICATE THAT THAT FIXTURE IS A NIGHT LIGHT (24HR LIGHT). THE FIXTURE SHALL BE CONNECTED TO THE UNSWITCHED HOT LEG OF THE INDICATED CIRCUIT.
- J. ALL EXIT AND EMERGENCY FIXTURES SHALL COMPLY WITH NCSBC STANDARDS AND HAVE AUTOMATIC TESTING DEVICES.
- K. LED MODULES SHALL BE REPLACEABLE.
- L. SEE SPECIFICATIONS SECTIONS 265100 AND 265200 FOR ADDITIONAL REQUIREMENTS.

ELECTRICAL GENERAL NOTES:

1. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THOROUGHLY FAMILIARIZING HIMSELF WITH ANY CONTRACTUAL REQUIREMENTS AS MAY BE SET FORTH IN THE OTHER DIVISIONS OF THE PROJECT SPECIFICATIONS.
2. UNLESS SPECIFICALLY NOTED OTHERWISE, SYSTEMS PROVIDED OR INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE COMPLETE AND FULLY-FUNCTIONING AFTER INSTALLATION. INCIDENTAL COMPONENTS MAY NOT BE SHOWN, AND ALL WORK WHICH MAY BE REASONABLY IMPLIED AS BEING INCIDENTAL TO THIS WORK, BUT REQUIRED FOR THE PROPER OPERATION OF THE EQUIPMENT OR SYSTEM, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER. ADDITIONAL CIRCUITS SHALL BE INSTALLED WHEREVER NEEDED TO CONFORM TO THE SPECIFIC REQUIREMENTS OF EQUIPMENT.
3. TEMPORARY POWER CONNECTIONS AS REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL TEMPORARY EQUIPMENT WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS INCLUDING CONTROL EQUIPMENT, MOTOR STARTERS, BRANCH AND FEEDER CIRCUIT BREAKERS, PANELBOARDS, ETC. FOR TEMPORARY POWER. COORDINATE WITH THE ELECTRICAL UTILITY COMPANY AS REQUIRED.
4. THE WORK SHALL INCLUDE COMPLETE TESTING OF ALL EQUIPMENT AND WIRING AT THE COMPLETION OF WORK AND ANY MINOR CORRECTIONS, CHANGES OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND EQUIPMENT.
5. ALL ELECTRICAL EQUIPMENT SHALL, AT ALL TIMES DURING CONSTRUCTION, BE ADEQUATELY PROTECTED AGAINST MECHANICAL INJURY, OR DAMAGE BY WATER AND/OR THE ELEMENTS. ELECTRICAL EQUIPMENT SHALL NOT BE STORED OUT OF DOORS, BUT SHALL BE STORED IN DRY PERMANENT SHELTERS. IF AN APPARATUS HAS BEEN DAMAGED, OR HAS BEEN SUBJECT TO POSSIBLE INJURY BY WATER OR THE ELEMENTS, SUCH DAMAGE SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.
6. CIRCUIT LAYOUTS ARE NOT INTENDED TO SHOW THE NUMBER OF FITTINGS, OR OTHER INSTALLATION DETAILS. UNLESS NOTED OTHERWISE, THE EXACT ROUTING OF FEEDER AND BRANCH CIRCUIT RACEWAYS AND CABLES IS THE RESPONSIBILITY OF THE CONTRACTOR. RISER AND GENERAL CIRCUIT ARRANGEMENTS ARE SHOWN SCHEMATICALLY/DIAGRAMMATICALLY ONLY. THE CONTRACTOR SHALL ROUTE CONDUITS AS REQUIRED BY THE CONDITIONS OF THE INSTALLATION.
7. THE DRAWINGS INDICATE THE NUMBER OF BRANCH CIRCUIT HOMERUN PHASE CONDUCTORS VIA ARROWHEADS. PROVIDE NEUTRAL, EQUIPMENT GROUND CONDUCTORS AS REQUIRED. ADDITIONAL CONDUCTORS REQUIRED FOR CONTROL SHALL BE INCLUDED EVEN IF NOT EXPLICITLY SHOWN.
8. SEAL ALL CONDUIT OPENINGS THROUGH EXTERIOR BUILDING WALLS WATERTIGHT.
9. ALL EXTERIOR WIRING DEVICES, BOXES, ETC. SHALL BE WEATHERPROOF. LIGHTING FIXTURES SHALL BE APPROPRIATELY RATED AND LISTED FOR THE ENVIRONMENT.
10. RACEWAYS PENETRATING FLOORS, CEILINGS OR WALLS SHALL BE PROPERLY SEALED SMOKETIGHT.
11. RACEWAYS PENETRATING RATED FLOOR, CEILING OR WALL ASSEMBLIES SHALL BE PROPERLY SEALED IN ACCORDANCE WITH THE CORRESPONDING UNDERWRITERS LABORATORIES (OR OTHER APPROVED THIRD PARTY TESTING AGENCY) APPROVED AND LISTED FIRESTOPPING MATERIALS AND MANUFACTURER APPROVED INSTALLATION TECHNIQUES COMPLYING WITH ALL APPLICABLE CODES. SEE ARCHITECTURAL DRAWINGS FOR IDENTIFICATION OF RATED WALLS AND CEILINGS.
12. ALL RACEWAYS SHALL BE CONCEALED WHERE POSSIBLE.
13. INSTALL EXPOSED RACEWAYS PARALLEL TO OR AT RIGHT ANGLES TO NEARBY SURFACES OR STRUCTURAL MEMBERS, AND FOLLOW THE SURFACE CONTOURS AS MUCH AS POSSIBLE. NO DIAGONAL RUNS WILL BE ALLOWED. ALL CONDUITS SHALL BE RUN STRAIGHT AND TRUE. RUN PARALLEL OR BANKED RACEWAYS TOGETHER ON COMMON SUPPORTS WHERE PRACTICAL. MAKE BENDS IN PARALLEL OR BANKED RUNS FROM SAME CENTERLINE TO MAKE BENDS PARALLEL.
14. PROVIDE AND PLACE ALL SLEEVES FOR CONDUITS PENETRATING WALLS, FLOORS, PARTITIONS, ETC. LOCATE ALL NECESSARY SLOTS FOR ELECTRICAL WORK AND FORM BEFORE CONCRETE IS POURED.
15. PATCHING OF WATERPROOFED SURFACES SHALL RENDER THE AREA OF THE PATCHING COMPLETELY WATERPROOF.
16. ALL MOTORS AND OTHER VIBRATING EQUIPMENT SHALL BE CONNECTED TO THE CONDUIT SYSTEM BY MEANS OF A SHORT SECTION (18 INCH MINIMUM) OF FLEXIBLE CONDUIT UNLESS OTHERWISE INDICATED. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED INSIDE THE FLEXIBLE CONDUIT AND TERMINATE AT THE LOAD END WITH AN APPROVED GROUNDING CLAMP OR LUG.
17. SURFACE MOUNTED PANELBOARDS, JUNCTION, OUTLET AND PULL BOXES, RACEWAYS, ETC., INSTALLED ON EXTERIOR SURFACES OR INSIDE ON EXTERIOR WALLS SHALL BE SUPPORTED BY SPACERS TO PROVIDE A 1/4" MINIMUM CLEARANCE BETWEEN THE WALL AND EQUIPMENT.
18. CEILING MOUNTED DEVICES INSTALLED IN ACOUSTICAL TILE CEILING AREAS SHALL BE SUPPORTED FROM THE STRUCTURE ABOVE WITH RODS OF SUFFICIENT SIZE TO PREVENT VERTICAL MOVEMENT OF THE OUTLET BOX. BRIDGES ALONE ARE NOT ADEQUATE UNLESS SPECIFICALLY APPROVED. CEILING MOUNTED EXIT LIGHT FIXTURES SHALL BE INSTALLED LEVEL. DO NOT SUPPORT DEVICES FROM ACCOUSTICAL CEILING TILE.
19. EXCAVATION AND TRENCHING REQUIRED FOR THE INSTALLATION OF ELECTRICAL POWER AND TELECOMMUNICATIONS RACEWAYS SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF DIVISION 26 OF THE PROJECT SPECIFICATIONS.
20. PRIOR TO TRENCHING IN ANY AREA, THE CONTRACTOR SHALL CONTACT ELECTRICAL, COMMUNICATIONS/DATA/FIBER, CABLE TELEVISION, GAS AND WATER UTILITY PROVIDERS AND HAVE ALL UTILITIES IN THE AREA IDENTIFIED. DAMAGE TO ANY UNDERGROUND UTILITIES OR STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
21. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED BY UNDERGROUND LINE MARKING TAPE LOCATED DIRECTLY ABOVE THE RACEWAY AT 6 TO 8 INCHES BELOW FINISHED GRADE. SEE SPECIFICATIONS SECTION 260553.
22. FINAL TYPED PANELBOARD DIRECTORIES INSTALLED IN THE PANELBOARD DOOR POCKET SHALL INCLUDE FINAL ACTUAL ROOM NAMES AND NUMBERS IN ADDITION TO THE GENERAL DESCRIPTION SHOWN ON THE PANEL SCHEDULES ON THE DRAWINGS.
23. CONDUCTOR SIZING IS BASED ON 75 DEGREE C. COPPER NEC RATINGS, UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL VERIFY, PRIOR TO INSTALLATION OF CONDUCTORS OR CONDUIT FEEDING ANY EQUIPMENT, THE ELECTRICAL EQUIPMENT IS RATED FOR USE WITH 75 DEGREE C. WIRING. IF ANY EQUIPMENT IS RATED FOR USE WITH LESS THAN 75 DEGREE C. CONDUCTORS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY FOR EVALUATION/CORRECTION.
24. DO NOT PULL CONDUCTORS UNTIL THE CONDUIT SYSTEM IS COMPLETE IN EVERY DETAIL. IN THE CASE OF CONCEALED WORK, "COMPLETE" MEANS UNTIL ALL ROUGH PLASTERING OR MASONRY HAS BEEN COMPLETED.
25. WHERE SIZE IS NOT SHOWN ON THE DRAWINGS, BRANCH CIRCUITS SHALL CONSIST OF #12 OR #10 AWG MINIMUM PHASE, NEUTRAL AND EQUIPMENT GROUND CONDUCTORS IN 1/2" MINIMUM RACEWAY.
26. USE #10 AWG CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS WITH A TOTAL INSTALLED LENGTH GREATER THAN 75 FEET AND/OR BRANCH CIRCUIT HOMERUNS LONGER THAN 50 FEET, I.E.; #12 AWG INCREASED TO #10 AWG FOR RECEPTACLE BRANCH CIRCUITS OVER 75 FEET TOTAL LENGTH (INCLUDING THE HOMERUN SEGMENT) AND HOMERUNS OVER 50 FEET.
27. PROVIDE GROUND FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL IN ACCORDANCE WITH THE NEC INCLUDING ALL ELECTRIC WATER COOLERS, EXTERIOR RECEPTACLES AND RECEPTACLES IN AREAS SUBJECT TO POSSIBLE WET CONDITIONS. ALL RECEPTACLES INSTALLED WITHIN 6 FEET OF A SINK SHALL BE GFI PROTECTED.
28. CONNECT BATTERY PACK TYPE EMERGENCY AND EXIT LIGHTING FIXTURES TO THE UNSWITCHED LIGHTING CIRCUIT SERVING THE SPACE LIGHTED BY THE EMERGENCY AND EXIT FIXTURES. THESE CONNECTIONS ARE INTENTIONALLY NOT SHOWN TO MAINTAIN DRAWING FOR CLARITY.
29. ADJACENT SWITCHES SHALL BE GANGED.
30. COORDINATE LOCATIONS OF PLUMBING, MECHANICAL, ELEVATOR, AND OF OWNER-PROVIDED EQUIPMENT WITH THE RESPECTIVE CONTRACTORS AND VENDORS AND THE OWNER BEFORE ROUGH-IN. ADJUST LIGHTING FIXTURES, RECEPTACLES AND ELECTRICAL EQUIPMENT TO ACCOMMODATE THIS EQUIPMENT.
31. BEFORE COMMENCING WORK OR ORDERING MATERIALS, THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND VERIFY THE NAMEPLATE RATINGS OF ALL EQUIPMENT (MOTORS, HEATERS, COMPRESSORS, ETC.) AND ADJUST THE RATINGS OF THE ELECTRICAL EQUIPMENT (SWITCHES, FUSES, CIRCUIT BREAKERS, FEEDERS, ETC.) AS APPROPRIATE TO SERVE THIS EQUIPMENT.
32. ENERGIZE EQUIPMENT ONLY AFTER OBTAINING PERMISSION FROM THE CONTRACTOR PROVIDING THE EQUIPMENT.
33. UNLESS SPECIFICALLY NOTED OTHERWISE, THE ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL UTILIZATION EQUIPMENT SHOWN ON THE DRAWINGS. VERIFY THE TYPE OF FINAL CONNECTION AND PROVIDE APPROPRIATE WIRING METHOD. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL, PLUMBING AND GENERAL CONTRACTORS, PRIOR TO ORDERING OR INSTALLATION OF ANY EQUIPMENT, TO VERIFY MECHANICAL AND PLUMBING EQUIPMENT REQUIREMENTS ARE PROVIDED IN THE ELECTRICAL DESIGN. THE CONTRACTOR WILL NOT BE COMPENSATED FOR COSTS ASSOCIATED WITH CHANGING THE ELECTRICAL SYSTEMS TO MATCH UTILIZATION EQUIPMENT, EVEN IF THE ELECTRICAL WORK IS INSTALLED PER THE ELECTRICAL DRAWINGS.
34. THE MECHANICAL AND PLUMBING CONTRACTORS SHALL FURNISH ALL STARTERS AND CONTROLS FOR THEIR EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL MOUNT STARTERS FURNISHED BY THE MECHANICAL AND PLUMBING CONTRACTORS, THE ELECTRICAL CONTRACTOR PROVIDE ALL SAFETY SWITCHES, WIRING AND CONNECTIONS TO LINE SIDE AND LOAD SIDE OF STARTERS AND SAFETY SWITCHES COMPLETE TO MECHANICAL EQUIPMENT. FOR RESISTANCE TYPE LOADS WHERE STARTERS OR CONTACTORS ARE NOT REQUIRED, THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING AND CONNECTIONS COMPLETE TO EQUIPMENT. THE MECHANICAL AND PLUMBING CONTRACTORS SHALL PROVIDE ALL CONTROL WIRING AND CONNECTIONS AND DEVICES FOR THEIR EQUIPMENT.
35. LAYOUT AND PLACEMENT OF ELECTRICAL DISTRIBUTION EQUIPMENT IN ELECTRICAL AND MECHANICAL EQUIPMENT ROOMS IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR, IF ARRANGEMENT DIFERS FROM THAT SHOWN ON THE DRAWINGS. PROVIDE NATIONAL ELECTRICAL CODE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT, PANELBOARDS, TRANSFORMERS, SAFETY SWITCHES, SWITCHBOARDS, ETC. COORDINATE RESOLUTION OF CONFLICTS WITH OTHER TRADES.
36. COORDINATION WITH THE UTILITY COMPANY IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. ALL ELECTRICAL DISTRIBUTION EQUIPMENT (PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, ETC.) SHALL, AS A MINIMUM, BE PROVIDED WITH SHORT CIRCUIT WITHSTAND AND INTERRUPTING RATINGS AS SHOWN IN THE DRAWINGS. COORDINATE ACTUAL FAULT CURRENT AVAILABLE WITH THE SERVING UTILITY COMPANY AND ADJUST RATINGS AS APPROPRIATE. PROVIDE DEVICES WITH CURRENT LIMITING CHARACTERISTICS AS REQUIRED TO SAFELY FUNCTION AND PROTECT THE DISTRIBUTION SYSTEM.
37. TELECOMMUNICATIONS AND DATA CABLES WILL BE PROVIDED AND INSTALLED BY THE OWNER. LEAVE PULL WIRES OR ROPES OF ADEQUATE TENSILE STRENGTH IN ALL EMPTY CONDUITS.
38. PROVIDE TELEPHONE, CABLE TELEVISION, FIBER AND DATA SERVICE ENTRANCE CONDUIT IN SIZES AND LOCATIONS AS REQUIRED BY THE OWNER AND THE SERVICE UTILITIES. LEAVE PULL WIRES OR ROPES OF ADEQUATE TENSILE STRENGTH IN ALL EMPTY CONDUITS.
39. DO NOT INSTALL SMOKE DETECTORS WITHIN 3 FEET OF SUPPLY AIR DIFFUSERS OR RETURN GRILLES. PROVIDE FLEX CONDUIT CONNECTION TO SMOKE AND HEAT DETECTORS OF ADEQUATE LENGTH TO ALLOW HORIZONTAL ADJUSTMENT OF FOUR FEET FROM POSITION INDICATED ON DRAWINGS.
40. SAFETY: COMPLY WITH OSHA AND NEC ARC FLASH PROTECTION REQUIREMENTS.
41. MC CABLE ONLY ALLOWED WHERE IT CAN BE CONCEALED.
42. JUNCTION BOXES INSTALLED IN STORAGE UNIT WALLS SHALL BE RECESSED. SURFACE MOUNTED NOT ALLOWED WHERE MEANS OF CONCEALING EXISTS.

Revision No.	Description	Date:
0	ISSUED FOR CONSTRUCTION	06.20.2022

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ELECTRICAL
GENERAL NOTES AND LIGHT FIXTURE SCHEDULE

JOB NO: CBHF:22020 RHD:21-7075
DRAWN: RRD
DESIGNED: RRD
CHECKED: JPF

DRAWING NO:
E-004

REVISION:
0

ELECTRICAL SPECIFICATIONS:

260500 GENERAL ELECTRICAL

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS INSOFAR AS THEY APPLY.
1. THE NATIONAL ELECTRICAL CODE, 2020 EDITION
2. THE NATIONAL ELECTRICAL SAFETY CODE
3. UNDERWRITER'S LABORATORIES, INC., STANDARDS AND APPROVED LISTINGS
4. ELECTRICAL TESTING LABORATORIES STANDARDS
5. NORTH CAROLINA STATE BUILDING CODE, LATEST EDITION AND REVISIONS
6. ALL LOCAL CODES AND ORDINANCES
7. NFPA 72
8. ADA

B. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC., REQUIRED FOR THE WORK AND SHALL PAY FOR SAME. THE CONTRACTOR SHALL FURNISH A FINAL CERTIFICATE OF INSPECTION AND APPROVAL FROM THE AUTHORITY HAVING JURISDICTION PRIOR TO ACCEPTANCE OF THE WORK.

C. ALL WORK SHALL BE DONE BY SKILLED MECHANICS AND SHALL PRESENT A NEAT, TRIM AND WORKMANLIKE FINISH WHEN COMPLETED.

D. COORDINATION: DO NOT SCALE ELECTRICAL DRAWINGS. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT MEASUREMENTS IN THE PLACEMENT OF EQUIPMENT, FIXTURES, OUTLETS, ETC. THE DRAWINGS DO NOT GIVE EXACT DETAILS AS TO ELEVATIONS AND LOCATIONS OF VARIOUS FITTINGS, CONDUIT, ETC., AND DO NOT SHOW ALL OFFSETS AND OTHER INSTALLATION DETAILS WHICH MAY BE REQUIRED.

E. WORK WITH OTHER CONTRACTORS: THE ELECTRICAL CONTRACTOR SHALL MAKE FINAL ELECTRICAL CONNECTIONS FOR ALL PLUMBING AND HVAC EQUIPMENT.

F. MATERIALS: ALL MATERIALS SHALL BE NEW AND SHALL BEAR THE MANUFACTURER'S NAME, TRADE NAME, AND UL LABEL WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR MATERIAL. MATERIALS SHALL BE THE STANDARD PRODUCTS OF MANUFACTURER'S REGULARLY ENGAGED IN THE MANUFACTURE OF THE REQUIRED TYPE OF EQUIPMENT AND THE MANUFACTURER'S LATEST APPROVED DESIGN. OTHER MATERIALS AND EQUIPMENT TO BE AS SHOWN ON THE DRAWINGS. WHERE NO SPECIFIC MATERIAL TYPE IS MENTIONED, A HIGH QUALITY PRODUCT OF A REPUTABLE MANUFACTURER MAY BE USED PROVIDED IT CONFORMS TO THE REQUIREMENTS OF THESE SPECIFICATIONS.

G. WIRING METHODS: CONDUCTORS IN RACEWAY, MC CABLE WITH GROUND, CONDUCTORS IN RACEWAY FOR FEEDERS. EXPOSED WORK SHALL BE IN CONDUIT.

H. ELECTRICAL DISTRIBUTION SYSTEM TESTS
1. ALL CURRENT CARRYING PHASE CONDUCTORS AND NEUTRALS SHALL BE TESTED AS INSTALLED, AND BEFORE CONNECTIONS ARE MADE, FOR INSULATION RESISTANCE AND ACCIDENTAL GROUNDS. THIS SHALL BE DONE WITH A 500 VOLT MEGGER.
   a. MINIMUM READINGS SHALL BE ONE MILLION (1,000,000) OR MORE OHMS FOR #6 WIRE AND SMALLER, 250,000 OHMS OR MORE FOR #4 WIRE OR LARGER BETWEEN CONDUCTORS AND BETWEEN CONDUCTOR AND THE GROUNDED METAL RACEWAY.
   b. AFTER ALL FIXTURES, DEVICES AND EQUIPMENT ARE INSTALLED AND ALL CONNECTIONS COMPLETED TO EACH PANEL, THE CONTRACTOR SHALL DISCONNECT THE NEUTRAL FEEDER CONDUCTOR FROM THE NEUTRAL BAR AND TAKE A MEGGER READING BETWEEN THE NEUTRAL BAR AND GROUNDED ENCLOSURE. IF THIS READING IS LESS THAN 250,000 OHMS, THE CONTRACTOR SHALL DISCONNECT THE BRANCH CIRCUIT NEUTRAL WIRES FROM THIS NEUTRAL BAR. HE SHALL THEN TEST EACH ONE SEPARATELY TO THE PANEL AND UNTIL THE LOW READING ONES ARE FOUND. THE CONTRACTOR SHALL CORRECT TROUBLES, RECONNECT AND RETEST UNTIL AT LEAST 250,000 OHMS FROM THE NEUTRAL BAR TO THE GROUNDED PANEL CAN BE ACHIEVED WITH ONLY THE NEUTRAL FEEDER DISCONNECTED.
   c. THE CONTRACTOR SHALL CERTIFY IN WRITING THE ABOVE HAS BEEN DONE AND TABULATE THE MEGGER READINGS FOR EACH PANEL.

I. SEISMIC REQUIREMENTS
1. ALL EQUIPMENT FURNISHED UNDER THE ELECTRICAL CONTRACT SHALL BE INSTALLED IN A MANNER TO BE FULLY COMPLIANT WITH THE SEISMIC RESTRAINT REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE (NCSBC). THE CONTRACTOR SHALL PROVIDE ANY AND ALL SEISMIC RESTRAINT DETAILS AND CALCULATIONS THAT MAY BE REQUIRED BY THE NCSBC AND/OR THE AUTHORITY HAVING JURISDICTION.
2. REQUIREMENTS FOR RESTRAINTS ARE DETAILED IN THE NCSBC. ALL TABLES AND REFERENCES SHALL CONFORM TO BUILDING'S LOCATION. RESTRAINTS SHALL BE PER SEISMIC PERFORMANCE CATEGORY STATED ON ARCHITECTURAL DRAWINGS.
3. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA TO DESIGN SEISMIC RESTRAINT ELEMENTS REQUIRED FOR THIS PROJECT. THE ENGINEER'S CALCULATIONS, BEARING HIS PROFESSIONAL SEAL, SHALL ACCOMPANY SHOP DRAWINGS AND SHALL DEMONSTRATE CODE COMPLIANCE INCLUDING CERTIFICATION THAT THE SEISMIC SYSTEM COMPONENTS COMPLY WITH THE TESTING REQUIREMENTS OF NCSBC SECTION 1708.5. CALCULATIONS AND SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW PRIOR TO THE PURCHASING OF MATERIALS, EQUIPMENT, SYSTEMS AND ASSEMBLIES. INTERNAL SEISMIC RESTRAINT ELEMENTS OF MANUFACTURED EQUIPMENT SHALL BE CERTIFIED BY A PROFESSIONAL ENGINEER RETAINED BY THE MANUFACTURER. SUCH CERTIFICATE APPLIES ONLY TO INTERNAL ELEMENTS OF THE EQUIPMENT. ALL EQUIPMENT ANCHORAGE REQUIREMENTS SHALL BE COORDINATED WITH THE BUILDING STRUCTURE AND SHALL BE COMPATIBLE THERETO. ALL SUCH ANCHORAGES SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF THE PROJECT'S STRUCTURAL ENGINEER.
4. THE PROFESSIONAL ENGINEER RETAINED FOR SEISMIC RESTRAINT CALCULATIONS SHALL VISIT THE JOB SITE UPON COMPLETION OF THE SEISMIC RESTRAINT INSTALLATION TO COMPLY WITH THE SPECIAL INSPECTIONS REQUIREMENT OF THE CODE. THIS ENGINEER SHALL PROVIDE WRITTEN VERIFICATION OF COMPLIANCE OF THE INSTALLATION WITH THE APPROVED SEISMIC SUBMITTAL. THIS VERIFICATION SHALL BE SUBMITTED AS A SPECIAL INSPECTIONS REPORT AND SHALL BEAR THE ENGINEER'S PROFESSIONAL SEAL. JOB SITE INSPECTIONS BY OTHER THAN THIS ENGINEER ARE NOT ACCEPTABLE.
5. REVIEW OF THE SEISMIC DESIGN COMPUTATIONS AND SHOP DRAWINGS BY THE ARCHITECT/ENGINEER OR HIS AGENT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLY WITH THE SEISMIC OR ANY OTHER REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE.
6. PROJECT CONDITIONS
   d. ASSIGNED SEISMIC DESIGN CATEGORY AS DEFINED IN THE IBC: *.
   e. S, MAPPED MAXIMUM CONSIDERED EARTHQUAKE SPECTRAL RESPONSE AT SHORT PERIODS: *
   f. S1, MAPPED MAXIMUM CONSIDERED EARTHQUAKE SPECTRAL RESPONSE AT 1-SECOND PERIOD: *
   g. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: I.
   (* ELECTRICAL CONTRACTOR SHALL CONSULT THE STRUCTURAL DRAWINGS FOR THIS INFORMATION.)

J. GUARANTEE: THE CONTRACTOR SHALL GUARANTEE THE MATERIALS AND WORKMANSHIP COVERED BY THESE DRAWINGS AND SPECIFICATIONS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY PARTS OF ANY SYSTEM THAT MAY PROVE TO BE DEFECTIVE AT NO ADDITIONAL COST TO THE OWNER WITHIN THE GUARANTEE PERIOD.

260519 CONDUCTORS

A. CONDUCTORS SHALL BE COPPER, MINIMUM SIZE #12. SIZES #10 AND #12 SHALL BE SOLID, #8 AND LARGER, STRANDED. INSULATION SHALL BE TYPE THW, THWN OR THHN FOR FEEDERS, TYPE THWN OR THHN FOR BRANCH CIRCUITS.

B. EQUAL AMPACITY AA-8000 SERIES ALUMINUM ALLOY CONDUCTORS FOR COPPER SERVICE ENTRANCE AND FEEDERS FOR CIRCUITS THAT ARE 100 AMPS AND LARGER ARE ACCEPTABLE. THE CONTRACTOR IS RESPONSIBLE FOR SIZING THE ALUMINUM CONDUCTORS WITH THE APPROPRIATE NEC TABLES, UPSIZING THE RACEWAY SIZES AND/OR QUANTITIES AND MAINTAINING ALL NEC REQUIRED SPACING INSIDE CABINETS AND BOXES. INSTALLATION SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS INCLUDING ANTI-OXIDANT USE AND PROPERLY TORQUED CONNECTIONS. ALL OTHER FEEDERS AND BRANCH CIRCUITS SHALL BE COPPER.

C. CONDUCTORS SHALL BE COLOR CODED THROUGHOUT, SIZES #10 AND #12 SHALL BE FACTORY CODED, SIZES #8 AND LARGER MAY BE COLOR TAPED ON THE JOB. COLOR CODING SHALL BE: PHASE A - BLACK, PHASE B - RED, PHASE C - BLUE, NEUTRAL - WHITE, GROUND - GREEN FOR 120/208 VOLT SYSTEMS.

D. CONDUCTORS SHALL MEET THE LATEST REQUIREMENTS OF NEMA AND IPCEA AND SHALL BE UL APPROVED.

E. ALL CONDUCTORS SHALL BE CONTINUOUS WITHOUT SPLICE BETWEEN JUNCTION, OUTLET, DEVICE BOXES, ETC., UNLESS NOTED OTHERWISE. NO SPLICING WILL BE PERMITTED IN PANELBOARD CABINETS, SAFETY SWITCHES, ETC.

F. TRENCHING: DIRECT BURIED RACEWAYS SHALL BE 24" DEEP TO THE TOP OF THE RACEWAY. TRENCH IN COMPLIANCE WITH LOCAL CODES AND REGULATIONS. BACKFILL TO 95% COMPACTION AND RESOD GRASSED AREAS TO MATCH EXISTING.

G. MARKER TAPE: ALL UNDERGROUND CONDUCTORS SHALL BE IDENTIFIED BY UNDERGROUND LINE MARKING TAPE LOCATED DIRECTLY ABOVE THE CONDUCTORS AT 6 TO 8 INCHES BELOW FINISHED GRADE. TAPE SHALL BE PERMANENT BRIGHT-COLORED, CONTINUOUS FOIL BACKING SUITABLE FOR USE WITH METAL DETECTION DEVICES, FOR DIRECT BURIAL NOT LESS THAN 8 INCHES AND 4 MILS THICK. PRINTED LEGEND SHALL BE INDICATIVE OF TYPE OF UNDERGROUND LINE BELOW.

260526 GROUNDING

A. THE NEUTRAL OF EACH SECONDARY ELECTRICAL DISTRIBUTION SYSTEM SHALL BE GROUNDED AT ONE POINT ONLY WHICH SHALL BE AT THE MAIN DISCONNECTING DEVICE. FROM THE MAIN DISCONNECTING DEVICE, A COPPER GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC SHALL BE EXTENDED TO THE EARTH ELECTRODE. MAIN GROUNDING CONDUCTORS #8 AWG THROUGH AND INCLUDING #4 AWG SHALL BE INSULATED AND IDENTIFIED BY A GREEN COLORED INSULATION. ALL GROUNDING CONDUCTORS SHALL BE INSTALLED IN CONDUIT SIZED IN ACCORDANCE WITH THE NEC. CONDUIT CARRYING A GROUNDING CONDUCTOR SHALL ALSO BE GROUNDED AT THE EARTH ELECTRODE.

B. THE EARTH ELECTRODE SHALL BE:
1. THE METALLIC DOMESTIC WATER PIPING SYSTEM OF THE BUILDING. CONNECTION OF THE GROUNDING CONDUCTOR SHALL BE MADE BY AN APPROVED GROUNDING CLAMP. THE POINT OF CONNECTION TO THE WATER SYSTEM SHALL BE WITHIN 6 INCHES OF THE ENTRANCE OF THE PIPE INSIDE THE BUILDING OR STRUCTURE. WHERE DIELECTRIC UNIONS ARE USED IN THE WATER PIPING SYSTEM, THE GROUNDING CONNECTION SHALL BE MADE ON THE "STREET SIDE" OF THE FIRST SUCH UNION IN THE SYSTEM. A BONDING JUMPER THE SAME WIRE SIZE AS THE GROUNDING CONDUCTOR SHALL BE INSTALLED ACROSS THE WATER PIPING CONNECTION SUCH THAT THE WATER METER MAY BE REMOVED WITHOUT INTERRUPTING THE GROUNDING SYSTEM CONTINUITY. WHERE NO METALLIC DOMESTIC WATER PIPING SYSTEM EXISTS, THE EARTH ELECTRODE SHALL BE A GROUND ROD WITH SUPPLEMENTAL GROUND ELECTRODES AS DEFINED BELOW.
2. GROUND ROD: SIZE AS SPECIFIED BELOW DRIVEN 11 FEET INTO THE EARTH WHERE SHOWN ON THE CONTRACT DRAWINGS OR AS REQUIRED. THE ROD SHALL BE CONNECTED TO THE SYSTEM GROUND POINT ON THE WATER PIPE BY AN INSULATED, GREEN COPPER JUMPER IN CONDUIT. THE JUMPER SHALL BE SIZED IN ACCORDANCE WITH THE NEC AND THE CONNECTION AT THE ROD SHALL BE BRAZED OR EXOTHERMICALLY WELDED. THE POINTS OF CONNECTION TO THE EARTH ELECTRODE SYSTEM SHALL BE VISIBLE AND ACCESSIBLE UPON COMPLETION OF CONSTRUCTION. SECTIONAL RODS OF THE SAME SIZE AND LENGTH SHALL BE USED IN MULTIPLE ROD INSTALLATIONS, IF REQUIRED BY SOIL CONDITIONS.
3. THE BUILDING STEEL AND SLAB REINFORCING STEEL AS SHOWN AND AS REQUIRED BY THE NEC. CONNECTION POINTS SHALL BE AS DIRECTED BY THE ARCHITECT/ENGINEER.

C. THE GROUND RESISTANCE OF THE EARTH ELECTRODE SHALL NOT EXCEED 5 OHMS. THE ELECTRICAL CONTRACTOR SHALL TEST THE EARTH ELECTRODE USING A STANDARD THREE POINT GROUND RESISTANCE TESTER AND SHALL ADVISE THE ARCHITECT/ENGINEER OF THE RESULTS OF SUCH TESTS IN WRITING. WHERE TESTS SHOW THE RESISTANCE TO GROUND EXCEEDS 5 OHMS, APPROPRIATE ACTION SHALL BE TAKEN TO REDUCE THE RESISTANCE TO 5 OHMS, OR LESS, BY DRIVING ADDITIONAL GROUND RODS OR OTHER APPROVED METHODS. COMPLIANCE SHALL BE DEMONSTRATED BY RETESTING.

D. ALL GROUNDING SHALL BE IN ACCORDANCE WITH ARTICLE 250 OF THE NEC. IN ADDITION, THE FOLLOWING
REQUIREMENTS SHALL BE MET:
1. GROUNDING CONDUCTORS SHALL BE INSTALLED AS TO PERMIT THE SHORTEST AND MOST DIRECT PATH FROM EQUIPMENT TO GROUND. ALL GROUND CONNECTIONS TO GROUND CONDUCTORS SHALL BE ACCESSIBLE. EQUIPMENT GROUND CONTINUITY SHALL BE MAINTAINED THROUGH FLEXIBLE METAL CONDUIT.
2. ALL WIRING DEVICES EQUIPPED WITH GROUNDING CONNECTION SHALL BE SOLIDLY GROUNDED TO GROUND SYSTEM WITH GROUNDING CONDUCTORS.
3. THE FRAME OF ALL LIGHTING FIXTURES SHALL BE SECURELY GROUNDED TO THE EQUIPMENT GROUND SYSTEM WITH GROUNDING CONDUCTORS.
4. GROUNDING TYPE CONVENIENCE OUTLETS AND SWITCHES SHALL BE SOLIDLY GROUNDED TO EQUIPMENT GROUNDING SYSTEM WITH A GREEN COLORED INSULATED CONDUCTOR. ELECTRICAL CONNECTIONS SHALL BE CONTINUOUS FROM EQUIPMENT GROUND BUS IN PANELBOARD TO THE HEX NUT ON THE CONVENIENCE OUTLET OR SWITCH.
5. ALL CIRCUITS SHALL CONTAIN AN INSULATED, GREEN, COPPER GROUNDING CONDUCTOR, SIZED IN ACCORDANCE WITH TABLE 250-122 OF THE NEC. GROUNDING CONDUCTORS SHALL BE CONNECTED TO EQUIPMENT GROUND BUS IN PANELBOARD AND SECURELY ATTACHED AND GROUNDED TO THE DEVICE OR ENCLOSURE AT THE OTHER END.
6. ALL EQUIPMENT ENCLOSURES, AND NON-CURRENT METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, ETC., SHALL BE EFFECTIVELY AND ADEQUATELY BONDED TO GROUND.

E. GROUNDING TYPE INSULATED BONDING BUSHINGS AND JUMPERS SHALL BE PROVIDED WHERE CONCENTRIC, ECCENTRIC, OR OVER-SIZED KNOCKOUTS ARE ENCOUNTERED. THE JUMPERS SHALL BE SIZED PER THE NEC.

F. ALL METALLIC RACEWAYS ENTERING OR LEAVING PANELBOARDS (BRANCH CIRCUITS LESS THAN 30 AMPERES IN LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARDS EXCEPTED), ENCLOSED CIRCUIT BREAKERS, SAFETY SWITCHES, ETC. SHALL BE PROVIDED WITH INSULATED GROUNDING AND BONDING BUSHINGS AND EACH SEPARATE PIECE OF RACEWAY SHALL BE INDVIDUALLY BONDED TO THE EQUIPMENT GROUND BUS METALLIC ENCLOSURE, AS APPLICABLE, BY MEANS OF COPPER CONDUCTOR SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

260529 SUPPORTING DEVICES

A. PROVIDE MATERIALS, SIZES, AND TYPES OF ANCHORS, FASTENERS AND SUPPORTS TO CARRY THE LOADS OF EQUIPMENT AND CONDUIT. CONSIDER WEIGHT OF WIRE IN CONDUIT WHEN SELECTING PRODUCTS. PROVIDE ADEQUATE CORROSION RESISTANCE.

B. ANCHORS AND FASTENERS:
1. CONCRETE STRUCTURAL ELEMENTS: USE EXPANSION ANCHORS.
2. STEEL STRUCTURAL ELEMENTS: USE BEAM CLAMPS.
3. CONCRETE SURFACES: USE SELF_DRILLING ANCHORS AND EXPANSION ANCHORS.
4. HOLLOW MASONRY, PLASTER, AND GYPSUM BOARD PARTITIONS: USE TOGGLE BOLTS.
5. SOLID MASONRY WALLS: USE EXPANSION ANCHORS.
6. SHEET METAL: USE SHEET METAL SCREWS OR BOLTS
7. WOOD ELEMENTS: USE WOOD SCREWS.

C. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

D. PROVIDE ANCHORS, FASTENERS, AND SUPPORTS IN ACCORDANCE WITH NECA "STANDARD OF INSTALLATION".

E. DO NOT FASTEN SUPPORTS TO PIPES, DUCTS, MECHANICAL EQUIPMENT, AND CONDUIT.

F. DO NOT USE POWDER_ACTUATED ANCHORS.

G. OBTAIN PERMISSION FROM ARCHITECT/ENGINEER BEFORE DRILLING OR CUTTING STRUCTURAL MEMBERS.

H. FABRICATE SUPPORTS FROM STRUCTURAL STEEL OR STEEL CHANNEL. RIGIDLY WELD MEMBERS OR USE HEXAGON HEAD BOLTS TO PRESENT NEAT APPEARANCE WITH ADEQUATE STRENGTH AND RIGIDITY. USE SPRING LOCK WASHERS UNDER ALL NUTS.

I. INSTALL SURFACE_MOUNTED CABINETS AND PANELBOARDS WITH MINIMUM OF FOUR ANCHORS.

J. IN WET AND DAMP LOCATIONS USE STEEL CHANNEL SUPPORTS TO STAND CABINETS AND PANELBOARDS ONE INCH (25 MM) OFF WALL.

K. CONDUITS INSTALLED ON THE INTERIOR OF EXTERIOR BUILDING WALLS SHALL BE SPACED AWAY FROM THE WALL SURFACE A MINIMUM OF 1/4 INCH (65MM) USING "CLAMP-BACKS" OR STRUTS.

L. USE SHEET METAL CHANNEL TO BRIDGE STUDS ABOVE AND BELOW CABINETS AND PANELBOARDS RECESSED IN HOLLOW PARTITIONS.

260533 RACEWAYS AND FITTINGS

A. RACEWAYS SHALL BE RIGID GALVANIZED STEEL, ELECTRICAL METALLIC TUBING AND/OR SCHEDULE 40 PVC WITH APPROPRIATE FITTINGS. EMT FITTINGS SHALL BE HEX NUT STEEL COMPRESSION TYPE WITH INSULATED THROATS.

B. MC CABLE WITH INSULATED GROUND CONDUCTOR MAY BE USED FOR BRANCH CIRCUITS. DO NOT USE WHERE SUBJECT TO PHYSICAL DAMAGE, OR WHERE EXPOSED TO CORROSIVE CONDITIONS. MC CABLE SHALL BE INSTALLED IN CONCEALED LOCATIONS ONLY.

C. FLEXIBLE METAL CONDUIT AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT: UL APPROVED AND LABELED WITH HEX NUT STEEL FITTINGS.

D. JUNCTION AND OUTLET BOXES FOR INTERIOR USE IN DRY LOCATIONS SHALL BE ZINC COATED OR CADMIUM PLATED SHEET STEEL, 4" SQUARE BY 2-1/8" DEEP, EXCEPT SINGLE WIRING DEVICE BOXES MAY BE SINGLE GANG.

E. RACEWAYS, BOXES, FITTINGS, ETC., SHALL BE SOLIDLY FASTENED TO MASONRY WITH LEAD ANCHORS AND MACHINE SCREWS OR TOGGLE BOLTS. RACEWAYS SHALL BE FASTENED TO STRUCTURAL STEEL WITH BEAM CLAMPS, CONDUIT HANGERS, TRAPEZE HANGERS, OR OTHER APPROVED DEVICES.

F. BOXES INSTALLED IN CONCEALED LOCATIONS SHALL BE SET FLUSH WITH THE FINISHED SURFACES AND SHALL BE PROVIDED WITH EXTENSION RINGS WHERE REQUIRED. BOXES SHALL BE RIGIDLY INSTALLED.

G. RACEWAYS PASSING THROUGH RATED WALLS, FLOORS, ETC., SHALL BE INSTALLED IN ACCORDANCE WITH PUBLISHED UL CONFIGURATIONS.

H. RACEWAYS SHALL BE SIZED AS SHOWN AND/OR AS REQUIRED BY THE NEC. MINIMUM SIZE SHALL BE 1/2".

I. RACEWAY AND BOX INSTALLATION:
   i. OUTDOORS (EXPOSED): USE RIGID STEEL, IMC OR SCHEDULE 40 PVC. RIGID STEEL WHERE SUBJECT TO PHYSICAL DAMAGE.
   ii. OUTDOORS (CONCEALED): USE RIGID STEEL, IMC OR SCHEDULE 40 PVC.
   iii. INDOORS (EXPOSED): USE EMT, RIGID STEEL OR IMC. RIGID STEEL WHERE SUBJECT TO PHYSICAL DAMAGE.
   iv. INDOORS (CONCEALED): USE EMT, IMC OR RIGID STEEL) , MC CABLE WITH INSULATED GROUND. INDOORS (WET AND DAMP LOCATIONS): USE RIGID STEEL.
   v. BOXES AND ENCLOSURES
1. INDOORS: NEMA 250, TYPE 1, EXCEPT IN DAMP AND WET LOCATIONS: NEMA 250, TYPE 4, STAINLESS STEEL OR NON-METALLIC
2. OUTDOORS: NEMA 250, TYPE 3R.

260534 BOXES

A. JUNCTION, SWITCH, RECEPTACLE AND OUTLET BOXES FOR INTERIOR USE IN DRY LOCATIONS SHALL BE ZINC COATED OR CADMIUM PLATED SHEET STEEL, 4" SQUARE AND 2-1/8" DEEP, UNLESS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS. EXTERIOR AND EXPOSED BOXES SHALL BE CAST TYPE WITH HUBS. SMALLER AND SHALLOWER OUTLET BOXES WILL BE PERMITTED ONLY BY SPECIAL PERMISSION OF THE ARCHITECT/ENGINEER WHERE SUCH BOXES ARE NECESSARY DUE TO STRUCTURAL CONDITIONS ENCOUNTERED. WHERE LARGER JUNCTION BOXES ARE REQUIRED, THEY SHALL BE FABRICATED FROM NO. 10, 12, 14 OR 16 GAUGE SHEET STEEL AS REQUIRED BY THE UNDERWRITER'S LABORATORIES, INC., AND GALVANIZED AFTER FABRICATION.

B. USE FLUSH MOUNTING OUTLET BOX IN FINISHED AREAS. USE STAMPED STEEL BRIDGES TO FASTEN FLUSH MOUNTING OUTLET BOX BETWEEN STUDS, CADDY RBS SERIES OR EQUIVALENT.

C. ALL JUNCTION BOXES SHALL HAVE SCREW FASTENED COVERS. OUTLET BOXES SHALL BE PROVIDED WITH EXTENSION PLASTER RINGS WHERE REQUIRED BY STRUCTURAL AND FINISH CONDITIONS.

D. SET WALL MOUNTED BOXES AT ELEVATIONS TO ACCOMMODATE MOUNTING HEIGHTS INDICATED AND SPECIFIED IN SECTION FOR OUTLET DEVICE. BOXES ARE SHOWN ON DRAWINGS IN APPROXIMATE LOCATIONS UNLESS DIMENSIONED. ADJUST BOX LOCATION UP TO 10 FEET (3 M) IF REQUIRED TO ACCOMMODATE INTENDED PURPOSE. INSTALL PULL BOXES AND JUNCTION BOXES ABOVE ACCESSIBLE CEILINGS AND IN UNFINISHED AREAS ONLY. COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS MOUNTED ABOVE COUNTERS, BENCHES, AND BACKSPLASHES.

E. INSTALL BOXES TO PRESERVE FIRE RESISTANCE RATING OF PARTITIONS AND OTHER ELEMENTS, USING APPROVED MATERIALS AND METHODS.

260553 IDENTIFICATION

A. WIRE MARKERS
1. PROVIDE SPLIT SLEEVE TYPE WIRE MARKERS OR APPROVED EQUIVALENT ON EACH CONDUCTOR AT PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND EACH LOAD CONNECTION. LEGEND: (1) POWER AND LIGHTING CIRCUITS: BRANCH CIRCUIT OR FEEDER NUMBER AS INDICATED ON DRAWINGS. (2) CONTROL CIRCUITS: CONTROL WIRE NUMBER AS INDICATED ON SCHEMATIC AND INTERCONNECTION DIAGRAMS ON DRAWINGS.
2. MULTIWIRE BRANCH CIRCUIT PHASE CONDUCTORS SHALL BE CLEARLY IDENTIFIED IN EACH BRANCH CIRCUIT PANELBOARD. ATTACH A YELLOW FLAG TYPE PLASTIC CABLE TIE TO EACH PHASE CONDUCTOR OF A MULTIWIRE BRANCH CIRCUIT AT APPROXIMATELY 2" FROM THE CIRCUIT BREAKER TERMINAL. INSTALL A YELLOW WITH BLACK LETTER IDENTIFICATION LABEL IN THE PANELBOARD DOOR STATING "YELLOW CABLE TIE FLAGS ON CONDUCTORS INDICATE THE CONDUCTOR IS PART OF A COMMON NEUTRAL MULTIWIRE BRANCH CIRCUIT. DO NOT MOVE CONDUCTOR TO ANOTHER BREAKER".

B. IDENTIFICATION NAMEPLATES: FURNISH AND INSTALL ENGRAVED LAMINATED PHENOLIC NAMEPLATES FOR ALL SAFETY SWITCHES, PANELBOARDS AND ELECTRICAL EQUIPMENT SUPPLIED FOR IDENTIFICATION OF EQUIPMENT CONTROLLED, SERVED, PHASE, VOLTAGE, ETC. NAMEPLATES SHALL BE SECURELY ATTACHED TO EQUIPMENT WITH METAL SCREWS AND SHALL IDENTIFY BY NAME THE EQUIPMENT CONTROLLED, ATTACHED, ETC. LETTERS SHALL BE APPROXIMATELY 1/4-INCH HIGH MINIMUM. EMBOSSED, SELF-ADHESIVE PLASTIC TAPE IS NOT ACCEPTABLE. NAMEPLATE MATERIAL COLORS SHALL BE BLACK SURFACE WITH WHITE CORE FOR THE NORMAL POWER SYSTEM.

C. RECEPTACLE CIRCUIT IDENTIFICATION: PROVIDE ADHESIVE BACKED, LAMINATED PLASTIC RECEPTACLE DEVICE PLATE LABELS IDENTIFYING THE CIRCUIT FEEDING THE DEVICE. LABELS SHALL BE LABEL MACHINE PRINTED, BLACK LETTERING ON A CLEAR BACKGROUND, TO INDICATE PANEL AND CIRCUIT NUMBER AND SHALL BE CASIO, BROTHER, T&B OR APPROVED EQUAL. PRINT CIRCUIT NUMBER ON FLAG TYPE PLASTIC CABLE TIE WITH A PERMANENT MARKER (SHARPIE, ETC.) AND ATTACH TO CONDUCTORS IN OUTLET BOX. FLAG SHALL BE READILY VISIBLE UPON REMOVAL OF DEVICE PLATE. LOCATION: EACH RECEPTACLE DEVICE PLATE. APPLY CENTERED ON THE LOWER PORTION BELOW THE RECEPTACLE, PARALLEL TO THE LOWER SURFACE. LEGEND: TYPED LABELS TO INDICATE PANEL AND CIRCUIT NUMBER FEEDING THE DEVICE (I.E., RPA-24).

262416 PANELBOARDS

A. NEMA PB1, CIRCUIT BREAKER TYPE, LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARD WITH COPPER PHASE BUS, 100% COPPER GROUND AND NEUTRALS BUSES AND RATINGS AS INDICATED. MINIMUM INTEGRATED SHORT CIRCUIT RATING: 10,000 AMPERES RMS SYMMETRICAL FOR 208 VOLT PANELBOARDS; 14,000 AMPERES RMS SYMMETRICAL FOR 480 VOLT PANELBOARDS, OR AS INDICATED. CIRCUIT BREAKERS: NEMA AB 1, BOLT-ON TYPE. ENCLOSURE: NEMA PB 1, TYPE 1 OR TYPE 3R. CABINET BOX: 6 INCHES (153 MM) DEEP, 20 INCHES (508 MM) WIDE FOR 240 VOLT AND LESS PANELBOARDS, 24 INCHES (600 MM) WIDE FOR 480 VOLT PANELBOARDS. CABINET FRONT: FLUSH AND SURFACE CABINET FRONT DOOR-IN-DOOR TYPE (HINGED TRIMS ARE NOT ACCEPTABLE) WITH CONCEALED TRIM CLAMPS, CONCEALED HINGE, METAL DIRECTORY FRAME, AND FLUSH LOCK ALL KEYED ALIKE. FINISH IN MANUFACTURER'S STANDARD GRAY ENAMEL.

B. PANELBOARDS SHALL BE MANUFACTURED BY CUTLER HAMMER, GENERAL ELECTRIC, SIEMENS OR SQUARE D.

C. PROVIDE TYPED CIRCUIT DIRECTORY FOR EACH BRANCH CIRCUIT PANELBOARD. FINAL TYPED PANELBOARD DIRECTORIES INSTALLED IN THE PANELBOARD DOOR POCKET SHALL INCLUDE FINAL ACTUAL ROOM NAMES AND NUMBERS IN ADDITION TO THE GENERAL DESCRIPTION SHOWN ON THE PANEL SCHEDULES ON THE DRAWINGS. REVISE DIRECTORY TO REFLECT CIRCUITING CHANGES REQUIRED TO BALANCE PHASE LOADS. PROVIDE SPARE CONDUITS OUT OF EACH RECESSED PANELBOARD TO AN ACCESSIBLE LOCATION ABOVE CEILING AND BELOW FLOOR. MINIMUM SPARE CONDUITS: 5 EMPTY 1 INCH (DN27). IDENTIFY EACH AS SPARE. GROUND AND BOND PANELBOARD ENCLOSURE ACCORDING TO SECTION 260526.

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262416 LOADCENTERS

A. NEMA PB1, CIRCUIT BREAKER TYPE, LOADCENTER WITH COPPER PHASE BUS, 100% COPPER GROUND AND NEUTRALS BUSES AND RATINGS AS INDICATED. MINIMUM INTEGRATED SHORT CIRCUIT RATING: 10,000 AMPERES RMS SYMMETRICAL FOR 240 VOLT PANELBOARDS; 10,000 AMPERES RMS SYMMETRICAL. CIRCUIT BREAKERS: NEMA AB 1, PLUG IN, FULL MODULE. ENCLOSURE: NEMA PB 1, TYPE 1 OR TYPE 3R. CABINET BOX: 6 INCHES (153 MM) DEEP, 20 INCHES (508 MM) WIDE FOR 240 VOLT AND LESS PANELBOARDS, 24 INCHES (600 MM) WIDE FOR 240 VOLT OR LESS LOAD CENTERS. FINISH IN MANUFACTURER'S STANDARD GRAY ENAMEL.

B. PANELBOARDS SHALL BE MANUFACTURED BY CUTLER HAMMER, GENERAL ELECTRIC, SIEMENS OR SQUARE D.

C. PROVIDE TYPED CIRCUIT DIRECTORY FOR EACH BRANCH CIRCUIT PANELBOARD. FINAL TYPED PANELBOARD DIRECTORIES INSTALLED IN THE PANELBOARD DOOR POCKET SHALL INCLUDE FINAL ACTUAL ROOM NAMES AND NUMBERS IN ADDITION TO THE GENERAL DESCRIPTION SHOWN ON THE PANEL SCHEDULES ON THE DRAWINGS. REVISE DIRECTORY TO REFLECT CIRCUITING CHANGES REQUIRED TO BALANCE PHASE LOADS. PROVIDE SPARE CONDUITS OUT OF EACH RECESSED PANELBOARD TO AN ACCESSIBLE LOCATION ABOVE CEILING AND BELOW FLOOR. MINIMUM SPARE CONDUITS: 5 EMPTY 1 INCH (DN27). IDENTIFY EACH AS SPARE. GROUND AND BOND PANELBOARD ENCLOSURE ACCORDING TO SECTION 260526.

262726 WIRING DEVICES

A. PROVIDE HEAVY DUTY SPECIFICATION GRADE RECEPTACLES AND SWITCHES IN COLOR SELECTED BY THE ARCHITECT. ALL DEVICES SHALL BE RATED 20 AMPERES. PROVIDE MATCHING PLASTIC DEVICE PLATES. EXTERIOR RECEPTACLES SHALL BE WEATHER RESISTANT TYPE, GFI AND INSTALLED IN WEATHERPROOF WHILE-IN-USE COVER.

B. OCCUPANCY SENSORS: OCCUPANCY SENSORS SHALL UTILIZE DUAL TECHNOLOGY SENSING. ACCEPTABLE TECHNOLOGY IS PASSIVE INFRARED (PIR), ULTRASONIC AND MICROPHONIC. DUAL TECHNOLOGY IS REQUIRED UTILIZING PIR AND ONE OF THE OTHER TECHNOLOGIES. SENSORS SHALL AUTOMATICALLY ADJUST TIME DELAYS AND SENSITIVITY BASED ON THE ACTIVITY LEVEL IN THE SPACE. ALL SWITCHES SHALL BE APPROVED BY A THIRD PARTY AGENCY, APPROVED FOR THE VOLTAGE AND CURRENT INDICATED. SENSORS SHALL BE COMPATIBLE WITH ALL LOAD TYPES, INCLUDING ELECTRONIC AND COMPACT FLUORESCENT BALLASTS, INCANDESCENT OR FLUORESCENT AND REQUIRE NO MINIMUM LOAD.
1. WALL SWITCH LINE VOLTAGE SENSORS FOR SMALL AREAS: LINE VOLTAGE, SINGLE GANG, WALL MOUNTED OCCUPANCY SENSOR SWITCH WITH ONE OVERRIDE SWITCH. SENSOR SHALL RECESS INTO SINGLE GANG SWITCH BOX AND FIT A STANDARD GFI RECEPTACLE PLATE OPENING. SWITCHES SHALL BE COMPATIBLE WITH STANDARD THREE AND FOUR-WAY TOGGLE SWITCHES. PROVIDE HARD LENS SWITCHES IN STORAGE ROOMS AND OTHER LOCATION SUBJECT TO ABUSE. ADJUSTABLE TIME DELAY OF 20 MINUTES, 180 DEGREE FIELD OF VIEW, MINIMUM COVERAGE AREA OF 900 SF. VOLTAGE: 120-277 VOLTS AC, MINIMUM LOAD RATING 800 WATTS AT 120 VAC, 1200 WATTS AT 277 VAC. HUBBELL AT120 OR AT277 OR EQUAL BY SENSOR SWITCH OR WATTSTOPPER.

262816 SAFETY SWITCHES

A. NEMA KS 1, TYPE GD WITH EXTERNALLY OPERABLE HANDLE INTERLOCKED (DEFEATABLE) TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION, ENCLOSED LOAD INTERRUPTER KNIFE SWITCH. MECHANISMS SHALL BE NON-TEASIBLE, POSITIVE, QUICK MAKE-QUICK BREAK TYPE. HANDLE LOCKABLE IN ON OR OFF POSITION. SWITCHES SHALL HAVE HANDLES WHOSE POSITIONS ARE EASILY RECOGNIZABLE IN THE ON OR OFF POSITION. FUSE CLIPS SHALL BE DESIGNED TO ACCOMMODATE NEMA FU1, CLASS R FUSES.

B. SAFETY SWITCHES SHALL BE MANUFACTURED BY CUTLER HAMMER, GENERAL ELECTRIC, SIEMENS OR SQUARE D.

262817 CIRCUIT BREAKERS

A. ENCLOSED CIRCUIT BREAKERS SHALL BE MOLDED CASE, UL LISTED AND SHALL BE RATED AS SHOWN ON THE DRAWINGS WITH APPROPRIATE WITHSTAND RATINGS AND CURRENT LIMITING CHARACTERISTICS AS REQUIRED TO SAFELY FUNCTION AND PROTECT THE DISTRIBUTION SYSTEM. ACCESSORIES SHALL BE PROVIDED AS NOTED OR REQUIRED AND SHALL BE UL LISTED AND FIELD INSTALLABLE.

B. CIRCUIT BREAKERS SHALL BE MANUFACTURED BY CUTLER HAMMER, GENERAL ELECTRIC, SIEMENS OR SQUARE D.

265100 LIGHTING FIXTURES

A. LIGHTING FIXTURE TYPES SHALL BE FURNISHED AS REQUIRED BY THE LIGHTING FIXTURE SCHEDULE AS INDICATED ON THE DRAWINGS. CATALOG NUMBERS ARE PROVIDED AS A GUIDE TO THE DESIGN AND QUALITY OF FIXTURE DESIRED. EQUIVALENT DESIGNS AND EQUAL QUALITY FIXTURES OF OTHER MANUFACTURERS LISTED WILL BE ACCEPTABLE UPON APPROVAL OF THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL VERIFY FROM THE CONTRACT DRAWINGS THE TYPE CEILINGS OR WALLS THE FIXTURE IS TO BE USED WITH AND SHALL PROVIDE COMPATIBLE MOUNTING ATTACHMENTS AND TRIM. PROVIDE ALL ACCESSORIES OR ADDITIONAL MATERIALS REQUIRED TO MAINTAIN THE CEILING FIRE RATING AS REQUIRED BY REGULATORY AUTHORITIES.

B. LED SOURCES SHALL BE HIGH INTENSITY WHITE, SINGLE COLOR AS NOTED. PROVIDE WHITE LEDS IN THE COLOR TEMPERATURE(S) SPECIFIED. THE COLOR TEMPERATURE IN ALL LAMPS OF THE SAME TYPE SHALL BE CONSISTENT AND REMAIN SO OVER THE LIFE OF THE LAMP. COLOR CONSISTENCY BETWEEN LAMPS SHALL CONFORM TO ANSI NEMA ANSLG STANDARD C78.377-2008. THE CONTRACTOR SHALL REPLACE LAMPS/FIXTURES EXHIBITING INCONSISTENT LAMP COLOR. MINIMUM LUMEN MAINTENANCE SHALL BE 70% OF RATED INITIAL LUMEN OUTPUT AT 50,000 HOURS OF OPERATION. MEASUREMENT OF LUMEN MAINTENANCE SHALL BE IN ACCORDANCE WITH ISED LM-80-09. THE LAMP AND/OR LUMINARIES MANUFACTURER SHALL PROVIDE A MINIMUM OF FIVE YEAR WARRANTY FROM THE DATE OF FINAL ACCEPTANCE AGAINST PREMATURE FAILURE, DISCOLORATION AND DEFECTS. THE COLOR OR COLOR TEMPERATURE OF THE REPLACEMENT LED LAMPS SHALL MATCH THOSE OF THE SAME LAMP TYPES THAT REMAIN IN OPERATION. THE MINIMUM COLOR RENDERING INDEX OF WHILE LEDS SHALL BE 80. ELECTRICAL AND PHOTOMETRIC PERFORMANCE OF LED ASSEMBLIES AND LUMINARIES SHALL CONFORM TO IES LM 79-08.

C. LENSES SHALL BE CLEAR VIRGIN ACRYLIC MATERIAL WITH UNIFORM 3/16" SQUARE BASED FEMALE CONE PRISMS ALIGNED 45º TO THE LENGTH AND WIDTH OF THE LENS PANEL. MINIMUM PRISM DEPTH SHALL BE 0.080" WITH A NOMINAL PANEL THICKNESS OF 0.125".

D. LED DRIVERS: PROVIDE HIGH FREQUENCY ELECTRONIC TYPE WITH THE SECONDARY VOLTAGE MATCHING THOSE REQUIRED BY THE LED SOURCE THEY OPERATE. DRIVERS SHALL OPERATE WITH A 0F - 140F AMBIENT TEMPERATURE RANGE AND SHALL COMPLY WITH FCC CLASS A STANDARDS FOR EMI. MINIMUM DRIVER
SPECIFICATIONS:
1. POWER FACTOR ≥ 90%
2. EFFICIENCY ≥ 90%
3. CURRENT CREST FACTOR - 1.5 MINIMUM.
4. TOTAL HARMONIC DISTORTION < 20%
5. RATED LIFE - 50,000 HOURS.
MANUFACTURERS SHALL HAVE BEEN MANUFACTURING LED DRIVERS FOR AT LEAST TEN YEARS WITH A DOCUMENTABLE LOW FAILURE RATE. THE CONTRACTOR SHALL PROVIDE A WRITTEN WARRANTY AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP, INCLUDING REPLACEMENT FOR FIVE YEARS FROM THE DATE OF FINAL ACCEPTANCE.

E. RELAMP LUMINARIES THAT HAVE FAILED LAMPS AT SUBSTANTIAL COMPLETION. REPLACE LED MODULES IN WHICH MORE THAN 5% OF THE LEDS HAVE FAILED LAMPS AT FINAL ACCEPTANCE OF THE WORK.

265200 EMERGENCY AND EXIT LIGHTING FIXTURES

A. EMERGENCY AND EXIT LIGHTING FIXTURES SHALL BE SELF_CONTAINED UNITS AUTOMATICALLY ACTIVATED WHEN THE LINE VOLTAGE DROPS BELOW 80% AND SHALL COMPLY WITH UL 924, NFPA 101 - LIFE SAFETY CODE, NFPA 70 - NEC AND THE NCSBC. LIGHTING FIXTURE TYPES SHALL BE FURNISHED AS REQUIRED BY THE LIGHTING FIXTURE SCHEDULE AS INDICATED ON THE DRAWINGS. CATALOG NUMBERS ARE PROVIDED AS A GUIDE TO THE DESIGN AND QUALITY OF FIXTURE DESIRED. EQUIVALENT DESIGNS AND EQUAL QUALITY FIXTURES OF OTHER MANUFACTURERS LISTED WILL BE ACCEPTABLE UPON APPROVAL OF THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL VERIFY FROM THE CONTRACT DRAWINGS THE TYPE CEILINGS OR WALLS THE FIXTURE IS TO BE USED WITH AND SHALL PROVIDE COMPATIBLE MOUNTING ATTACHMENTS AND TRIM. PROVIDE ALL ACCESSORIES OR ADDITIONAL MATERIALS REQUIRED TO MAINTAIN THE CEILING FIRE RATING AS REQUIRED BY REGULATORY AUTHORITIES.

B. ELECTRONICS SHALL AUTOMATICALLY, OR MANUALLY UPON DEMAND, CONDUCT SELF TEST ON BATTERY CONDITION (INCLUDING ACTUAL DISCHARGE), CHARGER, LAMPS AND INTERNAL WIRING INTEGRITY PER NEC AND NFPA AT PRESCRIBED INTERVALS. A PILOT LIGHT SHALL INDICATE THE UNIT IS CONNECTED TO AC POWER. PROVIDE TEST SWITCH AND VISUAL INDICATOR(S) OF UNIT OPERATIONAL CONDITION INCLUDING CHARGER STATUS, READY AND SERVICE CODE. TEST SWITCH SHALL SIMULATE OPERATION OF THE UNIT UPON LOSS OF AC POWER BY ENERGIZING LAMPS FROM THE BATTERY, AND ALSO EXERCISE THE TRANSFER RELAY.

C. WARRANTY: EACH UNIT SHALL BE WARRANTED FOR THREE YEARS. THE BATTERY SHALL HAVE AN ADDITIONAL TWO MORE YEARS PRO-RATED WARRANTY. WARRANTY SHALL DATE FROM THE DATE OF FINAL PROJECT ACCEPTANCE AND BE INCLUDED IN THE CONTRACT DOCUMENT.

REVISIONS

Revision No:	Description:	Date:
0	ISSUED FOR CONSTRUCTION	06.20.2022

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35230 JASON P. FAMIGLIETTI 03/14/23

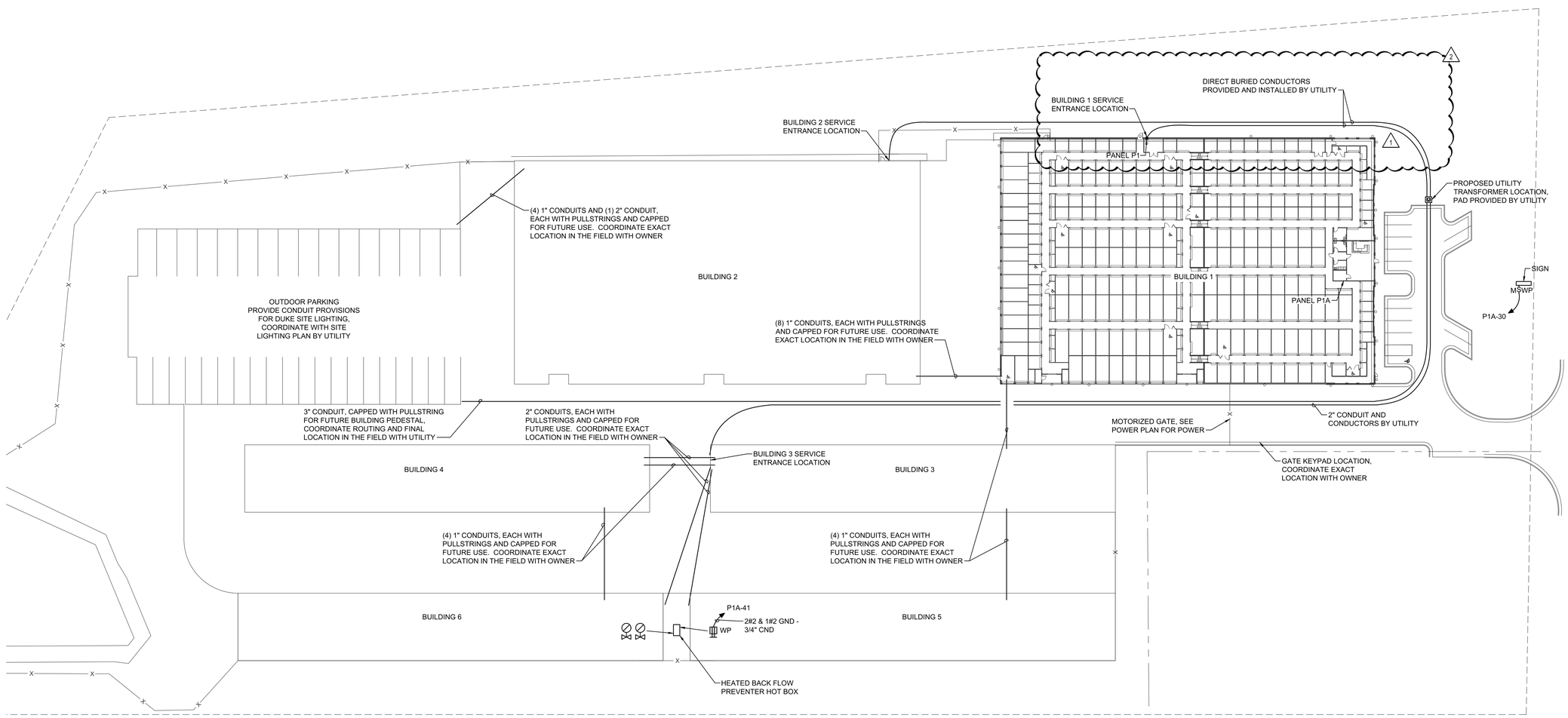
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

ELECTRICAL SPECIFICATIONS

JOB NO: CBHF:22020 RHD:21-7075
DRAWN: RRD
DESIGNED: RRD
CHECKED: JPF

DRAWING NO:
E-005

REVISION:
0



A1 SITE ELECTRICAL PLAN
1" = 40'-0"
0 20' 40' 80'

PLAN NORTH

TEMPORARY POWER NOTE:

THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL WIRING AND EQUIPMENT NECESSARY FOR A FUNCTIONING 200 AMP TEMPORARY SERVICE FROM THE UTILITY COMPANY FOR THE CONSTRUCTION TRAILER AND THE BUILDING DURING CONSTRUCTION. COORDINATE THE EXACT LOCATIONS AND REQUIREMENTS WITH THE SUPERINTENDENT AND UTILITY COMPANY PRIOR TO BIDDING.

Revision No:	Description:	Date:
2	REVISED PER UPDATED FLOOR PLAN	03.13.2023
1	REVISED PER UPDATED FLOOR PLAN	10.07.2022
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03/14/23

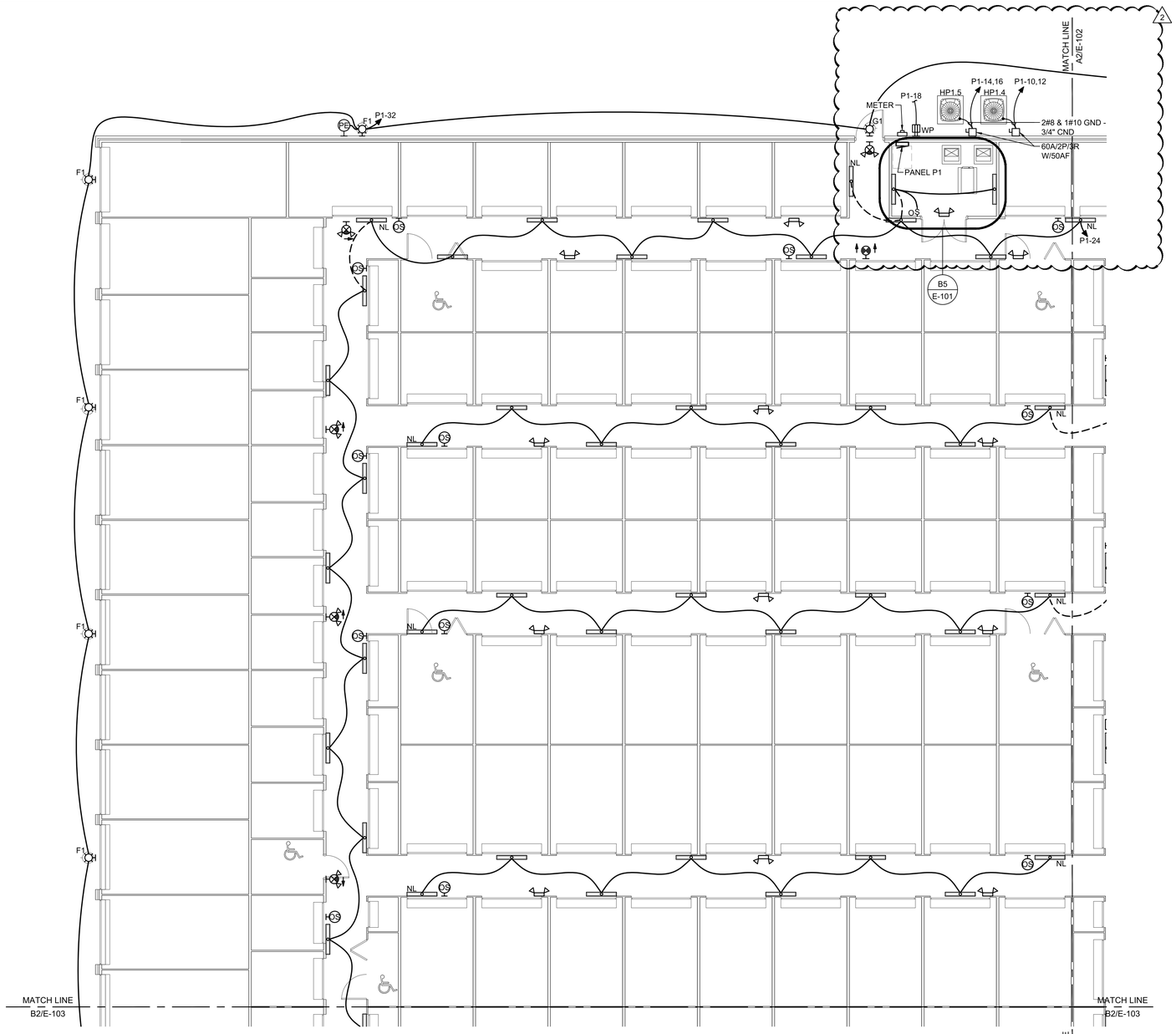
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

ELECTRICAL SITE POWER PLAN

JOB NO: CBHF:22020 RHD:21-7075
DRAWN: RRD
DESIGNED: RRD
CHECKED: JPF

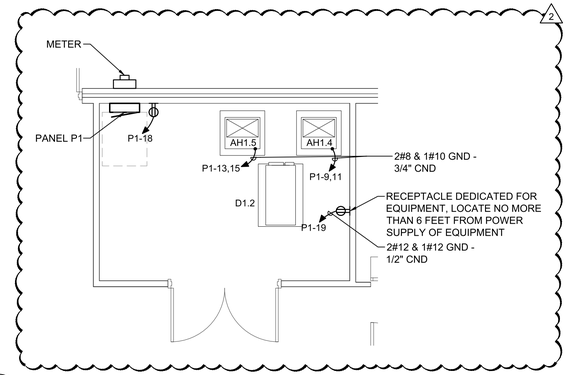
DRAWING NO:
E-100

REVISION:
2

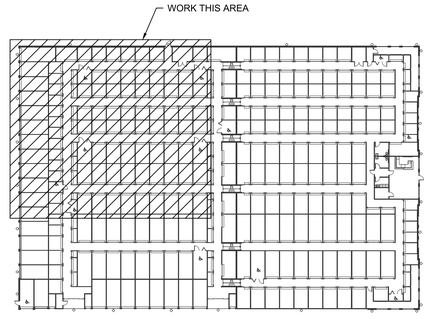


A2 **PARTIAL POWER AND LIGHTING PLAN**
1/8" = 1'-0"
0 4' 8' 16'

PLAN NORTH



B5 **ENLARGED MECH/ELEC CLOSET POWER PLAN**
1/4" = 1'-0"
0 2' 4' 8'



A5 **KEYPLAN**
NOT TO SCALE

PLAN NORTH

Revision No.	Description	Date:
2	REVISED PER UPDATED FLOOR PLAN	03.13.2023
1	REVISED PER UPDATED FLOOR PLAN	01.20.2023
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03/14/23

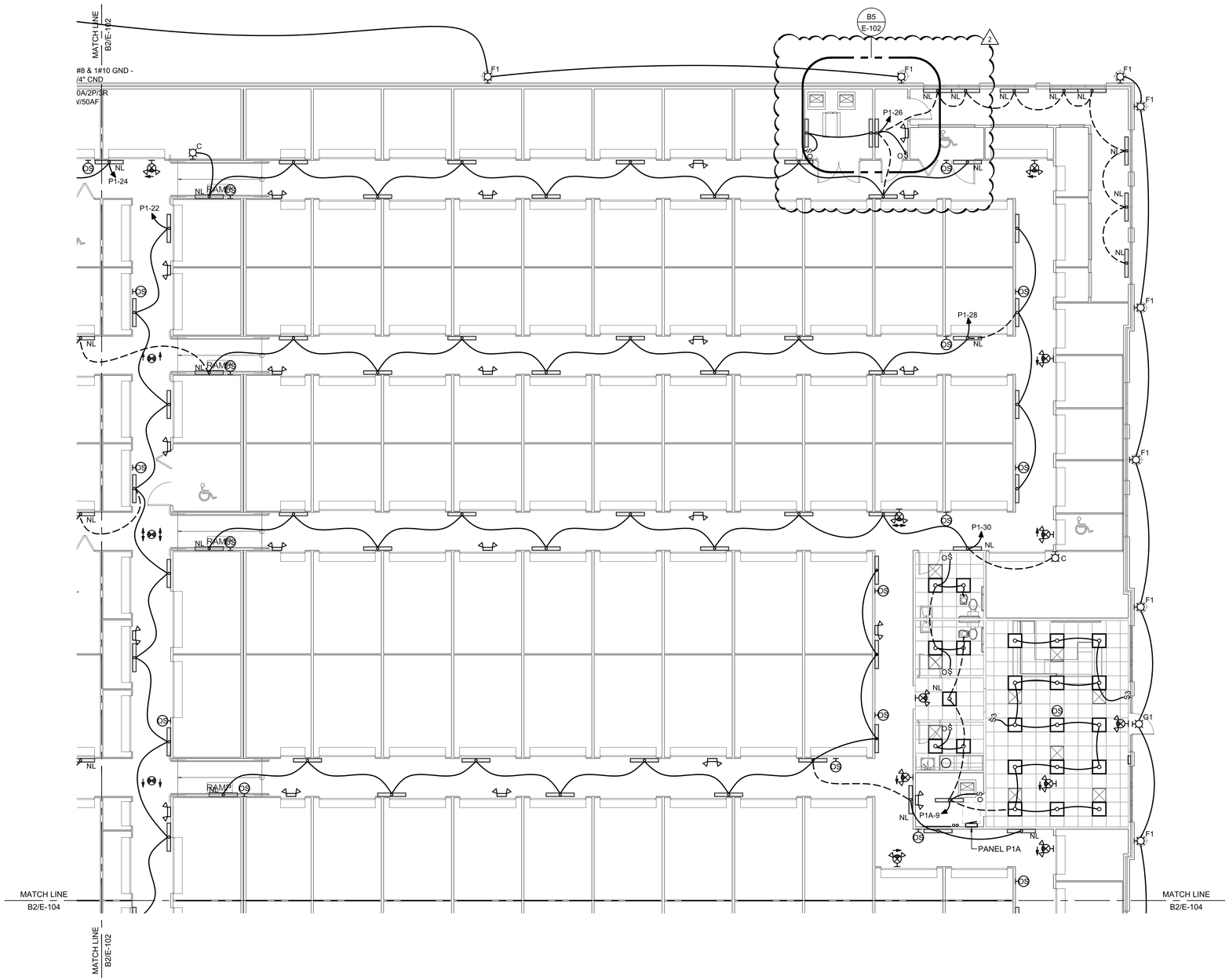
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

ELECTRICAL
PARTIAL FIRST FLOOR POWER AND LIGHTING PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

DRAWING NO:
E-101

REVISION:
2

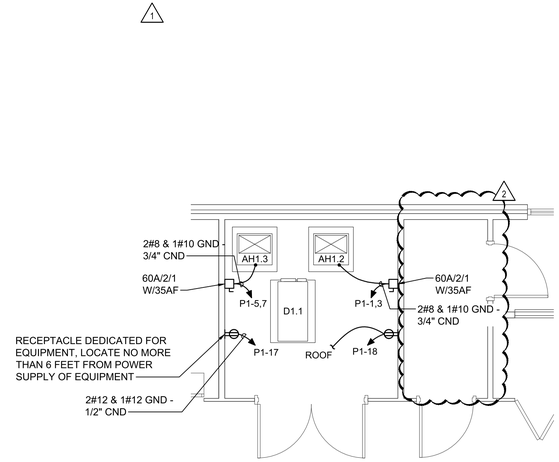


B2 PARTIAL POWER AND LIGHTING PLAN

1/8" = 1'-0"

0 4' 8' 16'

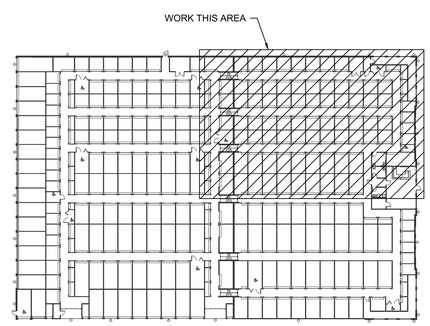
PLAN NORTH



B5 ENLARGED MECH CLOSET POWER PLAN

1/4" = 1'-0"

0 2' 4' 8'



A5 KEYPLAN

NOT TO SCALE

PLAN NORTH

Owner acknowledges and agrees that Robert Hight Development, LLC (RHD) and CBHF Engineers, PLLC (CBHF) retains all ownership and other rights, title and interests in and to all conceptual, working and final drawings, plans and specifications (collectively, "drawings, plans and specifications") prepared by CBHF, and any and all of its proprietary rights embodied therein or related thereto. Except in connection with the construction, ownership, operation and management of this Project by Owner, this Agreement shall not grant Owner any rights in or to the drawings, plans and specifications, and any and all of its proprietary rights embodied therein or related thereto. Except as stated above, trade names, copyrights, licenses, licensed or other proprietary rights of RHD or any such rights granted by third parties or other professionals shall not be used by Owner or others without prior written consent of RHD, which consent may be withheld in RHD's sole discretion, and no reuse of the drawings, plans and specifications or any portion thereof shall not to be used, reproduced or copied, in whole or in part, without the prior, written permission of CBHF and RHD.

Revision No:	Description:	Date:
2	REVISED PER UPDATED FLOOR PLAN	03.13.2023
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NCBF P-0295

NORTH CAROLINA PROFESSIONAL ENGINEER JASON P. FAMIGLIETTI SEAL 35230 03/14/23

LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

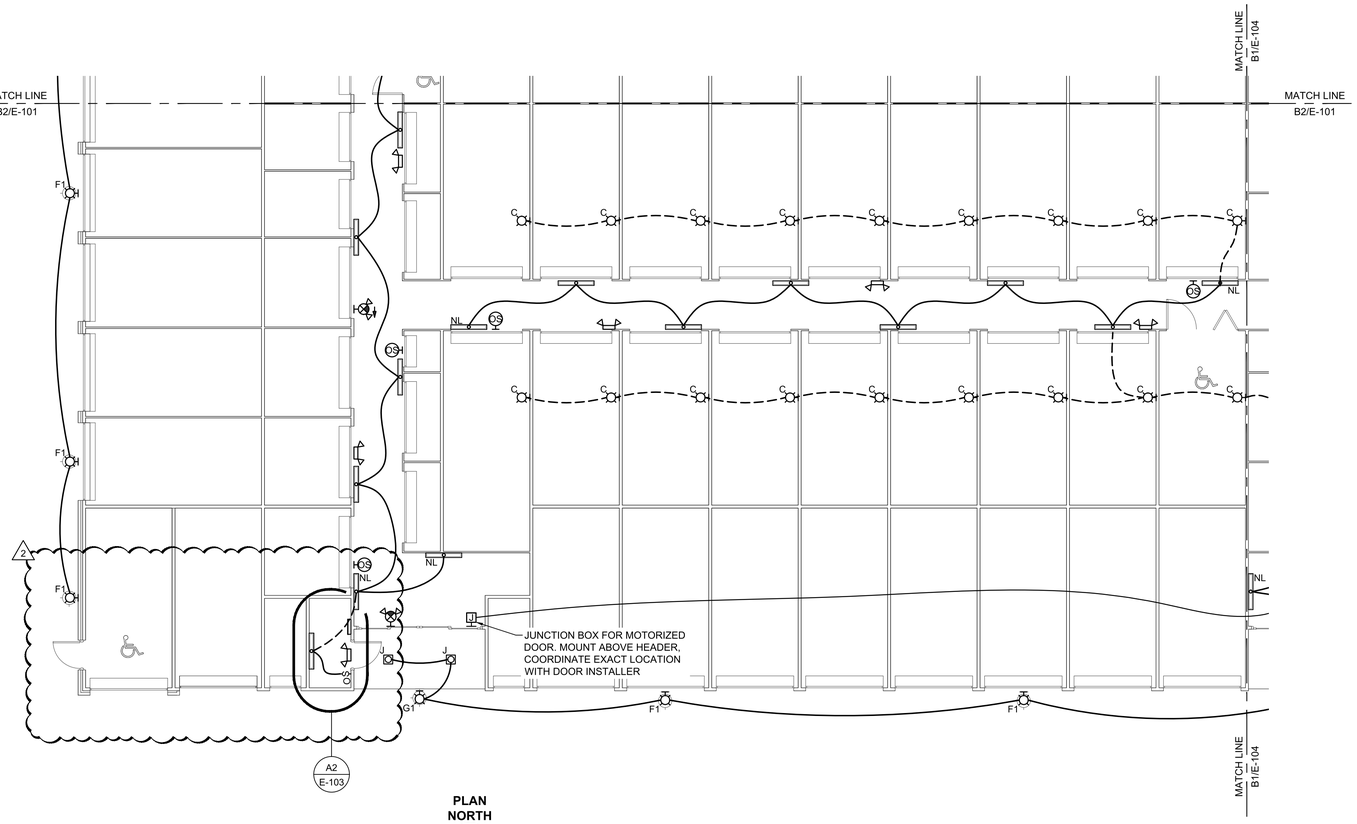
ELECTRICAL
PARTIAL FIRST FLOOR POWER AND LIGHTING PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

DRAWING NO:

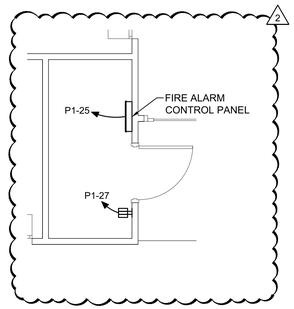
E-102

REVISION:
2

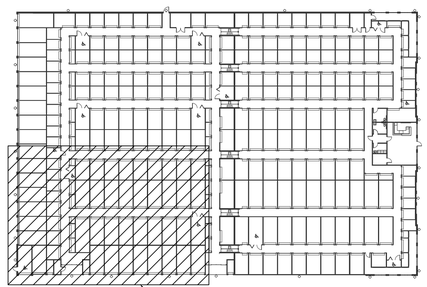


B2 PARTIAL POWER AND LIGHTING PLAN
1/8" = 1'-0"

PLAN NORTH



A2 ENLARGED RISER ROOM POWER PLAN
1/4" = 1'-0"



A5 KEYPLAN
NOT TO SCALE

PLAN NORTH

Owner acknowledges and agrees that Robert High Development, LLC (RHD) and CBHF Engineers, PLLC (CBHF) retains all ownership and other rights, title and interests in and to all conceptual, working and final drawings, plans and specifications (collectively, drawings, plans and specifications), and any and all of its proprietary rights embodied therein or related thereto. Except in connection with the construction, ownership, operation and management of this Project by Owner, this Agreement shall not grant Owner any rights in or to the drawings, plans and specifications, and Owner shall not use the drawings, plans and specifications, or any trade names, copyrights, licenses, licensed or other proprietary rights of RHD or any such rights granted by third parties or other embodiments of the drawings, plans and specifications for any other purpose without the prior written consent of RHD, and any unauthorized use thereof shall not to be used, reproduced or copied, in whole or in part, without the prior, written permission of CBHF and RHD.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35230 JOSEPH FAMIGLIETTI
03/14/23

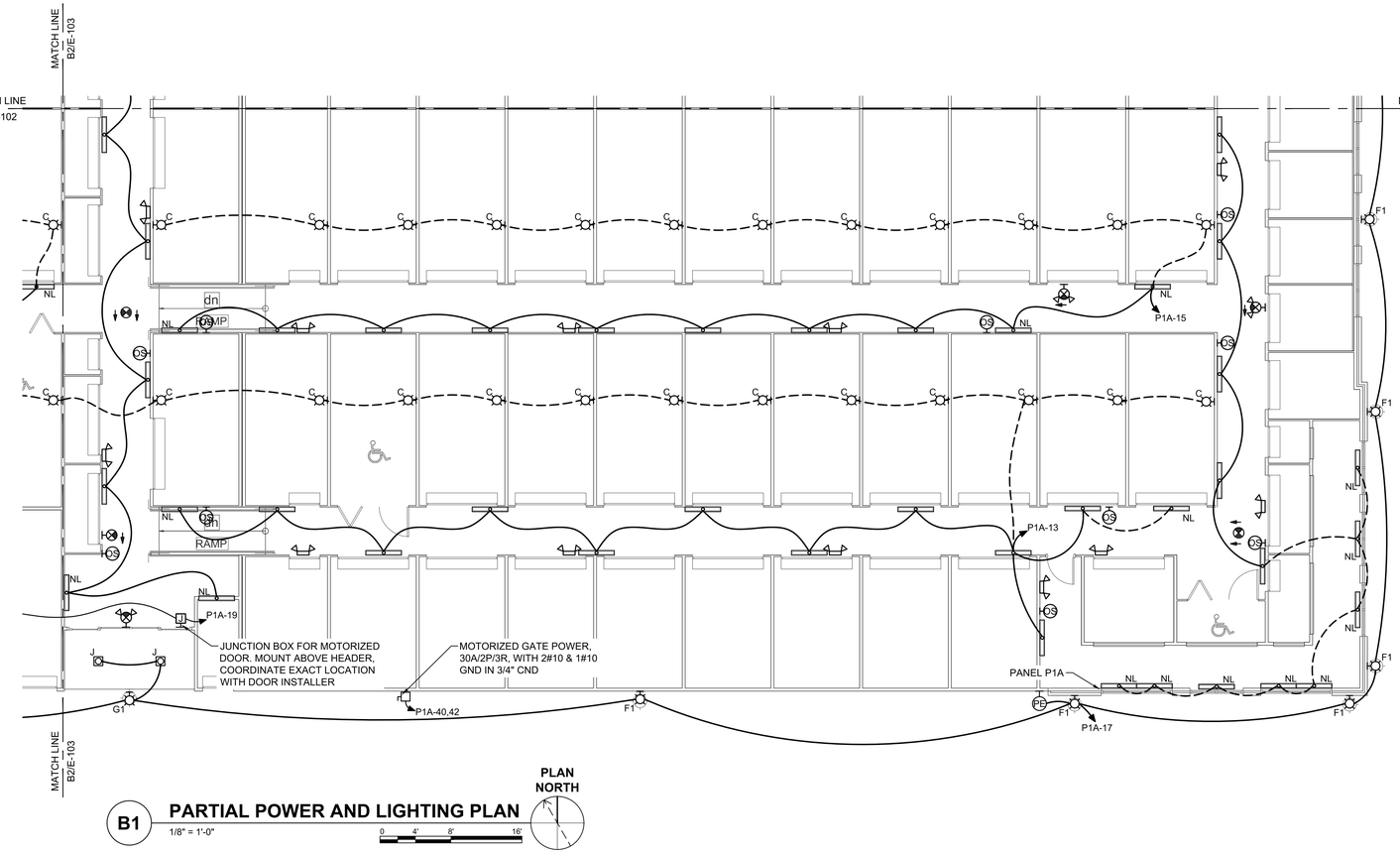
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

ELECTRICAL
PARTIAL FIRST FLOOR POWER AND LIGHTING PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

DRAWING NO:
E-103

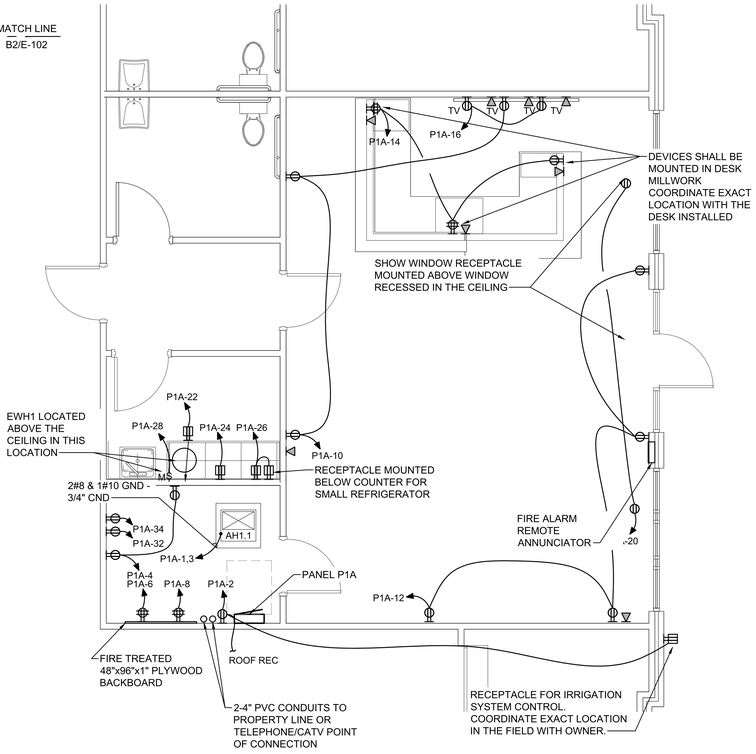
REVISION:
2



B1 PARTIAL POWER AND LIGHTING PLAN

1/8" = 1'-0"

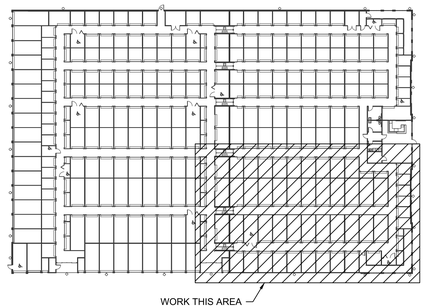
PLAN NORTH



B4 ENLARGED OFFICE AREA POWER PLAN

1/4" = 1'-0"

1



A5 KEYPLAN

NOT TO SCALE

PLAN NORTH

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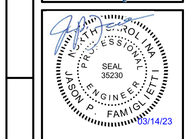


LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

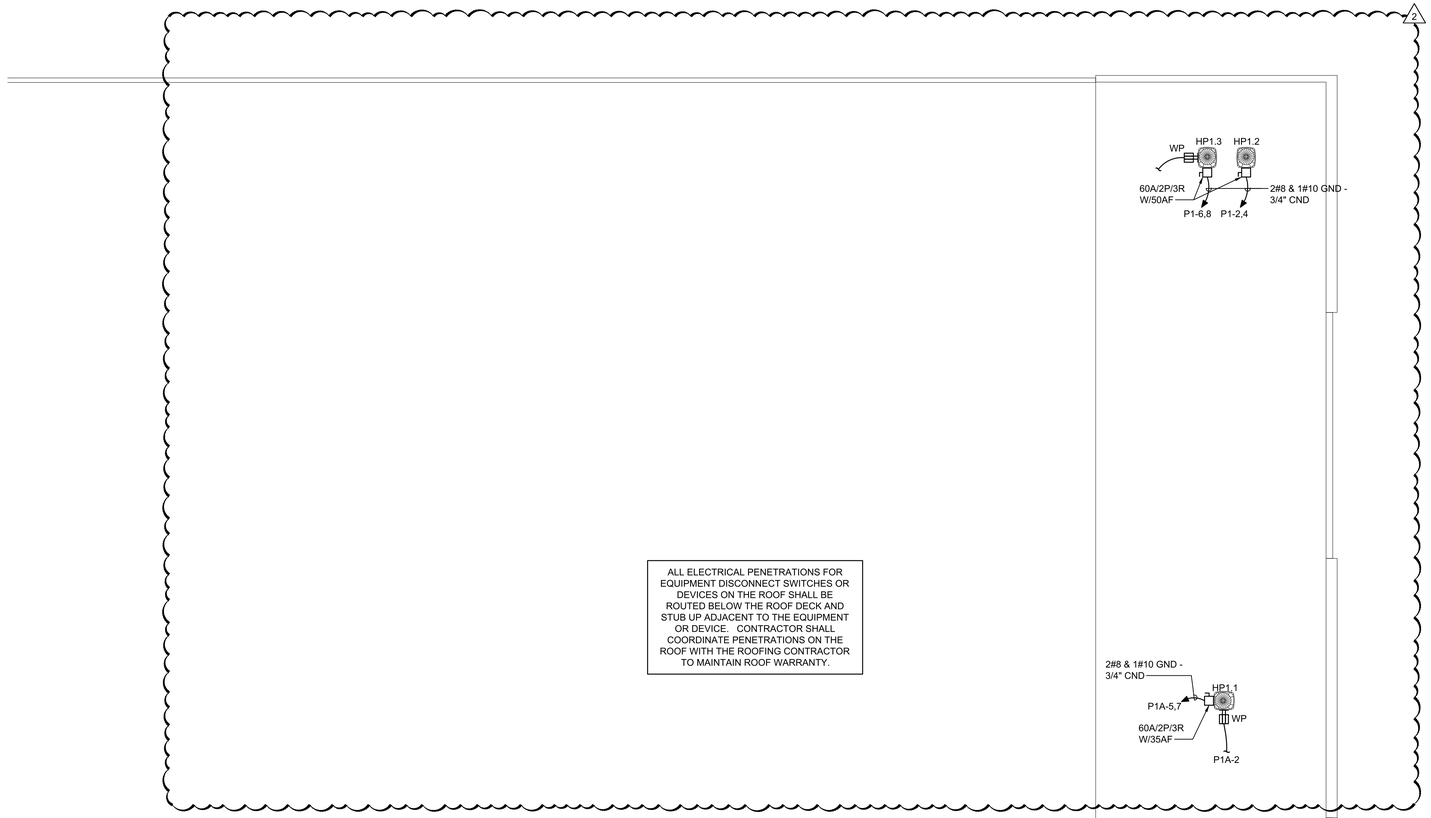
ELECTRICAL
PARTIAL FIRST FLOOR POWER AND LIGHTING PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

DRAWING NO:

E-104

REVISION:
1

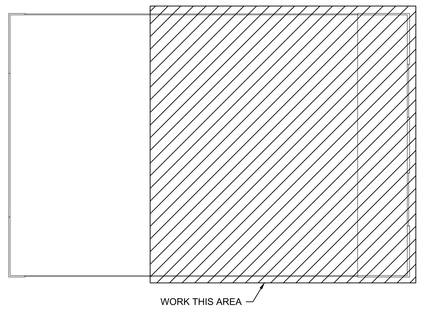


ALL ELECTRICAL PENETRATIONS FOR EQUIPMENT DISCONNECT SWITCHES OR DEVICES ON THE ROOF SHALL BE ROUTED BELOW THE ROOF DECK AND STUB UP ADJACENT TO THE EQUIPMENT OR DEVICE. CONTRACTOR SHALL COORDINATE PENETRATIONS ON THE ROOF WITH THE ROOFING CONTRACTOR TO MAINTAIN ROOF WARRANTY.

2

1

A1 **PARTIAL ROOF POWER PLAN**
1/8" = 1'-0"
0 4' 8' 16'
PLAN NORTH



A5 **KEYPLAN**
NOT TO SCALE
PLAN NORTH

Revision No:	Description:	Date:
2	REVISED PER UPDATED FLOOR PLAN	03.13.2023
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03/14/23

LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

ELECTRICAL POWER
PARTIAL ROOF PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

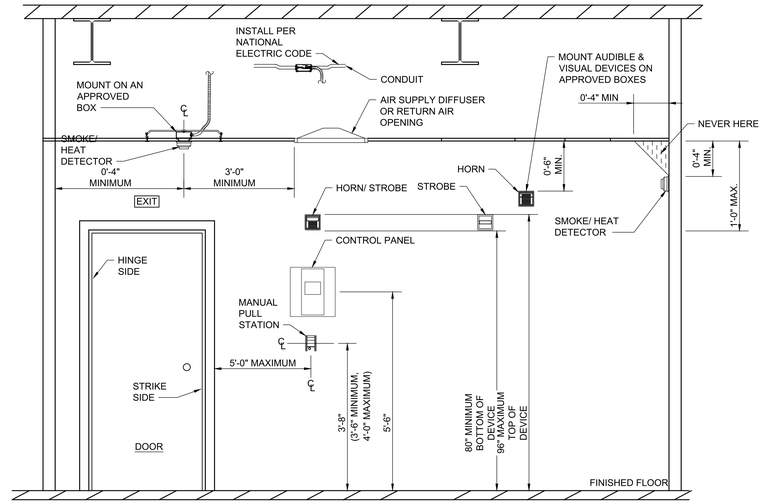
DRAWING NO:
E-105

REVISION:
2

FIRE SPRINKLER MONITORING LEGEND

SYMBOL	DESCRIPTION
F	FIRE ALARM MANUAL STATION, 48" AFF
?	SMOKE DETECTOR, CEILING MOUNTED
F	WATER FLOW ALARM
	SPRINKLER TAMPER SWITCH
	SPRINKLER FLOW SWITCH
C	FIRE ALARM SYSTEM CONTROL MODULE
M	FIRE ALARM SYSTEM MONITOR MODULE
I	ISOLATION MODULE
FACP	FIRE ALARM CONTROL PANEL (FACP)
ANN	FIRE ALARM REMOTE ANNUNCIATOR PANEL

(SYMBOLS SHOWN FOR REFERENCE ONLY AND MAY NOT IMPLY CONTRACTUAL REQUIREMENTS)



NOTE:
DETAIL SHOWN FOR REFERENCE ONLY, NOT ALL DEVICES ARE INDICATED ON PLANS.

C2 FIRE SPRINKLER MONITORING DEVICES - MOUNTING HEIGHT DETAIL
NOT TO SCALE

FIRE SPRINKLER MONITORING SYSTEM (SPECIFICATION/NOTES)

1. AS A MINIMUM THE FIRE SPRINKLER MONITORING SYSTEM SHALL INCLUDE DETECTORS, PANEL, AND SPRINKLER MONITORING WITH FIRE RATED CABLE. THE FIRE SPRINKLER MONITORING SYSTEM SHALL MEET NFPA REQUIREMENTS, THE NATIONAL ELECTRICAL CODE, THE STATE CODES, AND THE LOCAL BUILDING CODES.

2. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CABLE, MATERIALS AND EQUIPMENT AS SHOWN ON THE DRAWINGS/OR HEREIN SPECIFIED. ALL SYSTEM COMPONENTS SPECIFIED HEREIN, AS WELL AS THEIR INSTALLATION, SHALL COMPLY WITH APPLICABLE STANDARDS OF THE NATIONAL ELECTRICAL CODE, NATIONAL FIRE PROTECTION ASSOCIATION, AND LOCAL CODES HAVING AUTHORITY. ALL EQUIPMENT SHALL BE UL LISTED FOR FIRE ALARM SYSTEM USE.

3. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SHALL BE INSTALLED AND CONNECTED UNDER THE DIRECTION AND SUPERVISION OF A MANUFACTURER'S REPRESENTATIVE. UPON COMPLETION OF INSTALLATION, THE MANUFACTURER'S REPRESENTATIVE SHALL PERFORM ALL OPERATIONAL TESTS AND ADJUSTMENTS AND CERTIFY IN WRITING THAT THE SYSTEM IS PROPERLY INSTALLED AND FUNCTIONS AS SPECIFIED.

4. ALL WIRING SHALL BE SYSTEM OR UL LISTED FIRE RATED CABLE AND COLOR CODED TO ALLOW EASE OF IDENTIFICATION OF THE DIFFERENT CIRCUITRY REQUIRED FOR THE SYSTEM. NO CIRCUIT SHALL CHANGE COLOR AT ANY POINT END TO END.

5. THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL PROVIDE SUPERVISION OF FINAL SYSTEM PANEL CONNECTIONS, PERFORM A COMPLETE FUNCTIONAL TEST OF THE SYSTEM, AND A WRITTEN REPORT TO THE CONTRACTOR ATTESTING THE PROPER OPERATION OF THE COMPLETED SYSTEM.

6. THE CONTRACTOR SHALL PROVIDE A ONE YEAR WARRANTY FOR THE ALARM SYSTEM, ALONG WITH OTHER FORMS OR CERTIFICATE REQUIRED BY THE LOCAL JURISDICTION.

SYSTEM OPERATION

7.1 THE OPERATION OF ANY OTHER SYSTEM ALARM INDICATOR, SHALL CAUSE ALL ALARM SIGNALS, BOTH AUDIBLE AND VISUAL TO ENERGIZE.

7.2 THE DEVICE FROM WHICH THE ALARM ORIGINATED SHALL BE INDICATED AT THE CONTROL PANEL, BOTH AUDIBLY AND VISUALLY. THE APPROPRIATE ALARM LED SHALL PULSE AND SHALL BE ILLUMINATED CONTINUOUSLY AFTER IT HAS BE ACKNOWLEDGED AT THE CONTROL PANEL.

7.3 FIRE SPRINKLER MONITORING SYSTEM SHALL USE A 120 VOLT POWER SOURCE WITH BATTERY BACK-UP. FIRE SPRINKLER MONITORING SYSTEM SHALL BE 24 VOLT.

7.4 THE SYSTEM SHALL BE A MONITORED SYSTEM.

8. EQUIPMENT SHALL CONSIST OF THE FOLLOWING:

8.1 MASTER FIRE SPRINKLER MONITORING CONTROL PANEL WITH BATTERY BACK-UP.

8.2 MANUAL STATIONS: MANUAL STATIONS SHALL BE CONSTRUCTED OF HIGH IMPACT, RED LEXAN WITH RAISED LETTERING. MANUAL STATIONS SHALL BE LOCATED NOT MORE THAN FOUR FEET ABOVE THE FINISHED FLOOR TO THE CENTER OF THE BOX. STATIONS SHALL BE LOCATED NOT MORE THEN FIVE FEET FROM EACH DESIGNATED EXIT-WAY AND THE TRAVEL DISTANCE SHALL NOT EXCEED 200 FEET.

8.3 SMOKE DETECTOR: PROVIDE SOLID STATE PHOTO ELECTRIC TYPE WITH TWO WIRE OPERATION AND 360" SMOKE ENTRY FOR FACP.

8.4 DUCT MOUNTED SMOKE DETECTORS: NFPA 72, ANALOG/INTELLIGENT/ADDRESSABLE PHOTOELECTRIC TYPE WITH REMOTE ALARM INDICATING LIGHT, DUCT SAMPLING TUBES EXTENDING WIDTH OF DUCT, AND VISUAL INDICATION OF DETECTOR ACTUATION, IN DUCT-MOUNTED HOUSING.

PROVIDE FIRE ALARM CONTROL PANEL FOR SPRINKLER MONITORING.

9.1 IN THE EVENT OF A VALVE CLOSURE THAT ACTIVATES A TAMPER SWITCH, THE TROUBLE SIGNALS (BOTH AUDIBLE AND VISUAL) SHALL ACTIVATE AT THE CONTROL PANEL. IN ADDITION, THE ASSOCIATED CIRCUIT TROUBLE LED SHALL ILLUMINATE TO INDICATE THE TAMPER SWITCH CLOSURE, BY MEANS OF A SILENCING SWITCH, IT SHALL BE POSSIBLE TO TEMPORALLY SILENCE THE AUDIBLE ALARM, THE AUDIBLE ALARM SHALL REACTIVATE AUTOMATICALLY ON A PERIODIC BASIS UNTIL THE SYSTEM IS CORRECTED. IT SHALL NOT BE POSSIBLE TO EXTINGUISH THE TROUBLE LIGHT UNTIL THE SYSTEM IS CORRECTED.

10.1 ALL WIRING SHALL BE INSTALLED IN COMPLIANCE WITH N.E.C., NFPA 72, ALL STATE AND LOCAL REQUIREMENTS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

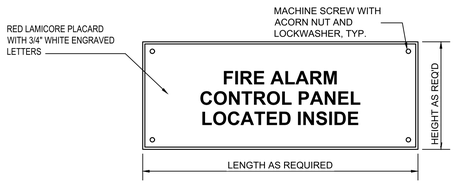
10.2 SLEEVE AND SEAL ALL PENETRATIONS THROUGH FIRE WALLS.

10.3 WIRING SHALL BE A MINIMUM OF NO. 14 AWG UNLESS OTHERWISE NOTED.

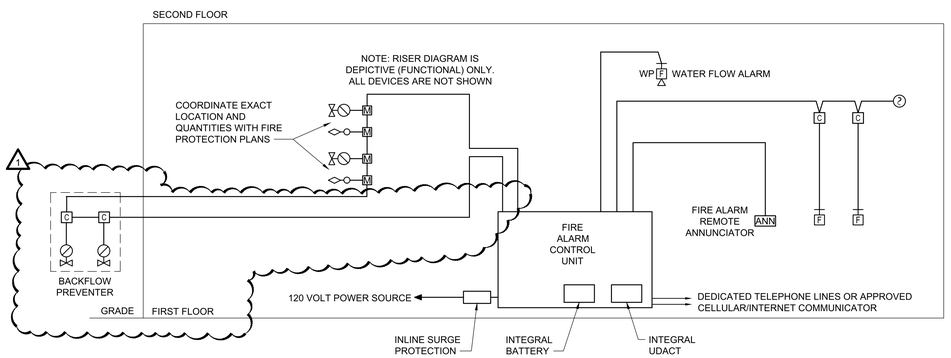
11. ALL WORK PERFORMED AND ALL MATERIAL FURNISHED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS AND SHALL REMAIN SO FOR A PERIOD OF AT LEAST ONE YEAR FROM THE DATE OF ACCEPTANCE.

12. PROVIDE (1) 2" CONDUIT FOR A DEDICATED PHONE LINE FOR FIRE PROTECTION DIALER AND BACKUP LINE FROM EXTERIOR CABINET TO FACP.

13. ALL FIRE SPRINKLER MONITORING SYSTEM WORK AND DEVICES SHALL BE INSTALLED AND TERMINATED BY A NICET LEVEL 2 FIRE ALARM TECHNICIAN.



B3 FACP PLACARD DETAIL
NOT TO SCALE



A4 FIRE SPRINKLER MONITORING RISER DIAGRAM
NOT TO SCALE

Revision No:	Description:	Date:
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0	ISSUED FOR CONSTRUCTION	08.20.2022
1	REVISED PER UPDATED FLOOR PLAN	03.13.2023

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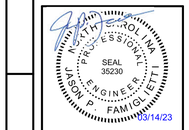


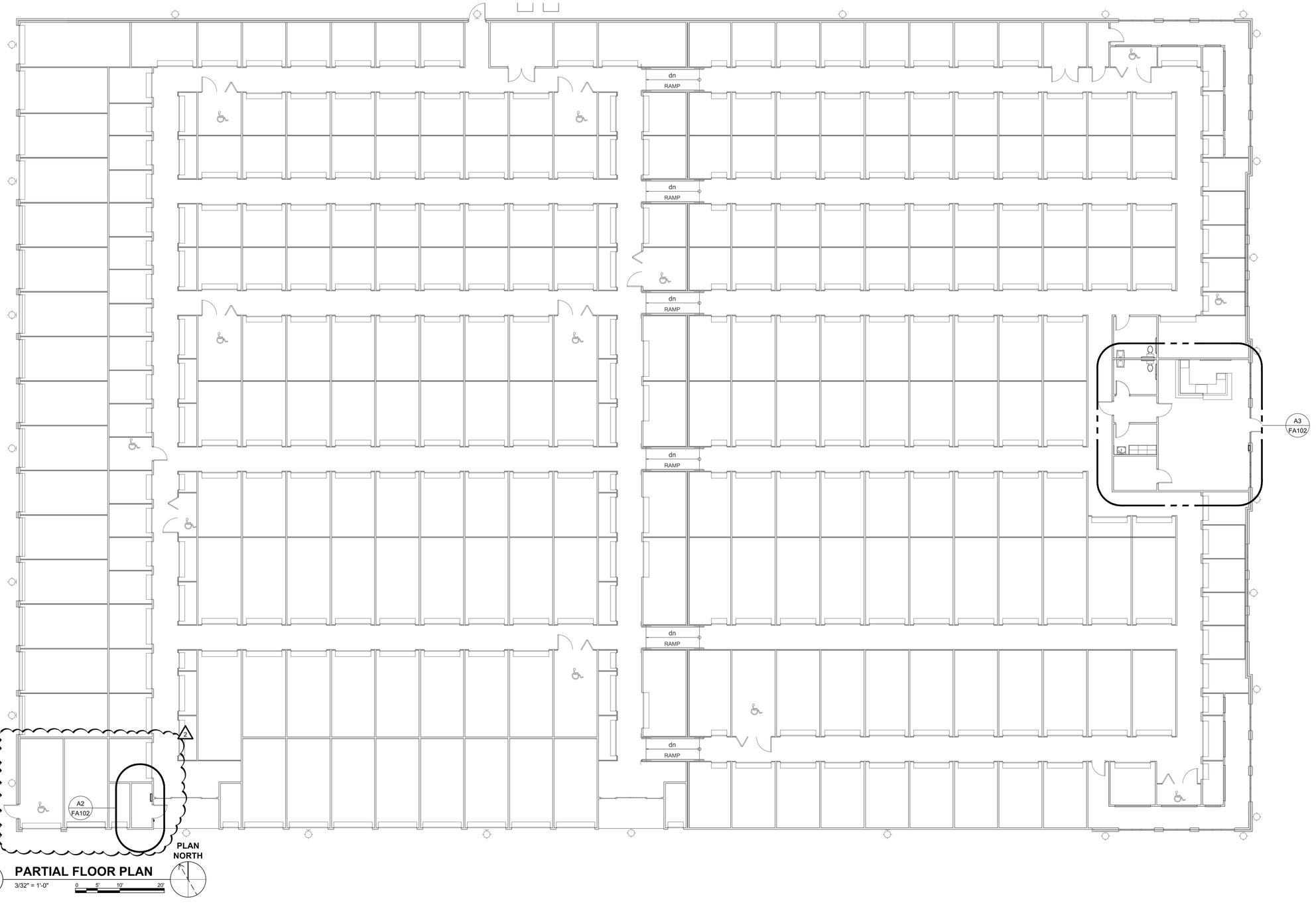
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

FIRE ALARM NOTES, DETAILS, LEGEND, AND RISER DIAGRAM

JOB NO:	CBHF-22020 RHD-21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

DRAWING NO:
F-001

REVISION:
1



A1 PARTIAL FLOOR PLAN
3/32" = 1'-0"
0 5' 10' 20'

1

Revision No:	Description:	Date:
2	REVISED PER UPDATED FLOOR PLAN	03.13.2023
1	REVISED PER UPDATED FLOOR PLAN	10.07.2022
0	ISSUED FOR CONSTRUCTION	08.20.2022

REVISIONS

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NORTH CAROLINA PROFESSIONAL ENGINEER JASON P. FAMIGLIETTI SEAL 35230
03/14/23

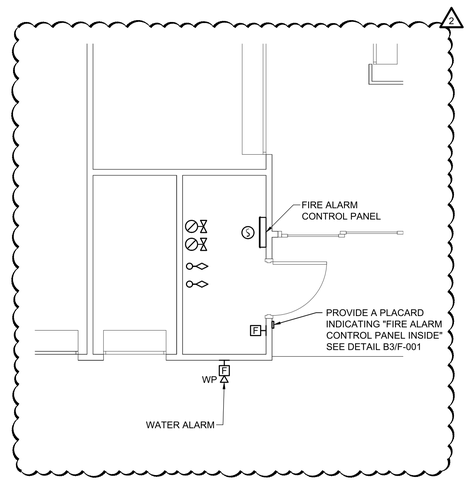
LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

FIRE ALARM
FIRST FLOOR PLAN

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

DRAWING NO:
FA101

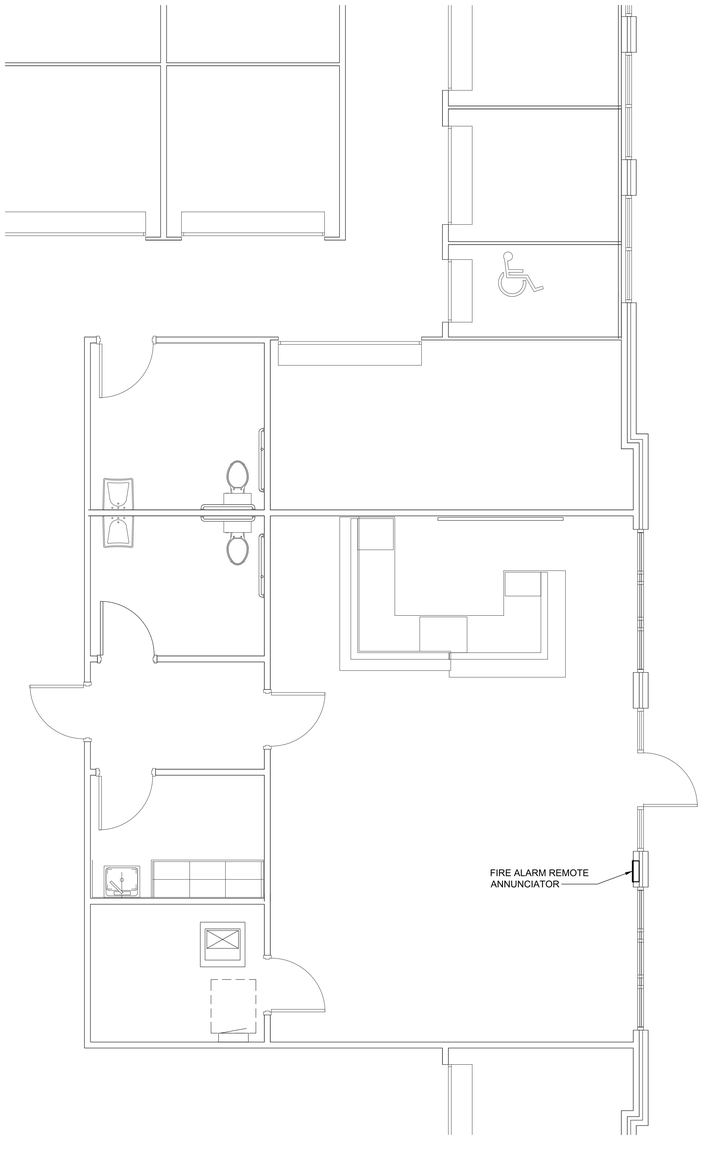
REVISION:
2



A2 **ENLARGED RISER ROOM PLAN**

1/4" = 1'-0"

0 2' 4' 8'



A3 **ENLARGED OFFICE PLAN**

1/4" = 1'-0"

0 2' 4' 8'

1

Revision No:	Description:	Date:
2	REVISED PER UPDATED FLOOR PLAN	03.13.2023
1	REVISED PER UPDATED FLOOR PLAN	10.07.2022
0	ISSUED FOR CONSTRUCTION	08.20.2022

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03/14/23

LILLINGTON STORAGE
PHASE I - BUILDING 1
1781 N MAIN STREET
LILLINGTON, NC

FIRE ALARM
ENLARGED PLANS

JOB NO:	CBHF:22020 RHD:21-7075
DRAWN:	RRD
DESIGNED:	RRD
CHECKED:	JPF

DRAWING NO:

FA102

REVISION:
2