2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 & 2)

Name of Project: CAROLINA DIESEL TRUCKS ADDITION
Address: 62 PROGRESS DRIVE, FUQUAY VARINA, NC Zip Code 27526
Owner/Authorized Agent: FLOYD TAYLOR Phone# 919-868-3669 E-Mail floydtgr@gmail.com
Owned By: ☐ City/County ☒ Private ☐ State
Code Enforcement Jurisdiction: ☐ City ☒ County HARNETT ☐ State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	TONY JOHNSON ARCHITECTURE	TONY JOHNSON	4296	919-550-7717	tony@tonyjohnsonarchitect.com
Civil					
Electrical	KILIAN ENGINEERING INC	JACOB HAMILTON	048012	252-438-8778	jhamilton@kilianengineering.com
Fire Alarm				252-438-8778	
Plumbing	KILIAN ENGINEERING INC	JACOB HAMILTON	048012	252-438-8778	jhamilton@kilianengineering.com
Mechanical	KILIAN ENGINEERING INC	JACOB HAMILTON	048012	252-438-8778	jhamilton@kilianengineering.com
Sprinkler-Standpipe					
Structural	TYNDALL ENGINEERING & DESIGN	PRENTICE TYNDALL	024889	919-773-1200	ptyndall2@tyndallengineering.com
Retaining Walls >5' High					
Other					

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

2018 NC BUILDING CODE:

☐ New building ☒ Addition ☐ Rennovation
☐ First time interior completion (upfit)
☐ Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements
☐ Phased Construction - Shell/Core- Contact the local inspection jurisdiction for possible additional procedures and requirements

2018 NC EXISTING BUILDING CODE:

Existing: ☐ Prescriptive ☐ Repair ☐ Chapter 14
Alteration: ☐ Level I ☐ Level II ☒ Level III
☐ Historic Property ☐ Change of Use

Constructed: (date) 2017 Current Occupancy (S) (Ch. 3): BUSINESS, S-1 STORAGE
Renovated: (date) ______ Proposed Occupancy (S) (Ch. 3): BUSINESS, S-1 STORAGE

Risk Category (Table 1604.5): Current: ☐ I ☒ II ☐ III ☐ IV
Proposed: ☐ I ☒ II ☐ III ☐ IV

BASIC BUILDING DATA:

Construction Type: (check all that apply) ☐ I-A ☐ I-B ☐ II-A ☒ II-B ☐ III-A ☐ III-B ☐ IV ☐ V-A ☐ V-B

Sprinklers: ☐ No ☒ Yes ☐ Partial ☒ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No ☐ Yes Class: ☐ I ☐ II ☐ III ☐ Wet Dry
Fire District: ☒ No ☐ Yes Flood Hazard Area: ☒ No ☐ Yes
Special Inspections Required: ☒ No ☐ Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

GROSS BUILDING AREA TABLE:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	RENO/ALTER (SQ.FT)	SUB-TOTAL
3rd Floor				
2nd Floor	409		666	666
Mezzanine				
1st Floor	9,675	3,850		13,525
Basement				
TOTAL	10,084	3,850	666	14,191

ALLOWABLE AREA: CHAPTER 5

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

Accessory Occupancy Classification(s) (<- 10%): ______
Incidental Uses (Table 509): ______
Special Uses (Chapter 4 - List Code Sections): ______
Special Provisions (Chapter 5 - List Code Sections): ______

Mixed Occupancy: ☒ No ☐ Yes Separation: ____ Hr. Exception: ______

☐ Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

☐ Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

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

______ + ______ + ... = <1.00

ALLOWABLE AREA

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	S-1 - EXISTING + ADDITION)	13,525	52,500		52,500
1	B - EXISTING)		69,000		
2	B - RENOVATION	666	69,000		

1. Frontage area increases from Section 506.2 are computed thus:
   a. Perimeter which fronts a public way or open space having 20 feet minimum width= ______ (F)
   b. Total Building Perimeter= ______ (P)
   c. Ratio (F/P)= ______ (F/P)
   d. W=Minimum width of public way= ______ (W)
   e. Percent of frontage increase I(f)= [F/P-0.25]x W/30= ______ (%)
2. Unlimited area applicable under conditions of Section 507.
3. Maximum Building Area=total number of stories in the building x D (maximum 3 stories) (506.2).
4. The maximum area of open parking garages must comply with Table 406.5.4.
5. Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	75'	25' - 1"	
Building Height in Stories (Table 504.4)	3	2	

1. Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4
2. The maximum height of air traffic control towers must comply with Table 412.3.1.
3. The maximum height of open parking garages must comply with Table 406.5.4.

FIRE PROTECTION REQUIREMENTS: CHAPTER 6 (TABLE 601)

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/______* REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses		0					
Bearing Walls							
Exterior							
North	NA	0					
East	NA	0					
West	NA	0					
South	NA	0					
Interior		0					
Nonbearing Walls and Partitions							
Exterior walls EXISTING TO REMAIN: NON-COMBUSTIBLE CONCRETE PANELS							
North	>30'	0					
East	>30'	0					
West	>30'	0					
South	>30'	0					
Interior walls and partitions		0					
Floor Construction Including supporting beams and joists		0					
Floor Ceiling Assembly		0					
Column Supporting Floors		0					
Roof Construction, including supporting beams and joists		0					
Roof Ceiling Assembly		0					
Column Supporting Roof		0					
Shaft Enclosures - Exit		1 HR	1 HR		EXISTING UL-U419		
Shaft Enclosures - Other		NA					
Corridor Separation		0					
Occupancy/Fire Barrier Separation		NA					
Party/Fire Wall Separation		NA					
Smoke Barrier Separation		NA					
Smoke Partition		NA					
Tenant/Dwelling Unit/ Sleeping Unit Separation		NA					
Incidental Use Separation		NA					

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS:

FIRE SEPARATION DISTANCE (FEET FROM PROPERTY LINES)	DEGREES OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
>30'	UP, S	NO LIMIT	

LIFE SAFETY SYSTEM REQUIREMENTS: Chapters 9 and 10

Emergency Lighting: ☐ No ☒ Yes
Exit Signs: ☐ No ☒ Yes
Fire Alarm: ☒ No ☐ Yes
Smoke Detection Systems: ☒ No ☐ Yes ☐ Partial ______
Carbon Monoxide Detection: ☒ No ☐ Yes

LIFE SAFETY PLAN REQUIREMENTS:

Life Safety Plan Sheet #, if Provided: A-0.2

☒ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations (If not on 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 sign locations (1013)
☒ Exit access travel distances (1017)
☒ Common path of travel distances (1006.2.1 & 1006.3.2(1))
☐ Dead end lengths (1020.4)
☒ Clear exit widths for each exit door
☒ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
☒ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☐ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ 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 DWELLING UNITS: (Section 1107) *NA*

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

ACCESSIBLE PARKING REQUIREMENTS: (Section 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED: REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	TOTAL # ACCESSIBLE PROVIDED
TOTAL						

PLUMBING FIXTURE REQUIREMENTS: Chapter 29 (Table 2902.1)

USE		WATERCLOSETS MALE	WATERCLOSETS FEMALE	WATERCLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS / TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
S-1, B	EXIST'G	1	1	1		1	1	1		1	1
	NEW	2			1	1					
	REQ'D	1	1			1	1			1	1

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

ENERGY SUMMARY

ENERGY REQUIREMENTS:

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

Existing building envelope complies with code: ☐ No ☒ Yes (The remainder of this section is not applicable)
Exempt Building: ☐ No ☒ Yes (Provide code or statutory reference) OCCUPANCY CLASSIFICATION OF ADDITION IS S-1. PER N.C.G.S 143-138 (b18) ENERGY CONSERVATION CODE PROVISIONS DO NOT APPLY

Climate Zone: ☐ 3A ☐ 4A ☐ 5A

Method of Compliance: Energy Code ☐ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive
If "Other" specify source here) ______

THERMAL ENVELOPE (Prescriptive method only):

Roof/ceiling Assembly (each assembly)
- Description of assembly:
- U-Value of total assembly:
- R-Value of insulation:
- Skylights in each assembly:
- U-Value of skylight:
- Total square footage of skylight in each assembly:

Exterior Walls (each assembly)
- Description of assembly:
- U-Value of total assembly:
- R-Value of insulation:
- Openings (windows or doors with glazing)
- U-Value of assembly:
- Solar heat gain coefficient:
- Projection factor:
- Door R-Value:

Walls Below Grade (each assembly)
- Description of assembly:
- U-Value of total assembly:
- R-Value of insulation:

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

Floors slab on grade
- Description of assembly:
- U-Value of total assembly:
- R-Value of insulation:
- Horizontal/vertical requirement:
- Slab heated:

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

SEE STRUCTURAL

DESIGNS LOADS:

Importance Factors: Snow (I_S) ☐ .80 ☐ 1.0 ☐ 1.1 ☐ 1.2
Se[ismic] ☐ 1.25 ☐ 1.5
Live Loads: Roof (live & snow) ______ (psf)
Mezzanine ______ (psf)
Floor ______ (psf)
Ground Snow Load: ______ (psf)
Wind Load: Basic Wind Speed ______ (mph ASCE 7)
Exposure Category ☐ B ☐ C ☐ D

SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☐ C ☐ D

Provide the following Seismic Design Parameters:

Risk Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration S_S ____ %g S_1 ____ %g
Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data

Basic Structural System: (check one)
☐ Bearing Wall ☐ Dual w/ Special Moment Frame
☐ Building Frame ☐ Dual w/ Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum

Analysis Procedure: ☐ Simplified ☐ Modal ☐ Equivalent Lateral Force
Architectural, Mechanical, Components Anchored? ☐ Yes ☐ No

LATERAL DESIGN CONTROL: ☐ Earthquake ☐ Wind

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) ______ (psf)
Presumptive Bearing Capacity ______ (psf)
Pile Size, Type, and Capacity ______ (psf)

SOIL BEARING CAPACITIES: ☐ Yes ☐ No

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

SEE MECHANICAL

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
- winter dry bulb:
- summer dry bulb:

Interior Design Conditions
- winter dry bulb:
- summer dry bulb:
- relative humidity:

Building heating load:
Building cooling load:

Mechanical Spacing Conditioning System
Unitary
- description of unit:
- heating efficiency:
- cooling efficiency:
- size category of unit:

Boiler
- Size category. If oversized, state reason:

Chiller
- Size category. If oversized, state reason:

List equipment efficiencies:

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

SEE ELECTRICAL

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

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

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
☐ C406.2 More Efficient HVAC Equipment Performance
☐ C406.3 Reduced Lighting Power Density
☐ C406.4 Enhanced Digital Lighting Controls
☐ C406.5 On-Stie Renewable Energy
☐ C406.6 Dedicated Outdoor Air System
☐ C406.7 Reduced Energy Use in Service Water Heating

NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes and is subject to field inspection and verification.
Reviewed for Code Compliance
08/24/2022
Harnett COUNTY NORTH CAROLINA

TONY LEE JOHNSON REGISTERED ARCHITECT 4296 NORTH CAROLINA CLAYTON, NC
06-14-2022
TONY L. JOHNSON ARCHITECT P.A. REGISTERED ARCHITECTURAL CORPORATION 51220 NORTH CAROLINA CLAYTON, NC

CAROLINA DIESEL TRUCKS ADDITION
62 PROGRESS DRIVE, FUQUAY VARINA, NC

919-550-7717
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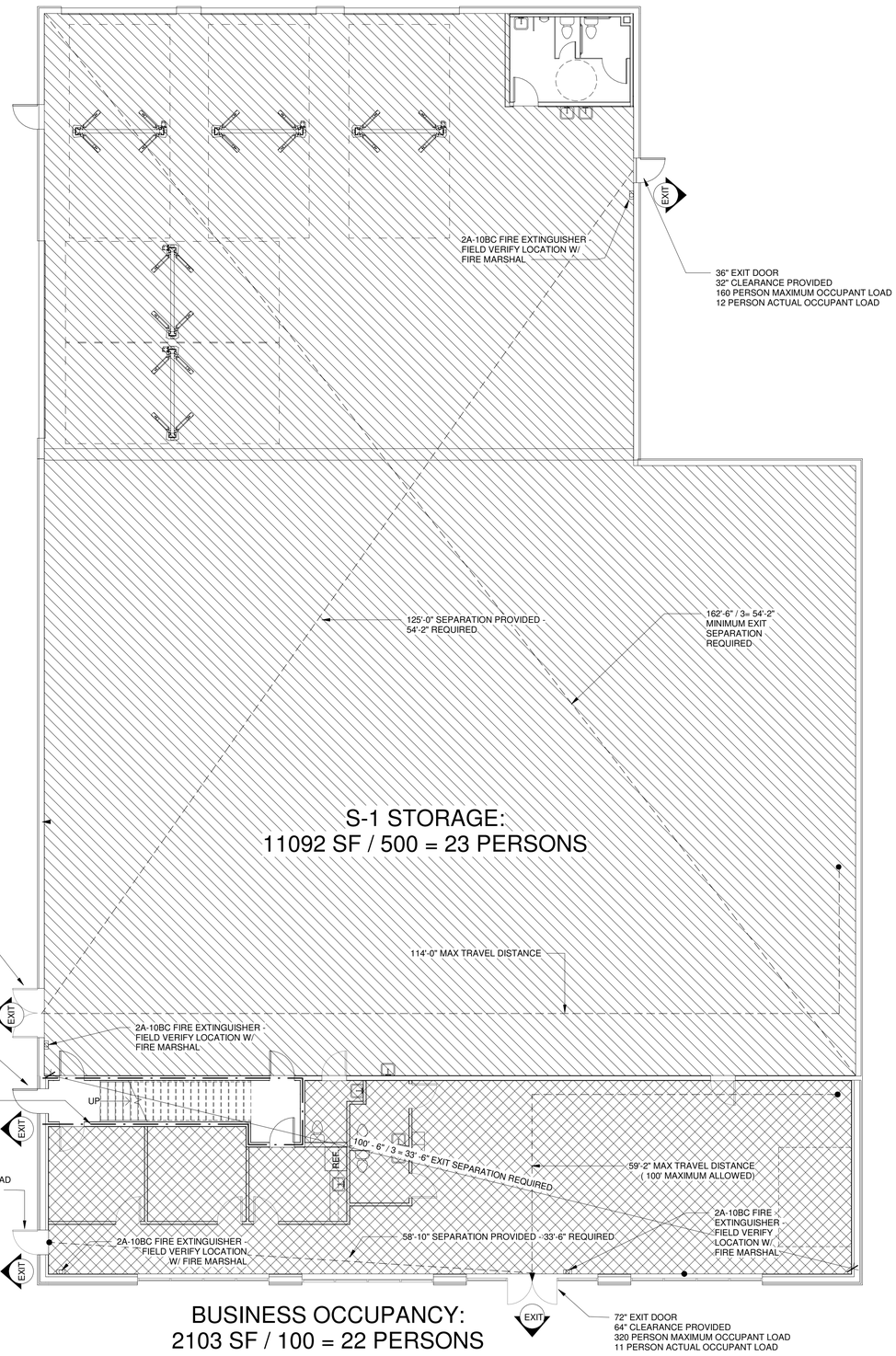
140 Durham Street
Clayton, NC 27520
TonyJohnsonArchitect.com
TONY JOHNSON ARCHITECTURE

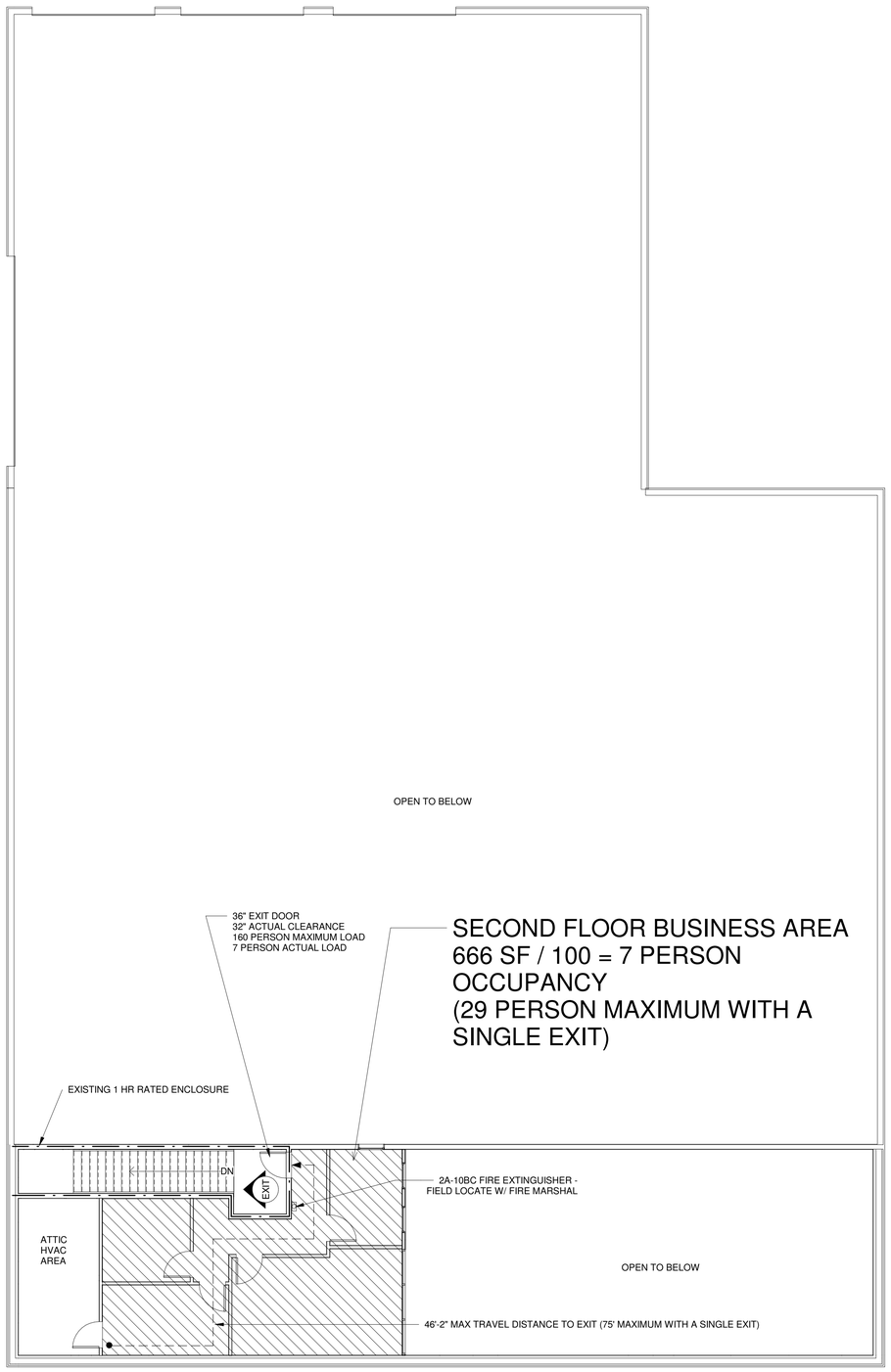
ISSUE DATE	06-14-2022
REVISION	
PROJECT #	2022-024

BUILDING CODE SUMMARY

SHEET
A-0.1



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



2 SECOND FLOOR LIFE SAFETY PLAN
1/8" = 1'-0"

TONY LEE JOHNSON
REGISTERED ARCHITECT
4296
02.12.18
08.10.18
CAROLINA
CLAYTON, NC
06-14-2022
TONY L. JOHNSON ARCHITECT P.A.
REGISTERED ARCHITECTURAL CORPORATION
NORTH CAROLINA
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CLAYTON, NC

CAROLINA DIESEL TRUCKS
ADDITION

62 PROGRESS DRIVE, FUQUAY VARINA, NC

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TONY JOHNSON ARCHITECTURE

ISSUE DATE	06-14-2022
REVISION	
PROJECT #	2022-024

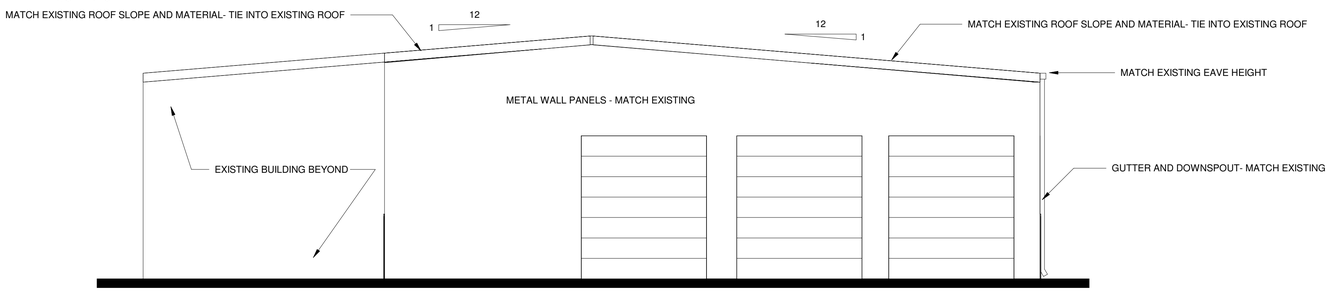
LIFE SAFETY PLANS

SHEET

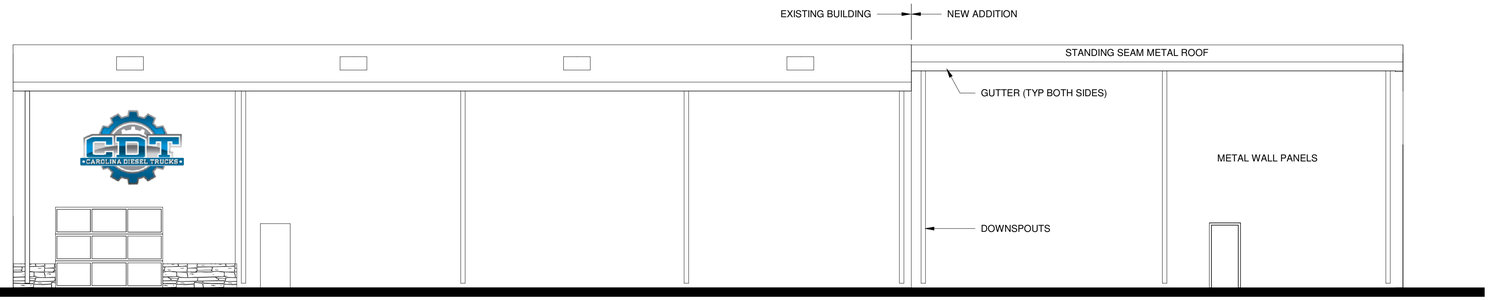
A-0.2

NOTE: THERE IS NO CHANGE TO THIS ELEVATION

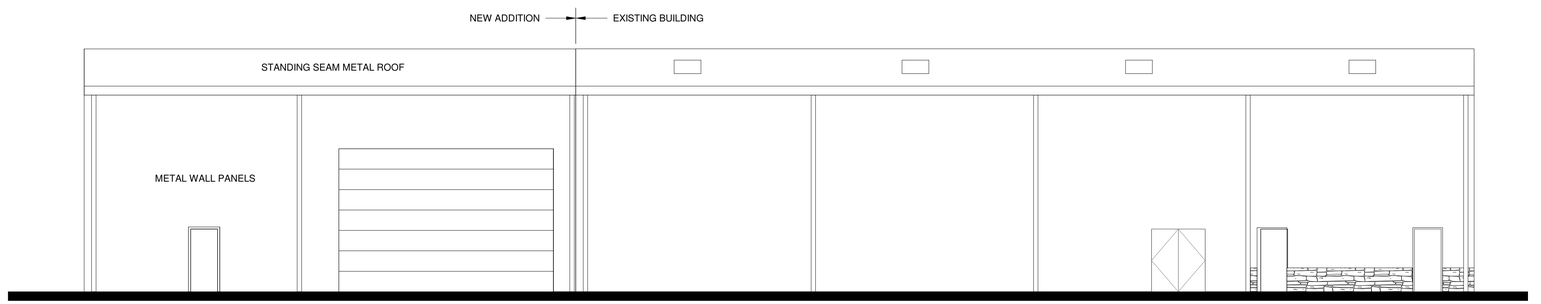
1 EXISTING WEST ELEVATION
1/8" = 1'-0"



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



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



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

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CAROLINA DIESEL TRUCKS
ADDITION

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TonyJohnsonArchitect.com

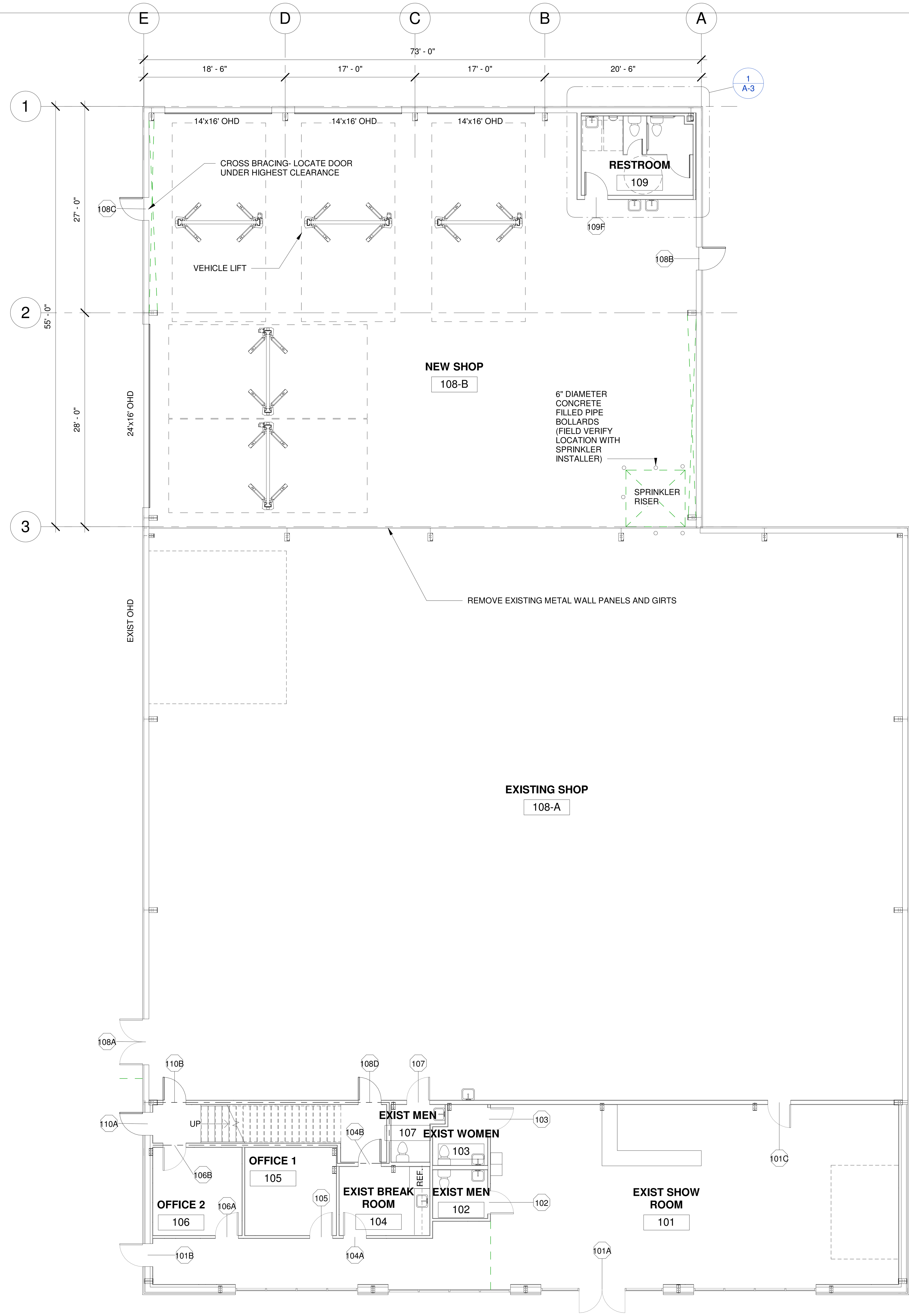
TONY JOHNSON ARCHITECTURE

ISSUE DATE	06-14-2022
REVISION	
PROJECT #	2022-024

ELEVATIONS

SHEET

A-1



1 FIRST FLOOR PLAN
1/8" = 1'-0"

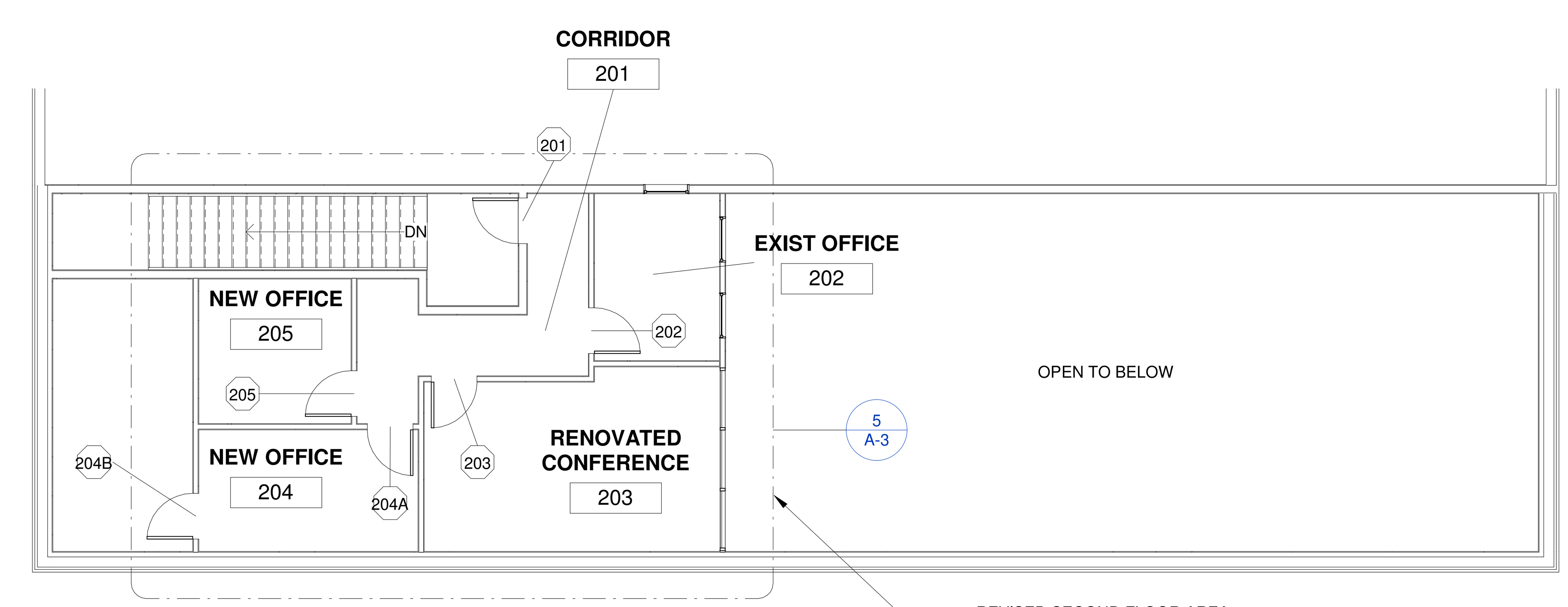
DOOR SCHEDULE

DOOR	WIDTH	HEIGHT	MATERIAL	ANODIZED	FRAME	FRAME FINISH	HARWARE	CLOSER	RATING	COMMENTS
101A	6'-0"	7'-0"	GLASS, ALUMINUM	ANODIZED	METAL	ANODIZED	PUSH/PULL	YES		EXISTING
101B	3'-0"	7'-0"	INSULATED METAL	PAINT	METAL	PAINT	LEVER HANDLE	YES		EXISTING
101C	3'-0"	7'-0"	INSULATED METAL	PAINT	METAL	PAINT	LEVER HANDLE	YES		EXISTING
102	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	NO		EXISTING
103	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	NO		EXISTING
104A	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	NO		EXISTING
104B	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	YES	60 MIN	EXISTING
105	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	NO		EXISTING
106A	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	NO		EXISTING
106B	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	YES	60 MIN	EXISTING
107	3'-0"	7'-0"	INSULATED METAL	PAINT	METAL	PAINT	LEVER HANDLE	NO		EXISTING
108A	6'-0"	7'-0"	INSULATED METAL	PAINT	METAL	PAINT	LEVER HANDLE	YES		EXISTING
108B	3'-0"	7'-0"	INSULATED METAL	PAINT	METAL	PAINT	LEVER HANDLE	YES		NEW
108C	3'-0"	7'-0"	INSULATED METAL	PAINT	METAL	PAINT	LEVER HANDLE	YES		NEW
108D	3'-0"	7'-0"	INSULATED METAL	PAINT	METAL	PAINT	LEVER HANDLE	YES	60 MIN	EXISTING
110A	3'-0"	7'-0"	INSULATED METAL	PAINT	METAL	PAINT	LEVER HANDLE	YES		EXISTING
110B	3'-0"	7'-0"	INSULATED METAL	PAINT	METAL	PAINT	LEVER HANDLE	YES	60 MIN	EXISTING
201	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	YES	60 MIN	EXISTING
202	3'-0"	7'-0"	INSULATED METAL	STAIN	METAL	PAINT	LEVER HANDLE	NO		NEW
203	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	NO		NEW
204A	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	NO		NEW
204B	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	YES		NEW - WEATHERSTRIP
205	3'-0"	7'-0"	SOLID CORE WOOD	STAIN	METAL	PAINT	LEVER HANDLE	NO		NEW

FINISH SCHEDULE

NUMBER	ROOM	FLOOR	BASE	WALL	CEILING	CLG HGHT
108-B	NEW SHOP	SEALED CONCRETE	NA	8'-0" HIGH FIRE RETARDENT TREATED PLYWOOD WALL LINER	NONE	
109	RESTROOM	SEALED CONCRETE	RUBBER	EPOXY PAINT	2X2 LAY-IN CEILING TILE	9'-0"
201	CORRIDOR	SELECTION BY OWNER	RUBBER	PAINT	2X2 LAY-IN CEILING TILE	8'-0"
203	RENOVATED CONFERENCE	SELECTION BY OWNER	RUBBER	PAINT	2X2 LAY-IN CEILING TILE	8'-0"
204	NEW OFFICE	SELECTION BY OWNER	RUBBER	PAINT	2X2 LAY-IN CEILING TILE	8'-0"
205	NEW OFFICE	SELECTION BY OWNER	RUBBER	PAINT	2X2 LAY-IN CEILING TILE	8'-0"

FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. IMMEDIATELY NOTIFY ARCHITECT OF ANY VARAITIONS.



2 SECOND FLOOR PLAN
1/8" = 1'-0"

TONY LEE JOHNSON
REGISTERED ARCHITECT
4296
NORTH CAROLINA
CLAYTON, NC
02.12.18
08.10.18
06-14-2022

TONY L. JOHNSON ARCHITECT P.A.
REGISTERED ARCHITECTURAL CORPORATION
51220
NORTH CAROLINA
CLAYTON, NC

CAROLINA DIESEL TRUCKS ADDITION
62 PROGRESS DRIVE, FUQUAY VARINA, NC

919-550-7717
Tony@TonyJohnsonArchitect.com
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TONY JOHNSON ARCHITECTURE

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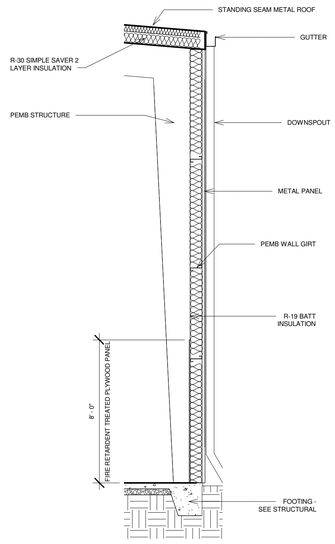
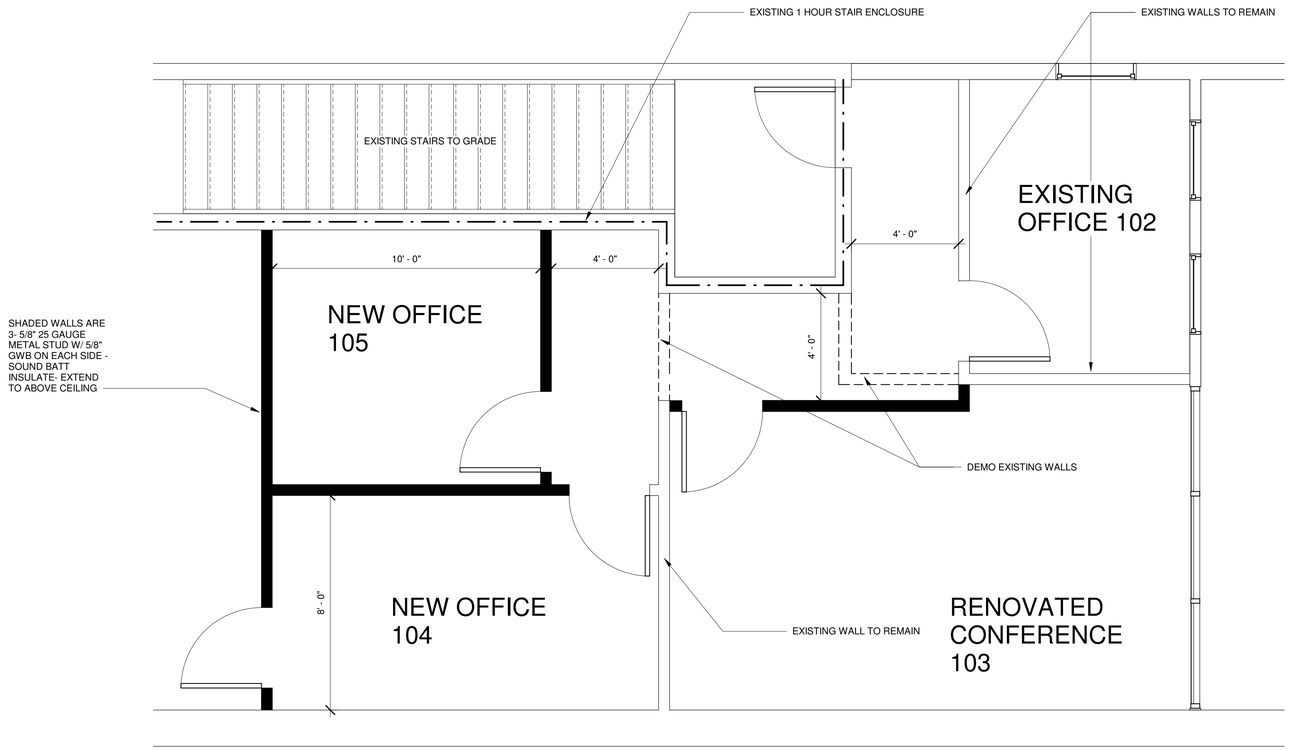
REVISION	
PROJECT #	2022-024

FLOOR PLAN

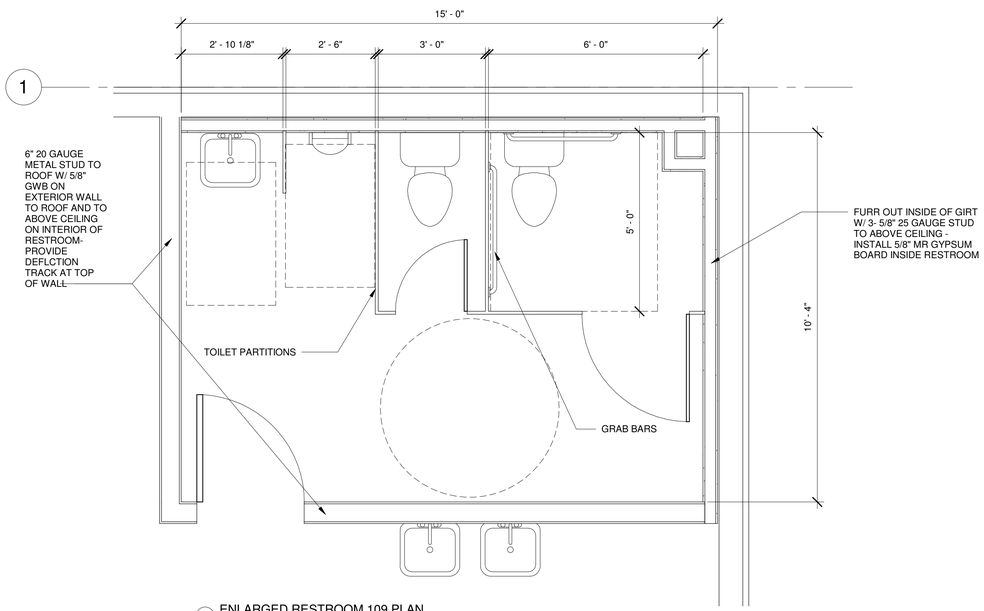
SHEET
A-2



2 TYP PEMB WALL SECTION
1/4" = 1'-0"



5 ENLARGED SECOND FLOOR PLAN
3/8" = 1'-0"



1 ENLARGED RESTROOM 109 PLAN
1/2" = 1'-0"

TONY LEE JOHNSON
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ENLARGED FLOOR PLAN AND SECTION

SHEET

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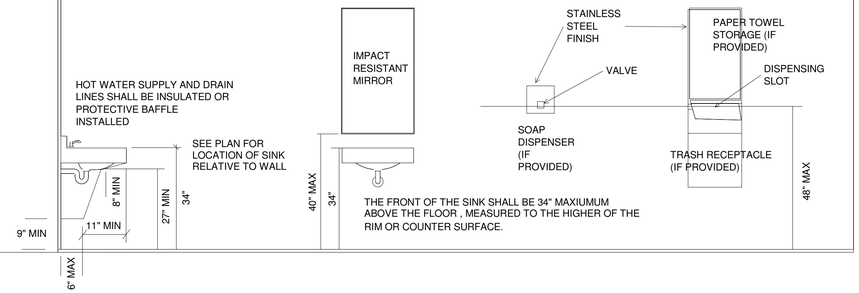
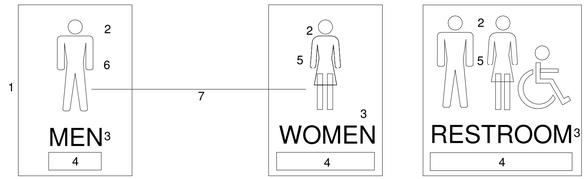
LAVATORY AND ACCESSORY DETAIL

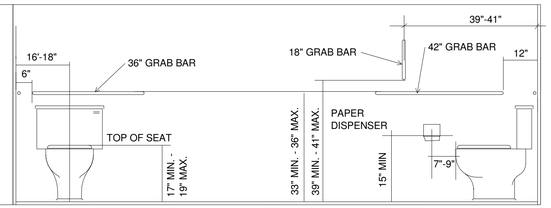


TOILET ROOM IDENTIFICATION

NOTES (TYPICAL FOR ALL SIGNS):
1. 6" MIN. HEIGHT - MALE/FEMALE FIGURES
2. USE OF MALE/FEMALE CHARACTERS IS REQURED
3. RAISED LETTERS/NUMBERS MIN 1" HIGH
4. BRAILLE
5. CHARACTER PROPORTION
6. COLOR CONTRAST
7. MOUNT CENTERLINE 60" AFF ON LATCH SIDE OF DOOR-
   MAY BE MOUNTED ON DOOR ONLY IF NO SPACE BESIDE DOOR.

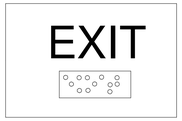


WATER CLOSET DETAIL



TACTILE EXIT SIGN

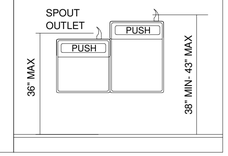
A MIN 6"x4" EXIT SIGN SHALL BE MOUNTED ON THE STRIKE SIDE OF ALL REQUIRED EXIT DOORS.SIGN SHALL HAVE BOTH RAISED LETTERS AND BRAILLE - BOTTOM OF BRAILLE SHALL BE MIN 48" AFF



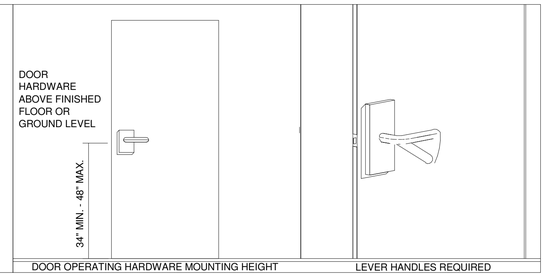
DRINKING FOUNTAIN DETAIL

IF ONLY ONE DRINKING FOUNTAIN OR WATERCOOLER IS PROVIDED PER FLOOR THEN:
ONE FIXTURE ACCESSIBLE TO WHEELCHAIR USERS AND ONE FIXTURE ACCESSIBLE TO PERSONS WHO HAVE DIFFICULTY BENDING OR STOOPING SHALL BE PROVIDED

SEE FLOOR PLAN TO DETERMINE IF WHEELCHAIR ACCESSIBLE WATERCOOLER IS ON LEFT OR RIGHT SIDE



DOOR HARDWARE DETAIL



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ACCESSIBILITY

SHEET

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GENERAL CONSTRUCTION SPECIFICATION

1. THE FOLLOWING DOCUMENTS ARE THE PROPERTY OF TYNDALL ENGINEERING & DESIGN, P.A. FOR USE SOLELY FOR THIS PROJECT AND SHALL NOT BE REPRODUCED, COPIED, OR USED FOR OTHER PURPOSES WITHOUT WRITTEN PERMISSION FROM TYNDALL ENGINEERING & DESIGN, P.A.

2. THE DESIGN PROFESSIONAL WHOSE SEAL APPEARS ON THESE DRAWINGS IS THE STRUCTURAL ENGINEER OF RECORD(SER) FOR THIS PROJECT. THE SER BEARS THE RESPONSIBILITY FOR THE PRIMARY STRUCTURAL ELEMENTS AND THE PERFORMANCE OF THIS STRUCTURE. NO OTHER PARTY MAY REVISE, ALTER, OR DELETE THESE CONSTRUCTION DOCUMENTS WITHOUT WRITTEN PERMISSION FROM TYNDALL ENGINEERING & DESIGN, P.A. OR THE SER. FOR THE PURPOSES OF THESE CONSTRUCTION DOCUMENTS THE SER AND TYNDALL ENGINEERING & DESIGN, P.A. SHALL BE CONSIDERED THE SAME ENTITY.

3. THIS STRUCTURE IS ONLY STABLE IN ITS COMPLETED FORM. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TEMPORARY BRACING DURING CONSTRUCTION TO STABILIZE THE STRUCTURE. TEMPORARY SHORING AND BRACING METHODS ARE NOT THE RESPONSIBILITY OF TYNDALL ENGINEERING & DESIGN, P.A. AND ARE BEYOND THE SCOPE OF THESE DRAWINGS.

4. THE SER IS NOT RESPONSIBLE FOR CONSTRUCTION SEQUENCES, METHODS, OR TECHNIQUES IN CONNECTION WITH THE CONSTRUCTION OF THIS STRUCTURE. THE SER WILL NOT BE HELD RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CONFORM TO THE CONSTRUCTION DOCUMENTS, SHOULD ANY NON-CONFORMITIES OCCUR.

5. ANY STRUCTURAL ELEMENTS OR DETAILS NOT FULLY DEVELOPED ON THE CONSTRUCTION DRAWINGS SHALL BE COMPLETED UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. THESE SHOP DRAWINGS SHALL BE SUBMITTED TO TYNDALL ENGINEERING & DESIGN, P.A. FOR REVIEW BEFORE ANY CONSTRUCTION BEGINS. SEE THE "SUBMITTALS" SECTION OF THESE SPECIFICATIONS.

6. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH AND COORDINATED WITH THE ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND CIVIL DRAWINGS. THIS COORDINATION IS NOT THE RESPONSIBILITY OF THE SER. SHOULD ANY DISCREPANCIES BECOME APPARENT THE CONTRACTOR SHALL NOTIFY TYNDALL ENGINEERING & DESIGN, P.A. BEFORE ANY CONSTRUCTION BEGINS.

7. VERIFICATION OF ASSUMED FIELD CONDITIONS IS NOT THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD. THE CONTRACTOR SHALL VERIFY THE FIELD CONDITIONS FOR ACCURACY AND REPORT ANY DISCREPANCIES TO TYNDALL ENGINEERING & DESIGN, P.A. BEFORE CONSTRUCTION BEGINS.

8. THE STRUCTURAL ENGINEER OF RECORD IS NOT RESPONSIBLE FOR ANY SECONDARY STRUCTURAL ELEMENTS OR NON-STRUCTURAL ELEMENTS, EXCEPT FOR THE ELEMENTS SPECIFICALLY NOTED ON THE STRUCTURAL DRAWINGS.

9. THIS STRUCTURE AND ALL CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE SECTIONS OF THE INTERNATIONAL BUILDING CODE AND ANY LOCAL LAWS WHERE THE STRUCTURE IS TO BE CONSTRUCTED.

SCOPE OF STRUCTURAL ENGINEERING SERVICES

TYNDALL ENGINEERING & DESIGN, P.A. HAS PERFORMED THE STRUCTURAL DESIGN AND PREPARED THE STRUCTURAL WORKING DRAWINGS FOR THIS PROJECT. "CONSTRUCTION REVIEW" SERVICES ARE NOT ALSO A PART OF OUR CONTRACT.

PORTIONS OF THE STRUCTURAL DESIGN (AS NOTED ON THE DRAWINGS) ARE THE RESPONSIBILITY OF THE MATERIAL SUPPLIERS.

THE SER IS RESPONSIBLE FOR THE DESIGN OF THE PRIMARY STRUCTURAL SYSTEM, EXCEPT FOR THE COMPONENTS NOTED ABOVE. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR ANY SECONDARY STRUCTURAL AND NON-STRUCTURAL SYSTEMS NOT SHOWN ON THE STRUCTURAL PLANS.

THE SER HAS NOT DONE A SUBSURFACE INVESTIGATION. THE FOUNDATION DESIGN IS BASED UPON AN ASSUMED ALLOWABLE BEARING PRESSURE AS SHOWN IN THE "FOUNDATION" STRUCTURAL NOTES. THIS ALLOWABLE BEARING PRESSURE MUST BE VERIFIED BY THE CONTRACTOR OR OWNER. IF PROBLEMS ARE ENCOUNTERED, A SOILS ENGINEER SHALL BE RETAINED TO EVALUATE THE CONDITIONS AND RECOMMEND THE APPROPRIATE FOUNDATION SYSTEM.

THE SER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK; NOR WILL THE SER BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

FIELD MEASUREMENTS AND THE VERIFICATION OF FIELD DIMENSIONS ARE NOT PART OF TYNDALL ENGINEERING & DESIGN, P.A.'S RESPONSIBILITY. THE CONTRACTOR MUST CHECK ALL (ASSUMED) EXISTING CONDITIONS SHOWN ON THESE DRAWINGS FOR ACCURACY AND NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES.

THE SER HAS ANALYZED THE NEW STRUCTURAL SLAB CONSTRUCTION FOR CONCENTRATED LOADS DUE TO VEHICLES. THE SLAB IS DESIGNED FOR UNIFORM LOADING AS NOTED IN THE "DESIGN LOADS" PORTION OF THE STRUCTURAL NOTES AND CONCENTRATED LOADS IN ACCORDANCE WITH REQUIREMENTS OF THE BUILDING CODE.

THE SER HAS NOT DESIGNED THE STRUCTURE TO SUPPORT DYNAMIC LOADS FROM VIBRATING MACHINERY OR EQUIPMENT. ALL VIBRATING EQUIPMENT AND MACHINERY MUST BE ISOLATED FROM THE STRUCTURE.

THE SER HAS NOT PREFORMED AN ANALYSIS OF THE EXISTING BUILDING STRUCTURE ADJACENT TO THE NEW STRUCTURE. THE NEW BUILDING IS DESIGNED AS AN INDEPENDENT SELF-SUPPORTING STRUCTURE.

SUBMITTALS

1. SHOP DRAWINGS AND SUBMITTALS SHALL BE SUBMITTED TO TYNDALL ENGINEERING & DESIGN, P.A. FOR REVIEW BEFORE ANY CONSTRUCTION BEGINS. THESE SUBMITTALS WILL BE REVIEWED FOR OVERALL COMPLIANCE AS IT RELATES TO THE STRUCTURAL DESIGN OF THIS PROJECT. VERIFICATION OF THE SHOP DRAWINGS FOR DIMENSIONS, OR FOR ACTUAL FIELD CONDITIONS IS NOT THE RESPONSIBILITY OF TYNDALL ENGINEER & DESIGN, P.A.

2. ALLOW ENOUGH TIME FOR SUBMITTAL REVIEW, INCLUDING TIME FOR RESUBMITTALS. TIME FOR REVIEW SHALL COMMENCE UPON TYNDALL ENGINEERING & DESIGN'S RECEIPT OF SUBMITTAL. ALLOW 15 DAYS FOR INITIAL REVIEW OF EACH SUBMITTAL AND 15 DAYS FOR REVIEW OF EACH RESUBMITTAL.

3. CONTRACTOR SHALL HIGHLIGHT, ENCIRCLE, OR OTHERWISE SPECIFICALLY IDENTIFY DEVIATIONS FROM THE CONTRACT DOCUMENTS ON SUBMITTALS.

4. CONTRACTOR SHALL REVIEW EACH SUBMITTAL AND CHECK FOR COORDINATION WITH OTHER TRADES AND FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. NOTE CORRECTIONS AND FIELD DIMENSIONS. MARK WITH APPROVAL STAMP BEFORE SUBMITTING TO TYNDALL ENGINEERING & DESIGN, P.A. STAMP SHALL INCLUDE NAME OF REVIEWER, DATE OF CONTRACTOR'S APPROVAL, AND STATEMENT CERTIFYING THAT SUBMITTAL HAS BEEN REVIEWED, CHECKED, AND APPROVED FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.

5. WHERE PROFESSIONAL DESIGN SERVICE OR CERTIFICATIONS BY A DESIGN PROFESSIONAL ARE SPECIFICALLY REQUIRED OF THE CONTRACTOR BY THE CONTRACT DOCUMENTS, PROVIDE PRODUCTS AND SYSTEMS COMPLYING WITH SPECIFIC PERFORMANCE AND DESIGN CRITERIA INDICATED. IN ADDITION, SUBMIT COPIES OF A STATEMENT, SIGNED AND SEALED BY THE RESPONSIBLE DESIGN PROFESSIONAL, FOR EACH PRODUCT AND SYSTEM SPECIFICALLY ASSIGNED TO THE CONTRACTOR TO BE DESIGNED OR CERTIFIED BY A DESIGN PROFESSIONAL.

6. REVIEW OF SHOP DRAWINGS BY THE ENGINEER IS LIMITED TO COMPLIANCE OF THE COMPLETED STRUCTURE WITH THE DESIGN CONCEPT AND INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, QUANTITIES, PERFORMANCE, SAFETY, COORDINATION WITH OTHER WORKS, AND ALL OTHER REQUIREMENTS OF THE CONTRACT DOCUMENTS. REVIEW DOES NOT AUTHORIZE CHANGES TO THE CONTRACT.

7. PROVIDE THE FOLLOWING SUBMITTALS FOR THIS PROJECT:

   a. CAST-IN-PLACE CONCRETE
   i. IN ADDITION TO THE FOLLOWING, COMPLY WITH REQUIREMENTS IN ACI 301
   ii. PRODUCT DATA FOR EACH TYPE OF PRODUCT INDICATED
   iii. DESIGN MIXTURES FOR EACH CONCRETE MIXTURE
   iv. REBAR SHOP DRAWINGS
   v. SHOP DRAWINGS FOR THE DESIGN, ERECTION, AND REMOVAL OF FORMWORK, SHORES AND RESHORES PREPARED BY OR UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER. SHOP DRAWINGS, INCLUDING STRUCTURAL ANALYSIS DATA, SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION. COMPLY WITH REQUIREMENTS IN "ACI MANUAL OF CONCRETE PRACTICE".

   b. STRUCTURAL STEEL
   i. PRODUCT DATA FOR EACH TYPE OF PRODUCT INDICATED
   ii. SHOP DRAWINGS: SHOW FABRICATION OF STRUCTURAL STEEL COMPONENTS
   iii. WELDING CERTIFICATES

   c. UNIT MASONRY ASSEMBLIES
   i. PRODUCT DATA FOR EACH TYPE OF PRODUCT INDICATED

   d. COLD-FORMED METAL FRAMING
   i. PRODUCT DATA FOR EACH TYPE OF COLD-FORMED METAL FRAMING PRODUCT AND ACCESSORY INDICATED
   ii. SHOP DRAWINGS FOR TRUSSES PREPARED BY OR UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER. SHOW FABRICATION AND INSTALLATION DETAILS FOR TRUSSES. INCLUDING LOCATION, PITCH, SPAN, CAMBER, CONFIGURATION, SPACING, AND SPLICE DETAILS AND BEARING DETAILS FOR EACH TYPE OF TRUSS REQUIRED. ALSO, INDICATE LOCATIONS OF PERMANENT BRACING REQUIRED TO PREVENT BUCKLING OF INDIVIDUAL TRUSS MEMBERS DUE TO DESIGN LOADS.
   iii. PRODUCT DATA FOR EACH TYPE OF PRODUCT INDICATED.

FOUNDATIONS

1. THE SCOPE OF SERVICES FOR THIS PROJECT PROVIDED BY TYNDALL ENGINEERING & DESIGN, P.A. BEGINS FROM THE BOTTOM OF THE FOUNDATION ELEMENTS. SUBSURFACE INVESTIGATIONS ARE BEYOND THE SCOPE OF THE STRUCTURAL SERVICES PROVIDED. THE FOUNDATION SYSTEM SHOWN ON THESE DRAWINGS ARE BASED UPON THE ASSUMED SOIL PROPERTIES LISTED BELOW. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, OWNER OR OWNER'S AGENT TO CONTACT TYNDALL ENGINEERING & DESIGN, P.A. IF ANY ADVERSE SOIL CONDITIONS ARE ENCOUNTERED DURING CONSTRUCTION. VERIFICATION OF THIS ASSUMED VALUE IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR, OWNER OR OWNER'S AGENT.

a. ALLOWABLE SOIL BEARING PRESSURE	2000 PSF
b. SUB GRADE MODULUS (k)	100 PCI
c. ULTIMATE FRICTION COEFFICIENT BETWEEN CONCRETE FOUNDATIONS AND SOIL	0.30
d. UNIT WEIGHT OF SOIL	120 PCF
e. AT REST EARTH PRESSURE, Ko	60 PSF/FT

2. THE BOTTOM OF ALL FOOTINGS SHALL EXTEND BELOW THE FROST LINE FOR THE REGION IN WHICH THE STRUCTURE IS TO BE CONSTRUCTED. HOWEVER, THE TOP OF FOOTING SHALL BE A MINIMUM OF 12" BELOW GRADE.

3. EXCAVATE TO INDICATED ELEVATIONS AND DIMENSIONS WITHIN A TOLERANCE OF +/- 1". IF APPLICABLE, EXTEND EXCAVATIONS A SUFFICIENT DISTANCE FROM STRUCTURES FOR PLACING AND REMOVING CONCRETE FORMWORK, FOR INSTALLING SERVICES AND OTHER CONSTRUCTION, AND FOR INSPECTIONS. DO NOT DISTURB BOTTOM OF EXCAVATION. EXCAVATE BY HAND TO FINAL GRADE JUST BEFORE PLACING CONCRETE REINFORCEMENT. TRIM BOTTOMS TO REQUIRED LINES AND GRADES TO LEAVE SOLID BASE TO RECEIVE OTHER WORK.

4. ANY FILL SHALL BE PLACED UNDER THE DIRECTION OR RECOMMENDATION OF A LICENSED PROFESSIONAL ENGINEER USING SUITABLE SOILS OR ENGINEERED FILL. PLOW, SCARIFY, BENCH, OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL SO FILL MATERIAL WILL BOND WITH EXISTING MATERIAL. PLACE BACKFILL AND FILL SOIL MATERIALS IN LAYERS NOT MORE THAN 8" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS. COMPACT SOIL MATERIALS TO NOT LESS THAN 95% OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D698, UNLESS A HIGHER PERCENTAGE IS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. UNDER SLABS-ON-GRADE AND STEPS, SCARIFY AND RECOMPACT TOP 12" OF EXISTING SUBGRADE AND EACH LAYER OF BACKFILL OR FILL SOIL AT 98%.

5. IT IS STRONGLY RECOMMENDED THAT A QUALIFIED INDEPENDENT GEOTECHNICAL ENGINEERING TESTING AGENCY INSPECT AND TEST SUBGRADES AND EACH FILL OR BACKFILL LAYER, AND AT FOOTING SUBGRADES PERFORM TESTING TO VERIFY DESIGN BEARING CAPACITIES.

6. EXCAVATION FOR FOOTINGS SHALL BE LINED TEMPORARILY WITH A 6 MIL POLYETHYLENE IF PLACEMENT OF CONCRETE DOES NOT OCCUR WITHIN 24 HOURS OF EXCAVATION.

7. CONCRETE SHALL NOT BE POURED AGAINST ANY SUB GRADE CONTAINING WATER, ICE, FROST, OR LOOSE MATERIAL

CONCRETE FLOOR AND SLABS

1. REQUIREMENTS NOTED IN THIS SECTION APPLY TO CONCRETE SLABS ON GRADE AND ELEVATED FLOOR SLABS. REFER TO THE CONCRETE SECTION OF THESE SPECIFICATIONS FOR FURTHER REQUIREMENTS.

2. CONCRETE SLABS ON GRADE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 302.1R-04 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION".

3. SLABS ON GRADE DEPEND ON THE INTEGRITY OF BOTH THE SLAB AND FILL SOIL SUPPORT. PROVIDE SATISFACTORY SOIL MATERIALS UNDER SLABS ON GRADE ACCORDING TO GEOTECHNICAL ENGINEER'S WRITTEN RECOMMENDATIONS. PROOF-ROLL SUBGRADE BELOW THE BUILDING SLABS WITH HEAVY PNEUMATIC-TIRED EQUIPMENT TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING.

4. COMPACT SOIL MATERIALS AND SUBGRADE TO NOT LESS THAN 98% OF MAXIMUM DRY UNIT WEIGHT, UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER.

5. PROVIDE PLASTIC VAPOR RETARDER OVER THE SUBGRADE OR SUBBASE BUT UNDER THE BASE COURSE (GRANULAR FILL). VAPOR RETARDER SHALL CONFORM TO ASTM E1745, CLASS C, OR POLYETHYLENE SHEET, ASTM D4397, NOT LESS THAN 6 MILS THICK. VAPOR RETARDER MAY BE OMITTED ONLY WHEN STATED IN THE GEOTECHNICAL ENGINEER'S WRITTEN INSTRUCTIONS.

6. PROVIDE A MINIMUM OF 4" OF GRANULAR FILL DIRECTLY UNDER SLABS ON GRADE. FILL SHALL CONSIST OF A CLEAN MIXTURE OF CRUSHED STONE OR CRUSHED OR UNCRUSHED GRAVEL PER ASTM D448, SIZE 57, WITH 100% PASSING A 1-1/2" SIEVE AND 0% TO 5% PASSING A #8 SIEVE.

7. REINFORCE CONCRETE SLABS ON GRADE WITH WELDED WIRE FABRIC REINFORCEMENT (FABRIC) AS INDICATED. WELDED WIRE REINFORCEMENT SHALL BE SUPPLIED IN FLAT SHEETS AND INSTALLED IN LONGEST PRACTICAL LENGTHS ON BAR SUPPORTS SPACED TO MINIMIZE SAGGING. LAP EDGES AND ENDS OF ADJOINING SHEETS FOR AT LEAST ONE MESH SPACING. OFFSET LAPS OF ADJOINING SHEET WIDTHS TO PREVENT CONTINUOUS LAPS IN EITHER DIRECTION. LACE OVERLAPS WITH WIRE TIES AND DO NOT EXTEND REINFORCEMENT THROUGH JOINTS.

8. DEPOSIT AND CONSOLIDATE CONCRETE FOR FLOORS AND SLABS IN A CONTINUOUS OPERATION, WITHIN LIMITS OF CONSTRUCTION JOINTS, UNITL PLACEMENT OF A PANEL OR SECTION IS COMPLETE AND AS FOLLOWS:

   a. CONSOLIDATE CONCRETE DURING PLACEMENT OPERATIONS SO CONCRETE IS THOROUGHLY WORKED AROUND REINFORCEMENT AND OTHER EMBEDDED ITEMS AND INTO CORNERS.
   b. MAINTAIN REINFORCEMENT IN POSITION ON CHAIRS DURING CONCRETE PLACEMENT.
   c. SCREED SLAB SURFACES UNIFORMLY TO DRAINS WHERE REQUIRED.
   d. SLOPE SURFACES UNIFORMLY TO DRAINS WHERE REQUIRED.
   e. BEGIN INITIAL FLOATING USING BULL FLOATS OR DARBIES TO FORM A UNIFORM AND OPEN-TEXTURED SURFACE PLANE, BEFORE EXCESS BLEEDWATER APPEARS ON THE SURFACE. DO NOT FURTHER DISTURB SLAB SURFACES BEFORE STARTING FINISHING OPERATIONS.

9. APPLY A TROWEL FINISH TO CONCRETE SLAB ON GRADE SURFACES UNLESS OTHERWISE NOTED. VERIFY THIS FINISH WITH THE ARCHITECTURAL REQUIREMENTS BEFORE CONSTRUCTION. AFTER APPLYING FLOAT FINISH, APPLY FIRST TROWELING AND CONSOLIDATE CONCRETE BY HAND OR POWER-DRIVEN TROWEL. CONTINUE TROWELING PASSES AND RESTRAIGHTEN UNTIL SURFACE IS FREE OF TROWEL MARKS AND UNIFORM IN TEXTURE AND APPEARANCE. GRIND SMOOTH ANY SURFACE DEFECTS THAT WOULD TELEGRAPH THROUGH APPLIED COATING OR FLOOR COVERINGS.

10. FORM WEAKENED-PLANE CONTRACTION JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED BUT NOT MORE THAN 20'-0 O.C. CONSTRUCT CONTRACTION JOINTS FOR A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF CONCRETE THICKNESS. FORM CONTRACTION JOINTS WITH POWER SAWS EQUIPPED WITH SHATTERPROOF ABRASIVE OR DIAMOND-RIMMED BLADES WITHIN 4 TO 12 HOURS AFTER THE SLAB HAS BEEN FINISHED. CUT 1/8" WIDE JOINTS INTO CONCRETE WHEN CUTTING ACTION WILL NOT TEAR, ABRADE, OR OTHERWISE DAMAGE SURFACE AND BEFORE CONCRETE DEVELOPS RANDOM CONTRACTION CRACKS.

11. CURE CONCRETE SLABS ON GRADE FOR AT LEAST SEVEN DAYS BY ONE OF THE FOLLOWING METHODS: MOISTURE CURING, MOISTURE-RETAINING-COVER CURING, APPLICATION OF A CURING COMPOUND, OR BY APPLICATION OF A CURING AND SEALING COMPOUND.

12. THE CONCRETE SLAB ON GRADE HAS BEEN DESIGNED USING A SUBGRADE MODULUS OF K=100 pci AND A DESIGN LOADING AS NOTED IN THE "DESIGN LOADS" SECTION OF THESE SPECIFICATIONS. THE SER IS NOT RESPONSIBLE FOR DIFFERENTIAL SETTLEMENT, SLAB CRACKING, OR OTHER FUTURE DEFECTS RESULTING FROM UNREPORTED CONDITIONS MITIGATING THE ABOVE ASSUMPTIONS.

UNIT MASONRY ASSEMBLIES

1. CONCRETE MASONRY UNITS (CMU) SHALL BE ERECTED AS LOAD BEARING CONCRETE MASONRY. COMPLY WITH ACI 530.1 "SPECIFICATIONS FOR MASONRY STRUCTURES" FOR MATERIALS, METHODS, WORKMANSHIP AND ERECTION TOLERANCES.

2. PROVIDE CONCRETE MASONRY UNIT ASSEMBLIES (CMUS) AS INDICATED ON THE DRAWINGS THAT DEVELOPS A MINIMUM NET-AREA COMPRESSIVE STRENGTH (F'M) OF 1500 PSI AT 28 DAYS AND AS FOLLOWS:

   a. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90 WITH A MINIMUM AVERAGE NET-AREA COMPRESSIVE STRENGTH OF 1900 PSI.
   b. WEIGHT CLASSIFICATION: NORMAL WEIGHT, UNLESS OTHERWISE NOTED.
   c. SIZE: MANUFACTURED TO DIMENSIONS 3/8" LESS THAN NOMINAL DIMENSIONS.

3. BRICK MASONRY ON THIS PROJECT IS A NON-STRUCTURAL VENEER. REFER TO ARCHITECTURAL PLAN AND SPECS FOR ALL MASONRY VENEER REQUIREMENTS, INCLUDING BUT NOT LIMITED TO, FLASHING REQUIREMENTS, COURSING, COBBLING REQUIREMENTS, EXPANSION/CONTROL JOINT REQUIREMENTS AND SPACING AND WEEP LOCATION AND SPACING.

4. PROVIDE MORTAR AND GROUT MATERIALS AS INDICATED ON THE DRAWINGS AND CONFORMING TO THE REQUIREMENTS LISTED BELOW. ALL CELLS CONTAINING REINFORCEMENT, CELLS BELOW GRADE, AND ANY LOCATIONS NOTED ON THE DRAWINGS SHALL BE GROUTED SOLID. DO NOT USE ADMIXTURES, INCLUDING AIR-ENTRAINING AGENTS, ACCELERATORS, RETARDERS, WATER-REPELLENT AGENTS, ANTIFREEZE COMPOUNDS, OR OTHER ADMIXTURES UNLESS OTHERWISE NOTED. DO NOT USE CALCIUM CHLORIDE IN MORTAR OR GROUT.

   a. MORTAR FOR MASONRY ASSEMBLIES SHALL BE TYPE S, CONFORMING TO ASTM C270
   b. GROUT FOR UNIT MASONRY SHALL BE FINE GROUT CONFORMING TO ASTM C476 AND HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI. GROUT SHALL HAVE SLUMP OF 8 TO 11 INCHES AS MEASURED ACCORDING TO ASTM C143. COMPLY WITH TABLE 1.15.1 IN ACI 530.1 FOR DIMENSIONS OF GROUT SPACES AND POUR HEIGHT.

5. LAY HOLLOW CONCRETE MASONRY UNITS IN A BOND PATTERN COMPLYING WITH THE ARCHITECTURAL DRAWINGS AND AS FOLLOWS:

   a. WITH FACE SHELLS FULLY BEDDED IN MORTAR AND WITH HEAD JOINTS OF DEPTH EQUAL TO BED JOINTS.
   b. WITH WEBS FULLY BEDDED IN MORTAR IN ALL COURSES OF PIERS, COLUMNS, AND PILASTERS.
   c. WITH WEBS FULLY BEDDED IN MORTAR IN GROUTED MASONRY, INCLUDING STARTING COURSE ON FOOTINGS.
   d. WITH ENTIRE UNITS, INCLUDING AREAS UNDER CELLS, FULLY BEDDED IN MORTAR AT STARTING COURSE ON FOOTINGS WHERE CELLS ARE NOT GROUTED.

6. LAY SOLID MASONRY UNITS WITH COMPLETELY FILLED BED AND HEAD JOINTS; BUTTER ENDS WITH SUFFICIENT MORTAR TO FILL HEAD JOINTS AND SHOVE INTO PLACE. DO NOT DEEPLY FURROW BED JOINTS OR SLUSH HEAD JOINTS.

7. PROVIDE VERTICAL REINFORCING AS NOTED PER THE CMU WALL REINFORCING SCHEDULE AND PER THE REQUIREMENTS BELOW. PROVIDE MATCHING DOWELS INTO THE FOOTING OR FOUNDATION CONSTRUCTION. PROVIDE TWO ADDITIONAL BARS AND DOWELS UNDER POINT LOADS, LINTELS AND BEAMS WHICH HAVE A REACTION EXCEEDING 10 KIPS, WHETHER OR NOT NOTED ON THE FRAMING PLANS.

   a. ALL REBAR SHALL BE UNCOATED STEEL REINFORCING BARS: ASTM A615, GRADE 60
   b. REINFORCING STEEL SHALL BE PLACED IN COMPLIANCE WITH ACI 530.1.
   c. GROUT ALL CELLS CONTAINING REINFORCEMENT AND DO NOT PLACE GROUT UNTIL THE ENTIRE HEIGHT OF MASONRY TO BE GROUTED HAS ATTAINED ENOUGH STRENGTH TO RESIST GROUT PRESSURE. LIMIT HEIGHT OF VERTICAL GROUT POURS TO NOT MORE THAN 60 INCHES.
   d. PROVIDE AN OPEN BOTTOM BOND BEAM REINFORCED WITH 2 NO. 5 CONTINUOUS BARS AT THE FOLLOWING LOCATIONS AND AS NOTED ON THE DRAWINGS:
   i. AT THE TOP OF ALL WALL ELEVATIONS
   ii. AT ALL JOIST AND FRAMING BEARING ELEVATIONS
   iii. EQUALLY SPACED BETWEEN LATERAL SUPPORTS OR AT 10'-0" O.C. MAXIMUM VERTICALLY, IF THE DISTANCE BETWEEN LATERAL SUPPORTS EXCEEDS 10'-0".

8. PROVIDE MASONRY JOINT REINFORCING AT 16" O.C. VERTICALLY, IN ADDITION TO CONTINUOUS REINFORCEMENT, AND NOT MORE THAN 8" ABOVE AND BELOW OPENINGS IN MASONRY WALLS AND EXTENDING 12" BEYOND SAID OPENING. INTERRUPT JOINT REINFORCEMENT AT CONTROL AND EXPANSION JOINTS, UNLESS OTHERWISE INDICATED. CUT AND BEND REINFORCING UNITS AS DIRECTED BY MANUFACTURER FOR CONTINUITY AT CORNERS, RETURNS, OFFSETS, COLUMN FIREPROOFING, PIPE ENCLOSURES, AND OTHER SPECIAL CONDITIONS. JOINT REINFORCING SHALL CONSIST OF HOT-DIPPED GALVANIZED, CARBON STEEL CONFORMING TO ASTM A951 AND PER REQUIREMENTS BELOW:

   a. JOINT REINFORCEMENT FOR SINGLE WYTHE WALLS SHALL CONSIST OF EITHER LADDER OR TRUSS TYPE WITH A SINGLE PAIR OF SIDE RODS. SIDE AND CROSS RODS SHALL BE W1.7 DIAMETER.
   b. JOINT REINFORCEMENT FOR MULTIWYTHE WALLS SHALL CONSIST OF TAB TYPE, EITHER LADDER OR TRUSS DESIGN, WITH 1 SIDE ROD AT EACH FACE SHELL OF BACKING WYTHE AND WITH RECTANGULAR TABS SIZED TO EXTEND AT LEAST HALFWAY THROUGH FACING WYTHE BUT WITH AT LEAST 5/8-INCH COVER ON OUTSIDE FACE. SIDE AND CROSS RODS SHALL BE W1.7 DIAMETER.

9. PROVIDE MISCELLANEOUS ANCHORS AS INDICATED AND COMPLY WITH THE FOLLOWING:

   a. ANCHOR BOLTS: HEADED OR L-SHAPED STEEL BOLTS COMPLYING WITH ASTM A307, GRADE A; WITH ASTM A563 HEX NUTS AND, WHERE INDICATED, FLAT WASHERS; HOT-DIPPED GALVANIZED TO COMPLY WITH ASTM A153, CLASS C.
   b. POST INSTALLED ANCHORS: PROVIDE CHEMICAL ANCHORS, WITH CAPABILITY TO SUSTAIN, WITHOUT FAILURE, A LOAD EQUAL TO SIX TIMES THE LOAD IMPOSED WHEN INSTALLED IN SOLID OR GROUTED UNIT MASONRY AND EQUAL TO FOUR TIMES THE LOAD IMPOSED WHEN INSTALLED IN CONCRETE.

10. PROVIDE STEEL, MASONRY, AND CONCRETE LINTELS AS NOTED ON THE LINTEL SCHEDULE.

11. PROVIDE CONTROL AND EXPANSION JOINTS AS NOTED ON THE ARCHITECTURAL DRAWINGS, BUT NOT GREATER THAN 20'-0" O.C. INSTALL CONTROL AND EXPANSION JOINT MATERIALS IN UNIT MASONRY AS MASONRY PROGRESSES. DO NOT ALLOW MATERIALS TO SPAN CONTROL AND EXPANSION JOINTS WITHOUT PROVISION TO ALLOW FOR IN-PLANE WALL OR PARTITION MOVEMENT.

12. DURING CONSTRUCTION, COVER TOPS OF WALLS, PROJECTIONS, AND SILLS WITH WATERPROOF SHEETING AT THE END OF EACH DAY'S WORK. COVER PARTIALLY COMPLETED MASONRY WHEN CONSTRUCTION IS NOT IN PROGRESS.

13. DO NOT APPLY UNIFORM FLOOR OR ROOF LOADS FOR AT LEAST 12 HOURS AND CONCENTRATED LOADS FOR AT LEAST 3 DAYS AFTER BUILDING MASONRY WALLS OR COLUMNS.

14. DO NOT USE FROZEN MATERIALS OR MATERIALS MIXED OR COATED WITH ICE OR FROST. DO NOT BUILD ON FROZEN SUBSTRATES. REMOVE AND REPLACE UNIT MASONRY DAMAGED BY FROST OR FREEZING CONDITIONS. COMPLY WITH COLD-WEATHER CONSTRUCTION REQUIREMENTS CONTAINED IN ACI 530.1.

15. COMPLY WITH HOT-WEATHER CONSTRUCTION REQUIREMENTS CONTAINED IN ACI 530.1.

CONCRETE

1. CONCRETE SHALL BE PROPORTIONED, MIXED, PLACED, AND TESTED IN ACCORDANCE WITH THE ACI MANUAL OF CONCRETE PRACTICE INCLUDING BUT NOT LIMITED TO ACI 318-02 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND ACI 301-05 "SPECIFICATIONS FOR STRUCTURAL CONCRETE." COMPLY WITH ACI 117-90 "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS."

2. STEEL REINFORCEMENT SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:

a. REINFORCING BARS	ASTM A615, GRADE 60, DEFORMED
b. PLAIN-STEEL WIRE	ASTM A82, AS DRAWN
c. EPOXY COATED BARS	ASTM A775
d. PLAIN-STEEL WELDED WIRE REINFORCEMENT	ASTM A185, FLAT SHEETS ONLY

3. CONCRETE DENOTED AS "LIGHTWEIGHT CONCRETE" ON THESE DESIGN DOCUMENTS SHALL HAVE A UNIT WEIGHT OF 115 PCF. CONCRETE NOT SPECIFICALLY NOTED AS "LIGHTWEIGHT" SHALL HAVE A UNIT WEIGHT OF 145 PCF. CONCRETE MATERIALS SHALL COMPLY WITH THE FOLLOWING:

a. PORTLAND CEMENT	ASTM C150, TYPE I OR II
b. FLY ASH	ASTM C618, CLASS F
c. BLENDED HYDRAULIC CEMENT	ASTM C595, TYPE I POZZOLAN-MODIFIED PORTLAND
d. NORMAL-WEIGHT AGGREGATE	ASTM C33, GRADED, $1\frac{1}{2}$" NOMINAL MAXIMUM AGGREGATE SIZE
e. LIGHTWEIGHT AGGREGATE	ASTM C330, GRADED, $\frac{3}{4}$" NOMINAL MAXIMUM AGGREGATE SIZE
f. WATER POTABLE	

4. NO ADMIXTURES SHALL BE ADDED TO ANY STRUCTURAL CONCRETE WITHOUT THE EXPRESS WRITTEN PERMISSION OF TYNDALL ENGINEERING & DESIGN, P.A. ALL PROPOSED ADMIXTURES SHALL BE SUBMITTED TO TYNDALL ENGINEERING & DESIGN, P.A. FOR APPROVAL. THE ADMIXTURE MUST BE CERTIFIED BY THE MANUFACTURER THAT IT IS COMPARABLE TO OTHER ADMIXTURES AND DOES NOT CONTRIBUTE TO WATER-SOLUBLE CHLORIDE IONS EXCEEDING THOSE PERMITTED IN HARDENED CONCRETE. DO NOT USE CALCIUM CHLORIDE OR ANY ADMIXTURE CONTAINING CALCIUM CHLORIDE.

5. NORMAL-WEIGHT CONCRETE MIXTURES SHALL HAVE THE FOLLOWING PROPERTIES:

ELEMENT	MINIMUM COMP. STRENGTH @ 28 DAYS	MAXIMUM WATER- CEMENT RATIO	SLUMP LIMIT	AIR CONTENT
a. FOOTINGS	3000 PSI	0.45	4"	0.0%
b. RETAINING WALLS	3000 PSI	0.45	4"	4.5%
c. SLABS-ON-GRADE	3000 PSI	0.45	4"	0.0%

NOTE: IT IS RECOMMENDED THAT INTERIOR SLABS BE GIVEN A SMOOTH, DENSE, HARD-TROWELED FINISH NOT CONTAINING ENTRAINED AIR SINCE BLISTERING OR DELAMINATION MAY OCCUR. IF SLAB WILL BE EXPOSED TO DEICING OR OTHER AGGRESSIVE CHEMICALS, CONTACT TYNDALL ENGINEERING & DESIGN, P.A. FOR PROPER AIR ENTRAINMENT REQUIREMENTS.

6. LIGHTWEIGHT CONCRETE MIXTURES SHALL HAVE THE FOLLOWING PROPERTIES:

ELEMENT	MINIMUM COMP. STRENGTH @ 28 DAYS	MAXIMUM WATER- CEMENT RATIO	SLUMP LIMIT	AIR CONTENT
a. ELEVATED SLABS, OVER DECKING	3000 PSI	0.63	5"	0.0%

7. COMPLY WITH THE MINIMUM CONCRETE COVER FOR REINFORCEMENT AS FOLLOWS:

   a. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
   b. CONCRETE EXPOSED TO EARTH OR WEATHER
   i. No. 5 BARS AND SMALLER 1-1/2"
   ii. No. 6 BARS AND LARGER 2"
   c. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
   i. SLABS, WALLS, JOISTS, No. 11 BARS AND SMALLER 3/4"
   ii. SLABS, WALLS, JOISTS, No. 14 AND No. 18 BARS 1-1/2"
   iii. PRIMARY REINFORCEMENT, TIES, STIRRUPS, AND SPIRALS FOR BEAMS OR COLUMNS 1-1/2"

8. SPLICE REINFORCEMENT AS DETAILED OR AUTHORIZED BY TYNDALL ENGINEERING & DESIGN, P.A. MAKE BARS CONTINUOUS AROUND CORNERS. SPLICES SHALL BE MADE BY CONTACT TENSION LAP SPLICES, UNLESS OTHERWISE NOTED.

9. PLACING SLEEVES THROUGH CONCRETE ELEMENTS IS NOT PERMITTED UNLESS SHOWN ON THE DESIGN DOCUMENTS, ON APPROVED SLEEVE SHOP DRAWINGS, OR AS AUTHORIZED BY TYNDALL ENGINEERING & DESIGN, P.A.

10. LOCATE CONSTRUCTION JOINTS FOR MILD-REINFORCED ELEVATED CONCRETE WITHIN THE MIDDLE THIRD OF THE SPANS OF SLABS, BEAMS, AND GIRDERS. INDICATE PROPOSED CONSTRUCTION JOINT LOCATIONS ON REINFORCING STEEL SHOP DRAWINGS. LOCATE CONSTRUCTION JOINTS NOT FARTHER THAN 60 FEET APART IN ANY DIRECTION IN WALLS, SLABS, OR BEAMS. OFFSET JOINTS IN GIRDERS A MINIMUM DISTANCE OF TWO TIMES THE WIDTH OF INTERSECTING BEAMS. MAKE STOPS IN CONCRETE PLACEMENT WITH VERTICAL BULKHEADS AND HORIZONTAL KEYS, UNLESS OTHERWISE SHOWN. SUBMIT SHOP DRAWINGS INDICATING PROPOSED JOINT LOCATIONS AND REINFORCING STEEL TO BE PLACED IN THE SLAB. ANY STOP IN CONCRETE WORK MUST BE MADE WITH VERTICAL BULKHEADS, UNLESS OTHERWISE SHOWN.

11. COMPLY WITH ACI 301 FOR MEASURING, BATCHING, MIXING, TRANSPORTING, AND PLACING CONCRETE, BEFORE TEST SAMPLING AND PLACING CONCRETE. WATER MAY BE ADDED AT THE PROJECT SITE, SUBJECT TO LIMITATIONS OF ACI 301.

12. SEE ARCHITECTURAL DRAWINGS FOR FINISHING REQUIREMENTS OF FORMED CONCRETE SURFACES. FOR UNFORMED SURFACES, COMPLY WITH ACI 302.1R FOR SCREEDING, RESTRAIGHTENING, AND FINISHING OPERATIONS UNLESS OTHERWISE NOTED ON THE ARCHITECTURAL DRAWINGS.

13. CURE FORMED AND UNFORMED CONCRETE FOR AT LEAST SEVEN DAYS BY ONE OF THE FOLLOWING METHODS: MOISTURE CURING, MOISTURE-RETAINING-COVER CURING, APPLICATION OF A CURING COMPOUND, OR BY APPLICATION OF A CURING AND SEALING COMPOUND.

14. ENGAGE A QUALIFIED INDEPENDENT TESTING AGENCY TO SAMPLE MATERIALS, PERFORM TESTS, AND SUBMIT REPORTS DURING CONCRETE PLACEMENT ACCORDING TO ACI 301 AND IRC BUILDING CODE.

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND THE LATEST EDITIONS OF SAID STANDARDS:

   a. AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
   b. AISC 'S "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS" AND "SUPPLEMENT NO.2", IF THE RESPONSE MODIFICATION FACTOR IS GREATER THAN 3.0
   c. AISC'S "LOAD AND RESISTANCE FACTORED DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
   d. AISC'S "SPECIFICATION FOR THE DESIGN OF STEEL HOLLOW STRUCTURAL SECTIONS"
   e. RCSC'S "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS"
   f. AWS'S STRUCTURAL WELDING CODE AWS D1.1

2. STEEL FABRICATORS FOR THIS PROJECT SHALL PARTICIPATE IN THE AISC QUALITY CERTIFICATION PROGRAM AND HAVE A MINIMUM DESIGNATION OF SBD. STEEL INSTALLERS FOR THIS PROJECT SHALL PARTICIPATE IN THE AISC QUALITY CERTIFICATION PROGRAM AND HAVE A MINIMUM DESIGNATION OF CSE. ALL PERSONNEL PERFORMING WELDING ON THIS PROJECT SHALL CONFORM TO THE QUALITY PROCEDURES ACCORDING TO AWS D1.1 "STRUCTURAL WELDING CODE - STEEL".

3. ALL STRUCTURAL STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING:

a. WIDE FLANGE SHAPES	ASTM A992
b. CHANNELS, ANGLES, M-SHAPES, S-SHAPES	ASTM A36
c. PLATE AND BAR	ASTM A36
d. COROSION-RESISTING STRUCTURAL STEEL	ASTM A588
e. COLD-FORMED HOLLOW STRUCTURAL SECTIONS	ASTM A500, GRADE B
f. STEEL PIPE	ASTM A53
g. WELDING ELECTRODES	CLASS E70XX

4. UNLESS OTHERWISE NOTED ON THE DESIGN DOCUMENTS, APPLY A ONE-COAT NON-ASPHALTIC PRIMER COMPLYING WITH SSPC-PS GUIDE 7.00 "PAINTING SYSTEM GUIDE 7.00: GUIDE FOR SELECTING ONE-COAT SHOP PAINTING SYSTEMS", TO PROVIDE A DRY FILM THICKNESS OF NOT LESS THAN 1.5 MILS TO ALL STEEL SURFACES NOT EXPOSED TO WEATHER EXCEPT THE FOLLOWNG:

   a. SURFACES EMBEDDED IN CONCRETE OR MORTAR. EXTEND PRIMING OF PARTIALLY EMBEDDED MEMBERS TO A DEPTH OF 2".
   b. SURFACES TO BE FIELD WELDED.
   c. SURFACES TO BE HIGH-STRENGTH BOLTED WITH SLIP-CRITICAL CONNECTIONS.
   d. SURFACES TO RECEIVE SPRAYED-ON FIRE RESISTIVE MATERIALS.
   e. GALVANIZED SURFACES.

5. APPLY A ZINC COATING BY THE HOT-DIPPED PROCESS ACCORDING TO ASTM A123 TO LOOSE ANGLE LINTELS, RELIEVING ANGLES (SHELF ANGLES) AND ALL STEEL EXPOSED TO WEATHER. FILL VENT HOLES AND GRIND SMOOTH AFTER GALVANIZING AS REQUIRED. REPAIR DAMAGED GALVANIZING COATINGS WITH GALVANIZED REPAIR PAINT ACCORIND TO ASTM A780 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.

6. BOLTS, CONNECTORS, AND ANCHORS SHALL CONFORM TO THE FOLLWONG:

   a. ASTM A325 BOLTED CONNECTIONS:
   i. ASTM A325, TYPE 1 HEAVY HEX NUT STEEL STRUCTURAL BOLTS
   ii. ASTM A563 HEAVY HEX CARBON-STEEL NUTS
   iii. ASTM F436 HARDENED CARBON-STEEL WASHERS
   THE FINISH FOR THESE BOLTED CONNECTIONS SHALL BE PLAIN UNLESS CONNECTING HOT-DIPPED GALVANIZED MATERIALS AND THEN SHALL HAVE A HOT-DIPPED ZINC COATING CONFORMING TO ASTM A153.

   b. ASTM A490 BOLTED CONNECTIONS:
   i. ASTM A490, TYPE 1 HEAVY HEX NUT STEEL STRUCTURAL BOLTS
   ii. ASTM A563 HEAVY HEX CARBON-STEEL NUTS
   iii. ASTM F436 HARDENED CARBON-STEEL WASHERS
   THE FINISH FOR THESE BOLTED CONNECTIONS SHALL BE PLAIN.

   c. ANCHOR RODS: ASTM F1554, GRADE 36
   i. NUTS: ASTM A563
   ii. PLATE WASHERS: 3/8" MINIMUM THICKNESS, ASTM A36 CARBON STEEL.

   d. THREADED RODS: ASTM A307, GRADE A
   i. NUTS: ASTM A563
   ii. WASHERS: ASTM A36
   iii. FINISH: PLAIN

   e. CLEVISES AND TURNBUCKLES: ASTM A108, GRADE 1035, COLD-FINISHED CARBON STEEL

   f. EYE BOLTS AND NUTS: ASTM A108, GRADE 1030, COLD-FINISHED CARBON STEEL

7. SELECT AND COMPLETE STEEL TO STEEL CONNECTIONS USING FULL-DEPTH CONNECTION AS INDICATED IN AISC'S "MANUAL OF STEEL CONSTRUCTION, 13TH EDITION"

8. IN BOLTED CONNECTIONS, PROVIDE HIGH STRENGTH BOLTS, NUTS, AND WASHERS IN BOLTED STEEL CONNECTIONS AND INSTALL CONNECTORS ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". CUT, DRILL, OR PUNCH BOLT HOLES PERPENDICULAR TO METAL SURFACES. EITHER ASTM A325 OR A490 BOLTS MAY BE USED FOR SNUG TIGHTENED CONNECTIONS. ALL CONNECTIONS EXCEPT LISTED BELOW SHALL BE SNUG TIGHTENED:

   a. JOINTS THAT UTILIZE OVERSIZED HOLES
   b. JOINTS THAT CONNECT BRACING MEMBERS FOR LATERAL RESISTING SYSTEM
   c. JOINTS THAT UTILIZE SLOTTED HOLES EXCEPT THOSE WITH APPLIED LOAD APPROXIMATELY NORMAL TO THE DIRECTION OF THE LONG DIMENSION OF THE SLOT.

9. IN WELDED CONNECTIONS, COMPLY WITH AWS D1.1 FOR WELDING PROCEDURE SPECIFICATIONS, TOLERANCES, APPEARANCE, AND QUALITY OF WELDS AND FOR METHODS USED IN CORRECTING WELDING WORK. COMPLY WITH AISC MINIMUM WELDING REQUIREMENTS.

10. SHEAR CONNECTORS (SHEAR STUDS) SHALL BE OF THE HEIGHT AND DIAMETER AS NOTED ON THE COMPOSITE FLOOR DECK DETAIL ON THESE DRAWINGS. CONNECTORS SHALL BE ASTM A108, GRADE 1015 THROUGH 1020, HEADED STUD, COLD-FINISHED CARBON STEEL; AWS D1.1, TYPE B. SPACE CONNECTORS UNIFORMLY ON EACH SIDE OF THE BEAM MIDSPAN IN THE PORTION OF THE DECK RIB CLOSEST TO THE NEAREST END OF THE BEAM, UNLESS OTHERWISE NOTED. IN ADDITION TO THE TESTING AND INSPECTIONS LISTED BELOW, TEST AND INSPECT FIELD WELDED SHEAR CONNECTORS ACCORDING TO REQUIREMENTS IN AWS D1.1 FOR STUD WELDING AND AS FOLLOWS:

   a. PERFORM BEND TESTS IF VISUAL INSPECTIONS REVEAL EITHER A LESS THAN CONTINUOUS 360 DEGREES FLASH OR WELDING REPAIRS TO ANY SHEAR CONNECTOR.
   b. CONDUCT TESTS ON ADDITIONAL SHEAR CONNECTORS IF WELD FRACTURE OCCURS ON SHEAR CONNECTORS ALREADY TESTED, ACCORDING TO REQUIREMENTS IN AWS D1.1.
   c. CORRECT DEFICIENCIES IN WORK THAT TEST REPORTS AND INSPECTIONS INDICATE SHEAR CONNECTORS NOT IN COMPLIANCE WITH THESE DOCUMENTS.

11. BASE AND BEARING PLATES WHICH ARE SUPPORTED OVER CONCRETE OR MASONRY SHALL BE PLACED OVER 2" OF GROUT WITH A TOLERANCE OF +/- $\frac{1}{2}$" UNLESS OTHERWISE NOTED. CLEAN CONCRETE AND MASONRY SURFACES OF BOND REDUCING MATERIAL AND ROUGHEN SURFACES. SET PLATES FOR STRUCTURAL MEMBERS ON WEDGES, SHIMS, OR SETTING NUTS AS REQUIRED. TIGHTEN ANCHOR RODS AFTER MEMBER IS POSITIONED AND PLUMBED. DO NOT REMOVE WEDGES, BUT IF PROTRUDING, CUT OFF FLUSH WITH BASE PLATE. PROMPTLY PACK GROUT SOLIDLY BETWEEN BEARING SURFACES SO NO VOIDS REMAIN. GROUT SHALL CONFORM TO ASTM C1107, FACTORY-PACKAGED, NONMETALLIC AGGREGATE GROUT, NONCORROSIVE, NON STAINING, MIXED WITH WATER TO CONSISTENCY SUITABLE FOR APPLICATIONS. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI.

12. FURNISH ANCHORAGE ITEMS EMBEDDED OR ATTACHED TO OTHER CONSTRUCTION BY USE OF SETTING DIAGRAMS AND TEMPLATES. DO NOT FLOAT-IN THESE ITEMS.

13. ACCURATELY FINISH ENDS OF COLUMNS AND OTHER MEMBERS TRANSMITTING BEARING LOADS.

14. PROVIDE TEMPORARY SHORES, GUYS, BRACES, AND OTHER SUPPORTS DURING ERECTION TO KEEP STRUCTURAL STEEL SECURE, PLUMB, AND IN ALIGNMENT AGAINST TEMPORARY CONSTRUCTION LOADS AND LOADS EQUAL IN INTENSITY TO DESIGN LOADS. ALSO, PROVIDE TEMPORARY SUPPORTS IN STEEL TO STEEL CONNECTIONS AND ALL OTHER LOCATIONS PER OSHA REQUIREMENTS.

15. MAINTAIN ERECTION TOLERANCES OF STRUCTURAL STEEL WITHIN AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".

16. ONLY SPLICE MEMBERS WHERE INDICATED ON THE DESIGN DOCUMENTS.

17. ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTION AGENCY TO INSPECT FIELD WELDS AND HIGH-STRENGTH BOLTED CONNECTIONS. SHOP-BOLTED CONNECTIONS SHALL BE INSPECTED ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASSTM A325 OR A490 BOLTS". FIELD WELDS SHALL BE VISUALLY INSPECTED ACCORDING TO AWS D1.1, EXCEPT FULL PENETRATION WELDS SHALL ALSO BE INSPECTED PER ULTRASONIC INSPECTION PER ASTM E164.

WOOD FRAMING

1. ALL ROUGH CARPENTRY SHALL CONFORM TO THE REQUIREMENTS OF THE "NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION," 2012 EDITION BY THE NATIONAL FOREST PRODUCTS ASSOCIATION. WOOD FRAMING SHALL BE CONNECTED AS SPECIFIED IN THE INTERNATIONAL BUILDING CODE TABLE 2304.9.1, UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS.

2. ALL FRAMING LUMBER INCLUDING STUDS, PLATES, LINTELS, JOISTS, RAFTERS AND BEAMS SHALL BE SPF #2 WITH 19% MAXIMUM MOISTURE CONTENT.

3. ALL LUMBER, BLOCKING, FURRING AND OTHER WOOD IN CONTACT WITH CONCRETE, MASONRY, THE GROUND OR EXPOSED TO THE WEATHER SHALL BE PRESSURE TREATED WITH WATER-BORNE PRESERVATIVES IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS' INSTITUTE STANDARD AWPA-P5.

4. ALL STEEL FASTENERS IN TREATED WOOD SHALL BE OF HOT-DIPPED ZINC GALVANIZED STEEL (G185) OR STAINLESS STEEL.

5. ALL WOOD I-JOIST, TJW JOISTS AND MICRO-LAM VENEER LUMBER SHALL BE EQUAL TO PRODUCT MANUFACTURED BY TRUSJOIST, A WEYERHAEUSER BUSINESS.

6. STRUCTURAL WALL SHEATHING SHALL BE 1/2" APA RATED SHEATHING (32/16, EXPOSURE 1) NAILED TO VERT. WOOD SUPPORTS WITH 8d NAILS AT 6" o.c. AT PANEL EDGES AND 12" o.c. AT INTERMEDIATE SUPPORTS. PROVIDE STUD BLOCKING AT ALL SHEATHING JOINTS.

7. STRUCTURAL FLOOR SHEATHING SHALL BE 3/4" TONGUE AND GROOVE APA RATED SHEATHING (32/16, EXPOSURE 1) GLUED AND NAILED TO WOOD FLOOR WITH 8d NAILS AT 6" o.c. AT PANEL EDGES AND 12" o.c. AT INTERMEDIATE SUPPORTS, UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS.

8. STRUCTURAL ROOF SHEATHING SHALL BE 1/2" APA RATED SHEATHING (32/16, EXPOSURE 1) NAILED TO WOOD TRUSSES WITH 8d NAILS AT 6" o.c. AT PANEL EDGES AND 12" o.c. AT INTERMEDIATE SUPPORTS, UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS. PROVIDE (1) PANEL SHEATHING CLIP AT MIDSPAN OF ALL UNSUPPORTED PANEL EDGES.

9. SECURE MULTIPLE SOLID SAWN LUMBER MEMBERS TOGETHER WITH (2) 10d NAILS AT 12" O.C. PER PLY. SECURE MULTIPLE LVL BEAM MEMBERS TOGETHER WITH (2) 12d NAILS AT 6" o.c. PER PLY.

10. WALL AND ROOF CLADDING VALUES:
    WALL CLADDING SHALL BE DESIGNED FOR 24.1 POUNDS PER SQUARE FOOT (LBS/SQFT) OR GREATER POSITIVE AND NEGATIVE PRESSURE.
    ROOF VALUES BOTH POSITIVE AND NEGATIVE SHALL BE AS FOLLOWS:
    45.5 LBS/SQFT FOR ROOF PITCHES 0/12 TO 2.25/12
    34.8 LBS/SQFT FOR ROOF PITCHES 2.25/12 TO 7/12
    21.0 LBS/SQFT FOR ROOF PITCHES 7/12 TO 12/12
    **MEAN ROOF HEIGHT 30'-0" OR LESS

11. PROVIDE CONTINUOUS SHEATHING WHERE APPLICABLE.

12. INTERIOR WALL SHEATHING SHALL BE 1/2" GYPSUM BOARD (GB) SECURE w/ 5d COOLER NAILS OR EQUAL SPACED @ 7" O.C. AT PANEL EDGES, INCLUDING TOP AND BOTTOM PLATES & 7" O.C AT INTERMEDIATE SUPPORTS.

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Client:
CAROLINA DIESEL TRUCKS, LLC
62 PROGRESS DRIVE
FUQUAY-VARINA, NC 27528

Plan:
ADDITION

NOTES

Project #:	2201-010105
Date:	06/24/2022
Engineered By:	AWL
DWG. Checked By:	PAT
Scale:	SEE PLAN

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DESIGN LOADS

1. BUILDING CODES
a. NORTH CAROLINA BUILDING CODE 2018 EDITION
b. MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES, ASCE 7-10

2. ROOF DEAD LOAD	3 PSF
3. ROOF LIVE LOAD	20 PSF
4. ROOF SNOW LOAD	
a. FLAT-ROOF SNOW LOAD, Pf	15 PSF
b. SNOW EXPOSURE FACTOR, Ce	0.9
c. SNOW IMPORTANCE FACTOR, Is	1.0
d. THERMAL FACTOR, Ct	1.0
5. FLOOR DEAD LOAD	
a. TYPICAL FLOOR	15 PSF
6. FLOOR LIVE LOADS	
a. SLAB-ON-GRADE	250 PSF
b. OFFICES	50 PSF
c. LOBBIES AND FIRST FLOOR CORRIDORS	100 PSF
d. CORRIDORS ABOVE FIRST FLOOR	80 PSF
7. WIND LOADS/DATA	
a. BASIC WIND SPEED (3 SECOND GUST)	115 MPH
b. RISK CATEGORY	II
c. EXPOSURE	B
d. INTERNAL PRESSURE COEFFICIENT, GCpi	+/-0.18
e. TOPOGRAPHY FACTOR, Kzt	1.00
f. APPLIED DIRECTIONALITY FACTOR, Kd	0.85
g. WIND BASE SHEAR	
Wx	38.7 KIPS
Wy	51.3 KIPS
8. SEISMIC LOADS/DATA	
a. ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE
b. SITE CLASS	D
c. SEISMIC IMPORTANCE FACTOR Ie	1.0
f. SITE COEFFICIENT, Fa	1.6
g. SITE COEFFICIENT, Fv	2.4
h. SPECTRAL RESPONSE COEFFICIENT, Sds	0.137
i. SPECTRAL RESPONSE COEFFICIENT, Sd1	0.102
BASIC STRUCTURAL SYSTEM	STEEL ORDINARY MOMENT FRAMES
j. RESPONSE MODIFICATION FACTOR, R	3.5
k. SEISMIC RESPONSE COEFFICIENT, Cs	0.039
q. SEISMIC BASE SHEARS	
Sx	1.5 KIPS
Sy	1.5 KIPS

ABBREVIATIONS

+/-	PLUS OR MINUS
@	AT
&	AND
Ø	DIAMETER
AB	ANCHOR BOLTS
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AISC	AMER. INSTITUTE OF STEEL CONSTRUCTION
AISI	AMER. IRON & STEEL INSTITUTE
ALT	ALTERNATE
ARCH	ARCHITECTURAL/ARCHITECT'S
ASTM	AMER. SOCIETY FOR TESTING & WELDING
AWS	AMERICAN WELDING SOCIETY
B/ OR BOT	BOTTOM
BCX	BOTTOM CHORD EXTENSION
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BM	BEAM
BOS	BOTTOM OF STEEL
BRG	BEARING
BTWN	BETWEEN
MECH	MECHANICAL
CANT	CANTILEVER BEAM
CJ	CONTROL JOINT
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST JT	CONSTRUCTION JOINT
CONT	CONTINUOUS
CONTR	CONTRACTOR
CTRD	CENTERED
d	NAILS (PENNY)
DBA	DEFORMED BAR ANCHOR
DEFL	DEFLECTION
DEPR	DEPRESSION / DEPRESSED
DET	DETAIL
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTANCE
DJ	DOUBLE JOIST
DWG (S)	DRAWING (S)
DWL (S)	DOWEL (S)
EA	EACH
EE	EACH END
EF	EACH FACE
EJ	EXPANSION JOINT
ELEV	ELEVATION
EMBED	EMBEDDED / EMBEDMENT
ENGR	ENGINEER
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FDN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
FOM	FACE OF MASONRY
FOW	FACE OF WALL
FS	FAR SIDE
FTG	FOOTING

GA	GAUGE
GALV	GALVANIZED
HD	HEADED
HI	HIGH
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SYSTEM
INT	INTERIOR
JT	JOINT
K	KIP(S)
KB	KNEE BRACE
KSI	KIPS PER SQ. INCH
LB	LONG BAR
LBS	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LO	LOW
LOC	LOCATION
LWC	LIGHT WEIGHT CONCRETE
MAX	MAXIMUM
MC	MOMENT CONNECTION
MECH	MECHANICAL
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MOW	MIDDLE OF WALL
MP	MASONRY PILASTER
No OR #	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OC	ON CENTER
OPNG	OPENING
OPP	OPPOSITE HAND
PAF	POWDER ACTUATED FASTENER
PED	PEDESTAL
₽	PLATE
PL	POINT LOAD
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
REF	REFERENCE
REINF	REINFORCING
REQ'D	REQUIRED
SB	SHORT BAR
SC	STUD COLUMNS
SCHD	SCHEDULE
SIM	SIMILAR
SOG	SLAB ON GRADE
SPEC (S)	SPECIFICATION (S)
SQ	SQUARE
STD	STANDARD
STIFF	STIFFENER
STIRR	STIRRUP (S)
STL	STEEL
STR	STRUCTURAL
T/	TOP
TCX	TOP CHORD EXTENSION
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
WWF	WELDED WIRE FABRIC

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Plan:
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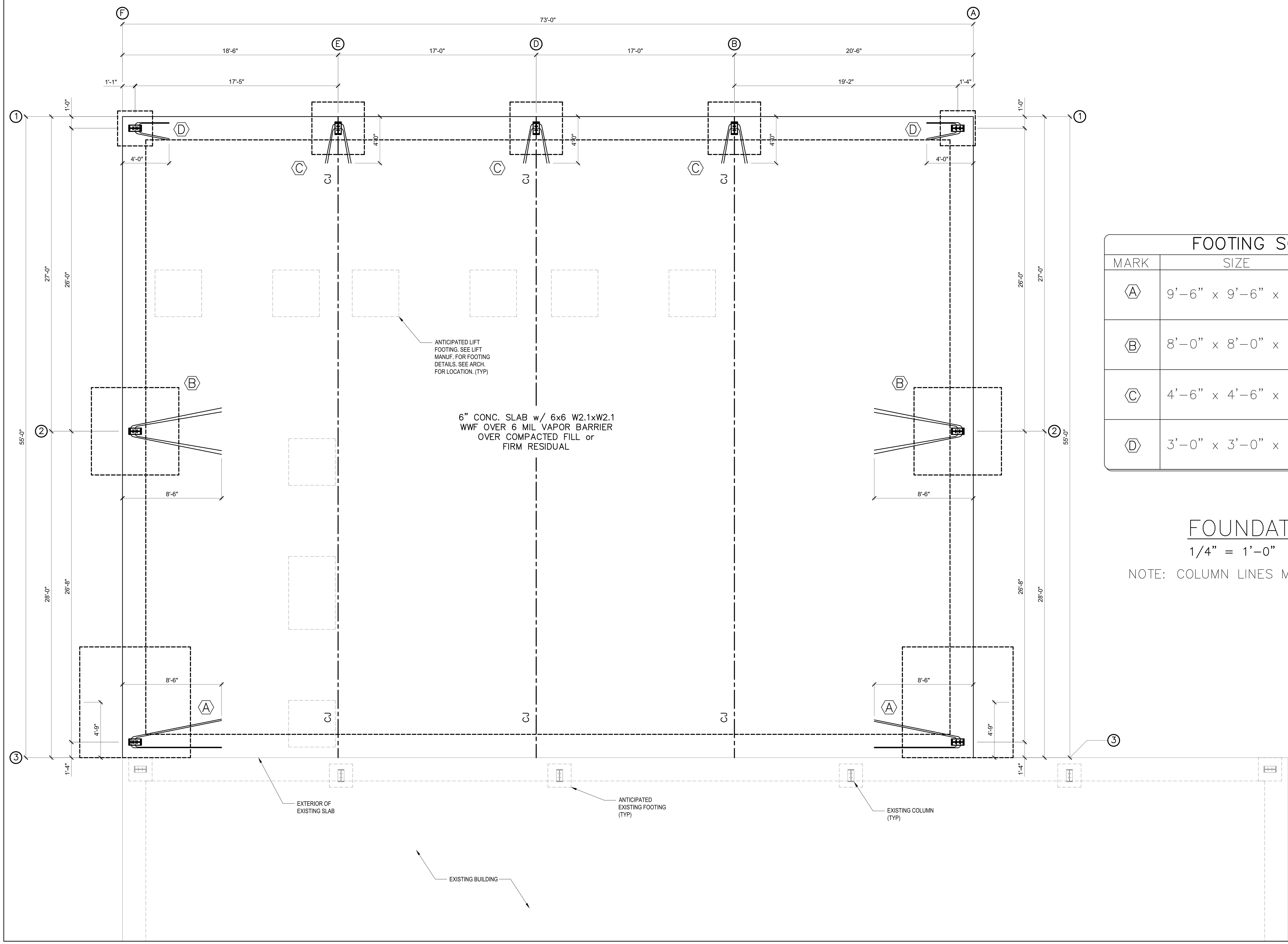

FOOTING SCHEDULE

3000 PSF

MARK	SIZE	REINFORCING
A	9'-6" x 9'-6" x 2'-6"	#5 @ 6" O.C. TOP + BOTTOM EA. WAY
B	8'-0" x 8'-0" x 2'-0"	#5 @ 6" O.C. TOP + BOTTOM EA. WAY
C	4'-6" x 4'-6" x 2'-0"	#5 @ 6" O.C. CENTER OF FTG.
D	3'-0" x 3'-0" x 2'-0"	#5 @ 6" O.C. CENTER OF FTG.

FOUNDATION PLAN

1/4" = 1'-0"

NOTE: COLUMN LINES MATCH PEMB MANUF. DRAWINGS

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FOUNDATION PLAN

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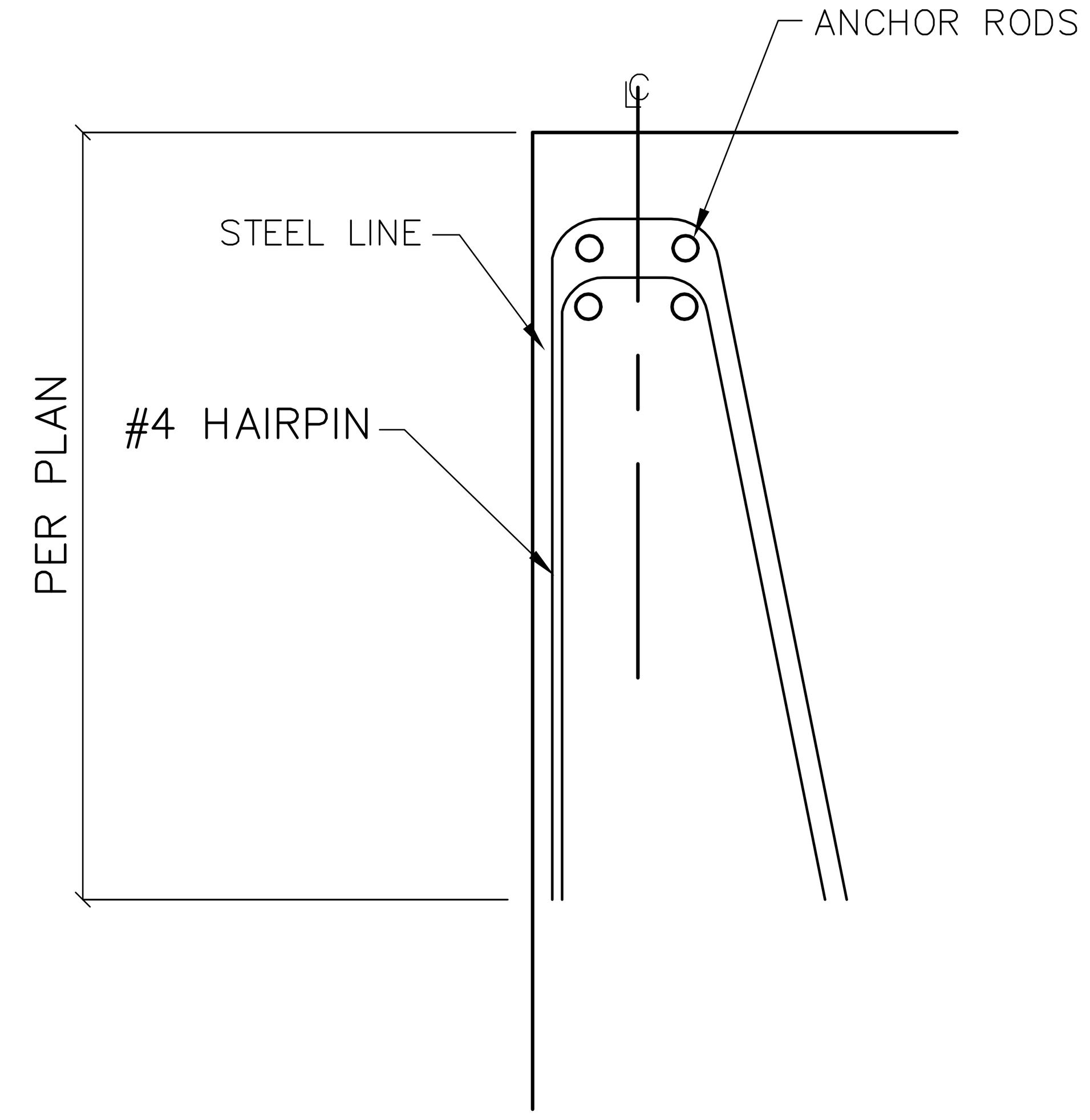
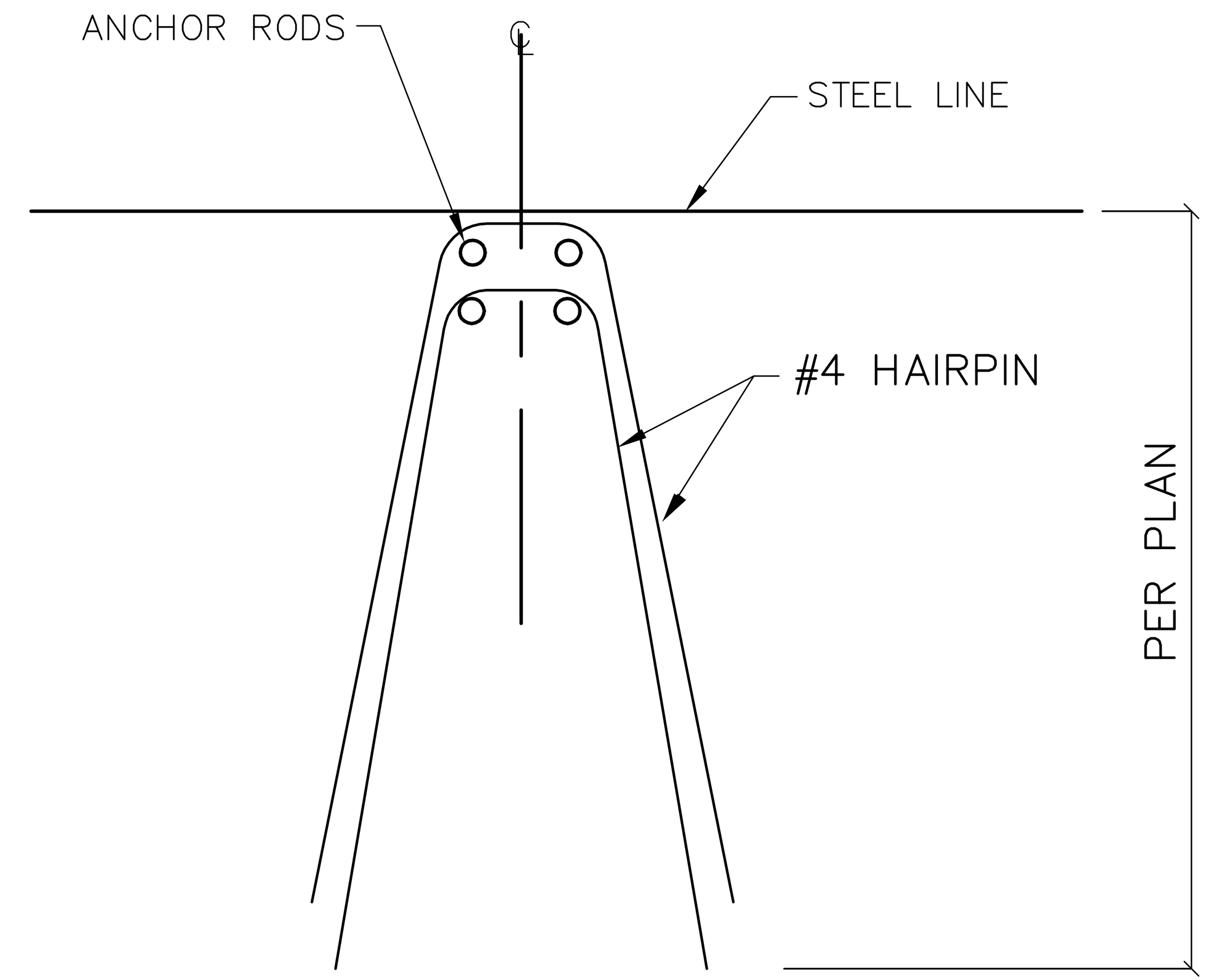


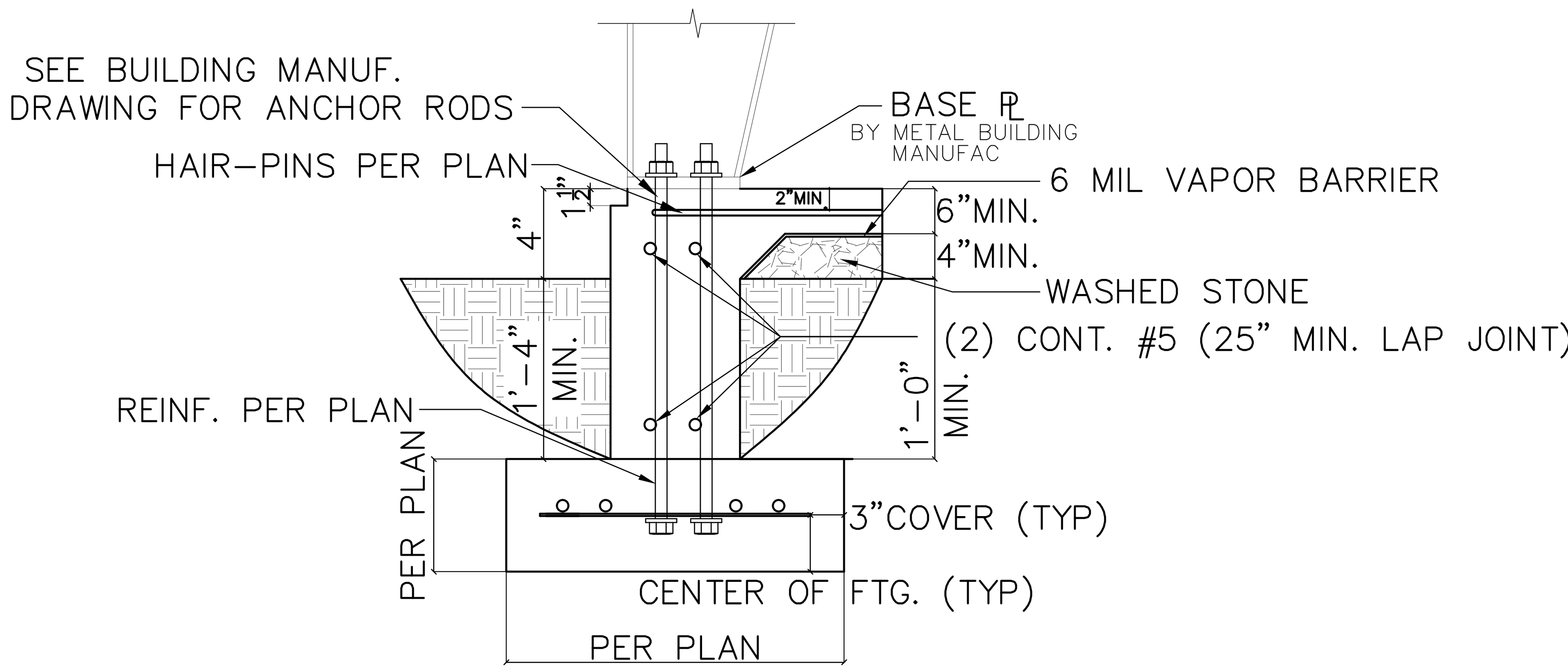
① TYP. HAIRPINS @ CORNERS

– INSTALL ONE HAIRPIN PER SET OF ANCHOR RODS
– HAIRPINS TO BE CENTERED IN SLAB



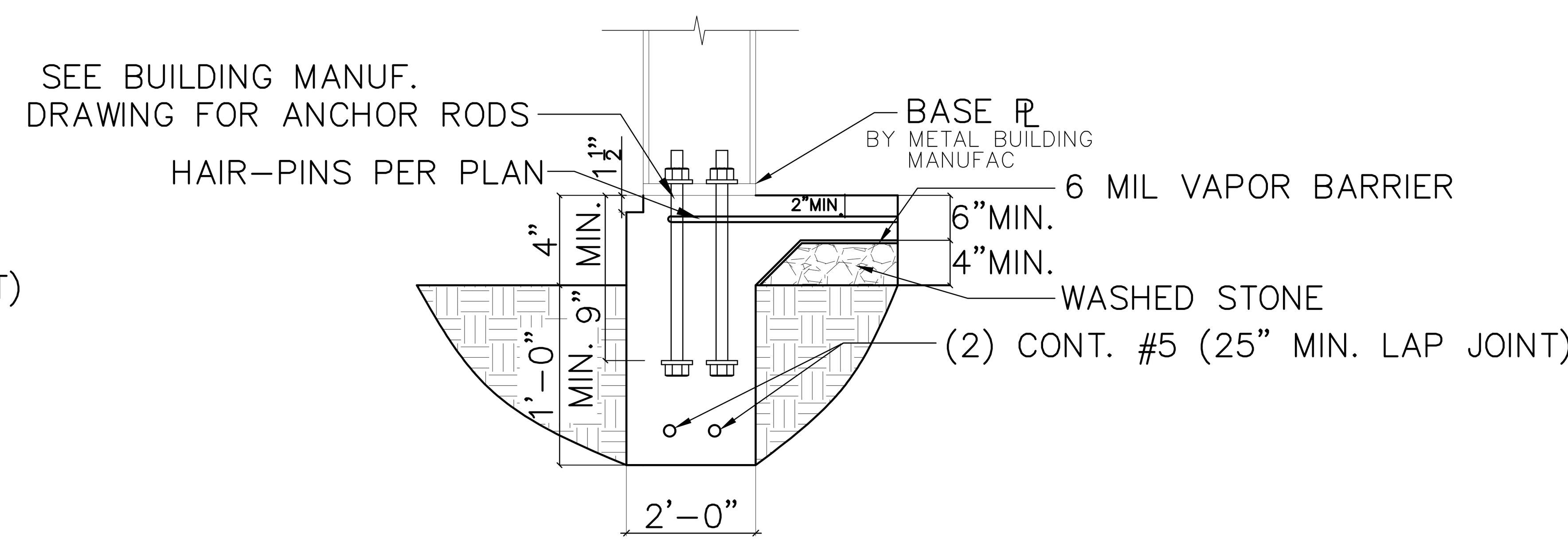
② TYP. HAIRPINS @ EXTERIOR

– INSTALL ONE HAIRPIN PER SET OF ANCHOR RODS
– HAIRPINS TO BE CENTERED IN SLAB



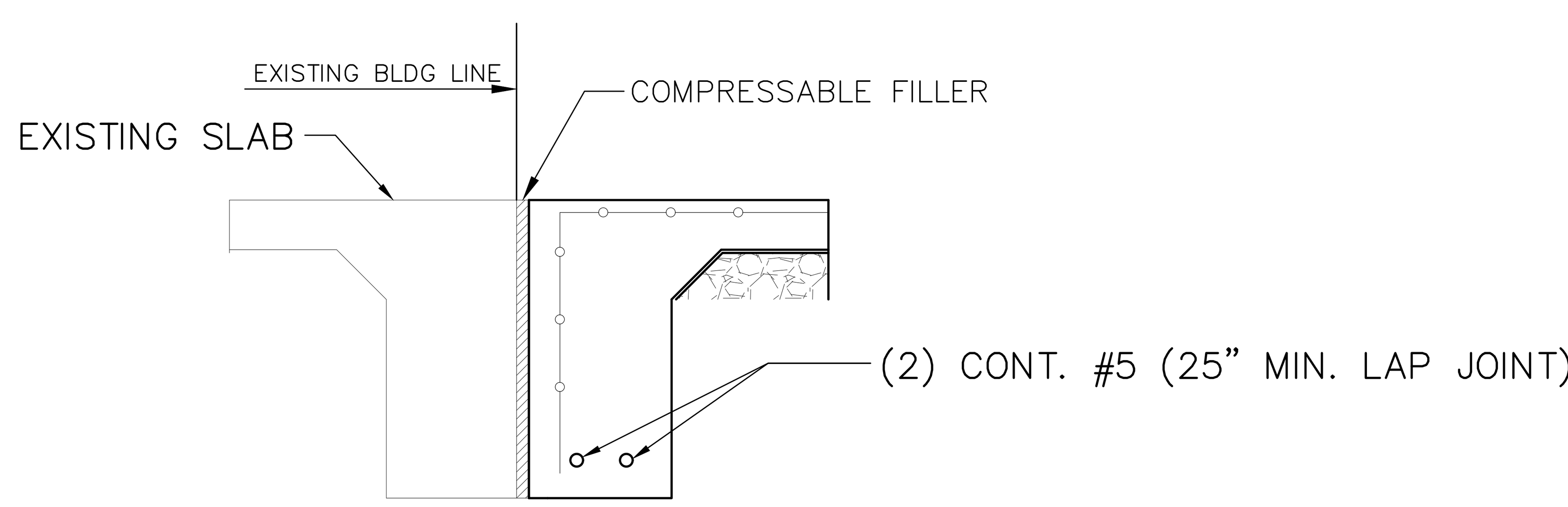
③ FOOTING ANCHOR ROD DETAIL

NTS



④ FOUNDATION WALL ANCHOR ROD DETAIL

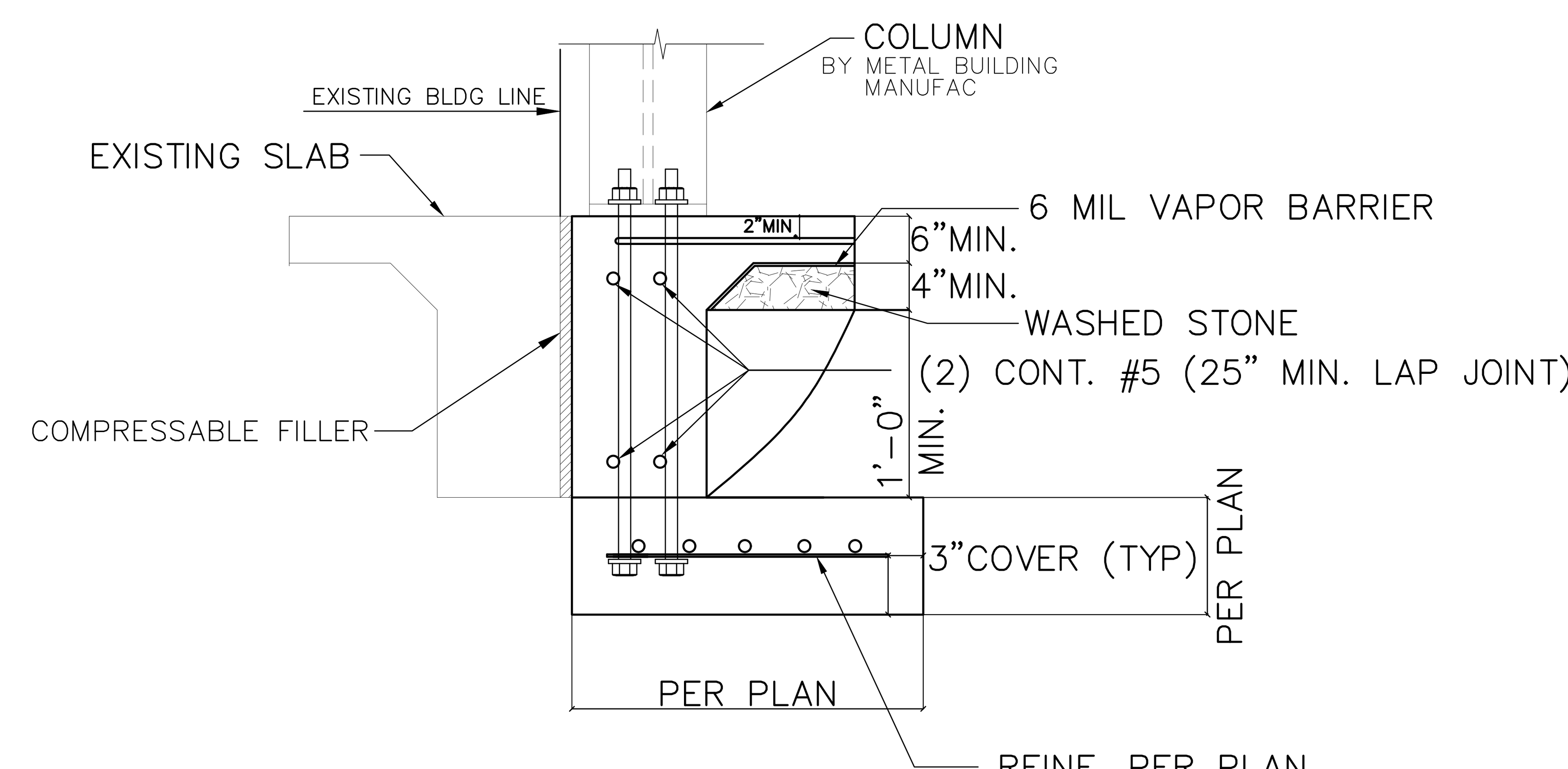
NTS



⑤ PERIMETER DETAIL

NTS

NOTE: POUR PERIMETER MONOLITHIC WITH SLAB



⑥ SPREAD FOOTING AT EXISTING BUILDING

NTS

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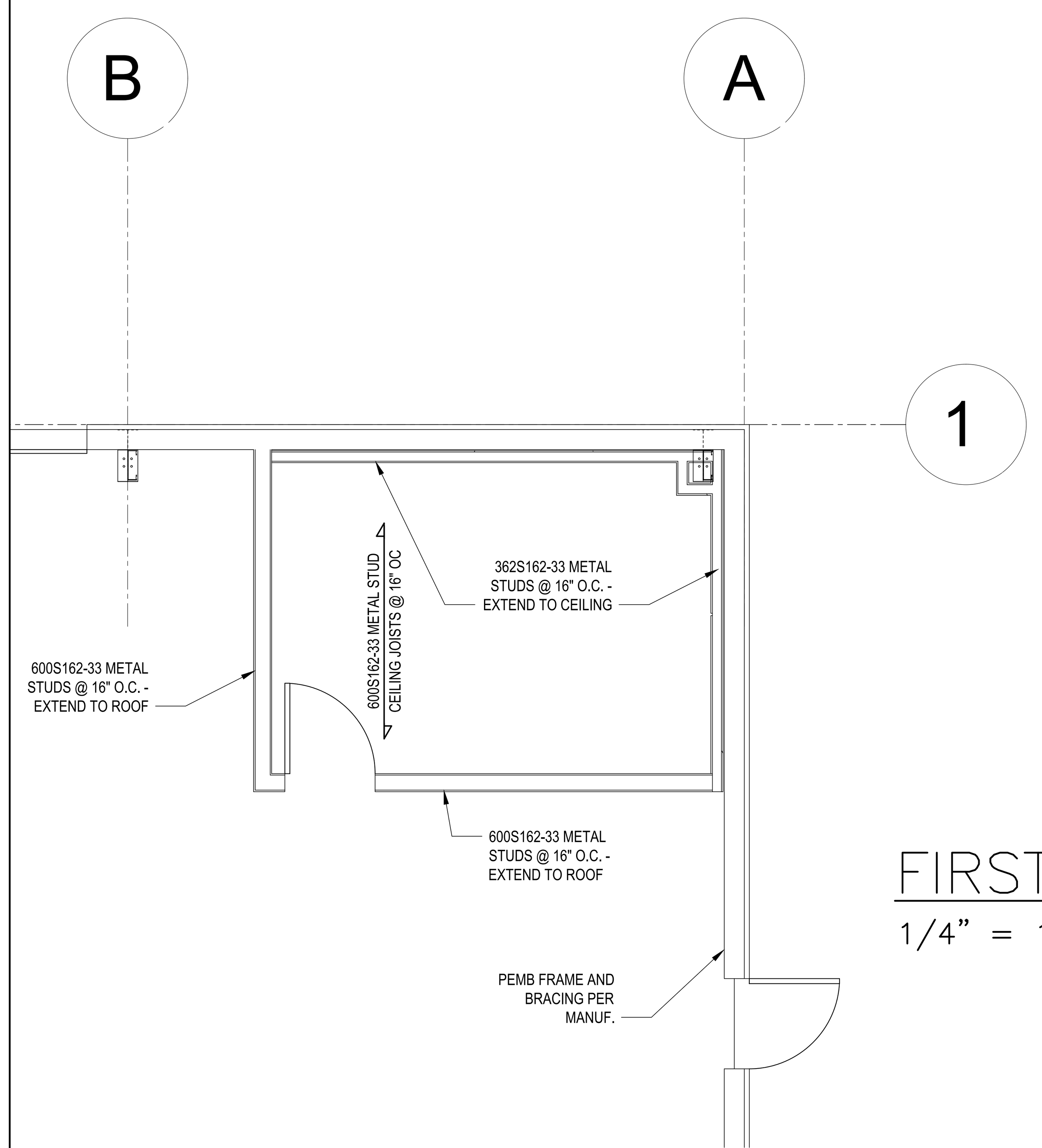
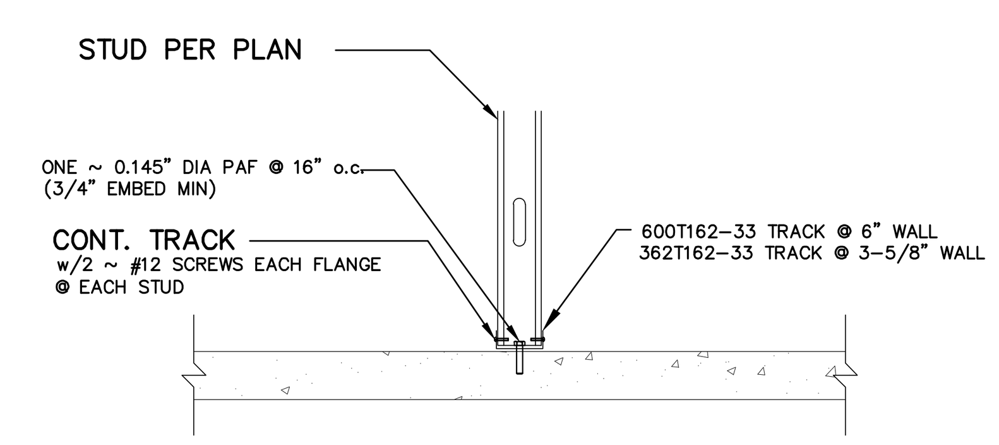
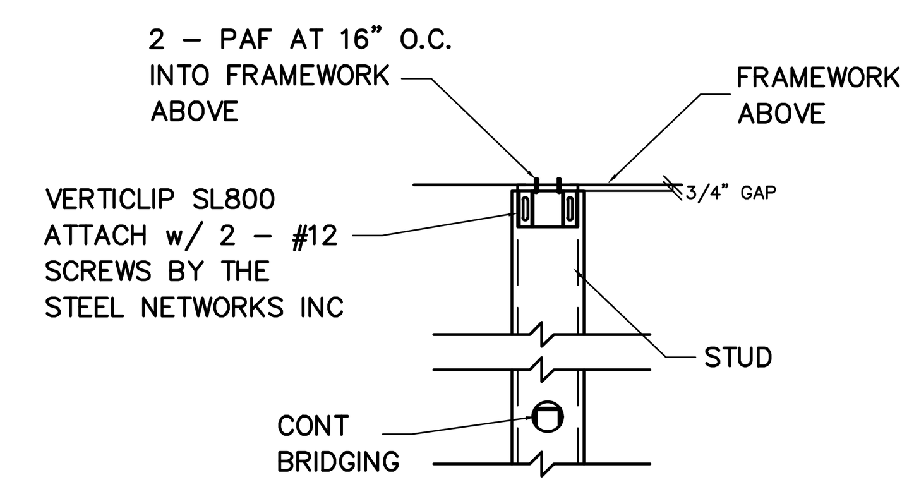


FIRST FLOOR PLAN

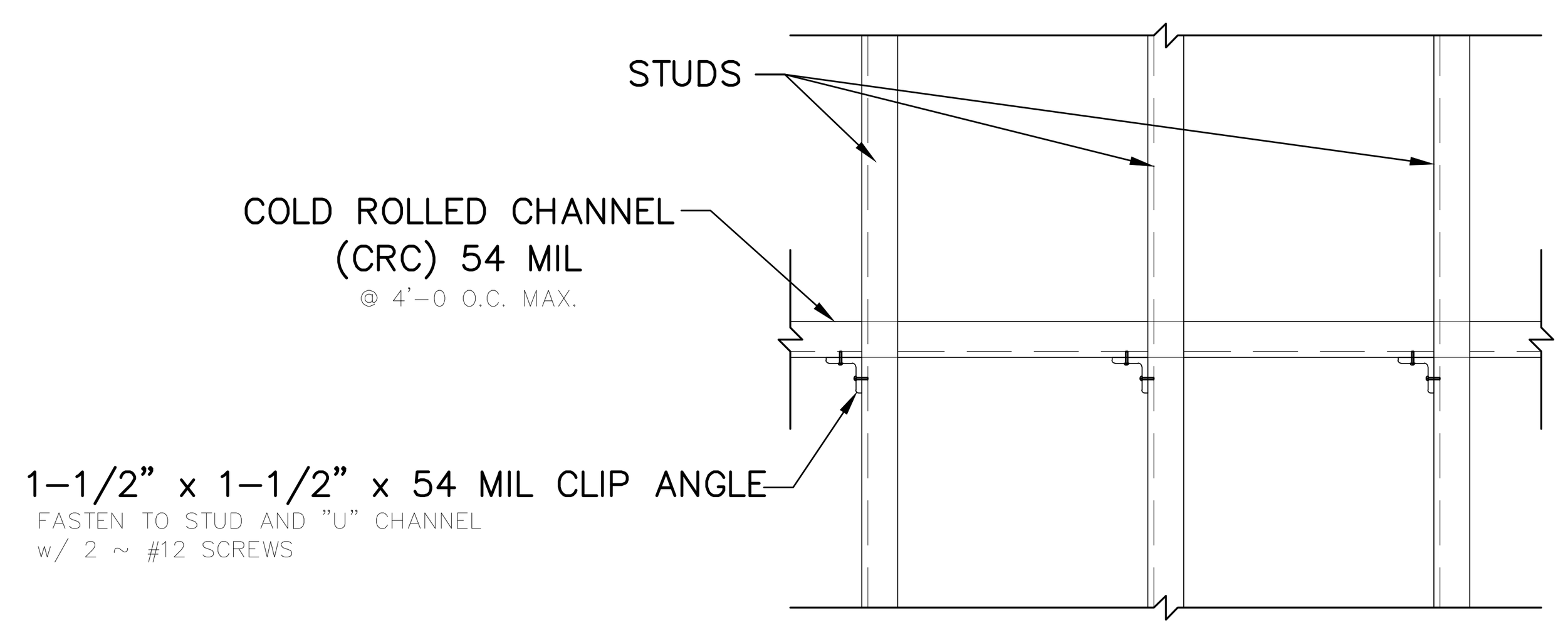
1/4" = 1'-0"



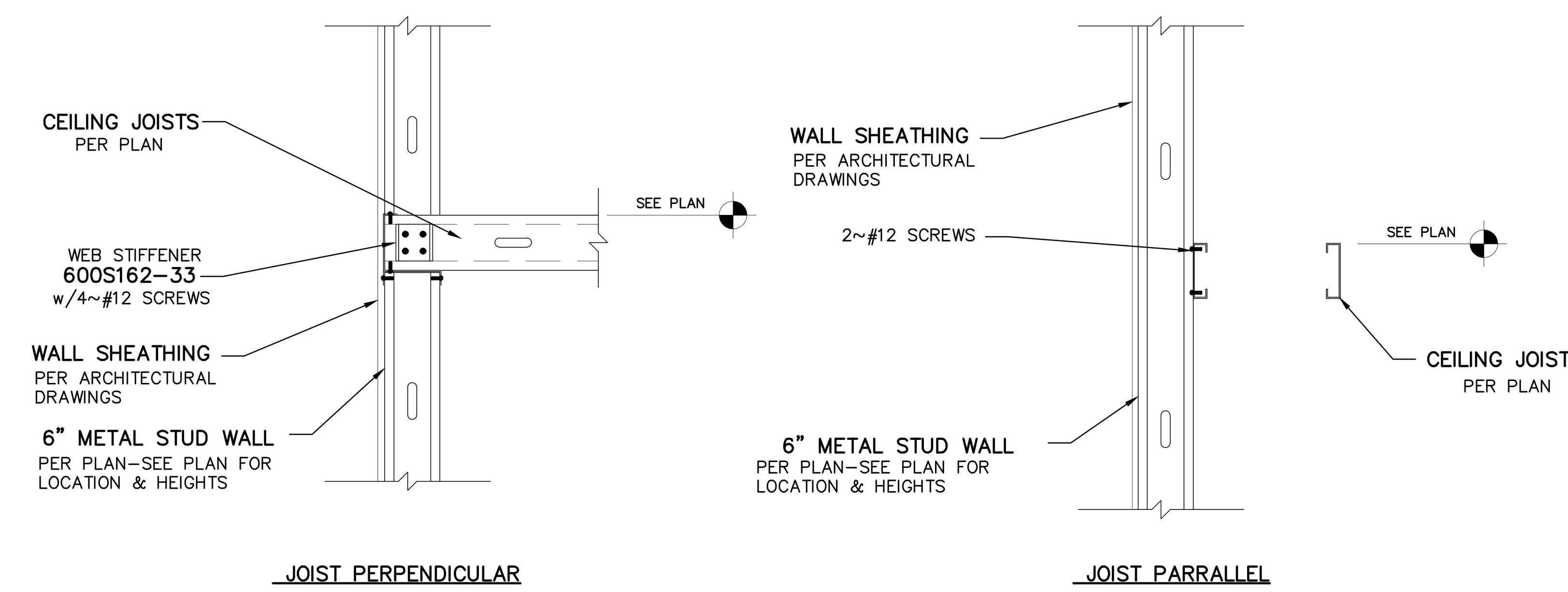
1 NON LOAD BEARING WALL
NO SCALE



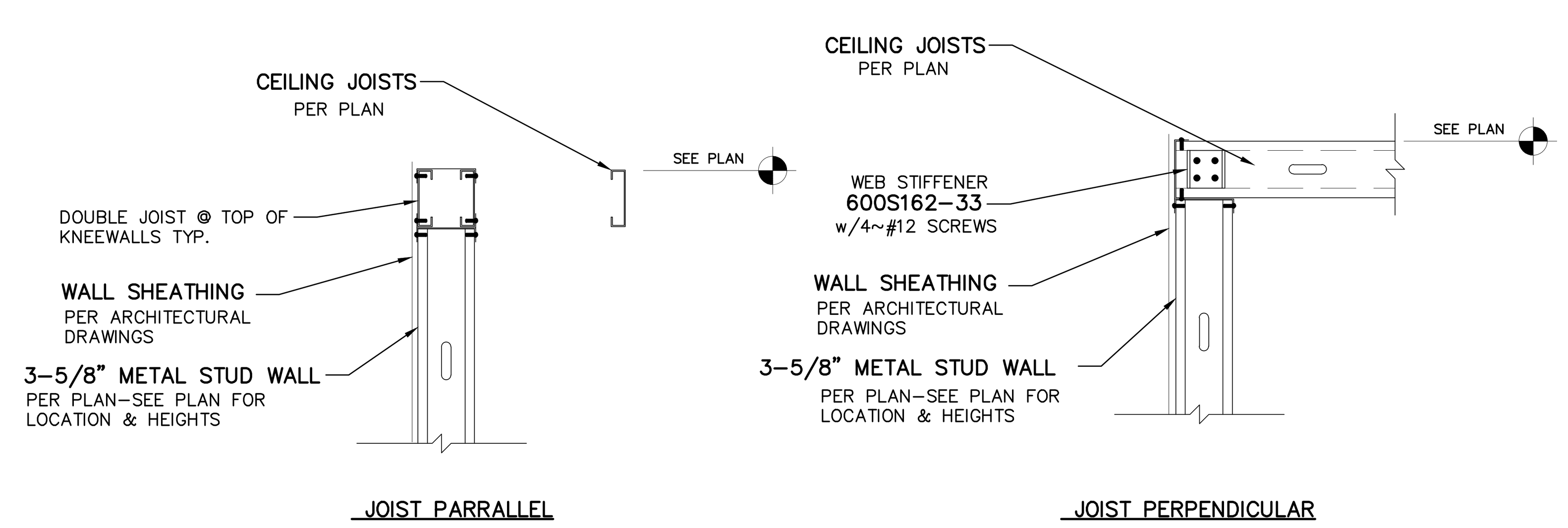
2 TOP OF STUD WALL CONNECTION
NO SCALE



3 HORIZONTAL BRIDGING
NO SCALE



4 CEILING JOISTS FRAMING
NO SCALE
AT 6" STUD WALL



5 CEILING JOISTS FRAMING
NO SCALE
AT 3-5/8" STUD WALL

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06-24-2022

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Plan: ADDITION

FIRST FLOOR PLAN AND DETAILS

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GENERAL PLUMBING NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
   PC – PLUMBING CONTRACTOR, EC – ELECTRICAL CONTRACTOR,
   MC – MECHANICAL CONTRACTOR, GC – GENERAL CONTRACTOR,
   FASC – FIRE ALARM SYSTEM CONTRACTOR.
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR.
3. THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5. ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD PARTY AGENCY. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
6. THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2020 FLORIDA PLUMBING CODE AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
7. THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
8. DO NOT SCALE THESE DRAWINGS–REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
9. THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING.
10. TRENCHING, COMPACTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE FL PLUMBING CODE. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
11. THE PC SHALL PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CEILING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT.
12. SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH FLORIDA PLUMBING CODE, SECTIONS 312.2, 312.3, AND 312.5.
13. PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
14. AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT.
15. PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

MATERIALS:

1. ALL OVERHEAD DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED CLEARLY MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B–88. USE BRAZED JOINTS ON ALL COPPER PIPING 1–1/2 INCH AND LARGER. *** PC MAY USE PEX (ASTM F 877) WITH APPROVED FITTINGS (ASTM F 1807) WITH OWNER'S APPROVAL. *** CPVC PIPING (ASTM D 2846 OR ASTM F 441) WITH APPROVED FITTINGS (ASTM D 2846, ASTM F 438, OR ASTM F 439) MAY ALSO BE USED WHERE NOT LOCATED IN PLENUMS. ALL PLASTIC PIPE, FITTINGS, AND COMPONENTS SHALL BE THIRD PARTY CERTIFIED AS CONFORMING TO NSF 14. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF .25–PERCENT AND SHALL CONFORM TO NSF 61. HOT WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180°F. COLD WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI AT 73.4°F. DO NOT INSTALL PEX OR CPVC PIPING IN RETURN AIR PLENUMS.
2. BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLON SEATS, 150 PSI WSP, AND COMPLY WITH MSS SP–110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP–80, TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 62, BRONZE WITH INTEGRAL SEAT AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER–SILICON BRONZE STEM AND SOLID–WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS; PROVIDE ACCESS DOORS IF REQUIRED. VALVES SHALL BE BY NIBCO, WATTS, OR STOCKHAM.
3. COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1–1/2 INCH THICK INSULATION. CLOSED CELL RUBBER INSULATION MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR FIBROUS GLASS TYPE IF SO DESIRED. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER. ALL JOINTS, SEAMS AND FITTINGS MUST BE SEALED. ON SYSTEMS OPERATING ABOVE AMBIENT, THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES WHERE A VAPOR SEAL MUST BE MAINTAINED, INSULATION SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN MOISTURE AND VAPOR RETARDER. ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FIRESTOP OR FIRESAFING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A FACTORY APPLIED ALL–SERVICE JACKET WITH SELF–SEALING LAP. WHITE–KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS; CONFORMING TO ASTM C 1136 TYPE 1; VAPOR RETARDER; WITH A SELF–SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS–MANVILLE, OR OWENS–CORNING.
4. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW–EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
5. FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME A112.18.1. FAUCETS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9. FIXTURE FITTINGS, FAUCETS, AND DIVERTERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF HOT WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT HAND SIDE OF THE FIXTURE FITTING.
6. BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.14 OF THE FL PLUMBING CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS SHALL CONFORM TO ASSE 1013 OR AWWA C511. THE RELIEF OPENING SHALL DISCHARGE BY AIR GAP. AIR GAPS SHALL COMPLY WITH ASME A112.1.1 AND AIR GAP FITTINGS WITH ASME A112.1.3. DOUBLE CHECK VALVE ASSEMBLIES SHALL CONFORM TO ASSE 1015 OR AWWA C510. ACCESS TO BACKFLOW PREVENTERS SHALL BE PROVIDED AS SPECIFIED BY THE INSTALLATION INSTRUCTIONS OF THE APPROVED MANUFACTURER.
7. FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE SERVICE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74). USE MINIMUM 2 INCH SIZE UNDERGROUND. SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE PIPE FITTINGS (ASTM D 3311) MAY ALSO BE USED. DO NOT USE PVC PIPE FOR APPLICATIONS WHERE THE WASTE WATER TEMPERATURE EQUALS OR EXCEEDS 140°F OR IF THE BUILDING HEIGHT EXCEEDS 75 FEET.
8. FOR ABOVE GRADE SANITARY WASTE AND VENT PIPING, USE SERVICE WEIGHT CAST IRON NO–HUB TYPE WITH COUPLINGS (CISPI 301). SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE FITTINGS (ASTM D 3311) MAY BE USED IF PERMITTED BY LOCAL CODE, EXCEPT IN BUILDINGS EXCEEDING 75 FEET IN HEIGHT. DO NOT INSTALL PVC IN RETURN AIR PLENUMS. ALL VENT AND BRANCH VENT PIPES SHALL BE SO GRADED AND CONNECTED AS TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE.
9. PC SHALL PROVIDE ALL WATER HEATERS (WATTAGE/INPUT AND CAPACITY AS NOTED IN SCHEDULE). ALL WATER HEATERS SHALL BE THIRD PARTY CERTIFIED; PROVIDE PANS FOR WATER HEATERS IN ACCORDANCE WITH 504.7 OF THE FL PLUMBING CODE. ELECTRICAL CONNECTIONS SHALL BE BY ELECTRICAL CONTRACTOR, PC SHALL COORDINATE WITH EC ON ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT PROVIDED.
10. ALL PUMPS SHALL BE RATED FOR TRANSPORT OF POTABLE WATER. PUMPS IN AN INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED AND INSTALLED SO AS TO PREVENT CONTAMINATION FROM ENTERING THE WATER SUPPLY SYSTEM.

METHODS:

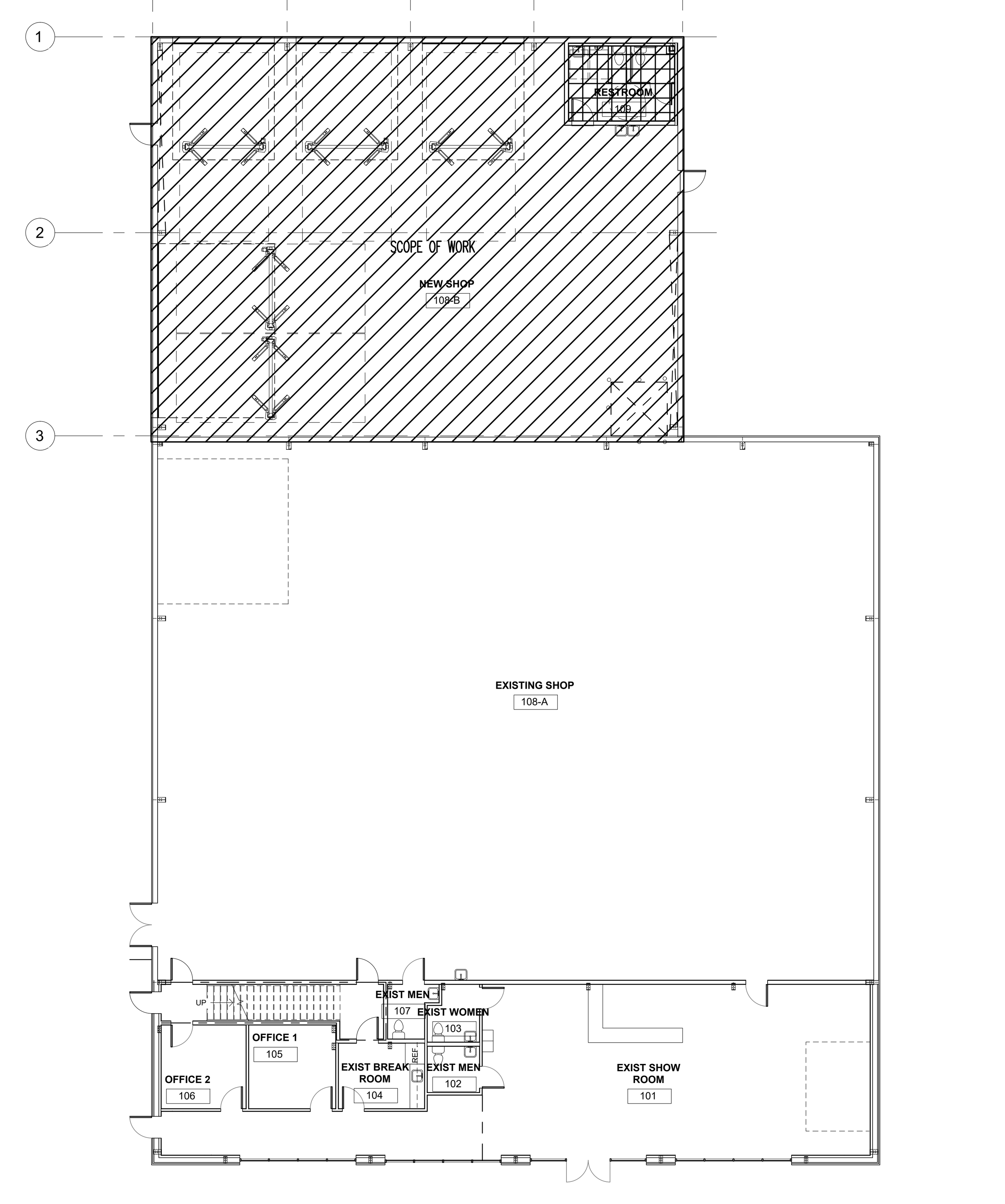
1. EXTEND DOMESTIC WATER PIPE FROM FIVE (5) FEET OUTSIDE THE BUILDING INTO THE BUILDING AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE.
2. ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER–PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE–AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL–OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN–FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
3. IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT. ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER–PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT. FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE FL PLUMBING CODE. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B–LINE.
4. SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR–EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS–AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION–BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER.
5. THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE LOCATED ON THE HEATED SIDE OF THE WALL INSULATION. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177.
6. HOT WATER PROVIDED TO PUBLIC HAND–WASHING FACILITIES/LAVATORIES SHALL BE TEMPERED WATER DELIVERED THROUGH AN APPROVED WATER–TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070 OR CSA B125.3.
7. INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE HANDI–LAV GUARD INSULATION KIT BY TRUEBRO OR EQUAL.
8. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPILPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE–CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON–CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022.
9. THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
10. THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED.
11. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
12. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND VERIFY THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER PIPING TO 5 FEET OUTSIDE THE BUILDING AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION.
13. ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.6.1. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
14. SOIL AND WASTE LINES 2–1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM.
15. FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
16. FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAIN PIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE COUPLING MANUFACTURER SHALL BE UTILIZED.
17. BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING.
18. HORIZONTAL DRAIN PIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.10. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINSEED OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR RODDING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING.
19. DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG.
20. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 918 OF THE FL PLUMBING CODE. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051.
21. INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
22. THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND–JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS.
23. THE PC SHALL ACCURATELY ROUGH–IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF–RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOZE OUT.
24. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES SHALL BE MADE WATER TIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.
25. INSTALL FULL OPEN VALVES PER FL PLUMBING CODE 606.1 ON THE MAIN WATER LINE INTO THE BUILDING. INSTALL CUT OFF VALVES PER FL PC 606.2.

PLUMBING NOTES | 1

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WASTE
P1	TWO PIECE TANK TYPE WATER CLOSET	TOTO CST744EL OR EQUAL BY AMERICAN STANDARD OR KOHLER	TWO-PIECE VITREOUS CHINA TOILET WITH HIGH-PROFILE TANK, ELONGATED FRONT BOWL AND CHROME TRIP LEVER. 1.28 GPF. PROVIDE SC534 OPEN FRONT SEAT LESS COVER. ASME 112.19.2 COMPLIANCE.	-	1/2"	3"
P1H	TWO PIECE TANK TYPE ADA WATER CLOSET	TOTO CST744EL OR EQUAL BY AMERICAN STANDARD OR KOHLER	TWO-PIECE VITREOUS CHINA TOILET WITH HIGH-PROFILE TANK, ELONGATED FRONT BOWL AND CHROME TRIP LEVER. 1.28 GPF. PROVIDE SC534 OPEN FRONT SEAT LESS COVER. ASME 112.19.2 COMPLIANCE. TOP OF SEAT SHALL BE 17-19 INCHES AFF FOR ADA. LEVER MOUNTED ON WIDE SIDE FOR ADA	-	1/2"	3"
P2	WALL MOUNT LAVATORY	TOTO LT307.4 OR EQUAL BY AMERICAN STANDARD OR KOHLER	VITREOUS CHINA LAVATORY WITH BACKSPLASH COMPLYING WITH ASME 112.19.2. TOP OF RIM SHALL BE 34 INCHES AFF FOR ADA. PROVIDE WITH LAV-GUARD PROTECTORS FOR SUPPLY AND DRAIN LINES. PROVIDE JR SMITH 0700 (CONCEALED ARMS) WITH 19' ARMS 0800 (WALL SUPPORT PLATE). USE MOEN 8430 FAUCET.	1/2"	1/2"	2"
P3	URINAL	TOTO UT447E OR EQUAL BY AMERICAN STANDARD OR KOHLER	VITREOUS CHINA, WALL-MOUNTED, ADA COMPLIANT, LOW CONSUMPTION WASHOUT URINAL COMPLYING WITH ASME 112.19.2. 0.5 GPF. SLOAN CROWN 186-0.5 FLUSHOMETER VALVE OR EQUAL BY ZURN OR TOTO. TOP OF RIM SHALL BE 17 INCHES AFF FOR ADA.	-	3/4"	2"
P4	FLOOR DRAIN	WATTS FD-200-A OR EQUAL BY ZURN OR JR SMITH	ON GRADE EPOXY COATED CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, WEEP HOLES, ADJUSTABLE ROUND NICKEL BRONZE STRAINER, AND NO HUB OUTLET. PROVIDE TRAP PRIMER CONNECTION OPTION IF NOTED.	-	-	3"
P5	AUTOMATIC TRAP PRIMER	ZURN 1022 OR EQUAL BY WATTS OR JR SMITH	COMPLIANT WITH ASSE 1018. INSTALL IN SUPPLY LINE TO LAVATORY 12 in OR MORE ABOVE FINISHED FLOOR. PROVIDE ACCESS PANEL FOR MAINTENANCE AND VISUAL INSPECTION.	-	1/2"	-
P6	EXPANSION TANK	AMTROL ST-5 OR EQUAL BY WATTS OR BELL & GOSSETT	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	3/4"	-
P7	THERMOSTATIC MIXING VALVE	WATTS LFMMV OR EQUAL BY LAWLER OR LEONARD VALVE	ASSE STANDARD 1069 OR 1070 APPROVED WITH 1/2 INCH FEMALE NPT INLET AND OUTLET CONNECTIONS, BRASS BODY, AND INTEGRAL MOUNTING HOLES. TAMPER RESISTANT THERMOPLASTIC ENCLOSURE. SINGLE REPLACEABLE CARTRIDGE DESIGN.	1/2"	1/2"	-
P8	SINK DOUBLE BOWL UTILITY FREESTANDING	ELKAY LRADQ3319 OR EQUAL BY FRANKE OR MOEN	FREE STANDING 18 GA STAINLESS STEEL. USE DELTA FAUCET SET 340-WF OR EQUAL BY MOEN OR KOHLER.	1/2"	1/2"	2"
P9	FREEZEPROOF HOSE BIBB	WOODFORD MODEL 68 OR EQUAL BY ZURN OR MIFAB	THE MODEL 68 IS A ASSE 1053 LISTED HYDRANT, WITH A ASSE 1052 DOUBLE CHECK BACKFLOW PREVENTER, COMES WITH A CHROME PLATED BRASS HEAD WITH STAINLESS STEEL COVER, IT DRAINS AUTOMATICALLY EVEN WITH A ATTACHED HOSE, HAS A ONE PIECE PLUNGER WHICH CONTROLS DRAIN AND FLOW FUNCTION, WORKS WITH PRESSURES UP TO 125 PSI, AND A MAX TEMPERATURE OF 120 DEGREES, TEE KEY FOR HYDRANT DOOR AND LOCK, EASIER TO INSTALL THAN STANDARD RECESSED BOX HYDRANT, WALL CLAMP IS INCLUDED, HEAD COVER FLIPS DOWN AND OUT OF THE WAY FOR UNOBSTRUCTED HYDRANT USE	-	3/4"	-
FCO	FLOOR CLEANOUT	ZURN, WATTS, JR SMITH	EPOXY COATED CAST IRON FLOOR CLEANOUT WITH ROUND ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB INLET.	-	-	4"
WCO	WALL CLEANOUT	ZURN, WATTS, OR JR SMITH	CAST IRON CLEANOUT FERRULE WITH THREADED BRASS COUNTERSUNK CLEANOUT PLUG, STAINLESS STEEL ACCESS COVER, AND VANDAL PROOF STAINLESS STEEL SCREW	-	-	4"
AAV	AIR ADMITTANCE VALVE	STUDOR REDIVENT OR APPROVED EQUAL	ANSI/ASSE 1051 LISTED. NSF STANDARD 14. PROVIDE PVC OR ABS CONNECTOR AS NECESSARY. CONNECT VALVE TO PIPING PER MANUFACTURER. INSTALL IN THE VERTICAL, UPRIGHT POSITION AFTER ROUGH-IN AND PRESSURE TESTING OF THE SYSTEM. PROVIDE WALL BOX IF NOT ABOVE CEILING OR OTHERWISE CONCEALED.	-	-	2"

DO NOT TAP WATER LINE AHEAD OF RPZ.



KEY PLAN: SCALE - 1/16" = 1'0"

LINETYPE LEGEND

- COLD WATER SUPPLY
- HOT WATER SUPPLY
- SANITARY SEWER LINE
- VENT LINE

ELECTRIC WATER HEATER SCHEDULE

MARK	MFG	MODEL	TANK VOL	INPUT	RECOVERY	SET POINT	POWER		CONNECTIONS		OPTIONS
			GALS	kW	GPH @ 60° ΔT	°F	VOLTAGE	PHASE	HOT	COLD	
WH-1	RHEEM	EGSP10	10	1.5	10	110	120	1	3/4	3/4	1-5

1. PROVIDE GALVANIZED STEEL SAFETY PAN
2. UL 174 LISTED
3. PROVIDE ASME LISTED TEMPERATURE AND PRESSURE RELIEF VALVE
4. MEET OR EXCEED ENERGY FACTOR REQUIREMENTS OF ASHRAE 90.1-2007
5. OR EQUAL BY A.O. SMITH, BRADFORD WHITE, OR STATE

PLUMBING LINES SIZING TABLE

FIXTURE TYPE	OCCUPANCY	QTY	DRAINAGE FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
			EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOTAL
WATER CLOSET (FLUSH TANK)	PUBLIC	1	4.00	4.00	5.00	0.00	5.00	0.00	5.00
LAVATORY	PUBLIC	1	1.00	1.00	1.50	1.50	2.00	1.50	2.00
URINAL (3/4" FLUSH VALVE)	PUBLIC	1	2.00	2.00	5.00	0.00	5.00	0.00	5.00
DEMAND FIXTURE	GPM	QTY	TOTAL GPM				TOTAL DFU	7.0	
							TOTAL WFSUs	1.5	12.0
							GPM	0.00	0.00
							OTHER FIXTURES' GPM	0.00	0.00
							TOTAL GPM	0.00	0.00
MINIMUM BUILDING DRAIN SIZE	4"	PC TO VERIFY EXISTING BUILDING DRAIN AND WATER LINE SIZE PRIOR TO BEGINNING WORK							
MINIMUM WATER LINE SIZE	3/4"								

PLUMBING FIXTURE SCHEDULES | 2

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NORTH CAROLINA PROFESSIONAL SEAL 048612 ENGINEER JACOB L HAMILTON 7-11-22
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

DESIGN FOR:
CAROLINA DIESEL TRUCK ADDITION
62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

NO.	DATE	DESCRIPTION

ISSUED:

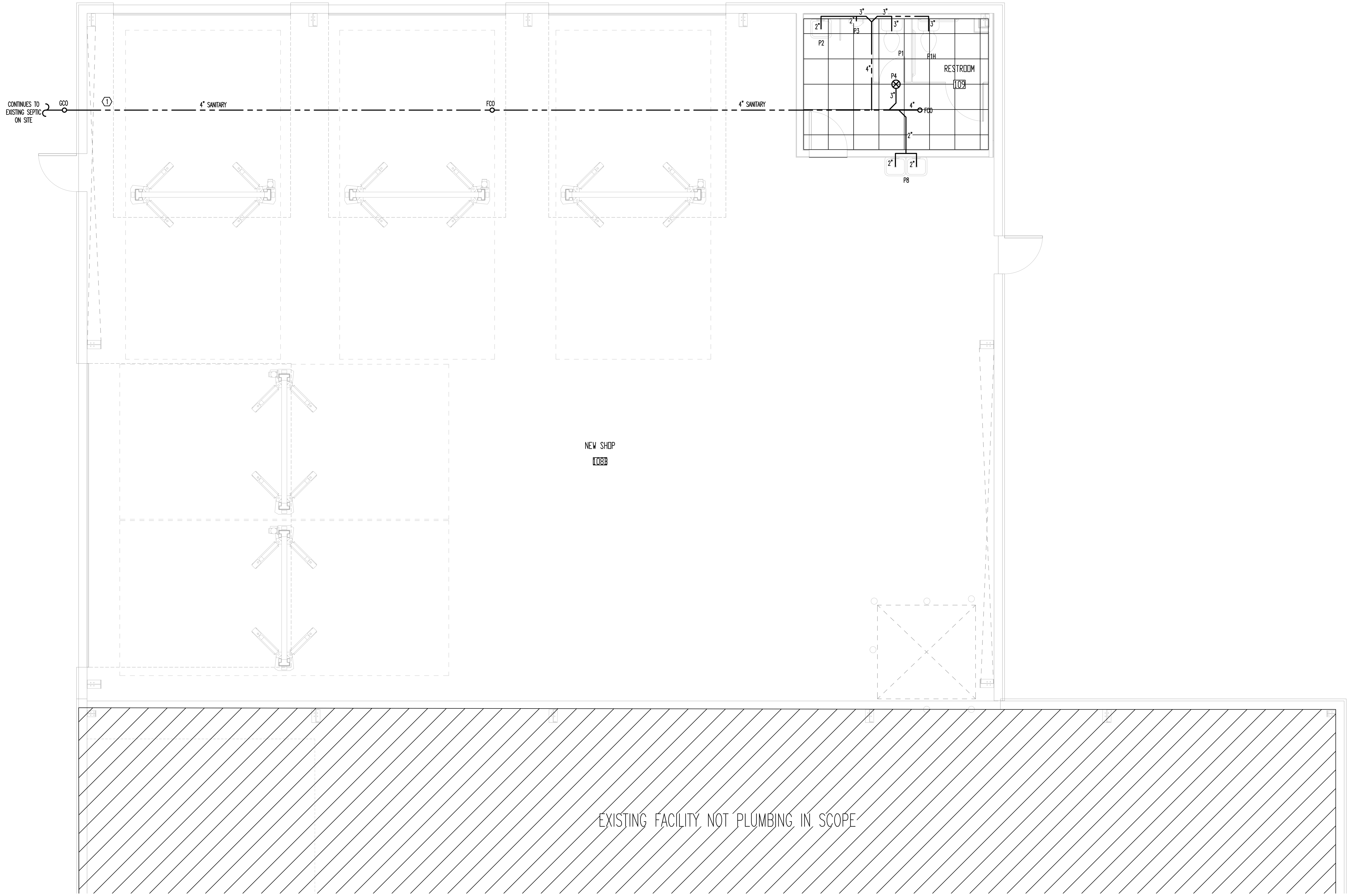
NO.	DATE	DESCRIPTION
1	7-11-22	FOR PERMITTING

DRAWN BY: DBAS
CHECKED BY: MWK/JLH

PLUMBING NOTES AND SCHEDULES

SHEET NO.
P1

PROJECT NO: 22354



SANITARY PLAN HEX NOTES

1. PC TO VERIFY REQUIRED INVERT PRIOR TO BEGINNING WORK. CONTACT ENGINEER WITH ANY AND ALL QUESTIONS.

SANITARY PLAN: SCALE - 1/4" = 1'0" | 1

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NORTH CAROLINA PROFESSIONAL SEAL 048012 ENGINEER JACOB L HAMILTON 7-11-22
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

DESIGN FOR:
CAROLINA DIESEL TRUCK ADDITION
62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

NO.	DATE	DESCRIPTION

ISSUED:

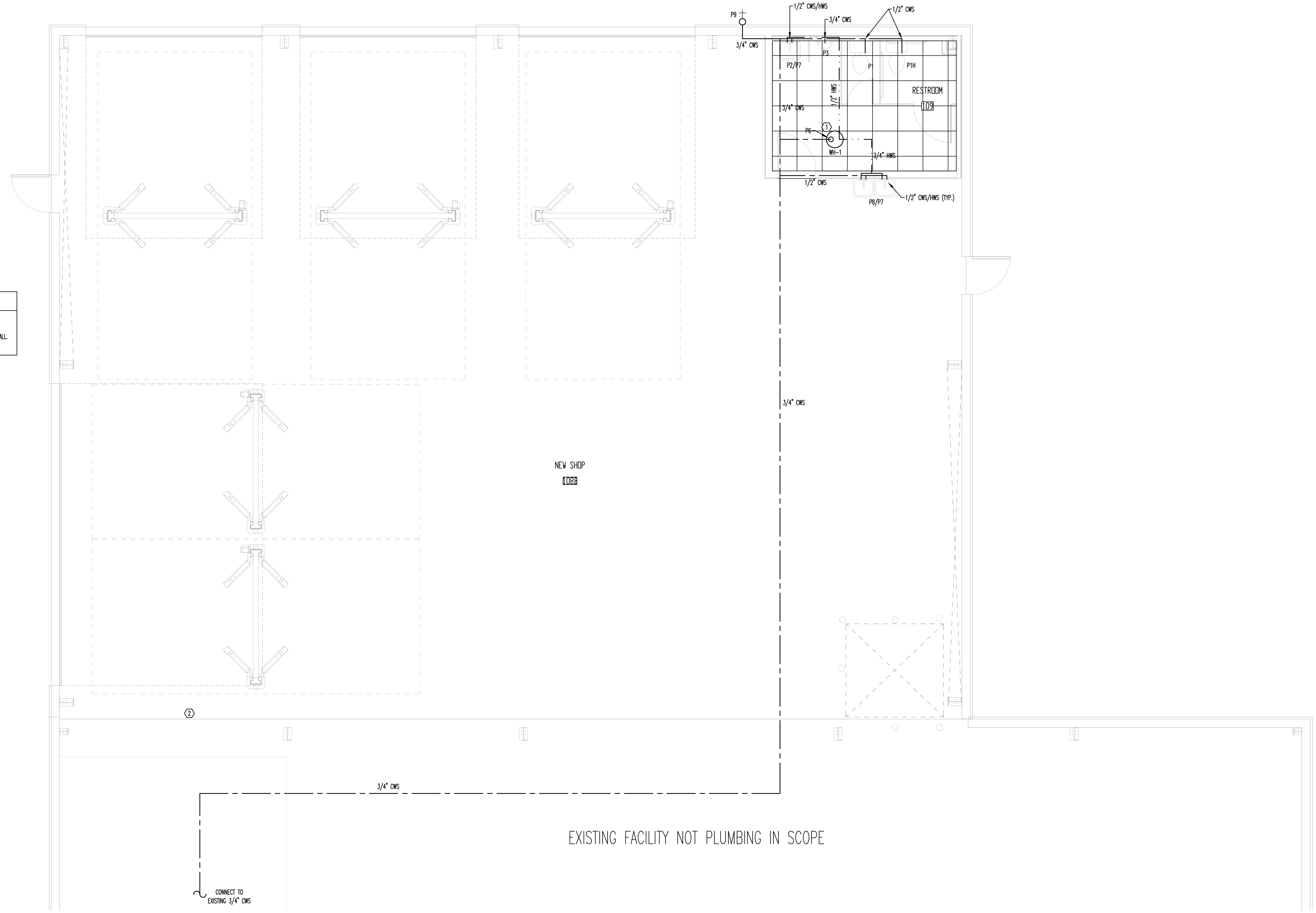
NO.	DATE	DESCRIPTION
1	7-11-22	FOR PERMITTING

DRAWN BY: DBAS
CHECKED BY: MWK/JLH

SANITARY PLAN

SHEET NO.
P2

PROJECT NO: 22354



SUPPLY PLAN HEX NOTES

1. WATER HEATER MOUNTED ABOVE CEILING. SEE DETAIL ON SHEET P4.
2. DEMO EXISTING HOSE BIBB IN THIS LOCATION ON PREVIOUS EXTERIOR WALL.

PLUMBING FIXTURE SCHEDULES | 1

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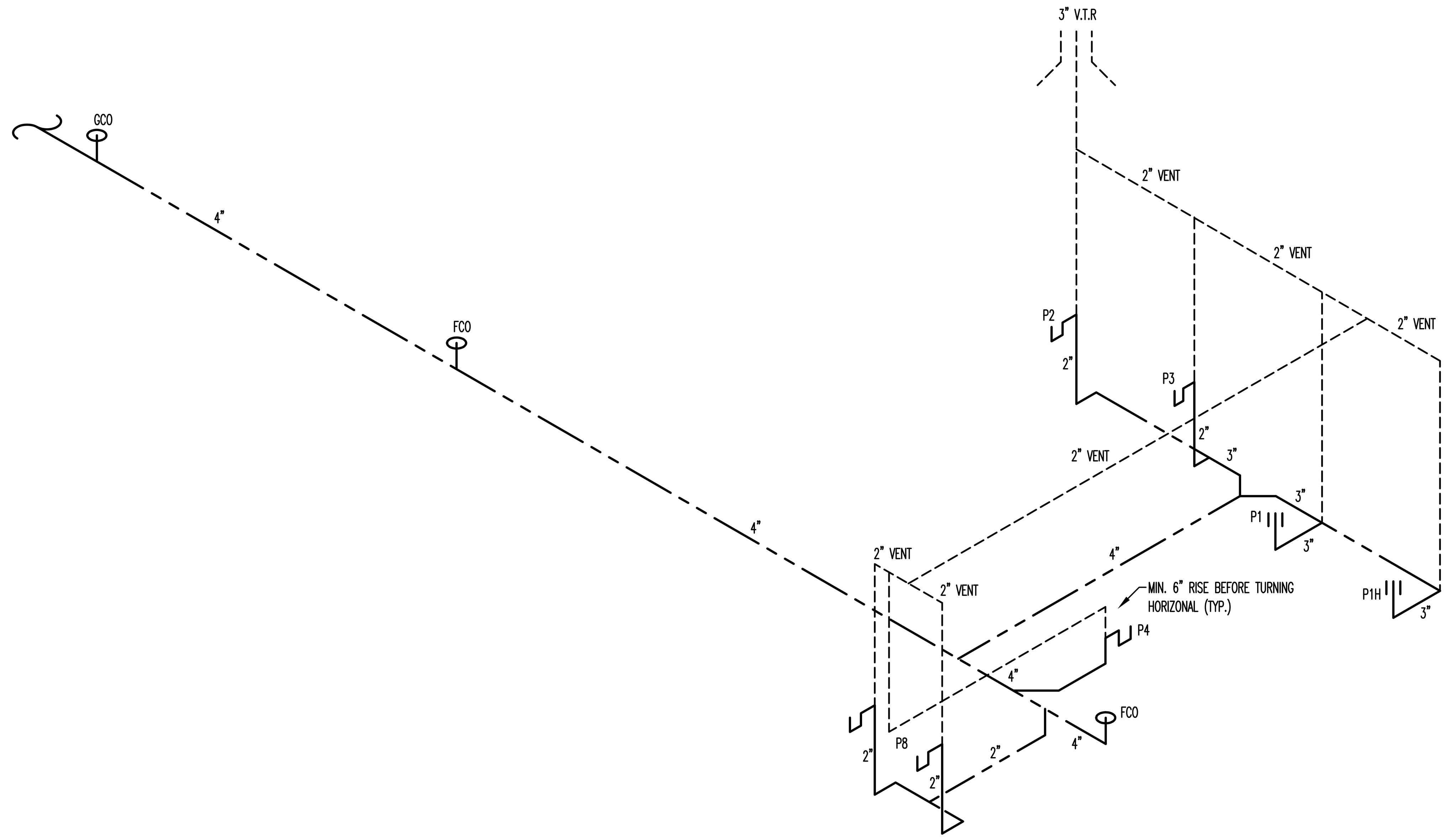
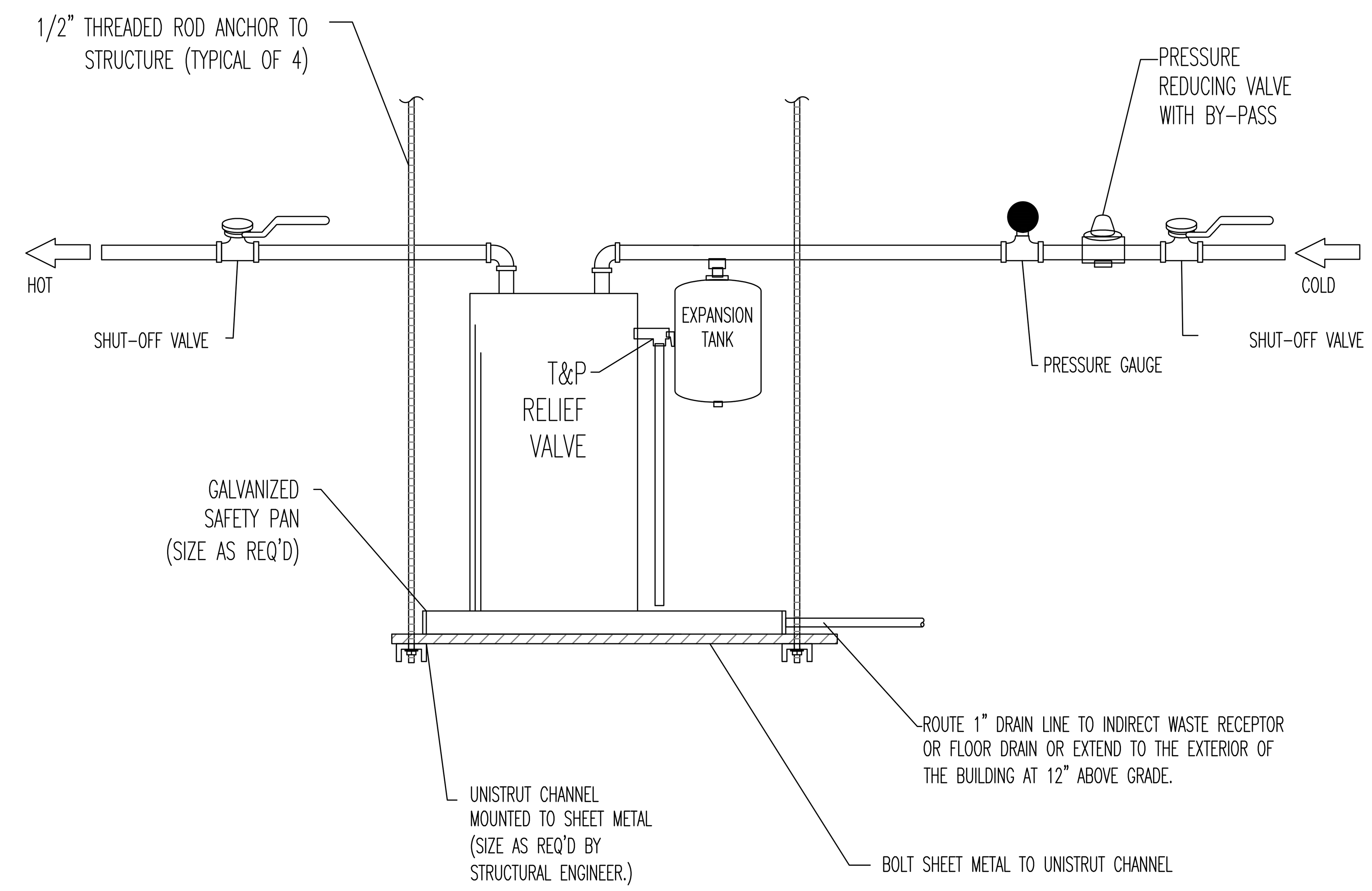
PLUMBING NOTES AND SCHEDULES

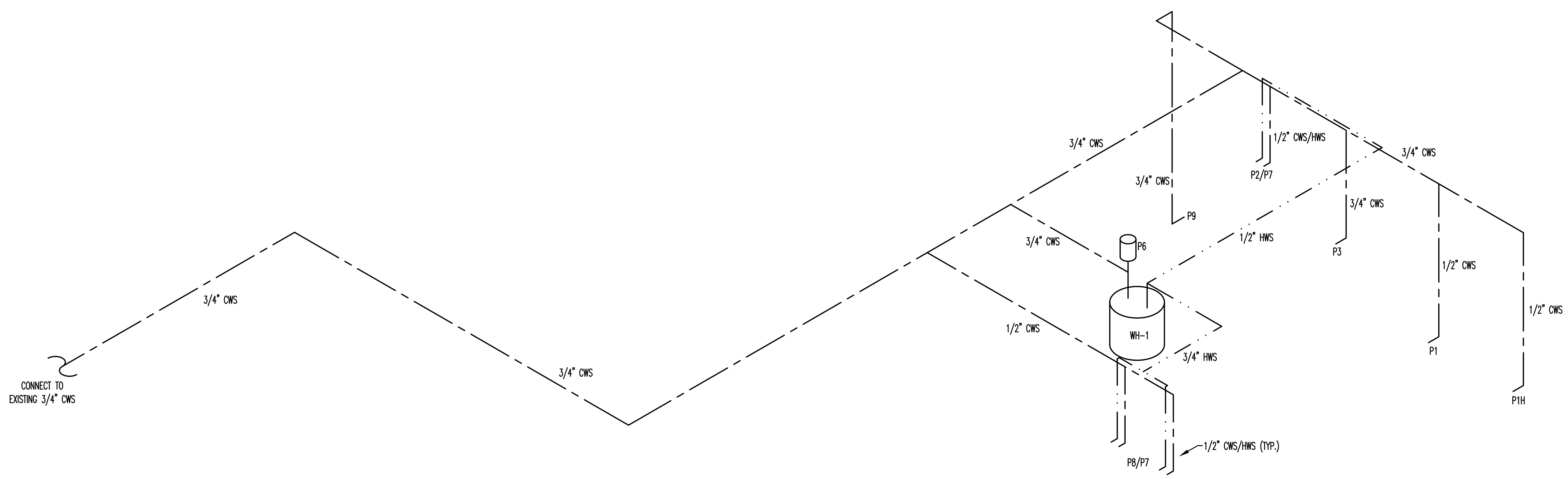
SHEET NO.
P3

PROJECT NO: 22354





ELECTRIC WATER HEATER ABOVE CEILING DETAIL - NO SCALE



DWV AND WATER SUPPLY RISERS: NO SCALE | 1

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DWV AND WATER SUPPLY RISERS

SHEET NO.
P4

PROJECT NO: 22354

GENERAL MECHANICAL NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
   PC – PLUMBING CONTRACTOR, EC – ELECTRICAL CONTRACTOR,
   MC – MECHANICAL CONTRACTOR, GC – GENERAL CONTRACTOR,
   FASC – FIRE ALARM SYSTEM CONTRACTOR, AHJ – AUTHORITY HAVING JURISDICTION.
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. MC SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR NECESSARY FOR A COMPLETE INSTALLATION.
3. THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5. THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2018 NORTH CAROLINA MECHANICAL AND BUILDING CODES AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MC SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
6. THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS–REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
9. ALL MECHANICAL MATERIALS SHALL BE NEW AND FREE OF DEFECT AND LISTED AND LABELED BY UL OR AN APPROVED THIRD PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SUCH EXAMPLES ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
10. THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
11. THE MC SHALL VERIFY THE FUNCTIONALITY AND OPERATION OF ALL EXISTING MECHANICAL EQUIPMENT IN THE AREA OF WORK. REPLACE FILTERS, LEAK TEST AND RECHARGE REFRIGERANT LINES, REPLACE OR LUBRICATE BEARINGS, CHECK LINKAGES AND ACTUATORS, AND PERFORM OTHER MAINTENANCE SERVICE AS NECESSARY TO GET THE EQUIPMENT IN PROPER ORDER.
12. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
13. IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. THE MC SHALL MAKE FIELD MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS.
14. MC SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.
15. MAINTAIN CLEARANCES FOR ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 10 FEET FROM ROOF EDGE.
16. MC SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.
17. CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.
18. ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN.
19. IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
20. ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN PLENUM AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS.
21. MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

MATERIALS:

1. THE MC SHALL PROVIDE ALL DX UNITARY HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. AIR-COOLED SPLIT SYSTEM HEAT PUMPS AND AIR-CONDITIONERS SHALL BE BY TRANE, CARRIER, OR YORK. GAS FURNACES SHALL BE BY TRANE, CARRIER, OR YORK. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
2. THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED. FANS SHALL BE BY GREENHECK, LOREN COOK, TWIN CITY, OR PENNBARRY.
3. DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P.
4. EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES SHALL BE DETERMINED AS FOLLOWS:
   - 4.1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECTED TO COMPRESSION, THE NOMINAL INSULATION THICKNESS SHALL BE USED.
   - 4.2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS.
   - 4.3. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.
5. DUCT LINER MAY BE SUBSTITUTED FOR EXTERIOR DUCT WRAP. DUCT LINER INSULATION MATERIALS SHALL MEET THE REQUIREMENTS OF ASTM C 1071, AND ASTM G 21. EXTERIOR DUCT R-VALUE SHALL BE R-8 AND INTERIOR R-VALUE SHALL BE R-6 IN ACCORDANCE WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE. NOMINAL DUCT SIZES SHALL BE ADJUSTED AS NECESSARY SO THAT FREE AREA DIMENSIONS ARE PRESERVED AS SHOWN ON THE PLANS. FABRICATION AND INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND TO THE REQUIREMENTS OF THE LATEST EDITION OF THE NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION FIBROUS GLASS DUCT LINER STANDARDS AND/OR SMACNA HVAC DUCT CONSTRUCTION STANDARDS. DUCT LINER SHALL HAVE A BLACK PIGMENTED MAT ON THE AIRSTREAM SIDE TO RESIST DAMAGE DURING INSTALLATION AND SERVICE. EDGES SHALL BE FACTORY COATED WITH BLACK PIGMENTED COATING TO COMPLY WITH SMACNA DCS REQUIREMENTS. ALL PORTIONS OF DUCT DESIGNATED TO RECEIVE DUCT LINER SHALL BE COMPLETELY COVERED WITH DUCT LINER. TRANSVERSE JOINTS SHALL BE NEATLY BUTTED AND THERE SHALL BE NO INTERRUPTIONS OR GAPS. THE BLACK PIGMENTED OR MAT FACED SURFACES SHALL FACE THE AIRSTREAM. DUCT LINER SHALL BE ADHERED TO THE SHEET METAL WITH 90 PERCENT COVERAGE OF ADHESIVE COMPLYING WITH REQUIREMENTS OF ASTM C 916. ALL EXPOSED LEADING EDGES AND TRANSVERSE JOINTS SHALL BE FACTORY COATED OR COATED WITH ADHESIVE DURING FABRICATION. DUCT LINER SHALL BE ADDITIONALLY SECURED WITH MECHANICAL FASTENERS, EITHER WELD-SECURED OR IMPACT DRIVEN, WHICH SHALL COMPRESS THE DUCT LINER SUFFICIENTLY TO HOLD IT FIRMLY IN PLACE. ADHESIVE BONDED PINS ARE NOT PERMITTED DUE TO LONG-TERM ADHESIVE AGING CHARACTERISTICS. LININGS SHALL BE INTERRUPTED AT THE AREA OF OPERATION OF A FIRE DAMPER AND AT A MINIMUM OF 6 INCHES UPSTREAM AND 6 INCHES DOWNSTREAM OF ELECTRIC RESISTANCE AND FUEL-BURNING HEATERS IN A DUCT SYSTEM. METAL NOSINGS OR SLEEVES SHALL BE INSTALLED OVER EXPOSED DUCT LINER THAT FACE OPPOSITE THE DIRECTION OF AIRFLOW. UPON COMPLETION OF INSTALLATION OF DUCT LINER AND BEFORE OPERATION IS TO COMMENCE, VISUALLY INSPECT SYSTEM AND VERIFY THAT THE DUCT LINER IS PROPERLY INSTALLED. OPEN ALL SYSTEM DAMPERS AND TURN ON FANS TO BLOW ALL SCRAPS AND OTHER LOOSE PIECES OF MATERIAL OUT OF THE DUCT SYSTEM. ALLOW FOR A MEANS OF REMOVAL OF SUCH MATERIAL.
6. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
7. MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A-95 OR UL 181B-98. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAT THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
8. ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
9. FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181-96.
10. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
11. THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILINGS, INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE BY HART & COOLEY, PRICE, METAL-AIRE, NAILOR, OR CARNES.
12. AIR FILTERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 605 OF THE 2018 NC MECHANICAL CODE.
13. THE MC SHALL PROVIDE ALL REFRIGERATION PIPING. ALL PIPE AND FITTINGS SHALL BE TYPE ACR HARD COPPER TUBING WITH SWEAT FITTINGS. REFRIGERATION LINES SHALL BE RUN NEATLY. WHERE A GROUP OF LINES ARE RUN, TRAPEZE HANGERS MAY BE USED. DO NOT USE CHAIN OR WIRE HANGERS. WRAP TUBING WITH RUBBER TAPE AT EACH CLAMP OR HANGER. FOR COVERED PIPES, HANGERS SHALL FIT AROUND THE OUTSIDE OF THE COVERING WITH 12 GAUGE GALVANIZED STEEL SHIELDS OF A LENGTH EQUAL TO THE OUTSIDE DIAMETER OF THE INSULATION AND COVERING 3/4 OF THE CIRCUMFERENCE OF THE INSULATION. SAGS SHALL NOT BE PERMISSIBLE. HORIZONTAL LINES SHALL PITCH DOWN NOT LESS THAN 1 INCH IN 40 FEET. INSULATE WITH 1 INCH CLOSED CELL ARMAFLEX TYPE INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50. ALL JOINTS AND SPLICES IN INSULATION SHALL BE TAPED AND AIR TIGHT. SOLDER REFRIGERATION LINES USING 15 PERCENT SILVER SOLDER AND EVACUATE LINES TO 300 MICRONS. PROVIDE MOISTURE INDICATING SIGHT GLASS AND FILTER DRYER IN LIQUID LINE. PROVIDE OIL TRAPS AND DOUBLE RISERS IN REFRIGERANT SUCTION AND HOT GAS LINES WHERE REQUIRED TO PREVENT OIL SLUGGING AT THE COMPRESSOR AND INSURE PROPER LUBRICATION. MC SHALL BE RESPONSIBLE FOR SEALING LINE SET PENETRATIONS OF ANY RATED ASSEMBLIES IN ACCORDANCE WITH A SYSTEM LISTED IN THE UL DIRECTORY FOR THE SPECIFIC ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR A LIST OF ALL UL FIRE RATED ASSEMBLIES.

METHODS:

1. INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNAUF INSULATION, OWENS CORNING CORP, OR CERTAINTEED CORPORATION.
2. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE BLOCKED.
3. WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOUVER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE; SEAL TO LOUVER FRAME AND DUCT.
4. DUCTS CONNECTING TO A FURNACE SHALL HAVE A CLEARANCE TO COMBUSTIBLES IN ACCORDANCE WITH THE FURNACE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
5. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS.
6. CONSTRUCT T's, BENDS, AND ELBOWS WITH RADII OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANES.
7. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
8. IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
9. DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS, GIRDERS, OR BEAMS.
10. CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
11. PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS, AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.
12. MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555), CURTAIN TYPE, WITH INTEGRAL FACTORY SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE 2018 NC MECHANICAL CODE. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADIATION DAMPERS SHALL BE UL LABELED (UL 555C) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE BY RUSKIN, NAILOR, OR LLOYD INDUSTRIES.
13. MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS OF SECTION C403.2.4 OF THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.
14. FRESH AIR INTAKES SHALL BE INSTALLED ON ALL UNITS AS SHOWN ON DRAWINGS. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST TERMINATIONS AND PLUMBING VENT THRU ROOFS.
15. MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
16. P-TRAPS MUST BE INSTALLED ON ALL UNITS. MC SHALL INSTALL AUXILIARY DRAIN PANS UNDER OVERHEAD AIR HANDLERS AND AN AUTOMATIC CUT-OFF FLOAT SWITCH FOR EACH. P-TRAPS AND CONDENSATE LINES SHALL BE 1 INCH. P-TRAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN PLENUMS; OTHERWISE, THEY SHALL BE TYPE M COPPER.
17. INSTALL BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER NORTH CAROLINA ENERGY CONSERVATION CODE C402.5.5

SPLIT SYSTEM AIR CONDITIONER

MARK	MFG / MODEL #	NOMINAL CAPACITY	SEER/ EER	ELECTRICAL			WEIGHT	REMARKS
		TONS		V/PH	MCA	MOCP	LBS	
AC-1, 2	YORK / YCD60B22S	5	13/11.25	208/1	29.1	50	190	1, 3-9

GAS FURNACE AND COOLING COIL SCHEDULE

MARK	MFG / MODEL #	COIL MODEL #	NOMINAL CAPACITY	AIR FLOW		FAN MOTORS	HEATING CAPACITY				COOLING CAPACITY			ELECTRICAL			WEIGHT	REMARKS
				NOMINAL SUPPLY	MIN. OA	ESP	INPUT	OUTPUT	STAGES	AFUE	EAT WB/DB	TOTAL	SENSIBLE	V/PH	MCA	MOCP		
			TONS	CFM	CFM	in wg	MBH	MBH	NO.	%	°F	MBH	MBH				LBS	
GF-1, 2	YORK / TM8E100C16MP11	XAHC60HXXN1	5	1750	-	0.21	100	80	1	80	67/80	55.1	37.7	120/1	11.1	15	119	2-4, 7-9

1. PROVIDE CONCRETE PAD FOR UNIT TO SIT ON
2. REPLACE ALL FILTERS AT PROJECT'S COMPLETION
3. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH NIGHT-TIME SET BACK
4. CONSULT MANUFACTURER ON LINE SET LENGTHS EXCEEDING 60FT
5. PROVIDE HARD START KIT
6. HEATER RATED AT 208V
7. OR EQUAL BY CARRIER, LENNOX, OR TRANE
8. ANY EQUIPMENT SUBSTITUTIONS MUST EQUAL OR EXCEED EFFICIENCIES LISTED (RATINGS PER ARI)
9. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES

EXHAUST FAN SCHEDULE

MARK	MFG / MODEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA	SONES	NOTES
EF-1	GREENHECK SP-A410	CEILING	0.40	265	120/1	1.75	3.5	1-3
EF-2, 3	GREENHECK SBE-1H20	SIDEWALL	0.40	1400	120/1	9.8	17.8	3, 4

1. PROVIDE WITH PITCHED ROOF CURB & CAP FOR FLAT OR SLOPED ROOF, OR HOODED WALL WITH BACKDRAFT DAMPER CAP AS APPLICABLE.
2. PROVIDE WITH SQUARE TO ROUND DUCT ADAPTER AS NECESSARY
3. PROVIDE WITH WEATHERHOOD, BIRD SCREEN, AND BACKDRAFT DAMPER
4. OR EQUAL BY LOREN COOK OR PENNBARRY OR TWIN CITY

REGISTER & GRILLE SCHEDULE

MARK	MFG	MODEL #	SIZE	MOUNTING	DESCRIPTION	NOTES
A	HART & COOLEY	HVS	24X24	LAY-IN	4-WAY DIFFUSER, BRIGHT WHITE	1
B	HART & COOLEY	SVH	16X8	SURFACE	ALUMINUM, DOUBLE DEFLECTION, WHITE	1
C	HART & COOLEY	SVH	16X10	SURFACE	ALUMINUM, DOUBLE DEFLECTION, WHITE	1
L	POTTORFF	EDD-445	29X29	SIDEWALL	ALUMINUM, STATIONARY LOUVER WITH DRAINABLE BLADES. MIN. 2.6 FT^2 OF FREE AREA	2-4

1. OR EQUAL BY PRICE, METAL-AIRE, CARNES, TITUS OR NAILOR.
2. PROVIDE WITH BACKDRAFT DAMPER AND BIRD SCREEN
3. COLOR BY OWNER
4. OR EQUAL BY GREENHECK, ARCHITECTURAL LOUVERS, OR RUSKIN

RECTANGULAR/SQUARE TO ROUND DUCT EQUIVALENT

RECTANGULAR DUCT	ROUND DUCT
30"X26"	30"ø
20"X26"	24"ø
18"X18"	20"ø
18"X20"	20"ø
20"X16"	18"ø
16"X16"	16"ø
10"X16"	14"ø
10"X20"	16"ø
16"X14"	16"ø
16"X12"	14"ø

DUCTLESS SPLIT SYSTEM HEAT PUMP SCHEDULE

MARK	OUTSIDE UNIT MFG / MODEL #	INSIDE UNIT MODEL #	NOM CAPACITY	SUPPLY AIR	HEATING @ 17°F	TOT COOLING	V/PH	MCA	MOCP
			TONS	CFM	MBH	MBH		AMPS	AMPS
MS-1/FCU-1, 2	LG / LMU18CHV	LCN097HV4	1.5	300	17.0	15.6	208.0	13.3	20.0

Ventilation Calculation (For Shop)

Room Name(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)	Required Exhaust (cfm)
New Shop	Repair/Parking Garage	3722	0	0	0	0.00	0.8	8000	2791.5
Bathroom	N/A	178	0	0	0	0.00	0.8	100	
	N/A		0	0	0	0.00	0.8		
	N/A		0	0	0	0.00	0.8		
	N/A		0	0	0	0.00	0.8		

Maximum Zp:	0	
K-12 School?	No	
Ev:	1	
Actual System Population:	10	
Uncorrected Intake	0	cfm
Outdoor Air Intake	0	cfm
Percent of Unit Air	0%	

Ventilation Calculation (For Office)

Room Name(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)
Offices	Office Space	215	5	0.06	5	1.08	0.8	400
	N/A	0	0	0	0	0.00	0.8	0
	N/A	0	0	0	0	0.00	0.8	0
	N/A	0	0	0	0	0.00	0.8	0
	N/A	0	0	0	0	0.00	0.8	0

Maximum Zp:	0.057109	
K-12 School?	No	
Ev:	1	
Actual System Population:	2	
Uncorrected Intake	23	cfm
Outdoor Air Intake	23	cfm
Percent of Unit Air	6%	

MECHANICAL NOTES AND SCHEDULES 1

MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE	PRESCRIPTIVE
THERMAL ZONE	ZONE 4A
EXTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	23.1°F
COOLING DESIGN DRY BULB	91.7°F
COOLING DESIGN WET BULB	75.6°F
INTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	70°F
COOLING DESIGN DRY BULB	75°F
COOLING RELATIVE HUMIDITY	50%
HEATING LOAD:	101,585 BTU/H
SENSIBLE COOLING LOAD:	69,630 BTU/H
LATENT COOLING LOAD:	26,670 BTU/H
MECHANICAL SPACING CONDITIONING SYSTEM:	
UNITARY	AIR COOLED DX
DESCRIPTION OF UNIT(S)	5 TON SPLIT SYSTEM GAS FURNACES
BOILER	N/A
TOTAL BOILER OUTPUT	N/A
CHILLER	N/A
TOTAL CHILLER CAPACITY	N/A
EQUIPMENT EFFICIENCIES:	SEE SCHEDULES
EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS):	SEE SCHEDULES

DESIGNER STATEMENT:

TO THE BEST OF MY KNOWLEDGE, THE MECHANICAL DESIGN FOR THIS BUILDING COMPLIES WITH MECHANICAL AND EQUIPMENT REQUIREMENTS OF THE 2018 NORTH CAROLINA STATE BUILDING CODE AND 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.

MECHANICAL DESIGNER'S STATEMENT 2

Kilian Engineering, Inc.
PO Box 3301, Henderson, NC 27536 | www.kilianengineering.com
(P) 252.438.8778 | CORPORATE LICENSE C-2277

NORTH CAROLINA PROFESSIONAL SEAL 048612 ENGINEER JACOB L. HAMILTON 7-11-22
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

DESIGN FOR:
CAROLINA DIESEL TRUCK ADDITION
62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

NO.	DATE	DESCRIPTION

ISSUED:

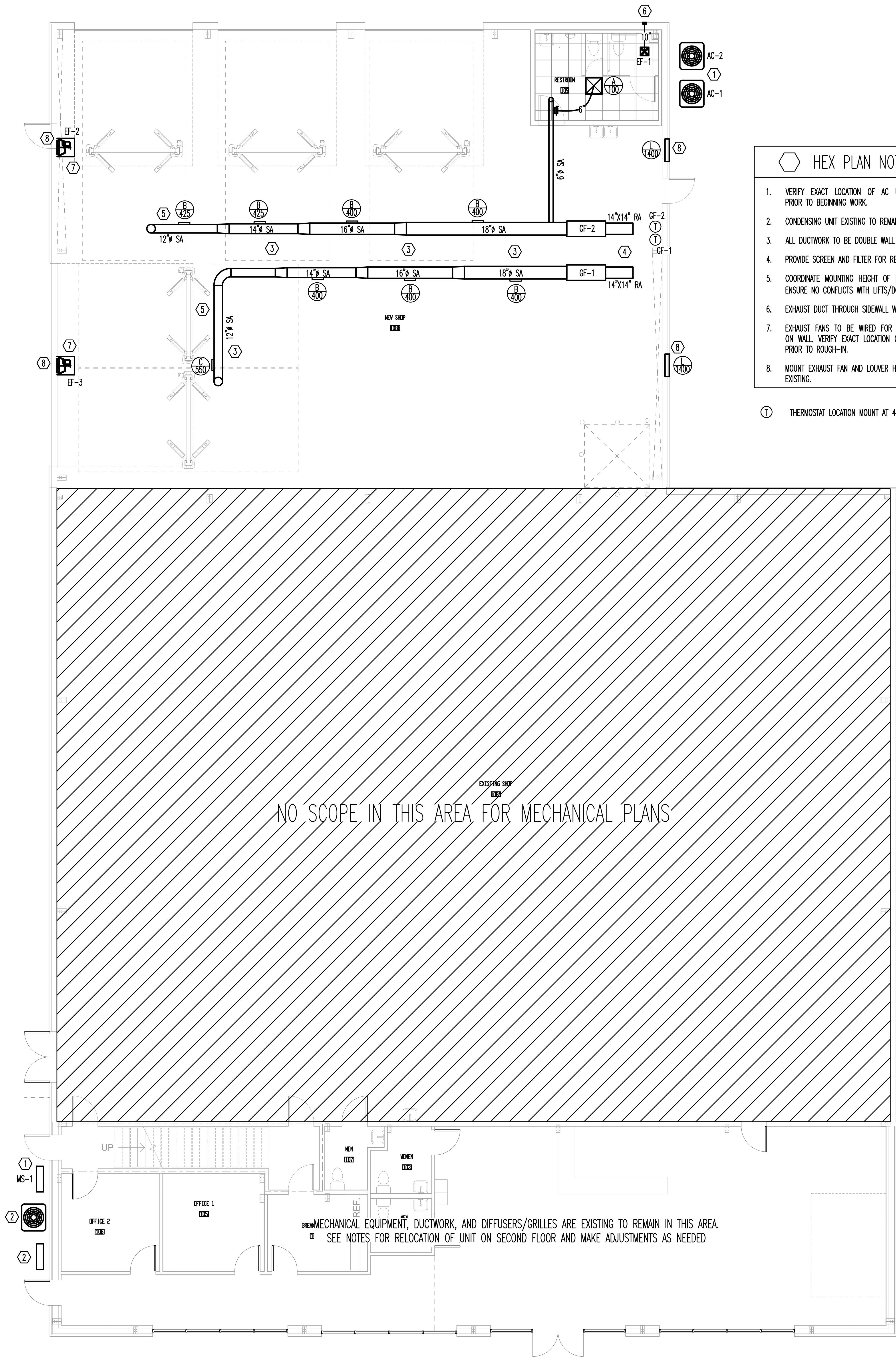
NO.	DATE	DESCRIPTION
1	7-11-22	FOR PERMITTING

DRAWN BY: DBAS
CHECKED BY: MWK/JLH

MECHANICAL NOTES, SCHEDULES, AND DESIGNER STATEMENT

SHEET NO.
M1

PROJECT NO: 22354

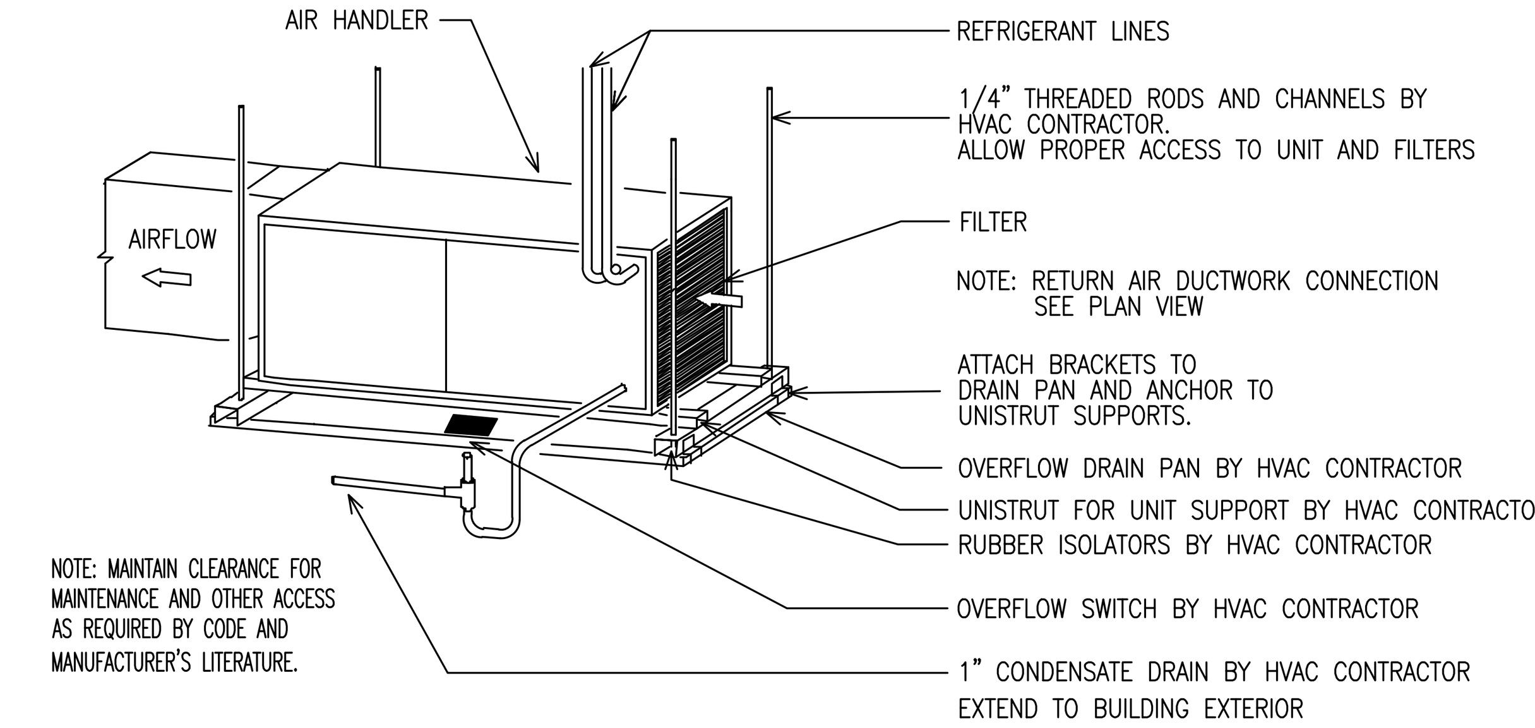


HEX PLAN NOTES

1. VERIFY EXACT LOCATION OF AC UNITS WITH OWNER/GC PRIOR TO BEGINNING WORK.
2. CONDENSING UNIT EXISTING TO REMAIN.
3. ALL DUCTWORK TO BE DOUBLE WALL SPIRAL.
4. PROVIDE SCREEN AND FILTER FOR RETURNS.
5. COORDINATE MOUNTING HEIGHT OF DUCTWORK WITH GC TO ENSURE NO CONFLICTS WITH LIFTS/DOORS.
6. EXHAUST DUCT THROUGH SIDEWALL WITH WALL CAP.
7. EXHAUST FANS TO BE WIRED FOR CONTROL FROM SWITCH ON WALL. VERIFY EXACT LOCATION OF SWITCH WITH OWNER PRIOR TO ROUGH-IN.
8. MOUNT EXHAUST FAN AND LOUVER HIGH ON WALL TO MATCH EXISTING.

(T) THERMOSTAT LOCATION MOUNT AT 48" A.F.F.

FIRST FLOOR MECHANICAL PLAN: SCALE - 1/8" = 1'0" | 1

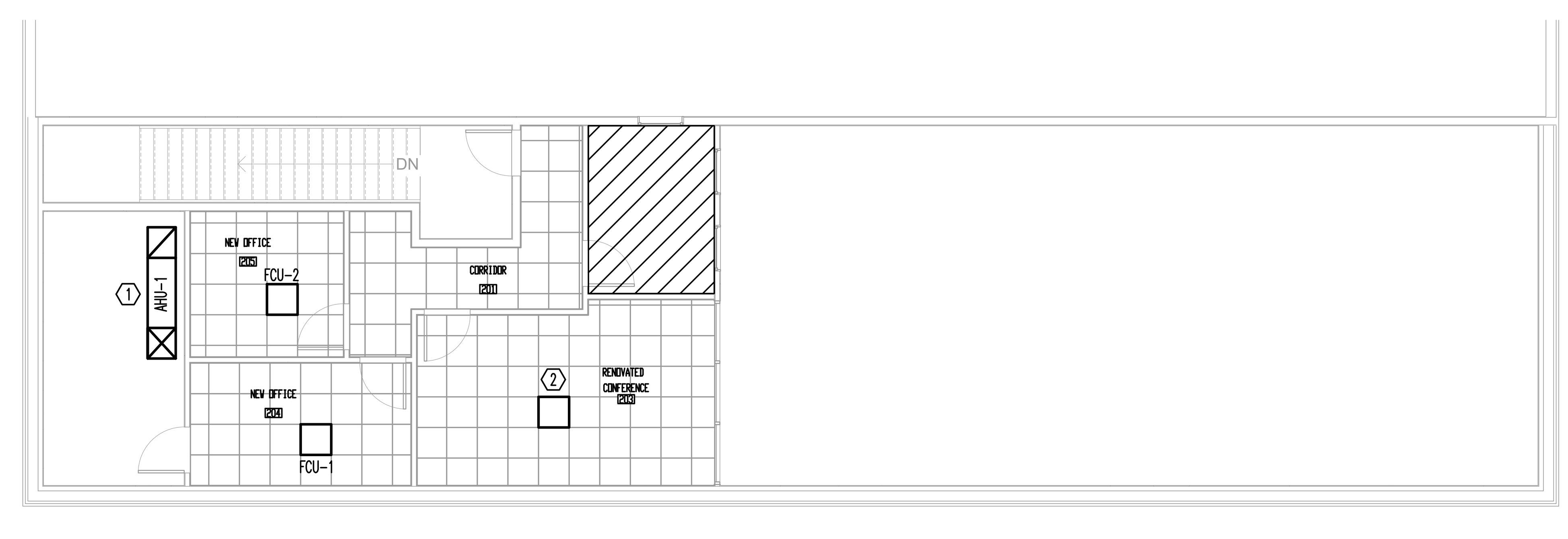


TYPICAL OVERHEAD AIR HANDLER-NO SCALE

DETAILS: NO SCALE | 2

HEX PLAN NOTES

1. MC TO RELOCATE EXISTING AIR HANDLER IN UNFINISHED SPACE TO NEW STORAGE CLOSET. MC TO MODIFY EXISTING SUPPLY AND RETURN DUCT ROUTING AS NEEDED TO NEW UNIT LOCATION.
2. RELOCATE EXISTING CEILING CASSETTE AS SHOWN FOR NEW CONFERENCE ROOM LAYOUT.



SECOND FLOOR MECHANICAL PLAN: SCALE - 1/8" = 1'0" | 3

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NORTH CAROLINA PROFESSIONAL SEAL 048812 ENGINEER JACOB L HAMILTON 7-11-22
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

DESIGN FOR:
CAROLINA DIESEL TRUCK ADDITION
62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

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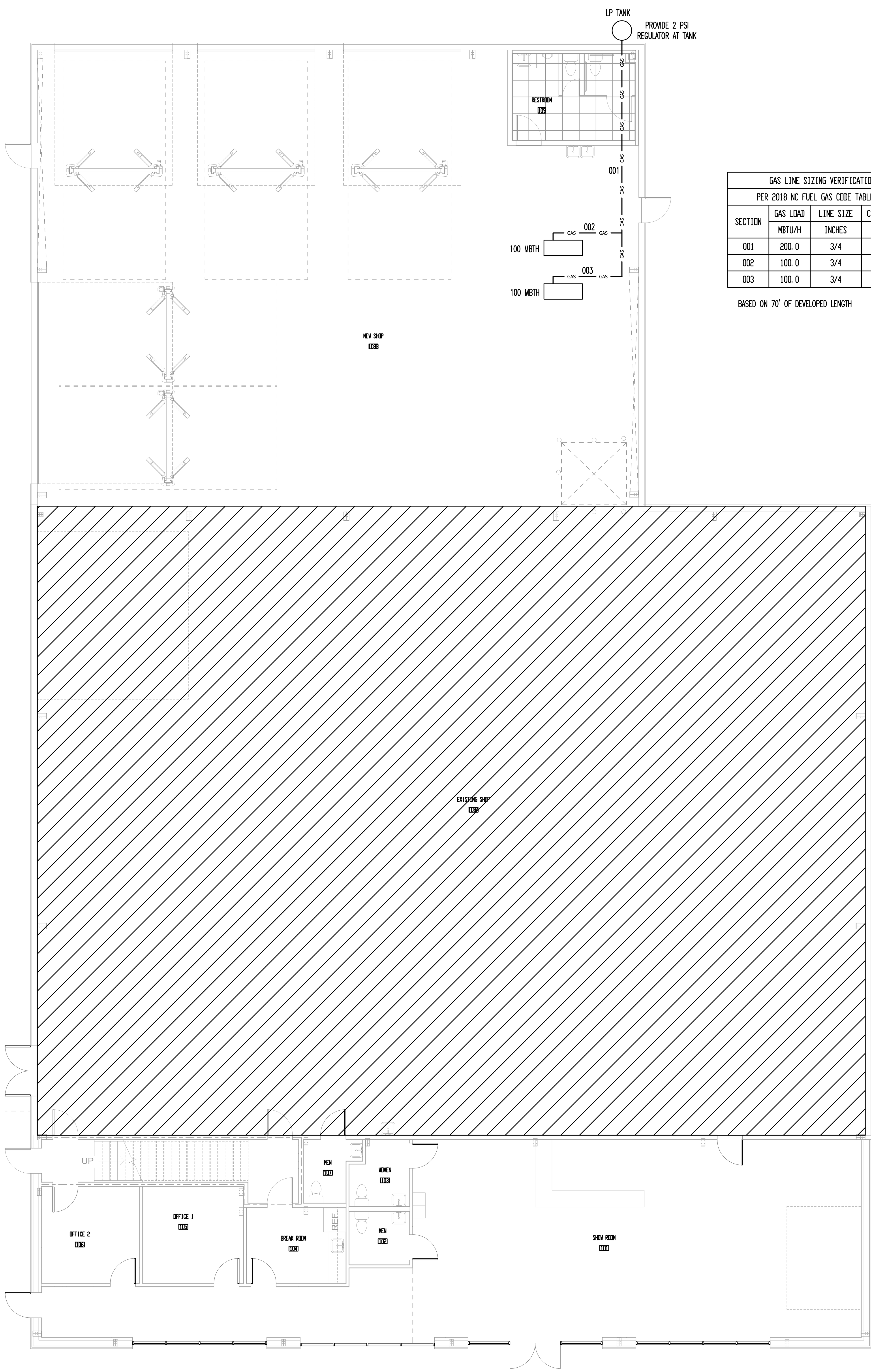
CHECKED BY: MWK/JLH

MECHANICAL PLANS

SHEET NO.
M2

PROJECT NO: 22354



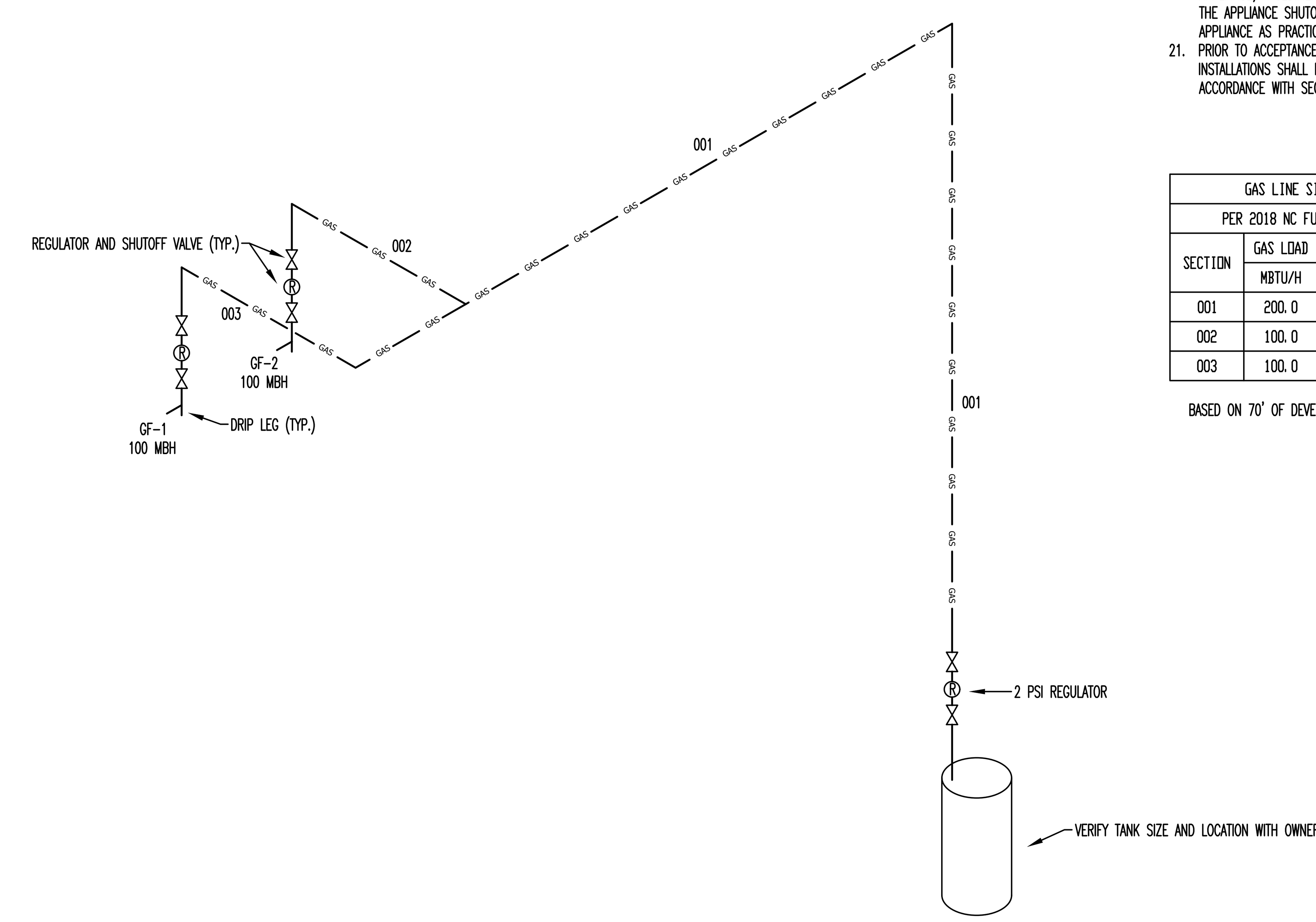
GAS LINE SIZING VERIFICATION TABLE				
PER 2018 NC FUEL GAS CODE TABLE 402.4(27)				
SECTION	GAS LOAD	LINE SIZE	CAPACITY	PRESSURE
	MBTU/H	INCHES	CFH	PSI
001	200.0	3/4	1950.0	2
002	100.0	3/4	1950.0	2
003	100.0	3/4	1950.0	2

BASED ON 70' OF DEVELOPED LENGTH

NATURAL GAS PLAN: SCALE - 1/8" = 1'0" | 1

GENERAL GAS LINE PIPING NOTES

1. THE GAS PIPING CONTRACTOR (GPC) SHALL PROVIDE ALL MATERIALS AND LABOR AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
2. THE GPC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2018 NORTH CAROLINA FUEL GAS CODE AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MORE STRINGENT SHALL BE USED. THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
3. THE GPC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
4. DO NOT SCALE THESE DRAWINGS–REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
5. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS.
6. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
7. THE CONTRACTOR SHALL INSTALL HIGH PRESSURE REGULATORS AT EACH PIECE OF EQUIPMENT AS NECESSARY.
8. INSTALL A DRIP LEG IN GAS LINE AT EACH POINT WHERE CONDENSATE COULD COLLECT. ALL DRIP LEGS SHALL BE READILY ACCESSIBLE FOR CLEANING OR EMPTYING.
9. PIPING SHALL BE SCHEDULE 40 STEEL OR WROUGHT IRON AND COMPLY WITH ANSI/ASME B36.10, ASTM A 53, OR ASTM A 106.
10. ALL PIPES AND FITTINGS SHALL BE NEW, FREE OF DEFECTS, AND RATED FOR THE APPLICATION.
11. ALL PIPING SHALL BE INSTALLED SO AS NOT TO BE SUBJECT TO PHYSICAL DAMAGE.
12. PVC VENT PIPING SHALL NOT BE INSTALLED INDOORS.
13. THE TYPE OF PIPING JOINT USED SHALL BE SUITABLE FOR THE PRESSURE–TEMPERATURE CONDITIONS AND SHALL BE SELECTED CONSIDERING JOINT TIGHTNESS AND MECHANICAL STRENGTH UNDER THE SERVICE CONDITIONS.
14. PIPE JOINTS SHALL BE THREADED, FLANGED, BRAZED, OR WELDED.
15. FLEXIBILITY SHALL BE PROVIDED BY THE USE OF BENDS, LOOPS, OFFSETS, OR COUPLINGS OF THE SLIP TYPE. PROVISIONS SHALL BE MADE TO ABSORB THERMAL CHANGES BY THE USE OF EXPANSION JOINTS OF THE BELLOWS TYPE OR BY THE USE OF 'BALL' OR 'SWIVEL' JOINTS. DO NOT USE EXPANSION JOINTS OF THE SLIP TYPE INSIDE THE BUILDING. PIPE ALIGNMENT GUIDES SHALL BE USED WITH EXPANSION JOINTS PER THE MFG.
16. ALL GAS PIPING SHALL BE LABELED TO INDICATE THE PRESSURE.
17. PIPE HANGERS AND SUPPORTS SHALL CONFORM TO ANSI/MSS SP–58.
18. BENDS SHALL BE MADE ONLY WITH BENDING TOOLS AND PROCEDURES INTENDED FOR THAT PURPOSE. DO NOT BEND PIPE THROUGH AN ARC OF MORE THAN 90°. ALL BENDS SHALL BE SMOOTH AND FREE OF CRACKS, BUCKLING, OR OTHER EVIDENCE OF DAMAGE.
19. INSTALL GAS SHUTOFF VALVES UPSTREAM OF EACH GAS REGULATOR. VALVES SHALL BE READILY ACCESSIBLE AND NOT SUBJECT TO PHYSICAL DAMAGE.
20. WHERE A SEDIMENT TRAP IS NOT INCORPORATED AS PART OF THE APPLIANCE, A SEDIMENT TRAP SHALL BE INSTALLED DOWNSTREAM OF THE APPLIANCE SHUTOFF VALVE AS CLOSE TO THE INLET OF THE APPLIANCE AS PRACTICAL.
21. PRIOR TO ACCEPTANCE BY THE OWNER, ALL GAS PIPING INSTALLATIONS SHALL BE INSPECTED AND PRESSURE TESTED IN ACCORDANCE WITH SECTION 406 OF THE NC FUEL GAS CODE.



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BASED ON 70' OF DEVELOPED LENGTH

GAS RISER AND NOTES: NO SCALE | 2

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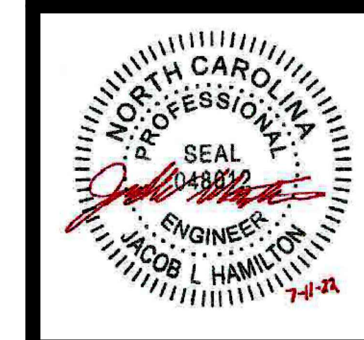
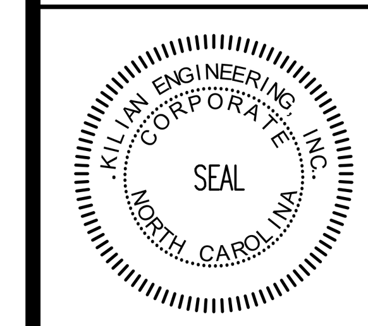


SEAL



SEAL

DESIGN FOR:
CAROLINA DIESEL TRUCK ADDITION
62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

ISSUED:

NO.	DATE	DESCRIPTION
1	7-11-22	FOR PERMITTING

DRAWN BY: DBAS
CHECKED BY: MWK/JLH

GAS PLAN AND RISER

SHEET NO.
NG1

PROJECT NO: 22354

GENERAL ELECTRICAL NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS: PC – PLUMBING CONTRACTOR, EC – ELECTRICAL CONTRACTOR, MC – MECHANICAL CONTRACTOR, GC – GENERAL CONTRACTOR, FASC – FIRE ALARM SYSTEM CONTRACTOR, AHJ – AUTHORITY HAVING JURISDICTION.
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE ELECTRICAL CONTRACTOR SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
3. EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
4. WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
5. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE ELECTRICAL CONTRACTOR AT AN APPROVED LOCATION. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE ELECTRICAL CONTRACTOR UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
6. THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS–REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
9. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
10. GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250–122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON–ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
11. THE ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE WITH THE GENERAL CONTRACTOR REGARDING THE BONDING OF THE FOOTING REBAR, SO THAT IT WILL BE IN PLACE AND READY AT TIME OF FOOTING INSPECTION.
12. ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE–EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
13. CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
14. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BULBS, AND TRANSFORMERS, WIRING AND ELECTRICAL EQUIPMENT, AND INSULATION. WASTE MATERIALS CONTAINING LEAD, ASBESTOS, PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HARMFUL SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
15. ALL WORK SHALL CONFORM TO 2020 NATIONAL ELECTRIC CODE, 2018 STATE BUILDING CODE, AND ALL APPLICABLE LOCAL CODES.

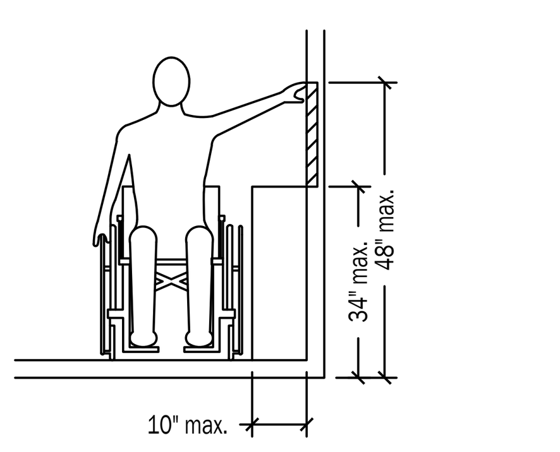
MATERIALS:

1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC, UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. PRIOR TO ORDERING EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED. PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER–HAMMER, SIEMENS, OR GE. BUSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BASES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL LISTED FOR SUCH USE. ELECTRICAL CONTRACTOR SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. ELECTRICIAN SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
3. ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSSMAN, LITTELFUSE, OR MERSEN.
4. OCCUPANCY SENSORS SHALL BE BY WATTSTOPPER, LUTRON, LEVITON, SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL.
5. CIRCUIT BREAKERS SHALL BE MOLDED–CASE, THERMAL MAGNETIC TYPE WITH QUICK–MAKE, QUICK–BREAK MECHANISM, COMMON TRIP ON MULTI–POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.
6. ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
7. THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THHN/THWN OR XHHW; ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THWN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC, INDUSTRIAL WIRE & CABLE, INC, ENCORE WIRE CORPORATION, OR SOUTHWIRE COMPANY.
8. JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR T&B "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS. WHERE CONCENTRIC, ECCENTRIC, OR OVERSIZED KNOCKOUTS ARE ENCOUNTERED, A GROUNDING TYPE INSULATED BUSHING SHALL BE PROVIDED.
9. ALL LUMINAIRES SHALL BE LISTED. LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
10. ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APPLETON, RACO, OR O–Z/GEDNEY. COUPLINGS SHALL BE THREADED, SET–SCREW, OR COMPRESSION TYPE. INDENTER OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PERMITTED
11. EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE–AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI–AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C80.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI–AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT ANSI C80.6 AND UL 1242.
12. METAL CONDUIT SHALL BE BY ALLIED TUBING & CONDUIT, BECK MANUFACTURING, INC, OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID–TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AFC CABLE SYSTEMS, INC, ELECTRI–FLEX COMPANY, OR INTERNATIONAL METAL HOSE.

METHODS:

1. EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN THE CONTRACT.
2. ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4 in CONDUIT. EACH MULTI–WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI–WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON–ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
3. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE–PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. ISOLATED GROUND WIRES SHALL BE GREEN WITH YELLOW BANDS OR STRIPES. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLENUMS.
4. ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE–ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
5. MOUNT LIGHT SWITCHES AT 48 in AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OWNER. INSTALL SWITCHES WITH off POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, IVORY PLASTIC WITH TOGGLE HANDLE, RATED 120–277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/DIVIDERS FOR MULTI–GANG BOXES FOR COMPLIANCE WITH NEC 404.8(B).
6. ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE–STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE–RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
7. ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1.
8. LOCATIONS AND HEIGHTS OF ALL WALL–MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
9. CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY–IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE, UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE 6–8 in BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL RISE AT LEAST 2 in ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH 300.5(G), 300.7(A), AND 300.50(E) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT–TO–POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS. COMPLETELY AND THOROUGHLY SWAB ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER.
10. CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL–CORRUGATED SHEET ROOF DECKING, SHALL BE INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1–1/2 in MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX. A CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS IN METAL–CORRUGATED, SHEET DECKING–TYPE ROOF. SEE NEC 300.4(E).
11. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APPLETON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE FS. VAPORTITE BOXES SHALL BE TYPE GS. WHERE SURFACE MOUNTED BOXES ARE USED, THOSE BOXES AND THEIR FACEPLATES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE ELECTRICAL CONTRACTOR. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH NORTH CAROLINA BUILDING CODE 714.3.2 (MAXIMUM BOX SIZE IS 16 SQUARE in AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK–TO–BACK. SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED 4X4 OCTAGONAL OR SQUARE BOXES.
12. ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS OR EMBEDDED IN CONCRETE OR MASONRY. ELECTRICAL SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATALOG ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 in EMT CONDUIT MAXIMUM AND 4 in JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1613 OF THE NORTH CAROLINA GENERAL CONSTRUCTION BUILDING CODE.
13. ABANDONED CONDUIT AND BOXES SHALL HAVE ALL ELECTRICAL WIRING REMOVED COMPLETELY AND NOT JUST "MADE SAFE." CONDUIT AND BOXES SHALL BE REMOVED WHERE PRACTICAL WITHOUT CREATING ADDITIONAL DEMOLITION/RESTITUTION WORK FOR OTHER TRADES.
14. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.4.
15. ISOLATED–GROUND TYPE RECEPTACLES SHALL BE INSTALLED IN ACCORDANCE WITH 250.146(D). ISOLATED GROUND RECEPTACLES SHALL BE ORANGE IN COLOR.
16. IN ASSEMBLY AREAS EXCEEDING 100 PERSONS OCCUPANCY, WIRING METHODS SHALL COMPLY WITH NEC 518.
17. INSTALL ONE (1) 3/4 in FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.
18. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH–INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE A 4 in SQUARE BY 2–1/8 in DEEP BOX WITH 3/4 in KNOCK–OUTS AND A 3/4 in CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON–METALLIC INSULATING BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES.
19. ELECTRICAL CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART IX. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC, IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
20. ELECTRICAL CONTRACTOR SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NEC.
21. ELECTRICAL CONTRACTOR SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE, WHITE ENGRAVED LETTERS (1/4 in MINIMUM) ETCHED INTO THE WHITE CORE. ELECTRICAL CONTRACTOR SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.
22. IN ACCORDANCE WITH SECTION F510 OF THE NC FIRE PREVENTION CODE, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER RADIO SIGNAL STRENGTH INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A CERTIFIED 3RD PARTY. TESTING SHALL TAKE PLACE AT BOTH 80% PROJECT COMPLETION AND AGAIN AT 100% COMPLETION. IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.

ELECTRICAL NOTES 1



ANSI A117.1 FIG. 308.3.2. OBSTRUCTED HIGH REACH SIDE.
ALL SWITCHES AND CONTROLS MUST COMPLY FOR ALL COUNTERTOPS

LIGHTING DEVICE LEGEND		
SYMBOL	DESCRIPTION	REMARKS
$	SINGLE POLE WALL SWITCH	HEAVY DUTY, AC ONLY, COMMERCIAL GRADE GENERAL USE SNAP SWITCH COMPLYING WITH NEMA WD 6 AND WD 1. IVORY PLASTIC BODY WITH TOGGLE HANDLE. 120-277V, 20A. MEET FEDERAL SPECIFICATION W-S-896.
$M	WALL MOUNTED OCCUPANCY SENSOR	WATTSTOPPER DW-100 LINE VOLTAGE OCCUPANCY SENSOR. ULTRA SONIC AND INFRARED.
$3	3 WAY SWITCH	3-WAY TYPE SWITCH WITH SAME CHARACTERISTICS AS SINGLE POLE SWITCH ABOVE.
Ⓙ	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.
☒	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.

POWER DEVICE LEGEND		
SYMBOL	DESCRIPTION	REMARKS
▶	DATA AND TELEPHONE JACK	PHONE/DATA OUTLET. EC TO INSTALL 3/4"C WITH PULL-STRING FROM OUTLET BOX TO ABOVE CEILING FOR FUTURE USE. JACKS AND COMMUNICATION CABLING BY OTHERS.
⊖	DUPLEX RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1. GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER. 'CH' DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596.
⊕	QUAD RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE.
●	DEDICATED RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1 UNLESS OTHERWISE NOTED ON PLANS. VERIFY PLUG TYPE PRIOR TO PURCHASE & INSTALLATION. GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER. 'CH' DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596. MAY BE EITHER SIMPLEX, DUPLEX, OR QUAD.
⧄F	FUSIBLE DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS, FUSE ACCORDING TO NAMEPLATE DATA.
□F	DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS.
Ⓙ	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.

ELECTRICAL DESIGNER'S STATEMENT			
ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE PRESCRIPTIVE _X_ PERFORMANCE ___ ENERGY COST BUDGET ___			
LIGHTING SCHEDULE:			
LAMP TYPE REQUIRED IN FIXTURE:		SEE LIGHTING LEGEND	
NUMBER OF LAMPS PER FIXTURE:		SEE LIGHTING LEGEND	
BALLAST TYPE USED IN FIXTURE:		SEE LIGHTING LEGEND	
NUMBER OF BALLASTS IN FIXTURE:		SEE LIGHTING LEGEND	
TOTAL WATTAGE PER FIXTURE:		SEE LIGHTING LEGEND	
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:		WATTS SPECIFIED	WATTS ALLOWED
		2427.0	3727.62
OCCUPANCY	AREA (sf)	ALLOWANCE (W/sf)	WATTAGE ALLOWED
AUTOMOTIVE	3900	0.80	3120.00
OFFICE	741	0.82	607.62
TOTAL	3900		3727.62
EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS) MOTOR HORSEPOWER: N/A NUMBER OF PHASES: N/A MINIMUM EFFICIENCY: N/A MOTOR TYPE: N/A NUMBER OF POLES: N/A			
DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.			

FOR THE ADDITIONAL PRESCRIPTIVE REQUIREMENT REQUIRED BY C406 OF 2018 NORTH CAROLINA ENERGY CONSERVATION CODE, WE ARE CHOOSING C406.3 – REDUCED LIGHTING POWER DENSITY.

2427 W SPECIFIED <= 3355 W (3728W ALLOWED X 90%)

LIGHT FIXTURE SCHEDULE

MARK	DESCRIPTION	LOUVER/LENS	LAMPS			VOLTAGE	INPUT WATTAGE	MOUNTING	REMARKS	MFG	MODEL
			TYPE	WATTAGE	CCT						
A	2X4 LED TROFFER	-	LED	26.9	3500K	120	26.9	LAY-IN	2	LITHONIA	2GTL-4-30L-EZ1-LP835
B	LED HIGHBAY FIXTURE	POLYCARBONATE	LED	185	4000K	120	185	SUSPENDED	2	LITETRONICS	HB185B340DLT
C	4' STRIP LIGHT	-	LED	56	3500K	120	56	SURFACE	2	LITHONIA	ZL1F-L48-SMR-6000LM-MDD-MVOLT-35K-80CRI
EX	LED EXIT SIGN	ACRYLIC	LED	N/A	N/A	120	2	VARIES	1,2	EELP	XE2RW-EM-SD
EXH	LED EXIT/EMERGENCY COMBO	ACRYLIC	LED	N/A	N/A	120	2	VARIES	1,2	EELP	XC-LED-2-R-W-SD
EM	DUAL HEAD EMERGENCY FIXTURE	ACRYLIC	LED	N/A	N/A	120	2	VARIES	1,2	LITHONIA	ELM2L-SDRT
OE	EXTERIOR OVAL LED EMERGENCY LIGHT	POLYCARBONATE	LED	-	-	120	2	SURFACE	1,2	EELP	OEM-EM

1. FIXTURE SHALL HAVE BATTERY BACKUP FOR 90 MINUTE ILLUMINATION.
2. OR EQUAL BY COOPER, MOBERN, CURRENT BY GE LIGHTING, OR OWNER APPROVED EQUAL

ELECTRICAL NOTES 2

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NORTH CAROLINA PROFESSIONAL SEAL 048612 ENGINEER JACOB L. HAMILTON 7-11-22
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

DESIGN FOR:
CAROLINA DIESEL TRUCK ADDITION
62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

NO.	DATE	DESCRIPTION
.	.	.

ISSUED:

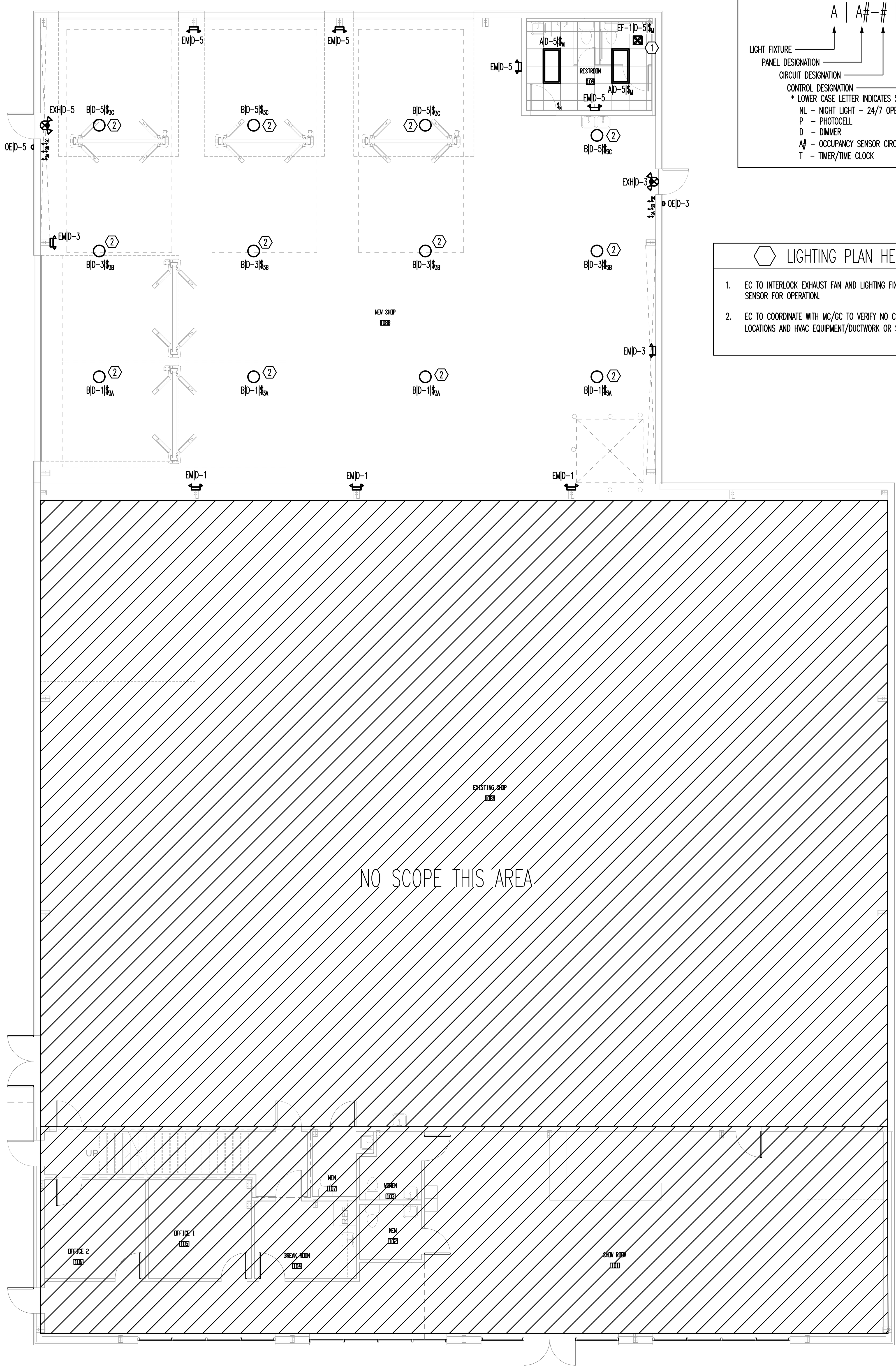
NO.	DATE	DESCRIPTION
1	7-11-22	FOR PERMITTING

DRAWN BY: DBAS
CHECKED BY: MWK/JLH

ELECTRICAL NOTES AND SCHEDULES

SHEET NO.
E1

PROJECT NO: 22354



FIRST FLOOR LIGHTING PLAN: SCALE - 1/8" = 1'0" | 1

LIGHTING CIRCUIT DESIGNATIONS

A | A#-# | C

- LIGHT FIXTURE
- PANEL DESIGNATION
- CIRCUIT DESIGNATION
- CONTROL DESIGNATION
  - * LOWER CASE LETTER INDICATES SWITCH ID
  - NL - NIGHT LIGHT - 24/7 OPERATION
  - P - PHOTOCELL
  - D - DIMMER
  - A# - OCCUPANCY SENSOR CIRCUIT (E.G. RMJ-B1)
  - T - TIMER/TIME CLOCK

LIGHTING PLAN HEX NOTES

1. EC TO INTERLOCK EXHAUST FAN AND LIGHTING FIXTURES TO SAME OCCUPANCY SENSOR FOR OPERATION.
2. EC TO COORDINATE WITH MC/GC TO VERIFY NO CONFLICTS WITH LIGHTING LOCATIONS AND HVAC EQUIPMENT/DUCTWORK OR SHOP EQUIPMENT.

LIGHTING CIRCUIT DESIGNATIONS

A | A#-# | C

- LIGHT FIXTURE
- PANEL DESIGNATION
- CIRCUIT DESIGNATION
- CONTROL DESIGNATION
  - * LOWER CASE LETTER INDICATES SWITCH ID
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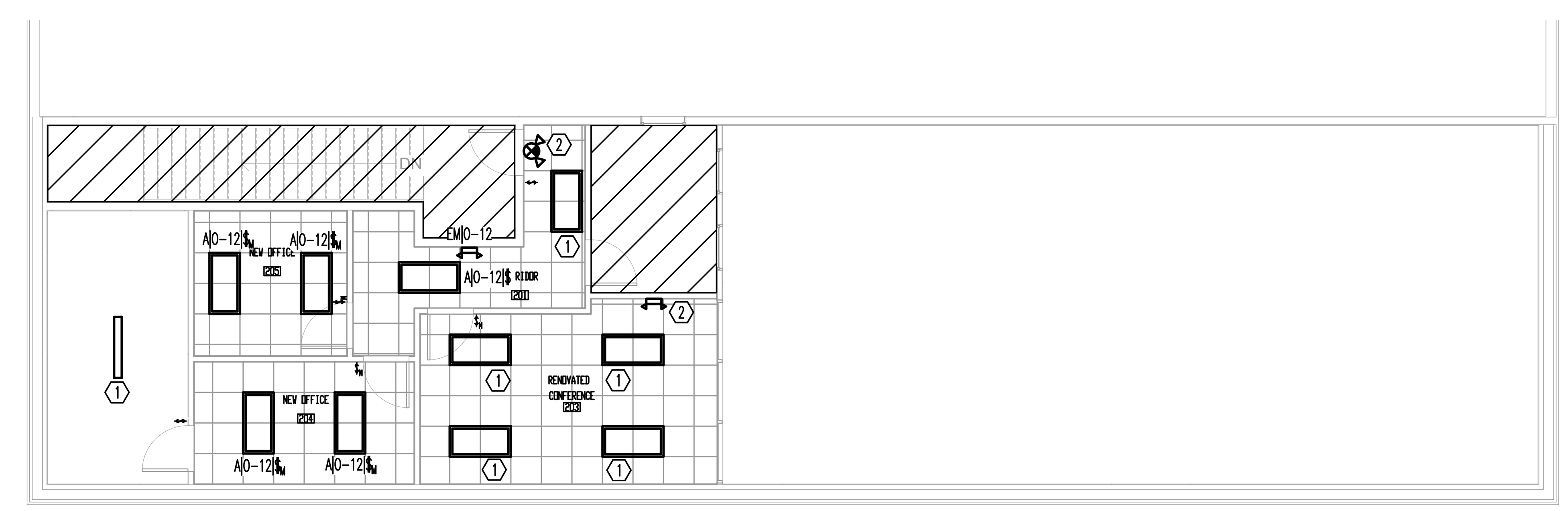
  - P - PHOTOCELL
  - D - DIMMER
  - A# - OCCUPANCY SENSOR CIRCUIT (E.G. RMJ-B1)
  - T - TIMER/TIME CLOCK

LIGHTING PLAN HEX NOTES

1. FIXTURE IS EXISTING TO REMAIN. RELOCATE AS SHOWN ON PLAN.
2. EGRESS LIGHTING FIXTURE IS EXISTING TO REMAIN.



SECOND FLOOR LIGHTING PLAN: SCALE - 1/8" = 1'0" | 2

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SEAL

SEAL

DESIGN FOR:

CAROLINA DIESEL TRUCK ADDITION

62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

NO.	DATE	DESCRIPTION

ISSUED:

NO.	DATE	DESCRIPTION
1	7-11-22	FOR PERMITTING

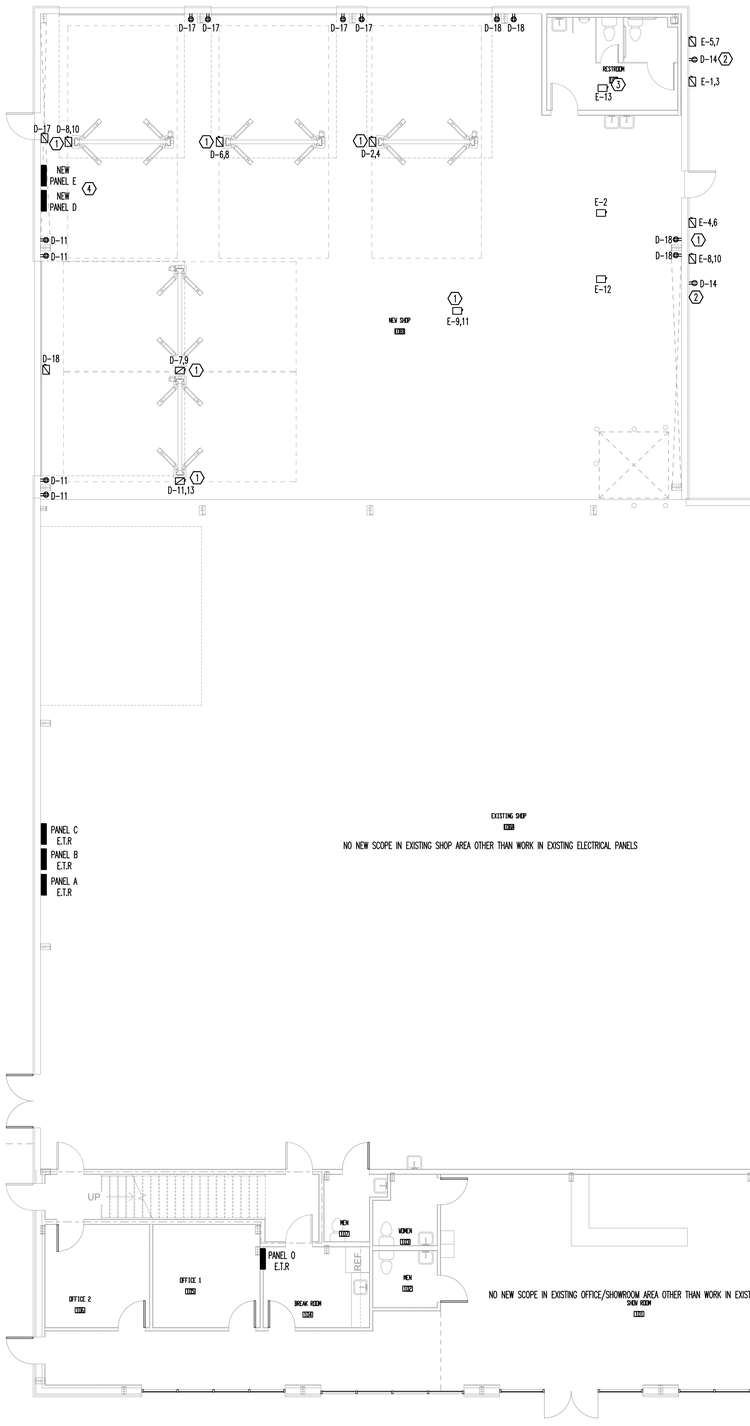
DRAWN BY: DBAS
CHECKED BY: MWK/JLH

LIGHTING PLAN

SHEET NO.

E2

PROJECT NO: 22354



POWER CIRCUIT DESIGNATIONS

A – #

PANEL DESIGNATION

CIRCUIT DESIGNATION

POWER PLAN HEX NOTES

1. VERIFY MOUNTING HEIGHT AND EXACT LOCATION OF ALL EQUIPMENT WITH OWNER/GC/EQUIPMENT PROVIDER PRIOR TO BEGINNING ANY WORK.
2. GFCI/WP RECEPTACLE.
3. DISCONNECT FOR WATER HEATER MOUNTED ABOVE CEILING.
4. VERIFY EXACT LOCATION OF PANELS 'D'/'E' WITH OWNER/GC PRIOR TO ROUGH-IN.

FIRST FLOOR POWER PLAN: SCALE - 1/8" = 1'0" | 1

POWER CIRCUIT DESIGNATIONS

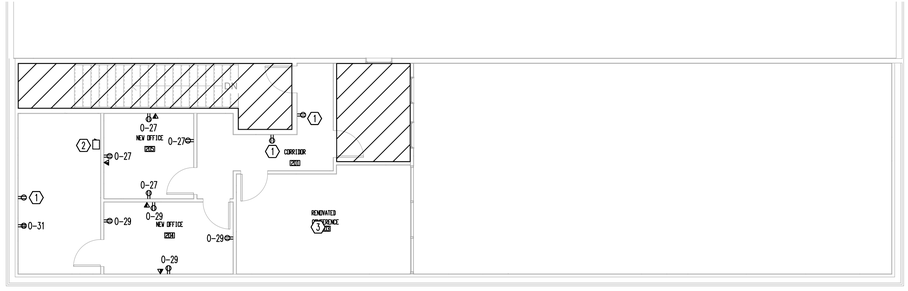
A – #

PANEL DESIGNATION

CIRCUIT DESIGNATION

POWER PLAN HEX NOTES

1. RECEPTACLE IS EXISTING TO REMAIN.
2. EC TO COORDINATE WITH MC TO RELOCATE EXISTING DISCONNECT FOR EXISTING AHU AS SHOWN ON PLAN.
3. ALL RECEPTACLES AND DATA IN RENOVATED CONFERENCE ROOM ARE EXISTING TO REMAIN.



SECOND FLOOR POWER PLAN: SCALE - 1/8" = 1'0" | 2

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NORTH CAROLINA PROFESSIONAL SEAL ENGINEER JACOB L. HAMILTON
SEAL

KILIAN ENGINEERING CORPORATE SEAL NORTH CAROLINA INC.
SEAL

DESIGN FOR:

CAROLINA DIESEL TRUCK ADDITION

62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

DESCRIPTION	DATE

ISSUED:

DESCRIPTION	DATE
FOR PERMITTING	7.11.22

DRAWN BY: DBAS
CHECKED BY: MWK/JLH

POWER PLAN

SHEET NO.

E3

PROJECT NO: 22354

EXISTING PANEL A								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	PARTS WASHER	60/3	0.00	A	0.00	40/3	AIR COMPRESSOR	2
3			0.00	B	0.00			4
5			0.00	C	0.00			6
7	ENGINE EXHAUST FAN	20/3	0.00	A	0.00	50/2	EN WELDER	8
9			0.00	B	0.00			10
11			0.00	C	0.00	20/1	AIR DRYER	12
13	FLAG POLE LTS	20/1	0.00	A	0.00	20/2	LIFT #3	14
15	RECPT	20/1	0.00	B	0.00			16
17	WELDER	30/2	0.00	C	0.00	20/2	LIFT #4	18
19			0.00	A	0.00			20
21	CEILING FAN	20/2	0.00	B	0.00	20/2	LIFT #5	22
23			0.00	C	0.00			24
25	ALIGNMENT RACK PC	20/1	0.00	A	0.00	20/2	LIFT #6	26
27	ALIGNMENT RACK	30/2	0.00	B	0.00			28
29			0.00	C	0.00	20/2	LIFT #1	30
31	ROLL ON RACK	20/2	0.00	A	0.00			32
33			0.00	B	0.00	20/2	LIFT #2	34
35	SPACE		0.00	C	0.00			36
37	PANEL B	200/3	0.00	A	28.94	200/3	PANEL O	38
39			0.00	B	28.94			40
41			0.00	C	28.94			42
43	PANEL D	200/3	11.90	A	0.00	200/3	PANEL C	44
45			11.50	B	0.00			46
47			10.50	C	0.00			48
49	PANEL E	200/3	13.00	A	0.00		SPACE	50
51			13.40	B	0.00		SPACE	52
53			12.90	C	0.00		SPACE	54
			kVA	PH	AMPS			
			53.8	A	449			
			53.8	B	449			
			52.3	C	436			
		VOLTAGE/PHASE			208Y/120V, 3P, 4W			
		BUS RATING			600A			
		MAIN CIRCUIT BREAKER RATING			600A			
		AIC RATING			EXISTING TO REMAIN			
		SERVICE ENTRANCE RATED			EXISTING TO REMAIN			
		ENCLOSURE			EXISTING TO REMAIN			
		MOUNTING			EXISTING TO REMAIN			

○ - DENOTES ADDITIONAL CIRCUIT/BREAKER

HATCHED AREAS INDICATE CIRCUITS/BREAKERS ARE EXISTING TO REMAIN

EXISTING PANEL O								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	HP-1	35/3	2.52	A	4.57	45/2	AHU-1	2
3			2.52	B	4.57			4
5			2.52	C	1.97	25/2	MS-1	6
7	SHOW WINDOW RECPTS	20/1	0.72	A	1.97			8
9	SHOW WINDOW RECPTS	20/1	0.72	B	1.63	20/1	FIRST FLOOR LIGHTS	10
11	WH-1	20/1	1.88	C	1.12	20/1	SECOND FLOOR LIGHTS	12
13	WATER COOLER	20/1	0.50	A	0.29	20/1	EXTERIOR LIGHTING	14
15	ARA CALL STATION	20/1	0.15	B	0.90	20/1	SALES RECPT	16
17	OFFICE RECPT	20/1	0.72	C	0.90	20/1	SALES RECPT	18
19	OFFICE RECPT	20/1	0.72	A	0.50	20/1	ROLL UP DOOR	20
21	BREAK RECPT	20/1	0.72	B	0.72	20/1	SECOND FLOOR RECPT	22
23	REFRIGERATOR	20/1	0.50	C	0.72	20/1	SECOND FLOOR OFFICE	24
25	OUTDOOR RECPT	20/1	0.54	A	0.54	20/1	FLOOR RECPTS.	26
27	UPSTAIRS OFFICE RECEPT	20/1	0.72	B	0.90	20/1	SALES COUNTER RECEPTS	28
29	UPSTAIRS OFFICE RECEPT	20/1	0.72	C	1.26	20/1	CONFERENCE RECPT	30
31	IT STORAGE RECEPT	20/1	0.36	A	0.18	20/1	SALES COUNTER PRINTER RECEPT.	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			kVA	PH	AMPS			
			13.41	A	112			
			13.55	B	113			
			12.31	C	103			
		VOLTAGE/PHASE			208Y/120V, 3P, 4W			
		BUS RATING			200A			
		MAIN CIRCUIT BREAKER RATING			EXISTING TO REMAIN			
		AIC RATING			EXISTING TO REMAIN			
		SERVICE ENTRANCE RATED			EXISTING TO REMAIN			
		ENCLOSURE			EXISTING TO REMAIN			
		MOUNTING			EXISTING TO REMAIN			

○ - DENOTES ADDITIONAL CIRCUIT/BREAKER

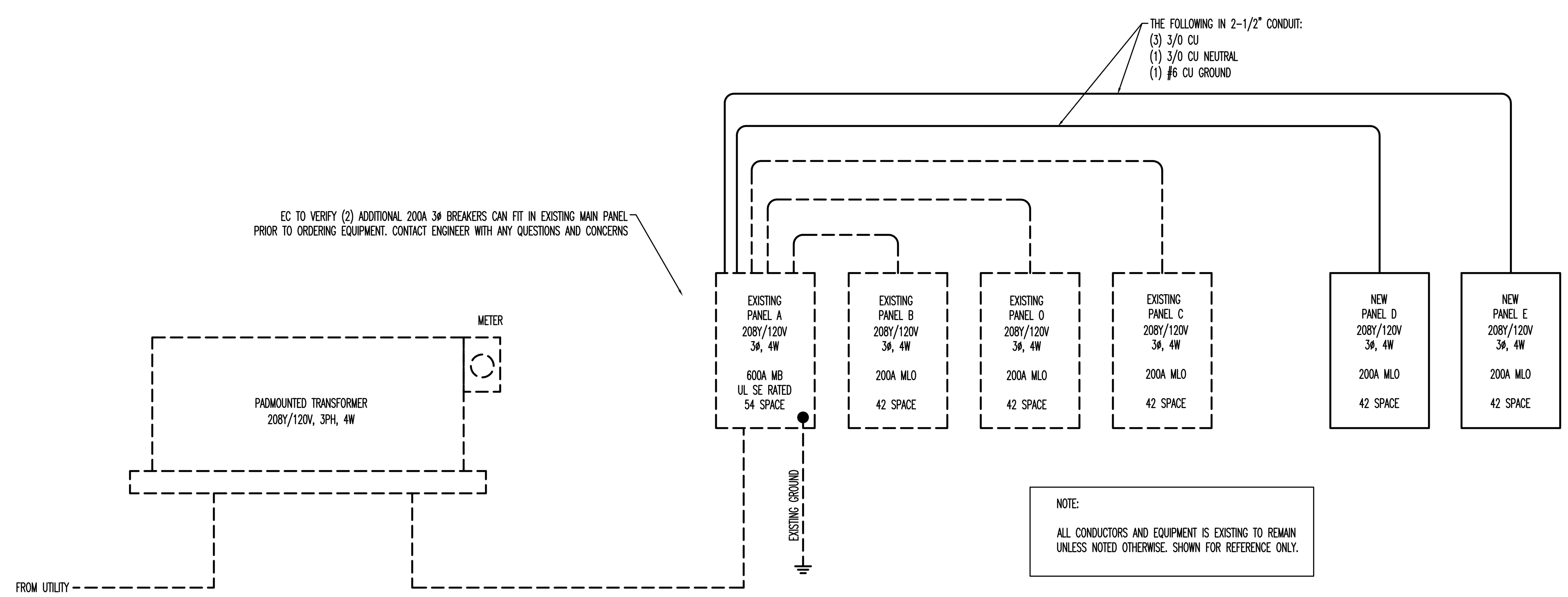
HATCHED AREAS INDICATE CIRCUITS/BREAKERS ARE EXISTING TO REMAIN

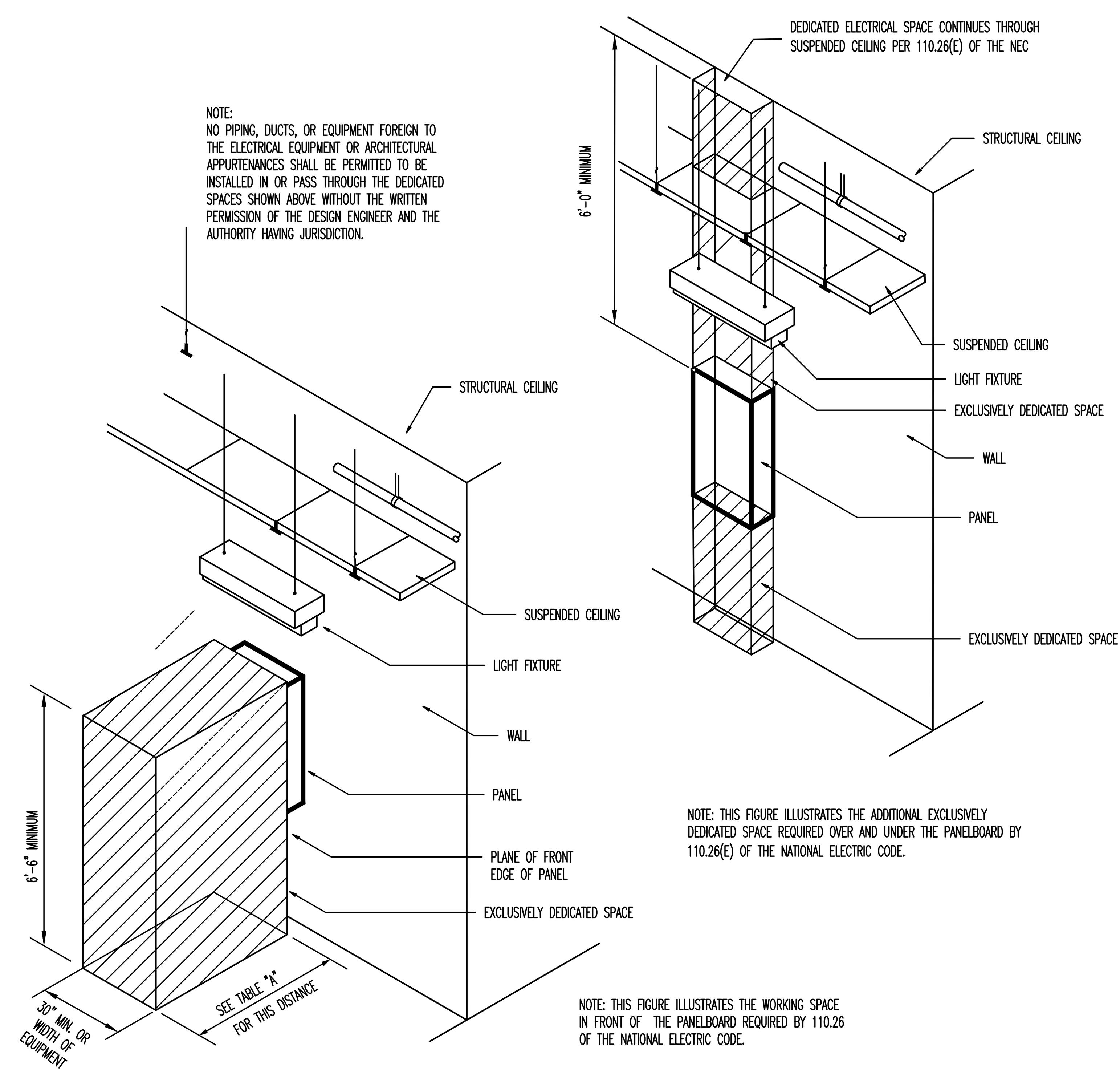
NEW PANEL D								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	NEW SHOP LIGHTING	20/1	0.93	A	2.50	30/2	LIFT	2
3	NEW SHOP LIGHTING	20/1	0.93	B	2.50			4
5	NEW SHOP LIGHTING	20/1	1.20	C	2.50	30/2	LIFT	6
7	LIFT	30/2	2.50	A	2.50			8
9			2.50	B	2.50	30/2	LIFT	10
11	SHOP RECEPTACLES	20/1	1.44	C	2.50			12
13	LIFT	40/2	3.12	A	0.36	20/1	SERVICE RECEPT	14
15			3.12	B	0.00			16
17	SHOP RECEPTACLES	20/1	1.44	C	1.44	20/1	SHOP RECEPTACLES	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			kVA	PH	AMPS			
			11.9	A	99			
			11.5	B	96			
			10.5	C	88			
		VOLTAGE/PHASE			208Y/120V, 3P, 4W			
		BUS RATING			200A			
		MAIN CIRCUIT BREAKER RATING			MLO			
		AIC RATING			10K - EC TO VERIFY			
		SERVICE ENTRANCE RATED			NO			
		ENCLOSURE			NEMA 1			
		MOUNTING			SURFACE			

NEW PANEL E								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	AC-1	50/2	3.03	A	1.32	15/1	GF-1	2
3			3.03	B	4.16	50/2	COMPRESSOR	4
5	AC-2	50/2	3.03	C	4.16			6
7			3.03	A	4.16	50/2	COMPRESSOR	8
9	HVLS FAN	30/2	2.08	B	4.16			10
11			2.08	C	1.32	15/1	GF-2	12
13	WATER HEATER	20/1	1.50	A	0.00		SPACE	14
15	SPACE		0.00	B	0.00		SPACE	16
17	EF-2	20/1	1.18	C	1.18	20/1	EF-3	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			kVA	PH	AMPS			
			13.0	A	109			
			13.4	B	112			
			12.9	C	108			
		VOLTAGE/PHASE			208Y/120V, 3P, 4W			
		BUS RATING			200A			
		MAIN CIRCUIT BREAKER RATING			MLO			
		AIC RATING			10K - EC TO VERIFY			
		SERVICE ENTRANCE RATED			NO			
		ENCLOSURE			NEMA 1			
		MOUNTING			SURFACE			

NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W							
EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
EXISTING LOADS	125%	28.94	28.94	28.94	86.82	220.87	PER 12 MO. UTILITY BILLS
LIGHTING	125%	1.95	1.95	1.95	5.85	220.12	3900 SF X 1.5 VA/SF
RECEPTACLES < 10 kVA	100%	2.04	2.04	2.04	6.12	220.44	
HVAC	100%	7.38	5.11	6.43	18.92	--	BASED ON MCA
WATER HEATER	125%	1.88	0.00	0.00	1.88	422.13	STORAGE TANK <120 GAL @ 125%
EQUIPMENT	SEE CODE	15.82	16.86	10.20	42.88	430.24	125% OF LARGEST MOTOR, 100% OF REMAINING
DEMAND kVA PER PHASE		58.01	54.90	49.56			
DEMAND AMPS PER PHASE		483	457	413			

THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.





NOTE: WHERE THE CONDITIONS ARE AS FOLLOWS:

CONDITION 1 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.

CONDITION 2 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK, OR TILE WALLS SHALL BE CONSIDERED AS GROUNDED.

CONDITION 3 - EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.

TABLE 110.26(A)(1) WORKING SPACE			
VOLTAGE TO GROUND, NOMINAL	MINIMUM CLEAR DISTANCE (FEET)		
	CONDITON 1	2	3
0-150	3	3	3
151-600	3	3-1/2	4

REQUIRED CLEARANCES-NO SCALE

PANEL SCHEDULES AND POWER RISER: NO SCALE | 1

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NORTH CAROLINA PROFESSIONAL SEAL 048012 ENGINEER JACOB L HAMILTON 7-11-22
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

DESIGN FOR:
CAROLINA DIESEL TRUCK ADDITION
62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

NO.	DATE	DESCRIPTION

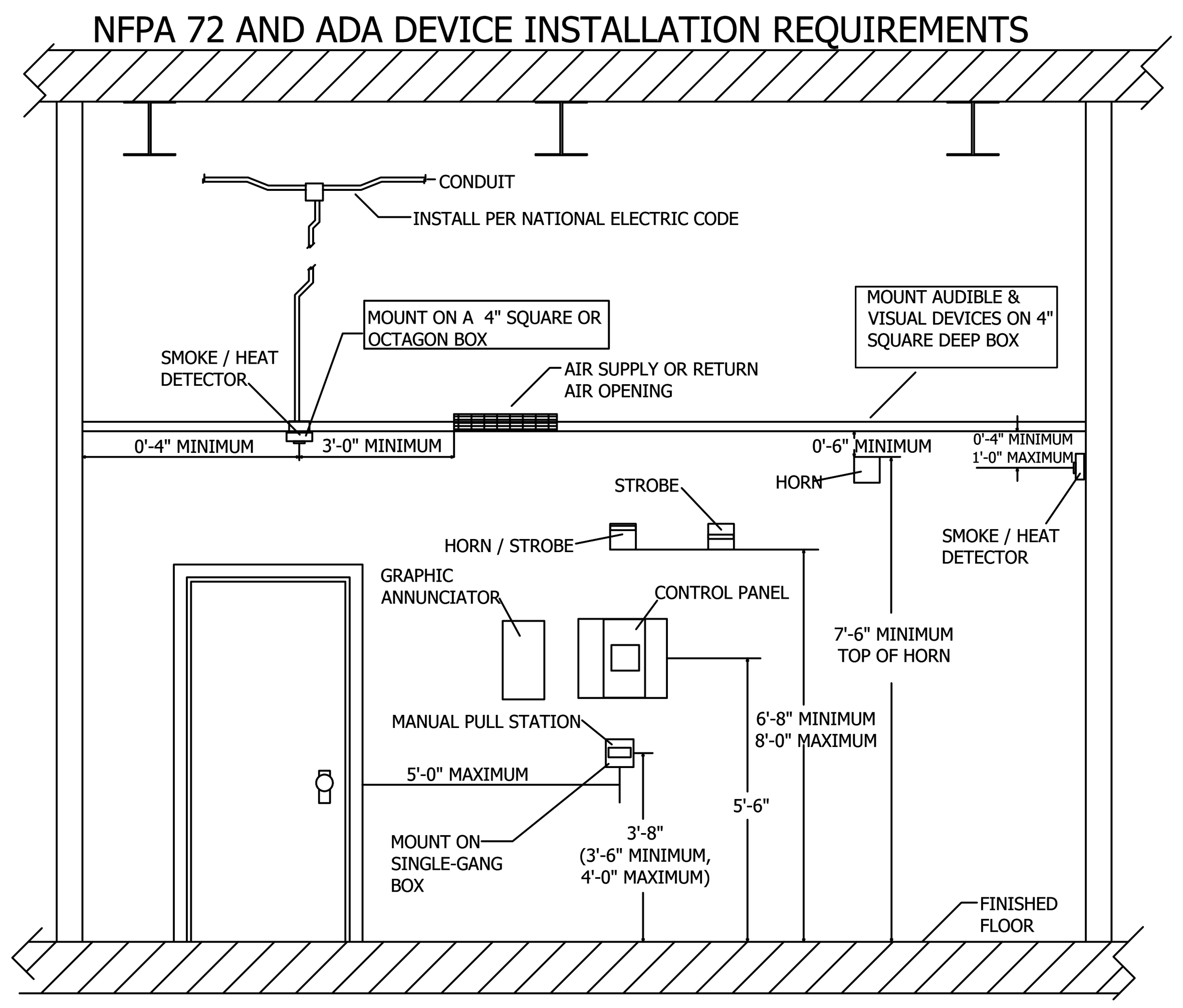
ISSUED:

NO.	DATE	DESCRIPTION
1	7-11-22	FOR PERMITTING

DRAWN BY: DBAS
CHECKED BY: MWK/JLH
PANEL SCHEDULES AND POWER RISER

SHEET NO.
E4

PROJECT NO: 22354



FIRE ALARM DETAILS - NOT TO SCALE | 1

WIRE REQUIREMENTS

NAC CIRCUITS – 16/2, SOLID, FPLP WIRE
DATA CIRCUITS – 18/2, SOLID, FPLP WIRE

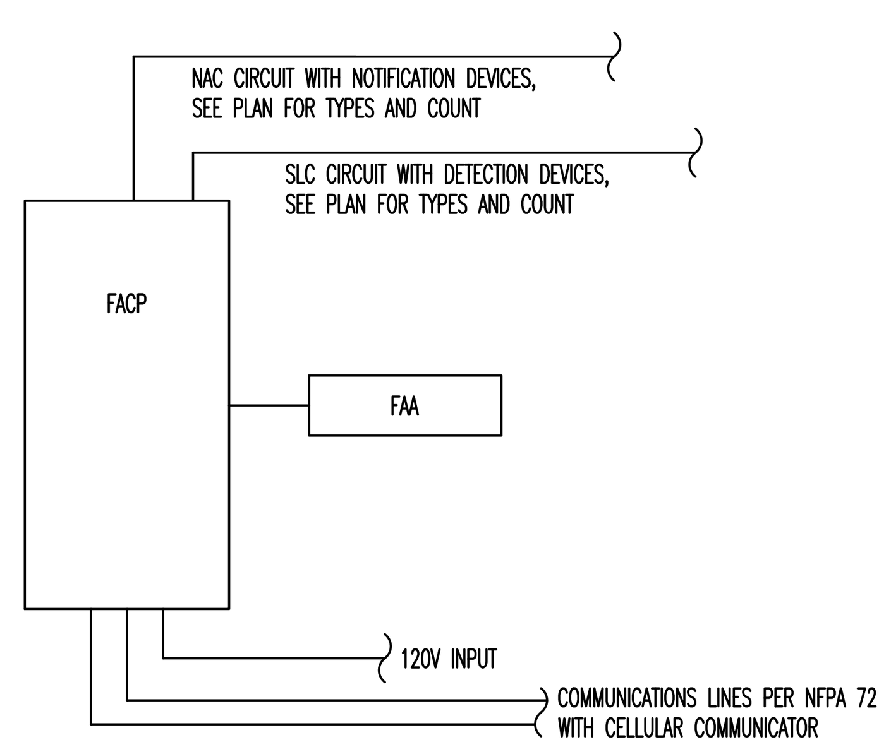
NFPA 170 SYMBOL GUIDE	
SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR
WF	WATER FLOW SWITCH
VS	VALVE SUPERVISORY SWITCH (TAMPER SWITCH)
	HEAT DETECTOR/SENSOR (RATE OF RISE)
F	PULL STATION / FIRE ALARM
	SMOKE DETECTOR/SENSOR (DEFAULT PHOTOELECTRIC TYPE)
SS	SMOKE ALARM (SINGLE STATION)(RESIDENCE)
	DUCT SMOKE DETECTOR (NFPA 72, SECTION 17.7.5.5)
	AUDIBLE ONLY APPLIANCE (WALL MOUNTED)(BEL LOUTSIDE SPRINK RM.)
CD	VISUAL ONLY APPLIANCE (WALL MOUNTED)
CD	AUDIBLE/VISUAL APPLIANCE (WALL MOUNTED)
CD	VISUAL ONLY APPLIANCE (CEILING MOUNTED)
	AUDIBLE ONLY APPLIANCE (CEILING MOUNTED)
CD	AUDIBLE/VISUAL APPLIANCE (CEILING MOUNTED)
	END OF LINE RESISTOR

FIRE ALARM SCHEDULES | 2

FIRE ALARM GENERAL NOTES

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS: PC – PLUMBING CONTRACTOR, EC – ELECTRICAL CONTRACTOR, MC – MECHANICAL CONTRACTOR, GC – GENERAL CONTRACTOR, FASC – FIRE ALARM SYSTEM CONTRACTOR.
2. "PROVIDE" MEANS TO FURNISH AND INSTALL.
3. THE FIRE ALARM SYSTEM CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, ETC, AS NECESSARY FOR A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM.
4. THESE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL MINOR DETAILS AND EXACT LOCATIONS. THE FASC SHALL ALLOW FOR ADJUSTMENTS TO ACCOMMODATE INTERFERENCES BOTH PLANNED AND ENCOUNTERED AND SHALL INCLUDE SUCH CONTINGENCIES IN THEIR BID.
5. THE SUCCESSFUL FIRE ALARM BIDDER SHALL PROVIDE CONSTRUCTION DOCUMENTS TO THE AUTHORITY HAVING JURISDICTION FOR APPROVAL INCLUDING ALARM CONTROLS AND TROUBLE SIGNALING EQUIPMENT, ANNUNCIATION, POWER CONNECTIONS, BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, CONDUCTOR TYPES AND SIZES, LOCATIONS OF INITIATING AND NOTIFICATION APPLIANCES, AND MANUFACTURERS, MODEL NUMBERS, AND LISTING INFORMATION FOR ALL EQUIPMENT, DEVICES AND MATERIALS.
6. ALL WORK SHALL BE IN ACCORDANCE WITH NFPA 72 AND APPLICABLE SECTIONS OF NFPA 70 AND 13.
7. CONDUIT, CONDUCTORS, BOXES, AND HANGERS SHALL BE THE SAME AS THOSE SPECIFIED IN THE ELECTRICAL SYSTEM.
8. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR UL LABEL OR EQUIVALENT WHERE APPLICABLE.
9. THE FIRE ALARM SYSTEM SHALL BE OF THE ADDRESSABLE TYPE WITH EACH INITIATING DEVICE REPORTING INDIVIDUALLY TO THE FIRE ALARM CONTROL PANEL. ONLY THE MANUFACTURER OR AN AUTHORIZED DISTRIBUTOR WHO STOCKS SPARE COMPONENTS FOR THE ENTIRE SYSTEM SHALL CONNECT, PROGRAM, OR TEST THE ADDRESSABLE FIRE ALARM SYSTEM. ALL TECHNICIANS PERFORMING SUCH WORK SHALL BE TRAINED AND INDIVIDUALLY CERTIFIED BY THE MANUFACTURER FOR THE MODEL OF SYSTEM BEING INSTALLED. COPIES OF THEIR CERTIFICATION SHALL BE AVAILABLE UPON REQUEST. THE MANUFACTURER OR AUTHORIZED DISTRIBUTOR SHALL STORE THE COMPLETE PROGRAMMING FOR THE ADDRESSABLE SYSTEM ON A COMPUTER DISK OR DISKETTE OR OTHER MEDIA AND ARCHIVE APPROPRIATELY. A COPY OF THE PROGRAM SHALL BE MADE AVAILABLE TO THE OWNER WHEN THE SYSTEM IS COMMISSIONED. THE MANUFACTURER OR AUTHORIZED DISTRIBUTOR SHALL MAINTAIN SOFTWARE VERSION RECORDS ON THE SYSTEM INSTALLED AND PROVIDE FREE UPGRADES IF THE MANUFACTURER RELEASES A NEW VERSION OF THE SOFTWARE DURING THE WARRANTY PERIOD. PROVIDE A SYSTEM FUNCTION MATRIX THAT GIVES THE FIRE ALARM CONTROL PANEL RESPONSE FOR EACH INITIATING DEVICE.
10. THE SYSTEM SHALL BE NOMINAL 24VDC, NON-CODED, AND SUPERVISED (INCLUDING CONTROL CIRCUITS). ALL EQUIPMENT SUPPLIED MUST BE LISTED FOR ITS PARTICULAR USE AND INSTALLED IN ACCORDANCE WITH ANY INSTRUCTIONS APPLICABLE TO ITS LISTING.
11. THE SYSTEM SHALL BE ELECTRICALLY SUPERVISED FOR OPEN OR GROUND FAULT CONDITIONS IN DETECTION, ALARM, AND CONTROL CIRCUITS. THE REMOVAL OF ANY DETECTION DEVICE, ALARM APPLIANCE, PLUG-IN RELAY, SYSTEM MODULE, OR STANDBY BATTERY CONNECTION SHALL ALSO ACTIVATE A TROUBLE SIGNAL. THE FIRE ALARM SIGNAL SHALL OVERRIDE TROUBLE SIGNALS, BUT THE PRE-ALARM TROUBLE SIGNAL SHALL REAPPEAR WHEN THE PANEL IS RESET.
12. PROVIDE EACH SIGNALING LINE CIRCUIT WITH A MINIMUM OF 20 PERCENT SPARE ADDRESSES FOR FUTURE USE.
13. THE CONNECTIONS BETWEEN INDIVIDUAL ADDRESSABLE MODULES AND THEIR CONTACT TYPE INITIATING DEVICES MUST BE SUPERVISED.
14. THE FIRE ALARM CONTROL PANEL (FACP) POWER SUPPLY MUST HAVE A CONTINUOUS RATING ADEQUATE TO POWER ALL DEVICES AND FUNCTIONS IN FULL ALARM CONTINUOUSLY. BATTERIES MUST MEET THE APPROPRIATE NFPA CAPACITY REQUIREMENTS. THE FACP SHALL INCLUDE AN ALARM SILENCE SWITCH AND SHALL BE EQUIPPED WITH THE SUBSEQUENT ALARM RESOUND FEATURE. THE ALARM SILENCING AND RESET FEATURE SHALL NOT REVERSE AIR HANDLING UNITS SHUTDOWN. A SUPERVISED "HVAC SYSTEM SHUTDOWN" SWITCH MUST BE PROVIDED IN THE FACP WITH ITS "NORMAL" POSITION INDICATED.
15. ALL CONNECTIONS MADE AT THE FACP MUST BE BY THE MANUFACTURER'S AUTHORIZED FACTORY TRAINED PERSONNEL (NOT THE ELECTRICAL CONTRACTOR).
16. PERMANENT WIRE MARKERS SHALL BE USED TO IDENTIFY ALL CONNECTIONS AND TERMINATIONS FOR EACH CIRCUIT. ALL FIRE ALARM JUNCTION BOXES SHALL BE SPRAYED RED AND LABELED "FIRE ALARM." TERMINAL BLOCKS SHALL BE PROVIDED IN ALL JUNCTION BOXES WHERE CONNECTIONS ARE MADE. IDENTIFICATION AT SPLICES SHALL INDICATE WHICH CONDUCTOR LEADS TO THE FACP.
17. THE FOLLOWING COLOR SCHEME SHALL BE USED FOR SYSTEM CONDUCTORS:
    - 17.1. INITIATING CIRCUITS (OTHER THAN SMOKE) — RED & WHITE
    - 17.2. INITIATING CIRCUITS (SMOKE DETECTION) — VIOLET & GRAY
    - 17.3. NOTIFICATION APPLIANCE CIRCUITS — BLUE & BLACK
    - 17.4. AIR HANDLING SHUT DOWN CIRCUITS — YELLOW
    - 17.5. DOOR CONTROL CIRCUITS — ORANGE
    - 17.6. ELEVATOR CIRCUITS — BROWN
18. LOW VOLTAGE WIRING SHALL NOT BE INSTALLED IN ANY RACEWAY CONTAINING POWER OR LINE VOLTAGE CONTROL WIRING. WITHIN THE FACP, ANY AC CONTROL WIRING SHALL BE PROPERLY SEPARATED FROM OTHER CIRCUITS AND THE ENCLOSURE SHALL BE LABELED TO ALERT SERVICE PERSONNEL TO THE HAZARD.
19. DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS AND AS DETAILED. WHENEVER POSSIBLE, DEVICES SHOULD BE CENTERED ON SPACES OR LOCATED ABOVE OTHER OUTLETS. SMOKE DETECTORS SHALL NOT BE LOCATED WITHIN THREE (3) FEET OF AN HVAC SUPPLY OR RETURN. INSTALL WALL MOUNTED SMOKE DETECTORS A MAXIMUM OF TWELVE (12) INCHES FROM CEILING.
20. PROVIDE A PERMANENT MARKER ON EACH DEVICE INSTALLED INDICATING THE DEVICE NUMBER AND ADDRESSABLE LOOP NUMBER. PROVIDE THE SAME INFORMATION INSIDE THE BOX FOR EACH DEVICE.
21. ALL HVAC EQUIPMENT SHALL SHUTDOWN UPON ACTIVATION OF ANY FIRE ALARM DEVICE.
22. WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, AND PRESSURE SWITCHES SHALL BE PROVIDED AND INSTALLED BY THE SPRINKLER CONTRACTOR, CONNECTED BY THE ELECTRICAL CONTRACTOR, AND SUPERVISED BY THE FACP.
23. TESTING SHALL INCLUDE ALL TESTS REQUIRED FOR THE ELECTRICAL SYSTEMS IN ADDITION TO TESTING AND CERTIFICATION BY THE FIRE ALARM SYSTEM SUPPLIER. PROVIDE INSTRUCTION MANUALS TO OWNER PERSONNEL.
24. FASC SHALL VERIFY THAT ALL VISIBLE NOTIFICATION DEVICES ARE SYNCHRONIZED PER NFPA 72.
25. VERIFY DECIBEL LEVELS ARE MINIMUM 60 DBA AND MAXIMUM 120 DBA THROUGHOUT THE ZONE; ADJUST DEVICES AS NECESSARY. MAINTAIN MINIMUM 100 DBA IN EQUIPMENT AND MECHANICAL ROOMS.
26. DEVICES MUST MEET SURVIVABILITY REQUIREMENTS OF THE NFPA AS APPLICABLE.
27. THE AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DECIBELS (dBA) ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 dBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIABLE SPACE WITHIN THE BUILDING.
28. IN ACCORDANCE WITH SECTION F510 OF THE NC FIRE PREVENTION CODE, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER RADIO SIGNAL STRENGTH INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A CERTIFIED 3RD PARTY. TESTING SHALL TAKE PLACE AT BOTH 80% PROJECT COMPLETION AND AGAIN AT 100% COMPLETION. IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.

FIRE ALARM NOTES | 3



NOTE: GENERIC RISER SHOWN. SEE PLAN FOR DEVICE COUNTS AND LOCATIONS. ACTUAL DEVICE CIRCUITING AND BATTERY CALCULATIONS TO BE COMPLETED BY FA CONTRACTOR.

FIRE ALARM RISER - NOT TO SCALE | 4

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX

SYSTEM OUTPUTS — FACP ANNUNCIATION / NOTIFICATION / REQUIRED FIRE SAFETY CONTROL

- A – ACTUATE COMMON ALARM SIGNAL INDICATOR
- B – ACTUATE AUDIBLE ALARM SIGNAL
- C – ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR
- D – ACTUATE AUDIBLE SUPERVISORY SIGNAL
- E – ACTUATE COMMON TROUBLE SIGNAL INDICATOR
- F – ACTUATE AUDIBLE TROUBLE SIGNAL
- G – ACTUATE ZONE OR DEVICE ADDRESS ALARM INDICATOR
- H – ACTUATE GENERAL EVACUATION SIGNAL
- I – DISPLAY CHANGE OF STATUS
- J – TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION
- K – TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION
- L – TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION
- M – RELEASE MAGNETICALLY HELD DOORS
- N – RECALL ELEVATOR TO RECALL FLOOR
- O – RECALL ELEVATOR TO ALTERNATE RECALL FLOOR
- P – ACTUATE WARNING TO ELEVATOR CABS
- Q – DELAYED REMOVAL OF POWER FROM ELEVATOR
- R – CLOSE ALL SMOKE DAMPERS
- S – UNLOCK EXITS AND CONTROL DOORS
- T – SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT
- U – ACTUATE FLOOR PRESSURIZATION
- V – ACTUATE STAIRWELL PRESSURIZATION
- W – ACTUATE SMOKE EXHAUST
- X – -
- Y – -

	SYSTEM INPUTS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	
1	FIRE ALARM SYSTEM AC POWER FAILURE			●	●								●	●						●							1
2	FIRE ALARM SYSTEM LOW BATTERY					●	●						●														2
3	OPEN CIRCUIT					●	●						●														3
4	GROUND FAULT					●	●						●														4
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●						●														5
6	BUILDING MANUAL PULL STATIONS	●	●					●	●	●	●			●						●	●						6
7	CORRIDOR SMOKE DETECTORS	●	●					●	●	●	●			●	●				●	●	●	●	●	●			7
8	AREA SMOKE DETECTORS	●	●					●	●	●	●			●	●				●	●	●	●	●	●			8
9	HVAC AIR DUCT SMOKE DETECTORS			●	●			●				●									●						9
10	AREA HEAT DETECTORS	●	●					●	●	●	●			●	●				●	●	●	●	●	●			10
11	HOOD OR ROOM FIRE SUPPRESSION SYSTEM ALARM	●	●					●	●	●	●			●	●				●	●	●						11
12	SPRINKLER TAMPER SWITCH			●	●			●				●															12
13	SPRINKLER WATER FLOW IN BUILDING	●	●					●	●	●	●			●	●				●	●	●						13
14	SPRINKLER WATER FLOW IN ELEV EQUIP RM OR SHAFT	●	●					●	●	●	●			●	●		●	●	●	●	●						14
15	ELEV EQUIP RM AREA SMOKE DETECTOR	●	●					●	●	●	●			●	●		●		●	●	●						15
16	ELEV SHAFT AND ELEV EQUIP RM HEAT DETECTORS	●	●					●	●	●	●			●	●		●	●	●	●	●						16
17	ELEV LOBBY SMOKE DETECTORS - UPPER FLOORS	●	●					●	●	●	●			●	●				●	●	●	●	●	●			17
18	ELEV LOBBY SMOKE DETECTOR - RECALL FLOOR	●	●					●	●	●	●			●		●	●		●	●	●	●	●	●			18
19	ELEV CONTROLLER POWER SHUNT TRIP STATUS			●	●			●				●															19
20	FIRE PUMP POWER FAILURE/PHASE REVERSAL			●	●			●				●															20
21	FIRE PUMP RUNNING	●	●					●	●	●	●			●	●				●	●	●						21
22	FIRE PUMP SYSTEM NOT IN AUTOMATIC			●	●			●				●															22
23	LEGALLY REQUIRED GENERATOR SYSTEM LOW FUEL			●	●			●				●															23
24	LEGALLY REQUIRED GENERATOR NOT IN AUTOMATIC			●	●			●				●															24
25	AREA OF REFUGE TWO-WAY COMMUNICATIONS STATUS			●	●			●				●															25
26	-																										26
27	-																										27
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	

FIRE ALARM MATRIX | 5

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NORTH CAROLINA PROFESSIONAL SEAL ENGINEER JACOB L HAMILTON 7-11-22
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

DESIGN FOR:
CAROLINA DIESEL TRUCK ADDITION
62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

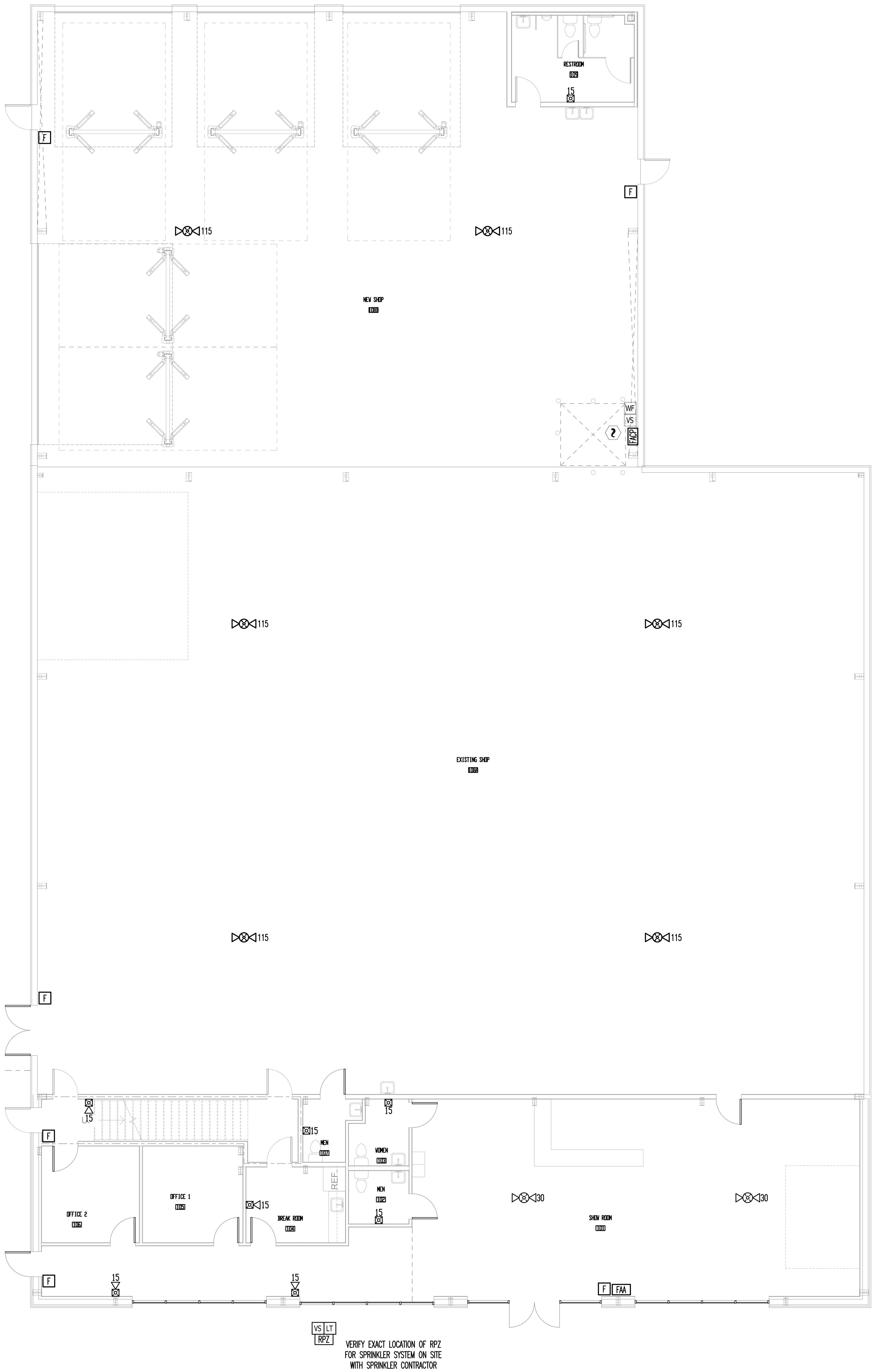
ISSUED:
7-11-22 FOR PERMITTING

DRAWN BY: DBAS
CHECKED BY: MWK/JLH

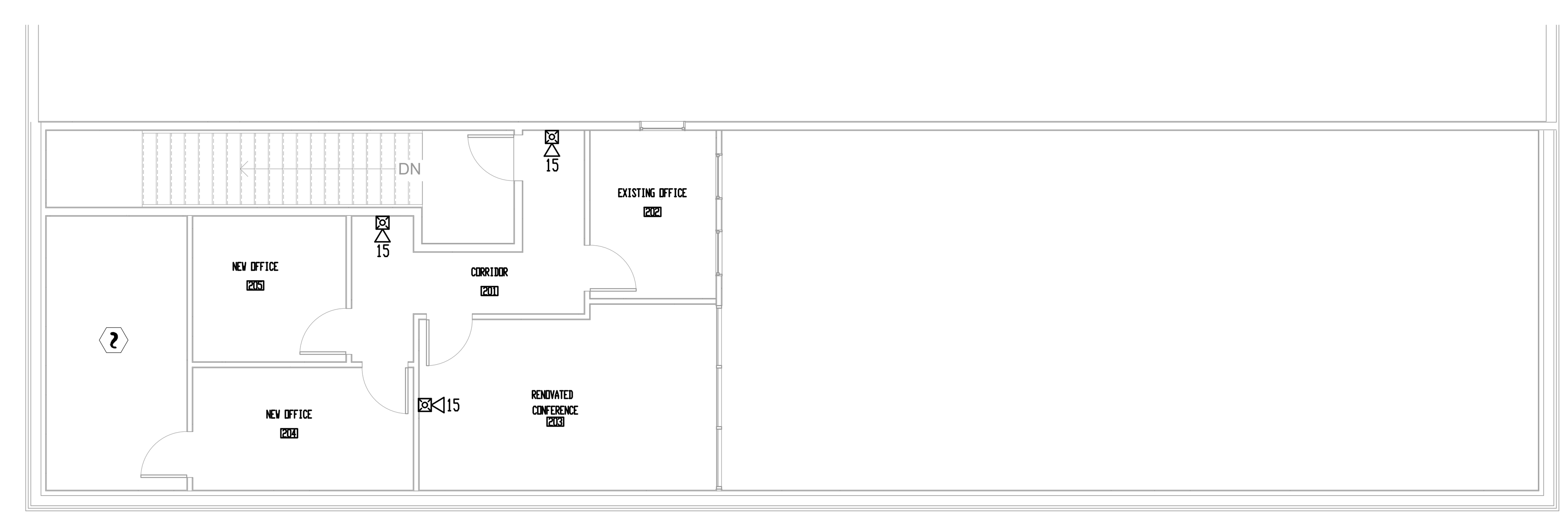
FIRE ALARM NOTES AND MATRIX

SHEET NO.
FA1

PROJECT NO: 22354



FIRST FLOOR FIRE ALARM PLAN: SCALE - 1/8" = 1'0" | 1



SECOND FLOOR FIRE ALARM PLAN: SCALE - 1/8" = 1'0" | 2

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NORTH CAROLINA PROFESSIONAL SEAL 048612 ENGINEER JACOB L HAMILTON 7-11-22
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

DESIGN FOR:
CAROLINA DIESEL TRUCK ADDITION
62 PROGRESS DRIVE
FUQUAY VARINA, NC

REVISION:

ISSUED:

NO.	DATE	DESCRIPTION
1	7-11-22	FOR PERMITTING

DRAWN BY: DBAS
CHECKED BY: MWK/JLH

FIRE ALARM PLAN

SHEET NO.
FA2

PROJECT NO: 22354

GENERAL NOTES:

1. MATERIALS

	ASTM DESCRIPTION
STRUCTURAL STEEL PLATE	A529 / A572 / A1011
HOT ROLLED MILL SHAPES	A36 / A529 / A500
HHS ROUND	A500
HHS RECTANGULAR	A500
COLD FORM SHAPES	A653 / A1011
ROOF AND WALL SHEETING	A653 / A792
BOLTS	A307 / A325 / A490
CABLE	A475
RODS	A529 / A572

2. STRUCTURAL PRIMER NOTE:

SHOP COAT PRIMER IS INTENDED TO PROTECT THE STEEL FRAMING FOR A SHORT PERIOD OF TIME. STORAGE IN EXTREME COLD TEMPERATURES OR WINTER SNOW CONDITIONS, INCLUDING TRANSPORTATION ON SALTED OR CHEMICALLY TREATED ROADS WILL ADVERSELY AFFECT THE DURABILITY AND LONGEVITY OF THE PRIMER. THE COAT OF SHOP PRIMER DOES NOT PROVIDE THE UNIFORMITY OF APPEARANCE, OR THE DURABILITY AND CORROSION RESISTANCE OF A FIELD APPLIED FINISH COAT OF PAINT OVER A SHOP PRIMER. MINOR ABRASIONS TO THE SHOP COAT PRIMER CAUSED BY HANDLING, LOADING, SHIPPING, UNLOADING AND ERECTION ARE UNAVOIDABLE AND ARE NOT THE RESPONSIBILITY OF THE METAL BUILDING MANUFACTURER. METAL BUILDING MANUFACTURER IS NOT RESPONSIBLE FOR THE DETERIORATION OF THE PRIMER OR CORROSION THAT MAY RESULT FROM ATMOSPHERIC AND ENVIRONMENTAL CONDITIONS NOR THE COMPATIBILITY OF THE PRIMER TO ANY FIELD APPLIED COATING.

3. BUILDING ERECTION NOTES:

THE GENERAL CONTRACTOR AND/OR ERECTOR IS RESPONSIBLE TO SAFELY AND PROPERLY ERECT THE METAL BUILDING SYSTEM IN CONFORMANCE WITH THESE DRAWINGS, OSHA REQUIREMENTS, AND EITHER MBMA OR CSA S16 STANDARDS PERTAINING TO PROPER ERECTION. TEMPORARY SUPPORTS SUCH AS GUYS, BRACES, FALSEWORK, CRIBBING OR OTHER ELEMENTS FOR ERECTION ARE TO BE DETERMINED, FURNISHED AND INSTALLED BY THE ERECTOR. THESE SUPPORTS MUST SECURE THE STEEL FRAMING, OR PARTLY ASSEMBLED STEEL FRAMING, AGAINST LOADS COMPARABLE IN INTENSITY TO THOSE FOR WHICH THE STRUCTURE WAS DESIGNED IN ADDITION TO LOADS RESULTING FROM THE ERECTION OPERATION. SECONDARY WALL AND ROOF FRAMING (PURLINS, GIRTS AND/OR JOIST) ARE NOT DESIGNED TO FUNCTION AS A WORKING PLATFORM OR TO PROVIDE AS AN ANCHORAGE POINT FOR A FALL ARREST /SAFETY TIE OFF.

4. SPECIAL INSPECTION:

SPECIAL INSPECTIONS AND TESTING THAT MAY BE REQUIRED BY GOVERNMENTAL OR OTHER AUTHORITY DURING CONSTRUCTION AND/OR STEEL FABRICATION (COLLECTIVELY, "INSPECTIONS") ARE NOT THE RESPONSIBILITY OF THE PEMB MANUFACTURER, AND TO THE EXTENT REQUIRED IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTITIVE. IN THE EVENT INSPECTIONS ARE REQUIRED, THE OWNER AND/OR THE OWNER'S REPRESENTITIVE SHALL EMPLOY A THIRD PARTY QUALITY ASSURANCE TESTING AGENCY APPROVED BY THE RELEVANT AUTHORITY. IF SUCH REQUIREMENTS ARE NOT SPECIFICALLY INCLUDED IN THE PEMB MANUFACTURER'S SALES DOCUMENTS, NO INSPECTIONS BY THE PEMB MANUFACTURER OR AT THE PEMB MANUFACTURER'S FACILITY SHALL BE MADE. THE PEMB MANUFACTURER'S FACILITIES ARE ACCREDITED BY IAS AC472.

5. A325 & A490 BOLT TIGHTENING REQUIREMENTS:

IT IS THE RESPONSIBILITY OF THE ERECTOR TO ENSURE PROPER BOLT TIGHTNESS IN ACCORDANCE WITH APPLICABLE REGULATIONS. FOR PROJECTS IN THE UNITED STATES, SEE THE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS OR FOR PROJECTS IN CANADA, SEE THE CAN/CSA S16 LIMIT STATES DESIGN OF STEEL STRUCTURES FOR MORE INFORMATION.

THE FOLLOWING CRITERIA MAY BE USED TO DETERMINE THE BOLT TIGHTNESS (I.E., "SNUG-TIGHT" OR "FULLY-PRETENSIONED"), UNLESS REQUIRED OTHERWISE BY LOCAL JURISDICTION OR CONTRACT REQUIREMENTS:

A) ALL A490 BOLTS SHALL BE "FULLY-PRETENSIONED".
B) ALL A325 BOLTS IN PRIMARY FRAMING (RIGID FRAMES AND BRACING) MAY BE "SNUG-TIGHT", EXCEPT AS FOLLOWS: "FULLY-PRETENSION" A325 BOLTS IF:
   a) BUILDING SUPPORTS A CRANE SYSTEM WITH A CAPACITY GREATER THAN 5 TONS.
   b) BUILDING SUPPORTS MACHINERY THAT CREATES VIBRATION, IMPACT, OR STRESS-REVERSALS ON THE CONNECTIONS. THE ENGINEER-OF-RECORD FOR THE PROJECT SHOULD BE CONSULTED TO EVALUATE FOR THIS CONDITION.
   c) THE PROJECT SITE IS LOCATED IN A HIGH SEISMIC AREA. FOR IBC-BASED CODES, "HIGH SEISMIC AREA" IS DEFINED AS "SEISMIC DESIGN CATEGORY" OF 'D', 'E', OR 'F'. SEE THE "BUILDING LOADS" SECTION ON THIS PAGE FOR THE DEFINED SEISMIC DESIGN CATEGORY FOR THIS PROJECT.
   d) ANY CONNECTION DESIGNATED IN THESE DRAWINGS AS "A325-SC". "SLIP-CRITICAL (SC)" CONNECTIONS MUST BE FREE OF PAINT, OIL, OR OTHER MATERIALS THAT REDUCE FRICTION AT CONTACT SURFACES. GALVANIZED OR LIGHTLY-RUSTED SURFACES ARE ACCEPTABLE.
C) IN CANADA, ALL A325 AND A490 BOLTS SHALL BE "FULLY-PRETENSIONED", EXCEPT FOR SECONDARY MEMBERS (PURLINS, GIRTS, OPENING FRAMING, ETC.) AND FLANGE BRACES.

SECONDARY MEMBERS (PURLINS, GIRTS, OPENING FRAMING, ETC.) AND FLANGE BRACE CONNECTIONS MAY ALWAYS BE "SNUG-TIGHT", UNLESS INDICATED OTHERWISE IN THESE DRAWINGS.

6. GENERAL DESIGN NOTES:

1) ALL STRUCTURAL STEEL SECTIONS AND WELDED PLATE MEMBERS ARE DESIGNED IN ACCORDANCE WITH ANSI/AISC 360 "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" OR THE CAN/CSA S16 "LIMIT STATES DESIGN OF STEEL STRUCTURES", AS REQUIRED BY THE SPECIFIED BUILDING CODE.
2) ALL WELDING OF STRUCTURAL STEEL IS BASED ON EITHER AWS D1.1 "STRUCTURAL WELDING CODE – STEEL" OR CAN/CSA W59 "WELDED STEEL CONSTRUCTION (METAL ARC WELDING)", AS REQUIRED BY THE SPECIFIED BUILDING CODE.
3) ALL COLD FORMED MEMBERS ARE DESIGNED IN ACCORDANCE WITH ANSI/AISI S100 OR CAN/CSA S136 "SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS", AS REQUIRED BY THE SPECIFIED BUILDING CODE.
4) ALL WELDING OF COLD FORMED STEEL IS BASED ON AWS D1.3 "STRUCTURAL WELDING CODE – SHEET STEEL" OR CAN/CSA W59 "WELDED STEEL CONSTRUCTION (METAL ARC WELDING)", AS REQUIRED BY THE SPECIFIED BUILDING CODE.
5) ALL NUCOR BUILDING GROUP FACILITIES ARE IAS AC-472 ACCREDITED FOR DESIGN AND FABRICATION OF METAL BUILDING SYSTEMS. FOR PROJECTS IN CANADA, DESIGN AND FABRICATION ARE DONE ONLY IN FACILITIES THAT ARE ALSO CAN/CSA A660 AND W47.1 CERTIFIED.
6) IF JOISTS ARE INCLUDED WITH THIS PROJECT, THEY ARE SUPPLIED AS A PART OF THE SYSTEMS ENGINEERED METAL BUILDING AND ARE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1926.758 OF THE OSHA SAFETY STANDARDS FOR STEEL ERECTION, DATED JANUARY 18, 2001.
7) COLUMN BASE PLATES ARE DESIGNED NOT TO EXCEED THE ALLOWABLE BEARING STRESS OF CONCRETE THAT HAS A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS.

BUILDING INFORMATION

PRIMER COLORS

PRIMARY PRIMER COLOR: RED SECONDARY PRIMER COLOR: RED

ROOF SHEETING

TYPE: S3P GAUGE: 24 FINISH: GALVALUME CLIP TYPE: TALL
THERMAL BLOCKS: YES EPS FOAM SPACER: NO ROOF LINE TRIM, PAINTED: POLAR WHITE/GALVALUME

YES☒ NO☐ DOWNSPOUTS PAINTED: POLAR WHITE GUTTERS PAINTED: POLAR WHITE
YES☒ NO☐ INSULATION 4 INCH (NOT BY MBS)
YES☐ NO☒ PIPE JACKS, SIZE: QUANTITY:
YES☐ NO☒ RIDGE VENTS, 10'-0" LONG X 9" THROAT. QUANTITY:
YES☐ NO☒ ROOF FRAMED OPENINGS, SEE ROOF FRAMING PLAN FOR SIZES
YES☐ NO☒ COMPOSITE N/A DECK, TYPE: GAUGE: FINISH:

WALL SHEETING

TYPE: A3P GAUGE: 26 FINISH: FOX GRAY
CORNER TRIM, PAINTED: FOX GRAY BASE TRIM, PAINTED: BURNISHED SLATE

YES☒ NO☐ WALKDOORS, QUANTITY: 2 (3070) PAINTED: WHITE
YES☐ NO☒ WINDOWS, QUANTITY: PAINTED:
YES☒ NO☐ INSULATION 4.38 INCH (NOT BY MBS)

WALL FRAMED OPENINGS

YES☒ NO☐ FRAMED OPENING TRIM, PAINTED: POLAR WHITE (SEE DRAWING ELEVATIONS)

BUILDING OPTIONS

YES☐ NO☒ LINER PANELS
YES☒ NO☐ TRANSLUCENT PANELS
WALL:
ROOF: 2
INSULATED PANELS? YES☒ NO☐
YES☐ NO☒ EAVE EXTENSION
YES☐ NO☒ RAKE EXTENSION
YES☐ NO☒ CANOPY
YES☐ NO☒ PARTITION WALLS
YES☐ NO☒ WAINSCOT
YES☐ NO☒ FASCIA
YES☐ NO☒ PARAPET
YES☐ NO☒ CRANES (SEE CRANE PLAN FOR ADDITIONAL INFORMATION)
YES☐ NO☒ MEZZANINE (SEE MEZZANINE PLAN FOR ADDITIONAL INFORMATION)

BCL2 — FOR OCCUPANCY (RISK) CATEGORY I OR II, IBC PROVISIONS INDICATE THAT SINGLE-STORY BUILDINGS SHALL HAVE "NO DRIFT LIMIT" PROVIDED THAT INTERIOR WALLS, PARTITIONS, CEILINGS, AND EXTERIOR WALL SYSTEMS HAVE BEEN DESIGNED TO ACCOMMODATE THE SEISMIC STORY DRIFTS. INTERIOR WALLS, PARTITIONS, CEILINGS, OR EXTERIOR WALL SYSTEMS NOT PROVIDED BY THE METAL BUILDING MANUFACTURER SHALL BE DESIGNED AND DETAILED BY OTHERS TO ACCOMMODATE THE SEISMIC STORY DRIFTS. SEISMIC DRIFT VALUES MAY BE OBTAINED FROM THE METAL BUILDING MANUFACTURER.

BCL4 — THIS BUILDING SYSTEM DESIGN IS BASED ON UNIFORMLY APPLYING THE CONTRACT-SPECIFIED LIVE LOAD AND ROOF SNOW LOAD. IN ADDITION, THE DESIGN IS BASED ON APPLYING A CODE-DEFINED LIVE LOAD (INCLUDING APPLICABLE REDUCTIONS) AND A CODE-DEFINED SNOW LOAD (BASED ON CONTRACT-SPECIFIED GROUND SNOW) FOR ALL PARTIAL LOADING AND UNBALANCED SNOW LOAD CONDITIONS.

RA3 — IF SNOW GUARDS OR OTHER DEVICES INTENDED TO HOLD SNOW AND/OR ICE ACCUMULATION ON THE ROOF SYSTEM ARE TO BE USED ON THIS PROJECT, THEY MUST BE INSTALLED UNDER THE GUIDANCE OF THE PROJECT "ENGINEER OF RECORD" (EOR), NOT THE METAL BUILDING MANUFACTURER, SO AS NOT TO EXCEED THE DESIGN ROOF SNOW LOAD ON THIS PROJECT.

MO1 — ACCESSORIES (DOORS, WINDOWS, ETC.) NOT PROVIDED BY THE METAL BUILDING MANUFACTURER MUST BE DESIGNED AS "COMPONENTS AND CLADDING" IN ACCORDANCE WITH THE SPECIFIC WIND PROVISIONS OF THE REFERENCED BUILDING CODE DISPLAYED ON THE COVER PAGE OF THIS DRAWING PACKET.

MO2 — FRAMED OPENINGS HAVE BEEN DESIGNED TO SUPPORT WIND LOAD NORMAL TO THE WALL BASED ON THE STANDARD BUILDING CODE CRITERIA. FRAMED OPENINGS HAVE NOT BEEN DESIGNED FOR ANY ADDITIONAL MOMENT OR CATENARY FORCES FROM THE DOOR. ANY CHANGE TO THE INFORMATION SHOWN HERE WILL REQUIRE AN ENGINEERING INVESTIGATION AND POSSIBLE BUILDING REINFORCEMENT.

THE DRAWINGS AND THE METAL BUILDING THEY REPRESENT ARE THE PRODUCT OF THE METAL BUILDING MANUFACTURER. THE REGISTERED PROFESSIONAL ENGINEER'S SEAL PERTAINS ONLY TO THE REQUIREMENTS LISTED HEREIN FOR THE MATERIALS DESIGNED AND SUPPLIED BY THE METAL BUILDING MANUFACTURER. THE REGISTERED PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS EMPLOYED OR ENGAGED BY THE METAL BUILDING MANUFACTURER AND DOES NOT SERVE AS OR REPRESENT THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSTRUED AS SUCH.

7. GLOSSARY OF ABBREVIATIONS:

A.B. = ANCHOR BOLTS	MAX = MAXIMUM	REQ'D = REQUIRED
BS = BOTH SIDES	M.B. = MACHINE BOLTS	REV. = REVISION
B.U. = BUILT-UP	MBS = METAL BUILDING SUPPLIER	SIM = SIMILAR
DIA = DIAMETER	TBD = TO BE DETERMINED	SL = STEEL LINE
FLG = FLANGE	N/A = NOT APPLICABLE	N.S. = NEAR SIDE
F.S = FAR SIDE	NIC = NOT IN CONTRACT	MIN = MINIMUM
GA. = GAUGE	SLV = SHORT LEG VERTICAL	TYP = TYPICAL
H.S.B. = HIGH STRENGTH BOLTS	O.A.L. = OVERALL LENGTH	PL = PLATE
HT. = HEIGHT	O.C. = ON CENTER	
LLV = LONG LEG VERTICAL	U.N.O. = UNLESS NOTED OTHERWISE	

PEMB = PRE-ENGINEERED METAL BUILDING MANUFACTURER
?? = PART MARK TO BE DETERMINED AND WILL BE UPDATED ON CONSTRUCTION DRAWINGS

AMERICAN BUILDINGS

MBMA MEMBER

IAS ACCREDITED Metal Building Systems AC 472

BUILDING LOADS

DESIGN CODE: NORTH CAROLINA (NCBC 2018)

ROOF LIVE LOAD: 20.00 PSF MBMA OCC. CLASS: II
LIVE LOAD REDUCIBLE Yes
GROUND SNOW LOAD: 15.00 PSF SNOW EXP. FACTOR, Ce: 1.00
SNOW IMPORTANCE FACTOR, Is: 1.00

WIND: 115 / 89 MPH
(Vult) / (Vasd)

C & C PRESSURES (PSF): 22 / -29
EXPOSURE: B
UL 90 NO
L3P Roof-Const. No.161 ; L3P Roof w/ Translucent Panel-Const. No.167
S3P Roof-Const. No.552 ; S3P Roof w/ Translucent Panel-Const. No.590 ;
Composite CFR Roof-Const. No.552A ; N/A Roof-Const. No. .

SEISMIC INFORMATION Ss: 0.173 S1: 0.083
Design Sds/Sd1: 0.185 / 0.133 Site Class: D
Seismic Imp. Factor: 1.00 Seismic Design Category: B
Analysis Procedure: Equivalent Lateral Force Method
Basic SFRS: Not Detailed for Seismic

NOTES:
1) COLLATERAL DEAD LOADS, UNLESS OTHERWISE NOTED, ARE ASSUMED TO BE UNIFORMLY DISTRIBUTED. WHEN SUSPENDED SPRINKLER SYSTEMS, LIGHTING, HVAC EQUIPMENT, CEILINGS, ETC., ARE SUSPENDED FROM ROOF MEMBERS, CONSULT THE M.B.S. IF THESE CONCENTRATED LOADS EXCEED 500 POUNDS (USING THE WEB MOUNT DETAIL) OR 200 POUNDS (USING THE FLANGE MOUNT DETAIL), OR IF INDIVIDUAL MEMBERS ARE LOADED SIGNIFICANTLY MORE THAN OTHERS.

2) THE DESIGN OF STRUCTURAL MEMBERS SUPPORTING GRAVITY LOADS IS CONTROLLED BY THE MORE CRITICAL EFFECT OF ROOF LIVE LOAD OR ROOF SNOW LOAD, AS DETERMINED BY THE APPLICABLE CODE.

3) Pm IS BASED ON THE MINIMUM ROOF SNOW LOAD CALCULATED PER BUILDING CODE OR THE CONTRACT SPECIFIED SNOW LOAD, WHICHEVER IS GREATER. THIS VALUE, Pm, IS ONLY APPLIED IN COMBINATION WITH THE DEAD AND COLLATERAL LOADS. ROOF SNOW IN OTHER LOADING CONDITIONS IS DETERMINED PER THE SPECIFIED BUILDING CODE.

	BUILDING		
ROOF DEAD (PSF):	3.0	ROOF SNOW Pm (PSF):	15.00
PRI. COL. (PSF):	3.0	WIND ENCLOSURE:	Closed
SEC. COL. (PSF):	3.0	GCpi:	+/-0.18
SNOW Ct:	1.0	SEISMIC R:	3.00
SNOW Cs:	1.00	SEISMIC Cs:	0.062
ROOF SNOW Ps (PSF):	10.50	BASE SHEAR (KIPS):	2.2

DRAWING INDEX

COVERSHEET C1
ANCHOR BOLT DRAWINGS F1, F2
COLUMN BASE REACTIONS R1
STRUCTURAL/SHEETING DRAWINGS E1 – E8
DETAILS

ISSUE	DWN	CHK	ENG	PE	DATE
ANCHOR BOLTS	LC	AB	RHB		5/31/2022
PERMITS	LC	AB	RHB		5/31/2022

Engineering Performed By:
Nucor Corporation
200 Whetstone Rd.
Swansea, SC 29460
COA# F-1470

PROJECT NAME: CDT
62 PROGRESS DR, FUQUAY VARINA, NC 27526
CUSTOMER NAME: VINCENT BARBOUR AND COMPANY
FUQUAY VARINA, NC 27526-6864
JOB NUMBER: A22B0392A

NORTH CAROLINA PROFESSIONAL SEAL 24064 ENGINEER RAJESH H. BHAGNARI

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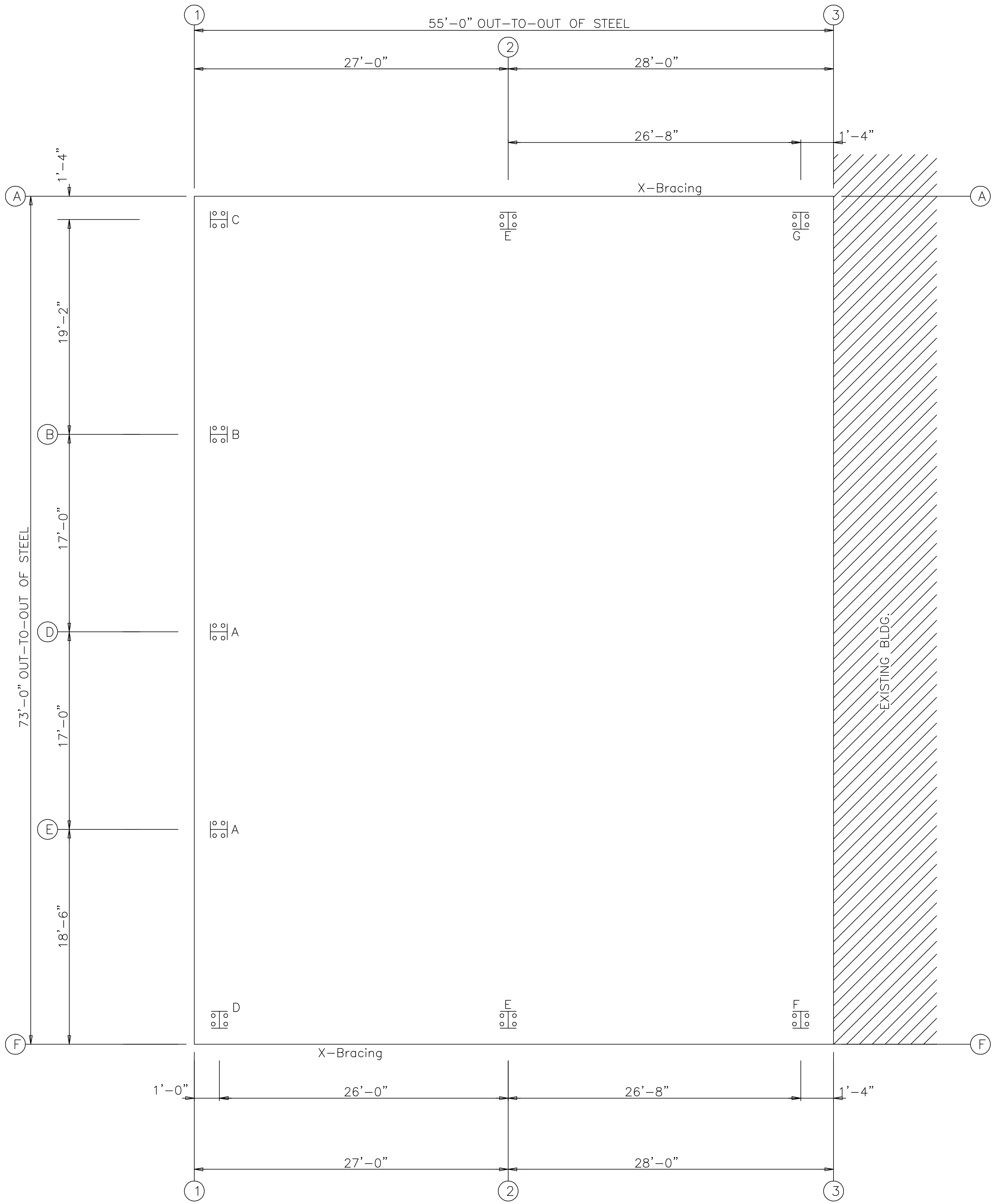
SHEET TITLE
SHEET
C1 OF 1



ANCHOR BOLT PLAN
NOTE: All Base Plates @ 100'-0" (U.N.)

Qty	Locate	Dia (in)	Type	Proj (in)
○ 20	Endwall	3/4"	F1554	3.00
○ 16	Frame	3/4"	F1554	3.00

Table title: ANCHOR BOLT SUMMARY

ANCHOR BOLT PLAN

GENERAL NOTES

1. THE SPECIFIED ANCHOR ROD DIAMETER ASSUMES F1554 GRADE 36 UNLESS NOTED OTHERWISE. ANCHOR ROD MATERIAL OF EQUAL DIAMETER MEETING OR EXCEEDING THE STRENGTH REQUIREMENTS SET FORTH ON THESE DRAWINGS MAY BE UTILIZED AT THE DISCRETION OF THE FOUNDATION DESIGN ENGINEER. ANCHOR ROD EMBEDMENT LENGTH SHALL BE DETERMINED BY THE FOUNDATION DESIGN ENGINEER.
2. METAL BUILDING MANUFACTURER IS NOT RESPONSIBLE FOR PROJECT FOUNDATION DESIGN. THE FOUNDATION DESIGN IS THE RESPONSIBILITY OF A REGISTERED PROFESSIONAL ENGINEER, FAMILIAR WITH LOCAL SITE CONDITIONS.
3. ANCHOR RODS, NUTS, FLAT WASHERS FOR ANCHOR RODS, EXPANSION BOLTS, AND CONCRETE/MASONRY EMBEDMENT PLATES ARE NOT BY METAL BUILDING MANUFACTURER.
4. THE ANCHOR ROD LOCATIONS PROVIDED BY METAL BUILDING MANUFACTURER SATISFY PERTINENT REQUIREMENTS FOR THE DESIGN OF THE MATERIALS SUPPLIED BY THE METAL BUILDING MANUFACTURER. IT IS THE RESPONSIBILITY OF THE FOUNDATION ENGINEER TO MAKE CERTAIN THAT SUFFICIENT EDGE DISTANCE IS PROVIDED FOR ALL ANCHOR RODS IN THE DETAILS OF THE FOUNDATION DESIGN.
5. DRAWINGS ARE NOT TO SCALE. SEE DETAILS FOR COLUMN ORIENTATION.
6. THE ANCHOR ROD PLAN INDICATES WHERE THE ANCHOR RODS ARE TO BE PLACED AS WELL AS THE FOOTPRINT OF THE METAL BUILDING. IT IS ESSENTIAL THAT THESE ANCHOR ROD PATTERNS BE FOLLOWED. IF THESE SETTINGS DIFFER FROM THE ARCHITECTURAL FOUNDATION PLANS, THE METAL BUILDING MANUFACTURER MUST BE CONTACTED IMMEDIATELY – BEFORE CONCRETE IS PLACED.
7. "SINGLE" CEE COLUMNS SHALL BE ORIENTED WITH THE "TOES" TOWARD THE LOW EAVE UNLESS NOTED OTHERWISE.
8. ALL DIMENSIONS ARE OUT TO OUT OF STEEL. IF CONCRETE NOTCH IS REQUIRED THEN THE REQUIRED DIMENSION SHOULD BE ADDED TO OBTAIN THE OUT TO OUT OF CONTRETE DIMENSIONS.
9. FINISHED FLOOR ELEVATION = 100'-0" BOTTOM OF BASE PLATE = 100'-0" UNLESS NOTED OTHERWISE.

ISSUE	DWN	CHK	ENG	PE	DATE
ANCHOR BOLTS	LC	AB	RHB		5/31/2022

Engineering Performed By:
Nucor Corporation
200 Whetstone Rd.
Swansea, SC 29460
COA# F-1470

PROJECT NAME
CDT
62 PROGRESS DR, FUQUAY VARINA, NC 27526

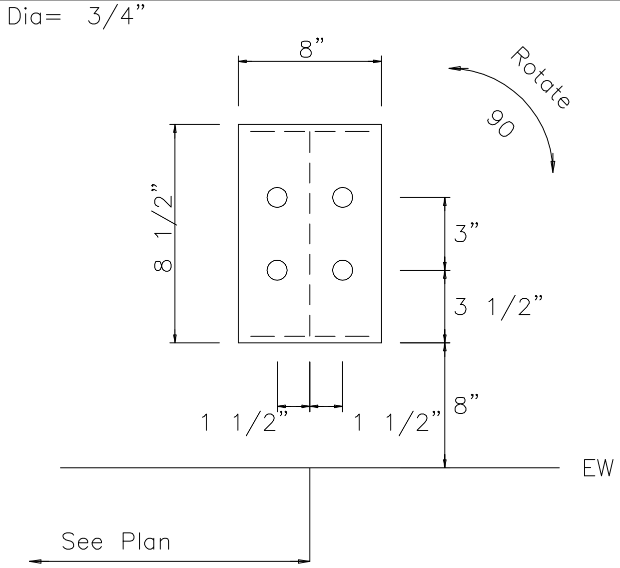
CUSTOMER NAME
VINCENT BARBOUR AND COMPANY
FUQUAY VARINA, NC 27526-6864

SHEET TITLE

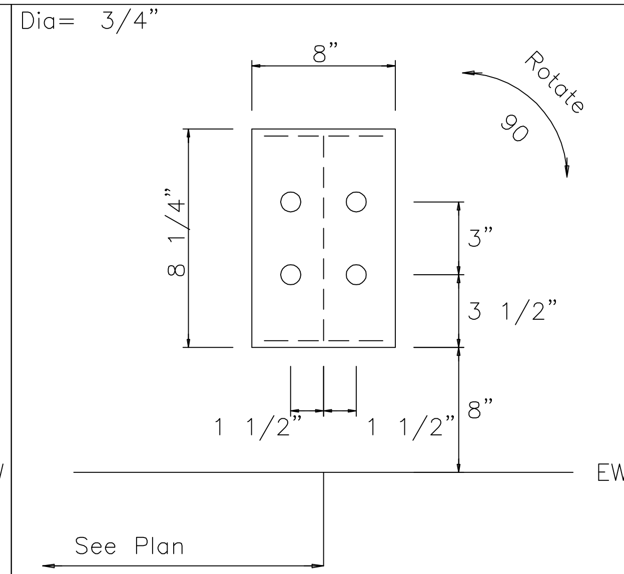
JOB NUMBER
A22B0392A

NORTH CAROLINA PROFESSIONAL SEAL 24064 ENGINEER RAJESH H. BHAGNARI

SHEET
F1 OF 2



DETAIL A



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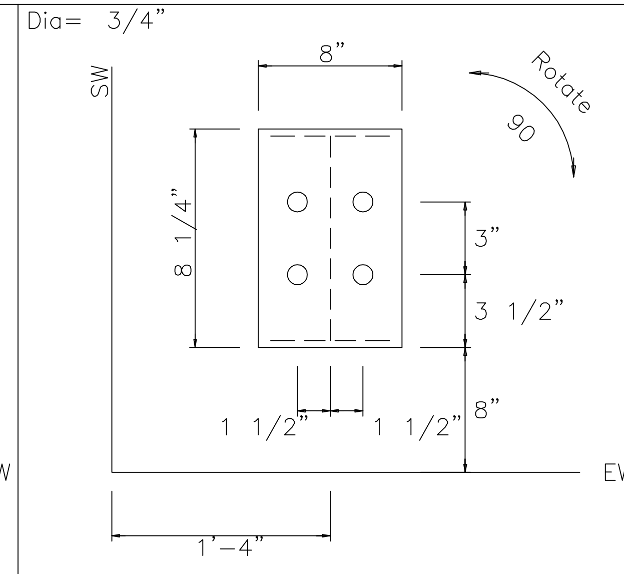

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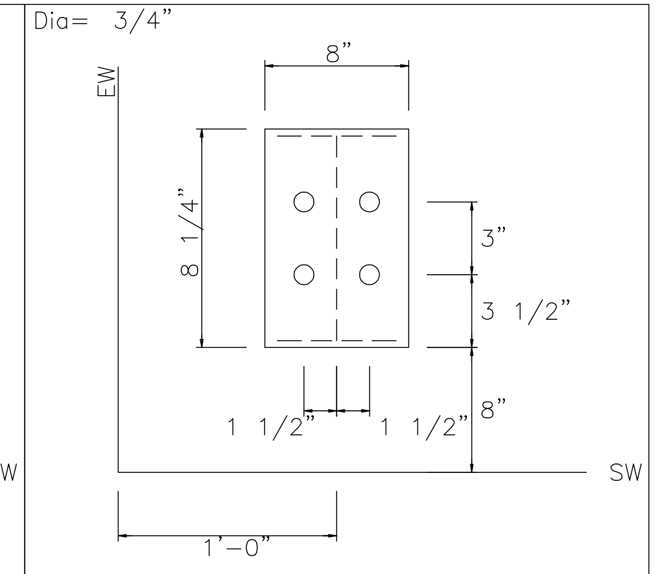

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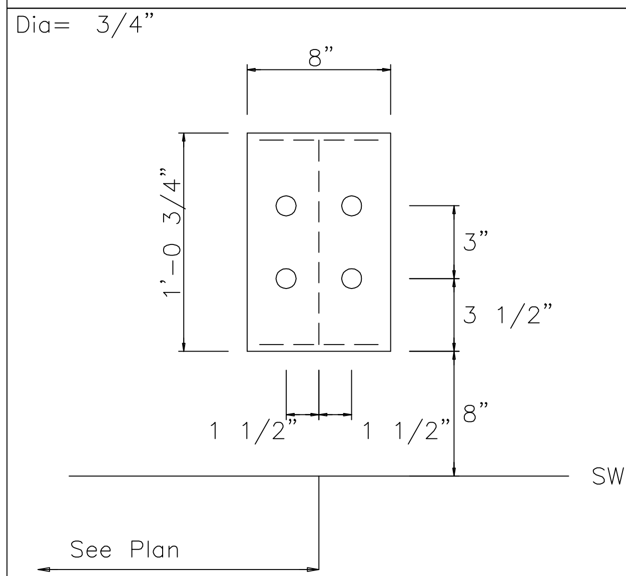

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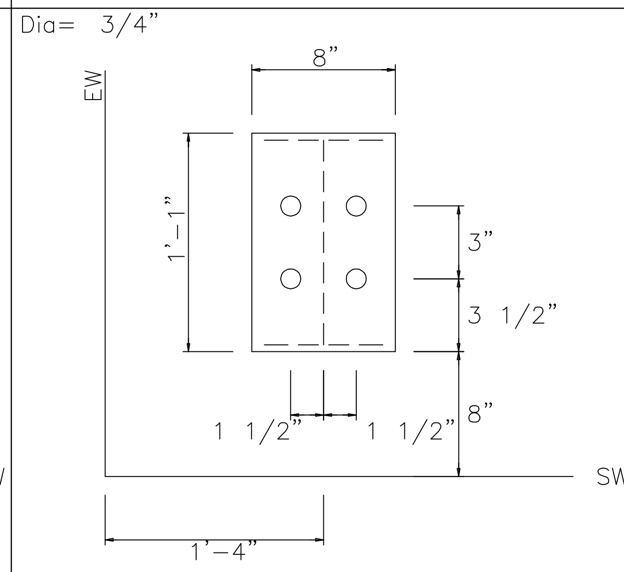

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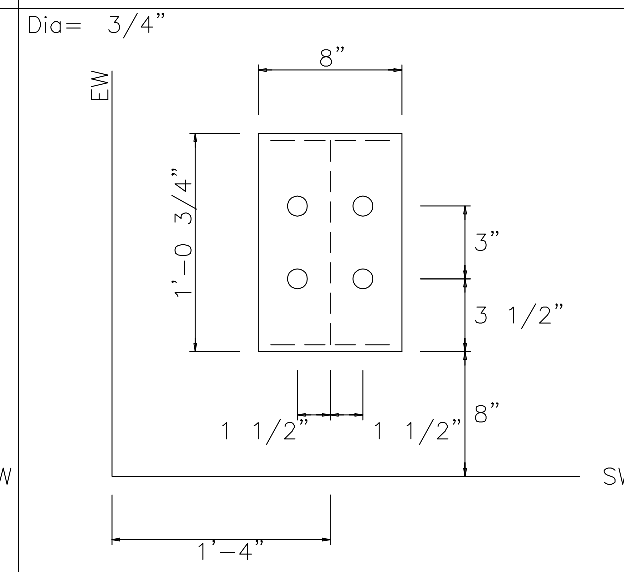
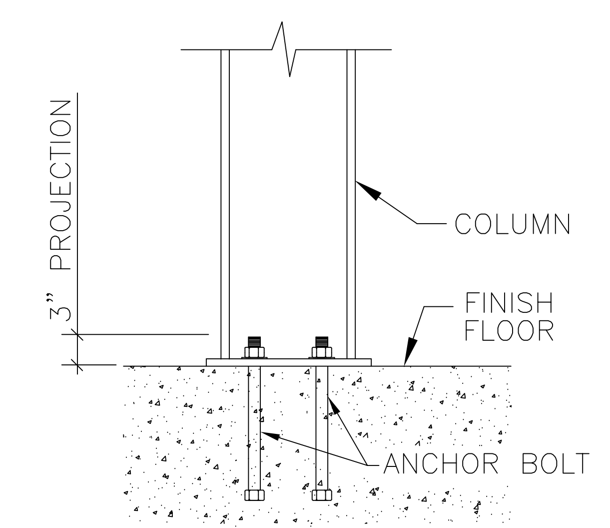
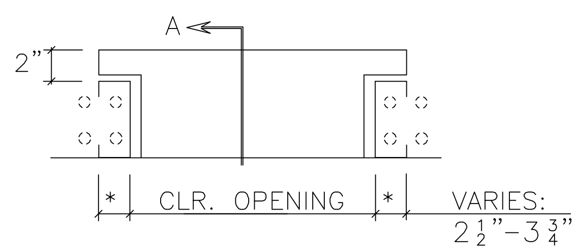


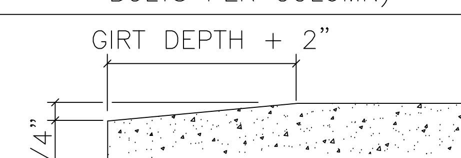
DETAIL G



TYPICAL COLUMN BASE PLATE DETAIL



(USE (2) 1/2" DIA EXPANSION BOLTS PER COLUMN)



SECTION A

(RECOMMENDED)
TYPICAL OVERHEAD DOOR FRAMED OPENING

FOUNDATION DESIGN NOTES:

1. THE ORIENTATION OF THE ANCHOR BOLT DETAILS SHOWN ON THIS PAGE MAY NOT COINCIDE WITH THE ACTUAL COLUMN ORIENTATION SHOWN ON THE ANCHOR BOLT DRAWING. PLEASE REFERENCE THE SIDEWALL (SW) AND ENDWALL (EW) STEEL LINES SHOWN ON THE ANCHOR BOLT DETAILS WITH THE ANCHOR BOLT PLAN DURING LAYOUT OF COLUMN AND ANCHOR BOLT LOCATIONS.

2. COLUMN BASE PLATES MAY HAVE MORE HOLES THAN ARE REQUIRED DUE TO PRODUCTION LIMITATIONS. PLEASE FOLLOW ANCHOR BOLT DETAILS FOR QUANTITY OF ANCHOR BOLTS REQUIRED. EXTRA BASE PLATE HOLES DO NOT NEED INFILLED PER THE MBS DESIGN SPECIFICATIONS.

ISSUE	DWN	CHK	ENG	PE	DATE
ANCHOR BOLTS	LC	AB	RHB		5/31/2022

Engineering Performed By:
Nucor Corporation
200 Whetstone Rd.
Swansea, SC 29460
COA# F-1470

PROJECT NAME
CDT
62 PROGRESS DR, FUQUAY VARINA, NC 27526

CUSTOMER NAME
VINCENT BARBOUR AND COMPANY
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JOB NUMBER
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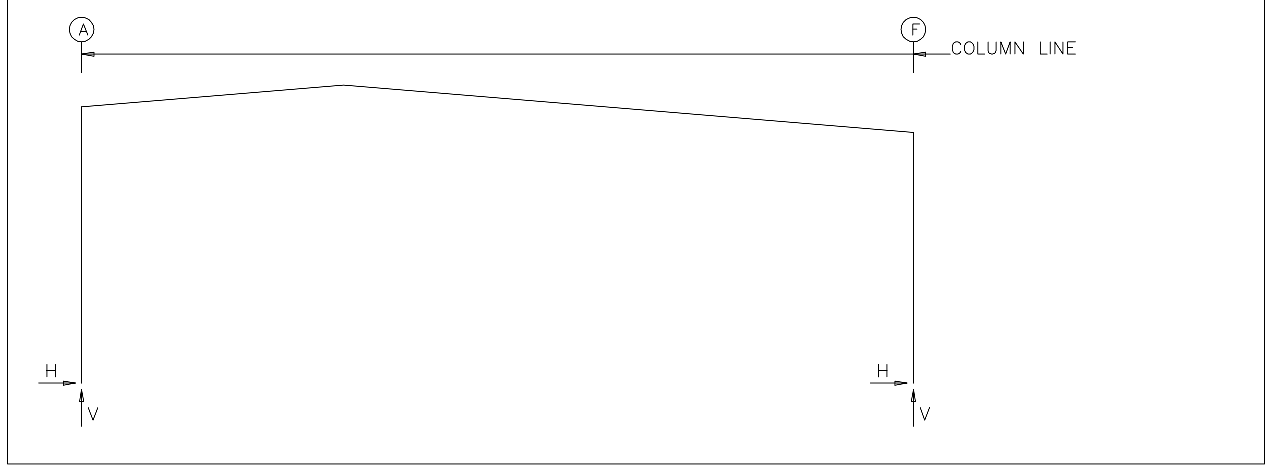
SHEET TITLE

NORTH CAROLINA PROFESSIONAL SEAL 24064 ENGINEER RAJESH H. BHAGNARI

SHEET
F2 OF 2

FRAME LINES: 2 3



RIGID FRAME: ANCHOR BOLTS & BASE PLATES

Frm Line	Col Line	Anc._Bolt Qty	Anc._Bolt Dia	Base_Plate (in) Width	Base_Plate (in) Length	Base_Plate (in) Thick	Elev. (in)
2	A	4	0.750	8.000	12.75	0.500	0.0
2	F	4	0.750	8.000	12.75	0.500	0.0

RIGID FRAME: ANCHOR BOLTS & BASE PLATES

Frm Line	Col Line	Anc._Bolt Qty	Anc._Bolt Dia	Base_Plate (in) Width	Base_Plate (in) Length	Base_Plate (in) Thick	Elev. (in)
3	A	4	0.750	8.000	12.75	0.375	0.0
3	F	4	0.750	8.000	13.00	0.375	0.0

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert	Wind Press Horz	Wind Suct Horz	Wind Long2 Vert	Seis Left Vert
1	A	0.8	0.4	2.4	1.3	-2.8	-1.6	-1.8	-0.5	-2.2	2.6	-1.8	0.0
1	B	1.6	1.0	6.3	3.4	-6.5	-5.0	-4.4	-2.9	-4.2	4.6	-4.6	0.0
1	D	1.4	0.7	4.3	2.2	-2.6	-5.3	-1.0	-3.8	-3.7	4.1	-5.3	0.0
1	E	1.7	0.9	5.8	3.1	-4.0	-6.7	-1.8	-4.5	-3.6	3.9	-6.7	0.0
1	F	0.7	0.3	2.1	1.1	-1.3	-2.4	-0.5	-1.5	-2.6	3.0	-2.7	0.1

Frm Line	Col Line	Seis Right Vert	-MIN_SNOW-- Horz	-MIN_SNOW-- Vert	E1UNB_SL_L- Horz	E1UNB_SL_L- Vert	E1UNB_SL_R- Horz	E1UNB_SL_R- Vert	E1PAT_LL_1- Horz	E1PAT_LL_1- Vert	E1PAT_LL_2- Horz	E1PAT_LL_2- Vert	E1PAT_LL_3- Horz	E1PAT_LL_3- Vert
1	A	0.1	0.0	1.9	0.0	2.0	0.0	0.3	0.0	2.4	0.0	-0.2	0.0	2.4
1	B	-0.1	0.0	4.8	0.0	4.9	0.0	2.1	0.0	3.9	0.0	2.7	0.0	6.6
1	D	0.0	0.0	3.1	0.0	0.1	0.0	3.1	0.0	2.1	0.0	2.2	0.0	1.5
1	E	0.0	0.0	4.2	0.0	1.1	0.0	3.0	0.0	2.6	0.0	2.9	0.0	3.2
1	F	0.0	0.0	1.7	0.0	0.3	0.0	1.2	0.0	-0.5	0.0	2.4	0.0	2.4

Frm Line	Col Line	E1PAT_LL_4- Horz	E1PAT_LL_4- Vert	E1PAT_LL_5- Horz	E1PAT_LL_5- Vert
1	A	0.0	-0.1	0.0	2.5
1	B	0.0	2.2	0.0	3.7
1	D	0.0	5.6	0.0	1.5
1	E	0.0	2.2	0.0	6.1
1	F	0.0	-0.2	0.0	2.1

BUILDING BRACING REACTIONS

Wall Loc	Wall Line	Col Line	± Reactions(k) Wind Horz	± Reactions(k) Wind Vert	± Reactions(k) Seismic Horz	± Reactions(k) Seismic Vert	Panel_Shear (lb/ft) Wind	Panel_Shear (lb/ft) Seis	Note
L_EW	1								(i)
F_SW	F	1,2	7.3	5.4	1.4	1.0			
R_EW	3								(h)
B_SW	A	3,2	7.7	6.1	1.4	1.1			

(h)Rigid frame at endwall
(i)Bracing in roof to rigid frame

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	-----Dead----- Horiz	Dead Vert	-Collateral- Horiz	Collateral Vert	-----Live----- Horiz	Live Vert	---Snow--- Horiz	Snow Vert	-Wind_Left1- Horiz	Wind_Left1 Vert	-Wind_Right1- Horiz	Wind_Right1 Vert
2	A	2.6	5.7	2.0	3.9	8.2	15.5	7.2	13.5	-15.6	-21.9	-1.3	-15.1
2	F	-2.6	5.5	-2.0	3.9	-8.2	15.4	-7.2	13.5	-1.2	-11.8	18.1	-24.7

Frame Line	Column Line	--Wind_Left2- Horiz	Wind_Left2 Vert	-Wind_Right2- Horiz	Wind_Right2 Vert	--Wind_Long1- Horiz	Wind_Long1 Vert	--Wind_Long2- Horiz	Wind_Long2 Vert	-Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
2	A	-14.0	-12.6	-0.1	-5.8	-3.3	-18.5	-6.4	-18.4	-1.2	-0.7	1.2	0.7
2	F	-2.9	-2.4	17.1	-15.4	3.8	-15.2	5.6	-21.5	-1.3	0.7	1.3	-0.7

Frame Line	Column Line	-MIN_SNOW-- Horiz	MIN_SNOW Vert	F1UNB_SL_L- Horiz	F1UNB_SL_L Vert	F1UNB_SL_R- Horiz	F1UNB_SL_R Vert
2	A	10.2	19.3	4.6	14.3	7.0	9.8
2	F	-10.2	19.3	-4.6	6.0	-6.9	13.5

Frame Line	Column Line	-----Dead----- Horiz	Dead Vert	-Collateral- Horiz	Collateral Vert	-----Live----- Horiz	Live Vert	---Snow--- Horiz	Snow Vert	-Wind_Left1- Horiz	Wind_Left1 Vert	-Wind_Right1- Horiz	Wind_Right1 Vert
3	A	1.1	3.0	0.8	1.7	3.1	6.7	2.7	5.9	-6.6	-11.2	-1.9	-8.9
3	F	-1.1	3.1	-0.8	1.7	-3.1	6.7	-2.7	5.9	0.0	-6.7	7.8	-12.9

Frame Line	Column Line	--Wind_Left2- Horiz	Wind_Left2 Vert	-Wind_Right2- Horiz	Wind_Right2 Vert	--Wind_Long1- Horiz	Wind_Long1 Vert	--Wind_Long2- Horiz	Wind_Long2 Vert	-Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
3	A	-6.0	-7.2	-1.4	-4.9	-1.5	-10.1	-3.2	-10.0	-0.4	-0.3	0.4	0.3
3	F	-0.6	-2.7	7.3	-8.8	1.8	-8.0	2.6	-12.0	-0.5	0.3	0.5	-0.3

Frame Line	Column Line	-MIN_SNOW-- Horiz	MIN_SNOW Vert	F2UNB_SL_L- Horiz	F2UNB_SL_L Vert	F2UNB_SL_R- Horiz	F2UNB_SL_R Vert
3	A	3.8	8.5	1.8	6.2	2.6	4.3
3	F	-3.8	8.4	-1.8	2.6	-2.6	5.9

ENDWALL COLUMN: ANCHOR BOLTS & BASE PLATES

Frm Line	Col Line	Anc._Bolt Qty	Anc._Bolt Dia	Base_Plate (in) Width	Base_Plate (in) Length	Base_Plate (in) Thick	Elev. (in)
1	A	4	0.750	8.000	8.250	0.375	0.0
1	B	4	0.750	8.000	8.250	0.375	0.0
1	D	4	0.750	8.000	8.500	0.375	0.0
1	E	4	0.750	8.000	8.500	0.375	0.0
1	F	4	0.750	8.000	8.250	0.375	0.0

GENERAL NOTES

1. ALL LOADING CONDITIONS ARE EXAMINED. THE MAXIMUM AND MINIMUM HORIZONTAL (H) AND VERTICAL (V) REACTIONS AND THE CORRESPONDING VERTICAL (V) OR HORIZONTAL (H) REACTIONS ARE REPORTED.
2. REACTIONS ARE PROVIDED BY LOAD CASE IN ORDER TO AID THE FOUNDATION ENGINEER IN DETERMINING THE APPROPRIATE LOAD FACTORS AND COMBINATIONS TO BE USED WTIH EITHER WORKING STRESS OR ULTIMATE STRENGTH DESIGN METHODS. WIND LOAD CASES ARE GIVEN FOR EACH PRIMARY WIND DIRECTION.
3. FOR ASCE7-10 AND LATER BASED BUILDING CODES, THE UNFACTORED LOAD CASE REACTIONS DUE TO WIND ARE GENERATED USING THE ULTIMATE DESIGN WIND SPEED (Vult).
4. POSITIVE (+) REACTIONS ARE AS SHOWN ABOVE. FOUNDATION LOADS ARE IN OPPOSITE DIRECTIONS.
5. BRACING REACTIONS ARE IN THE PLANE OF THE BRACE WITH THE HORIZONTAL REACTION (H) ACTING AWAY FROM THE BRACED BAY AND THE VERTICAL REACTION (V) ACTING DOWNWARD.

****** RIGID FRAME LOAD CASE ABBREVIATIONS: ******
Wind_L1/Wind_R1: LATERAL WIND FROM THE LEFT/RIGHT, CASE 1
Wind_L2/Wind_R2: LATERAL WIND FROM THE LEFT/RIGHT, CASE 2
Wind_Ln1/Wind_Ln2: LONGITUDINAL WIND, CASE 1/2
Seismic_L/Seismic_R: LATERAL SEISMIC LOAD FROM LEFT/RIGHT
LWIND#_L#E/LWIND#_R#E: LONGITUDINAL WIND EDGE ZONES
F#UNB_SL_L/F#UNB_SL_R: UNBALANCED ROOF SNOW WITH WIND FROM LEFT/RIGHT
F#PAT_LL #/F#PAT_SL #: PARTIAL LIVE/SNOW LOADING FOR CONTINUOUS BEAM SYSTEMS

****** ENDWALL COLUMN LOAD CASE ABBREVIATIONS: ******
Collat: COLLATERAL LOAD
Rafter Wind_L/Rafter Wind_R: LATERAL WIND FROM THE LEFT/RIGHT
Brace Wind_L/Brace Wind_R: LATERAL WIND FROM THE LEFT/RIGHT
Wind_P/Wind_S: LONGITUDINAL WIND PRESSURE/SUCTION ON COLUMNS
Wind_Ln: LONGITUDINAL WIND SUCTION ON ROOF
Seis_L/Seis_R: LATERAL SEISMIC LOAD FROM LEFT/RIGHT
E#UNB_SL_L/E#UNB_SL_R: UNBALANCED ROOF SNOW WITH WIND FROM LEFT/RIGHT
E#PAT_LL #/E#PAT_SL #: PARTIAL LIVE/SNOW LOADING FOR CONTINUOUS BEAM SYSTEMS

DATE	PE	ENG	CHK	DWN	ISSUE
5/31/2022		RHB	AB	LC	ANCHOR BOLTS

Engineering Performed By:
Nucor Corporation
200 Whetstone Rd.
Swansea, SC 29460
COA# F-1470

PROJECT NAME
CDT
62 PROGRESS DR, FUQUAY VARINA, NC 27526

CUSTOMER NAME
VINCENT BARBOUR AND COMPANY
FUQUAY VARINA, NC 27526-6864

SHEET TITLE

JOB NUMBER
A22B0392A

NORTH CAROLINA PROFESSIONAL SEAL 24064 ENGINEER RAJESH H. BHAGNARI

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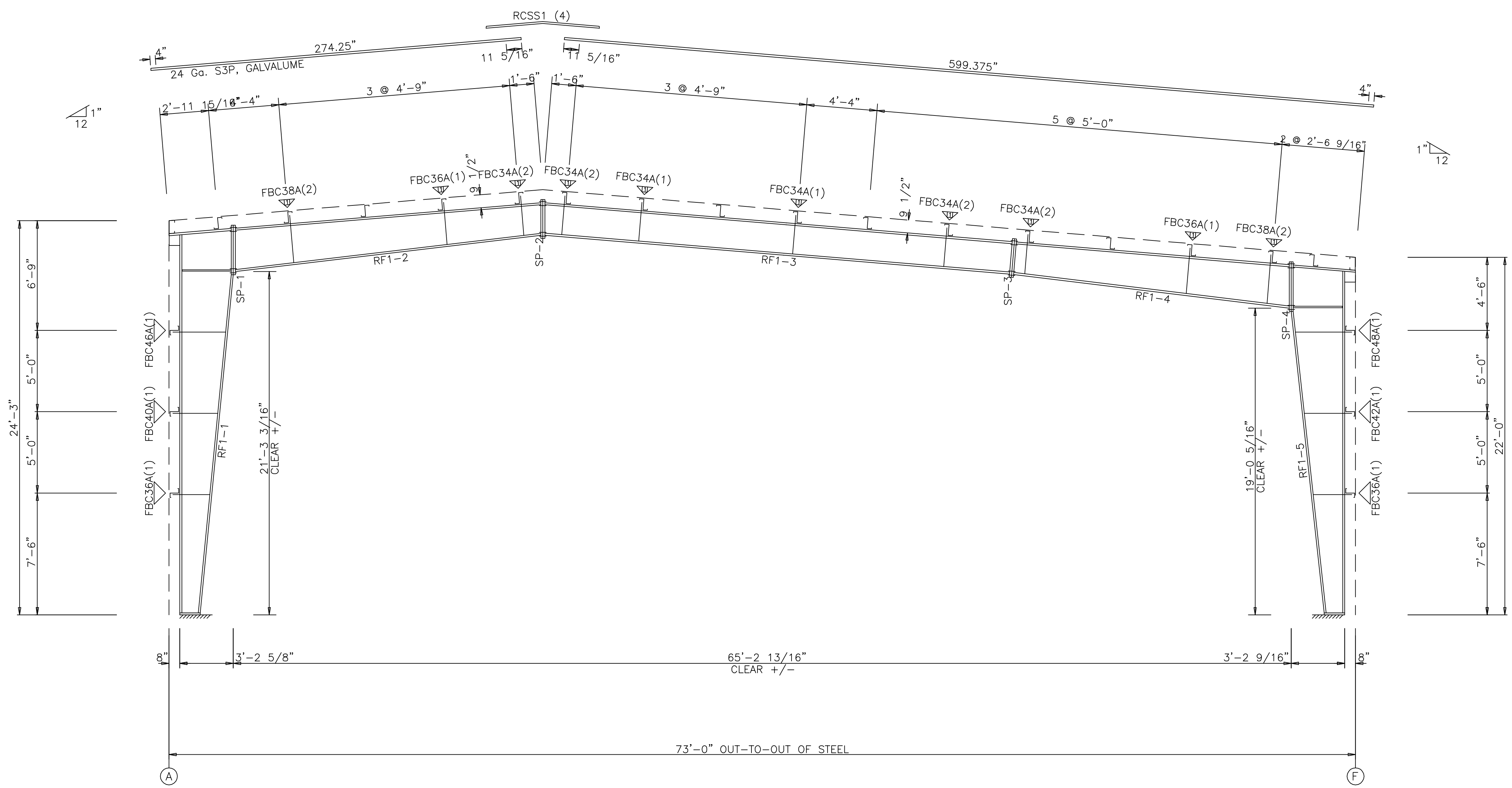
SHEET
R1 OF 1

SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	0.875	3.00	6"	3/4"	3'-1"
SP-2	4	4	0	A325	0.625	2.25	6"	3/8"	2'-3 1/2"
SP-3	4	4	0	A325	0.625	2.25	6"	3/8"	2'-3 1/4"
SP-4	4	4	0	A325	0.875	3.00	6"	5/8"	3'-0 3/4"

CONNECTION PLATES	
☐ ID	Mark/Part
1	FBL&N01



RIGID FRAME ELEVATION: FRAME LINE 2

GENERAL NOTES

1. ▽ INDICATES FLANGE BRACING LOCATIONS. (1) = ONE SIDE; (2) = TWO SIDES.
2. IF FLANGE BRACING IS REQUIRED ON BOTH SIDES OF AN EXPANDABLE RIGID FRAME, THE OPPOSITE SIDE FLANGE BRACES WILL HAVE TO BE INSTALLED AT THE TIME OF FUTURE EXPANSION. THESE FLANGE BRACES HAVE BEEN PROVIDED, AS REQUIRED, FOR THIS FUTURE CONDITION.
3. RIGID FRAMES SHALL HAVE 50% OF THEIR BOLTS INSTALLED AND TIGHTENED ON BOTH SIDES OF THE WEB ADJACENT TO EACH FLANGE BEFORE THE HOISTING EQUIPMENT IS RELEASED.
4. INTERIOR COLUMN METAL TAG IS ORIENTED TOWARD THE LOW EAVE OF THE BUILDING.

ISSUE	DWN	CHK	ENG	PE	DATE
PERMITS	LC	AB	RHB		5/31/2022

Engineering Performed By:
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200 Whetstone Rd.
Swansea, SC 29460
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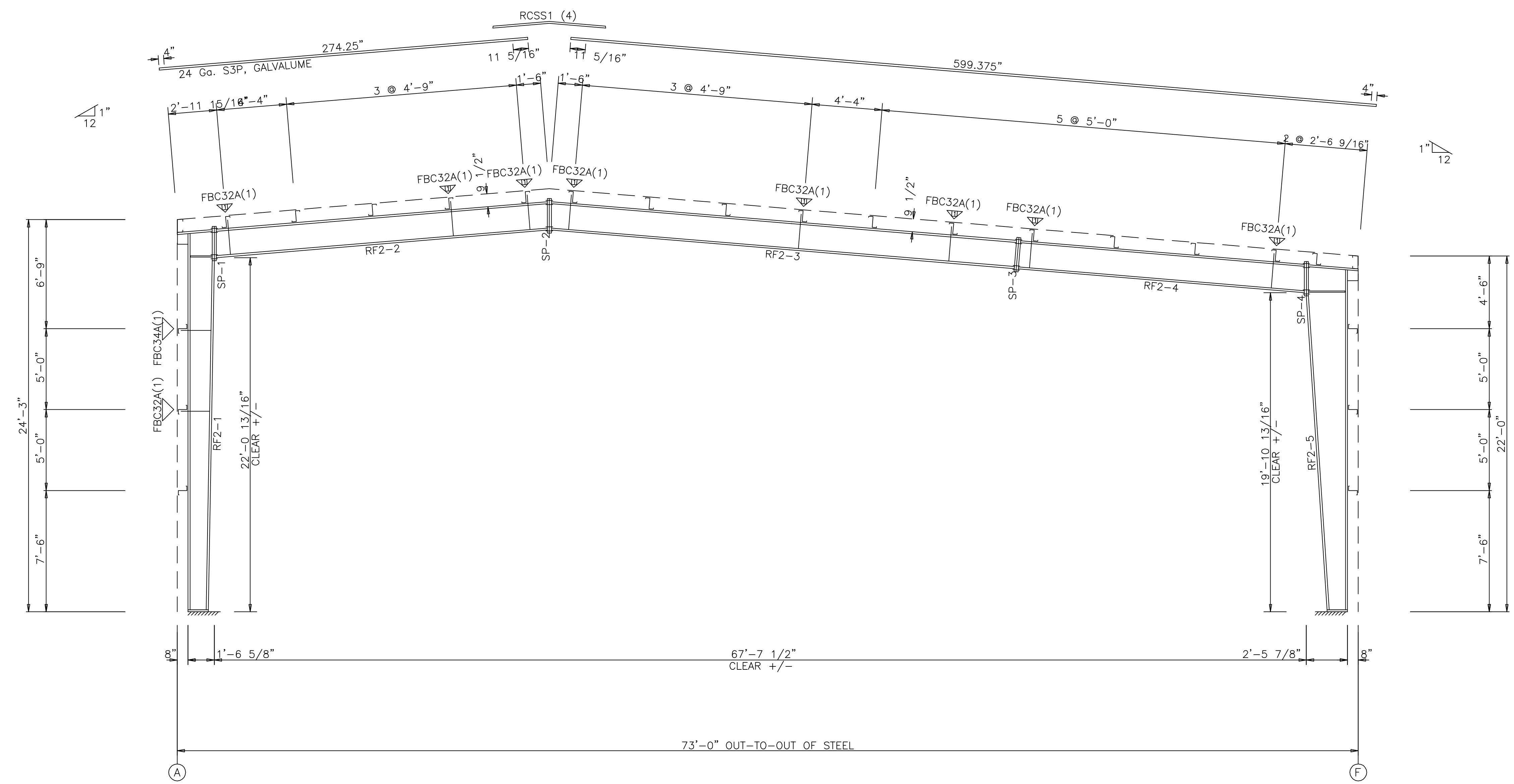
SHEET
E1 OF 8

SPLICE PLATE & BOLT TABLE									
	Qty								
Mark	Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	0.750	3.00	6"	3/4"	2'-0 7/8"
SP-2	4	4	0	A325	0.625	2.25	6"	3/8"	2'-0 3/8"
SP-3	4	4	0	A325	0.625	2.25	6"	3/8"	2'-0 1/4"
SP-4	4	4	0	A325	0.625	2.25	6"	5/8"	2'-0 1/4"

CONNECTION PLATES	
☐ ID	Mark/Part
1	FBL&N01



RIGID FRAME ELEVATION: FRAME LINE 3

GENERAL NOTES

1. ▽ INDICATES FLANGE BRACING LOCATIONS. (1) = ONE SIDE; (2) = TWO SIDES.
2. IF FLANGE BRACING IS REQUIRED ON BOTH SIDES OF AN EXPANDABLE RIGID FRAME, THE OPPOSITE SIDE FLANGE BRACES WILL HAVE TO BE INSTALLED AT THE TIME OF FUTURE EXPANSION. THESE FLANGE BRACES HAVE BEEN PROVIDED, AS REQUIRED, FOR THIS FUTURE CONDITION.
3. RIGID FRAMES SHALL HAVE 50% OF THEIR BOLTS INSTALLED AND TIGHTENED ON BOTH SIDES OF THE WEB ADJACENT TO EACH FLANGE BEFORE THE HOISTING EQUIPMENT IS RELEASED.
4. INTERIOR COLUMN METAL TAG IS ORIENTED TOWARD THE LOW EAVE OF THE BUILDING.

ISSUE	DWN	CHK	ENG	PE	DATE
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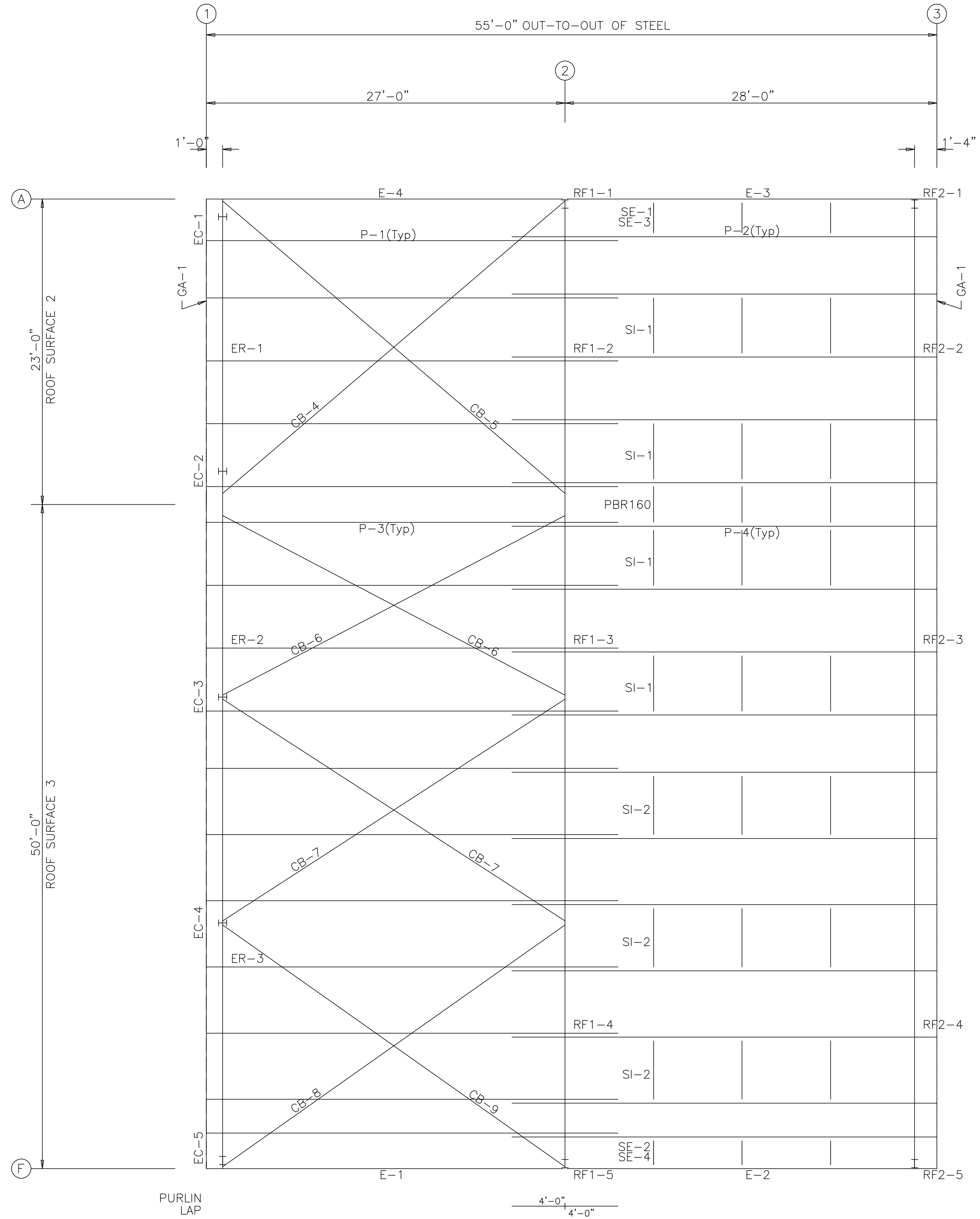
SHEET
E2 OF 8



ROOF FRAMING PLAN

MEMBER TABLE ROOF PLAN		
MARK	PART	LENGTH
P-1	95Z075	371.750
P-2	95Z067	383.750
P-3	95Z075	371.750
P-4	95Z067	383.750
E-1	95E099	323.625
E-2	95E099	335.625
E-3	95E099	335.625
E-4	95E099	323.625
CB-4	RD05-	409.000
CB-5	RD05-	406.000
CB-6	RD05-	358.000
CB-7	RD05-	373.000
CB-8	RD05-	376.000
CB-9	RD05-	378.000
PBR160	PBR160	18.000
SI-1	PBX-	59.625
SI-2	PBX-	62.625
SE-1	PBX-	39.000
SE-2	PBX-	33.625
SE-3	PBX-	39.500
SE-4	PBX-	34.250

ROOF FRAMING PLAN

GENERAL NOTES

1. PLACE TAGGED END OF RAFTERS TOWARDS THE LOW EAVE.
2. STD. ROD/CABLE SIZES PER PART PREFIX ARE:

ROD		CABLE	
RD05-	= 5/8" ROD	CA02-	= 1/4" CABLE
RD06-	= 3/4" ROD	CA03-	= 3/8" CABLE
RD07-	= 7/8" ROD	CA04-	= 1/2" CABLE
RD08-	= 1" ROD		
RD09-	= 1 1/8" ROD		
RD10-	= 1 1/4" ROD		

3. PURLIN AND EAVE STRUT CONNECTIONS UTILIZE BOTH A307 AND A325 BOLTS. REFER TO THE DETAILS FOR SPECIFIC USAGE REQUIREMENTS.
4. THIS DRAWING IS NOT TO SCALE.

ISSUE	DWN	CHK	ENG	PE	DATE
PERMITS	LC	AB	RHB		5/31/2022

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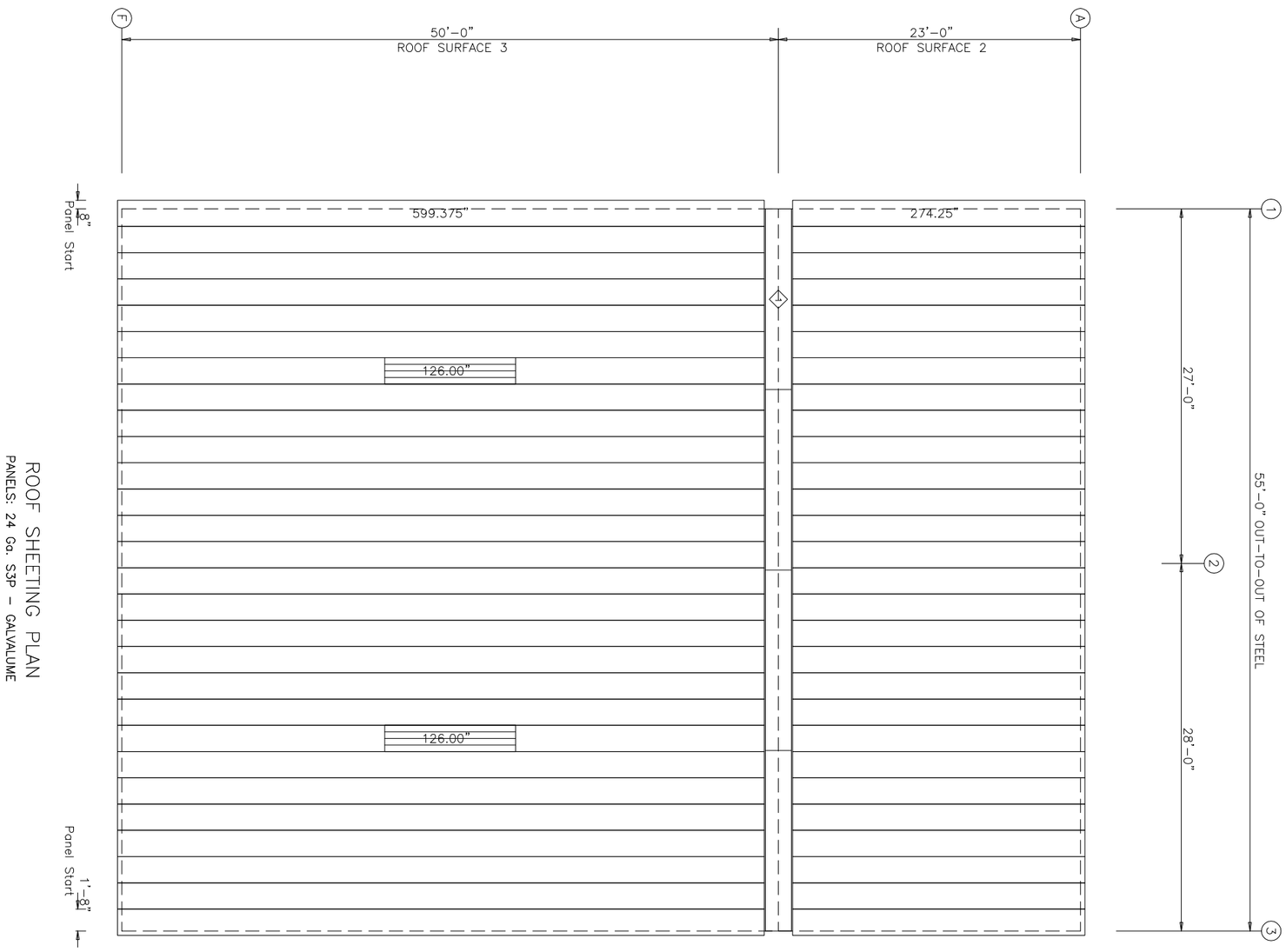
SHEET
E3 OF 8



ROOF SHEETING PLAN

PANELS: 24 Ga. S3P - GALVALUME

TRIM TABLE
ROOF PLAN

ID	PART	LENGTH
1	RCSS1	182.000

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SHEET
E4 OF 8

NORTH CAROLINA PROFESSIONAL ENGINEER RUSHI H. BHAGNARI SEAL 24064

PROJECT NAME
CDT
62 PROGRESS DR, FUQUAY VARINA, NC 27526

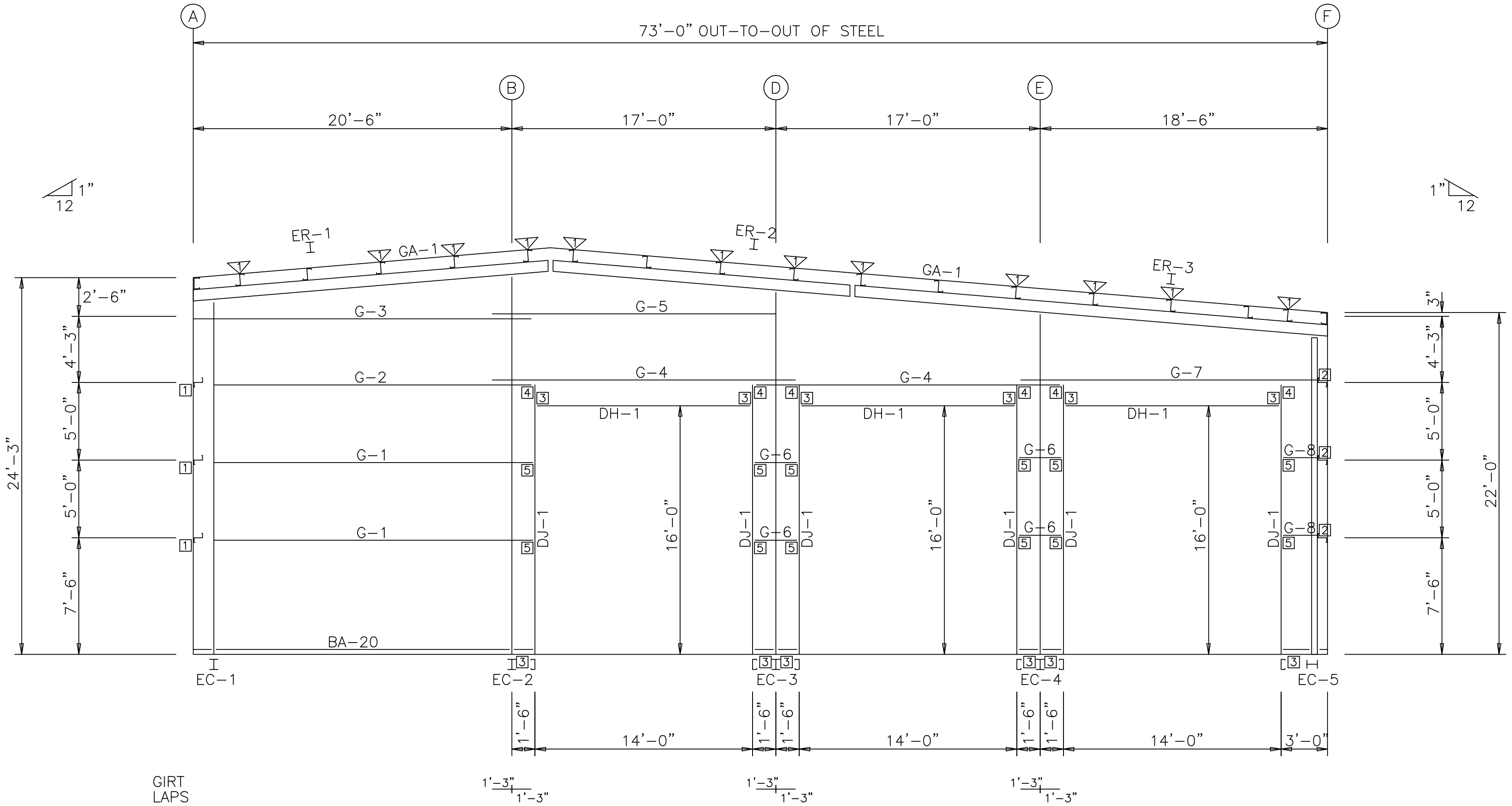
CUSTOMER NAME
VINCENT BARBOUR AND COMPANY
FUQUAY VARINA, NC 27526-6864

JOB NUMBER
A22B0392A

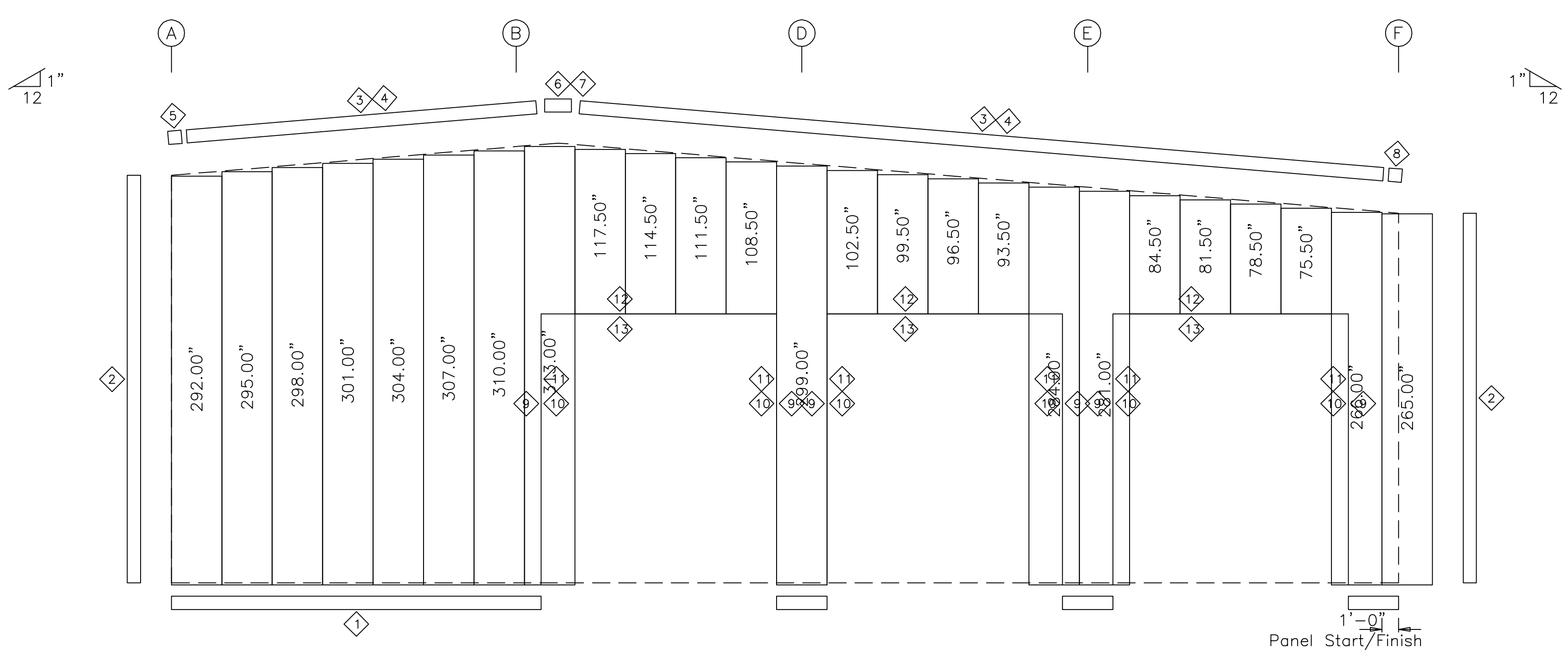
SHEET TITLE

Engineering Performed By:
Nucor Corporation
200 Whetstone Rd.
Swansea, SC 29460
COA# F-1470

ISSUE	DWN	CHK	ENG	PE	DATE
PERMITS	LC	AB	RHB		5/31/2022



ENDWALL FRAMING: FRAME LINE 1



ENDWALL SHEETING & TRIM: FRAME LINE 1

PANELS: 26 Ga. A3P – FOX GRAY-SP

BOLT TABLE FRAME LINE 1				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-1/ER-2	4	A325	1/2"	2"
ER-2/ER-3	4	A325	1/2"	2"
Columns/Raf	4	A325	1/2"	2"

TRIM TABLE FRAME LINE 1		
◇ID	PART	LENGTH
1	NoTrim	Use Drop
2	FCRA2	182.000
3	TRU1	182.000
4	RSF1	182.000
5	TRUECL	8.130
6	TRCU1-	18.938
7	TRPBB1	7.500
8	TRUECR	8.130
9	CCA121	121.000
10	JTD097	97.000
11	JTD121	121.000
12	CCA169	169.000
13	HTA172	172.000

FLANGE BRACE TABLE FRAME LINE 1			
▽ ID	# SIDES	MARK	CLIP
1	1	FBC30	FBL&N01

CONNECTION PLATES FRAME LINE 1	
□ID	MARK/PART
1	GCC03
2	GCC02
3	HCJ01&bh
4	JCT01
5	FOC94&bh

MEMBER TABLE FRAME LINE 1		
MARK	PART	LENGTH
EC-1	W8x10	274.813
EC-2	W8x10	293.938
EC-3	W8x18	282.000
EC-4	W8x18	265.000
EC-5	W8x10	247.625
ER-1	W8x18	276.688
ER-2	W8x18	233.813
ER-3	W8x18	368.000
DJ-1	F08C060	205.750
DH-1	F08C060	168.000
G-1	08Z060	252.500
G-2	08Z060	252.500
G-3	08Z060	260.750
G-4	08Z060	234.000
G-5	08Z060	221.250
G-6	08Z060	30.000
G-7	08Z060	228.500
G-8	08Z060	24.500

ENDWALL FRAMING PLAN

GENERAL NOTES

1. STD. ROD/CABLE SIZES PER PART PREFIX ARE:

ROD		CABLE	
RD05-	= 5/8" ROD	CA02-	= 1/4" CABLE
RD06-	= 3/4" ROD	CA03-	= 3/8" CABLE
RD07-	= 7/8" ROD	CA04-	= 1/2" CABLE
RD08-	= 1" ROD		
RD09-	= 1 1/8" ROD		
RD10-	= 1 1/4" ROD		

2. ROD/CABLE BRACING THAT OCCURS IN FLUSH OR INSET GIRT CONDITIONS WILL REQUIRE FIELD SLOTTING OF GIRT WEBS TO ALLOW FOR BRACING.
3. FRAMED OPENINGS WHICH ARE FIELD LOCATED WILL REQUIRE FIELD CUTTING OF GIRTS AND SHEETING.
4. THIS DRAWING IS NOT TO SCALE.

DWN	CHK	ENG	PE	DATE
LC	AB	RHB		5/31/2022

ISSUE

PERMITS

Engineering Performed By:
Nucor Corporation
200 Whetstone Rd.
Swansea, SC 29460
COA# F-1470

PROJECT NAME
CDT
62 PROGRESS DR, FUQUAY VARINA, NC 27526

CUSTOMER NAME
VINCENT BARBOUR AND COMPANY
FUQUAY VARINA, NC 27526-6864

SHEET TITLE

JOB NUMBER
A22B0392A

NORTH CAROLINA PROFESSIONAL SEAL 24064 ENGINEER RAJESH H. BHAGNARI

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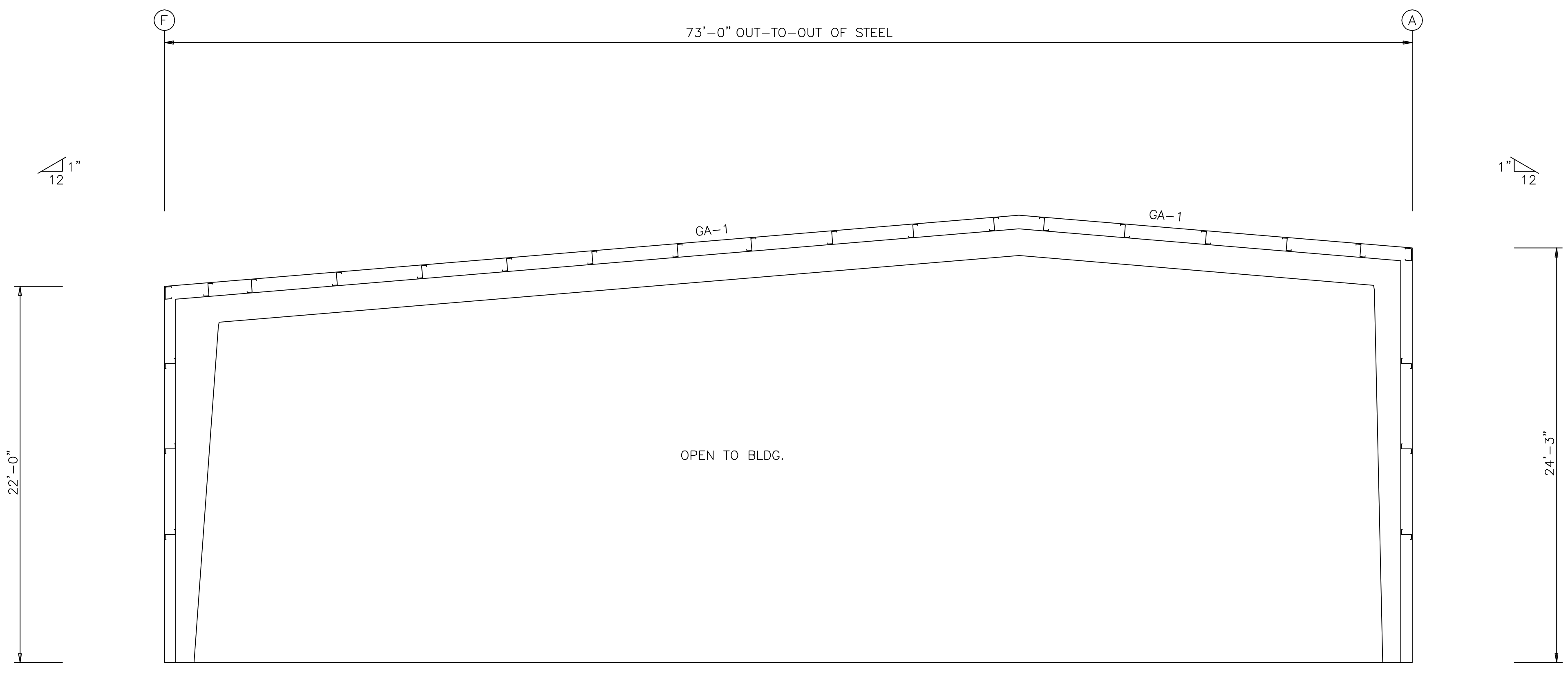
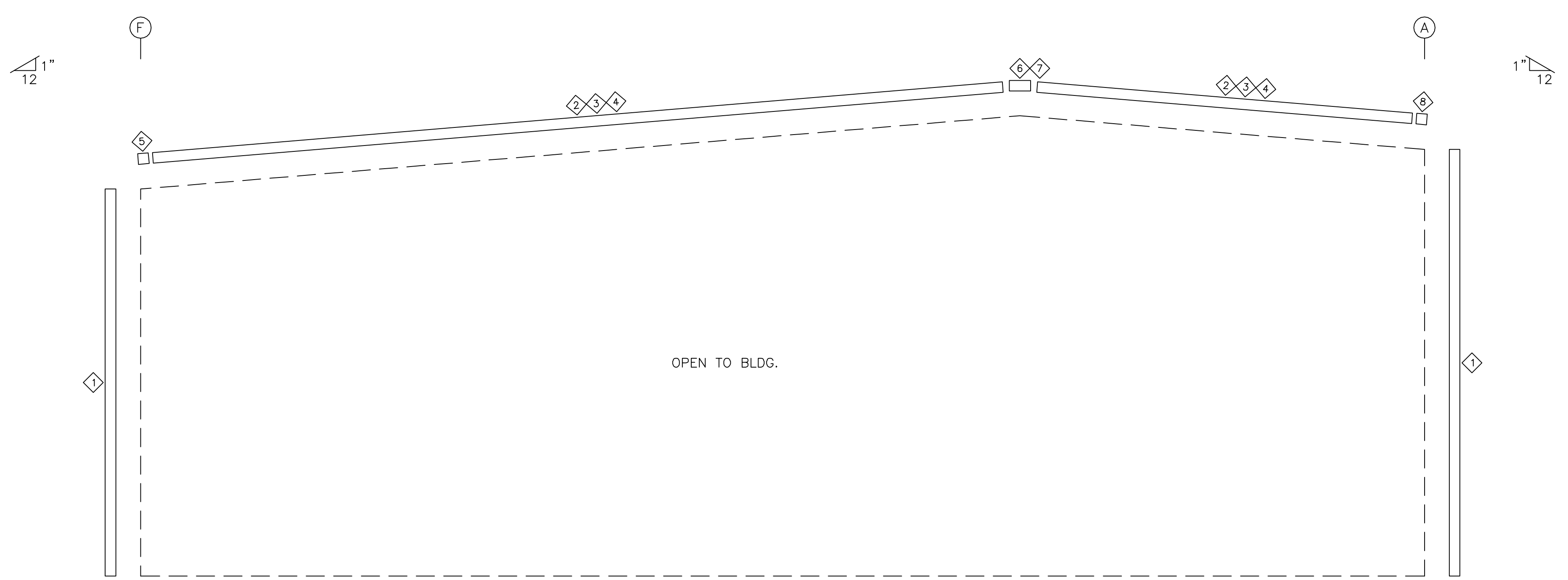
SHEET
E5 OF 8



ENDWALL FRAMING: FRAME LINE 3



ENDWALL SHEETING & TRIM: FRAME LINE 3

TRIM TABLE
FRAME LINE 3

◇ID	PART	LENGTH
1	FCRA2	182.000
2	RSF1	182.000
3	TRU1	182.000
4	FJ2	182.000
5	TRUECL	8.130
6	TRPBB1	7.500
7	TRCU1	18.938
8	TRUECR	8.130

ENDWALL FRAMING PLAN

GENERAL NOTES

1. STD. ROD/CABLE SIZES PER PART PREFIX ARE:

ROD		CABLE	
RD05-	= 5/8" ROD	CA02-	= 1/4" CABLE
RD06-	= 3/4" ROD	CA03-	= 3/8" CABLE
RD07-	= 7/8" ROD	CA04-	= 1/2" CABLE
RD08-	= 1" ROD		
RD09-	= 1 1/8" ROD		
RD10-	= 1 1/4" ROD		

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ISSUE	DWN	CHK	ENG	PE	DATE
PERMITS	LC	AB	RHB		5/31/2022

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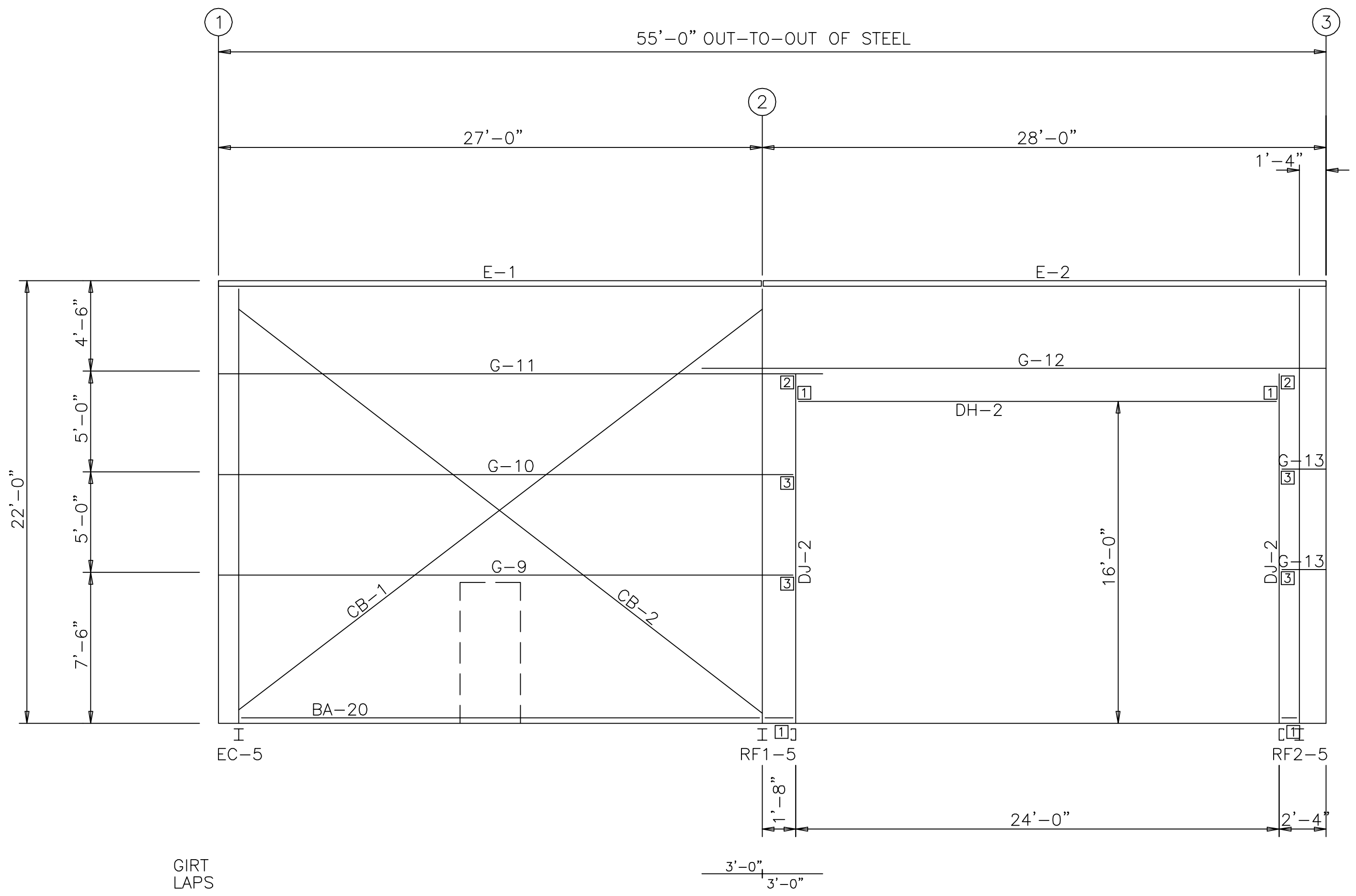
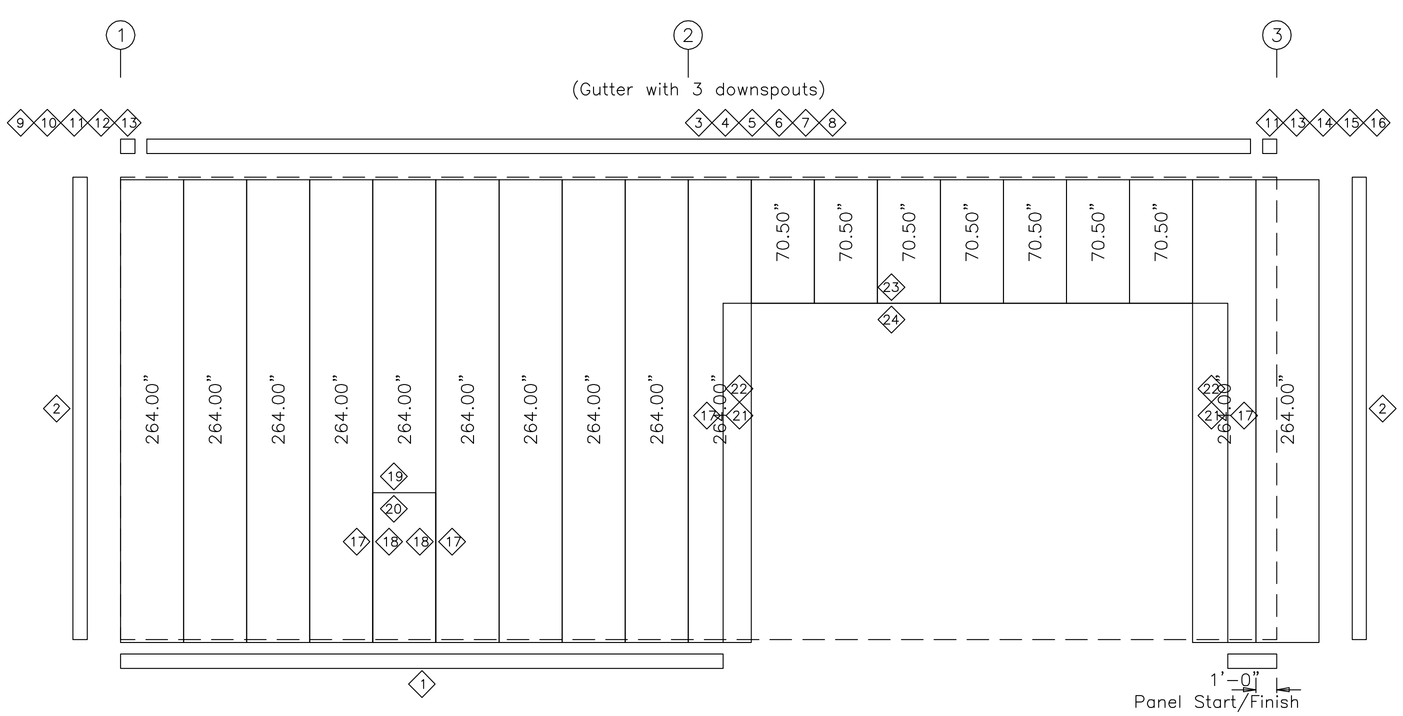
SHEET
E6 OF 8



SIDEWALL FRAMING: FRAME LINE F



SIDEWALL SHEETING & TRIM: FRAME LINE F

PANELS: 26 Ga. A3P – FOX GRAY-SP

TRIM TABLE
FRAME LINE F

◇ID	PART	LENGTH
1	NoTrim	Use Drop
2	FCRA2	182.000
3	TGT1	182.000
4	TFEC1	182.000
5	CGB1	5.940
6	GC-A	9.940
7	DELETE	182.000
8	DELETE	182.000
9	GE1R	9.250
10	TCB1R	14.310
11	CGB1	Use Drop
12	GC-A	Use Drop
13	TCGC	Use Drop
14	GE1L	9.250
15	TCB1L	14.310
16	GC-A	Use Drop
17	CCA121	121.000
18	JTD087	87.000
19	CCA121	Use Drop
20	HTA044	44.000
21	JTD097	97.000
22	JTD121	121.000
23	CCA145	145.000
24	HTA148	148.000

CONNECTION PLATES
FRAME LINE F

□ID	MARK/PART
1	HCJ01&bh
2	JCT01
3	FOC94&bh

MEMBER TABLE
FRAME LINE F

MARK	PART	LENGTH
DJ-2	F08C089	205.750
DH-2	F08C060	288.000
E-1	95E099	323.625
E-2	95E099	335.625
G-9	08Z089	340.750
G-10	08Z075	340.750
G-11	08Z060	359.750
G-12	08Z060	371.750
G-13	08Z060	24.750
CB-1	RD05-	403.000
CB-2	RD05-	406.000

SIDEWALL FRAMING PLAN

GENERAL NOTES

1. STD. ROD/CABLE SIZES PER PART PREFIX ARE:

ROD		CABLE	
RD05-	= 5/8" ROD	CA02-	= 1/4" CABLE
RD06-	= 3/4" ROD	CA03-	= 3/8" CABLE
RD07-	= 7/8" ROD	CA04-	= 1/2" CABLE
RD08-	= 1" ROD		
RD09-	= 1 1/8" ROD		
RD10-	= 1 1/4" ROD		

2. ROD/CABLE BRACING THAT OCCURS IN FLUSH OR INSET GIRT CONDITIONS WILL REQUIRE FIELD SLOTTING OF GIRT WEBS TO ALLOW FOR BRACING.
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4. THIS DRAWING IS NOT TO SCALE.

ISSUE	DWN	CHK	ENG	PE	DATE
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COA# F-1470

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CUSTOMER NAME
VINCENT BARBOUR AND COMPANY
FUQUAY VARINA, NC 27526-6864

SHEET TITLE

JOB NUMBER
A22B0392A

NORTH CAROLINA
PROFESSIONAL
SEAL
24064
ENGINEER
RAJESH H. BHAGNARI

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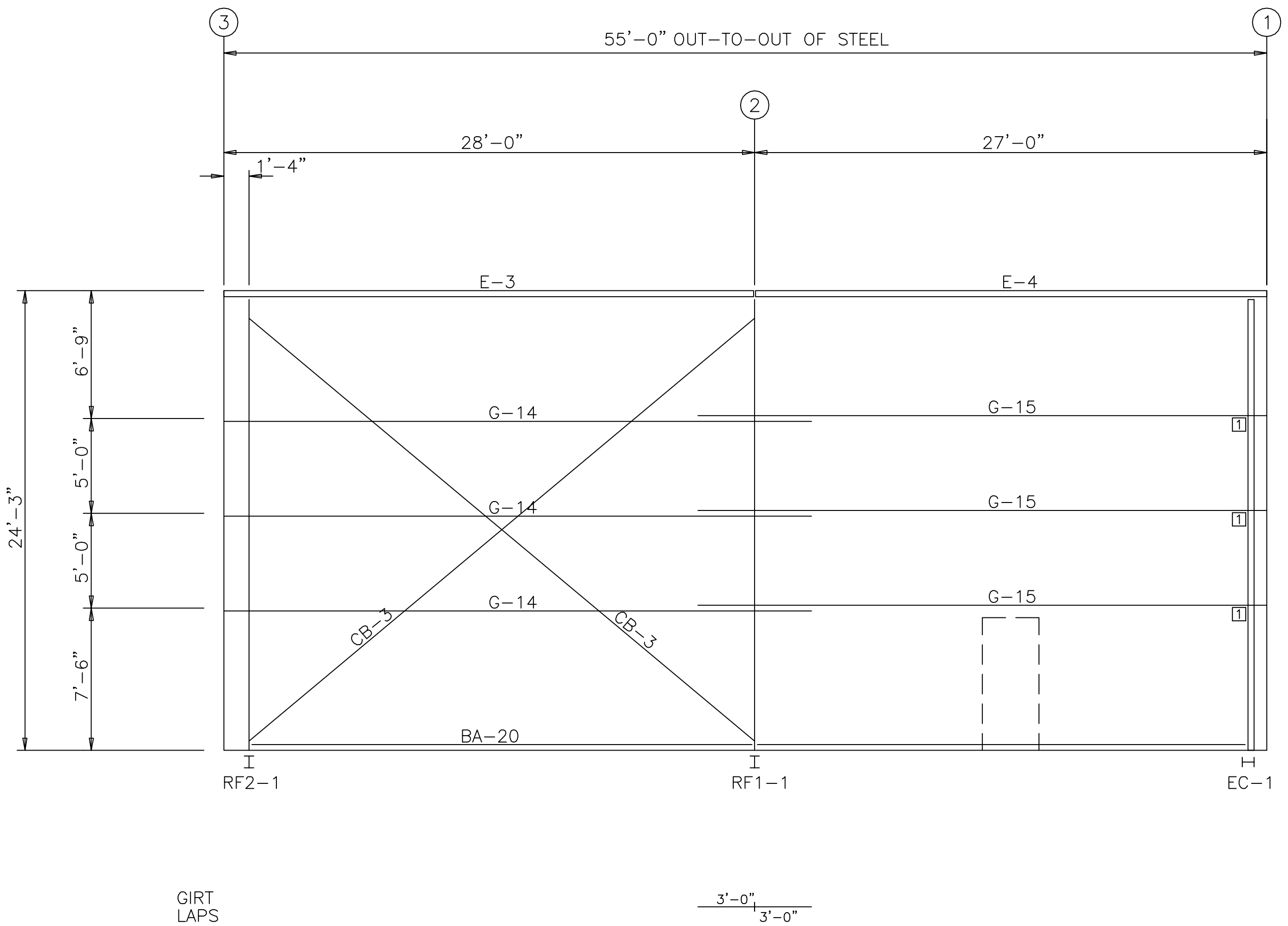
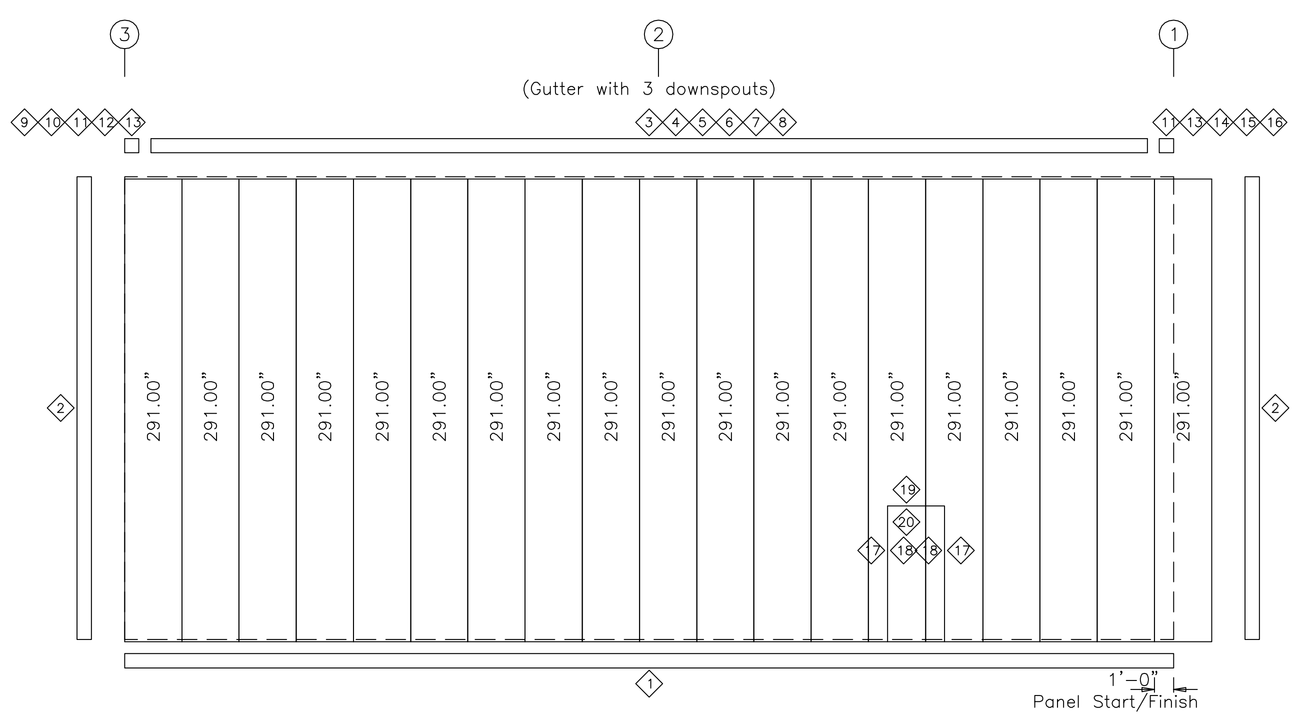
SHEET
E7 OF 8



SIDEWALL FRAMING: FRAME LINE A



SIDEWALL SHEETING & TRIM: FRAME LINE A

PANELS: 26 Ga. A3P – FOX GRAY-SP

TRIM TABLE
FRAME LINE A

◇ID	PART	LENGTH
1	NoTrim	Use Drop
2	FCRA2	182.000
3	TGT1	182.000
4	TFEC1	182.000
5	CGB1	5.940
6	GC-A	9.940
7	DELETE	182.000
8	DELETE	182.000
9	GE1R	9.250
10	TCB1R	14.310
11	CGB1	Use Drop
12	GC-A	Use Drop
13	TCGC	Use Drop
14	GE1L	9.250
15	TCB1L	14.310
16	GC-A	Use Drop
17	CCA121	121.000
18	JTD087	87.000
19	CCA121	Use Drop
20	HTA044	44.000

MEMBER TABLE
FRAME LINE A

MARK	PART	LENGTH
E-3	95E099	335.625
E-4	95E099	323.625
G-14	08Z060	371.750
G-15	08Z060	359.750
CB-3	RD05-	426.000

CONNECTION PLATES
FRAME LINE A

☐ID	MARK/PART
1	GCC03

SIDEWALL FRAMING PLAN

GENERAL NOTES

1. STD. ROD/CABLE SIZES PER PART PREFIX ARE:

ROD		CABLE	
RD05-	= 5/8" ROD	CA02-	= 1/4" CABLE
RD06-	= 3/4" ROD	CA03-	= 3/8" CABLE
RD07-	= 7/8" ROD	CA04-	= 1/2" CABLE
RD08-	= 1" ROD		
RD09-	= 1 1/8" ROD		
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SHEET
E8 OF 8