

NCSPA

SHIPPING AND RECEIVING

MOREHEAD CITY, NORTH CAROLINA

NCSPA PROJECT # 10665

STATE ID # 24-28316-01A

DRAWING LIST

CS-1	COVER SHEET
G-1	GENERAL DATA
G-2	LIFE SAFETY PLAN
SHEET 1	EXISTING CONDITIONS AND DEMOLITION PLAN
SHEET 2	SITE PLAN
SHEET 3	GRADING AND DRAINAGE PLAN
A-1	FLOOR PLAN
A-1.1	ROOF PLAN
A-2	REFLECTED CEILING PLAN
A-3	DOOR, WINDOW, AND ROOM FINISH SCHEDULES
A-4	EXTERIOR ELEVATIONS
A-5	BUILDING SECTIONS
A-5.1	WALL SECTIONS
A-6	ENLARGED PLANS AND ELEVATIONS
A-7	DETAILS
S1.1	GENERAL NOTES
S1.2	SPECIAL INSTRUCTIONS
S2.1	FOUNDATION PLAN
S2.2	ROOF FRAMING PLAN
S3.1	FOUNDATION DETAILS
S4.1	WALL SECTIONS
P-1	PLUMBING SPECIFICATIONS
P-2	DWV PLAN
P-3	WATER PLAN
M-1	HVAC NOTES, SCHEDULES, LEGEND
M-2	HVAC PLAN
M-3	HVAC SPECS, DETAILS
E-1	ELECTRICAL SPECIFICATIONS
E-2	LIGHTING PLAN
E-3	POWER PLAN
E-4	PANELS AND RISER



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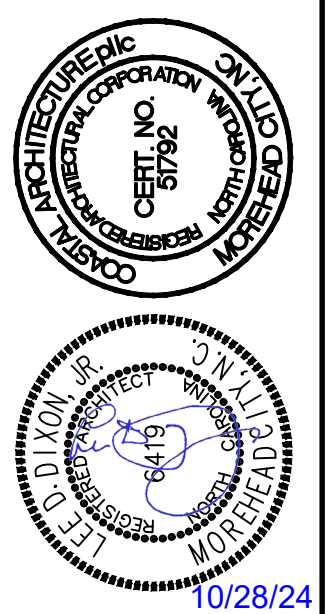
Coastal Architecture
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 • Planning
 • Interiors

AIA
 Member of the American Institute of Architects

Lee D. Dixon, Jr., AIA
 252-247-2127
 lee@coastalarchitecture.net

4206 Bridges St. Ext., Suite C
 Morehead City, NC 28557
 www.CoastalArchitecture.net

NCSPA
 SHIPPING AND RECEIVING
 MOREHEAD CITY, NORTH CAROLINA



10/28/24

COVER SHEET

23027

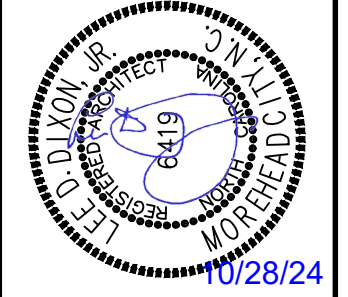
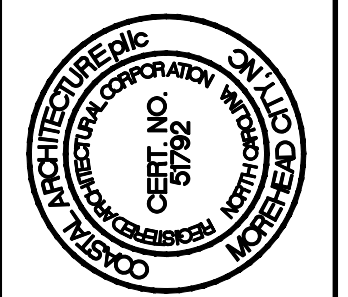
ISSUED: 07/12/24
 DWG BY: MSG
 CKD BY: LDD

REVISIONS	DATE	BY	DESCRIPTION

SHEET NO.
CS-1
 OF

NCSA
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 MOREHEAD CITY, NORTH CAROLINA

NCSA PROJECT # 10665
SCO ID# : 24-28316-OIA



LIFE SAFETY PLAN

23027

ISSUED: 07/12/24
DWG BY: SKC
CKD BY: LDD

NO.	REVISIONS

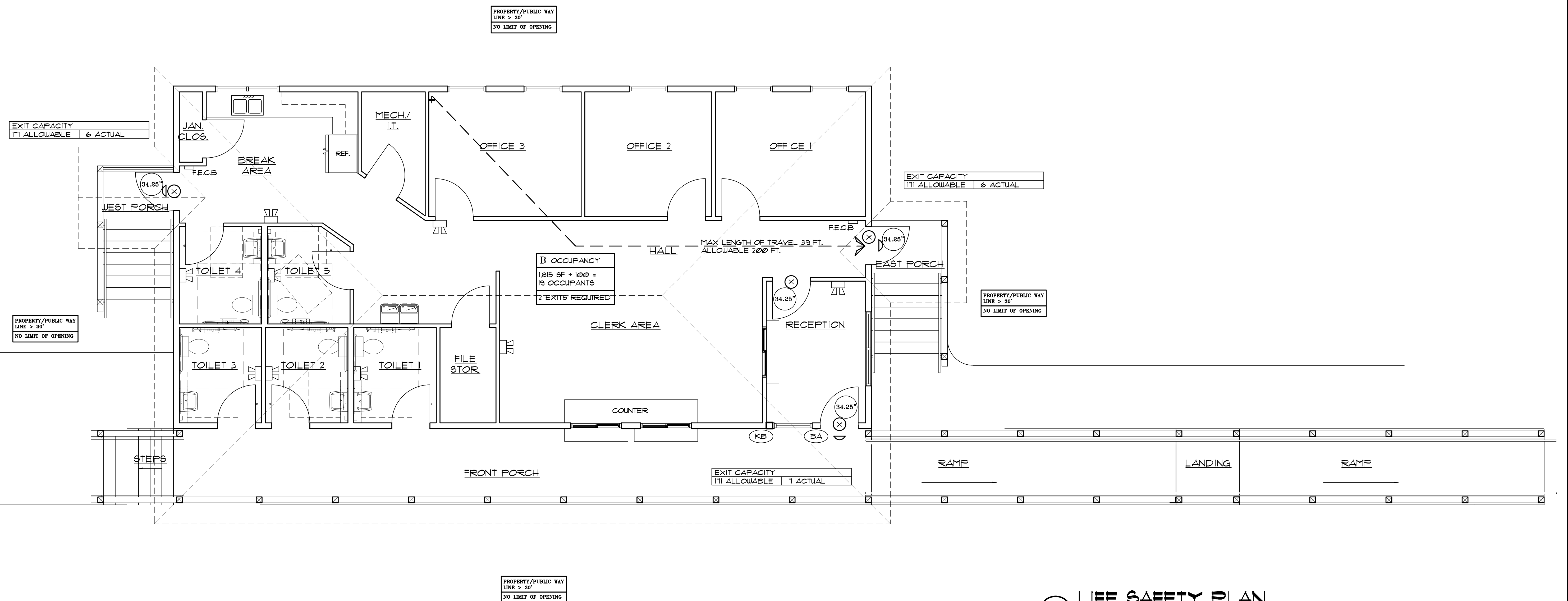
SHEET NO.
G-2
OF

OCCUPANCY/LOAD TYPE KEYING:

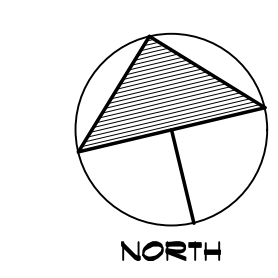
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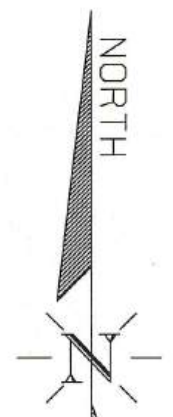
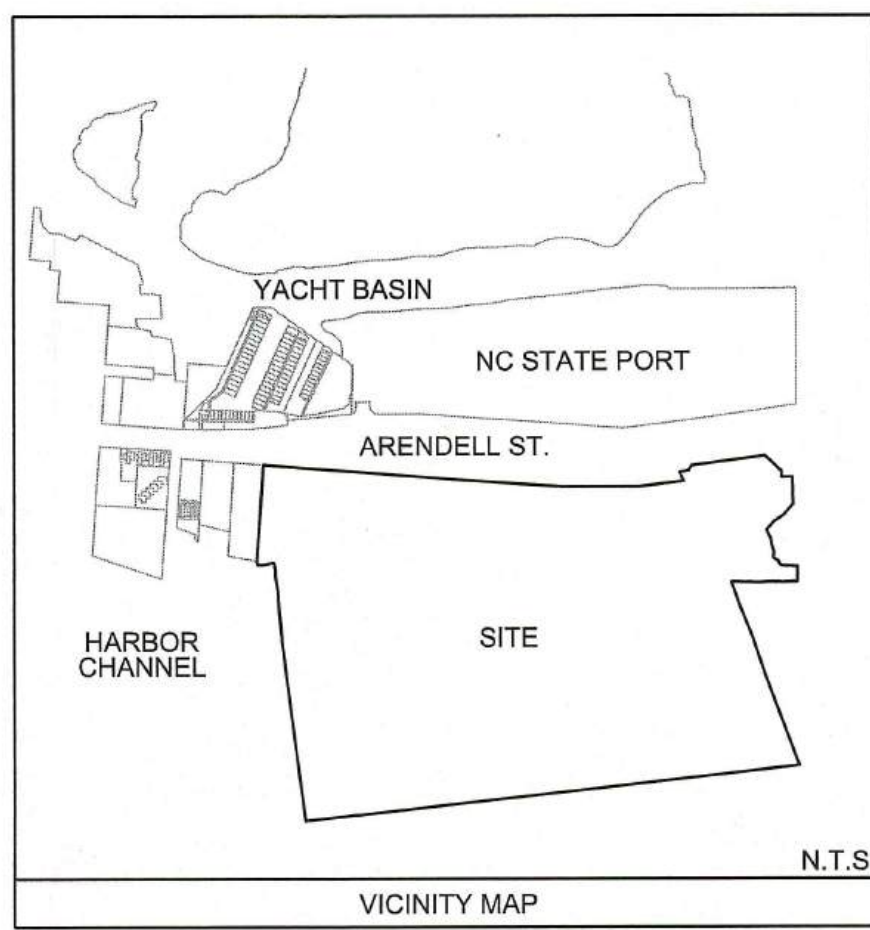
LEGEND:

- (KB) FIRE DEPARTMENT KNOX BOX (VERIFY LOCATION W/ FIRE DEPT.)
- (BA) BUILDING ADDRESS - CONFIRM LOCATION W/ TOWN
- F.E.C.B. FIRE EXTINGUISHER AND CABINET
- (34.25") CLEAR EXIT WIDTH
- (X) EXIT
- EMERGENCY EXIT LIGHT
- ◡ EGRESS LIGHT
- ◡ NEW DOOR



1 LIFE SAFETY PLAN
G-2 SCALE: 1/4" = 1'-0"





BUILDING RELOCATION NOTES

APPROXIMATELY 990 SF OF EXISTING BUILDING IS TO BE RELOCATED ON SITE AT A LOCATION DIRECTED BY THE PORT.

VERIFY THAT RELOCATED EXISTING BUILDING IS NOT INTERFERING WITH EXISTING UTILITIES.

TEMPORARILY RECONNECT THE RELOCATED BUILDING TO EXISTING UTILITIES.

UPON COMPLETION OF THE PROPOSED BUILDING, THE TEMPORARY BUILDING IS TO BE REMOVED/DEMOLISHED.

DEMOLITION NOTES

155 SF OF WOODEN RAMP IS TO BE REMOVED AND DISPOSED OF PROPERLY.

THE A/C UNIT TO THE EAST OF THE EXISTING BUILDING IS TO BE REMOVED.

ALL OTHER UTILITIES ARE TO REMAIN UNLESS REROUTED FOR NEW FACILITY.

CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING UTILITIES BEFORE DEMOLITION/CONSTRUCTION.

CONTRACTOR SHALL CONTACT DUKE ENERGY REGARDING POWER TO THE PROPOSED BUILDING. THE SERVICE UTILITY POLE/PANEL ON THE EAST SIDE OF THE BUILDING WILL REMAIN IN PLACE.

EXISTING WATER AND SEWER LINES SHOWN ARE APPROXIMATE AND ARE SHOWN IN CORRESPONDENCE WITH UTILITY DISTRIBUTION MAPS PROVIDED BY NORTH CAROLINA PORTS DEPARTMENT OF ENGINEERING.

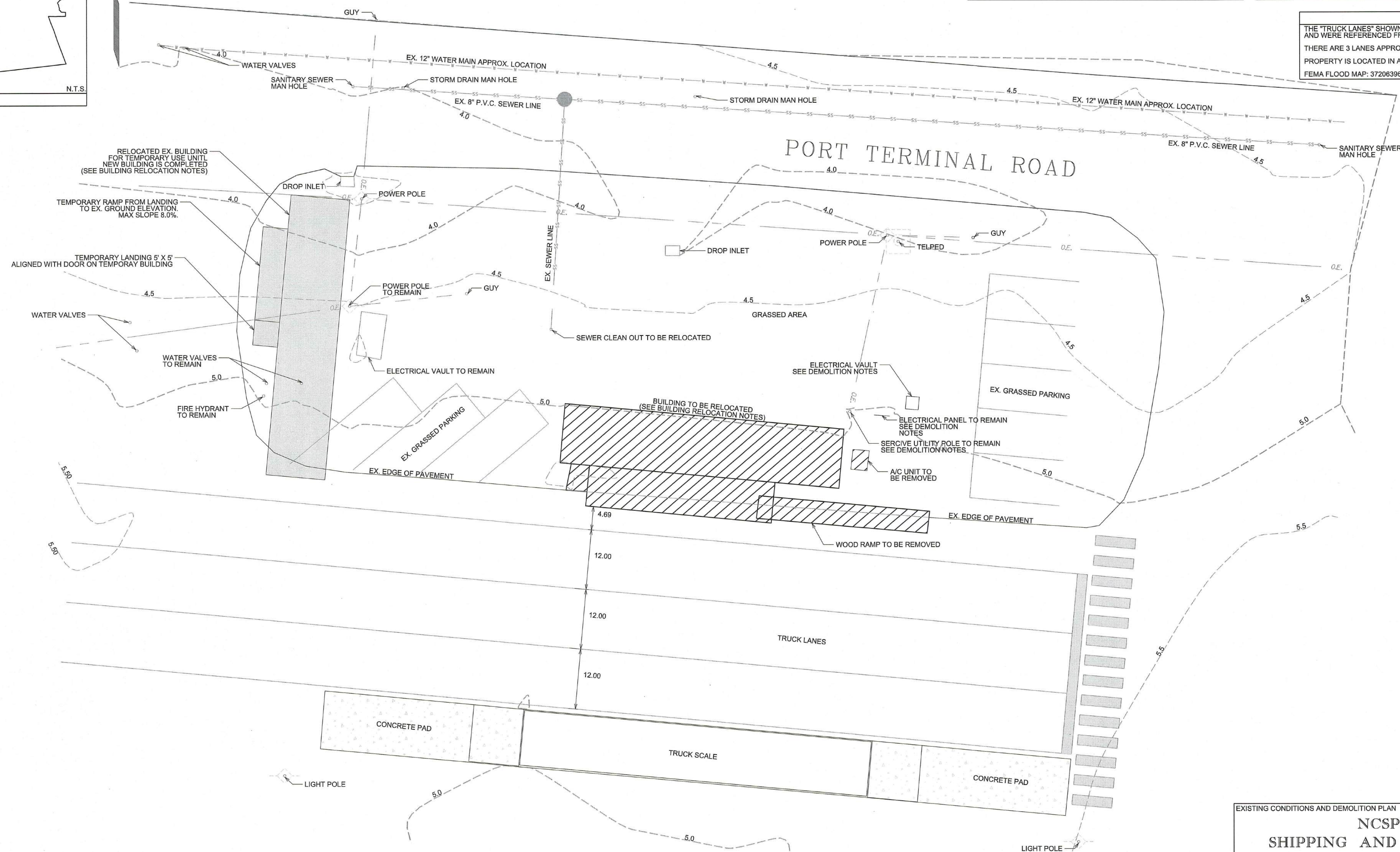
NOTES

THE "TRUCK LANES" SHOWN ON THE PLAN ARE NOT SURVEYED AND WERE REFERENCED FROM AN AERIAL.

THERE ARE 3 LANES APPROXIMATELY 12' IN WIDTH.

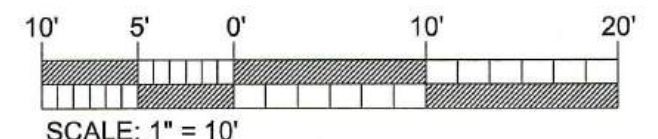
PROPERTY IS LOCATED IN AE 6 FLOOD ZONE.

FEMA FLOOD MAP: 3720639600J (7/16/23)



LEGEND

AREAS TO BE REMOVED	
CONCRETE	
OVERHEAD ELECTRIC	- O.E. -
WATER LINE	- W -
SEWER LINE	- SS -



SHEET # 1 OF 3
 PROJECT # PM2735-013
 DESIGN FILE # PORT SHIPPING AND RECEIVING.dgn



REVISIONS:

No.	BY	DATE	DESCRIPTION
1	HPD	10/16/24	PER NC DOA

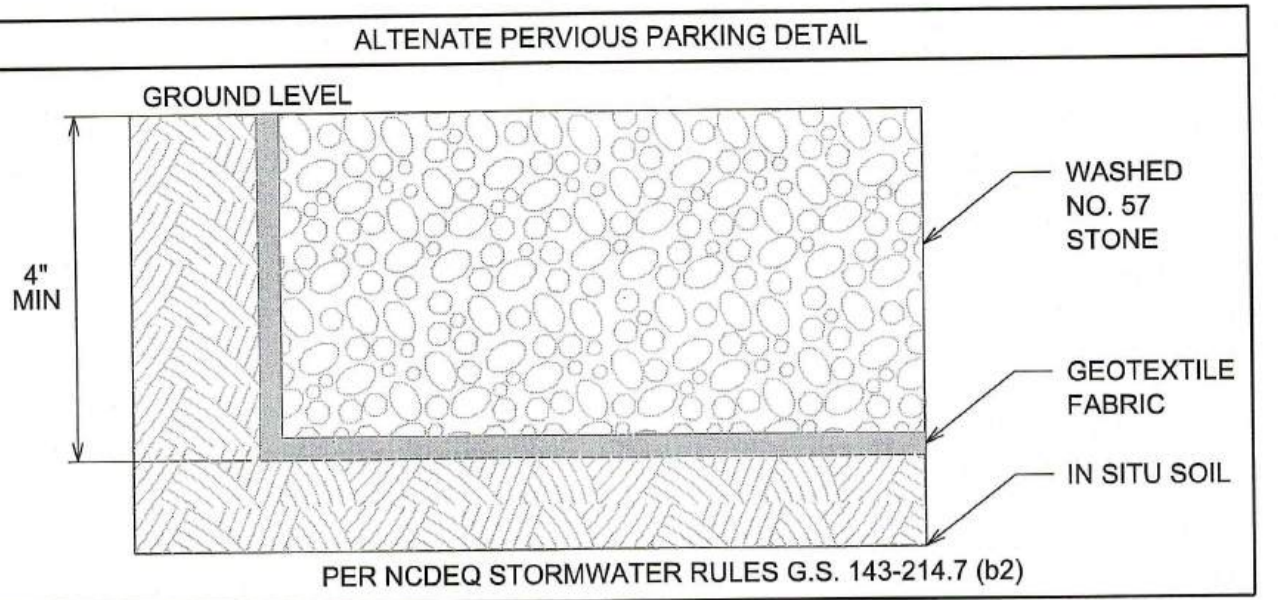
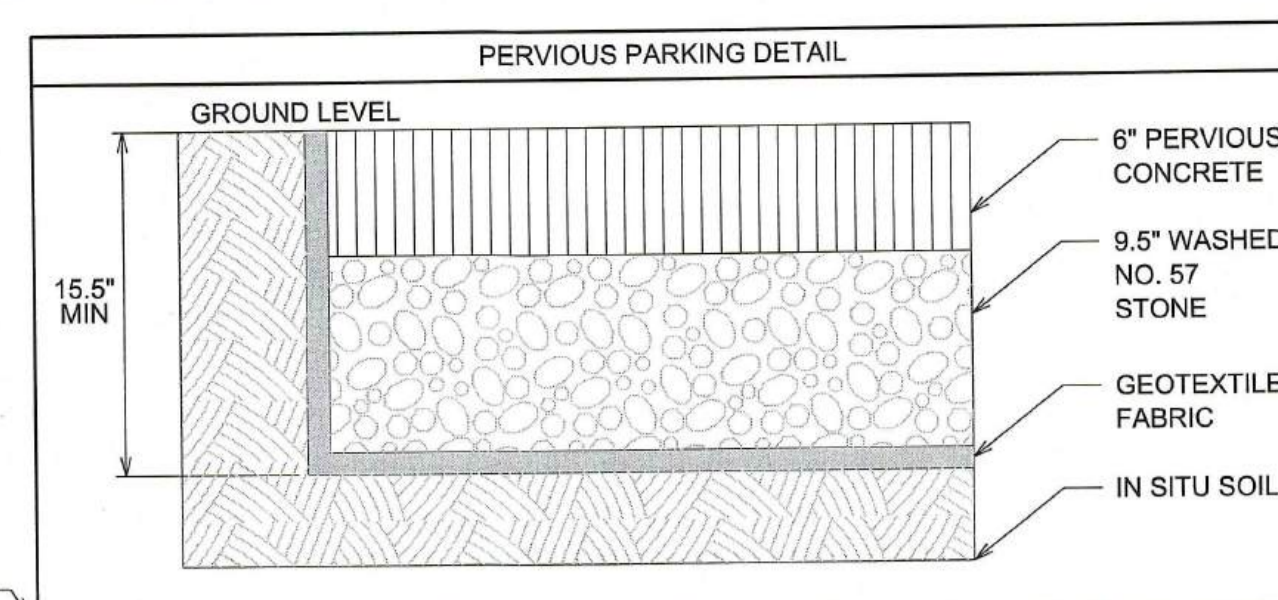
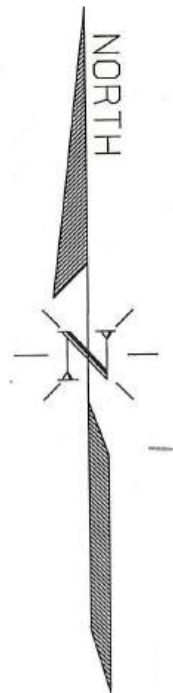
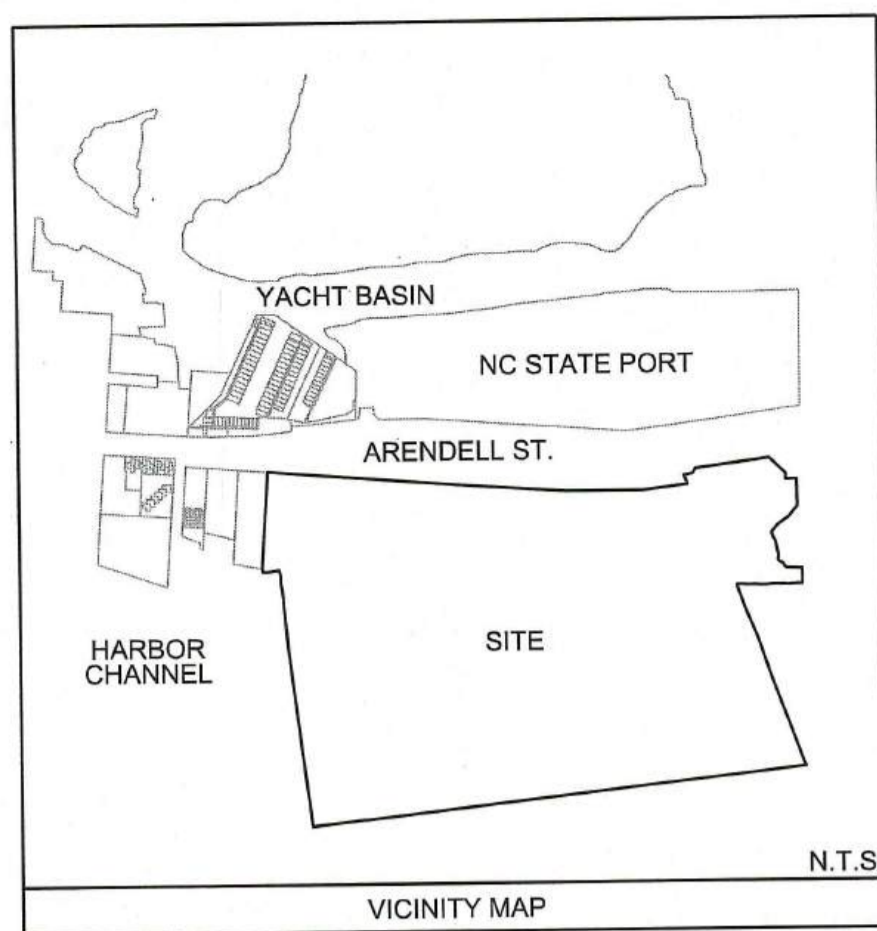
EXISTING CONDITIONS AND DEMOLITION PLAN SCO 24-28316-01A

**NCSPA
SHIPPING AND RECEIVING**

MOREHEAD TWP, CARTERET COUNTY, NORTH CAROLINA

CLIENT: NORTH CAROLINA PORTS	SURVEYED: EGC
ADDRESS: 113 Arendell St, #208 Morehead City, NC 28557	DRAWN: HPD
PHONE: (252) 808-4235	CHECKED: RDC
THE CULLIPHER GROUP, P.A. ENGINEERING & SURVEYING SERVICES 151A HIGHWAY 24 MOREHEAD CITY, N.C. 28557 252-773-0090 <i>Ronald D. Cullipher</i> 10/16/24 RONALD D. CULLIPHER, P.E.	APPROVED: RDC
	DATE: 7/9/2024
	SCALE: 1" = 10'





NOTES

THE "TRUCK LANES" SHOWN ON THE PLAN ARE NOT SURVEYED AND WERE REFERENCED FROM AN AERIAL. THERE ARE 3 LANES APPROXIMATELY 12' IN WIDTH.

THE PROPOSED BUILDING IS 1,815 SF WITH 330 SF OF THAT BEING A COVERED PORCH AREA.

ALL PROPOSED PARKING AREAS AND DRIVE AISLES ARE TO BE PERVIOUS ASPHALT.

THE BUILDING AND PARKING ADDITION DISTURBS APPROXIMATELY 8,767 SF OF EX. GRASSED AREA.

SITE IS LOCATED IN AE 6 FLOOD ZONE.

FEMA FLOOD MAP: 3720639800J (7/16/23)

DEVELOPMENT WHICH WILL TAKE PLACE WITHIN THE LIMITS OF THE 100 YEAR FLOODPLAIN AT ELEVATION AE 6 IS DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF EXECUTIVE ORDER NO. 123 - UNIFORM FLOODPLAIN MANAGEMENT POLICY.

UTILITY NOTES

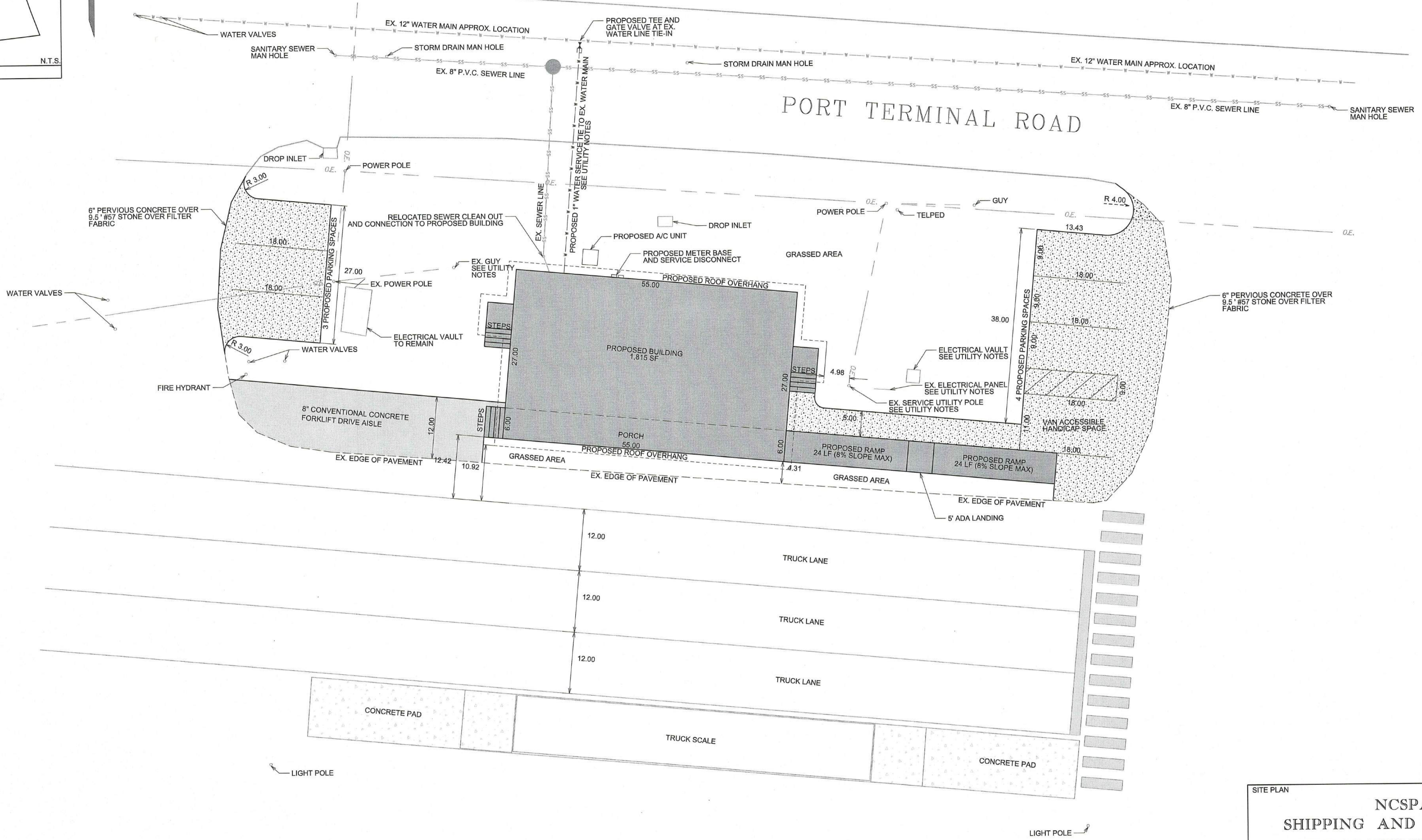
CONTRACTOR SHALL CONTACT DUKE ENERGY REGARDING POWER TO THE PROPOSED BUILDING. THE SERVICE UTILITY POLE AND PANEL ON THE EAST SIDE OF THE BUILDING WILL REMAIN IN PLACE.

SANITARY SEWER RUNNING FROM THE PROPOSED BUILDING SHALL TIE INTO THE EXISTING CLEAN OUT ON THE NORTHWEST CORNER OF THE BUILDING.

SANITARY SEWER SERVICE SHALL TIE-IN AT SAME LOCATION OF PREVIOUS BUILDING TIE-IN. EXISTING SEWER SERVICE IS FUNCTIONING AND OPERATIONAL.

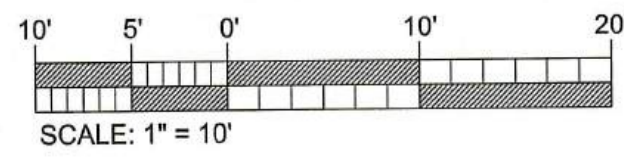
PROPOSED WATER SERVICE TO THE BUILDING IS APPROXIMATE AND SHALL BE FIELD VERIFIED TO DETERMINE IF THERE ARE ANY EXISTING SERVICE LINES ALREADY IN PLACE.

EXISTING WATER AND SEWER LINES SHOWN ARE APPROXIMATE AND ARE SHOWN IN CORRESPONDENCE WITH UTILITY DISTRIBUTION MAPS PROVIDED BY NORTH CAROLINA PORTS DEPARTMENT OF ENGINEERING.



LEGEND

PROPOSED BUILDING	[Hatched Pattern]
CONVENTIONAL CONCRETE	[Solid Grey]
PERVIOUS CONCRETE	[Dotted Pattern]
OVERHEAD ELECTRIC	- O.E. -
WATER LINE	- W -
SEWER LINE	- SS -



SHEET # 2 OF 3
PROJECT # PM2735-013
DESIGN FILE #: PORT SHIPPING AND RECEIVING.dgn



REVISIONS:

No.	BY	DATE	DESCRIPTION
1	HPD	10/16/24	PER NC DOA

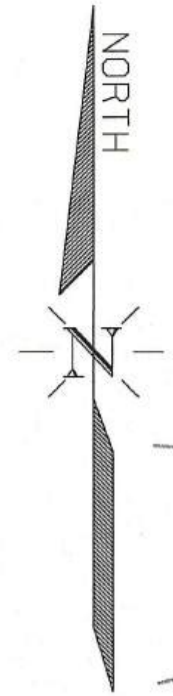
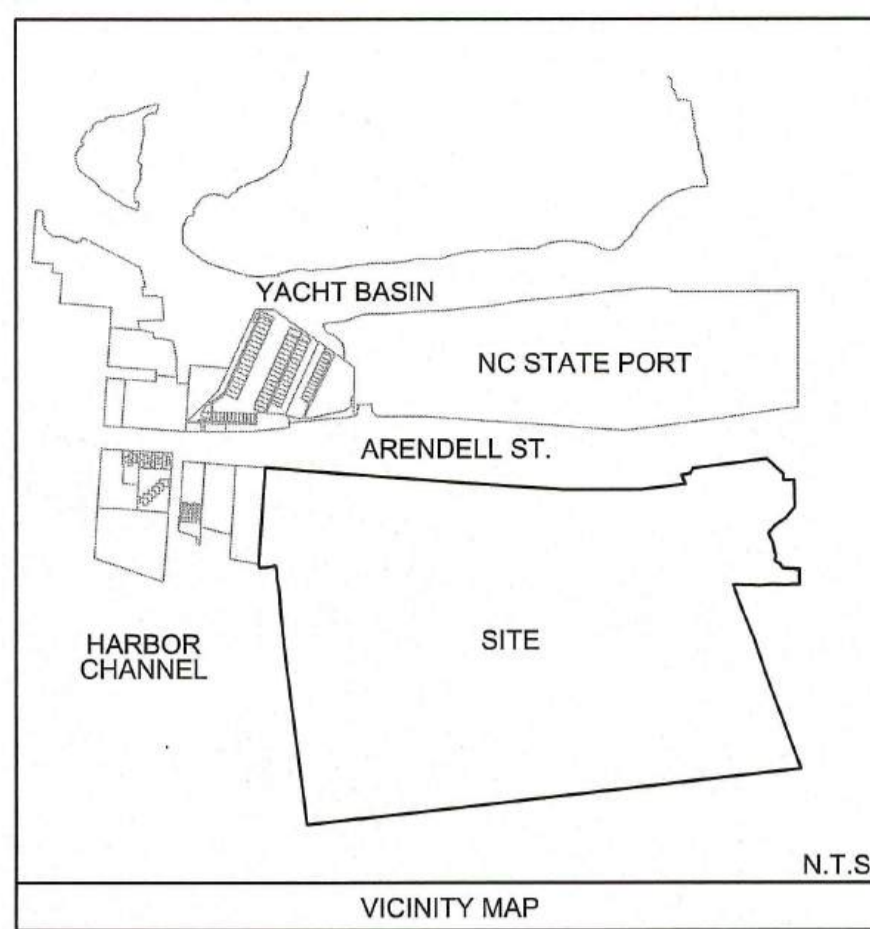
SITE PLAN SCO 24-28316-01A

NCSPA
SHIPPING AND RECEIVING

MOREHEAD TWP. CARTERET COUNTY, NORTH CAROLINA

CLIENT: NORTH CAROLINA PORTS	SURVEYED: EGC
ADDRESS: 113 Arendell St, #208 Morehead City, NC 28557	DRAWN: HPD
PHONE: (252) 808-4235	CHECKED: RDC
THE CULLIPHER GROUP, P.A. ENGINEERING & SURVEYING SERVICES 151A HIGHWAY 24 MOREHEAD CITY, N.C. 28557 (252) 773-0096	APPROVED: RDC
RONALD D. CULLIPHER, P.E.	DATE: 6/9/2024
	SCALE: 1" = 10'





NOTES

THE "TRUCK LANES" SHOWN ON THE PLAN ARE NOT SURVEYED AND WERE REFERENCED FROM AN AERIAL.

THERE ARE 3 LANES APPROXIMATELY 12' IN WIDTH.

THE PROPOSED BUILDING IS 1,815 SF WITH 330 SF OF THAT BEING A COVERED PORCH AREA.

ALL PROPOSED PARKING AREAS AND DRIVE AISLES ARE TO BE PERVIOUS CONCRETE OR CONVENTIONAL CONCRETE.

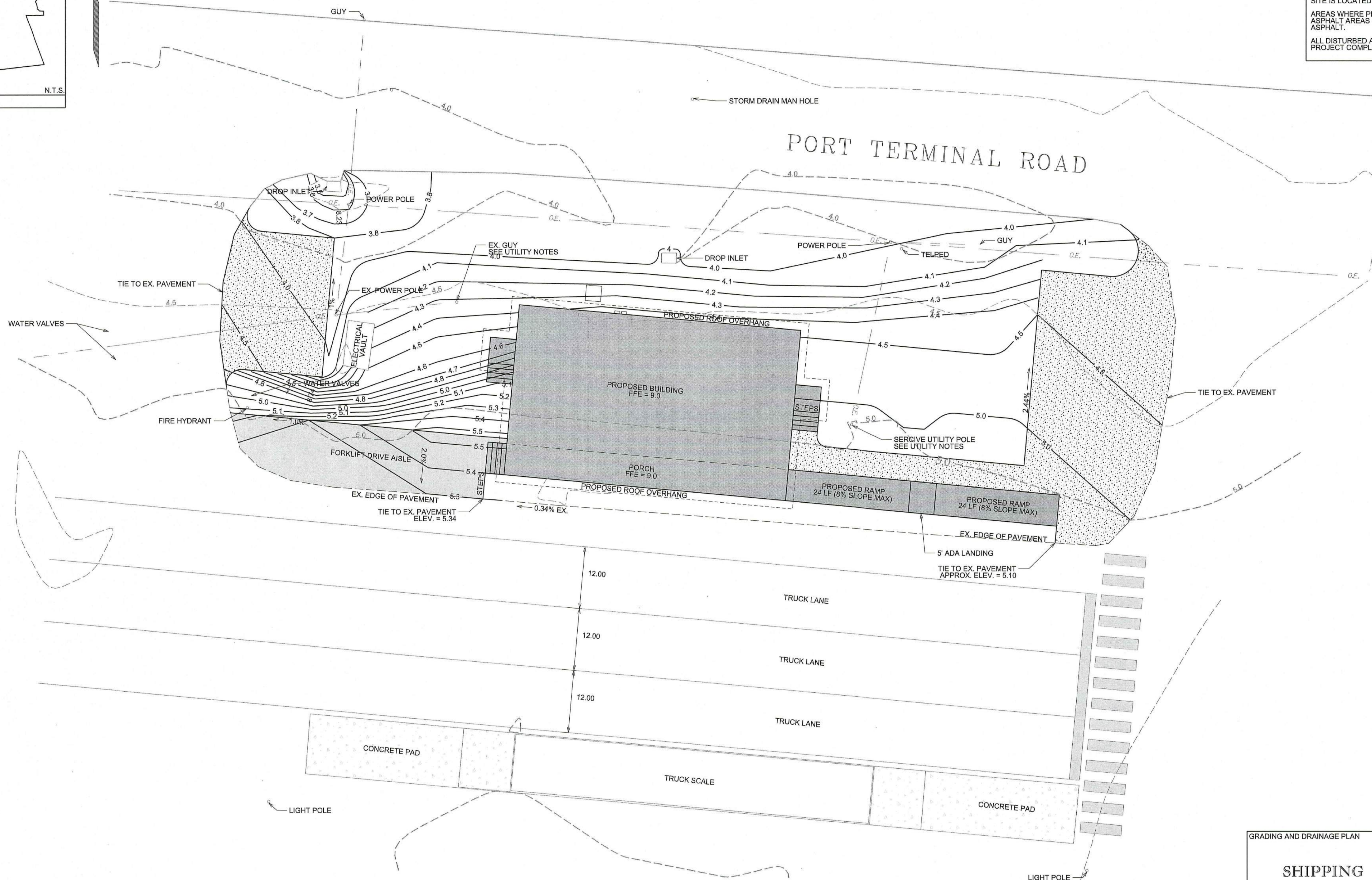
THE BUILDING AND PARKING ADDITION DISTURBS APPROXIMATELY 8,767 SF OF EX. GRASSED AREA.

N.C. STATE PROPERTY MUST BE LOCATED 2.0 FT. ABOVE THE EFFECTIVE FLOOD ZONE.

SITE IS LOCATED IN AE 6 FLOOD ZONE.

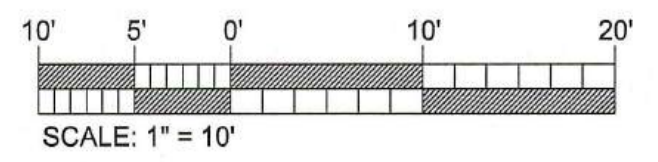
AREAS WHERE PROPOSED PERVIOUS PAVEMENT MEETS EXISTING ASPHALT AREAS SHALL TIE TO THE ELEVATION OF THE EXISTING ASPHALT.

ALL DISTURBED AREAS SHALL BE FINE GRADED AND SEEDING AT PROJECT COMPLETION.



LEGEND

PROPOSED BUILDING	[Pattern]
CONVENTIONAL CONCRETE	[Pattern]
PERVIOUS CONCRETE	[Pattern]
OVERHEAD ELECTRIC	- O.E. -
WATER LINE	- W -
SEWER LINE	- SS -
EXISTING CONTOUR	- 4.0 -
PROPOSED CONTOUR	- 4.0 -



REVISIONS:

No.	BY	DATE	DESCRIPTION
1	HPD	10/16/24	PER NC DOA

SHEET # 3 OF 3
 PROJECT # PM2735-013
 DESIGN FILE # PORT SHIPPING AND RECEIVING.dgn

GRADING AND DRAINAGE PLAN SCO 24-28316-01A

NCSPA
SHIPPING AND RECEIVING

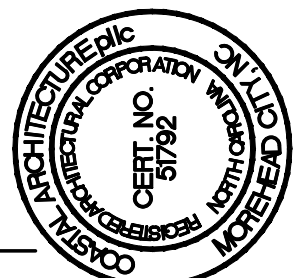
MOREHEAD TWP, CARTERET COUNTY, NORTH CAROLINA

CLIENT: NORTH CAROLINA PORTS	SURVEYED: EGC
ADDRESS: 113 Arendell St, #208 Morehead City, NC 28557	DRAWN: HPD
PHONE: (252) 808-4235	CHECKED: RDC
THE CULLIPHER GROUP, P.A. ENGINEERING & SURVEYING SERVICES 151A HIGHWAY 24 MOREHEAD CITY, N.C. 28557 LICENSE NO. C-4482	APPROVED: RDC
<i>Ronald D. Cullipher</i> RONALD D. CULLIPHER, P.E.	DATE: 7/9/2024
	SCALE: 1" = 10'



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SHIPPING AND RECEIVING
 MOREHEAD CITY, NORTH CAROLINA

NCSPA PROJECT # 10665
SCO ID# : 24-28316-01A



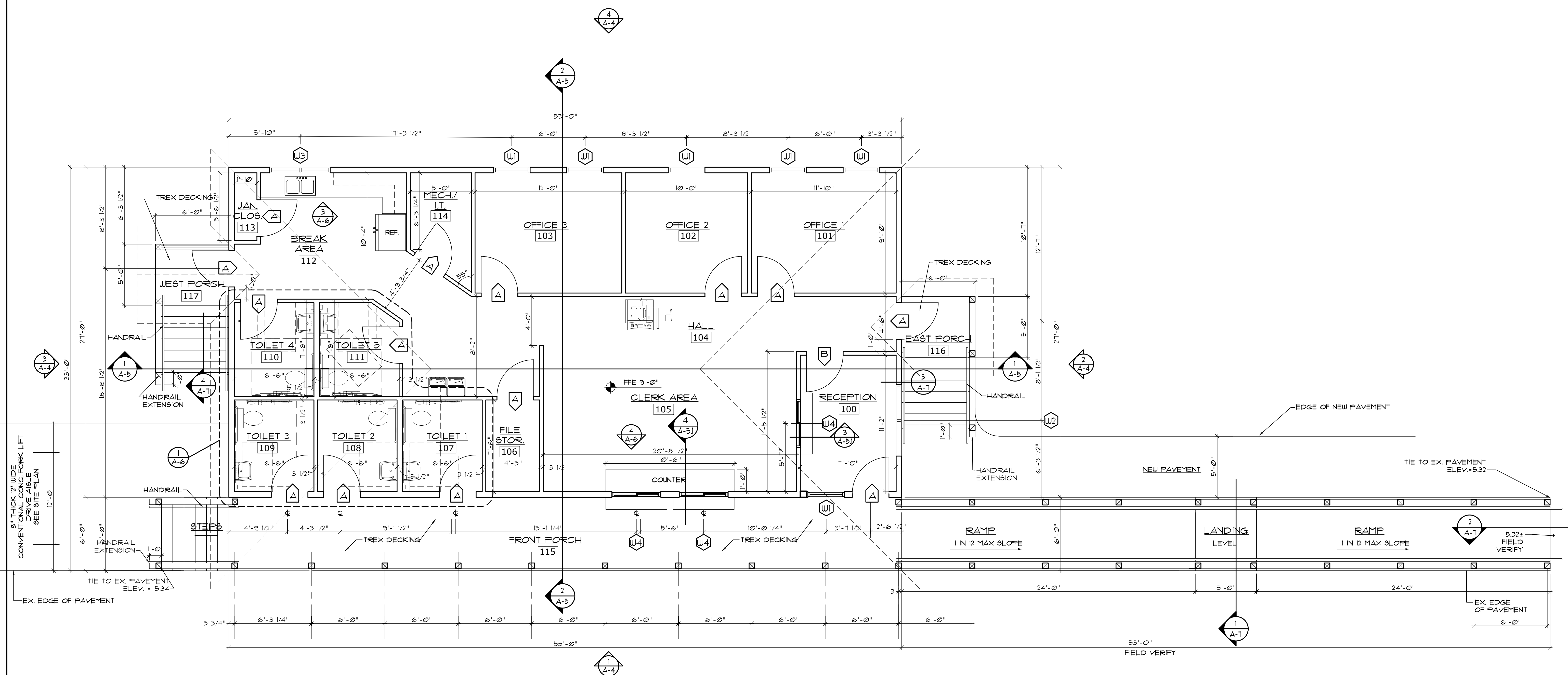
FLOOR PLAN

23027

ISSUED: 07/12/24
DWG BY: SKK
CKD BY: LDD

NO.	DESCRIPTION	DATE

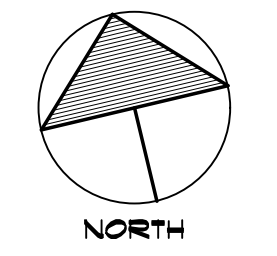
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A-1
OF

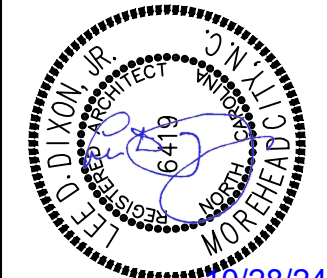
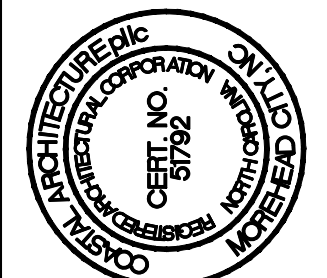


FLOOR PLAN
SCALE: 1/4" = 1'-0"

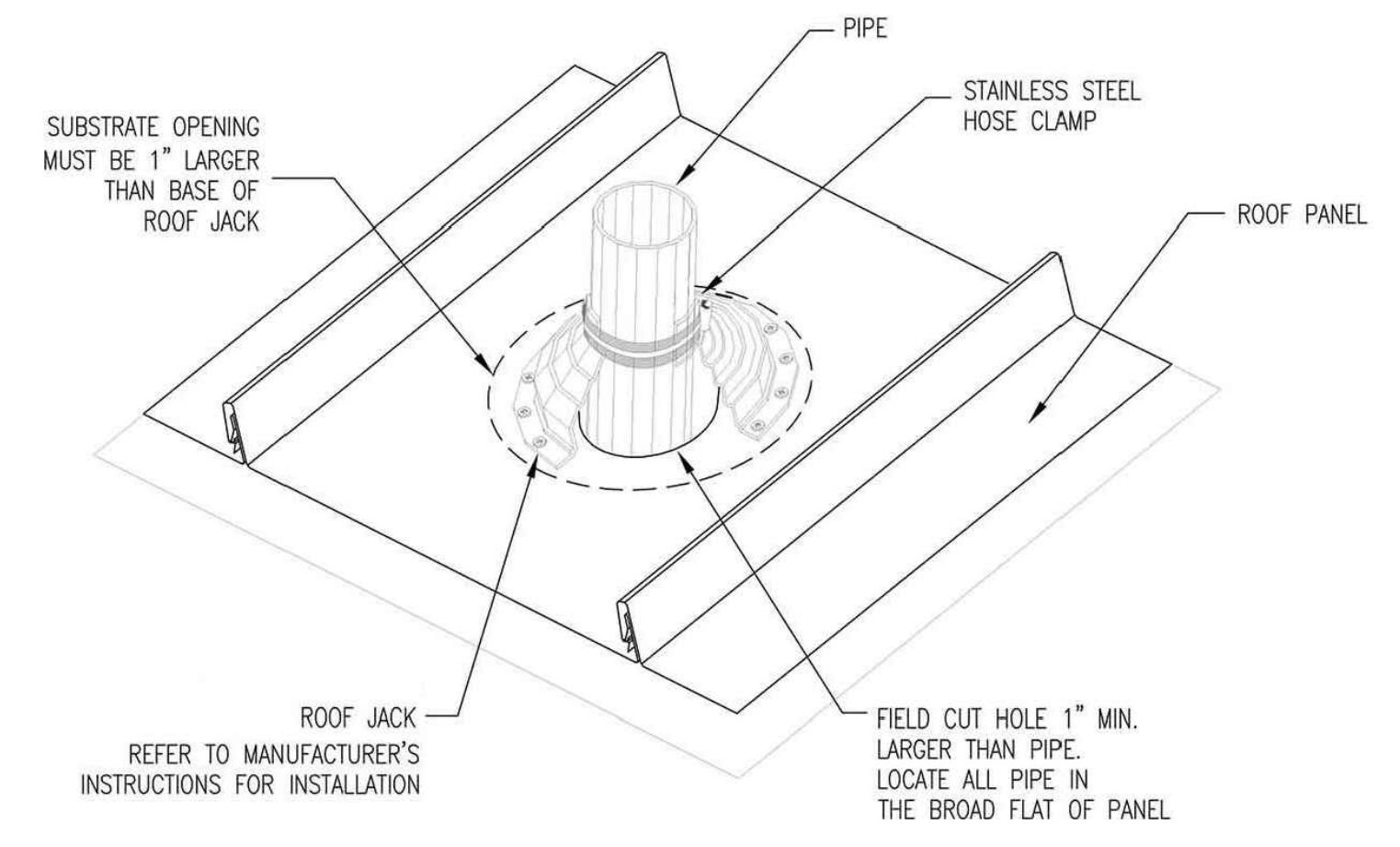
DOOR
FOYER 102

LEGEND
DOOR INDICATOR
DOOR 102A
ROOM *



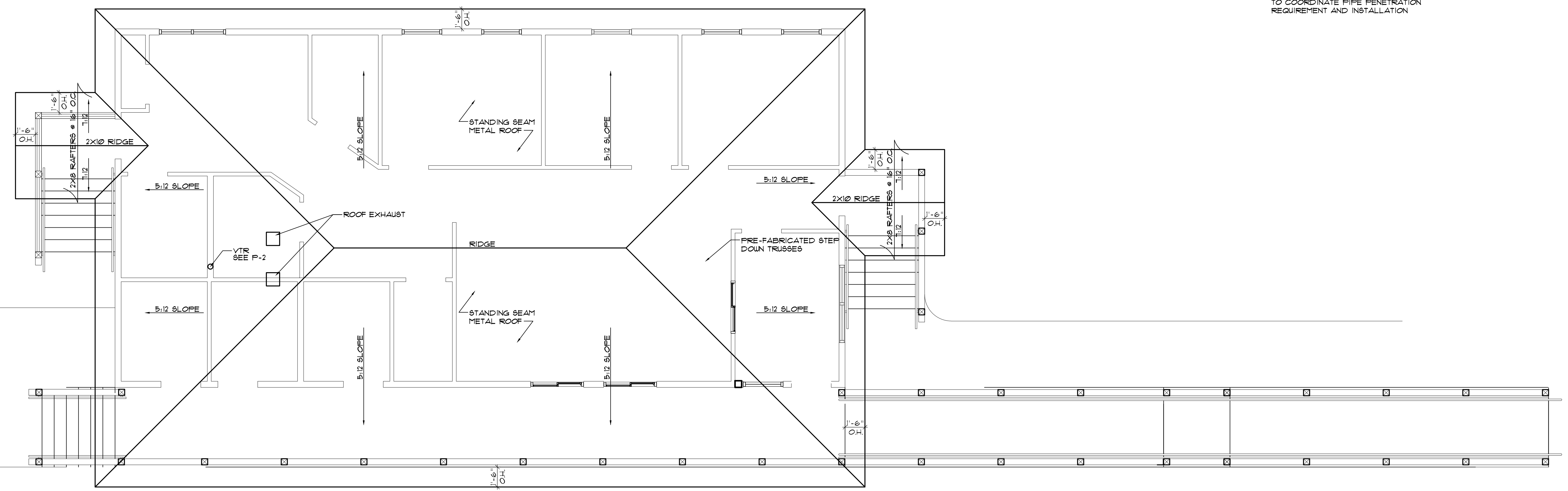


NO.	REVISIONS

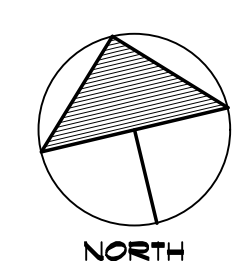


2 PIPE PENETRATION DETAIL
SCALE: NTS

ROOFER AND PLUMBING CONTRACTOR TO COORDINATE PIPE PENETRATION REQUIREMENT AND INSTALLATION

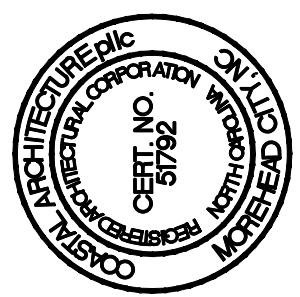


1 ROOF PLAN
SCALE: 1/4" = 1'-0"



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 MOREHEAD CITY, NORTH CAROLINA

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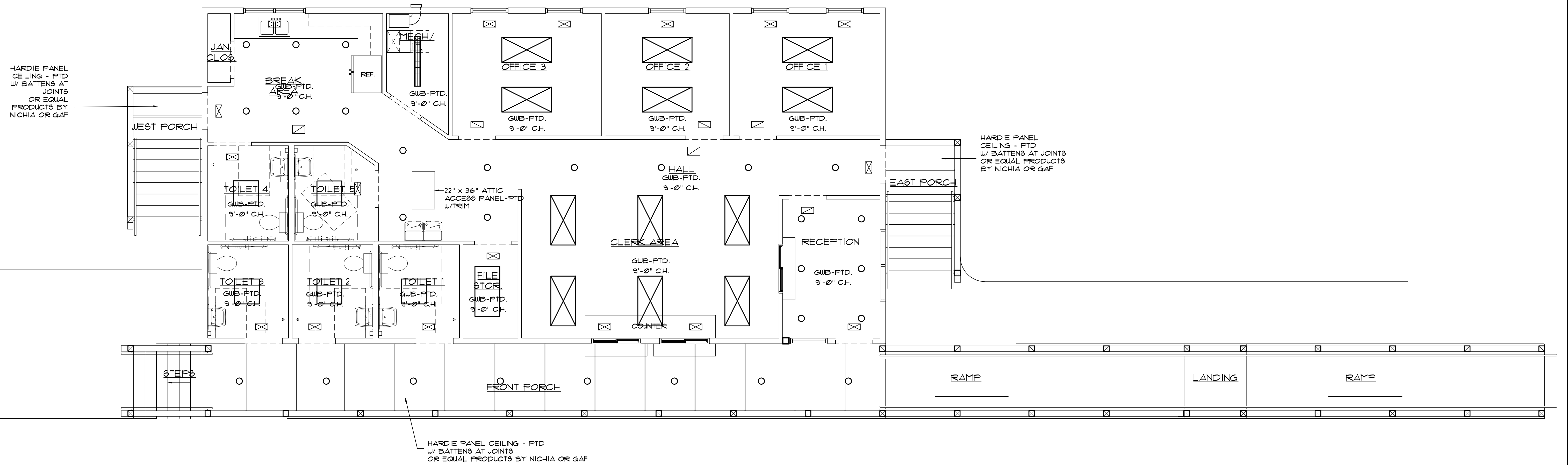
REFLECTED CEILING PLAN

23027

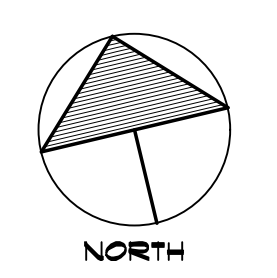
ISSUED: 07/12/24
DWG BY: SKC
CKD BY: LDD

NO.	REVISIONS

SHEET NO.
A-2
OF

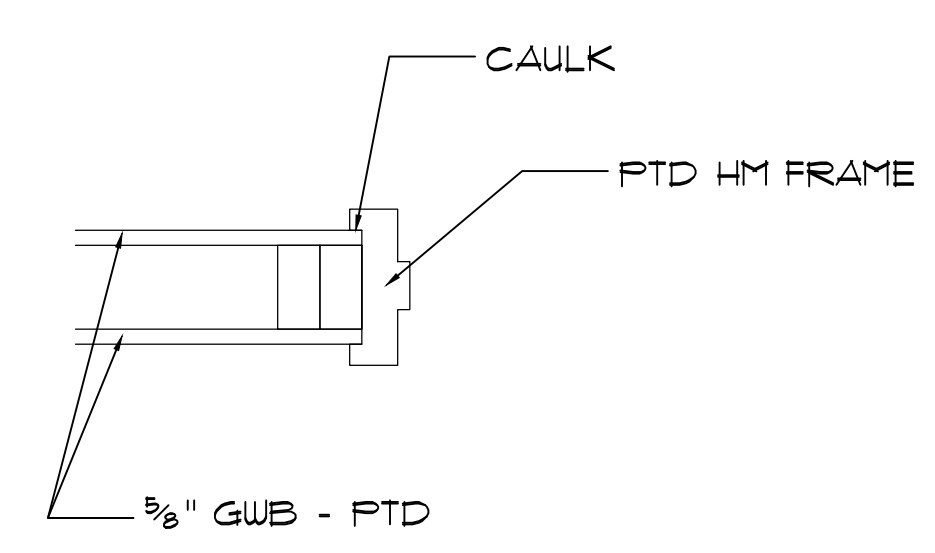


1 REFLECTED CEILING PLAN
A-2 SCALE: 1/4" = 1'-0"

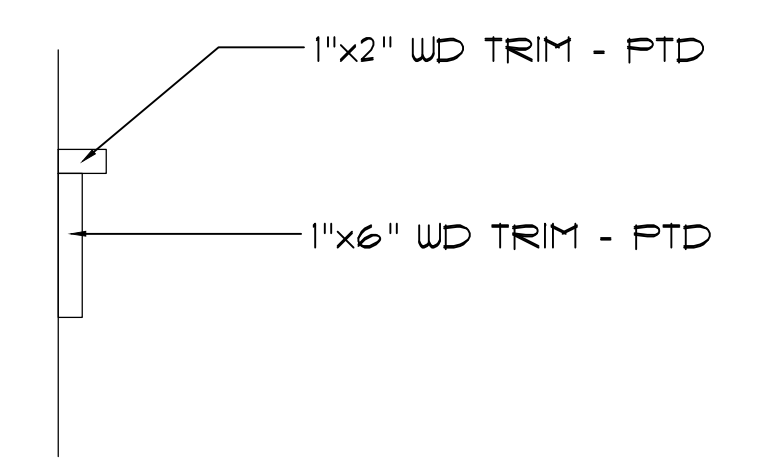


WINDOW SCHEDULE					
MARK	SIZE (NOMINAL)	TYPE	MAT.	GLASS	REMARKS
U1	3'-0" W x 5'-0" H	FIXED	ALUM.	IMPACT RESISTANT	IMPACT TEST MEET NCSBC 2 406.2 REQUIRED
U2	5'-10" W x 5'-0" H	FIXED	ALUM.	IMPACT RESISTANT	
U3	5'-0" W x 3'-8" H	FIXED	ALUM.	IMPACT RESISTANT	
U4	4'-0" W x 4'-0" H	SLIDING WINDOW	ALUM.	IMPACT RESISTANT	

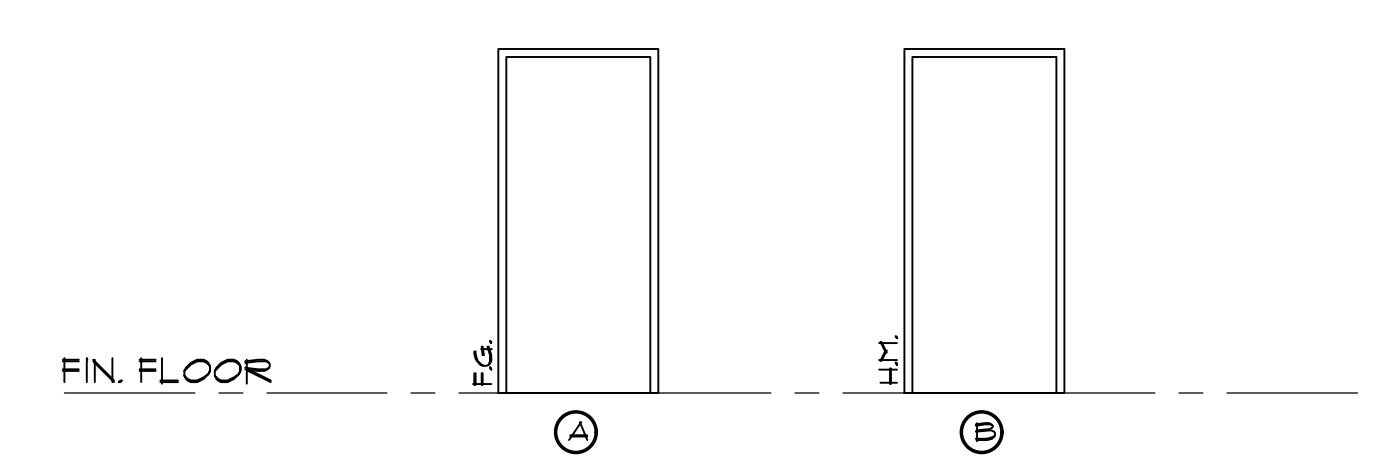
NOTE: ● WINDOWS SHALL MEET APPLICABLE WIND ZONE CODE DESIGN PRESSURE REQUIREMENTS
● PROVIDE HEAD AND SILL FLASHING AT ALL WINDOWS



5
A-3 TYP HOLLOW METAL FRAME AT INTERIOR WALL
SCALE: 1/2" = 1'-0"



4
A-3 TYP INTERIOR WINDOW CASING
SCALE: 1/2" = 1'-0"
SIMILAR AT EXTERIOR DOORS



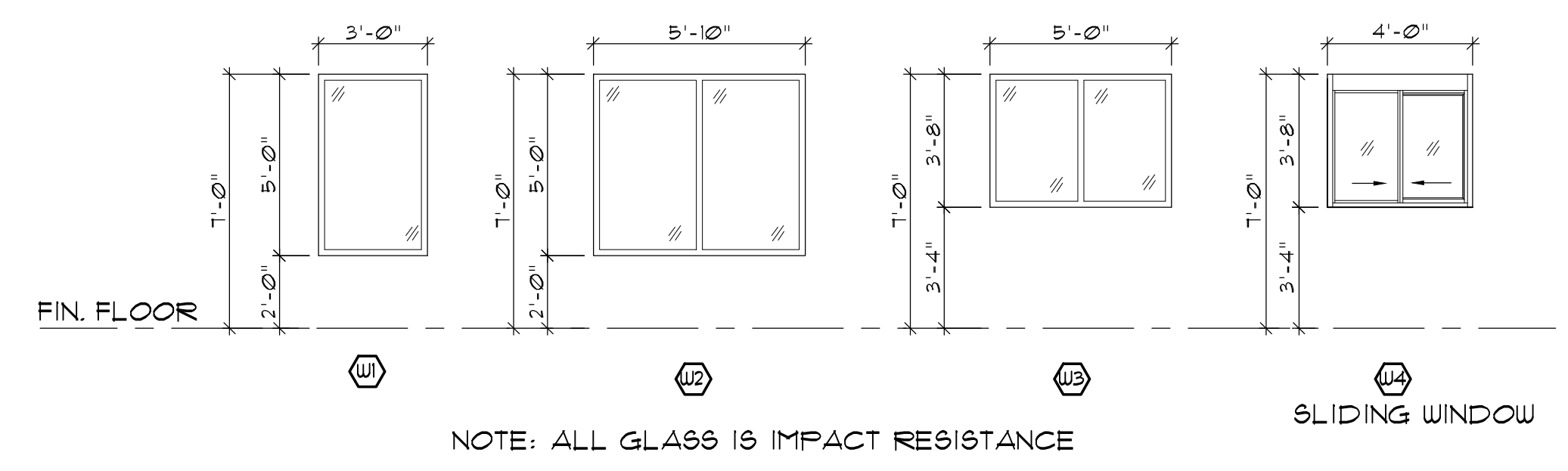
2
A-3 DOOR FRAME ELEVATIONS
SCALE: 1/4" = 1'-0"

DOOR NO.	SIZE	DOOR		FRAME	REMARKS
		MAT.	TYPE		
100A	3'-0" x 1'-0"	F.G.	1	A	
100B	3'-0" x 1'-0"	WD.	3	B	
101A	3'-0" x 1'-0"	WD.	3	B	
102A	3'-0" x 1'-0"	WD.	3	B	
103A	3'-0" x 1'-0"	WD.	3	B	
104A	3'-0" x 1'-0"	F.G.	1	A	
106A	3'-0" x 1'-0"	WD.	4	B	
107A	3'-0" x 1'-0"	F.G.	2	A	
108A	3'-0" x 1'-0"	F.G.	2	A	
109A	3'-0" x 1'-0"	F.G.	2	A	
110A	3'-0" x 1'-0"	WD.	4	B	
111A	3'-0" x 1'-0"	WD.	4	B	
112A	3'-0" x 1'-0"	F.G.	1	A	
113A	3'-0" x 1'-0"	WD.	4	B	
114A	3'-0" x 1'-0"	WD.	4	B	

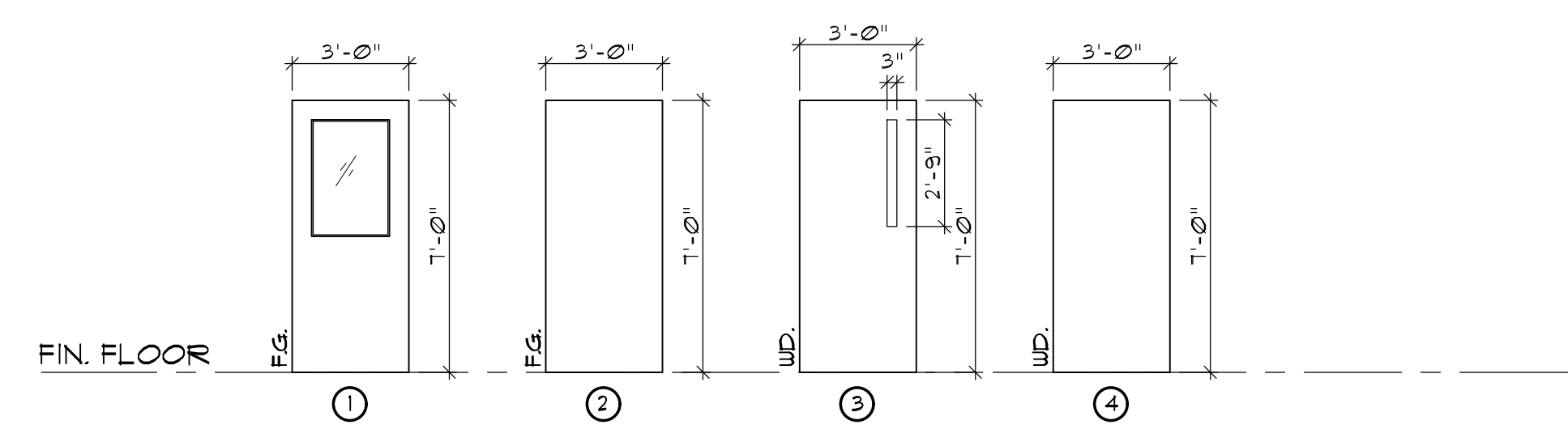
REMARKS
● ALL GLASS TO BE TEMPERED

ROOM FINISH SCHEDULE						
ROOM	FLOORS	BASE	WALLS	CEILINGS	HEIGHT (NOMINAL)	REMARKS
100 RECEPTION	LVP	VINYL	GWB - PTD.	GWB - PTD.	9'-0"	
101 OFFICE 1						
102 OFFICE 2						
103 OFFICE 3						
104 HALL						
105 CLERK AREA						
106 FILE STORAGE						
107 TOILET 1						①
108 TOILET 2						①
109 TOILET 3						①
110 TOILET 4						①
111 TOILET 5						①
112 BREAK AREA						
113 JANITOR CLOSET						
114 MECH/IT						
115 FRONT PORCH						HARDIE FNL. - PTD.
116 EAST PORCH						HARDIE FNL. - PTD.
117 WEST PORCH						HARDIE FNL. - PTD.

ROOM FINISH SCHEDULE REMARKS
① EPOXY PAINTED WALLS



3
A-3 WINDOW ELEVATIONS
SCALE: 1/4" = 1'-0"



1
A-3 DOOR ELEVATIONS
SCALE: 1/4" = 1'-0"

NOTE:
CONTRACTOR SHALL FIELD VERIFY ALL DOOR AND WINDOW ROUGH OPENING DIMENSIONS PRIOR TO ORDERING UNITS.

Coastal Architecture
• Architectural Design
• Planning
• Interiors

AIA
Member of the American Institute of Architects

Lee D. Dixon, Jr., AIA
lee@coastalarchitecture.net
4206 Bridges St. Ext., Suite C
Morehead City, NC 28557
www.CoastalArchitecture.net

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SHIPPING AND RECEIVING
MOREHEAD CITY, NORTH CAROLINA

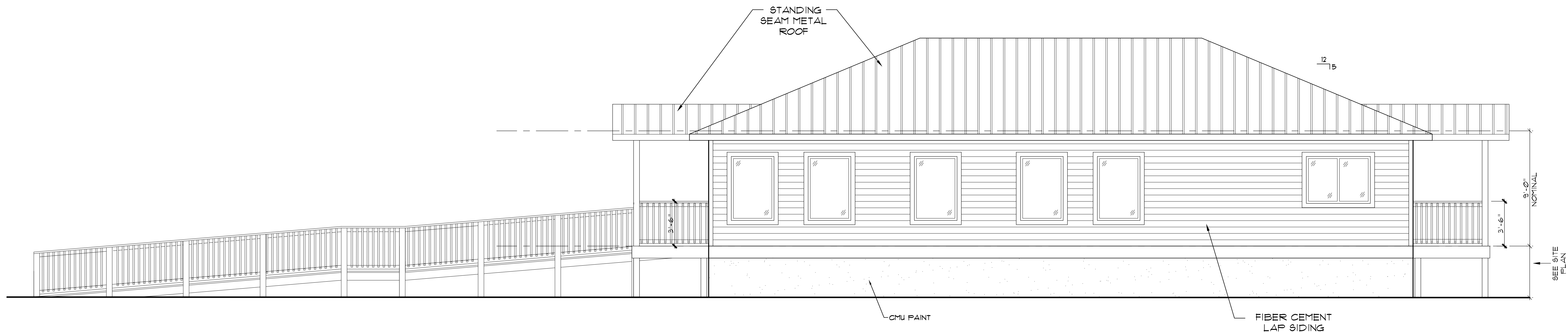
NCSPA PROJECT # 10665
SCO ID# : 24-28316-OIA

DOOR, WINDOW, AND ROOM FINISH SCHEDULES

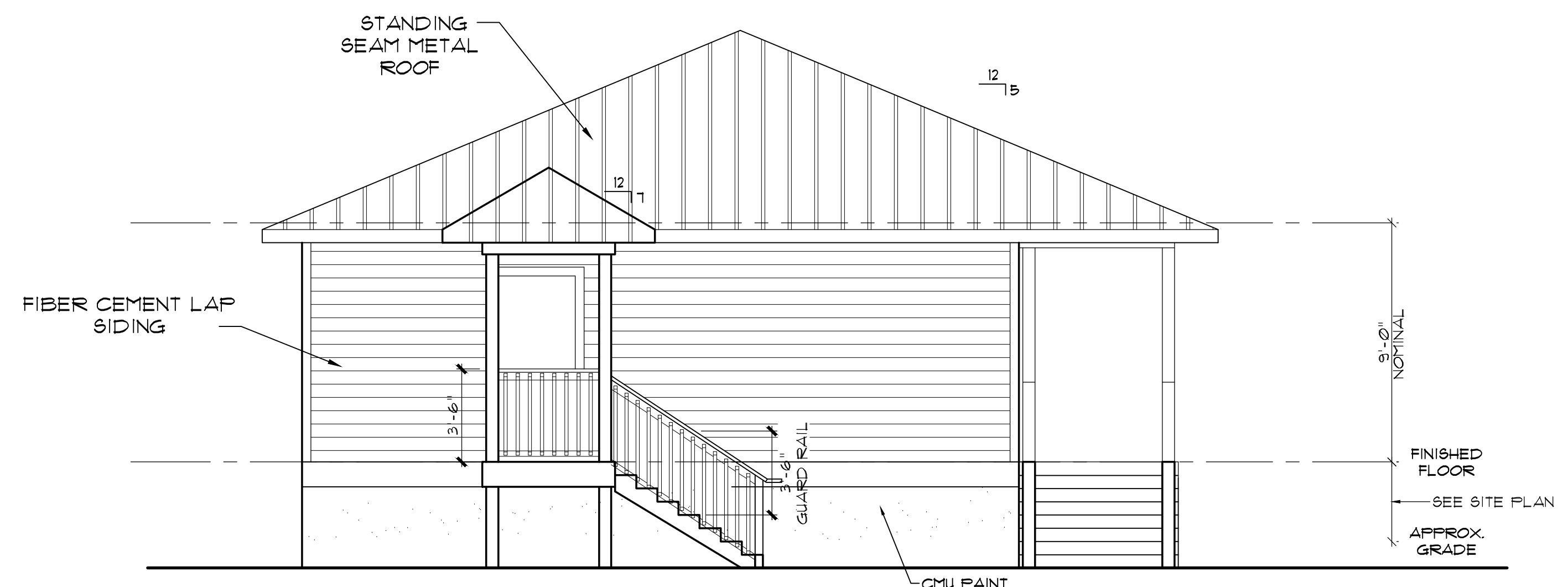
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ISSUED: 07/12/24
DWG BY: SKC
CKD BY: LDD

REVISIONS

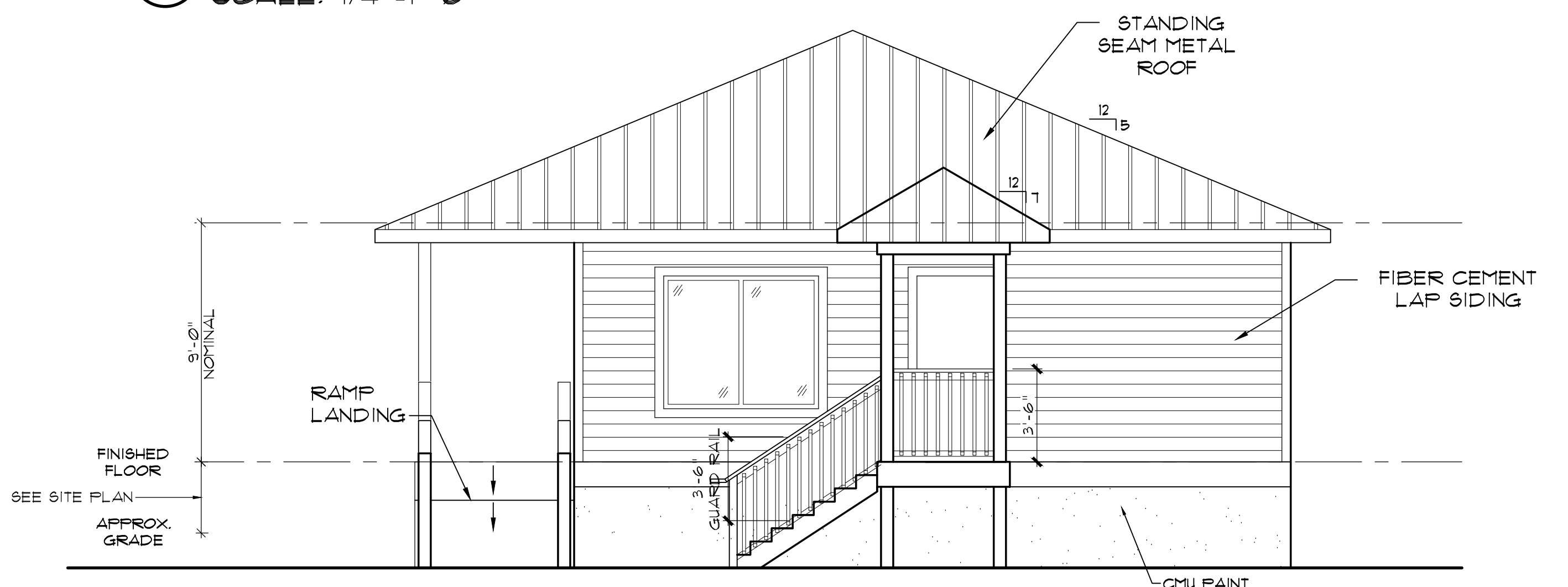
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OF



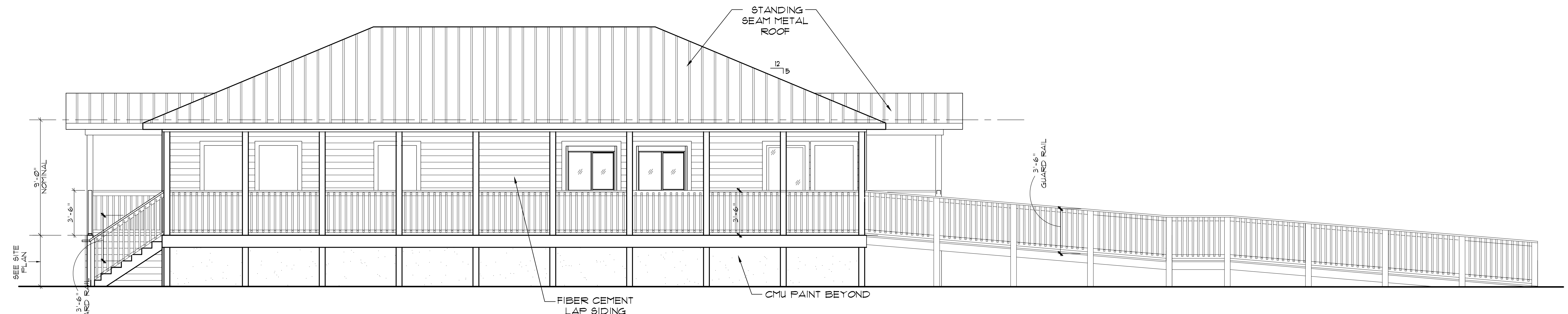
4 REAR ELEVATION
SCALE: 1/4" = 1'-0"



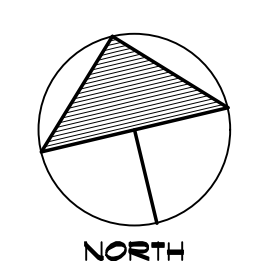
3 LEFT ELEVATION
SCALE: 1/4" = 1'-0"

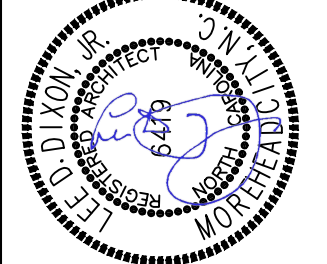
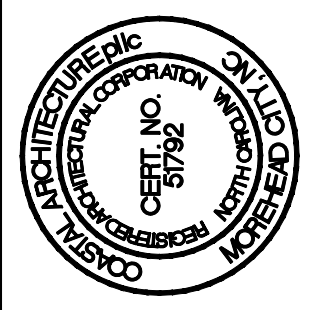


2 RIGHT ELEVATION
SCALE: 1/4" = 1'-0"



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





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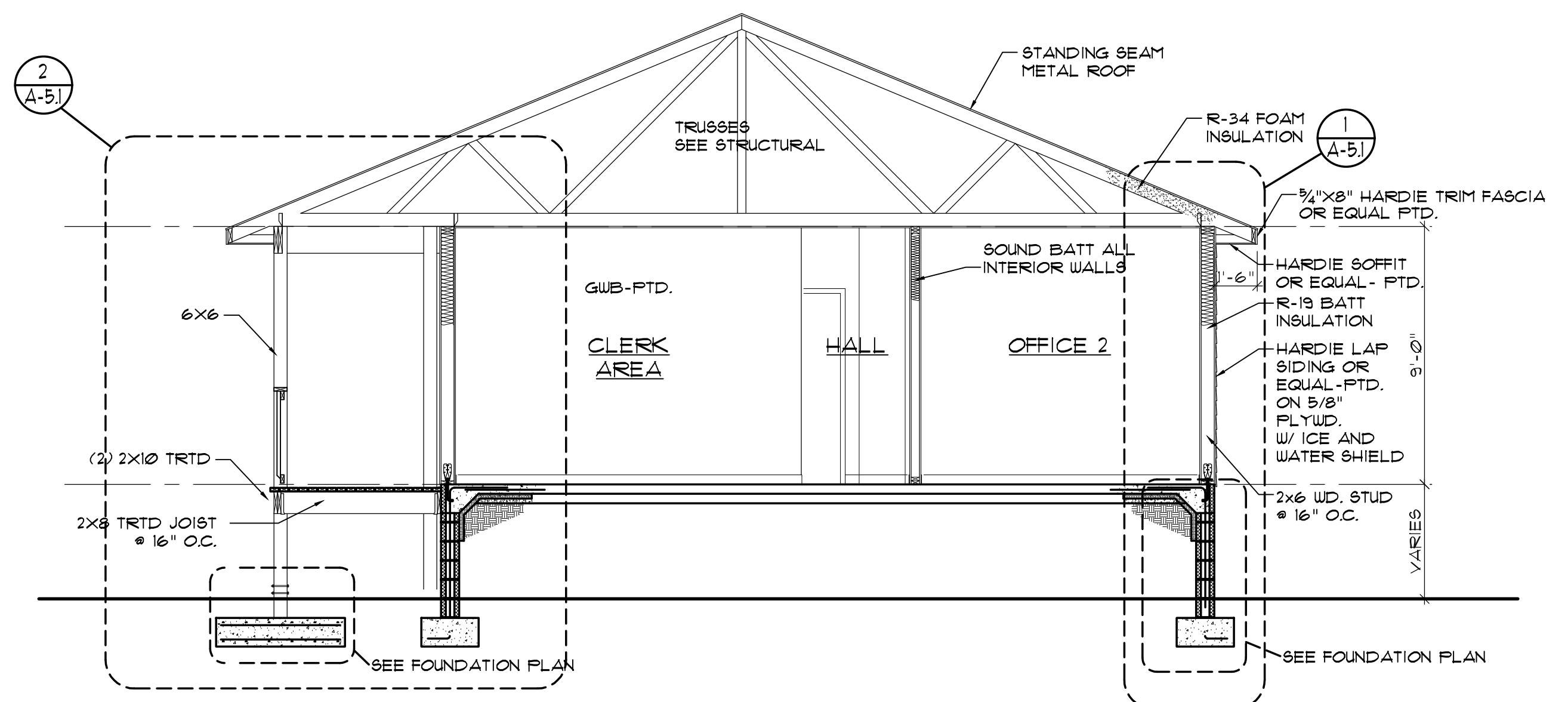
BUILDING SECTIONS

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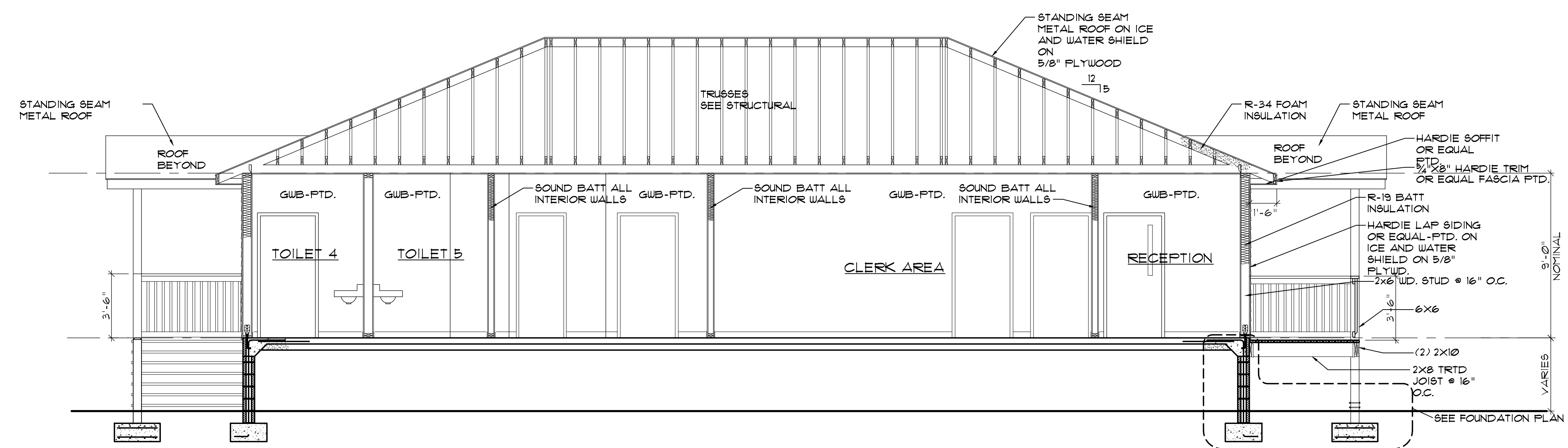
ISSUED: 07/12/24
DWG BY: SKC
CKD BY: LDD

REVISIONS

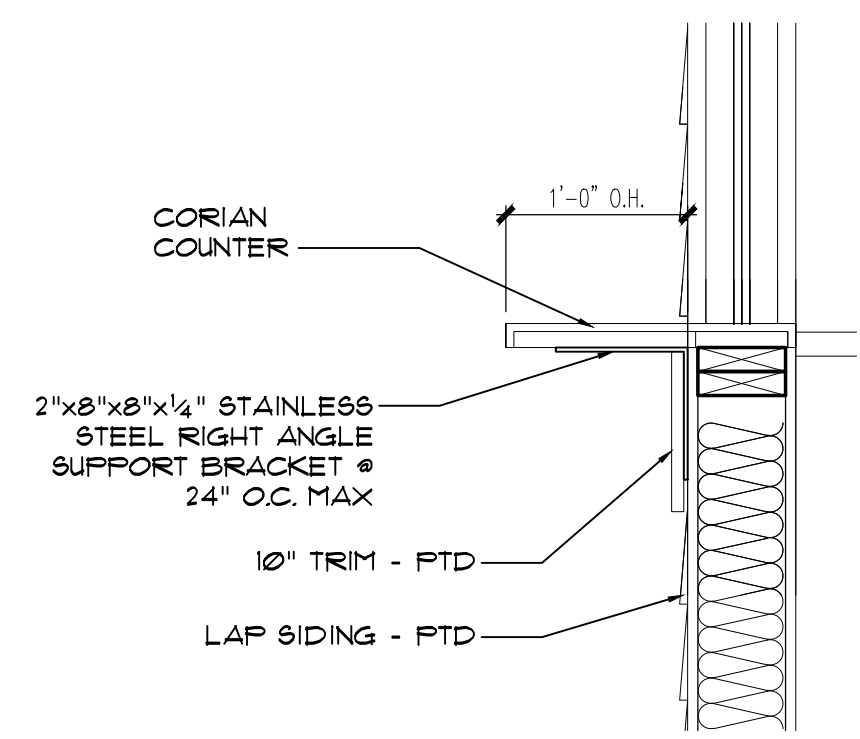
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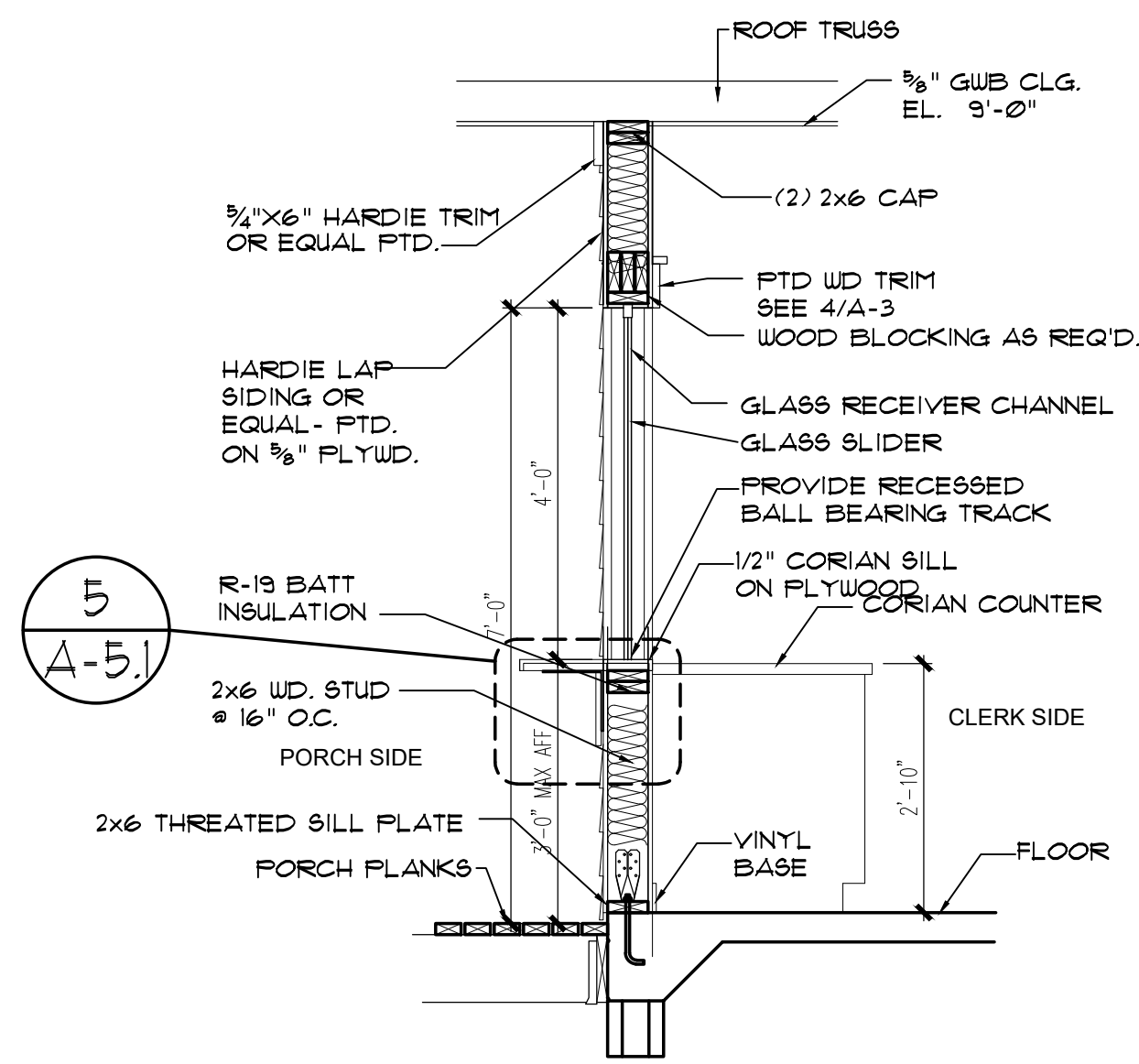
2 BUILDING SECTION
SCALE: 1/4" = 1'-0"



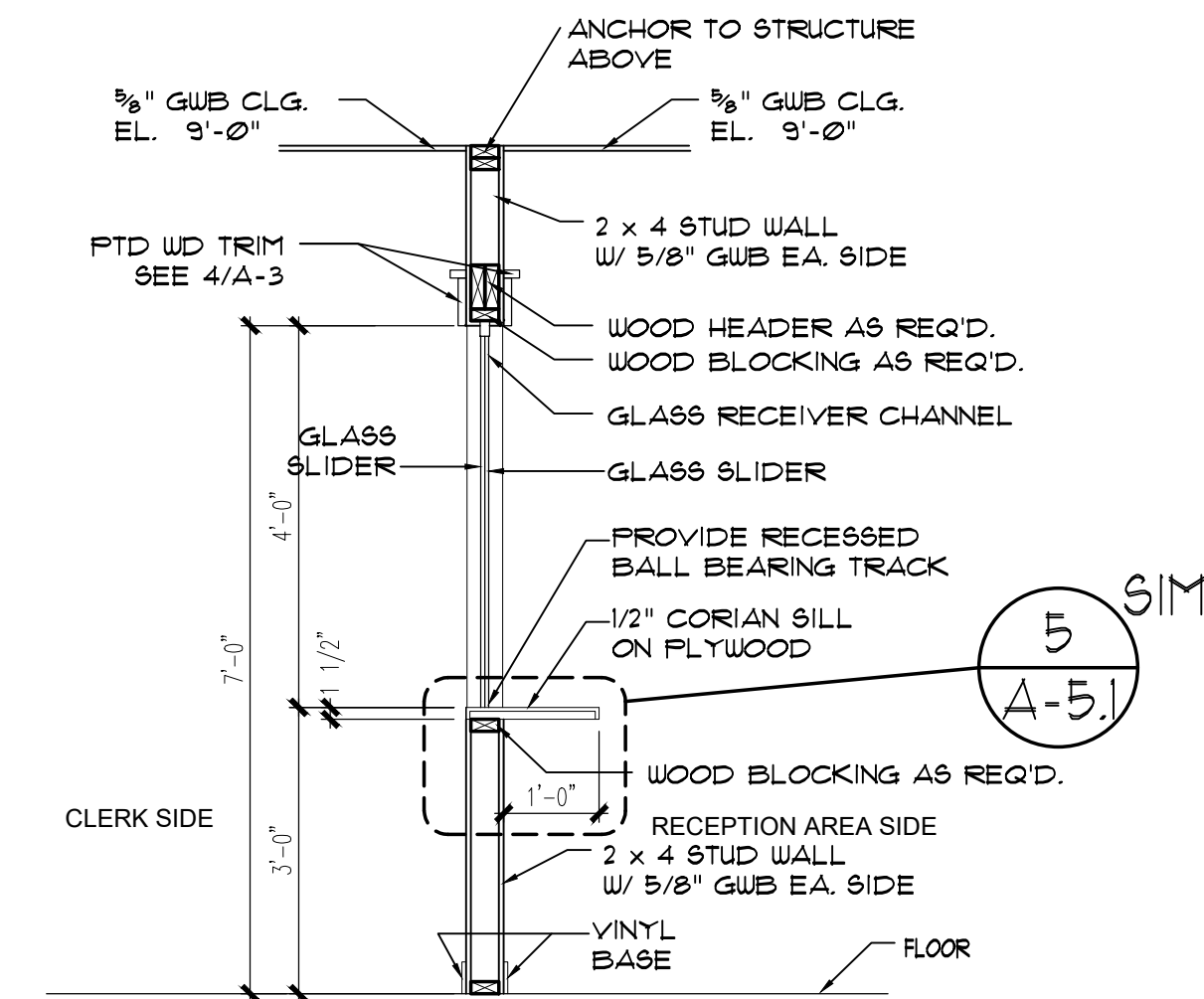
1 BUILDING SECTION
SCALE: 1/4" = 1'-0"



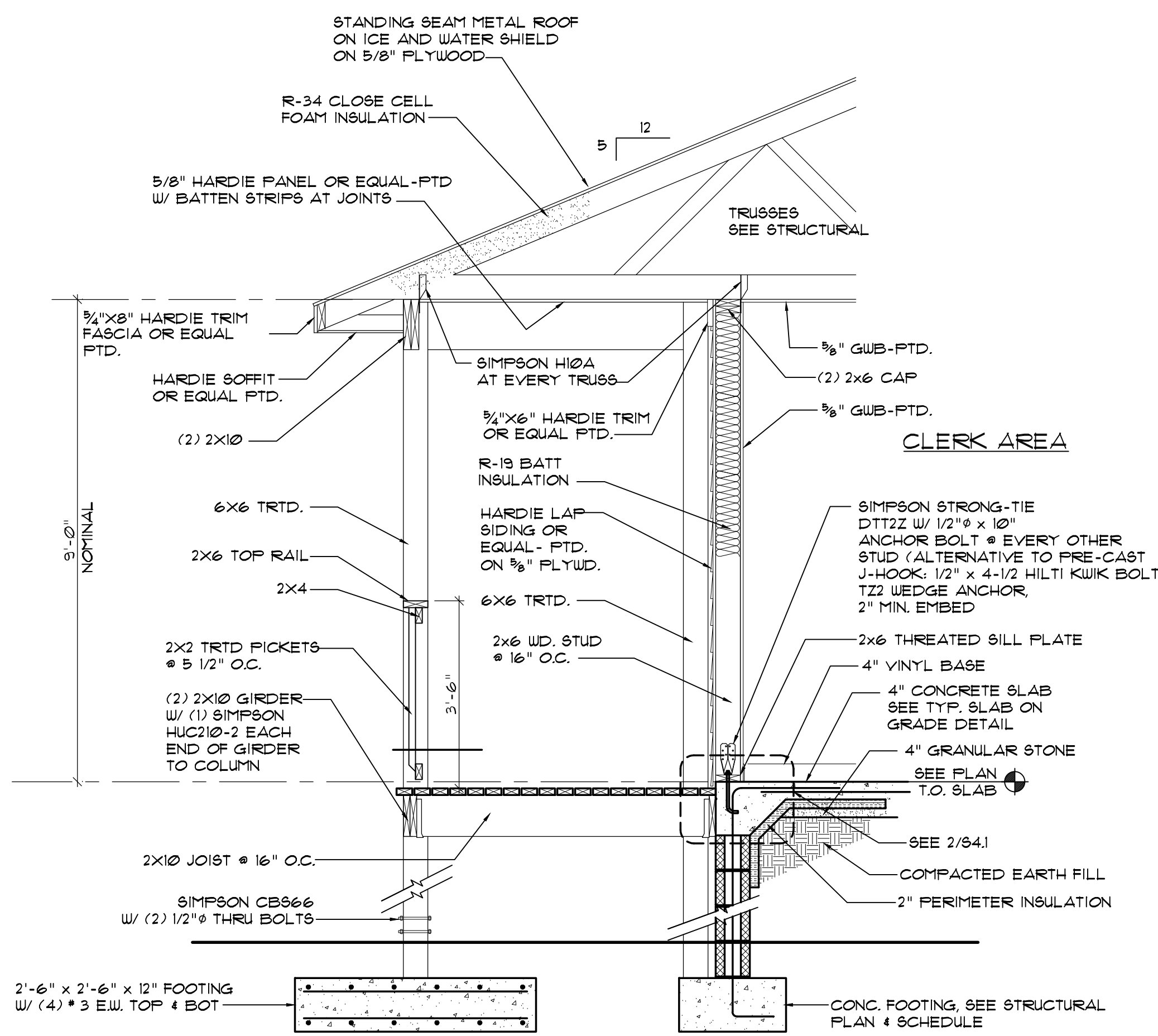
5 WALL SECTION
SCALE: 1" = 1'-0"



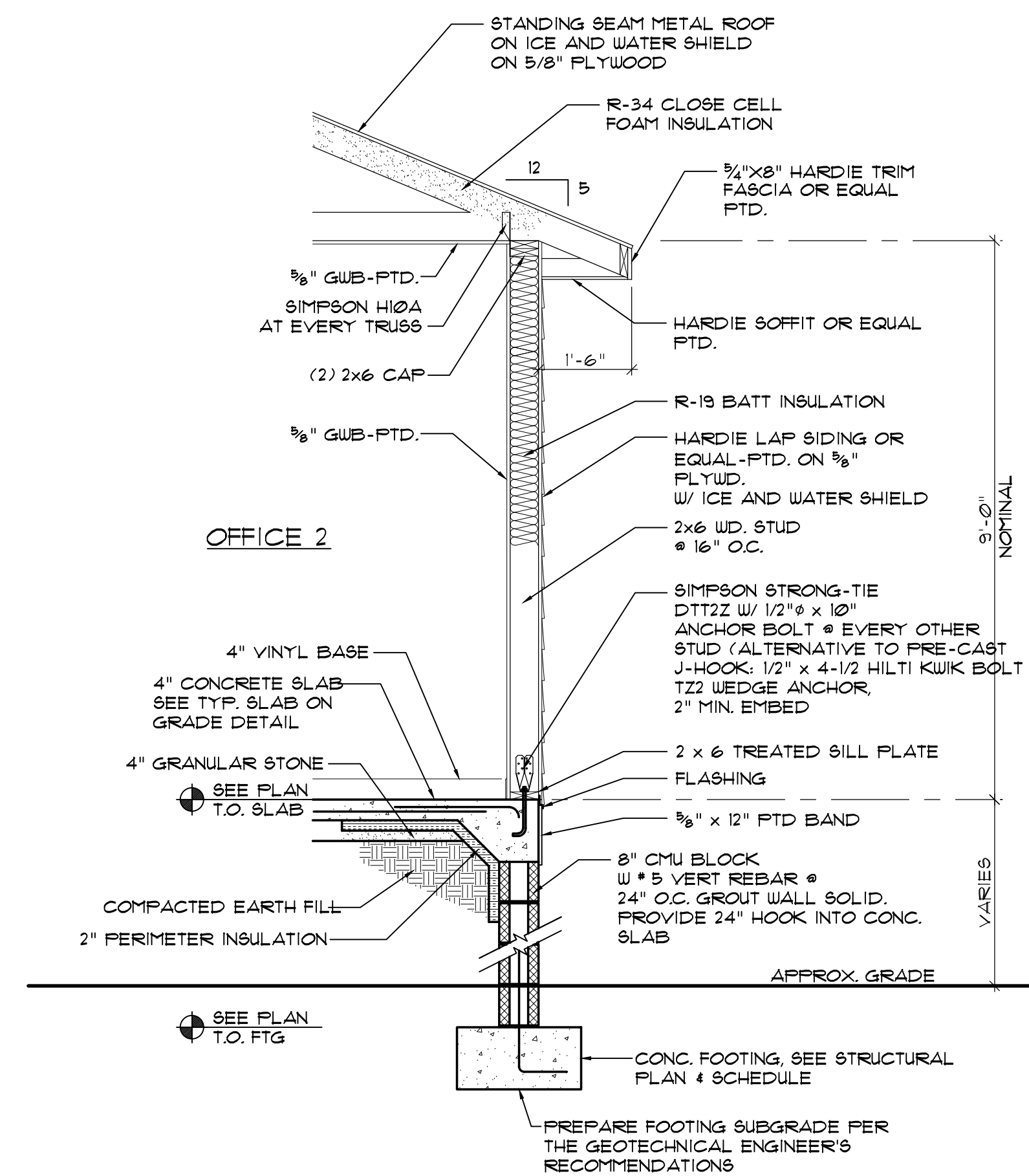
4 WALL SECTION
SCALE: 1/2" = 1'-0"



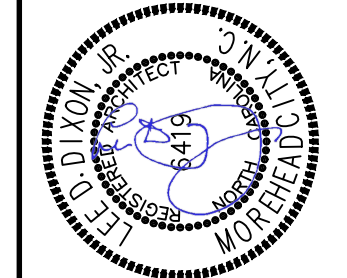
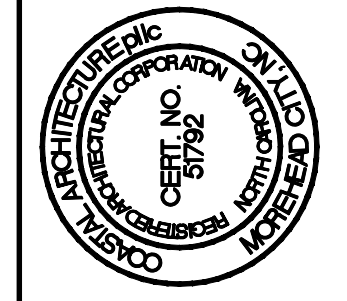
3 WALL SECTION
SCALE: 1/2" = 1'-0"



2 WALL SECTION
SCALE: 1/2" = 1'-0"



1 WALL SECTION
SCALE: 1/2" = 1'-0"



NO.	REVISIONS

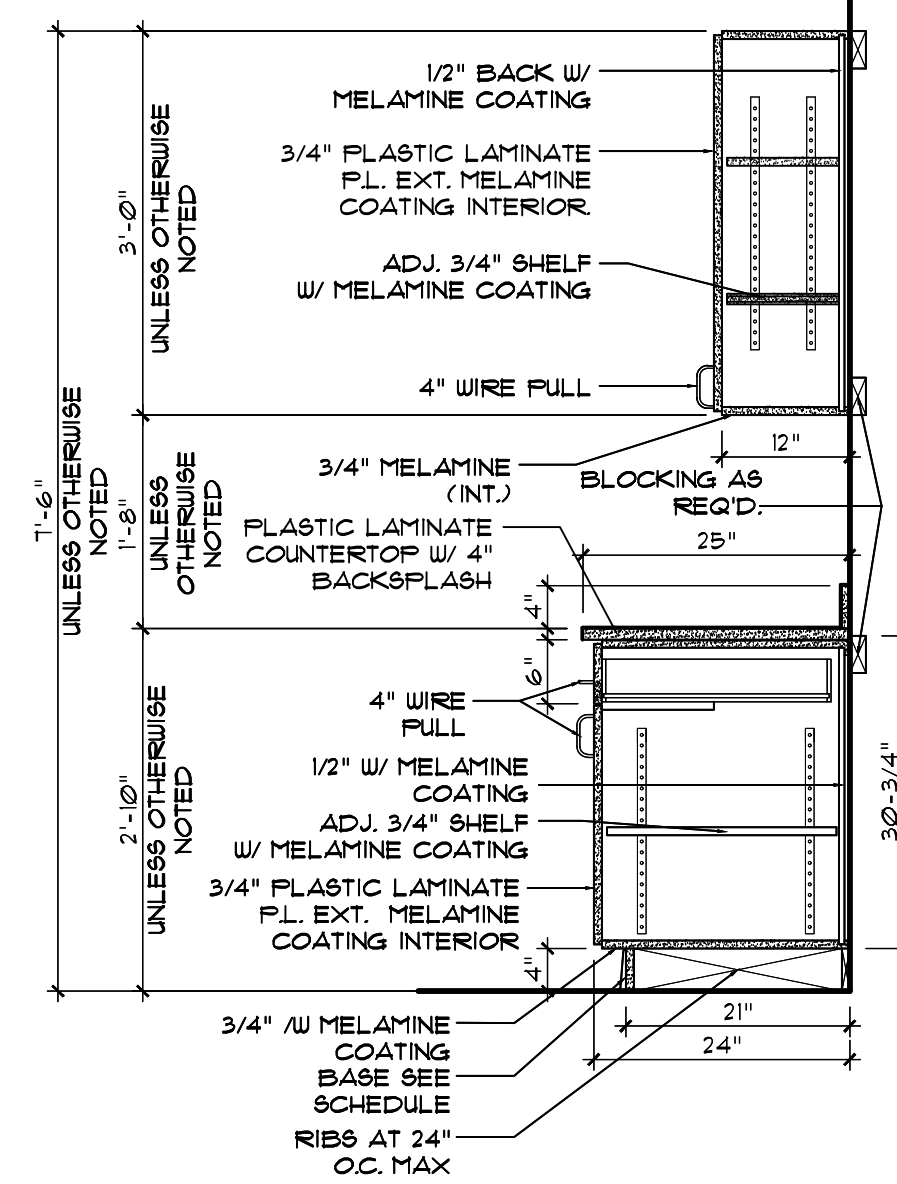
TOILET ACCESSORY SCHEDULE

Mark	Item	MFG	MODEL #	Mtg. Ht.	Remarks
TA-1	FRAMELESS MIRROR 2'-0" W X 3'-0" H	BOBRICK	B-290 SERIES	3'-4" MAX.	HEIGHT TO BOTTOM OF MIRROR
TA-2	TOILET TISSUE DISPENSER	BOBRICK	B-4288	15"-48" MAX.	HEIGHT TO DISP. OUTLET OR DISPENSER LEVER
TA-3	PAPER TOWEL DISPENSER	BOBRICK	B-4262	4'-0" MAX.	HEIGHT TO DISP. OUTLET OR DISPENSER LEVER
TA-4	HANDICAP SOAP DISPENSER	BOBRICK	B-4112	4'-0" MAX.	HEIGHT TO DISP. OUTLET OR DISPENSER LEVER
TA-5	GRAB BAR 42" CONCEALED MOUNTING W/ SNAP FLANGE	BOBRICK	B-5006 SERIES	3'-0" MAX.	HEIGHT TO CENTER
TA-6	GRAB BAR 36" CONCEALED MOUNTING W/ SNAP FLANGE	BOBRICK	B-5006 SERIES	3'-0" MAX.	HEIGHT TO CENTER
TA-7	GRAB BAR 18" CONCEALED MOUNTING W/ SNAP FLANGE (VERTICAL)	BOBRICK	B-5006 SERIES	3'-4"	HEIGHT TO BOTTOM
TA-8	SURFACE MOUNTED SANITARY NAPKIN DISPOSAL	BOBRICK	B-210	3'-3"	HEIGHT TO BOTTOM, CENTER OF BAR Ø 40" FROM REAR WALL
TA-9	SURFACE MOUNTED SEAT COVER DISPENSER	BOBRICK	B-4221	2'-6"	HEIGHT TO TOP OF DISPENSER
TA-10	COAT HOOK	BOBRICK	B-9542	4'-0" MAX.	HEIGHT TO TOP OF DISPENSER

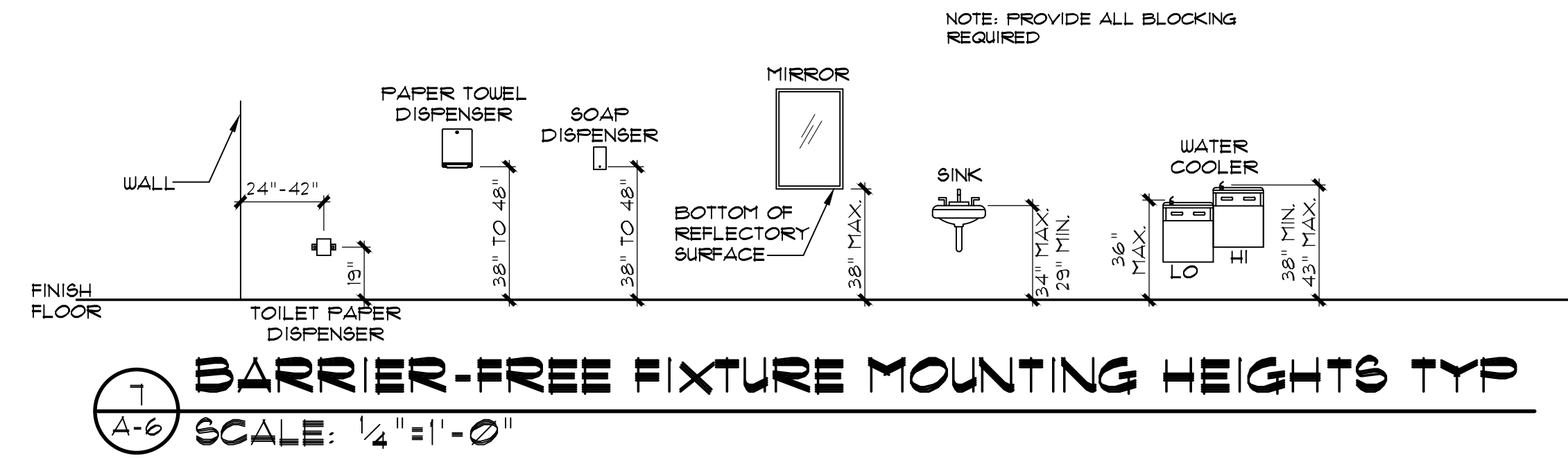
NOTES:
 • ALL HANDRAILS SHALL BE BLOCKED TO SUPPORT A 250 LB. LOAD MINIMUM
 • EQUALS BY BRADLEY OR FRANKLIN OR APPROVED EQUAL ARE ACCEPTABLE

GENERAL NOTES:

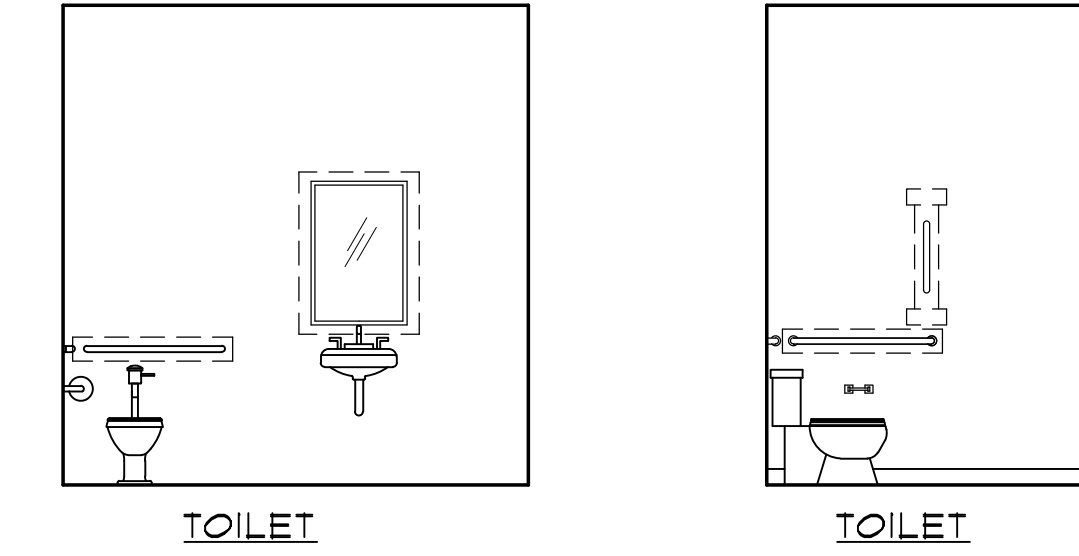
1. PLASTIC LAMINATE PL. EXTERIOR/WHITE MELAMINE COATING INTERIOR
2. CONCEALED HINGES THROUGHOUT
3. 4" SATIN CHROME FULL WIRES
4. ALL SHELVEING ADJUSTABLE W/ COUNTERSUNK STANDARDS
5. SEE A-3 MATERIALS SCHEDULE FOR PLASTIC LAMINATE AND SOLID SURFACE



6 KITCHEN CABINET SECTION
 SCALE: 3/4" = 1'-0"

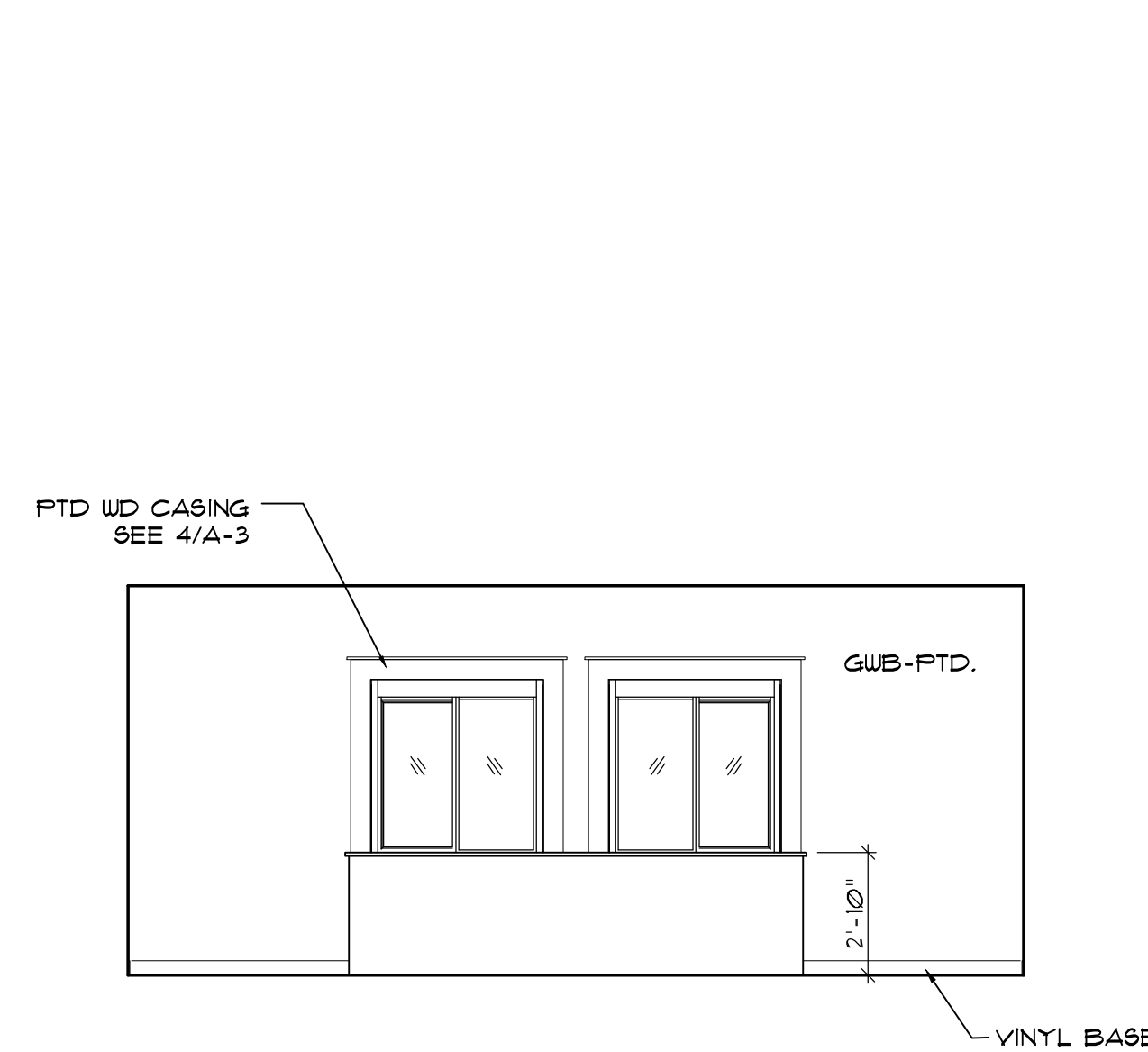


7 BARRIER-FREE FIXTURE MOUNTING HEIGHTS TYP
 SCALE: 1/4" = 1'-0"

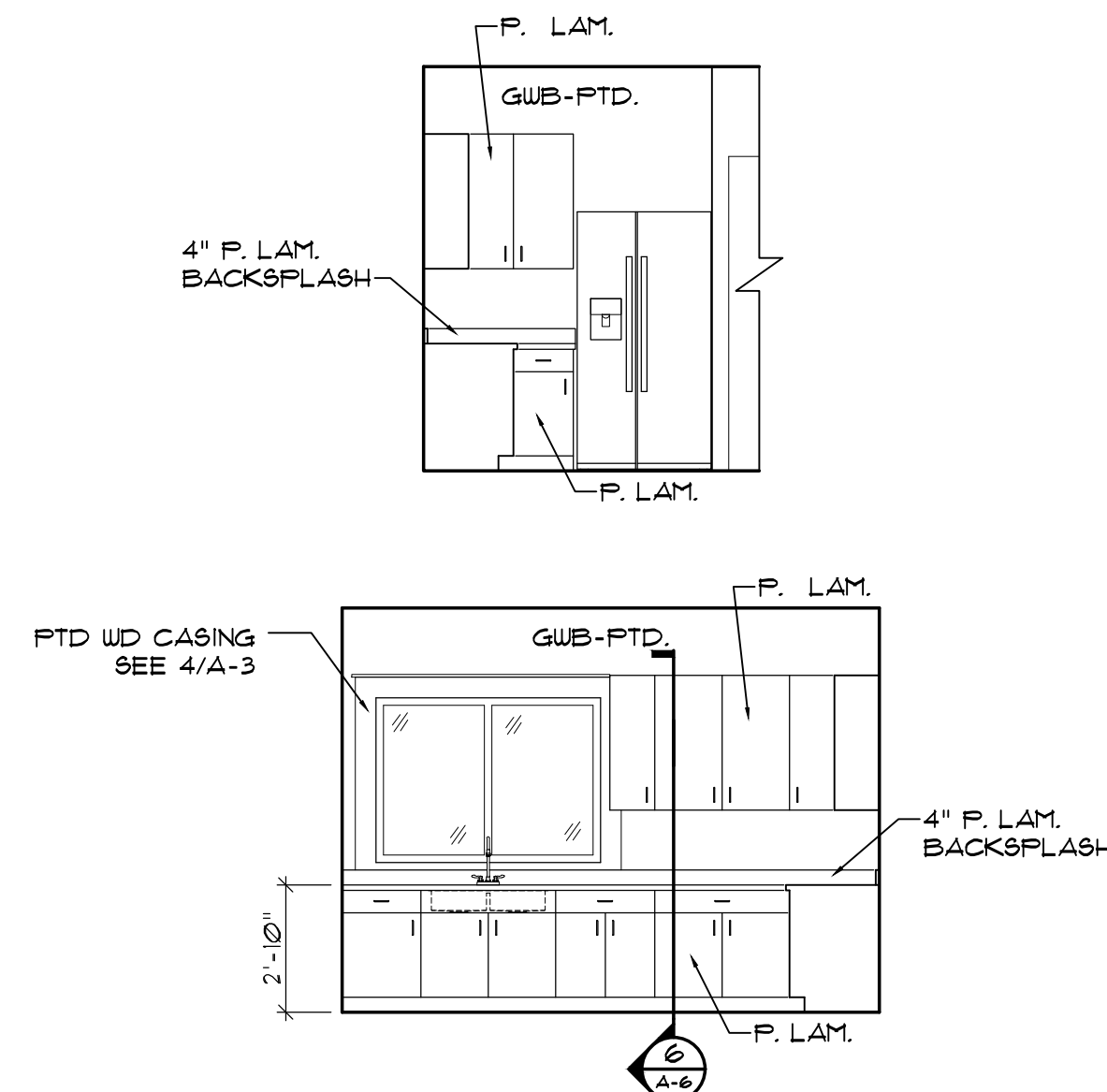


5 TYP BLOCKING DIAGRAM
 SCALE: 1/4" = 1'-0"

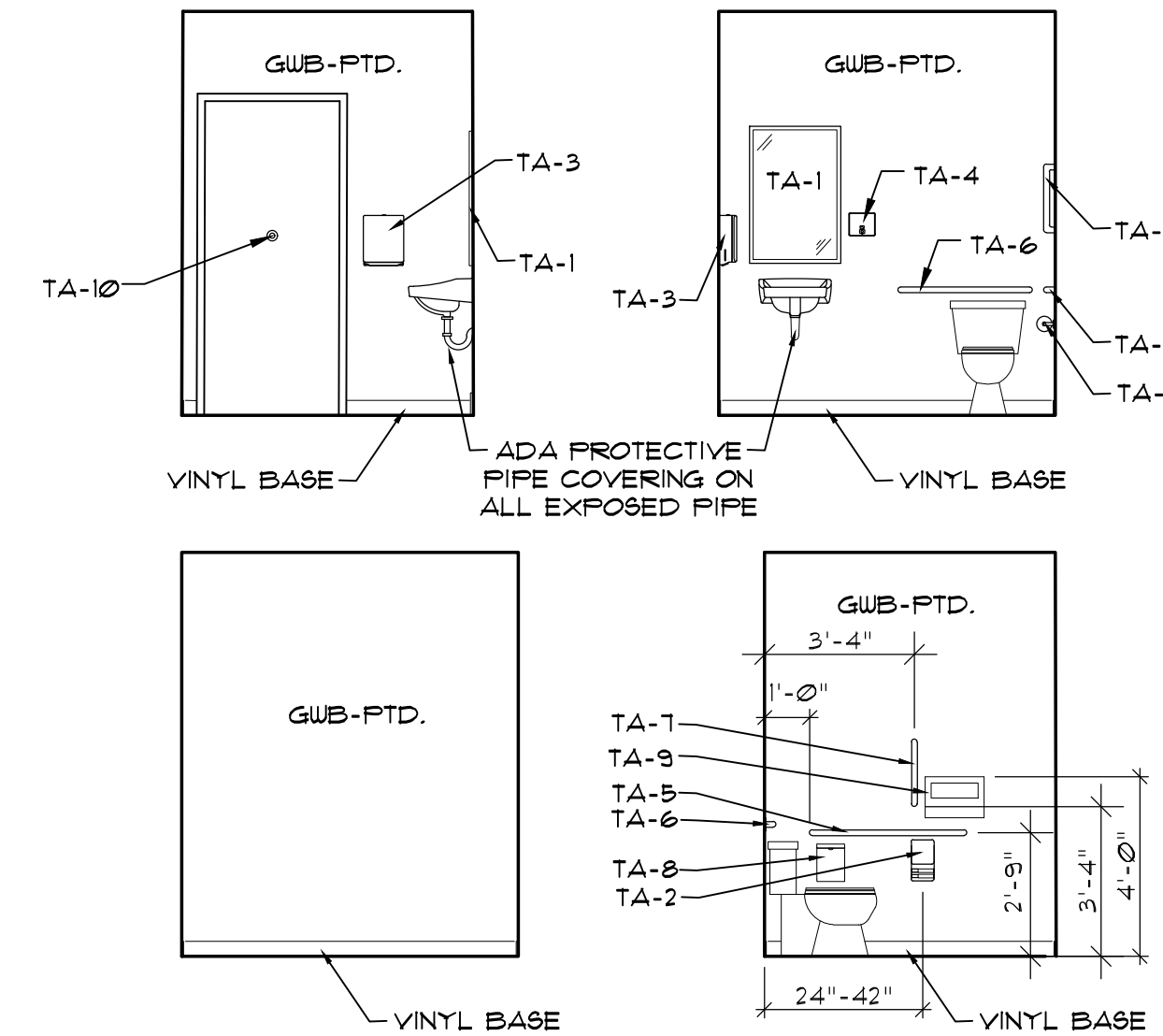
NOTE: PROVIDE ALL BLOCKING REQUIRED FOR TOILET ACCESSORIES



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

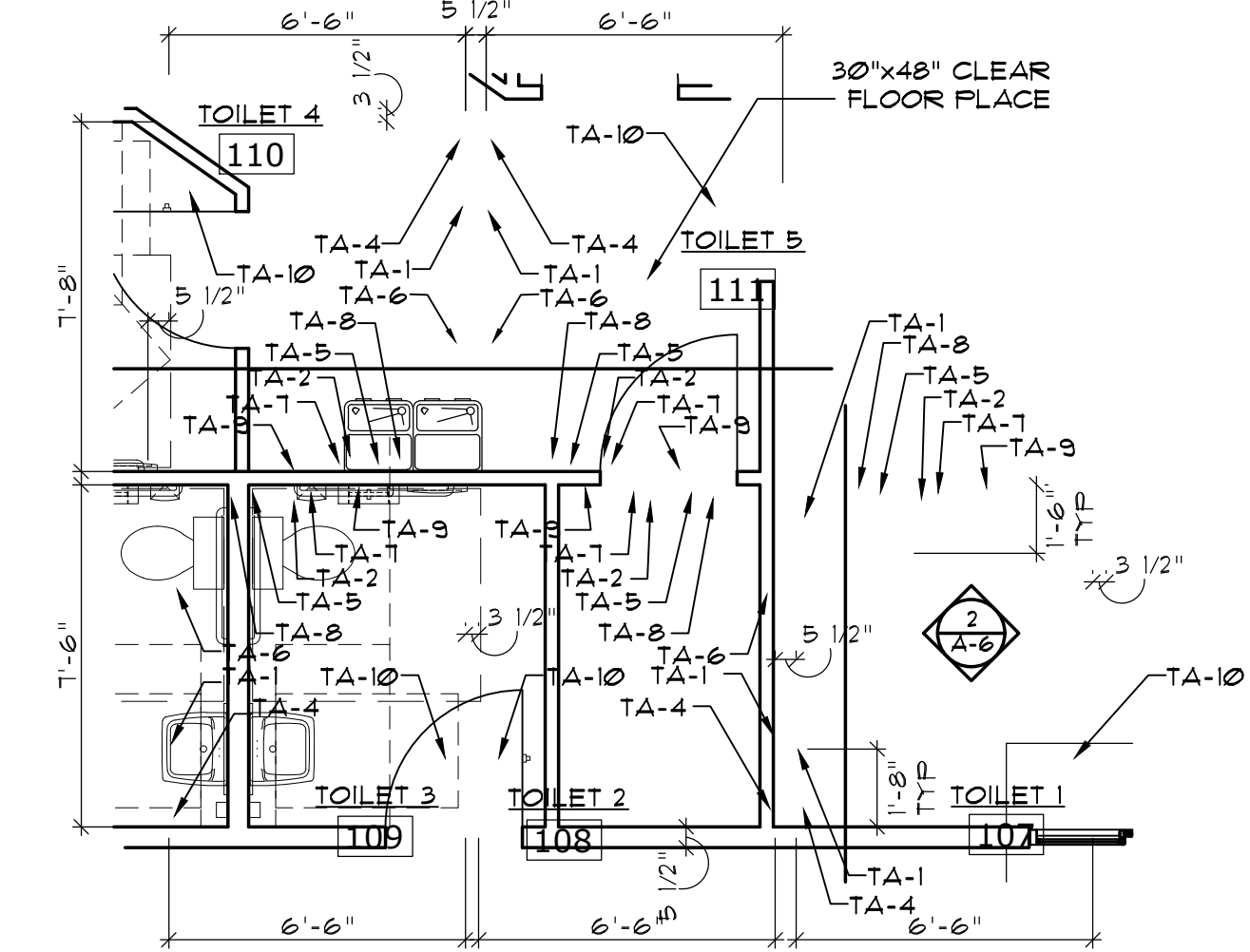


3 BREAK AREA
 SCALE: 1/4" = 1'-0"



2 ENLARGED TOILET 107 ELEV.
 SCALE: 1/4" = 1'-0"

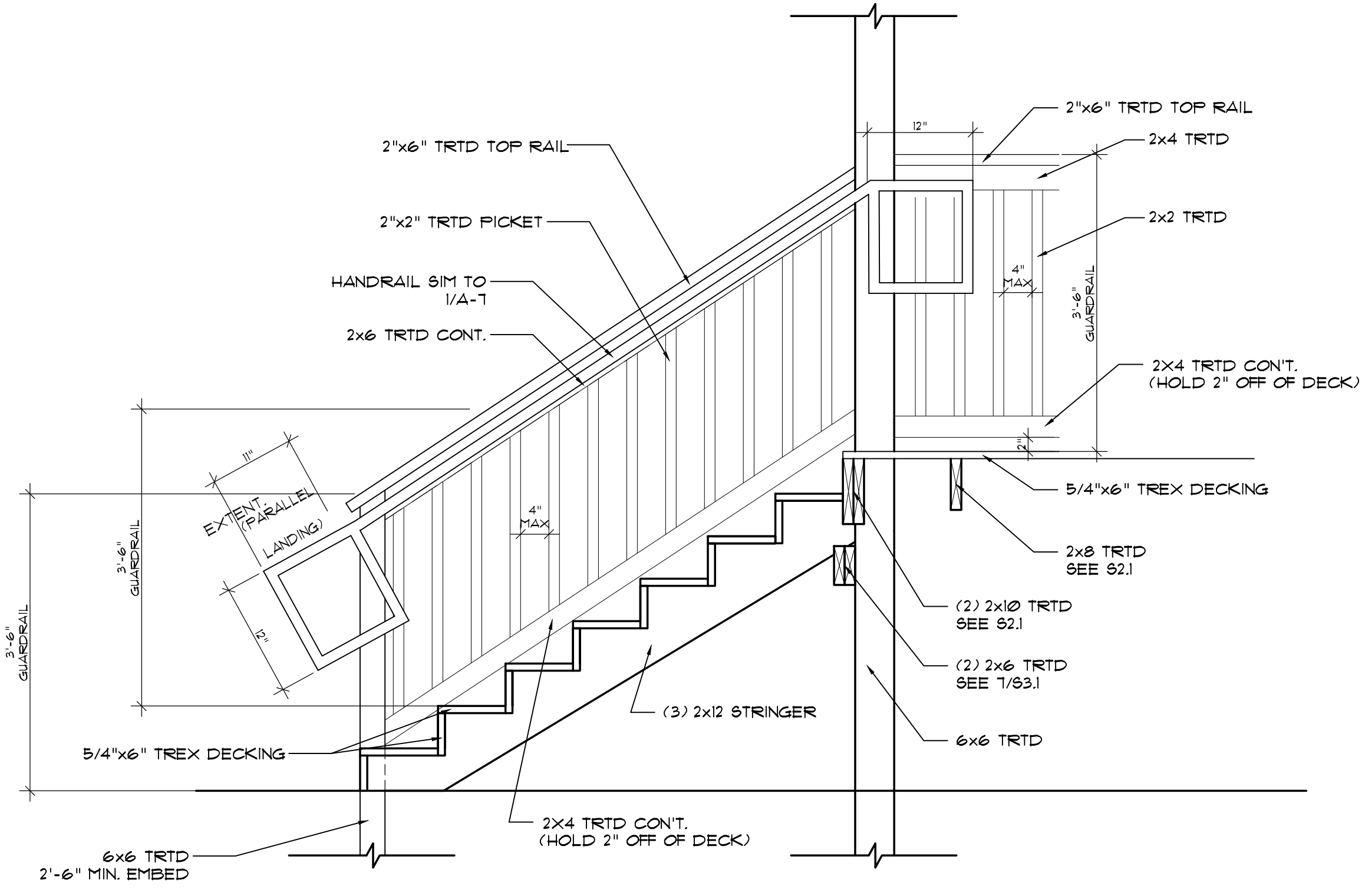
TOILET 108, 109, 110, 111 511



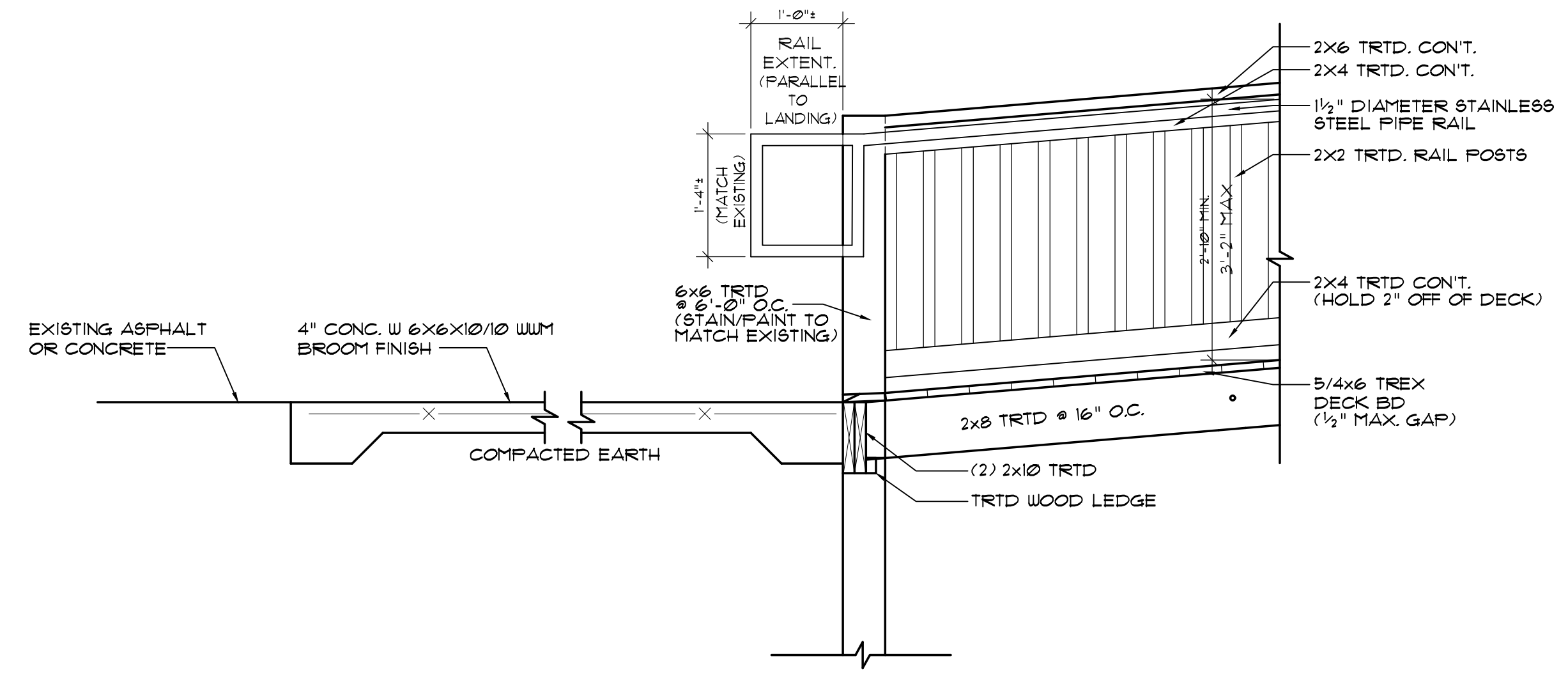
1 ENLARGED TOILET PLAN
 SCALE: 1/4" = 1'-0"

MAINTAIN 1'-6" CLEAR OF ALL DOORS

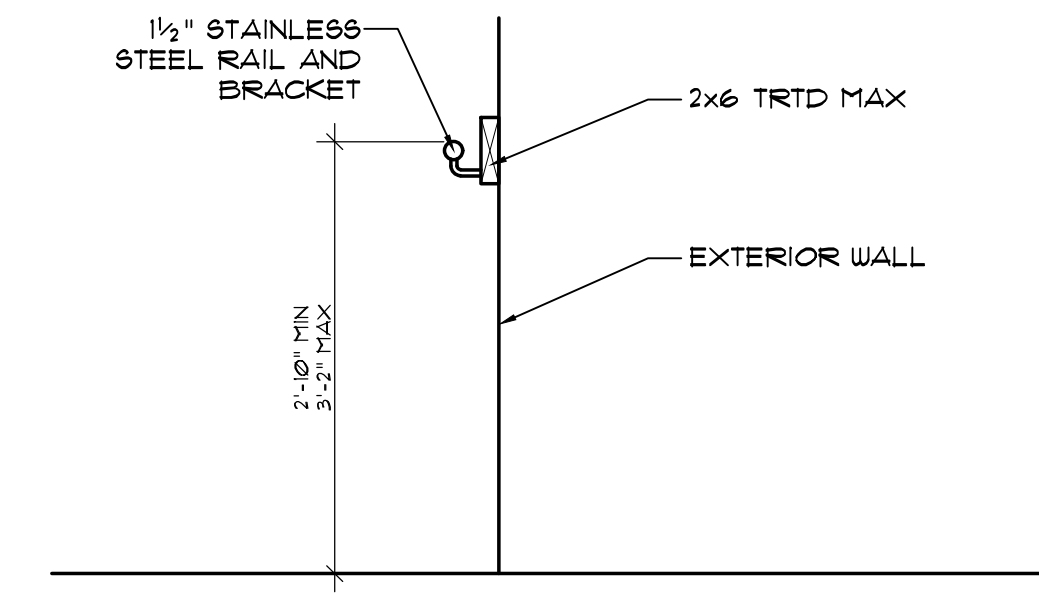
ALL TOILET WALLS TO BE EPOXY PAINTED



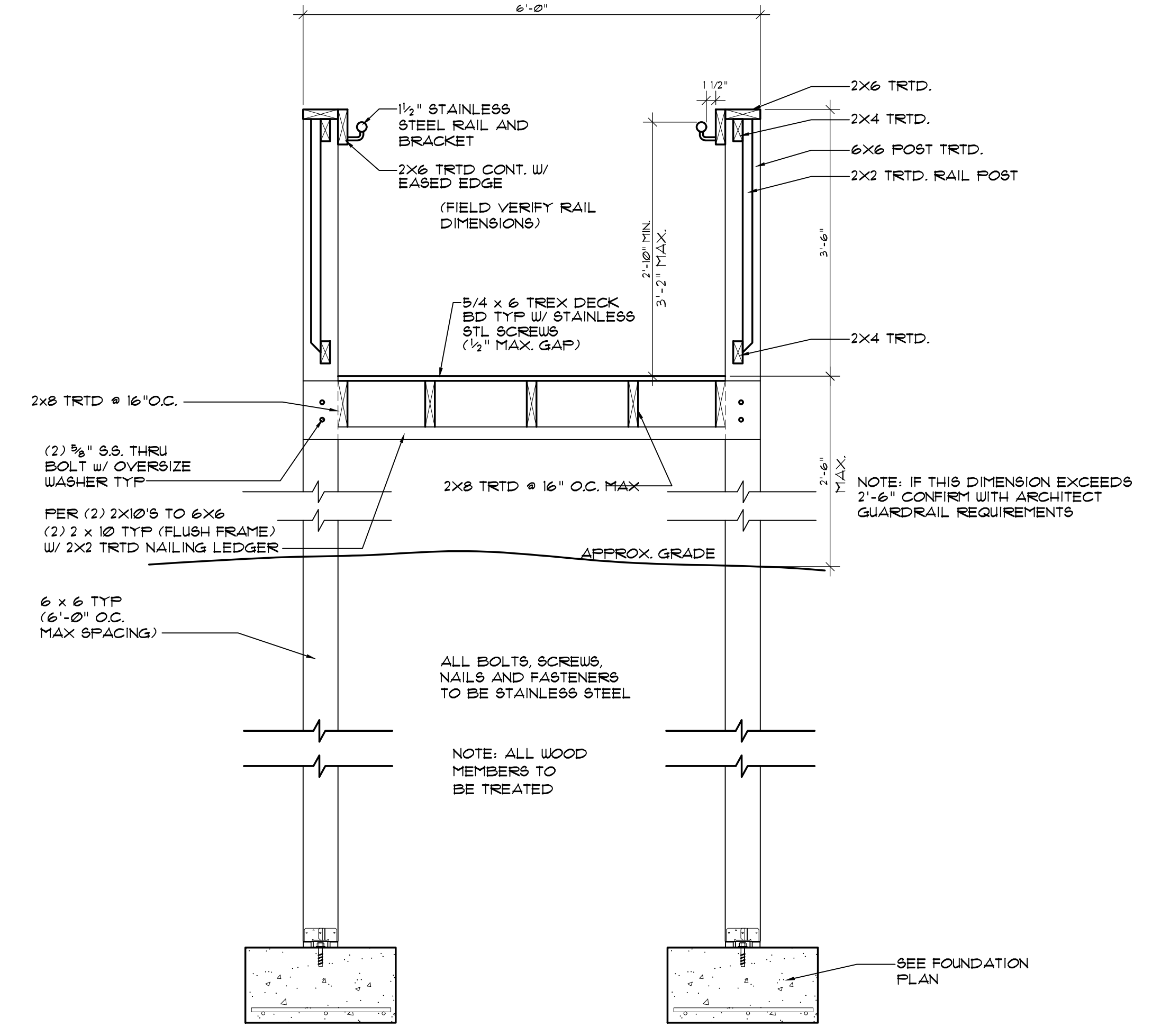
4
 A-1
DETAIL AT SETPS
 SCALE: 3/4" = 1'-0"
 MAX. T¹ RISE TREADS 11" MIN



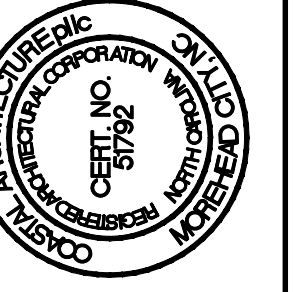
2
 A-1
RAMP SECTION
 SCALE: 3/4" = 1'-0"



3
 A-1
DETAIL AT HANDRAIL AT WALL
 SCALE: 3/4" = 1'-0"



1
 A-1
RAMP SECTION
 SCALE: 3/4" = 1'-0"



10/28/24

DETAILS

23027

ISSUED: 07/12/24
 DWG BY: MSG
 CKD BY: LDD

REVISIONS

SHEET NO.
A-7
 OF

STRUCTURAL NOTES

GENERAL NOTES

- 1. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH JOB SPECIFICATIONS AND ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND SITE DRAWINGS. CONSULT THESE DRAWINGS FOR SLEEVES, DEPRESSIONS AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.
2. ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD AND WITH ALL OTHER DRAWINGS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.
3. THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER THE BUILDING IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE TO ENSURE SAFETY OF THE BUILDING AND ITS COMPONENTS DURING ERECTION. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING (AND ACCOMPANYING FOOTINGS), GUYS OR TIEDOWNS.
4. ADDITIONAL OBSERVATIONS AS A RESULT OF REJECTION OF WORK COMPLETED AND/OR ADDITIONAL OBSERVATIONS DUE TO THE DEFICIENCIES IN WORK OBSERVED WILL BE AT THE EXPENSE OF THE CONTRACTOR.
5. ALL STRUCTURAL SHOP DRAWINGS TO BE REVIEWED BY JOB SUPERINTENDENT IN ADDITION TO ALL PERSONNEL DEEMED NECESSARY BY CONTRACTOR PRIOR TO SUBMITTAL TO ENGINEER FOR APPROVAL.
6. ALL SHOP DRAWING RESUBMITTALS SHALL INCLUDE A WRITTEN DETAILED LIST OF LOCATIONS AND DESCRIPTIONS OF ALL CHANGES MADE FROM PREVIOUS SUBMITTAL. LIST SHALL BE SPECIFIC AND GENERAL NOTES SUCH AS 'DIMENSIONS CORRECTED' ARE NOT ACCEPTABLE.

DESIGN CODES

- 2018 NORTH CAROLINA STATE BUILDING CODE.
ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY.
AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ALLOWABLE STRESS DESIGN.
2015 NATIONAL DESIGN SPECIFICATIONS (NDS) FOR WOOD CONSTRUCTION

DESIGN LOADS

THE STRUCTURAL SYSTEM FOR THIS BUILDING HAS BEEN DESIGNED WITH THE FOLLOWING SUPERIMPOSED LOADINGS:

Table with 2 columns: Load Type and Value. Includes Ground Snow Load (Pg = 10 psf), Design Roof Snow Load (Pf = 10 psf), Snow Exposure Factor (Ce = 0.9), Snow Load Importance Factor (Is = 1.0), Thermal Factor (Ct = 1.2), Roof Live Load (20 psf), Design Live Loads (Floor: 10 psf).

Table with 2 columns: Wind Parameter and Value. Includes Basic Wind Speed (144 mph), Exposure Category (D), Risk Category (II), Wind Base Shears (Vx = 4.8k, Vy = 6.8k).

COMPONENT & CLADDING: ALL BUILDING COMPONENTS AND CLADDING ENGINEERED BY THE COMPONENT MANUFACTURER ARE TO BE DESIGNED BY THE MANUFACTURERS ENGINEER FOR WIND LOADS DETERMINED PER THE NORTH CAROLINA STATE BUILDING CODE FOR THE BASIC DESIGN WIND VELOCITY, IMPORTANCE FACTOR AND EXPOSURE LISTED ABOVE.

SEISMIC IMPORTANCE FACTOR: Ie = 1.0
USE GROUP: Ss = 0.119
MAPPED SPECTRAL RESPONSE ACCELERATIONS: S1 = 0.06, S2 = 0.127, S3 = 0.096

SPECTRAL RESPONSE COEFF.: S1 = 0.06, S2 = 0.127, S3 = 0.096

SEISMIC RESISTING SYSTEM: ORDINARY WOOD SHEATHED SHEAR WALLS

DESIGN BASE SHEARS: Vx = 2.8k, Vy = 2.1k
SEISMIC RESPONSE COEFFICIENT: Cs = N/A
RESPONSE MODIFICATION FACTOR: R = 3
ANALYSIS PROCEDURE USED: EQUIV. LAT. FORCE
DESIGN CATEGORY: B
SITE CLASSIFICATION: D

FOUNDATIONS

FOUNDATIONS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 1,500 psf. ON EXISTING SOILS. BEFORE CONSTRUCTION COMMENCES, SOIL BEARING CAPACITY SHALL BE VERIFIED BY A SUBSURFACE INVESTIGATION, A CERTIFIED TESTING LABORATORY, WHOSE REPORT SHALL INCLUDE ANALYSIS AND RECOMMENDATIONS FOR SITE PREPARATION IN ORDER TO BEAR THE FOUNDATION LOADS. ABOVE REPORT SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW BEFORE FOUNDATION CONSTRUCTION BEGINS.

PLUMBING SLEEVES

MINIMUM SLEEVE SPACING SHALL BE TWO DIAMETERS CENTER TO CENTER TO THE LARGER SLEEVE OR 6" CLEAR BETWEEN SLEEVES, WHICHEVER IS GREATER. PRIOR TO CONSTRUCTION SLEEVE LOCATIONS AND SIZES SHALL BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.

CHEMICAL ANCHORS

SHALL BE A POLYMER INJECTION SYSTEM SUCH AS RAMSEY "EPCON", MOLLY "PARAMOUNT HV", SIKA "SIKAUR INJECTION SEL", "HILTI-HIGH STRENGTH EPOXY", OR APPROVED EQUAL, INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. INSTALLERS SHALL BE TRAINED BY THE MANUFACTURERS REPRESENTATIVE.

ANCHOR BOLTS

SHALL BE A36 THREADED ROD, PROVIDE HOT DIP GALVANIZED FINISH ON ALL ANCHOR BOLTS PERMANENTLY EXPOSED TO EXTERIOR.

CONCRETE TESTING

- 1. CONCRETE TESTING SHALL BE PAID FOR BY THE OWNER. TESTING LABORATORY SHALL PERFORM THE FOLLOWING TESTS ON CAST-IN-PLACE CONCRETE:
A) ASTM C143 - "STANDARD TEST METHOD FOR SLUMP OF PORTLAND CEMENT CONCRETE"
B) ASTM C231 - "STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS" - A SEPARATE TEST SHALL BE CONDUCTED FOR EACH CLASS, FOR EVERY 50 CUBIC YARDS (OR FRACTION THEREOF), PLACED PER DAY. REQUIRED CYLINDER(S) QUANTITIES AND TEST AGE AS FOLLOWS:
1 AT 7 DAYS
2 AT 28 DAYS

PROVIDE ONE ADDITIONAL RESERVE CYLINDER TO BE TESTED UNDER THE DIRECTION OF THE ENGINEER, IF REQUIRED. IF 28 DAY STRENGTH IS ACHIEVED, THE ADDITIONAL CYLINDER(S) MAY BE DISCARDED.

PENETRATIONS

NO PENETRATIONS SHALL BE MADE IN ANY STRUCTURAL MEMBERS OTHER THAN THOSE LOCATED ON THESE DRAWINGS WITHOUT PREVIOUS APPROVAL OF THE ENGINEER.

CONCRETE MIX DESIGN

- 1. SHALL BE MIX DESIGNED BY A RECOGNIZED TESTING LABORATORY TO ACHIEVE A STRENGTH AT 28 DAYS AS LISTED BELOW WITH A PLASTIC AND WORKABLE MIX:
3,000 psi - FOUNDATION WALLS AND FOOTINGS
3,000 psi - INTERIOR SLABS ON GRADE
4,000 psi - ALL OTHER CONCRETE

2. SUBMIT PROPOSED MIX DESIGN WITH RECENT FIELD CYLINDER OR LAB TESTS FOR REVIEW PRIOR TO USE. MIX SHALL BE UNIQUELY IDENTIFIED BY MIX NUMBER OR OTHER POSITIVE IDENTIFICATION. CONCRETE SHALL COMPLY WITH ALL THE REQUIREMENTS OF ASTM STANDARD C94 FOR MEASURING, MIXING, TRANSPORTING, ETC. CONCRETE TICKETS SHALL BE TIME STAMPED WHEN CONCRETE IS BATCHED. THE MAXIMUM TIME ALLOWED FROM THE TIME THE MIXING WATER IS ADDED UNTIL IT IS DEPOSITED IN ITS FINAL POSITION SHALL NOT EXCEED ONE AND ONE HALF (1-1/2) HOURS. IF FOR ANY REASON THERE IS A LONGER DELAY THAN STATED ABOVE, THE CONCRETE SHALL BE DISCARDED. IT SHALL BE THE RESPONSIBILITY OF THE TESTING LAB TO NOTIFY THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR OF ANY NONCOMPLIANCE WITH THE ABOVE. ALL SLABS SHALL BE CURED USING CURING COMPOUND MEETING ASTM STANDARD C939 TYPE 1 AND SHALL HAVE A FUGITIVE DYE. THE COMPOUND SHALL BE PLACED AS SOON AS THE FINISHING IS COMPLETED OR AS SOON AS THE WATER HAS LEFT THE UNFINISHED CONCRETE. ALL SCOURED OR BROKEN AREAS IN THE CURING MEMBRANE SHALL BE RECOATED DAILY. CALCIUM CHLORIDES SHALL NOT BE UTILIZED. OTHER ADMIXTURES MAY BE USED ONLY WITH THE APPROVAL OF THE ENGINEER.

3. CONCRETE SHALL UTILIZE TYPE III CEMENT UNLESS OTHERWISE DIRECTED BY THE GEOTECHNICAL ENGINEER OR GEOTECHNICAL REPORT.

4. THE CONCRETE STRENGTHS SHOWN IN THE SECTION ABOVE AND IN THE SPECIFICATIONS ARE MINIMUM COMPRESSIVE STRENGTHS. THE ENGINEER SHALL DETERMINE IF THE CONCRETE IS ACCEPTABLE, OR TO BE REMOVED, OR TO RECEIVE SPECIAL CURING IF THE COMPRESSIVE STRENGTHS ARE LESS THAN SPECIFIED.

5. ALL CONCRETE EXPOSED TO WEATHER OR EARTH SHALL BE AIR ENTRAINED TO 5% TO 7%.

6. WATER REDUCING AGENTS MAY BE USED IN THE CONCRETE MIX. PLASTICIZERS AND SUPER-PLASTICIZERS MAY BE USED ONLY WHEN WRITTEN PERMISSION OF THE ENGINEER IS GIVEN.

7. NO SALTS OF ANY KIND MAY BE USED IN CONCRETE BEFORE OBTAINING THE ENGINEER'S WRITTEN PERMISSION FOR THEIR USE.

8. CONCRETE FOR TROWEL-FINISHED INTERIOR CONCRETE FLOORS SHALL NOT INCLUDE AN AIR-ENTRAINING ADMIXTURE. THE MAXIMUM AIR CONTENT IN THESE SLABS SHALL NOT EXCEED 3%.

9. PROVIDE DUR-O-WALL (OR EQUAL PER SPECIFICATIONS) LADDER OR TRUSS HORIZONTAL JOINT REINFORCEMENT AT EACH SECOND COURSE IN RUNNING BOND, AND EACH COURSE IN STACKED BOND, UNLESS NOTED OTHERWISE. DISCONTINUE HORIZONTAL JOINT REINFORCEMENT AT CONTROL JOINTS.

10. PROVIDE BOND BEAMS REINFORCED WITH (2) #5 BARS EVERY 6'-0" VERTICAL WALL, AT TOPS OF ALL MASONRY WALLS, AND WHERE SHOWN ON DRAWINGS. AT BOND BEAM CORNERS AND TEE JOINTS, PROVIDE BENT BARS TO MATCH QUANTITY AND BAR SIZE IN THE BOND BEAM. LAPS IN BOND BEAMS SHALL BE 48 BAR DIAMETERS OR A MINIMUM OF 2'-0", WHICHEVER IS GREATER.

11. WHERE SHOWN ON THE DRAWINGS, CORES IN CONCRETE BLOCK UNITS SHALL BE FILLED WITH 3,000 psi CONCRETE GROUT FROM TOP OF FOOTING TO BOTTOM OF BEARING, OR TO THE TOP OF WALL, DEPENDING ON THE CONDITION. INSPECTION OF OPENING AT BOTTOM IS REQUIRED.

12. WHERE REINFORCING STEEL IS CALLED FOR IN FILLED CORES, IT SHALL EXTEND FROM TOP OF FOOTING TO BOTTOM OF BEARING, OR TOP OF WALL, DEPENDING ON CONDITION.

13. WHERE REINFORCING STEEL IS INTERRUPTED BY AN OPENING IN THE WALL, THE QUANTITY OF BARS INTERRUPTED ARE TO BE MOVED TO EACH SIDE OF THE OPENING. HALF OF REINFORCING BARS ON ONE SIDE AND HALF TO THE OTHER SIDE. REINFORCING SHALL BE FROM TOP OF FOOTING TO TOP OF WALL, PROVIDE A MINIMUM OF (2) #5 VERTICAL REINFORCING BARS AT EACH JAMB. SEE PLAN NOTES AND ANCHOR DETAILS FOR VERTICAL REINFORCING SPACING.

14. WHERE VERTICAL REINFORCING STEEL IS SPLICED IN MASONRY, PROVIDE A MINIMUM OF 48 BAR DIAMETERS, LAP SPLICE, UNLESS NOTED OTHERWISE.

15. THE MINIMUM DISTANCE BETWEEN PARALLEL BARS, EXCEPT IN COLUMNS, SHALL BE NOT LESS THAN THE DIAMETER OF THE BAR EXCEPT THAT LAPPED SPLICES MAY BE WIRDED TOGETHER. THE CENTER TO CENTER SPACING OF BARS WITHIN A COLUMN SHALL BE NOT LESS THAN 2 AND ONE-HALF TIMES THE BAR DIAMETER.

16. ALL BARS SHALL BE COMPLETELY EMBEDDED IN MORTAR OR CONCRETE. REINFORCEMENT EMBEDDED IN HORIZONTAL MORTAR JOINTS SHALL HAVE NOT LESS THAN 6" MORTAR COVERAGE FROM THE EXPOSED FACE. ALL OTHER REINFORCING SHALL HAVE A MINIMUM COVERAGE OF ONE BAR DIAMETER OVER ALL BARS, BUT NOT LESS THAN 3/4". EXCEPT WHERE EXPOSED TO WEATHER OR SOIL IN WHICH CASE THE MINIMUM COVERAGE SHALL BE 2".

17. WHERE REINFORCING IS SHOWN TO BE LOCATED ALONG TWO FACES OF A WALL, BEAM OR FOOTING, PROVIDE A MINIMUM OF 48 BAR DIAMETER LAP FOR ALL CORNER BARS, UNLESS NOTED OTHERWISE.

18. PROVIDE FOUNDATION DOWELS AS SHOWN. MINIMUM SIZE DOWELS TO BE # 4 UNLESS OTHERWISE NOTED. ALL VERTICAL REINFORCING STEEL IN COLUMNS AND PIERS, OR VERTICAL REINFORCING IN WALLS, SHALL BE DOWELED INTO THE FOOTINGS WITH SAME SIZE AND QUANTITY DOWEL AS THE VERTICAL REINFORCING.

19. WHERE SHOWN ON THE DRAWINGS, PROVIDE WELD PLATES, WELDMENTS, OR CONCRETE INSERTS FOR FASTENING AND SECURING OTHER COMPONENTS. CONCRETE INSERTS SHALL BE FURNISHED BY THE CONTRACTOR REQUIRING THEM AND INSTALLED BY THE CONTRACTOR CASTING THE CONCRETE AROUND THEM. CLIP ANGLES SHALL BE FURNISHED BY THE CONTRACTOR REQUIRING THEM.

20. REINFORCING STEEL SHALL RECEIVE CONCRETE COVER AS FOLLOWS:
DESCRIPTION MINIMUM COVER
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
EXPOSED TO EARTH OR WEATHER #6 THROUGH #18 BARS 2"
#5 BARS OR SMALLER 1 1/2"

NOT EXPOSED TO EARTH OR WEATHER OR IN CONTACT WITH THE GROUND, SLABS AND WALLS #11 BARS OR SMALLER 3/4"
#14 AND #18 1 1/2"
BEAMS AND COLUMNS 1 1/2"

21. PROVIDE TWO (2) #5S, ONE AT EACH FACE, UNLESS NOTED OTHERWISE, AROUND ALL OPENINGS GREATER THAN 12"x12" IN CAST-IN-PLACE CONCRETE. EXTEND REINFORCING 2' BEYOND OPENINGS IN BOTH DIRECTIONS. CONTACT ENGINEER FOR ALL OPENINGS GREATER THAN 12"x12" FOR DESIGN.

22. COLD WEATHER AND HOT WEATHER PROVISIONS OF ACI 308 AND 305 (CURRENT EDITIONS), RESPECTIVELY, SHALL BE MAINTAINED.

23. CONTRACTOR TO FURNISH AND INSTALL 500 LINEAR FT. EACH OF ADDITIONAL #4 & #5 REINFORCING STEEL TO BE USED AT ENGINEER'S DISCRETION.

FORMWORK AND SHORING

NO STRUCTURAL CONCRETE SHALL BE STRIPPED UNTIL IT HAS REACHED AT LEAST TWO-THIRDS OF THE 28 DAY DESIGN STRENGTH. DESIGN, ERECTION AND REMOVAL OF ALL FORMWORK, SHORES AND RESHORES SHALL MEET THE REQUIREMENTS SET FORTH IN ACI STANDARDS 301 AND 347.

MASONRY PRISM TESTING

- 1. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL CONSTRUCT THREE (3) TEST PRISMS FOR TESTING. THEY SHALL BE CONSTRUCTED OF TWO (2) 8"x8"x16" PRISMS FOR TESTING, ONE (1) ON TOP OF THE OTHER, JOINED WITH TYPE "S" MORTAR, AND FILLED WITH 3,000 PSI CONCRETE GROUT. PRISMS SHALL BE CURED FOR 28 DAYS. NO REINFORCING SHALL BE USED IN THE CONSTRUCTION OF THE PRISMS.
2. PRISMS SHALL BE MADE OF THE SAME MATERIALS, UNDER THE SAME CONDITIONS, AND INsofar AS POSSIBLE, WITH THE SAME BONDING ARRANGEMENTS AS FOR THE STRUCTURE. THE MOISTURE CONTENT OF THE UNITS AT THE TIME OF LAYING CONSISTENCY OF MORTAR, AND WORKMANSHIP SHALL BE THE SAME AS WILL BE USED IN THE STRUCTURE. THE VALUE OF fm SHALL BE THE AVERAGE OF ALL SPECIMENS TESTED BUT SHALL BE NOT MORE THAN 12% PERCENT OF THE MINIMUM VALUE DETERMINED BY THE TEST, WHICHEVER IS LESS.
3. TESTING SHALL INCLUDE TESTS IN ADVANCE OF BEGINNING OPERATIONS AS DESCRIBED ABOVE, AND AT LEAST ONE (1) FIELD TEST DURING CONSTRUCTION FOR EACH 5,000 SQUARE FEET OF WALL, BUT NOT LESS THAN ONE (1) FIELD TEST MINIMUM IF TOTAL SQUARE FEET OF WALL FOR ENTIRE PROJECT IS LESS THAN 5,000 SF. ONLY WALLS INDICATED ON STRUCTURAL PLANS NEED BE TESTED.
4. THE COMPRESSIVE STRENGTH, fm, SHALL BE COMPUTED BY DIVIDING THE ULTIMATE LOAD BY THE NET AREA OF THE MASONRY USED IN THE CONSTRUCTION OF THE PRISMS.
5. TEST PRISMS SHALL BE STORED FOR SEVEN DAYS IN AIR, AT A TEMPERATURE OF 70 DEGREES, PLUS OR MINUS 5 DEGREES, AT A RELATIVE HUMIDITY EXCEEDING 80%, AND THEN IN AIR AT A TEMPERATURE OF 70 DEGREES, PLUS OR MINUS 5 DEGREES, UNTIL TESTED. THOSE CONSTRUCTED IN THE FIELD SHALL BE STORED UNDISTURBED FOR FROM 48 TO 96 HOURS UNDER WET MATERIAL TO SIMULATE 90% HUMIDITY, THEN TRANSPORTED TO LABORATORY FOR CONTINUED CURING AS DESCRIBED ABOVE.
6. NOT LESS THAN THREE (3) PRISM SPECIMENS SHALL BE MADE FOR EACH FIELD TEST TO CONFIRM THAT THE MATERIALS ARE AS ASSUMED IN THE DESIGN. THE STANDARD AGE OF TEST SPECIMENS SHALL BE 28-DAYS, BUT 7-DAY TESTS MAY BE USED, PROVIDED THE RELATION BETWEEN THE 7-DAY AND 28-DAY STRENGTHS OF THE MASONRY IS ESTABLISHED BY ADEQUATE TEST DATA FOR THE MATERIALS USED.

MASONRY MATERIALS:
1. MASONRY UNITS SHALL MEET ASTM C90 TYPE I, GRADE N, FOR HOLLOW LOAD BEARING TYPE MASONRY WITH A UNIT STRENGTH OF 1,900 psi ON THE NET AREA (fm = 1,500 psi).

2. MORTAR SHALL BE TYPE "M" (BELOW GRADE) OR "S" (ABOVE GRADE) AND SHALL MEET ASTM C270. GROUT SHALL BE 3,000 psi PE-GRAVEL CONCRETE AND SHALL MEET ASTM C476. MORTAR MIX DESIGN SHALL BE TESTED PRIOR TO CONSTRUCTION USING MORTAR TEST CUBES, WITH 7-DAY STRENGTH OF LABORATORY MIX EXCEEDING THE 28-DAY SPECIFIED DESIGN STRENGTH. GROUT SHALL BE TESTED PRIOR TO CONSTRUCTION USING PRISMS AS DESCRIBED ABOVE.

MASONRY AND REINFORCED MASONRY PLACEMENT:
1. ALL MASONRY SHALL BE LAID IN RUNNING BOND UNLESS NOTED OTHERWISE. MATERIALS TO BE LAID AND MATERIALS TO BE BUILT UPON SHALL BE FREE FROM SNOW AND ICE.
2. PROVIDE HOOKED DOWELS INTO FOOTINGS FOR ALL VERTICAL REINFORCING ABOVE AS SHOWN IN THE DRAWINGS. LAP SPLICES A MINIMUM OF 48 BAR DIAMETERS. AT THE OPTION OF THE CONTRACTOR, DOWELS MAY BE DRILLED AND EPOXYED INTO FOOTING IN LIEU OF HOOKS. EPOXY SHALL BE AS NOTED ON THIS SHEET UNDER "CHEMICAL ANCHORS." MIN. EMBEDMENT FOR #6 OR SMALLER DOWELS, 8" MIN. EMBEDMENT FOR #8 DOWELS.

3. PROVIDE DUR-O-WALL (OR EQUAL PER SPECIFICATIONS) LADDER OR TRUSS HORIZONTAL JOINT REINFORCEMENT AT EACH SECOND COURSE IN RUNNING BOND, AND EACH COURSE IN STACKED BOND, UNLESS NOTED OTHERWISE. DISCONTINUE HORIZONTAL JOINT REINFORCEMENT AT CONTROL JOINTS.

4. PROVIDE BOND BEAMS REINFORCED WITH (2) #5 BARS EVERY 6'-0" VERTICAL WALL, AT TOPS OF ALL MASONRY WALLS, AND WHERE SHOWN ON DRAWINGS. AT BOND BEAM CORNERS AND TEE JOINTS, PROVIDE BENT BARS TO MATCH QUANTITY AND BAR SIZE IN THE BOND BEAM. LAPS IN BOND BEAMS SHALL BE 48 BAR DIAMETERS OR A MINIMUM OF 2'-0", WHICHEVER IS GREATER.

5. WHERE SHOWN ON THE DRAWINGS, CORES IN CONCRETE BLOCK UNITS SHALL BE FILLED WITH 3,000 psi CONCRETE GROUT FROM TOP OF FOOTING TO BOTTOM OF BEARING, OR TO THE TOP OF WALL, DEPENDING ON THE CONDITION. INSPECTION OF OPENING AT BOTTOM IS REQUIRED.

6. WHERE REINFORCING STEEL IS CALLED FOR IN FILLED CORES, IT SHALL EXTEND FROM TOP OF FOOTING TO BOTTOM OF BEARING, OR TOP OF WALL, DEPENDING ON CONDITION.

7. WHERE REINFORCING STEEL IS INTERRUPTED BY AN OPENING IN THE WALL, THE QUANTITY OF BARS INTERRUPTED ARE TO BE MOVED TO EACH SIDE OF THE OPENING. HALF OF REINFORCING BARS ON ONE SIDE AND HALF TO THE OTHER SIDE. REINFORCING SHALL BE FROM TOP OF FOOTING TO TOP OF WALL, PROVIDE A MINIMUM OF (2) #5 VERTICAL REINFORCING BARS AT EACH JAMB. SEE PLAN NOTES AND ANCHOR DETAILS FOR VERTICAL REINFORCING SPACING.

8. WHERE VERTICAL REINFORCING STEEL IS SPLICED IN MASONRY, PROVIDE A MINIMUM OF 48 BAR DIAMETERS, LAP SPLICE, UNLESS NOTED OTHERWISE.

9. THE MINIMUM DISTANCE BETWEEN PARALLEL BARS, EXCEPT IN COLUMNS, SHALL BE NOT LESS THAN THE DIAMETER OF THE BAR EXCEPT THAT LAPPED SPLICES MAY BE WIRDED TOGETHER. THE CENTER TO CENTER SPACING OF BARS WITHIN A COLUMN SHALL BE NOT LESS THAN 2 AND ONE-HALF TIMES THE BAR DIAMETER.

10. ALL BARS SHALL BE COMPLETELY EMBEDDED IN MORTAR OR CONCRETE. REINFORCEMENT EMBEDDED IN HORIZONTAL MORTAR JOINTS SHALL HAVE NOT LESS THAN 6" MORTAR COVERAGE FROM THE EXPOSED FACE. ALL OTHER REINFORCING SHALL HAVE A MINIMUM COVERAGE OF ONE BAR DIAMETER OVER ALL BARS, BUT NOT LESS THAN 3/4". EXCEPT WHERE EXPOSED TO WEATHER OR SOIL IN WHICH CASE THE MINIMUM COVERAGE SHALL BE 2".

11. WHERE REINFORCING IS SHOWN TO BE LOCATED ALONG TWO FACES OF A WALL, BEAM OR FOOTING, PROVIDE A MINIMUM OF 48 BAR DIAMETER LAP FOR ALL CORNER BARS, UNLESS NOTED OTHERWISE.

12. PROVIDE FOUNDATION DOWELS AS SHOWN. MINIMUM SIZE DOWELS TO BE # 4 UNLESS OTHERWISE NOTED. ALL VERTICAL REINFORCING STEEL IN COLUMNS AND PIERS, OR VERTICAL REINFORCING IN WALLS, SHALL BE DOWELED INTO THE FOOTINGS WITH SAME SIZE AND QUANTITY DOWEL AS THE VERTICAL REINFORCING.

13. WHERE SHOWN ON THE DRAWINGS, PROVIDE WELD PLATES, WELDMENTS, OR CONCRETE INSERTS FOR FASTENING AND SECURING OTHER COMPONENTS. CONCRETE INSERTS SHALL BE FURNISHED BY THE CONTRACTOR REQUIRING THEM AND INSTALLED BY THE CONTRACTOR CASTING THE CONCRETE AROUND THEM. CLIP ANGLES SHALL BE FURNISHED BY THE CONTRACTOR REQUIRING THEM.

14. REINFORCING STEEL SHALL RECEIVE CONCRETE COVER AS FOLLOWS:
DESCRIPTION MINIMUM COVER
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
EXPOSED TO EARTH OR WEATHER #6 THROUGH #18 BARS 2"
#5 BARS OR SMALLER 1 1/2"

NOT EXPOSED TO EARTH OR WEATHER OR IN CONTACT WITH THE GROUND, SLABS AND WALLS #11 BARS OR SMALLER 3/4"
#14 AND #18 1 1/2"
BEAMS AND COLUMNS 1 1/2"

15. PROVIDE TWO (2) #5S, ONE AT EACH FACE, UNLESS NOTED OTHERWISE, AROUND ALL OPENINGS GREATER THAN 12"x12" IN CAST-IN-PLACE CONCRETE. EXTEND REINFORCING 2' BEYOND OPENINGS IN BOTH DIRECTIONS. CONTACT ENGINEER FOR ALL OPENINGS GREATER THAN 12"x12" FOR DESIGN.

16. COLD WEATHER AND HOT WEATHER PROVISIONS OF ACI 308 AND 305 (CURRENT EDITIONS), RESPECTIVELY, SHALL BE MAINTAINED.

17. CONTRACTOR TO FURNISH AND INSTALL 500 LINEAR FT. EACH OF ADDITIONAL #4 & #5 REINFORCING STEEL TO BE USED AT ENGINEER'S DISCRETION.

FORMWORK AND SHORING: NO STRUCTURAL CONCRETE SHALL BE STRIPPED UNTIL IT HAS REACHED AT LEAST TWO-THIRDS OF THE 28 DAY DESIGN STRENGTH. DESIGN, ERECTION AND REMOVAL OF ALL FORMWORK, SHORES AND RESHORES SHALL MEET THE REQUIREMENTS SET FORTH IN ACI STANDARDS 301 AND 347.

WOOD

- 1. STRUCTURAL 2x4 WOOD COMPONENTS HAVE BEEN DESIGNED AS SOUTHERN YELLOW PINE (SPY) OR HEA-FIR (HF) NO. 2, OR BETTER, AND SHALL HAVE THE FOLLOWING MINIMUM ALLOWABLE FIBER STRESSES AND PROPERTIES:
2. MODULUS OF ELASTICITY (E) 1,300,000 PSI
BENDING (Fb) 850 PSI
SHEAR (Fv) 75 PSI
3. WOOD IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PROTECTED OR PRESURE TREATED IN ACCORDANCE WITH AITC-109.
4. MEMBER SIZES SHOWN ARE NOMINAL UNLESS NOTED OTHERWISE.
5. BOLTS IN WOOD ARE MACHINE BOLTS, UNLESS OTHERWISE NOTED. MACHINE BOLTS SHALL HAVE A SHANK DIAMETER WITHIN 1/64" OF THAT SPECIFIED. BOLTS ARE ASTM A307 STEEL. BOLT HOLES IN WOOD SHALL BE 1/32" OVERSIZE. WHERE STEEL IS CONNECTED TO WOOD, HOLES IN STEEL SHALL BE 1/16" OVERSIZE. PROVIDE STANDARD CUT WASHERS UNDER HEAD AND NUT WHERE BEARING IS AGAINST WOOD. WHERE STEEL SIDE PLATES ARE USED FOR CONNECTION, THE PLATE SHALL BE USED AS A TEMPLATE.
6. ALL WOOD ELEMENTS SHALL BE ATTACHED PER THE FASTENING SCHEDULE OF THE 2018 NCSBC (TABLE 2304.9.1) UNLESS OTHERWISE NOTED.
7. SEE ARCHITECTURAL DRAWINGS FOR WEATHER PROTECTION OF ALL EXPOSED WOOD MEMBERS.

WOOD SHEATHING

- 1. PLYWOOD ROOF, FLOOR AND WALL SHEATHING ARE DESIGNED AS DIAPHRAGMS AND SHALL COMPLY WITH APPLICABLE PROVISIONS OF CHAPTER 23 OF THE 2018 NCSBC.
2. SHEATHING SHALL BE FASTENED IN ACCORDANCE WITH PLANS SHOWN SPECIAL NAILING REQUIREMENTS AND WITH THE APPROPRIATE SCHEDULE IN CHAPTER 23, UNLESS NOTED OTHERWISE.
3. IN GENERAL, SHEETS SHALL BE 4'-0"x8'-0" AND SHALL BE LAID WITH FACE PILES ACROSS FRAMING MEMBERS AND WITH END JOINTS STAGGERED 4'-0". NO PANEL SHALL BE USED WHICH IS LESS THAN 24" IN WIDTH ON FLOORS AND ROOFS. SHEATHING SHALL BE CONTINUOUS ACROSS 2 SPANS, MINIMUM.
PRE-ENGINEERED WOOD ROOF TRUSSES:
1. ENGINEERED WOOD TRUSS SYSTEMS SHALL BE DESIGNED BY SUPPLIER TO THE CONFIGURATION AND LOAD-CARRYING CAPACITY SHOWN ON THE DRAWINGS AND SPECIFICATIONS. TRUSSES SHALL BE DESIGNED TO SUSTAIN SELF WEIGHT OF THE TRUSSES AND UNIFORM LOADS AS INDICATED ON THIS SHEET AND AS FOLLOWS:
A) TOP CHORD: DEAD LOAD = 10 psf
LIVE LOAD = 20 psf
SNOW LOAD = 10 psf
WIND LOAD = SEE DESIGN LOADS
B) BOTTOM CHORD: DEAD LOAD = 5 psf
LIVE LOAD = 10 psf
2. WIND LOAD: WHEN CALCULATING NET UPLIFT REACTIONS, USE MAXIMUM RESISTING LOAD EQUAL TO 4 PSF ON THE TOP CHORD AND 0 PSF ON THE BOTTOM CHORD.
3. ROOF TRUSSES SHALL BE DESIGNED FOR A MAXIMUM VERTICAL DEFLECTION OF 1/60 LIVE LOAD AND L20 TO TOTAL LOAD.
4. ALTERNATE TRUSS LAYOUTS ARE ACCEPTABLE ONLY AS A CHANGE ORDER WHICH WILL INCLUDE ENGINEERING CHARGES TO THE CONTRACTOR FOR REDESIGN FOR REVIEW PRIOR TO FABRICATION.
5. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. SHOP DRAWINGS SHALL SHOW AND SPECIFY ALL CONNECTOR TYPES UTILIZED WITHIN TRUSSES, AS WELL AS CONNECTORS UTILIZED IN ALL OTHER CONNECTIONS AND ATTACHMENTS BETWEEN TRUSSES OR COMPONENTS SUPPLIED AS PART OF THE ENGINEERED TRUSS SYSTEM. AN ERECTION DRAWING SHALL BE INCLUDED, IDENTIFYING ALL TRUSS SYSTEM COMPONENTS, AS WELL AS ALL PERMANENT BRACING REQUIRED FOR TRUSS DESIGN. SHOP DRAWINGS SHALL BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT LOCATION.

WOOD FRAMING CONNECTIONS

1. CONNECTOR MODEL NUMBERS SHOWN ARE "Strong-Tie" CONNECTORS AS MANUFACTURED BY "SIMMONS Strong-Tie Co.", 1450 DOUBLET DR., PO BOX 1568, SAN LEANDRO, CA 94577. SUBSTITUTIONS ARE ACCEPTABLE ONLY WITH THE APPROVAL OF THE STRUCTURAL ENGINEER.
2. ALL CONNECTORS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM-A653. CONNECTORS IN CONTACT WITH PRESSURE TREATED MATERIALS SHALL HAVE G-185 COATING. CONNECTORS NOT IN GALVANIZED WITH TREATED MATERIALS SHALL HAVE STANDARD G-60 COATING.

MANUFACTURED WOOD STRUCTURAL COMPONENTS

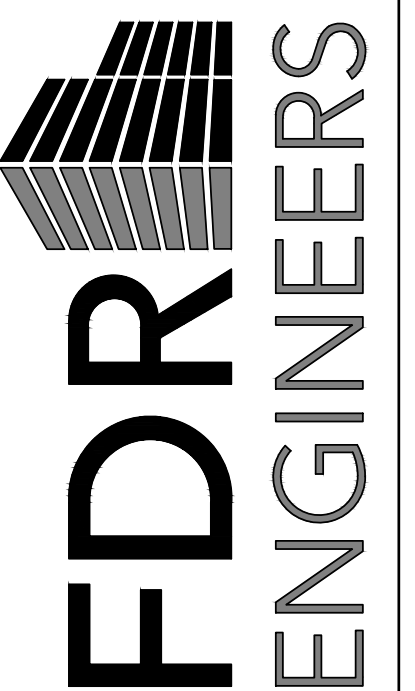
- 1. MEMBERS DESIGNATED "LVL" SHALL BE LAMINATED VENEER LUMBER AS MANUFACTURED BY BOISE CASCADE CORPORATION (VERSALAM), TRUS JOIST CORPORATION (MCR-LAM), ALPINE ENGINEERED PRODUCTS (ASH-LVL), MITEK WOOD PRODUCTS (GANG-LAM LVL), OR APPROVED EQUAL, AND SHALL HAVE THE FOLLOWING MINIMUM ALLOWABLE FIBER STRESSES AND PROPERTIES:
MODULUS OF ELASTICITY (E) 1,800,000 PSI
BENDING (Fb) 1,500 PSI
SHEAR (Fv) 285 PSI
2. MEMBERS DESIGNATED AS "GLU-LAM" SHALL BE STRUCTURAL GLUED LAMINATED TIMBER. MATERIAL, MANUFACTURE AND QUALITY CONTROL SHALL BE IN CONFORMANCE WITH ANSI/ATC-A190.1. STRUCTURAL GLUED LAMINATED TIMBER MEMBERS SHALL BE MARKED WITH A QUALITY CONTROL MARKING INDICATING CONFORMANCE WITH AITC-A190.1. ADHESIVE AND LAMINATIONS SHALL MEET THE REQUIREMENTS OF DRY CONDITION OF SERVICE, UNLESS OTHERWISE NOTED. A COAT OF END SEALER SHALL BE APPLIED TO ENDS OF MEMBERS IMMEDIATELY AFTER END TRIMMING. LAMINATING COMBINATIONS SHALL PROVIDE THE FOLLOWING MINIMUM ALLOWABLE FIBER STRESSES AND PROPERTIES:
MODULUS OF ELASTICITY (E) 1,800,000 PSI
BENDING (Fb) 2,400 PSI
SHEAR (Fv) 165 PSI
TENSION (Ft) 850 PSI
COMP. PERP. (Fcc 1) 470 PSI

SPECIAL INSPECTION AND TESTING

- 1. SPECIAL INSPECTION AND MINIMUM TESTING SHALL BE PERFORMED IN ACCORDANCE WITH 2018 NCSBC, TABLES 1704.3 (STEEL), 1704.4 (CONCRETE), AND 1704.5.1 (MASONRY).
2. INSPECTION & TESTING SHALL BE PROVIDED BY AN INDEPENDENT TESTING AGENCY HIRED AT THE OWNER'S EXPENSE. AGENCY INSPECTION PERSONNEL SHALL MEET THE INSPECTION QUALIFICATIONS FOR EACH MATERIAL ITEM AS INDICATED IN THE SPECIFICATIONS. ALL RE-TESTING DUE TO FAILURE OF ORIGINAL TEST SHALL BE PAID FOR BY THE GENERAL CONTRACTOR.
3. ANY MATERIAL OR PLACEMENT DEVIATIONS FROM MINIMUMS SHOWN ON THE DRAWINGS OR IN SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

STRUCTURAL ABBREVIATIONS

Table with 2 columns: Abbreviation and Full Name. Includes ADJ ANCHOR BOLTS, AFF ADJACENT, ALT ALTERNATE, BCX BOTTOM CHORD EXTENSION, BFF BELOW FINISHED FLOOR, B.O.xx BOTTOM OF xx, BOS BOTTOM OF STEEL, BLDG BUILDING, BM BEAM, BRG BRACING, CANT CANTILEVER, CLR CENTERLINE, CMU CONTROL JOINT, CONJ CLEAR, CONC CONCRETE MASONRY UNIT, CONCR CONCRETE, CONST CONSTRUCTION, CP CONTINUOUS, CP COMPLETE PENETRATION, DBA NAIL PENNY WEIGHT, DBL DEFORMED BAR ANCHOR, DBL DOUBLE, DESR DEGREE, DET.DTL DETAIL, DIA DIAMETER, DIAG DIMENSION, DIM DIMENSION, DK DOWN, DWGS DRAWINGS, DWL DOWEL, EACH EACH FACE, EF ELEVATION, EL ELEV, EMBD EMBEDDED / EMBEDMENT, ENGR ENGR, EOD EDGE OF DECK, EOS EDGE OF STEEL, EQ EQUIP, EQUIP EQUIPMENT, EXIST EACH WAY, EXP EXP, EXP EXPANSION, EXT EXTERIOR, FIN FINISH, FLR FLOOR, FD FLOOR DRAIN, FOM FOUNDATION, FOM FACE OF MASONRY, FOW FOW, FS FOOTING STEP, FTG FOOTING, FV VERIFY, GAUGE GAUGE, GALV GALVANIZED, GB GRAD BEAM, HI HIGH, HORIZ HORIZONTAL, HSE HIGH STRENGTH EPOXY, HSS HOLLOW STRUCTURAL SECTION, INT INTERIOR, INT INTERIOR, JNT JOINT, KIPS = 1000 LBS, KB KNEE BRACE, KSI KIPS PER SQUARE INCH, KLF KIPS PER LINEAR FOOT, LBS POUNDS, LHL LONG LEG HORIZONTAL, LHV LONG LEG VERTICAL, LO LOCATIONS, LSL LAMINATED STRAND LUMBER, LVL LAMINATED VENEER LUMBER, LW LONG WAY, LWC LIGHT WEIGHT CONCRETE, MAS MASONRY, MAX MAXIMUM, MC MOMENT CONNECTION, MECH MECHANICAL, MANF MANUFACTURER, MID MIDDLE, MIN MINIMUM, MISCELLANEOUS, MPLY MASONRY PLYASTER, MP METAL, N# NUMBER OF SHEAR, NOM NOMINAL, NOT TO SCALE, NWC NORMAL WEIGHT CONCRETE, OC ON CENTER, OF OUTSIDE FACE, OH OPPOSITE HAND, OPNG OPENING, OPNG POWDER ACTUATED FASTENER, PC PRECAST, PE PRE-ENGINEERED, PL PLATE, PLF POUNDS PER LINEAR FOOT, PSF POUNDS PER SQUARE FOOT, PSI POUNDS PER SQUARE INCH, PSL PARALLEL STRAND LUMBER, PRES PRESSURE TREATED, R RADIUS, REF REFERENCE, REINF REINFORCEMENT, REQD REQUIRED, REV REVISION, REV SLIP CRITICAL, SCHED SCHEDULE, SDS SELF DRILLING SCREW, SECT SECTION, SHT SHEET, SIM SIMILAR, SL SLAB, SOG SLAB ON GRADE, SPEC SPECIAL JOIST SPECIFICATION, TOS TOP OF CONCRETE, TOW TOP OF WALL, T.O.xx TOP OF xx, THK THICKNESS, TIE TIE JOIST, TYP TYPICAL, UNO UNLESS NOTED OTHERWISE, VERT VERTICAL, VIF VERIFY IN FIELD, WFW WELDED WIRE FABRIC, WWM WELDED WIRE MESH



13200 STRICKLAND ROAD
SUITE 114, BOX 332
RALEIGH, NC 27613
p. 919.957.5100 - f. 919.957.5101
www.edor-eng.com
jfeifar@edor-eng.com



NCSPA SHIPPING AND RECEIVING
MOREHEAD CITY, NC

GENERAL NOTES

DESIGNED BY: AJI
DRAWN BY: AJI
APPROVED BY: HMM

Table with 3 columns: No., Revision, Date. Row 1: 1, SCO COMMENTS, 09/30/2024

Sheet S1.1

Ownership of Instruments of Service: All reports, plans, specifications, computer files, field data, notes and instruments prepared by the design professional as instruments of service shall remain the property of the design professional. All common law, statutory and other reserved rights including but not limited to, are hereby reserved.

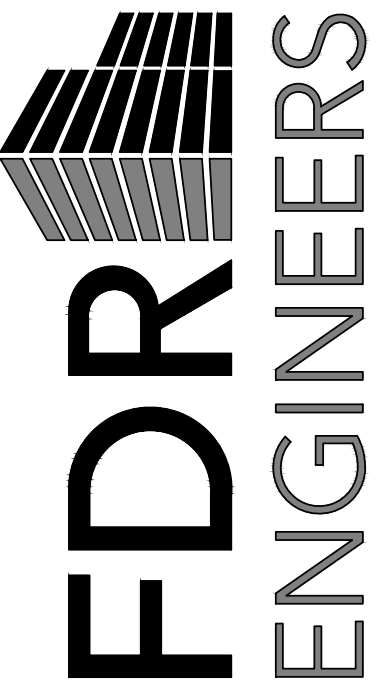
STATEMENT OF SPECIAL INSPECTIONS					
PROJECT INFORMATION		DESIGN PROFESSIONAL INFORMATION		CONSTRUCTION AND SITE	
PROJECT NAME	NCSA SHIPPING AND RECEIVING	ARCHITECT/ENGINEER/CONSULTANT	Heath Hendrick, PE	INSPECTION CATEGORIES	Concrete, Soils
PROJECT DESCRIPTION	COMMERCIAL	FIRM	FDR Engineers	SEISMIC DESIGN CATEGORY	B
LOCATION	MOREHEAD CITY, NC	ADDRESS	121 KITTY HAWK DR., MORRISVILLE, NC 27560	WIND SPEED	144 MPH
OWNER		PHONE	(919) 957-5100	EXPOSURE CATEGORY	D

SPECIAL INSPECTION AND TESTING:

1. SPECIAL INSPECTION AND MINIMUM TESTING SHALL BE PERFORMED IN ACCORDANCE WITH 2018 NCSBC, TABLES 1704.3 (STEEL), 1705.3 (CONCRETE), AND 1705.2.3 (OPEN-WEB STEEL JOISTS AND JOIST GIRDERS).
2. INSPECTION & TESTING SHALL BE PROVIDED BY AN INDEPENDENT TESTING AGENCY HIRED AT THE OWNER'S EXPENSE. AGENCY INSPECTION PERSONNEL SHALL MEET THE INSPECTOR QUALIFICATIONS FOR EACH MATERIAL ITEM AS INDICATED IN THE SPECIFICATIONS. ALL RE-TESTING DUE TO FAILURE OF ORIGINAL TEST SHALL BE PAID FOR BY THE GENERAL CONTRACTOR.
3. ANY MATERIAL OR PLACEMENT DEVIATIONS FROM MINIMUMS SHOWN ON THE DRAWINGS OR IN SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION				
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	IBC REFERENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT	-	X	ACI 318 CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING:				
a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706;	-	X	AWS D1.4 ACI 318: 26.6.4	-
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND		X		
c. INSPECT ALL OTHER WELDS	X			
3. INSPECT ANCHORS CAST IN CONCRETE	-	X	ACI 318: 17.8.2	-
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS				
a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X		ACI 318: 17.8.2.4	-
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a		X	ACI 318: 17.8.2	
5. VERIFY USE OF REQUIRED DESIGN MIX	-	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF CONCRETE	X	-	ASTM C172 ASTM C31 ASTM 318: 26.4, 26.12	1908.10
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	-	X	ACI 318: 26.5.3-26.5.5	1908.9
9. INSPECT PRESTRESSED CONCRETE FOR:				
a. APPLICATION OF PRESTRESSING FORCES; AND	X	-	ACI 318: 26.10	-
b. GROUTING OF BONDED PRESTRESSING TENDONS	X	-		
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	-	X	ACI 318: CH. 26.8	-
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	-	X	ACI 318: 26.11.2	-
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	-	X	ACI 318: 26.11.1.2(b)	-

REQUIRED SPECIAL INSPECTIONS AND TEST OF SOILS		
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	-	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	-	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X	-
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY	-	X



13200 STRICKLAND ROAD
SUITE 114, BOX 332
RALEIGH, NC 27613
p. 919.957.5100 - f. 919.957.5101
www.fdr-eng.com
jfejar@fdr-eng.com



NCSA SHIPPING AND RECEIVING

MOREHEAD CITY, NC

SPECIAL INSPECTIONS

DESIGNED BY: AJI

DRAWN BY: AJI

APPROVED BY: HMH

PROJECT #: 23-436

DATE: 06/18/2024

No.	Revision	Date
1	SCO COMMENTS	09/30/2024

Sheet

S1.2

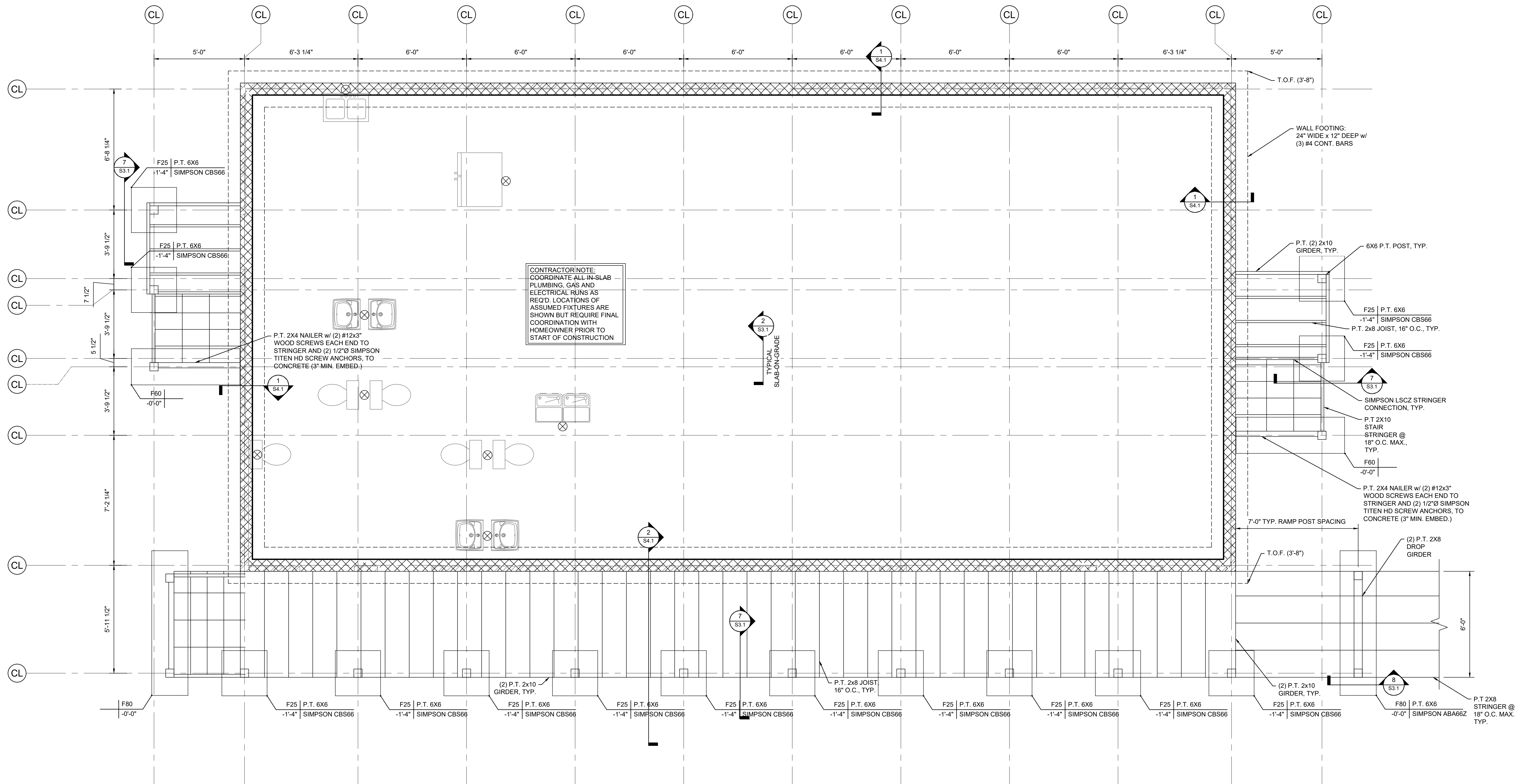


Project Name
NCSPA SHIPPING AND RECEIVING
MOREHEAD CITY, NC

Sheet Title
FOUNDATION PLAN

DESIGNED BY:	AJI	
DRAWN BY:	AJI	
APPROVED BY:	HMH	
PROJECT #:	23-436	
DATE:	06/18/2024	
No.	Revision	Date
1	SCO COMMENTS	09/30/2024

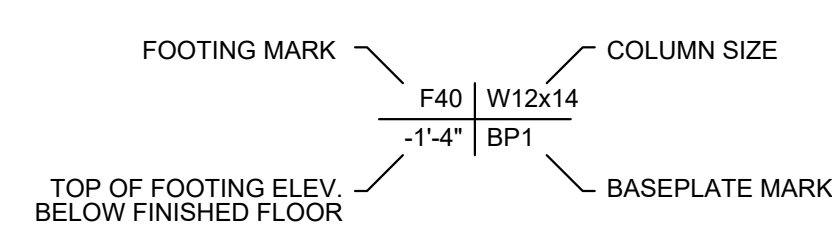
Sheet
S2.1



CONTRACTOR NOTE:
COORDINATE ALL IN-SLAB
PLUMBING, GAS AND
ELECTRICAL RUNS AS
REQ'D. LOCATIONS OF
ASSUMED FIXTURES ARE
SHOWN BUT REQUIRE FINAL
COORDINATION WITH
HOMEOWNER PRIOR TO
START OF CONSTRUCTION

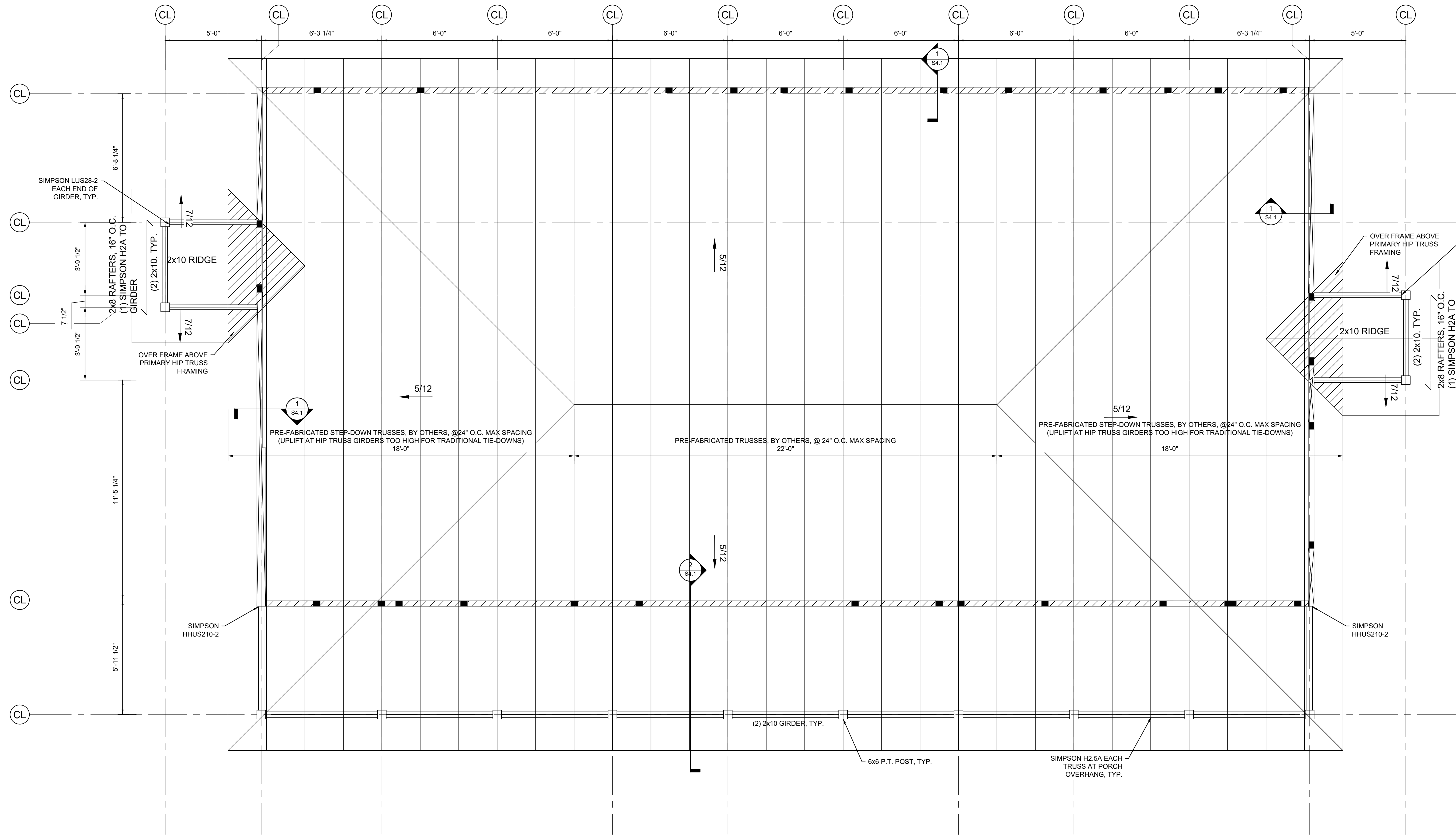
1 FOUNDATION PLAN
ARCH REF: 1/A-1
STRUC REF:

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



MARK	SIZE	REINFORCING
F25	2'-6"x2'-6"x12"	(4)-#3 E.W. TOP & BOT
F60	6'-0"x2'-0"x12"	(7)-#3 BOT LONG & (3) #3 BOT SHORT
F80	8'-0"x2'-0"x12"	(9)-#3 BOT LONG & (3) #3 BOT SHORT

- FRAMING PLAN NOTES:**
- ███ DENOTES LOAD BEARING WALL. ALL EXTERIOR WALLS SHALL BE SHEATHED WITH 7/16" APA 24/0 RATED CDX PLYWOOD SHEATHING WITH EDGE BLOCKING, NAIL SHEATHING WITH 8d NAILS @ 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS.
 - ███ DENOTES SHEAR WALL. ALL EXTERIOR SHEAR WALLS SHALL BE SHEATHED WITH 7/16" APA 24/0 RATED CDX PLYWOOD SHEATHING WITH EDGE BLOCKING, NAIL SHEATHING WITH 8d NAILS @ 4" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS. PROVIDE (2) STUDS FULL HEIGHT OF WALL AT EACH END OF SHEAR WALL. TYP. FASTEN SHEATHING TO ALL (2) STUDS WITH NAILS STAGGERED IN ACCORDANCE WITH SHEAR WALL FASTENER SPACING. HOLDDOWN AT EACH END OF ALL SHEAR WALL WITH SIMPSON HD9B w/ (1) 7/8" Ø BOLT (5" MIN. EMBED.)
 - ALL EXTERIOR WALL FRAMING TO BE 2x6, 16" O.C.. ALL INTERIOR FRAMING TO BE 2x4, UNLESS NOTED OTHERWISE.
 - ALL ROOF SHEATHING SHALL BE APA 32/16 SPAN RATED SHEATHING, 19/32" THICK (5/8" NOMINAL). PROVIDE H-CLIPS, U.N.O.
 - ALL STRUCTURAL MEMBERS SHALL BE ATTACHED IN ACCORDANCE WITH CHAPTER 23 OF THE 2018 NORTH CAROLINA STATE BUILDING CODE
 - ALL EXTERIOR, AND INTERIOR LOAD-BEARING HEADERS TO BE CONSTRUCTED w/ MIN. (2)-2x10 AND SUPPORTED BY (1) JACK STUDS AND (2) KING STUD UNLESS NOTED OTHERWISE.
 - PROVIDE SIMPSON H10A CLIPS AT THE ENDS OF ALL ROOF FRAMING MEMBERS U.N.O.



1 ROOF FRAMING PLAN
 ARCH REF: 1/A-1.1 Scale: 3/8" = 1'-0"
 STRUC REF:

TRUSS DESIGN NOTES:

- TRUSS MANUFACTURER SHALL BE RESPONSIBLE FOR FINAL TRUSS DESIGN, TO INCLUDE CALCULATIONS, LAYOUT, AND ALL NECESSARY BRACING AND BRIDGING DETAILS AS REQD. FOR PERMANENT STABILITY OF TRUSS SYSTEM.
- TRUSSES AND THEIR COMPONENTS ARE TO BE DESIGNED TO RESIST THE COMPONENT AND CLADDING WIND PRESSURES OUTLINED ON SHEET S1.0.
- TRUSSES ARE TO BE DESIGNED TO SUPPORT THE FOLLOWING SUPERIMPOSED LOADING UNLESS NOTED OTHERWISE:
 TOP CHORD LL: 20 PSF
 TOP CHORD DL: 10 PSF*
 BOTTOM CHORD DL: 5 PSF*
- NET UPLIFT (MAIN): 30.2 PSF
 NET UPLIFT (PORCH): 85 PSF

*DEAD LOADS ARE CONSIDERED TO BE SUPERIMPOSED, AND DO NOT INCLUDE TRUSS SELF-WEIGHT

- FRAMING PLAN NOTES:**
- ██ DENOTES LOAD BEARING WALL. ALL EXTERIOR WALLS SHALL BE SHEATHED WITH 7/16" APA 24/0 RATED CDX PLYWOOD SHEATHING WITH EDGE BLOCKING. NAIL SHEATHING WITH 8d NAILS @ 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS.
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 - ALL EXTERIOR, AND INTERIOR LOAD-BEARING HEADERS TO BE CONSTRUCTED w/ MIN. (2)-2x10 AND SUPPORTED BY (1) JACK STUDS AND (2) KING STUD UNLESS NOTED OTHERWISE.
 - PROVIDE SIMPSON H10A CLIPS AT THE ENDS OF ALL ROOF FRAMING MEMBERS U.N.O.



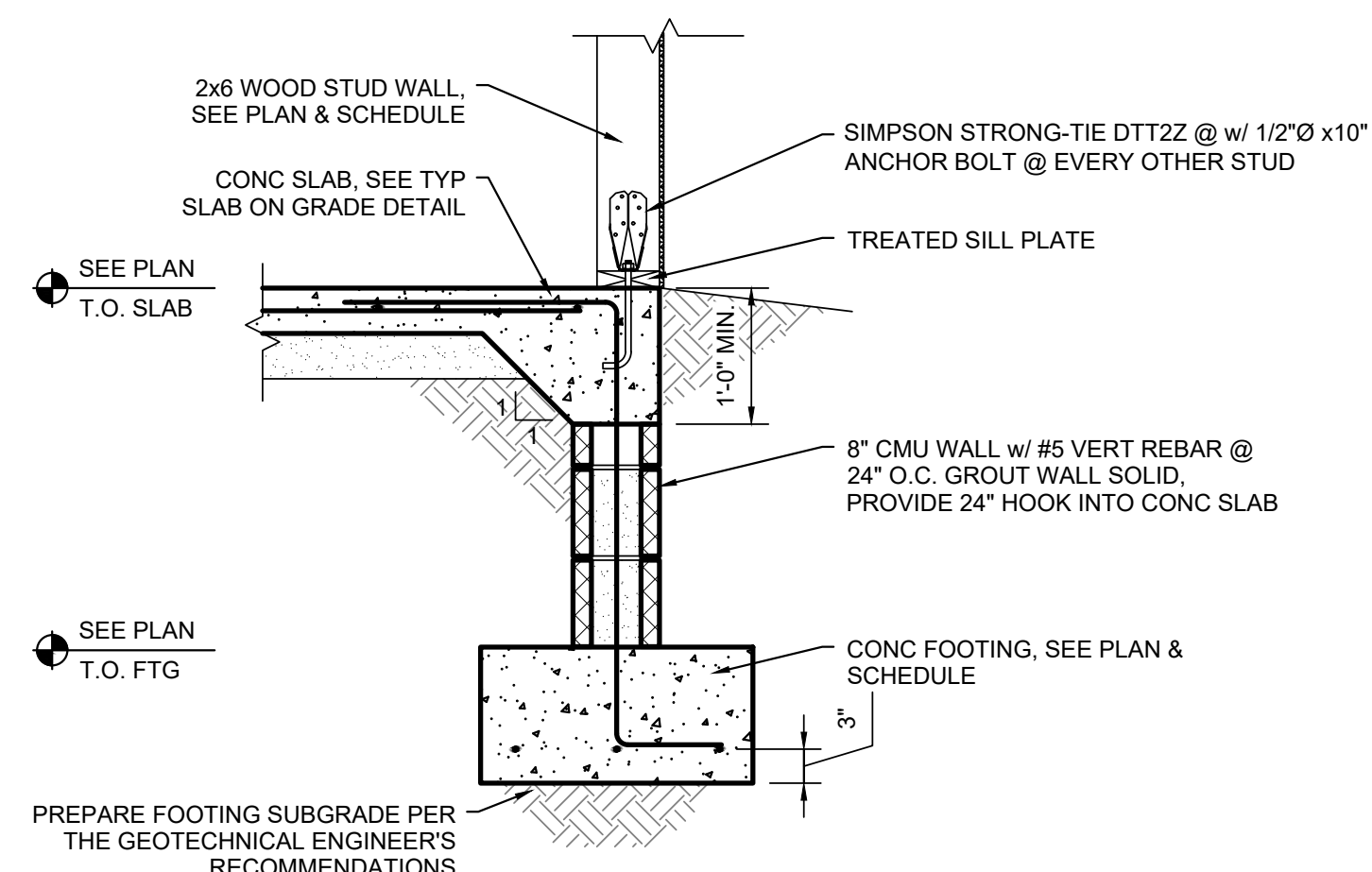
Project Name
NCSPA SHIPPING AND RECEIVING
 MOREHEAD CITY, NC

Sheet Title
ROOF FRAMING PLAN

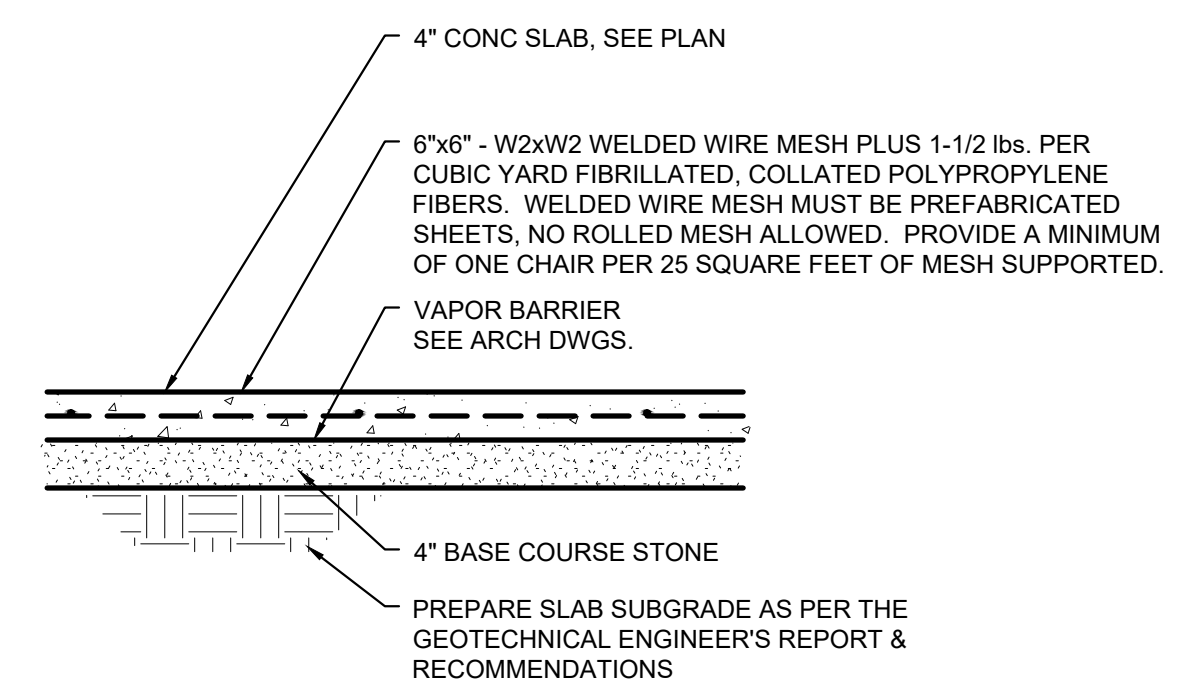
DESIGNED BY:	AJI	
DRAWN BY:	AJI	
APPROVED BY:	HMH	
PROJECT #:	23-436	
DATE:	06/18/2024	
No.	Revision	Date
1	SCO COMMENTS	09/30/2024

Sheet
S2.2

Ownership of Instruments of Service: All reports, plans, specifications, computer files, field data, notes and instruments prepared by the design professional as instruments of service shall remain the property of the design professional. All common law, statutory and other reserves thereto.

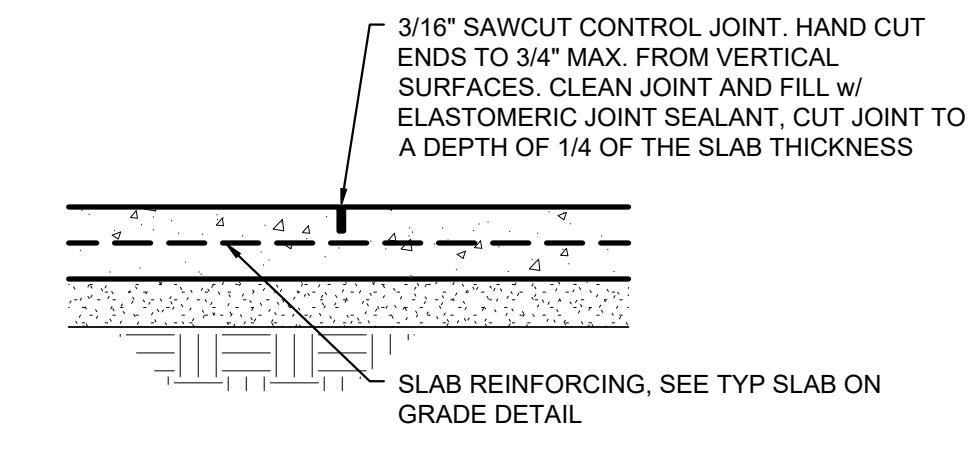


1 EXTERIOR CMU FOUNDATION WALL
(WOOD STUD WALL / MONO SLAB / NO BRICK) SCALE: 3/4" = 1'-0"

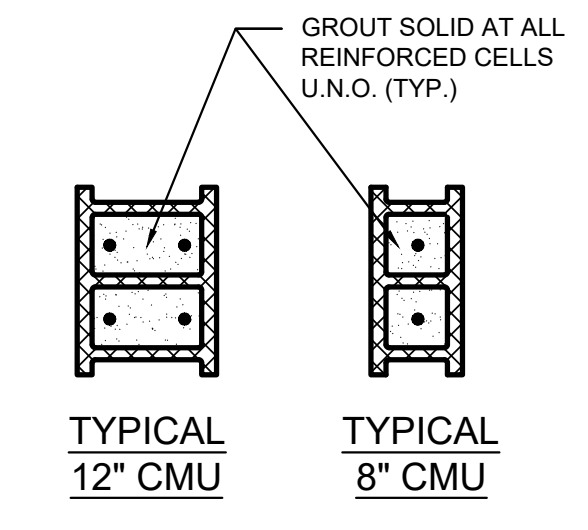


2 4" SLAB ON GRADE DETAIL SCALE: 3/4" = 1'-0"

NOTES:
 1. CONTRACTORS OPTION - USE REMOVABLE CONTROL JOINT MATERIAL SUCH AS "ZIP STRIP", "STRESSLOCK", OR APPROVED EQUAL.
 2. SLAB ON GRADE CONTROL JOINTS SHALL BE TOOLED OR SAWCUT. THE JOINT PATTERN SHALL BE APPROXIMATELY SQUARE AND LIMITED TO AN AREA NOT TO EXCEED 225 S.F. JOINTS SHALL BE CUT WITHIN 12 HOURS OF POURING SLAB. SEE PLAN FOR PROPOSED JOINT LAYOUT. FINAL JOINT LAYOUT TO BE DETERMINED BY THE GENERAL CONTRACTOR.



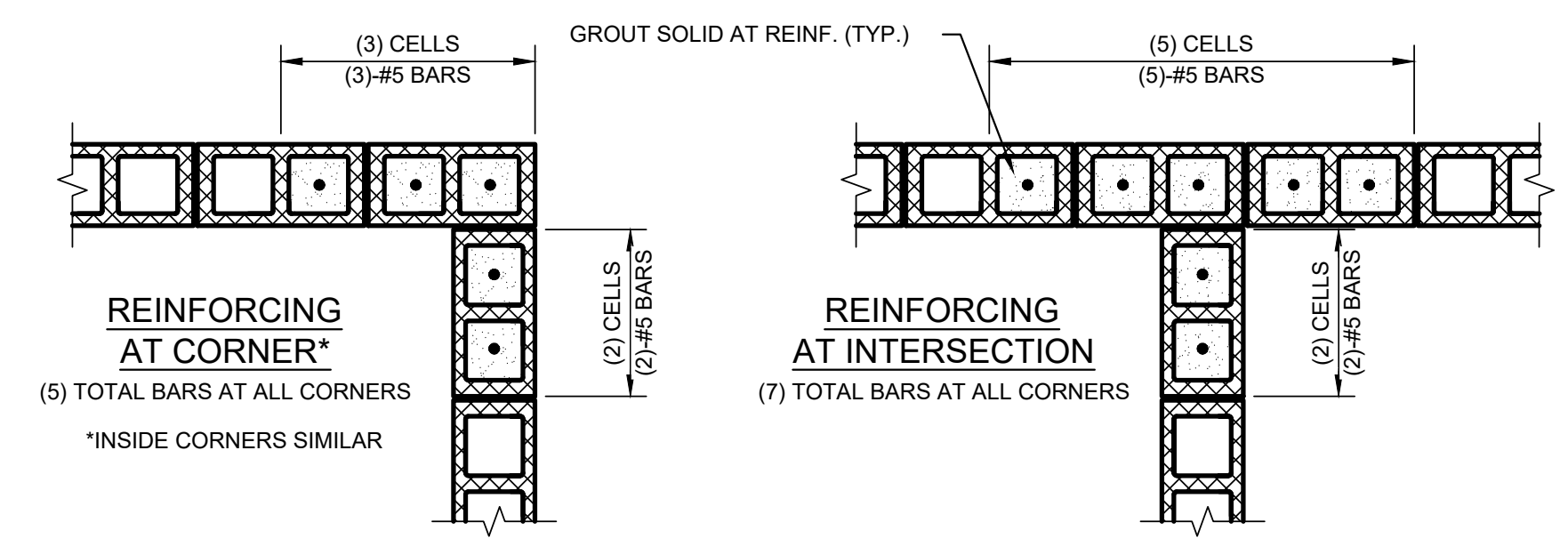
3 4" SLAB ON GRADE CONTROL JOINT SCALE: 3/4" = 1'-0"



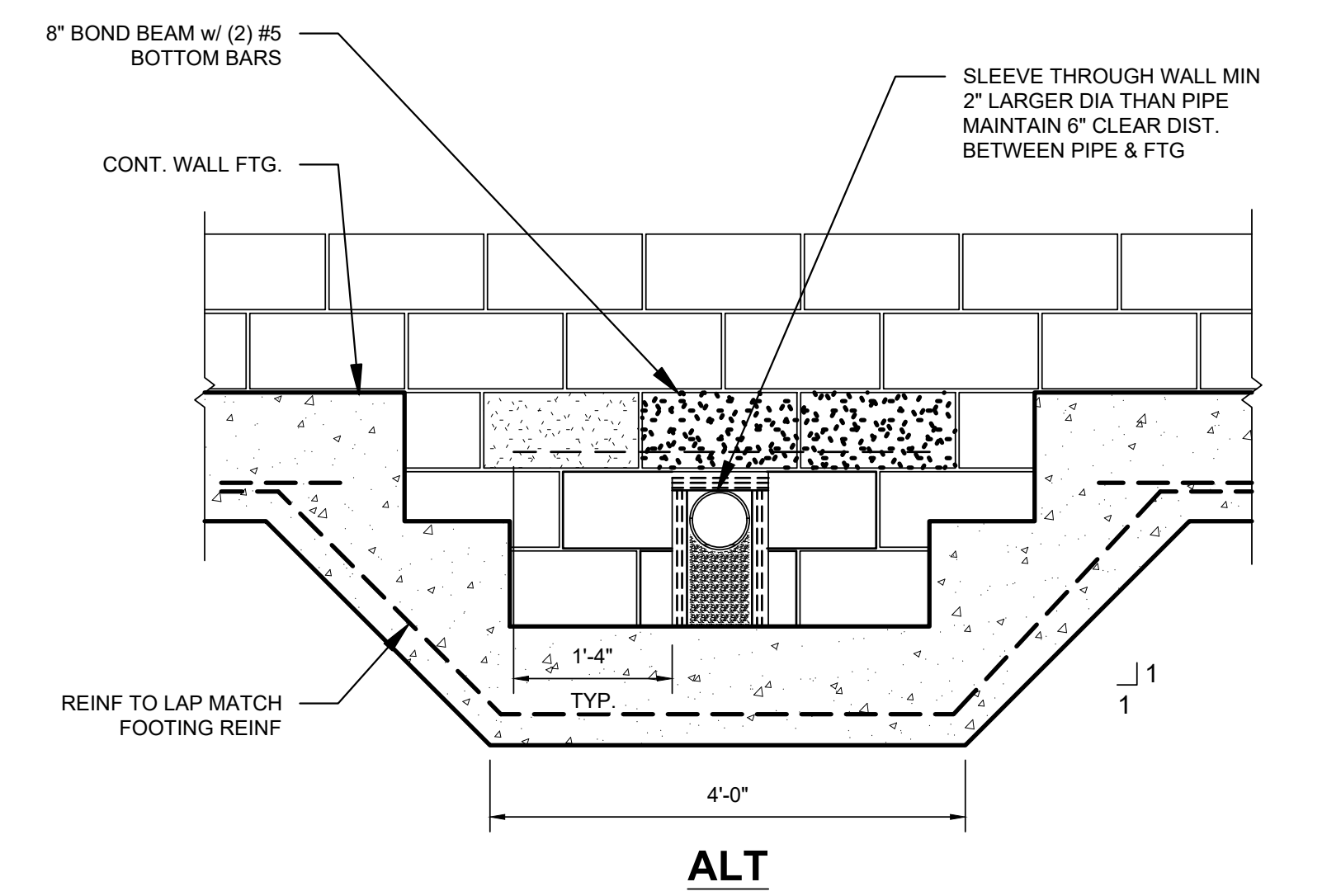
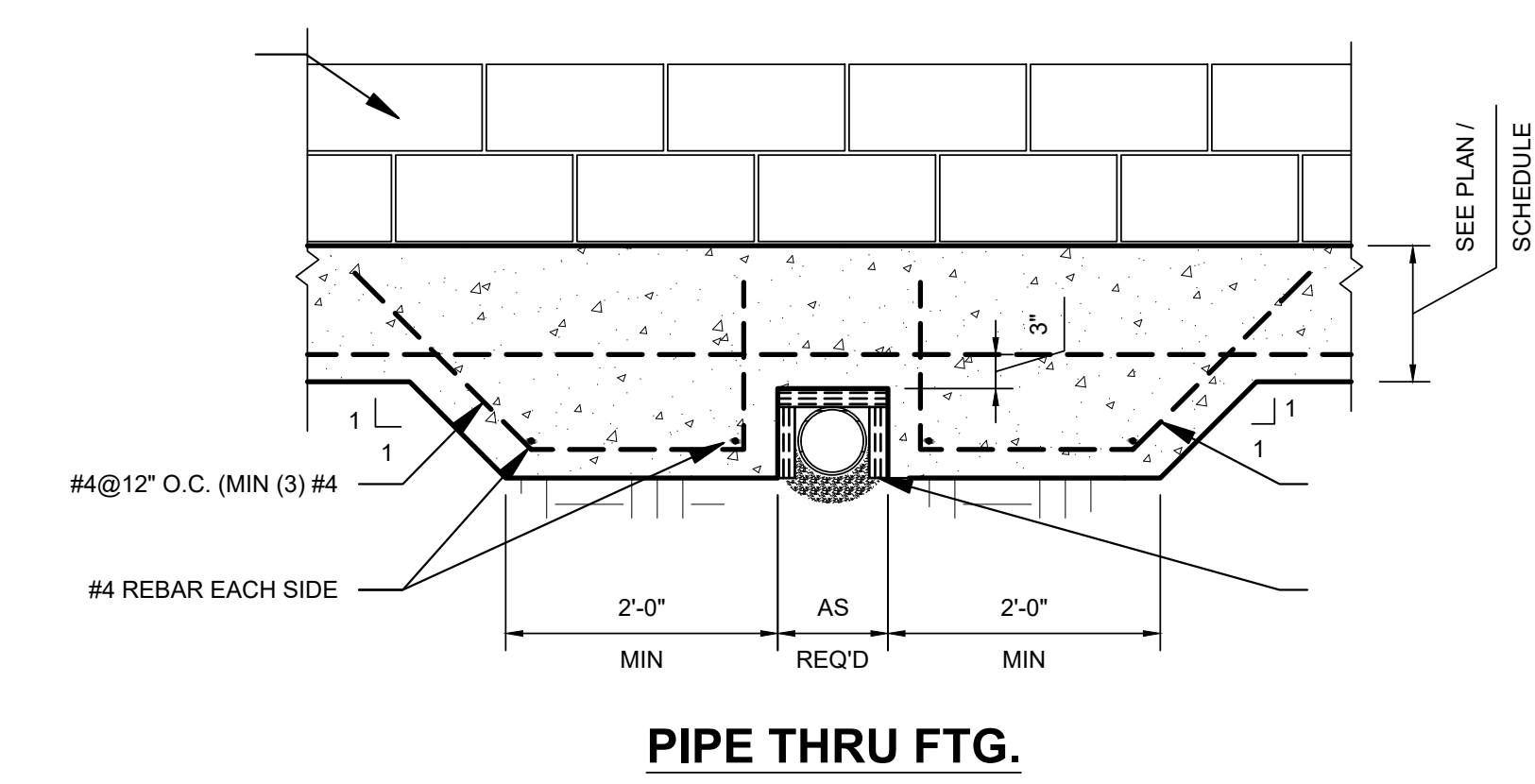
4 CMU WALL REINFORCING SCHEDULE SCALE: 3/4" = 1'-0"

CMU WALL REINFORCING SCHEDULE			
APPLICATION	THICKNESS	VERT REINF	REMARKS
EXTERIOR WALLS	8" CMU	(1) #5 @ 32" O.C.	--

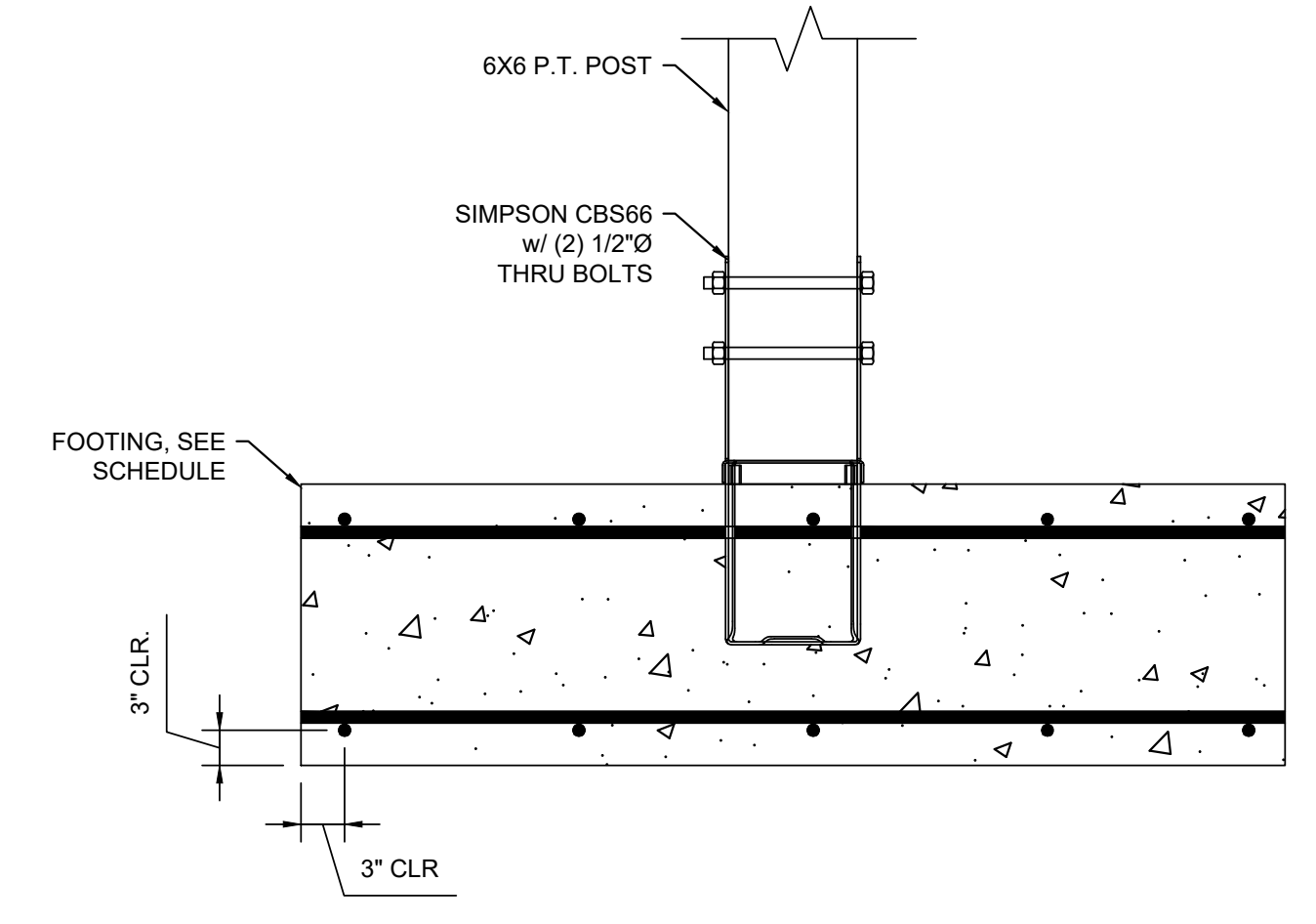
NOTES:
 1. ALL MASONRY SHALL BE LAID IN RUNNING BOND UNLESS NOTED OTHERWISE.
 2. LAP SPLICES A MINIMUM OF 48 BAR DIAMETERS.
 3. PROVIDE DUR-O-WALL (OR EQUAL) LADDER OR TRUSS HORIZONTAL JOINT REINFORCEMENT AT EACH SECOND COURSE IN RUNNING BOND, AND EACH COURSE IN STACKED BOND, UNLESS NOTED OTHERWISE. DISCONTINUE HORIZONTAL JOINT REINFORCEMENT AT CONTROL JOINTS.
 4. PROVIDE BOND BEAMS REINFORCED WITH (2) #5 BARS EVERY 6'-0" OF VERTICAL WALL, AT TOPS OF ALL MASONRY WALLS, AND WHERE SHOWN ON DRAWINGS. FIRST BOND BEAM MAY BE PLACED AT TOP OF DOOR OPENINGS, 8'-0" MAX. AT BOND BEAM CORNERS AND TEE JOINTS, PROVIDE BENT BARS TO MATCH QUANTITY AND BAR SIZE IN THE BOND BEAM. LAPS IN BOND BEAMS SHALL BE 48 BAR DIAMETERS OR A MINIMUM OF 2'-0", WHICHEVER IS GREATER.



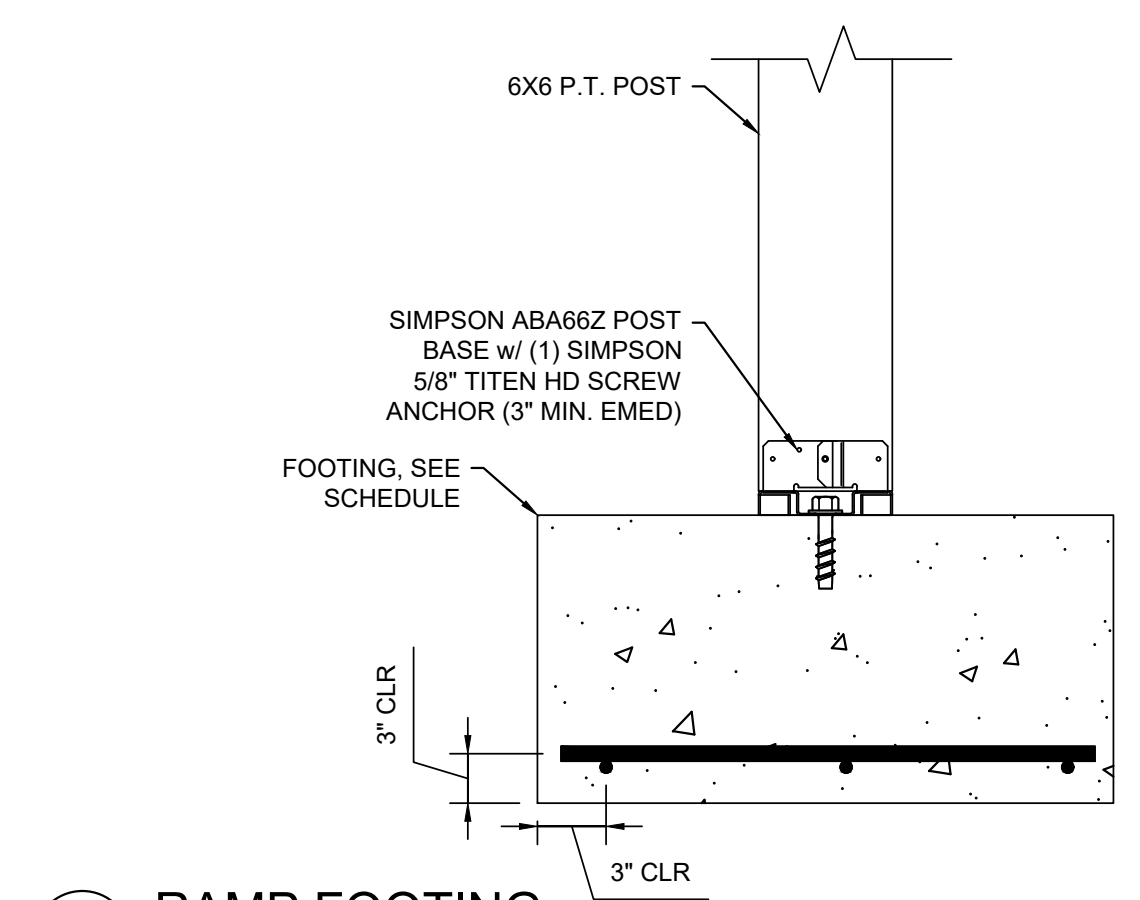
5 ADDITIONAL REINFORCING AT CORNERS AND INTERSECTIONS SCALE: 3/4" = 1'-0"



6 TYPICAL UTILITIES BELOW FOOTING SCALE: 3/4" = 1'-0"



7 PORCH FOOTING Scale: 1 1/2" = 1'-0"



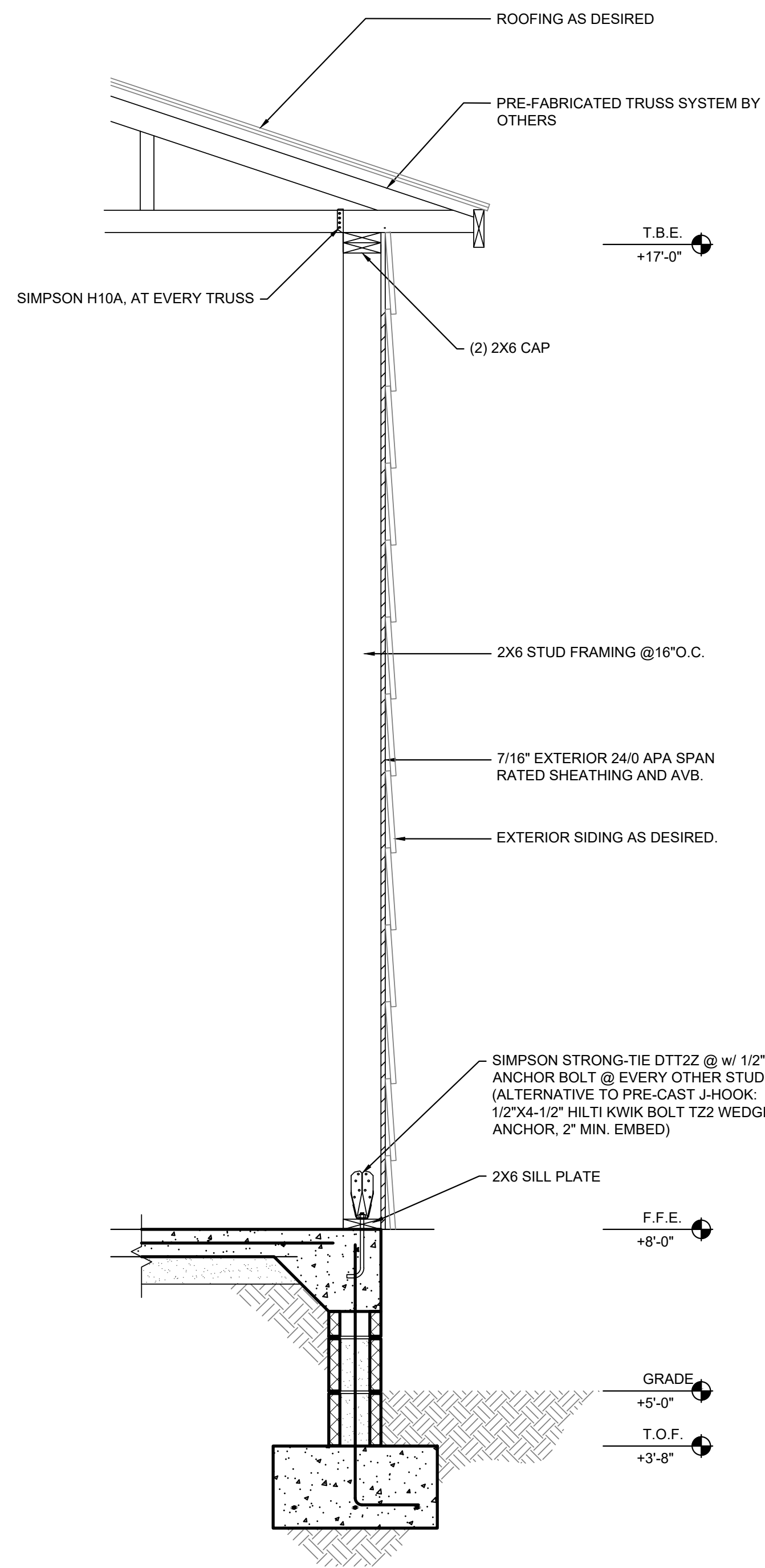
8 RAMP FOOTING Scale: 1 1/2" = 1'-0"



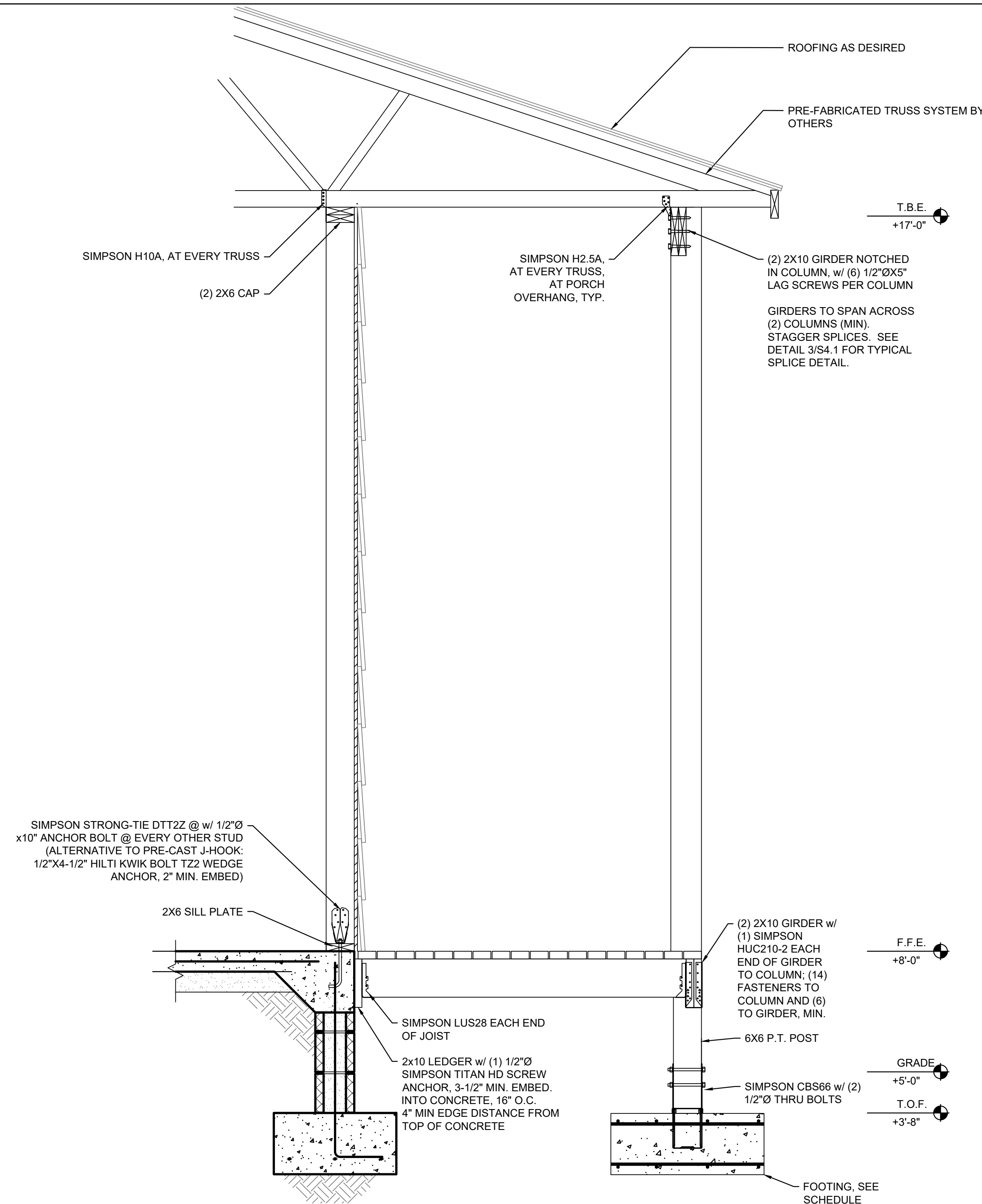
DESIGNED BY: AJI
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 PROJECT #: 23-436
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1	SCO COMMENTS	09/30/2024

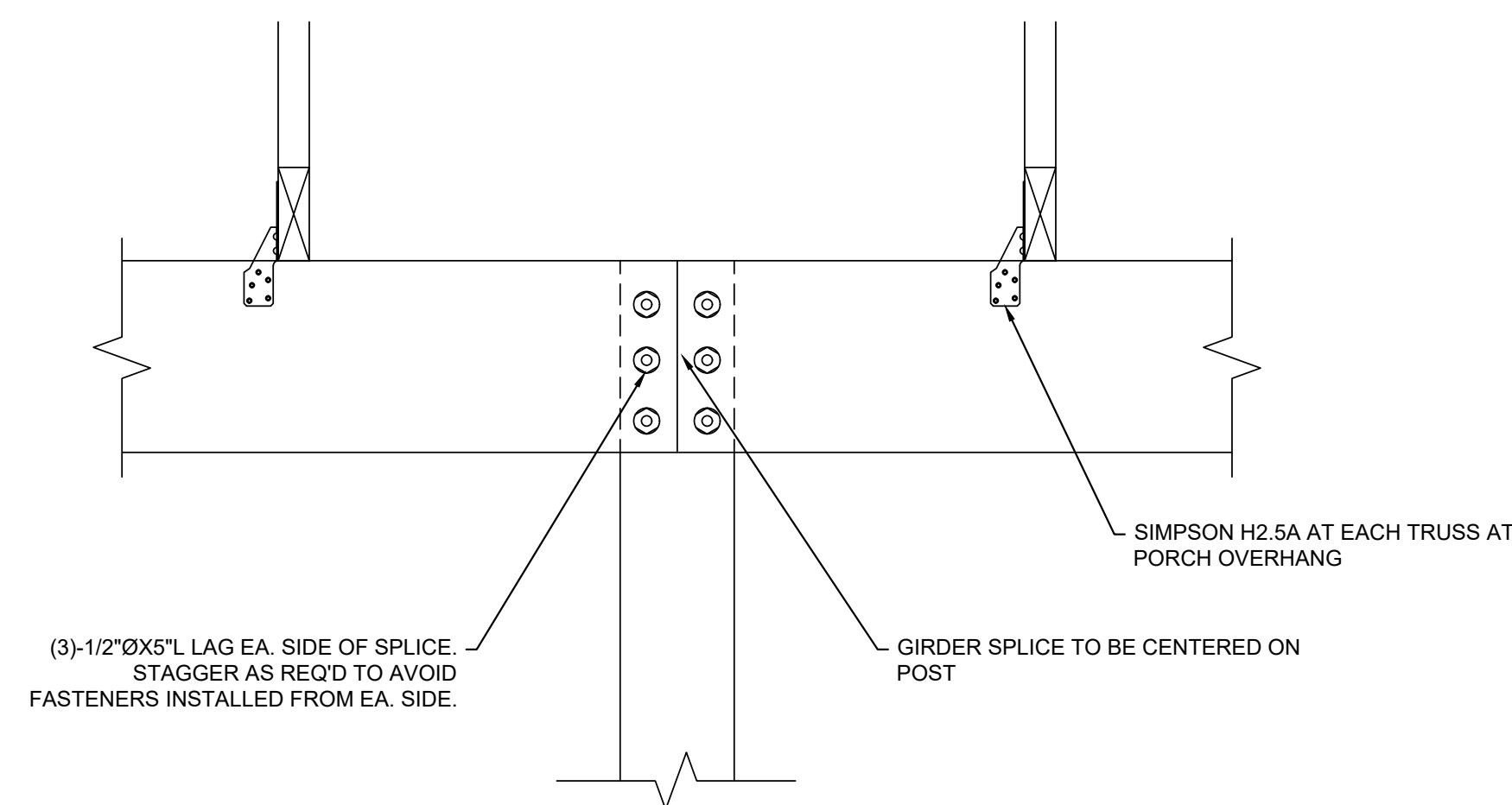
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1 TYP. WALL SECTION
Scale: 3/4" = 1'-0"



2 TYP. WALL SECTION AND PORCH FRAMING
Scale: 3/4" = 1'-0"



3 GIRDER SPLICE DETAIL
SCALE: 1-1/2" = 1'-0"

DIVISION 15A – PLUMBING

- 1.1 DESCRIPTION OF THE WORK**
- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
- Plumbing fixtures, water heaters, and any other equipment necessary.
 - Cold and hot water piping and insulation.
 - DWV piping.
 - Connection of all equipment; drain, vent, water.
- B. All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply:
- The National Electrical Code.
 - 2018 N.C. Building Code: Plumbing, and all applicable category codes.
 - American Society of Sanitary Engineering Standard 1010.
 - All local codes and ordinances.
- C. These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.
- D. The Plumbing Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.
- E. Obtain all permits, licenses, inspections, etc., required for the work, and pay for the same.
- 1.2 INTENT**
- A. The intent of these specifications and accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Plumbing Contractor shall take this into consideration and include in his base bid allowance for contingencies as well allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner. The PC shall determine and coordinate with existing conditions.
- 1.3 COORDINATION**
- A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.
- B. Locations shown are approximate. The Plumbing Contractor shall refer to the architectural drawings for placement of equipment, fixtures, etc. Where locations are not clear, the Contractor shall obtain the exact locations from the Architect.
- C. Coordinate all exterior piping connections w/Architect, site contractor/plans. Verify manhole elevations and provide backwater valves as required if flood level rims are below next upstream manhole cover elevation. Fixtures with flood level rims above upstream manhole shall not discharge thru bw valve. Notify engineer of backwater valve requirement, any issue prior to bid.
- 1.4 SHOP DRAWINGS**
- A. Shop drawings shall be submitted for plumbing fixtures and for pipe. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.
- PART 2 – PRODUCTS**
- 2.1 FIXTURES**
- A. Each fixture shall be properly supported from the building structure as required to the end effect that all fixtures and accessories will be held rigidly in place. Water pipes supplying the fixtures must also be held rigidly in place.
- B. Provide loose key angle stops and chrome plated supply pipe water supplies to fixtures.
- C. All exposed piping traps and accessories for fixtures shall be chrome plated. Provide chrome plated escutcheon plates where pipes enter walls.
- D. Provide shutoff valves for all sinks, water heaters, toilets, washing machines, refrigerator icemaker, exterior hose bibbs and all other plumbing fixtures.
- E. Provide trap primers for all floor drains in areas not served by hose bibbs.

- 2.2 PIPING**
- A. Drain-Waste-Vent: All DWV piping shall be Schedule 40 PVC-DWV u.o.n., with the following exceptions: Use cast iron piping in all return air plenums, penetrations of rated walls/floors/ceilings, and in areas/walls adjacent to cooking equipment exhaust hoods. Review Arch. and Mech. drawings. ABS or cast iron piping shall be used for drainage/discharge with a temperature greater than 140 deg. F for a minimum distance of 10'-0".
- B. Hot and cold water piping above grade: Type "L" copper w/solder joints (ASTM-B88), hard drawn with wrought copper fittings (ANSI B16.22). PEX piping with copper fittings may be used with owner/tenant approval and as allowed per code. Copper piping shall be used in areas/walls adjacent to cooking equipment exhaust hoods. Review Arch. and Mech. drawings.
- C. Cold water piping below grade: Type "K" copper (ASTM-B8A) soft drawn.
- D. Hangers: Use pipe hangers where required on 8-foot centers with saddles to avoid crushing insulation.
- E. Solder: 95/5. Lead free.
- F. Unions: Provide unions where indicated on drawings, in long runs of piping (except drainage) and at equipment to provide convenient disassembly. Provide dielectric unions when connecting copper tubing to equipment and piping made of ferrous materials.
- 2.3 CLEANOUTS**
- A. Hex plugs in rough areas: Recessed plugs with cover plates in exposed locations.
- 2.4 SHOCK ARRESTERS**
- A. Provide shock arresters as required by codes, manufacturer's recommendations and accepted industry standards for quality construction. Provide for all quick closing valves.
- PART 3 – EXECUTION**
- 3.1 CONNECTIONS**
- A. This contract includes complete connection of cold water, hot water, drainage, and vent piping as required. All fittings, valves, accessories, cutoffs, drains, etc., required to complete such connections shall be included.
- B. The connection to water closets shall be made watertight with gasket and wax ring. Floor flanges shall be caulked into position. Plastic caps shall be provided on the tie down bolts, and shall be secured in place by screwing down on threaded brass washers.
- C. Where water pipes connect to exposed chrome plated trim, use proper chrome plated escutcheons.
- 3.2 SERVICE ACCESS**
- A. All valves and accessories shall be insulated so that they can be properly serviced. In no case shall the Plumbing Contractor install equipment or other components in situations that do not meet code requirements or manufacturer's requirements. Provide access doors as required to access valves, etc.
- 3.3 ROUTING OF PIPING**
- A. Coordinate routing of piping with others, line up work true to or at right angle to adjacent surfaces and in a workmanlike manner. Support all interior piping from building structure by means of hanger or inserts to maintain pitch of lines, to prevent vibration, and to secure piping place.

- B. Space pipe hangers per NCSBC- Plumbing Sect. 308.5.
- C. Pipe hangers for insulated lines shall have suitable saddles to protect insulation.
- 3.4 INSULATION**
- A. All H/W and C/W piping shall be insulated with a min. of 1" inch elastomeric insulation (R=6.5 min.) in unconditioned areas. See NCSBC-Plumbing Sect. 305 for all protection requirements. All H/W piping of circulating systems shall be insulated with 1" insulation per Sect. C404.4 of the NCSBC 2018 Energy Conservation Code.
- B. Provide pre-fabricated insulation kits for all sink and lavatory exposed drain and supply piping.
- 3.5 INSPECTIONS AND TESTS**
- A. Before being concealed, all water, soil and vent piping shall be tested to determine if they are water- and air-tight.
- B. Prior to placing into service, entire system shall be tested for leaks in strict accordance with state and local codes.
- 3.6 STERILIZATION OF PIPING**
- A. Sterilize the new water piping thoroughly with a solution containing not less than 50 parts per million of available chlorine, using liquid chlorine, or sodium hydrochloride solution, introduced into the system in an approved manner. The sterilizing solution shall remain in the system in an approved manner. The sterilizing solution shall remain in the system for a period of 24 hours. After sterilization, flush the solution from the system with clean water until the residual chlorine content is not greater than 0.2 parts per million, unless otherwise directed.
- 3.7 SERVICE PRESSURE**
- A. Provide approved water-pressure reducing valve (PRV) if service pressure exceeds 80 psi to reduce pressure to 80 psi static or less and as required per NCSBC-Plumbing Sect. 604.8.
- 3.8 DRAINDOWN**
- A. Contractor to provide for complete plumbing system drain down.
- 3.9 CLEAN UP**
- A. During construction, keep the site clear of debris and upon completion, and before final inspection, clean up the premises to remove all evidence of his work. In addition, upon completion of construction, clean, wash, and/or polish all fixtures, equipment and exposed material and leave them bright and clean.
- 3.10 GUARANTEES**
- A. Guarantee all materials and labor included in the plumbing work for a period of one year from date of final acceptance by the Owner.
- B. Any defects in the system which become evident during the guarantee period shall be corrected without cost to the Owner. This shall include the replacing of defective materials where required, and the repair of damage caused by leaking pipes, etc., and damage to building surfaces caused in making repairs.

GENERAL NOTES – PLUMBING

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE, ALL LOCAL AND OTHER APPLICABLE CODES.
- ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE PLUMBING CONTRACTOR (PC) SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC).
- THE PLUMBING PLANS AND SPECIFICATIONS SHALL BE THOROUGHLY REVIEWED PRIOR TO PURCHASING MATERIALS AND INSTALLATION AND ALL DISCREPANCIES OR INTERFERENCES BROUGHT TO THE ENGINEERS ATTENTION.
- THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. THE PC SHALL PROVIDE ALL MISC. ITEMS NEEDED FOR A COMPLETE SYSTEM REGARDLESS IF NOTED ON THE DRAWINGS OR NOT. FOR DIMENSIONS REFER TO ARCHITECTURAL PLANS.
- THE GC SHALL PROVIDE ALL WALL, FLOOR AND ROOF OPENINGS OF THE SIZE AND LOCATION REQUIRED BY THE PC AND SHALL BE RESPONSIBLE FOR PAINTING AND FLOOR FINISHES. THE PC SHALL PROPERLY SEAL ALL PENETRATIONS AND PROVIDE ESCUTCHEON PLATES AT ALL FINISHED LOCATIONS.
- ALL NEW WATER PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE, ADEQUATELY SUPPORTED AND PROTECTED AND PROPERLY PITCHED TO ALLOW TOTAL DRAINAGE.
- ALL WATER PIPING SHALL BE HYDROSTATICALLY TESTED FOR A MINIMUM OF 15 MINUTES AT A MINIMUM OF 100 PSIG BEFORE COVERING AND ALL LEAKS CORRECTED. THE ENTIRE WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED PRIOR TO PLACING IN SERVICE.
- PROVIDE MIN. 18" SHOCK ABSORBERS WITH STOPS ON ALL HOT AND COLD WATER FIXTURE RUNS AS REQUIRED BY CODE.
- VENT LINES SHALL SLOPE UP TO ALL STACKS AND TERMINATE A MIN. OF 12" ABOVE ROOF LINE.
- PROVIDE CUT SHEETS ON ALL PLUMBING FIXTURES FOR ARCHITECT AND OWNER APPROVAL PRIOR TO ORDERING ANY FIXTURES.
- PROVIDE/VERIFY HOT WATER TO FIXTURES AT 110 DEGREES (MAX) F. PROVIDE ASSE 1070 THERMOSTATIC MIXING VALVE (WATTS LFUSG-B 'LEAD FREE' GUARDIAN OR EQUAL) FOR ALL LAVATORIES AS REQUIRED. VERIFY VALVE LOCATION, INSTALL IN MAINTENANCE ACCESSIBLE AREA.

SYMBOL LEGEND – PLUMBING

SYMBOL	DESCRIPTION (U.O.N.)
---	WASTE PIPING (W)
---	VENT PIPING (V)
---	COLD WATER PIPING (CW)
---	HOT WATER PIPING (HW)
---	SHUT-OFF VALVE
---	DIELECTRIC UNION
○ COFF	CLEANOUT FINISH FLOOR
⊥ WCO/HCO	WALL/HORIZONTAL CLEANOUT
□ COFG	CLEANOUT FINISH GRADE CONCRETE COLLAR AND BRONZE COVER
⊥	VENT THRU ROOF (VTR)
A.F.F.	ABOVE FINISHED FLOOR
U.O.N.	UNLESS OTHERWISE NOTED
A.A.V.	AIR ADMITTANCE VALVE

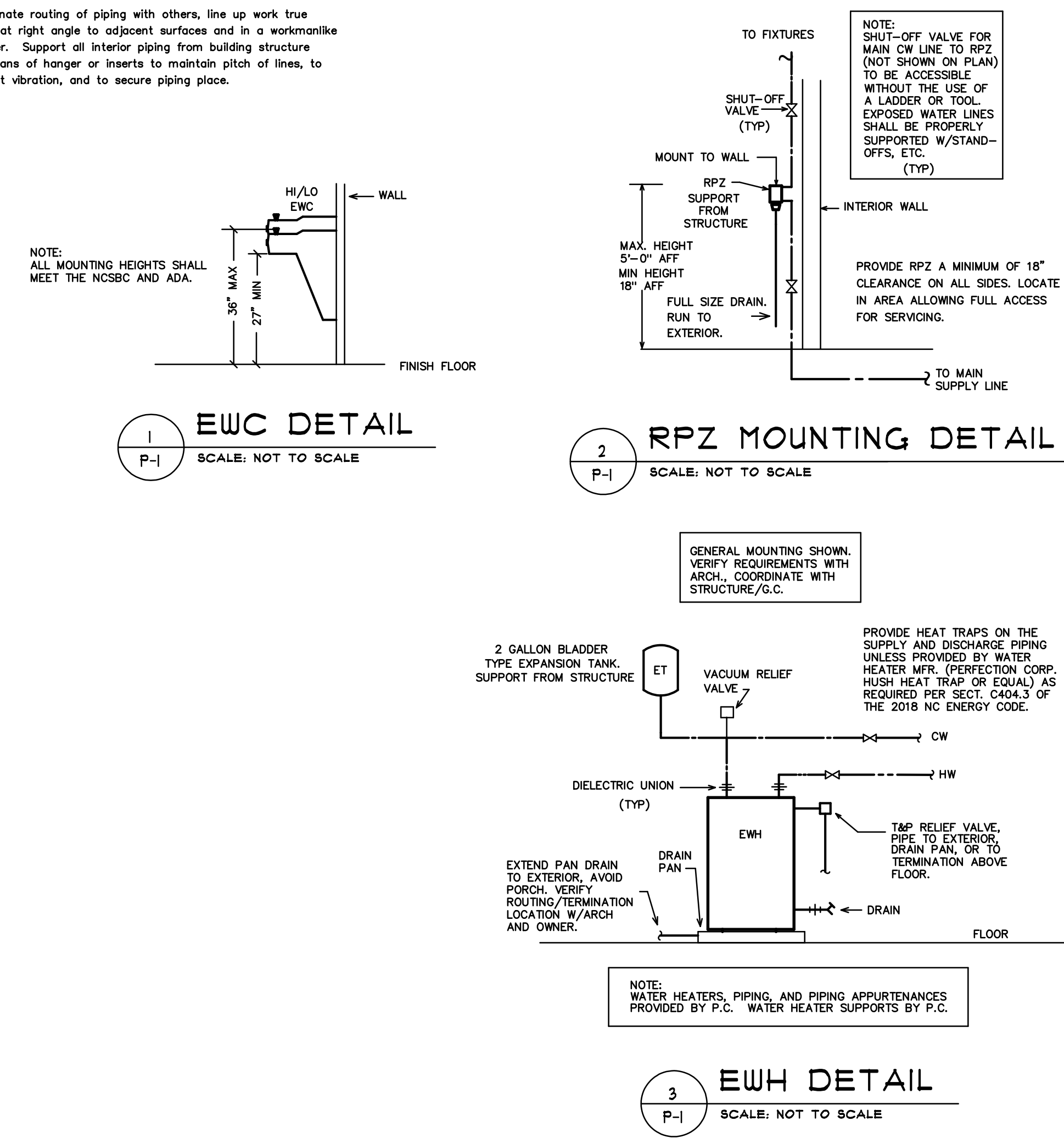
LOAD SUMMARY – PLUMBING

WASTE DEMAND (FU)	WATER DEMAND (FU)	WATER DEMAND (GPM)
33.0	37.5	25.3

PLUMBING FIXTURE SCHEDULE *

MARK	DESCRIPTION	ALTERNATE MANUFACTURER/MODEL	ALTERNATE MANUFACTURER/MODEL
EWC	ELECTRIC WATER COOLER (HI-LO ADA, FILTERED REFRIGERATED, ACCESSORY APRON FOR HIGH UNIT) ELKAY LZWS-LRPB28K WITH BOTTLE FILLER, ACCESSORY CANE APRON LKAPR1. COORDINATE WITH ARCH FOR MOUNTING HEIGHTS, VERIFY MODEL FOR HI/LO LOCATIONS (1-LOW/ADA HEIGHT, 1-HIGH).	HALSEY-TAYLOR MODEL #HTBWF-OVLSER-1. ACCESSORY APRON HTOVLAPR.	OASIS MODEL #MBORSBF STNLS. STL. ACCESSORY APRON.
EWH	ELECTRIC WATER HEATER A.O. SMITH MODEL EJCS-20, 19 GALLON, 2500 WATTS, 120V, 3/4" INLET AND OUTLET. AO SMITH MODEL #PMC-2 EXPANSION TANK.	RHEEM #PROE20-1R-POU AMTROL ST-5-C EXPANSION TANK.	BRADFORD WHITE #RE120U6 -2500W STATE ETC-2X EXPANSION TANK.
FPHB	FREEZE PROOF RECESSED HOSE BIBB ENCASED IN FLUSH-TO-WALL BOX ZURN Z-1320-C, 3/4" NON FREEZE WALL HYDRANT W/INTEGRAL BACKFLOW PREVENTER, ENCASED WITH KEY LOCK. VERIFY WALL THICKNESS. PROVIDE WALL BOX AS REQUIRED- COORDINATE W/BLDG. OWNER, TENANT, ARCH., G.C. VERIFY MOUNTING LOCATION.	WATTS #HY-330.	JAY R. SMITH #5509QT.
LAV	LAVATORY (ACCESSIBLE, WALL MOUNT) AMERICAN STANDARD "LUCERNE" # G356.421 WHITE WITH CONCEALED ARM CARRIER AND DRAIN ASSEMBLY (7723.018). ADA COMPLIANT. FURNISH WITH SLOAN OPTIMA EAF-275 SOLAR POWERED FAUCET. SINK MODEL FOR SINGLE CENTER HOLE.	KOHLER GREENWICH #K-2032 WITH HYDROTEK 7000SLE SOLAR SENSOR FAUCET.	ELJER MURRAY II #051-0244 WITH TOTO TEL36S10 SOLAR SENSOR FAUCET.
RPZ	3/4" REDUCED PRESSURE BACKFLOW PREVENTER WATTS MODEL #F009M3QT, 3/4" REDUCED PRESSURE BACKFLOW PREVENTER, 'LEAD FREE' CONSTRUCTION. VERIFY INSTALLATION LOCATION/CLEARANCES.	ZURN #34-975XL	FEBCO #850-QT-FZ
S1	BREAK ROOM SINK ELKAY LR2918 DOUBLE BASIN STAINLESS STEEL SINK (MODEL LRAD2918 IF ADA COMPLIANCE REQUIRED), 18 GA., SELF-RIMMING, FURNISHED WITH THREE FAUCET HOLES AND CENTER DRAIN. PROVIDE ELKAY COMMERCIAL FAUCET MODEL LKB18AT08L2 WITH TWO LEVER HANDLES, CHROME PLATED BRASS P-TRAP AND SHUT-OFF VALVES. COORDINATE EXACT UNIT WITH TENANT AND GENERAL CONTRACTOR. COORDINATE SIZE WITH CABINETS PRIOR TO ORDERING.	AMERICAN STANDARD "PEKOE" #18DBR291800.075 WITH AMERICAN STANDARD "MONTERREY" #7500.170 FAUCET	RUVATI #RVH7200 WITH DELTA #27C4944 FAUCET
VB	ICE MAKER VALVE BOX W/HAMMER ARRESTER OATEY ICE MAKER BOX 38570 WITH 1/4 TURN BALL VALVE AND HAMMER ARRESTER.	SIoux CHIEF OXBOX	IPS CORP. IMOB
WC	WATER CLOSET (ADA FLUSH TANK) KOHLER HIGHLINE WATER CLOSET, K-3979, ADA COMPLIANT 1.6 GPF. PROVIDE PROPER OPEN FRONT ADA SEAT, K-7637 SUPPLY AND STOP, WAX SEAL, CLOSET BOLT KIT. PROVIDE MODEL WITH FLUSH CONTROL ON SIDE OPPOSITE GRAB BAR.	ZURN #Z5560	AMERICAN STANDARD "CADET" #2467100.020

* OR APPROVED EQUAL. SUBMIT ALL ITEMS FOR APPROVAL BY TENANT AND ARCHITECT PRIOR TO ORDERING. ALL OTHER PLUMBING FIXTURES SHOWN ARE PROVIDED BY THE TENANT AND INSTALLED BY THE PLUMBING CONTRACTOR. SEE PLANS FOR NUMBER AND LOCATION. COORDINATE ALL REQUIREMENTS WITH EQUIPMENT SERVED. PROVIDE PRE-FABRICATED INSULATION KITS FOR ALL SINK AND LAVATORY EXPOSED DRAIN AND SUPPLY PIPING, PER SECTION 606.6 OF ICC A117.1.

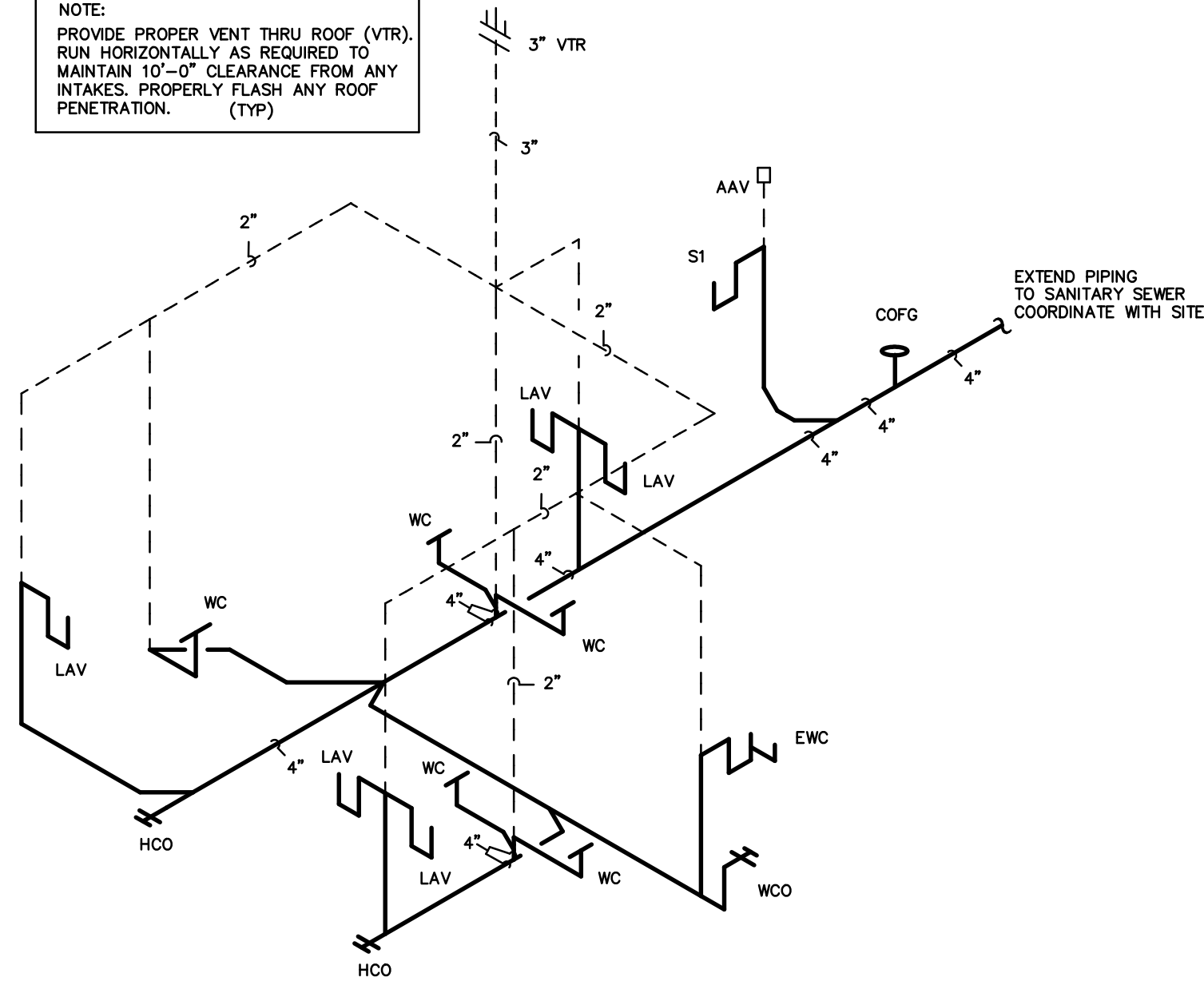


DWV RISER NOTES:
REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE.
SEE PIPE SIZING SCHEDULE.
MINIMUM 2" DRAIN LINE SIZE UNDER SLAB.
MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED.
PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

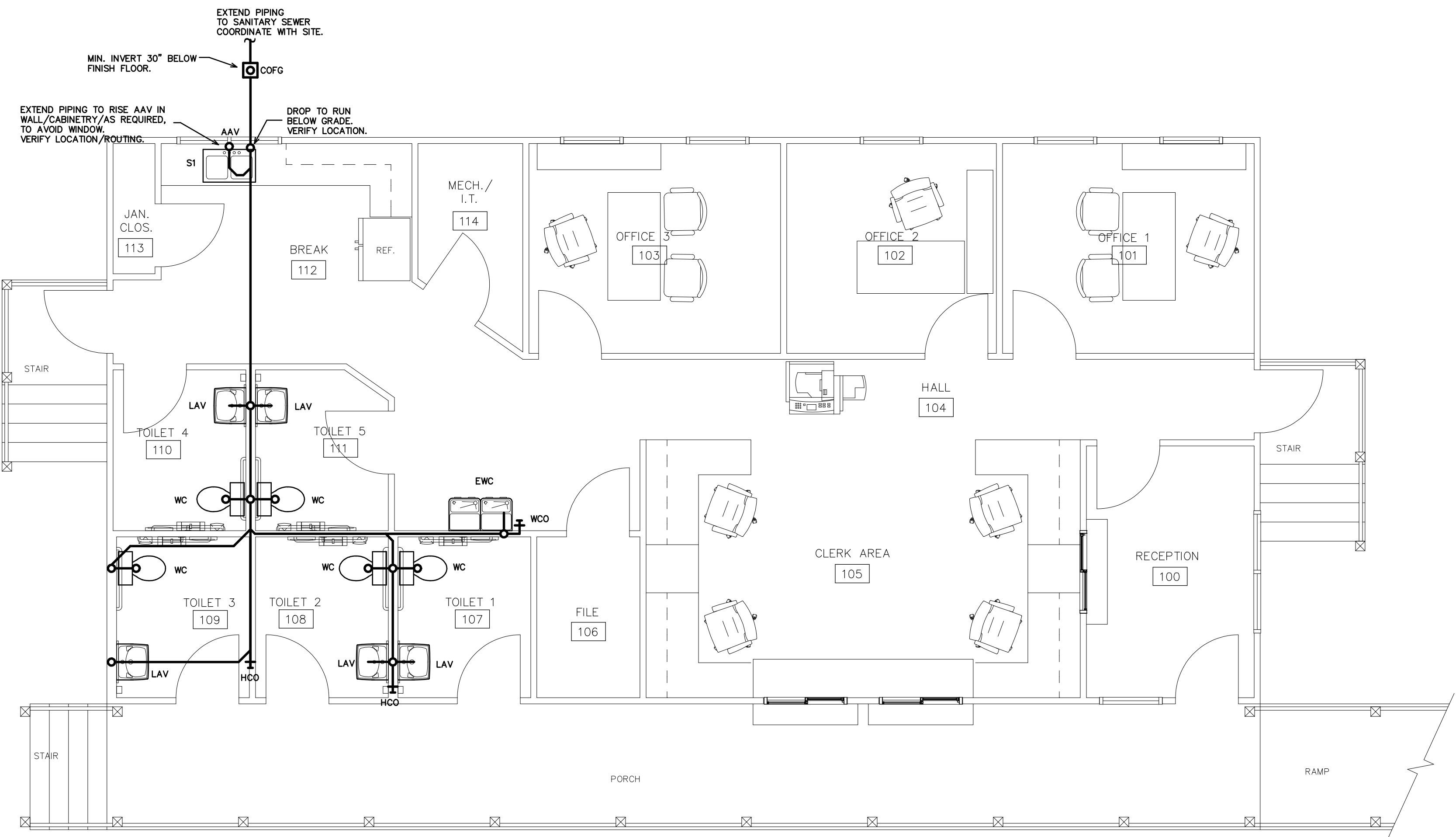
(VERIFY ALL EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN)

PIPE SIZING SCHEDULE		
FIXTURE TYPE	DRAIN	VENT
(EWC) ELECTRIC WATER COOLER	1 1/4"	1 1/4"
(LAV) LAVATORY	1 1/2"	1 1/4"
(S1) BREAK ROOM SINK	1 1/2"	1 1/4"
(WC) FLUSH TANK WATER CLOSET	3"	1 1/2"

NOTE:
PROVIDE PROPER VENT THRU ROOF (VTR).
RUN HORIZONTALLY AS REQUIRED TO
MAINTAIN 10'-0" CLEARANCE FROM ANY
INTAKES. PROPERLY FLASH ANY ROOF
PENETRATION. (TYP)



2
P-2 DWV RISER
SCALE: NOT TO SCALE



1
P-2 DWV PLAN
SCALE: 1/4"=1'-0"

WATER RISER NOTES:
REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE.
SEE PIPE SIZING SCHEDULE.
MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED.
PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

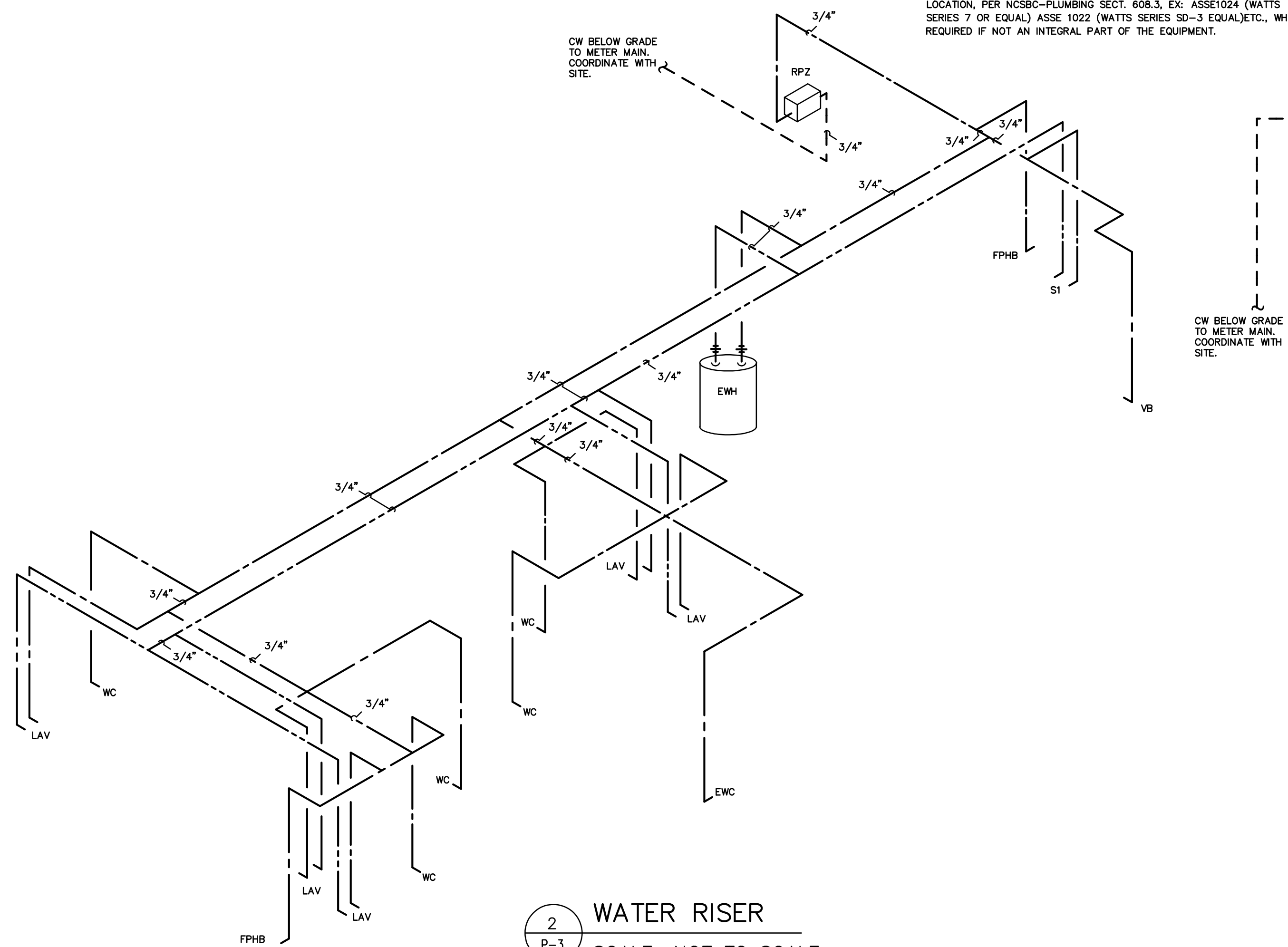
(VERIFY ALL EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN)

PIPE SIZING SCHEDULE		
FIXTURE TYPE	CW	HW
(EWC) ELECTRIC WATER COOLER	1/2"	-
(FPHB) FREEZE PROOF HOSE BIBB	1/2"	-
(LAV) LAVATORY	1/2"	1/2"
(SI) BREAK ROOM SINK	1/2"	1/2"
(VB) VALVE BOX	1/2"	-
(WC) FLUSH TANK WATER CLOSET	1/2"	-

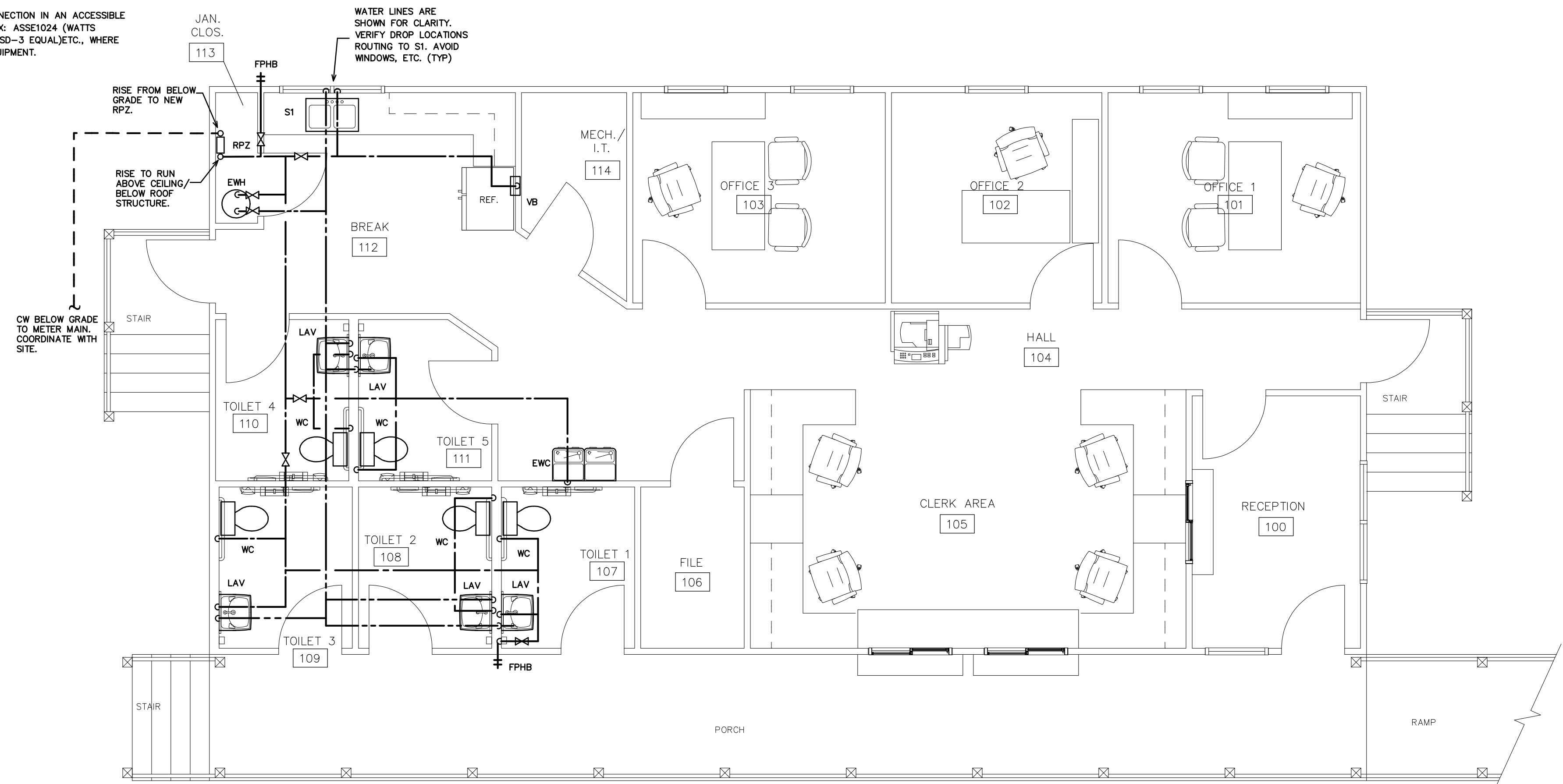
NOTE:
VERIFY QUANTITY AND
MOUNTING LOCATION OF
FPHB W/OWNER, ARCH.
(TYP)

NOTE:
PROPERLY PROTECT/INSULATE ALL
PIPING IN UNCONDITIONED AREAS
(HEAT TAPE, INSULATION, ETC.).
VERIFY ROUTING OF WATER LINES
W/ARCH. ALL PIPING, VALVES,
ETC., SHOWN FOR CLARITY- VERIFY
LOCATIONS OF ALL COMPONENTS,
COORDINATE WITH ALL TRADES.
(TYP)

* PROVIDE BACKFLOW PREVENTER, ON SUPPLY CONNECTION IN AN ACCESSIBLE
LOCATION, PER NCSCB-PLUMBING SECT. 608.3, EX. ASSE1024 (WATTS
SERIES 7 OR EQUAL) ASSE 1022 (WATTS SERIES SD-3 EQUAL)ETC., WHERE
REQUIRED IF NOT AN INTEGRAL PART OF THE EQUIPMENT.



2 WATER RISER
P-3 SCALE: NOT TO SCALE



1 WATER PLAN
P-3 SCALE: 1/4"=1'-0"

NCSPA - Shipping & Receiving M1

HVAC EQUIPMENT SCHEDULE

HVAC SYSTEM #1	
AHU-1 DIRECT EXPANSION FAN COIL UNIT	* CARRIER MODEL #FX4DNF043, 4 WAY, MULTIPOISE FAN COIL UNIT, 6 KW HEATER, NOMINAL CAPACITY = 42,000 BTUH, 1400 CFM NOMINAL, PROVIDE HARD SHUT-OFF TVX VALVE, 3.5 TON NOMINAL, PROVIDE PROGRAMMABLE THERMOSTAT AND FILTER RACK WITH HINGED DOOR, 1/2HP, 4.1A MOTOR FLA, 28.9A HEAT FLA, 208V, 1 PH, 44.7A MCA, 45A MOCP AHU & HEAT.
HP-1 OUTDOOR HEAT PUMP UNIT	* CARRIER MODEL #25HCC542A030, 3.5 TON OUTDOOR HEAT PUMP UNIT, 15 SEER, PROVIDE CYCLE PROTECTOR, LOW PRESSURE SWITCH, CRANKCASE HEATER, 208 VOLT, 1 PHASE, COMP 21.1A RLA, FAN 1.2A FLA, OUTDOOR HEAT PUMP 28.5A MCA, 40A MOCP.

* OR APPROVED EQUAL BY TRANE OR LENNOX.

AIR DISTRIBUTION SCHEDULE

MARK	* MANUFACTURER	MODEL NO.	NECK SIZE	FACE SIZE	MATERIAL	SERVICE	NOTES
A	CARNES	RTDBH	4" X 12"	6" X 14"	STEEL	SUPPLY	DUCT, SIDE WALL, OR CEILING MOUNTED
RA	CARNES	RSABH	8" X 12"	10" X 14"	STEEL	RETURN	WHITE, SIDEWALL OR CEILING MOUNTED
RB	CARNES	RSABH	6" X 12"	8" X 14"	STEEL	RETURN	WHITE, SIDEWALL OR CEILING MOUNTED

* OR APPROVED EQUAL BY METALAIR OR PRICE.

COORDINATE BORDER TYPE WITH THE CEILING TYPE. SEE ARCH SHEETS
PROVIDE CUT SHEETS TO OWNER/ARCH. PRIOR TO ORDERING.

NCSPA - Shipping & Receiving M1

EXHAUST FAN SCHEDULE

EXHAUST FAN #1 (EF-1)	
	* CARNES MODEL# V0DD010C EXHAUST FAN, 93 CFM @ 1/4" SP, 640 RPM, 1.1 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 6" RIGID DUCT TO WALL CAP. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.

* OR APPROVED EQUAL BY GREENHECK OR PENNBARRY

NOTE: RUN EXHAUST DUCTS HORIZONTALLY AS REQUIRED TO MAINTAIN 10'-0" MINIMUM SEPARATION FROM ANY INTAKES.

FLEXIBLE DUCTWORK SIZES

MAXIMUM CFM'S

SIZES	SUPPLY	RETURN
4"	100	100
8"	175	175
10"	250	250
12"	400	350
14"	550	500
16"	NA	900

(CHANGE OUT EXISTING FLEX DUCTS AND COLLARS AS REQUIRED TO GET NEW CFM'S SHOWN)

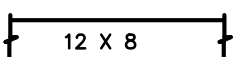


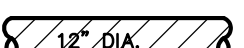
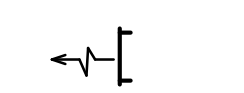

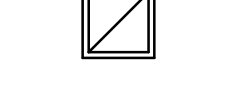

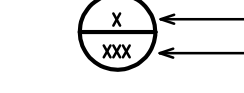


FLEXIBLE DUCTWORK NOTES

- MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 5'-0". DUCT RUNOUTS TO INDIVIDUAL GRILLES AND DIFFUSERS SHALL BE ROUND GAVANIZED STEEL DUCT TO WITHIN 5'-0" OF AIR DISTRIBUTION DEVICE. FINAL CONNECTION TO GRILLE OR DIFFUSER SHALL BE WITH FLEXIBLE DUCT.
- INSTALL FLEXIBLE DUCTWORK RUNS AS STRAIGHT AS POSSIBLE.
- DO NOT ALLOW FLEXIBLE DUCT TO SAG BETWEEN SUPPORTS.
- DO NOT STRETCH A SHORT SECTION TO FIT A SLIGHTLY LONGER SECTION. THIS DISTORTS THE DUCT SHAPE AND IMPEDES AIR FLOW.
- DO NOT CRUSH DUCTWORK TO FIT IN A SPACE SMALLER THAN ITS ORIGINAL OUTSIDE DIAMETER. MAXIMUM ALLOWABLE DEFORMATION IS 15% OF ORIGINAL VOLUME.
- USE RIGID 90 DEGREE ELBOWS AT ANY LOCATION WHERE THE DUCTWORK BECOMES DISTORTED.
- SIZE ALL FLEXIBLE DUCT SO AS NOT TO EXCEED MAXIMUM CFM'S GIVEN IN TABLE.

GENERAL NOTES - MECHANICAL

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE AND ALL LOCAL AND OTHER APPLICABLE CODES.
- ANY PERMITS AND INSPECTION FEES SHALL BE SECURED AND PAID FOR BY THE MECHANICAL CONTRACTOR (MC).
- ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE MC SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC) AND OTHER TRADES.
- THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES.
- THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. FOR DIMENSIONS REFER TO THE ARCHITECTURAL PLANS.
- THE MC SHALL BE RESPONSIBLE FOR ALL ELECTRICAL STARTERS INTERLOCKS, CONTROL WRING CONDUIT AND POWER WRING FROM DISCONNECTS TO HIS EQUIPMENT, USING A LICENSED ELECTRICIAN.
- THE MC SHALL USE FIRE DAMPERS FOR PROTECTION OF THE OPENING IN ACCORDANCE WITH STATE AND LOCAL CODES IN ALL LOCATIONS WHERE PENETRATIONS OF RATED WALLS AND FLOORS OCCUR. SEE ARCHITECTURAL PLANS FOR RATED WALL AND FLOOR LOCATIONS. PROVIDE ACCESS DOORS AT ALL DAMPER LOCATIONS. LOCATE DOORS FOR EASY ACCESS.
- INSTALL FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCTWORK AHU. ALL MECHANICAL EQUIPMENT SHALL OPERATE FREE OF OBJECTIONAL NOISE AND VIBRATION.
- INSTALL TURNING VANES IN SUPPLY DUCTS AT ALL ELBOWS AND SPLITTER DAMPERS. PROVIDE BALANCING DAMPERS IN ALL DUCTS WHERE SHOWN OR REQUIRED FOR SYSTEM BALANCING.
- DUCT DIMENSIONS ARE SHOWN INSIDE CLEAR.
- THE MC SHALL KEEP THE PREMISES CLEAR OF DEBRIS FROM HIS WORK DURING CONSTRUCTION AND LEAVE THE AREA AND BUILDING CLEAN AT THE COMPLETION OF HIS WORK. HE SHALL ALSO LEAVE CLEAN ALL EXPOSED EQUIPMENT IN HIS CONTRACT.
- PROVIDE ALL REQUIRED ROOF PENETRATIONS FOR THE INSTALLATION OF THE NEW EQUIPMENT. ALL FLASHINGS ARE BY THE MECHANICAL CONTRACTOR. ALL ROOFING WORK SHALL BE DONE BY A LICENSED ROOFING CONTRACTOR SO AS TO MAINTAIN ORIGINAL WARRANTY.
- THE M.C. SHALL COORDINATE WITH AND PROVIDE EQUIPMENT SPEC. SHEETS TO THE GENERAL AND ELECTRICAL CONTRACTORS FOR REVIEW PRIOR TO ORDERING EQUIPMENT.
- PROPERLY SUPPORT ALL DUCT WORK, AND EQUIP FROM STRUCTURE. PROVIDE ALL STRUCTURAL SUPPORTS FOR THE LOADS AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

LEGEND - MECHANICAL

-  12 X 8 RECTANGULAR DUCTWORK, INSIDE CLEAR DIMENSION INDICATED (WIDTH X HEIGHT)
-  FLEXIBLE DUCTWORK
-  12" DIA. ROUND GALVANIZED STEEL DUCT INSIDE CLEAR DIMENSION INDICATED.
-  18" DIA. DOUBLE WALLED GALVANIZED STEEL SPIRAL DUCT INSIDE CLEAR DIMENSION INDICATED.
-  DUCT MOUNTED SUPPLY AIR DIFFUSER
-  SUPPLY DIFFUSER
-  RETURN GRILLE
-  AHU-1 WALL MOUNTED THERMOSTAT (UNIT SERVED IS INDICATED)
-  GRILLE TYPE
MIN. CFM
-  CONDENSATE PIPING
-  REFRIGERANT PIPING

OA SCHEDULE OUTDOOR VENTILATION AIR PROVIDED PER TABLE 403.3 NCSBC MECHANICAL CODE.

APPLICATION	SQUARE FOOTAGE (SF)	AREA OUTDOOR AIR FLOW RATE (CFM/SF)	PEOPLE OUTDOOR AIR FLOW RATE (CFM/PERSON)	OCCUPANCY DENSITY RATE (# PEOPLE/1000SF)	OCCUPANCY (# PEOPLE)	AREA OUTDOOR AIR FLOW (CFM)	PEOPLE OUTDOOR AIR FLOW (CFM)	TOTAL (CFM)
OFFICE	595	0.06	5	5	* 7	36	35	71
ENTRY	96	0.06	5	10	* 0	6	0	6
CORRIDOR	276	0.06	-	-	-	17	-	17
STORAGE	91	0.12	-	-	-	11	-	11
BREAK AREA	78	0.12	5	50	* 0	9	0	9
TOTAL REQUIRED								114

OUTDOOR AIR PROVIDED FROM EACH HVAC UNIT **	
HVAC UNIT	OUTDOOR AIR (CFM)
AHU-1	150 - 8" DIA. O.A. DUCT

APPLICATION	CFM
TOILETS	70 CFM/FLUSHING FIXTURE
5 FLUSHING FIXTURE X 70 CFM	350 CFM
EXHAUST PROVIDED BY FIVE EXHAUST FANS, MAKE UP AIR BY TRANSFER AIR	

*ACTUAL OCCUPANCY PER BUILDING TENANT AS ALLOWED BY 2018 NCSBC: MECHANICAL CODE, SECTION 403.3.1.1, EXCEPTION.
** SET OUTDOOR AIR DAMPER CONTROLS TO PROVIDE OUTDOOR AIR AS INDICATED IN THIS SCHEDULE.

APPENDIX B 2018 BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)
MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEM AND EQUIPMENT

- Thermal Zone**
 - winter dry bulb 16F
 - summer dry bulb 93F
- Interior Design Conditions**
 - winter dry bulb 72F
 - summer dry bulb 75F
 - relative humidity 50%
- Building Heating Load** (Tenant space only) 20,100 BTU/hr
- Building Cooling Load** (Tenant space only) 30,400 BTU/hr
- Mechanical Spacing Conditioning System**
 - Unitary - The tenant space is served the following systems: (1) 3 Ton single package heat pump units
 - Boiler - Not applicable to this project.
 - Chiller - Not applicable to this project.
- Equipment efficiencies**
Efficiencies and outputs are listed on equipment schedules - See drawings.

ENGINEER
BURKE DESIGN GROUP
3305-109 DURHAM DRIVE
RALEIGH, NC 27603
PHONE: (919) 771-1916
FAX: (919) 779-0826
email: ben@bdg-nc.com
Corp. License # C-2652

Coastal Architecture PLLC

Architectural Design Planning Interiors

ATA

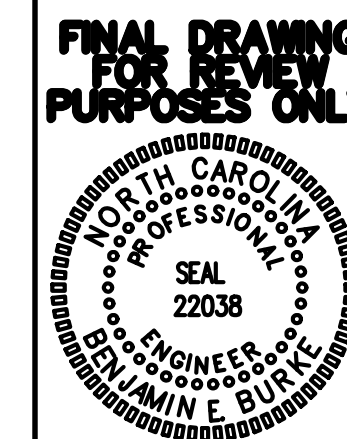
Member of the American Institute of Architects

Lee D. Dixon, Jr., AIA
252.462.2127
leed@coastalarchitect.com

4206 Bridges St. Ext., Suite C
Morehead City, NC 28557
www.CoastalArchitecture.net

NCSPA
SHIPPING AND RECEIVING
MOREHEAD CITY, NORTH CAROLINA

SCO ID# : 24-28316-OIA



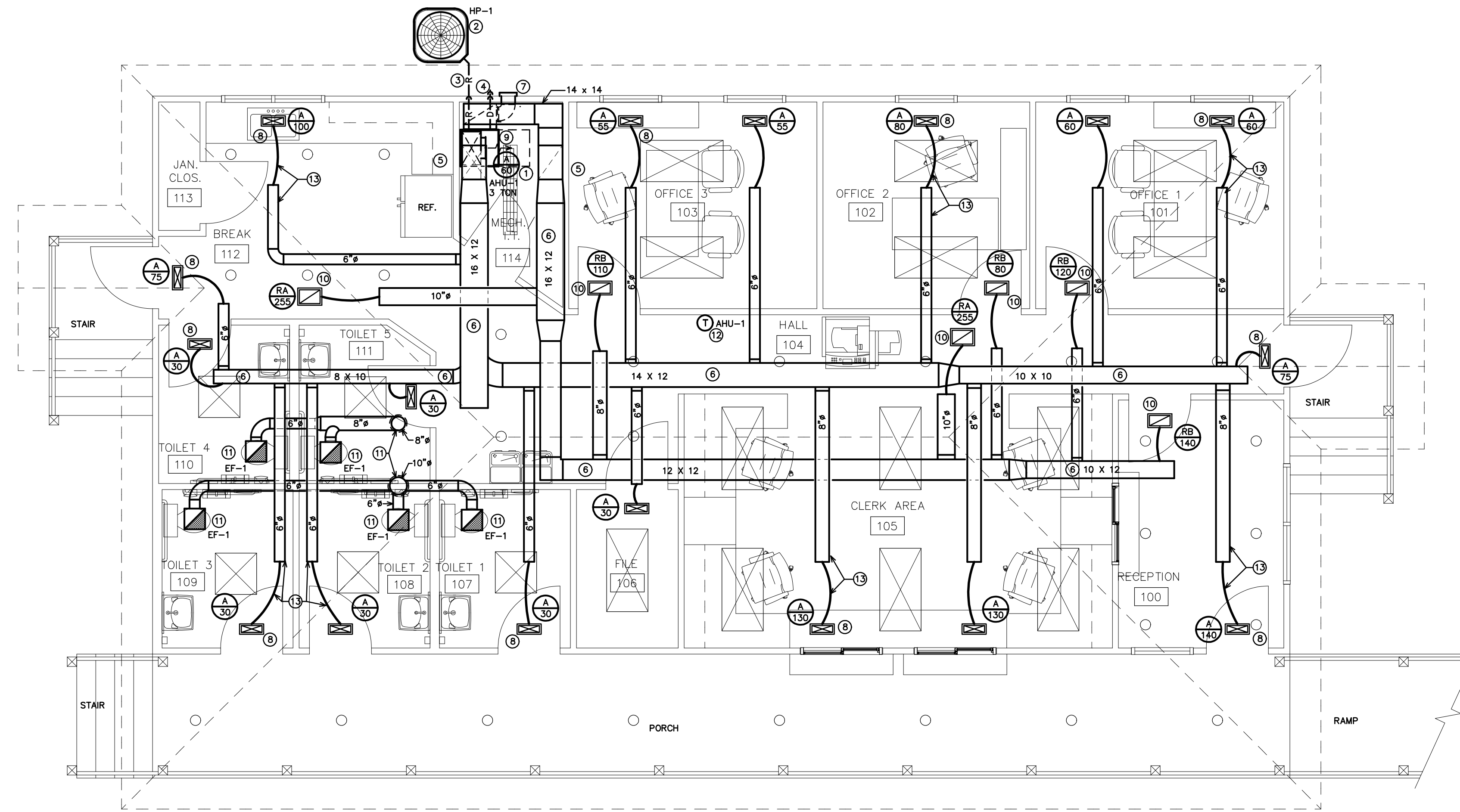
HVAC NOTES, SCHEDULES, LEGEND

23027

ISSUED: 7-10-2024
DWG BY: CLS
CKD BY: BEB

REVISIONS

SHEET NO.
M-1

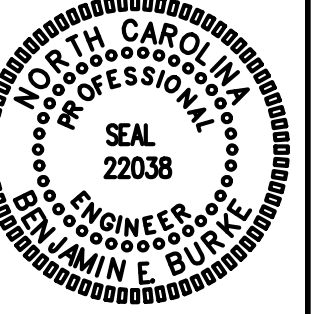


1 HVAC PLAN
M-2 SCALE: 1/4"=1'-0"

- KEYNOTE FOR SHEET M2:
- ① VERTICAL AIR HANDLING UNIT FASTENED TO FLOOR IN MECHANICAL ROOM. SEE 1/M3.
 - ② HEAT PUMP MOUNTED ON CONCRETE PAD.
 - ③ RUN INSULATED REFRIGERANT LINES TO OUTDOOR UNIT THROUGH EXTERIOR WALL. ALL EXTERIOR SUCTION LINE REFRIGERANT PIPING SHALL HAVE CLOSED CELL INSULATION WITH A WATERPROOF VINYL JACKET.
 - ④ RUN CONDENSATE PIPING CONCEALED IN EXTERIOR WALL TO 6" ABOVE FINISH GRADE. TERMINATE IN ELBOW TURNED DOWN.
 - ⑤ SEAL AROUND DUCT PENETRATION THROUGH CEILING TO ATTIC.
 - ⑥ RECTANGULAR RIGID INSULATED DUCTWORK IN ATTIC. FASTEN TO TRUSSES.
 - ⑦ WALL MOUNTED OUTSIDE AIR INTAKE HOOD TO 8" DIA. RIGID DUCT SUPPLYING AHU-1. AIR INTAKE SHALL BE 10'-0" MIN. FROM ANY OUTSIDE EXHAUST DISCHARGE.
 - ⑧ CEILING MOUNTED SUPPLY AIR DIFFUSERS.(TYP)
 - ⑨ DUCT MOUNTED SUPPLY AIR DIFFUSERS.
 - ⑩ CEILING MOUNTED RETURN AIR GRILLES.(TYP)
 - ⑪ BATHROOM EXHAUST FANS CONNECTED TO ROUND RIGID DUCTWORK SIZED AS SHOWN TO A ROOF MOUNTED EXHAUST CAP. EXHAUST DISCHARGE SHALL BE 10'-0" MIN. FROM ANY OUTSIDE AIR INTAKE.
 - ⑫ THERMOSTAT, MOUNT AT 48" AFF.
 - ⑬ MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 5'-0". DUCT RUNOUTS TO INDIVIDUAL GRILLES AND DIFFUSERS SHALL BE ROUND RIGID GALVANIZED STEEL DUCT. FINAL CONNECTION TO GRILLE OR DIFFUSER SHALL BE WITH FLEXIBLE DUCT WITH A 5'-0" MAXIMUM LENGTH. (TYPICAL).

BCO ID# : 24-2834-GIA

FINAL DRAWING FOR REVIEW PURPOSES ONLY



HVAC PLAN

23027

ISSUED: 7-10-2024

DWG BY: CLS

CKD BY: BEB

REVISIONS

NO.	DESCRIPTION

SHEET NO.

M-2

DIVISION 15 B – HEATING, VENTILATING AND AIR CONDITIONING

1.1 DESCRIPTION OF THE WORK

- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
 1. Heating, ventilation, and air conditioning equipment.
 2. Ductwork.
 3. Grilles and diffusers.
 4. Controls and control wiring.
 5. Condensate piping.
- B. All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply:
 1. ASHRAE Guide
 2. National Electric Code.
 3. 2018 NC State Building Code: Mech Code.
 4. The Electrical Specifications for this project.
 5. SMACNA HVAC Duct Construction Standards.
 6. All local codes and ordinances.
 7. ARI rating.
 8. 2018 NC State Building Code: Energy Conservation Code.
- C. These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.
- D. The HVAC Contractor shall be licensed in North Carolina and have all local licenses required for the work.

1.2 INTENT

- A. The intent of these specification and the accompanying drawing is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The HVAC Contractor shall take this into consideration and include in his bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

1.3 COORDINATION

- A. Coordinate work with other contractors. Notify Owner of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Owner for a decision before resuming operations.
- B. Locations shown are approximate. The HVAC Contractor shall verify with owner, the placement of equipment, fixtures, outlets, etc. The drawings do not give exact details as to elevations and locations of various pipes, fittings, ducts, conduit, etc., and do not show all offsets and other installation details which may be required.
- C. Changes in duct or piping design caused by obstructions shall be submitted to Engineer in sketch form for study and comment prior to execution. Additional cost will not be allowed for this type of work.

1.4 SHOP DRAWINGS

- A. Shop drawings shall be submitted for all major items of equipment, these may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified. Shop drawings shall include but are not limited to the following:
 1. All equipment and accessories.
 2. Grilles and diffusers.
 3. Unit sizes and requirements.

PART 2 – PRODUCTS

2.1 EQUIPMENT

- A. All air handling devices must have the manufacturer's recommended filter rack, for 1" thick filters.

2.2 PIPING

- A. Condensate drain piping shall be PVC pipe. Provide tee and plug at changes in direction. Route pipe to proper termination point. All condensate piping shall be insulated with flexible elastomeric insulation. Provide copper piping in plenum areas.

2.3 DUCTWORK

- A. Ductwork shall be built in accordance with SMACNA HVAC Duct construction standards. Furnish and install all supply, return, and ventilation ductwork shown, together with splitters, deflectors, dampers, etc. This work shall be constructed of new galvanized prime grade steel sheets. The gauges of metal to be used and the construction and broading of joints shall be in accordance with the SMACNA recommendations.
- B. Seal all sheet metal joints with fiber impregnated mastic.
- C. Support from building structure on strap hangers not over 8 feet apart.
- D. Use manufactured turning vanes in each elbow where required or where indicated on drawings.
- E. Flexible connectors shall be 3 inches wide, of fireproof material and used to isolate noise between equipment and ductwork on supply and return side of all units.
- F. Round runouts, where used, shall be built in accordance with the above standards, and each runout shall also have manufactured side take off, adjustable quadrant damper at all accessible locations and shall be of Owens Corning IN-25 flexible duct with UL label. Flex duct lengths allowed up to 14 feet. Duct must be supported with sufficient hangers in order to prevent sags. Serrantine routing will not be permitted. Quadrant damper to be 22 gauge easily adjustable manually with exterior handle (similar to H&C Kwik-set) and is not to be mounted in side take-off.

2.4 DUCT INSULATION (LOW PRESSURE)

- A. All insulation, linings, coverings and adhesives shall have a flame spread classification of 25 or less and a smoke developed rating of not more than 50, exposed exterior piping.
- B. All duct insulation shall comply with Section 604, of the N. C. Building Code: Mechanical Code
- C. All supply and return ductwork shall be completely insulated, either internally or externally.
- D. Rectangular ductwork shall be lined with two-inch thick, 1.5 lb. per cubic foot density, duct liner, Armstrong, CSG Ultraliner, Johns Manville or approved equal.
- E. As an alternative to duct liner rectangular duct may be wrapped with Class 1 – 27, 3/4 lb. density (R-6.5) thick reinforced foil back fiberglass insulation, Owens-corning Series ED or equal. Tape shall be Kraft reinforced foil tape or equal.

2.5 THERMOSTATS

- A. Provide programmable electronic thermostats.
- B. Submit proposed thermostats for approval.

2.6 ROOF PENETRATIONS

- A. Provide pre-manufactured roof flashings compatible with equipment served.
- B. Coordinate roof work with roof system used. Provide proper flashing as required.
- C. Provide 1 year warranty on all roof work performed.

2.7 DUCT SMOKE DETECTORS

- A. Duct detectors are not required since units air flows are 2000 cfm or less per NCSBC: Mechanical Code, Section 606.2.

PART 3 – EXECUTION

3.1 PIPING

- A. The HVAC Contractor shall coordinate such routing with others, to line his work true to adjacent spaces and in a workmanlike manner and to use only short radius 90 degree elbows. Where required, piping to be sturdily supported and separated in a manner satisfactory to the Engineer.
- B. All exterior suction refrigerant piping shall have closed cell insulation with water proof factory vinyl jacket.
- C. Insulate all condensate lines for their entire length with 1/2" closed cell insulation. Install insulation per the manufacturer's recommendations.

3.2 ELECTRICAL WORK

- A. The electrical contractor shall provide all switches, starters, wire conduit for the air conditioning, heating and ventilation equipment. Control wiring shall be by the heating and air conditioning contractor.
- B. HVAC Contractor is responsible for verifying that power terminals have been properly grounded prior to operating equipment and must find connections to all equipment including control wiring.
- C. All materials and workmanship shall be in accordance with the electrical specifications for the project. All wiring shall be color coded, and as-built wiring diagram prepared showing all connections and colors of wiring and delivered to the Owner.
- D. Furnish certification for acceptance of control wiring from local electrical inspector prior to acceptance.

3.3 CLEAN UP

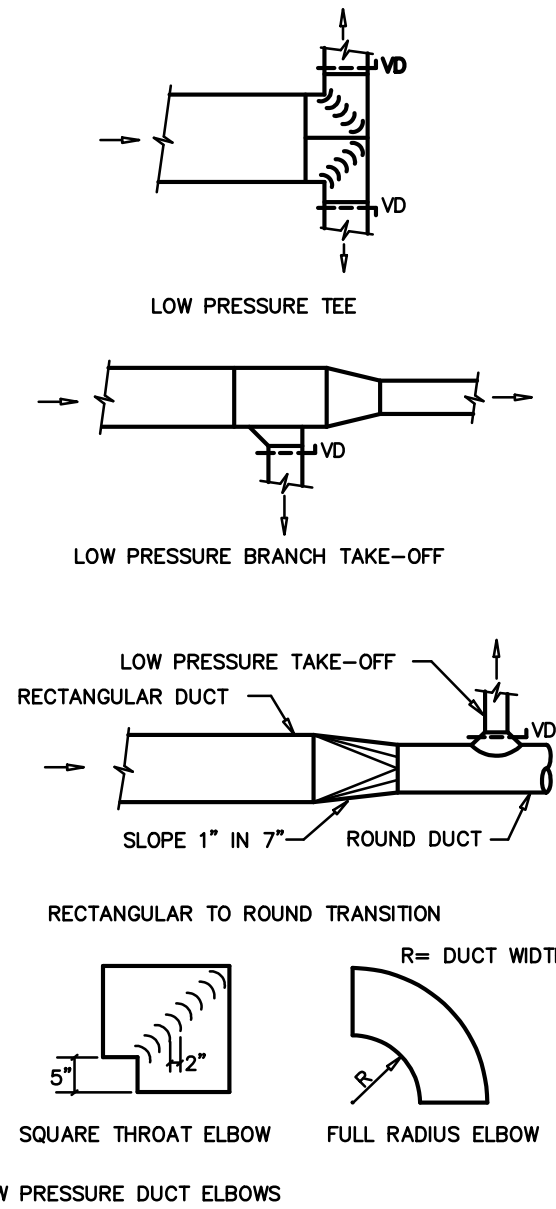
- A. During construction, keep the site clean of debris. Upon completion, and before final inspection, clean up the premises to remove all evidence of work. In addition upon completion of construction leave equipment clean.
- B. Furnish one box of clean filters, for each size required, at the time of final inspection to the owner.

3.4 OPERATOR'S MANUAL AND DIAGRAM

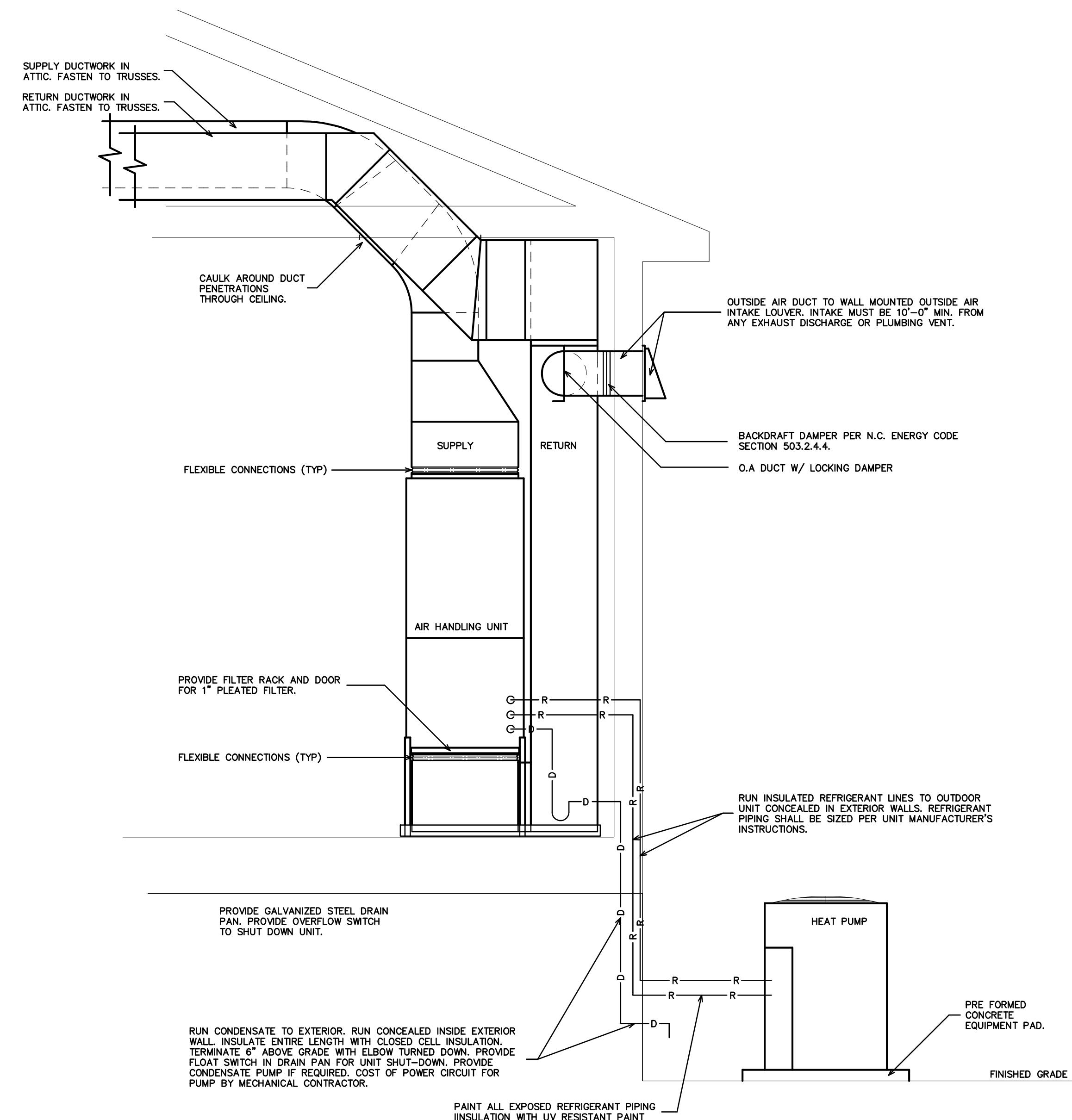
- A. The HVAC Contractor shall prepare in one copy a manual describing the proper maintenance and operation of the systems. This manual shall not consist of standard factory instructions (although these may be included) but shall be prepared to describe this particular job.
- B. The manual shall be bound, indexed, dated and signed by the HVAC Contractor.
- C. Qualified representative of the HVAC contractor shall meet with the designated representatives of the Owner and the Owner's representative shall be instructed in the proper operation and maintenance of the control system and other systems.

3.5 GUARANTEE

- A. Guarantee all materials and labor included in the HVAC work for a period of one year from date of final acceptance by the owner. In addition, motor compressors shall be a nonprorated five year warranty. Any part or parts of the work or equipment which prove to be defective during the guarantee period shall be replaced at no additional cost to the owner or tenant.
- B. All air flows must be measured and balanced to within 10% of design airflow. All equipment used must have a current certification. Provide two copies of the balance report to the owner at closeout. The HVAC contractor shall return and re-balance to occupant comfort after 90 days from close-out. Provide all balance dampers needed for satisfactory operation regardless if shown on the drawings or not, and shift location of thermostats if required for occupancy comfort.



2 DUCT CONSTRUCTION DETAIL
SCALE: NOT TO SCALE



1 VERTICAL AIR HANDLING UNIT DETAIL
SCALE: NOT TO SCALE

LIGHTING SCHEDULE *										ALTERNATE 1		ALTERNATE 2	
MARK	MANUFACTURER	CATALOG NO.	VOLT.	LAMPS NO.	BALLAST TYPE	W/FIXTURE	REMARKS	MANUFACTURER	CATALOG NO.	MANUFACTURER	CATALOG NO.		
A	COLUMBIA	LCAT24-35LWG-EDU	120	-	LED	-	2X4 SURFACE MOUNT LED FIXTURE	* LITHONIA	2AVL4 30LSE MDR E21 LP835	TRACELITE	CBLQ-24-CP-LP24-FMK		
B	COLUMBIA	LCAT22-35MWG-EDU	120	-	LED	-	2X2 SURFACE MOUNT LED FIXTURE	* LITHONIA	2AVL2 30LSE MDR E21 LP835	TRACELITE	CBLQ-22-CP-LP22-FMK		
C	GOTHAM	EV06 35/25 AR MWD LSS 120 (E10WCP)	120	-	LED	-	6" LED RECESSED CAN FIXTURE, EM WHERE SHOWN; BATTERY BACK UP	* PRESCOLITE	LTR-6RD-H-ML30L-DM1(-EM)	ALPHALITE	ASDL-6-30A-8-A(-EM1400)		
D	COLUMBIA	MPS4-40HL-CW-EDU-MPSWG4	120	-	LED	-	4' LED STRIP W/ WIRE GUARD	* LITHONIA	ZL1D L48 SMR 3000LM FST MVOLT 35K 80CRI WQ248	TRACELITE	SLS-4-50-CP		
E	COMPASS	CUSO	120	-	LED	-	EXTERIOR NORMAL/EMERGENCY LIGHT FIXTURE- COLOR BY ARCH	* NICOR	E0F1MV3KBZPS	TRACELITE	SLW-15-4K-BL-EM-G3-NS		
EXIT	COMPASS	CER	120	-	LED	-	LED EXIT SIGN, COLOR BY ARCH	* LITHONIA	LQM S W 3 R 120/277 EL N SD	EXITRONIX	QXS-U-WB-WH		
EXIT	COMPASS	CCR	120	-	LED	-	COMBINATION EMERGENCY (TUNGSTEN)/ EXIT (LED) LIGHT	* LITHONIA	LHQM LED R SD	EXITRONIX	QCSS-R-WH		
EXIT	COMPASS	CU2	120	-	LED	-	EMERGENCY LIGHT, BATTERY BACKUP, BATTERY DIAGNOSTICS, COLOR BY ARCH	* LITHONIA	EU2C SD	EXITRONIX	LED90-G2		

* OR APPROVED EQUAL, PROVIDE CUT SHEETS FOR OWNER APPROVAL PRIOR TO ORDERING FIXTURES. FOR FLUORESCENT FIXTURES CONTROLLED BY MOTION SENSOR, PROVIDE "PROGRAMMED RAPID START" BALLASTS. CATALOG NUMBERS ARE FOR REFERENCE ONLY, ACTUAL NUMBERS MAY VARY. 'EB' DENOTES ELECTRONIC BALLAST. 'EDB' DENOTES ELECTRONIC DIMMING BALLAST.

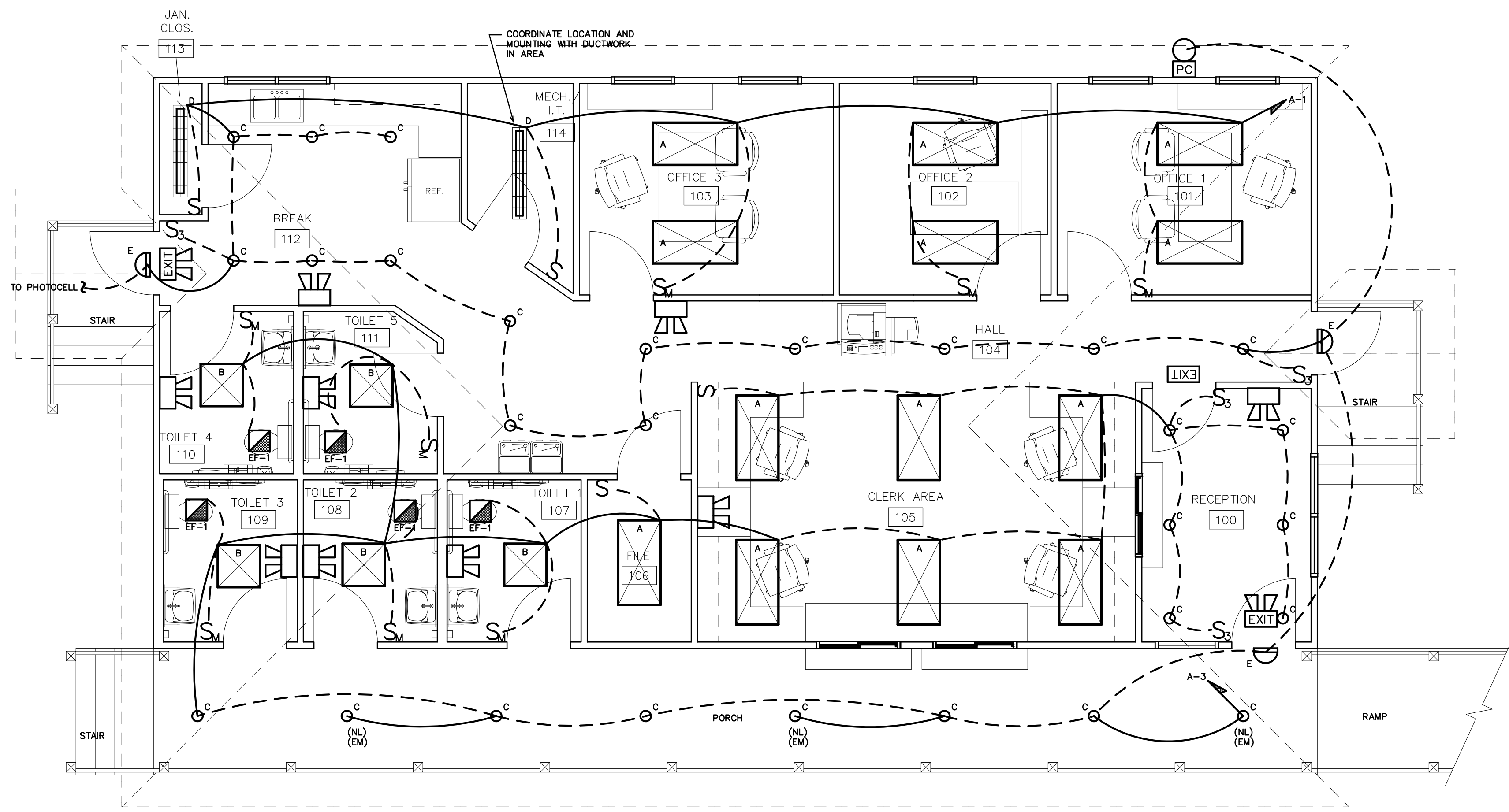
NOTE:
PROVIDE LABELING ON EACH SWITCH NOTING CIRCUIT SERVED.

AUTOMATIC LIGHTING SHUTOFF IS NOT SHOWN IN THE EGRESS PATH LIGHTING AS ALLOWED PER NBC 1008.2 WHERE AUTOMATIC SHUTOFF WOULD ENDANGER OCCUPANT SAFETY.

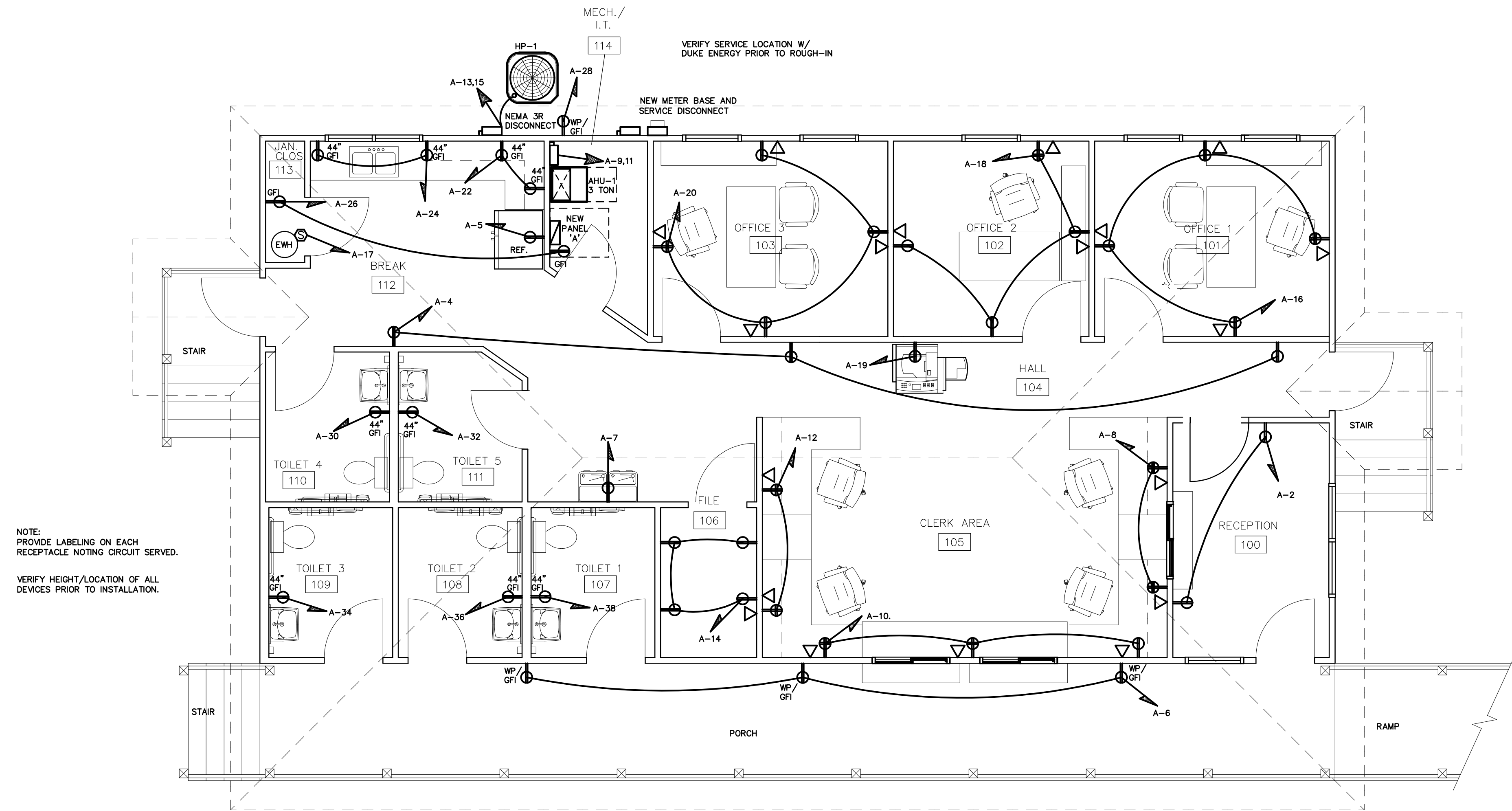
TIE ALL EXIT AND EMERGENCY LIGHTS TO NEAREST AVAILABLE UNSWITCHED LIGHTING CIRCUIT IN THE AREA SERVED.

VERIFY HEIGHT/LOCATION OF ALL SWITCHES AND DEVICES PRIOR TO INSTALLATION.

PROVIDE SWITCHED & UN-SWITCHED POWER FROM SAME CIRCUIT FOR ALL TYPE "E" FIXTURES. (TYP)



1 LIGHTING PLAN
E-2 SCALE: 1/4"=1'-0"



NOTE:
PROVIDE LABELING ON EACH
RECEPTACLE NOTING CIRCUIT SERVED.
VERIFY HEIGHT/LOCATION OF ALL
DEVICES PRIOR TO INSTALLATION.

1 POWER PLAN
E-3 SCALE: 1/4"=1'-0"

NCSPA - Shipping & Receiving E4

EQUIPMENT WIRING SCHEDULE

EQUIPMENT	MCA	MOCP	VOLTS	PH	WIRE SIZE
AHU-1	44.7A	45A	208V	1	2-#8, 1-#10 GND IN 3/4" CONDUIT
HP-1	28.5A	40A	208V	1	2-#8, 1-#10 GND IN 3/4" CONDUIT
EWH	(2500W)	30A	120V	1	2-#10, 1-#10 GND IN 1/2" CONDUIT
SPD	-	60A	208V	3	4-#6, 1-#10 GND IN 1 1/4" CONDUIT

NOTE:
THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL EQUIPMENT ELECTRICAL REQUIREMENTS PRIOR TO ROUGH-IN AND RELEASING GEAR. ADJUST BREAKER, WIRE SIZES, ETC. AS REQUIRED.

NEW PANEL - A

LOAD SERVICE	CKT BRKR	WATTS PER PHASE			CKT NO	NEUTRAL A B C			CKT NO	WATTS PER PHASE			CKT BRKR	LOAD SERVICE
		A	B	C		A	B	C		A	B	C		
LTS	20A	735			1				2	360			20A	REC- LOBBY
LTS	20A		755		3				4	540			20A	REC- HALL
REFRIGERATOR	20A			1800	5				6		540		20A	REC- PORCH
EWC	20A	888			7				8	720			20A	REC- CLERK
AHU-1	45A		3960		9				10	900			20A	REC- CLERK
MOTOR 4.1A; HEAT 28.9A	45A		3960		11				12	720			20A	REC- CLERK
HP-1	40A	2676			13				14	720			20A	REC- FILE RM
COMP 21.1A; FAN 1.2A	30A		2676		15				16	900			20A	REC- OFFICE
EWH	20A			2500	17				18		900		20A	REC- OFFICE
COPIER	20A	1440			19				20	900			20A	REC- OFFICE
SPARE	20A				21				22		360		20A	REC- BREAK AREA
SPARE	20A				23				24		360		20A	REC- BREAK AREA
SPARE	20A				25				26	360			20A	REC- UTILITIES
SPARE	20A				27				28	180			20A	REC- EXTERIOR
SPARE	20A				29				30	180			20A	REC- TOILET
SPACE	20A				31				32	180			20A	REC- TOILET
SPACE	20A				33				34	180			20A	REC- TOILET
SPACE	20A				35				36	180			20A	REC- TOILET
SURGE PROTECTION DEVICE (SPD)	60A	100			37				38	180			20A	REC- TOILET
		100			39				40					SPACE
		100			41				42					SPACE

NOTES	200A BUS	3420	3060	2880	SUB-TOTALS 'A'
GFCI BREAKER	5839	7491	8360		
	200A LUGS	5839	7491	8360	SUB-TOTALS 'B'
	200A FEED	9259	10551	11240	GRAND TOTAL
	VERIFY SIZE	77A	88A	90A	AMPS/PHASE

NEC ALLOWABLE DEMAND FACTORS	DIVERSIFIED LOAD SUMMARY																																																																														
① DEMAND FACTORS PER NEC 220 ② LARGEST OF: NEC TABLE 220.12 OR CONNECTED LOAD ③ NEC TABLE 220.56 ④ NEC 220.51 ⑤ NEC 220.43A, 200 VA/LINEAR FT ⑥ NON-COINCIDENT LOADS, LARGEST OF THE TWO LOADS IS COUNTED	<table border="1"> <thead> <tr> <th>LOAD TYPE</th> <th>DEMAND FACTOR</th> <th>A</th> <th>B</th> <th>C</th> <th>TOTAL DIVERSIFIED LOAD</th> </tr> </thead> <tbody> <tr> <td>GENERAL LIGHTING</td> <td>125%</td> <td>919</td> <td>944</td> <td>---</td> <td>1863</td> </tr> <tr> <td>TRACK LIGHTING</td> <td>125%</td> <td>---</td> <td>---</td> <td>---</td> <td>---</td> </tr> <tr> <td>GENERAL USE RECEPTACLES</td> <td>100%</td> <td>3420</td> <td>3060</td> <td>2880</td> <td>9360</td> </tr> <tr> <td>MOTORS AND EQUIPMENT</td> <td>125%</td> <td>3165</td> <td>3165</td> <td>2250</td> <td>8580</td> </tr> <tr> <td>WATER HEATERS</td> <td>125%</td> <td>2472</td> <td>636</td> <td>492</td> <td>3600</td> </tr> <tr> <td>KITCHEN EQUIPMENT</td> <td>100%</td> <td>---</td> <td>---</td> <td>---</td> <td>---</td> </tr> <tr> <td>FIX. ELEC. SPACE HEAT.</td> <td>100%</td> <td>---</td> <td>3468</td> <td>3468</td> <td>6936</td> </tr> <tr> <td>SHOW WINDOW LIGHTS</td> <td>125%</td> <td>---</td> <td>---</td> <td>---</td> <td>---</td> </tr> <tr> <td>SIGN</td> <td>100%</td> <td>100</td> <td>100</td> <td>100</td> <td>300</td> </tr> <tr> <td>MISC</td> <td>100%</td> <td>100</td> <td>100</td> <td>100</td> <td>300</td> </tr> <tr> <td>PHASE (TOTAL VA)</td> <td></td> <td>10076</td> <td>11373</td> <td>12315</td> <td>33764</td> </tr> <tr> <td>TOTAL AMPS</td> <td></td> <td>84A</td> <td>95A</td> <td>103A</td> <td>VOLTS X 1.732 = 94A TOTAL AMPS</td> </tr> </tbody> </table>	LOAD TYPE	DEMAND FACTOR	A	B	C	TOTAL DIVERSIFIED LOAD	GENERAL LIGHTING	125%	919	944	---	1863	TRACK LIGHTING	125%	---	---	---	---	GENERAL USE RECEPTACLES	100%	3420	3060	2880	9360	MOTORS AND EQUIPMENT	125%	3165	3165	2250	8580	WATER HEATERS	125%	2472	636	492	3600	KITCHEN EQUIPMENT	100%	---	---	---	---	FIX. ELEC. SPACE HEAT.	100%	---	3468	3468	6936	SHOW WINDOW LIGHTS	125%	---	---	---	---	SIGN	100%	100	100	100	300	MISC	100%	100	100	100	300	PHASE (TOTAL VA)		10076	11373	12315	33764	TOTAL AMPS		84A	95A	103A	VOLTS X 1.732 = 94A TOTAL AMPS
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RISER WIRING SCHEDULE

- 200A: 4-#3/0 IN 2 1/2" CONDUIT
- 200A: 4-#3/0, 1-#6 CU GND, IN 2 1/2" CONDUIT
- #4 CU GND TO BUILDING STEEL, FOUNDATION STEEL AND METALLIC WATER MAIN AND #6 CU GND TO 10' X 3/4" DRIVEN GROUND ROD. ADDITIONAL GROUND RODS MUST BE ADDED IN AN ARRAY AT MINIMUM 6' APART IF ROD RESISTANCE TO EARTH IS GREATER THAN 25 OHMS.

NOTE:
UNLESS OTHERWISE NOTED ALL OTHER CIRCUITS ARE 20A, 120VOLT.
PROVIDE 2-#12, 1-#12 CU GND IN 1/2" CONDUIT.
SEE EQUIPMENT SCHEDULES FOR ADDITIONAL WIRE SIZES.

