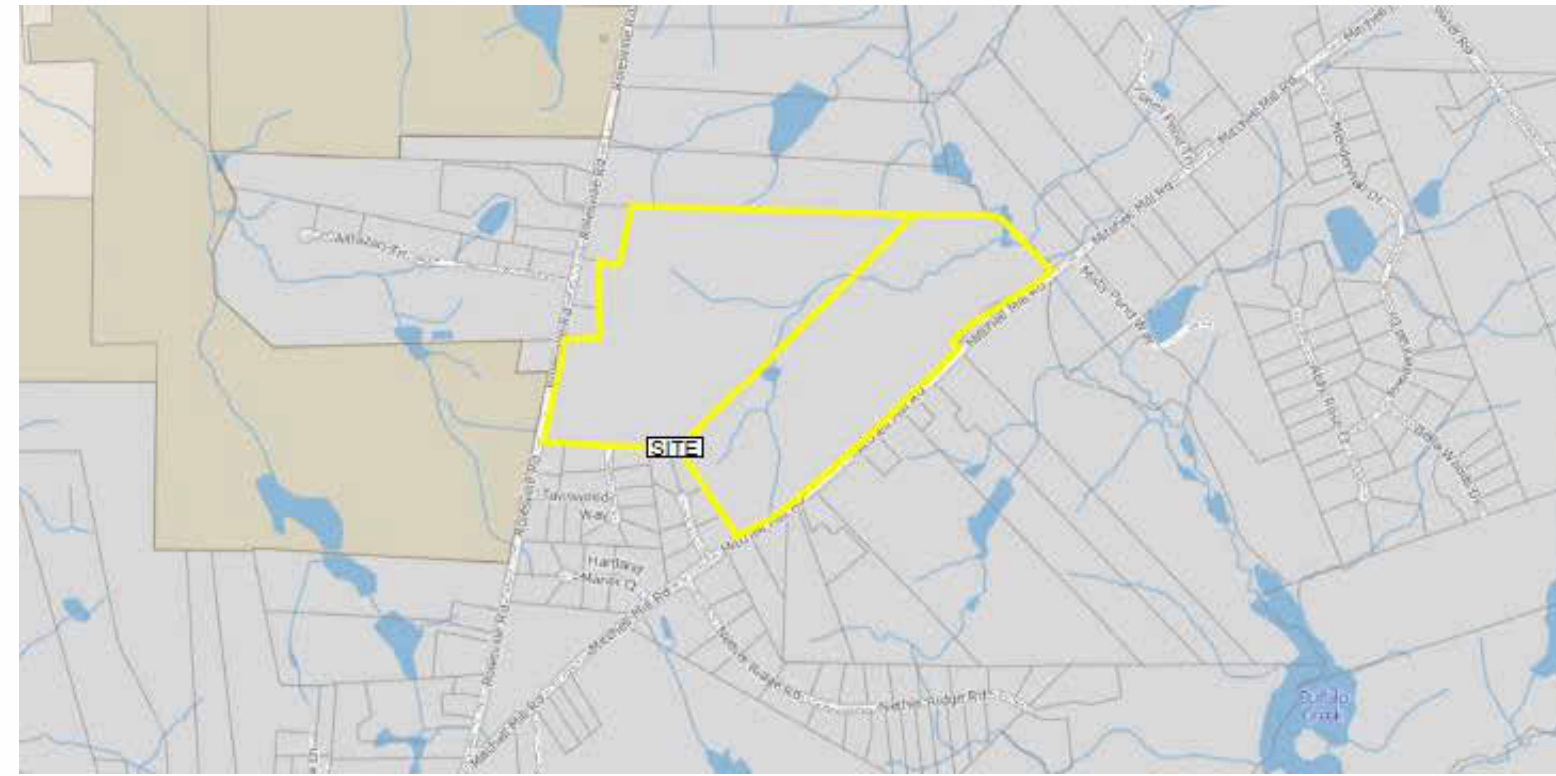
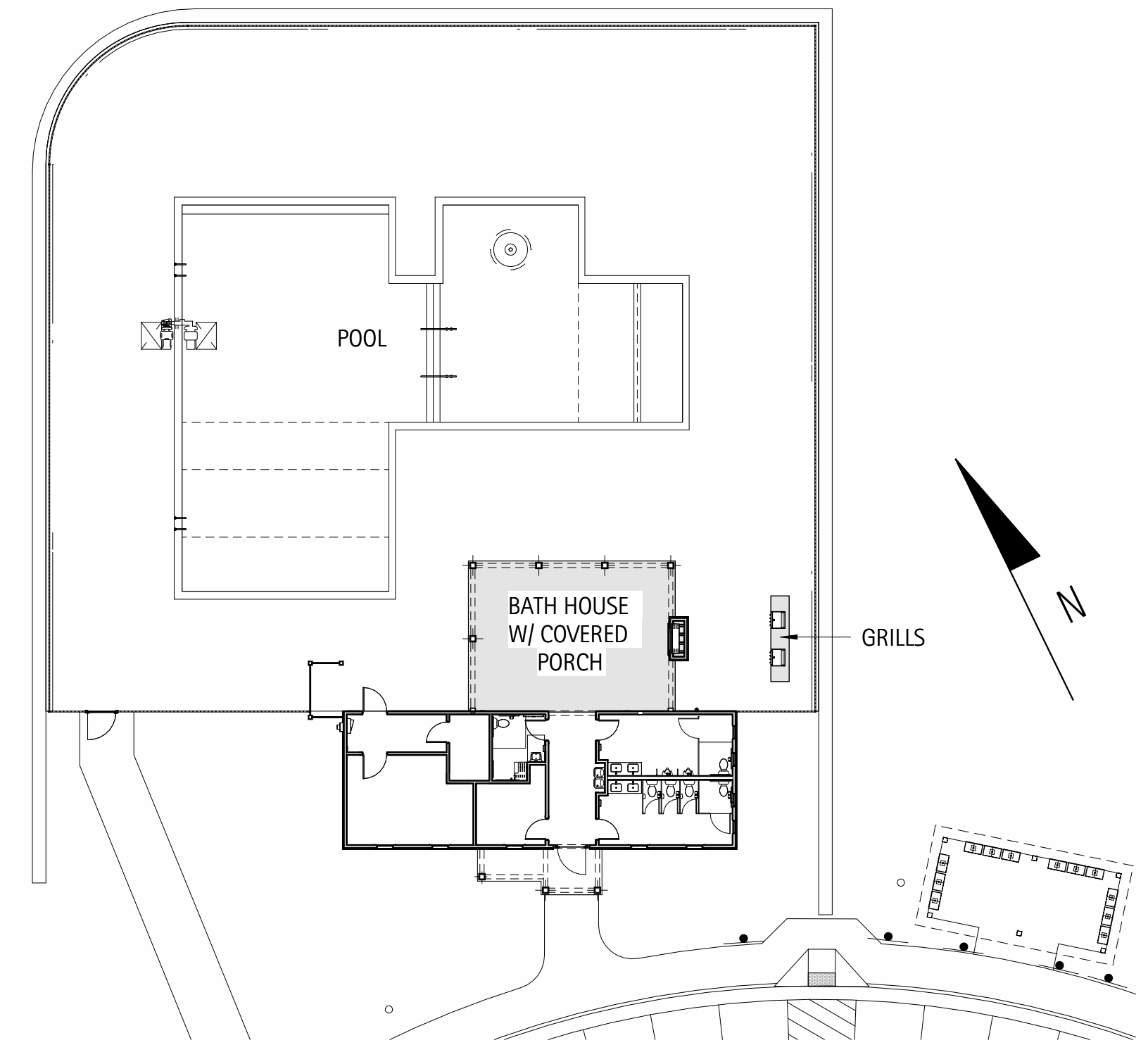


ROLESVILLE AMENITY CENTER

BATHHOUSE & POOL ROLESVILLE, NC



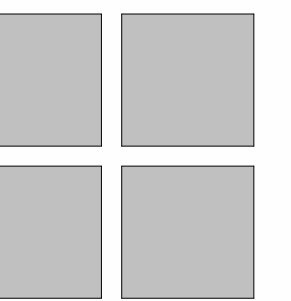
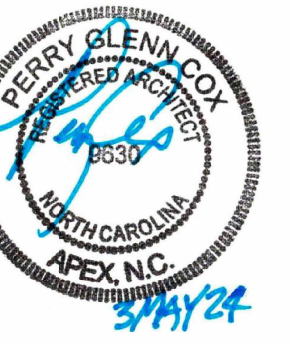
2 VICINITY MAP
G0.1 NOT TO SCALE



1 SITE PLAN
G0.1 1" = 20'-0"



DRAWING INDEX1						
SHEET NUMBER	SHEET NAME	REV 01	REV 02	REV 03	REV 04	REV 05
0 - GENERAL						
G0.1	COVER SHEET					
G0.2	CODE SUMMARY					
G0.3	LIFE SAFETY PLAN					
G0.4	GENERAL NOTES					
1 - ARCHITECTURAL						
A1.0	FOUNDATION PLAN					
A1.1	FLOOR PLAN					
A1.2	CEILING & ROOF PLANS					
A2.0	EXTERIOR ELEVATIONS					
A3.0	BUILDING SECTIONS & DETAILS					
A3.1	ENLARGED PLANS & WALL SECTIONS					
A4.0	GENERAL DETAILS					
A4.1	GENERAL DETAILS					
A5.0	SCHEDULES & GENERAL DETAILS					
10 - STRUCTURAL PLANS						
S1	SLAB & FOUNDATION PLAN					
S2	FRAMING PLANS					
S3	STRUCTURAL NOTES & DETAILS					
13 - PLUMBING PLANS						
P1	PLUMBING NOTES & SCHEDULES					
P2	PLUMBING PLANS					
P3	PLUMBING RISERS					
15 - MECHANICAL PLANS						
G1	GAS PLAN AND RISER					
M1	MECHANICAL NOTES, SCHEDULES, AND PLAN					
16 - ELECTRICAL PLANS						
E1	ELECTRICAL NOTES AND SCHEDULES					
E2	LIGHTING & POWER PLANS					
E3	PANEL SCHEDULE AND POWER RISER					
17 - POOL						
SP1.0	POOL DIMENSION & CONTROL JOINT PLAN					
SP2.0	POOL LAYOUT PLAN					
SP3.0	POOL PIPING AND ELECTRICAL PLAN					
SP4.0	POOL SECTIONS & DETAILS					
SP4.1	SECTIONS & DETAILS					
SP5.0	SPECIFICATIONS					
SP5.1	SPECIFICATIONS					
SP5.2	SPECIFICATIONS					



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DATE
REVISION
NO.

SHEET DESCRIPTION
COVER SHEET

PROJECT #: 2024001
DATE ISSUED: 05/03/2024
DRAWING BY: JVD
CHECKED BY: PGC/DSC

ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC

G0.1

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115 YOUNG STREET SUITE C -
HENDERSON, NC 27520
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709 W. JONES STREET - RALEIGH, NC 27603
TEL 919.832.5680 FAX 919.832.5675
INFO@ROSSLINDEN.COM

APPENDIX B BUILDING CODE SUMMARY

FOR ALL COMMERCIAL PROJECTS

Name of Project: Rolesville Amenity Center
 Address: Rolesville, NC Zip Code: 27703
 Owner or Authorized Agent: John Moxley Phone #: 919-691-1170
 Email: john@dclugston.com Fax #: _____
 Owned By: Privately City/County State
 Code Enforcement Jurisdiction: City County City/County
 Name of Jurisdiction: Wake County, North Carolina

PROJECT SUMMARY: 1,958 SF Bath house and 2,867 SF Pool

Building Description: A-3 UNHEATED - PRIVATE RECREATIONAL FACILITY FOR RESIDENCE ONLY, WITH A SEASONAL DRAIN DOWN BUILDING, DESIGNED FOR USE FROM DAWN TO DUSK
Scope of Work: New Building full scope of architectural, structural, plumbing, mechanical, electrical, and pool plans

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #
Architectural:	Perry Cox Architect, PA	Perry Cox, AIA	9630	919-393-5411
Civil:				
Electrical:	Killian Engineering	Jacob L. Hamilton	048012	252-438-8778
Fire Alarm:	Killian Engineering	Jacob L. Hamilton	048012	252-438-8778
Plumbing:	Killian Engineering	Jacob L. Hamilton	048012	252-438-8778
Mechanical:	Killian Engineering	Jacob L. Hamilton	048012	252-438-8778
Sprinkler-Standpipe:				
Structural:	Ross Linden Engineers	Brian Ross, PE	25539	919-832-5680
Precast:				
Trusses:	Truss Builders	Eric A Gilbert, PE	036322	919-467-9988
Retaining Walls >5' High				
Other:	Pool: Killian Engineering	Jacob L. Hamilton	048012	252-438-8778

Note: Special Inspections and Inspectors to be listed at end of Appendix B

Building Code: 2018 North Carolina State Building Code (NCSBC) 2009 North Carolina State Building Code
 2009 NC Rehab 2006 NC Rehab 2006 North Carolina Building Code
 2009 Chapter 34 2006 Chapter 34 1995 Existing Building Code

New Building: New Building Shell Building First Time Interior Completion
 Addition Alteration to Shell

Existing Building: Renovation Interior Completion Tenant Alteration
 Reconstruction Repair Alteration to Shell
 Change of Use/Tenant Change of Occupancy

Note: Zoning Review May Be Required for Change of Use or Occupancy

Original Occupancy: _____
 Proposed Occupancy: A-3 Assembly

OCCUPANCY INFORMATION

Primary Occupancies:

Assembly: A-1 A-2 A-3 A-4 A-5
 Hazardous: H-1 H-2 H-3 H-4 H-5
 Institutional: I-1 Condition I-2 I-3 Condition I-4
 Business:
 Educational:
 Factory: F-1 F-2
 Mercantile:
 Residential: R-1 R-2 R-3 R-4
 Storage: S-1 Moderate S-2 Low High-piled
 Parking Garage: Open Enclosed Repair Garage
 Utility and Miscellaneous:
 Special Occupancies: 402 403 404 405 406 407 408 409 410 411
 412 413 414 415 416 417 418 419 420 421

Mixed Occupancy: No Yes Separation: _____ Hr. Exception: _____

Non-Separated Mixed Occupancy (508.3.3) - The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

Separated Mixed Occupancy (508.3.3) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

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

ALLOWABLE AREA AND HEIGHT CALCULATIONS

THIS SECTION FOR NEW, ADDITION, CHANGE OF USE, AND INTERIOR COMPLETIONS

Exterior Wall	Actual Length	Open Length	W	H
North				
South				
East				
West				
Total	P	F		W

INCREASE FRONTAGE _____ %
 SPRINKLERS _____ %
 FRONTAGE INCREASE FORMULA ALLOWABLE AREA FORMULA
 $I_s = 100(F - 0.25)W$

BOTH BUILDING AND TENANT MUST BE INDICATED ON CHART BELOW

Story No.	DISCRIP. & USE	BLDG AREA (TABLE 506.2 PER STORY)	AREA FOR ALLOWABLE INCREASE	SPRINKLER INCREASE	ALLOWABLE FLOOR AREA	RATE OF ACTUAL/ALLOWABLE	MAXIMUM BUILDING AREA	SEPARATION REQUIRED	RATING
Main Level	A3	1,958	6000	N/A	N/A	0.267	6000 SF	N/A	N/A

- Frontage area increases from Section 506.3 are computed thus:
 - Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
 - Total Building Perimeter = _____ (P)
 - Ratio (F/P) = _____ (F/P)
 - W = Minimum width of public way = _____ (W)
 - Percent of frontage increase I = 100 [(F/P) - 0.25] x W/30 = _____ (%)
- Unlimited area applicable under conditions of Section 507.
- Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2)
- The maximum area of open parking garages must comply with Table 406.5.4
- Frontage increase is based on the un-sprinklered area value in Table 506.2

ALLOWABLE HEIGHT

MOST RESTRICTIVE (GROUP)	ALLOWABLE BUILDING HEIGHT (TABLE 504.3)	INCREASE FOR SPRINKLERS	ACTUAL BUILDING HEIGHT AS SHOWN ON PLANS	CODE REFERENCE
Type of Construction	Type_VB	Type_VB	Type_VB	403.3.1
Building Height in Feet	H = 40'-0" FT	N/A	H = 21'-6"	403.3.1
Building Height in Stories	S = 1	N/A	S = 1	403.3.1

BUILDING DATA

THIS SECTION REQUIRED FOR ALL PROJECTS

Construction Type: I-A I-B II-A II-B III-A III-B IV-HT V-A V-B

Mixed construction: Yes No Types
 Sprinklers: Yes No NFPA 13 NFPA 13R Partially Sprinklered Special Suppression

Standpipes: Yes No Class: I II III Wet Dry
 Fire District: Yes No (Appendix D) Floor Hazard
 Building Height: 21'-6"
 Basement: Yes No
 Mezzanine: Yes No
 High Rise: Yes No

FLOOR	EXISTING (SQFT)	NEW (SQFT)	SUB-TOTAL
MAIN LEVEL	N/A	1,958	1,958

Area of Project Tenant/Alteration/Renovation: _____
 Area of Construction: _____

FIRE PROTECTION REQUIREMENTS

THIS SECTION REQUIRED FOR ALL PROJECTS

Life Safety Plan Sheet #, if Provided G0.3

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	PROVIDED (W/ REDUCTION)	DETAIL # & SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
North	>30'	0					
East	>30'	0					
West	>30'	0					
South	>30'	0					
Interior Bearing walls	0						
Nonbearing Walls Exterior							
North	>30'	0					
East	>30'	0					
West	>30'	0					
South	>30'	0					
Interior Bearing walls	0						
Structural Frame, including columns, girders, trusses							
Floor construction, including supporting beams and joists. List construction type.	0						
Floor Ceiling Assembly	0						
Columns Supporting Floors	0						
Roof construction, including supporting beams and joists**	0						
Roof Ceiling Assembly	0						
Columns Supporting Roof	0						
Shafts- Exit Enclosures	N/A						
Shafts- Other (describe)	N/A						
Corridor Separation	N/A						
Occupancy Separation	N/A						
Party/ Fire Wall Separation	N/A						
Incidental Use Separation	N/A						
Dwelling/ sleeping unit Separation	N/A						
Smoke Barrier Separation	N/A						
Tenant Separation							

* Indicate section number permitting reduction
 ** Indicated if using Table 601 Note C exception

PERCENTAGE OF WALL OPENING CALCULATIONS

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

WALL LEGENDS

THIS SECTION REQUIRED FOR ALL PROJECTS

CHECK IF THE FOLLOWING ARE PRESENT AND INDICATE BY AWALL LEGEND ON ALL PLANS
 Fire Partitions 708 Fire Walls 705 Fire Barriers 706 Smoke Partitions 710
 Smoke Barriers 709 Shaft Enclosure 707

LIFE SAFETY SYSTEMS REQUIREMENTS

THIS SECTION IS REQUIRED FOR ALL PROJECTS

Emergency Lighting: Yes No
 Exit Signs: Yes No
 Fire Alarm: Yes No
 Smoke Detection Systems: Yes No
 Panic Hardware: Yes No

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet # G0.3

- Fire and/or smoke rated wall locations (Chapter 7)
- Assumed and real property line locations (if not on the site plan)
- Exterior wall opening area with respect to distance to assumed property lines (705.8)
- Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
- Occupant loads for each area
- Exit access travel distance (1017)
- Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
- Dead end lengths (1020.4)
- Clear exit widths for each exit door
- Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
- Actual occupant load for each exit door
- A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- Location of doors with panic hardware (1010.1.10)
- Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
- Location of doors with electromagnetic egress locks (1010.1.9.9)
- Location of doors equipped with hold-open devices
- Location of emergency escape windows (1030)
- The square footage of each fire area (202)
- The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
- Note any code exceptions or table notes that may have been utilized regarding the items above

EXIT REQUIREMENTS

NUMBER AND ARRANGEMENT OF EXITS

THIS SECTION IS REQUIRED FOR ALL PROJECTS

FLOOR, ROOM AND/OR SPACE DESIGNATION	MINIMUM NUMBER OF EXITS REQUIRED	SHOWN ON PLANS	TRAVEL DISTANCE		ARRANGEMENT		MEANS OF EGRESS	
			ALLOWABLE TRAVEL DISTANCE (TABLE 1016.1)	ACTUAL TRAVEL DISTANCE SHOWN ON PLANS	REQUIRED DISTANCE BETWEEN EXIT DOORS	ACTUAL DISTANCE SHOWN ON PLANS		
AMENITY	2	2	200'	150'-5 3/4"	75'-3 1/4"	76'-7 1/2"		

- Corridor dead ends (Section 1017.3)
- Single exits (Section 1015.1; Section 1019.2)
- Common Path of Egress Travel (Section 1014.3)

OCCUPANT LOAD AND EXIT WIDTH CLUBHOUSE

Room Name	Area	Occupancy		Egress Width per Occupant (1005.3)		Required Width		Actual Width Shown	
		Load Factor	Load Count	Level	Stair	Level	Stair	Level	Stair

MENS	180 SF	0 SF		0.2					
WOMENS	191 SF	0 SF		0.2					
FAMILY	72 SF	300 SF	1	0.2		0.2			
CHEM.	60 SF	300 SF	1	0.2		0.2			
PUMP ROOM	236 SF	300 SF	1	0.2		0.2			
STORAGE	102 SF	0 SF		0.2					
ELEC.	82 SF	300 SF	1	0.2		0.2			
COVERED PORCH	662 SF	15 SF	45	0.2		9			46
HALL	137 SF	0 SF		0.2					
COVERED ENTRY	104 SF	0 SF		0.2					
POOL	2867 SF	50 SF	58	0.2		11.6			
POOL DECK CLR AREA	2363 SF	15 SF	158	0.2		31.6			58
POOL DECK	3498 SF	15 SF	234	0.2		46.8			
TRASH	38 SF	0 SF		0.2					
Grand total				2.8		99.8			104

- See Table 1004.1.1 to determine whether net or gross area is applicable
- Minimum stairway width (Section 1009.1); min. corridor width (Section 1017.2); min. door width (Section 1008.1.1)
- Minimum width of exit passageway (Section 1021.2)
- The loss of 1 means of egress shall not reduce the available capacity to less than 50% of the total required (Section 1005.1)
- Assembly occupancies (Section 1025)

ASSEMBLY OCCUPANCY INFORMATION

Name	Type	Occupancy		Exit Width (inches)	Exit Quantity
		Area	Load Count		

COVERED PORCH	Assembly - Unconcentrated (tables and chairs)	662 SF	15 SF	45	9	1
POOL	Swimming Pool water surface	2867 SF	50 SF	58	11.6	
POOL DECK CLR AREA	Swimming Pool Deck	2363 SF	15 SF	158	31.6	
POOL DECK	Swimming Pool Deck	3498 SF	15 SF	234	46.8	
Grand total					99	

PLUMBING FIXTURE REQUIREMENTS

THIS SECTION IS REQUIRED FOR ALL PROJECTS

USE	WATERCLOSETS			URINALS	LAVATORIES		RINSE SHOWERS	DRINKING FOUNTAINS	
	Male	Female	Unisex		Male	Female		REGULAR	ACCESSIBLE
SPACE									
EXISTG									
NEW	1	4	1	2	2	2	2	1	1
Total Required	1	4	1	1	2	2	1	1	1
Total Provided	1	4	1	2	2	3	2	1	1

499 PERSONS (2 = 249 M / 249 F)
 WATERCLOSETS: 249 MALE / 125 = 2 WC = 1 WC & 2 URINAL
 249 FEMALE / 65 = 4 WC = 2 WC + 2 FAMILY WC
 LAVATORY: 249 MALE / 200 = 2 LAV. = 2 LAV + 1 FAMILY WC
 249 FEMALE / 200 = 2 LAV. = 2 LAV + 1 FAMILY WC

STRUCTURAL DESIGN LOADS

THIS SECTION IS REQUIRED FOR ALL PROJECTS

DESIGN LOADS:
 Importance Factors: Snow (I_s) _____
 Seismic (I_s) _____
 Live Loads: Roof _____ psf
 Mezzanine _____ psf
 Floor _____ psf
 Ground Snow Load: _____ psf
 Wind Load: Ultimate Wind Speed _____ mph (ASCE-7)
 Exposure Category _____

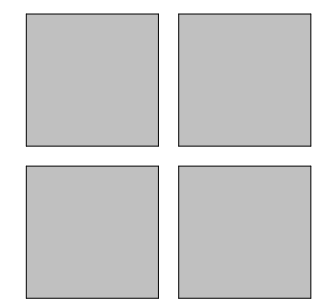
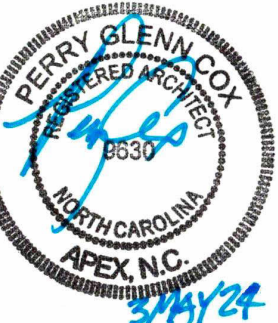
SEISMIC DESIGN CATEGORY: A B C D
 Provide the following Seismic Design Parameters:
 Risk Category (Table 1001.1) _____
 Spectral Response Acceleration Coefficient (S_a) _____ %g
 Site Classification (Table 1001.1) _____
 Data Source: Field Test _____ Presumptive _____ Historical Data _____
 Basic Structural System: Bearing Wall _____ Dual w/ Special Moment Frame _____
 Building Frame _____ Dual w/ Intermediate R/C or Special Steel _____
 Moment Frame _____ Inverted Pendulum _____
 Analysis Procedure: Simplified _____ Equivalent Lateral Force _____ Dynamic _____
 Architectural, Mechanical, Components anchored? Yes No

LATERAL DESIGN CONTROL: Earthquake _____ Wind _____

SOIL BEARING CAPACITIES:
 Field Test (provide copy of test report) _____ psf
 Presumptive Bearing Capacity _____ psf
 Pile size, type, and capacity _____



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DATE	
REVISION	
NO.	

SHEET DESCRIPTION
LIFE SAFETY PLAN

PROJECT #: 2024001
 DATE ISSUED: 05/03/2024
 DRAWING BY: JVD
 CHECKED BY: DSC/PGC

ROLESVILLE AMENITY
 LENNAR HOMES
 AMENITY & POOL
 ROLESVILLE, NC

G0.3

BUILDING OCCUPANCY SCHEDULE					
Room Number	Room Name	Area	Occupancy		
			Type	Load Factor	Load Count
100	COVERED ENTRY	104 SF	N/A	0 SF	
101	HALL	137 SF	N/A	0 SF	
102	STORAGE	102 SF	N/A	0 SF	
103	WOMENS	191 SF	N/A	0 SF	
104	FAMILY	72 SF	Accessory Storage Areas, Mechanical Equipment Room	300 SF	1
105	MENS	180 SF	N/A	0 SF	
106	COVERED PORCH	662 SF	Assembly - Unconcentrated (tables and chairs)	15 SF	45
107	ELEC.	82 SF	Accessory Storage Areas, Mechanical Equipment Room	300 SF	1
108	PUMP ROOM	236 SF	Accessory Storage Areas, Mechanical Equipment Room	300 SF	1
109	CHEM.	60 SF	Accessory Storage Areas, Mechanical Equipment Room	300 SF	1
110	TRASH	38 SF	N/A	0 SF	

49

OCCUPANCY SCHEDULE POOL					
Room Number	Room Name	Occupancy		Occupancy	
		Area	Type	Load Factor	Load Count
PL100	POOL	2867 SF	Swimming Pool water surface	50 SF	58
PL101	POOL DECK CLR AREA	2363 SF	Swimming Pool Deck	15 SF	158
PL102	POOL DECK	3498 SF	Swimming Pool Deck	15 SF	234
Grand total		8728 SF			450

LIFE SAFETY SYMBOL LEGEND	
	EMERGENCY EXIT
FEX	SEMI-RECESSED 'ABC' TYPE FIRE EXTINGUISHER TO MEET NFPA-10 STANDARDS. MOUNT @ 15" MIN. - 48" MAX A.F.F.
FEX-C	BRACKET MOUNTED WATER TYPE FIRE EXTINGUISHER TO MEET NFPA-10 STANDARDS. MOUNT @ 15" MIN. - 48" MAX A.F.F.
	INDICATES TRAVEL DIRECTION

GENERAL LIFE SAFETY NOTES:

USE: A-3 (ASSEMBLY)
 PRIMARY LOAD FACTOR: UNCONCENTRATED TABLES & CHAIRS (15 SF)
 OCCUPANT LOAD: 499 PPL
 CONSTRUCTION TYPE: V-B
 SPRINKLERS: NO

REQUIRED EXITS: 2
 PROVIDED EXITS: 3

DIAGONAL DISTANCE: 150'-5 3/4"
 REQUIRED EXIT SEPARATION: 150'-5 3/4" / 2 = 75'-3 1/4"
 PROVIDED EXIT SEPARATION: 76'-11 1/4"

REQUIRED EGRESS WIDTH: 99.8"
 PROVIDED EGRESS WIDTH: 104"

MAXIMUM COMMON PATH OF TRAVEL: 75'-0"
 MAXIMUM ALLOWABLE TRAVEL DISTANCE: 200'-0"
 ACTUAL MAX TRAVEL DISTANCE: 126'-7"

GENERAL PLUMBING NOTES:

USE: A-3 (ASSEMBLY)
 OCCUPANT LOAD: 499 PPL / 2 = 250 PPL

REQUIRED MALE WATER CLOSETS: 2 (1 PER 125 PPL)
 REQUIRED FEMALE WATER CLOSETS: 4 (1 PER 65 PPL)
 PROVIDED MALE WATER CLOSETS: 1 WC & 2 URINAL
 PROVIDED FEMALE WATER CLOSETS: 4 WC + 1 FAMILY

REQUIRED MALE LAVATORIES: 2 (1 PER 200)
 REQUIRED FEMALE LAVATORIES: 2 (1 PER 200)
 PROVIDED MALE LAVATORIES: 2
 PROVIDED FEMALE LAVATORIES: 2

REQUIRED WATERCOOLERS: 1 (1 PER 500)
 PROVIDED WATERCOOLERS: 2

REQUIRED SERVICE SINKS: 1
 PROVIDED SERVICE SINKS: 1 (HOSE BIB)

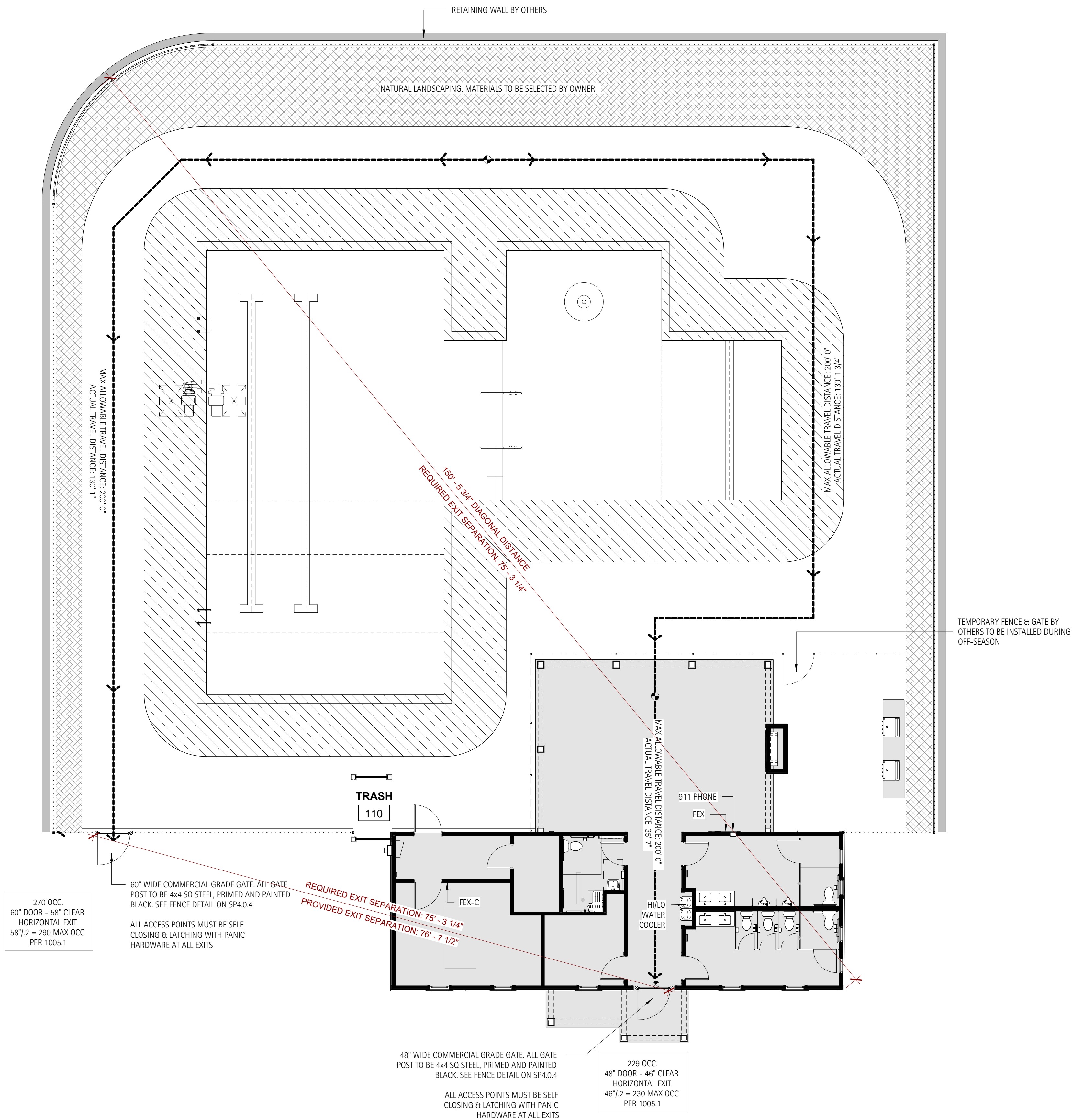
POOL DECK AREA
 3,498 SQ FT / 15 SQ FT PER PERSON:
 234 PEOPLE

8' CLEAR DECK AREA
 2,363 SQ FT / 15 SQ FT PER PERSON:
 158 PEOPLE

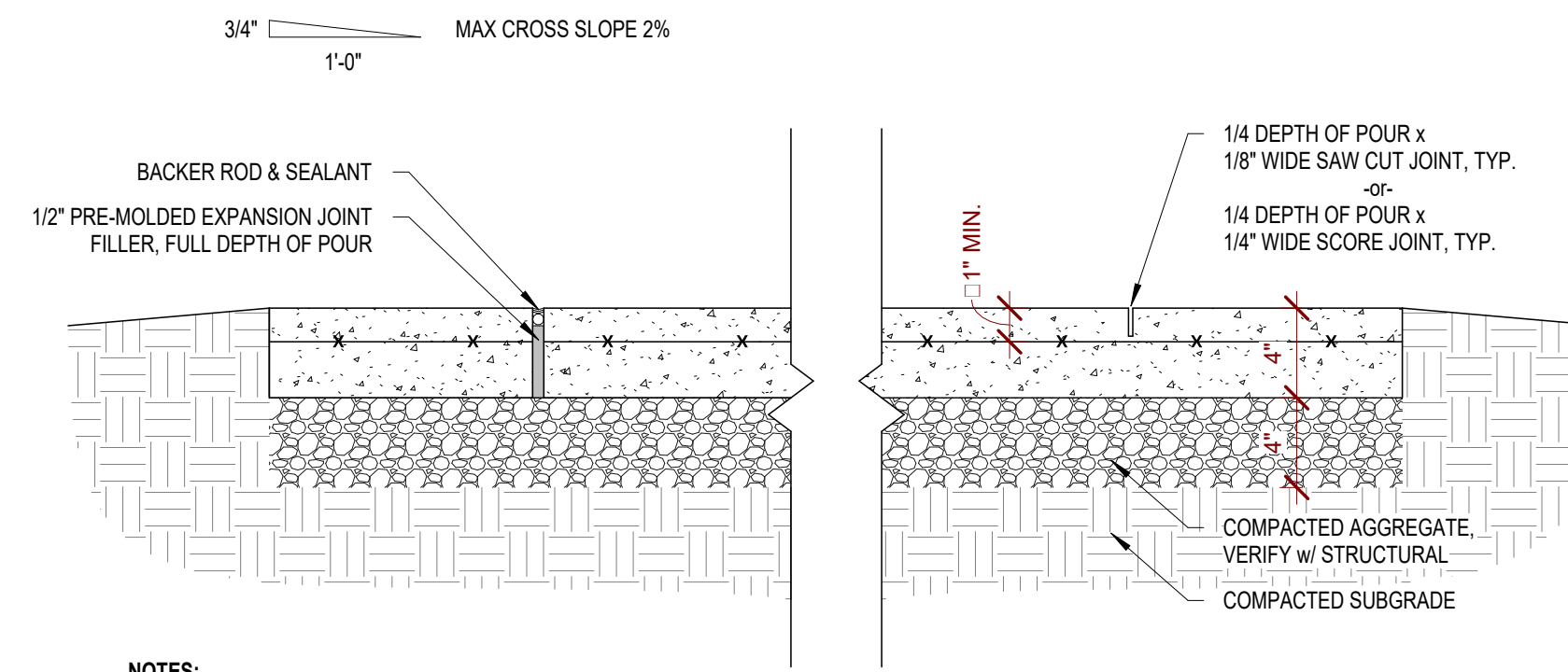
POOL AREA
 2,867 SQ FT / 50 SQ FT PER PERSON:
 58 PEOPLE

BATH HOUSE:
 49 PEOPLE

TOTAL A-3 OCCUPANT (INSIDE FENCE) LOAD:
 499 PEOPLE

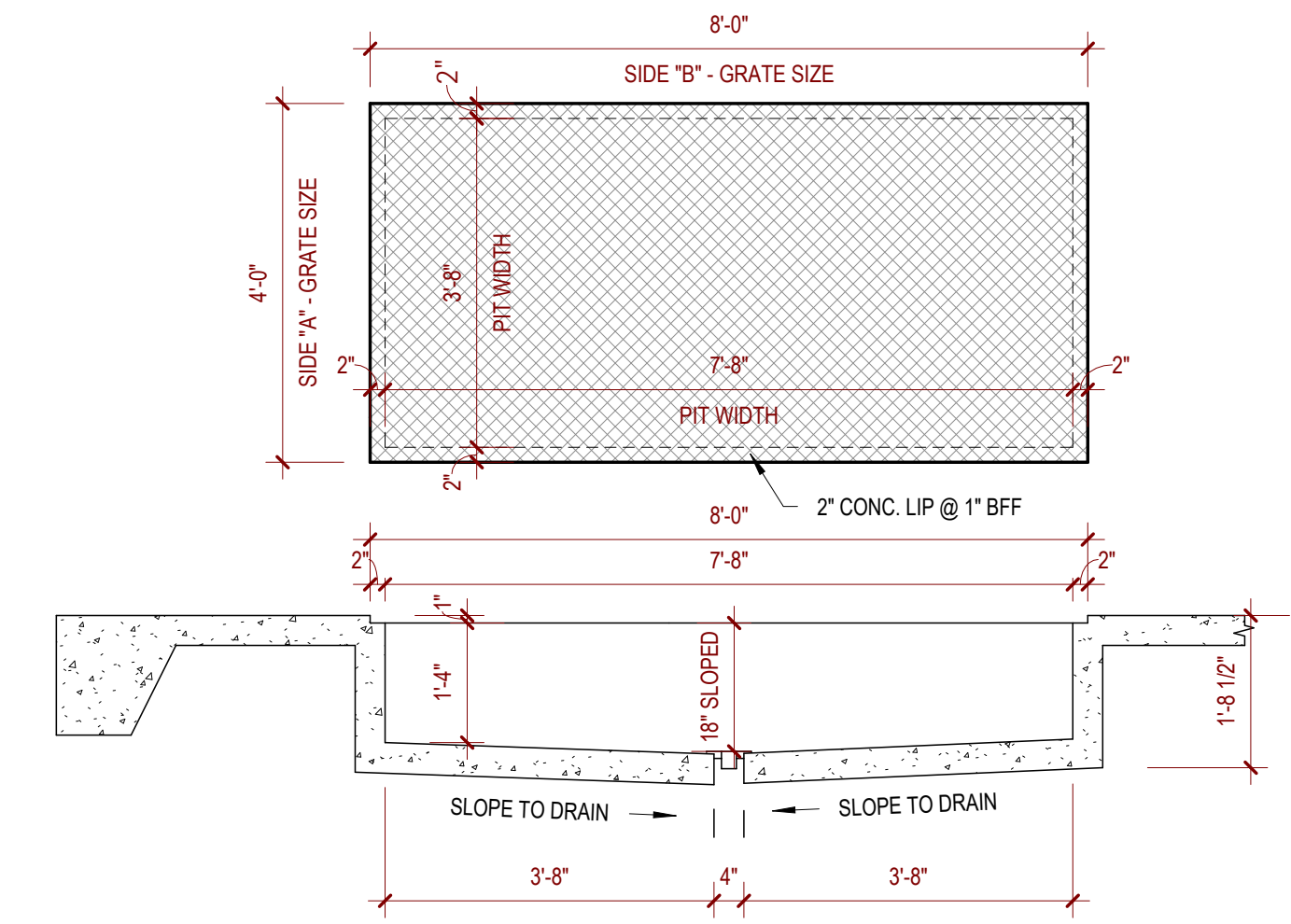


1
G0.3
Life Safety Plan
1/8" = 1'-0"

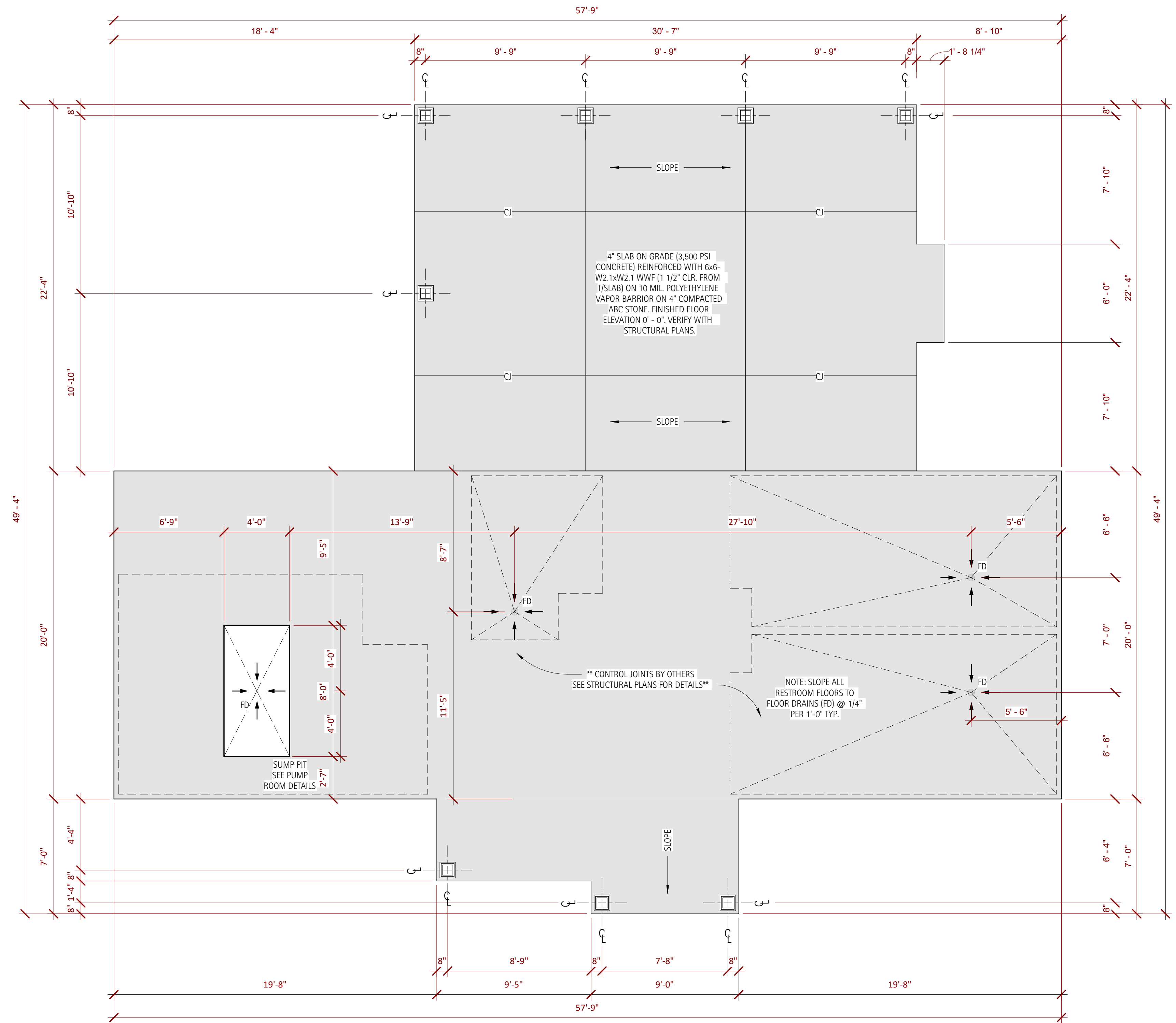


- NOTES:**
1. ALL JOINTS TO BE CUT W/ WET WALK BEHIND SAW TO ENSURE ALL CUTS ARE PERPENDICULAR W/ FACE OF CONCRETE
 2. MAXIMUM CONTROL JOINT SPACING SHALL BE 10 FT. IN EACH DIRECTION UNLESS SHOWN OTHERWISE ON PLAN, SEE STRUCT.
 3. PROVIDE EXPANSION JOINT WHERE SLABS ARE POURED AGAINST VERTICAL SURFACES AND/OR DIFFERENT PAVING MATERIALS AND AS SPECIFIED ON PLANS OR 25'-0" MAX O.C.

4
A1.0
Detail - Typ Concrete Joints
1 1/2" = 1'-0"



3
A1.0
Detail - Sump Pit
1/2" = 1'-0"



1
A1.0
Foundation Plan
1/4" = 1'-0"



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DATE	
REVISION	
NO.	

SHEET DISCRPTION
FOUNDATION PLAN

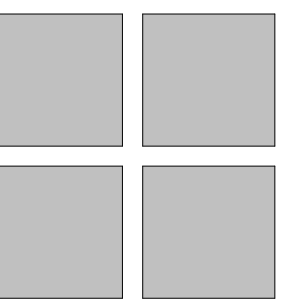
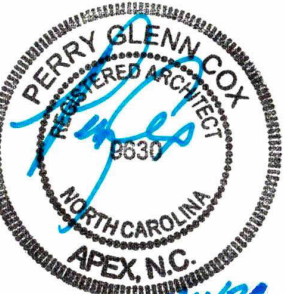
PROJECT #:	2024001
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ROLESVILLE AMENITY
LENNAR HOMES
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ROLESVILLE, NC

A1.0



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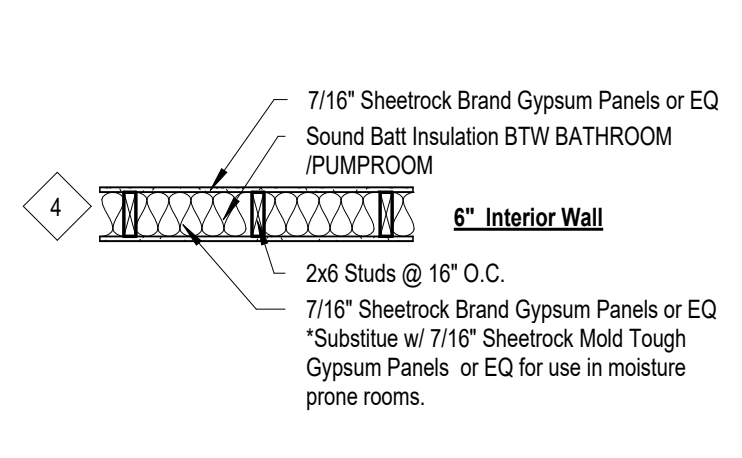
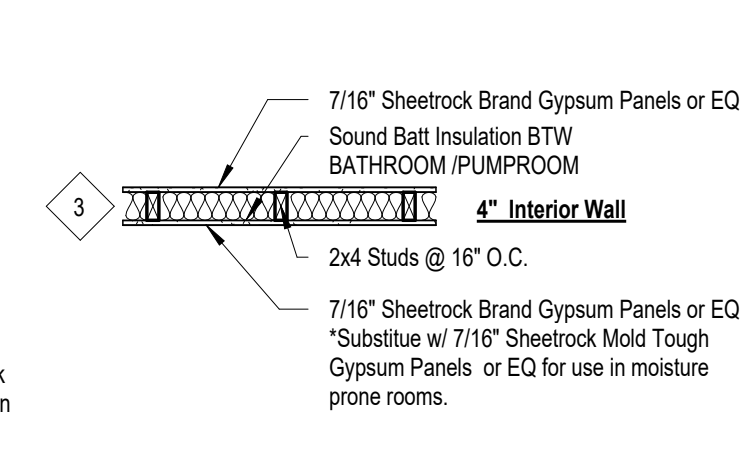
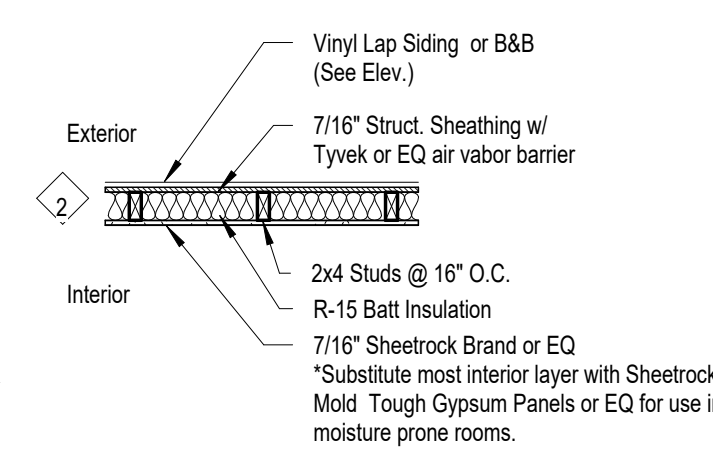
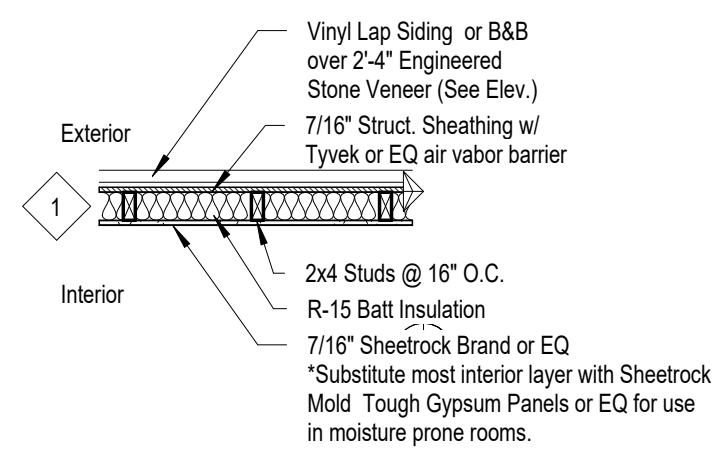
DATE
REVISION
NO.

SHEET DESCRIPTION
FLOOR PLAN

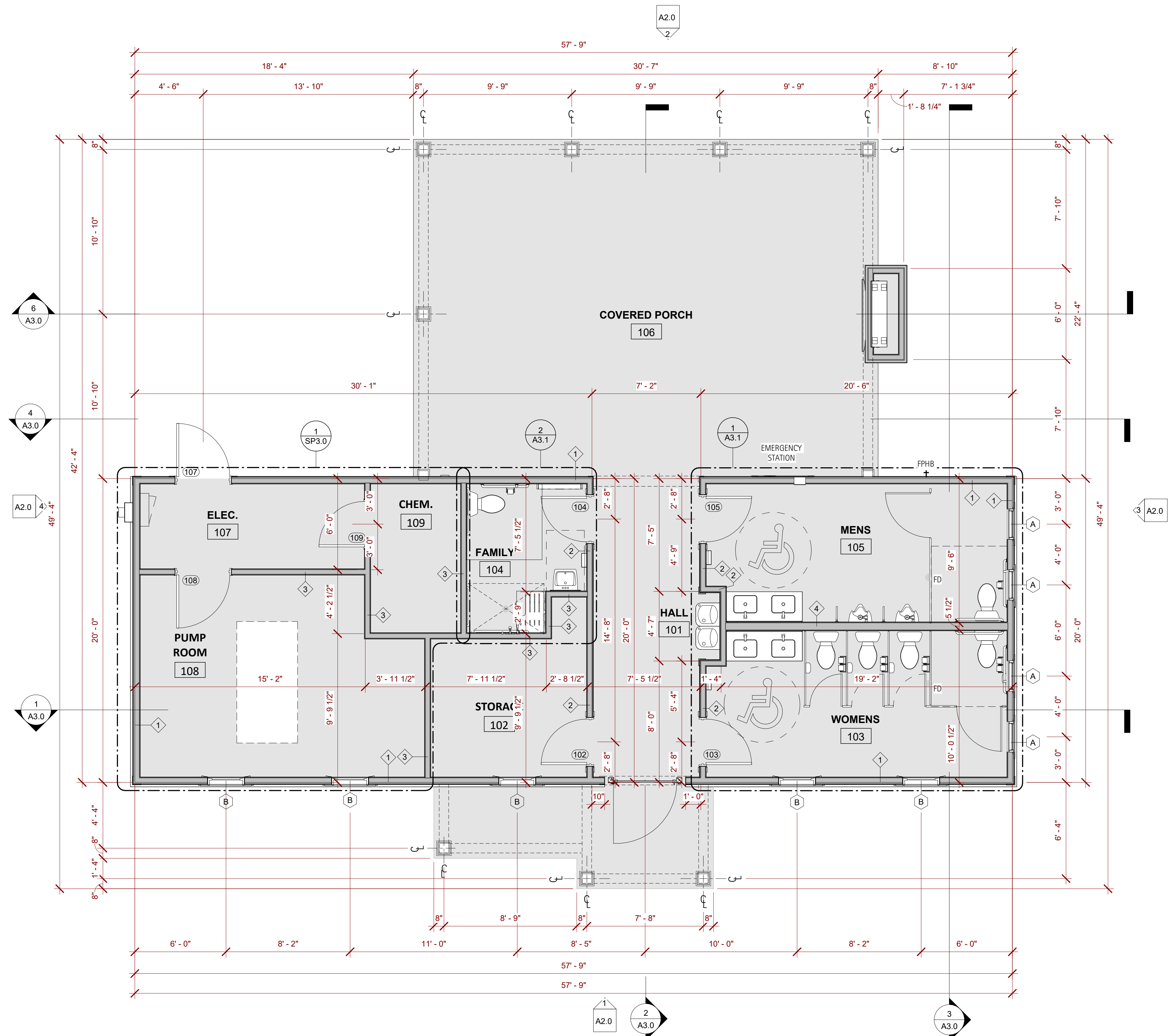
PROJECT #: 2024001
DATE ISSUED: 05/03/2024
DRAWING BY: JVD
CHECKED BY: DSC/PGC

ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC

A1.1


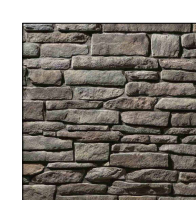
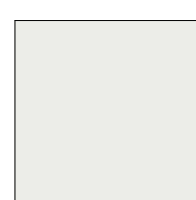

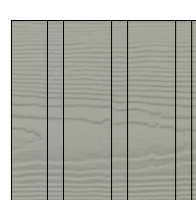



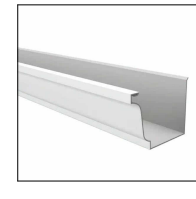
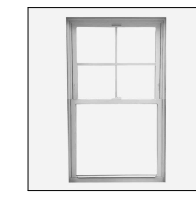
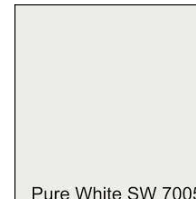


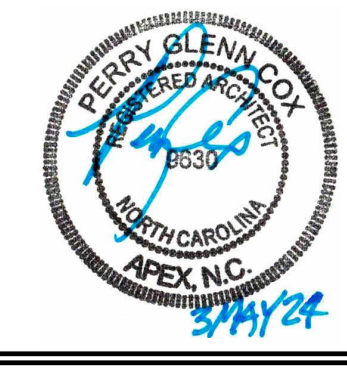
Wall Type Details



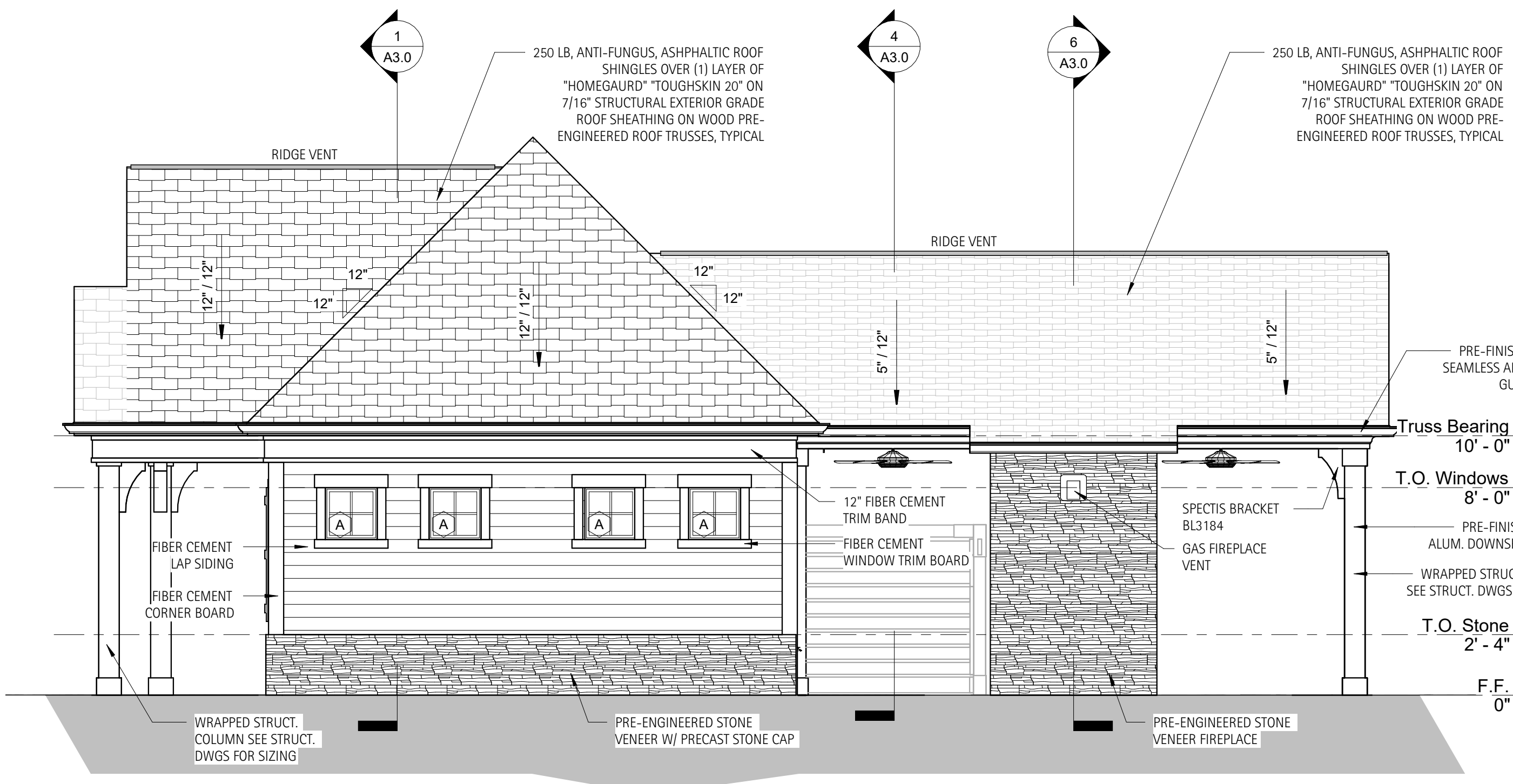
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A1.1
Ground Floor Plan
1/4" = 1'-0"

MATERIAL LEGEND

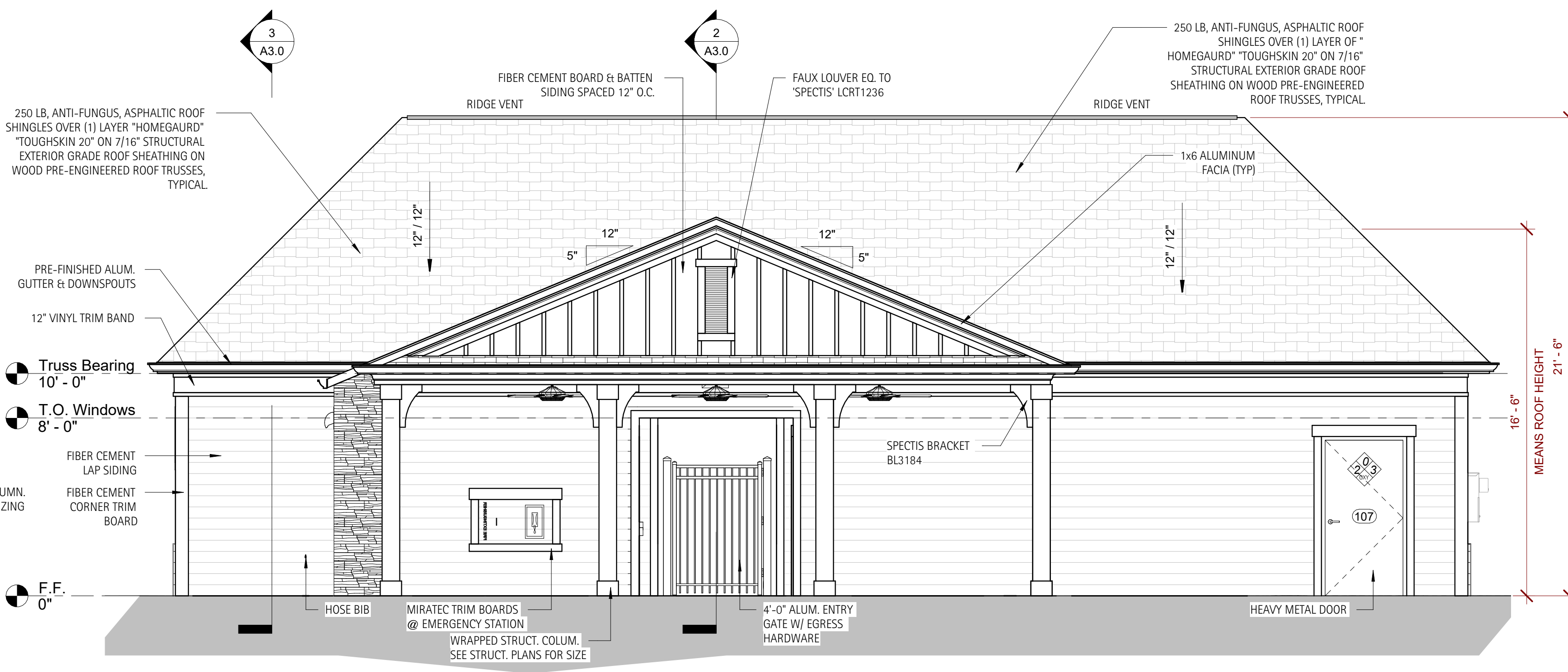
 ASPHALT ROOF SHINGLES - GAF/TIMBERLINE NATURAL COLOR: CHARCOAL GRAY	 PRE-ENGINEERED STONE VENEER - STYLE: PROVIA CUT: LEDGESTONE COLOR: SOUTHBRIAR	 PAINTED TRIM, COLUMN & DROP BEAM - COLOR: PURE WHITE (SW 7005)	 FIBER CEMENT LAP SIDING - JAMES HARDIE COLOR PLUS COLOR: AGED PEWTER	 FIBER CEMENT BOARD & BATTEN - JAMES HARDIE COLOR PLUS COLOR: PEARL GRAY	 SHUTTERS - COLOR: MID-AMERICAN TUXEDO GRAY	 EXTERIOR DOORS - COLOR: AFRICAN GRAY (SW 9162)	 METAL GATE & FENCE - COLOR: TRICORN BLACK (SW 6258)
 PRE-FINISHED SEAMLESS ALUM GUTTER - COLOR: WHITE	 WINDOW STYLE & COLOR - STYLE: 4 OVER 1 - COLOR: WHITE - MI 4300 SERIES OR SIMILAR	 FIBER CEMENT TRIM BOARD - COLOR: PURE WHITE (SW 7005)					



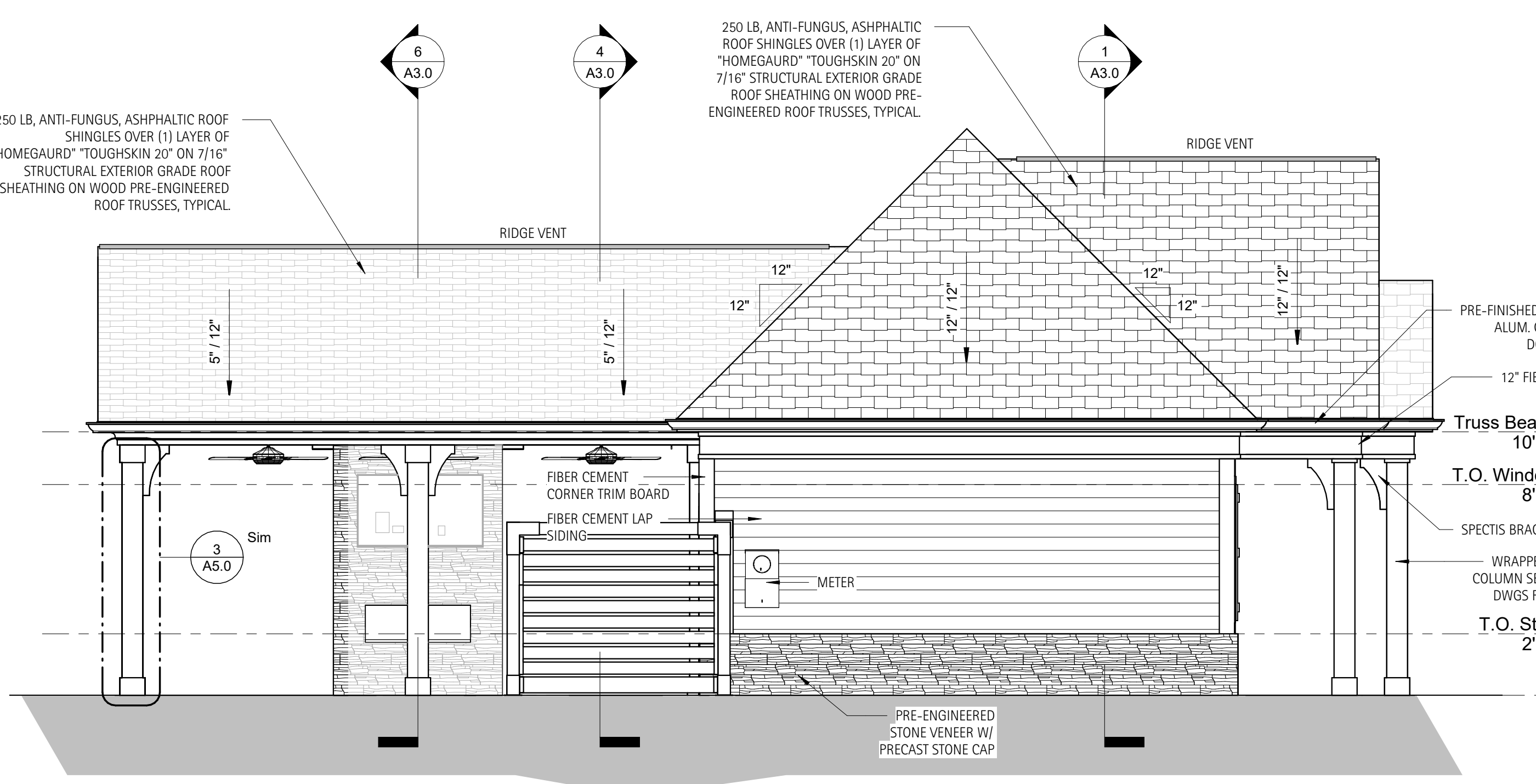
Perry Cox architect, p.a.
 124 Salem Towne Court, Apex, NC 27502
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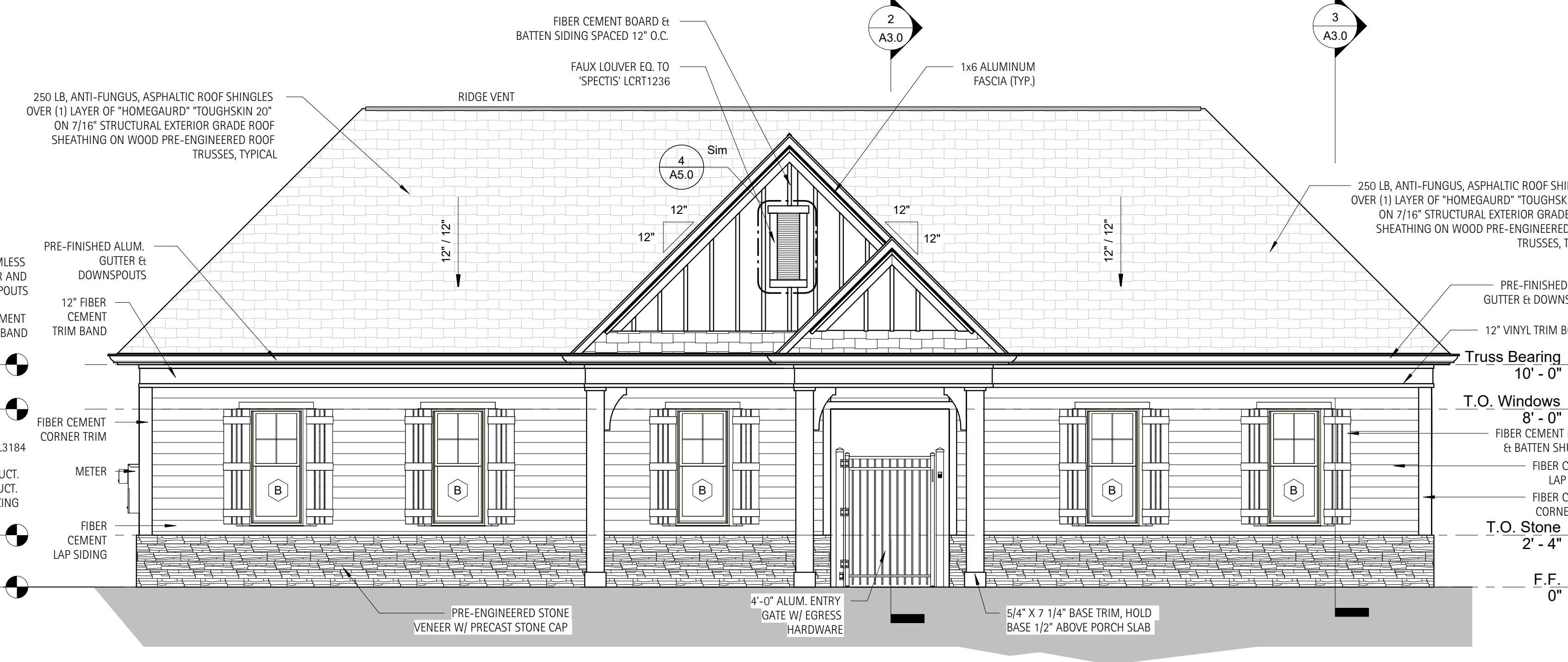
3 Left Side Elevation
 1/4" = 1'-0"



2 Rear Elevation
 1/4" = 1'-0"



4 Right Side Elevation
 1/4" = 1'-0"



1 Front Elevation
 1/4" = 1'-0"

DATE	
REVISION	
N.O.	

SHEET DISCRPTION
EXTERIOR ELEVATIONS

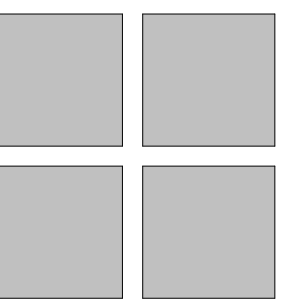
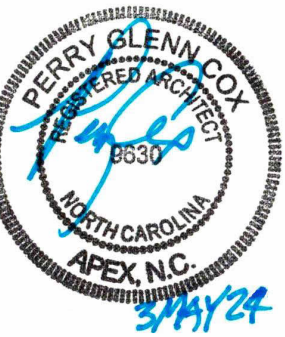
PROJECT #: 2024001
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ROLESVILLE AMENITY
 LENNAR HOMES
 AMENITY & POOL
 ROLESVILLE, NC

A2.0



D. CLUGSTON



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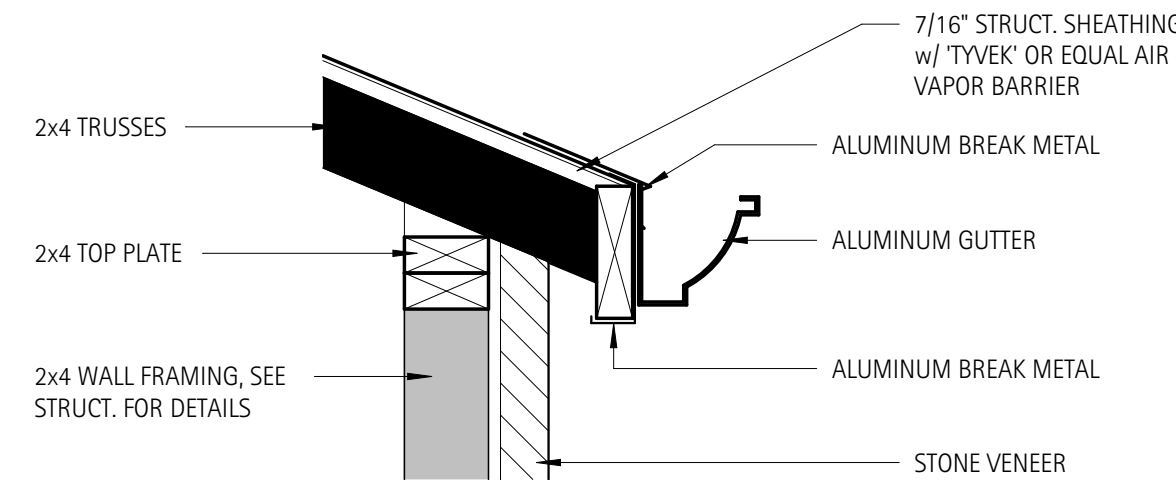
NO.	REVISION	DATE

SHEET DISCRPTION
**BUILDING
SECTIONS &
DETAILS**

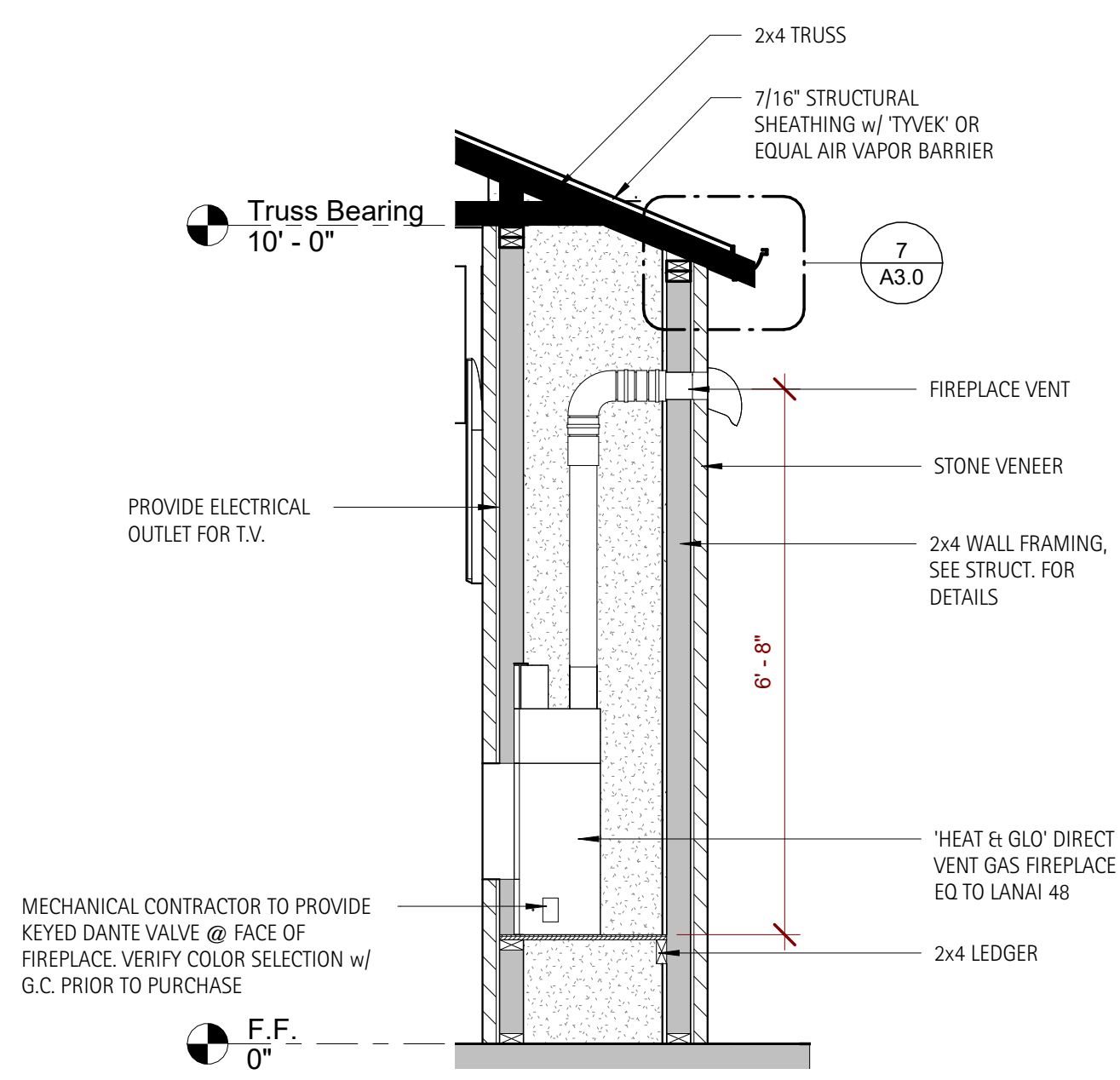
PROJECT #: 2024001
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ROLESVILLE AMENITY
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 AMENITY & POOL
 ROLESVILLE, NC

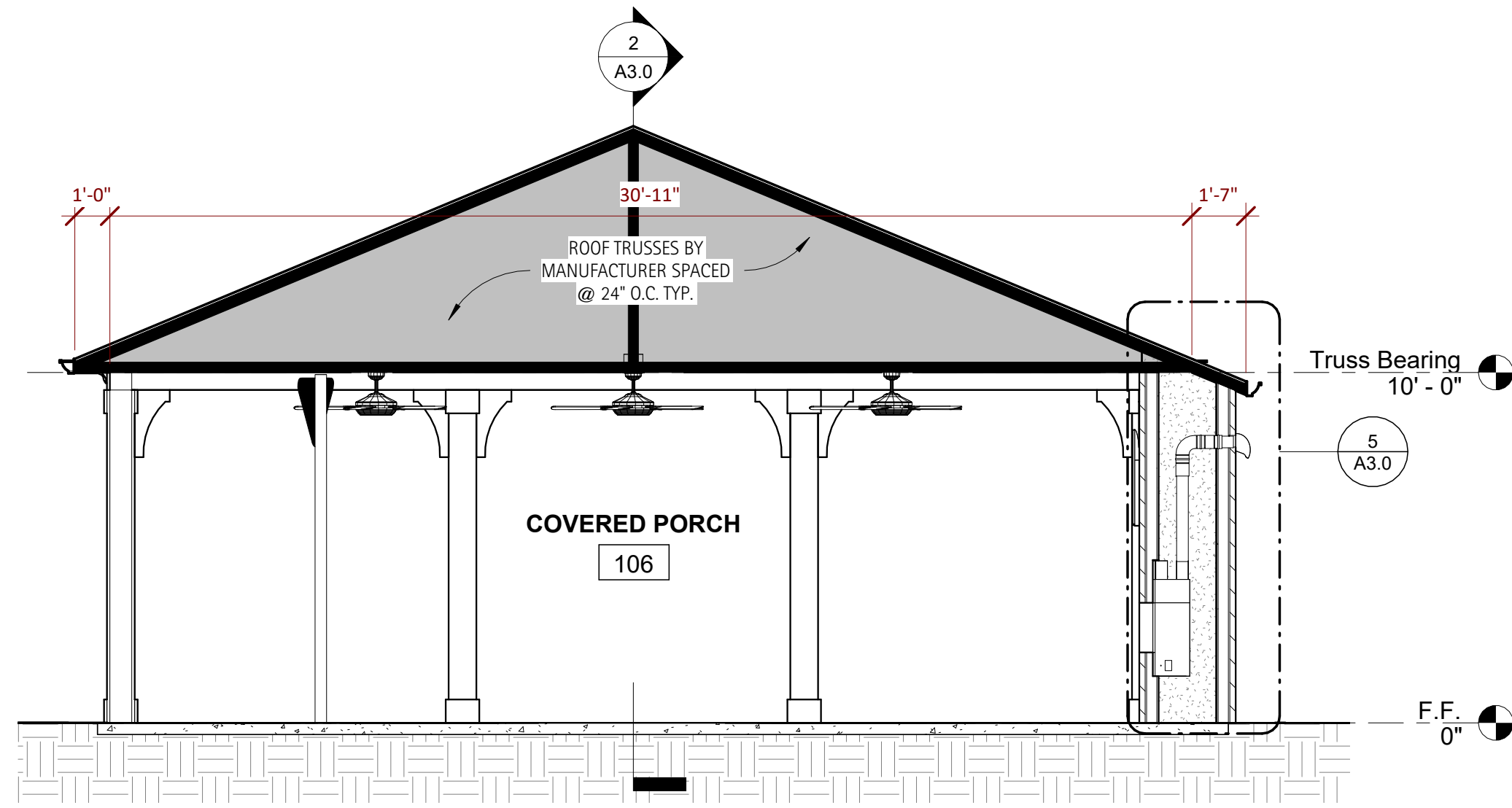
A3.0



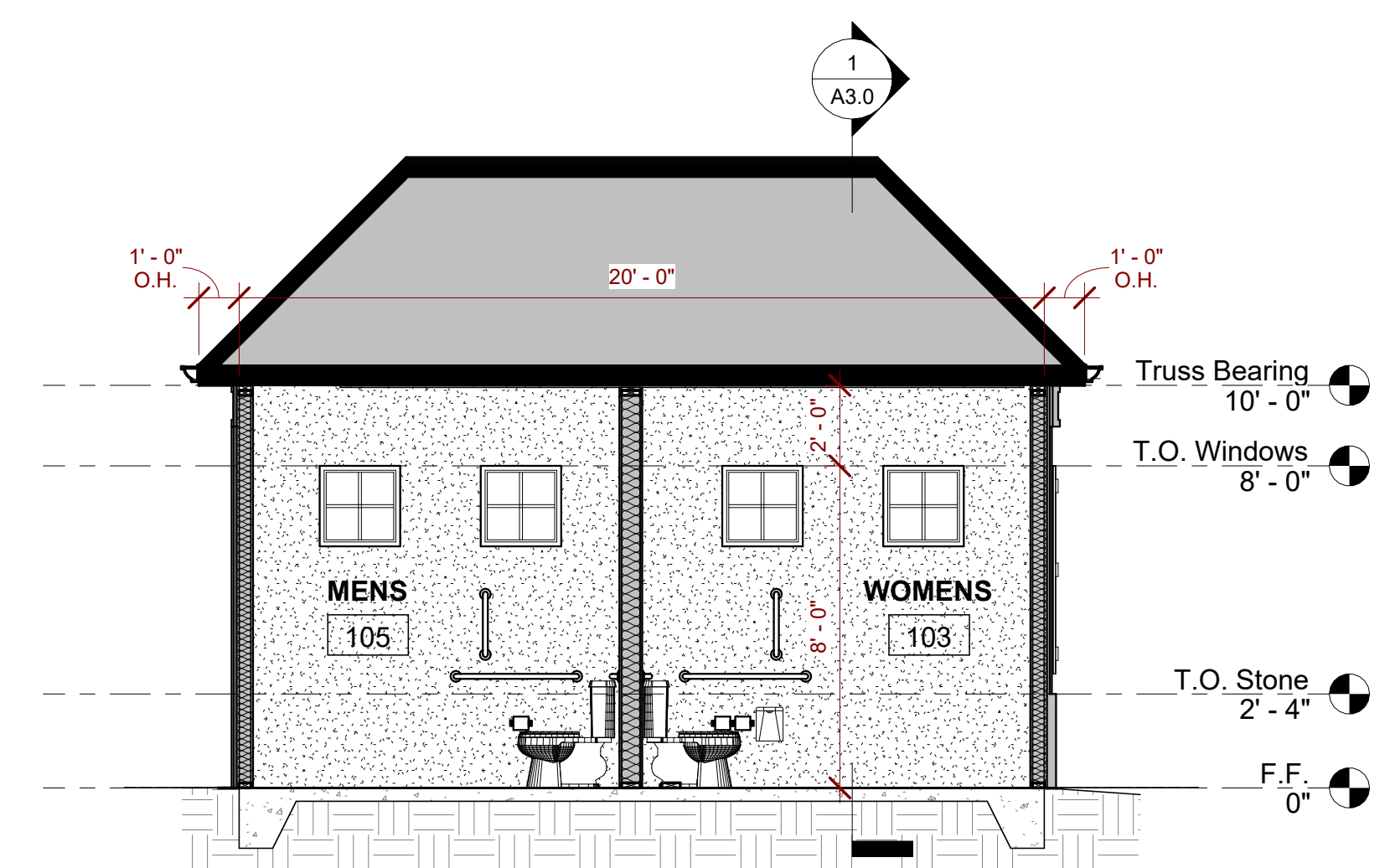
7 Section - Enlarged Fireplace Truss
 1 1/2" = 1'-0"



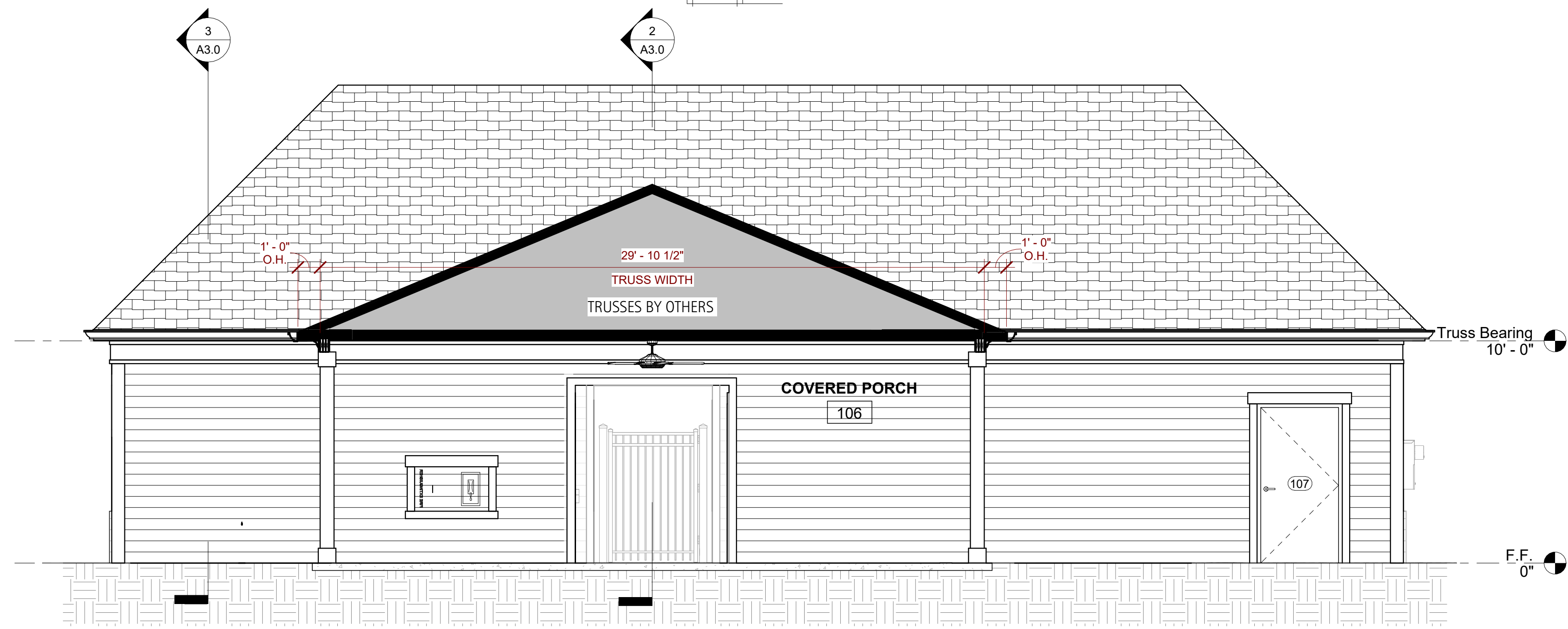
5 Section - Enlarged Fireplace
 1/2" = 1'-0"



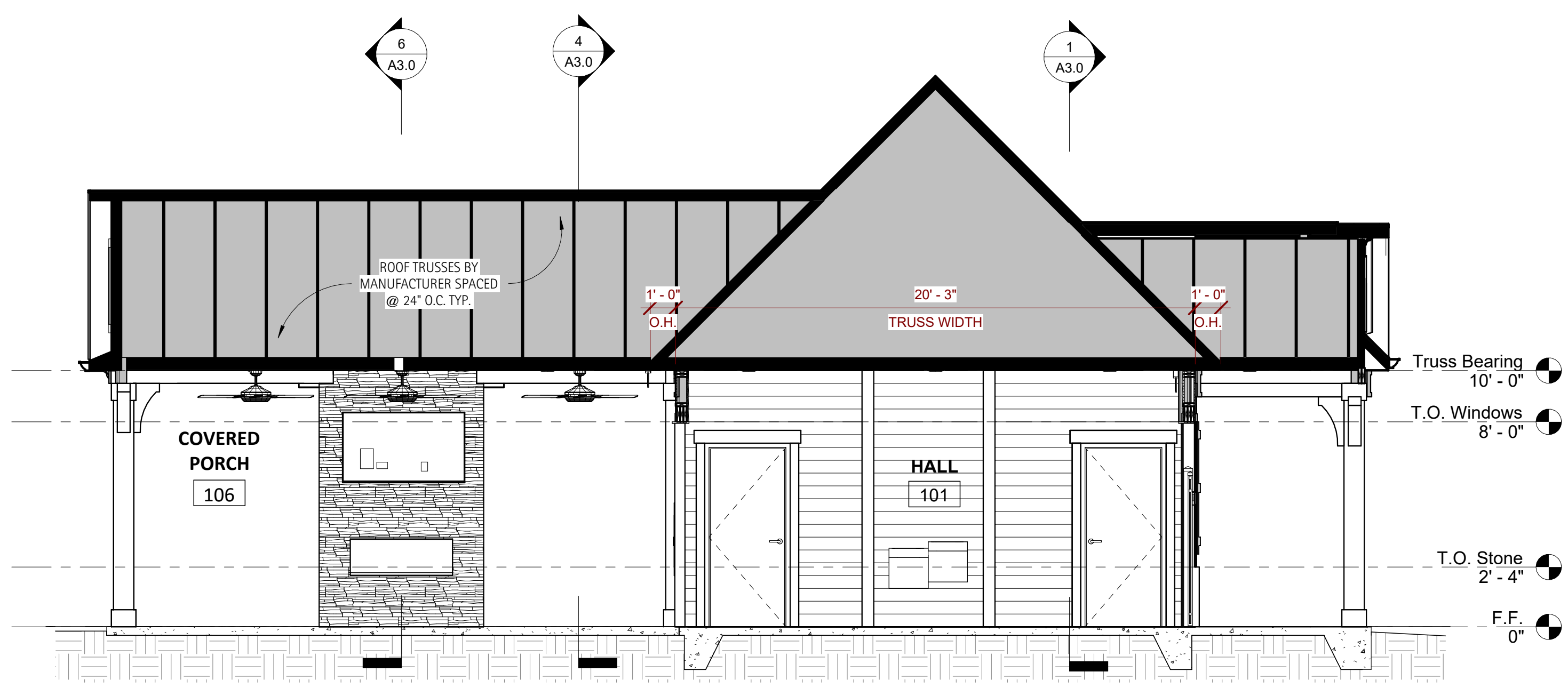
6 Section - Through Fireplace
 1/4" = 1'-0"



3 Section - Through Restrooms
 1/4" = 1'-0"



4 Section - Through Rear Porch
 1/4" = 1'-0"



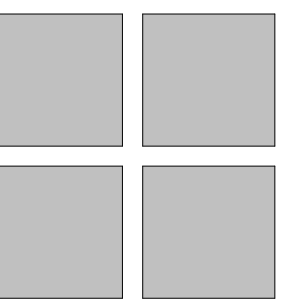
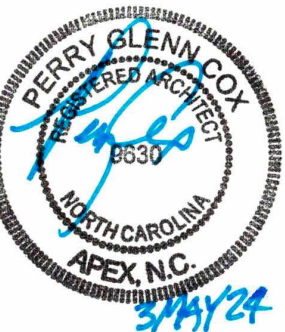
2 Section - Through Ridge
 1/4" = 1'-0"



1 Section - To Front
 1/4" = 1'-0"



D. CLUGSTON



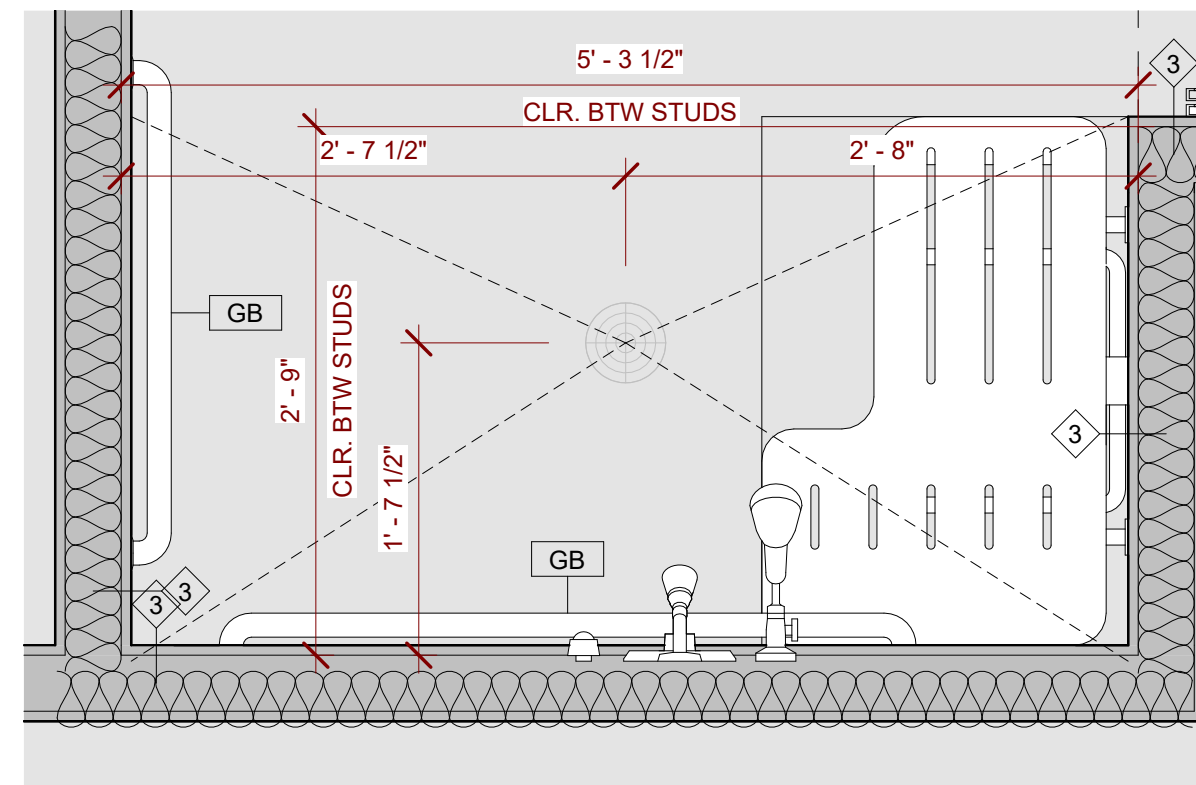
Perry Cox architect, p.a.

124 Salem Towne Court, Apex, NC 27502
P: 919.363.5411
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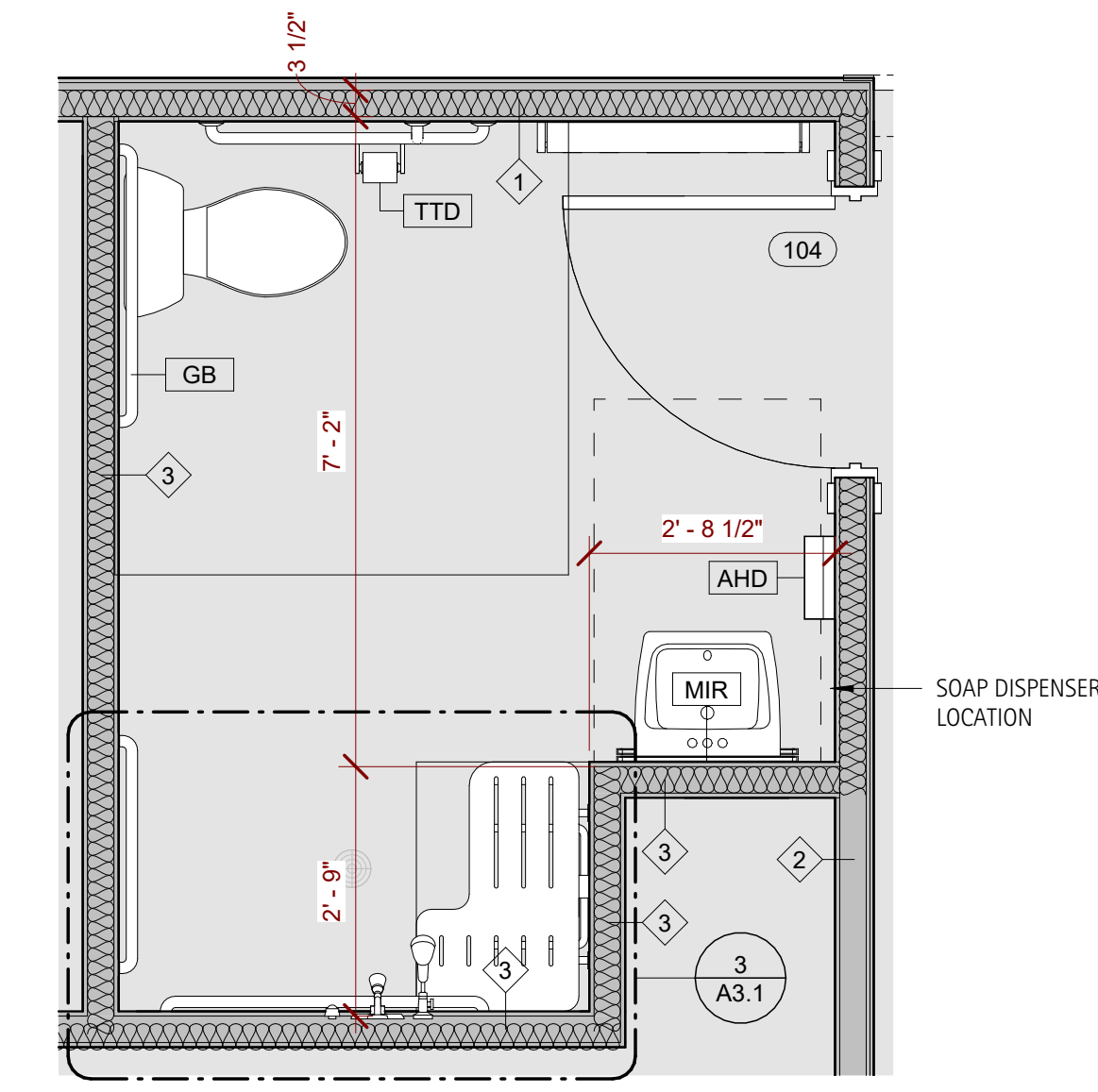
MARK	ITEM	MANUFACTURER	MODEL NUMBER
TTD	SURFACE MOUNTED DUAL ROLL TOILET TISSUE HOLDER	AMERICAN SPECIALTIES, INC	0715
GB	GRAB BAR - 1 1/2" DIA., S/S, PREENED GRIP, SNAP FLANGE 36", 42" & 18"	AMERICAN SPECIALTIES, INC	3800 TYPE-01
MIR	INTERLOK S.S. FRAMED MIRROR W/ SHATTER RESISTANT GLASS	AMERICAN SPECIALTIES, INC (FAMILY) AMERICAN SPECIALTIES, INC (M & W)	781-024360 (24x36) 780-054360 (54x36)
CH	SURFACE MOUNTED COAT HOOK	AMERICAN SPECIALTIES, INC	0714
AHD	SURFACE MOUNTED AUTOMATIC HAND DRYER	AMERICAN SPECIALTIES, INC	0199-1-93
SD	SURFACE MOUNTED S.S. AUTOMATIC LIQUID/GEL SOAP DISPENSER - BATTERY POWERED	AMERICAN SPECIALTIES, INC	0360
SN	SURFACE MOUNTED SANITARY NAPKIN DISPOSAL (WOMEN'S TOILET ONLY)	AMERICAN SPECIALTIES, INC	0852
CS	SURFACE MOUNTED BABY CHANGING STATION	AMERICAN SPECIALTIES, INC	9012
TP	TOILET PARTITION - FLOOR SUPPORTED W/ HEADRAIL, SOLID PLASTIC (HDPE)	ASI GLOBAL PARTITIONS (HDPE)	SERIES 40-5

NOTE SEE SHEET G0.4 FOR TYPICAL MOUNTING HEIGHTS & CLEARANCES

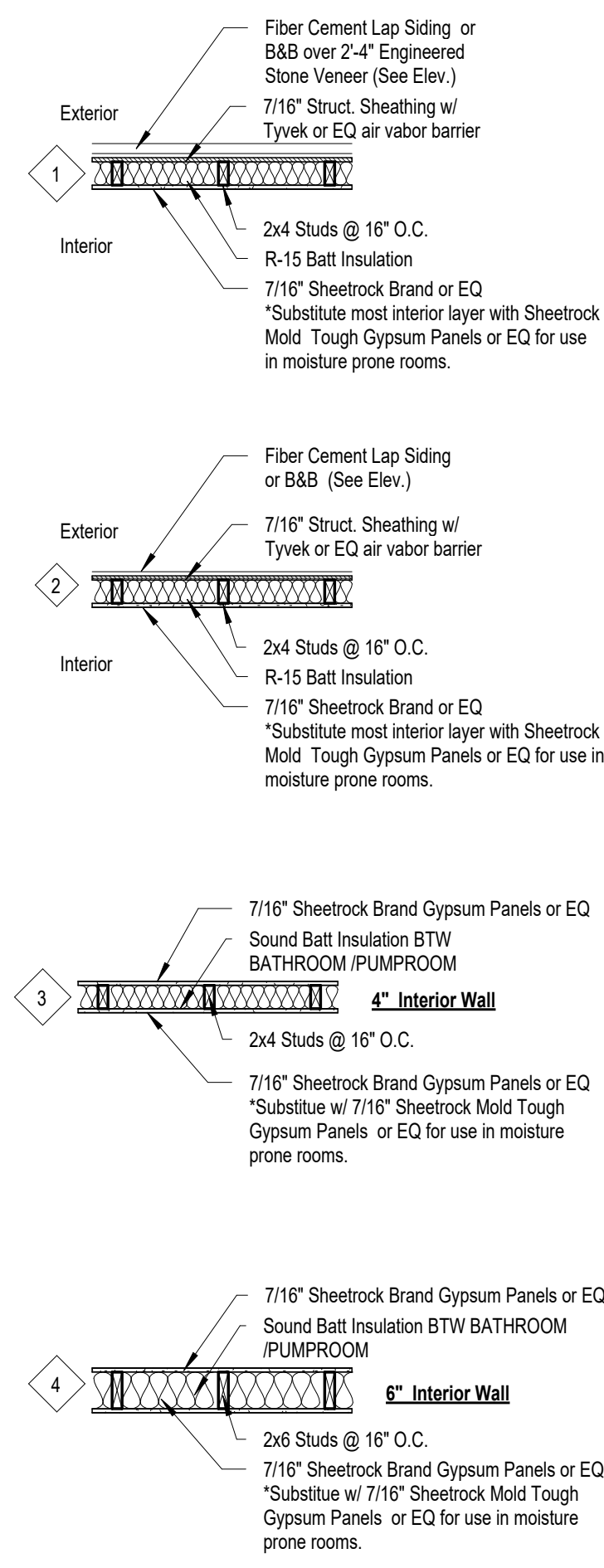
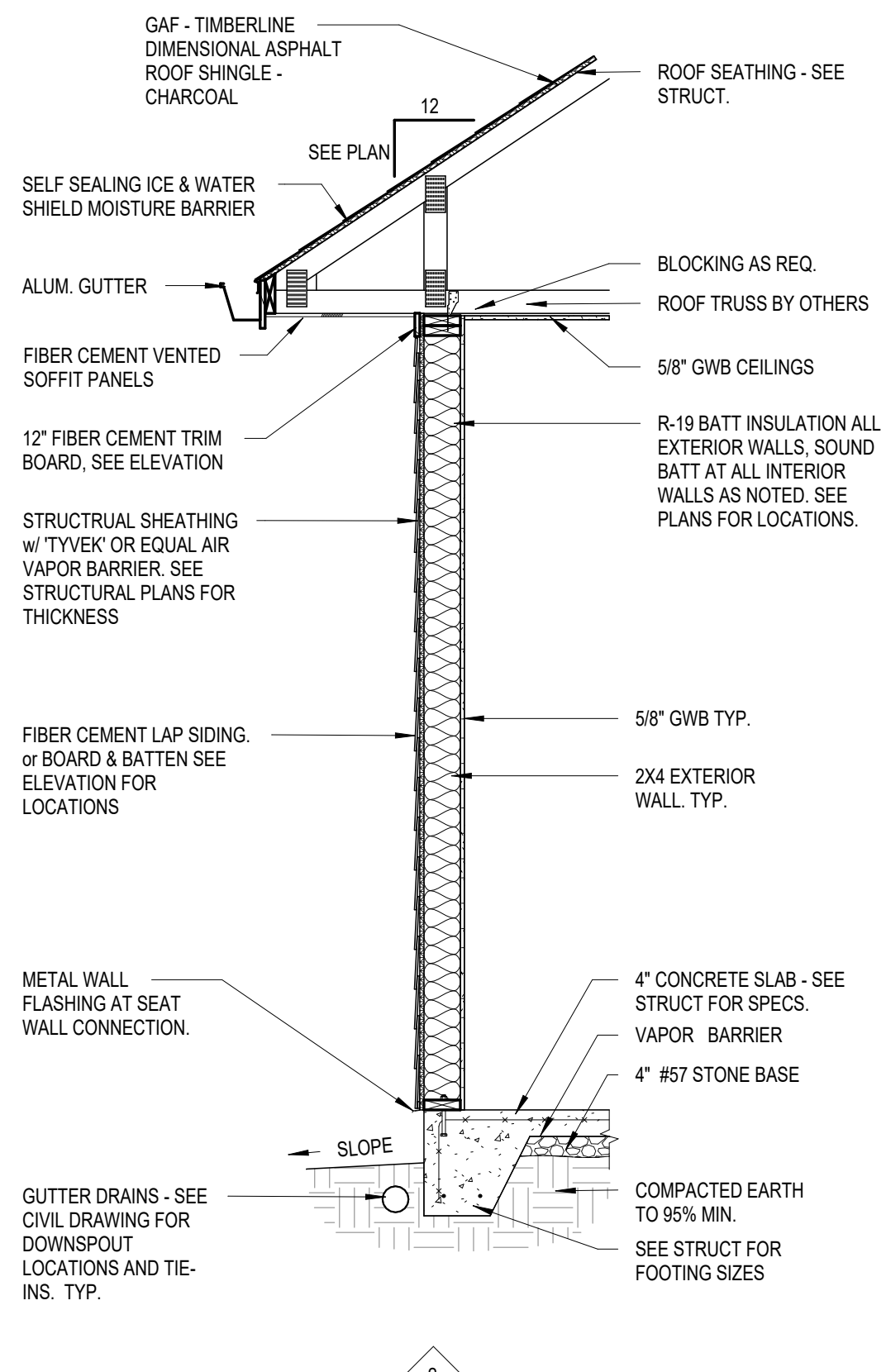
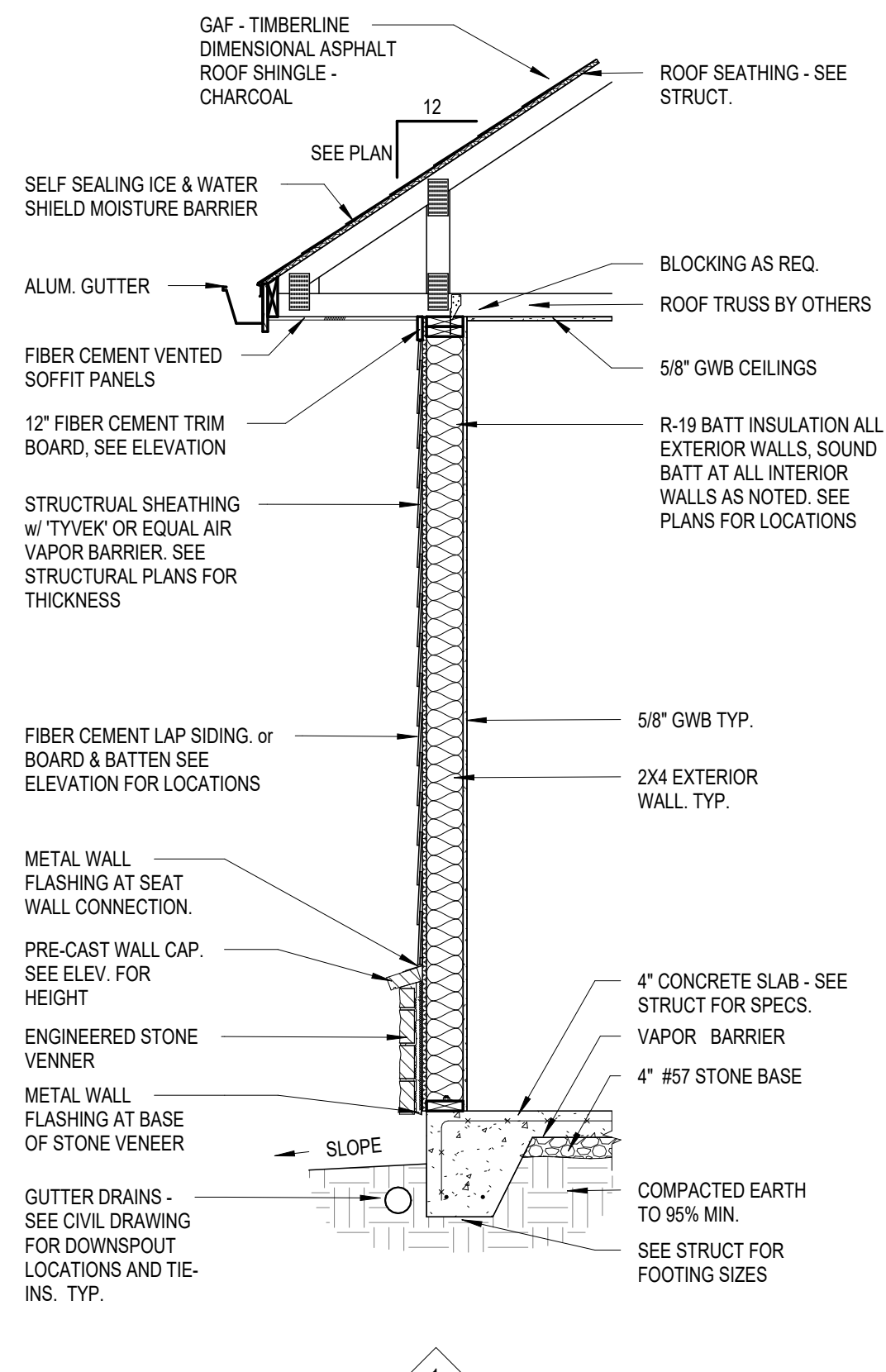
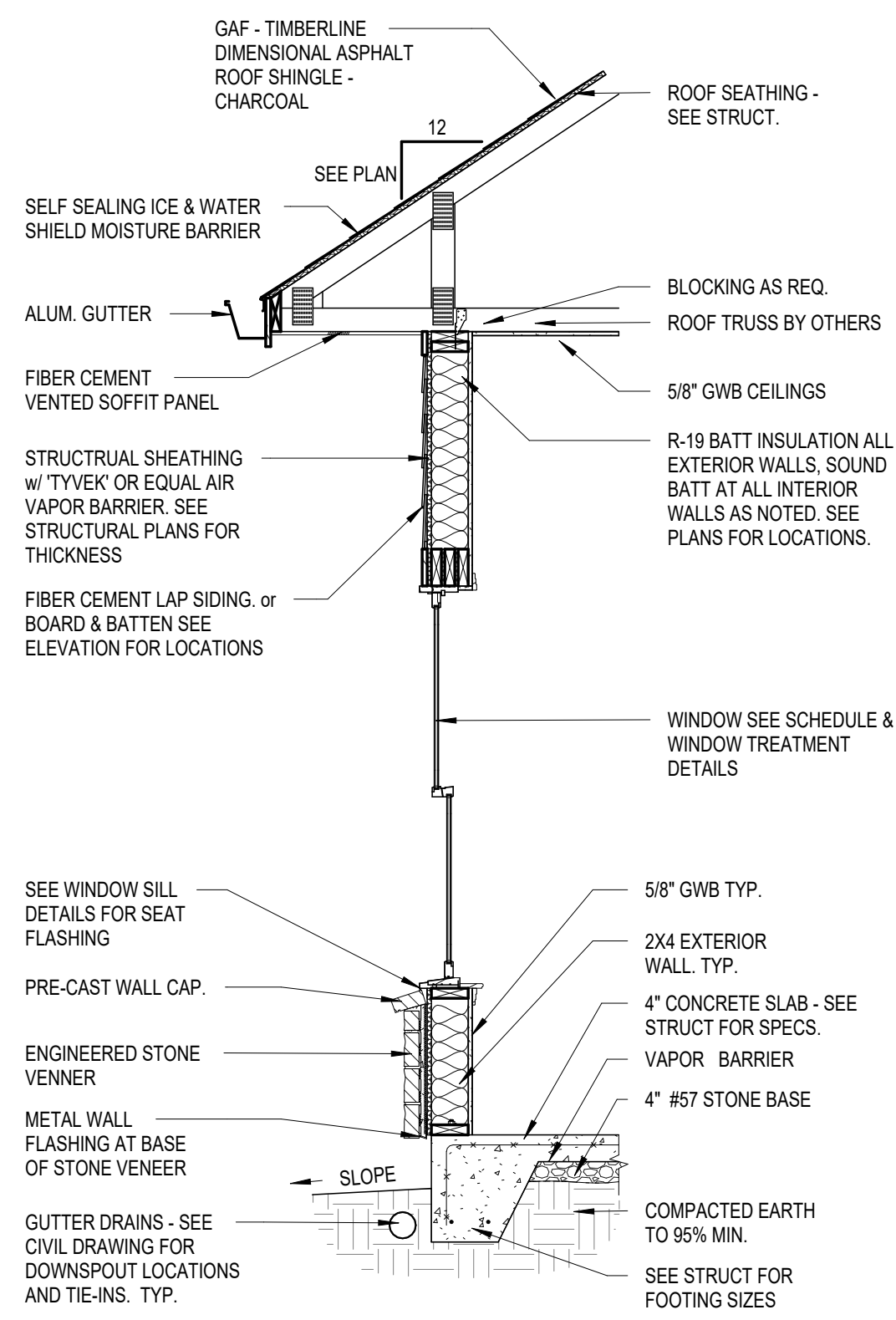
NOTES:
HORIZONTAL GRAB BARS SHALL BE PROVIDED ACROSS THE CONTROL WALL AND ON THE BACK WALL TO A POINT OF 18" FROM CONTROL WALL.
VERTICAL GRAB BAR OF 18" MIN. LENGTH SHALL BE PROVIDED ON THE CONTROL END WALL 3" MIN. & 6" MAX. ABOVE THE HORIZONTAL GRAB BAR, AND 4" MAX. INWARD FROM THE FRONT EDGE OF SHOWER.
 ALL GRAB BARS SHALL COMPLY WITH SECTION 609 OF THE ICC A117.1-2009



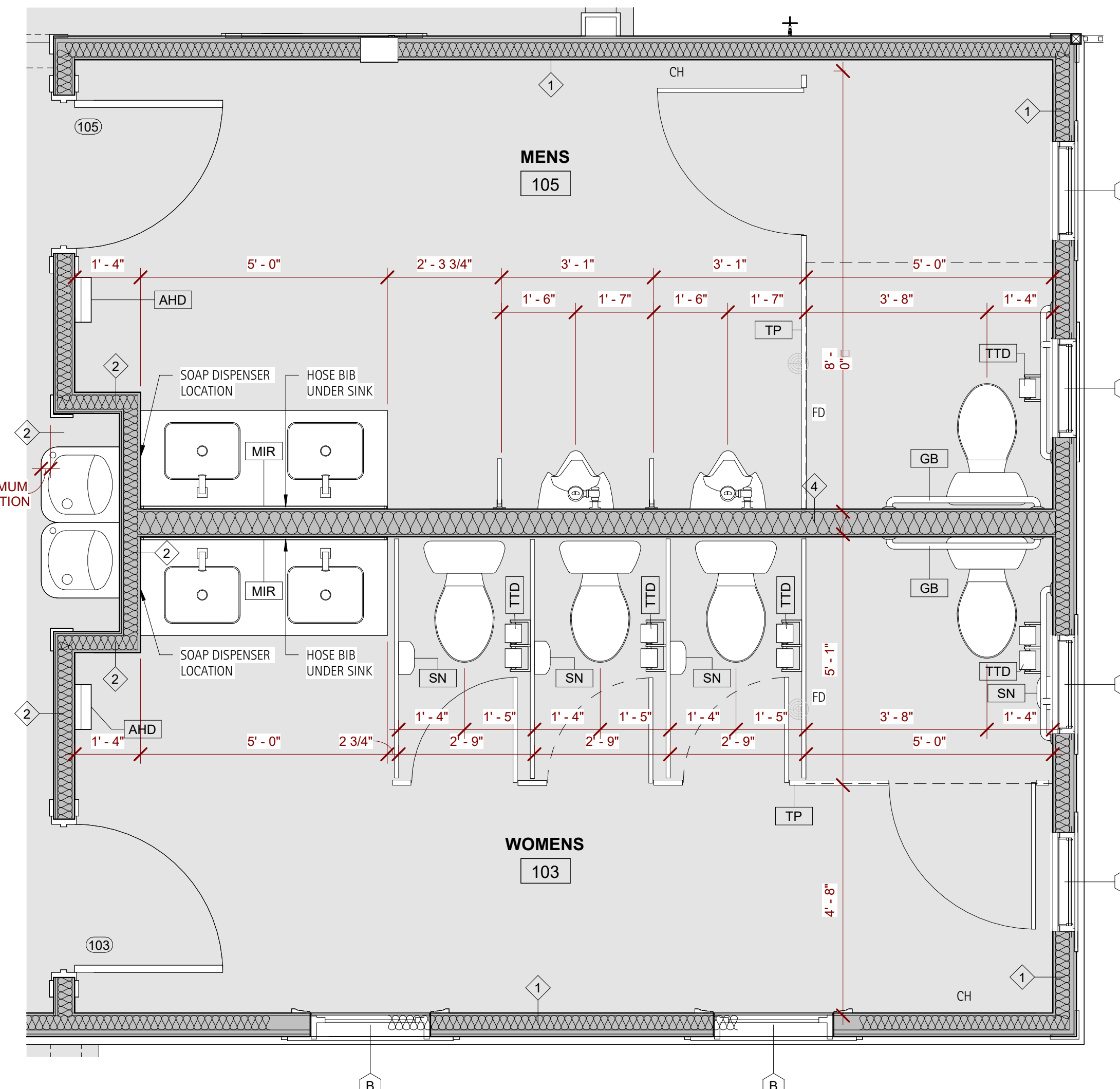
Sanitary Shower
1" = 1'-0"



Enlarged Family RR Plan
1/2" = 1'-0"



Wall Type Details



Enlarged Restroom Plan
1/2" = 1'-0"

Wall Section Detail - Slab/Truss
1/2" = 1'-0"

NO.	REVISION	DATE

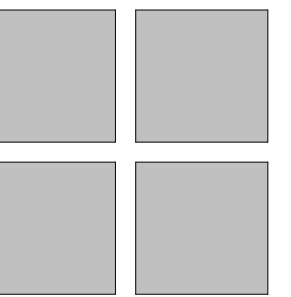
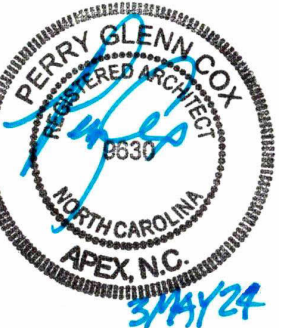
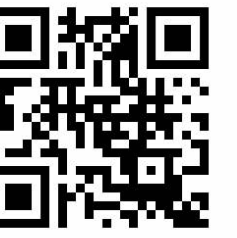
SHEET DISCRPTION
ENLARGED PLANS & WALL SECTIONS
 PROJECT #: 2024001
 DATE ISSUED: 05/03/2024
 DRAWING BY: JVD
 CHECKED BY: DSC/PGC

ROLESVILLE AMENITY
 LENNAR HOMES
 AMENITY & POOL
 ROLESVILLE, NC

A3.1



D. CLUGSTON



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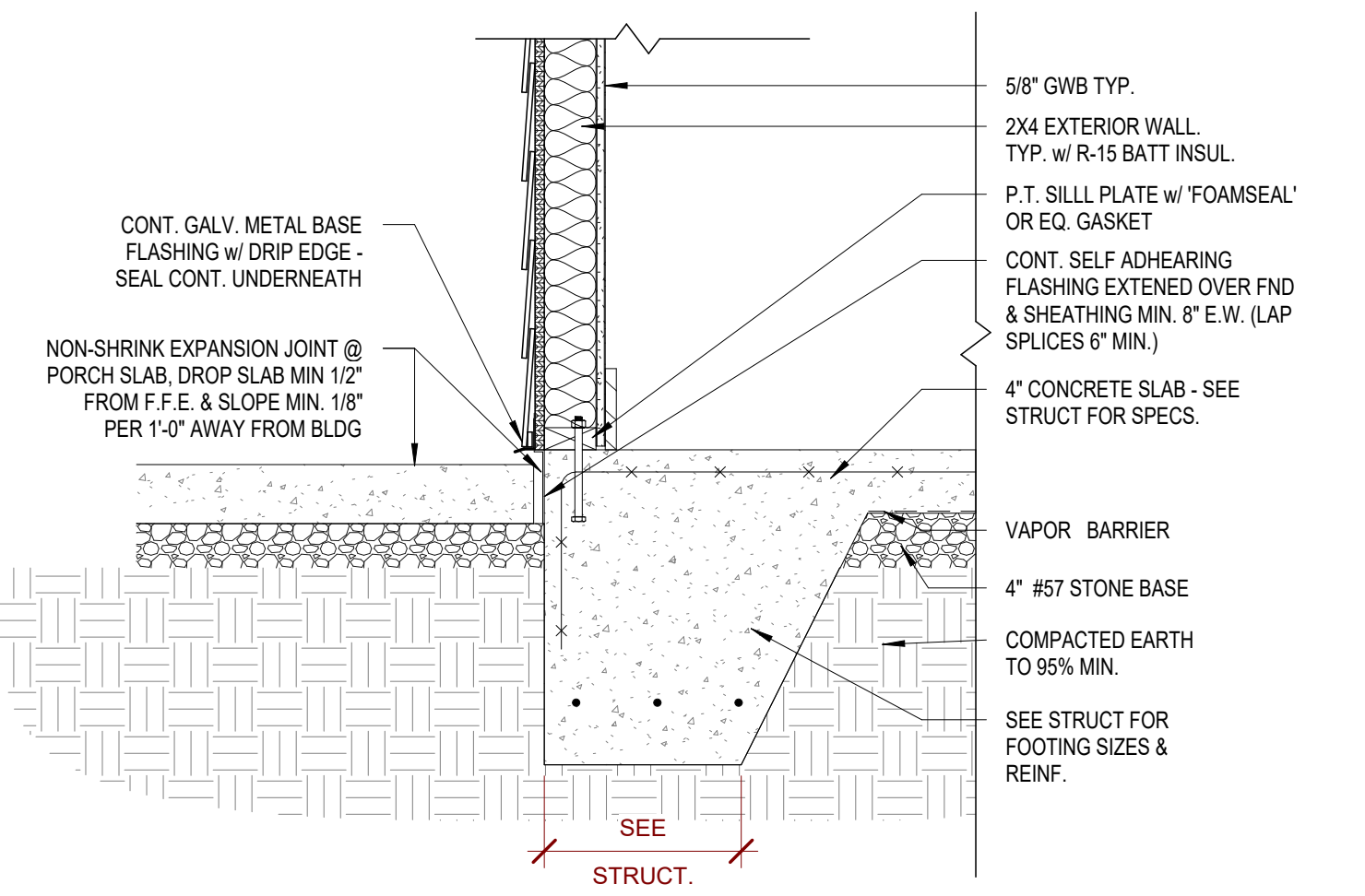
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SHEET DISCRPTION GENERAL DETAILS

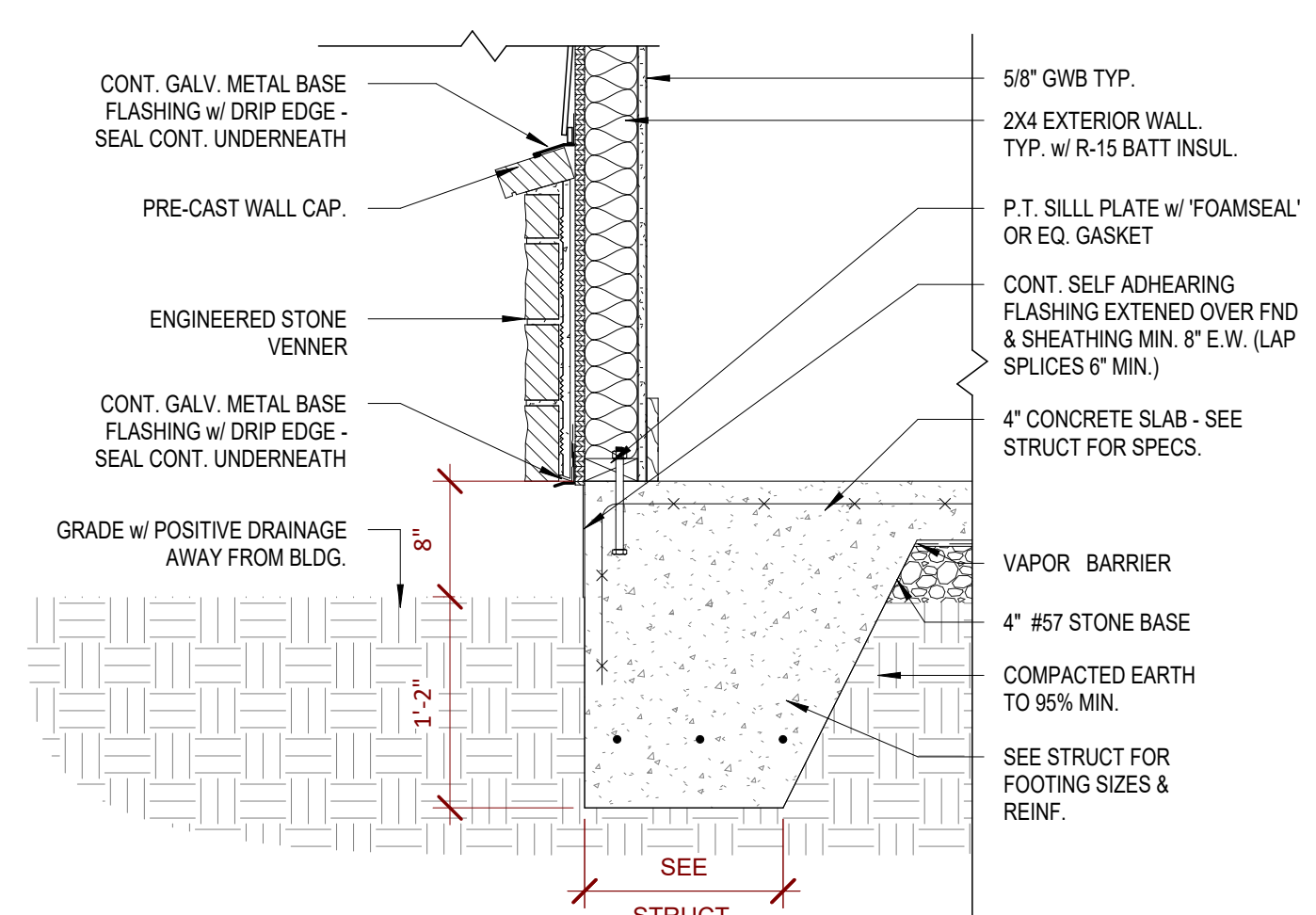
PROJECT #: 2024001 DATE ISSUED: 05/03/2024 DRAWING BY: JVD CHECKED BY: DSC/PGC

ROLESVILLE AMENITY LENNAR HOMES AMENITY & POOL ROLESVILLE, NC

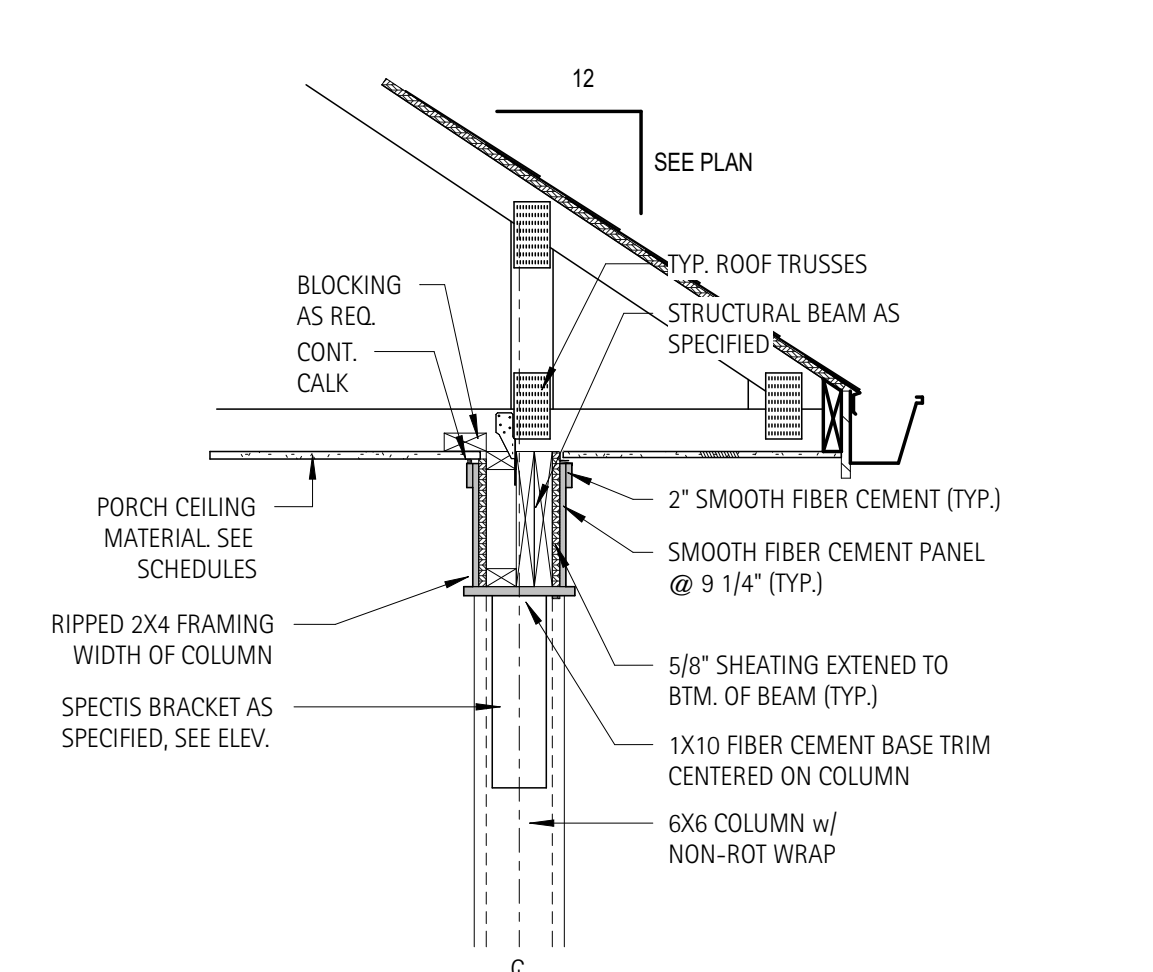
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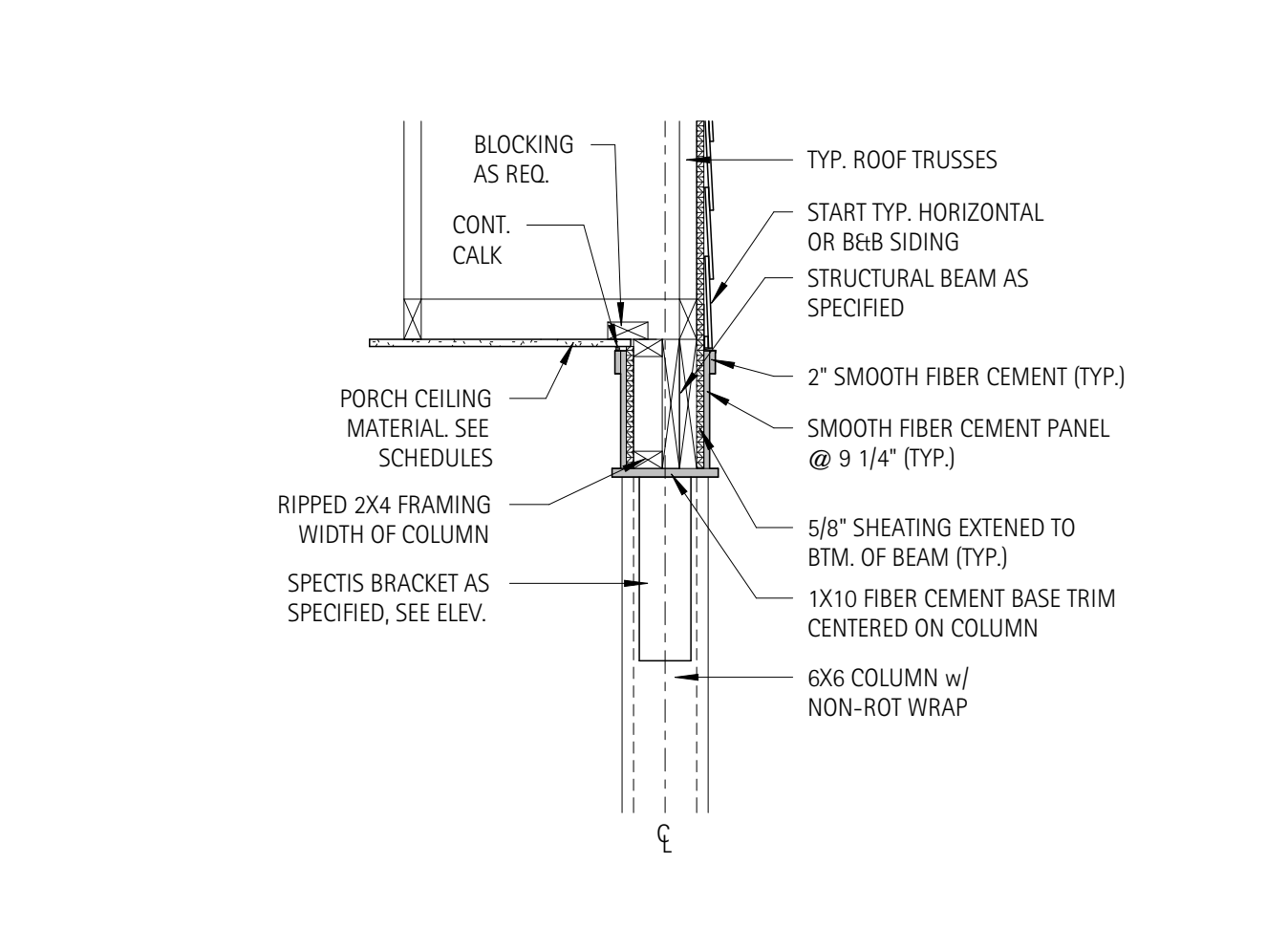
10 A4.0 Detail - Typ Turn Down @ Sidewalks 1" = 1'-0"



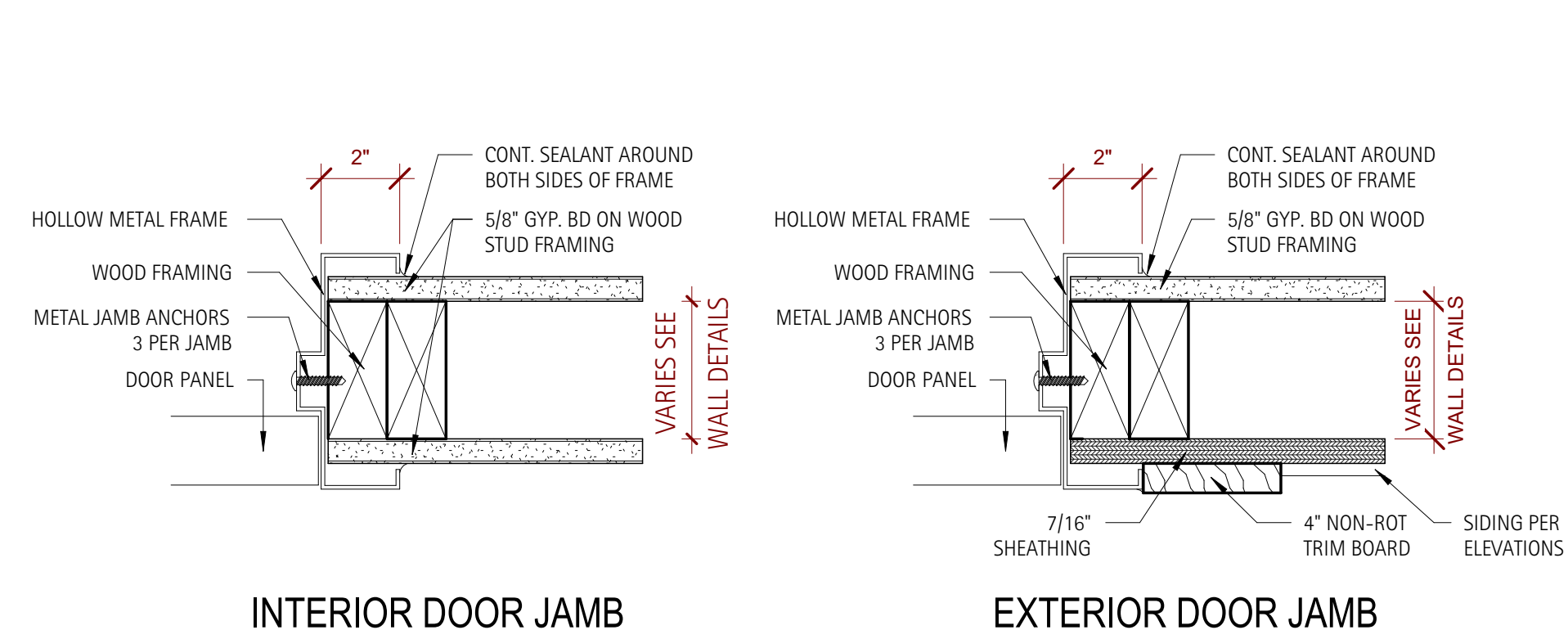
6 A4.0 Detail - Turn Down Slab @ Grade 1" = 1'-0"



3 A4.0 Detail - Typ Trim Band @ Soffits 3/4" = 1'-0"

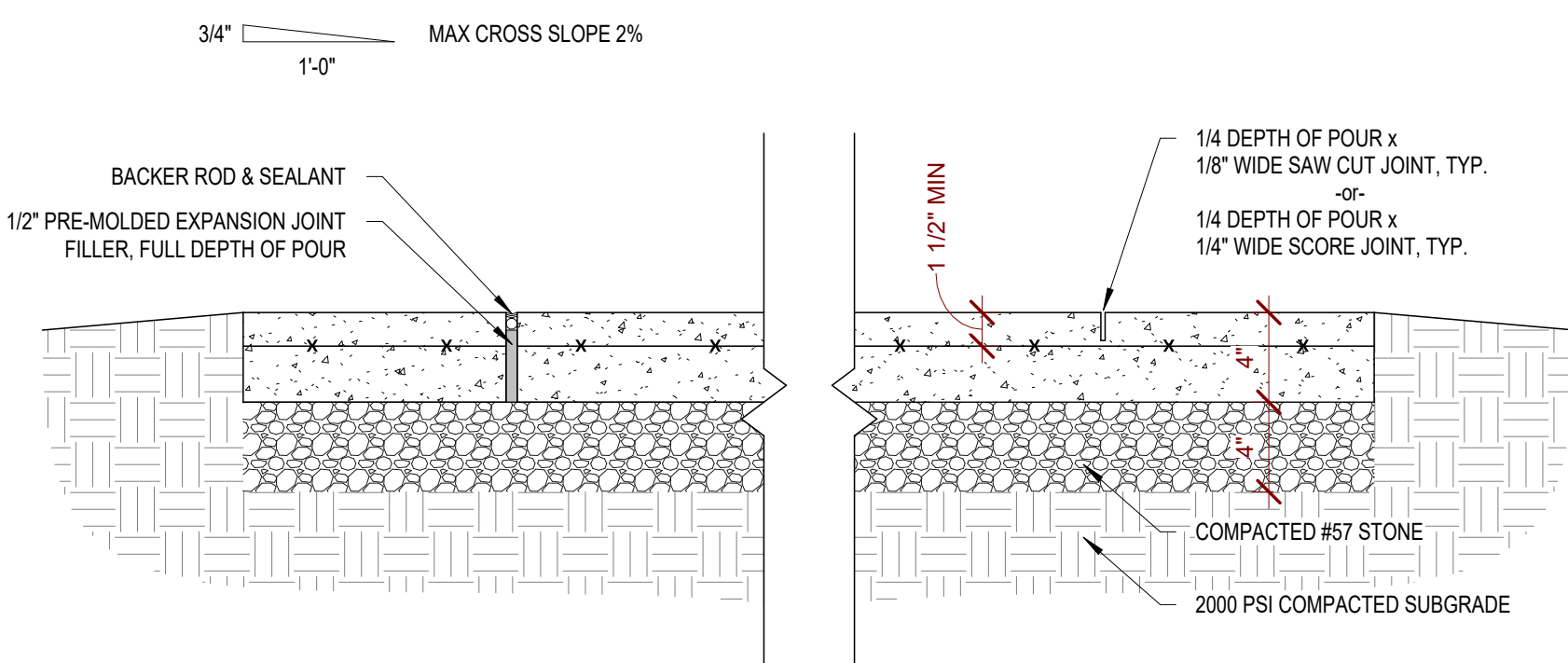


2 A4.0 Detail - Typ Trim Band @ Gable 3/4" = 1'-0"



INTERIOR DOOR JAMB

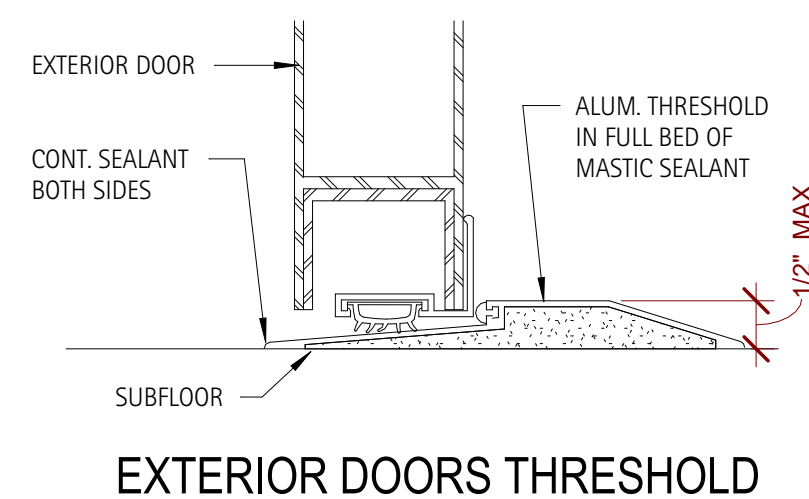
EXTERIOR DOOR JAMB



- NOTES: 1. ALL JOINTS TO BE CUT W/ WET WALK BEHIND SAW TO ENSURE ALL CUTS ARE PERPENDICULAR W/ FACE OF CONCRETE. 2. MAXIMUM CONTROL JOINT SPACING SHALL BE 10 FT. IN EACH DIRECTION UNLESS SHOWN OTHERWISE ON PLAN. SEE STRUCT. 3. PROVIDE EXPANSION JOINT WHERE SLABS ARE POURED AGAINST VERTICAL SURFACES AND/OR DIFFERENT PAVING MATERIALS AND AS SPECIFIED ON PLANS OR 25'-0" MAX O.C.

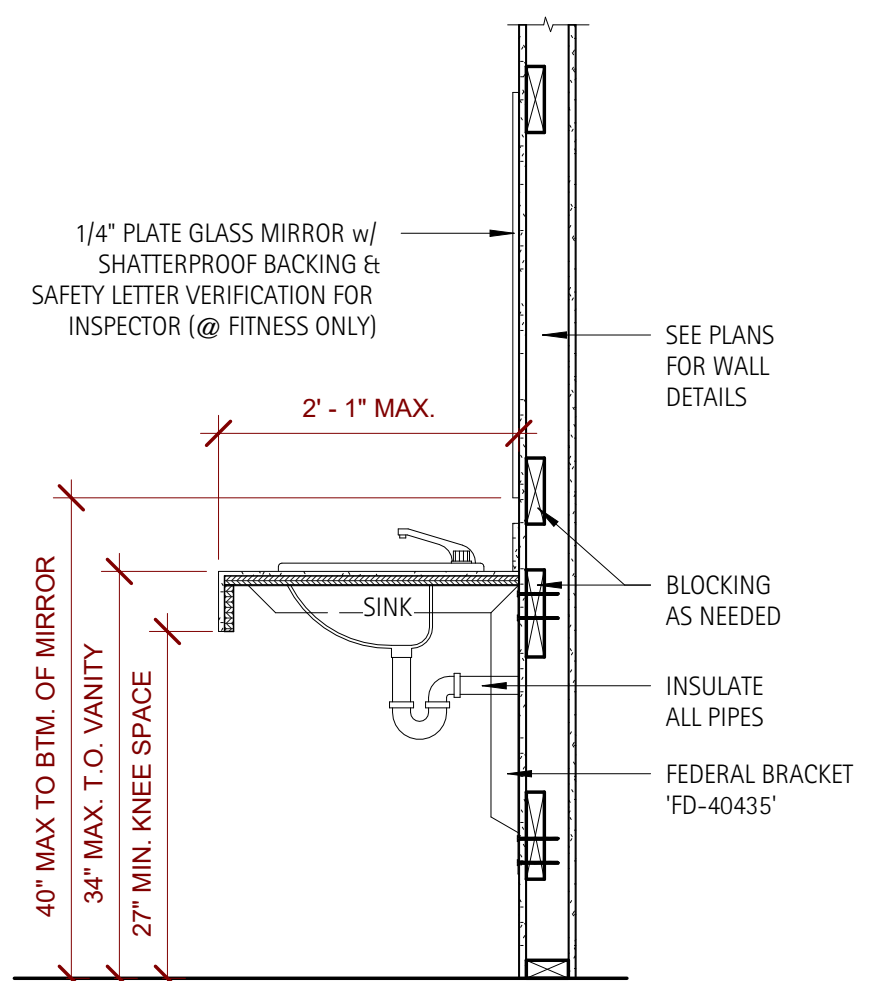
5 A4.0 Detail - Typ. Sawcut Control Joint 1 1/2" = 1'-0"

9 A4.0 Detail - Typ. Door Jambs 3" = 1'-0"

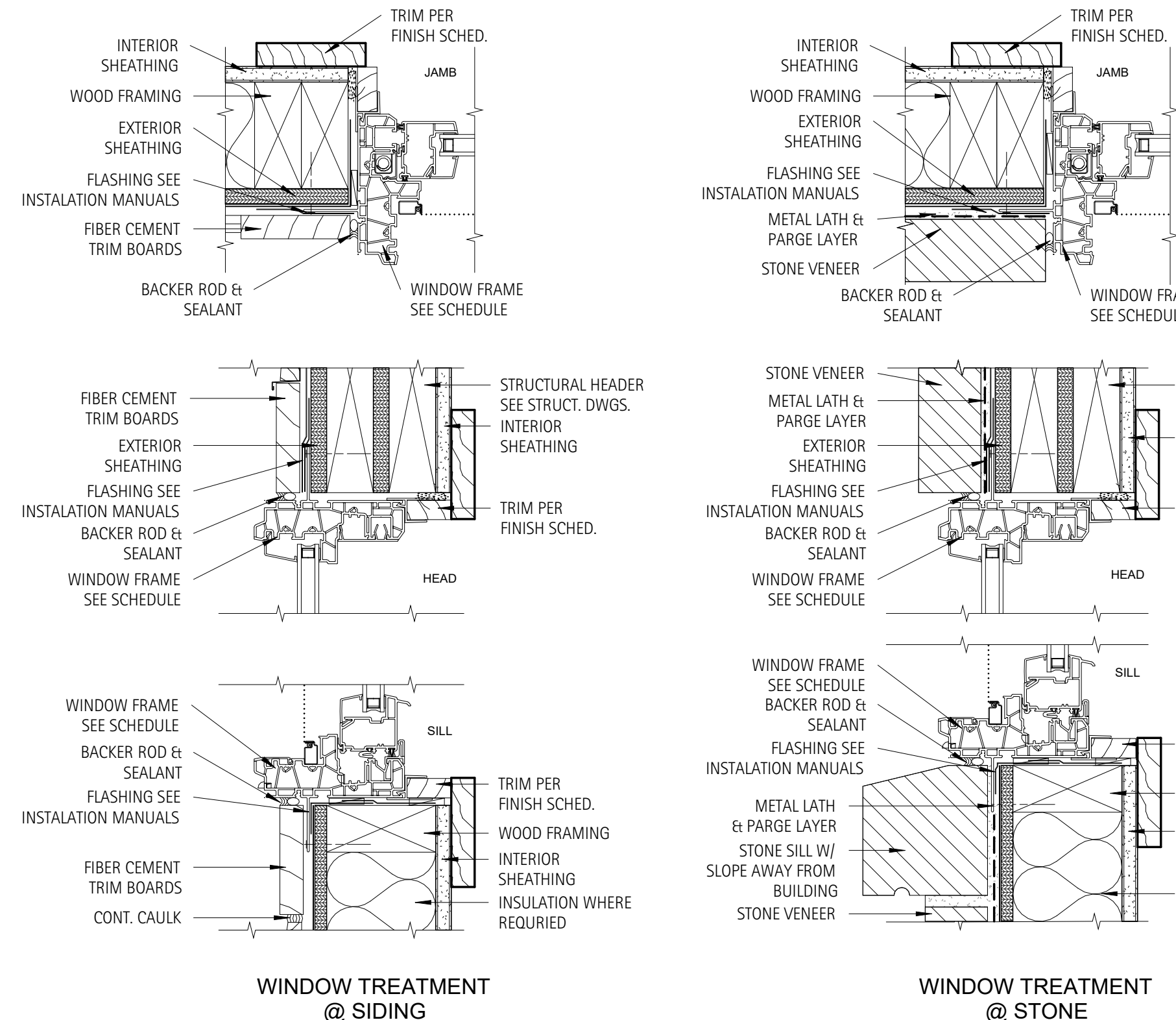


EXTERIOR DOORS THRESHOLD

8 A4.0 Detail - Typ. Threshold 6" = 1'-0"

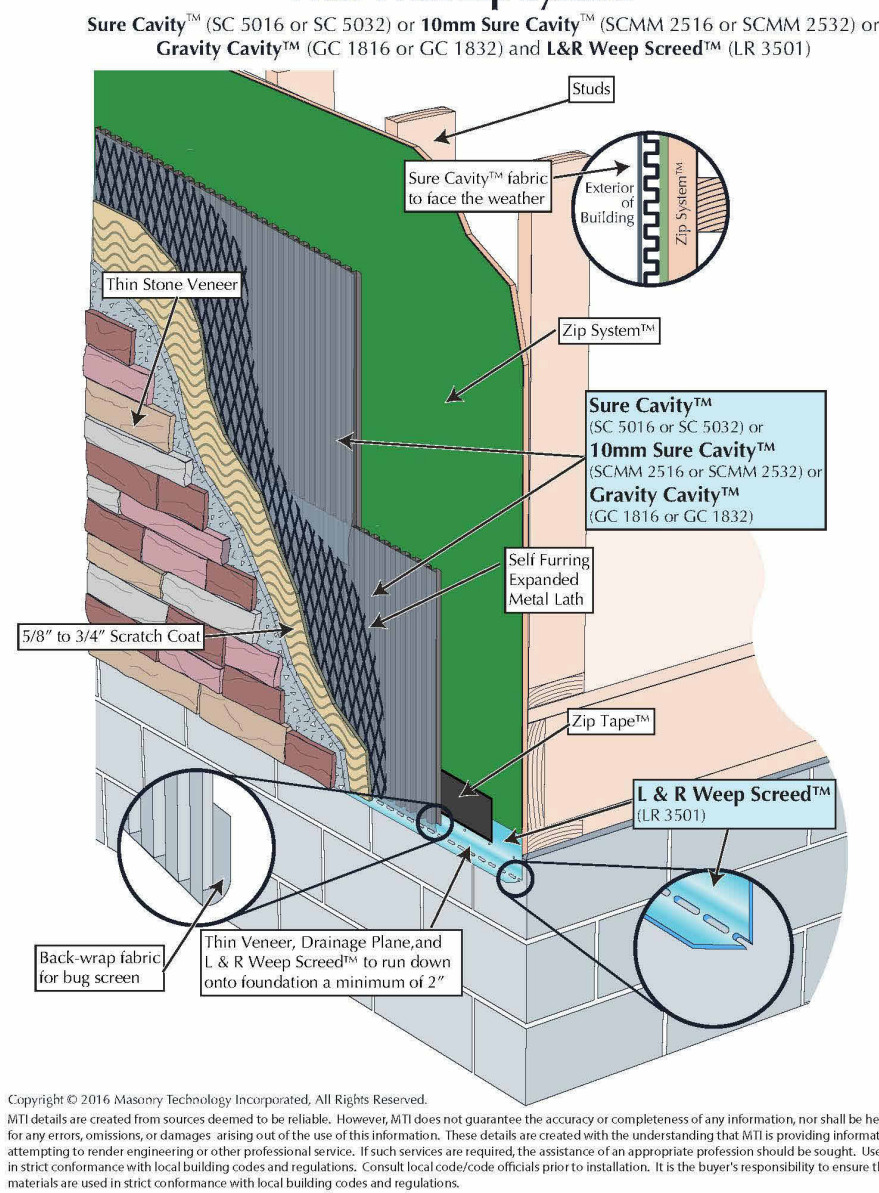


7 A4.0 Detail - Typ. Vanity Section 3/4" = 1'-0"



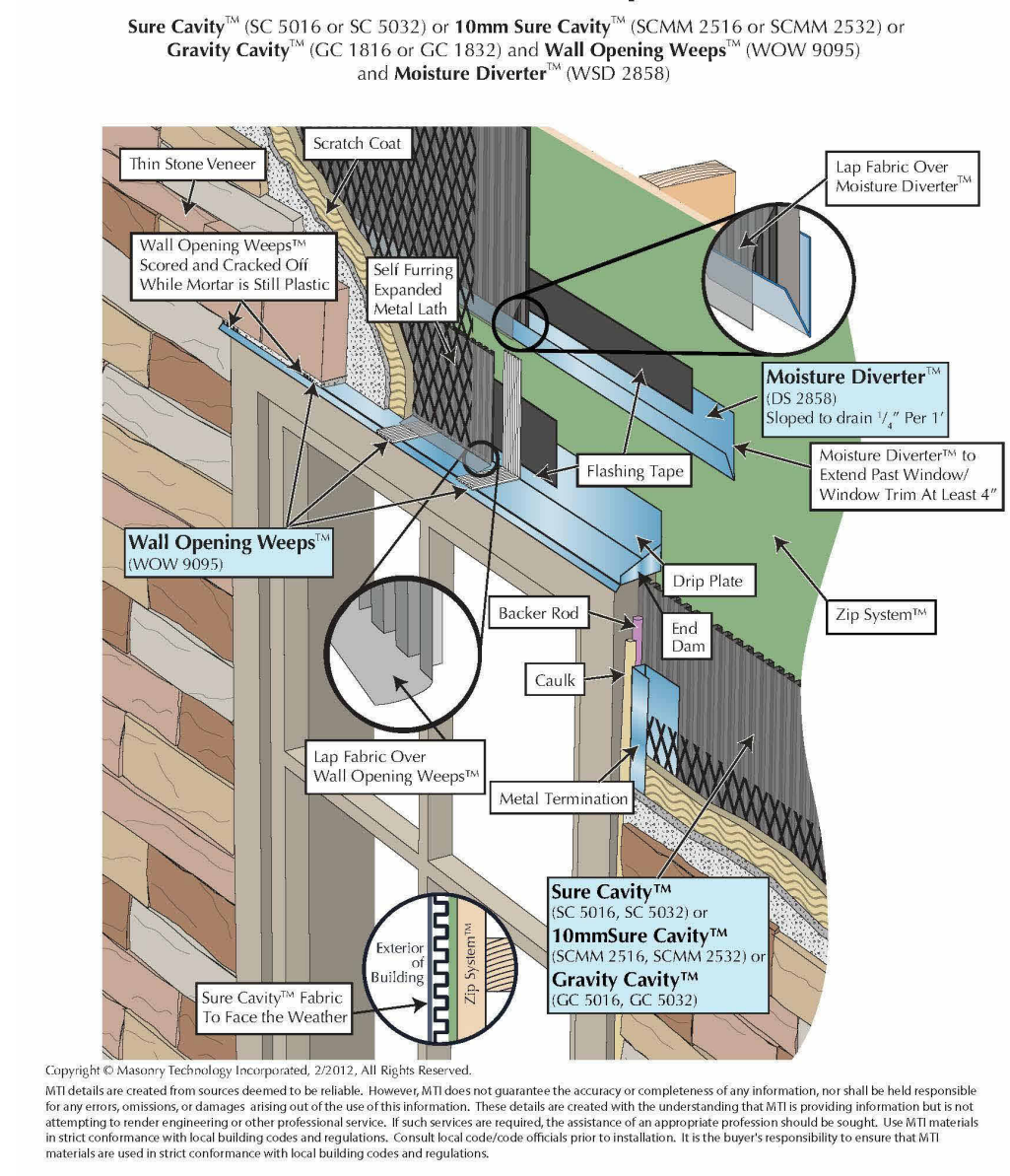
4 A4.0 Detail - Window Treatments 3" = 1'-0"

L&R Weep Screenshot at Bottom of Thin Stone Veneer Wall With Zip System™



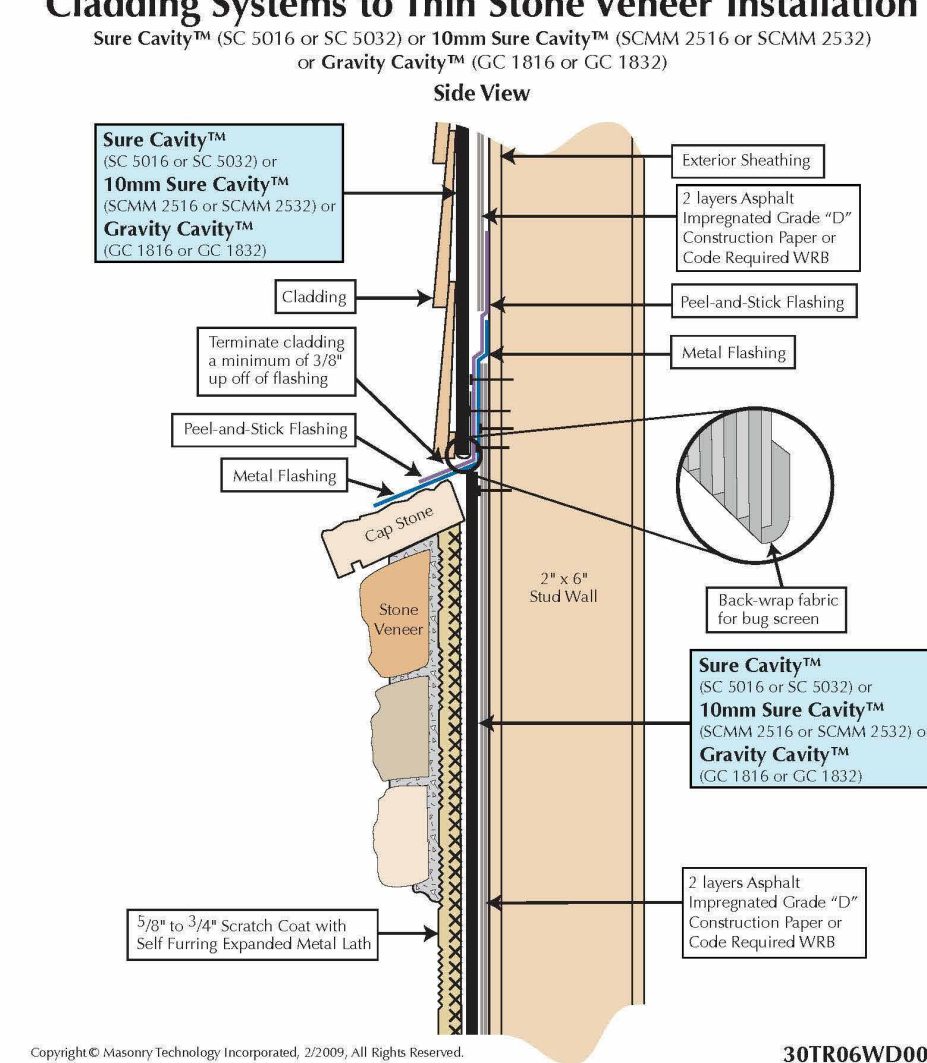
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Thin Stone Veneer with Drainage Plane and Weeps on Zip System™ with Moisture Diverter™ at Top of Window



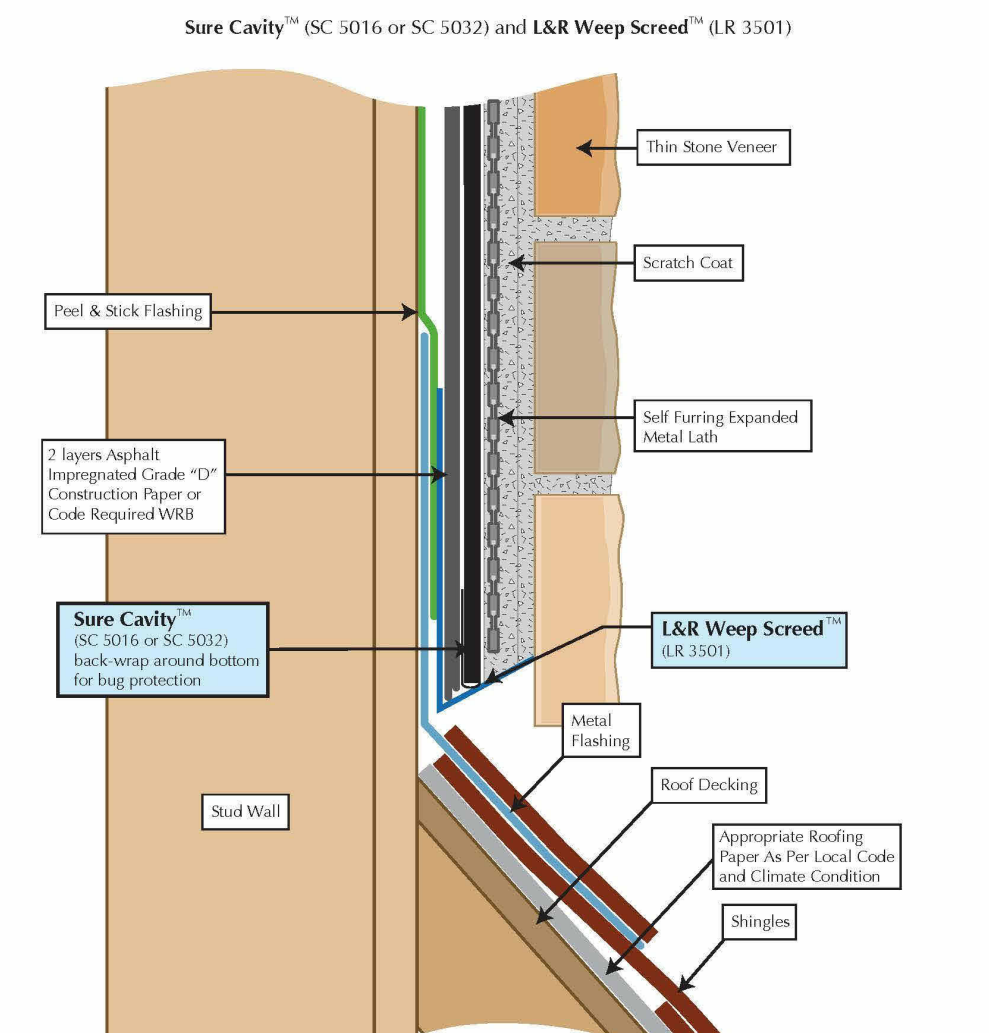
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Cladding Systems to Thin Stone Veneer Installation



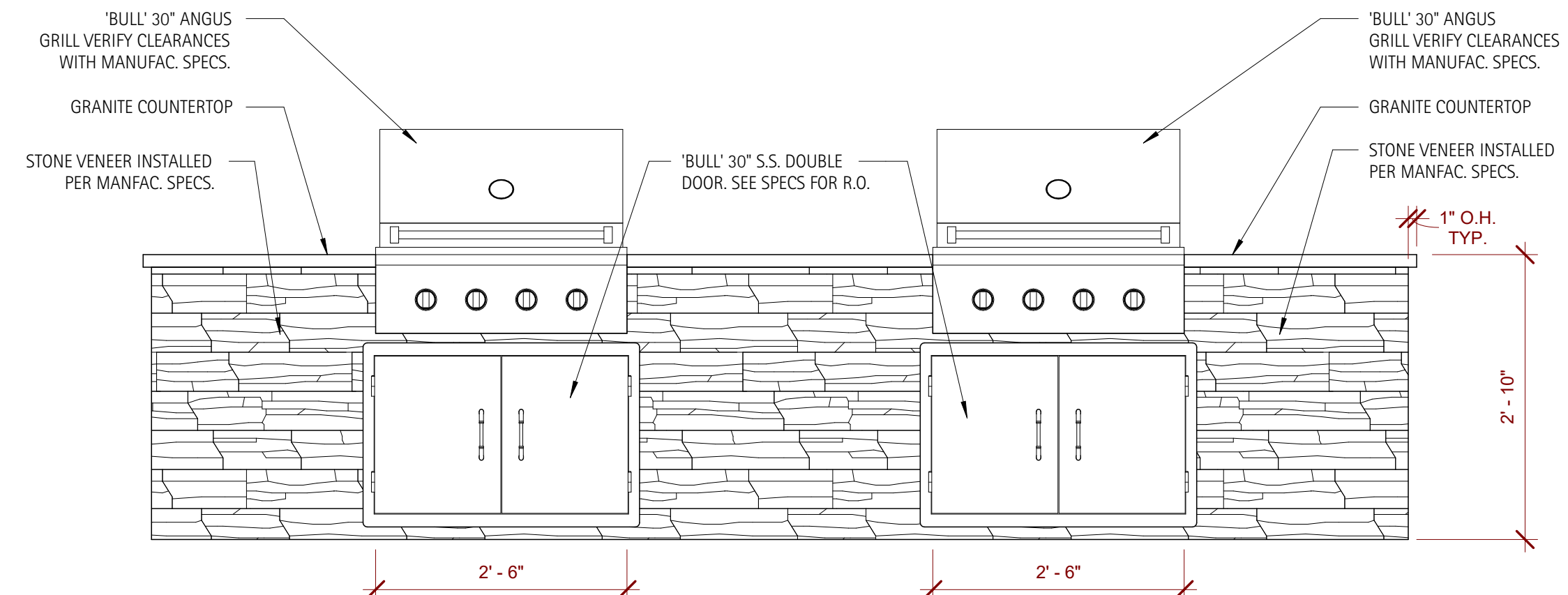
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Thin Stone Veneer Side Wall to Roof Termination Detail

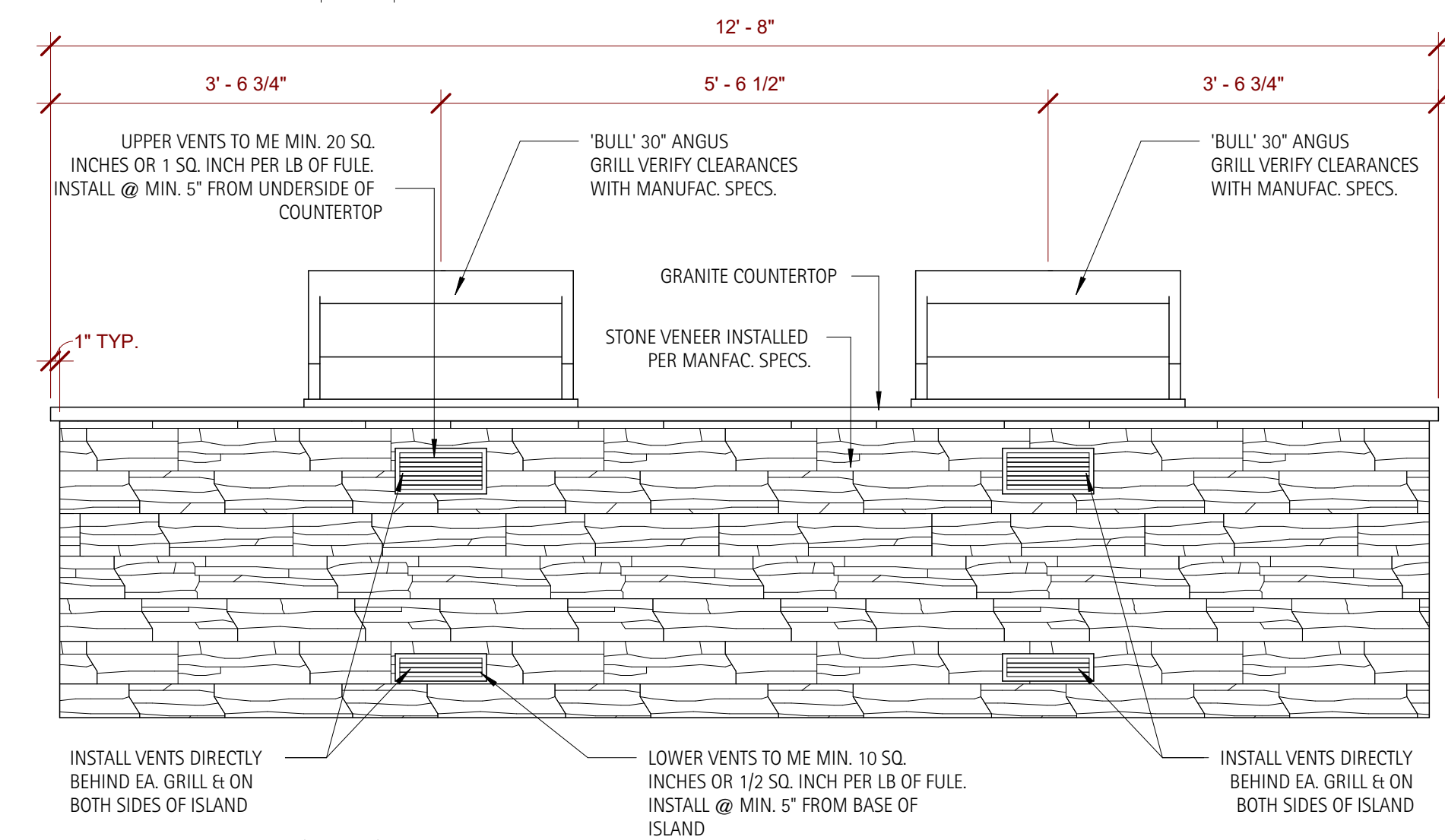


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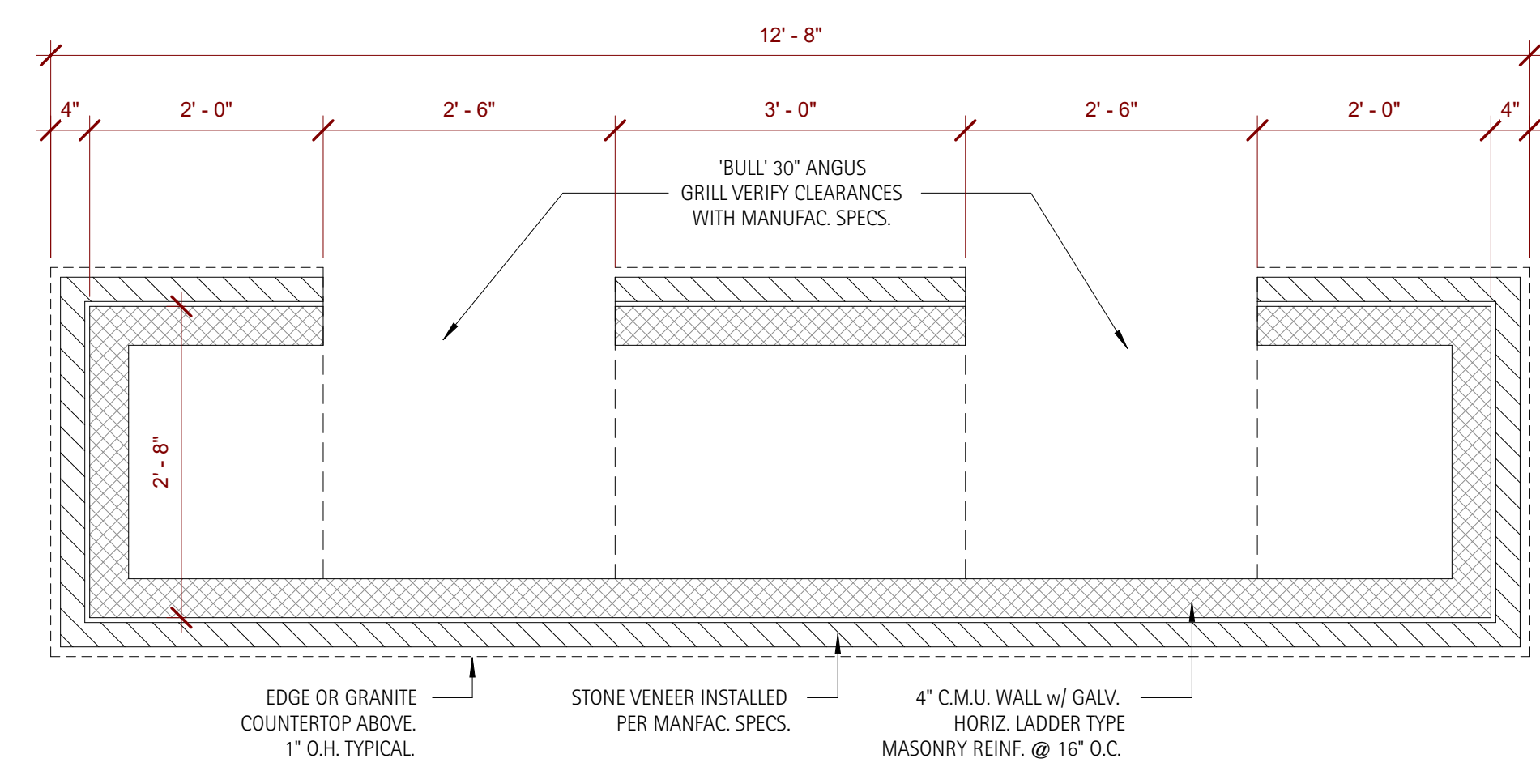
1 A4.0 Detail - Stone Veneer on Sheathing 12" = 1'-0"



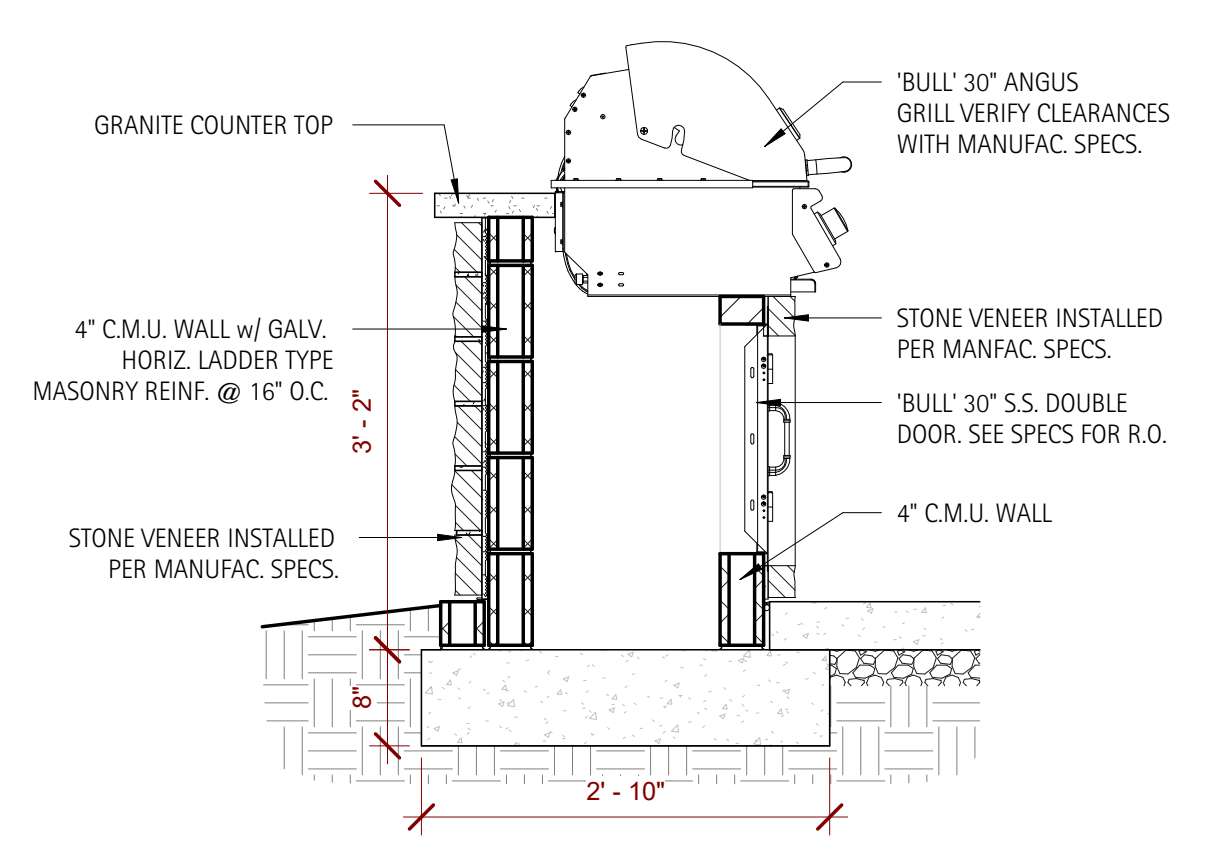
4 Detail - Typ. Grill Front Elevation
 3/4" = 1'-0"



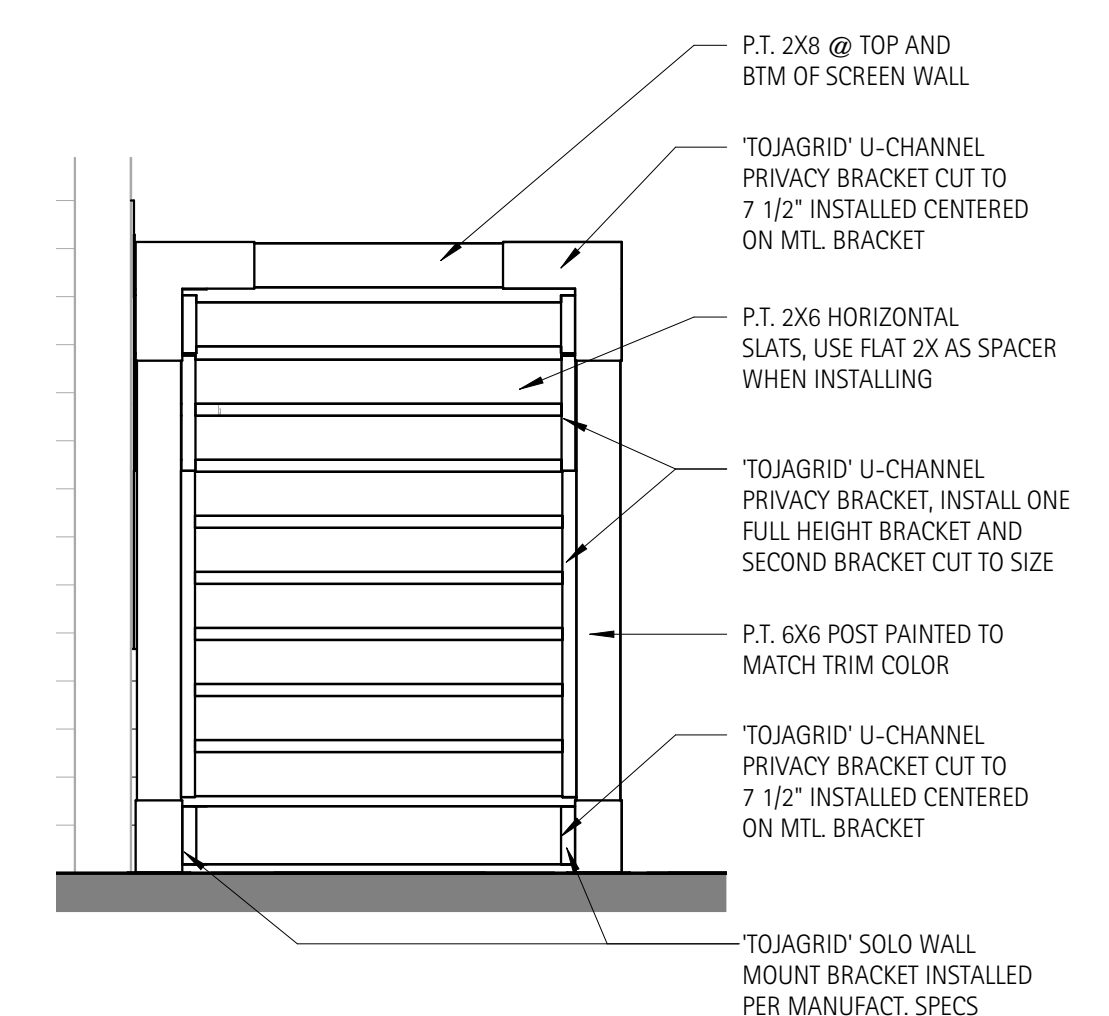
3 Detail - Typ. Grill Rear Elevation
 3/4" = 1'-0"



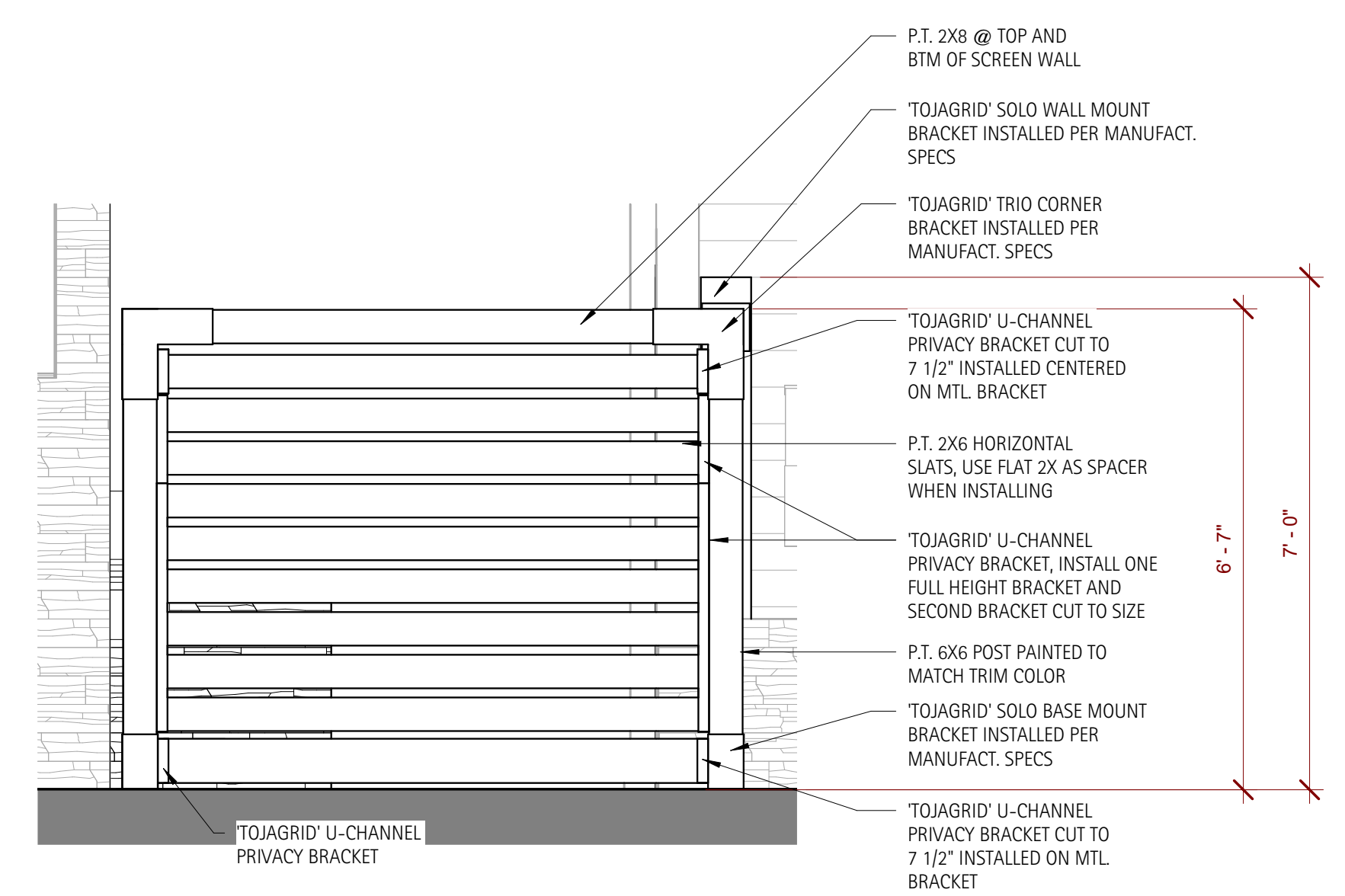
2 Detail - Grill Island Plan View
 3/4" = 1'-0"



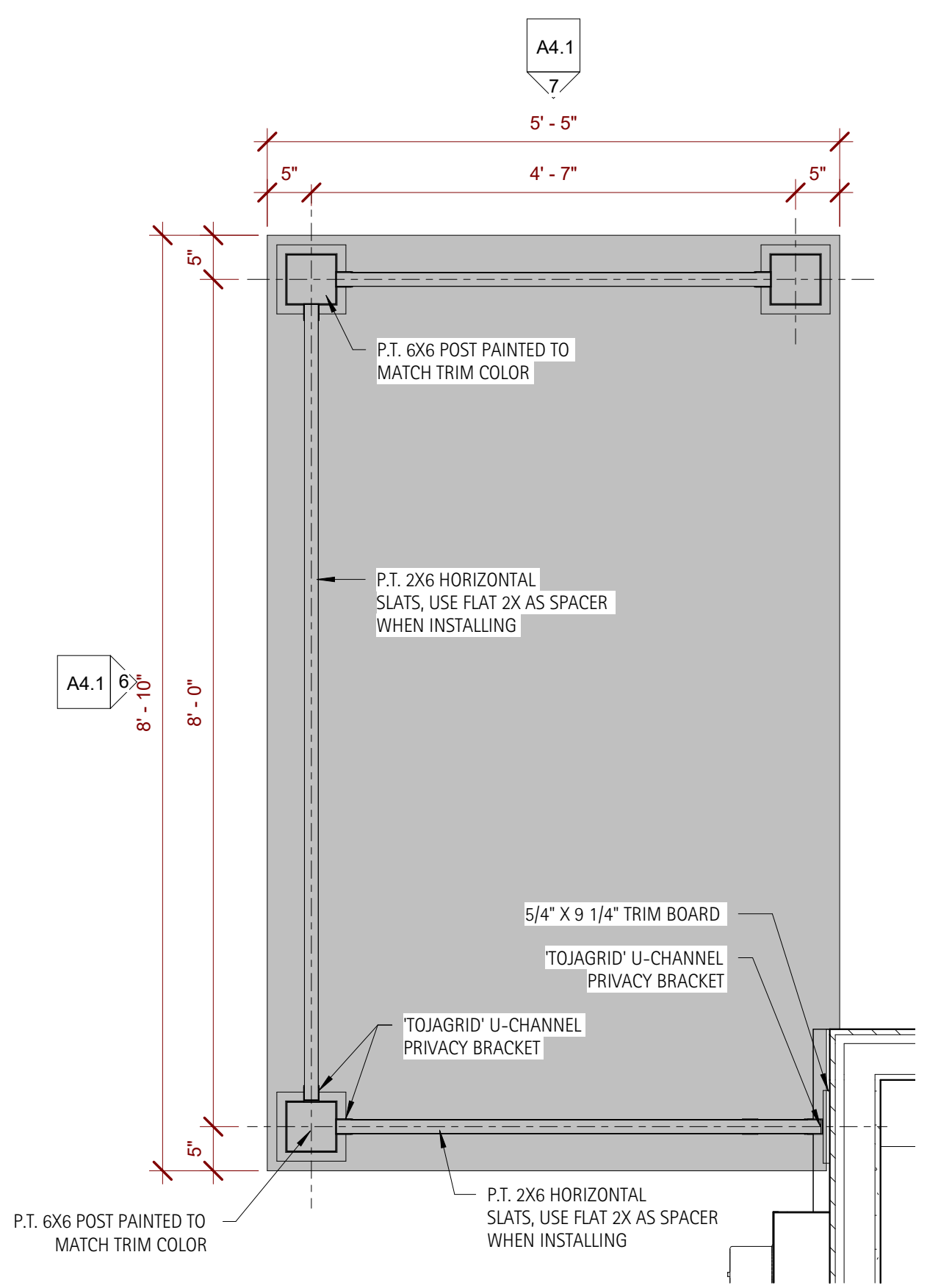
1 Detail - Grill Section View
 3/4" = 1'-0"



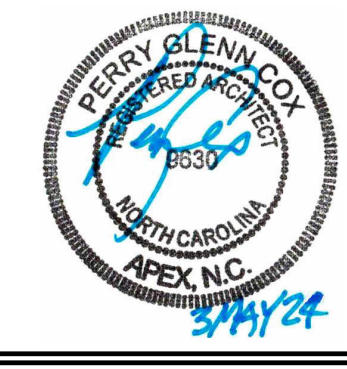
7 Trash Corral Side Elevation
 1/2" = 1'-0"



6 Trash Corral Front Elevation
 1/2" = 1'-0"



5 Trash Corral Floor Plan
 3/4" = 1'-0"



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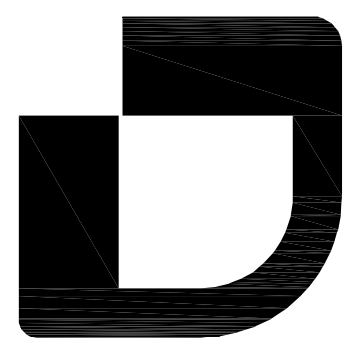
DATE	
REVISION	
NO.	

SHEET DISCUSSION
GENERAL DETAILS

PROJECT #: 2024001
 DATE ISSUED: 05/03/2024
 DRAWING BY: JVD
 CHECKED BY: DSC/PGC

ROLESVILLE AMENITY
 LENNAR HOMES
 AMENITY & POOL
 ROLESVILLE, NC

A4.1



D. CLUGSTON

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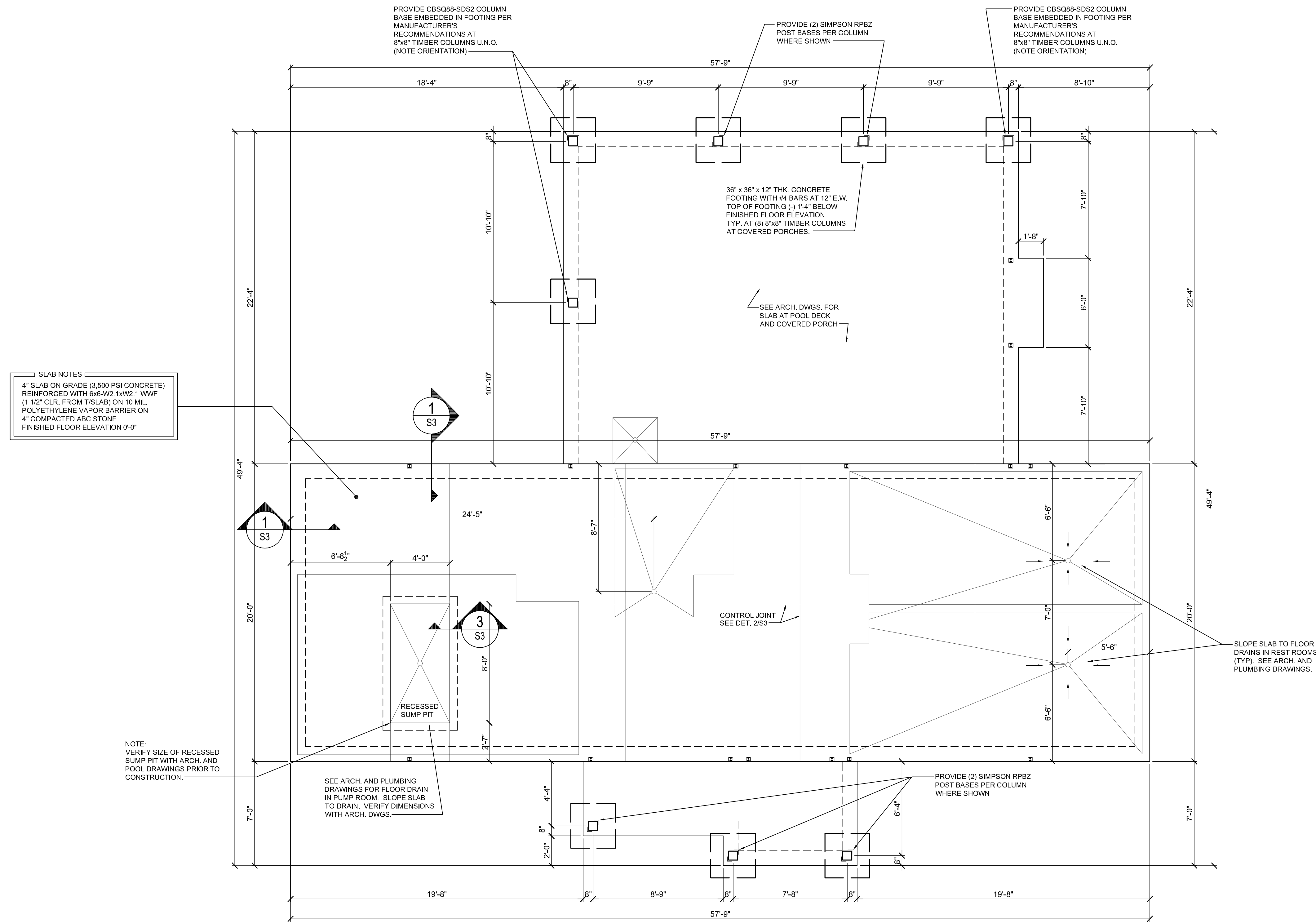
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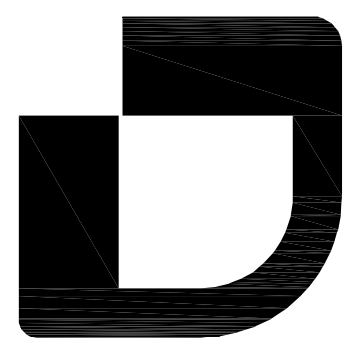
SHEET DISCRPTION
SLAB AND FOUNDATION PLAN

PROJECT #: C240305
DATE ISSUED: 4/22/2024
DRAWING BY: BR
CHECKED BY: BR/JD

ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC

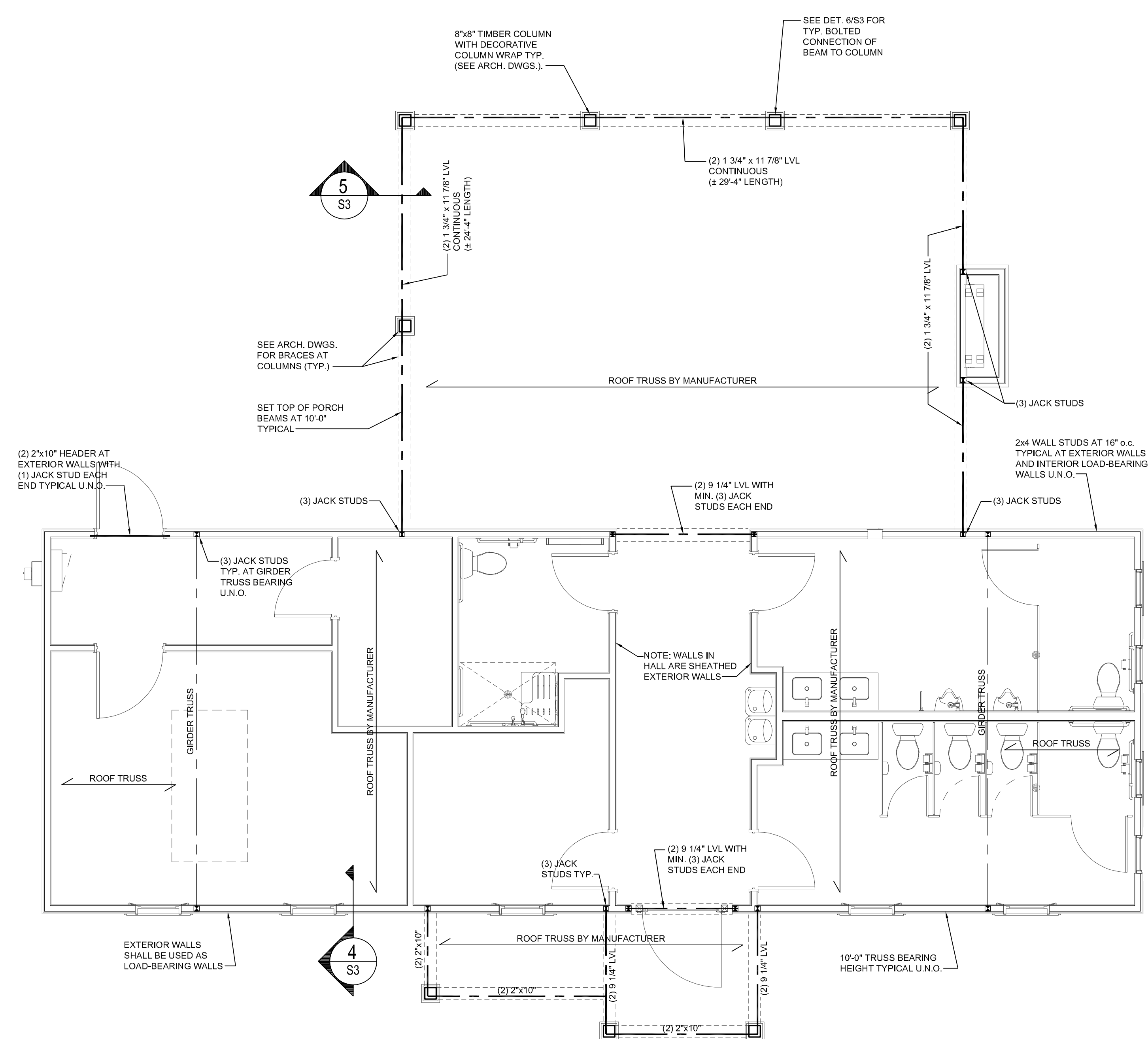
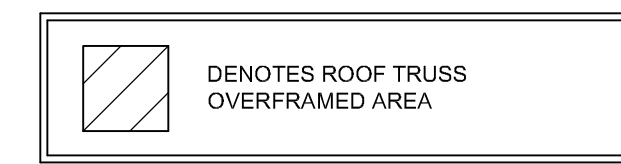


1 SLAB AND FOUNDATION PLAN
1/4" = 1'-0"

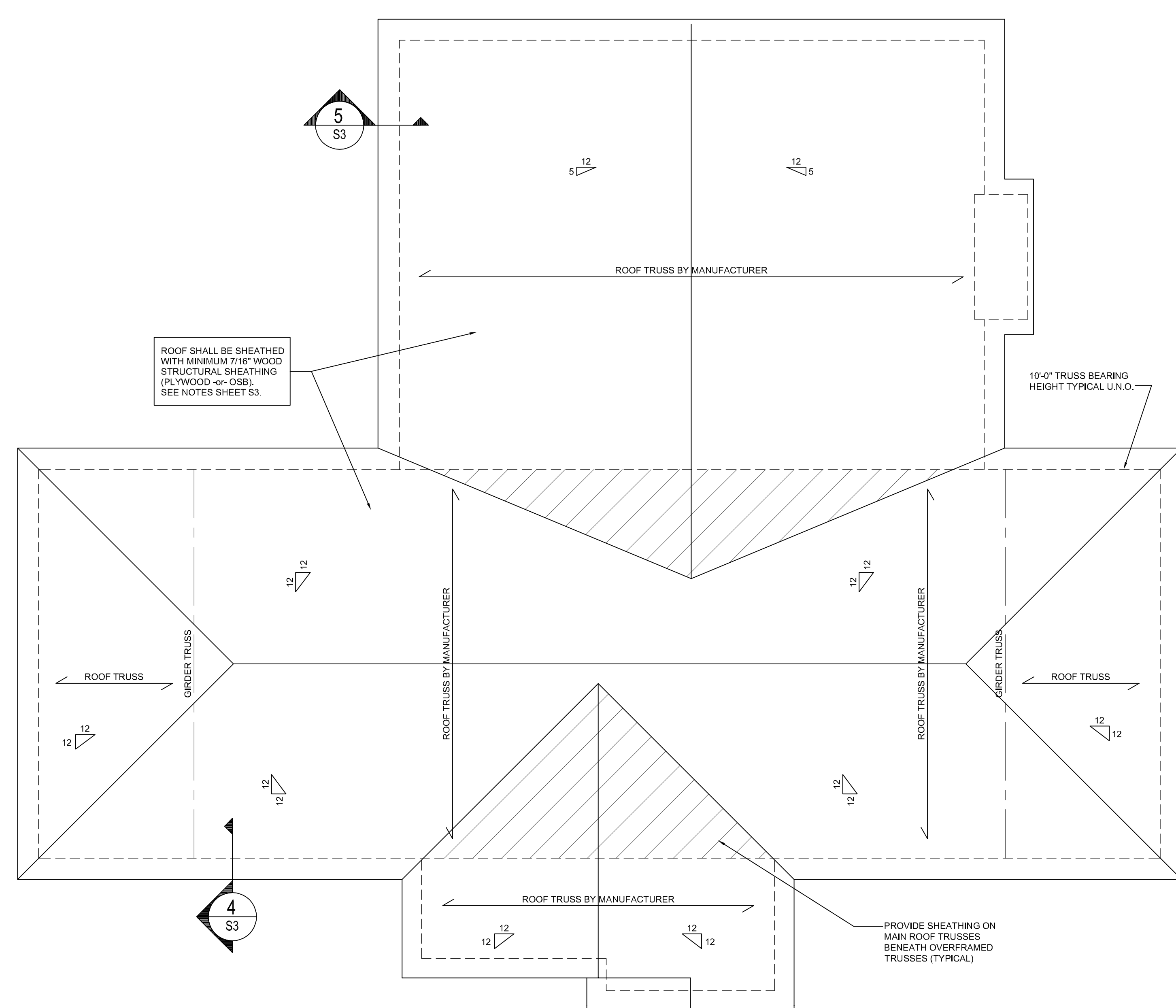


D. CLUGSTON

ROOF TRUSS SYSTEM
TRUSS LAYOUT AND PLACEMENT BY
MANUFACTURER TO COINCIDE WITH THE
SUPPORT LOCATIONS SHOWN. TRUSS
PROFILES SHALL BE ENGINEERED AND SEALED
BY THE TRUSS MANUFACTURER. TRUSS PLANS
SHALL BE PROVIDED FOR REVIEW AND
COORDINATED WITH THE ENGINEER OF
RECORD PRIOR TO CONSTRUCTION.
INSTALLATION SHALL BE IN ACCORDANCE WITH
THE MANUFACTURER'S INSTRUCTIONS.

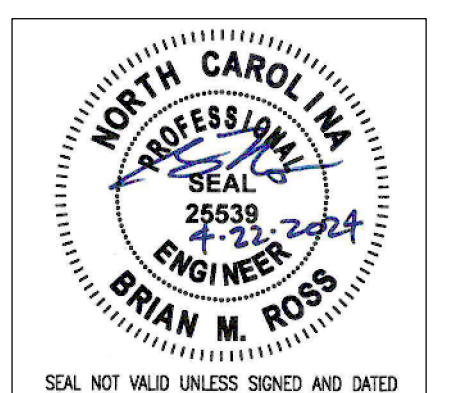


1 WALL AND CEILING FRAMING PLAN
1/4" = 1'-0"



2 ROOF FRAMING PLAN
1/4" = 1'-0"

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SHEET DESCRIPTION
FRAMING PLANS

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ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC

STRUCTURAL NOTES

I. GENERAL

1. DESIGN CODES
- NORTH CAROLINA BUILDING CODE, 2018 EDITION (AMENDED 2015 INTERNATIONAL BUILDING CODE)
 - ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)
 - AISC MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN NINTH EDITION
 - ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
2. DESIGN LOADS
- LIVE LOADS: FLOOR: 100 PSF ROOF: 20 PSF
 - ULTIMATE DESIGN WIND SPEED: 115 MPH
 - GROUND SNOW LOAD 15 PSF
 - SEISMIC DESIGN CATEGORY B
 - SITE CLASS D
 - Ss = 0.144
 - S1 = 0.073
3. ALL ELEVATIONS ARE REFERENCED FROM FINISHED FLOOR ELEVATION OF 0'-0". SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
4. DETAILED SHOP DRAWINGS SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
5. ENGINEER'S SEAL APPLIES TO STRUCTURAL COMPONENTS ONLY AND DOES NOT CERTIFY ARCHITECTURAL LAYOUT OR DIMENSIONAL ACCURACY.
6. ROSS LINDEN ENGINEERS PC ASSUMES NO LIABILITY FOR CHANGES OR MODIFICATIONS MADE TO THESE DRAWINGS BY OTHERS, OR FOR CONSTRUCTION METHODS, OR FOR ANY DEVIATION FROM THESE DRAWINGS.

II. CONCRETE

1. UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL HAVE THE FOLLOWING STRENGTH AND SLUMP REQUIREMENTS: 3,500 PSI 28-DAY COMPRESSIVE STRENGTH, MAX. 5" SLUMP.
2. ALL CONCRETE SHALL BE MOIST CURED PER ACI 301 OR CURED WITH AN APPROVED CURING COMPOUND. CONTRACTOR SHALL VERIFY THAT THE CURING COMPOUND IS COMPATIBLE WITH FLOOR COVERING ADHESIVES, COATINGS, OR TOPPING TO BE USED. CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS.
3. UNLESS OTHERWISE NOTED, ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL, CONFORMING TO ASTM A-615, GRADE 60, DEFORMED.
4. UNLESS OTHERWISE NOTED, ALL DETAILING, FABRICATION, AND PLACING OF REINFORCING STEEL SHALL CONFORM TO THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES. (ACI 315)
5. ALL BAR SPLICES SHALL BE CLASS "B" TENSION SPLICES PER ACI 318-08, UNLESS OTHERWISE SHOWN.
6. ANCHOR BOLTS TO BE ASTM A36 OR A307.
7. CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS.
8. ALL SPREAD FOOTINGS BEARING ON NATIVE SOIL OR STRUCTURAL FILL ARE DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 2,500 PSF. A GEOTECHNICAL REPRESENTATIVE SHALL INSPECT ALL FOOTING EXCAVATIONS TO CONFIRM ALLOWABLE BEARING PRESSURES.
9. PROVIDE TWO (2) #5 x 4'-9" LONG DIAGONAL BARS IN TOP FACE OF ALL SLABS (1" CLEAR) AT ALL RE-ENTRANT CORNERS. SEE PLAN FOR LOCATIONS.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UTILITY LINES IN VICINITY OF THE WORK SITE.
11. CONTRACTOR SHALL VERIFY ALL SIZES AND LOCATIONS OF ALL MECHANICAL AND ELECTRICAL OPENINGS AND EQUIPMENT PADS WITH THE MECHANICAL AND ELECTRICAL DETAILS AND SHOP DRAWINGS BY OTHERS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION FOR ALL UTILITIES THROUGHOUT THE BUILDING.
12. ALL DOWELS WHICH ARE TO BE DRILLED AND GROUTED INTO EXISTING CONCRETE SHALL BE DONE WITH AN EPOXY GROUT. DRILL HOLE WITH DIAMETER 1/8" LARGER THAN DOWEL OR AS RECOMMENDED BY GROUT SUPPLIER. USE HIT-RE 500 V3 BY HILTI OR APPROVED EQUAL.

III. WOOD

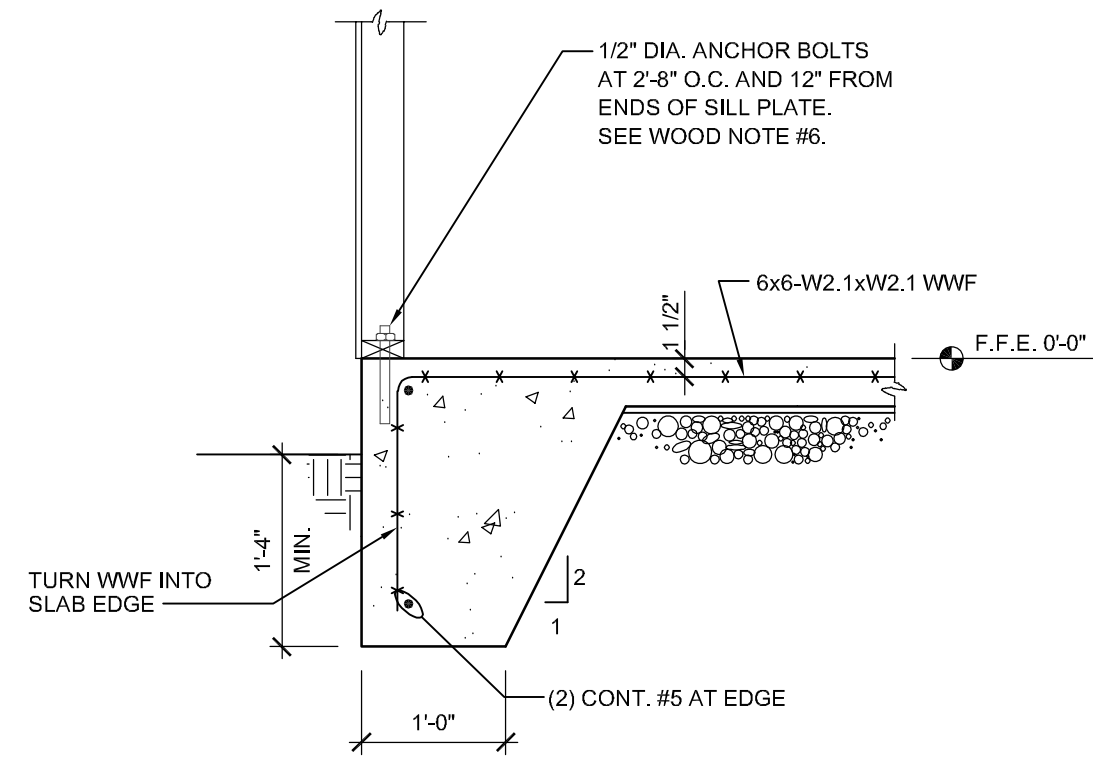
1. FRAMING LUMBER SHALL BE #2 SPRUCE PINE FIR (SPF) WITH THE FOLLOWING MINIMUM DESIGN PROPERTIES: Fb = 800 PSI Fv = 175 PSI E = 1.4E6 PSI
2. FRAMING LUMBER EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND, CONCRETE OR MASONRY SHALL BE #2 SOUTHERN YELLOW PINE (SYP) TREATED IN ACCORDANCE WITH AWPA C22 WITH THE FOLLOWING DESIGN PROPERTIES: Fb = 800 PSI Fv = 175 PSI E = 1.4E6 PSI
3. ENGINEERED WOOD BEAMS SHALL BE LAMINATED VENEER LUMBER (LVL) OR PARALLEL STRAND LUMBER (PSL) WITH THE FOLLOWING MINIMUM DESIGN PROPERTIES: Fb = 2600 PSI Fv = 285 PSI E = 1.9E6 PSI
4. ENGINEERED WOOD BEAMS SHALL BE INSTALLED WITH ALL CONNECTIONS PER MANUFACTURER'S INSTRUCTIONS.
5. SOLID BLOCKING SHALL BE PROVIDED AT ALL POINT LOADS TO TRANSFER LOADS THROUGH FLOOR LEVELS. COLUMNS SHALL BE CONTINUOUS TO THE FOUNDATION OR TO OTHER STRUCTURAL ELEMENTS.
6. WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH 1/2" DIAMETER ANCHOR BOLTS SPACED A MAXIMUM OF 2'-6" O.C. AND WITHIN 12" FROM THE ENDS OF EACH PLATE SECTION. PROVIDE 1/2" DIAMETER HILTI HIT-RE 500 V3 INJECTION ADHESIVE ANCHORS WITH MINIMUM 4 1/2" EMBEDMENT INTO THE FOUNDATION AT ALL EXTERIOR, LOAD-BEARING, AND SHEAR WALLS AS SHOWN ON THE PLAN.
7. ALL EXTERIOR WALLS SHALL BE SHEATHED WITH MINIMUM 7/16" WOOD STRUCTURAL SHEATHING (PLYWOOD -or- OSB) WITH BLOCKING AT ALL JOINTS. FASTEN ALL PANELS WITH 8d NAILS AT 3" o.c. AT ALL EDGES AND AT 6" o.c. AT INTERMEDIATE FRAMING. AT DOUBLE TOP PLATE, FASTEN PANELS WITH A DOUBLE ROW OF 8d NAILS STAGGERED AT 3" o.c. ALL FASTENERS SHALL HAVE 1/8" PENETRATION INTO THE FRAMING MEMBERS.
8. PROVIDE MINIMUM 1/2" GYPSUM BOARD ON BOTH SIDES OF FULL-HEIGHT INTERIOR WALLS WITH INTERMEDIATE SUPPORT AT ALL JOINTS. FASTEN ALL PANELS WITH 1 1/4" SCREWS AT 7" o.c. AT TOP AND BOTTOM PLATES AND ALL STUDS. GYPSUM SHALL BE APPLIED PERPENDICULAR TO FRAMING.
9. SEE TYPICAL WALL SECTION FOR ADDITIONAL INFORMATION.

IV. WOOD TRUSSES

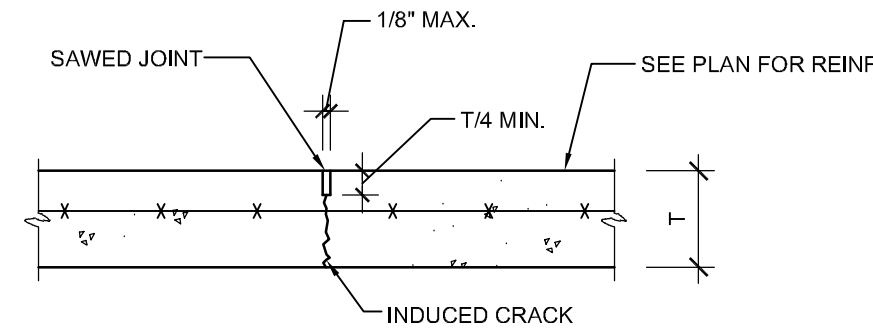
1. ENGINEERED ROOF TRUSS SYSTEMS SHALL BE PROVIDED FOR REVIEW AND COORDINATED WITH THE ENGINEER OF RECORD. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ROOF TRUSS DRAWINGS SHALL BE SIGNED AND SEALED BY THE MANUFACTURER AND REVIEWED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
2. ALL TRUSSES SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH BCSI 1403 "GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES."
3. THE TOP CHORD OF ALL ROOF TRUSSES SHALL BE SHEATHED WITH MINIMUM 7/16" WOOD STRUCTURAL SHEATHING (PLYWOOD -or- OSB). PROVIDE PLYWOOD EDGE CLIPS BETWEEN PANELS.
4. PROVIDE PERMANENT BOTTOM CHORD TRUSS BRACING AND WEB MEMBER PLANE BRACING IN ACCORDANCE WITH BCSI-B2 "TRUSS INSTALLATION AND TEMPORARY BRACING" AND BCSI-B3 "WEB MEMBER PERMANENT BRACING/WEB REINFORCEMENT."

ABBREVIATIONS

CONC	CONCRETE
CONT	CONTINUOUS
DBL	DOUBLE
DJ	DOUBLE JOIST
DSP	DOUBLE STUD POCKET
EA	EACH
FL PT	FLAT PLATE
FTG	FOOTING
HGR	HANGER
LVL	LAMINATED VENEER LUMBER
NTS	NOT TO SCALE
OC	ON CENTER
PT	PRESSURE TREATED
RS	RAFTER SUPPORT
SC	STUD COLUMN
SP	STUD POCKET
TJ	TRIPLE JOIST
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
XJ	EXTRA JOIST

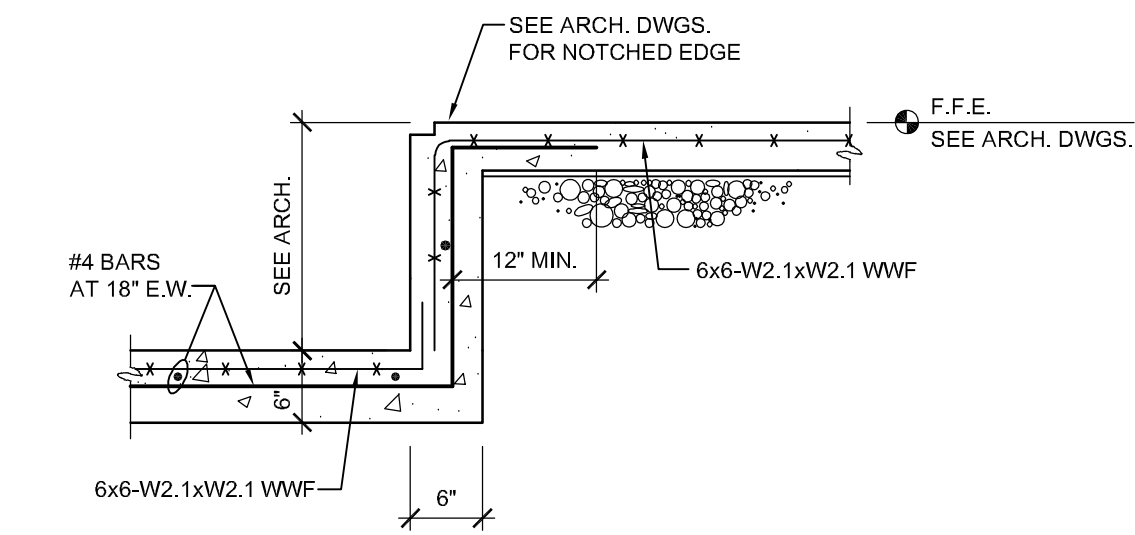


1 DETAIL - TYP. SLAB EDGE
S3 3/4" = 1'-0"

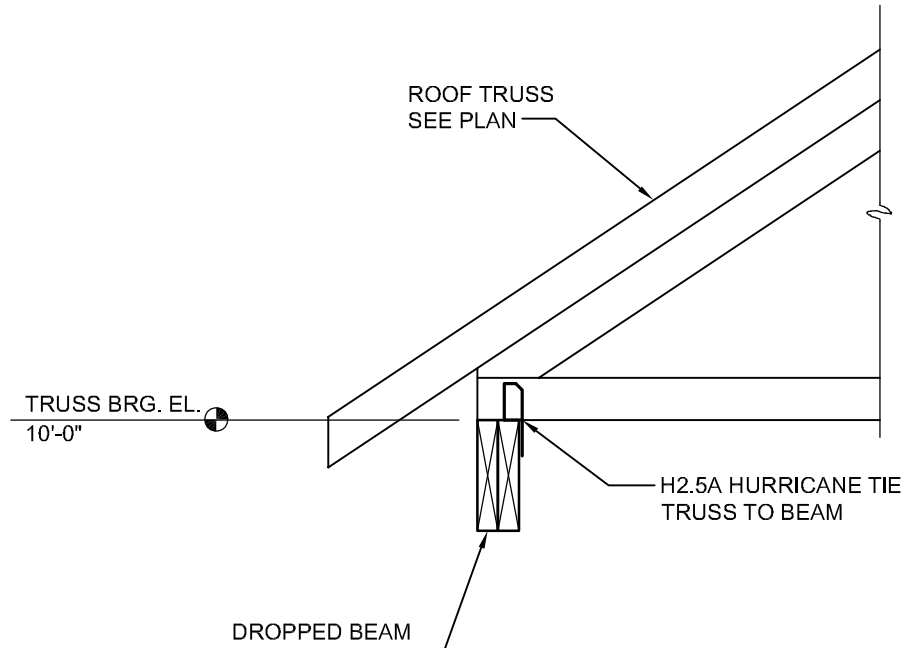
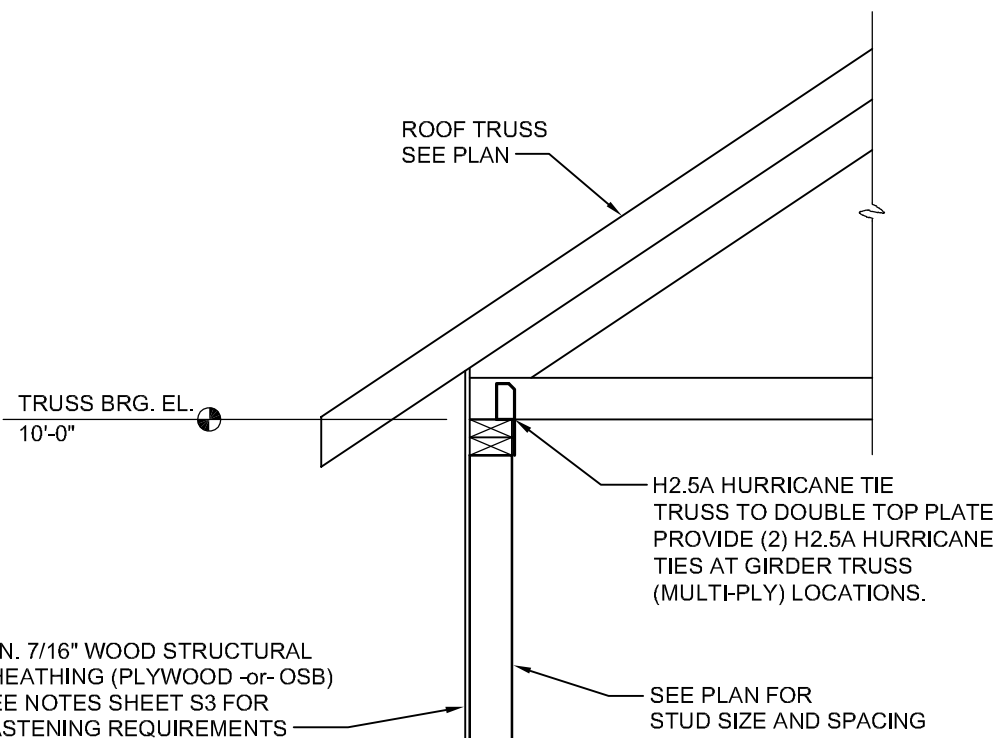


NOTES: 1. SAW JOINTS AS SOON AS CONCRETE WILL NOT RAVEL UNDER SAW BLADE.
2. ADD 20" LONG SMOOTH DOWELS WITH INSERTS AT ALL CONSTRUCTION JOINTS (IF USED).
3. CONTRACTOR'S OPTION TO CUT ALTERNATING WIRES AT JOINTS FOR ADDITIONAL CRACK CONTROL.

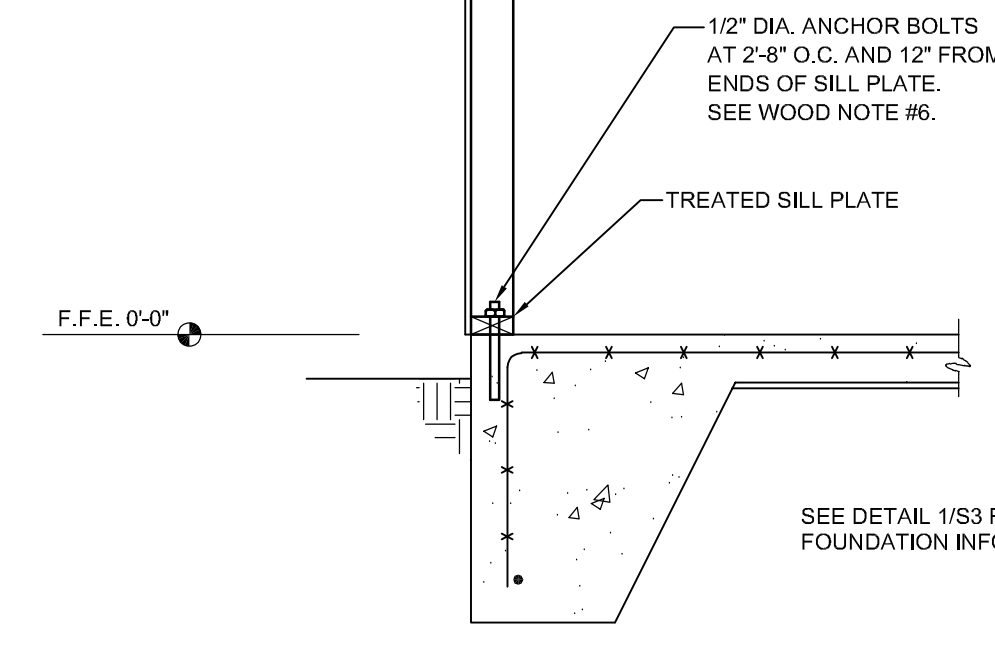
2 DETAIL - TYP. SLAB CONTROL JOINT
S3 1" = 1'-0"



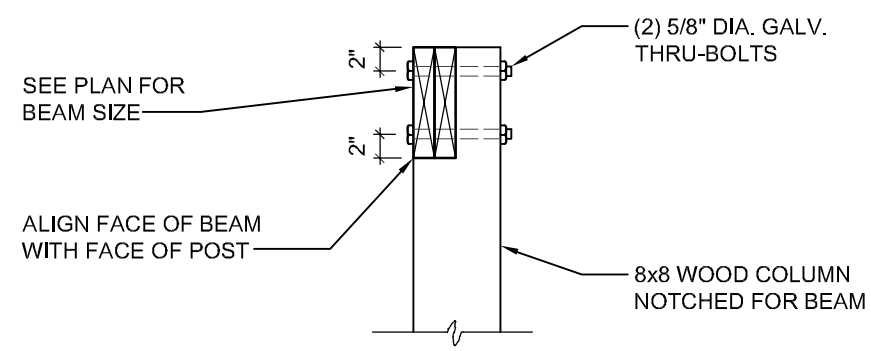
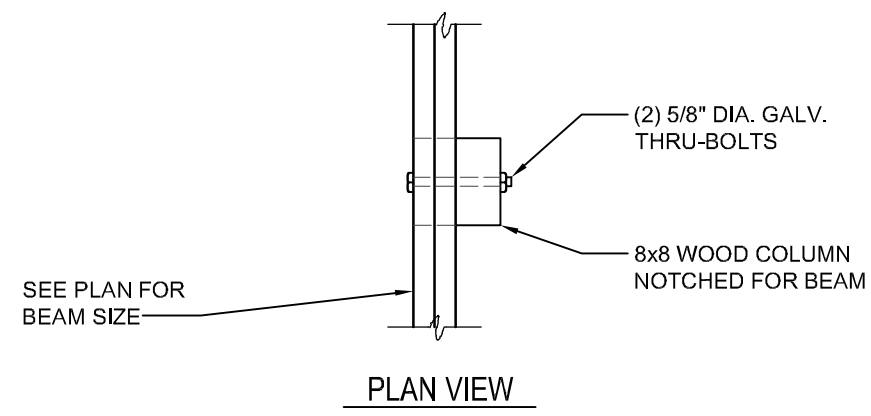
3 SECTION AT SUMP
S3 3/4" = 1'-0"



5 FRAMING SECTION
S3 3/4" = 1'-0"



4 TYPICAL WALL SECTION
S3 3/4" = 1'-0"



6 CONNECTION DETAIL
S3 3/4" = 1'-0"

STRUCTURAL DESIGN

DESIGN LOADS:

Occupancy Category	II	
Importance Factors:	Wind (IW)	1.0
	Snow (IS)	1.0
	Seismic (IE)	1.0
Live Loads:	Roof	20 psf
	Mezzanine	N/A psf
	Floor	100 psf
Ground Snow Load:	15 psf	
Wind Load:	Ultimate Wind Speed	115 mph (ASCE 7-10)
	Exposure Category	B
	Wind Base Shears (for MWFRS)	Vx = 3.6K Vy = 7.7K

SEISMIC DESIGN CATEGORY A B C D

Provide the following Seismic Design Parameters:

Spectral Response Acceleration SS 0.144 %g S1 0.073 %g
Site Classification D Field Test Presumptive Historical Data

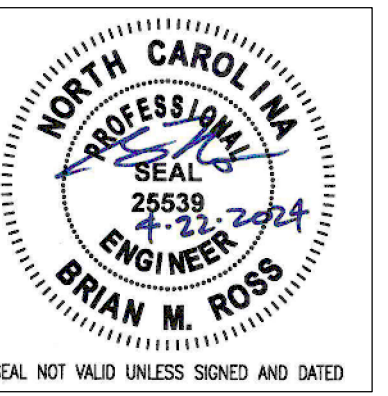
Basic structural system (check one)
 Bearing Wall Dual w/Special Moment Frame
 Building Frame Dual w/Intermediate R/C or Special Steel Moment Frame Inverted Pendulum
Seismic base shear VX = 1.0K VY = 1.0K
Analysis Procedure Simplified Equivalent Lateral Force Modal
Architectural, Mechanical, Components anchored?

Lateral design Control: Earthquake Wind

Soil Bearing Capacities:
Field Test (provide copy of test report) _____ psf
Presumptive Bearing capacity 2500 psf
Pile size, type, and capacity _____



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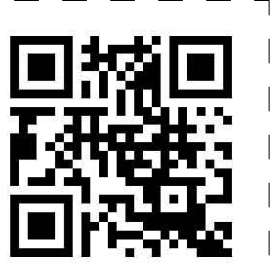
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STRUCTURAL NOTES AND DETAILS

PROJECT #: C240305
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**ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC**



GENERAL PLUMBING NOTES:

ADMINISTRATIVE:

- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
PC - PLUMBING CONTRACTOR, EC - ELECTRICAL CONTRACTOR, MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR, FASC - FIRE ALARM SYSTEM CONTRACTOR.
- "PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR.
- THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
- ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM DAMAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD PARTY AGENCY WHERE MANUFACTURER AND MODEL NUMBER IS GIVEN, IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
- THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2018 NORTH CAROLINA PLUMBING CODE AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
- THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
- DO NOT SCALE THESE DRAWINGS--REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC. TO ACCOMMODATE PLANNED AND UNEXPECTED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING.
- TRENCHING, COMPACTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE NC PLUMBING CODE. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
- THE PC SHALL PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CELING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT.
- SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH NORTH CAROLINA PLUMBING CODE, SECTIONS 312.2, 312.3, AND 312.5.
- PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
- AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT.
- PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

MATERIALS:

- ALL OVERHEAD DOMESTIC WATER PIPING SHALL HAVE 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED CLEARLY MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B-88. USE BRAZED JOINTS ON ALL COPPER PIPING 1-1/2 INCH AND LARGER. *** PC MAY USE PEX (ASTM F 877) WITH APPROVED FITTINGS (ASTM F 1807) WITH OWNER'S APPROVAL. *** CPVC PIPING (ASTM D 2846 OR ASTM F 441) WITH APPROVED FITTINGS (ASTM D 2846, ASTM F 438, OR ASTM F 493) MAY ALSO BE USED WHERE NOT LOCATED IN PENUMAS, ALL PLASTIC PIPE, FITTINGS, AND COMPONENTS SHALL BE THIRD PARTY CERTIFIED AS CONFORMING TO NSF 14. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF .25-PERCENT AND SHALL CONFORM TO NSF 61. HOT WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180°F. COLD WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI AT 73.4°F. DO NOT INSTALL PEX OR CPVC PIPING IN RETURN AIR PENUMAS.
- BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLON SEATS, 150 PSI WSP, AND COMPLY WITH MSS SP-110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP-90. TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 62. BRONZE WITH INTEGRAL SEAT AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER-SILICON BRONZE STEM AND SOLID-WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS; PROVIDE ACCESS DOORS IF REQUIRED. VALVES SHALL BE BY NIBCO, WATTS, OR SOTOCHIM.
- COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1-1/2 INCH THICK INSULATION. CLOSED CELL RUBBER INSULATION MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR FIBROUS GLASS TYPE IF SO DESIRED. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER. ALL JOINTS, SEAMS AND FITTINGS MUST BE SEALED. ON SYSTEMS OPERATING ABOVE AMBIENT, THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES VAPOR SEAL MUST BE MAINTAINED. INSULATION SHALL BE APPLIED WITH A CONTINUOUS UNBROKEN MOISTURE AND VAPOR RETARDER. ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FIRESTOP OR FIRESEALING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A FACTORY APPLIED ALL-SERVICE JACKET WITH SELF-SEALING LAP. WHITE-KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS; CONFORMING TO ASTM C 1136 TYPE 1; VAPOR RETARDER; WITH A SELF-SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING.
- ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW-EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE

- REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
- FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME A12.18.1. FAUCETS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9. FIXTURE FITTINGS, FAUCETS, AND DIVERTERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF HOT WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT HAND SIDE OF THE FIXTURE FITTING. BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.13 OF THE NC PLUMBING CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS SHALL CONFORM TO ASSE 1013 OR AWWA C511. THE RELIEF OPENING SHALL DISCHARGE BY AIR GAP. AIR GAPS SHALL COMPLY WITH ASME A112.1.1 AND AIR GAP FITTINGS WITH ASME A112.1.3. DOUBLE CHECK VALVE ASSEMBLIES SHALL CONFORM TO THE 1013 OF AWWA C511.
 - SOIL AND WASTE LINES 1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM.
 - FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
 - FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAIN PIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE COUPLING MANUFACTURER SHALL BE UTILIZED.
 - BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING.
 - HORIZONTAL DRAIN PIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.10. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINED OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR RODDING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING.
 - DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG.
 - AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 918 OF THE NC PLUMBING CODE. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051.
 - INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
 - THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS.
 - THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOOZE OUT.
 - ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES SHALL BE MADE WATER TIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.
 - INSTALL FULL OPEN VALVES PER NC PLUMBING CODE 606.1 ON THE MAIN WATER LINE INTO THE BUILDING. INSTALL CUT OFF VALVES PER NC 26.

METHODS:

- EXTEND DOMESTIC WATER PIPE FROM FIVE (5) FEET OUTSIDE THE BUILDING INTO THE BUILDING AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE.
- ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTING EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER-PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE-AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
- IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT. ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT. FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE NC PLUMBING CODE. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE.
- SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR-EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS-AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION-BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER.
- THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE LOCATED ON THE HEATED SIDE OF THE WALL INSULATION. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177.
- HOT WATER PROVIDED TO PUBLIC HAND-WASHING FACILITIES IN LAVATORIES SHALL BE TEMPERED WATER DELIVERED THROUGH AN APPROVED WATER-TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070 OR CSA B126.3.
- INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE HANDI-LAV GUARD INSULATION KIT BY TRUEBERO OR EQUAL.
- POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 606.15. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPIRPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022.
- THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
- THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED.

- ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
- FITTINGS SHALL CONFORM TO ASME A12.18.1. FITTINGS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND VERIFY THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER PIPING TO 5 FEET OUTSIDE THE BUILDING AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION.
- ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.4.1. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
- SOIL AND WASTE LINES 1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM.
- FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
- FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAIN PIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE COUPLING MANUFACTURER SHALL BE UTILIZED.
- BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING.
- HORIZONTAL DRAIN PIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.10. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINED OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR RODDING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING.
- DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG.
- AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 918 OF THE NC PLUMBING CODE. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051.
- INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
- THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS.
- THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOOZE OUT.
- ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES SHALL BE MADE WATER TIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.
- INSTALL FULL OPEN VALVES PER NC PLUMBING CODE 606.1 ON THE MAIN WATER LINE INTO THE BUILDING. INSTALL CUT OFF VALVES PER NC 26.

PLUMBING FIXTURE SCHEDULE						
SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WAST E
P1	TWO PIECE TANK TYPE WATER CLOSET	KOHLER 4369 OR EQUAL BY AMERICAN STANDARD OR TOTO	TWO-PIECE VITREOUS CHINA TOILET WITH HIGH-PROFILE TANK, KOHLER K-5309 ELONGATED FRONT BOWL AND CHROME TRIP LEVER. 1.28 GPF. PROVIDE SC534 OPEN FRONT SEAT LESS COVER. ASME 112.19.2 COMPLIANCE.	-	1/2"	3"
P1H	TWO PIECE TANK TYPE ADA WATER CLOSET	KOHLER 4369 OR EQUAL BY AMERICAN STANDARD OR TOTO	TWO-PIECE VITREOUS CHINA TOILET WITH HIGH-PROFILE TANK, KOHLER K-5309 ELONGATED FRONT BOWL AND CHROME TRIP LEVER. 1.28 GPF. PROVIDE SC534 OPEN FRONT SEAT LESS COVER. ASME 112.19.2 COMPLIANCE. TOP OF SEAT SHALL BE 17-19 INCHES AFF FOR ADA. LEVER MOUNTED ON WIDE SIDE FOR ADA.	-	1/2"	3"
P2	WALL MOUNT LAVATORY	KOHLER K-2007-WHITE OR EQUAL BY AMERICAN STANDARD OR TOTO	VITREOUS CHINA LAVATORY WITH BACKSPASH COMPLYING WITH ASME 112.19.2. TOP OF RIM SHALL BE 34 INCHES AFF FOR ADA. PROVIDE WITH LAV-GUARD PROTECTORS FOR SUPPLY AND DRAIN LINES. PROVIDE JR SMITH 0700 (CONCEALED ARMS) WITH 19" ARMS 0800 (WALL SUPPORT PLATE). USE A METERING TYPE FAUCET SIMILAR TO CHICAGO 3300-E2805AB (VERIFY EXACT FAUCET WITH OWNER).	1/2"	1/2"	2"
P2A	UNDER MOUNT LAVATORY	KOHLER LADENA K-2214-WHITE OR EQUAL BY AMERICAN STANDARD OR TOTO	VITREOUS CHINA SELF-RIMMING LAVATORY COMPLYING WITH ASME 112.19.2. MOUNT 50 RIM IS 34 INCHES AFF AND 2 INCHES FROM FRONT EDGE FOR ADA. PROVIDE WITH LAV-GUARD PROTECTORS SUPPLY AND DRAIN LINES. USE A KOHLER K-103536-SANA-BN (AC-POWERED) FAUCET (COORDINATE WITH EC FOR FAUCET POWER).	1/2"	1/2"	2"
P3	URINAL	KOHLER K-4991-ET OR EQUAL BY AMERICAN STANDARD OR TOTO	VITREOUS CHINA, WALL-MOUNTED, ADA COMPLIANT, LOW CONSUMPTION WASHOUT URINAL COMPLYING WITH ASME 112.19.2. 1 GPF. KOHLER K-76319 FLUSHOMETER VALVE OR EQUAL BY ZURN OR TOTO. TOP OF RIM SHALL BE 17 INCHES AFF FOR ADA.	-	3/4"	2"
P4	HAND SHOWER	AMERICAN STANDARD 1660.766 OR EQUAL	1.5 GPM 3-FUNCTION SHOWER W/ PAUSE FEATURE MEETING ADA AND ANSI 117.1. 90" WALL SUPPLY (AMERICAN STANDARD 8888.068), 59" MIN METAL SHOWER HOSE (AMERICAN STANDARD 8888.035), METERED SHOWER VALVE (SYMMONS 4-420), WALL SHOWER HEAD & DIVERTER (ZURN Z70000-12 Z7000-DV-2P), AND ADJUSTABLE VERTICAL VALVE ROD. COORDINATE FINISH WITH OWNERS.	1/2"	1/2"	-
P5	DRINKING FOUNTAIN	ELKAY VRCFLFRDSSC	ADA COMPLIANT FOR ADULT AND CHLD. 8.0 GPH OF 50°F WATER AT 90°F AMBIENT. PROVIDE ACCESSORY APRON FOR ADA COMPLIANCE AS NECESSARY. VANDAL AND FROST RESISTANT.	-	3/8"	2"
P6	FLOOR DRAIN	WATTS FD-200-A OR EQUAL BY ZURN OR JR SMITH	ON GRADE EPOXY COATED CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, WEEP HOLES, ADJUSTABLE ROUND NICKEL BRONZE STRAINER, AND NO HUB OUTLET. PROVIDE TRAP PRIMER CONNECTION OPTION IF NOTED.	-	-	3"
P7	SUMP PIT FLOOR DRAIN	ZURN FD1 OR EQUAL BY WATTS OR JR SMITH	ON GRADE ADJUSTABLE FLOOR DRAIN, ABS OR CAST IRON BODY, AND HUB OUTLET. PROVIDE TRAP PRIMER CONNECTION OPTION IF NOTED.	-	-	SEE PLAN
P8	AUTOMATIC TRAP PRIMER	ZURN 1022 OR EQUAL BY WATTS OR JR SMITH	COMPLIANT WITH ASSE 1018. INSTALL IN SUPPLY LINE TO LAVATORY 12 in OR MORE ABOVE FINISHED FLOOR. PROVIDE ACCESS PANEL FOR MAINTENANCE AND VISUAL INSPECTION.	-	1/2"	-
P9	FREEZEPROOF HOSE BIBB	ZURN Z1346 OR EQUAL BY WOODFORD OR MIFAB	EXPOSED NON-FREEZE ANTI-SIPHON AUTOMATIC DRAINING WALL FAUCET COMPLETE WITH EXTERIOR CHROME FINISH, BRASS CASING, ALL BRONZE INTERIOR PARTS, Z1399-V8 ANTI-SIPHON INTEGRAL VACUUM BREAKER, OPERATING ROD WITH FREE FLOATING COMPRESSION CLOSS VALVE. REPLACEABLE SEAT WASHER, COMBINATION 1/2 FEMALE SOLDER INLET AND 1/2 MALE IP INLET CONNECTION STANDARD, AND 3/4 MALE HOSE CONNECTION.	-	1/2	-
P10	INTERIOR HOSE BIBB	ZURN Z1341-BPF OR EQUAL BY MIFAB OR WOODFORD	PROVIDE CHECK VALVE AND ANTI-SIPHON PROTECTION IF NOT INTEGRAL TO UNIT	-	1/2"	-
P11	EXPANSION TANK	AMTROL ST-5 OR EQUAL BY WATTS OR BELL & GOSSETT	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	3/4"	-
P12	3/4" RPZ BACKFLOW PREVENTER	WATTS LF909 QT OR EQUAL BY CONBRACO OR WILKINS	RPZ ASSEMBLY CONSISTING OF A PRESSURE DIFFERENTIAL RELIEF VALVE LOCATED IN A ZONE BETWEEN TWO POSITIVE SEATING CHECK VALVES. THE ASSEMBLY SHALL INCLUDE TWO TIGHTLY CLOSING SHUTOFF VALVES BEFORE AND AFTER THE ASSEMBLY, TEST COCKS AND A PROTECTIVE STRAINER UPSTREAM OF THE FIRST SHUTOFF VALVE. THE ASSEMBLY SHALL MEET THE REQUIREMENTS OF ASSE 1013 AND AWWA C511	-	3/4"	-
P13	1" RPZ BACKFLOW PREVENTER	WATTS LF909 QT OR EQUAL BY CONBRACO OR WILKINS	RPZ ASSEMBLY CONSISTING OF A PRESSURE DIFFERENTIAL RELIEF VALVE LOCATED IN A ZONE BETWEEN TWO POSITIVE SEATING CHECK VALVES. THE ASSEMBLY SHALL INCLUDE TWO TIGHTLY CLOSING SHUTOFF VALVES BEFORE AND AFTER THE ASSEMBLY, TEST COCKS AND A PROTECTIVE STRAINER UPSTREAM OF THE FIRST SHUTOFF VALVE. THE ASSEMBLY SHALL MEET THE REQUIREMENTS OF ASSE 1013 AND AWWA C511	-	1"	-
YHD	YARD HYDRANT	WOODFORD MODEL 54H OR APPROVED EQUAL	AUTO DRAIN W. BACKFLOW PREVENTION. BURY DEPTH TO BE BELOW FROST LINE. COORDINATE WITH SITE CONDITIONS.	-	-	-
FCO	FLOOR CLEANOUT	ZURN, WATTS, JR SMITH	EPOXY COATED CAST IRON FLOOR CLEANOUT WITH ROUND ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB INLET.	-	-	4"
WCO	WALL CLEANOUT	ZURN, WATTS, OR JR SMITH	CAST IRON CLEANOUT FERRULE WITH THREADED BRASS COUNTERSUNK CLEANOUT PLUG, STAINLESS STEEL ACCESS COVER, AND VANDAL PROOF STAINLESS-STEEL SCREW	-	-	4"
AAV	AIR ADMITTANCE VALVE	STUDOR REDIVENT OR APPROVED EQUAL	ANSI/ASSE 1051 LISTED. NSF STANDARD 14. PROVIDE PVC OR ABS CONNECTOR AS NECESSARY. CONNECT VALVE TO PIPING PER MANUFACTURER. INSTALL IN THE VERTICAL, UPRIGHT POSITION AFTER ROUGH-IN AND PRESSURE TESTING OF THE SYSTEM. PROVIDE WALL BOX IF NOT ABOVE CEILING OR OTHERWISE CONCEALED.	-	-	2"

NOTE:
PC TO VERIFY ALL FIXTURES WITH ARCHITECT AND OWNER PRIOR TO PURCHASING

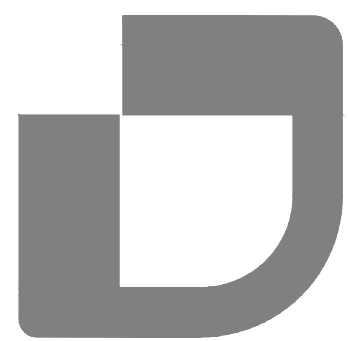
PLUMBING LINES SIZING TABLE									
FIXTURE TYPE	OCCUPANCY	QTY	DRAINAGE FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
			EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOTAL
WATER CLOSET (FLUSH TANK)	PUBLIC	6	4.00	24.00	5.00	0.00	5.00	0.00	30.00
SHOWER	PUBLIC	1	2.00	2.00	3.00	3.00	4.00	3.00	4.00
LAVATORY	PUBLIC	5	1.00	5.00	1.50	1.50	2.00	7.50	10.00
URINAL (2" FLUSH VALVE)	PUBLIC	2	2.00	4.00	5.00	0.00	5.00	0.00	10.00
DRINKING FOUNTAIN	PUBLIC	1	0.50	0.50	0.25	0.00	0.25	0.00	0.25
DEMAND FIXTURE	GPM	QTY	TOTAL GPM		TOTAL DFU		35.5		
HOSE BIBBS	5	5	25.00		TOTAL WFSUs	10.5	54.3		
					GPM	15.00	31.00		
					OTHER FIXTURES' GPM	0.00	25.00		
					TOTAL GPM	15.00	56.00		
MINIMUM BUILDING DRAIN SIZE	4"								
MINIMUM WATER LINE SIZE	1"								

ONE HOSE BIB IN OPERATION AT A TIME

ELECTRIC WATER HEATER SCHEDULE											
MARK	MFG	MODEL	TANK VOL	INPUT	RECOVERY	SET POINT	POWER		CONNECTIONS	OPTIONS	
			GALS	kW	GPH @ 60°ΔT	°F	VOLTAGE	PHASE	HOT		COLD
WH-2	STATE	ES6-20-SOMS	20	4.5	30	110	240	1	3/4	3/4	1-5

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

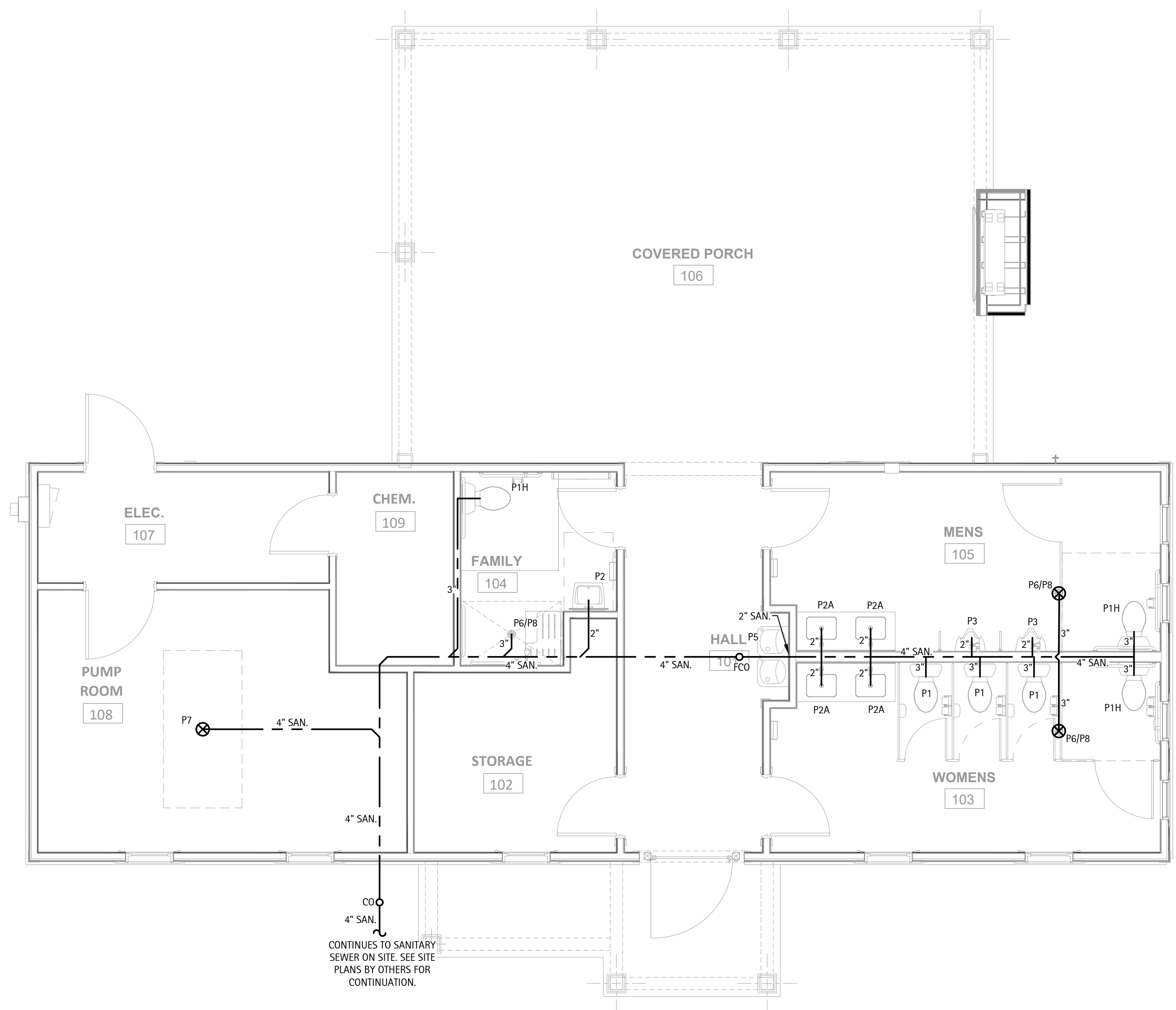
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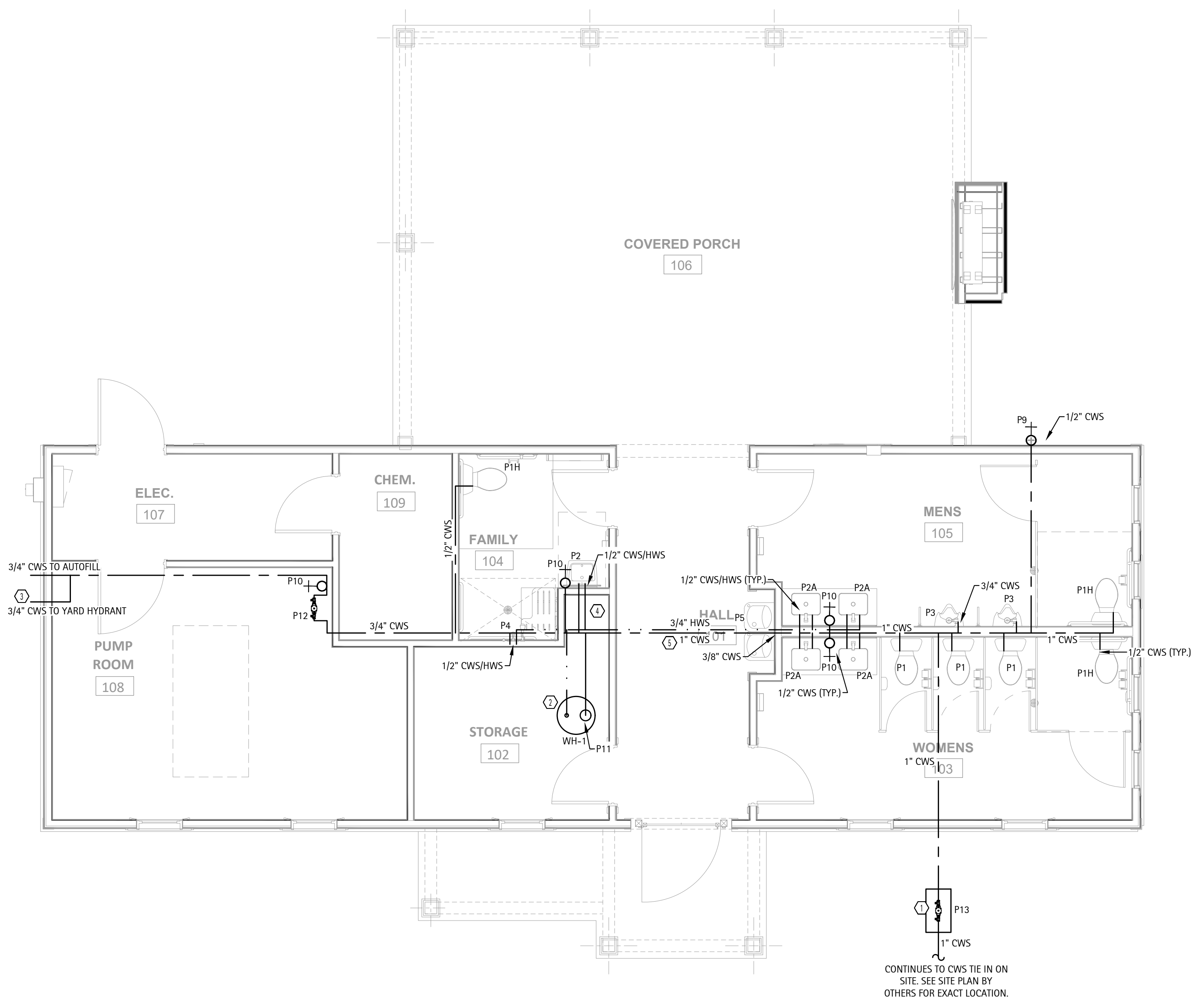
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- SUPPLY PLAN HEX NOTES**
- CONTINUE 1" DOMESTIC WATER LINE TO BACKFLOW PREVENTION IN HOTBOX. PC TO PROVIDE 1" RPZ (P13) IN HOTBOX. SEE SITE PLAN BY OTHERS FOR HOTBOX AND METER LOCATIONS.
 - WATER HEATER MOUNTED ABOVE CEILING.
 - VERIFY EXACT LOCATION OF YARD HYDRANT WITH ARCHITECT/BO.
 - ATTIC ACCESS. SEE ARCHITECTURAL PLANS FOR MORE INFORMATION.
 - PC TO COORDINATE WITH EC TO PROVIDE HEAT TRACE FOR FIXTURES WITH THIS NOTE.



CONTINUES TO SANITARY SEWER ON SITE. SEE SITE PLANS BY OTHERS FOR CONTINUATION.



CONTINUES TO CWS TIE IN ON SITE. SEE SITE PLAN BY OTHERS FOR EXACT LOCATION.

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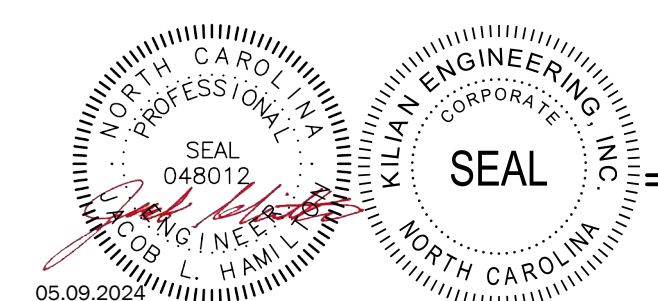
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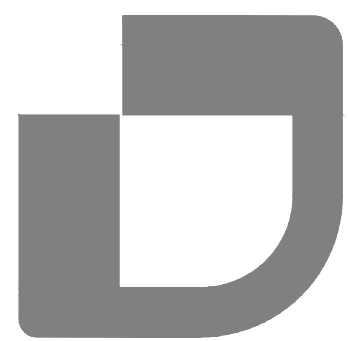
PROJECT #: 240262
 DATE ISSUED: 05/09/2024
 DRAWING BY: SLT
 CHECKED BY: JLH

PROJECT STATUS

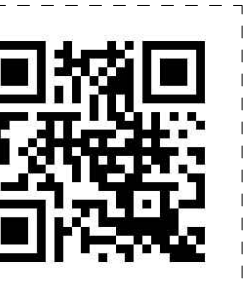
ROLESVILLE CROSSING
CLIENT NAME
CLUBHOUSE PLANS
ROLESVILLE, NC



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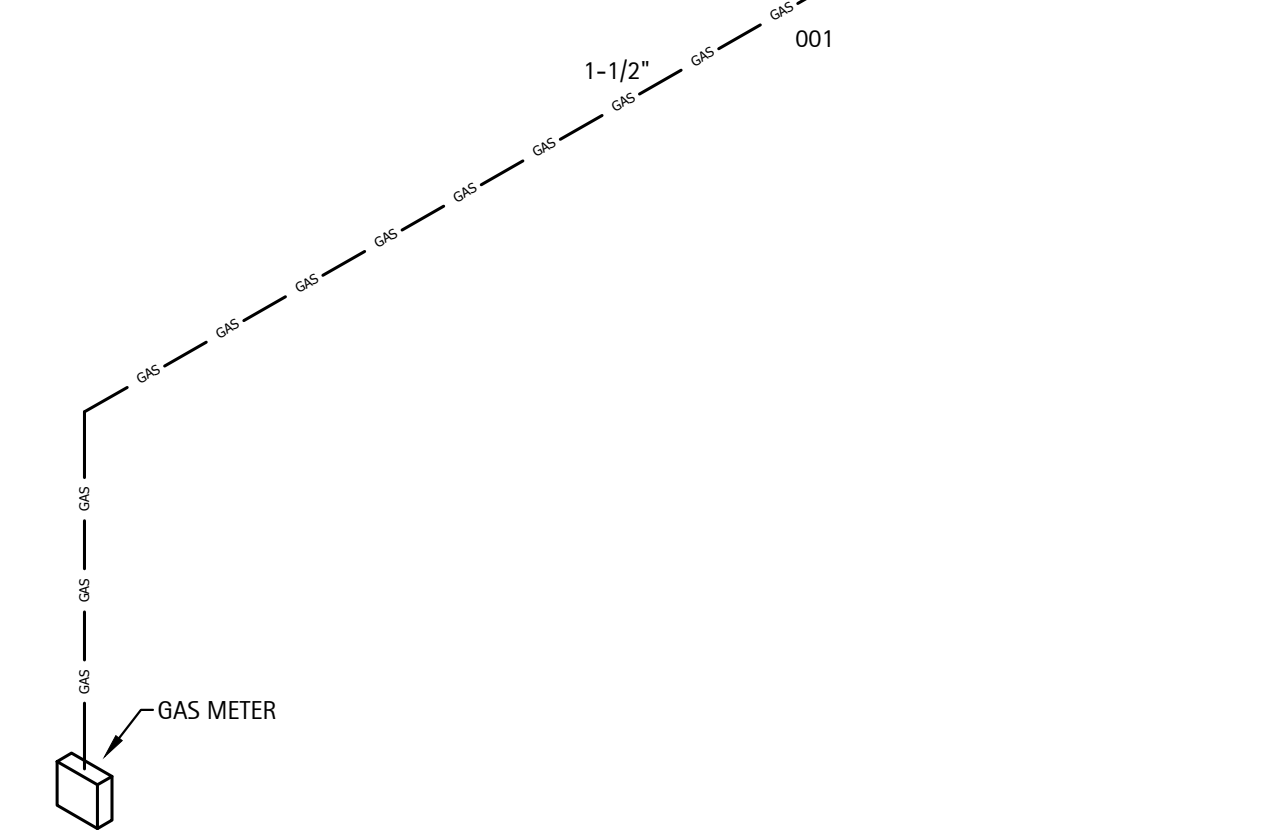
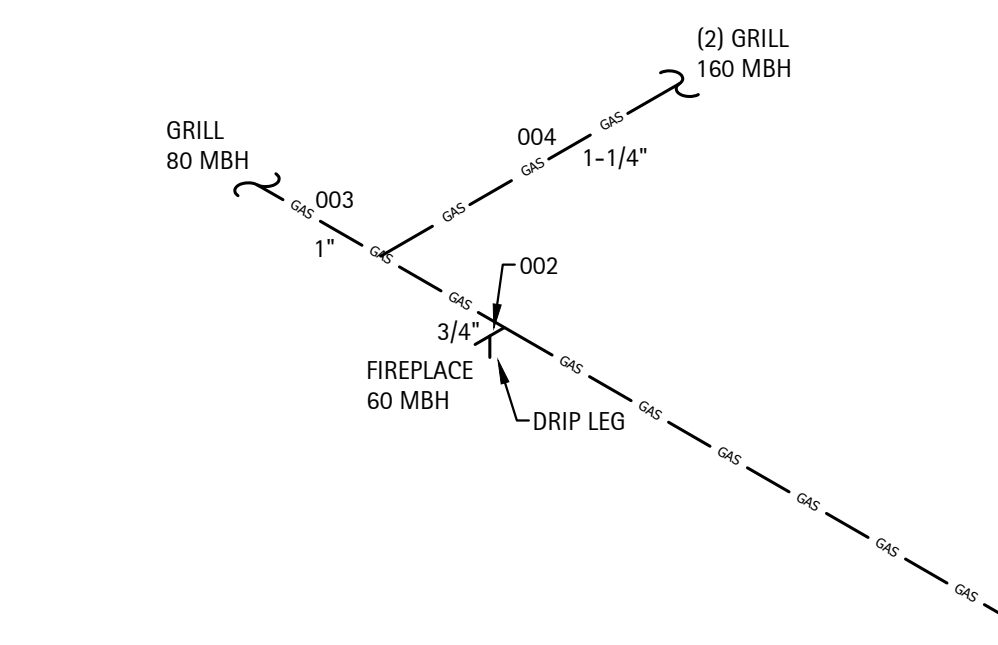
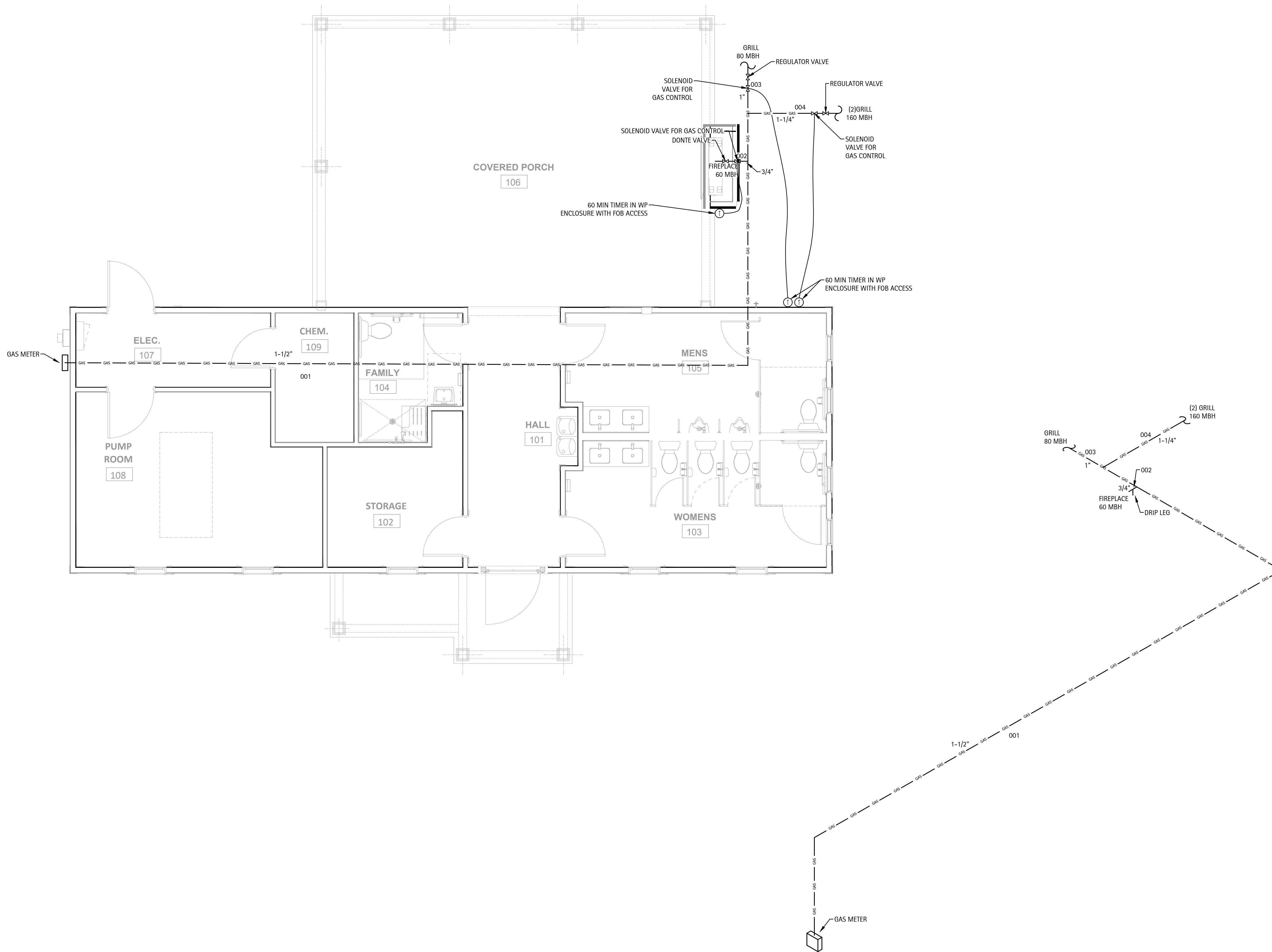


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GENERAL GAS LINE PIPING NOTES

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



GAS LINE SIZING VERIFICATION TABLE
PER 2018 NC FUEL GAS CODE TABLE 402.4(2)

SECTION	GAS LOAD MBTU/H	LINE SIZE INCHES	CAPACITY CFH	PRESSURE IN WG
001	300.0	1-1/2"	482.0	7"
002	60.0	3/4"	83.0	7"
003	80.0	1"	157.0	7"
004	160.0	1-1/4"	322.0	7"

BASED ON 150' OF DEVELOPED LENGTH

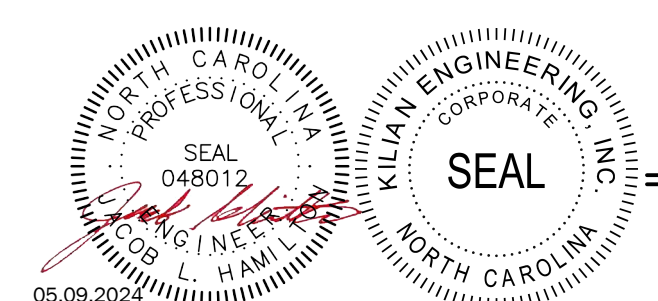
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NO.	REVISION	DATE

SHEET DESCRIPTION
GAS PLAN

PROJECT #: 240262
DATE ISSUED: 05/09/2024
DRAWING BY: SLT
CHECKED BY: JLH
PROJECT STATUS

ROLESVILLE CROSSING
CLIENT NAME
CLUBHOUSE PLANS
ROLESVILLE, NC



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

G1

GENERAL MECHANICAL NOTES:

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

MATERIALS:

- THE MC SHALL PROVIDE ALL DV UNITARY HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. AIR-COOLED SYSTEM HEAT PUMPS AND AIR-CONDITIONERS SHALL BE BY TRANE, CARRIER, OR YORK. AIR-COOLED ROOFTOP PACKAGE HEAT PUMPS, GAS-ELECTRIC UNITS, AND AIR-CONDITIONERS SHALL BE BY TRANE, CARRIER, OR YORK. GAS FURNACES SHALL BE BY TRANE, CARRIER, OR YORK. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
- THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED. FANS SHALL BE BY GREENHECK, LOREN COOK, TWIN CITY, OR PENNBARRY.
- DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P.
- EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDICES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILLS, VAPOR BARRIERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES SHALL BE DETERMINED AS FOLLOWS:
 - FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECT TO COMPRESSION, THE NOMINAL INSULATION THICKNESS SHALL BE USED.
 - FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (DS-PERCENT COMPRESSION) OF NOMINAL THICKNESS.
 - FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.
- DUCT LINER MAY BE SUBSTITUTED FOR EXTERIOR DUCT WRAP. DUCT LINER INSULATION MATERIALS SHALL MEET THE REQUIREMENTS OF ASTM C 1071 AND ASTM G 21. EXTERIOR DUCT R-VALUE SHALL BE R-8 AND INTERIOR R-VALUE SHALL BE R-4 IN ACCORDANCE WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE. NOMINAL DUCT SIZES SHALL BE ADJUSTED AS NECESSARY SO THAT FREE AREA DIMENSIONS ARE PRESERVED AS SHOWN ON THE PLANS. FABRICATION AND INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND TO THE REQUIREMENTS OF THE LATEST EDITION OF THE NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION FIBROUS GLASS DUCT LINER STANDARDS AND/OR SMACNA HVAC DUCT CONSTRUCTION STANDARDS. DUCT LINER SHALL HAVE A BLACK PIGMENTED MAT ON THE AIRSTREAM SIDE TO RESIST DAMPING DURING INSTALLATION AND SERVICE. EDGES SHALL BE FACTORY COATED WITH BLACK PIGMENTED COATING TO COMPLY WITH SMACNA'S REQUIREMENTS. ALL PORTIONS OF DUCT DESIGNATED TO BE PIGMENTED DUCT LINER SHALL BE COMPLETELY COVERED WITH DUCT LINER. TRANSVERSE JOINTS SHALL BE NEATLY BUTTED AND THERE SHALL BE NO INTERRUPTIONS OR GAPS. THE BLACK PIGMENTED OR MAT FACED SURFACES SHALL FACE THE AIRSTREAM. DUCT LINER SHALL BE ADHERED TO THE SHEET METAL WITH 90 PERCENT COVERAGE OF ADHESIVE COMPLYING WITH REQUIREMENTS OF ASTM C 916. ALL EXPOSED LEADING EDGES AND TRANSVERSE JOINTS SHALL BE FACTORY COATED OR COATED WITH ADHESIVE DURING FABRICATION. DUCT LINER SHALL BE ADDITIONALLY SECURED WITH MECHANICAL FASTENERS, EITHER WELD-SECURED OR IMPACT DRIVEN. WHEN SUCH COMPRESS THE DUCT LINES SUFFICIENTLY TO HOLD THEM IN PLACE. ADHESIVE BONDED JOINTS ARE NOT PERMITTED DUE TO LONG-TERM ADHESIVE AGING CHARACTERISTICS. LINES SHALL BE INTERRUPTED AT THE AREA OF OPERATION OF A FIRE DAMPER AND AT A MINIMUM OF 6 INCHES UPSTREAM AND 6 INCHES DOWNSTREAM OF ELECTRIC RESISTANCE AND FUEL-BURNING HEATERS IN A DUCT SYSTEM. METAL NOSINGS OR SLEEVES SHALL BE INSTALLED OVER EXPOSED DUCT LINER THAT FACE OPPOSITE THE DIRECTION OF AIRFLOW. UPON COMPLETION OF INSTALLATION OF DUCT LINER AND BEFORE OPERATION IS TO COMMENCE, VISUALLY INSPECT SYSTEM AND VERIFY THAT THE DUCT LINER IS PROPERLY INSTALLED. OPEN ALL SYSTEM DAMPERS AND TURN ON FANS TO BLOW ALL SEAMS AND OTHER LOOSE PIECES OF MATERIAL OUT OF THE DUCT SYSTEM. ALLOW FOR A MEANS OF SUCH MATERIAL.
- ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPm. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
- MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 1814-95 OR UL 1818-98. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAN THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
- ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 50 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
- FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181-96.
- FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FULL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIRAL FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
- THE MC SHALL PROVIDE ALL DIFFUSERS, GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILING, INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE BY HART & COOLEY, PRICE, METAL-ARE, NAULOR, OR CARNES.

METHODS:

- INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP. INSTALLED R-VALUE SHALL BE A MINIMUM R-4. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL 50 INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CURVED STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY MAWIF INSULATION, OWENS CORNING CORP. OR CERTAINTED CORPORATION.
- VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE BLOCKED.
- WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOUVER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE. SEAL TO LOUVER FRAME AND DUCT.
- DUCTS CONNECTING TO A FURNACE SHALL HAVE A CLEARANCE TO COMBUSTIBLES IN ACCORDANCE WITH THE FURNACE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- FOR STRUCTURES IN FLOOD HAZARD AREAS, DUCTS SHALL BE LOCATED ABOVE THE DESIGN FLOOD ELEVATION. DUCT SHALL NOT BE INSTALLED IN OR WITHIN 4 INCHES OF THE EARTH.
- PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS.
- CONSTRUCT T, BENDS, AND ELBOWS WITH RADIUS OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS WILL BE USED, PROVIDE TURNING VANES.
- INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE, MAXIMUM OF 30 DEGREES DIVERGENCE. SYSTEMS OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
- IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND LISTS STANDARD, COMMERCIALY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS, THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUHATED STEEL DECKING.
- DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZOID TYPE HANGERS SUSPENDED WITH THREADED ROD, SUPPORT DUCTS FROM BAR JOISTS, GIRDERS, OR BEAMS.
- CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURE'S DETAILS, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
- PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS, AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN FLOW, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.
- MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 554), CURTAIN TYPE, WITH INTEGRAL FACTORY SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 07 OF THE 2018 NC MECHANICAL CODE. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADATION DAMPERS AND THERMAL BARRIERS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADATION DAMPERS SHALL BE UL LABELED (UL 555) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADATION DAMPERS SHALL BE BY DUKSON, NAULOR, OR LLOYD INDUSTRIES.
- MC SHALL INSTALL A SMOKE DETECTOR-UL LISTED FOR DUCT INSTALLATION (UL 268A) IN EACH UNIT'S RETURN UPSTREAM OF ANY FILTERS, OUTSIDE AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72. DUCT SMOKE DETECTOR SUPERVISED SIGNAL COMPLY WITH 606.4.1 OF THE 2018 NC MECHANICAL CODE. IF THE BUILDING IS (TO BE) EQUIPPED WITH A FIRE ALARM SYSTEM, THE FIRE ALARM SYSTEM CONTRACTOR SHALL FURNISH AND WIRE ALL DUCT SMOKE DETECTORS. IF THE BUILDING IS NOT PROVIDED WITH A FIRE ALARM SYSTEM, THE MC SHALL FURNISH AND WIRE THE DUCT SMOKE DETECTORS AND A V-DEVICE. IT SHALL BE THE RESPONSIBILITY OF THE MC TO INSTALL ALL SMOKE DETECTOR DETECTORS PER NFPA AND MPFS INSTALLATION INSTRUCTIONS REGARDLESS OF WHO FURNISHES THE DEVICES.
- MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS OF SECTION C402.2.4 OF THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.
- FRESH AIR INTAKES SHALL BE INSTALLED ON ALL UNITS AS SHOWN ON DRAWINGS. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST TERMINATIONS AND MAINTAIN 10 FEET ROPS.
- UNITS PROVIDED WITH ECONOMIZERS SHALL ALSO BE PROVIDED WITH POWERED EXHAUST AND COMPARATIVE ENTHALPY CONTROLS.
- MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
- P-TAPS MUST BE INSTALLED ON ALL UNITS. MC SHALL INSTALL AUXILIARY DRAIN PANS UNDER OVERHEAD AIR HANDLERS AND AN AUTOMATIC CUP-OFF FLOAT SWITCH FOR EACH. P-TAPS AND CONDENSATE LINES SHALL BE 1/2 INCH. P-TAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN FLENUMS. OTHERWISE, THEY SHALL BE TYPE B BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER NORTH CAROLINA ENERGY CONSERVATION CODE C402.5.

HEX PLAN NOTES

- EXHAUST DUCT TO TURTLE BACK ROOF VENT ON BACK SIDE OF ROOF PITCH. PROVIDE WITH INSECT SCREEN. COORDINATE EXACT LOCATION WITH G.C. VENT AWAY FROM POOL/POOL DECK.
- LOUVERED EXHAUST GRILLE INSTALLED IN GYPSUM CEILING. TURN LOUVERED BLADES TOWARDS WALL.
- SUSPENDED INLINE EXHAUST FAN TO BE INSTALLED IN ATTIC. ENSURE ALL MANUFACTURER CLEARANCES ARE MAINTAINED. COORDINATE WITH G.C. TO PROVIDE ACCESS FOR MAINTENANCE.
- DOOR WITH WEATHER PROOF LOUVER BY G.C. LOUVER TO BE 18"X18".
- MC TO KEEP PUMP ROOM EXHAUST AND BATHROOM EXHAUST SEPARATE.
- COMBINE BATHROOM EXHAUST TO ONE 14" EXHAUST DUCT.
- EXHAUST FAN TO BE WIRED FOR CONTINUOUS OPERATION.
- CORROSION RESISTANT UNIT HEATER.

PLAN NOTES

- ALL EQUIPMENT AND DUCT WORK IN PUMP ROOM AND CHEMICAL ROOM TO BE CORROSION RESISTANT.

VENTILATION CALCS

CHEMICAL STORAGE:
 59 SQFT X 10' HIGH CEILING = 590 CU. FT @ 10 ACH = 98.3 CFM
 *100 CFM PROVIDED

PUMP ROOM:
 233 SQFT X 10' HIGH CEILING = 2330 CU. FT @ 10 ACH = 388 CFM
 *400 CFM PROVIDED

ELECTRIC UNIT HEATER SCHEDULE

MARK	MFG / MODEL #	HEATER	VOLT/PH	HEAT	MOCF	NOTES	
UH-1	MARKEL / H33172SRPW	KW	4.8	240/1	4.8	30.0	1-2,5-6
UH-2,3	RAYWALL / AFA230D	3.0	240/1	3.0	20.0	1-4	
UH-2	MARKEL / E3313T2SRPW	1.5	120/1	1.5	20.0	1-4	

REGISTER & GRILLE SCHEDULE

MARK	MFG	MODEL #	SIZE	MOUNTING	DESCRIPTION	NOTES
R	NAULOR	5145H	12X12	CEILING	ALUMINUM LOUVERED RETURN GRILLE	1
R2	HART & COOLEY	RH45	12X12	SURFACE	ALUMINUM SURFACE MOUNT RETURN GRILLE	1
R3	HART & COOLEY	RH45	18X18	SURFACE	ALUMINUM SURFACE MOUNT RETURN GRILLE	1

- OR EQUAL BY PRICE, METAL-ARE, CARNES, TITUS OR NAULOR.

MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE	PRESCRIPTIVE ZONE 4A
EXTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	23.1°F
COOLING DESIGN DRY BULB	91.7°F
COOLING DESIGN WET BULB	75.6°F

INTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	70°F
COOLING DESIGN DRY BULB	75°F
COOLING RELATIVE HUMIDITY	50%

PUMP ROOM (DESIGNED AT 50°F HEATING DRY BULB)	
HEATING LOAD:	14,808 BTU/H

WOMENS RESTROOM (DESIGNED AT 50°F HEATING DRY BULB)	
HEATING LOAD:	8,475 BTU/H

MENS RESTROOM (DESIGNED AT 50°F HEATING DRY BULB)	
HEATING LOAD:	6,508 BTU/H

FAMILY RESTROOM (DESIGNED AT 50°F HEATING DRY BULB)	
HEATING LOAD:	2,508 BTU/H

MECHANICAL SPACING CONDITIONING SYSTEM:

UNITARY	AIR COOLED DX
DESCRIPTION OF UNIT(S)	UNIT HEATERS
BOILER	N/A
TOTAL BOILER OUTPUT	N/A
CHILLER	N/A
TOTAL CHILLER CAPACITY	N/A

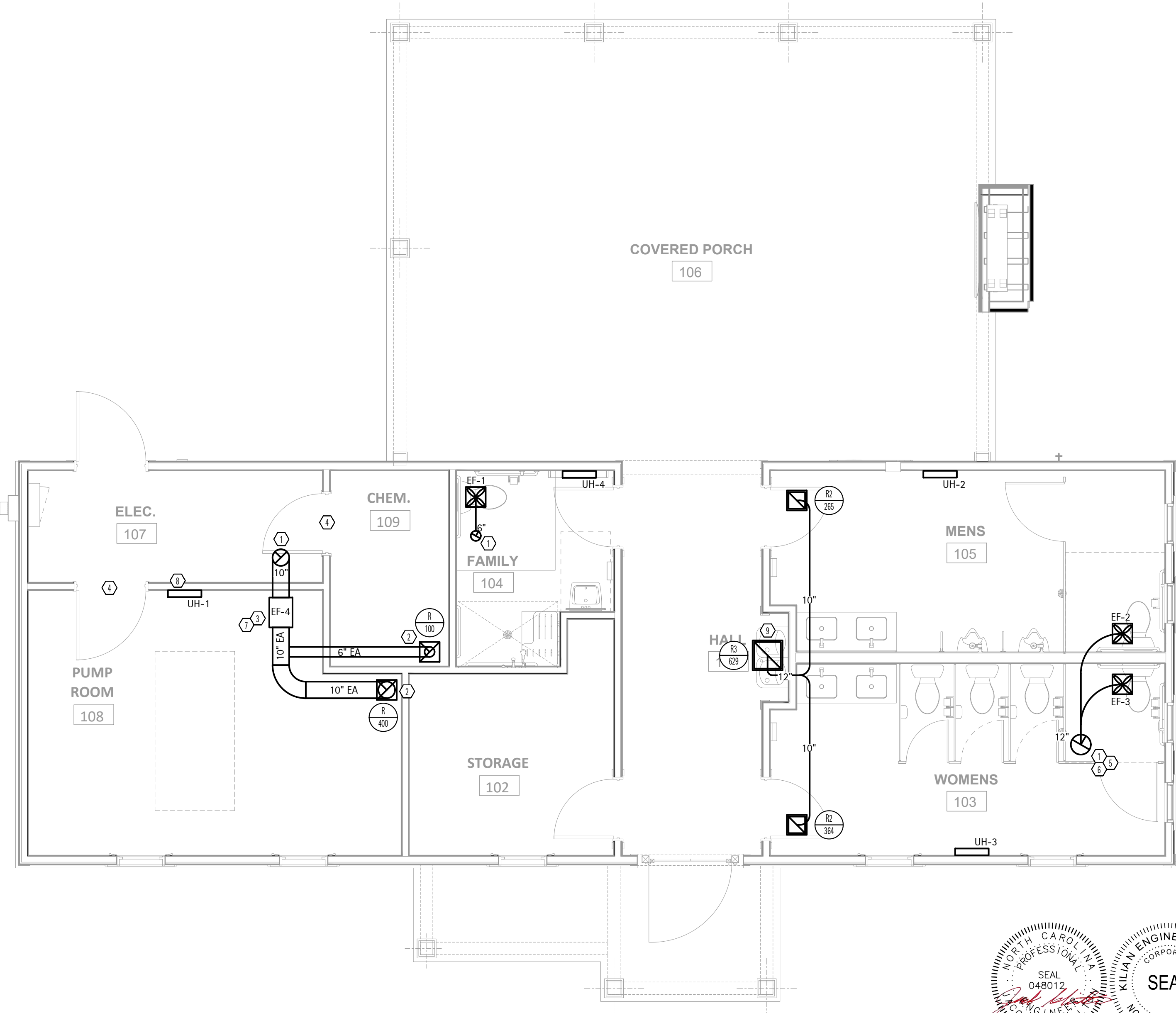
EQUIPMENT EFFICIENCIES:	SEE SCHEDULES
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EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS):	SEE SCHEDULES
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DESIGNER STATEMENT:

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

MECHANICAL SCHEDULES & DESIGNER'S STATEMENT 2



Killian Engineering, Inc.
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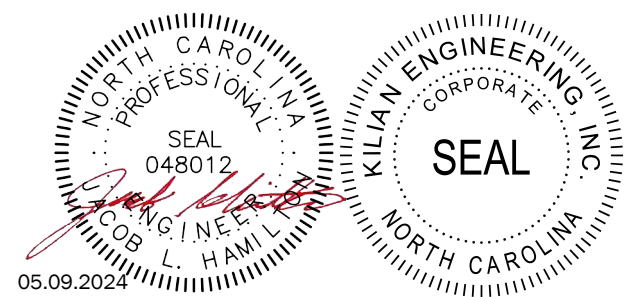
DATE	
REVISION	
NO.	

SHEET DISCRPTION
MECHANICAL PLAN

PROJECT #: 240262
 DATE ISSUED: 05/09/2024
 DRAWING BY: SLT
 CHECKED BY: JLH

PROJECT STATUS

ROLESVILLE CROSSING
 CLIENT NAME
 CLUBHOUSE PLANS
 ROLESVILLE, NC



MECHANICAL NOTES 1

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

M1

GENERAL ELECTRICAL NOTES:

ADMINISTRATIVE:

- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
PC - PLUMBING CONTRACTOR, EC - ELECTRICAL CONTRACTOR,
MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR,
FAC - FIRE ALARM SYSTEM CONTRACTOR, AHJ - AUTHORITY HAVING JURISDICTION
PROVIDE MEANS TO FURNISH AND INSTALL THE ELECTRICAL CONTRACTOR SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
- EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO ENSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERABLE AS NECESSARY FOR THE COMPLETION AND PROPER WORKMANSHIP SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING.
- ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLADDED BY THE ELECTRICAL CONTRACTOR AT AN APPROVED LOCATION. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE ELECTRICAL CONTRACTOR UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
- DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
- THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER IF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
- GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT. IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS. GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH 250.34. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS. ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.54 AS NECESSARY.
- THE ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE WITH THE GENERAL CONTRACTOR REGARDING THE BONDING OF THE FOOTING REBAR, SO THAT IT WILL BE IN PLACE AND READY AT THE TIME OF FOOTING INSPECTION.
- ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
- CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT BEFORE CONSTRUCTION. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE EQUIPMENT SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER IF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BULBS, AND TRANSFORMERS, WIRING AND ELECTRICAL EQUIPMENT, AND INSULATION. THESE MATERIALS INCLUDING PVC, PIP, POLYURETHANE LAMP BALLASTS, OR OTHER HAZARDOUS SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
- ALL WORK SHALL CONFORM TO 2020 NATIONAL ELECTRICAL CODE, 2018 STATE BUILDING CODE, AND ALL APPLICABLE LOCAL CODES.

MATERIALS:

- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC. UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCREPANCIES.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH UTILITY REGULATIONS SERVICE AND METERING DETAILS PRIOR TO ORDERING EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED. PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER-HAMMER, SIEMENS, OR GE. BUSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. EXCESSIVE PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BASES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE LABELED AND UL LISTED FOR SUCH USE. ELECTRICAL CONTRACTOR SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. ELECTRICIAN SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
- ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, Eaton, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSZMANN, ULTRAFUSE, OR WILSON.
- OCCUPANCY SENSORS SHALL BE WATSTOPPER, TRITON, GENESIS SWITCHES, HUBBELL, OR APPROVED EQUAL. CIRCUIT BREAKERS SHALL BE MOLDO-CASE, FEDERAL MAGNETIC TYPE WITH UL-CASE, MOLDO-CASE, OR OEM MECHANISM. COMMON TRIP ON MULTI-POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.
- ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
- THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THINWALL OR XHHW. ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THIN OR XHHW INSULATION. INSULATION VOLTAGE RATINGS SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #14 AND #12 AWG, AND STRANDED COPPER FOR #10 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. PINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC., INDUSTRIAL WIRE & CABLE, INC., ENCORE WIRE CORPORATION, OR SOUTHWIRE COMPANY.
- JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS," JMC "SCOTCH LOCK," OR TIG "PUSH" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM TUBES THAT OR EXCEED THE STRENGTH OF THE WIRE. MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES, TROUGHS, OR OUTLETS, WHERE CONCENTRIC, ECCENTRIC, OR OVERSIZED INDOCKOUTS ARE ENCOUNTERED, A GROUNDING TYPE INSULATED BUSHING SHALL BE PROVIDED.
- ALL LUMINAIRES SHALL BE LISTED. LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
- ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY PREPARED, RACO, OR O-RINGED. COUPLINGS SHALL BE THREADED, SET SCREEN, OR COMPRESSION TYPE. INDENTOR OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PERMITTED.
- EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (RSC), ANSI C80.1 AND U.S. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT (ANSI C80.6 AND UL 1242). METAL CONDUIT SHALL BE BY ALIUED TUBING & CONDUIT, BECKY MANUFACTURING, INC. OR WREKATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID-TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY APC CABLE SYSTEMS, INC., ELECTRI-FLEX COMPANY, OR INTERNATIONAL METAL HOSE.

METHODS:

- EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN THE CONTRACT.
- ALL CIRCUIT BREAKERS FEEDING HAZARDOUS EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4" CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUNDING AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
- COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK AND RED FOR PHASES A AND B RESPECTIVELY ON 120/240 VOLT SINGLE-PHASE SYSTEMS AND WHITE FOR THE NEUTRAL. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLenums.
- ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT

WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPINNER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(B).

- MOUNT LIGHT SWITCHES AT 48" IN AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECTURE. INSTALL SWITCHES WITH #4 POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, IVORY PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/UNDERS FOR MULTI-AND BOXES FOR COMPLIANCE WITH NEC 410.4(B).
- ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE-STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE-RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
- ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. RETROFITTERS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HWC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 6 FEET FOR SERVING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 488 STANDARDS. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1.
- LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
- CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. ** TYPE NM CABLE MAY BE USED FOR INTERIOR BRANCH CIRCUITS IN NORMALLY DRY LOCATIONS SUBJECT TO THE RESTRICTIONS OF NEC 314.10 AND 314.12. TYPE NM CABLE CONDUCTORS SHALL BE IDENTIFIED PER NEC 314.80. ** FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT FOR JAY-UL LIGHT FIXTURES. USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE CABLE OR THE FLEXIBLE CONDUIT PROVIDED BY THE FUTURE MANUFACTURER. SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE, UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 40 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TYPE 48" IN BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STOP INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL RISE AT LEAST 2" ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS, SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH 300.5(B), 300.7(A), AND 300.5(B)(2) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILING PARALLEL AND PERPENDICULAR TO WALLS COMPLETELY AND THOROUGHLY SHAB ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUFFICIENT WIRE PULLING LUBRICANT FOR BUILDING WIRE #14 AWG AND LARGER. CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL-CORRODABLE SHEET ROOF DECKING, SHALL BE INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1-1/2" IN MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX & CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS IN METAL-CORRODABLE SHEET DECKING-TYPE ROOF. SEE NEC 300.4(E).

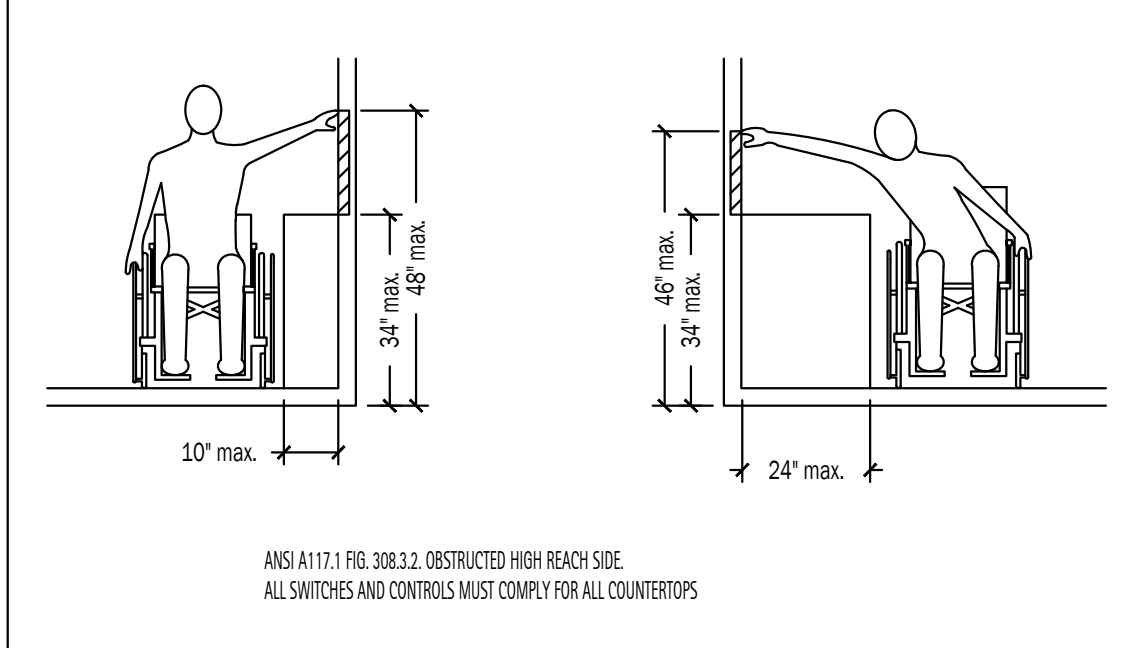
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY PREPARED, RACO, OR O-RINGED. JUNCTION BOXES SHALL BE TYPE E, WATERSHED SURFACES SHALL BE TYPE G5. WATERSHED SURFACES MOUNTED BOXES SHALL BE USED. THESE BOXES AND THEIR FACEPLATES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE ELECTRICAL CONTRACTOR. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH NORTH CAROLINA BUILDING CODE 17-42.3. MAXIMUM BOX SIZE IS 16 SQUARE INCH AND MAXIMUM SIX (6) BOXES PER 100 SQUARE FEET. INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE OYSMAN BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK. SURFACE MOUNTED FIXTURES SHALL BE FRED THROUGH FLUSH MOUNTED 4x4 OCTAGONAL OR SQUARE BOXES.
- ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS OR SUBMITTED IN CONCRETE OR MASONRY. ELECTRICAL SUPPLIES SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATADOPTUS COMPLIABLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1" EMT CONDUIT MAXIMUM AND 1" IN JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1015 OF THE NORTH CAROLINA GENERAL CONSTRUCTION BUILDING CODE.
- WHERE CONDUCTORS ARE RUN IN PARALLEL, EC SHALL COMPLY WITH NEC 310.10(B).
- ISOLATED-GROUND TYPE RECEPTACLES SHALL BE INSTALLED IN ACCORDANCE WITH 250.140(B). ISOLATED GROUND RECEPTACLES SHALL BE BRANKE IN COLOR.
- TRANSFER EQUIPMENT SHALL BE LISTED FOR THE PARTICULAR USE (I.E., "EMERGENCY" OR "STANDBY") AND SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION.
- PROVIDE AN UNDERGROUND PVC CONDUIT SYSTEM FOR TELEPHONE SERVICE WITH PULL WIRES. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY REGARDING ADDITIONAL FACILITIES REQUIRED FOR THE SERVICE INSTALLATION.
- INSTALL ONE (1) 3/4" IN FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SERVICE. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE DRAWING BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.
- ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUND-INCH ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE 4" IN SQUARE BY 2-1/8" IN DEEP BOX WITH 3/8" IN KNOCK-OUTS AND A 3/4" IN CONDUIT STRIBBED FROM THE OUTLET BOT TO ABOVE THE CEILING. PROVIDE A BANK COVER PLATE ON ALL OUTLET BOXES.
- ELECTRICAL CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWARES EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART II, WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC., IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL. PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
- ELECTRICAL CONTRACTOR SHALL FIELD IDENTIFY ALL SWITCH-BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.10 OF THE NEC. ELECTRICAL CONTRACTOR SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE, WHITE ENGRAVED LETTERS (1/4" IN MINIMUM) ETCHED INTO THE WHITE CORE. ELECTRICAL CONTRACTOR SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.
- IN ACCORDANCE WITH SECTION 6510 OF THE NC FIRE PREVENTION CODE, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER RADIO SIGNAL STRENGTH INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A CERTIFIED 3RD PARTY. TESTING SHALL TAKE PLACE AT BOTH 80% PROJECT COMPLETION AND AGAIN AT 100% COMPLETION. IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.

LIGHT FIXTURE SCHEDULE										
MARK	DESCRIPTION	LOUVER/LENS	LAMPS		VOLTAGE	MAX INPUT WATTA GE	MOUNTING	REMARKS	MFG	MODEL
			TYPE	CCT						
A	4" 2 LAMP VAPOR PROOF STRIP LIGHT	-	LED	-	120	64	SURFACE	2	EPCO	G-4-LED-FX-S-41-34
B	6" CAN LIGHT	-	LED	-	120	12	RECESSED	2	JUNO	IC22LED-G4-09LM-35K-90CRI-MVOLT
B2	6" CAN LIGHT	-	LED	-	120	10.44	RECESSED	2	LITHONIA	LDN6-35K/10-LO6-MVOLT-EL
C	VANITY LIGHT	-	LED	-	120	32	WALL	2	LITHONIA	FMV5CL-48IN-40K-90CRI-BZ
D	OUTDOOR FAN W/ LIGHT KIT	-	LED	-	120	67	SURFACE	2	ZOONIX	MA4660
E	1X4 STRIP LIGHT	-	LED	3500K	120	35	SURFACE	2	LITHONIA	CSS-148-4000LM-MVOLT-35K-80CRI
F	FLOOR LIGHT	-	LED	-	120		SURFACE	2	COOPER	MSS-15-3T-18
EM	DUAL HEAD EMERGENCY FIXTURE	ACRYLIC	LED	N/A	120	2	VARIES	1,2	LITHONIA	ELM2-LED-SD
EX	EXIT SIGN	ACRYLIC	LED	N/A	120	5	VARIES	1,2	EXIT LIGHT COMPANY	ELM-RM-R-A-BB-ST-5
EXH	LED EXIT/COMBO W/ BATTERY BACKUP	ACRYLIC	LED	N/A	120	4	VARIES	1,2	EMERGI-LITE	LSNX42NOC
OE	EXTERIOR OVAL LED EMERGENCY LIGHT	POLYCARBONATE	LED	-	120	2	SURFACE	1,2	EELP	DEM-EM

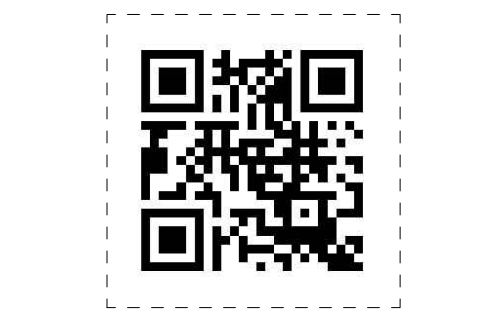
- FIXTURE SHALL HAVE BATTERY BACKUP FOR 90 MINUTE ILLUMINATION.
- OR EQUAL BY COOPER, PHILIPS, DAY-BRITE LIGHTING, GE, LITHONIA, OR OWNER APPROVED SELECTION

LIGHTING DEVICE LEGEND		
SYMBOL	DESCRIPTION	REMARKS
⚡	SINGLE POLE WALL SWITCH	HEAVY DUTY, AC ONLY, COMMERCIAL GRADE GENERAL USE SNAP SWITCH COMPLYING WITH NEMA WD 6 AND WD 1. IVORY PLASTIC BODY WITH TOGGLE HANDLE. 120-277V, 20A. MEET FEDERAL SPECIFICATION W-5-896.
⚡	DIMMER SWITCH	COMMERCIAL GRADE, 120V, 1500W
⚡	HALL MOUNTED OCCUPANCY SENSOR	WATSTOPPER DW-100 LINE VOLTAGE OCCUPANCY SENSOR. ULTRA SONIC AND INFRARED.
⚡	LOW VOLTAGE SWITCH	WATSTOPPER LVS-1 LOW VOLTAGE MOMENTARY CONTROL SWITCH.
⚡	3 WAY SWITCH	3-WAY TYPE SWITCH WITH SAME CHARACTERISTICS AS SINGLE POLE SWITCH ABOVE.
⚡	CEILING OCCUPANCY SENSOR	WATSTOPPER, DT-300 LOW VOLTAGE OCCUPANCY SENSOR. 360° ULTRA SONIC AND INFRARED.
⚡	CEILING OCCUPANCY SENSOR	WATSTOPPER, WT-2255 LOW VOLTAGE OCCUPANCY SENSOR. ULTRA SONIC, 90 LINEAR FT COVERAGE.
⚡	SWITCHING PHOTOSENSOR	WATSTOPPER, LS-102, CONSULT OWNER FOR FOOT-CANDLE SET POINT.
⚡	POWER PACK	WATSTOPPER, BZ-150 LOW VOLTAGE POWER PACK FOR CEILING PACK SENSORS.
⚡	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.
⚡	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.

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



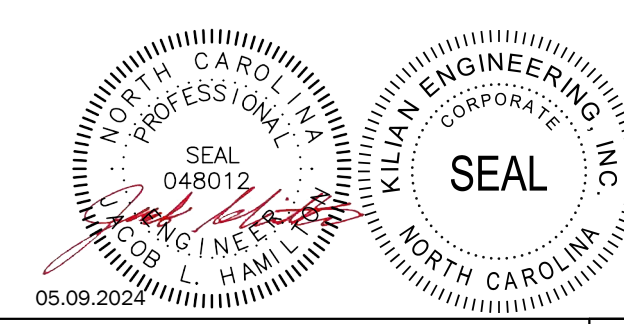
ELECTRICAL DESIGNER'S STATEMENT			
ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE			
PRESCRIPTIVE ___ X ___ PERFORMANCE ___		ENERGY COST BUDGET ___	
LIGHTING SCHEDULE:			
LAMP TYPE REQUIRED IN FIXTURE:	SEE LIGHTING LEGEND		
NUMBER OF LAMPS PER FIXTURE:	SEE LIGHTING LEGEND		
BALLAST TYPE USED IN FIXTURE:	SEE LIGHTING LEGEND		
NUMBER OF BALLASTS IN FIXTURE:	SEE LIGHTING LEGEND		
TOTAL WATTAGE PER FIXTURE:	SEE LIGHTING LEGEND		
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:	WATTS SPECIFIED	WATTS ALLOWED	
	735.0	1115.04	
OCCUPANCY	AREA (sf)	ALLOWANCE (W/sf)	WATTAGE ALLOWED
LEISURE	1104	1.01	1115.04
TOTAL	1104		1115.04
EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)			
MOTOR HORSEPOWER: N/A			
NUMBER OF PHASES: N/A			
MINIMUM EFFICIENCY: N/A			
MOTOR TYPE: N/A			
NUMBER OF POLES: N/A			
DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.			
FOR THE ADDITIONAL PRESCRIPTIVE REQUIREMENT REQUIRED BY C406 OF 2018 NORTH CAROLINA ENERGY CONSERVATION CODE, WE ARE CHOOSING C406.3 - REDUCED LIGHTING POWER DENSITY.			
735.5 W SPECIFIED <= 1003.5 W (1115.04 W ALLOWED X 90%)			



DATE	REVISION	NO.

SHEET DISCRPTION
ELECTRICAL NOTES & SCHEDULES
 PROJECT #: 240262
 DATE ISSUED: 05/09/2024
 DRAWING BY: SLT
 CHECKED BY: JLH
 PROJECT STATUS

ROLESVILLE CROSSING
 CLIENT NAME
 CLUBHOUSE PLANS
 ROLESVILLE, NC

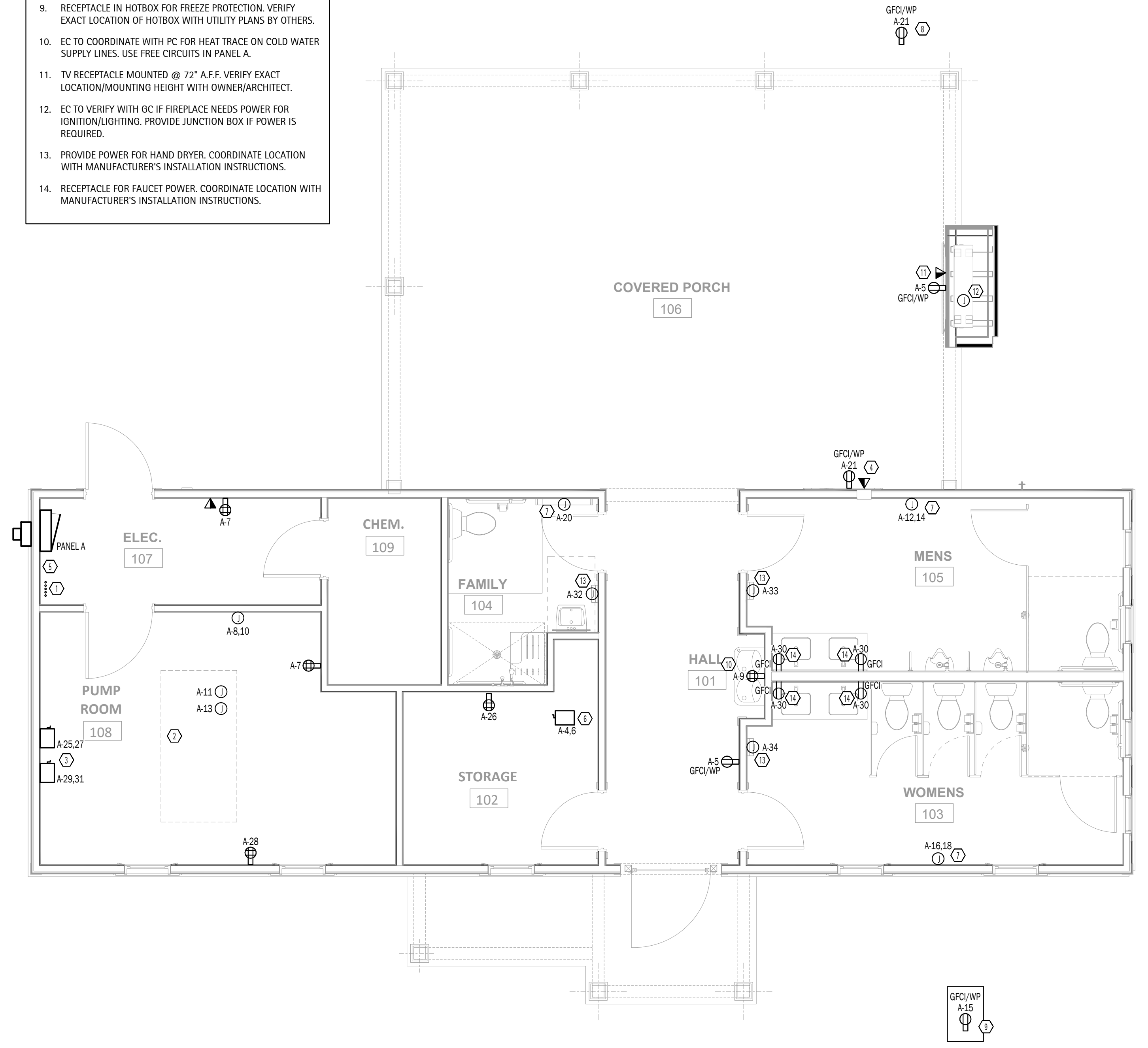
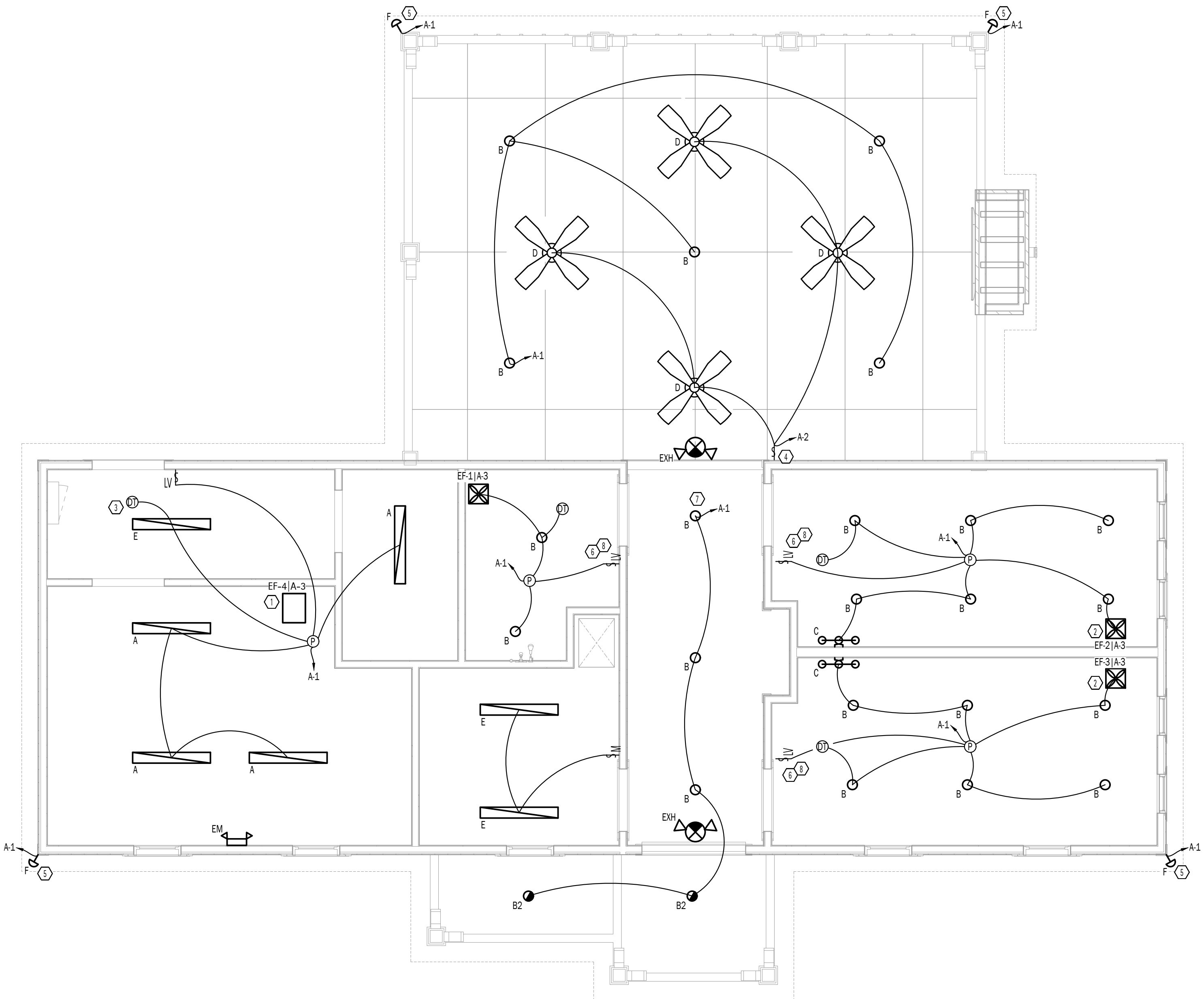


LIGHTING PLAN HEX NOTES

1. EXHAUST FAN SUSPENDED IN ATTIC TO BE WIRED FOR CONTINUOUS OPERATION, COORDINATE WITH M.C. PROVIDE LOCKABLE BREAKER AT PANEL.
2. EC TO TIE EXHAUST FAN AND LIGHTING FIXTURES TO SAME MOTION SENSOR.
3. PUMP ROOM AND CHEM. ROOM LIGHTS TO BE TIED TO SAME MOTION SENSOR.
4. PROVIDE 60 MINUTE SWITCH FOR FAN, PROVIDE IN WEATHERPROOF ENCLOSURE.
5. FLOOD LIGHT HAS BUILT IN MOTION DETECTION, AIM TOWARD POOL DECK.
6. MOTION SENSOR TO BE SET ON 20 MINUTE TIMER.
7. LIGHTING CIRCUIT CONTROLLED VIA PHOTOCELL LOCATED ON NORTH FACE OF BUILDING.
8. BATHROOM SWITCHES TO BE KEYED

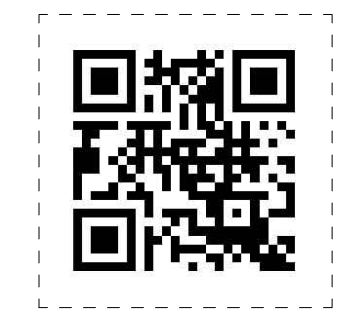
POWER PLAN HEX NOTES

1. PROVIDE (2) 1" CONDUITS WITH CIRCUITS AS SHOWN TO POOL FOR POOL LIGHTS AND OTHER POOLSIDE EQUIPMENT. PROVIDE (3) 1" CONDUITS FROM SPARE POOL, CIRCUITS AS SHOWN AND CAP RIGHT OUTSIDE ELECTRICAL ROOM. COORDINATE EXACT LOCATIONS WITH G.C. AND POOL CONTRACTOR. CIRCUIT TO BE CONTROLLED VIA TIME CLOCK AT PANEL. POOL LIGHTS TO BE WIRED VIA INTERMATIC JUNCTION BOX TRANSFORMER (MODEL PJBX52100). REFER TO PANEL SCHEDULE FOR CIRCUIT DESIGNATIONS.
2. AREA IS CORROSIVE ENVIRONMENT PER NEC 680.14.
3. PROVIDE POWER TO NON-FUSED DISCONNECT FOR POOL AND FEATURE PUMPS. PUMPS MUST HAVE GFCI PROTECTION. PROVIDE GFCI BREAKER IN PANEL. DISCONNECT MUST HAVE NEMA 4X RATED ENCLOSURE. COORDINATE EXACT LOCATION AND SPEC WITH G.C. AND POOL CONTRACTOR BEFORE BEGINNING WORK. FINAL CONNECTIONS BY E.C.
4. PROVIDE POWER TO EMERGENCY PHONE RECEPTACLE. FIELD VERIFY LOCATION WITH LOCAL AHJ.
5. PUSH BUTTON TIMER FOR FEATURE.
6. WATER HEATER DISCONNECT LOCATED ABOVE CEILING.
7. FLUSH MOUNT JUNCTION BOX FOR UNIT HEATER.
8. E.C TO COORDINATE WITH POOL CONTRACTOR TO ENSURE A GFCI/WEATHER PROOF RECEPTACLE IS WITHIN 20' OF EDGE OF POOL (BUT NO CLOSER THAN 6') AS REQUIRE BY NEC 680.22(A)(1). PROVIDE ON CIRCUIT 3 IN PANEL A.
9. RECEPTACLE IN HOTBOX FOR FREEZE PROTECTION. VERIFY EXACT LOCATION OF HOTBOX WITH UTILITY PLANS BY OTHERS.
10. EC TO COORDINATE WITH PC FOR HEAT TRACE ON COLD WATER SUPPLY LINES. USE FREE CIRCUITS IN PANEL A.
11. TV RECEPTACLE MOUNTED @ 72" A.F.F. VERIFY EXACT LOCATION/MOUNTING HEIGHT WITH OWNER/ARCHITECT.
12. EC TO VERIFY WITH GC IF FIREPLACE NEEDS POWER FOR IGNITION/LIGHTING. PROVIDE JUNCTION BOX IF POWER IS REQUIRED.
13. PROVIDE POWER FOR HAND DRYER, COORDINATE LOCATION WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
14. RECEPTACLE FOR FAUCET POWER. COORDINATE LOCATION WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.



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

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

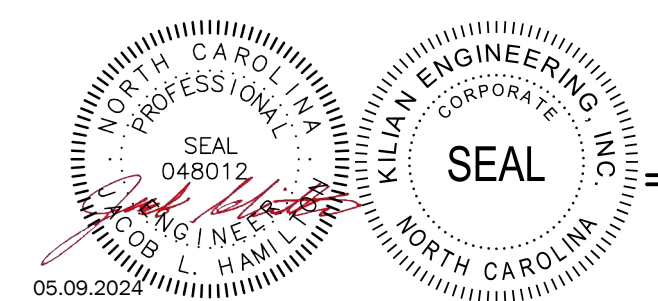


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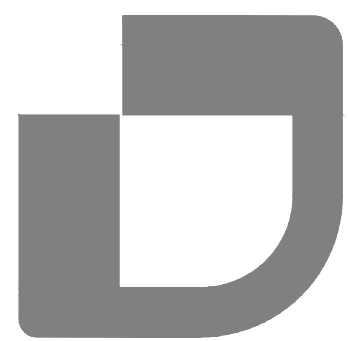
DATE	
REVISION	
NO.	

SHEET DESCRIPTION
LIGHTING & POWER PLANS
 PROJECT #: 240262
 DATE ISSUED: 05/09/2024
 DRAWING BY: SLT
 CHECKED BY: JLH
 PROJECT STATUS

ROLESVILLE CROSSING
 CLIENT NAME
 CLUBHOUSE PLANS
 ROLESVILLE, NC



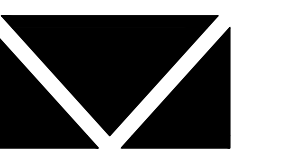
E2



D. CLUGSTON



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NO.

SHEET DESCRIPTION

PANEL SCHEDULE & POWER RISER

PROJECT #: 240262

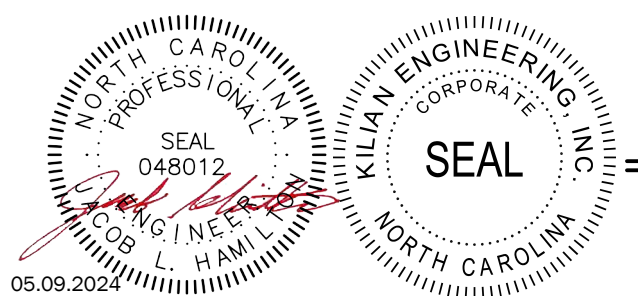
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PROJECT STATUS

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CLUBHOUSE PLANS
ROLESVILLE, NC



PANEL SCHEDULE & ELECTRICAL DETAILS | 1

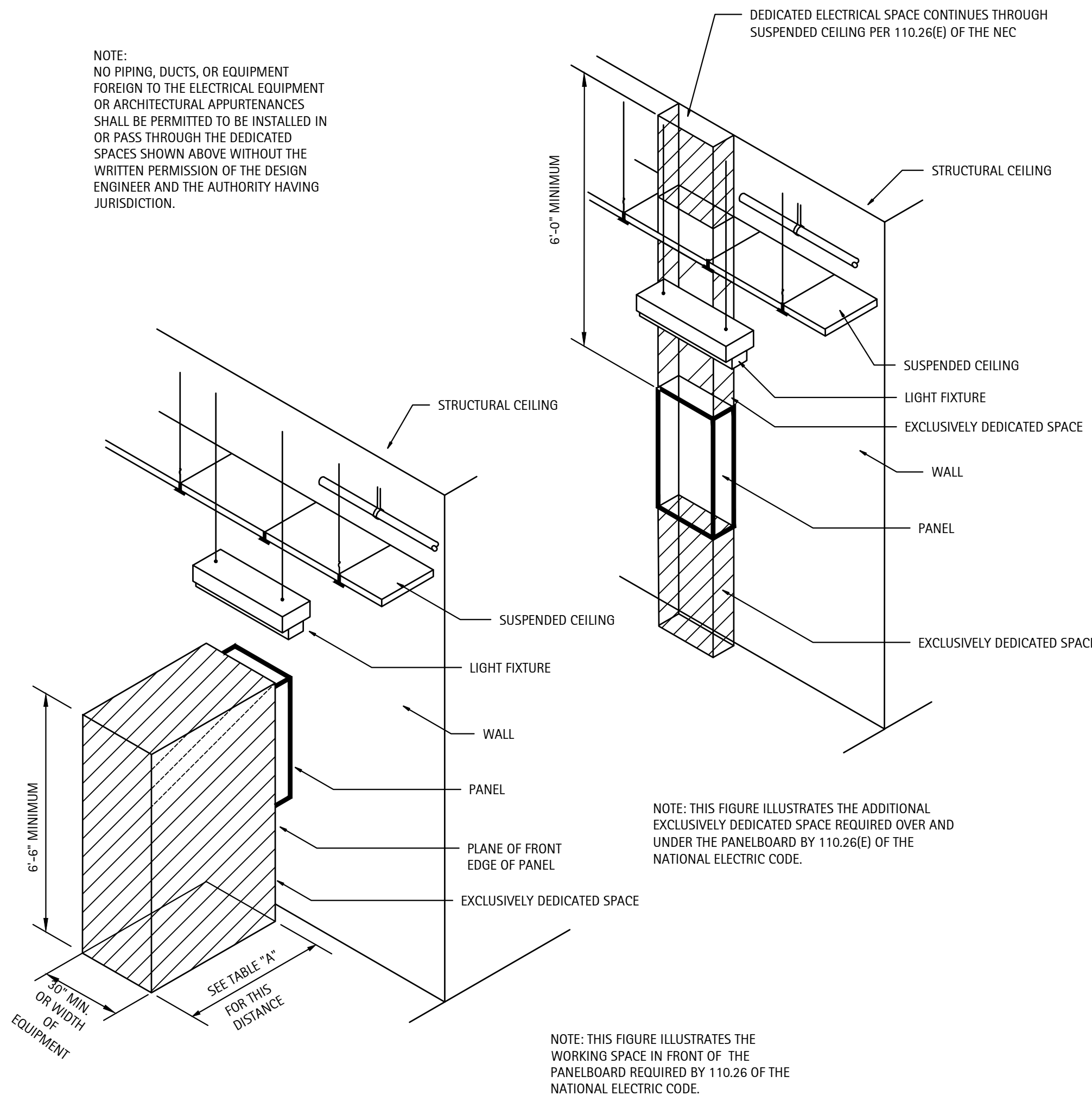
E3

PANEL A								
CKT	LOAD	BKR	LOAD		BKR	LOAD	CKT	
			kVA	PH				kVA
1	LIGHTS	20/1	0.74	A	0.27	20/1	FANS	2
3	EF-1,2,3,4	20/1	1.33	B	2.25			4
5	EXTERIOR RECEPTACLES	20/1	0.36	A	2.25	30/2	WATER HEATER	6
7	PUMP/ELEC. ROOM RECEPTACLES	20/1	0.72	B	2.40	30/2	UNIT HEATER 1	8
9	WATER FOUNTAIN	20/1	0.48	A	2.40			10
11	VERSACHLOR	20/1	1.20	B	1.50	20/2	UNIT HEATER 2	12
13	VERSACHLOR	20/1	1.20	A	1.50			14
15	HOTBOX RECEPTACLE	20/1	0.18	B	1.50	20/2	UNIT HEATER 3	16
17	POOL LIGHTS AND ACCESSORIES	20/1	1.20	A	1.50			18
19	POOL LIGHTS AND ACCESSORIES	20/1	1.20	B	1.50	20/1	UNIT HEATER 4	20
21	EM PHONE/POOL DECK RECEPT.	20/1	0.36	A	0.00	20/1	POOL SPARE	22
23	POOL SPARE	20/1	0.00	B	0.00	20/1	POOL SPARE	24
25	SHP POOL PUMP	60/2	3.36	A	0.36	20/1	STORAGE RM RECEPTACLE	26
27			3.36	B	0.36	20/1	SALT CHLORINATOR REC	28
29	SHP POOL PUMP	60/2	3.36	A	0.72	20/1	RESTROOM FAUCETS	30
31			3.36	B	1.30	20/1	HAND DRYER	32
33	HAND DRYER	20/1	1.30	A	1.30	20/1	HAND DRYER	34
35	SPARE	20/1	0.00	B	0.00	20/1	SPARE	36
37	SPACE	--	0.00	A	0.00	--	SPACE	38
39	SPACE	--	0.00	B	0.00	--	SPACE	40
41	SPACE	--	0.00	A	0.00	--	SPACE	42
			22.6	A	189			
			22.2	B	185			
VOLTAGE/PHASE			120/240, 1P, 3W					
BUS RATING			200A					
MAIN CIRCUIT BREAKER RATING			200A MAIN BREAKER					
AIC RATING			22K - EC TO VERIFY					
SERVICE ENTRANCE RATED			YES					
ENCLOSURE			NEMA 1					
MOUNTING			SURFACE					

NEC ELECTRIC DEMAND SUMMARY 120/240V, 1P, 3W						
EQUIPMENT	DEMAND FACTOR	kVA		LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
		A	B			
LIGHTING	125%	0.72	0.72	1.43	220.12	1102 SF X 1.3 VA/SF X 1.25
RECEPTACLES < 10 kVA	100%	2.28	1.26	3.54	220.44	
HVAC	100%	7.99	9.32	17.31	--	BASED ON MCA
WATER HEATER	125%	2.81	2.81	5.62	422.13	STORAGE TANK < 120 GAL @ 125%
POOL EQUIPMENT	100%	9.96	9.96	19.92	430.24	LARGEST MOTOR @ 125%
DEMAND kVA PER PHASE		23.76	24.07			
DEMAND AMPS PER PHASE		198	200			

THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

NOTE: NO PIPING, DUCTS, OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN OR PASS THROUGH THE DEDICATED SPACES SHOWN ABOVE WITHOUT THE WRITTEN PERMISSION OF THE DESIGN ENGINEER AND THE AUTHORITY HAVING JURISDICTION.



NOTE: WHERE THE CONDITIONS ARE AS FOLLOWS:

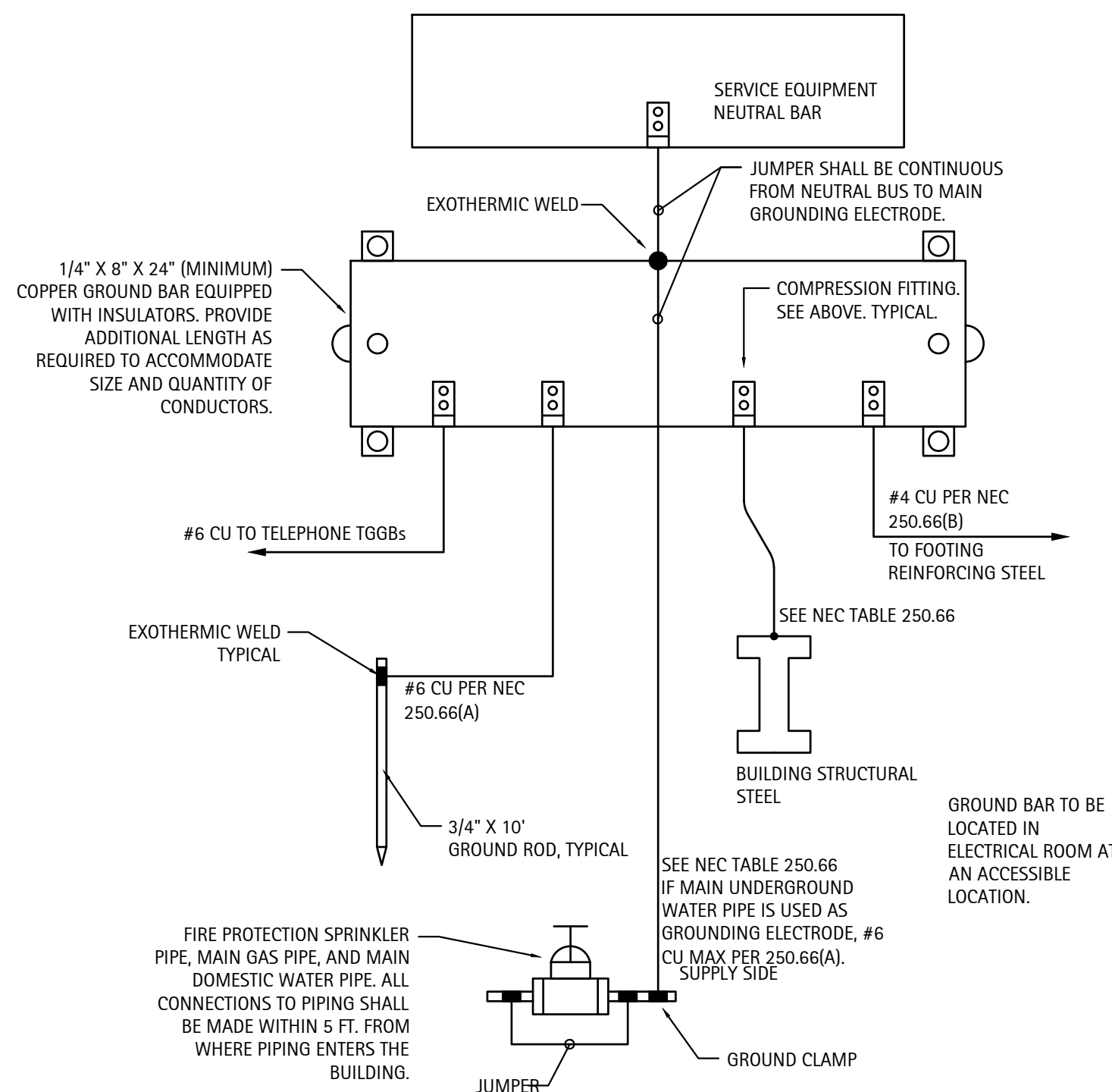
CONDITION 1 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.

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

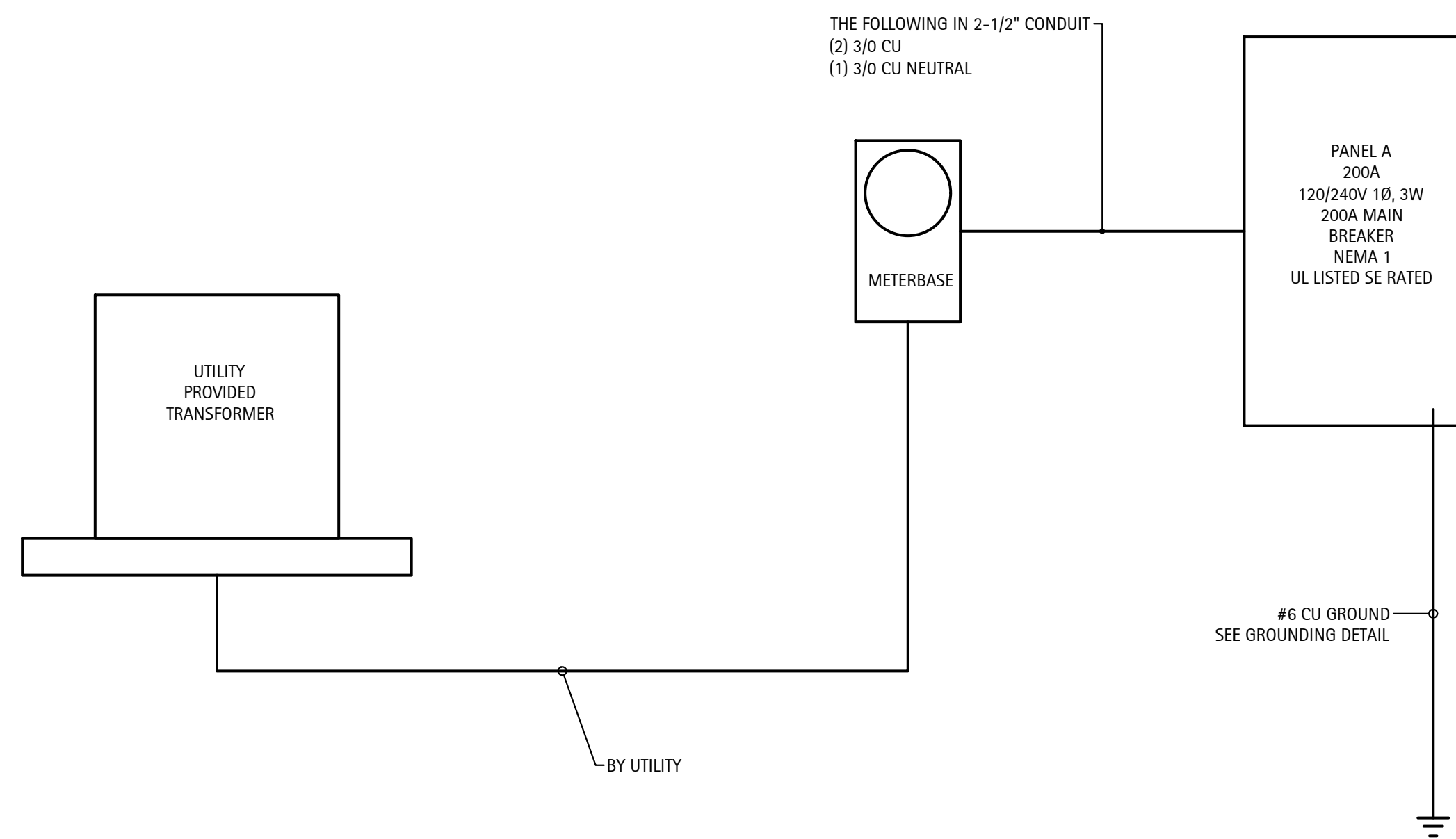
CONDITION 3 - EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.

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

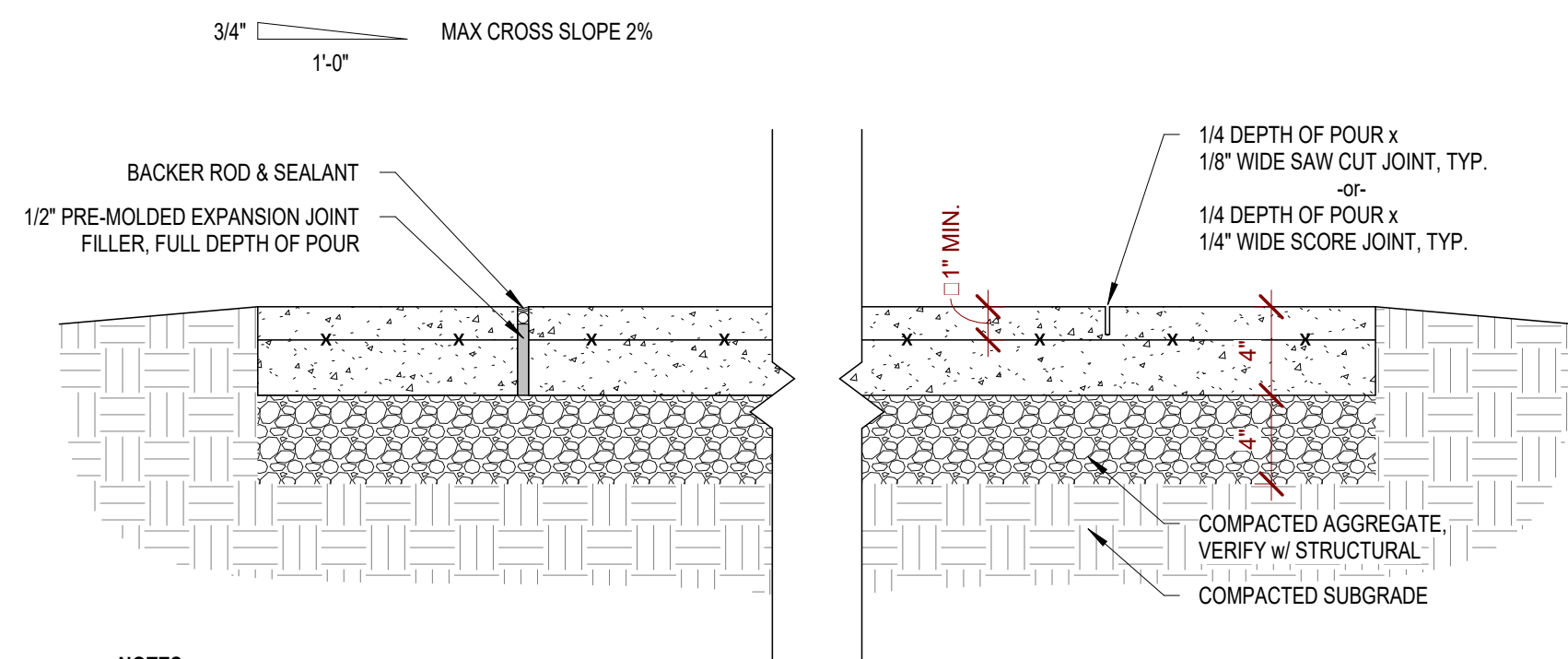
REQUIRED CLEARANCES - NO SCALE



GROUNDING DETAIL - NO SCALE



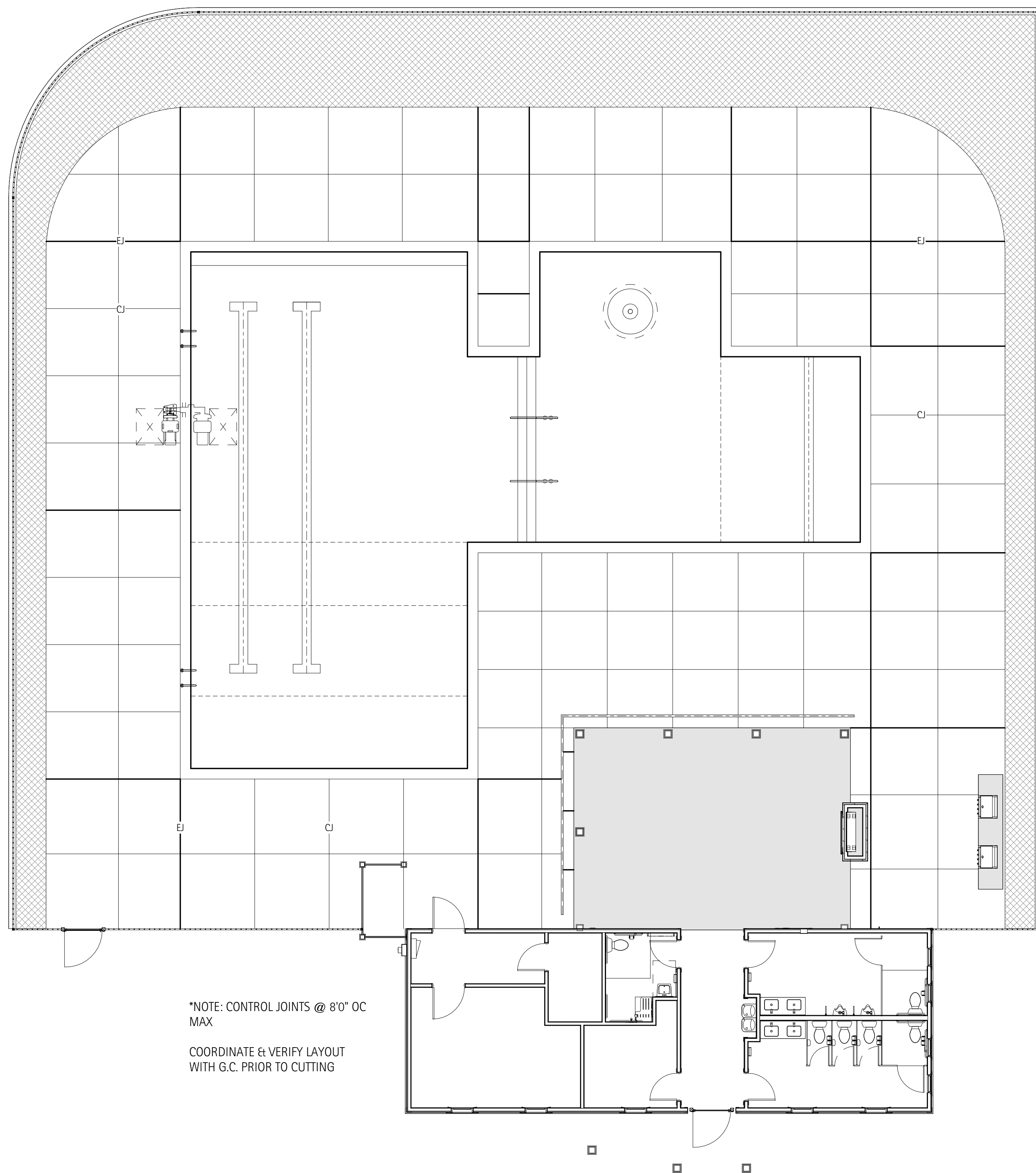
POWER RISER - NO SCALE



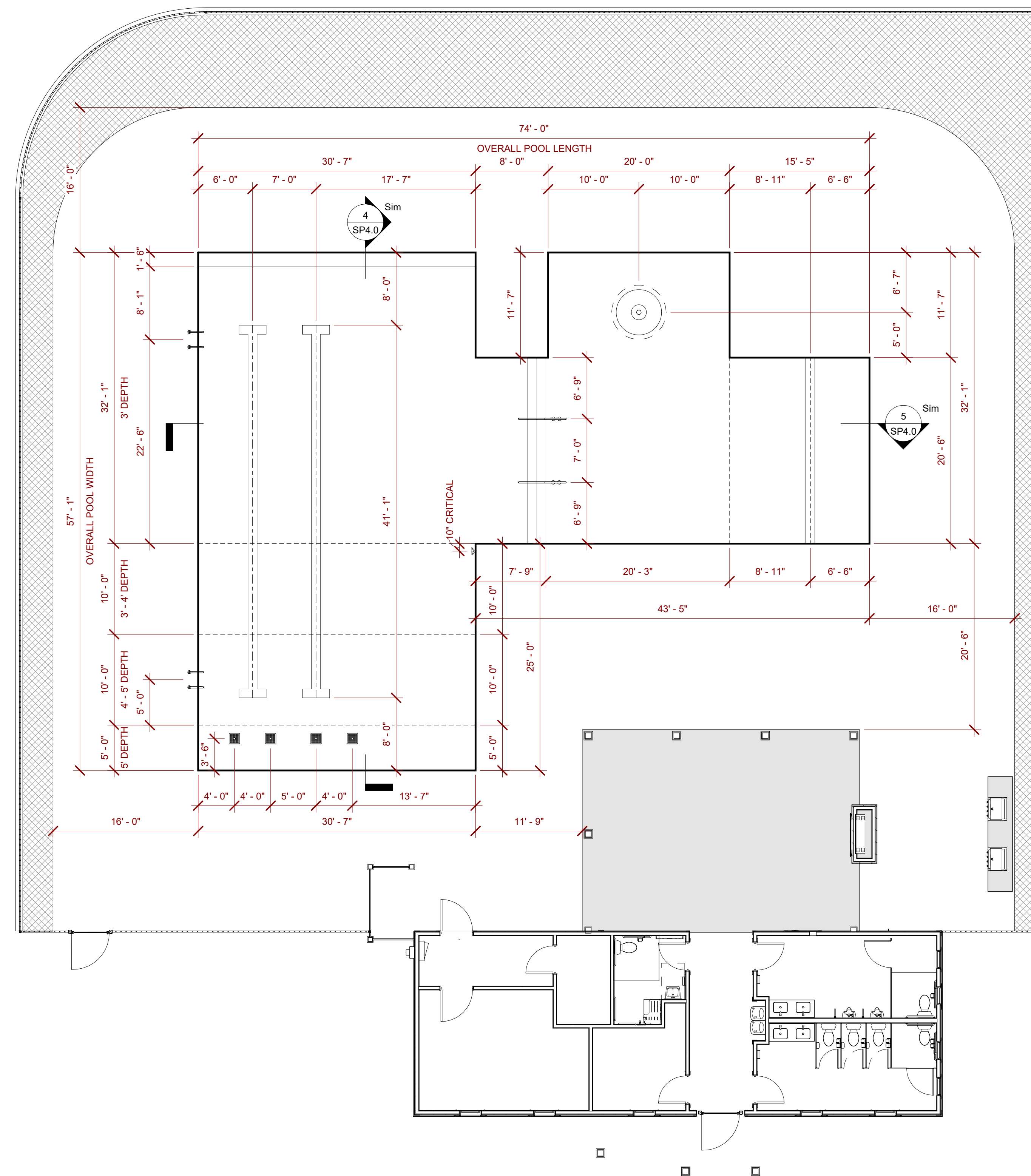
NOTES:

1. ALL JOINTS TO BE CUT w/ WET WALK BEHIND SAW TO ENSURE ALL CUTS ARE PERPENDICULAR w/ FACE OF CONCRETE
2. MAXIMUM CONTROL JOINT SPACING SHALL BE 10 FT. IN EACH DIRECTION UNLESS SHOWN OTHERWISE ON PLAN, SEE STRUCT.
3. PROVIDE EXPANSION JOINT WHERE SLABS ARE POURED AGAINST VERTICAL SURFACES AND/OR DIFFERENT PAVING MATERIALS AND AS SPECIFIED ON PLANS OR 25'-0" MAX O.C.

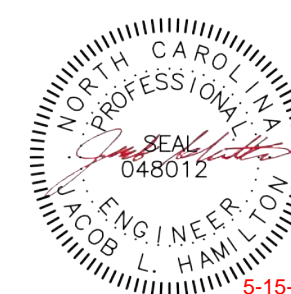
3 Detail - Typ. Pool Sawcut Control Joint
1 1/2" = 1'-0"



2 Pool Control Joint Plan
1/8" = 1'-0"



1 Pool Dimension Plan
1/8" = 1'-0"



NO.	REVISION	DATE

SHEET DESCRIPTION

POOL DIMENSION & CONTROL JOINT PLAN

PROJECT #: 2024001
DATE ISSUED: 05/15/2024
DRAWING BY: JVD
CHECKED BY: DSC/JLH

ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC

BUILDING FIXTURE DATA
 TOTAL BATHER LOAD = 2,867/15 = 192
 - MAIN POOL = 98 (50%-50% SPLIT)
 CLUBHOUSE & PUMP HOUSE REQUIREMENTS:
 96 MEN, MIN. FIXTURES REQUIRED ARE:
 -ONE LAVATORIES
 -ONE WATER CLOSET + 1 URINAL
 96 WOMEN, MIN FIXTURES ARE
 -TWO LAVATORIES
 -TWO WATER CLOSET
 1 SHOWER IS REQUIRED.
 SEE ARCHITECTURAL PLANS BY OTHERS FOR DESIGN OF BUILDING RESTROOMS

POOL DECK EXIT REQUIREMENTS
 POOL DECK AREA = 5,867 SF. @ 15 SF PER PERSON
 DECK OCCUPANT LOAD IS 391.
 TOTAL POOL AREA IS 2,867 SF. @ 50 SF PER PERSON, POOL OCCUPANT LOAD IS 58.
 TOTAL POOL & POOL DECK OCCUPANT LOAD IS 449 PERSONS. SEE LIFE SAFETY PLAN BY OTHERS FOR EXIT WIDTH REQUIREMENTS & BUILDING OCCUPANCY.

POOL EQUIPMENT SCHEDULE				
TAG	COUNT	MANUF.	MODEL	COMMENTS
1A	1	PENTAIR	WHISPERFLOX VS (022035)	5.1 HP SELF-PRIMING PUMP W/ STRAINER BASKET + EXTRA BASKET
1B	1	PENTAIR	XFET-20 (022034)	5.1 HP SELF-PRIMING PUMP W/ STRAINER BASKET + EXTRA BASKET
2	1	PENTAIR	147400	TANDEM FILTER PIPING KITS FOR 2 & 3 IN FILTERS
3	2	PENTAIR	TR-140 C3	36" DIA HIGH RATE SAND FILTER W/ 7.06 SQ FT OF MEDIA
4A	1	PENTAIR	520977 (COMSYS-16)	COMMERCIAL INTELLICHLOR SALT CHLORINE GENERATOR
4B	1	PENTAIR	HC-3315	HIGH CAPACITY CHLORINE/BROMINE FEEDER (BACKUP CHLORINATOR)
5	2	FLUORIS	FLV-340	3" INLINE COMMERCIAL FLOWMETER
6	4	AQUASTAR	WAY12WR101 W/ FBS-50-812-4	12" x 12" VGB SUCTION OULET COVER W/ A.S.A. MFG FIBERGLASS SUMP
7	1	AQUASTAR	HVC101	SELF-CONTAINED HYDROSTATIC RELIEF VALVE
8	8	AQUASTAR	SKR101	WHITE COMMERCIAL GRADE SKIMMER
9	1	AQUASTAR	ES1022SI2001 W/ VLK15T01	VACUUM LINE FITTING W/ LOCK CAP
10	1	AQUASTAR	GDD101	COMMERCIAL OVERFLOW DRAIN
11	10	AQUASTAR	ES1022SI2001 W/ 8101	WALL RETURN INLET - DIRECTIONAL
12	3	AQUASTAR	ES1022SI2001 W/ BP101	FLOOR RETURN INLET W/ BUBBLER PLATE
13	1	AQUASTAR	AFB101	FILLSTAR - AUTOFILL LINE - WHITE
14	1	NAT. STRUCT.	1800-18-96	5" 0" DIA MUSHROOM SPRAY FOUNTAIN (193 GPM REQUIRED FLOW)
15	3	PENTAIR	LIGHT - 602104	190W EQUIVALENCY GLOBRITE WHITE LED LIGHTS
16	3	PENTAIR	602104	300W EQUIVALENCY INTELLIBRITE WHITE LED LIGHTS
17	2	INTERMATIC	PJB4175	4 LIGHT CONNECTION POOL & SPA JUNCTION BOX
18	2	SR SMITH	DMS-102B - MG	MARINE GRADE DECK MOUNTED HANDRAILS - STANDARD
19	2	SR SMITH	10054-MG	MARINE GRADE DECK MOUNTED COMMERCIAL LADDER
20	1	INTERMATIC	FF15MC	INTERMATIC 15 MINUTE TIMER
21	1	INTERMATIC	ET90115CR	ELECTRIC TIMER FOR FEATURE PUMP
HC	1	SR SMITH	MULTI-LIFT	ADA COMPLIANT MULTILIFT

- POOL CONSTRUCTION NOTES**
- SUBMISSION OF GROUNDING AND BONDING REPORT BY CONTRACTOR TO ENGINEER OF RECORD FOR REVIEW IS REQUIRED.
 - SUBSTITUTIONS MUST BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO INSTALLATION.
 - ANY COSTS INCURRED DUE TO DEVIATIONS FROM THE PLANS NECESSITATING DRAWING REVISIONS SHALL BE BORNE BY THE CONTRACTOR/OWNER.
 - THE CONTRACTOR IS REQUIRED TO COMPREHENSIVELY DOCUMENT THE POOL CONSTRUCTION PROCESS, ENSURING THAT PICTURES ACCURATELY DEPICT THE LOCATION ON THE SITE BY INCLUDING IDENTIFIABLE BACKGROUND FEATURES. THIS DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO, PHOTOGRAPHING THE GROUNDING/BONDING OF ALL EQUIPMENT BEFORE THE SHOTCRETE IS POURED, RETAINING CUT SHEETS FOR ALL EQUIPMENT, AND COMPLETING ALL INSPECTION REPORTS, AMONG OTHER TASKS.
 - PRIOR TO THE CONSTRUCTION OF THE POOL, THE CONTRACTOR IS REQUIRED TO CONSULT WITH THE ENGINEER OF RECORD OR A DESIGNATED ENGINEER TO COORDINATE THE NECESSARY SITE INSPECTIONS IN COMPLIANCE WITH NC 15A NCAC 18A .2500.
 - SHOULD THE CONTRACTOR OR ANY SUBCONTRACTOR DEVIATE FROM THE APPROVED DESIGN PLANS, THEY SHALL INDEMNIFY AND HOLD HARMLESS THE ARCHITECT, ENGINEER OF RECORD AND DESIGNER TO THE FULLEST EXTENT PERMITTED BY LAW.

- POOL SAFETY REQUIREMENTS**
- PROVIDE SAFETY PROVISIONS PER SECTION .2530. THE MINIMUM BEING: MINIMUM BEING:
- 12' LONG, MIN., METAL POLES AND BODY HOOKS SECURELY ATTACHED. THE POLE SHALL BE NON-TELESCOPING, NON-ADJUSTABLE & NON-COLLAPSIBLE.
 - U.S. COAST GUARD APPROVED RING BUOYS WITH 50'-0" OF 1/4" DIAMETER THROWING ROPE.
- EMERGENCY TELEPHONE SERVICE:**
- TELEPHONE CAPABLE OF DIRECTLY DIALING 911 OR OTHER EMERGENCY NOTIFICATION SYSTEM SHALL BE PROVIDED.
 - THE TELEPHONE SHALL BE PERMANENTLY AFFIXED TO A LOCATION INSIDE THE POOL ENCLOSURE OR OUTSIDE THE ENCLOSURE WITHIN 75' OF THE BATHER ENTRANCE.
 - THE TELEPHONE SHALL BE VISIBLE FROM WITHIN THE POOL ENCLOSURE OR A VISIBLE SIGN SHALL BE POSTED INDICATING THE LOCATION OF THE EMERGENCY PHONE.
 - AT THE TELEPHONE - PROVIDE A SIGN WITH LEGIBLE LETTERS PROVIDING THE FOLLOWING INFORMATION.
 - DIALING INSTRUCTIONS
 - ADDRESS OF THE POOL LOCATION
 - TELEPHONE NUMBER OF THE POOL LOCATION.
- SEE POOL HOUSE PLANS BY OTHERS FOR EXACT LOCATION OF THE TELEPHONE SERVICE.

- POOL DECK MARKINGS**
- DEPTH MARKINGS: IN LOCATIONS AS SHOWN ON THE DRAWINGS AND ADHERING TO THE FOLLOWING:
- LOCATED ON TOP OF POOL DECK AND AT OR ABOVE THE WATER SURFACE ON THE VERTICAL WALL.
 - SHALL BE IN ARABIC NUMERALS AT LEAST 4" HIGH.
 - LETTER COLOR TO CONTRAST WITH BACKGROUND.
 - MARKINGS SHALL INDICATE THE DEPTH OF THE POOL IN FEET AND SHALL INCLUDE THE WORD "FEET" OR THE SYMBOL "FT".
 - MARKINGS IN POOL DECK SHALL PROVIDE A SLIP RESISTANT WALKING SURFACE.
 - NOT TO EXCEED 25'-0" IN SPACING ALONG THE PERIMETER OF THE POOL.
- "ND" OR "NO DIVING" MARKINGS: IN LOCATIONS AS SHOWN ON THE DRAWINGS AND ADHERING TO THE FOLLOWING:
- NOT TO EXCEED 25'-0" IN SPACING ALONG COPING EDGE.
 - DENOTED IN ONE OF THE FOLLOWING MANNERS:
 - CONSISTING OF THE WORDS "NO DIVING" IN LETTERS AT LEAST 4" HIGH AND OF A COLOR CONTRASTING WITH THE BACKGROUND.
 - AT LEAST A 6"x6" IN SIZE INTERNATIONAL SYMBOL FOR NO DIVING IN RED AND BLACK ON A WHITE BACKGROUND. (VERIFY WITH MANICAPALITY)

- POOL DECK SIGNAGE REQUIREMENTS**
- POOL SIGNAGE TO BE POSTED IN THE MAIN POOL AREA:
- SIGN "A" - 4" TALL LETTERS WARNING - NO LIFEGUARD ON DUTY
- SIGN "B" - 1" TALL LETTERS - A MIN. OF (2) THIS PROJECT
- POOL SAFETY RULES**
- CHILDREN SHOULD NOT USE THE SWIMMING POOL WITHOUT ADULT SUPERVISION.
 - ADULTS SHOULD NOT SWIM ALONE.
 - PETS ARE PROHIBITED IN THE POOL AREA.
 - GLASS CONTAINERS ARE PROHIBITED IN THE POOL AREA.
 - NO DIVING IS ALLOWED IN POOL AREA
- SIGN "C" - PROVIDE A SIGN VISIBLE UPON ENTERING THE POOL ENCLOSURE DIRECTING POOL USERS TO SHOWER BEFORE ENTERING THE POOL.
- SIGN "D" - PROVIDE A SIGN STATING "POOL CLOSED" FOR EVERY POOL ENTRANCE. VERIFY WITH FINAL POOL ENCLOSURE DESIGN FOR FINAL NUMBER OF ENTRANCES.

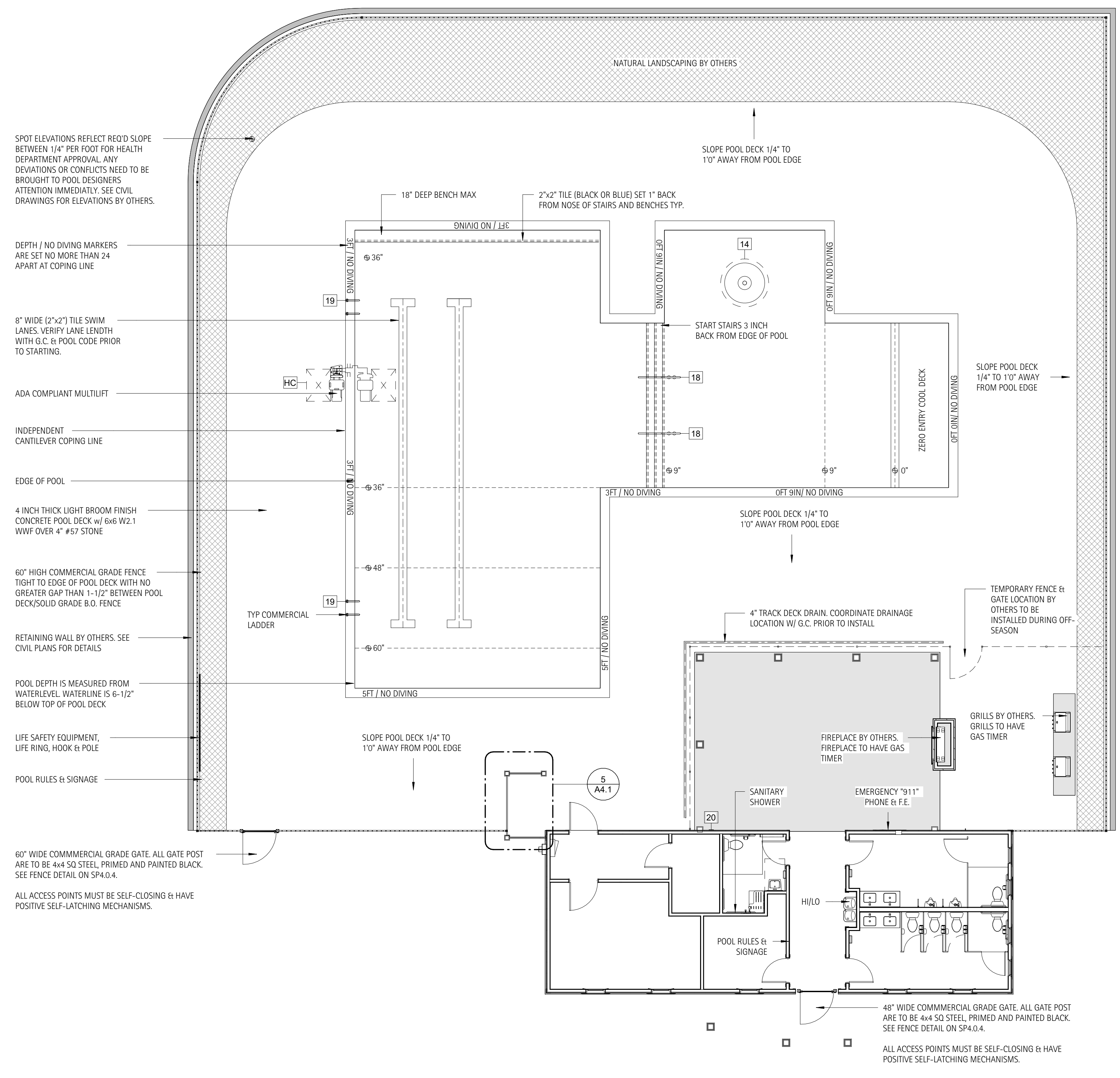
POOL SYMBOLS LEGEND

	SAND FILTER		MAIN DRAINS
	PUSH/PULL VALVE		OVERFLOW
	FLOWMETER		VACUUM INLET
	CHLORINATOR w/ FLOWMETER		FLOOR INLET
	POOL PUMP		DIRECTIONAL WALL INLET
	POOL LADDER		LIGHT NICHE
	AUTOFILL		SKIMMER

REFER TO POOL PLUMBING SCHEDULE FOR SPECS.

MAIN POOL DATA

POOL DIMENSIONS:	57'-0" X 56'-0" OVERALL IRREGULAR SHAPE.
POOL DEPTHS:	ZERO ENTRY W/ 9" SHELF & 3'-5"
POOL VOLUME:	54,757 GALLONS
TOTAL SURFACE AREA:	2,946 SQ. FT.
WATER SURFACE AREA:	2,813 SQ. FT.
PERIMETER:	276 LF
COPING:	BULLNOSE INDEPENDENT
REQUIRED FLOW:	152 GPM @ 65 TDH
DESIGN FLOW:	190 GPM @ 65 TDH
FEATURE FLOW:	210 GPM @ 65 TDH
SHELL MATERIAL:	4000 PSI SHOTCRETE
INTERIOR FINISH:	KONA QUARTZ PLASTER
BATHER LOAD:	218 PERSONS
BACKWASH TO:	SANITARY SEWER
WATER SOURCE:	IN-LINE AUTOFILL
PIPE SIZING:	
CIRC MAIN DRAINS:	(2) 6" SCH 40 PVC
FEAT MAIN DRAINS:	(2) 4" SCH 40 PVC
CIRC SKIMMERS:	(6) 6" SCH 40 PVC
VACUUM LINE:	(2) 2" SCH 40 PVC
INLETS:	(11) 4" SCH 40 PVC
FILTER TYPE:	HIGH RATE SAND
SIZE PROVIDED:	3 @ 7.06 SF (EA) = 21.18
SIZE REQUIRED:	16.67 SF TOTAL
MEDIA CIRC. RATE:	15 GPM/SF
BACKWASH RATE:	15 GPM/SF
TURNOVER RATE:	6 HOURS



SPOT ELEVATIONS REFLECT REQ'D SLOPE BETWEEN 1/4" PER FOOT FOR HEALTH DEPARTMENT APPROVAL. ANY DEVIATIONS OR CONFLICTS NEED TO BE BROUGHT TO POOL DESIGNERS ATTENTION IMMEDIATELY. SEE CIVIL DRAWINGS FOR ELEVATIONS BY OTHERS.

DEPTH / NO DIVING MARKERS ARE SET NO MORE THAN 24 APART AT COPING LINE

8" WIDE (2"x2") TILE SWIM LANES. VERIFY LANE LENGTH WITH G.C. & POOL CODE PRIOR TO STARTING.

ADA COMPLIANT MULTILIFT

INDEPENDENT CANTILEVER COPING LINE

EDGE OF POOL

4 INCH THICK LIGHT BROOM FINISH CONCRETE POOL DECK w/ 6x6 W2.1 WWF OVER 4" #57 STONE

60" HIGH COMMERCIAL GRADE FENCE TIGHT TO EDGE OF POOL DECK WITH NO GREATER GAP THAN 1-1/2" BETWEEN POOL DECK/SOLID GRADE B.O. FENCE

RETAINING WALL BY OTHERS. SEE CIVIL PLANS FOR DETAILS

POOL DEPTH IS MEASURED FROM WATERLEVEL. WATERLINE IS 6-1/2" BELOW TOP OF POOL DECK

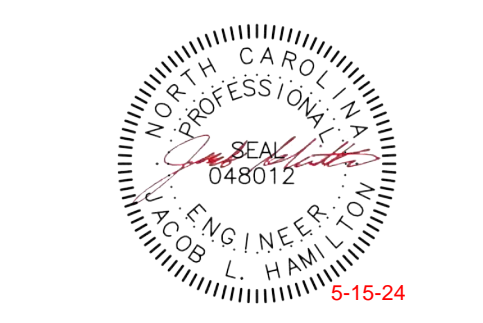
LIFE SAFETY EQUIPMENT, LIFE RING, HOOK & POLE

POOL RULES & SIGNAGE

60" WIDE COMMERCIAL GRADE GATE. ALL GATE POST ARE TO BE 4x4 SQ STEEL, PRIMED AND PAINTED BLACK. SEE FENCE DETAIL ON SP4.0.4.

ALL ACCESS POINTS MUST BE SELF-CLOSING & HAVE POSITIVE SELF-LATCHING MECHANISMS.

1
SP2.0
Pool Layout Plan
1/8" = 1'-0"



Kilian Engineering, Inc.
 PO Box 3301, Heideson, NC 27136 | www.kilianeng.com
 (919) 438-8178 | CORPORATE LICENSE C-2277

DATE	REVISION	NO.

SHEET DESCRIPTION
POOL LAYOUT PLAN

PROJECT #: 2024001
 DATE ISSUED: 05/15/2024
 DRAWING BY: JVD
 CHECKED BY: DSC/JLH

ROLESVILLE AMENITY
 LENNAR HOMES
 AMENITY & POOL
 ROLESVILLE, NC

SP2.0



D. CLUGSTON



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(919) 452-4888/1778 | CORPORATE LICENSE C-2277

DATE	
REVISION	
NO.	

SHEET DESCRIPTION
POOL PIPING AND ELECTRICAL PLAN

PROJECT #: 2024001
DATE ISSUED: 05/15/2024
DRAWING BY: JVD
CHECKED BY: DSC/JLH

ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC

SP3.0

POOL EQUIPMENT SCHEDULE				
TAG	COUNT	MANUF.	MODEL	COMMENTS
1A	1	PENTAIR	WHISPERFLOX VS (022035)	5.1 HP SELF-PRIMING PUMP W/ STRAINER BASKET + EXTRA BASKET
1B	1	PENTAIR	XFET-20 (022034)	5.1 HP SELF-PRIMING PUMP W/ STRAINER BASKET + EXTRA BASKET
2	1	PENTAIR	147400	TANDEM FILTER PIPING KITS FOR 2 & 3 IN FILTERS
3	2	PENTAIR	TR-140 C3	36" DIA HIGH RATE SAND FILTER W/ 7.06 SQ FT OF MEDIA
4A	1	PENTAIR	520977 (COMSYS-16)	COMMERCIAL INTELLICHLOR SALT CHLORINE GENERATOR
4B	1	PENTAIR	HC-3315	HIGH CAPACITY CHLORINE/BROMINE FEEDER (BACKUP CHLORINATOR)
5	2	FLOVIS	FV-3-40	3" INLINE COMMERCIAL FLOWMETER
6	4	AQUASTAR	WAV12WR101 W/ FBS-50-812-4	12" x 12" VGB SUCTION OULET COVER W/ A.S.A. MFG FIBERGLASS SUMP
7	1	AQUASTAR	HVC101	SELF-CONTAINED HYDROSTATIC RELIEF VALVE
8	8	AQUASTAR	SKR101	WHITE COMMERCIAL GRADE SKIMMER
9	1	AQUASTAR	ES1022SI2001 W/ VLK15T01	VACUUM LINE FITTING W/ LOCK CAP
10	1	AQUASTAR	GDD101	COMMERCIAL OVERFLOW DRAIN
11	10	AQUASTAR	ES1022SI2001 W/ 8101	WALL RETURN INLET - DIRECTIONAL
12	3	AQUASTAR	ES1022SI2001 W/ BP101	FLOOR RETURN INLET W/ BUBBLER PLATE
13	1	AQUASTAR	AFB101	FILLSTAR - AUTOFILL LINE - WHITE
14	1	NAT. STRUCT.	1800-18-96	5" Ø DIA MUSHROOM SPRAY FOUNTAIN (193 GPM REQUIRED FLOW)
15	3	PENTAIR	LIGHT - 602104	190W EQUIVALENCY GLOBRITE WHITE LED LIGHTS
16	3	PENTAIR	602104	300W EQUIVALENCY INTELLIBRITE WHITE LED LIGHTS
17	2	INTERMATIC	PJB4175	4 LIGHT CONNECTION POOL & SPA JUNCTION BOX
18	2	SR SMITH	DMS-102B - MG	MARINE GRADE DECK MOUNTED HANDRAILS - STANDARD
19	2	SR SMITH	10054-MG	MARINE GRADE DECK MOUNTED COMMERCIAL LADDER
20	1	INTERMATIC	FF15MC	INTERMATIC 15 MINUTE TIMER
21	1	INTERMATIC	ET9011SCR	ELECTRIC TIMER FOR FEATURE PUMP
HC	1	SR SMITH	MULTI-LIFT	ADA COMPLIANT MULTILIFT

PUMP FLOW PIPE SIZING

CIRCULATION:
WHISPERFLO XF VS PUMP FLOW AT 65 FT OF WATER IS 190 GPM, WITH SPECIFIED:
4" MAIN DRAIN PIPING VELOCITY IS 2.78 FPS.
4" SKIMMER PIPING VELOCITY IS 2.78 FPS.
3" RETURN PIPING VELOCITY IS 6.30 FPS.

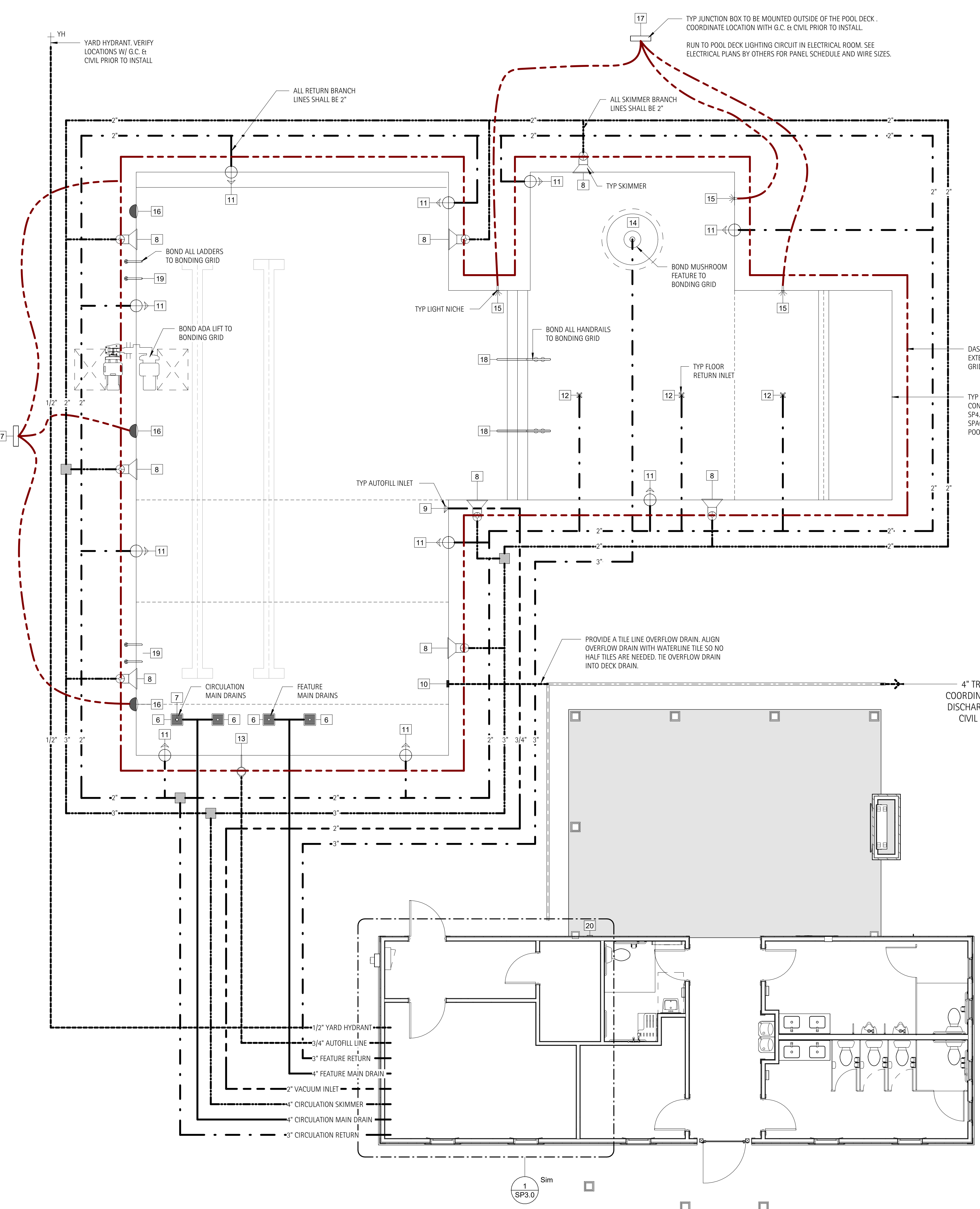
FEATURE:
XFET-20 PUMP FLOW AT 65 FT OF WATER IS 210 GPM, WITH SPECIFIED:
4" MAIN DRAIN PIPING VELOCITY IS 5.29 FPS.
3" RETURN PIPING VELOCITY IS 9.12 FPS.

UNDERWATER LIGHTING DATA

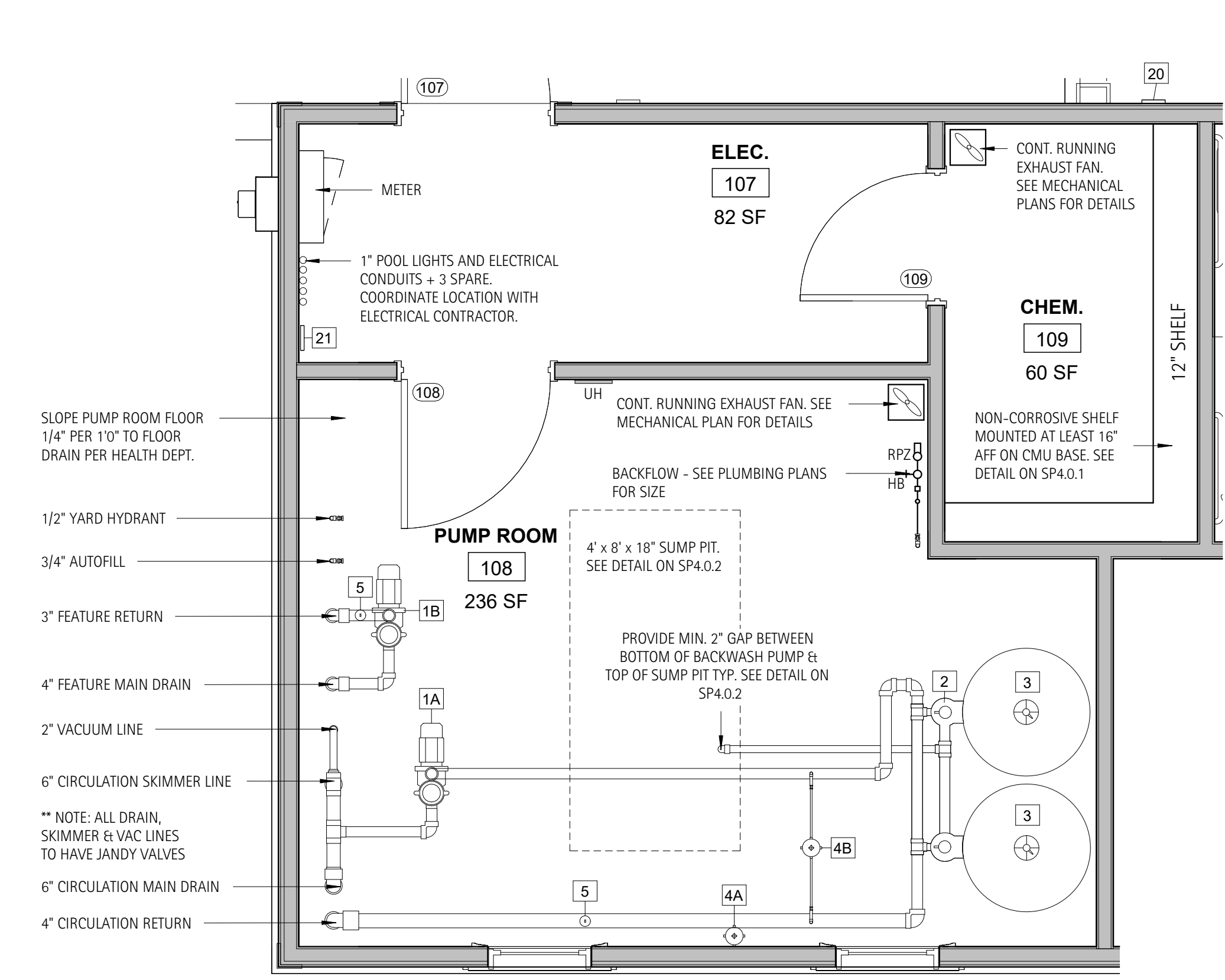
MAIN POOL AREA: 2,946 SQ.FT.
2,946 SF x 0.5 WATTS = 1,473 WATTS

LIGHTING PROVIDED (12V LED EQ.)
3 GLOBRITE @ 190W EQUIV = 570 WATTS
3 INTELLIBRITE @ 300W EQUIV = 900 WATTS

TOTAL LIGHTING PROVIDED
1,880 WATTS



2 Pool Return Piping Plan
3/16" = 1'-0"



1 Enlarged Pump Room Plan
3/8" = 1'-0"

CHEMICAL STORAGE DATA

CHEMICAL STORAGE REQUIREMENTS FOR A 81,919 GALLON POOL ARE:

5 SF FOR FIRST 10,000 GALLONS OF POOL PLUS
+1 SF FOR EACH ADDITIONAL 3,000 GALLONS OF POOL UP TO 100 SF OF STORAGE.

+ 23.973 (24) SF (1 SF PER 71,919/3000)
= 29 SF REQUIRED. (36 SF PROVIDED)

POOL REQUIRES A MIN. OF 29 SF FOR CHEMICAL STORAGE.
SEE BUILDING PLANS BY OTHERS FOR EXACT LAYOUT.

POOL SYMBOLS LEGEND

- SAND FILTER
- PUSH/PULL VALVE
- FLOWMETER
- CHLORINATOR W/ FLOWMETER
- POOL PUMP
- POOL LADDER
- AUTOFILL
- MAIN DRAINS
- OVERFLOW
- VACUUM INLET
- FLOOR INLET
- DIRECTIONAL WALL INLET
- LIGHT NICHE
- SKIMMER

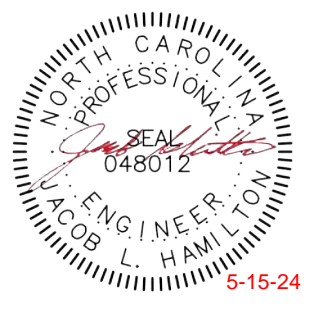
REFER TO POOL PLUMBING SCHEDULE FOR SPECS.

MAIN POOL DATA

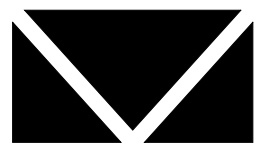
POOL DIMENSIONS:	57'-0" X 56'-0" OVERALL IRREGULAR SHAPE
POOL DEPTHS:	ZERO ENTRY W/ 9" SHELF & 3'-5"
POOL VOLUME:	54,757 GALLONS
TOTAL SURFACE AREA:	2,946 SQ. FT.
WATER SURFACE AREA:	2,813 SQ. FT.
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REQUIRED FLOW:	152 GPM @ 65 TDH
DESIGN FLOW:	190 GPM @ 65 TDH
FEATURE FLOW:	210 GPM @ 65 TDH
SHELL MATERIAL:	4000 PSI SHOTCRETE
INTERIOR FINISH:	KONA QUARTZ PLASTER
BATHER LOAD:	218 PERSONS
BACKWASH TO:	SANITARY SEWER
WATER SOURCE:	IN-LINE AUTOFILL
PIPE SIZING:	
CIRC MAIN DRAINS:	(2) 6" SCH 40 PVC
FEAT MAIN DRAINS:	(2) 4" SCH 40 PVC
CIRC SKIMMERS:	(6) 6" SCH 40 PVC
VACUUM LINE:	(2) 2" SCH 40 PVC
INLETS:	(11) 4" SCH 40 PVC
FILTER TYPE:	HIGH RATE SAND
SIZE PROVIDED:	3 @ 7.06 SF (EA) = 21.18
SIZE REQUIRED:	16.67 SF TOTAL
MEDIA CIRC. RATE:	15 GPM/SF
BACKWASH RATE:	15 GPM/SF
TURNOVER RATE:	6 HOURS



D. CLUGSTON



Kilian Engineering, Inc.



PO Box 3301, Healdston, NC 27536 | www.kilianeng.com
(919) 458-8178 | CORPORATE LICENSE C-2277

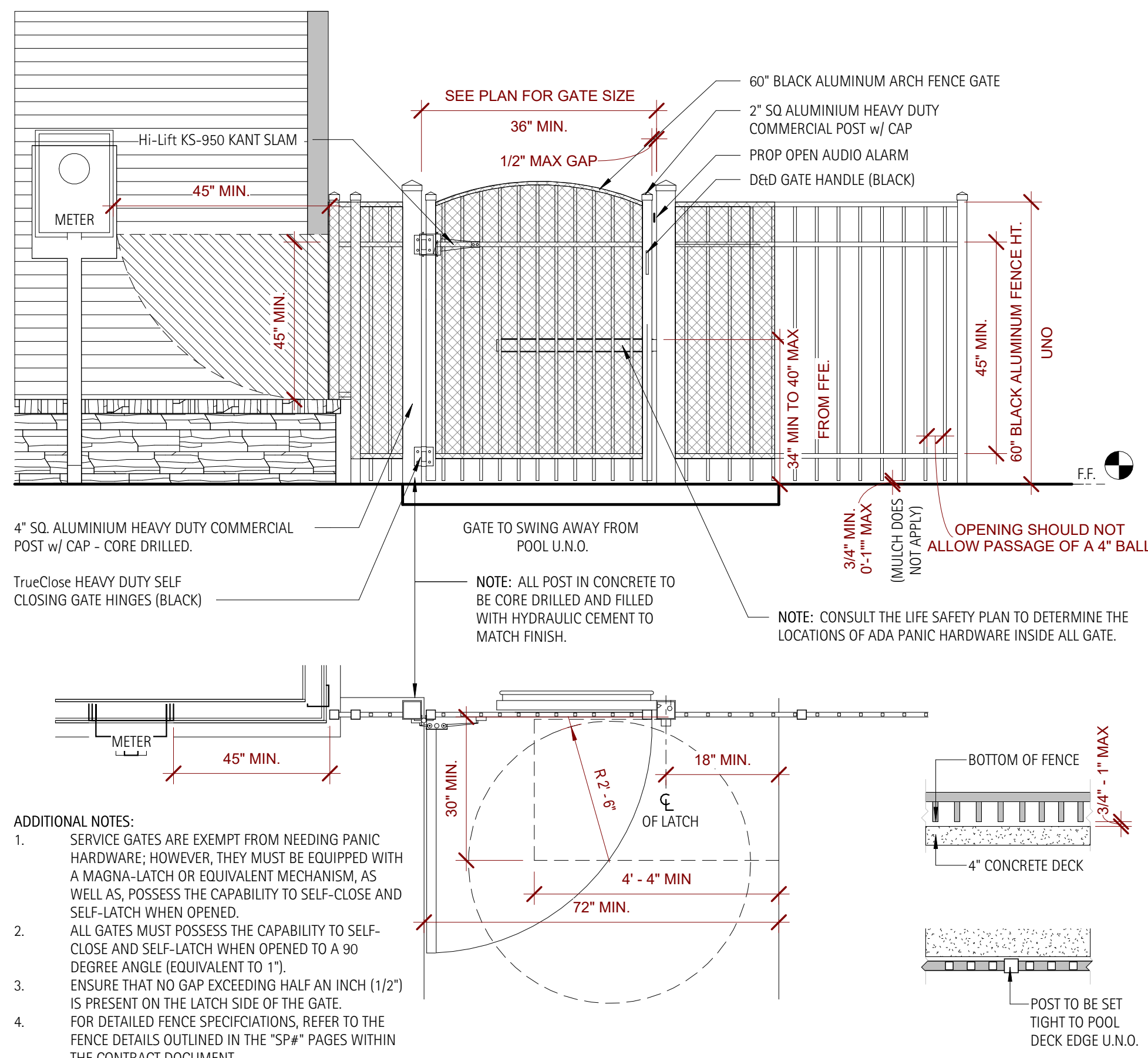
DATE	
REVISION	
NO.	

SHEET DESCRIPTION
POOL SECTIONS & DETAILS

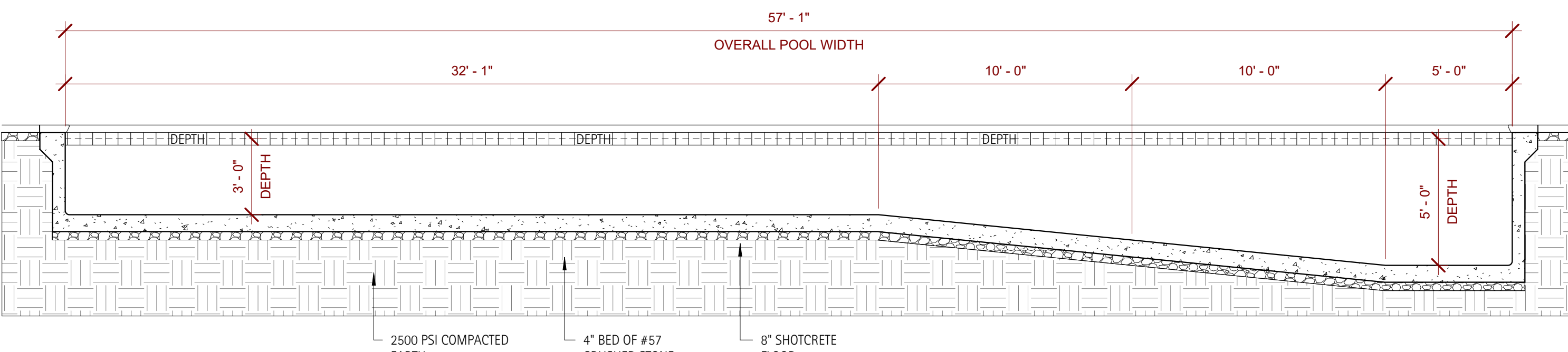
PROJECT #: 2024001
 DATE ISSUED: 05/15/2024
 DRAWING BY: JVD
 CHECKED BY: DSC/JLH

ROLESVILLE AMENITY
 LENNAR HOMES
 AMENITY & POOL
 ROLESVILLE, NC

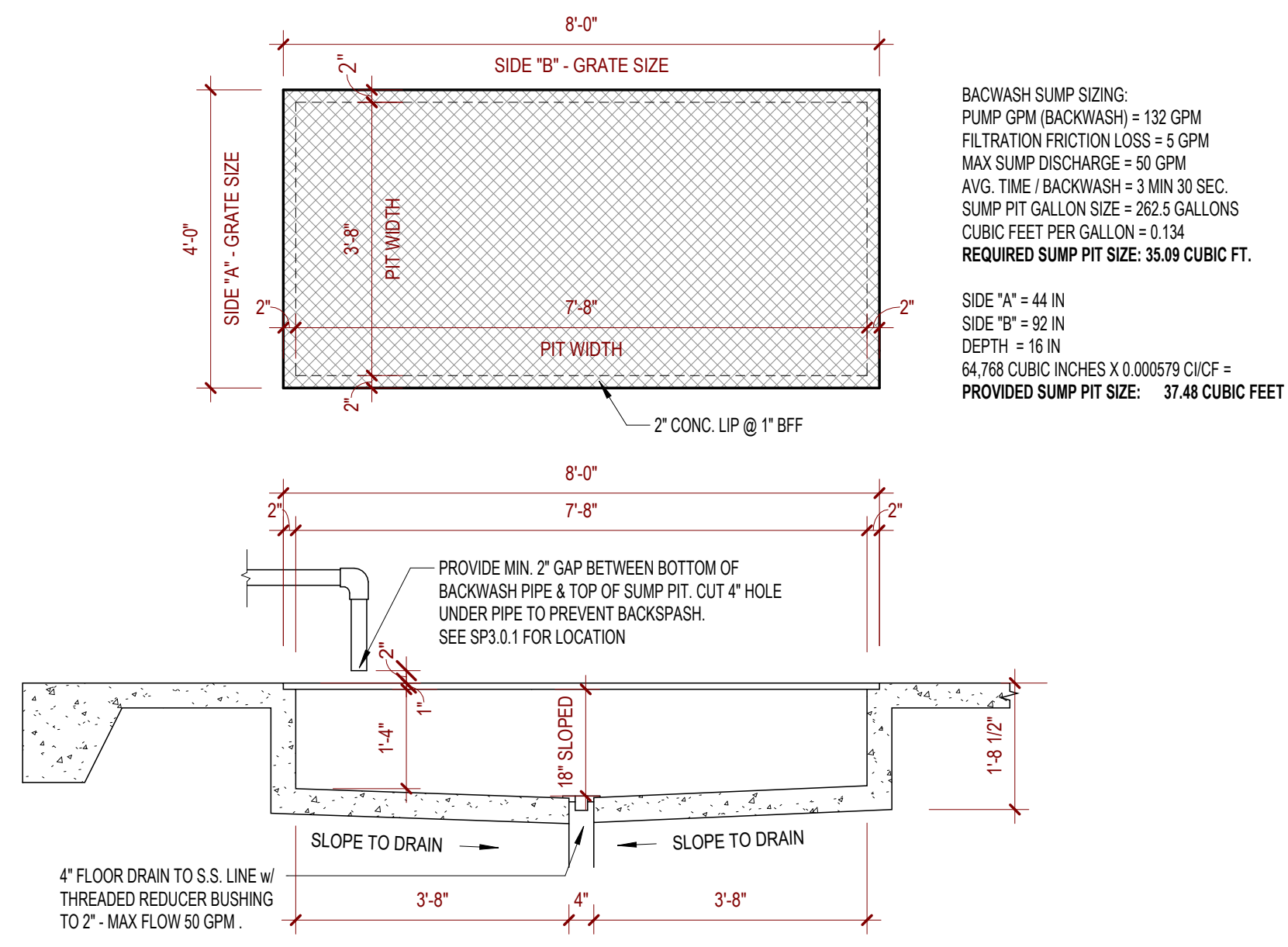
SP4.0



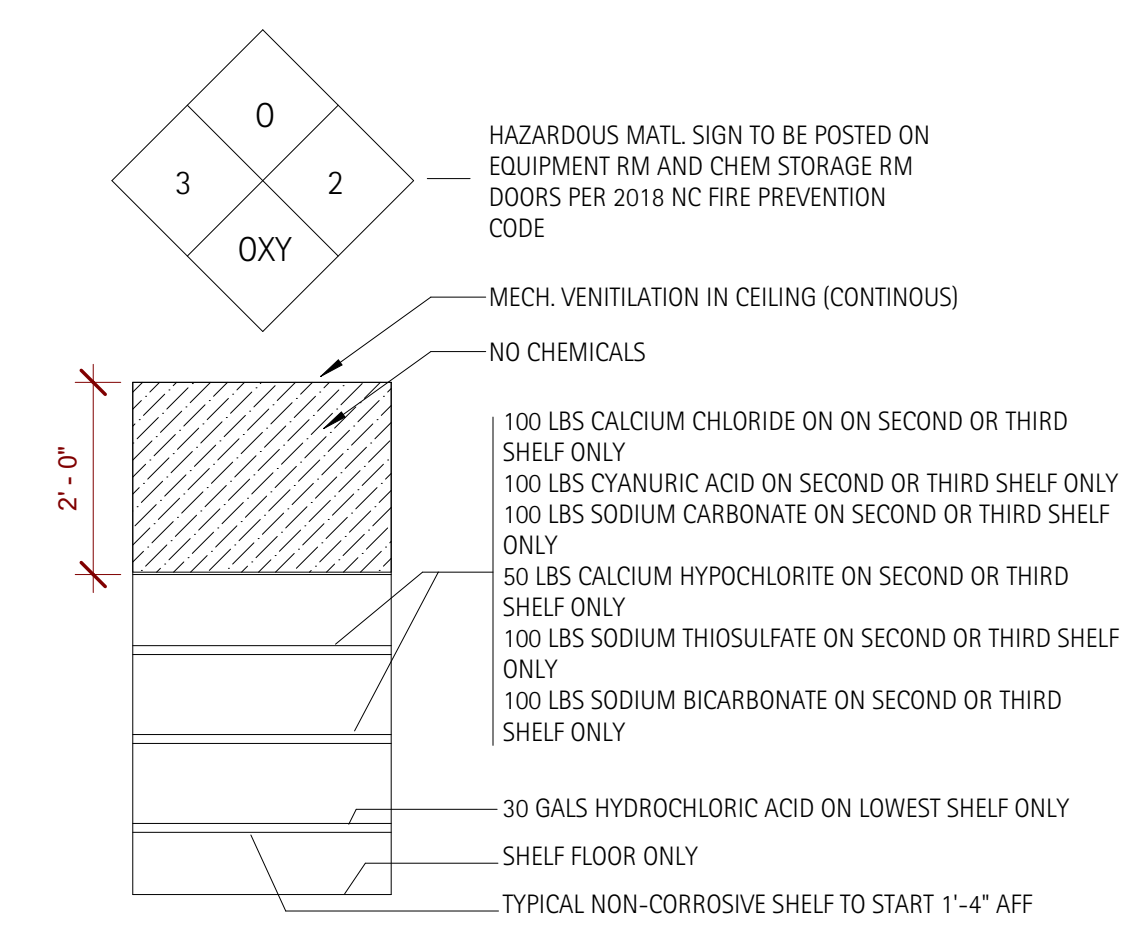
3 Detail - Fence
1/2" = 1'-0"



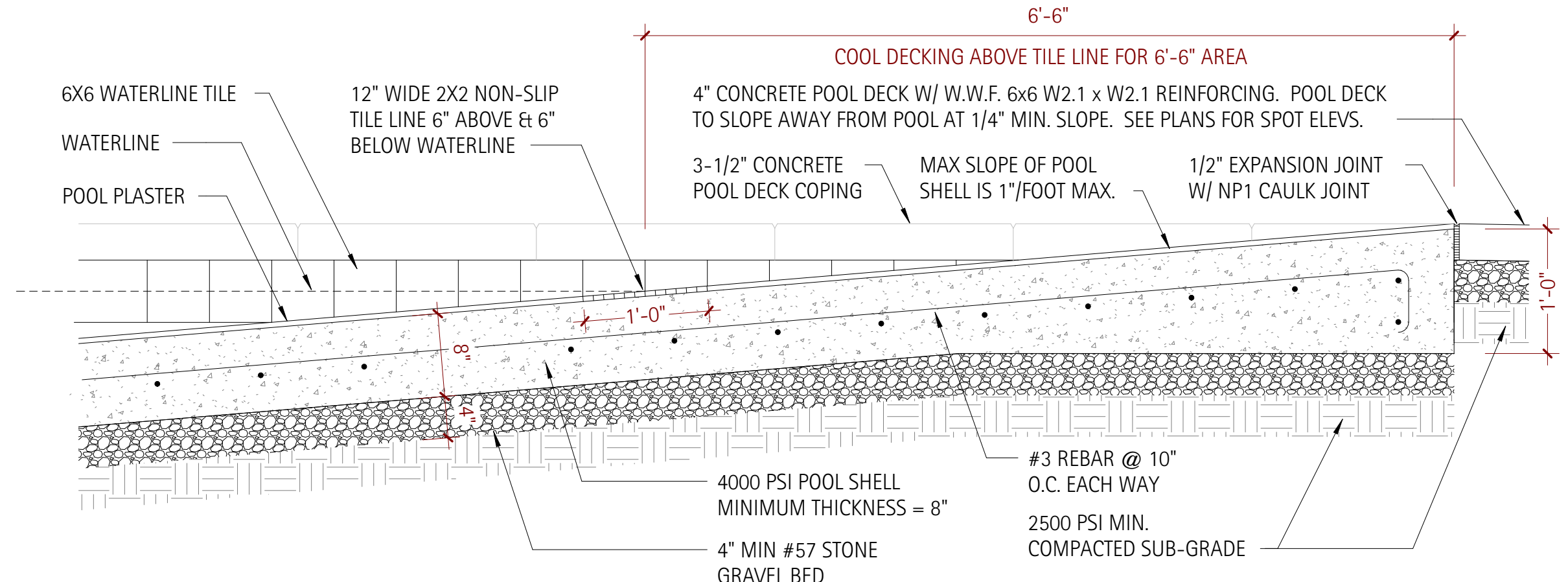
4 Detail - North South Pool Section
1/4" = 1'-0"



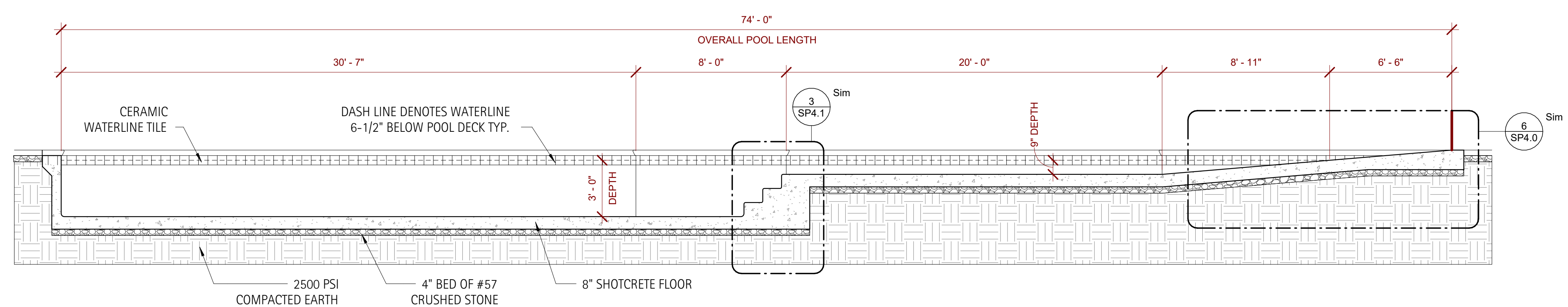
2 Detail - Sump Pit w/ 2\"/>



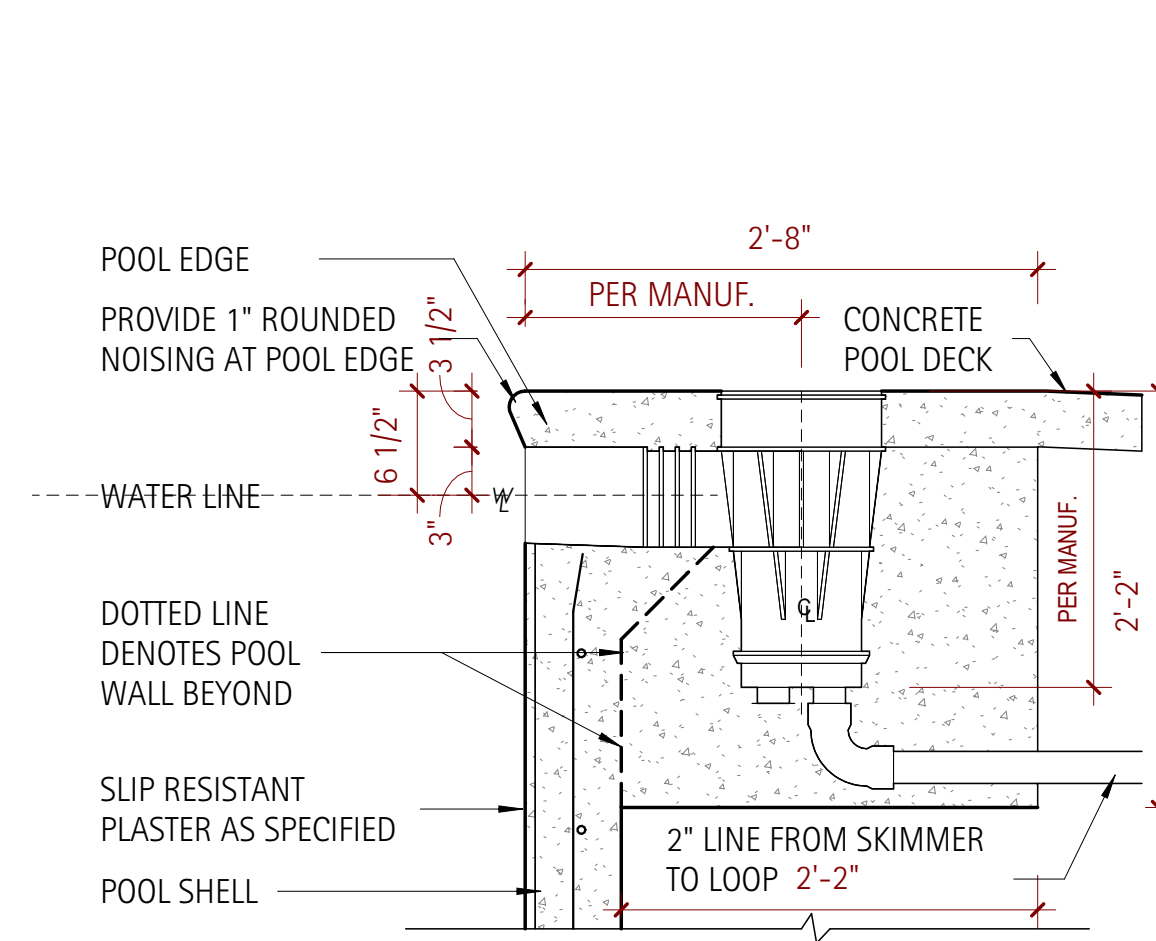
1 Detail - Chemical Storage
1/2" = 1'-0"



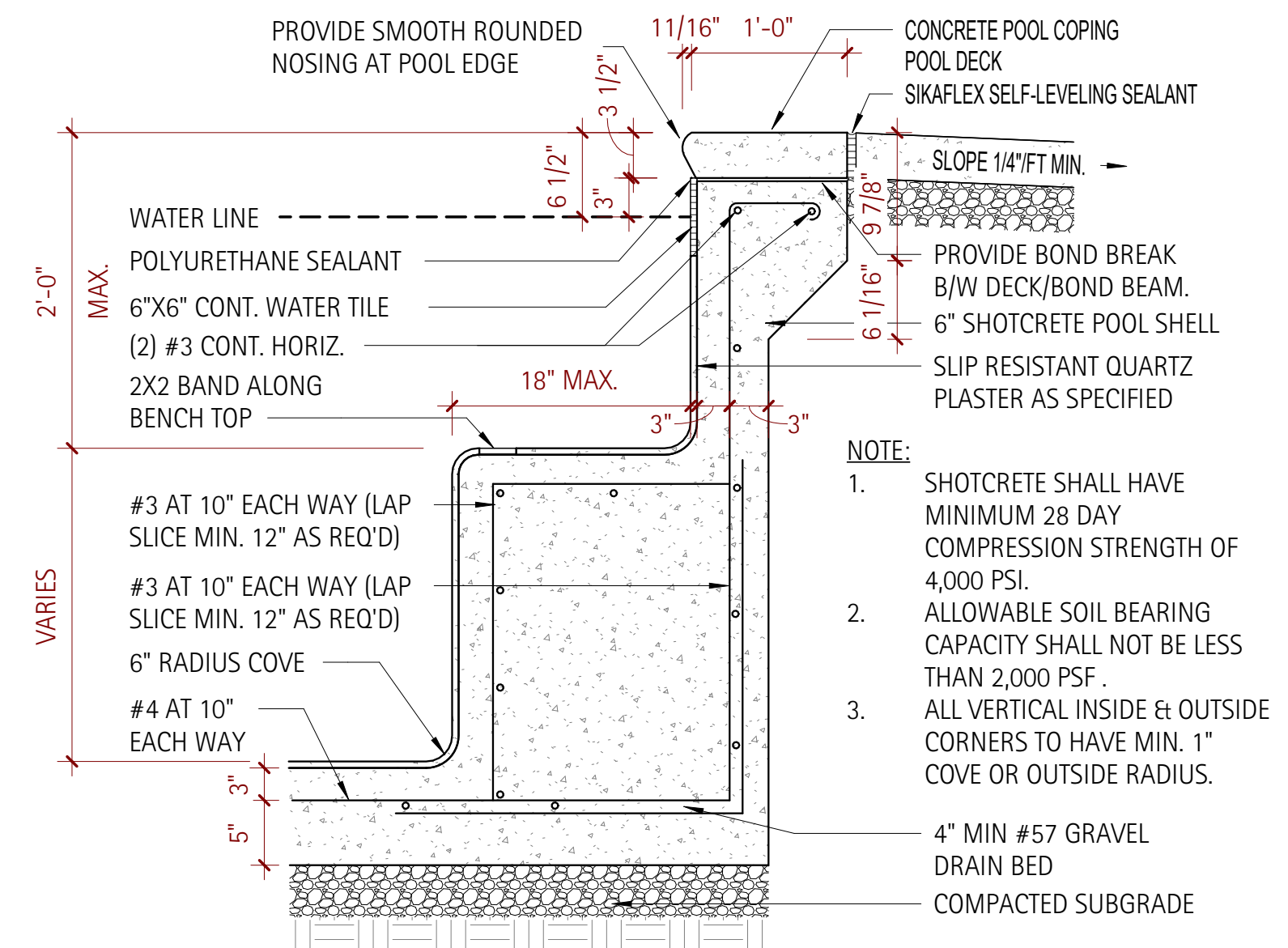
6 Detail - Zero Entry
1" = 1'-0"



5 Detail - East West Pool Section
1/4" = 1'-0"

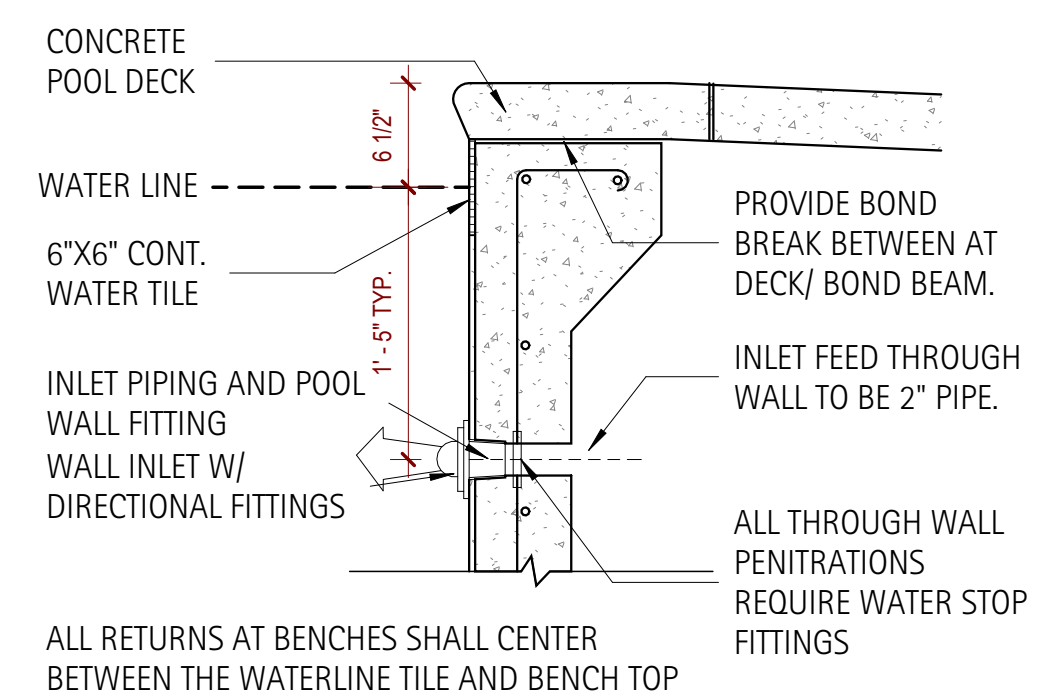


7 Detail - Pool Skimmer
1" = 1'-0"

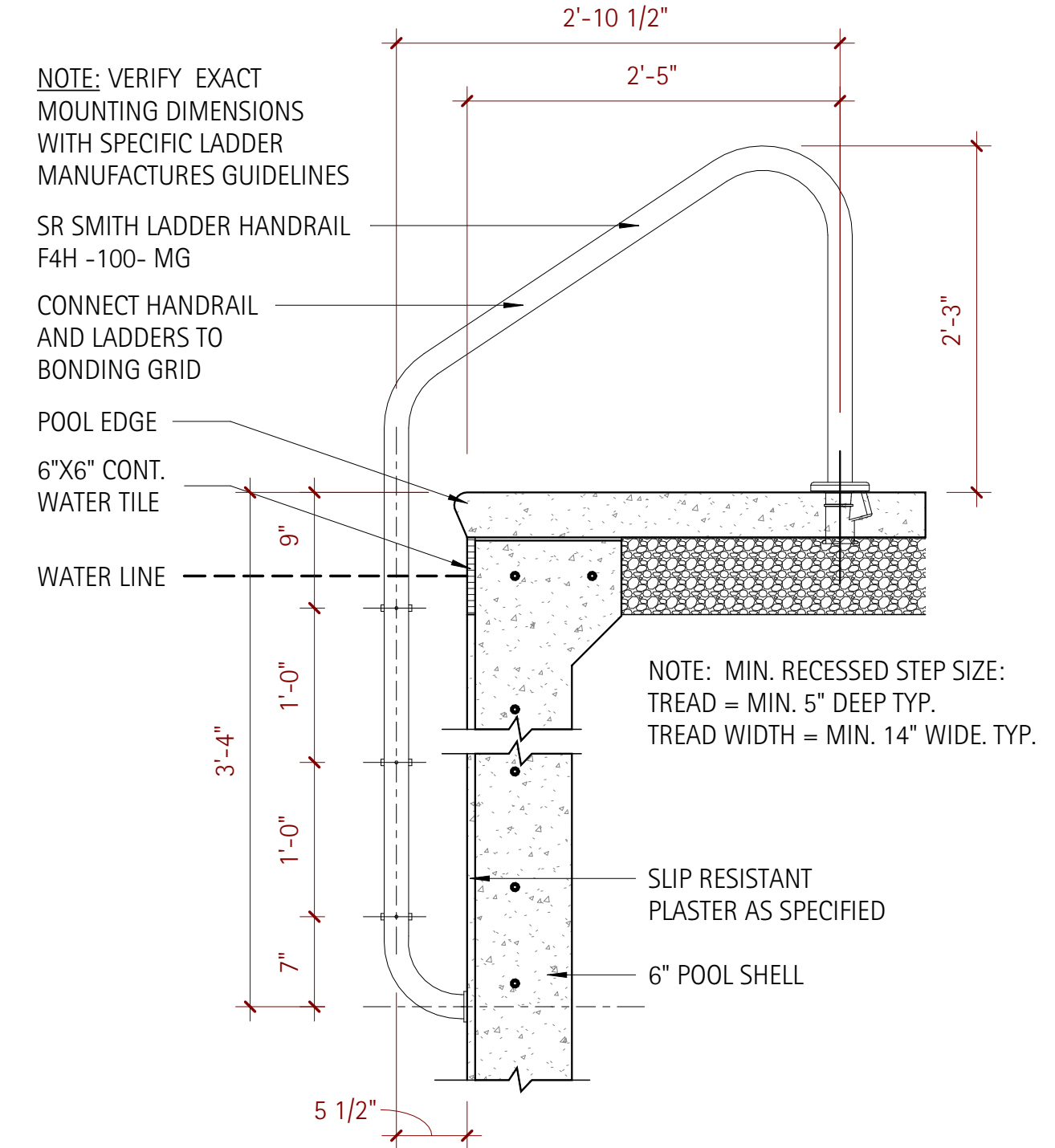


4 Detail - Pool Bench
1" = 1'-0"

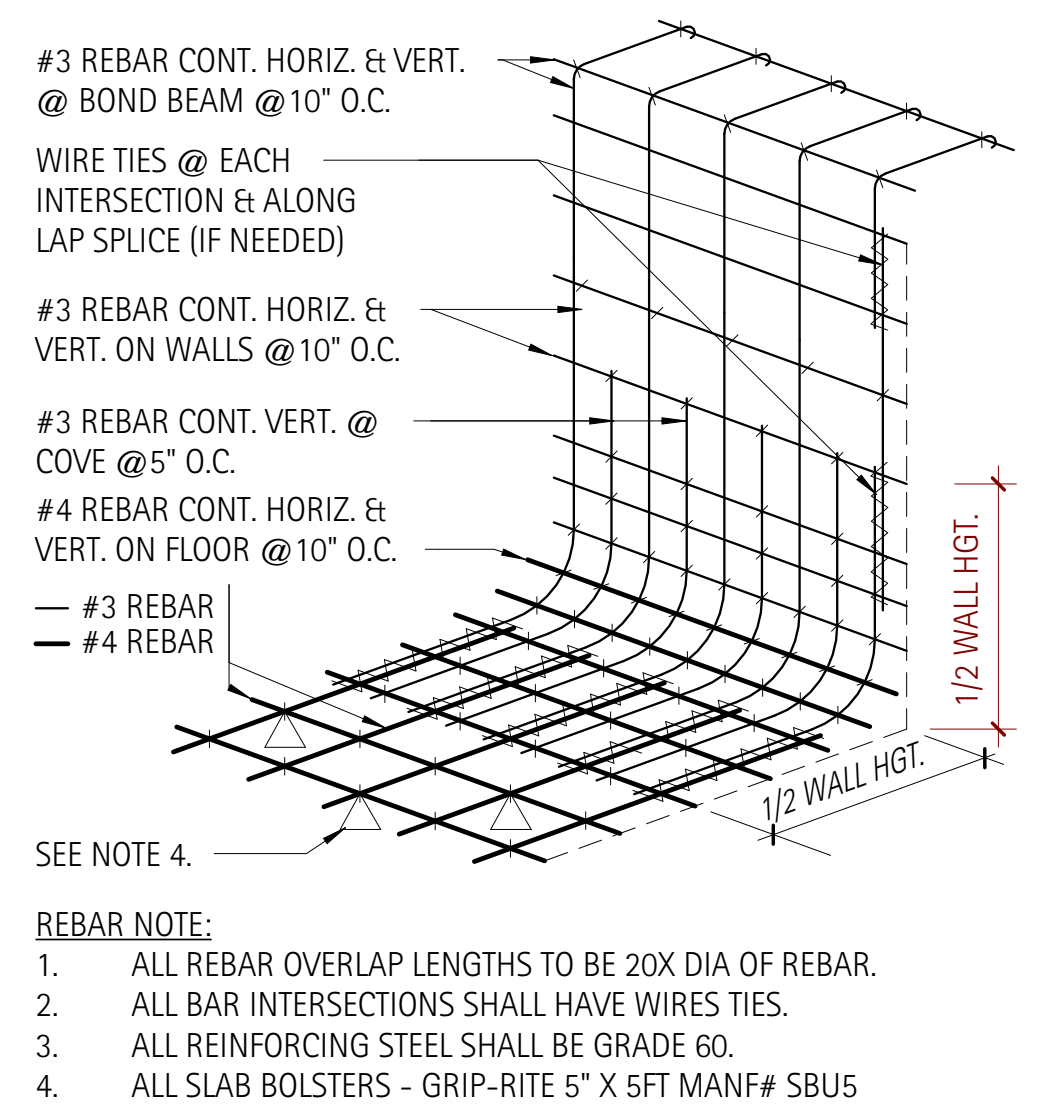
1 Detail - Pool Bonding
1" = 1'-0"



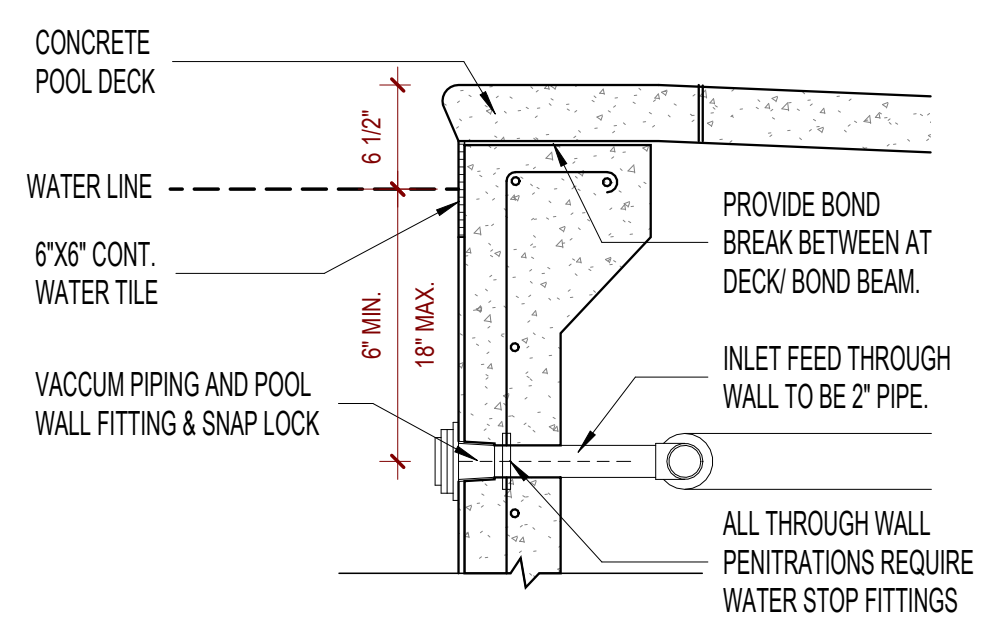
8 Detail - Inlet Pipe Detail
1" = 1'-0"



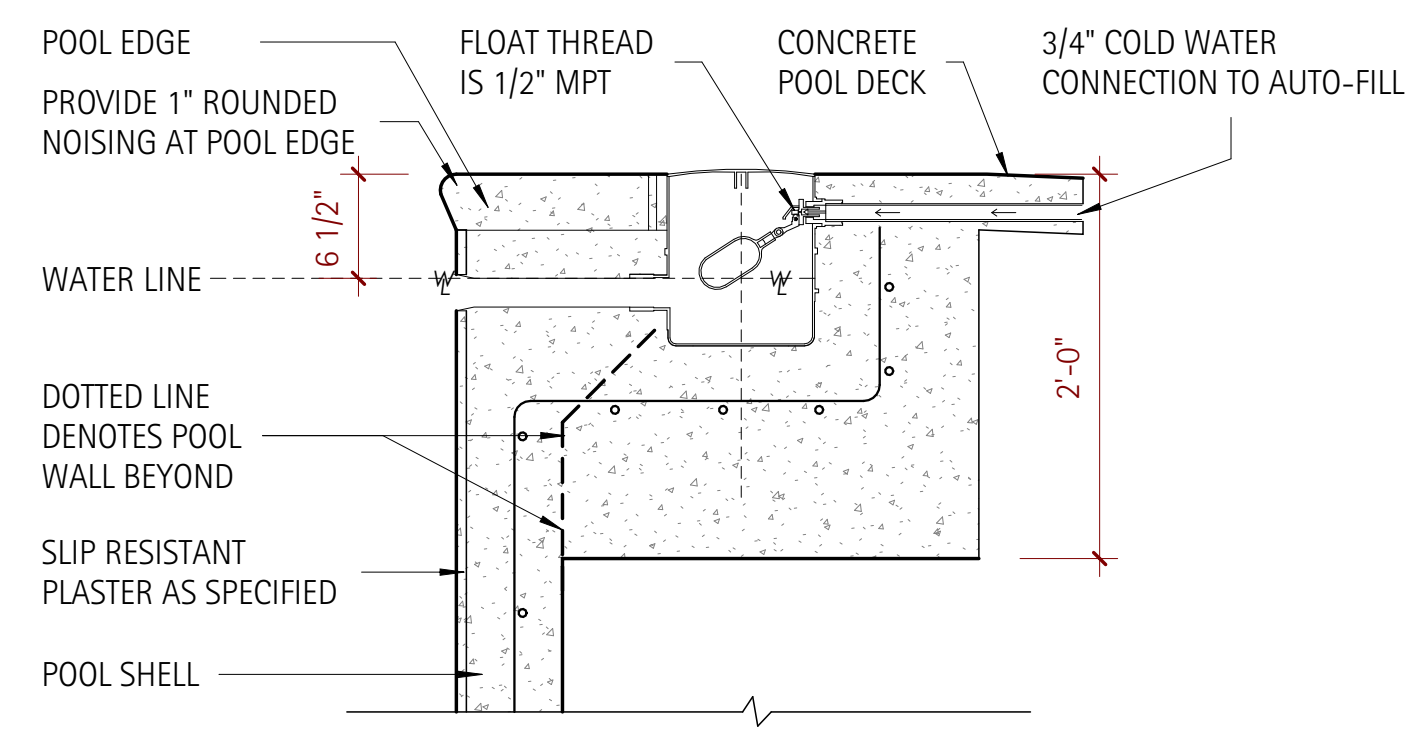
5 Detail - Commercial Ladder
1" = 1'-0"



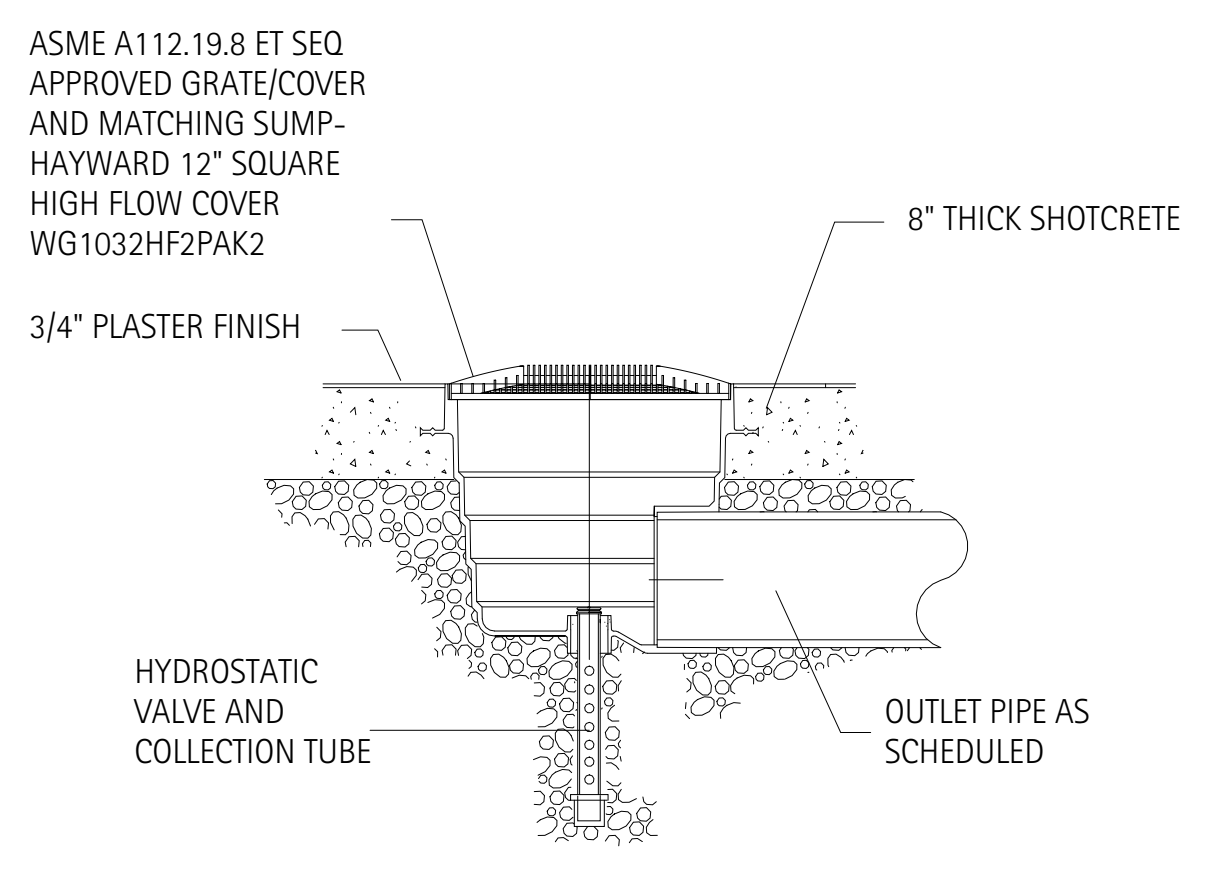
2 Detail - Pool Wall
1" = 1'-0"



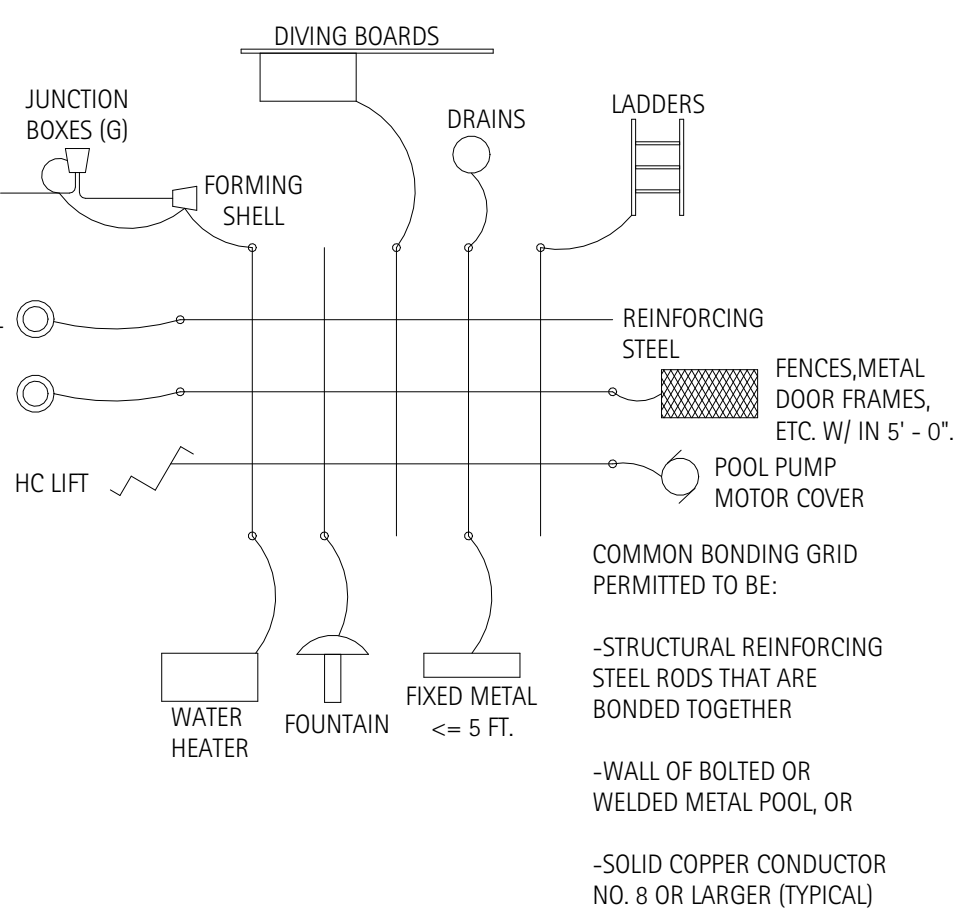
9 Detail - Vacuum Line
1" = 1'-0"



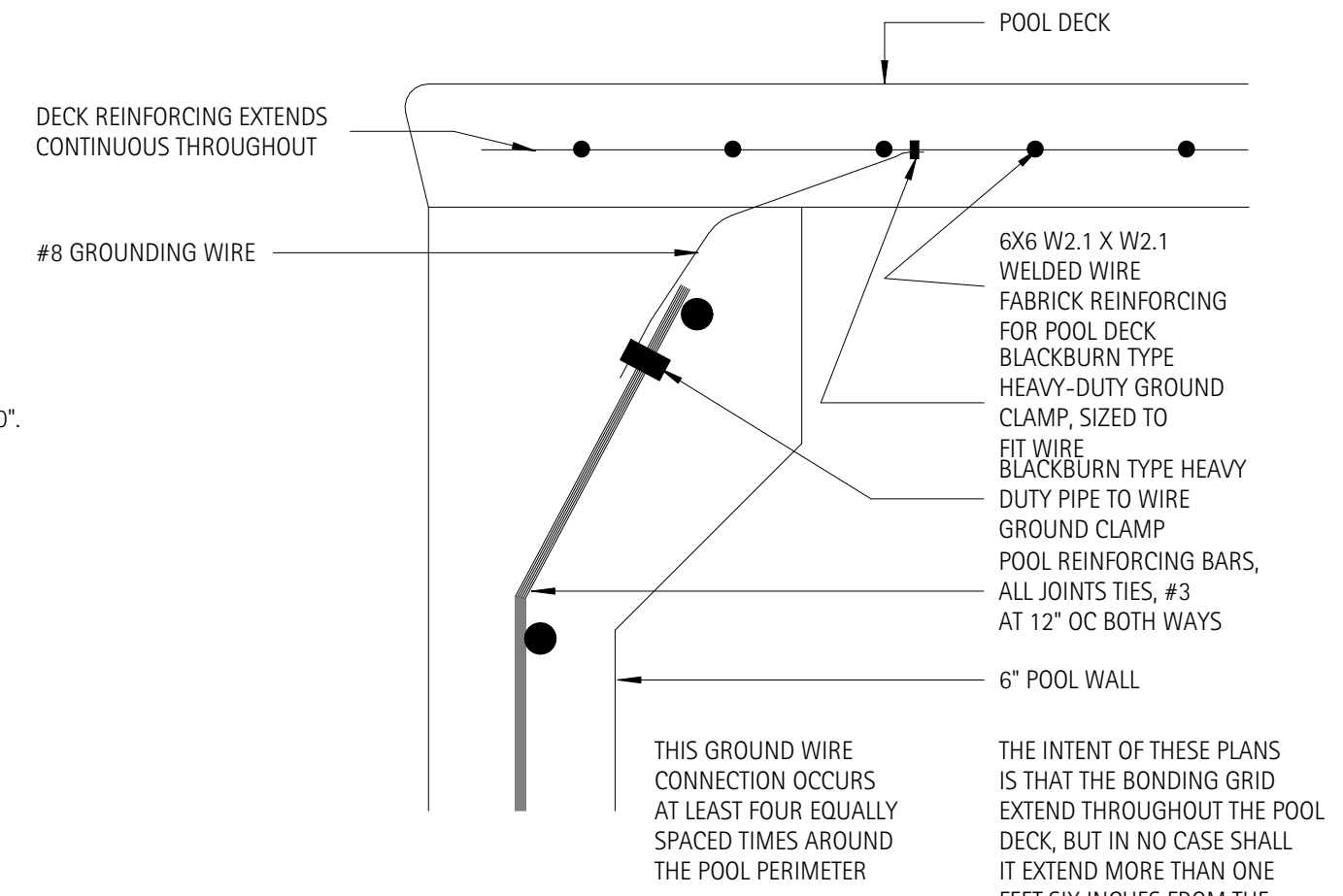
10 Detail - Pool Autofill
1" = 1'-0"



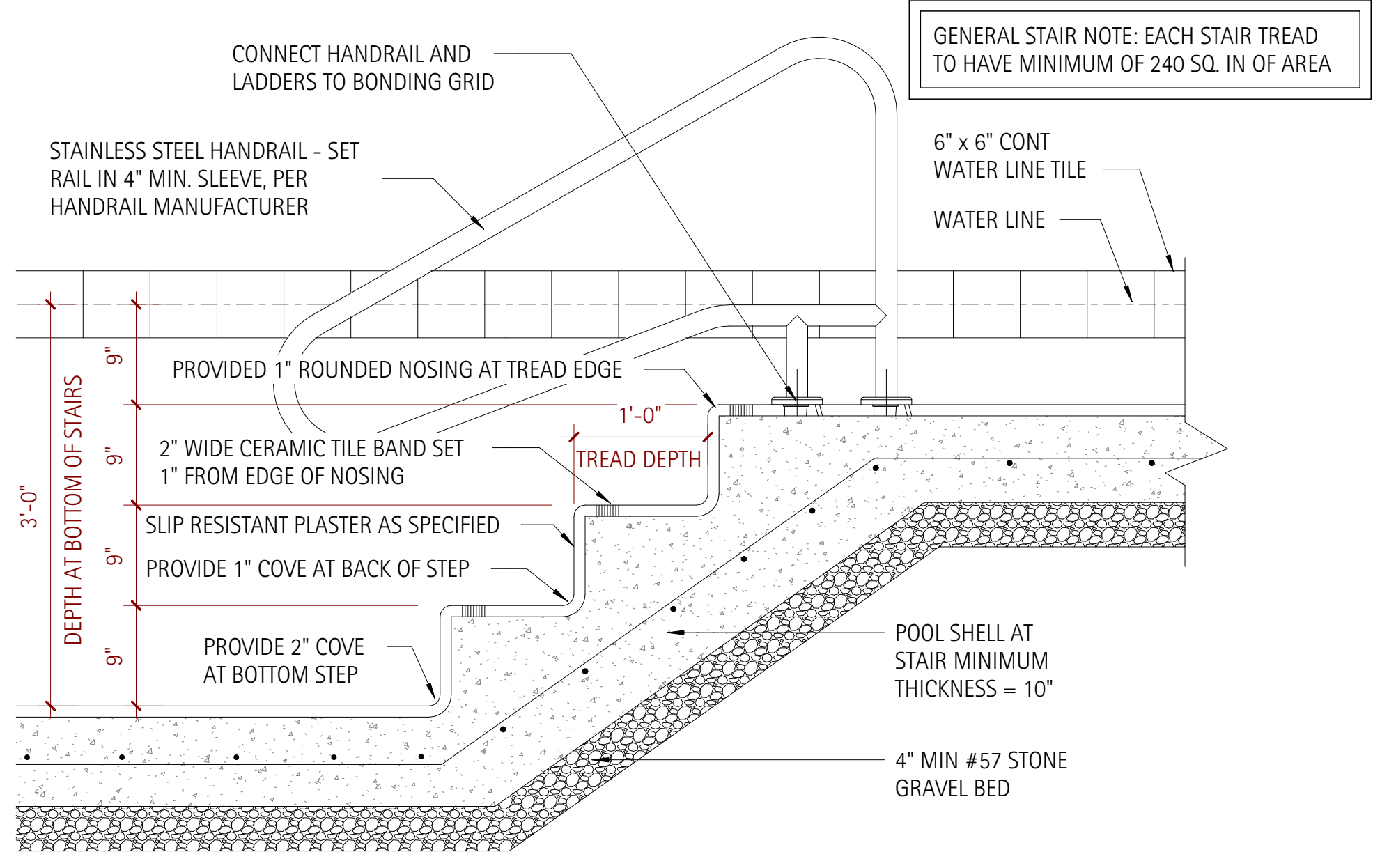
6 Detail - Main Drains
1" = 1'-0"



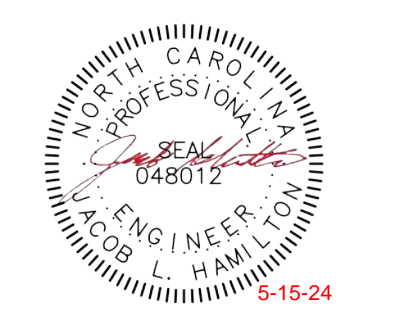
SWIMMING POOL BONDING RISER



EQUIPOTENTIAL BONDING GRID DETAIL



3 Detail - Pool Shelf & Steps
1" = 1'-0"



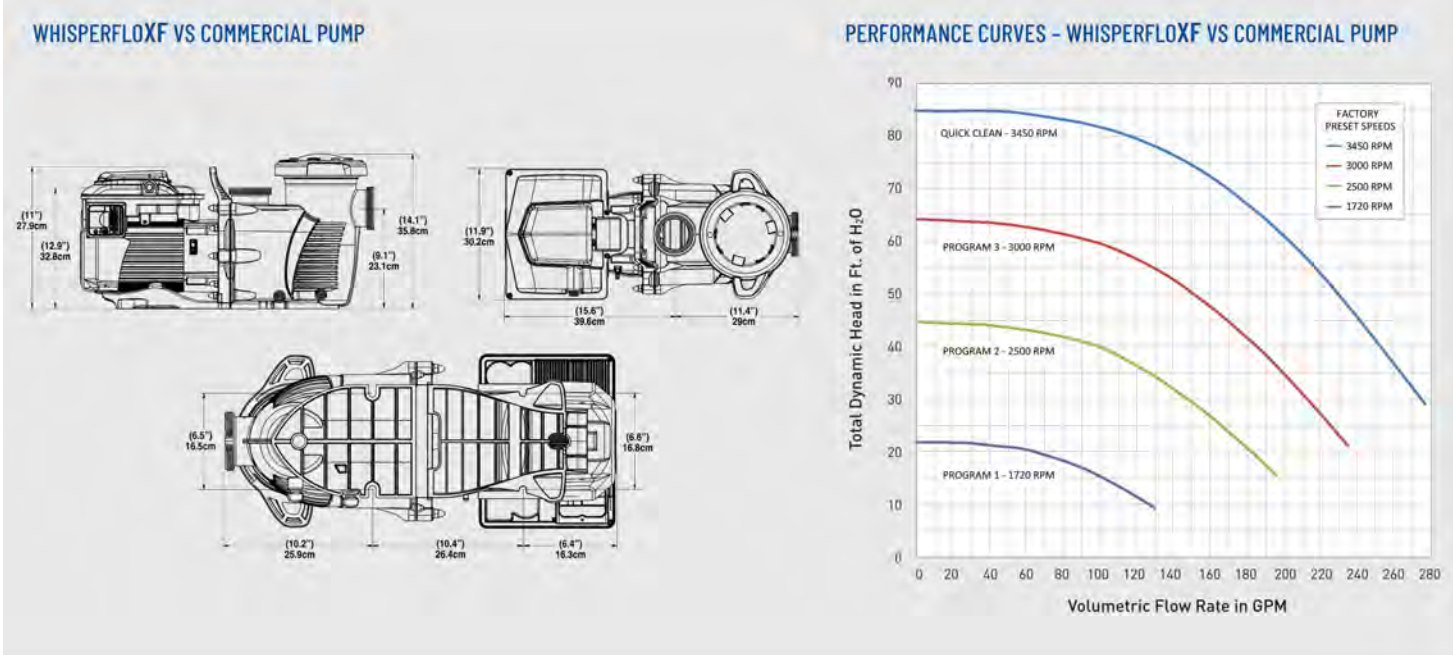
NO.	REVISION	DATE

SECTIONS & DETAILS

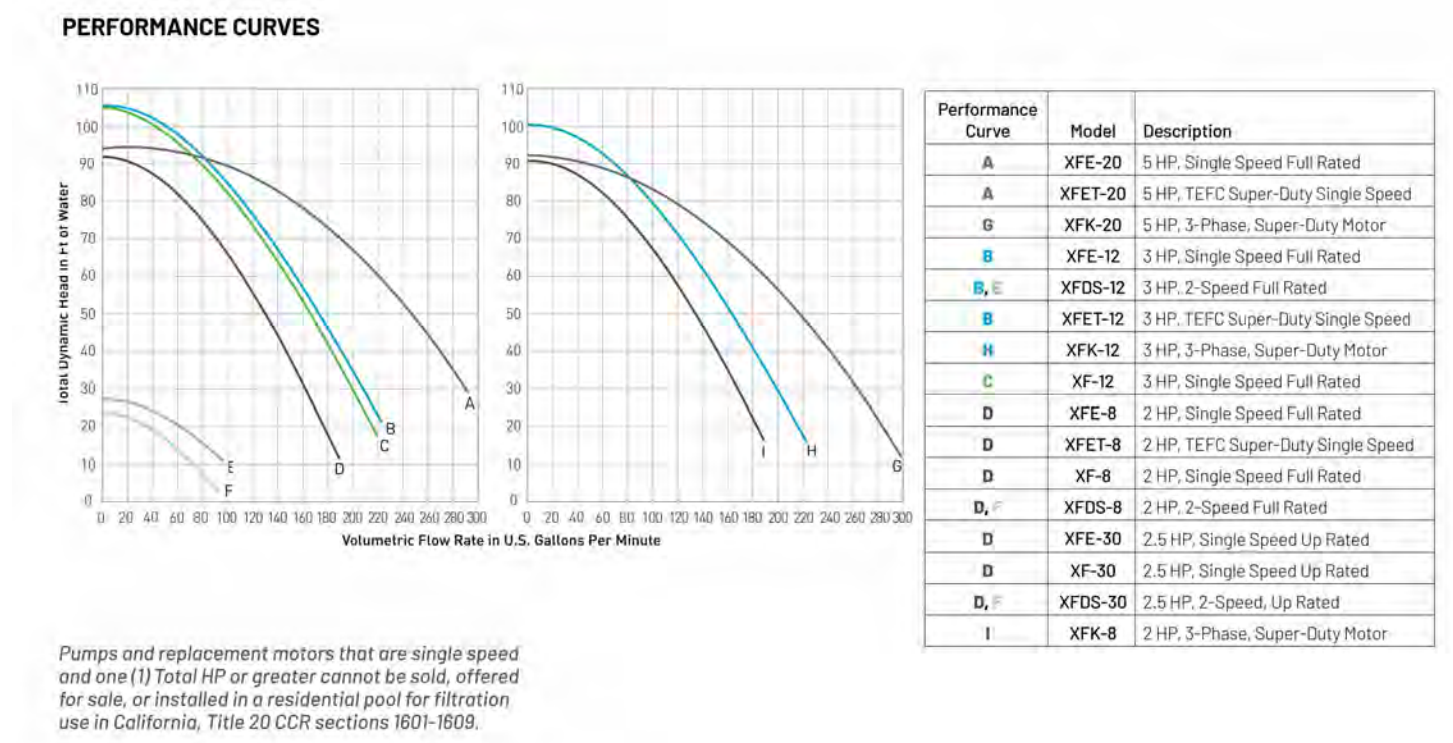
SHEET DESCRIPTION

PROJECT #:	2024001
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ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC



TAG 1A - CIRCULATION PUMP - WHISPERFLOX VS - 5.1HP SELF-PRIMING PUMP W/ STRAINER BASKET



TAG 1B - FEATURE PUMP - XFE-20 - 5.1HP SELF-PRIMING PUMP W/ STRAINER BASKET

RAINBOW™ HIGH CAPACITY CHLORINE/BROMINE FEEDERS

- Designed for ease of use and simple maintenance
- Drain valve allows easier draining for safer recharging or winterizing
- Standard threaded inlet and outlet fittings included for easy installation

THE PERFORMANCE LEADER IN AUTOMATIC SANITIZATION FOR LARGE RESIDENTIAL AND COMMERCIAL POOLS

The INLET control valve side of the feeder connects to the plumbing on the discharge side of the pump, before the filter. The OUTLET side of the feeder connects to the pool return line after the filter and/or heater, pool cleaner, diverter valves, or any other installed equipment. Installation of a corrosion-resistant check valve such as #R172288 by Pentair between the feeder inlet and the equipment is strongly recommended to check backflow of chemicals. This helps ensure equipment longevity.

AVAILABLE FROM:

1620 HAWKINS AVE., SANFORD, NC 27330 800.831.7133 WWW.PENTAIRPOOL.COM

SCH 40 & 80 FOR TR100C, TR140C, TR100C-3 & TR140C-3 TANDEM FILTER PIPING KITS FOR 2 & 3 IN. FILTERS

These Tandem Filter Piping Kits are designed specifically for use with the Triton® TR100C, TR140C, Triton TR100C-3 and TR140C-3 Sand Filters to make the best even better.

We are providing this additional service for your convenient one-stop shopping. Pipe and fittings are all you need.

Pipe is not included in kits.

Ordering Information

Product	Model	Product	Model
For Plumbing Two TR100C or TR140C Filters			
146400	3 in. Two filter kit, SCH 40 (200 GPM)	146409	4 in. Single filter kit, SCH 40
146402	4 in. Two filter kit, SCH 40 (300 GPM)	146408	6 in. Single filter kit, SCH 40
146404	6 in. Two filter kit, SCH 40 (700 GPM)	146407	4 in. Single filter kit, SCH 80
146403	4 in. Two filter kit, SCH 80 (300 GPM)	146409	6 in. Single filter kit, SCH 80
146405	6 in. Two filter kit, SCH 80 (700 GPM)	Adder Kits for TR100C-3 and TR140C-3 Filters	
For Plumbing Two TR100C-3 or TR140C-3 Filters			
147400	3 in. Two filter kit, SCH 40 (200 GPM)	147409	4 in. Single filter kit, SCH 40
147402	4 in. Two filter kit, SCH 40 (300 GPM)	147408	6 in. Single filter kit, SCH 40
147404	6 in. Two filter kit, SCH 40 (700 GPM)	147407	4 in. Single filter kit, SCH 80
147401	3 in. Two filter kit, SCH 80 (200 GPM)	147409	6 in. Single filter kit, SCH 80
147403	4 in. Two filter kit, SCH 80 (300 GPM)	Note: All kits include hardware, fittings, gaskets.	
147405	6 in. Two filter kit, SCH 80 (700 GPM)	Note: All kits include hardware, fittings, gaskets and butterfly valves.	

Filters	Filter Area Sq. Ft.	Manifold Pipe Dia.	Filter Rate Sq. Ft.		Turnover Capacity		
			15 GPM	20 GPM	8 Hours	8 Hours	10 Hours
TANDEM TRITON 140C FILTER INSTALLATION							
6 TR 140's	42.36	6 in.	635	—	228,600	304,800	381,000
		8 in.	—	847	304,920	406,560	508,200
7 TR 140's	49.42	6 in.	741	—	266,760	355,680	444,600
		8 in.	—	988	355,680	474,240	592,800
8 TR 140's	56.48	8 in.	847	—	304,920	406,560	508,200
		8 in.	—	1130	406,800	542,400	678,000

TAG 2 - BACKWASH KIT - 147400 - TANDEM FILTER BACKWASH PIPING KIT

WHEN ACCURACY IS CRITICAL, DON'T JUST TAKE OUR WORD FOR IT!

FlowVis® was the first - and is now the most - NSF 50 certified flow meter in the world. Because when accuracy matters, you should put your trust in the experts.

FLOWVIS® MODELS

Feature	FW15	FW3-U	FW2	FW2-U	FW25	FW3	FW3-40	FW4	FW6	FW8
NSF 50 Certified	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pipe Size	1.5"	1.5"	2"	2"	2.5"	3"	3"	4"	6"	8"
Operating Range (GPM)	10-80	10-90	10-110	10-110	10-110	10-110	70-240	70-240	300-1000	600-1800
Average Accuracy	98.7%	98.7%	99.4%	99.0%	99.2%	98.9%	99.2%	99.6%	98.1%	N/A*
NSF 50 Level	11	11	11	11	11	11	11	11	11	11

*FlowVis® model FW-8 is available only with FlowVis® Digital upgrade included. For accuracy of this model, refer to the FW-8 information in the FlowVis® Digital title below.

FLOWVIS® DIGITAL MODELS

Feature	FW15	FW3-U	FW2	FW2-U	FW25	FW3	FW3-40	FW4	FW6	FW8
NSF 50 Certified	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pipe Size	1.5"	1.5"	2"	2"	2.5"	3"	3"	4"	6"	8"
Operating Range (GPM)	10-80	10-90	10-110	10-110	10-110	70-240	70-240	300-1000	600-1800	600-1800
Average Accuracy	99.6%	99.0%	98.8%	98.5%	98.2%	98.4%	98.0%	98.3%	98.9%	98.9%
NSF 50 Level	11	11	11	11	11	11	11	12	11	11

NOTE: FlowVis is the only NSF 50 certified Level 1 flow meter in the world today.

Guide for NSF 50 Accuracy Levels

Level 1 (L1): Average of absolute values of all single point deviations must be <2%. Single point deviations shall not exceed <4%.

Level 2 (L2): Average of absolute values of all single point deviations must be <5%. Single point deviations shall not exceed <7.5%.

Level 3 (L3): Average of absolute values of all single point deviations must be <10%. Single point deviations shall not exceed <12.5%.

Level 4 (L4): Average of absolute values of all single point deviations must be <12.5%. Single point deviations shall not exceed <15%.

Level 5 (L5): Average of absolute values of all single point deviations must be <15%. Single point deviations shall not exceed <20%.

4 FlowVis

TAG 5 - FLOWMETER - FW-3-40 - 3 INCH DIGITAL INLINE FLOW METER

TRITON® C SERIES COMMERCIAL SAND FILTERS

TRITON HD FILTER

The Triton heavy duty (HD) filter is a thirty-inch fiberglass filter that offers a maximum operating pressure of 75 PSI. This filter is specifically designed for special high-pressure commercial applications that require up to 98 gpm, and is ideal for all heavy-duty commercial applications.

TRITON HD

Model Number	Filter Area Sq. Ft.	Flow Rate 15 GPM/ft.²	Turnover Capacity 8 Hours	Dimension	Media Required
TR100C	4.91	7%	26,440	35,500	39 1/2" x 33 1/2" x 40 1/2" (800 lbs.)
TR140C	7.56	10%	38,140	50,880	45 1/2" x 38 1/2" x 45 1/2" (925 lbs.)
TR100C-3	4.91	7%	26,440	35,500	39 1/2" x 33 1/2" x 40 1/2" (800 lbs.)
TR140C-3	7.56	10%	38,140	50,880	45 1/2" x 38 1/2" x 45 1/2" (925 lbs.)

*15 GPM/ft.², typical commercial flow rate.

Two Filter System	A	B	C	D	Total Wt.
2" - TR100C	82 1/2"	17 1/2"	48"	18"	2,300 lbs.
2" - TR140C	88 1/2"	17 1/2"	54"	18"	3,200 lbs.
4" - TR140C	95 1/2"	19 1/2"	54"	18"	3,200 lbs.
6" - TR140C	111 1/2"	24 1/2"	54"	18"	3,500 lbs.

Note: 4" piping needs to be rotated upward as shown at 20° to handle will clear the floor.

1620 HAWKINS AVE., SANFORD, NC 27330 800.831.7133 WWW.PENTAIRCOMMERCIAL.COM

TAG 3 - FILTER - TR-140 C3 - 36" DIA HIGH RATE SAND FILTER

AQUASTAR VGBA-2017 PRODUCT SPECIFICATIONS

Suction Outlet Fitting Assembly (SOFA)

VGBA-2017 Flow Ratings, Sump Dimensions, Sump Flow Path Zone, and Head Loss Curves

DIRECTIONS: Please follow the SOFA specific flow rates, sump specifications, and flow path zone information below. The installation must meet the minimum maximum requirements including the SOFA dimension defined in Figure 1. The flow path zone is defined by dimensions A through E. The installed sump may be manufactured or field-built and it may be larger/deeper than Figure 1. Please write the Cover Model Number, orientation, and SOFA Model Flow Rating on the VGBA DRAIN COVER IDENTIFICATION INFORMATION label that comes with each AquaStar Pool Products, Inc. drain cover.

Cover Model Number: WAV12WRxxx

FIGURE 1 - SOFA MODEL & FLOW PATH

SOFA Model No.	Pipe Size (Nominal)	Pipe Depth (Minimum)	Orientation (Wall / Floor)	Flow Rating (GPM)	Head Loss (Curve)
WAV12WR-12f-A-1.5b_B3_C0.3_D0.7_E3.5_F16	1.5" (b)	3"	Floor (f)	128	A
WAV12WR-12f-A-2b_B3_C0.3_D0.7_E4.9_F16	2" (b)	3"	Floor (f)	150	B
WAV12WR-12f-A-2.5b_B3_C0.3_D0.7_E4.7_F16	2.5" (b)	3"	Floor (f)	200	C
WAV12WR-12f-A-3b_B3_C0.3_D0.7_E4.5_F16	3" (b)	3"	Floor (f)	230	D
WAV12WR-12f-A-3b_B3_C0.3_D0.7_E3_F16 [Sump P/N 12-358]	3" (b)	5.6"	Floor (f)	360	E
WAV12WR-12f-A-4b_B3_C0.3_D0.7_E3.75_F16 [Sump P/N 12-458]	4" (b)	3"	Floor (f)	300	F
WAV12WR-12f-A-4s_B6_C0.3_D0.7_E3_F16 [Sump P/N 12-458]	4" (s)	6"	Floor (f)	450	G
WAV12WR-12f-A-4s_2.5b_B6_C0.3_D0.7_E3_F16 [Sump P/N 12-358]	4" (s), 2.5" (b)	6"	Floor (f)	450	H
WAV12WR-12f-A-6b_B3_C0.3_D0.7_E3_F16	6" (b)	3"	Floor (f)	340	I
WAV12WR-12f-A-6b_B10.5_C0.3_D0.7_E2.9_F16 [Sump P/N 12-658]	6" (b)	10.5"	Floor (f)	450	J
WAV12WR-12w-A-1.5b_B3_C0.3_D0.7_E3.5_F16	1.5" (b)	3"	Wall (w)	128	K
WAV12WR-12w-A-2b_B3_C0.3_D0.7_E3.5_F16	2" (b)	3"	Wall (w)	150	L
WAV12WR-12w-A-2.5b_B3_C0.3_D0.7_E3.5_F16	2.5" (b)	3"	Wall (w)	200	M
WAV12WR-12w-A-3b_B3_C0.3_D0.7_E3_F16 [Sump P/N 12-458]	3" (b)	3"	Wall (w)	230	N
WAV12WR-12w-A-4b_B3_C0.3_D0.7_E3.75_F16 [Sump P/N 12-458]	4" (b)	3"	Wall (w)	260	O
WAV12WR-12w-A-4b_B10.5_C0.3_D0.7_E2.9_F16 [Sump P/N 12-658]	6" (b)	10.5"	Wall (w)	450	P

Note 1: "SOFA Model No" nomenclature: bottom pipe = (b), side pipe = (s). See Fig 1 for capital letters A through E.

Note 2: Head loss in ft is measured 16 to 24 inches from the finish surface of the pool. Reference Fig 1 dimension F.

Note 3: [Sump P/N 12-x58] are the part numbers marked inside these manufactured Sump Buckets. Use of these sumps is not required. Installing WAV12WRxxx covers on field-built sumps is permitted. To order WAV12WRxxx product with these sumps, please see the catalog or visit www.aquastarpoolproducts.com.

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TAG 6 - FEATURE MAIN DRAIN COVER - WAV12WR101 - 12"x12" ANTI-ENTRAPMENT MAIN DRAIN COVER

COMMERCIAL INTELLICHLOR® SALT CHLORINE GENERATOR

WHY CHOOSE THE COMMERCIAL INTELLICHLOR GENERATOR?

- Cell blades are rated for 10,000 hours of operation, under normal operating conditions.
- Built-in intelligence—primary cell reads salt levels and communicates to all secondary cells.
- Full diagnostic capabilities, including cell life tracking that communicates remaining hours of call life in real-time. Captures all performance data daily: production settings, hours of operation, chlorine output, cell cleaning cycles, salt readings and water temperature averages.
- Cells have commercial coating for maximum performance.
- Easy-to-view display enables fast checking of salt levels, cell cleanliness, sanitizer output and water flow.
- Automatic shut-off feature helps protect the unit and prolong cell life under low water temperature conditions.
- On-time cycling helps prevent calcium and scale build-up to maximize cell life.
- Designed to produce up to 2 lbs of chlorine in a 24-hour period from a single cell.
- Works with ORP control system to generate chlorine on demand.
- All power centers are pre-wired for 220 VAC and ORP and conveniently mounted on backboards.
- Manifold C1C 2 lb output cells in combinations that produce from 4 lbs to 16 lbs of chlorine per day.
- One-year limited warranty

Possible Power Center and Manifold Configurations

Part Number	Description	Number of Primary (P) and Secondary (S) IC60 Cells	Number of Primary Power Centers (520978)	Number of Secondary Power Centers (520954)	Chlorine per day (lbs)
520970	COMSYS-2	1P	1	0	2
520971	COMSYS-4	1P, 3S	1	1	6
520972	COMSYS-4	1P, 2S	1	2	6
520973	COMSYS-8	1P, 3S	1	3	8
520974	COMSYS-16	1P, 4S	1	4	10
520975	COMSYS-12	1P, 3S	1	3	12
520976	COMSYS-14	1P, 5S	1	4	14
520977	COMSYS-14	1P, 7S	1	7	16

• 120 GPM minimum per manifold.

• Power Centers are mounted on PVC boards and pre-wired for 220 VAC and ORP.

*Compatible with all pH/ORP chemical control systems from Pentair Commercial Aquatics.

*Codes for commercial pools typically require 2 lbs of chlorine production per every 10,000 gallons. Please consult your local codes for chlorine production requirements.

1620 HAWKINS AVE., SANFORD, NC 27330 800.831.7133 WWW.PENTAIRCOMMERCIAL.COM

TAG 4A - SALT SYSTEM - 520977 (COMSYS-16) - COMMERCIAL INTELLICHLOR SALT CHLORINE GENERATOR

Fiberglass Field Built Sumps

- Premium fiberglass & resin for maximum structural strength
- Durable smooth gelcoat interior & pebble pipe
- Exterior perimeter FRP waterstop flange
- Non-Metallic No grounding
- Rough sand exterior finish
- Custom configurations fabricated
- 2" Z-baron flt x fpt for hydro relief valve
- Threaded PVC SCH 40 pressure test plug for outlet (up to 8")
- All PVC connections are ASTM 2466 compliant
- Designed to ANSI/APSP/ICC-16: 2017 for use only with noted SOFA (Suction Outlet Fitting Assembly) Covers

COMPONENT

Made in the USA

Size (inches)	ASA Part #	A	B	C	D	E	SOFA COVER	SOFA LIST
9 x 9 x 12	FBS-50-809-3	11"	9"	12"	4.5"	6.5"	3"	A
12 x 12 x 12	FBS-50-812-4	14"	12"	12"	4.5"	6.5"	4"	B1
12 x 12 x 18	FBS-50-812-18-6	14"	12"	18"	4.5"	10"	6"	B2
18 x 18 x 24	FBS-50-818-6	20"	18"	20"	4.5"	10"	8"	C
18 x 18 x 24	FBS-50-818-24-8	20"	18"	24"	4.5"	13.5"	8"	D
24 x 24 x 30	FBS-50-824-30-10	26"	24"	30"	4.5"	17"	10" sec x soc	E

Compatible SOFA for A.S.A. MFG FBS Sumps

List A	List B1	List B2	List C	List D	List E
9" x 9"	12" x 12" - 4"	12" x 12" - 6"	18" x 18" x 20"	18" x 18" x 24"	24" x 24"

1) All Field Built Sumps shall be installed in accordance with the manufacturer's installation instructions.

2) All SOFA covers shall be installed in accordance with the manufacturer's installation instructions.

3) The A.S.A. MFG Inc. Fiberglass Field Built Sump is intended only to be installed in a reinforced concrete pool structure.

4) Any field modifications made to the SOFA and not authorized by the manufacturer's installation instructions shall void the SOFA certification. No modification shall be made to the SOFA structure or flow path unless a new configuration has been certified as a new SOFA.

5) Fiberglass Field Built Sump Life = Life of the Aquatic Center.

Notes: SOFA = Suction Outlet Fitting Assembly. Compatible based on manufacturer's specifications at the time of publication. Subject to change. See Manufacturer's website for updates.

A.S.A. MFG Inc. 14789 SW 111th St. Dunellon, FL 34432 352-465-0236 Fax 352-465-0239 email: info@asamfg.com

TAG 6 - MAIN DRAIN SUMPS - FBS-50-812-4 / FBS-50-818-6 - A.S.A FIBERGLASS SUMPS

D. CLUGSTON

Kilian Engineering, Inc.

10252-458-8178 | CORPORATE LICENSE # C-2277

DATE: _____

REVISION: _____

NO.: _____

SHEET DISCRPTION

SPECIFICATIONS

PROJECT #: 2024001

DATE ISSUED: 05/15/2024

DRAWING BY: JVD

CHECKED BY: DSC/JLH

ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC

SP5.0

AQUASTAR pool products
Hydrostatic Relief Valves

Self-Contained Hydrostatic Valve Assembly

Part # HVCxx

FEATURES

- Self-contained unit has a built-in collector tube
- Installs directly into the pool finish with no additional plumbing connection required
- Helps prevent swimming pool damage due to hydrostatic pressure beneath the pool shell when the pool is drained

12 per case

STANDARD COLORS

HVC101	HVC104
HVC102	HVC105
HVC103	HVC108

HVC05xx – Cap and Screws

2" Hydrostatic Relief Valve

Part # HVxx

FEATURES

- Equalizes pressure for high water tables
- Fits into easy twist for installation and removal
- Fits any AquaStar and most other manufacturers' 2" threads
- Manufactured from superior UV-resistant engineered polymers
- Includes 2" x 1/2" reducer bushing
- Reducer bushing must be glued into hydrostatic relief valve using ABS glue

25 per case

STANDARD COLORS

HV101	HV104
HV102	HV105
HV103	HV108

P 877-768-2717 F 877-276-POOL Outside the US: P +1-805-620-5060 F +1-949-336-1940
info@aquastarpoolproducts.com www.aquastarpoolproducts.com

PROUDLY MADE IN THE USA

FLOW STAR® SKIMMER WITH WATER STOP FACE, FLOAT ASSEMBLY, BASKET, LID AND ADJUSTABLE COLLAR

Built in conformance with NSF 50 and SPS 3 standards

FEATURES

- Adjustable collar
- New wire clip lock secures the clips in the self-contained guide ring, water stop on the top flange to prevent water leaks
- Large self-contained basket with lock-in feature (lid not flush)
- Underwater dampers on the floatplate for noise reduction on vent plates - especially on windy days
- Super strong engineered polymer upper housing
- Extra heavy duty PVC lower unit (no transitional glue required)
- 2" outside edge and 2" inside clip (outside diameter)
- 2" threads for pressure testing (inside diameter)
- Built-in ventline or 1/2" hose knock out
- Upper housing has pre-cut water outlets with pre-drilled holes for tie-ins
- Skimmer lid and collar (sold separately)
- NSF 50 approved for commercial use, 25 GPM max, 55 GPM max - approved for residential use up to 100 GPM
- See page 212 for code compliance and sizing
- Optional custom venting (engineered on the lid) requires minimum 100 cfm (see code)
- See page 137 for Skimmer with Closure Port 1 per case

Three lid options available (sold separately): round, square or snap-in round/square

Part # SKR1xx

For vinyl and fiberglass options, see pages 138-143

STANDARD COLORS

SKR101 - White	SKR104
SKR102 - Black	SKR105
SKR103 - Light Gray	SKR108
SKR104 - Blue	
SKR105 - Dark Gray	
SKR108 - Tan	

Snap-in Round/Square Lid and Collar (sold separately) p/n SKR6xx
Square Lid and Collar (sold separately) p/n SKR6xx
Available without lid and collar SKR1N, 1N (p/n only)

1. Skimmer Body 6. Collar 7. Lid 8. Weir Assembly 9. Weir Clip, Qty 2
2. 2" Part Plug 3. Float Assembly 4. Basket 5. Basket Rod

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PROUDLY MADE IN THE USA

Large Wall Fitting (Fits Inside 2" Pipe)

FEATURES

- Fits inside 2" pipe, 1 1/2" FPT in the front face
- Large flange camouflages pipe and surface construction variations
- See also decorative cover p/n DC0xx to make existing 1022s like new with different colors
- Manufactured from engineered polymer UV-resistant ABS material
- 250 per case
- Also available in Clear (p/n ES1022S2000)

NEW

Part # ES1022S20xx

39 ProStar® VLK15Txx REPLACES # W4000WHP

40 ProStar® HWN153 REPLACES # AXV74P

41 ProStar® HWN15B REPLACES # AXV092

42 ProStar® SZTHxx REPLACES # V109

43 ProStar® SZTHLxx REPLACES # V322

44 ProStar® HWN163xx REPLACES # AXV14004

STANDARD COLORS: 01, 02, 03

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PROUDLY MADE IN THE USA

AQUASTAR pool products
2" X 4" GUTTER DECK DRAIN (FITS 2" PIPE)

FEATURES

- Fits over 2" pipe
- 1 1/2" threaded FPT inside for pressurizing/winterizing
- Manufactured from engineered polymer UV-resistant PVC material (p/n GDD101 is manufactured from engineered polymer UV-resistant ABS material)
- 1 1/2" reducer bushing available p/n B10105-241.5
- 1/2" stackable extender available p/n PE20101
- Stainless steel screws
- Also available as grate only with two screws
- CAUTION: Not to be used as a suction outlet under any circumstances
- 25 per case
- Case only p/n GDD0xx
- 25 per case

Part # GDD0xx

STANDARD COLORS

GDD101	GDD104
GDD102	GDD105
GDD103	GDD108

1. 2" x 4" gutterdeck drain body
2. 2" x 4" gutterdeck drain cover
3. 10 x 3/4" flat head Phillips screw, qty 2

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PROUDLY MADE IN THE USA

TAG 7 - HYDROSTATIC RELIEF - HVC101 - HYDROSTATIC RELIEF VALVE ASSEMBLY

TAG 8 - SKIMMER - SKR101 - WHITE COMMERCIAL GRADE SKIMMER

TAG 09 - VACUUM LOCK - ES1022S2001 W/ VLK15T01 - VACUUM LINE FITTING W/ LOCK CAP

TAG 10 - OVERFLOW DRAIN - GDD101 - COMMERCIAL OVERFLOW DRAIN

Large Wall Fitting (Fits Inside 2" Pipe)

FEATURES

- Fits inside 2" pipe, 1 1/2" FPT in the front face
- Large flange camouflages pipe and surface construction variations
- See also decorative cover p/n DC0xx to make existing 1022s like new with different colors
- Manufactured from engineered polymer UV-resistant ABS material
- 250 per case
- Also available in Clear (p/n ES1022S2000)

NEW

Part # ES1022S20xx

Three-Piece Directional Eyeball Fitting 1 1/2" MPT

FEATURES

- Screws into 1 1/2" FPT
- Manufactured from engineered polymer UV-resistant ABS material
- 250 per case
- Eyeball offset size part #s: 1" - 81xx, 1 1/2" - 82xx, 1" - 83xx, 1 1/2" - 84xx, 1 1/2" - 85xx, 1 1/2" - 86xx, 1 1/2" - 87xx, 1 1/2" - 88xx, 1 1/2" - 89xx, 1 1/2" - 90xx, 1 1/2" - 91xx, 1 1/2" - 92xx, 1 1/2" - 93xx, 1 1/2" - 94xx, 1 1/2" - 95xx, 1 1/2" - 96xx, 1 1/2" - 97xx, 1 1/2" - 98xx, 1 1/2" - 99xx, 1 1/2" - 100xx
- Also available in clear (p/n #100, #200, #300, #400)

Part # 81xx, 82xx, 83xx, 84xx

1. Directional Return Body, 1 1/2"
2. Directional Return Eyeball
3. Directional Locking Ring

AQUASTAR pool products
BUBBLER PLATE

FEATURES

- Available in six standard colors
- No exposed components
- Installs flush with bottom of pool/spa

Part # BPxx

STANDARD COLORS

BP101	BP104
BP102	BP105
BP103	BP108

1.5" straight pipe thread
11.5 TPI

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info@aquastarpoolproducts.com www.aquastarpoolproducts.com

PROUDLY MADE IN THE USA

AQUASTAR pool products
FillStar™ Water Level Control System for Pools and Spas

FEATURES

- Can be installed alone or with drain/vacuum pool or spa at all times
- Easy to install
- Overflow protection and adjustable presets
- Uses the same size lid and collar as AquaStar skimmers
- Includes a 2" to 1 1/2" adapter
- 3/4" plug included if overflow is not needed
- 3/4" water supply inlet
- Valve is made of high-strength engineered resin
- Float is injection-molded; thread is pre-molded
- All fittings are made of PVC
- No transition glue needed
- Float thread is 1/2" MPT
- 1 per case

NEW

Part # AFBxx

Also available float only part # AFBV

STANDARD COLORS

AFB101 - White	AFB104
AFB102 - Black	AFB105
AFB103 - Light Gray	AFB108
AFB104 - Blue	
AFB105 - Dark Gray	
AFB108 - Tan	

Also available without lid and collar p/n AFB10xx
Also available cover only p/n SKR10xx

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PROUDLY MADE IN THE USA

Mushroom Spray Fountain Model 1800-18

Specifications

Model: 1800-18-96
Size: 5' 0" Diameter

Height Options

Model Number	Clearance
1800-18-84	7' 0"
1800-18-90	7' 6"
1800-18-96	8' 0"
1800-18-102	8' 6"
1800-18-120	10' 0"

Features

- Fiberglass dome
- 10" Diameter fiberglass stem
- Water flow: 60-267 gpm (spec)
- Variety of colors

GPM required for Curtain

Length of Curtain in Feet	GPM	Minimum Feed Pipe Size
8	267	4"
5.5	193	3"
3.5	133	2.5"
1.5	100	2"
Rain Sprinkle	60	1.5"

Natural Structures
PO Box 270, Baker City, OR 97814 (541) 523-0224 (800) 252-8475 www.naturalstructures.com - info@naturalstructures.com

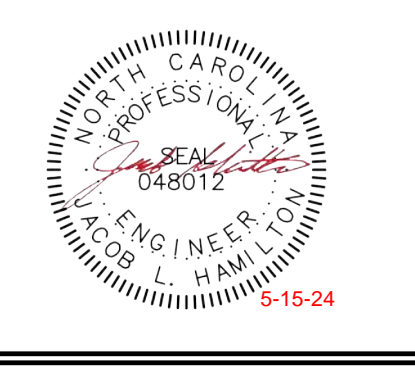
May 2020

TAG 11 - RETURN INLET - ES1022S2001 W/ 8101 - WALL RETURN INLET FITTING

TAG 12 - FLOOR RETURN - ES1022S2001 W/ BP101 - RETURN INLET FITTING W/ BUBBLER PLATE

TAG 13 - AUTOFILL - AFB101 - FILLSTAR AUTOFILL

TAG 14 - MUSHROOM FEATURE - 1800-18-96 - 5' 0" DIA MUSHROOM FEATURE (193 GPM)



Kilian Engineering, Inc.
PO Box 3301, Healdston, NC 27536 | www.kilianengineering.com
(919) 438-8178 | CORPORATE LICENSE C-2277

DATE	
REVISION	
NO.	

SHEET DISCRPTION SPECIFICATIONS

PROJECT #:	2024001
DATE ISSUED:	05/15/2024
DRAWING BY:	JVD
CHECKED BY:	DSC/JLH

ROLESVILLE AMENITY
LENNAR HOMES
AMENITY & POOL
ROLESVILLE, NC

SP5.1

Item #: 602103
Description: GloBrite White LED Light
Voltage: 12
Wattage: 15W
Cord Length (Ft.): 50
Carton Qty.: 1
Carton Wt. (Lbs.): 6

Item #: 602104
Description: GloBrite White LED Light
Voltage: 12
Wattage: 15W
Cord Length (Ft.): 100
Carton Qty.: 1
Carton Wt. (Lbs.): 9

Item #: 602105
Description: GloBrite White LED Light
Voltage: 12
Wattage: 15W
Cord Length (Ft.): 150
Carton Qty.: 1
Carton Wt. (Lbs.): 12

Item #: 620040
Description: Gunite Niche for GloBrite (includes white, blue, grey and tan rings)
Voltage: 12
Wattage: 15W
Cord Length (Ft.): 150
Carton Qty.: 1
Carton Wt. (Lbs.): 1.3

Item #: 620039
Description: Vinyl Niche for GloBrite (includes white, blue, and grey rings)
Voltage: 12
Wattage: 15W
Cord Length (Ft.): 150
Carton Qty.: 1
Carton Wt. (Lbs.): 1.3

INTELLIBRITE®
ARCHITECTURAL
SERIES LIGHTS

Illuminate your customers' nighttime pool experiences.

You're a leading pool pro. We're a pool lighting leader. Together, we can help your customers' pool experiences shine brighter and more beautifully than ever before with our biggest illumination innovation to enter the pool industry.

- IntelliBrite Architectural Series Color Pool Light is now **80% brighter** and **50% more energy efficient.****
- IntelliBrite Architectural Series White Pool Light is now **80% more energy efficient**, consuming **44% less power** and maintaining the same brightness.**



PRODUCT SPECIFICATION

SIZE	MODEL	VOLTAGE	POWER	PART NUMBER BY CORD LENGTH (FEET)				
				50'	75'	100'	150'	200'
Pool	Color	12V	15W	602103	602104	602105	602106	602107
Pool	Color	12V	15W	602108	602109	602110	602111	602112
Pool	Color	12V	15W	602113	602114	602115	602116	602117
Pool	White (300W Equivalent)	12V	300W	602118	602119	602120	602121	602122
Pool	White (300W Equivalent)	12V	300W	602123	602124	602125	602126	602127
Pool	White (300W Equivalent)	12V	300W	602128	602129	602130	602131	602132
Pool	White (300W Equivalent)	12V	300W	602133	602134	602135	602136	602137
Pool	White (300W Equivalent)	12V	300W	602138	602139	602140	602141	602142
Pool	White (300W Equivalent)	12V	300W	602143	602144	602145	602146	602147
Pool	White (300W Equivalent)	12V	300W	602148	602149	602150	602151	602152
Pool	White (300W Equivalent)	12V	300W	602153	602154	602155	602156	602157
Pool	White (300W Equivalent)	12V	300W	602158	602159	602160	602161	602162
Pool	White (300W Equivalent)	12V	300W	602163	602164	602165	602166	602167
Pool	White (300W Equivalent)	12V	300W	602168	602169	602170	602171	602172
Pool	White (300W Equivalent)	12V	300W	602173	602174	602175	602176	602177
Pool	White (300W Equivalent)	12V	300W	602178	602179	602180	602181	602182
Pool	White (300W Equivalent)	12V	300W	602183	602184	602185	602186	602187
Pool	White (300W Equivalent)	12V	300W	602188	602189	602190	602191	602192
Pool	White (300W Equivalent)	12V	300W	602193	602194	602195	602196	602197
Pool	White (300W Equivalent)	12V	300W	602198	602199	602200	602201	602202
Pool	White (300W Equivalent)	12V	300W	602203	602204	602205	602206	602207
Pool	White (300W Equivalent)	12V	300W	602208	602209	602210	602211	602212
Pool	White (300W Equivalent)	12V	300W	602213	602214	602215	602216	602217
Pool	White (300W Equivalent)	12V	300W	602218	602219	602220	602221	602222
Pool	White (300W Equivalent)	12V	300W	602223	602224	602225	602226	602227
Pool	White (300W Equivalent)	12V	300W	602228	602229	602230	602231	602232
Pool	White (300W Equivalent)	12V	300W	602233	602234	602235	602236	602237
Pool	White (300W Equivalent)	12V	300W	602238	602239	602240	602241	602242
Pool	White (300W Equivalent)	12V	300W	602243	602244	602245	602246	602247
Pool	White (300W Equivalent)	12V	300W	602248	602249	602250	602251	602252
Pool	White (300W Equivalent)	12V	300W	602253	602254	602255	602256	602257
Pool	White (300W Equivalent)	12V	300W	602258	602259	602260	602261	602262
Pool	White (300W Equivalent)	12V	300W	602263	602264	602265	602266	602267
Pool	White (300W Equivalent)	12V	300W	602268	602269	602270	602271	602272
Pool	White (300W Equivalent)	12V	300W	602273	602274	602275	602276	602277
Pool	White (300W Equivalent)	12V	300W	602278	602279	602280	602281	602282
Pool	White (300W Equivalent)	12V	300W	602283	602284	602285	602286	602287
Pool	White (300W Equivalent)	12V	300W	602288	602289	602290	602291	602292
Pool	White (300W Equivalent)	12V	300W	602293	602294	602295	602296	602297
Pool	White (300W Equivalent)	12V	300W	602298	602299	602300	602301	602302
Pool	White (300W Equivalent)	12V	300W	602303	602304	602305	602306	602307
Pool	White (300W Equivalent)	12V	300W	602308	602309	602310	602311	602312
Pool	White (300W Equivalent)	12V	300W	602313	602314	602315	602316	602317
Pool	White (300W Equivalent)	12V	300W	602318	602319	602320	602321	602322
Pool	White (300W Equivalent)	12V	300W	602323	602324	602325	602326	602327
Pool	White (300W Equivalent)	12V	300W	602328	602329	602330	602331	602332
Pool	White (300W Equivalent)	12V	300W	602333	602334	602335	602336	602337
Pool	White (300W Equivalent)	12V	300W	602338	602339	602340	602341	602342
Pool	White (300W Equivalent)	12V	300W	602343	602344	602345	602346	602347
Pool	White (300W Equivalent)	12V	300W	602348	602349	602350	602351	602352
Pool	White (300W Equivalent)	12V	300W	602353	602354	602355	602356	602357
Pool	White (300W Equivalent)	12V	300W	602358	602359	602360	602361	602362
Pool	White (300W Equivalent)	12V	300W	602363	602364	602365	602366	602367
Pool	White (300W Equivalent)	12V	300W	602368	602369	602370	602371	602372
Pool	White (300W Equivalent)	12V	300W	602373	602374	602375	602376	602377
Pool	White (300W Equivalent)	12V	300W	602378	602379	602380	602381	602382
Pool	White (300W Equivalent)	12V	300W	602383	602384	602385	602386	602387
Pool	White (300W Equivalent)	12V	300W	602388	602389	602390	602391	602392
Pool	White (300W Equivalent)	12V	300W	602393	602394	602395	602396	602397
Pool	White (300W Equivalent)	12V	300W	602398	602399	602400	602401	602402
Pool	White (300W Equivalent)	12V	300W	602403	602404	602405	602406	602407
Pool	White (300W Equivalent)	12V	300W	602408	602409	602410	602411	602412
Pool	White (300W Equivalent)	12V	300W	602413	602414	602415	602416	602417
Pool	White (300W Equivalent)	12V	300W	602418	602419	602420	602421	602422
Pool	White (300W Equivalent)	12V	300W	602423	602424	602425	602426	602427
Pool	White (300W Equivalent)	12V	300W	602428	602429	602430	602431	602432
Pool	White (300W Equivalent)	12V	300W	602433	602434	602435	602436	602437
Pool	White (300W Equivalent)	12V	300W	602438	602439	602440	602441	602442
Pool	White (300W Equivalent)	12V	300W	602443	602444	602445	602446	602447
Pool	White (300W Equivalent)	12V	300W	602448	602449	602450	602451	602452
Pool	White (300W Equivalent)	12V	300W	602453	602454	602455	602456	602457
Pool	White (300W Equivalent)	12V	300W	602458	602459	602460	602461	602462
Pool	White (300W Equivalent)	12V	300W	602463	602464	602465	602466	602467
Pool	White (300W Equivalent)	12V	300W	602468	602469	602470	602471	602472
Pool	White (300W Equivalent)	12V	300W	602473	602474	602475	602476	602477
Pool	White (300W Equivalent)	12V	300W	602478	602479	602480	602481	602482
Pool	White (300W Equivalent)	12V	300W	602483	602484	602485	602486	602487
Pool	White (300W Equivalent)	12V	300W	602488	602489	602490	602491	602492
Pool	White (300W Equivalent)	12V	300W	602493	602494	602495	602496	602497
Pool	White (300W Equivalent)	12V	300W	602498	602499	602500	602501	602502
Pool	White (300W Equivalent)	12V	300W	602503	602504	602505	602506	602507
Pool	White (300W Equivalent)	12V	300W	602508	602509	602510	602511	602512
Pool	White (300W Equivalent)	12V	300W	602513	602514	602515	602516	602517
Pool	White (300W Equivalent)	12V	300W	602518	602519	602520	602521	602522
Pool	White (300W Equivalent)	12V	300W	602523	602524	602525	602526	602527
Pool	White (300W Equivalent)	12V	300W	602528	602529	602530	602531	602532
Pool	White (300W Equivalent)	12V	300W	602533	602534	602535	602536	602537
Pool	White (300W Equivalent)	12V	300W	602538	602539	602540	602541	602542
Pool	White (300W Equivalent)	12V	300W	602543	602544	602545	602546	602547
Pool	White (300W Equivalent)	12V	300W	602548	602549	602550	602551	602552
Pool	White (300W Equivalent)	12V	300W	602553	602554	602555	602556	602557
Pool	White (300W Equivalent)	12V	300W	602558	602559	602560	602561	602562
Pool	White (300W Equivalent)	12V	300W	602563	602564	602565	602566	602567
Pool	White (300W Equivalent)	12V	300W	602568	602569	602570	602571	602572
Pool	White (300W Equivalent)	12V	300W	602573	602574	602575	602576	602577
Pool	White (300W Equivalent)	12V	300W	602578	602579	602580	602581	602582
Pool	White (300W Equivalent)	12V	300W	602583	602584	602585	602586	602587
Pool	White (300W Equivalent)	12V	300W	602588	602589	602590	602591	602592
Pool	White (300W Equivalent)	12V	300W	602593	602594	602595	602596	602597
Pool	White (300W Equivalent)	12V	300W	602598	602599	602600	602601	602602
Pool	White (300W Equivalent)	12V	300W	602603	602604	602605	602606	602607
Pool	White (300W Equivalent)	12V	300W	602608	602609	602610	602611	602612
Pool	White (300W Equivalent)	12V	300W	602613	602614	602615	602616	602617
Pool	White (300W Equivalent)</							