

# Birch Meadow Restroom & Support Building Reading, MA



|  |   |   |   |
|--|---|---|---|
| <b>ARCHITECT</b><br>OCO architecture::design<br>P.O. Box 709<br>Hingham, MA 02043<br>T: 617-699-8395                       | <b>DRAWING LIST</b><br>A101 First Floor Plan<br>A102 RCP & Roof Plans<br>A201 Elevations<br>A301 Building Sections & Details<br>A302 Building Sections<br>A401 Enlarged Toilet Room Plan & Elevations | <b>PROJECT BASIS</b><br>- THE INTERNATIONAL BUILDING CODE (IRC 2015)<br>- THE MASSACHUSETTS CODE (780 CMR) 9TH EDITION (MASS AMENDMENTS TO THE IRC)<br>- MASSACHUSETTS ARCHITECTURAL ACCESS BOARD 521 CMR<br>- AMERICANS WITH DISABILITIES ACT (ADA)  | <b>GENERAL PROJECT NOTES</b><br>1. ALL CONSTRUCTION, INSTALLATION, MATERIALS AND METHODS OF PRACTICE SHALL BE PERFORMED BY A LICENSED CONTRACTOR AND CONFORM WITH ALL CURRENT CODES, RULES AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION.<br>2. ALL WORK SHALL BE CONSIDERED NEW.<br>3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, NOTES AND CONDITIONS ON SITE BEFORE ANY CONSTRUCTION WORK IS PERFORMED. ALL DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT.<br>4. THE SCOPE OF THESE DRAWINGS ARE LIMITED TO THE BUILDING ITSELF AND 10'-0" FROM THE PERIMETER WITH THE EXCEPTION OF FINAL BASE AND PAVEMENT MATERIAL. COORDINATION WILL BE REQUIRED.<br>5. ALL CONSULTANT DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL PLANS.<br>6. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.<br>7. IF SHOP DRAWINGS ARE REQUIRED FOR ANY BUILDING COMPONENT, THEY SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW PRIOR TO FABRICATION. |
| <b>STRUCTURAL ENGINEER</b><br>SSB Engineering<br>146 Front Street Suite 301<br>Scituate, MA 02066<br>T: 857-504-1065       | S1 Cover Sheet & Structural Notes<br>S2 Foundation Plan<br>S3 Ceiling Joist / Attic Framing Plan<br>S4 Roof Framing Plan<br>S5 Structural Sections and Details  | <b>PROJECT DESCRIPTION</b><br>THE PROJECT INCLUDES THE NEW CONSTRUCTION OF TWO FREE-STANDING STRUCTURES COVERED BY A PAVILION ROOF. ONE STRUCTURE HOUSES TWO UNISEX RESTROOMS AND A MECHANICAL/STORAGE SPACE TOTALING 310 SF. THE OTHER STRUCTURE WILL BE USED ENTIRELY FOR STORAGE, TOTALING 320 SF. THE OPEN PAVILION SPACE IS 760 SF.<br>THE BUILDING IS CLASSIFIED AS USE GROUP U, UTILITY AND S-2 STORAGE. |   |
| <b>MEP ENGINEER</b><br>Building Engineering Resources, Inc.<br>66 Main Street<br>North Easton, MA 02356<br>T: 508-230-0260 | M1.1 Mechanical Floor Plan<br>E000 Electrical Legend<br>E100 Electrical Floor Plan<br>E200 Electrical Details and Schedules<br>P1.0 Plumbing Legend<br>P1.1 Plumbing Floor Plan                       | THE CONSTRUCTION IS VB UNPROTECTED. PER TABLE 503 THE MINIMUM ALLOWABLE BUILDING SIZE IS 1 STORY/5,500 SF.<br>THE BUILDINGS ARE UNCONDITIONED AND NOT REQUIRED TO MEET THE PROVISIONS OF THE IECC. THEY ARE TO BE USED MAY-NOVEMBER.<br>THE BUILDINGS SHALL BE FULLY ACCESSIBLE AND MEET THE REQUIREMENTS OF THE ADA AND MAAB.  |   |
| <b>ELECTRICAL ENGINEER</b><br>NV5<br>200 Brickstone Square<br>Andover, MA 01810<br>T: 978. 296.6223                        |   |   |   |

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**Birch Meadow  
 Restroom & Support Building  
 Cover Sheet**

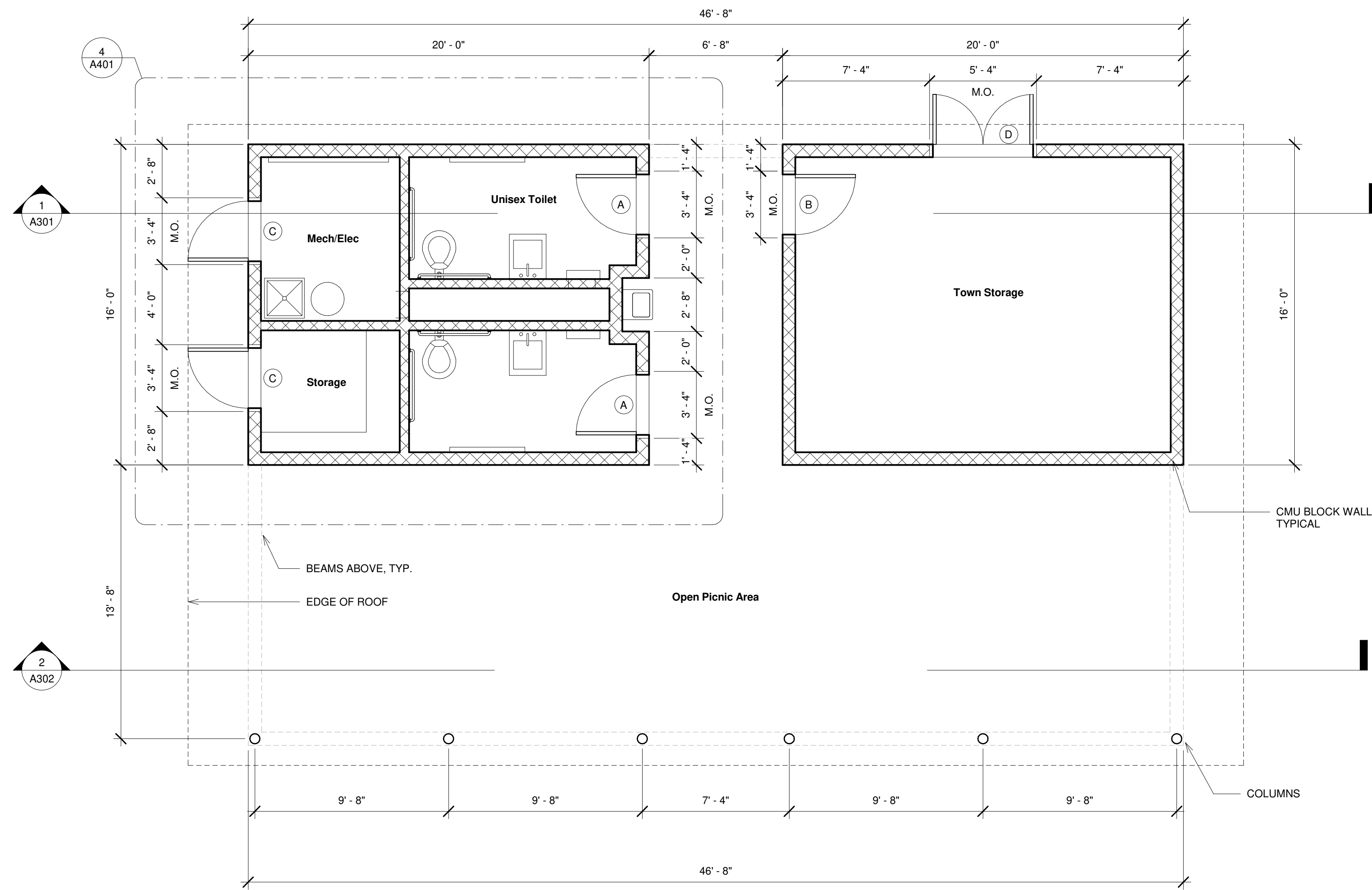
Revisions

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**A001**

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 date: 01.27.23  
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**Birch Meadow  
 Restroom & Support Building  
 First Floor Plan**



1 First Floor  
 1/4" = 1'-0"

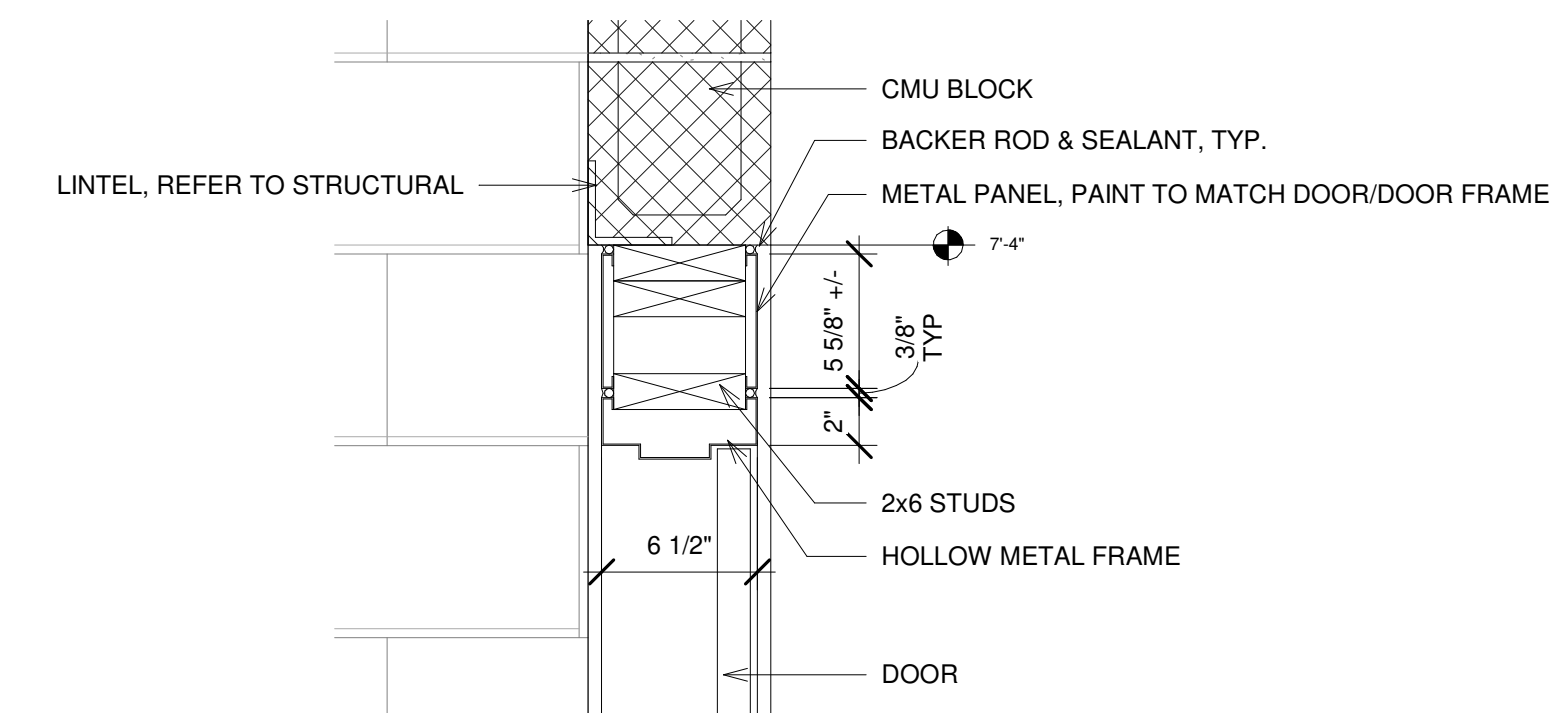
| DOOR SCHEDULE |               |       |        |        |              |                |
|---------------|---------------|-------|--------|--------|--------------|----------------|
| Door          | Description   | Width | Height | Finish | Frame Type   | Comments       |
| A             | Single Hinged | 3'-0" | 6'-8"  | Paint  | Hollow Metal | Hardware Set 1 |
| B             | Single Hinged | 3'-0" | 6'-8"  | Paint  | Hollow Metal | Hardware Set 2 |
| C             | Single Hinged | 3'-0" | 6'-8"  | Paint  | Hollow Metal | Hardware Set 3 |
| D             | Double Hinged | 5'-0" | 6'-8"  | Paint  | Hollow Metal | Hardware Set 4 |

| Hardware Set 1                       |  | Hardware Set 2                                       |  |
|--------------------------------------|--|--|--|
| (3) BUTT HINGES 4 1/2" H/ Finish 32D |  | (3) BUTT HINGES 4 1/2" H/ Finish 32D                 |  |
| DOOR PULL - Finish US32D             |  | SINGLE CYLINDER HANDSET - TUBULAR LEVER Finish US32D |  |
| PUSH PLATE - Finish US32D            |  | STOREROOM LOCK W/ WIRELESS CARD READER               |  |
| PRIVACY LOCK W/ WIRELESS CARD READER |  | CLOSER   |  |
| CLOSER                               |  | DOOR STOP  |  |
| DOOR STOP                            |  | THRESHOLD  |  |
| THRESHOLD                            |  | ROOM SIGNAGE - ADA                                   |  |
| ROOM SIGNAGE - ADA                   |  |  |  |

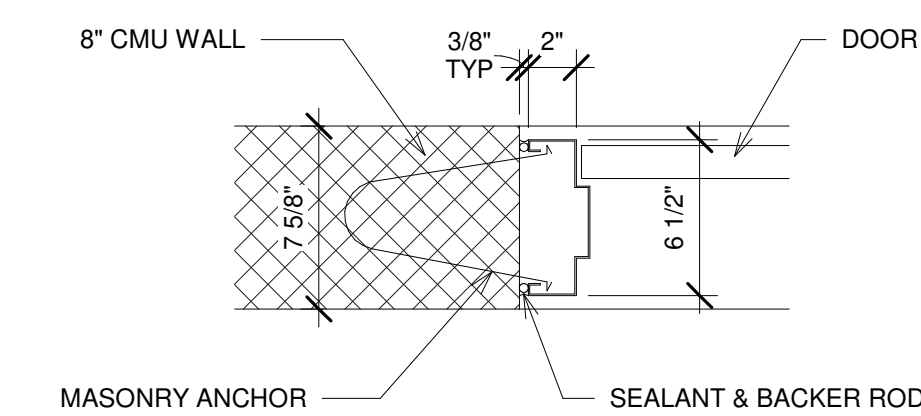
  

| Hardware Set 3                       |  | Hardware Set 4                                       |  |
|--------------------------------------|--|--|--|
| (3) BUTT HINGES 4 1/2" H/ Finish 32D |  | (3) BUTT HINGES (each panel) 4 1/2" H/ Finish 32D    |  |
| DOOR PULL - Finish US32D             |  | SINGLE CYLINDER HANDSET - TUBULAR LEVER Finish US32D |  |
| PUSH PLATE - Finish US32D            |  | DUMMY HANDSET - TUBULAR LEVER Finish US32D           |  |
| UTILITY LOCK W/ WIRELESS CARD READER |  | UTILITY LOCK WITH WIRELESS CARD READER               |  |
| DOOR STOP                            |  | FLUSH BOLT   |  |
| THRESHOLD                            |  | ASTRAGAL   |  |
| ROOM SIGNAGE - ADA                   |  | THRESHOLD  |  |
|                                      |  | ROOM SIGNAGE - ADA                                   |  |

ALL CORES TO BE PRIMUS EVEREST TO MATCH TOWN KEYING



2 Typ. Header Detail  
 1 1/2" = 1'-0"

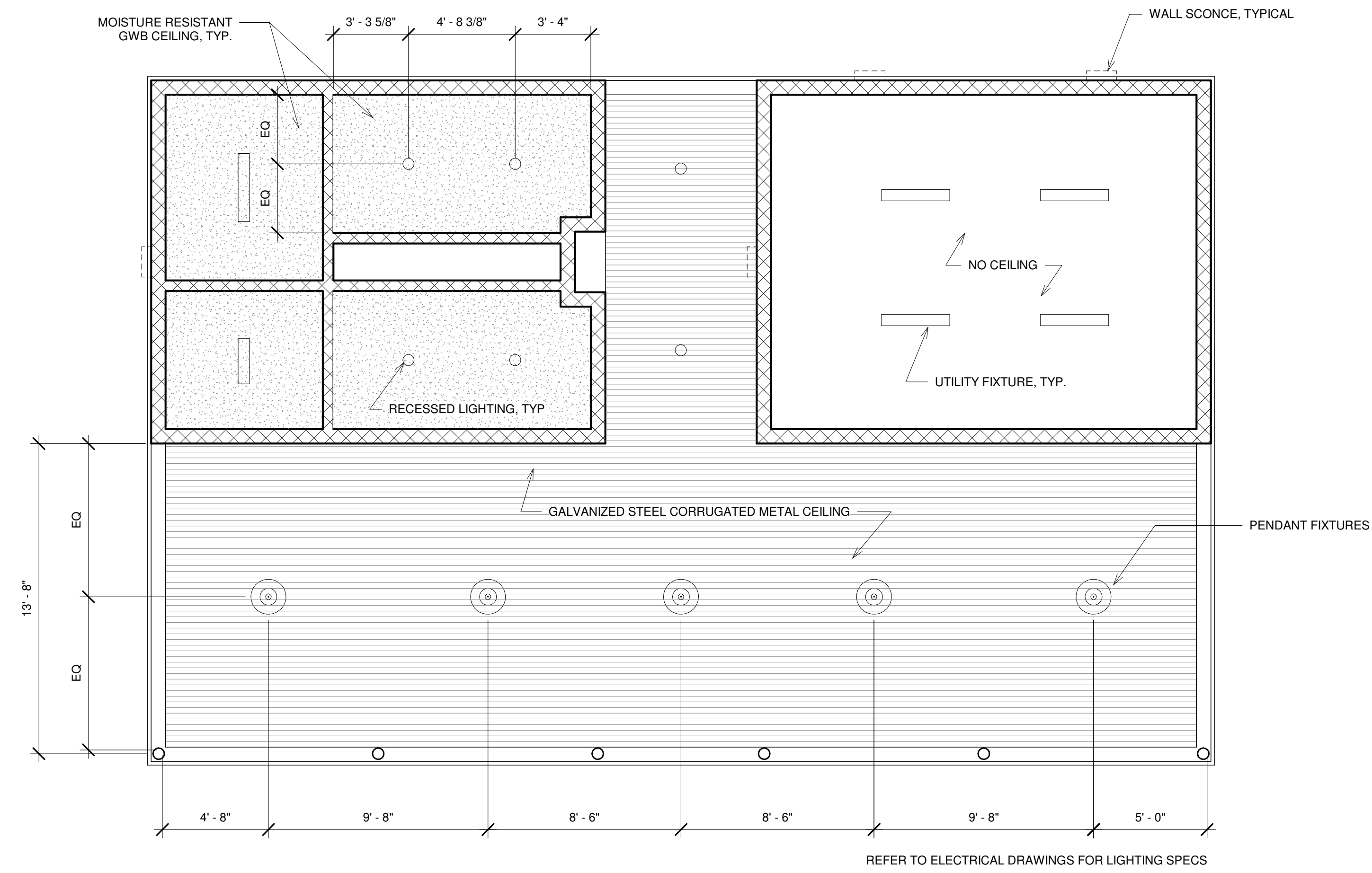


3 Typ. Jamb Detail  
 1 1/2" = 1'-0"

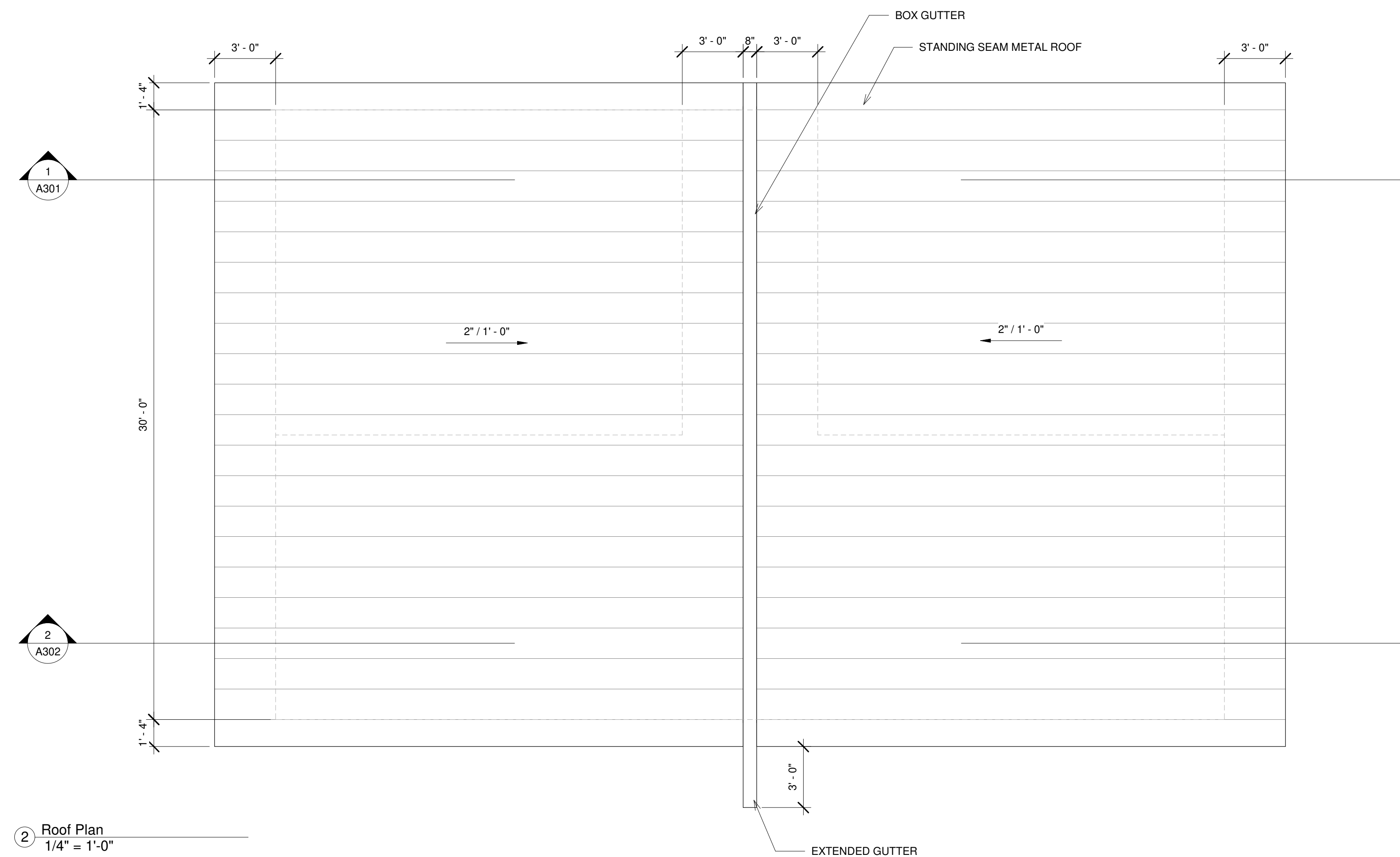
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**A101**

**Birch Meadow  
Restroom & Support Building  
RCP & Roof Plans**



① First Floor RCP  
1/4" = 1'-0"

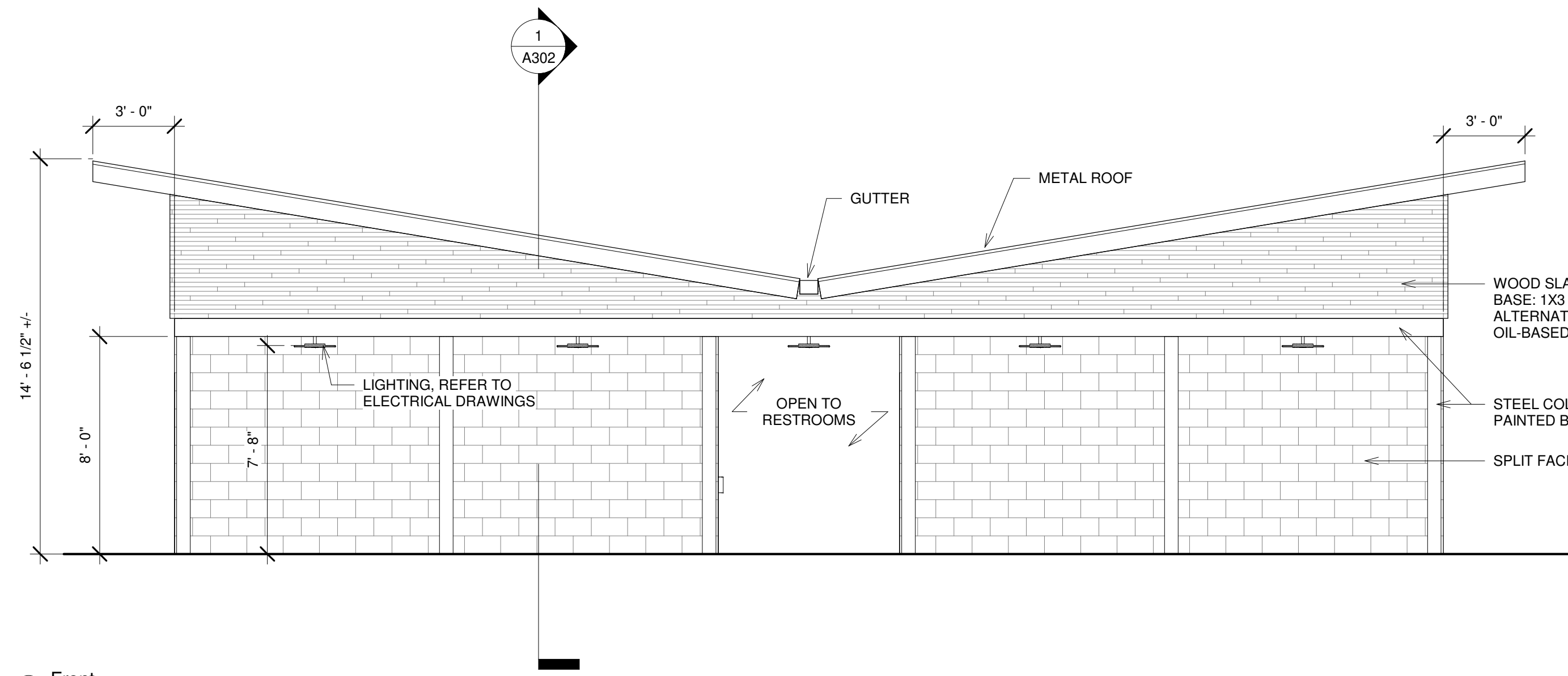


② Roof Plan  
1/4" = 1'-0"

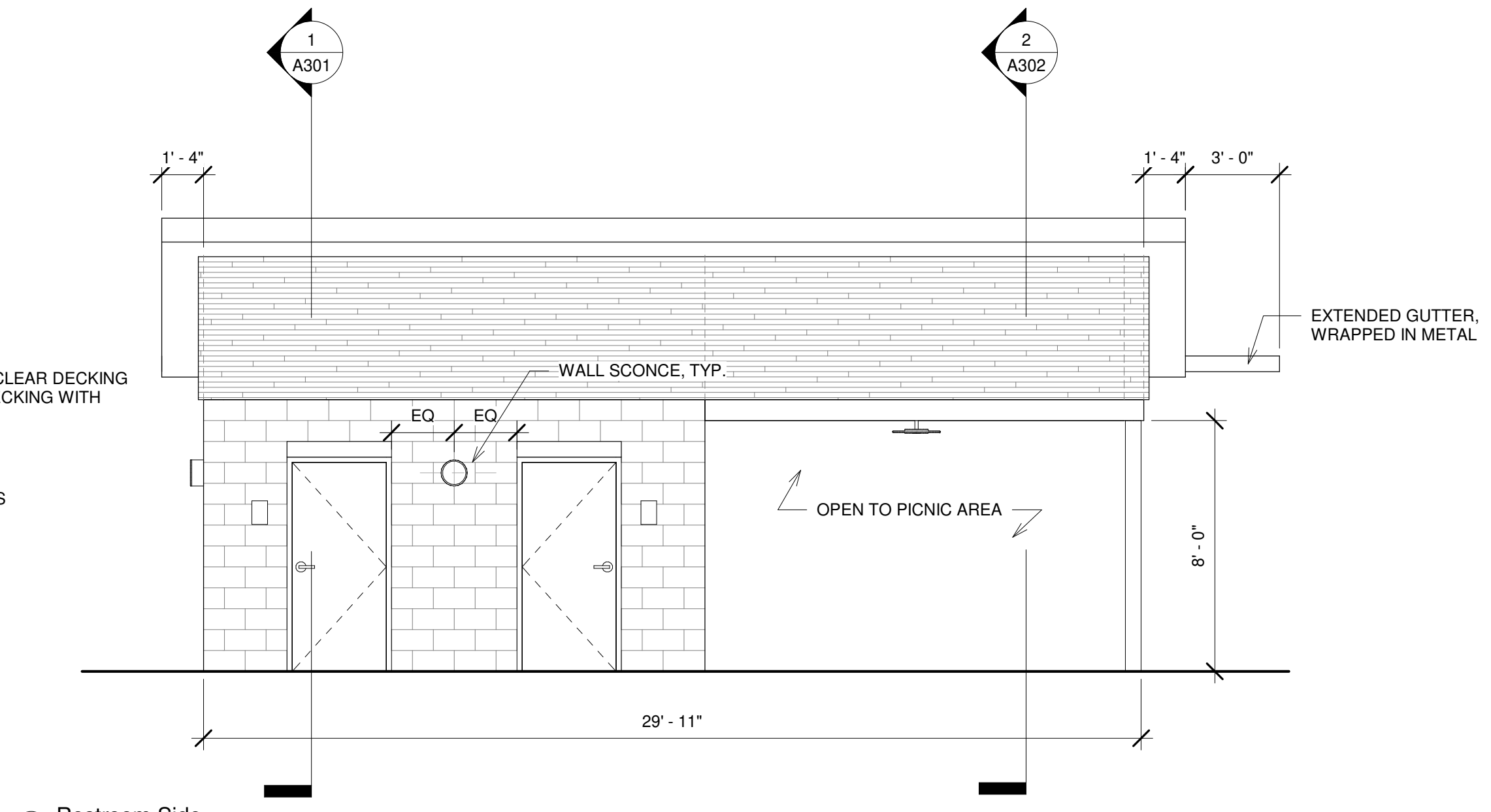
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**A102**

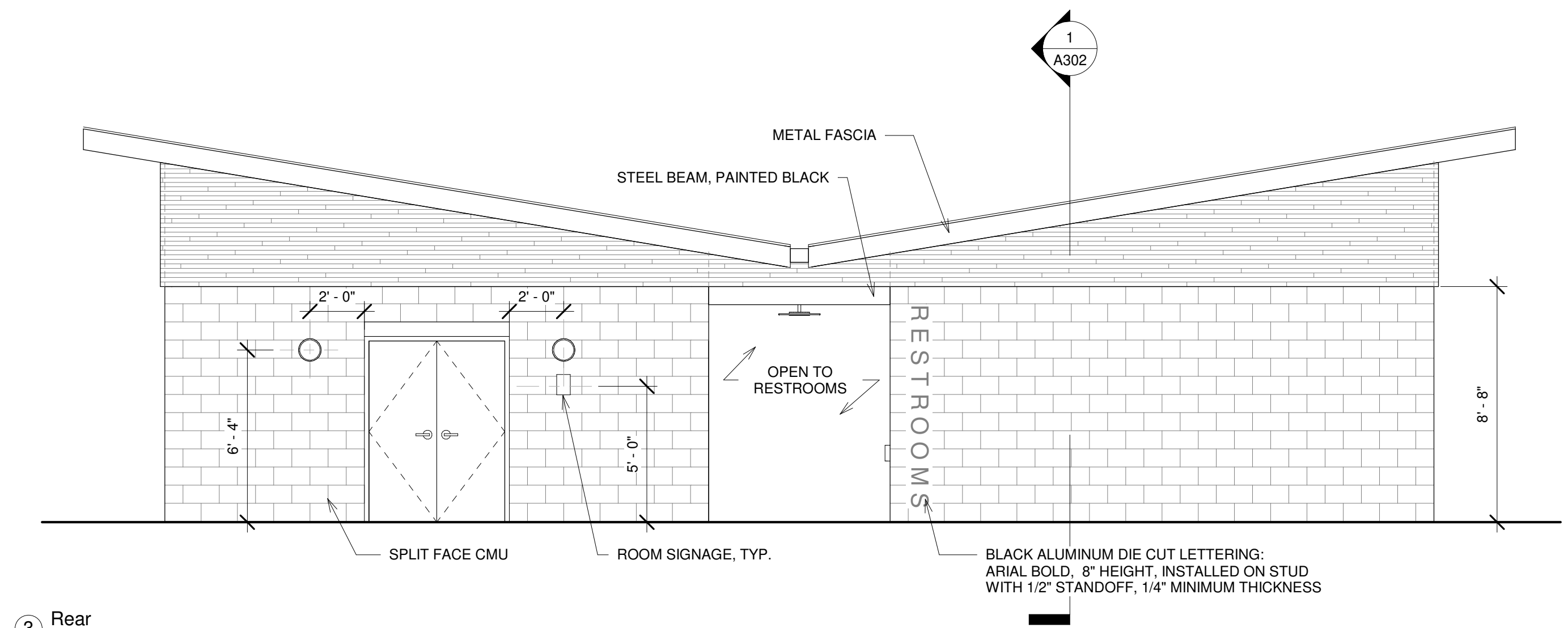
Birch Meadow  
Restroom & Support Building  
Elevations



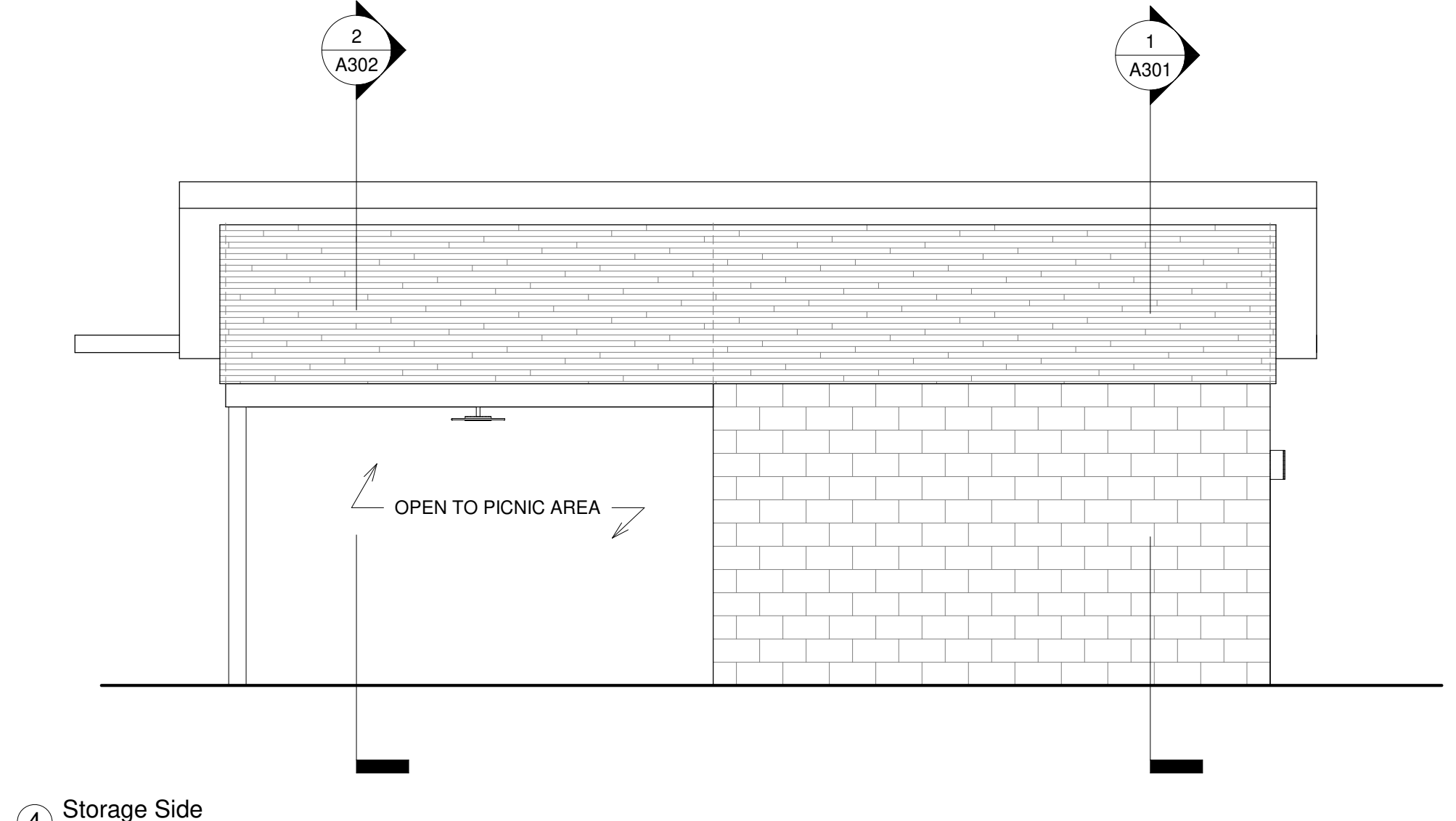
1 Front  
1/4" = 1'-0"



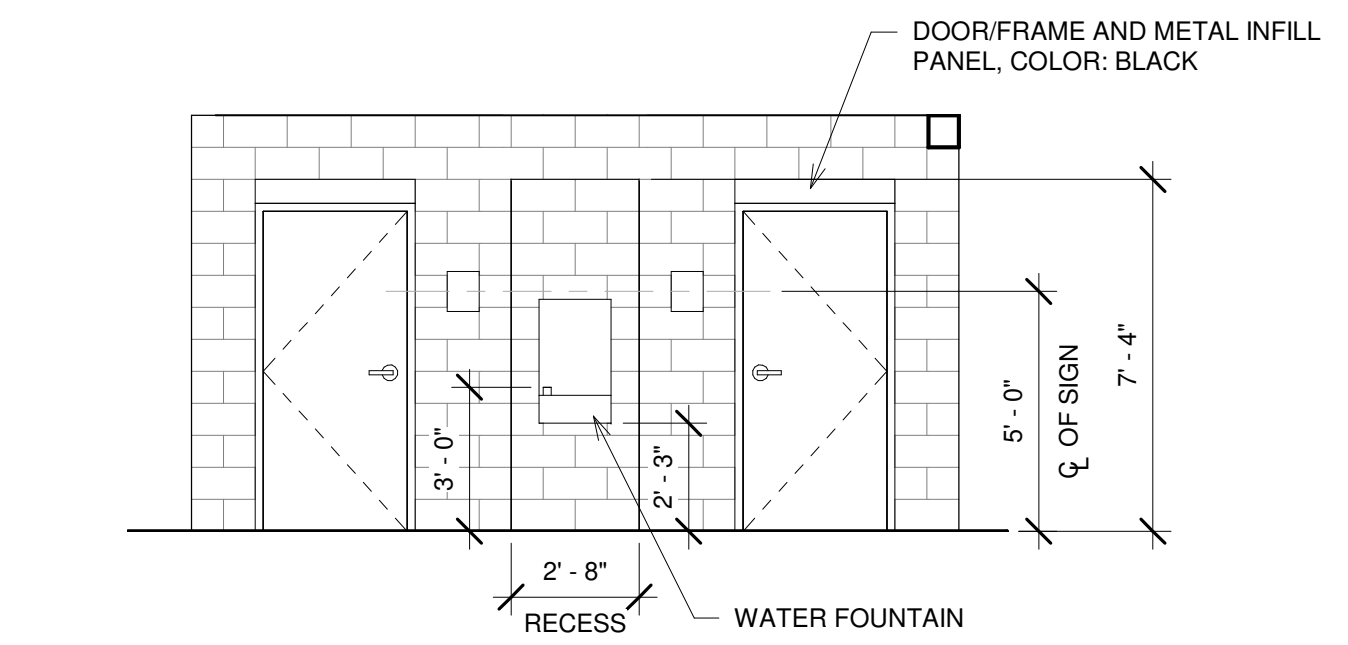
2 Restroom Side  
1/4" = 1'-0"



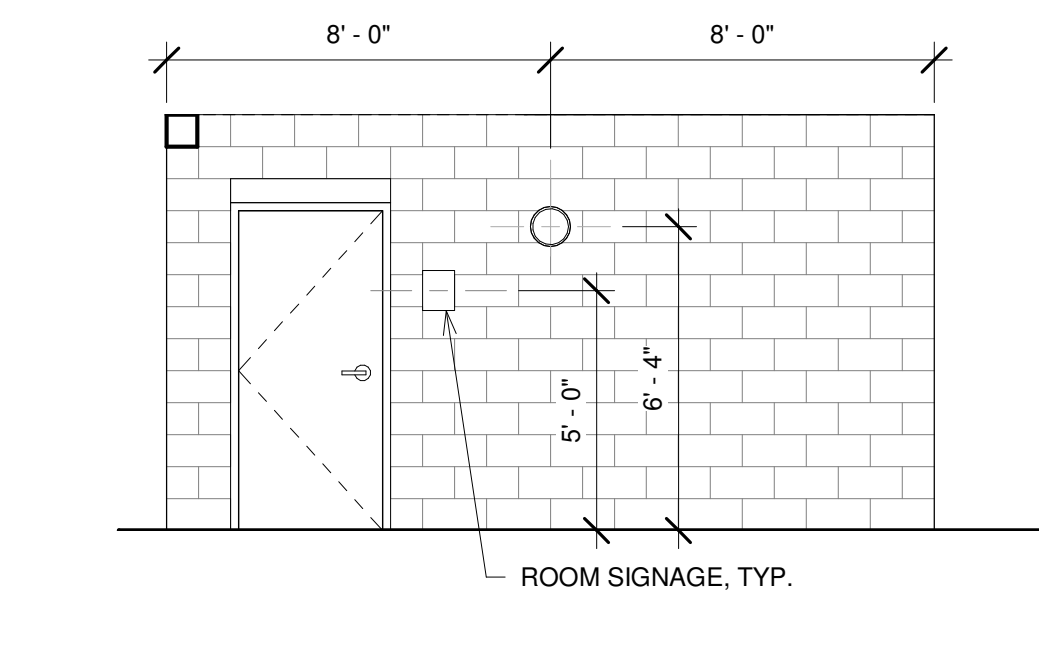
3 Rear  
1/4" = 1'-0"



4 Storage Side  
1/4" = 1'-0"



5 Elevation @ Restroom Doors  
1/4" = 1'-0"

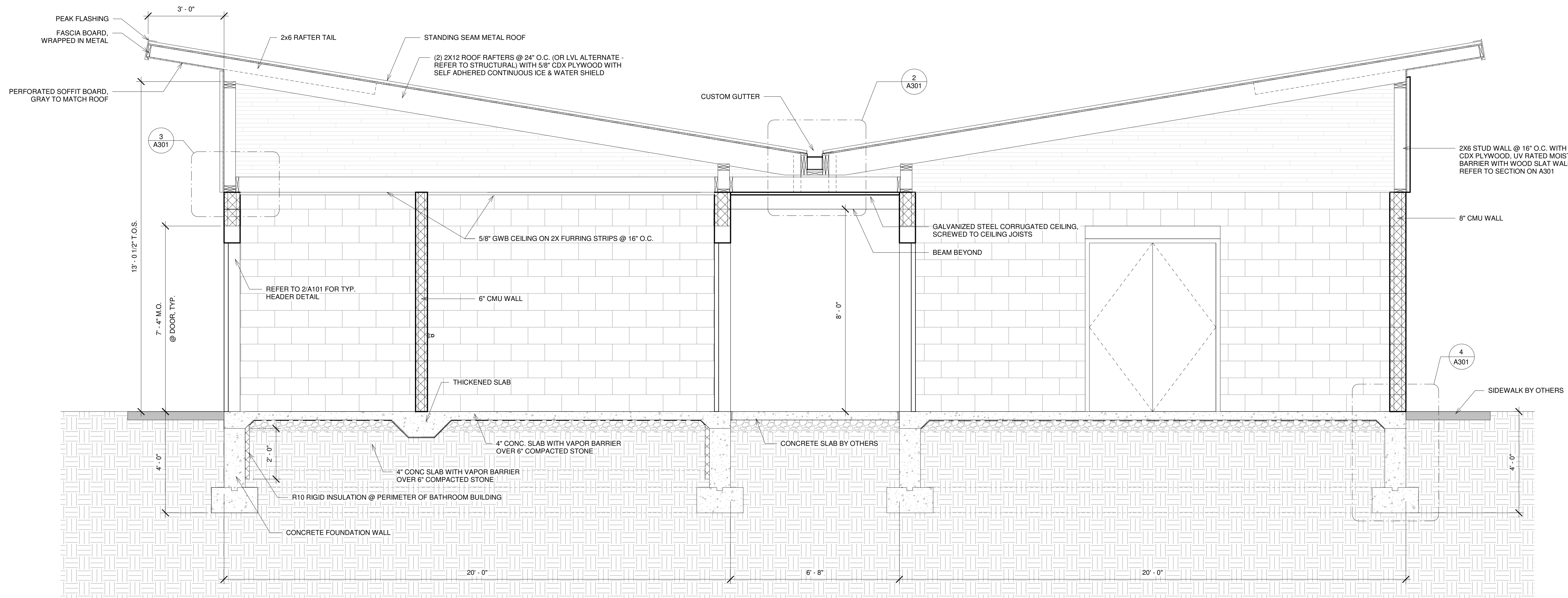


6 Elevation @ Storage Door  
1/4" = 1'-0"

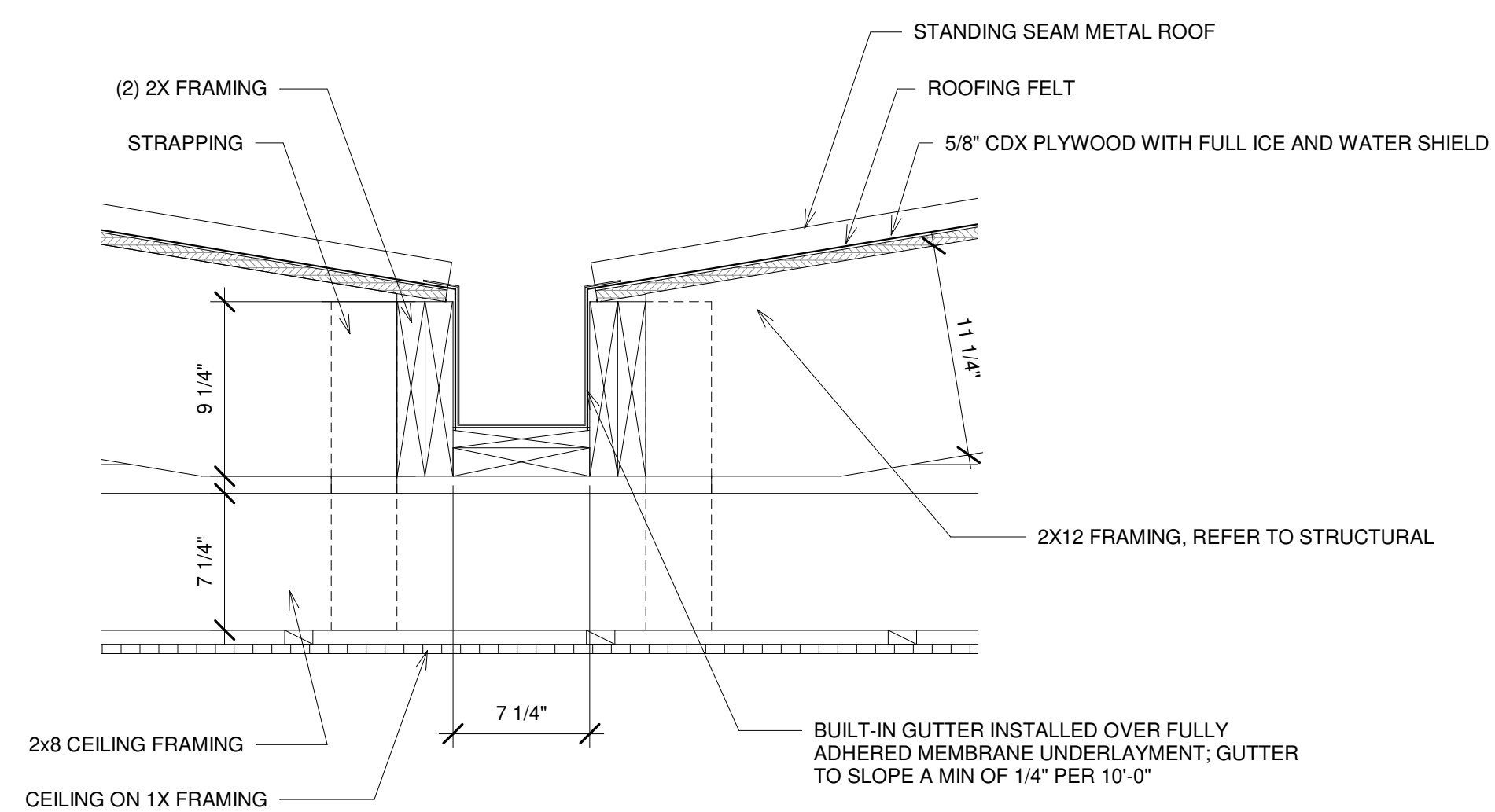
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A201

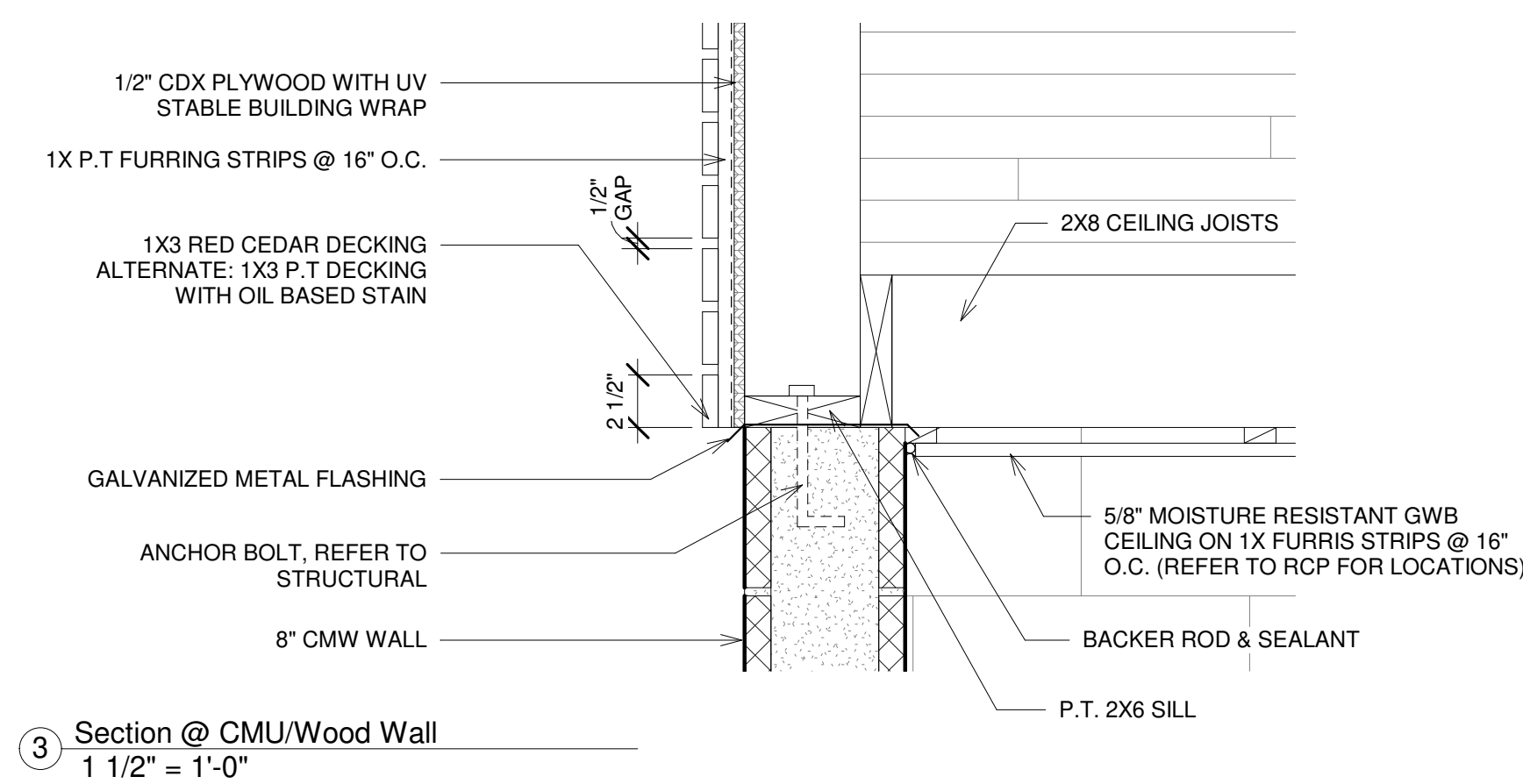
**Birch Meadow  
Restroom & Support Building  
Building Sections & Details**



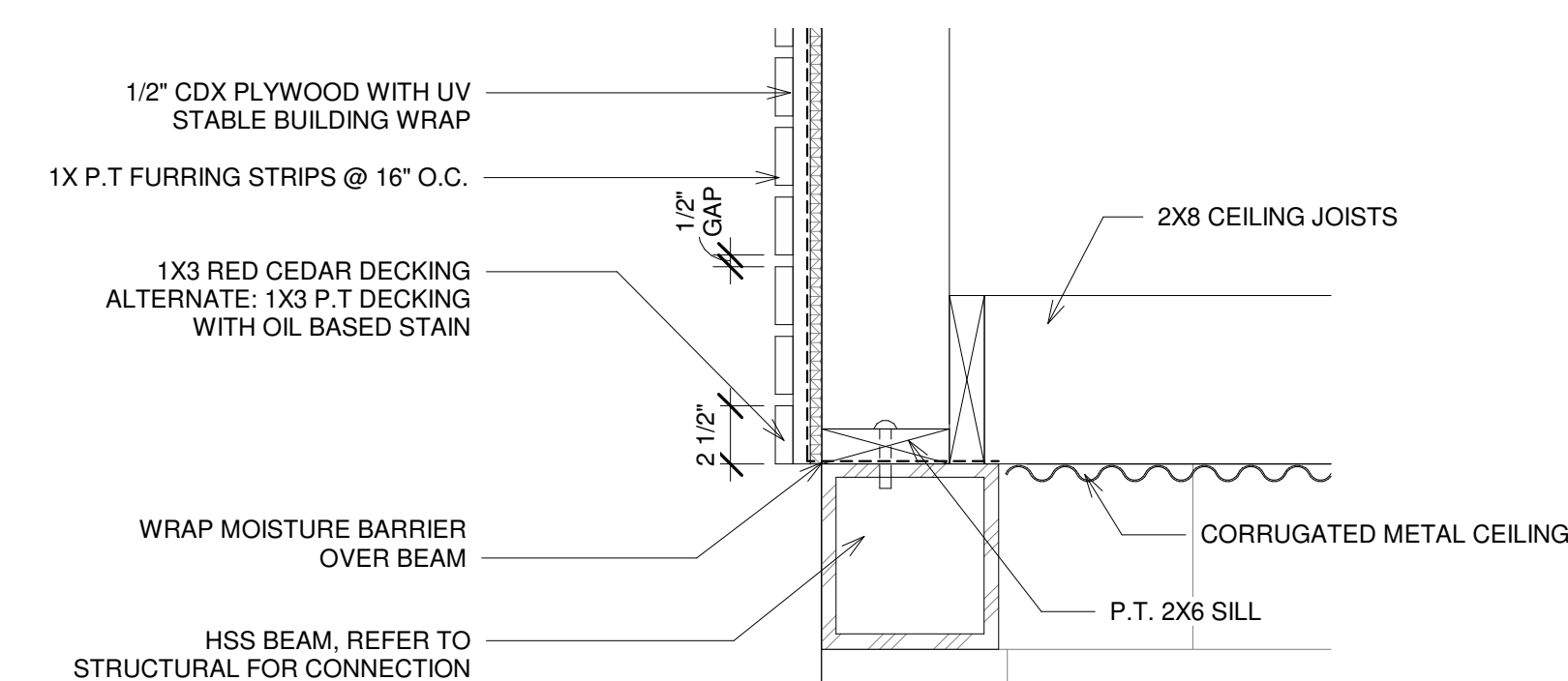
1 Section thru Buildings  
1/2" = 1'-0"



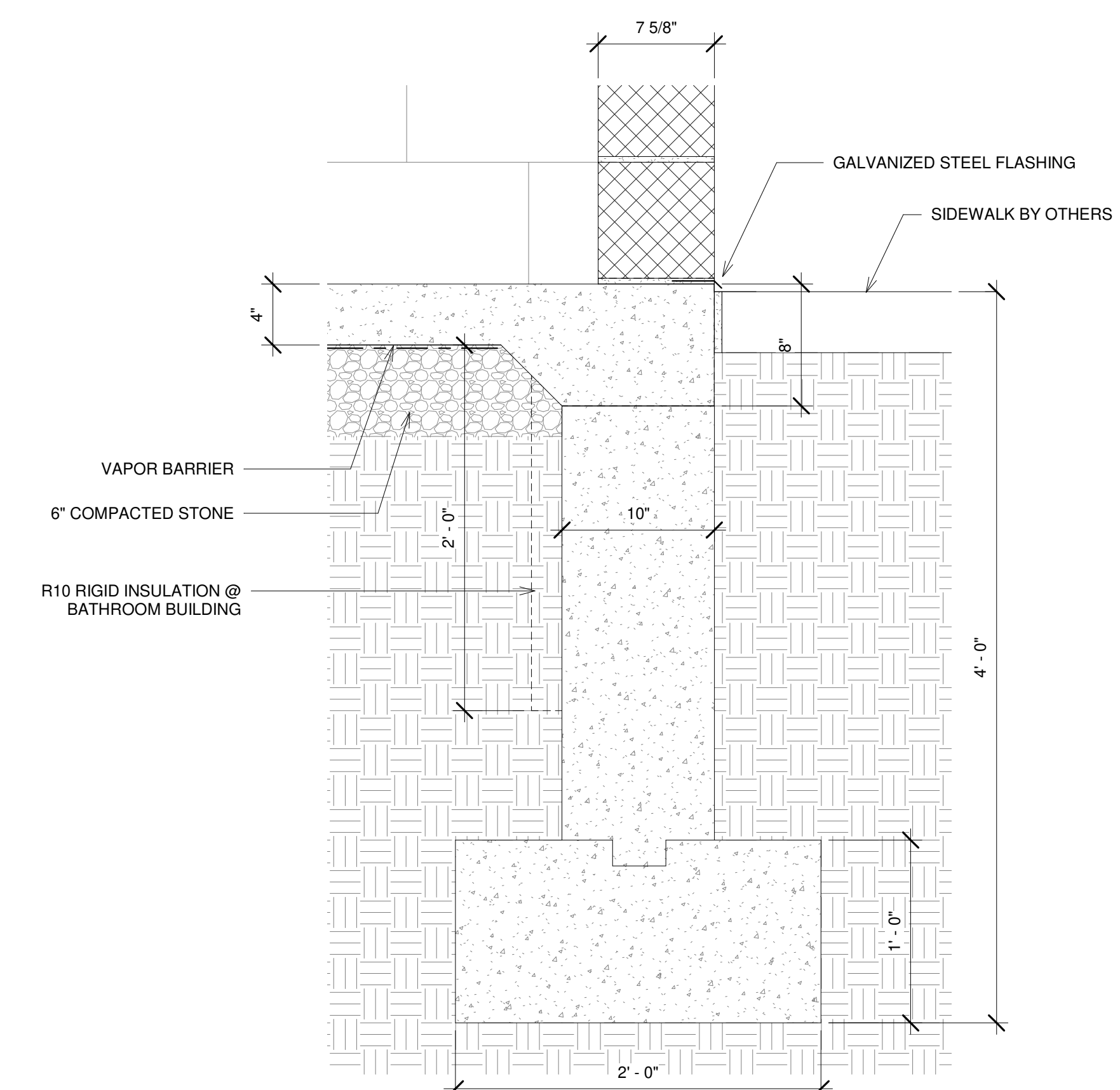
2 Gutter Detail  
1 1/2" = 1'-0"



3 Section @ CMU/Wood Wall  
1 1/2" = 1'-0"



4 Section @ Beam/Wood Wall  
1 1/2" = 1'-0"



5 Section @ Foundation  
1 1/2" = 1'-0"

Revisions

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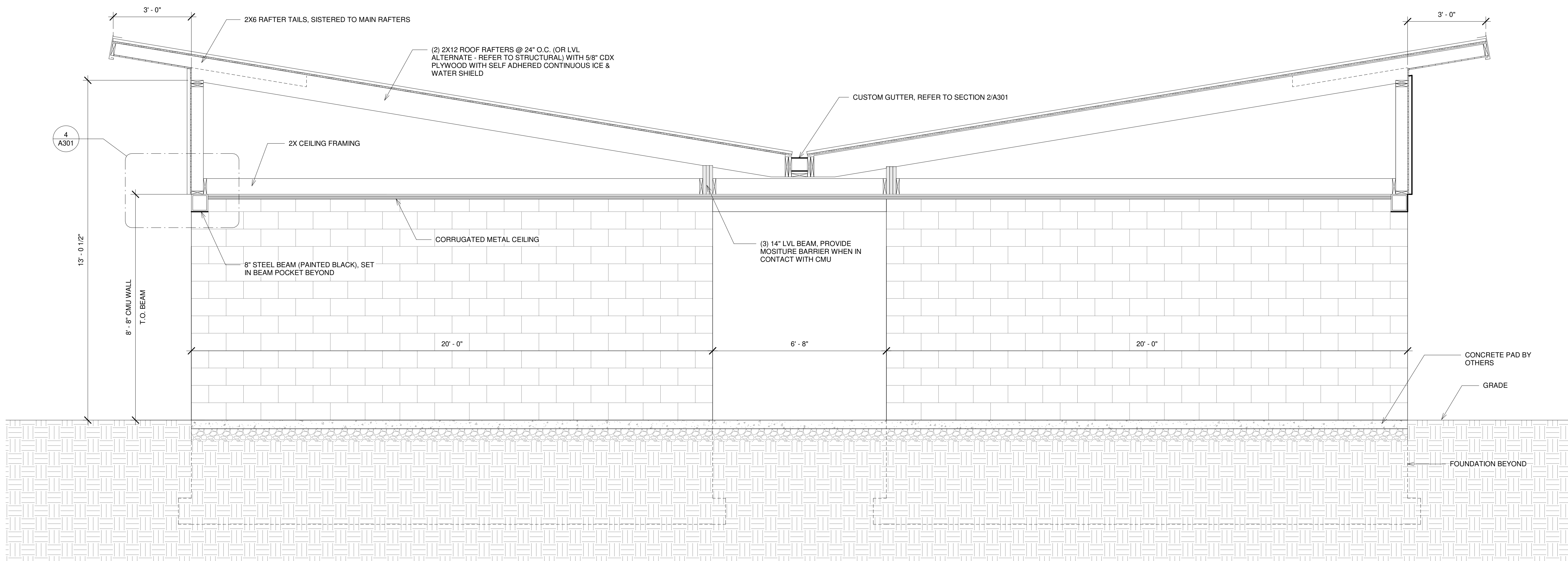
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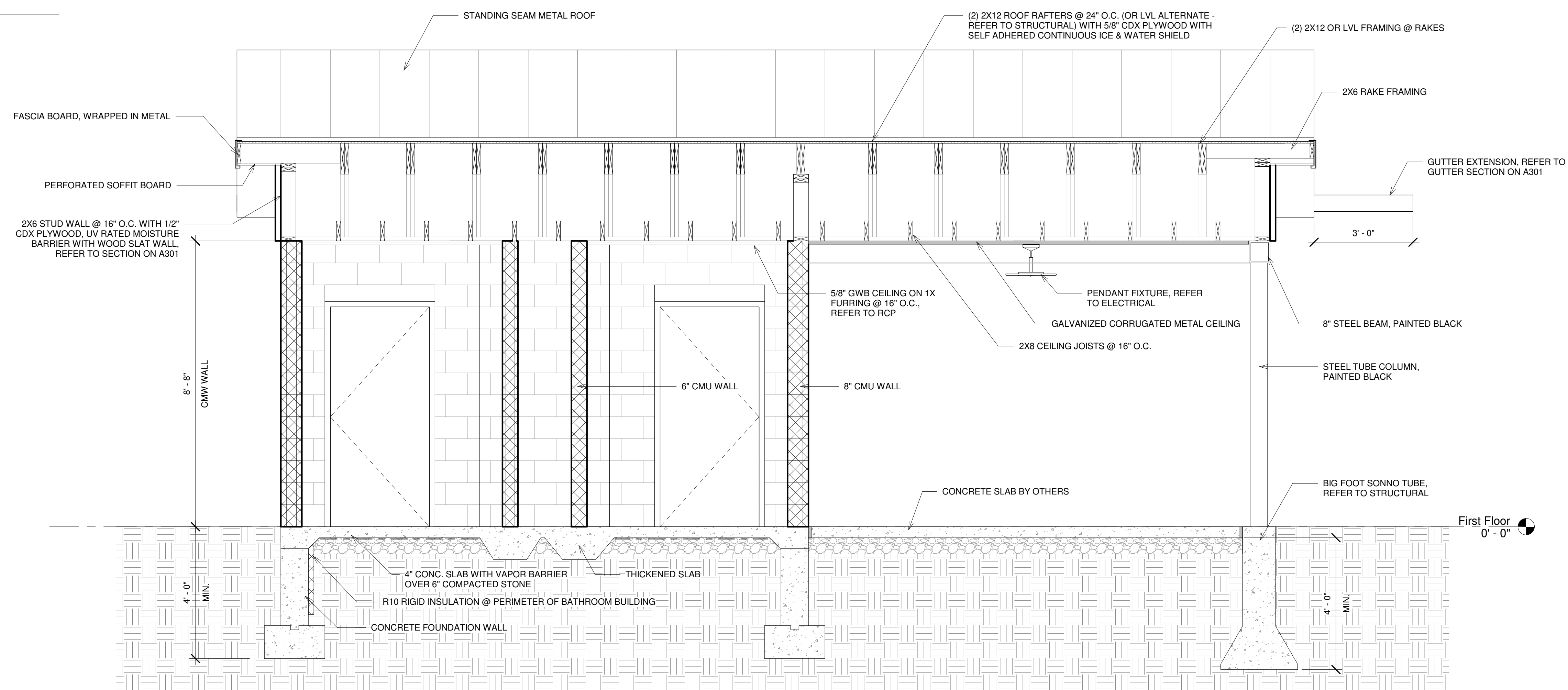
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**A301**

**Birch Meadow  
Restroom & Support Building  
Building Sections**



② Section thru Open Pavilion  
1/2" = 1'-0"



① Section thru Restrooms & Pavilion  
1/2" = 1'-0"

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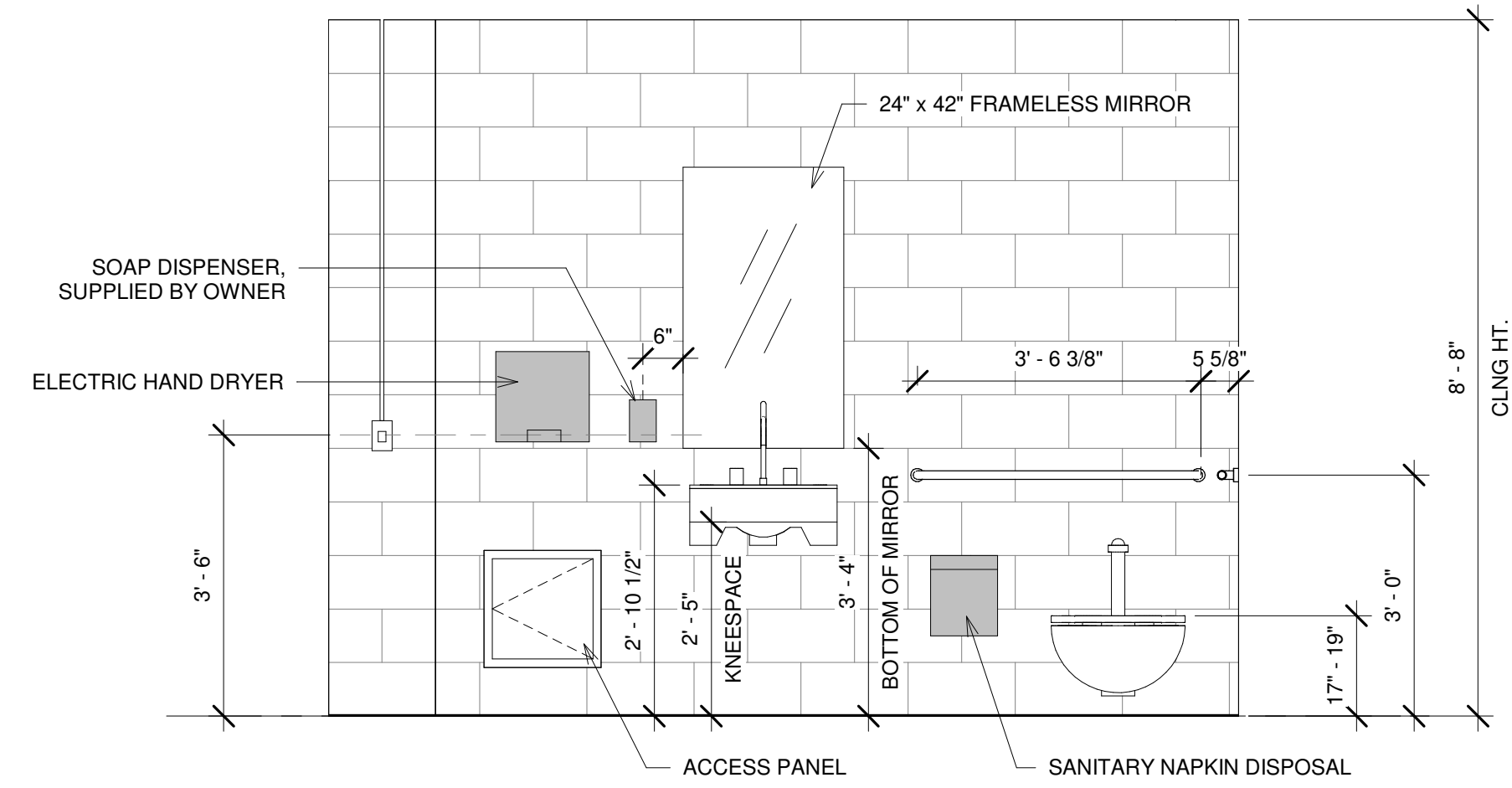
**A302**

scale: 1/2" = 1'-0"

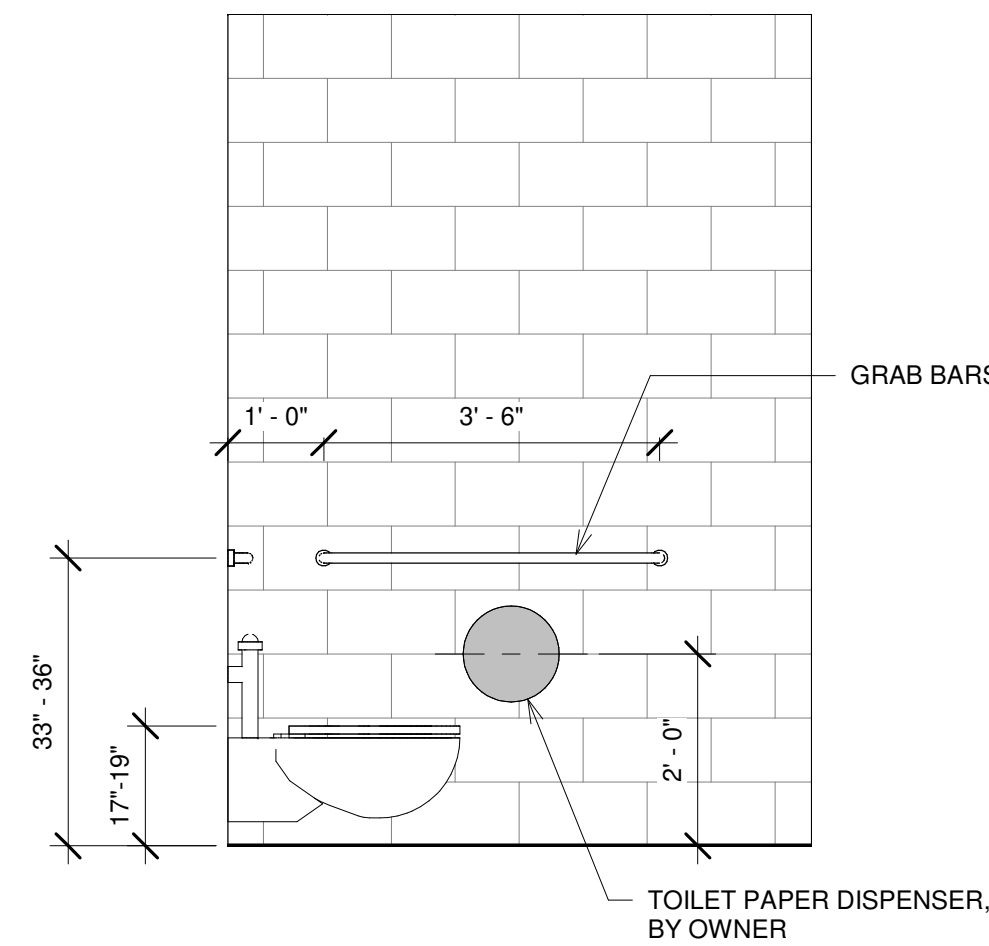
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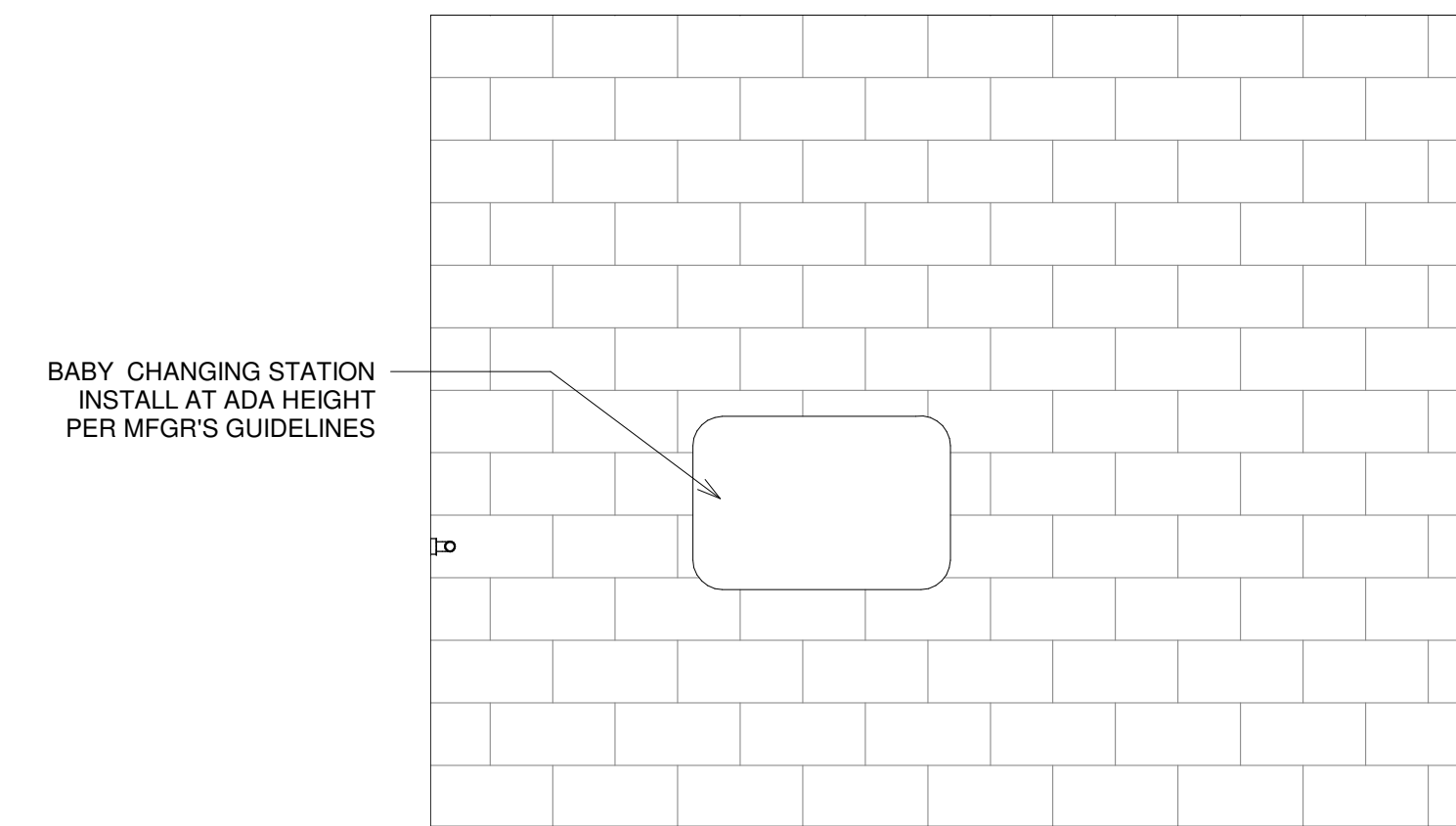
**Birch Meadow  
Restroom & Support Building  
Enlarged Toilet Room Plan & Elevations**



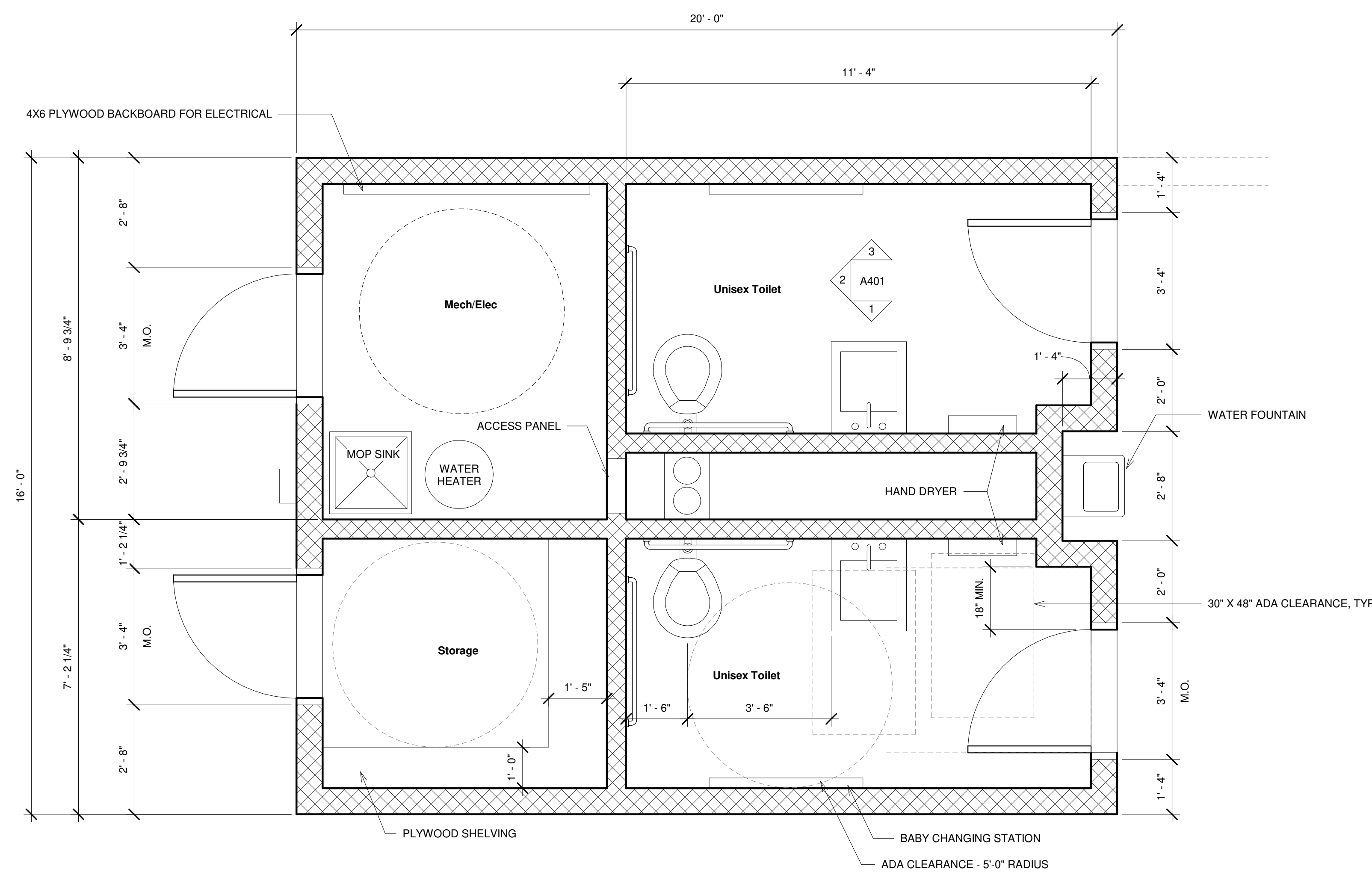
① Toilet Room Elevation 1  
1/2" = 1'-0"



② Toilet Room Elevation 2  
1/2" = 1'-0"



③ Toilet Room Elevation 3  
1/2" = 1'-0"



④ Enlarged Toilet Room Plan  
1/2" = 1'-0"

| TOILET ACCESSORIES SCHEDULE |                          |                      |   |
|-----------------------------|--------------------------|----------------------|---|
| NO.                         | ITEM/ACCESSORY           | MANUFACTURER         | DESCRIPTION                                       |
| T-1                         | HAND DRYER               | BOBRICK B-7128       | QUIET DRY SURFACE-MOUNTED ADA DRYER               |
| T-2                         | CHANGING STATION         | KOALA KARE KB200     | HORIZONTAL WALL MOUNTED BABY CHANGING STATION     |
| T-3                         | GRAB BARS                | BOBRICK B-5806.99x42 | STRAIGHT GRAB BAR 1-1/4" DIA x 42" PEENED GRIP    |
| T-4                         | HOOK                     | BOBRICK B-212        | CLOTHES HOOK WITH BUMPER                          |
| T-5                         | SANITARY NAPKIN DISPOSAL | BOBRICK B-270        | CONTURA SERIES SURFACE MOUNTED                    |
| T-6                         | MIRROR                   | ASI 8287             | FRAMELESS 1/4" POLISHED PLATE GLASS/SURFACE MOUNT |

NOTES: ACCESSORIES/MANUFACTURERS MAY BE SUBSTITUTED, APPROVAL BY ARCHITECT

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**A401**

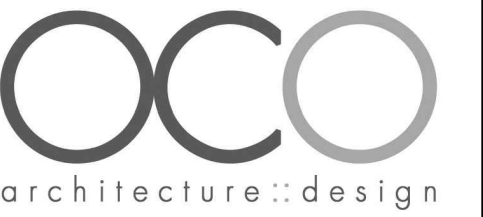
# STRUCTURAL DESIGN DRAWINGS

DESIGNER:

**OCO ARCHITECTURE DESIGN (PAULETTE)**  
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PROJECT / CLIENT:

**BIRCH MEADOW PARK**  
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## GENERAL STRUCTURAL NOTES:

- DESIGN CODES AND CRITERIA: THE MINIMUM STRUCTURAL DESIGN SHALL BE IN ACCORDANCE WITH THE 9TH EDITION MASSACHUSETTS STATE BUILDING CODE, IBC 2015, ASCE 7-10, AND ANSI/AWS D1.1 STRUCTURAL WELDING CODE - STEEL.
- IN ADDITION TO THE BUILDING DEAD LOADS, THE STRUCTURE IS DESIGNED FOR THE FOLLOWING LOADS:

|  |                             |
|--|-----------------------------|
| CITY/TOWN OF DESIGN CRITERIA:                        | READING, MA                 |
| LIVE LOAD ASSEMBLY AREAS (OTHER)                     | 100 PSF                     |
| SNOW LOAD  |                             |
| GROUND SNOW LOAD P <sub>g</sub>                      | 50 PSF                      |
| FLAT ROOF SNOW LOAD P <sub>f</sub>                   | 30 PSF                      |
| SNOW EXPOSURE FACTOR C <sub>e</sub>                  | 1.1                         |
| THERMAL COEFFICIENT C <sub>t</sub>                   | 1.0                         |
| SNOW LOAD IMPORTANCE I                               | 1.0                         |
| WIND LOAD  |                             |
| BASIC WIND SPEED V                                   | 126 MPH (RISK CATEGORY II)  |
| WIND IMPORTANCE FACTOR I <sub>w</sub>                | 1.0                         |
| WIND EXPOSURE CATEGORY                               | C                           |
| SEISMIC LOAD   |                             |
| SEISMIC DESIGN CATEGORY                              | B                           |
| SHORT PERIOD SPECTRAL ACCELERATION S <sub>s</sub>    | 0.234                       |
| 1-SECOND PERIOD SPECTRAL ACCELERATION S <sub>1</sub> | 0.072                       |
| IMPORTANCE FACTOR I                                  | 1.0                         |
| SITE CLASS   | D                           |
| BASIC SEISMIC FORCE RESISTING SYSTEM:                | ASCE 7-10                   |
| LONGITUDINAL:  | ORDINARY REINFORCED MASONRY |
| TRANSVERSE:  | ORDINARY REINFORCED MASONRY |

- LIVE LOAD REDUCTION SHALL BE IN ACCORDANCE WITH ASCE 7-10.

## CAST IN PLACE CONCRETE:

- PROPORTIONING OF REINFORCED CONCRETE MEMBERS AND THEIR STEEL REINFORCEMENT IS BASED ON AN ULTIMATE STRENGTH DESIGN IN ACCORDANCE WITH BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-14).

- MINIMUM 28 DAY COMPRESSIVE STRENGTHS F<sub>c</sub> (28-DAYS)

|  |           |
|--|-----------|
| FOUNDATION BEAMS                         | 4,000 psi |
| SLAB-ON-GRADE                            | 4,000 psi |
| MEP DUCT BANKS, BLOCKING & ENCASUREMENTS | 3,000 psi |
| ALL OTHER CONCRETE                       | 4,000 psi |

ALL CONCRETE SHALL BE CLASSIFIED AS NORMAL WEIGHT, EXCEPT AS NOTED, WITH A UNIT WEIGHT OF 145 pcf. CONCRETE SHALL HAVE A SLUMP OF NO MORE THAN 4 INCHES AND AIR ENTRAINMENT OF 4-6%. THE USE OF CALCIUM CHLORIDE IS NOT PERMITTED. PROVIDE PROPER CONCRETE PROTECTION OR HEAT IN COLD WEATHER AND MAINTAIN PROPER CURING PROCEDURES IN ACCORDANCE WITH THE ACI.

- ALL FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS ATTAINED 75% OF ITS 28-DAY COMPRESSIVE STRENGTH (SEE SPECIFICATIONS).
- ALL CONSTRUCTION AND CONTROL JOINTS SHOWN ON PLANS. SAW CUT TO A DEPTH OF 3/4" - 1 INCH. SEE PLANS FOR LAYOUT. FILL ALL JOINT WITH SONNEBORN SL2 OR DOWN CORNING SL SELF-LEVELING SEALANT.
- DO NOT BACKFILL EXTERIOR WALLS ANY HIGHER THAN 3 FEET ABOVE THE TOP OF FOOTING UNTIL PERMANENT STRUCTURAL SUPPORTS (FRAMED FLOORS AND SLABS) ARE IN PLACE. BRACE ALL WALLS AND GRADE BEAMS DURING BACKFILLING, IF NECESSARY.
- ALL EXPOSED EDGES SHALL BE SQUARE UNLESS NOTED OTHERWISE.
- ALL KEYS SHALL BE 2"x4" WITH BEVELED SIDES, UNLESS NOTED OTHERWISE.
- NO HORIZONTAL CONSTRUCTION JOINTS SHALL BE MADE IN BEAMS, UNLESS SHOWN SPECIFICALLY ON DRAWINGS. FOR VERTICAL CONSTRUCTION JOINTS, REFER TO ACI 318.
- ALL REINFORCING WILL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS. REFER TO TYPICAL DETAILS.
- CAST SLABS AND BEAMS MONOLITHICALLY, UNLESS OTHERWISE INDICATED.

- NOT ALL OPENINGS THROUGH CONCRETE SLABS ARE SHOWN ON STRUCTURAL DRAWINGS. OPENINGS INDICATED, OR ANY ADDITIONAL OPENINGS OR INSERTS REQUIRED, MUST BE VERIFIED WITH RESPECTIVE TRADES BEFORE POURING OF CONCRETE. NO CONCRETE SHALL BE CAST PRIOR TO THE DESIGNER'S REVIEW AND APPROVAL OF THE COORDINATED SUBMITTAL TO INCLUDE REINFORCING, SLAB OPENINGS AND EMBEDDED ITEMS.
- USE NONSHRINK, NONMETALLIC GROUT HAVING A MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI, WHERE INDICATED ON THE PLANS AND IN THE SPECIFICATIONS.
- PROVIDE SEALANT JOINTS FOR ALL EXPOSED TO VIEW CONSTRUCTION JOINTS, CONTROL JOINTS AND SHEAR KEYS.
- ALL CONCRETE SHALL BE CONTROLLED CONCRETE, MIXED, AND PLACED UNDER THE SUPERVISION OF AN APPROVED CONCRETE TESTING AGENCY.

- ALL CONCRETE EXPOSED TO THE WEATHER SHALL CONTAIN AN AIR ENTRAINMENT ADMIXTURE.
- DAMP PROOF ALL FOUNDATION WALLS BELOW GRADE, OTHER THAN FROST WALLS.

## CAST IN PLACE CONCRETE REINFORCING:

- SHOP DRAWINGS AND SCHEDULES OF REINFORCING STEEL SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF THAT PORTION OF THE WORK. ALL ACCESSORIES MUST BE SHOWN ON THE SHOP DRAWINGS.
- REINFORCING BARS SHALL CONFORM TO ASTM A615 OR A706 GRADE 60 AND SHALL BE RAW STEEL UON
- REINFORCE ALL SLABS AS FOLLOWS UNLESS OTHERWISE NOTED, FURNISH WWF IN FLAT SHEETS:
  - SLABS ON METAL DECK: 4x4-W2-W2.9 WWF
  - INTERIOR SLABS ON GROUND: 6x6-W1.4xW1.4 WWF
- THE FOLLOWING MINIMUM CLEAR CONCRETE COVER SHALL BE PROVIDED UNLESS NOTED OTHERWISE ON THE DRAWINGS:
  - CONCRETE CAST AGAINST EARTH, ALL BAR SIZES 3"
  - CONCRETE EXPOSED TO EARTH OR WEATHER, ALL BAR SIZES 2"
- UNLESS NOTED OTHERWISE, BARS SHALL BE CONTINUOUS AND SHALL RUN CONTINUOUSLY AROUND CORNERS. BARS SHALL HAVE STANDARD HOOKS AT DISCONTINUOUS ENDS.
- SPLICES SHALL GENERALLY OCCUR AT MID-SPAN FOR TOP AND MIDDLE BARS AND AT SUPPORT FOR BOTTOM BARS AND SHALL BE STAGGERED. PROVIDE CLASS B SPLICES FOR ALL CONTINUOUS REINFORCEMENT, UNLESS OTHERWISE NOTED.
- BARS SHALL NOT BE CUT OR OMITTED FOR SLEEVE OR DUCT OPENINGS IN FLOORS. BARS MAY BE MOVED Laterally WITHOUT CHANGING THE DISTANCE FROM THE FACE OF CONCRETE. BEND NO BARS IN FIELD WITHOUT APPROVAL OF THE ENGINEER.

- ALL REINFORCING SHALL BE DETAILED IN ACCORDANCE WITH ACI 315 MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES. PROVIDE BAR SUPPORTS, SPACERS, AND ACCESSORIES RECOMMENDED IN THE ACI DETAILING MANUAL, PUBLICATION SP-66. ALL REINFORCEMENT DETAILING, LAP SPLICES, AND EMBEDMENTS SHALL CONFORM TO THIS MANUAL. ALL ACCESSORIES, SUCH AS SLAB BOLSTERS AND BEAM AND SLAB CHAIRS IN CONTACT WITH EXPOSED SURFACES SHALL BE PLASTIC-COATED.
- SET AND TIE ALL REINFORCEMENT BEFORE PLACING CONCRETE. SETTING DOWELS AND REINFORCEMENT INTO WET CONCRETE IS PROHIBITED.
- MINIMUM ANCHORAGE SPLICE REQUIREMENTS FOR REINFORCING BARS, AND TEMPERATURE REINFORCEMENT IN ALL CONCRETE SLABS SHALL BE ACCORDING TO ACI 318, UNLESS OTHERWISE SHOWN ON DRAWINGS.
- NO CONCRETE SHALL BE CAST BEFORE REVIEW AND APPROVAL OF THE REINFORCING AND EMBEDDED ITEMS HAVE BEEN OBTAINED FROM THE ENGINEER.
- ANY ADDITIONAL DRILLING OR CORING SHALL NOT DAMAGE REINFORCING BARS.
- SET ANCHOR BOLTS AND EMBEDDED PLATES REQUIRED FOR CONNECTION OF WORK BY OTHERS.

## FIBER REINFORCED CONCRETE (STEEL FIBERS):

- SHALL CONFORM TO ASTM C1116/C116M, TYPE I CONTAINING STEEL FIBERS MEETING THE CRITERIA OF ASTM 820 TYPE I, II, OR V.
- FIBERS TO HAVE CONTINUOUS, HOOKED END, OR FLAT END DEFORMATIONS AS OUTLINED IN ASTM A820.
- SHALL HAVE A LENGTH OF 1.625" PLUS OR MINUS 10%.
- DOSE = SEE PLANS. MINIMUM FOR CONCRETE ON METAL DECK IS 25 LB/CU YD OR AS OTHERWISE SPECIFIED BY MANUFACTURER.

## FIBER REINFORCED CONCRETE (SYNTHETIC MACROFIBERS - COURSE FIBERS):

- SHALL CONFORM TO ASTM C1116/C116M, TYPE III CONTAINING SYNTHETIC FIBERS MEETING THE CRITERIA OF ASTM D7508/D7508M FOR MACRO-CHOPPED STRANDS OR HYBRID CHOPPED STRANDS.
- SHALL HAVE A LENGTH OF 1.5" PLUS OR MINUS 10% WITH A MINIMUM ASPECT RATIO (LENGTH/EQUIVALENT DIAMETER) OF 50.
- DOSE = SEE PLANS. MINIMUM FOR CONCRETE ON METAL DECK IS 4 LB/CU YD OR AS OTHERWISE SPECIFIED BY MANUFACTURER.

## TIMBER FRAMING:

- FOR ROUGH WINDOW & DOOR (BOTH INTERIOR & EXTERIOR) OPENING UP TO 3-FEET USE 2x6 HEADER BEAM; FOR 3- TO 6-FOOT OPENINGS USE 2x8 HEADER BEAMS; AND, FROM 6- TO 8-FOOT OPENINGS USE 2x10 HEADER BEAMS; AND DOUBLES FOR 2x4 WALLS & TRIPLES FOR 2x6 WALLS, EXCEPT AS NOTED OTHERWISE ON THE PLANS OR SPECIFICATIONS. IF LVLs ARE SPECIFIED ON THE PLANS, PROVIDE SOLID 4x4 POST SUPPORTS FOR DBL HEADERS & SOLID 4x6 OR 6x6 DFL #2 POSTS FOR TPL HEADERS OR AS OTHERWISE SPECIFIED ON THE PLAN. CONTINUE ALL STRUCTURAL POSTS DOWN TO FOUNDATION OR BEAMS BELOW (SOLID BLOCK TO DROP BEAMS)..
- ALL FRAMING LUMBER SHALL BE HEM-FIR GRADE #2 OR SPF (SPRUCE PINE FIR) GRADE #1 / #2 OR APPROVED EQUAL (UNLESS OTHERWISE SPECIFIED), AND

SHALL MEET THE REQUIREMENTS OF THE AMERICAN FOREST AND PAPER ASSOCIATION. MINIMUM TIMBER FRAMING MATERIAL PROPERTIES:

|   |                    |
|---|--------------------|
| ALLOWABLE BENDING STRESS (F <sub>b</sub> ):     | 875 PSI MIN.       |
| ALLOWABLE COMPRESSION STRESS (F <sub>c</sub> ): | 1,150 PSI MIN.     |
| MODULUS OF ELASTICITY (E):                      | 1,400,000 PSI MIN. |

OTHER FRAMING MATERIAL FOR INTERIOR NON-LOAD BEARING STUDS MAY BE SUBSTITUTED ONLY UPON APPROVAL OF THE ENGINEER.

- ALL EXTERIOR FRAMING SHALL BE PRESSURE TREATED (CCA TREATED) SOUTHERN YELLOW PINE GRADE #2.
- BUILT-UP BEAMS SHALL BE SPIKED AS FOLLOWS:
  - 3-PLY MAXIMUM, UNLESS OTHERWISE NOTED USING LVLs AND CONVENTIONAL FRAMING LUMBER SHALL BE FULLY SPIKED TOGETHER WITH 2-10D NAILS AT 12" O.C.
  - 4-PLY BUILT-UP FRAMING AND LVLs ARE TO BE SPIKED TOGETHER WITH THREE (3) SIMPSON SDS 1/2"x6" SCREWS @ 12" O.C. OR AS OTHERWISE NOTED ON THE DRAWINGS; OR AS RECOMMENDED BY THE MANUFACTURER.
- USE FULLY NAILED METAL CONNECTORS (TECO, SIMPSON; OR APPROVED EQUAL): JOIST OR BEAM HANGERS WHEN JOISTS OR BEAMS FRAME INTO ANOTHER JOIST OR BEAM MEMBER. PROVIDE METAL POST CAPS AND BASES FOR ALL POSTS.
- ALL FRAMING IN THE BUILDING MUST BE FIRE RETARDANT TREATED PER SECTION 603.1 OF THE CURRENT IBC.

## STRUCTURAL STEEL:

- MATERIAL
  - WIDE FLANGE SHAPES: ASTM A-992 (Fy 50 KSI)
  - OTHER ROLLED SHAPES & PLATES: ASTM A-36 (Fy 36 KSI)
  - STRUCTURAL TUBING, HSS SHAPES: ASTM A-500, GRADE B (Fy 46 KSI)
  - HEADED SHEAR STUDS: COMPLY WITH AWS D1.1
  - FIELD BOLTS: ASTM A-325, 3/4" MIN DIA., UNO
  - ANCHOR RODS: ASTM F-1554 (Fy 36 KSI), UNO
- FABRICATOR TO DESIGN CONNECTIONS NOT DETAILED:
  - CONNECTIONS ARE TO BE DESIGNED BY THE FABRICATOR IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, THE AISC LRFD SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, THE AISC MANUAL, AND THE STRUCTURAL STEEL FRAMING PLANS, NOTES AND DETAILS OF THESE DRAWINGS. SUBMIT PDF COPY TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
  - CONNECTION CONFIGURATIONS INDICATED ON THE PLANS, NOTES AND DETAILS REPRESENT THE DESIGN INTENT. ITEMS SPECIFICALLY INDICATED: WELDS, STIFFENERS, BRACES, ETC. MUST BE PROVIDED AT MINIMUM AS SHOWN. ADDITIONAL DESIGN AND DETAILING OF CONNECTIONS, INCLUDING CONSIDERATION OF MEMBER THICKNESS, HOLES, CUTS, COPIES AND THE EFFECTS OF CONCENTRATED FORCES, SHALL BE PROVIDED BY THE CONTRACTOR.
  - UNLESS SPECIFIC REACTIONS, MOMENTS, SHEARS, AND AXIAL FORCES ARE INDICATED, DESIGN BEAM CONNECTIONS FOR REACTIONS DUE TO THE MAXIMUM UNIFORM LOAD THE BEAM CAN SUPPORT AT ITS SPAN, AS SHOWN IN THE AISC MANUAL FOR SPECIFIED YIELD STRENGTH.
  - WELD ALL STEEL CONTACT SURFACES (OTHER THAN BOLTED CONNECTIONS) WITH A CONTINUOUS 3/16-INCH MINIMUM WELD.
  - PROVIDE A 1/2" DIAMETER WEEP HOLE AT THE BASE OF ALL TUBE AND PIPE COLUMNS.
  - CONNECTION BOLTS TO BE 1/2" MINIMUM DIAMETER HIGH STRENGTH ASTM A325. PROVIDE A MINIMUM OF 2 BOLTS PER CONNECTION.
  - USE 1/2" MINIMUM CAP PLATE OR BASE PLATES FULLY WELDED AROUND AT COLUMNS WITH A 3/8" FILLET WELD, OR AS OTHERWISE SPECIFIED ON THE PLANS.

- PRIME PAINTING IS REQUIRED FOR ALL STEEL WHICH WILL BE VISIBLE IN THE COMPLETED BUILDING AND IS NOT SCHEDULED TO RECEIVE FIRE PROOFING, INCLUDING AREAS OF EXPOSED STRUCTURE SHOWN ON ARCHITECTURAL DRAWINGS.
- ALL EXTERIOR WALL LINTELS, LEDGE ANGLES, CANOPY FRAMING, MEMBERS ABOVE THE ROOF LINE AND STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED, UNLESS NOTED OTHERWISE.
- FOR FLUSH FRAMED STEEL BEAMS PACK OUT WEB WITH 2X MATERIAL CARRIAGE BOLTED TO WEB @ 16" O.C. WITH TWO 1/2" DIA A307 BOLTS (TOP AND BOTTOM). CONNECT JOISTS TO BEAM WEB WITH HANGERS. FOR STEEL DROP BEAMS OR ANY BEAMS WHERE FRAMING BEARS ON TOP FLANGE, PIN 2X TO TOP OF BEAM AT 24" O.C USING RECESSED 1/2" A307 CARRIAGE BOLTS OR PNEUMATIC PINS. FULLY NAIL EACH JOIST ABOVE TO PINNED 2X AND USE METAL CONNECTOR AT EVERY OTHER JOIST.

## COORDINATION AND CONSTRUCTION:

- FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS WHICH AFFECT FABRICATION PRIOR TO SUBMITTAL OF SHOP DRAWINGS AND FABRICATION.
- REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL, EMBEDDED ITEMS, SLEEVES, FLOOR PITCHES, FILLS, AND DEPRESSIONS.
- STRUCTURAL FRAMING PLANS ARE TYPICALLY DRAWN AS REFLECTED PLANS SHOWING BEAMS, WALLS, AND COLUMNS ON THE UNDERSIDE OF THE LEVEL SHOWN.
- ALL FRAMING MEMBERS PROVIDED FOR MECHANICAL TRADES, ELEVATOR SUPPORT BEAMS, LINTELS, ROOF OPENINGS, ETC. ARE FOR BIDDING PURPOSES ONLY; SUBMIT MANUFACTURER'S DATA FOR THE PROPOSED EQUIPMENT TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
- BRACE ENTIRE STRUCTURE AS REQUIRED TO MAINTAIN STABILITY UNTIL COMPLETE AND FUNCTIONING AS THE DESIGNED UNIT.

- DO NOT BACKFILL FOUNDATION WALLS SPANNING BETWEEN BASEMENT SLABS AND STRUCTURAL FLOORS UNTIL SUPPORTING SLABS ARE IN PLACE.
- VERIFY EXACT SIZE AND LOCATION OF ALL WALL, FLOOR, AND ROOF OPENINGS PRIOR TO SUBMISSION OF SHOP DRAWINGS. SHOW ALL OPENINGS ON SHOP DRAWINGS.

- COORDINATE BEAM WEB PENETRATIONS WITH MECHANICAL. PENETRATIONS TO BE ROUND AND INSTALLED PER THE FOLLOWING REQUIREMENTS:

NO PENETRATIONS WITHIN 12" OF ANY CONNECTION OR CONCENTRATED LOAD. FOR BEAMS AND GIRDERS WITH EVENLY DISTRIBUTED LOADING:

MAXIMUM HOLD DIAMETER = 1/3 OF BEAM DEPTH WITHIN MIDDLE 1/3 OF BEAM SPAN.

MAXIMUM HOLE DIAMETER = 1/5 OF BEAM DEPTH WITHIN END OF 1/3 BEAM SPAN EXCLUDING WITHIN 24" OF BEAM END.

ALL HOLES TO BE PLACED FULLY WITHIN MIDDLE 1/3 OF BEAM DEPTH.

HOLE SPACING TO BE MINIMUM 3 TIMES THE LARGER HOLE DIAMETER.

SUBMIT ALL OPENINGS IN BEAMS TO ENGINEER FOR APPROVAL.

- PLACEMENT OF CONDUITS IN CONCRETE SHALL ADHERE TO THE FOLLOWING:

OUTSIDE DIAMETER OF CONDUITS SHALL BE 1-1/2" OR LESS WHERE EMBEDDED IN WALLS OR COLUMNS.

BUNCHING OF CONDUITS IS NOT PERMITTED. CONDUITS SHALL BE SPACED 3 DIAMETERS OR GREATER ON CENTER, AND 6" MINIMUM AWAY FROM COMPOSITE SHEAR STUD CONNECTORS.

MINIMUM CONCRETE COVER ON CONDUITS SHALL BE 1-1/2".

ALUMINUM CONDUITS, PIPES, OR SLEEVES ARE NOT PERMITTED.

- IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO WORKING HOURS.

- THE DUTY OF THE ENGINEER TO CONDUCT CONSTRUCTION REVIEW OF CONTRACTORS PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF ADEQUACY OF CONTRACTORS SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

## QUALITY ASSURANCE:

- THE OWNER WILL EMPLOY QUALIFIED SPECIAL INSPECTORS TO PERFORM INSPECTIONS IN ACCORDANCE WITH OBC CHAPTER 17. THE ITEMS REQUIRING SPECIAL INSPECTION ON THIS PROJECT INCLUDE THE FOLLOWING:
  - CONCRETE: ALL CONCRETE WORK
  - REINFORCING STEEL: ALL REINFORCING STEEL
  - STRUCTURAL STEEL: ALL WELDING AND HIGH STRENGTH BOLTING
- SPECIAL INSPECTORS SHALL BE QUALIFIED BY TRAINING AND EXPERIENCE FOR THE REQUIRED INSPECTIONS AND MUST BE ACCEPTABLE TO THE BUILDING OFFICIAL. INSPECTORS SHALL THOROUGHLY REVIEW THE APPLICABLE PORTIONS OF THE DOCUMENTS.
- THE STRUCTURAL ENGINEER WILL GENERALLY REVIEW THE PROGRESS OF THE WORK, BUT HIS REVIEW SHALL NOT BE CONSTRUED AS SPECIAL INSPECTION.

## GENERAL CONSTRUCTION NOTES:

- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH THE AFFECTED PART OF WORK.
- SHORE, SHEET AND BRACE EXCAVATIONS AS REQUIRED TO ASSURE COMPLETE SAFETY AGAINST COLLAPSE OF EARTH AND DAMAGE TO ADJACENT PROPERTY INCLUDING BUT NOT LIMITED TO EXISTING STREETS, BUILDING AND UTILITY LINES.
- THE CONTRACTOR SHALL BE COMPLETELY RESPONSIBLE FOR THE SAFETY OF ADJACENT STRUCTURES, PROPERTY, AND THE PUBLIC IN AREAS OF PUBLIC ACCESS, THE PUBLIC WAY SHALL BE PROTECTED FROM CONSTRUCTION AND DEMOLITION WORK AT ALL TIMES.
- COORDINATE THE STRUCTURAL INFORMATION SHOWN ON THESE DRAWINGS WITH OTHER INTERFACING TRADES [CIVIL, UTILITIES AND TRACTION POWER] PRIOR TO SUBMITTAL OF SHOP DRAWINGS AND CONSTRUCTION.
- WORK NOT INDICATED ON A PART OF THE DRAWINGS, BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING LOCATIONS, SHALL BE INCLUDED. DETAILS SHOWN AS TYPICAL ARE APPLICABLE TO ALL SIMILAR CONDITIONS.
- DEMOLITION WORK SHALL BE DONE WITH CAUTION. PROVIDE ALL SHORING AND ENCLOSURES NECESSARY PRIOR TO COMMENCEMENT OF WORK.
- ALL CONSTRUCTION SHALL BE MADE FROM APPROVED SHOP DRAWINGS.
- DO NOT SCALE CONTRACT DRAWINGS FOR THE PURPOSE OF ESTABLISHING DIMENSIONS.
- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH SHOP DRAWINGS, PROJECT SPECIFICATIONS, CIVIL, UTILITY, TRACTION POWER, AND OTHER DRAWINGS. CONSULT THESE DRAWINGS FOR LOCATIONS AND DIMENSION OF OPENINGS, CHASES, INSERTS, REGLETS, SLEEVES, DEPRESSIONS, AND OTHER DETAILS NOT SHOWN ON THE STRUCTURAL DRAWINGS.

| DRAWING LIST |                                    |
|--------------|------------------------------------|
| S1           | COVER SHEET AND STRUCTURAL NOTES   |
| S2           | FOUNDATION PLAN                    |
| S3           | CEILING JOIST / ATTIC FRAMING PLAN |
| S4           | ROOF FRAMING PLAN                  |
| S5           | STRUCTURAL SECTIONS AND DETAILS    |

Birch Meadow  
Restroom & Support Building  
COVER SHEET AND STRUCTURAL NOTES

ENGINEER STAMP:

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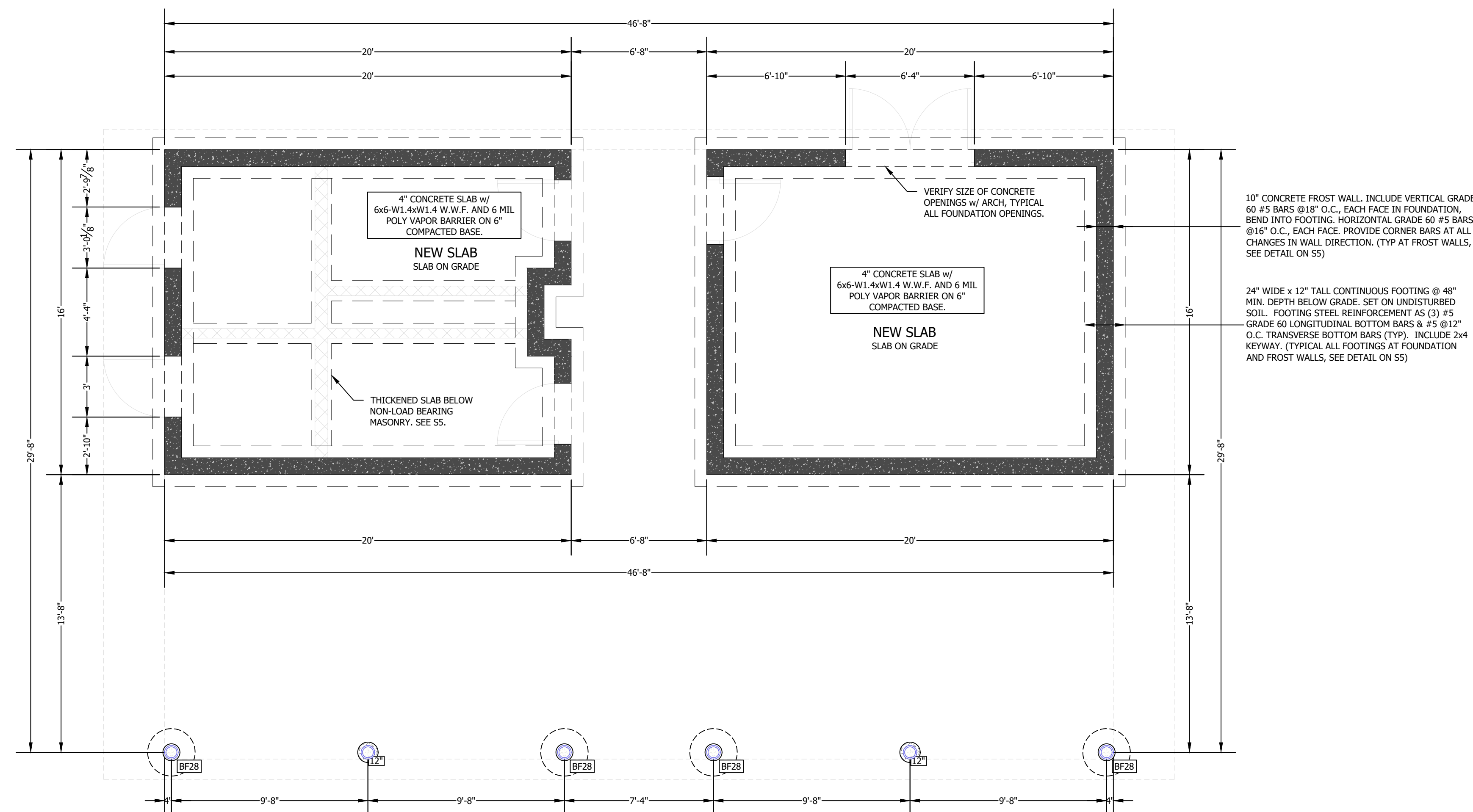
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Birch Meadow  
Restroom & Support Building  
FOUNDATION PLAN



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

| FOUNDATION LEGEND   |                            |
|---|----------------------------|
|   | FOUNDATION FOOTING         |
|   | FOUNDATION WALL            |
|   | FROST WALL                 |
|   | EXISTING FOUNDATION WALL   |
|   | STRUCTURAL POST: STEEL HSS |
|   | STRUCTURAL POST: STEEL HSS |
|   | PIER FOOTING AND SIZE      |
| <p>PIER ABBREVIATIONS:<br/>BF20: 8" TUBE w/ BIGFOOT BF20 BASE.<br/>BF24: 10" TUBE w/ BIGFOOT BF24 BASE.<br/>BF28: 12" TUBE w/ BIGFOOT BF28 BASE<br/>BF36: 12" TUBE w/ BIGFOOT BF36 BASE<br/>12": 12" SONOTUBE</p> <p>NOT ALL PIER SIZES MAY BE USED ON THIS PLAN SET</p> <p>NOTE: 2'x2' PRECAST CONCRETE PIER MAY BE USED AS ALTERNATE FOR PIERS BF28 OR SMALLER.</p> |                            |

| PIER / COLUMN SCHEDULE |                          |                                   |                                   |                           |   |
|------------------------|--------------------------|-----------------------------------|-----------------------------------|---------------------------|---|
| ID                     | HSS <sup>(1)</sup>       | PIER SIZE <sup>(2)</sup>          | PIER REINFORCEMENT <sup>(3)</sup> | TOP PLATE                 | BOTTOM PLATE  |
| BF28                   | 6,000 x 0.188 GALVANIZED | 12" SONOTUBE w/ BIGFOOT BF28 BASE | SEE DETAIL ON SS                  | 8" x 8" x 1/2" GALVANIZED | 10"x10"x1/2" WITH (4) 1/2" F1554 GR. 55 BOLTS WITH 12" MIN. EMBEDMENT (GALVANIZED PLATES AND BOLTS) |
| 12"                    | 6,000 x 0.188 GALVANIZED | 12" SONOTUBE                      | SEE DETAIL ON SS                  | 8" x 8" x 1/2" GALVANIZED | 10"x10"x1/2" WITH (4) 1/2" F1554 GR. 55 BOLTS WITH 12" MIN. EMBEDMENT (GALVANIZED PLATES AND BOLTS) |

<sup>(1)</sup> MAXIMUM HEIGHT DESIGNED = 9'-0".  
<sup>(2)</sup> BOTTOM OF PIER TO BE MINIMUM 48" BELOW GRADE.  
<sup>(3)</sup> SEE DETAIL ON SS.  
ALL HSS POSTS TO HAVE BOTTOM PLATES ANCHORED TO PIER. USE TOP PLATES SPECIFIED IN SCHEDULE ABOVE.

DRAWING NOTES:

- FOUNDATION DESIGN IS BASED UPON AN ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF. SOIL BEARING MATERIAL CAPACITY TO BE DETERMINED BY SOIL TESTS PRIOR TO CONSTRUCTION. IF BEARING MATERIALS WITH A LOWER BEARING CAPACITY THAN 1 TON PER SQUARE FOOT ARE ENCOUNTERED AT THE SPECIFIED ELEVATIONS, THE UNDERLYING MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL TO BE APPROVED BY THE ENGINEER.
- ALL BACKFILL UNDER STRUCTURAL SLABS, MATS, AND OTHER FOUNDATION ELEMENTS SHALL BE COMPACTED IN MAX 6" LIFTS TO 95 PERCENT OF MAXIMUM DRY DENSITY PER ASTM D1557, UNLESS OTHERWISE INDICATED OR SPECIFIED. FOUNDATION ELEMENTS SHALL REST ONLY ON SUITABLE UNDISTURBED OR COMPACTED STRUCTURAL FILL. STRUCTURAL FILL GRADATION SHALL BE NO LARGER THAN 1", BETWEEN 10% AND 60% PASSING THE NO. 20 SIEVE AND NO MORE THAN 5% PASSING THE NO. 200 SIEVE.
- PROVIDE 6" MINIMUM CRUSHED STONE UNDER CONCRETE SLAB. GRADATION FOR CRUSHED STONE SHALL BE NO LARGER THAN 1", BETWEEN 10% AND 50% PASSING 1/2" AND NO MORE THAN 5% PASSING THE NO. 4 SIEVE. CRUSHED STONE REQUIRES COMPACTION BY MAKING AT LEAST THREE PASSES PER 6-INCH THICK LIFT (OR THINNER) BY A VIBRATORY PLATE COMPACTOR OR VIBRATORY ROLLER WITH MINIMUM STATIC WEIGHT OF 200 POUNDS. NO COMPACTION TESTING IS NECESSARY FOR THE CRUSHED STONE FILLS. CRUSHED STONE FILLS THICKER THAN 12 INCHES SHOULD BE PLACED IN ONE-FOOT LIFTS AND SHOULD BE MONITORED BY A TECHNICIAN OR GEOTECHNICAL ENGINEER.
- PROVIDE SHEETING, BRACING AND UNDERPINNING TO PROTECT ADJACENT UTILITY STRUCTURES, AS REQUIRED.
- OPEN EXCAVATIONS AROUND BUILDING PERIMETER MUST REMAIN DRY. REMOVE WATER FROM OPEN EXCAVATIONS PRIOR TO BACKFILLING.
- SHORING AND BRACING FOR THE LATERAL SUPPORT OF EXCAVATION SHALL REMAIN IN PLACE UNTIL ALL PERMANENT STRUCTURAL SYSTEMS ARE COMPLETE AS APPROVED BY THE ENGINEER.
- CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR ALL FOUNDATION GRADE BEAMS DURING THE OPERATIONS OF BACKFILLING AND COMPACTION.
- ALL REQUIRED INSERT SLEEVES, CONDUITS, EMBEDMENTS AND PENETRATIONS MUST BE VERIFIED WITH RESPECTIVE TRADES BEFORE CASTING CONCRETE.
- NO FOUNDATION ELEMENT, BEAM OR SLABS SHALL BE PLACED ON FROZEN SOIL OR IN WATER.
- THE OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR THE VALIDITY OF THE SUBSURFACE CONDITIONS DESCRIBED ON THE DRAWINGS, SPECIFICATIONS, BORING LOGS, OR TEST PITS. THE DATA IS INCLUDED ONLY TO ASSIST THE CONTRACTOR DURING BIDDING AND SUBSEQUENT CONSTRUCTION AND REPRESENT CONDITIONS ONLY OF THESE SPECIFIED LOCATIONS AT THE PARTICULAR TIME THEY WERE MADE.
- ALL ORGANIC SOILS SUCH AS TOPSOIL OR ORGANIC FILL FOUND NEAR THE SURFACE IN SLAB LOCATIONS MUST BE REMOVED. THE UPPER TWO FEET OF FILL AND ANY ORGANIC FILL MATERIALS EXPOSED AT THE BASE OF EXCAVATION SHOULD BE REMOVED TO INORGANIC FILL OR UNDISTURBED SILTY SANDS. COMPACTED STRUCTURAL FILL SHALL BE USED AS NEEDED TO GRADE BEFORE GRAVEL BASE AND SLAB PLACEMENT.

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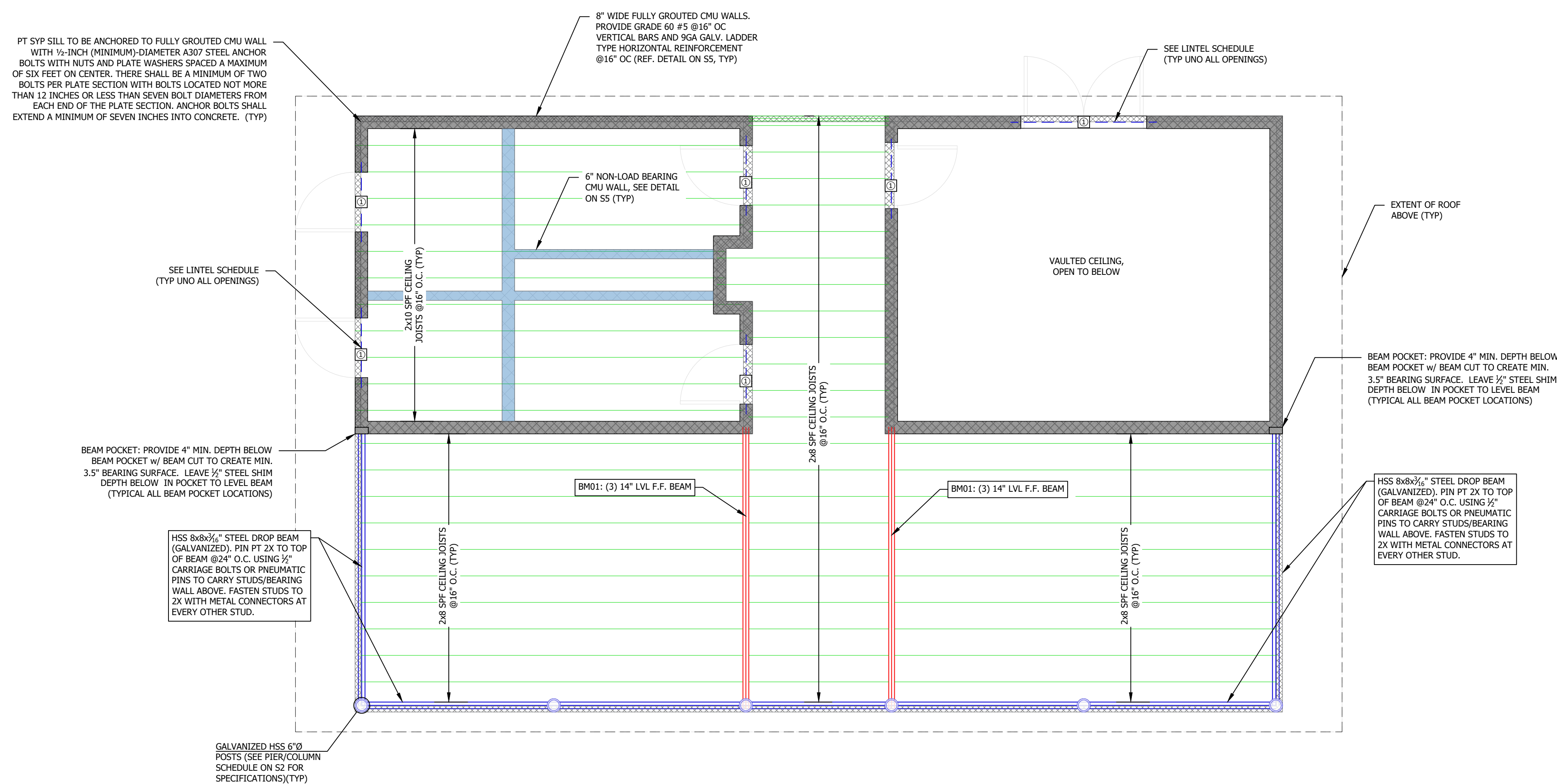
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**Birch Meadow  
Restroom & Support Building  
CEILING JOIST / ATTIC FRAMING PLAN**

| LINTEL SCHEDULE         |                |             |
|-------------------------|----------------|-------------|
| CLEAR OPENING DIMENSION | LINTEL SIZE    | END BEARING |
| 0" TO 5'-0"             | L3 3/8x3/8x1/8 | 4"          |
| 5'-1" TO 7'-0"          | L5x3 3/8x1/8   | 6"          |
| 7'-1" TO 9'-0"          | L6x3 3/8x1/8   | 8"          |
| 9'-1" TO 11'-0"         | L6x3 3/8x1/8   | 10"         |



**2** CEILING JOIST / ATTIC FRAMING PLAN  
SCALE: 1/4" = 1'-0"

| FRAMING LEGEND |  |
|----------------|--|
|                | STRUCTURAL BEAM: LVL                     |
|                | STRUCTURAL BEAM: CONVENTIONAL LUMBER     |
|                | STRUCTURAL BEAM: STEEL                   |
|                | FLOOR CEILING JOIST: CONVENTIONAL LUMBER |
|                | ROOF RAFTER: CONVENTIONAL LUMBER         |
|                | CMU BEARING WALL BELOW                   |
|                | NON-LOAD BEARING CMU BEARING WALL BELOW  |
|                | BEARING WALL ABOVE                       |
|                | EXISTING BEARING WALL BELOW              |
|                | STRUCTURAL POST: STEEL HSS               |
|                | STRUCTURAL POST: STEEL HSS               |
|                | STRUCTURAL POST: LVL                     |
|                | STRUCTURAL POST: CONVENTIONAL LUMBER     |
|                | STRUCTURAL POST ABOVE                    |
|                | DOOR/WINDOW HEADERS:                     |
|                | REFER TO LINTEL SCHEDULE                 |

| HANGER SCHEDULE |              |
|-----------------|--------------|
| MATERIAL        | HARDWARE     |
| (2) 1 1/2" LVLs | MGU3.63-SDS  |
| (3) 1 1/2" LVLs | HGU5.50-SDS  |
| (4) 1 1/2" LVLs | HHGU7.25-SDS |

**HANGER NOTES:**

- FOR ALL LVL HANGERS, USE SCREWS LONG ENOUGH TO ENGAGE ALL PLYS OF THE LVL BEING CONNECTED INTO.
- ALL CONVENTIONAL LUMBER TO USE FULLY NAILED METAL JOIST HANGERS.
- LVLs THAT FRAME AROUND STAIR OPENING MAY USE NAILED LVL HANGERS INSTEAD OF SCREWED HANGERS AS SHOWN IN HANGER SCHEDULE.

**DRAWING NOTES:**

1. REFER TO ARCHITECTURAL PLANS FOR ELEVATIONS AND FLOOR LAYOUTS. NOTIFY ENGINEER IF CONDITIONS VARY FROM SHOWN ON THESE PLANS. REFER TO GENERAL STRUCTURAL NOTES (SHEET S1) FOR ADDITIONAL INFORMATION AND SPECIFICATIONS.

**TIMBER FRAMING MATERIALS:**

1. TIMBER FRAMING MEMBERS SHOWN ON THIS PLAN HAVE BEEN DESIGNED TO MEET THE STANDARD FRAMING SPECIFICATIONS, NOTED IN THE GENERAL STRUCTURAL NOTES ON SHEET S1 OF THIS PLAN SET.  
2. TIMBER FRAMING MEETING STANDARD SPECIFICATIONS, IN GENERAL, WILL BE ABBREVIATED ON THESE STRUCTURAL PLANS, UNLESS NOTED SPECIFICALLY OTHERWISE ON STRUCTURAL PLANS - ALL TIMBER FRAMING MATERIALS ARE TO MEET THE FOLLOWING SPECIFICATIONS:

**CONVENTIONAL LUMBER:**

- a. BOARDS & BEAMS
  - INTERIOR (UNTREATED): SPRUCE-PINE-FIR (SPF), GRADE #2
  - EXTERIOR (TREATED): SOUTHERN YELLOW PINE (SYP) PRESSURE TREATED (PT), GRADE #2.
- b. POSTS
  - INTERIOR (UNTREATED) - SPECIES AS NOTED ON DRAWING.
  - DOUGLAS-FIR-LARCH (DFL), GRADE #2.
  - EXTERIOR (TREATED): SOUTHERN YELLOW PINE (SYP) PRESSURE TREATED (PT), GRADE #2.

**ENGINEERED LUMBER:**

- a. I-JOISTS
  - SEE TO ENGINEERING PLANS FOR SPECIFICATIONS - JOIST TYPE/GRADE VARIES. REFER TO JOIST MANUFACTURER INSTRUCTIONS (AS WELL AS STRUCTURAL PLANS AND CALCULATIONS) FOR REQUIRED I-JOIST BRACING, STIFFENERS, and/or CONNECTORS.
  - JOIST HANGERS SHALL BE METAL AND ARE TO BE OF SUFFICIENT LOAD RATING TO CARRY DESIGN LOADS, HANGER TYPE/STYLE IS CONTRACTOR PREFERENCE. FOLLOW INSTALLATION REQUIREMENTS BY MANUFACTURER (FASTENERS, STIFFENERS, ETC) TO OBTAIN PROPER JOIST HANGER CAPACITY.
- b. BOARDS & BEAMS:
  - INTERIOR (UNTREATED): LAMINATED VENEER LUMBER (LVL) SOUTHERN-PINE (SP), GRADE 2.1E 3100 SP, WIDTH 1 1/2" (UNO).
  - EXTERIOR (TREATED): PARALLEL STRAND LUMBER (PSL) w/ PRESERVATIVE TREATMENT. (BEAM SIZE AS NOTED ON PLAN). EXTERIOR PSL HORIZONTAL MEMBERS TO BE TRUSJOIST® 2.0E PARALLAM® PLUS PSL SL2 MOIST USE RATED; OR AN APPROVED EQUIVALENT BY ENGINEER.
- c. POSTS:
  - INTERIOR (UNTREATED): LAMINATED VENEER LUMBER (LVL) SOUTHERN-PINE (SP), GRADE 1.8E 2650
  - EXTERIOR (TREATED): PARALLEL STRAND LUMBER (PSL) w/ PRESERVATIVE TREATMENT. (POST SIZE AS NOTED ON PLAN). EXTERIOR PSL HORIZONTAL MEMBERS TO BE TRUSJOIST® 2.0E PARALLAM® PLUS PSL SL2 MOIST USE RATED; OR AN APPROVED EQUIVALENT BY ENGINEER.

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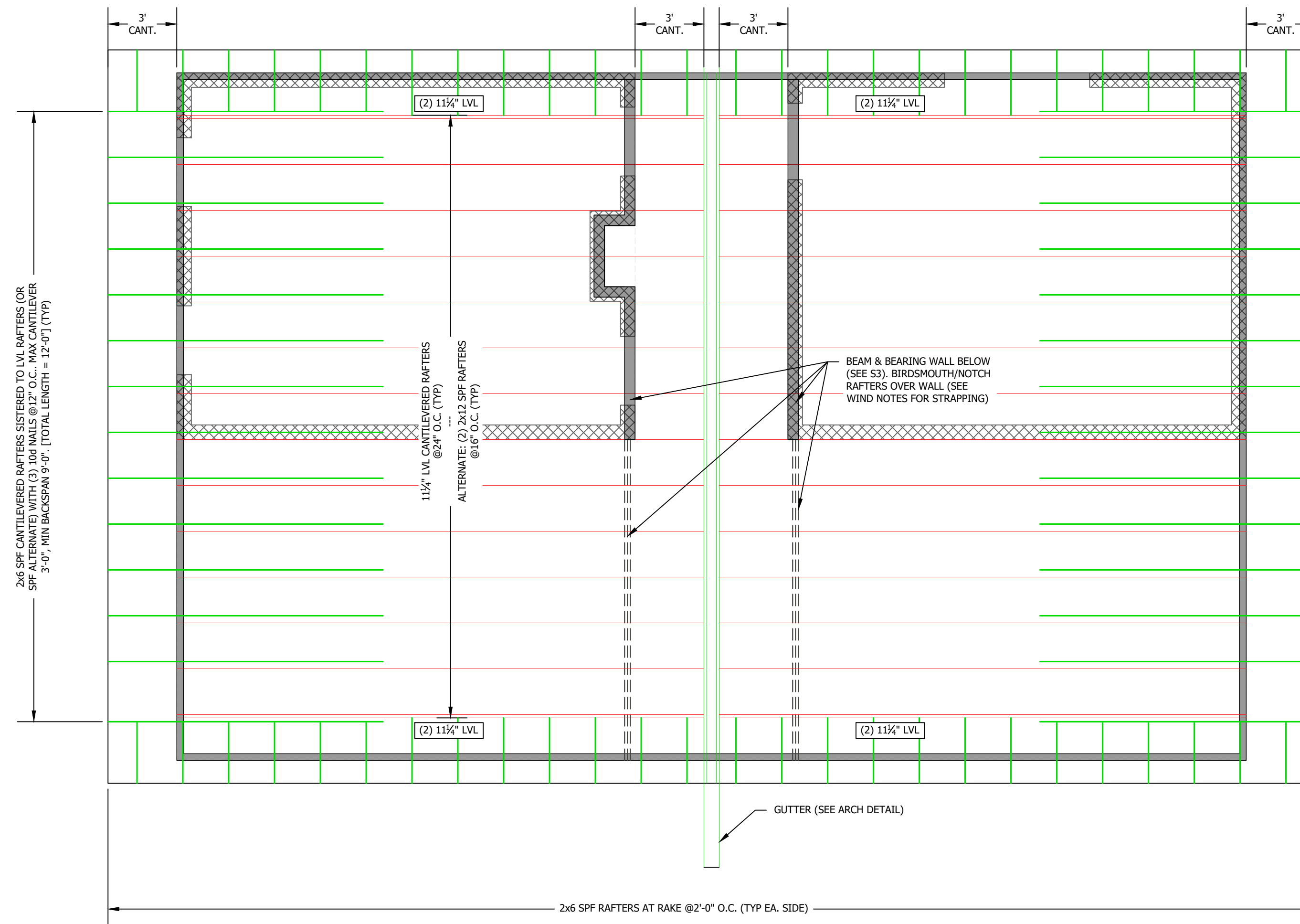
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**Birch Meadow  
Restroom & Support Building  
ROOF FRAMING PLAN**

**WIND NOTES:**

1. PROVIDE SIMPSON H2A HURRICANE TIES AT ALL RAFTER TO SILL TO STUD CONNECTIONS. PROVIDE SIMPSON H3 STRAPS AT RAFTERS TO DROP BEAM CONNECTIONS.
2. PROVIDE STRUCTURAL 1 RATED SHEATHING FOR ALL EXTERIOR WALLS AND ROOF; 3/8" WALL PANELS, 3/8" ROOF PANELS. ALL EXTERIOR WALL PANELS TO HAVE MINIMUM 6" EDGE AND 12" FIELD NAILING.
3. ALL NAILING TO BE BASED ON NAILING TABLE IN LOCATIONS WHERE METAL CONNECTORS ARE NOT USED. SEE S5 FOR NAILING TABLE.



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

| FRAMING LEGEND |  |  |                                      |
|----------------|--|--|--------------------------------------|
|                | STRUCTURAL BEAM: LVL                     |  | STRUCTURAL POST: STEEL HSS           |
|                | STRUCTURAL BEAM: CONVENTIONAL LUMBER     |  | STRUCTURAL POST: STEEL HSS           |
|                | STRUCTURAL BEAM: STEEL                   |  | STRUCTURAL POST: LVL                 |
|                | FLOOR CEILING JOIST: CONVENTIONAL LUMBER |  | STRUCTURAL POST: CONVENTIONAL LUMBER |
|                | ROOF RAFTER: CONVENTIONAL LUMBER         |  | STRUCTURAL POST ABOVE                |
|                | BEARING WALL                             |  |                                      |
|                | CMU BEARING WALL BELOW                   |  |                                      |
|                | EXISTING BEARING WALL BELOW              |  |                                      |

| HANGER SCHEDULE |              |
|-----------------|--------------|
| MATERIAL        | HARDWARE     |
| (2) 1 1/2" LVLs | MGU3.63-SDS  |
| (3) 1 1/2" LVLs | HGU5.50-SDS  |
| (4) 1 1/2" LVLs | HHGU7.25-SDS |

**HANGER NOTES:**

1. FOR ALL LVL HANGERS, USE SCREWS LONG ENOUGH TO ENGAGE ALL PLYS OF THE LVL BEING CONNECTED INTO.
2. ALL CONVENTIONAL LUMBER TO USE FULLY NAILED METAL JOIST HANGERS.
3. LVLS THAT FRAME AROUND STAIR OPENING MAY USE NAILED LVL HANGERS INSTEAD OF SCREWED HANGERS AS SHOWN IN HANGER SCHEDULE.

**DRAWING NOTES:**

1. REFER TO ARCHITECTURAL PLANS FOR ELEVATIONS AND FLOOR LAYOUTS. NOTIFY ENGINEER IF CONDITIONS VARY FROM SHOWN ON THESE PLANS. REFER TO GENERAL STRUCTURAL NOTES (SHEET S1) FOR ADDITIONAL INFORMATION AND SPECIFICATIONS.

**TIMBER FRAMING MATERIALS:**

1. TIMBER FRAMING MEMBERS SHOWN ON THIS PLAN HAVE BEEN DESIGNED TO MEET THE STANDARD FRAMING SPECIFICATIONS, NOTED IN THE GENERAL STRUCTURAL NOTES ON SHEET S1 OF THIS PLAN SET.
2. TIMBER FRAMING MEETING STANDARD SPECIFICATIONS, IN GENERAL, WILL BE ABBREVIATED ON THESE STRUCTURAL PLANS, UNLESS NOTED SPECIFICALLY OTHERWISE ON STRUCTURAL PLANS - ALL TIMBER FRAMING MATERIALS ARE TO MEET THE FOLLOWING SPECIFICATIONS:

**CONVENTIONAL LUMBER:**

- a. BOARDS & BEAMS
  - INTERIOR (UNTREATED): SPRUCE-PINE-FIR (SPF), GRADE #2
  - EXTERIOR (TREATED): SOUTHERN YELLOW PINE (SYP) PRESSURE TREATED (PT), GRADE #2.
- b. POSTS
  - INTERIOR (UNTREATED) - SPECIES AS NOTED ON DRAWING.
    - DOUGLAS-FIR-LARCH (DFL), GRADE #2.
  - EXTERIOR (TREATED): SOUTHERN YELLOW PINE (SYP) PRESSURE TREATED (PT), GRADE #2.

**ENGINEERED LUMBER:**

- a. I-JOISTS
  - SEE TO ENGINEERING PLANS FOR SPECIFICATIONS - JOIST TYPE/GRADE VARIES. REFER TO JOIST MANUFACTURER INSTRUCTIONS (AS WELL AS STRUCTURAL PLANS AND CALCULATIONS) FOR REQUIRED I-JOIST BRACING, STIFFENERS, and/or CONNECTORS.
  - JOIST HANGERS SHALL BE METAL AND ARE TO BE OF SUFFICIENT LOAD RATING TO CARRY DESIGN LOADS, HANGER TYPE/STYLE IS CONTRACTOR PREFERENCE. FOLLOW INSTALLATION REQUIREMENTS BY MANUFACTURER (FASTENERS, STIFFENERS, ETC) TO OBTAIN PROPER JOIST HANGER CAPACITY.
- b. BOARDS & BEAMS:
  - INTERIOR (UNTREATED): LAMINATED VENEER LUMBER (LVL) SOUTHERN-PINE (SP), GRADE 2.1E 3100 SP, WIDTH 1 1/2" (UNO).
  - EXTERIOR (TREATED): PARALLEL STRAND LUMBER (PSL) w/ PRESERVATIVE TREATMENT. (BEAM SIZE AS NOTED ON PLAN). EXTERIOR PSL HORIZONTAL MEMBERS TO BE TRUSJOIST® 2.0E PARALLAM® PLUS PSL SL2 MOIST USE RATED; OR AN APPROVED EQUIVALENT BY ENGINEER.
- c. POSTS:
  - INTERIOR (UNTREATED): LAMINATED VENEER LUMBER (LVL) SOUTHERN-PINE (SP), GRADE 1.8E 2650
  - EXTERIOR (TREATED): PARALLEL STRAND LUMBER (PSL) w/ PRESERVATIVE TREATMENT. (POST SIZE AS NOTED ON PLAN). EXTERIOR PSL HORIZONTAL MEMBERS TO BE TRUSJOIST® 2.0E PARALLAM® PLUS PSL SL2 MOIST USE RATED; OR AN APPROVED EQUIVALENT BY ENGINEER.

ENGINEER STAMP:

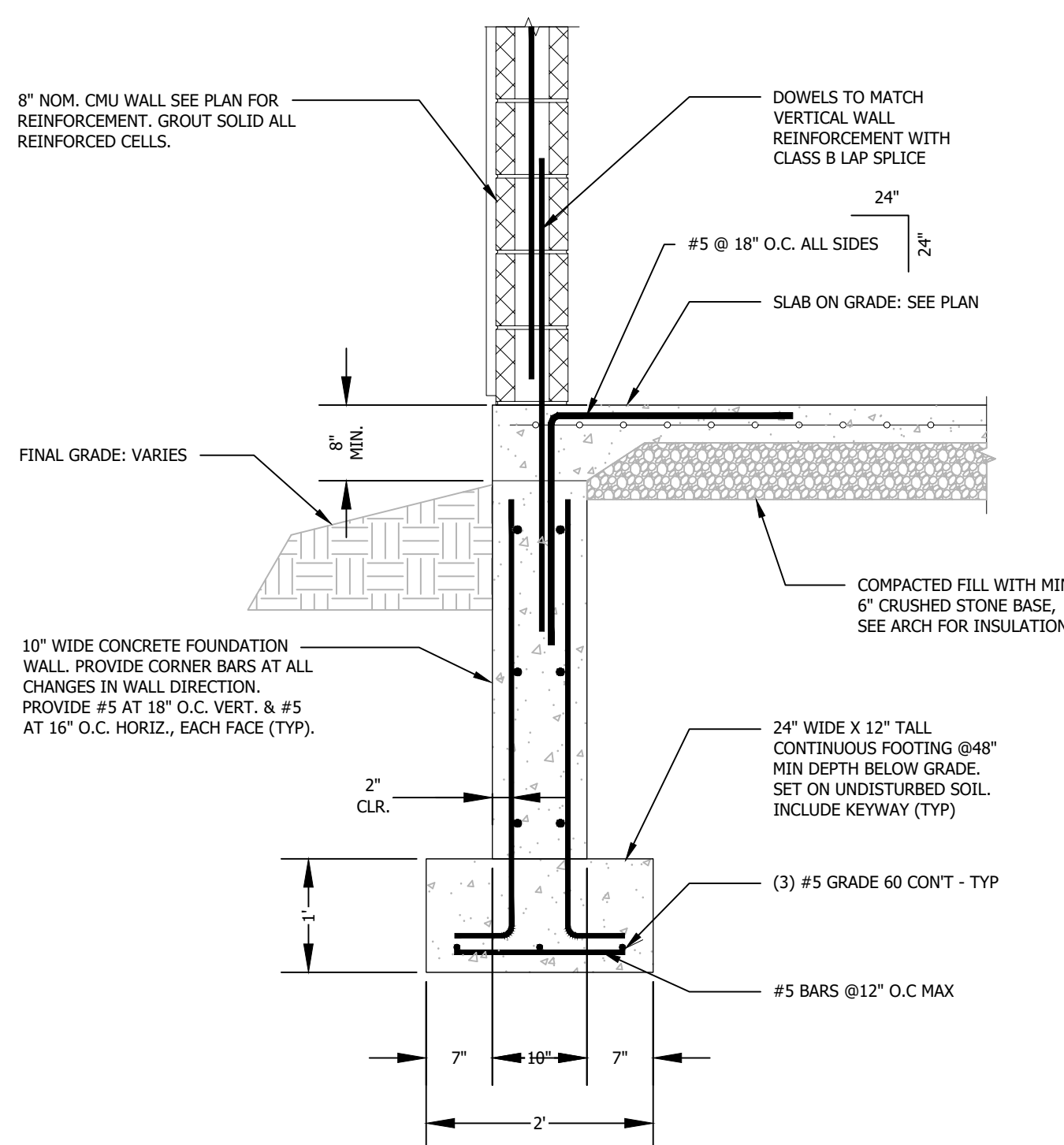
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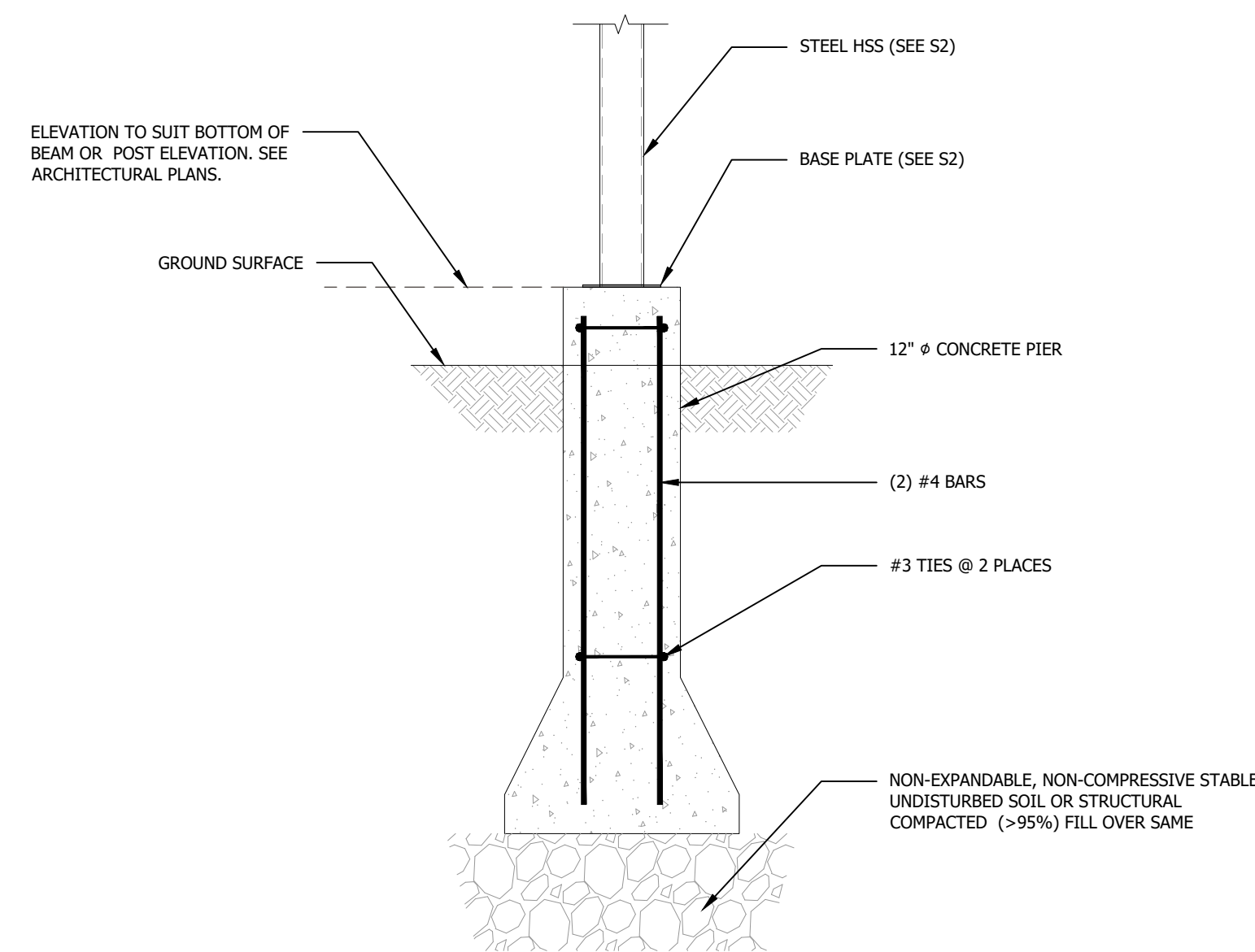
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**Birch Meadow  
Restroom & Support Building  
STRUCTURAL SECTIONS AND DETAILS**



**FROST WALL SECTION - TYPICAL**

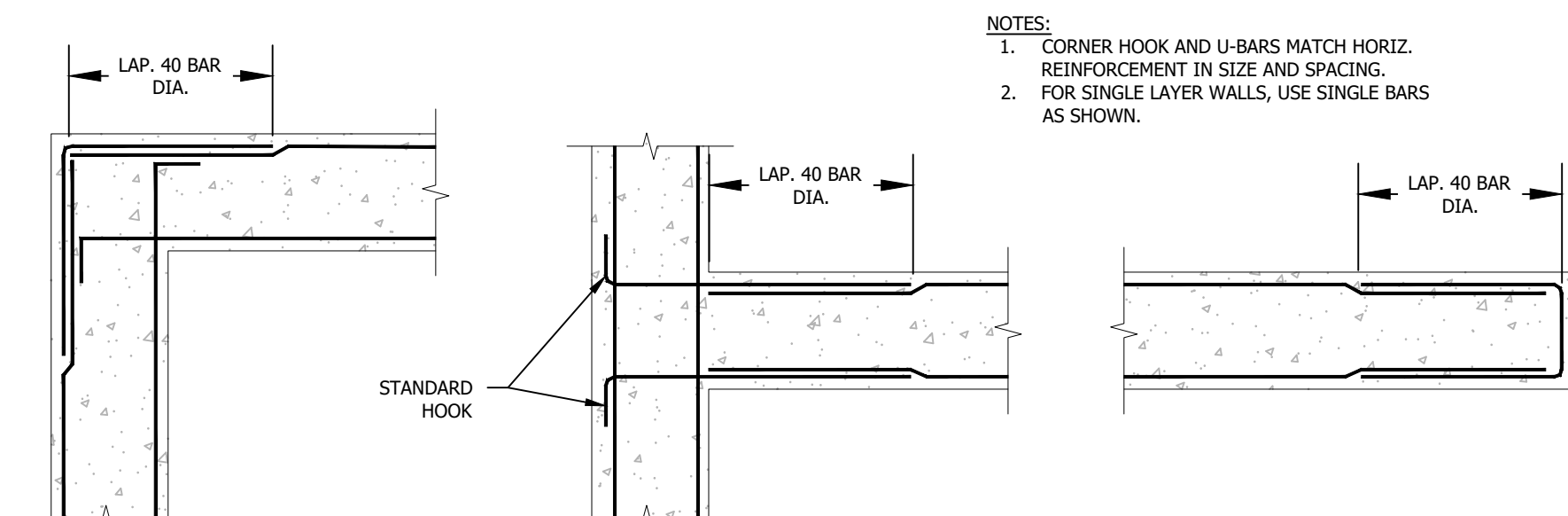
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**PIER FOOTING DETAIL - TYPICAL**

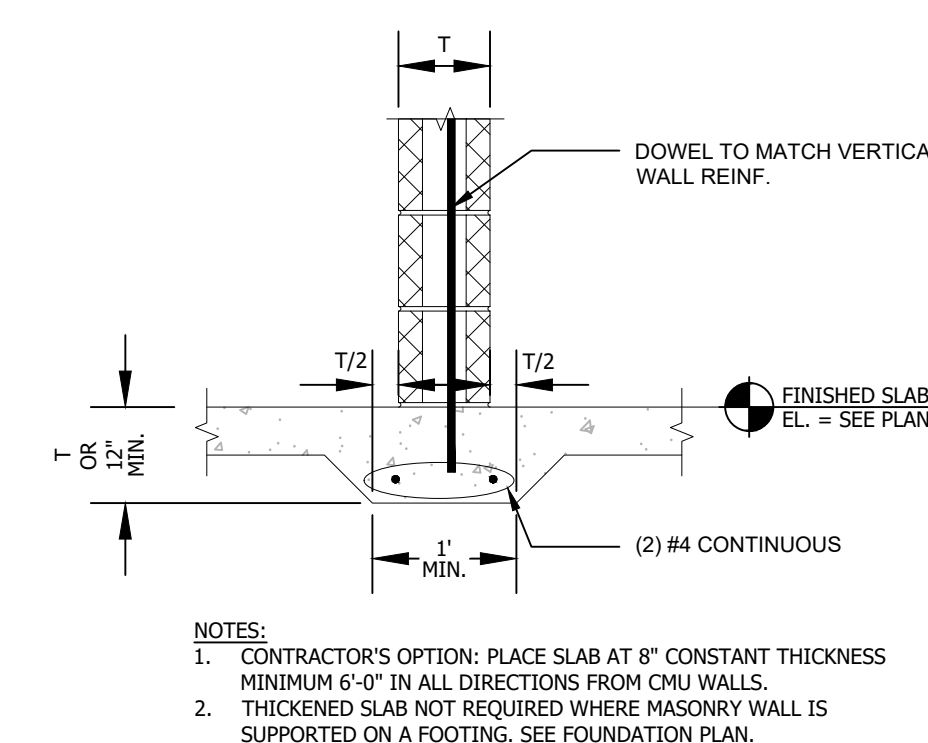
SCALE: 3/4" = 1'-0"

| NAILING TABLE   |                        |                     |                      |
|---|------------------------|---------------------|----------------------|
| JOINT DESCRIPTION   | NUMBER OF COMMON NAILS | NUMBER OF BOX NAILS | NAIL SPACING         |
| <b>ROOF FRAMING</b>                                       |                        |                     |                      |
| Blocking to Rafter (Toe-nailed)                           | 2-8d                   | 2-10d               | each end             |
| Rim Board to Rafter (End-nailed)                          | 2-16d                  | 3-16d               | each end             |
| <b>WALL FRAMING</b>                                       |                        |                     |                      |
| Top Plates at Intersections (Face-nailed)                 | 4-16d                  | 5-16d               | at joints            |
| Stud to Stud (Face-nailed)                                | 2-16d                  | 2-16d               | 24" O.C.             |
| Header to Header (Face-nailed)                            | 16d                    | 16d                 | 16" O.C. along edges |
| <b>FLOOR FRAMING</b>                                      |                        |                     |                      |
| Joist to Sill, Top Plate or Girder (Toe-nailed)           | 4-8d                   | 4-10d               | per joist            |
| Blocking to Joist (Toe-nailed)                            | 2-8d                   | 2-10d               | each end             |
| Blocking to Sill or Top Plate (Toe-nailed)                | 3-16d                  | 4-16d               | each block           |
| Ledger Strip to Beam or Girder (Face-nailed)              | 3-16d                  | 4-16d               | each joist           |
| Joist on Ledger to Beam (Toe-nailed)                      | 3-8d                   | 3-10d               | per joist            |
| Band Joist to Joist (End-nailed)                          | 3-16d                  | 4-16d               | per joist            |
| Band Joist to Sill or Top Plate (Toe-nailed)              | 2-16d                  | 3-16d               | per foot             |
| <b>ROOF SHEATHING</b>                                     |                        |                     |                      |
| Wood Structural Panels                                    |                        |                     |                      |
| Rafters or Trusses (Spaced up to 16" O.C.)                | 8d                     | 10d                 | 6" edge / 6" field   |
| Rafters or Trusses (Spaced over 16" O.C.)                 | 8d                     | 10d                 | 4" edge / 4" field   |
| Gable Endwall Rake or Rake Truss w/o Gable Overhang       | 8d                     | 10d                 | 6" edge / 6" field   |
| Gable Endwall Rake or Rake Truss w/ Structural Outlookers | 8d                     | 10d                 | 6" edge / 6" field   |
| Gable Endwall Rake or Rake Truss w/ Lookout Blocks        | 8d                     | 10d                 | 4" edge / 4" field   |
| <b>CEILING SHEATHING</b>                                  |                        |                     |                      |
| Gypsum Wallboard  | 5d coolers             | -                   | 7" edge / 10" field  |
| <b>WALL SHEATHING</b>                                     |                        |                     |                      |
| Wood Structural Panels, studs spaced up to 24" O.C.       | 8d                     | 10d                 | 6" edge / 12" field  |
| 1/2" and 5/8" Fiberboard Panels                           | 8d <sup>1</sup>        | -                   | 3" edge / 6" field   |
| 1/2" Gypsum Wallboard                                     | 5d coolers             | -                   | 7" edge / 10" field  |
| <b>FLOOR SHEATHING</b>                                    |                        |                     |                      |
| Wood Structural Panels                                    |                        |                     |                      |
| 1" or Less  | 8d                     | 10d                 | 6" edge / 12" field  |
| Greater than 1"   | 10d                    | 16d                 | 6" edge / 6" field   |



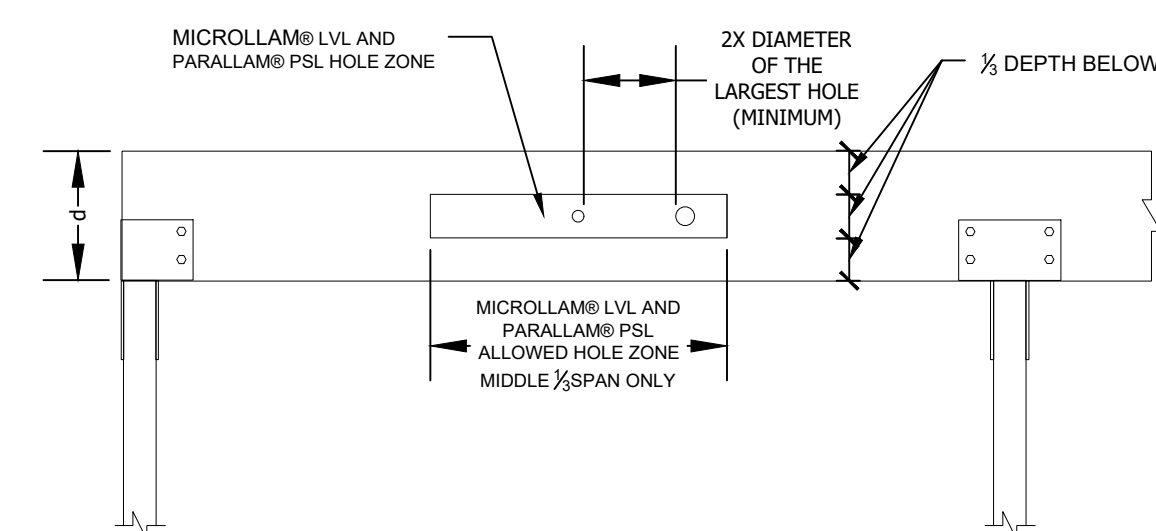
**TYPICAL BAR DETAILS @ WALL & FOOTINGS**

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



**NON-LOAD BEARING MASRONRY - THICKENED SLAB**

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



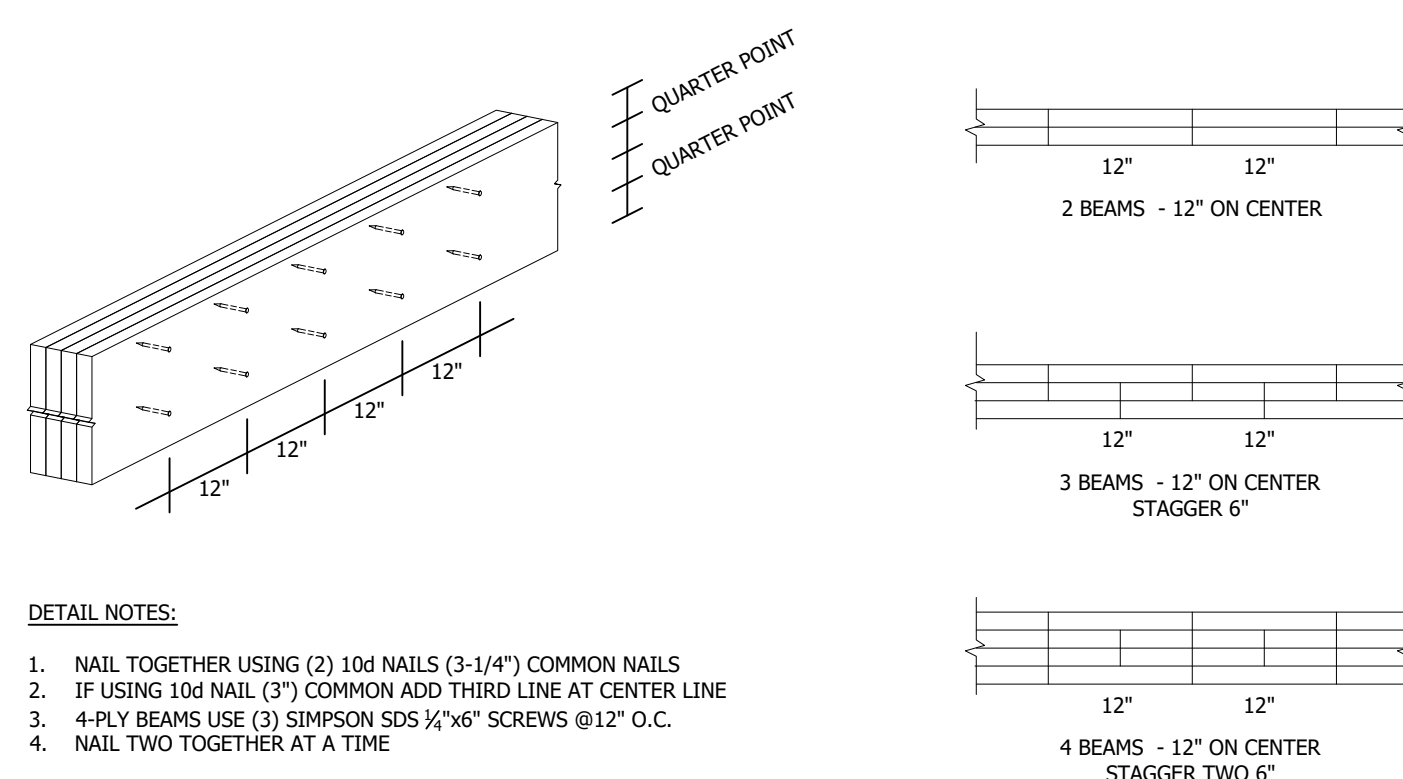
| Header or Beam Depth | Maximum Round Hole Size |
|----------------------|-------------------------|
| 4 1/2"               | 1"                      |
| 5 1/2"               | 1 3/4"                  |
| 7 1/4" - 20"         | 2"                      |

See illustration for Allowed Hole Zone

**LVL AND PSL HEADER AND BEAM ALLOWABLE HOLES**

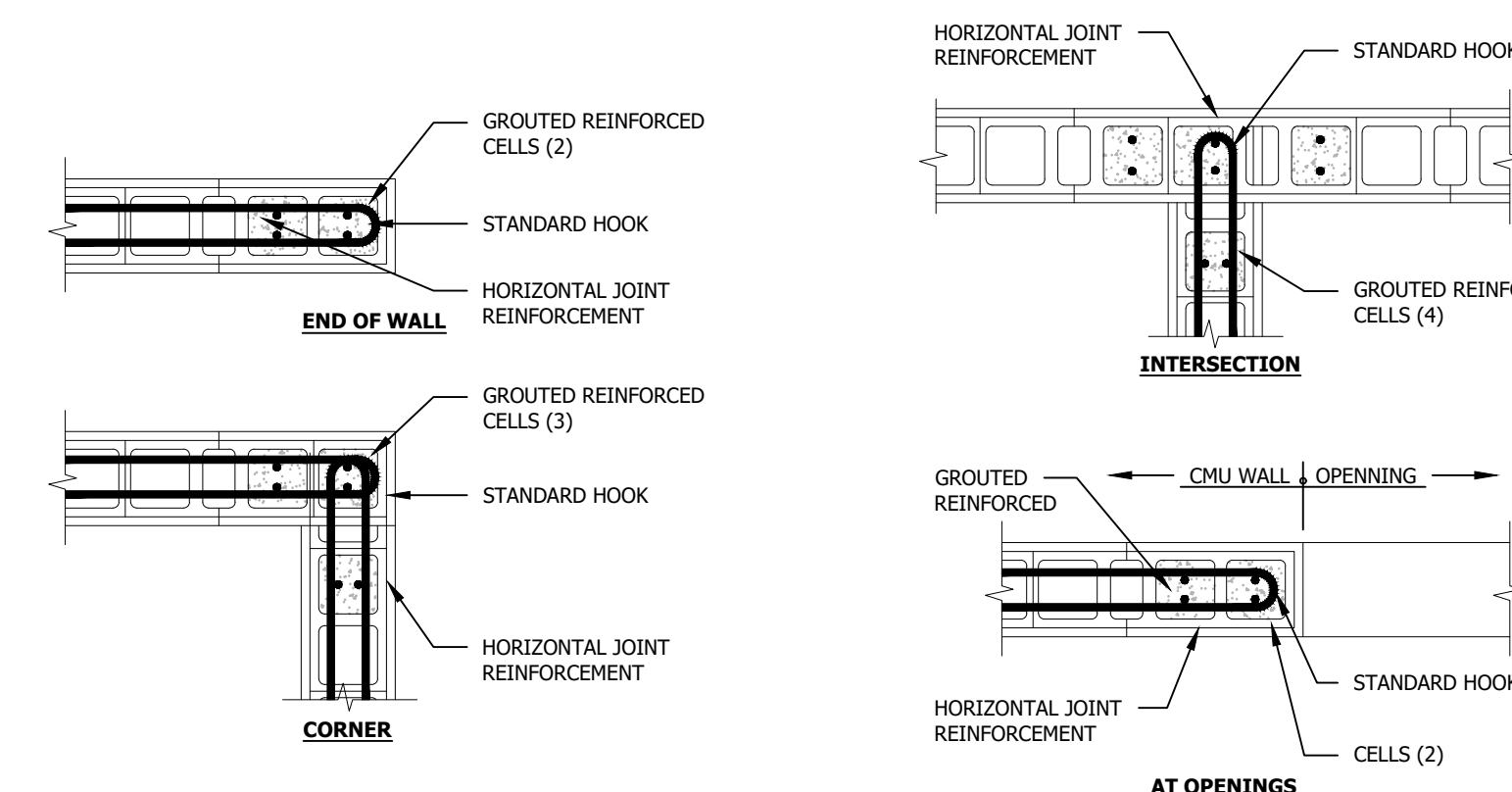
SCALE: 3/4" = 1'-0"

- General Notes:**
- Allowed hole zone suitable for headers and beams with uniform loads only.
  - Round holes only.
  - No holes in cantilevers.
  - No holes in headers or beams in plank orientation.
  - Other penetrations and loading conditions may be accepted. See illustration for Allowed Hole Zone.



**LVL NAILING SCHEDULE**

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



**MASONRY REINFORCEMENT PLACEMENT - PLAN VIEW**

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

ENGINEER STAMP:

Revisions

no. date

**S5/S5**

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MECHANICAL SPECIFICATIONS

PART 1: GENERAL

- 1.1 DESCRIPTION OF WORK
  - A. WORK INCLUDED: PROVIDE LABOR, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE WORK OF THIS SECTION.
- 1.2 REGULATORY REQUIREMENTS
  - A. COMPLY WITH ALL APPLICABLE FEDERAL AND STATE LAWS, AND ALL LOCAL CODES, BY-LAWS AND ORDINANCES.
  - B. REQUEST INSPECTIONS FROM AUTHORITIES HAVING JURISDICTION. OBTAIN ALL PERMITS AND PAY FOR ALL FEES AND INSPECTION CERTIFICATES AS APPLICABLE AND/OR REQUIRED. ALL PERMITS AND CERTIFICATES SHALL BE TURNED OVER TO THE OWNERS UPON COMPLETION OF THE WORK.
  - C. ALL WORK, EQUIPMENT AND MATERIALS SHALL CONFORM TO THE BUILDING CONSTRUCTION RULES AND REGULATIONS.
- 1.3 SUBMITTALS
  - A. PROVIDE SHOP DRAWINGS FOR ALL EQUIPMENT, INCLUDING BUT NOT LIMITED TO:
    - 1. EXHAUST FANS.
    - 2. REGISTERS AND DIFFUSERS.
    - 3. LOUVERS.
- 1.4 COORDINATION
  - A. WORK SHALL BE PERFORMED IN COOPERATION WITH OTHER TRADES ON THE PROJECT AND SO SCHEDULED AS TO ALLOW SPEEDY AND EFFICIENT COMPLETION OF THE WORK.
  - B. FURNISH TO OTHER TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF ALL FRAMES, BOXES, SLEEVES AND OPENINGS NEEDED FOR THEIR WORK, AND ALSO FURNISH INFORMATION AND SHOP DRAWINGS NECESSARY TO PERMIT TRADES AFFECTED BY THE WORK TO INSTALL SAME.
  - C. IF ANY HVAC WORK HAS BEEN INSTALLED BEFORE COORDINATION WITH OTHER TRADES SO AS TO CAUSE INTERFERENCE WITH THE WORK OF SUCH TRADES, ALL NECESSARY ADJUSTMENTS AND CORRECTIONS SHALL BE MADE BY THE HVAC TRADES INVOLVED WITHOUT EXTRA COST TO THE OWNERS.
  - D. PROTECT ALL MATERIALS AND WORK OF OTHER TRADES FROM DAMAGE WHICH MAY BE CAUSED BY THE HVAC WORK AND REPAIR ALL DAMAGES WITHOUT EXTRA COST TO OWNERS.
- 1.5 MECHANICAL AND ELECTRICAL COORDINATION
  - A. HEATING, VENTILATION, AND AIR CONDITIONING SUBCONTRACTOR SHALL FURNISH AND INSTALL VARIOUS ELECTRICAL ITEMS RELATING TO THE HVAC EQUIPMENT AND CONTROL APPARATUS. THE ELECTRICAL SUBCONTRACTOR SHALL BE REQUIRED TO CONNECT POWER WIRING TO THIS EQUIPMENT UNLESS NOTED OTHERWISE.
  - B. THE HVAC AND ELECTRICAL SUBCONTRACTOR SHALL COORDINATE THEIR RESPECTIVE PORTIONS OF THE WORK, AS WELL AS THE ELECTRICAL CHARACTERISTICS OF THE HVAC EQUIPMENT.
  - C. ALL POWER WIRING AND LOCAL DISCONNECT SWITCHES WILL BE PROVIDED BY THE ELECTRICAL SUBCONTRACTOR FOR THE LINE VOLTAGE POWER. ALL CONTROL AND INTERLOCKING WIRING SHALL BE THE RESPONSIBILITY OF THE HVAC SUBCONTRACTOR.
  - D. 120 VOLT POWER SOURCES EXTENDED AND CONNECTED TO HEATING AND VENTILATING CONTROL PANELS, TRANSFORMERS, AND SWITCHES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL SUBCONTRACTOR. ALL LOW VOLTAGE THERMOSTAT, ZONE VALVE AND ANY SWITCH WIRING SHALL BE THE RESPONSIBILITY OF THE HVAC SUBCONTRACTOR.
  - E. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF DIVISION 16.
  - F. ALL STARTERS SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 16 EXCEPT THOSE FURNISHED AS AN INTEGRAL PART OF PACKAGED EQUIPMENT. COORDINATE WITH ELECTRICAL CONTRACTOR.
- 1.6 INSTALLATION REQUIREMENTS
  - A. THE ARRANGEMENT OF ALL HVAC WORK SHOWN ON THE DRAWINGS IS DIAGRAMMATICAL ONLY AND INDICATES THE MINIMUM REQUIREMENTS OF THE WORK. CONDITION AT THE BUILDING INCLUDING ACTUAL MEASUREMENTS SHALL DETERMINE THE DETAILS OF THE INSTALLATION.
- 1.7 RECORD DRAWINGS/PROJECT CLOSEOUT
  - A. PROVIDE RECORD AS-BUILT DRAWINGS AT COMPLETION OF INSTALLATION.
- 1.8 GUARANTEE/WARRANTY
  - A. ALL NEW MATERIALS, ITEMS OR EQUIPMENT AND WORKMANSHIP FURNISHED UNDER THIS SECTION SHALL CARRY STANDARD WARRANTY AGAINST ALL DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE OF WORK. ANY FAULT DUE TO DEFECTIVE OR IMPROPER MATERIAL, EQUIPMENT, WORKMANSHIP OR MANUFACTURING DESIGN WHICH MAY DEVELOP WITHIN THAT PERIOD SHALL BE MADE GOOD, FORTHWITH, BY AND AT THE EXPENSE OF THIS CONTRACTOR, INCLUDING ALL OTHER DAMAGES DONE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM THIS FAILURE.
  - B. THIS CONTRACTOR SHALL GUARANTEE THAT ALL NEW ELEMENTS OF THE SYSTEMS MEET THE SPECIFIED PERFORMANCE REQUIREMENTS AS SET FORTH HEREIN OR AS INDICATED ON THE DRAWINGS.

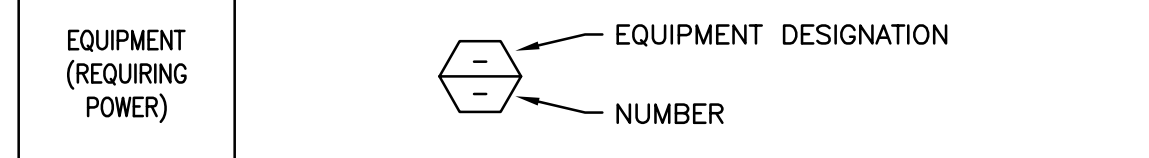
PART 2: PRODUCTS

- 2.1 DUCTWORK
  - A. GENERAL: MATERIAL, CONSTRUCTION AND INSTALLATION SHALL MEET THE REQUIREMENTS OF THE MOST RECENT EDITIONS OF THE FOLLOWING STANDARDS AND REFERENCES, EXCEPT FOR MORE STRINGENT REQUIREMENTS SHOWN ON THE DRAWINGS:
    - 1. SMACNA HVAC DUCT CONSTRUCTION STANDARDS
    - 2. SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL
    - 3. NFPA 90A
    - 4. SMACNA GUIDELINES FOR WELDING SHEETMETAL
  - B. PROVIDE SUPPORTING AND HANGING DEVICES NECESSARY TO INSTALL THE ENTIRE HVAC SYSTEM INDICATED ON THE DRAWINGS. DUCTWORK SHALL BE FREE FROM VIBRATION UNDER ALL CONDITIONS OF OPERATION. DIMENSIONS SHOWN ON THE DRAWINGS ARE NET INSIDE DIMENSIONS. NO PIPES, CONDUITS, HANGERS, OR ARCHITECTURAL ELEMENTS SHALL PASS THROUGH DUCTWORK.
  - C. RATINGS:
    - 1. DUCT CONSTRUCTION CLASS 2" OR LESS AND STATIC PRESSURE RATINGS OF 2" OR LESS POSITIVE AND NEGATIVE SHALL BE SMACNA SEAL CLASS B AND LEAKAGE CLASS 12 FOR ALL VELOCITIES OF 2500 FEET/MIN. OR LESS.
  - D. SEALING REQUIREMENTS:
    - 1. CLASS B/LEAKAGE CLASS 12: GALVANIZED, NON-WELDED ALUMINUM OR NON-WELDED STAINLESS STEEL DUCTWORK TRAVERSE JOINTS SHALL BE MADE WITH SEALING TAPE EQUAL TO HARDCAST MODEL 1902-FR, CORNERS SHALL BE SEALED AS DESCRIBED BY SMACNA. SEAL ALL NON-FLANGED TRAVERSE JOINTS WITH HARDCAST VERSA MODEL 102 OR APPROVED EQUAL. LONGITUDINAL SEAMS SHALL BE SEALED WITH HARDCAST COLD SEAL MODEL 1001.
  - E. SUPPORT: SPACE HANGERS AS REQUIRED BY SMACNA (8 FT. MAX.) FOR HORIZONTAL ON 8 FT. CENTERS, UNLESS CONCENTRATED LOADINGS REQUIRE CLOSER SPACING. SUPPORT VERTICAL DUCT AT ROOF PENETRATIONS. SUPPORTS FOR DUCTWORK AND EQUIPMENT SHALL BE GALVANIZED UNLESS SPECIFIED OTHERWISE.
  - F. CONSTRUCTION:
    - 1. NO SHARP METAL EDGES SHALL EXTEND INTO AIR STREAMS. INSTALL DRIVE SLIPS ON AIR-LEAVING SIDE OF DUCT WITH SHEETMETAL SCREWS ON 6" CENTERS.
    - 2. PLENUM AND CONNECTIONS TO LOUVERS SHALL BE 18 GAUGE MIN. CROSS-BROKEN AND PROPERLY REINFORCED WITH GALV. ANGLE IRONS TO SMACNA REQUIREMENTS AND SHALL HAVE BOTTOM AND CORNER SEAMS SOLDERED WATERTIGHT AT LEAST 12" UP FROM BOTTOM. PROVIDE NEOPRENE GASKETS TO MAKE CONNECTIONS TO LOUVERS WATERTIGHT. PLENUMS SHALL PITCH CONNECTIONS BACK TOWARDS LOUVER.

PART 3: EXECUTION

- 3.1 TESTING AND CLOSEOUT
  - A. CLEANING
    - 1. UPON COMPLETION ALL SHEET METAL WORK SPECIFIED UNDER THIS SECTION IS TO BE CLEANED. ALL EQUIPMENT IS TO BE CLEANED, ALL TRIM INSTALLED, ALL PROTECTIVE OIL, TAPE OR OTHER MATERIALS USED TO PROTECT WORK ARE TO BE REMOVED.
    - 2. ALL DUCTS, FANS, AND EQUIPMENT SHALL BE THOROUGHLY CLEANED INSIDE AND OUTSIDE AND BLOWN OUT TO PREVENT AND DEBRIS FROM DAMAGING FAN SHIELDS OR DEBRIS HANGING THROUGH REGISTERS OR DIFFUSERS WHEN SYSTEMS ARE PLACED IN OPERATION. ALL TEMPORARY CONNECTIONS REQUIRED FOR BLOWING OUT THE SYSTEMS, CHEESECLOTH FOR ALL DUCT OPENINGS, AND ANY OTHER EQUIPMENT OR LABOR FOR CLEANING, SHALL BE PROVIDED BY THE HVAC CONTRACTOR. THE ENTIRE HVAC SYSTEM SHALL BE KEPT CLEAN UNTIL FINAL ACCEPTANCE. ANY DAMAGE TO CEILINGS BY THE HVAC CONTRACTOR SHALL BE RECTIFIED BY HIM AT NO ADDITIONAL CHARGE TO THE OWNER, TO THE SATISFACTION OF THE DESIGNER.
  - B. OPERATING AND MAINTENANCE INSTRUCTIONS
    - 1. PRIOR TO COMPLETION OF THE CONTRACT, PROVIDE FIELD AND WRITTEN OPERATING INSTRUCTIONS TO THE OWNER'S DESIGNATED REPRESENTATIVE WITH RESPECT TO OPERATION FUNCTIONS AND MAINTENANCE PROCEDURES FOR ALL EQUIPMENT AND SYSTEMS INSTALLED.
    - 2. PRIOR TO SCHEDULING THE PROJECT FINAL INSPECTION AND AFTER COMPLETION OF ALL INSTALLATION AND RUNNING EQUIPMENT AND AUTOMATIC CONTROL ADJUSTMENTS, PERFORM AIR BALANCING AND ANY OTHER WORK REQUIRED TO PLACE THE EQUIPMENT IN COMPLETE OPERATING CONDITION TO MEET ALL REQUIREMENTS UNDER THIS SPECIFICATION. DURING THIS RUNNING TEST PERIOD, DELIVER TO THE DESIGNER TWO COMPLETE SETS OF OPERATING, SERVICE, MAINTENANCE AND REPLACEMENT DATA FOR ALL EQUIPMENT WHICH WILL REQUIRE OPERATING MAINTENANCE OR REPLACEMENT AND ONE COPY OF THIS LITERATURE SHALL BE AVAILABLE DURING THE INSTRUCTION OF THE OPERATING PERSONNEL WHILE THE OTHER IS CHECKED FOR COMPLETENESS BY THE DESIGNER. DURING ALL WORKING HOURS OF THE "OPERATING TEST", THIS CONTRACTOR'S PERSONNEL SHALL BE AVAILABLE FOR GIVING FIELD INSTRUCTION, SHALL COVER OPERATION, MAINTENANCE AND ADJUSTING OF ALL EQUIPMENT INSTALLED.
  - C. HOISTING, SCAFFOLDING, STAGING AND PLANKING
    - 1. PROVIDE, SETUP AND MAINTAIN ALL REQUIRED DERRICKS, HOISTING MACHINERY, SCAFFOLDS AND STAGING, PLANKING AND PERFORM ALL HOISTING REQUIRED TO COMPLETE THE WORK OF THIS FILED SUB-BID AS INDICATED AND SPECIFIED.
    - 2. SCAFFOLDS SHALL HAVE SOLID BACKS AND FLOORS TO PREVENT DROPPING MATERIALS FROM THERE TO THE FLOORS OR GROUND.
  - D. TESTING AND BALANCING
    - 1. TOTAL SYSTEM BALANCE SHALL BE PERFORMED IN ACCORDANCE WITH ABC NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, TOTAL SYSTEM BALANCE OR ASHRAE SYSTEMS HANDBOOK.

TAG LEGEND



MECHANICAL LEGEND

| SYMBOL | DESCRIPTION                |
|--------|----------------------------|
|        | DUCTWORK (DOUBLE LINE)     |
|        | DUCTWORK (SINGLE LINE)     |
|        | AIR ENTERING OPENING       |
|        | AIR LEAVING OPENING        |
|        | UNDERCUT DOOR              |
| BTU    | BRITISH THERMAL UNIT       |
| BTUH   | BTU / HOUR                 |
| CFM    | CUBIC FEET PER MINUTE      |
| EAT    | ENTERING AIR TEMPERATURE   |
| EF     | EXHAUST FAN                |
| ESP    | EXTERNAL STATIC PRESSURE   |
| EXH    | EXHAUST                    |
| °F     | DEGREES FAHRENHEIT         |
| FFM    | FEET PER MINUTE            |
| HP     | HORSEPOWER                 |
| IN     | INCHES                     |
| IN WG  | INCHES WATER GAUGE         |
| KW     | KILOWATT                   |
| LAT    | LEAVING AIR TEMPERATURE    |
| LBS    | POUNDS                     |
| MBH    | THOUSANDS OF BTU / HOUR    |
| N/A    | NOT APPLICABLE             |
| NTS    | NOT TO SCALE               |
| RPM    | REVOLUTIONS PER MINUTE     |
| SPD    | STATIC PRESSURE DROP       |
| SQ FT  | SQUARE FEET                |
| TYP    | TYPICAL                    |
| UOI    | UNLESS OTHERWISE INDICATED |
| WH     | WALL HEATER                |



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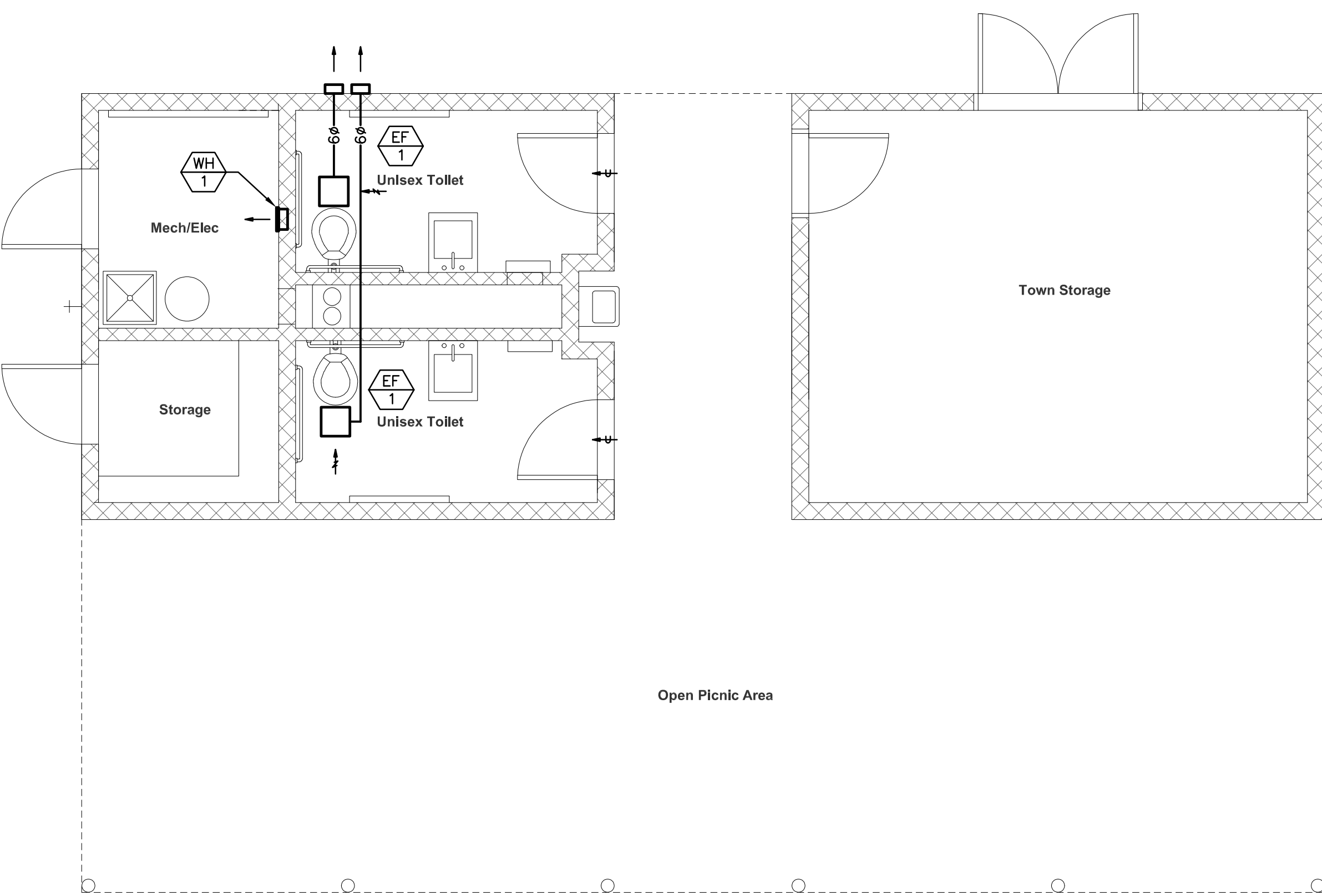
Birch Meadow  
Restroom & Support Building  
MECHANICAL FLOOR PLAN

FAN SCHEDULE

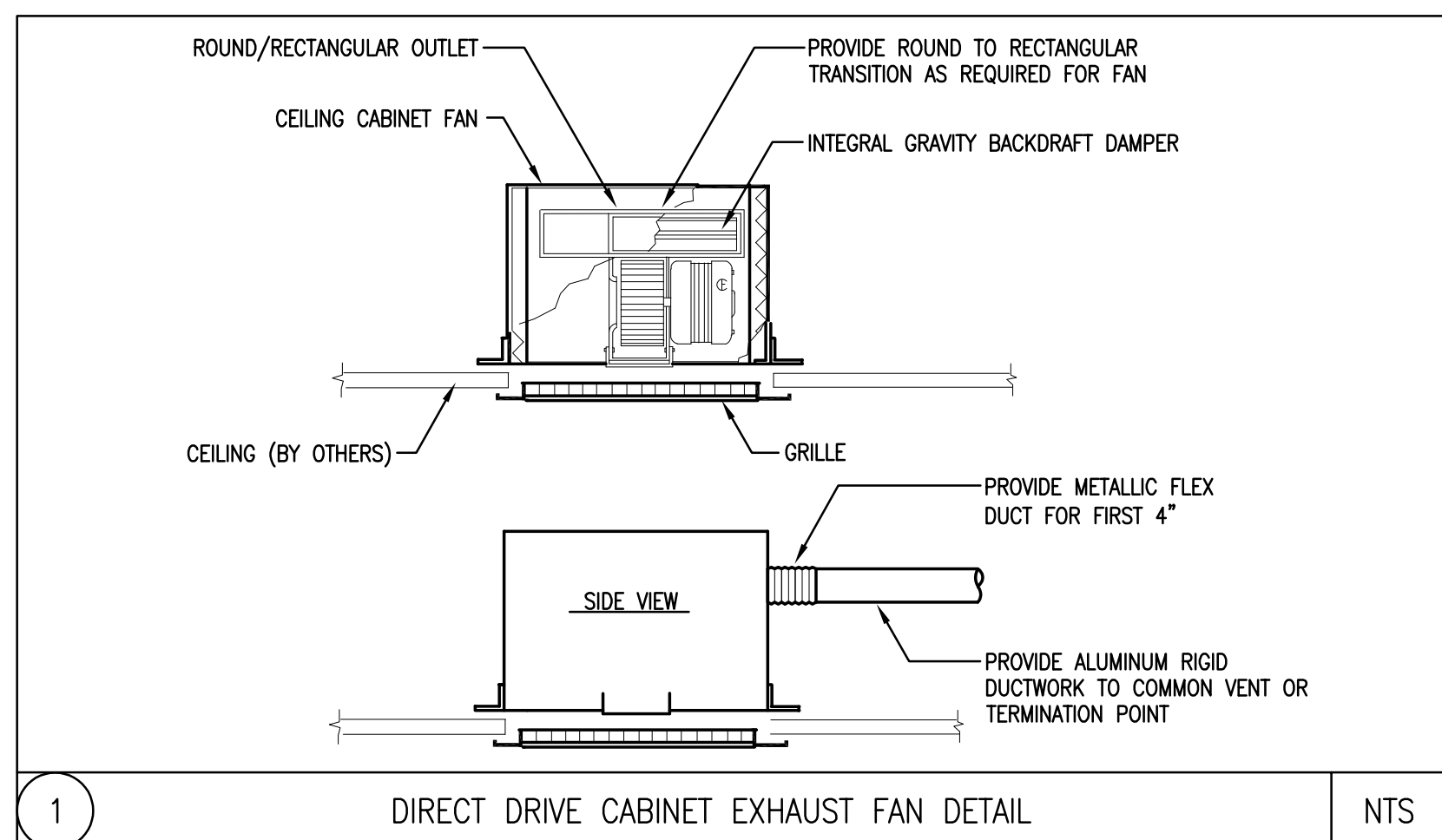
| GENERAL                       |           |              | PERFORMANCE                            |             |      |       | ELECTRICAL  |         |       | PHYSICAL     |  | REMARKS |         |          |         |
|-------------------------------|-----------|--------------|--|-------------|------|-------|---|---------|-------|--------------|--|---------|---------|----------|---------|
| TAG                           | LOCATION  | SERVICE      | CFM                                    | ESP (IN WG) | RPM  | SONES | HP  | VOLTAGE | PHASE | WEIGHT (LBS) | MANUFACTURER MODEL   | TYPE    | RATINGS | FEATURES | INSTALL |
| EF-1                          | RESTROOMS | TOILET ROOMS | 110                                    | 0.25        | 1182 | 0.8   | -   | 120     | 1     | 12           | PANASONIC FV-0511VK2   | 1       | 1 2     | 1 2 3    | 1 2     |
| 1 CEILING CABINET EXHAUST FAN |           |              | 1 ENERGY STAR CERTIFIED<br>2 UL LISTED |             |      |       | 1 PROVIDE WITH FV-MSVK1 MOTION SENSOR<br>2 MOTOR EQUIPPED WITH THERMAL CUTOFF FUSE<br>3 BUILT-IN DAMPER |         |       |              | 1 SEE DETAIL 1/M1.0<br>2 INSTALL WITH MOTION SENSOR<br>3 WALL CAP BY MANUFACTURER. SEE DETAIL 2/M1.0 |         |         |          |         |

ELECTRIC HEATER SCHEDULE

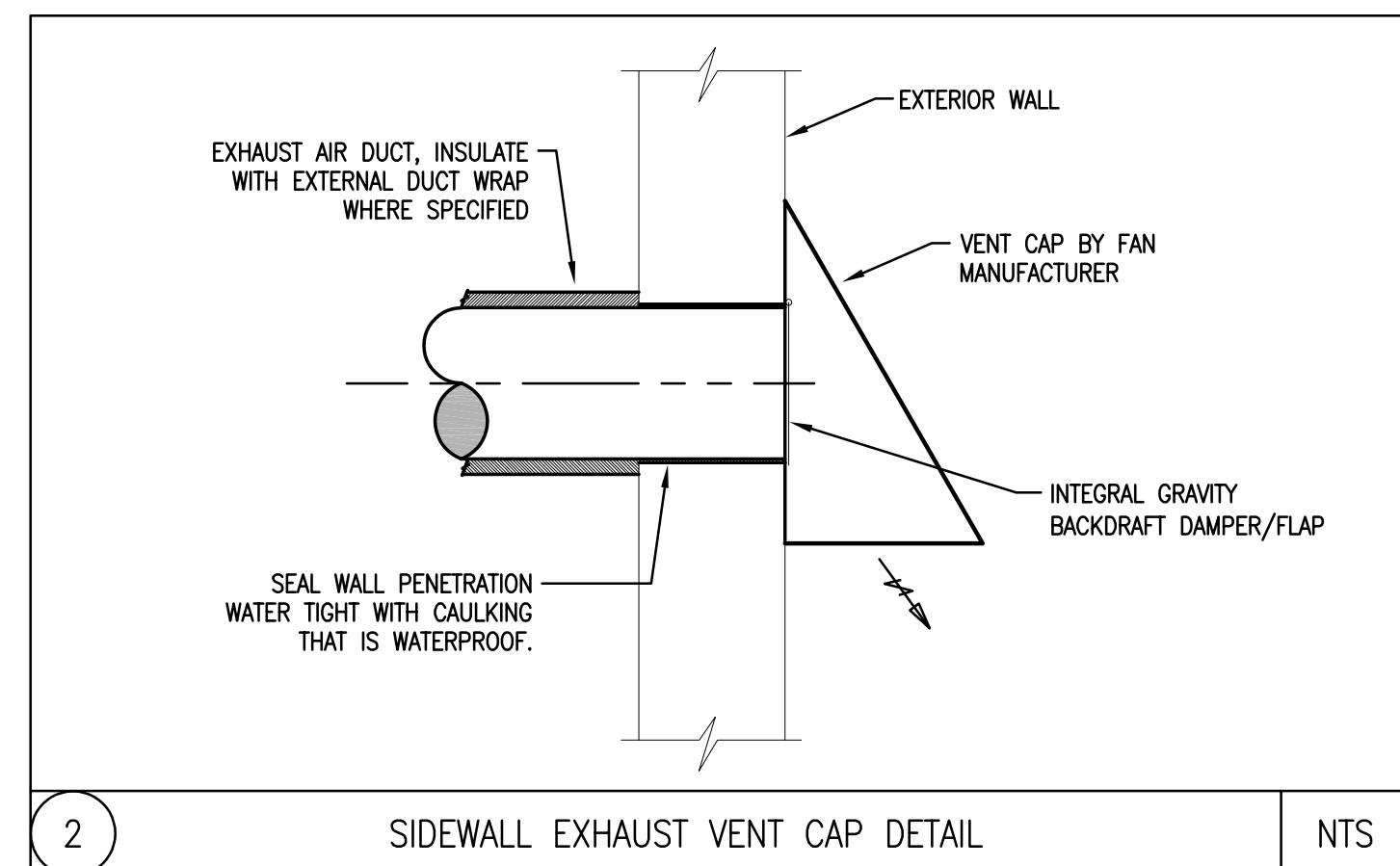
| GENERAL               |          |     | PERFORMANCE                         |     |     |           | ELECTRICAL   |      |         | PHYSICAL |  | REMARKS |         |          |         |
|-----------------------|----------|-----|-------------------------------------|-----|-----|-----------|--|------|---------|----------|--|---------|---------|----------|---------|
| TAG                   | LOCATION | KW  | STAGES                              | MBH | CFM | FAN SPEED | LAT (°F)   | AMPS | VOLTAGE | PHASE    | MANUFACTURER MODEL   | TYPE    | RATINGS | FEATURES | INSTALL |
| WH-1                  | MECH.    | 2.0 | 1                                   | 6.8 | 65  | -         | 40-85  | 9.6  | 208     | 1        | QMARK CWH120BDSF   | 1       | 1       | 1 2 3 4  | 1 2     |
| 1 RECESSED WALL MOUNT |          |     | 1 EAT AT 60°F INLET AIR TEMPERATURE |     |     |           | 1 INTEGRAL SINGLE STAGE THERMOSTAT<br>2 MANUAL RESET OVERTEMPERATURE CUT-OFF<br>3 DISCONNECT SWITCH<br>4 AUTOMATIC FAN DELAY |      |         |          | 1 MOUNT SO THE BOTTOM OF HEATER IS 18"-24" ABOVE FINISHED FLOOR<br>2 RECESS UNIT IN WALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS |         |         |          |         |



1 MECHANICAL: LAYOUT  
1/4" = 1'-0"



1 DIRECT DRIVE CABINET EXHAUST FAN DETAIL NTS



2 SIDEWALL EXHAUST VENT CAP DETAIL NTS

**B|E|R**  
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| Revisions |      |
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| no.       | date |
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**M1.1**  
scale: 1/4" = 1'-0"  
date: 01.27.23  
file: birch meadow\_cd.rvt

| TYPE | MANUFACTURERS  | CATALOG NUMBER   | DESCRIPTION   | COLOR | CRI | LUMENS | INPUT |       | REMARKS             |
|------|----------------|--|---|-------|-----|--------|-------|-------|---------------------|
|      |                |  |   |       |     |        | WATTS | VOLTS |                     |
| LR1E | LITHONIA       | LDN6-3500K-10-L06-WR-LSS-120-ELR                         | 6" APERTURE RECESSED LED DOWNLIGHT WITH EMERGENCY BATTERY DRIVER            | 3500K | 80  | 1,000  | 120   | 10.4  |                     |
| LS1  | LITHONIA       | ZLIN-L48-SMR-5000LM-FST-120-3500K-80CRI-HC36M12-WGZ48    | 4' LED STRIP WITH DIFFUSER WITH WIRE GUARD, CHAIN MOUNTED                   | 3500K | 80  | 4,515  | 120   | 34    |                     |
| LS1E | LITHONIA       | ZLIN-L48-SMR-5000LM-FST-120-3500K-80CRI-E10WLCPC-HC36M12 | 4' LED STRIP WITH DIFFUSER WITH EMERGENCY BATTERY DRIVER, CHAIN MOUNTED     | 3500K | 80  | 4,515  | 120   | 34    |                     |
| LS2  | LITHONIA       | ZLIN-L24-SMR-3500LM-FST-120-3500K-80CRI-WH-HC36M12       | 2' LED STRIP WITH DIFFUSER WITH EMERGENCY BATTERY DRIVER, CHAIN MOUNTED     | 3500K | 80  | 3,243  | 120   | 31    |                     |
| LW1E | ALCON LIGHTING | 11231-O-CA-BK-20-UNV-35K-EM                              | LED WALL PACK - BLACK FINISH/OPEN FACE WITH REMOTE EMERGENCY BATTERY DRIVER | 3500K | 80  | 1,500  | 120   | 20    |                     |
| LP1  | LUMENS         | 14" WAREHOUSE SHADE PENDANT LIGHT WITH WIREGURD          | EXTERIOR LED PENDANT WITH 22W LED ESDON BASE E26 LAMP                       | 3000K | 80  | 1,800  | 120   | 22    | FINISH BY ARCHITECT |

NOTES:  
1. NOTES 2-3 APPLY TO ALL APPLICABLE LIGHTING FIXTURES. THE REMARKS COLUMN SHALL NOTE ADDITIONAL REQUIREMENTS.  
2. FIXTURES SPECIFIED WITH CATALOG NUMBERS ARE THE BASIS OF DESIGN AND ESTABLISH QUALITY LEVEL FOR EQUAL FIXTURES FROM MANUFACTURERS LISTED WITHOUT CATALOG NUMBERS. WHERE ONLY ONE MANUFACTURER LISTED, THERE SHALL BE NO SUBSTITUTION.  
3. VERIFY EXACT MOUNTING CONDITIONS AND PROVIDE APPROPRIATE ACCESSORIES AND HARDWARE TO ACCOMMODATE REQUIREMENTS.

### BRANCH CIRCUIT & FEEDER LEGEND

- BRANCH CIRCUIT OR FEEDER CONCEALED IN FINISHED AREAS
- BRANCH CIRCUIT OR FEEDER TURNING UP TOWARDS OBSERVER
- BRANCH CIRCUIT OR FEEDER TURNING DOWN AWAY FROM OBSERVER
- ]— CONDUIT STUBBED ABOVE CEILING
- BRANCH CIRCUIT HOME RUN TICKS INDICATE QUANTITY OF CONDUCTORS. GROUND CONDUCTORS ARE NOT INDICATED. NO TICKS INDICATES 2#12 & 1#12S IN 3/4" MINIMUM. R22A-1,3,5 INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOMERUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A-1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.
- ~— FLEXIBLE CONNECTION TO EQUIPMENT, RACEWAY AND CONDUCTOR RATING TO MATCH ASSOCIATED BRANCH CIRCUIT OR FEEDER

### LIGHTING FIXTURE LEGEND

- FR2 2,a LIGHTING FIXTURE (SEE LIGHTING FIXTURE SCHEDULE) "FR2" - INDICATES LIGHTING FIXTURE TYPE "2" - INDICATES CIRCUIT NUMBER "a" - INDICATES SWITCH CONTROL
- AR1 2,a LIGHTING FIXTURE
- HW2 2,a LIGHTING FIXTURE WALL MOUNTED
- FR LIGHTING FIXTURE SHADING INDICATES FIXTURE EMERGENCY (LIFE SAFETY) POWER SOURCE

### ONE LINE SYMBOLS LEGEND

- XXAF— CIRCUIT BREAKER, FIXED "XXAF" INDICATES FRAME SIZE "XXAT" INDICATES TRIP
- R21A PANELBOARD

### SWITCH LEGEND

- S SINGLE POLE SWITCH, RATED 20A, 120/277V
- S<sup>LV</sup> LOW VOLTAGE SWITCH
- S<sup>O1</sup> OCCUPANCY SENSOR, RECESS WALL MOUNTED "O1" INDICATES SINGLE CIRCUIT OUTPUT
- OC OCCUPANCY SENSOR, CEILING MOUNTED, DUAL TECHNOLOGY (ULTRASONIC,PASSIVE INFRARED)
- TC TIMECLOCK
- C CONTACTOR

### SITE LEGEND

- EH ELECTRIC HAND HOLE
- TH TELEPHONE HAND HOLE
- UE— UNDERGROUND ELECTRIC "UE-EX" INDICATES EXISTING
- UT— UNDERGROUND TELEPHONE

### WIRING DEVICE LEGEND

- 5 GF1 DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V "5" - INDICATES CIRCUIT NUMBER "GF1" - INDICATES INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER "WP" - INDICATES WEATHERPROOF. PROVIDE "IN USE" COVER AND CAST ALUMINUM BOX. "USB" - INDICATES TYPE C/A USB CHARGING PORT
- J JUNCTION BOX
- PB PULLBOX

### MOTOR & CONTROLS LEGEND

- DISCONNECT SWITCH RATED 30AMP, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED
- \*3R - INDICATES NEMA TYPE 3R ENCLOSURE
- \*2P - INDICATES 2 POLE SINGLE PHASE DISCONNECT
- \*60AS - INDICATES 60A SWITCH

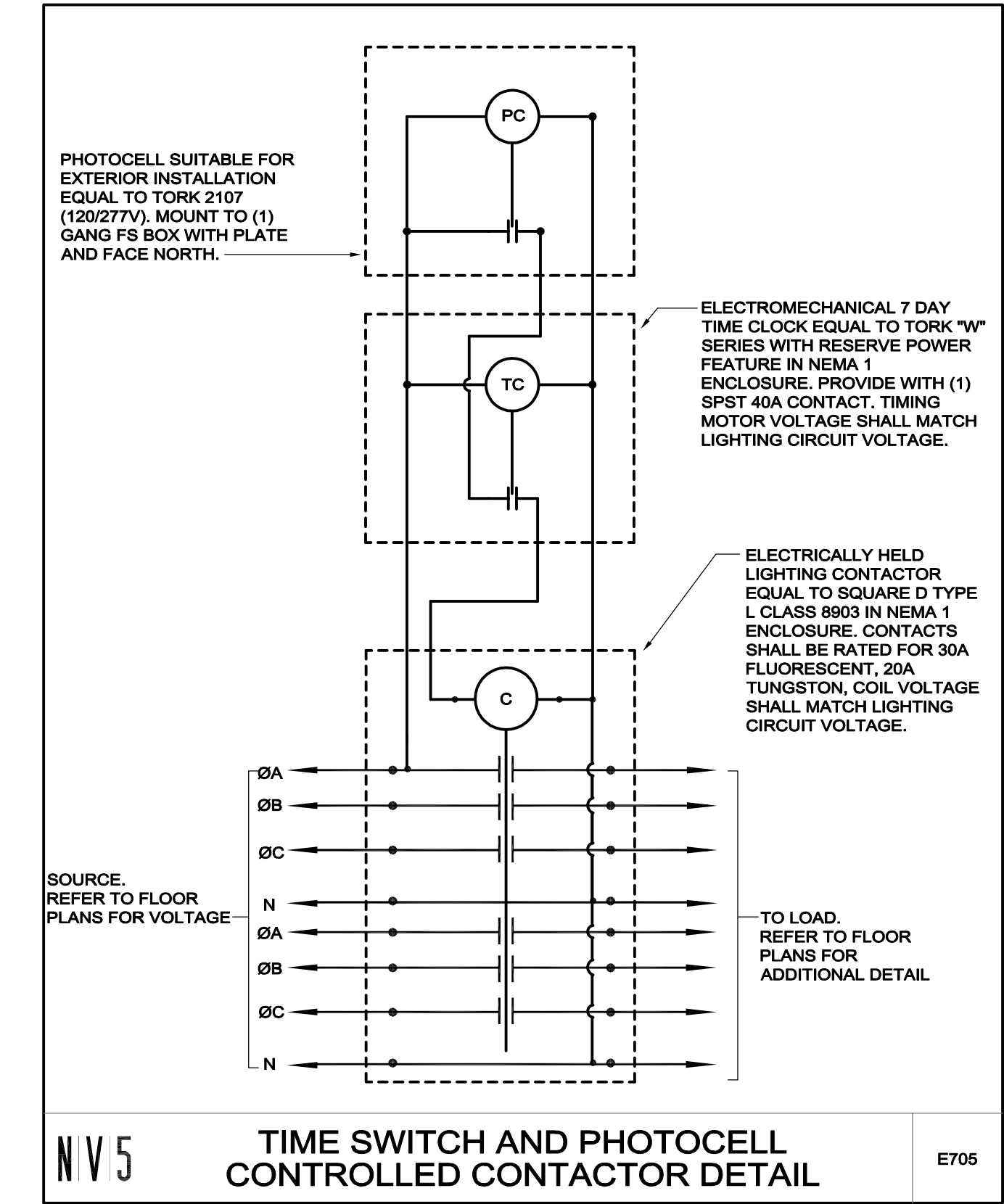
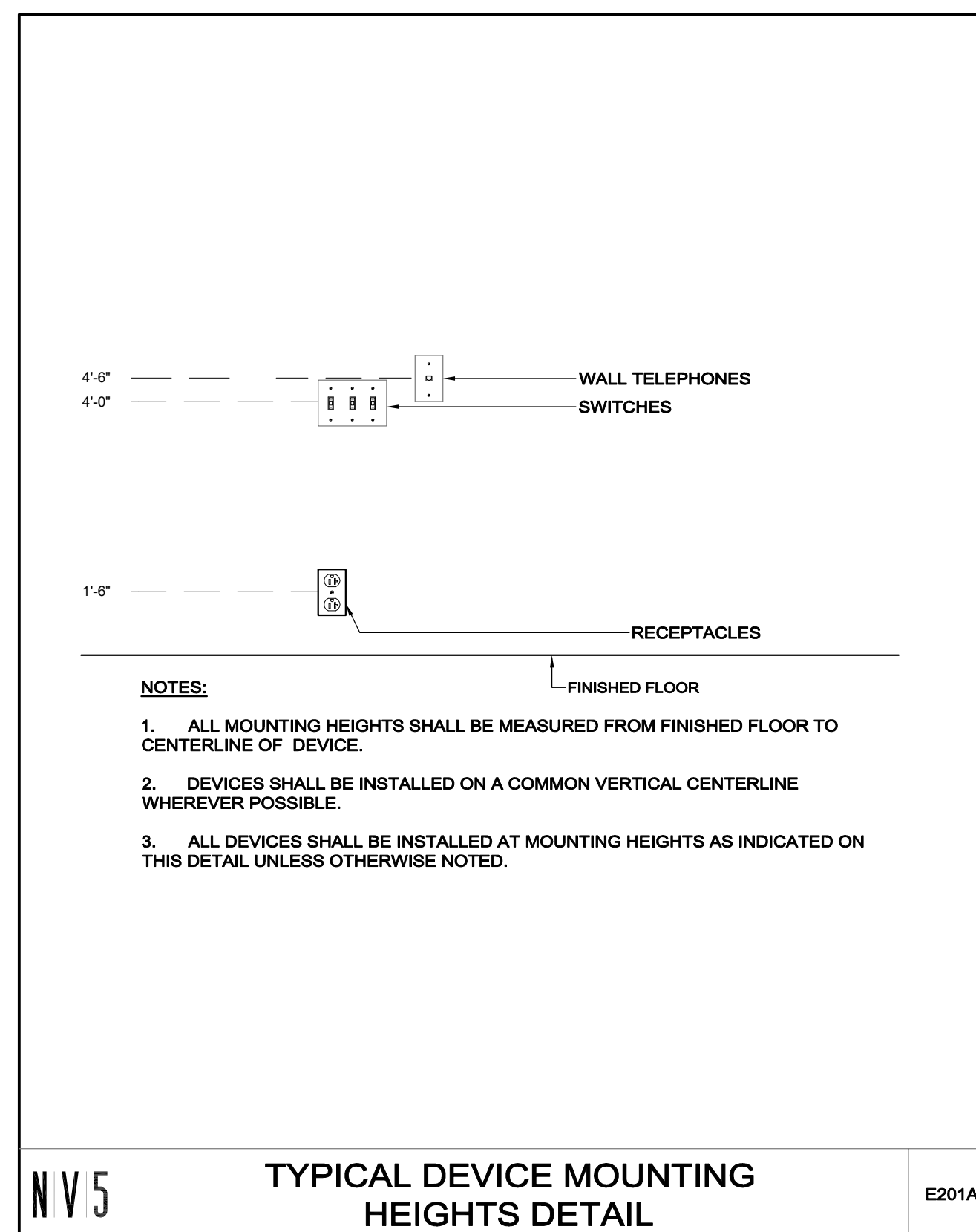
### SECURITY LEGEND

NOTE: PROVIDE WORK BOX WITH 1" EMPTY CONDUIT AND PULLWIRE TO MECHANICAL ROOM. CABLING AND DEVICE SHALL BE PROVIDED BY OTHERS.

- CR CARD READER

### ABBREVIATIONS

|  |   |
|--|---|
| A/AMP AMPERE                                   | KWH KILOWATT HOURS                      |
| AC ALTERNATING CURRENT                         | LTG LIGHTING                            |
| ADA AMERICAN WITH DISABILITIES ACT             | MCB MAIN CIRCUIT BREAKER                |
| AF AMPERE FRAME                                | MEC MASSACHUSETTS ELECTRICAL CODE       |
| AFF ABOVE FINISHED FLOOR                       | M/G MOTOR/GENERATOR SET                 |
| AFG ABOVE FINISHED GRADE                       | MH MANHOLE                              |
| AIC AMPERE INTERRUPTING CAPACITY               | MLO MAIN LUGS ONLY                      |
| AL ALUMINUM                                    | MTD MOUNTED                             |
| AT AMPERE TRIP                                 | MTG MOUNTING                            |
| ATS AUTOMATIC TRANSFER SWITCH                  | NC NORMALLY CLOSED CONTACT              |
| AWG AMERICAN WIRE GAUGE                        | NEC NATIONAL ELECTRICAL CODE            |
| B BURIED                                       | NO NORMALLY OPEN CONTACT                |
| C CONDUIT                                      | NTS NOT TO SCALE                        |
| CA CABLE                                       | # NUMBER                                |
| CATV CABLE TELEVISION                          | OPD OVER CURRENT PROTECTION DEVICE      |
| CCTV CLOSED CIRCUIT TELEVISION SYSTEM          | POS PROVIDED UNDER OTHER SECTIONS       |
| CB CIRCUIT BREAKER                             | PVC POLYVINYL CHLORIDE                  |
| CKT CIRCUITS                                   | PWR POWER                               |
| CPU CENTRAL PROCESSING UNIT                    | RGS RIGID GALVANIZED STEEL              |
| ¢ CENTERLINE                                   | RMS ROOT MEAN SQUARE VALUE              |
| dB DECIBEL                                     | RPM REVOLUTIONS PER MINUTE              |
| DC DIRECT CURRENT                              | SPD SURGE PROTECTIVE DEVICE             |
| DWG DRAWING                                    | SN SOLID NEUTRAL                        |
| EC ELECTRICAL CONTRACTOR                       | SWBD SWITCHBOARD                        |
| EMT ELECTRIC METALLIC TUBING                   | TB TERMINAL BLOCK                       |
| FDR FEEDER                                     | TEL TELEPHONE                           |
| FLMT FLEXIBLE LIQUID TIGHT METALLIC TUBING     | TERMN TERMINAL                          |
| FREQ FREQUENCY                                 | TSP TWISTED SHIELDED-PAIR               |
| GEC GROUNDING ELECTRODE CONDUCTOR              | TVSS TRANSIENT VOLTAGE SURGE SUPPRESSER |
| GFI GROUND FAULT INTERRUPTING                  | TYP TYPICAL                             |
| GND GROUND                                     | UG UNDERGROUND                          |
| HH HANDHOLE                                    | UNO UNLESS NOTED OTHERWISE              |
| HP HORSEPOWER                                  | UPS UNINTERRUPTIBLE POWER SUPPLY        |
| HVAC HEATING, VENTILATING AND AIR CONDITIONING | UTP UNSHIELDED TWISTED-PAIR             |
| HZ HERTZ                                       | V VOLTS                                 |
| IG ISOLATED GROUND                             | VA VOLT-AMPERE                          |
| JB JUNCTION BOX                                | VSD VARIABLE SPEED DRIVE                |
| KVA KILOVOLT-AMPERE                            | W WATTS                                 |
| KW KILOWATT                                    | WP WEATHERPROOF                         |



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Birch Meadow  
Restroom & Support Building  
ELECTRICAL FLOOR PLAN

| LOAD TAG | STARTER LOCATION | MECHANICAL EQUIPMENT SCHEDULE |      |     |      |    |           |         |             |          |     |    |     |                   |   |            |           |                |        |        |      | BRANCH CIRCUIT | REMARKS |     |     |      |                 |    |
|----------|------------------|-------------------------------|------|-----|------|----|-----------|---------|-------------|----------|-----|----|-----|-------------------|---|------------|-----------|----------------|--------|--------|------|----------------|---------|-----|-----|------|-----------------|----|
|          |                  | LOAD                          |      |     |      |    |           | STARTER |             |          |     |    |     | POWER SOURCE      |   | CONNECTION |           |                |        |        |      |                |         |     |     |      |                 |    |
|          |                  | HP                            | FLA  | KVA | VOLT | PH | NEMA SIZE | TYPE    | OVERCURRENT |          |     | PB | HOA | INDICATING LIGHTS |   |            | AUXILIARY |                | PANEL  | C/B    | FLEX |                |         | JB  | REC | DISC |                 |    |
|          |                  |                               |      |     |      |    |           |         | CB          | RK1 FUSE | MCP |    |     | R                 | G | A          | CPT       | CONTACTS<br>NO |        |        |      |                |         |     |     | NC   | AS              | AF |
| EWH      |                  | 22                            | 4.5  | 208 | 1    | -  | -         | -       | -           | -        | -   | -  | -   | -                 | - | -          | -         | -              | P2R-13 | 30A/2P | X    | -              | -       | 30  |     | 1    | 2#10+#10-3/4"C  |    |
| WH       |                  | 10                            | 2    | 208 | 1    | -  | -         | -       | -           | -        | -   | -  | -   | -                 | - | -          | -         | -              | P2R-17 | 15A/2P | X    | -              | -       | 30  | 15  | 1    | 2#12+#12G-3/4"C |    |
| EF       |                  | 0.16                          | 0.02 | 120 | 1    | -  | -         | -       | -           | -        | -   | -  | -   | -                 | - | -          | -         | -              | P2R-21 | 15A/1P | X    | -              | -       | MMS |     | 1    | 2#12+#12G-3/4"C |    |

NOTES:  
 1. NOTES 2-6 APPLY TO ALL APPLICABLE LOADS.  
 2. PROVIDE THERMAL OVERLOAD UNITS FOR ALL STARTERS SIZED TO MATCH LOAD NAMEPLATE AND NEC REQUIREMENTS.  
 3. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION. THE FINAL THREE FEET (MAXIMUM) SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT FLEXIBLE METAL CONDUIT.  
 4. COPPER BRANCH CIRCUIT CONDUCTOR SIZING BASED UPON NEC TABLE 310.15(B)(16). MAKE ADJUSTMENTS TO CONDUCTORS FOR TEMPERATURE OR VOLTAGE DROP THAT EXCEED NEC AND SPECIFICATION CRITERIA.  
 5. RACEWAY SIZES ARE BASED UPON GRSC AND LFMC WITH THWN CONDUCTORS.  
 6. FUSES FOR DISCONNECT SWITCHES SHALL BE CLASS RK5.

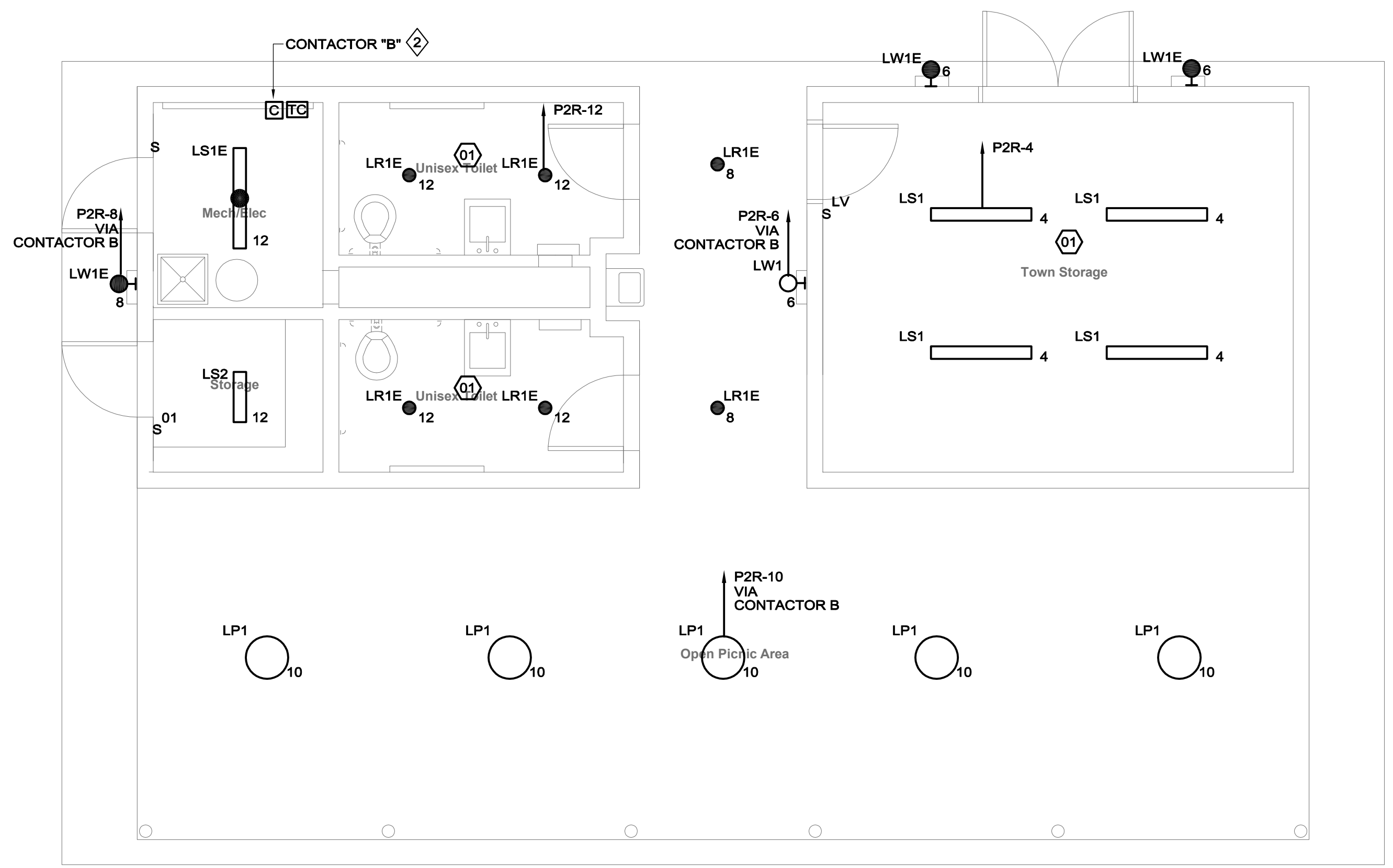
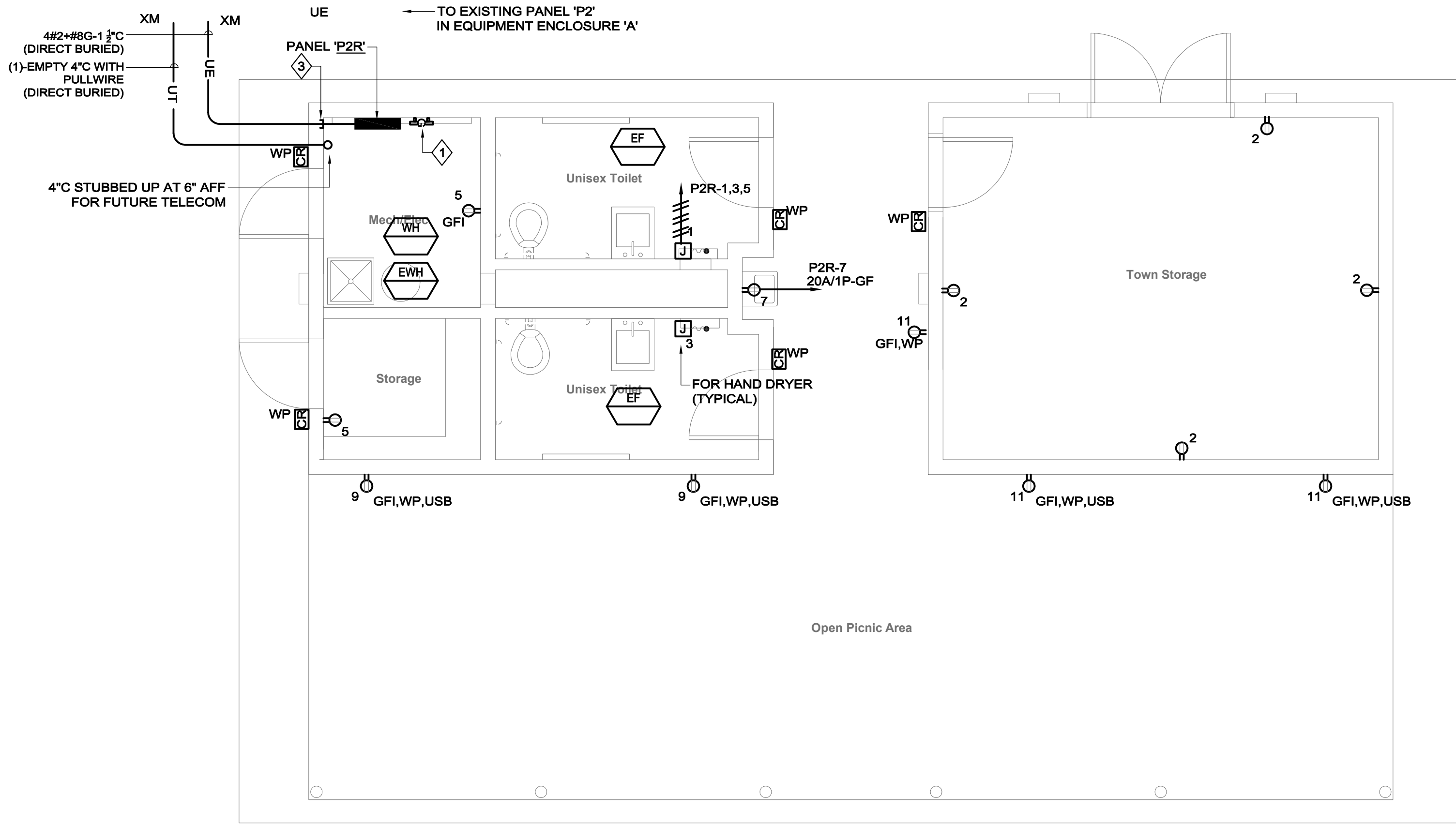
KEY  
 FVNR FULL VOLTAGE NON-REVERSING  
 FVR FULL VOLTAGE REVERSING  
 2S1W TWO SPEED SINGLE WINDING  
 2S2W TWO SPEED TWO WINDING  
 RVAT REDUCED VOLTAGE AUTO TRANSFORMER  
 RVPW REDUCED VOLTAGE PART WINDING  
 RYVDOT REDUCED VOLTAGE WYE DELTA OPEN TRANSITION  
 RYVDCT REDUCED VOLTAGE WYE DELTA CLOSED TRANSITION  
 MMS MANUAL MOTOR STARTER  
 CB CIRCUIT BREAKER  
 MCP MOTOR CIRCUIT PROTECTOR  
 PB START AND STOP PUSH BUTTON  
 HOA HAND-OFF-AUTOMATIC SELECTOR SWITCH  
 CPT CONTROL POWER TRANSFORMER  
 VFD VARIABLE FREQUENCY DRIVE W/O BYPASS  
 VFD/B VARIABLE FREQUENCY DRIVE W/ BYPASS  
 CNTCR CONTACTOR - NO THERMAL OVERLOAD

| KEYNOTES |   |
|----------|---|
| 1        | SEE DETAIL E005 ON DRAWING E200 FOR ADDITIONAL INFORMATION. |
| 2        | SEE DETAIL E705 ON DRAWING E000 FOR ADDITIONAL INFORMATION. |
| 3        | CONDUIT SHALL BE RUN BELOW FINISHED FLOOR SLAB.             |

NOTES:  
 1 REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.

NOTES:  
 1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.  
 2. REFER TO ARCHITECTURAL DRAWINGS, INCLUDING BUT NOT LIMITED TO, CEILING PLANS AND ELEVATIONS FOR ASSOCIATED NOTES, MOUNTING DETAILS AND EXACT LOCATIONS OF ALL LIGHTING FIXTURES.  
 3. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBER AND SWITCH LEG NOMENCLATURE THAT ARE APPLIED TO EACH LIGHTING FIXTURE AND CONTROLLING DEVICE INFER INTERCONNECTING BRANCH CIRCUITRY.  
 4. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUIT AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V AND 175' FOR 277V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%.  
 5. BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANELBOARD TO THE FIRST OUTLET AND/OR WHERE EXPOSED. LBRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS OR IN METAL STUD WALLS.

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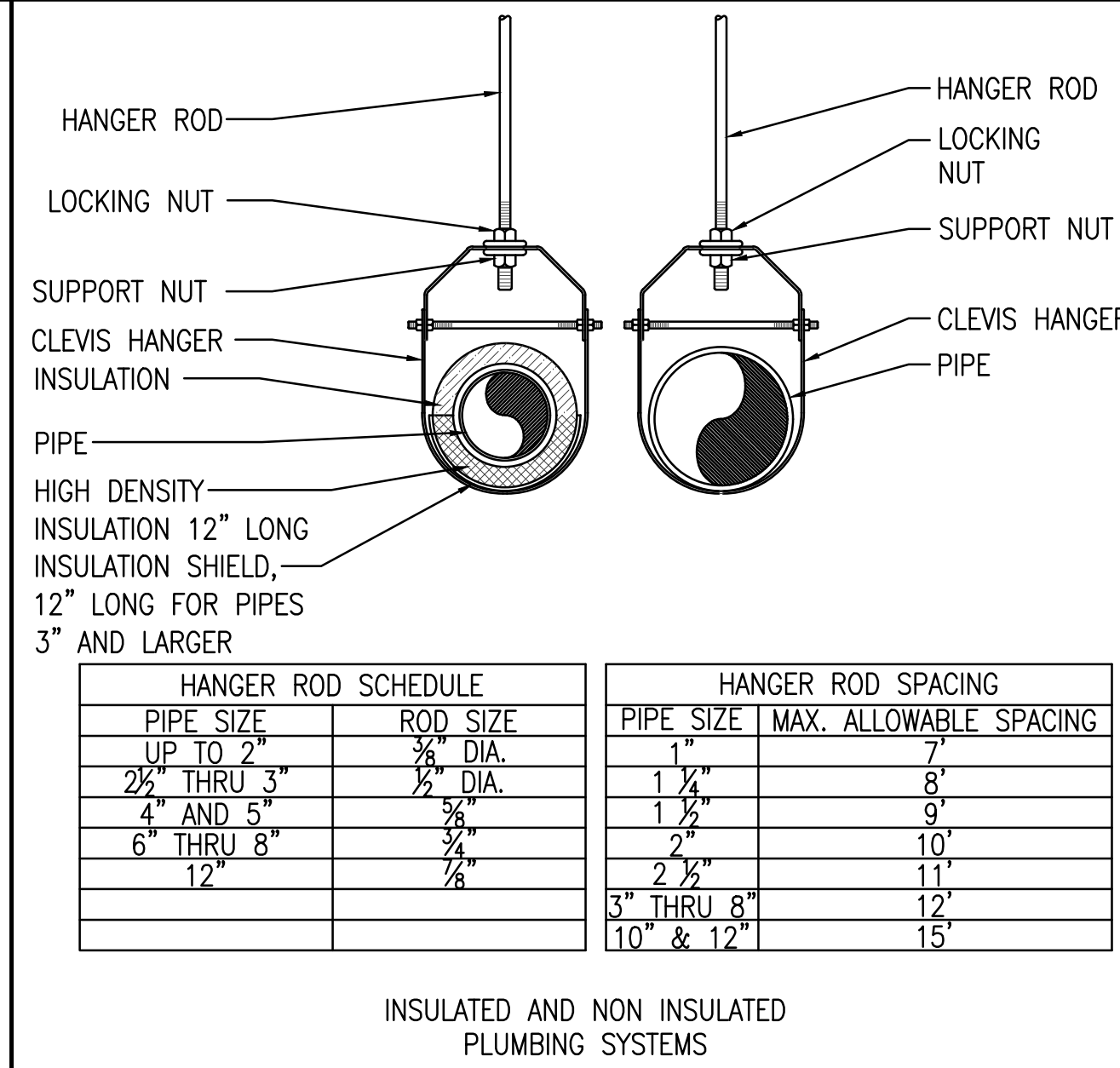
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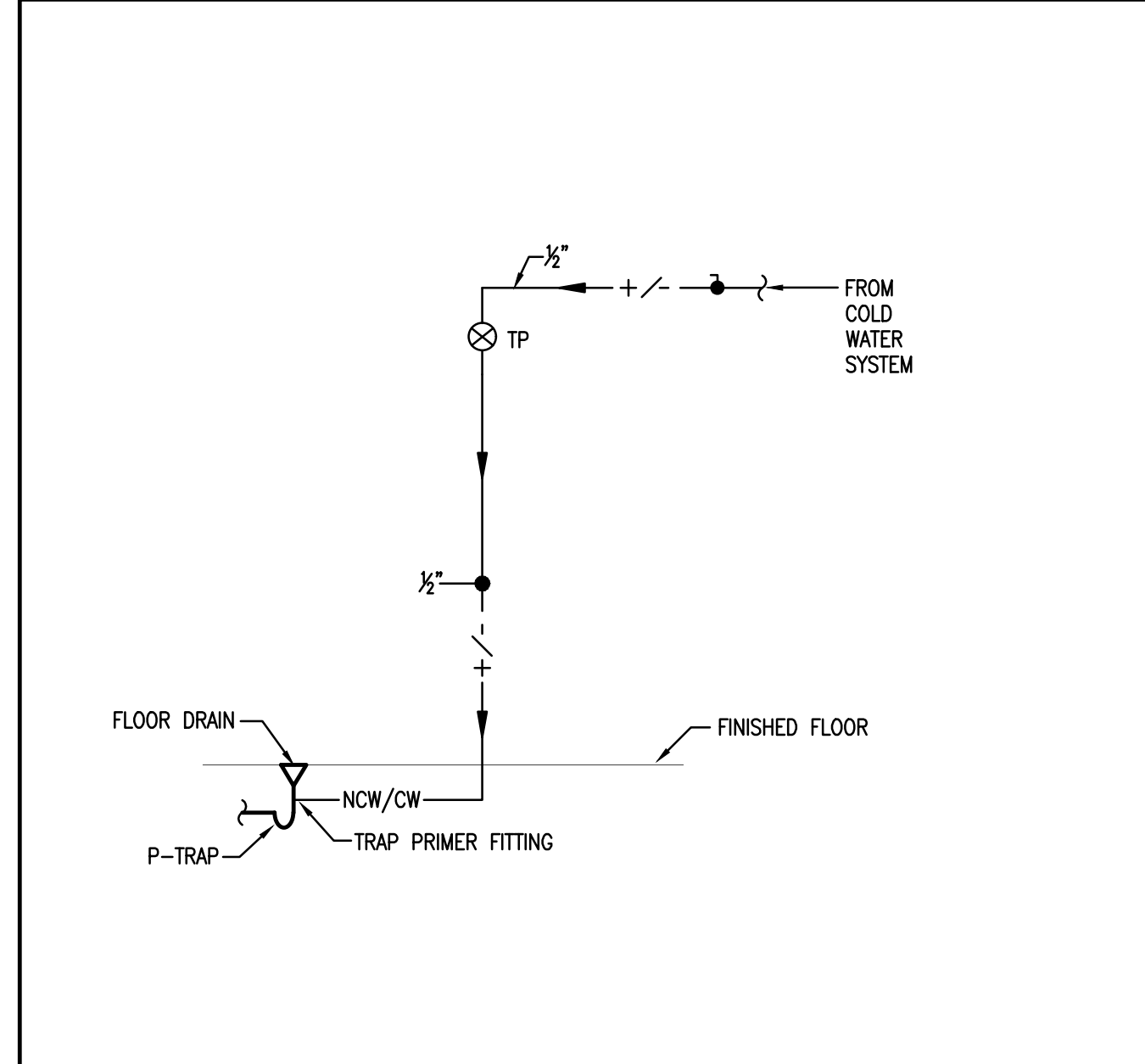
PLUMBING LEGEND

|  |        |                                     |
|--|--------|-------------------------------------|
|  | CW     | COLD WATER                          |
|  | HW     | HOT WATER                           |
|  | S or W | SOIL OR WASTE                       |
|  | V      | VENT                                |
|  | CONT   | CONTINUATION                        |
|  | UP     | PIPE RISE OR UP                     |
|  | DN     | PIPE DROP OR DOWN                   |
|  | TEE    | PIPE TEE                            |
|  | SOV    | SHUT-OFF VALVE                      |
|  | W & T  | WASTE & TRAP                        |
|  | FCO    | FLUSH FLOOR CLEANOUT                |
|  |        | ARROW INDICATES DIRECTION OF FLOW   |
|  |        | ARROW INDICATES DIRECTION OF SLOPE  |
|  | TP     | TRAP PRIMER                         |
|  | HB     | HOSE BIBB                           |
|  | FD "A" | FLOOR DRAIN & TYPE                  |
|  | RPBP   | REDUCED PRESSURE BACKFLOW PREVENTER |
|  | WM     | WATER METER                         |
|  | VTR    | VENT THRU ROOF                      |
|  | INV    | INVERT                              |
|  | TYP    | TYPICAL                             |
|  | NTS    | NOT TO SCALE                        |
|  | LPC    | LIMIT OF PLUMBING CONTRACT          |
|  | PC     | PLUMBING CONTRACTOR                 |

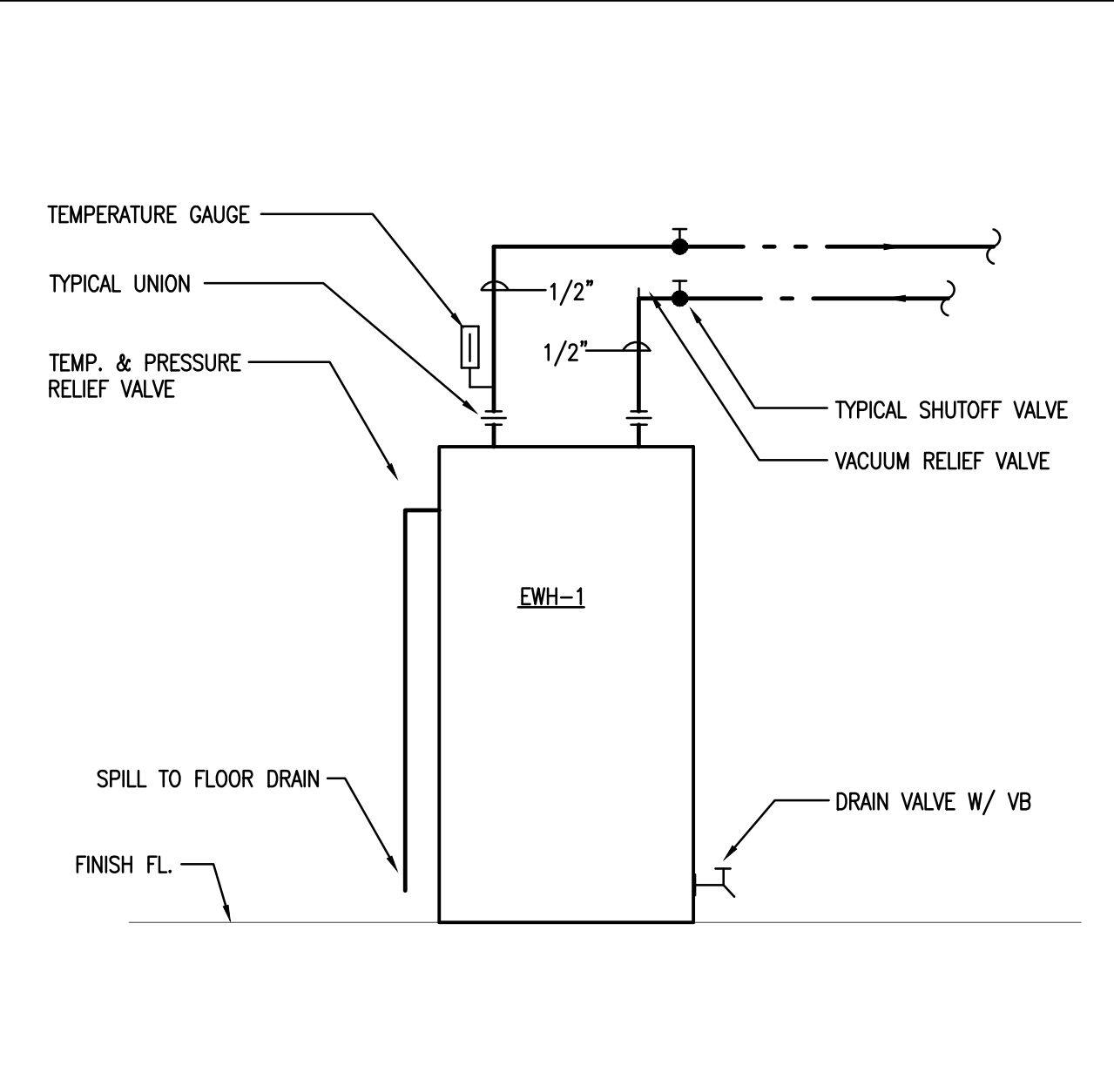


| HANGER ROD SCHEDULE |           | HANGER ROD SPACING |                        |
|---------------------|-----------|--------------------|------------------------|
| PIPE SIZE           | ROD SIZE  | PIPE SIZE          | MAX. ALLOWABLE SPACING |
| UP TO 2"            | 3/8" DIA. | 1"                 | 7'                     |
| 2 1/2" THRU 3"      | 1/2" DIA. | 1 1/2"             | 8'                     |
| 4" AND 5"           | 5/8"      | 1 3/4"             | 9'                     |
| 6" THRU 8"          | 3/4"      | 2"                 | 10'                    |
| 12"                 | 7/8"      | 2 1/2"             | 11'                    |
|                     |           | 3" THRU 8"         | 12'                    |
|                     |           | 10" & 12"          | 15'                    |

INSULATED AND NON INSULATED PLUMBING SYSTEMS



3 TRAP PRIMER PIPING DIAGRAM NTS



2 ELECTRIC WATER HEATER DIAGRAM NTS

1 CLEVIS PIPE HANGER/ROD INSTALLATION NTS

ELECTRIC WATER HEATER SCHEDULE

| I.D.  | MANUFACTURER | MODEL  | GALS. | RECOVERY |         | KW  | VOLTS | PHASE | HZ | REMARKS                               |
|-------|--------------|--------|-------|----------|---------|-----|-------|-------|----|---------------------------------------|
|       |              |        |       | G.P.H.   | Δ TEMP. |     |       |       |    |                                       |
| EWH-1 | STATE        | PCE 20 | 20    | 18       | 100     | 4.5 | 208   | 1     | 60 | PROVIDE AMTROL ST-12-C EXPANSION TANK |

NOTES:

DRAIN SCHEDULE

| SYMBOL | TYPE        | MANUFACTURER | MODEL     | OUTLET | STRAINER      | REMARKS   |
|--------|-------------|--------------|-----------|--------|---------------|---|
| FD-A   | FLOOR FLOOR | WATTS        | FD-100-A  | 2"/4"  | NICKEL BRONZE | CAST IRON BODY, NO-HUB. PROVIDE THE FOLLOWING OPTIONS: -5, -7 |
| FD-B   | FLOOR DRAIN | WATTS        | FD-100-ER | 2"     | NICKEL BRONZE | CAST IRON BODY, NO-HUB. PROVIDE THE FOLLOWING OPTIONS: -5, -7 |

NOTES: PROVIDE TRAP PRIMER PPP PR-500

PLUMBING FIXTURE SCHEDULE

| SYMBOL | DESCRIPTION       | FIXTURE           |          |             |             | FIXTURE           |               |                 |        | SERVICES |      |      |    | REMARKS  |
|--------|-------------------|-------------------|----------|-------------|-------------|-------------------|---------------|-----------------|--------|----------|------|------|----|--|
|        |                   | MANUFACTURER      | MODEL    | TYPE        | SIZE        | MANUFACTURER      | MODEL         | TYPE            | S/W    | V        | CW   | HW   | TW |  |
| WC-1   | WATER CLOSET      | AMERICAN STANDARD | 2257.101 | WALL HUNG   | 1.28 GPF    | AMERICAN STANDARD | 6047.121.002  | 1.28 GPF MANUAL | 4"     | 2"       | 1"   | -    | -  | ADA COMPLIANT. VITREOUS CHINA, ELONGATED, SEAT 5901.100. PROVIDE WALL CARRIER.   |
| LAV-1  | LAVATORY          | TOTO              | LT308.4  | WALL HUNG   | 20-1/2"x27" | KOHLER            | K-15240-4NDRA | 0.5 GPM MANUAL  | 2"     | 2"       | 1/2" | 1/2" | -  | ADA COMPLIANT. PROVIDE OFFSET P-TRAP WITH GRID DRAIN & TRUEBRO LAVGUARD INSULATION KIT ON EXPOSED PIPING. PROVIDE ANGLE STOPS. PROVIDE CONCEALED CARRIER ARMS. FURNISH AND INSTALL CHECK VALVES ON H&CW SUPPLIES. PROVIDE FIAT MOP HANGER MODEL # 899-CC AND BUMPER PLATE MODEL # 1239-BB. |
| JS-1   | JANITORS SINK     | FIAT              | MSB2424  | FLOOR MOUNT | 24"x24"     | CHICAGO           | 879 CP        | 12 GPM MANUAL   | 3"     | 2"       | 1/2" | 1/2" | -  | ADA COMPLIANT, STAINLESS STEEL   |
| DF-1   | DRINKING FOUNTAIN | ELKAY             | EDFP214C | WALL HUNG   | -           | -                 | -             | -               | 1 1/2" | 1 1/2"   | 1/2" | -    | -  | ADA COMPLIANT, STAINLESS STEEL   |
| HB-1   | HOSE BIBB         | CHICAGO           | 952-CP   | -           | -           | -                 | -             | -               | -      | -        | 1/2" | -    | -  | -  |
| WH-1   | WALL HYDRANT      | WATTS             | HY-725   | -           | -           | -                 | -             | -               | -      | -        | 1/2" | -    | -  | NON-FREEZE WITH BOX AND LOOSE KEY  |

NOTE:  
1. ALL ADA FIXTURES SHALL BE MA PLUMBING BOARD APPROVED AND INSTALLED PER MAAB REQUIREMENTS.  
2. PC TO PROVIDE POWERS LFLM495 THERMOSTATIC TEMPERING VALVES FOR ALL LAVATORIES, AND HAND SINKS WITHIN KITCHEN.

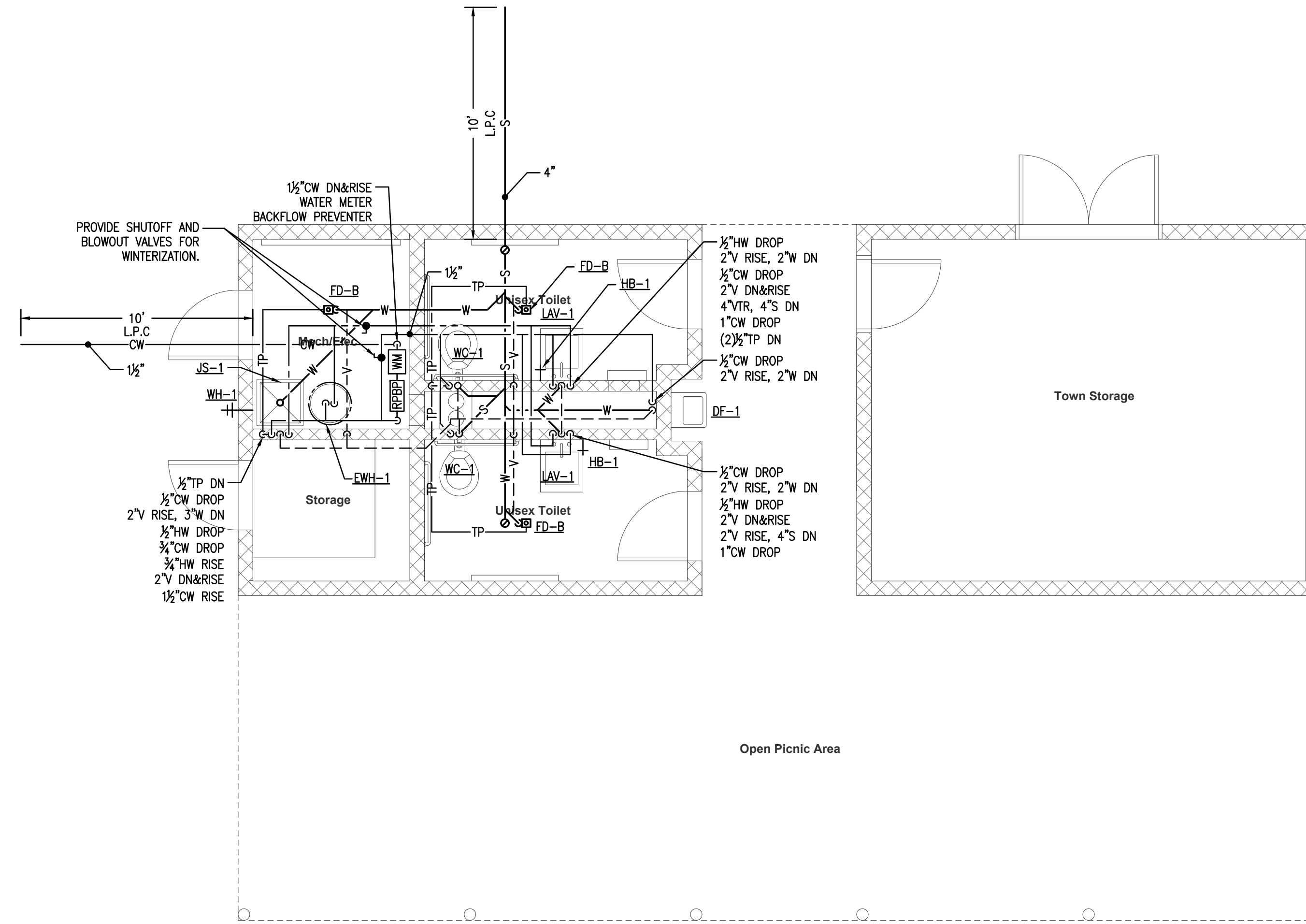


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**Birch Meadow  
 Restroom & Support Building**  
 PLUMBING FLOOR PLAN

**B|E|R**

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| Revisions |      |
|-----------|------|
| no.       | date |
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**P1.1**

scale: 1/4"=1'-0"  
 date: 01.27.23  
 file: birch meadow\_cd.rvt