

**BASIS OF DESIGN**

**BUILDING CODE:** 2009 INTERNATIONAL RESIDENTIAL CODE

**DESIGN LOADS:**

FLOOR LIVE LOAD: 40 PSF  
 ROOF LIVE LOAD: SNOW LOAD GOVERNS

**ROOF SNOW LOAD:**

GROUND SNOW LOAD, P<sub>g</sub>: 60 PSF  
 SNOW EXPOSURE FACTOR, C<sub>e</sub>: 1.0  
 SNOW LOAD IMPORTANCE FACTOR, I: 1.0  
 SNOW LOAD THERMAL FACTOR, C<sub>t</sub>: 1.1  
 1.2 AT FRONT PORCH

**MISCELLANEOUS:**

ALLOWABLE SOIL BEARING CAPACITY: 2000 PSF\* (TO BE FIELD VERIFIED PRIOR TO FOUNDATION CONSTRUCTION)

**ABBREVIATIONS (NOTE: NOT ALL ABBREVIATIONS ARE USED)**

A.R.	ANCHOR ROD	LLV	LONG LEG VERTICAL
AFF	ABOVE FINISHED FLOOR	LVL	LAMINATED VENEER LUMBER
AL	ALUMINUM	MAX	MAXIMUM
ARCH	ARCHITECT / ARCHITECTURAL	MIN	MINIMUM
B.O.	BOTTOM OF	NS	NEAR SIDE
BRG	BEARING	NTS	NOT TO SCALE
CL	CENTERLINE	OC	ON CENTER
C.J.	CONTROL / CONSTRUCTION JOINT	PF	PIER MARK
CMU	CONCRETE MASONRY UNIT	PL or P	PLATE
CONT	CONTINUOUS	PSF	POUNDS PER SQUARE FOOT
DA or Ø	DIAMETER	PSI	POUNDS PER SQUARE INCH
DWG	DRAWING	PT	PRESSURE TREATED
EF	EACH FACE	REIN	REINFORCED / REINFORCING
ELEV	ELEVATION	SIM.	SIMILAR
EMBED	EMBEDMENT	STD.	STANDARD
ES	EACH SIDE	T/CONC	TOP OF CONCRETE
EW	EACH WAY	T/PIER	TOP OF PIER ELEVATION
EQ	EQUAL	T/SLAB	TOP OF SLAB ELEVATION
EX	EXISTING	T/STL	TOP OF STEEL ELEVATION
FF	FOOTING MARK	TYP.	TYPICAL
FS	FAR SIDE	UNO	UNLESS NOTED OTHERWISE
FTG	FOOTING	VP	VERIFY IN FIELD
GALV	GALVANIZED	W.P.	WORKING POINT
LLH	LONG LEG HORIZONTAL		

**GENERAL NOTES**

- DETAILS SHOWN ON THESE DRAWINGS ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF ANY PROPOSED CHANGES, DEVIATIONS OR SUBSTITUTIONS FROM DIMENSIONS, MATERIALS OR EQUIPMENT SHOWN ON THESE DRAWINGS AND MAKE ONLY THOSE CHANGES ACCEPTED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION BETWEEN THE STRUCTURAL DRAWINGS AND THE DRAWINGS OF OTHER DISCIPLINES TO INCLUDE THE LOCATIONS AND DIMENSIONS OF OPENINGS, CHASES, INSERTS, SLEEVES, DEPRESSIONS AND OTHER DETAILS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION SAFETY.

**FOUNDATION RELATED EARTHWORK**

- GENERAL:**
- THESE NOTES COVER EXCAVATING, BACKFILLING, AND COMPACTING WITHIN BUILDING FOOTPRINT AND TO FIVE FEET AROUND BUILDING PERIMETER.

- EXCAVATION:**
- EXCAVATE SUBSOIL REQUIRED FOR BUILDING FOUNDATIONS. HAND TRIM EXCAVATIONS. REMOVE LOOSE MATERIAL.
  - COMPACT DISTURBED LOAD BEARING SOIL IN DIRECT CONTACT WITH FOOTINGS TO ORIGINAL BEARING CAPACITY.
  - PLACE A MINIMUM OF 6" CRUSHED STONE BENEATH FOOTINGS IF STANDING WATER IS ENCOUNTERED IN EXCAVATIONS.
  - FILL OVER-EXCAVATED AREAS UNDER STRUCTURE BEARING SURFACES WITH SUITABLE WELL-DRAINED MATERIAL, APPROVED BY ENGINEER, IN 6" LIFTS. COMPACT TO 98% STANDARD PROCTOR.

- BACKFILL AND COMPACTION:**
- USE UNFROZEN AND UNSATURATED MATERIALS.
  - BACKFILL SYSTEMATICALLY, AS EARLY AS POSSIBLE, TO ALLOW MAXIMUM TIME FOR NATURAL SETTLEMENT. DO NOT BACKFILL OVER POROUS, WET, FROZEN, OR SPONGY SUBGRADE SURFACES.
  - PLACE FILL MATERIAL IN EQUAL CONTINUOUS LAYERS NOT EXCEEDING 8 INCHES OF COMPACTED DEPTH FOR HAND HELD COMPACTION EQUIPMENT AND A MAXIMUM OF 12 INCHES COMPACTED DEPTH FOR VIBRATORY ROLLERS. COMPACT IN ACCORDANCE WITH BACKFILL REQUIREMENTS AT END OF THIS SECTION.
  - EMPLOY PLACEMENT METHOD SO NOT TO DISTURB OR DAMAGE FOUNDATIONS OR FOUNDATION PERIMETER DRAINAGE.
  - MAINTAIN OPTIMUM MOISTURE CONTENT OF BACKFILL MATERIALS TO ATTAIN REQUIRED COMPACTION DENSITY.
  - BACKFILL AGAINST SUPPORTED FOUNDATION WALLS.
  - BACKFILL SIMULTANEOUSLY ON EACH SIDE OF FOUNDATION WALLS NOT DESIGNED FOR RETAINAGE OF SOIL ON ONE SIDE.

**MATERIALS**

**A. STRUCTURAL FILL**

SIEVE DESIGNATION	% PASSING BY WEIGHT
4 INCH	100
3 INCH	90-100
1/4 INCH	25-90
NO. 40	0-30
NO. 200	0-5

**B. FINE GRANULAR FILL**

SIEVE DESIGNATION	% PASSING BY WEIGHT
2 INCH	100
1 1/2 INCH	90-100
NO. 4	30-60
NO. 100	0-12
NO. 200	0-6

**C. CRUSHED STONE:** M&DOT STANDARD SPECIFICATION 703.22 "UNDERDRAIN BACKFILL TYPE C" (CRUSHED)

**D. UNDERDRAIN SAND:** M&DOT STANDARD SPECIFICATION 703.22 TYPE B "UNDERDRAIN AGGREGATE"

**E. SUITABLE NATIVE SOIL:** ON SITE SAND OR GRAVEL REASONABLY FREE OF LOAM, SILT, CLAY, OR ORGANIC MATTER.

**BACKFILL REQUIREMENTS**

- A. FILL WITHIN BUILDING ENVELOPE:**
- MATERIAL: STRUCTURAL FILL
  - COMPACTION: 95% MODIFIED PROCTOR
- B. BACKFILL ALONG EXTERIOR OF BUILDING:**
- MATERIAL: STRUCTURAL FILL
  - COMPACTION: 90% MODIFIED PROCTOR
- C. GRAVEL BELOW SLABS:**
- MATERIAL: STRUCTURAL FILL, FINE GRANULAR FILL
  - COMPACTION: 95% MODIFIED PROCTOR

**CAST-IN-PLACE CONCRETE**

- GENERAL:**
- CODES AND STANDARDS: COMPLY WITH THE PROVISIONS OF THE LATEST EDITIONS OF:
    - ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
    - ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
    - ACI 305 "HOT WEATHER CONCRETING"
    - ACI 306 "STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING"
    - ACI 308 "STANDARD PRACTICE FOR CURING CONCRETE"

- CONCRETE REINFORCING:**
- REINFORCEMENT: ASTM A615/A615M; 60 KSI YIELD STRENGTH, DEFORMED STEEL BARS.
  - WELDED PLAIN WIRE FABRIC: ASTM A185.
  - CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS: SIZED AND SHAPED FOR SUPPORT OF REINFORCING; PLASTIC TIPPED OR NON-CORRODING FOR SUPPORTS EXPOSED TO WEATHER. FOREIGN MATERIAL SUCH AS WOOD OR OTHER UNSUITABLE MATERIAL SHALL NOT BE USED.
  - FABRICATE CONCRETE REINFORCEMENT IN ACCORDANCE WITH CRSI MANUAL OF PRACTICE, ACI 301 AND ACI 318.
  - CONCRETE CLEAR COVER FOR REINFORCING, UNLESS NOTED OTHERWISE:
    - BOTTOM OF FOOTINGS AND SLABS ON GRADE: 3"
    - SIDES OF FOOTINGS, FOUNDATION WALLS: 2"
    - FACES OF WALLS OTHER THAN THOSE NOTED ABOVE: 3/4"

- CONCRETE MATERIALS:**
- CEMENT: ASTM C150, NORMAL-TYPE I PORTLAND TYPE.
  - FINE AND COURSE AGGREGATES: ASTM C33
  - WATER: CLEAN AND NOT DETRIMENTAL TO CONCRETE.
  - AIR ENTRAINMENT ADMIXTURE: ASTM C260
  - FIBER REINFORCING: TYPE III SYNTHETIC VIRGIN HOMOPOLYMER POLYPROPYLENE FIBERS CONFORMING TO ASTM C1116
  - CONCRETE STRENGTH AT 28 DAYS:
 

	PSI	SLUMP
A. FOOTINGS, PIERS AND FOUNDATION WALLS:	3000 PSI	4"±1
B. INTERIOR SLABS ON GRADE, U.N.O.:	3000 PSI	4"±1
  - MIX AND DELIVER IN ACCORDANCE WITH ASTM C94.
  - ADD AIR ENTRAINMENT TO CONCRETE MIX FOR CONCRETE EXPOSED TO EXTERIOR. PROVIDE AIR ENTRAINMENT OF 5 TO 7% BY VOLUME.
  - NO CHLORIDE OR OTHER UNAUTHORIZED ADMIXTURES SHALL BE USED.

- INSERTS, EMBEDDED COMPONENTS, AND OPENINGS:**
- PROVIDE FORMED OPENINGS WHERE REQUIRED FOR WORK TO BE EMBEDDED IN AND PASSING THROUGH CONCRETE MEMBERS.
  - COORDINATE WORK OF OTHER SECTIONS IN FORMING AND SETTING OPENINGS, SLOTS, RECESSES, CHASES, SLEEVES, BOLTS, ANCHORS, AND OTHER INSERTS.
  - INSTALL CONCRETE ACCESSORIES STRAIGHT, LEVEL, AND PLUMB.
  - PLACE JOINT FILLER AT PERIMETER OF FLOOR SLAB, PENETRATIONS AND ISOLATION JOINTS.
  - WET SETTING OF COMPONENTS, INCLUDING ANCHOR RODS AND REINFORCING, IS NOT PERMITTED.

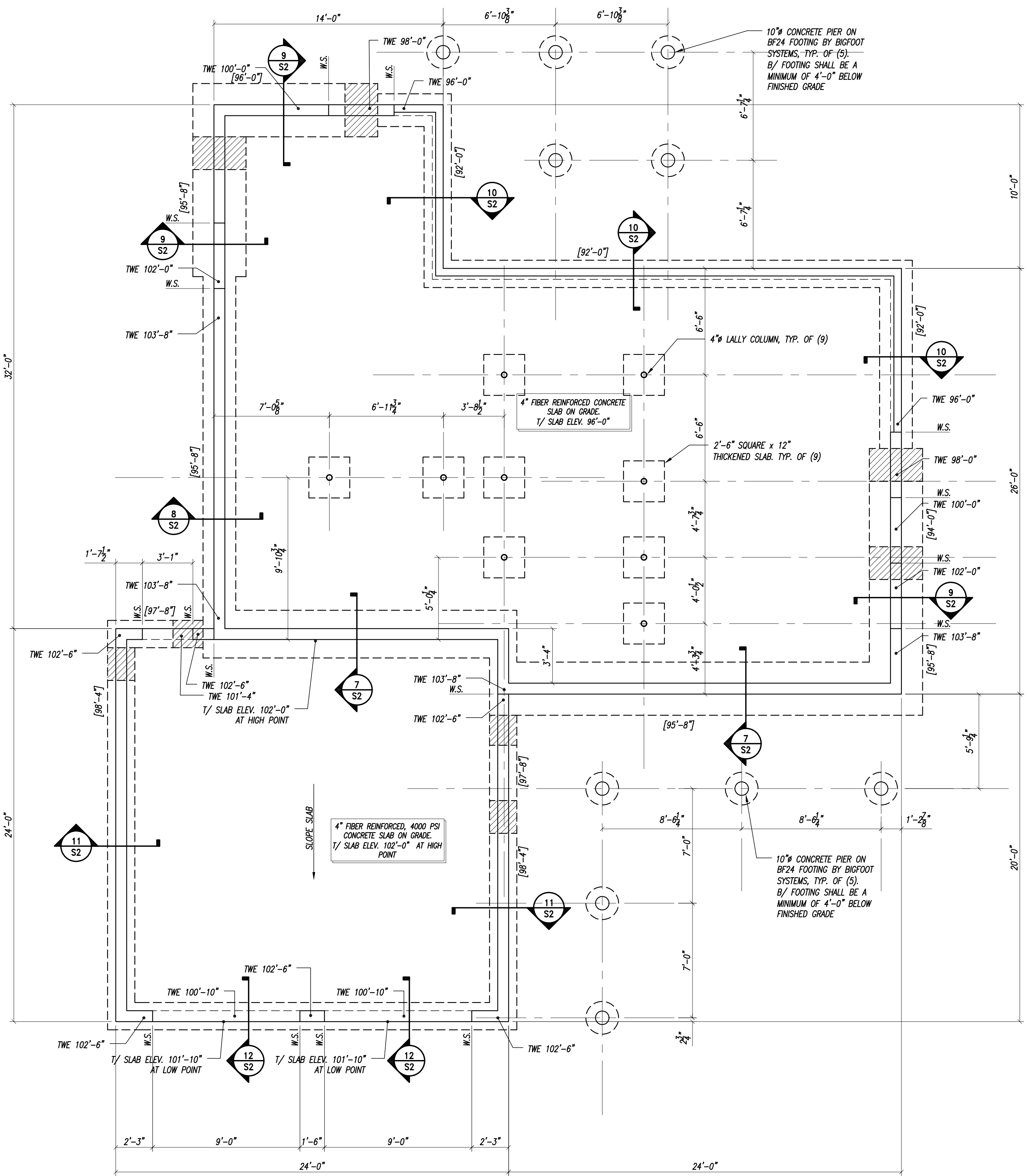
- EXECUTION:**
- CONCRETE FORMS SHALL BE CLEAN AND FREE FROM DEBRIS.
  - APPLY FORM RELEASE AGENT TO FORMWORK PRIOR TO PLACING FORM ACCESSORIES AND REINFORCEMENT.
  - COAT INSIDE OF UNTREATED FORMS WITH WATER PRIOR TO USE.
  - DO NOT DAMAGE CONCRETE DURING STRIPPING.
  - OBTAIN APPROVAL PRIOR TO FORMING OPENINGS IN STRUCTURAL MEMBERS NOT INDICATED ON THE DRAWINGS.
  - PROVIDE BRACING TO ENSURE STABILITY OF CONCRETE.
  - DO NOT REMOVE FORMS OR BRACING UNTIL CONCRETE HAS GAINED SUFFICIENT STRENGTH TO CARRY ITS OWN WEIGHT AND ANY ADDED LOADS.
  - CLEAN FORMS AS ERECTION PROCEEDS, TO REMOVE FOREIGN MATTER.
  - REMOVE FORMWORK PROGRESSIVELY AND IN ACCORDANCE WITH CODE REQUIREMENTS.
  - PLACE REINFORCEMENT, SUPPORTED AND SECURED AGAINST DISPLACEMENT.
  - ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT, OR OTHER FOREIGN COATINGS.
  - DO NOT WELD CROSSING REINFORCEMENT BARS FOR ASSEMBLY EXCEPT AS PERMITTED BY ARCHITECT/ENGINEER.
  - SPACE REINFORCEMENT BARS WITH MINIMUM CLEAR SPACING IN ACCORDANCE WITH ACI 318.
  - MAINTAIN CONCRETE COVER AROUND REINFORCEMENT IN ACCORDANCE WITH ACI 318.
  - PREPARE PREVIOUSLY PLACED CONCRETE BY CLEANING WITH STEEL BRUSH AND APPLYING BONDING AGENT.
  - COMPLY WITH ACI CODES AND PLACE CONCRETE CONTINUOUSLY BETWEEN PREDETERMINED EXPANSION, CONTROL AND CONSTRUCTION JOINTS. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS CREATING COLD JOINTS.
  - PLACE FLOOR SLABS IN SAW CUT PATTERN INDICATED.
  - SCREED SLABS-ON-GRADE LEVEL.

- FLOOR FINISHING:**
- FINISH CONCRETE FLOOR SURFACES IN ACCORDANCE WITH ACI 301 AND ACI 302.1.
  - UNIFORMLY SPREAD, SCREED, AND FLOAT CONCRETE.
  - WOOD FLOAT SURFACES RECEIVING TILE WITH FULL BED SETTING SYSTEM.
  - STEEL TROWEL SURFACES RECEIVING CARPETING, RESILIENT FLOORING, SEAMLESS FLOORING, THIN SET TILE, OR REMAINING EXPOSED TO VIEW IN FINISHED CONSTRUCTION.
  - REFER TO SPECIFICATIONS FOR FLOOR FINISH TOLERANCES
  - IN AREAS WITH FLOOR DRAINS, MAINTAIN FLOOR LEVEL AT WALLS AND SLOPE SURFACES UNIFORMLY TO DRAINS.

- CURING:**
- IMMEDIATELY AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING.
  - MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE BUT NOT LESS THAN 7 DAYS.

- ERECTION TOLERANCES:**
- INSTALL REINFORCEMENT WITHIN TOLERANCES REQUIRED BY ACI 318.

- RELATED ITEMS:**
- FORM RELEASE AGENT: COLORLESS MINERAL OIL NOT CAPABLE OF STAINING CONCRETE OR IMPAIRING NATURAL BONDING CHARACTERISTICS OF COATING INTENDED FOR USE ON CONCRETE.
  - SLAB EDGE JOINT FILLER: ASTM D1751, PREMODIFIED ASPHALTIC BOARD, 1/2 INCH THICK.



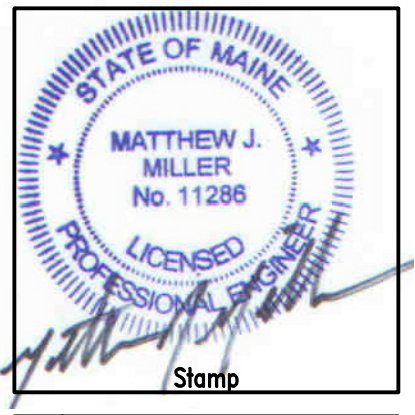
**FOUNDATION PLAN**

1/8" = 1'-0"

**PLAN NOTES:**

- SEE PLAN FOR TOP OF FOOTING ELEVATION
- SEE PLAN FOR TOP OF WALL ELEVATION.
- [xxx-yy] INDICATES TOP OF FOOTING ELEVATION. ALL FOOTINGS SHALL BE CENTERED ON CENTERLINE OF WALL, PIER OR COLUMN, U.N.O. FOOTINGS SHALL BEAR A MINIMUM OF 4'-6" BELOW GRADE FOR FROST PROTECTION.
- STEP FOOTINGS BELOW PIPING AND CONDUIT AS REQUIRED TO PENETRATE THROUGH WALL NOT FOOTING.
- [ ] INDICATES FOOTING STEP. DETAIL 1/S2.
- SEE 2/S2 WALL REINFORCING AT CORNERS AND INTERSECTIONS.
- SEE 3/S2 FOR SLAB ON GRADE CONPROVIDE SLEEVES THROUGH WALLS FOR PIPING AND CONDUIT. COORDINATE SLEEVE SIZES, QUANTITIES AND LOCATIONS WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. SEE 4/S2.
- W.S. INDICATES WALL STEP.

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**M2 STRUCTURAL ENGINEERING, P.C.**

23 Thornbury Way  
 Windham, ME 04062  
 (207) 892-0983  
 info@m2se.com

Client:

**JOE NELSON  
 4 ALICE STREET  
 PORTLAND, MAINE**

Sheet Title:

**GENERAL NOTES AND  
 FOUNDATION PLAN**

Project Name:

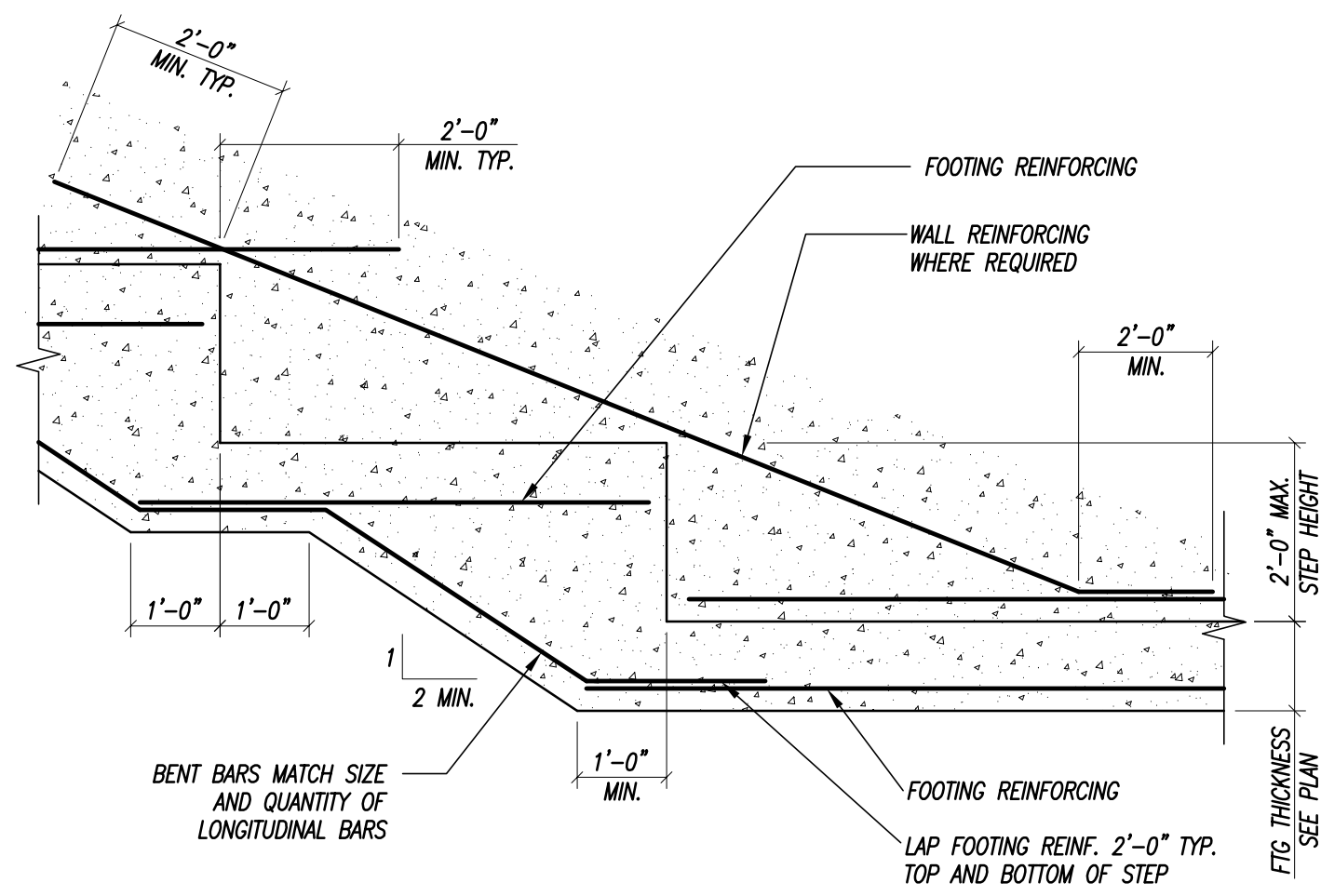
**NELSON RESIDENCE  
 PORTLAND, MAINE**

Project No:	16074
Designed By:	MJM
Drawn By:	MJM
Checked By:	MJM
Scale:	AS NOTED
Date:	08/22/2016

**SI**

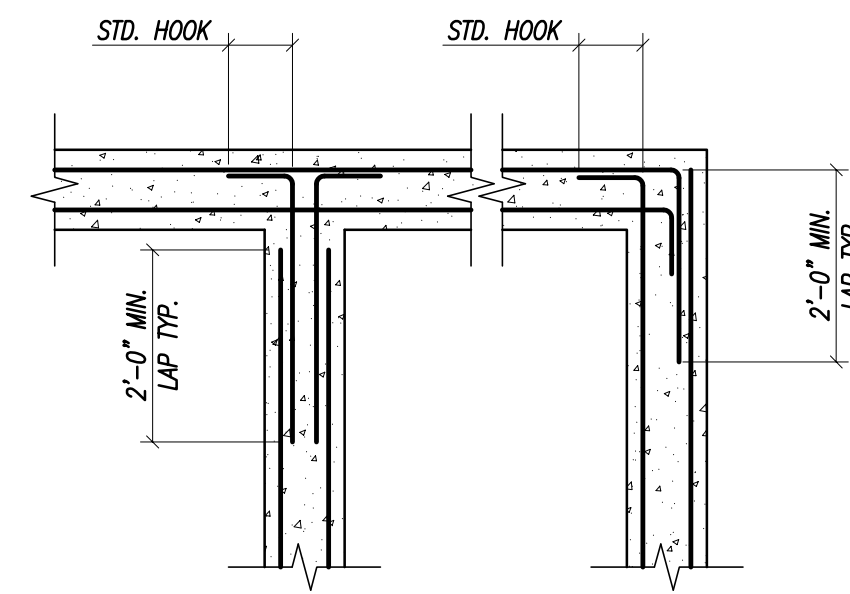


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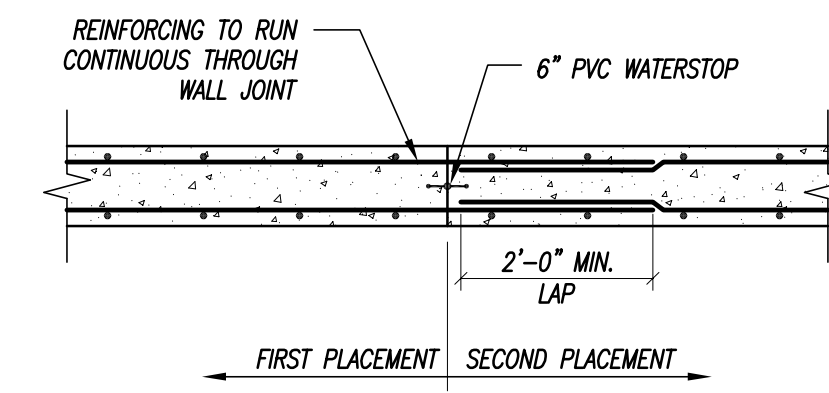
**1** TYPICAL FOOTING STEP DETAIL

1/2" = 1'-0"

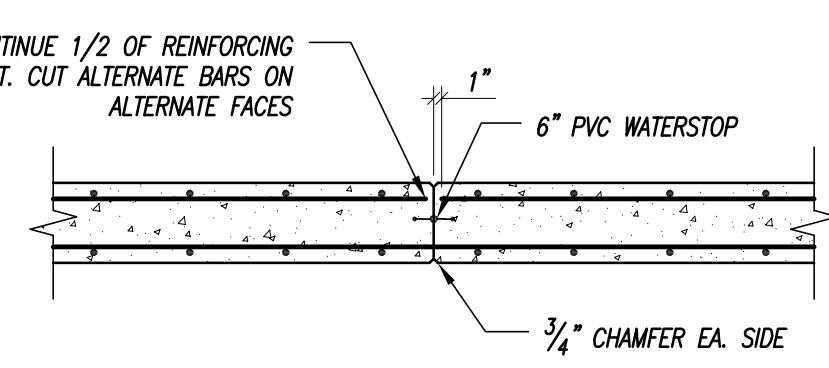


**2** TYPICAL CORNER/INTERSECTION REINFORCING

1/2" = 1'-0"



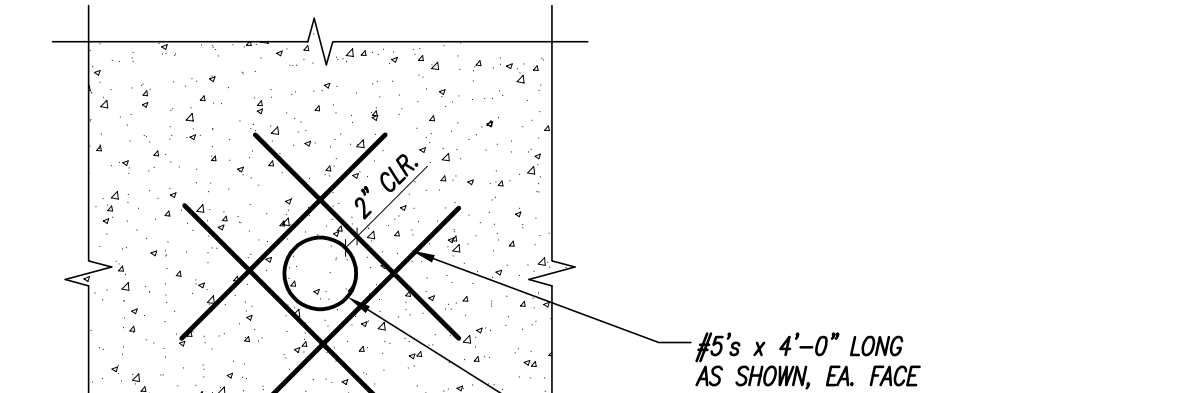
REINFORCING TO RUN CONTINUOUS THROUGH WALL JOINT  
6" PVC WATERSTOP  
2'-0" MIN. LAP  
FIRST PLACEMENT SECOND PLACEMENT



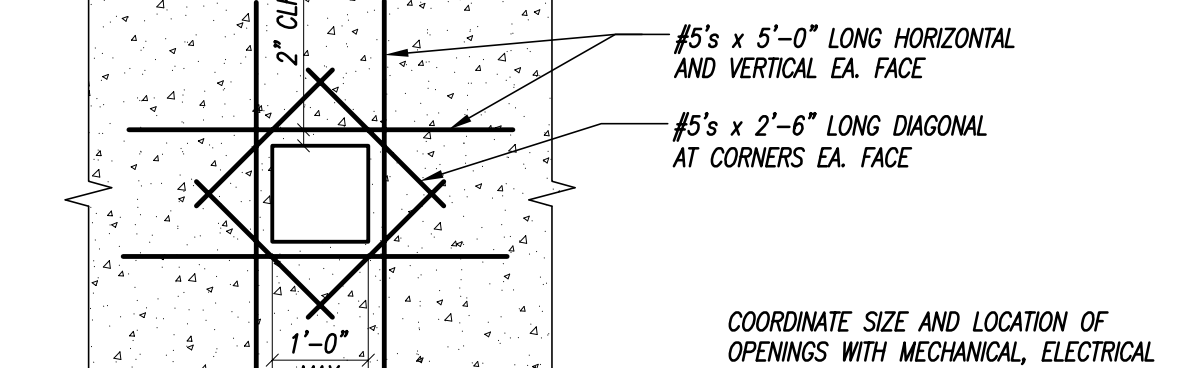
DISCONTINUE 1/2 OF REINFORCING AT JOINT. CUT ALTERNATE BARS ON ALTERNATE FACES  
1" 6" PVC WATERSTOP  
3/4" CHAMFER EA. SIDE  
MAXIMUM SPACING BETWEEN CORNER AND WALL JOINT TO BE 40'. WALL JOINTS TO BE SPACED AT 40' MAX  
CONTROL JOINT

**3** TYPICAL WALL CONSTRUCTION/CONTROL JOINT

1/2" = 1'-0"



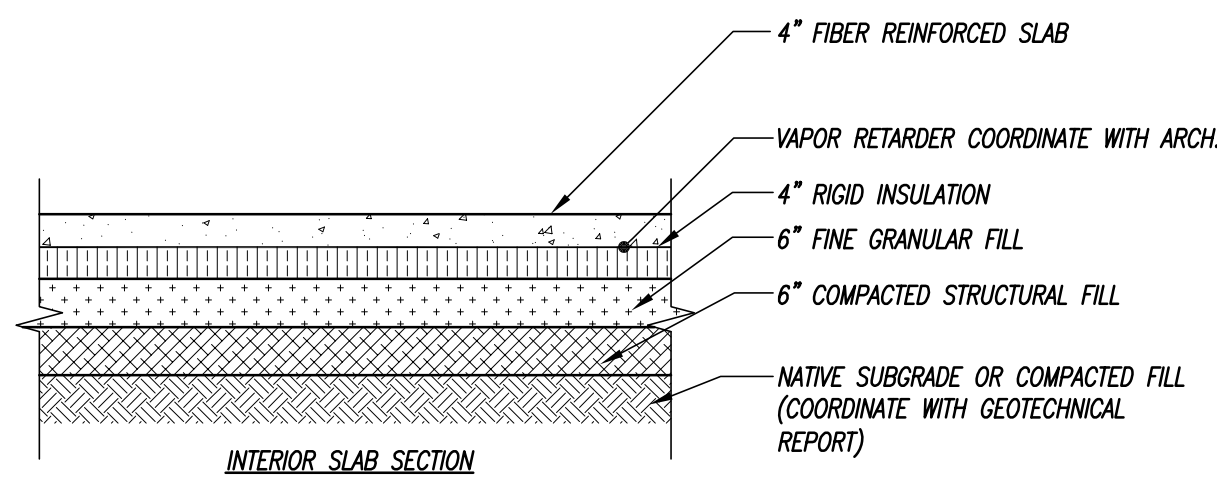
#5s x 4'-0" LONG AS SHOWN, EA. FACE  
1'-0" MAX. DIAMETER



#5s x 5'-0" LONG HORIZONTAL AND VERTICAL EA. FACE  
#5s x 2'-6" LONG DIAGONAL AT CORNERS EA. FACE  
COORDINATE SIZE AND LOCATION OF OPENINGS WITH MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS

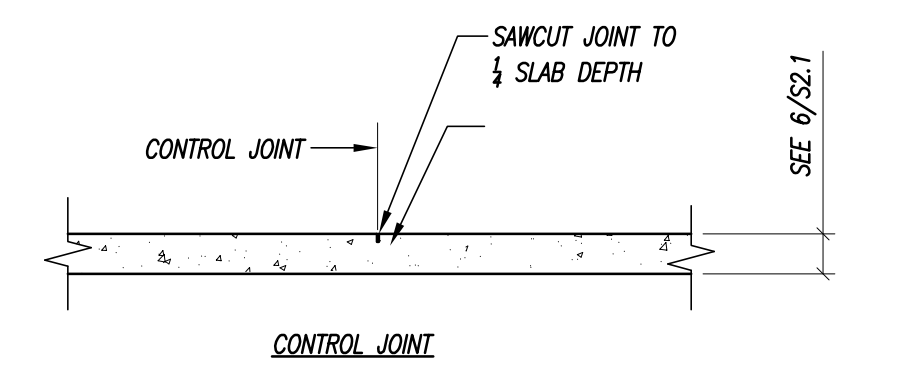
**4** TYPICAL WALL PENETRATION DETAIL

1/2" = 1'-0"

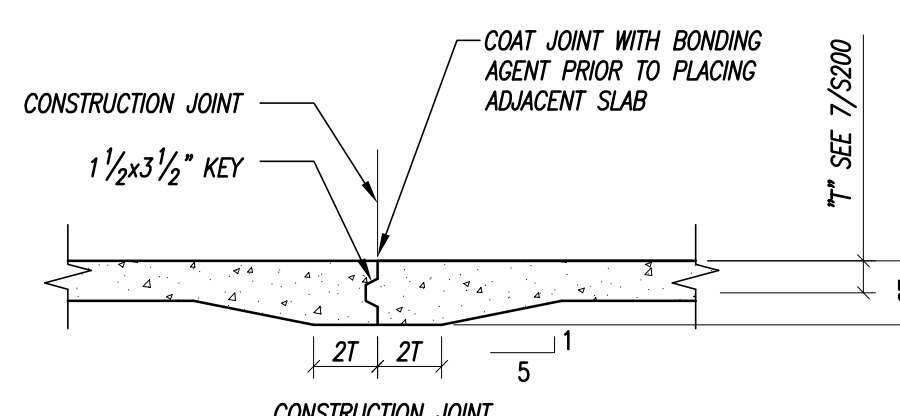


**5** TYPICAL SLAB SECTIONS

1/2" = 1'-0"

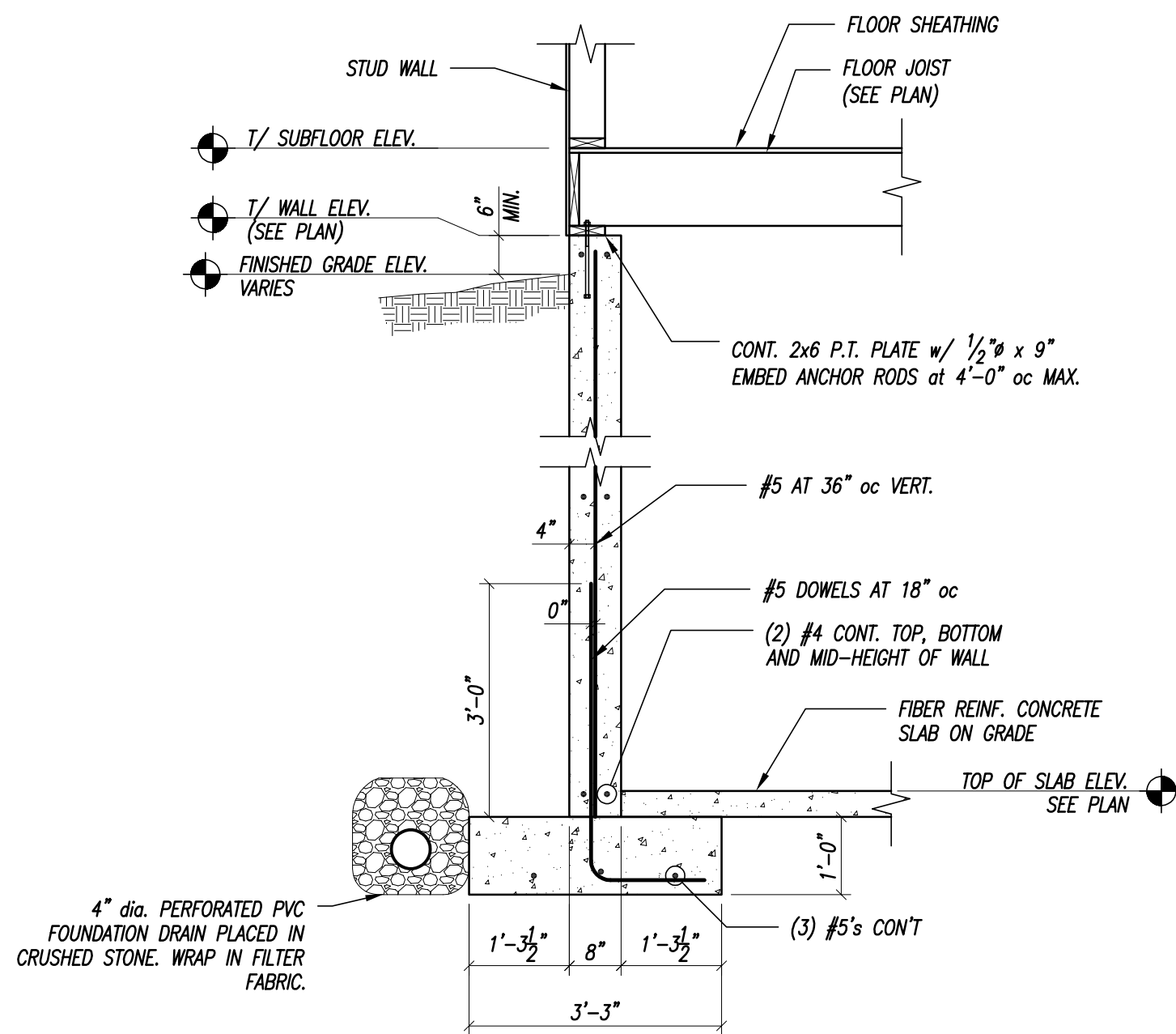


SAWCUT JOINT TO 1/4 SLAB DEPTH  
CONTROL JOINT  
NOTE: SAWCUTS TO BE MADE WITHIN 24 HOURS OF PLACING CONCRETE



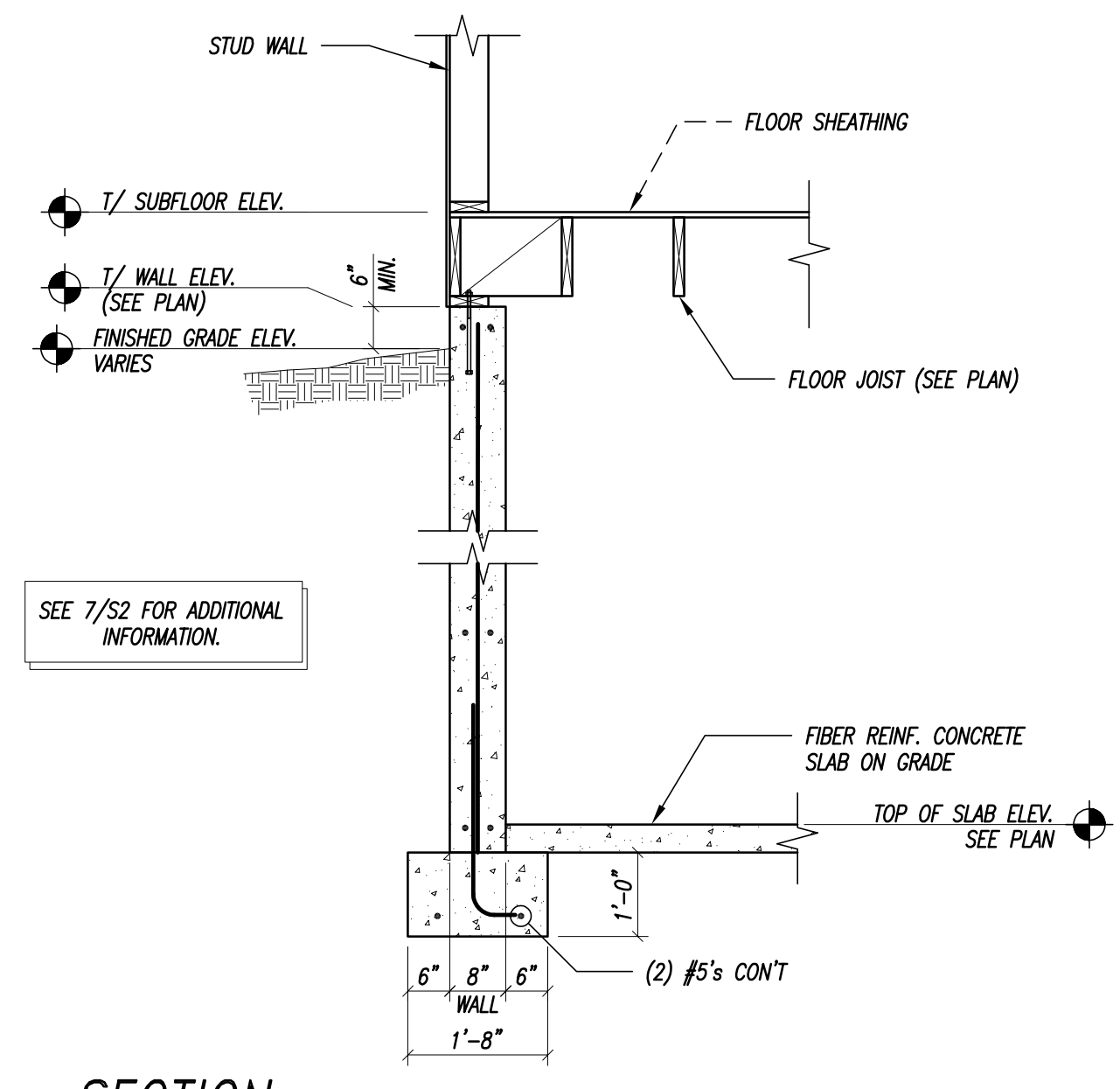
**6** TYPICAL SLAB JOINTS

1/2" = 1'-0"



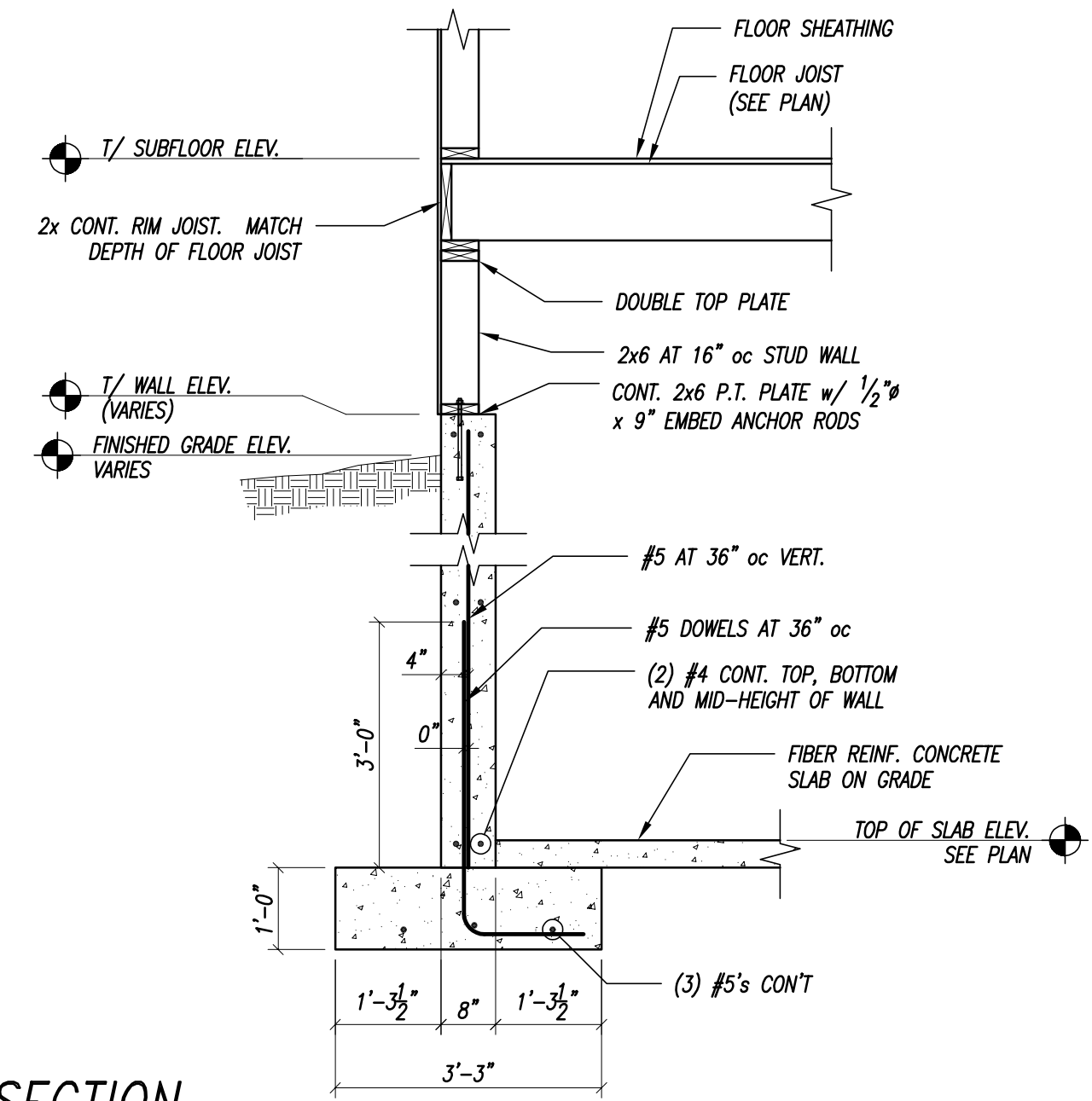
**7** SECTION

1/2" = 1'-0"



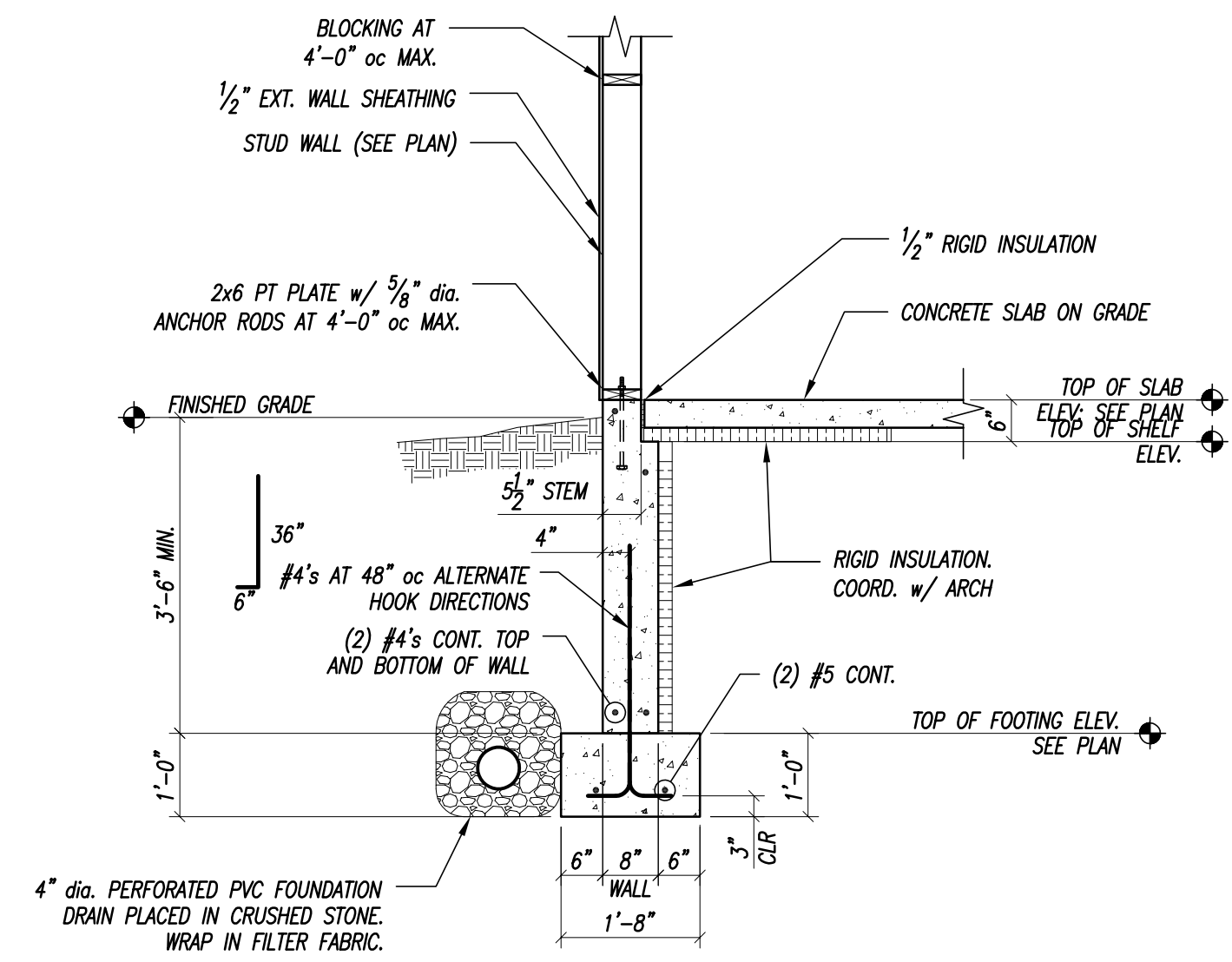
**8** SECTION

1/2" = 1'-0"



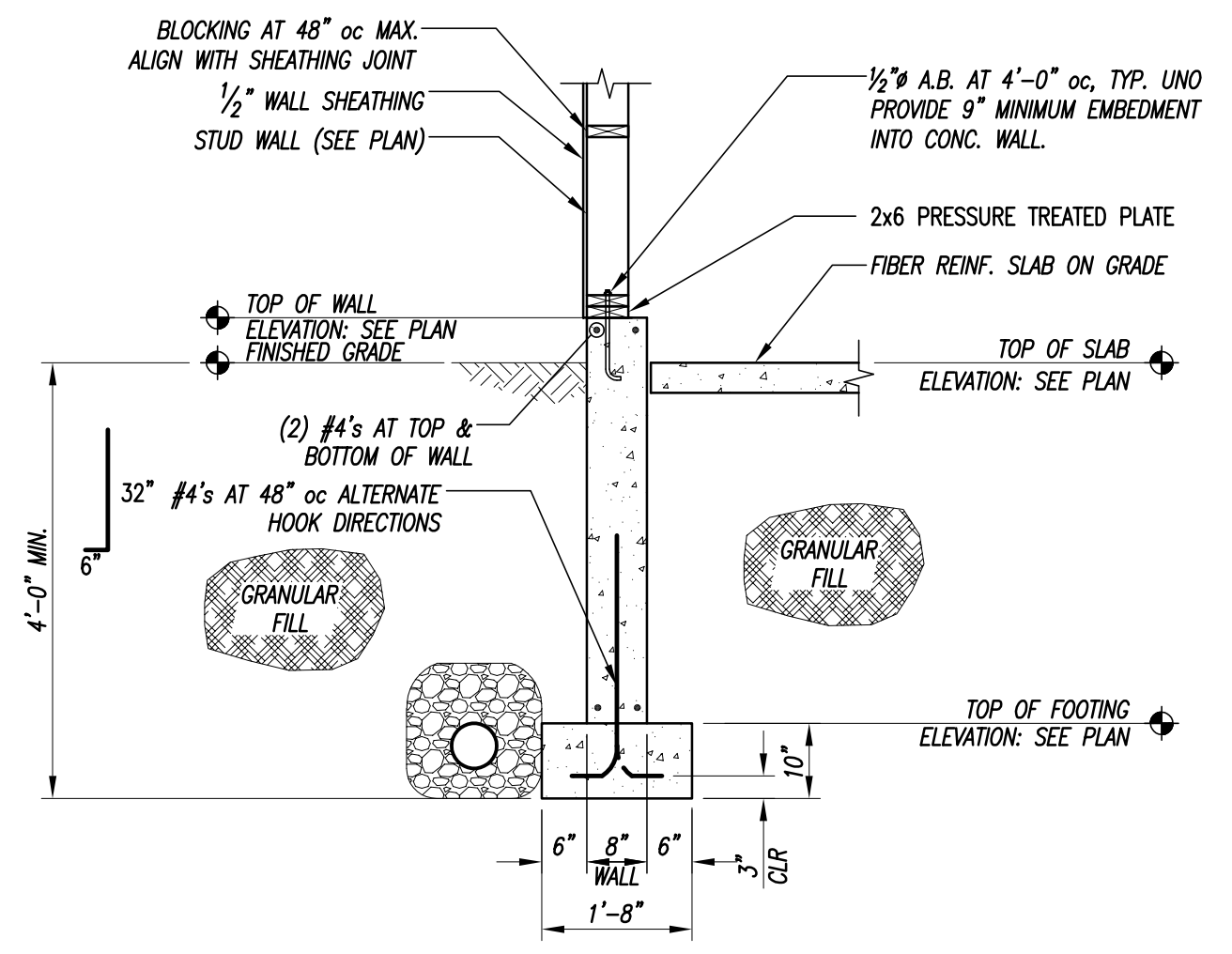
**9** SECTION

1/2" = 1'-0"



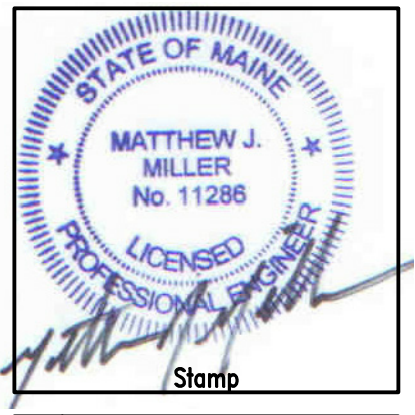
**11** SECTION

1/2" = 1'-0"



**12** SECTION

1/2" = 1'-0"



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**M2** STRUCTURAL ENGINEERING, P.C.  
23 Thornbury Way  
Windham, ME 04062  
(207) 892-0983  
info@m2se.com

Client:  
**JOE NELSON**  
4 ALICE STREET  
PORTLAND, MAINE

Sheet Title:  
**FOUNDATION SECTIONS AND DETAILS**  
Project Name:  
**NELSON RESIDENCE PORTLAND, MAINE**

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**S2**