

**CONCRETE GENERAL NOTES**

- All detailing, fabrication and placing of reinforcing steel shall conform to the ACI standard "Details and Detailing of Concrete Reinforcement" (ACI 315).
- Concrete mix designs shall meet the following requirements:
 

Location	Minimum Compressive Strength (psi)	Maximum Aggregate Size	Maximum Water/Cement Ratio	Slump (in.)	Air Entrainment Percent (%)
Interior Slabs	4000	3/4"	.50	4 ±1	0
Exterior Slabs	3500	3/4"	.50	4 ±1	6 ±1
Perimeter Foundations	3000	1"	.50	4 ±1	6 ±1
- Reinforcing bars #4 and larger (except ties and stirrups) shall meet ASTM A615 with Supplementary Requirements (S1), Grade 60. Smaller bars shall be grade 40.
- All reinforcing bar splices shall be 44 bar diameters, unless noted otherwise. Refer to note #19.
- All reinforcing bar hooks shall be ACI standard 90 degree hook, unless noted otherwise.
- All bars are to be supported in forms and spaced with wire bar supports per ACI "Manual of Standard Practice for Detailing Concrete Structures" (latest edition). Bars shall be securely wired per latest edition of CRSI's "Recommended Practice for Placing Reinforcing Bars". Accessories for exposed concrete shall be plastic or have plastic-tipped feet.
- The top of concrete pedestal shall be square, smooth & level to receive the metal building base plates.
- Smooth dowels shall be steel conforming to ASTM A36.
- All slots, sleeves and other embedded items such as strap-tie holdowns shall be set before concrete is placed. See Architectural, Electrical, Mechanical and vendor's drawings for sizes & locations.
- Electrical conduit to be placed below slab shall be located by electrician prior to placement of slab reinforcements. Slab shall be thickened in these areas to accommodate a minimum of 3" top covering and 3" bottom clearance.
- Fly ash shall not be used unless approved in writing by the Engineer. Fly ash, if approved, shall conform to ASTM C618 and shall not exceed 15% of the total cement volume.
- All concrete is reinforced unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas.
- No aluminum items shall be embedded in any concrete or placed in contact with concrete.
  - Cast against earth: 3"
  - Formed concrete exposed to earth or weather: 2"
  - Slabs not exposed to earth or weather: 1"
  - Beams & columns not exposed to weather: 1 1/2"
- Embedded and all reinforcing bars marked continuous shall be embedded to develop the full tension capacity of the bar. Laps shall be Class B tension lap unless specified otherwise on the drawings. Unless shown otherwise, splice top bars near midspan and splice bottom bars over supports.
- Supply corner bars 4'-0" long (min. 2'-0" in each direction) in outside face of wall at corners of all walls and continuous footings, matching size and spacing of horizontal bars. Where there are no vertical bars in outside face of wall, supply three (3) #4 vertical support bars for corner bars.
- Concrete placed during **cold weather** shall conform to the requirements of ACI 306R-10. Cold weather is defined as a period when, for more than 3 successive days, the mean daily temperature drops below 40°F.
- Concrete placed during **hot weather** shall conform to the requirements of ACI 305R-10. Hot weather is defined as that combination of air temperature, relative humidity and wind speed that will cause a rate of evaporation of 0.2 lb/sq.ft./hr. or more as defined by Figure 2.1.5 of ACI 305R-10.
- Do not add water to concrete during delivery, at Project Site, or during placement, unless approved by the Engineer of Record.
- Reinforcing shall have the following lap splice and hook lengths:
 

Lap Splice & Hook Lengths		
Bar Size	Lap Splice	Hook
#4	2'-4"	11"
#5	3'-0"	1'-1"
#6	3'-7"	1'-4"
#7	5'-2"	1'-6"
#8	6'-0"	1'-8"
- Maximum net allowable bearing pressure for footings = 2,000 psf. Bottom of footings shall bear on subgrade prepared per recommendation given in the Soils Report No. E4215017, dated April 26, 2021 by Terracon, Inc. Slab-on-Grade shall bear on minimum 6" of crushed gravel underlain with fill to be specified by Goetech Engineer. Bottom of footings shall bear at or below minimum bearing depth. Minimum bearing depth is 18" below lowest adjacent finished grade.
- The contractor shall be responsible for the design of all forming, temporary bracing and shoring.

**CONSTRUCTION SAFETY GENERAL NOTE**

THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS, SINCE THESE ARE SOLELY THE CONTRACTOR'S RESPONSIBILITY.

**PRE-ENGINEERED BUILDING GENERAL NOTES**

- The design, fabrication and erection of the pre-engineered building shall conform to the requirements of AISC Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings and the MBMA Design Practices Manual.
- Structural steel for primary framing shall conform to ASTM A572, grade 50 or ASTM A36.
- Steel tubes shall conform to ASTM A500, grade B. Purlins & girts shall be cold-formed structural steel sections with stiffened flanges and have a minimum 55,000 psi yield strength.
- Structural system for the building shall be gabled rigid frames with interior column. All bay spacings and roof slopes shall be as shown on the Architectural drawings.
- Provide rod or cable x-bracing in roof as required to resist wind and seismic loads.
- All metal building column bases shall be designed as pinned ends that transmit no moment to the foundations.
- Bottom of base plate elevation for all pre-engineered building columns shall be at finished floor elevation 100'-0", unless noted otherwise.
- Purlins shall be designed for a maximum live load deflection of L/180, where "L" is the purlin span in inches.
- Limit lateral deflection of all columns to H/100 in any direction, where "H" is the column height in inches.
- All rigid frame beams shall be designed for a maximum live load deflection of L/180, where "L" is the beam span in inches.
- Girts and spandrel beams shall be designed for a maximum wind load deflection of L/180, where "L" is the girt or beam span in inches.
- Lateral stability along side wall at Gridline "B" shall be provided with rod x-bracing between Gridlines "5" & "6" & at Gridline "F" shall be provided with rod x-bracing between Gridlines "3" & "5" as shown on the Foundation Plan.
- Metal building manufacturer shall design purlins & rigid frames for mechanical equipment loads in addition to the uniform dead & live loads. Coordinate equipment weight, size and locations with the Mechanical Contractor.
- Metal building manufacturer shall provide miscellaneous steel as required to support mechanical equipment such as unit heaters and air handler units.
- The General Contractor shall purchase and install the pre-engineered building anchor bolts based on the Anchor Bolt Setting Plan provided by the metal building manufacturer. See the Anchor Bolt Detail on 4/SD.S001 for bolt lengths required based on the bolt diameter called for by the metal building manufacturer.
- Metal building manufacturer shall certify that the building has been designed for the building design loads, including the seismic criteria shown on this drawing if required by the local building code. Certification must state that the building has been designed for all of the criteria noted in the Pre-engineered Building Design Loads. The metal building manufacturer is to complete fabrication & erection drawings, fully engineered & sealed by a registered Structural Engineer in the State in which the project is located.

**TYPICAL STRUCTURAL ABBREVIATIONS**

ACI	AMERICAN CONCRETE INSTITUTE	EXP.	EXPANSION	PED	PEDESTAL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	FLR.	FLOOR	PL	PLATE
A.R.	ANCHOR ROD	FDN.	FOUNDATION	PLF	POUNDS PER LINEAR FOOT
ARCH.	ARCHITECT	FTG.	FOOTING	PROJ.	PROJECTION
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	F.S.	FAR SIDE	PSF	POUNDS PER SQUARE FOOT
BLDG.	BUILDING	GA.	GAUGE	PSI	POUNDS PER SQUARE INCH
BM.	BEAM	GALV.	GALVANIZED	R	RADIUS
BOTT.	BOTTOM	HK.	HOOK	REINF.	REINFORCEMENT
BRG.	BEARING	HORIZ.	HORIZONTAL	REQ'D	REQUIRED
CL.	CENTERLINE	H.S.A.	HEADED STUD ANCHOR	RTU	ROOF TOP UNIT
CLR.	CLEAR	I.F.	INSIDE FACE	SCHED.	SCHEDULE
COL.	COLUMN	JBE	JOIST BEARING ELEVATION	SECT.	SECTION
CONC.	CONCRETE	JST.	JOIST	SIM.	SIMILAR
CONN.	CONNECTION	JT.	JOINT	SJ	STEEL JOIST INSTITUTE
CONT.	CONTINUOUS	LG.	LONG	S.O.G.	SLAB-ON-GRADE
CTRD.	CENTERED	LLH	LONG LEG HORIZONTAL	SPA.	SPACING
DEG. or °	DEGREE	LLV	LONG LEG VERTICAL	SPECS	SPECIFICATIONS
DIA. or Ø	DIAMETER	LONG.	LONGITUDINAL	STD.	STANDARD
DIM.	DIMENSION	MAX.	MAXIMUM	STIFF.	STIFFENER
DN	DOWN	MBM	METAL BUILDING MANUFACTURER	STL.	STEEL
do	DITTO	MECH.	MECHANICAL	TOC	TOP OF CONCRETE
DTL.	DETAIL	MFR.	MANUFACTURER	TOG	TOP OF GRADE BEAM
DWG.	DRAWING	MIN.	MINIMUM	TOW	TOP OF WALL
DWL.	DOWEL	MISC.	MISCELLANEOUS	TRANS.	TRANSVERSE
EA.	EACH	MTL.	METAL	TYP.	TYPICAL
EQ.	EQUAL	N.S.	NEAR SIDE	U.N.O.	UNLESS NOTED OTHERWISE
EW	EACH WAY	O.C.	ON CENTER	VERT.	VERTICAL
EXIST.	EXISTING	O.F.	OUTSIDE FACE	W/	WITH
		OPNG.	OPENING	W.P.	WORK POINT
		PAF	POWDERED ACTUATED FASTENER	WWF	WELDED WIRE FABRIC

**REQUIRED SPECIAL INSPECTIONS (BY TESTING AGENCY)**

IN ADDITION TO THE REGULAR INSPECTIONS REQUIRED BY SECTION 110, THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH SECTION 1704, 1706 & 1707 OF THE 2006 IBC.

ITEM	SECTION
<b>Inspection of Fabricators</b> - Verify fabrication/quality control procedures	1704.2
<b>Concrete Construction</b> - Reinforcing Steel Installation - Cast-in-Place Anchor Bolts - Verify Design Mix - Fresh Concrete Sampling - Concrete Placement - Concrete Curing Operations - Evaluation of Concrete Strength	Table 1704.4
<b>Soils</b> - Verify materials below are adequate to achieve design bearing capacity - Verify excavations are extended to proper depth and have reached proper bearing material - Perform classification and testing of controlled fill materials - Verify site preparation with soils report - Verify use of proper materials, densities and lift thickness during placement and compaction of controlled fill	Table 1704.7

**REQUIRED SPECIAL INSPECTION NOTES:**

- General Contractor shall coordinate any additional special inspection requirements with Owner and applicable building authorities.
- Special Inspections are the responsibility of the Owner.
- The names of persons or firms who are to perform the Special Inspections shall be forwarded to the Building Official for approval.
- The Special Inspector(s) shall complete and submit all forms required by the Local Jurisdiction.

**PRE-ENGINEERED BUILDING DESIGN LOADS**

- Building Code: 2006 International Building Code Loads calculated using ASCE 7.05 Per MBM
- Mezzanine Dead Load: 3 psf (8 if Including Sprinkler System)
- Mezzanine Collateral Load: 125 psf
- Roof Dead Load: 3 psf (8 if Including Sprinkler System)
- Roof Collateral Load: 20 psf
- Roof Live Load: 5 psf
- Wind Load: 120 mph
  - Nominal Design Wind Speed, Vasd (3-second gust)
  - Risk Category II
  - Wind Exposure C
  - Internal Pressure Coefficient (GCp) = ±0.18
- ASD Load Combinations:
  - D + Lr
  - D + 0.75Lr
  - D + W (or 0.7E)
  - D + 0.75Lr + 0.75 (W or 0.7E)
  - 0.6D + W
  - 0.6D + 0.7E
- Seismic:
  - Site Coefficient
  - Ss = 0.121
  - Si = 0.052
  - Sms = 0.129
  - Sd1 = 0.085
  - Site Class D
  - Seismic Design Category B
  - Basic Structural System = Per MBM
  - Seismic Resisting System = Per MBM
  - Response Modification Coefficient (R) = Per MBM
  - Deflection Amplification Factor (Cd) = Per MBM
  - Design Base Shear, V = Per MBM
  - Analysis Procedure = Per MBM

**FOOTING SCHEDULE**

FOOTING MARK	FOOTING SIZE B x L x t	REINFORCING	REMARKS
F1	4'-0" x 4'-0" x 2'-0"	(4) #5 EA. WAY TOP & BOTTOM	----
F2	5'-0" x 5'-0" x 2'-0"	(6) #5 EA. WAY TOP & BOTTOM	----
F3	6'-0" x 6'-0" x 2'-0"	(8) #6 EA. WAY TOP & BOTTOM	----
F4	7'-0" x 7'-0" x 2'-0"	(9) #6 EA. WAY TOP & BOTTOM	----

**PEDESTAL SCHEDULE**

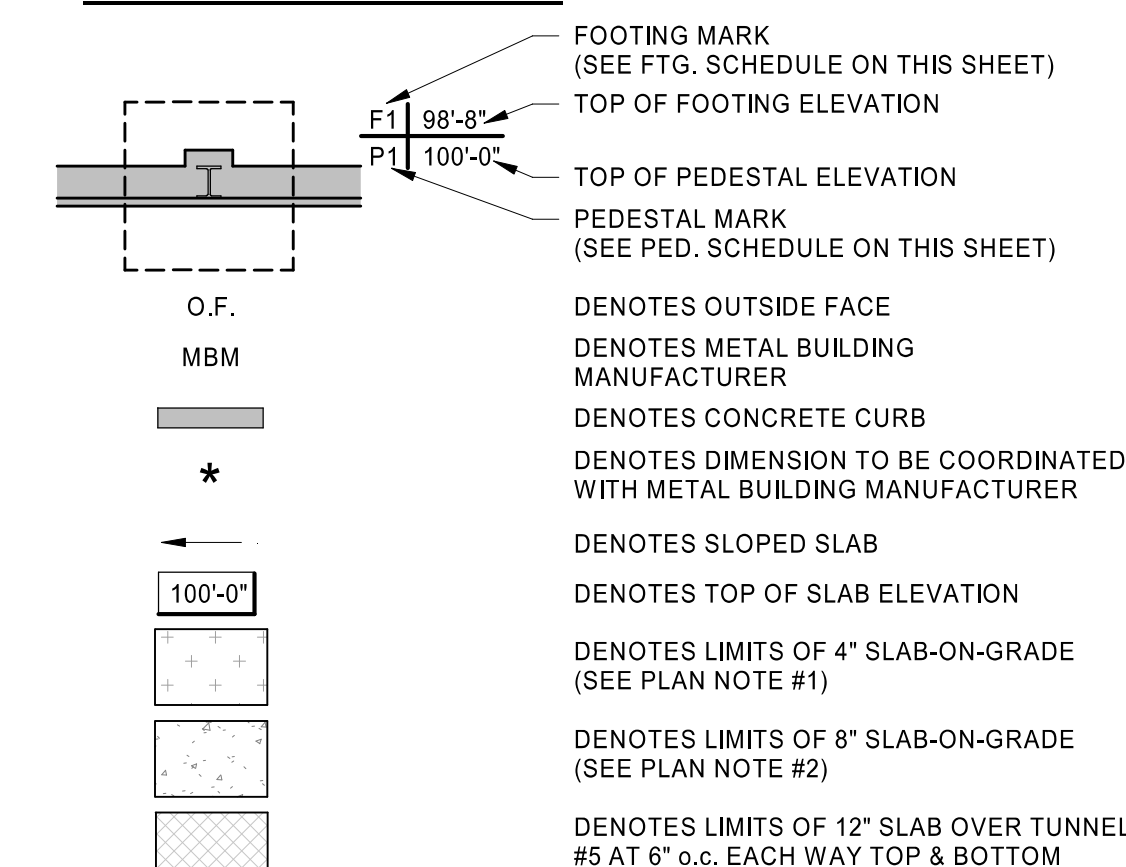
PEDESTAL MARK	PEDESTAL SIZE LENGTH x WIDTH	VERTICAL DOWELS	TIES
P1	12" x 16"	(8) #6 DOWELS	#3 TIES @ 10" o.c.; (3) TIES MIN.
P2	16" x 18"	(8) #6 DOWELS	#3 TIES @ 10" o.c.; (3) TIES MIN.
P3	16" x 24"	(10) #6 DOWELS	#3 TIES @ 10" o.c.; (3) TIES MIN.
P4	24" x 24"	(10) #6 DOWELS	#3 TIES @ 10" o.c.; (3) TIES MIN.
P5	18" x 18"	(8) #6 DOWELS	#3 TIES @ 10" o.c.; (3) TIES MIN.

PEDESTAL SCHEDULE NOTE:  
1. SEE FOUNDATION PLAN FOR PEDESTAL ORIENTATION.

**FOUNDATION PLAN NOTES:**

- 4" SLAB-ON-GRADE CONSTRUCTION: 4" CONCRETE SLAB REINFORCED W/ #3 @ 12" EA. WAY AT MID-DEPTH OVER 6" LAYER OF CLEAN CRUSHED ROCK.
- 8" SLAB-ON-GRADE CONSTRUCTION: 8" CONCRETE SLAB REINFORCED W/ #4 @ 12" EA. WAY U.N.O. ON STEGO 15 MIL CLASS A VAPOR BARRIER OVER 6" LAYER OF CLEAN CRUSHED ROCK. SEE DWG. SD.S001 FOR GENERAL NOTES AND TYPICAL DETAILS. PLACE REINF. 2 1/2" CLR. FROM TOP OF SLAB.
- "CJ" DENOTES CONTROL JOINT (REF. 3/SDS001).
- "CSJ" DENOTES CONSTRUCTION JOINT (REF. 2/SDS001).
- SEE THIS DWG. FOR FOOTING SCHEDULE & PEDESTAL SCHEDULE.
- ALL ELEVATIONS ARE BASED ON FINISH FLOOR EL. 100'-0". FIELD VERIFY ACTUAL FINISH FLOOR ELEVATION.
- TOP OF FOOTING ELEVATION 98'-8" (U.N.O.).
- ALL TOP OF PEDESTAL ELEVATION 100'-0" (U.N.O.).
- SEE ARCH./CIVIL DWGS. FOR DIMENSIONS NOT SHOWN.
- COORDINATE DOOR LOCATIONS WITH ARCH. DWGS.
- SEE ARCH. DWG. FOR LOCATION, SIZE, & DETAILS OF ALL EXTERIOR SLABS, STOOPS, & RAMPS.

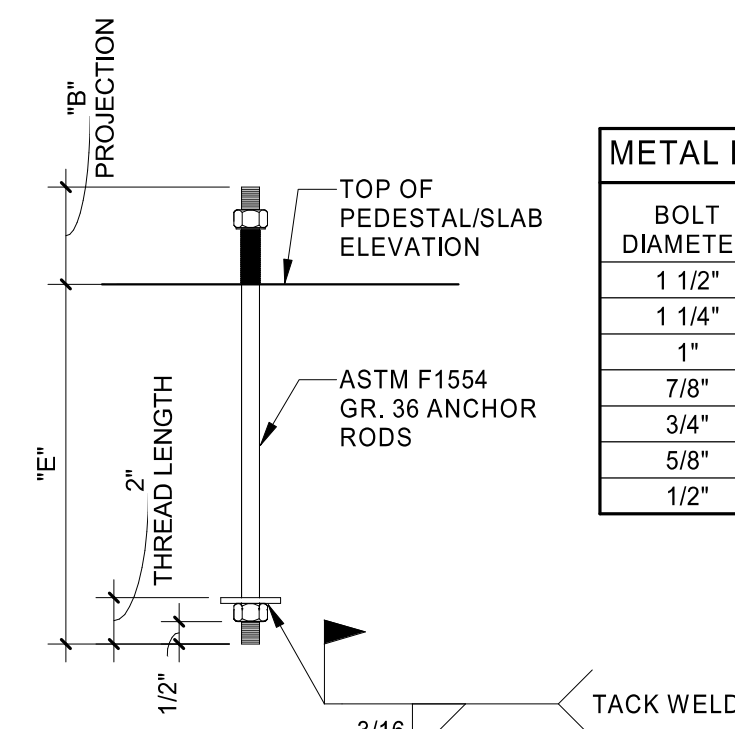
**FOUNDATION PLAN LEGEND:**



**METAL BLDG. ANCHOR BOLT SCHEDULE**

BOLT DIAMETER	EMBEDMENT LENGTH	THREAD PROJ.
1 1/2"	2'-6"	6"
1 1/4"	2'-6"	6"
1"	2'-0"	6"
7/8"	1'-9"	4"
3/4"	1'-9"	4"
5/8"	10"	4"
1/2"	8"	4"

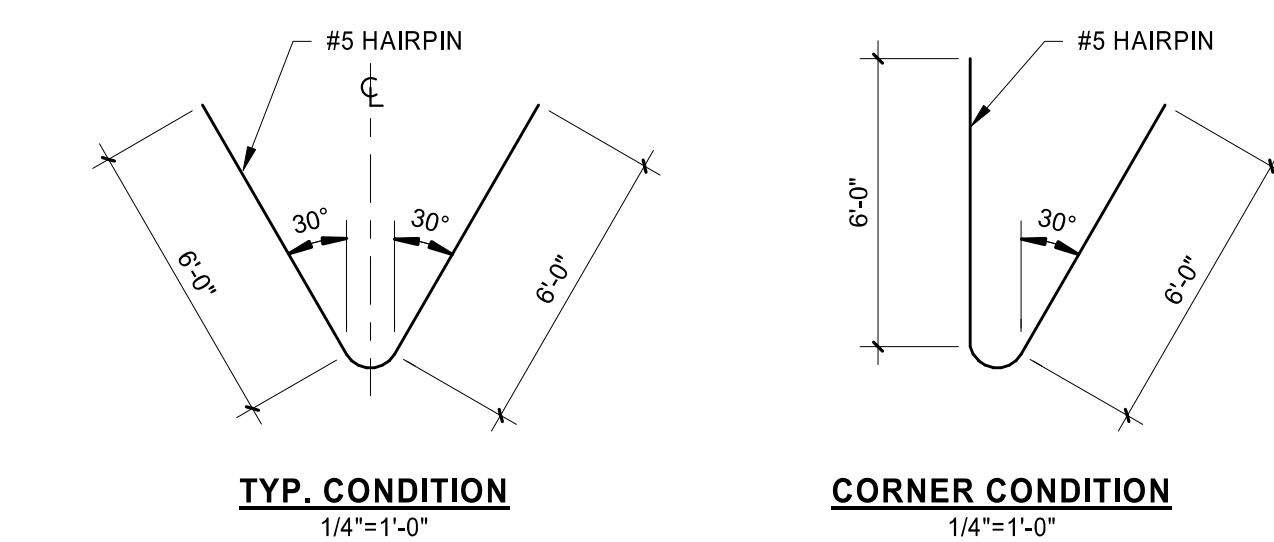
GENERAL CONTRACTOR TO SUPPLY ANCHOR BOLTS AND ACCESSORIES



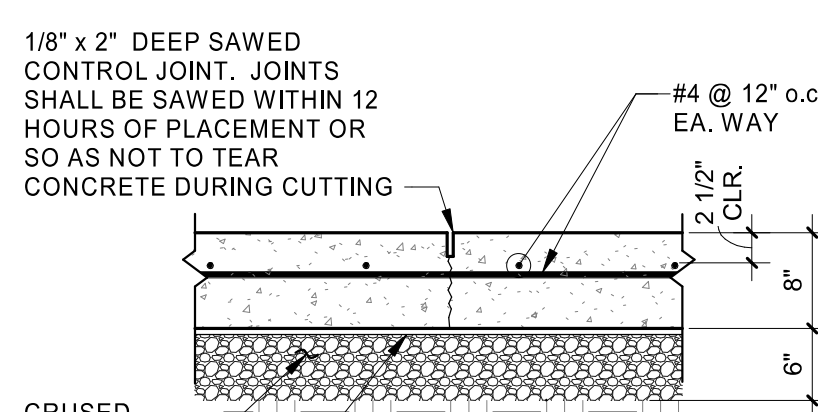
**A.B. @ INTERIOR COLUMNS**

**4 TYP. ANCHOR ROD DETAIL**  
1 1/2" = 1'-0"

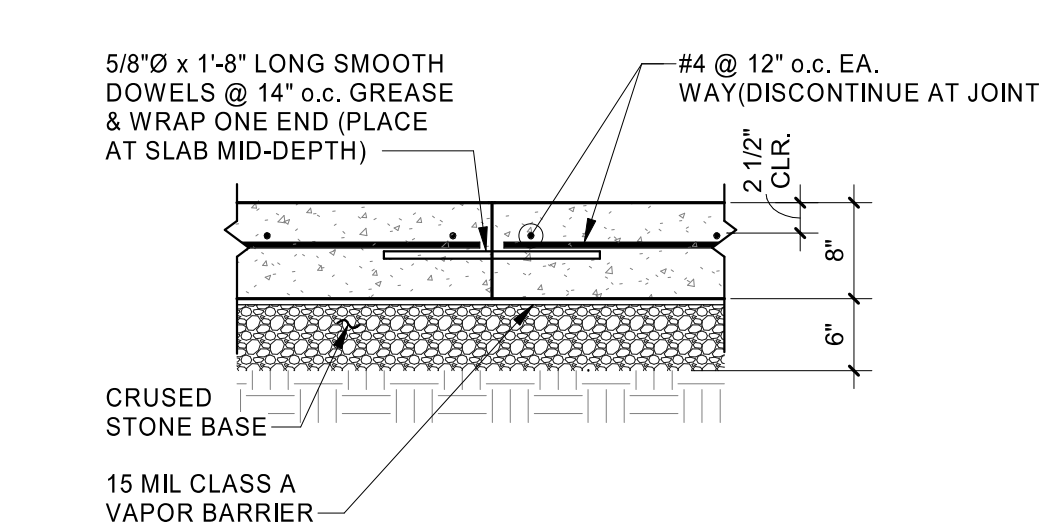
NOTE:  
1. PLACE HAIRPIN AT SLAB MID-DEPTH.  
2. WRAP HAIRPIN AROUND ANCHOR BOLTS.



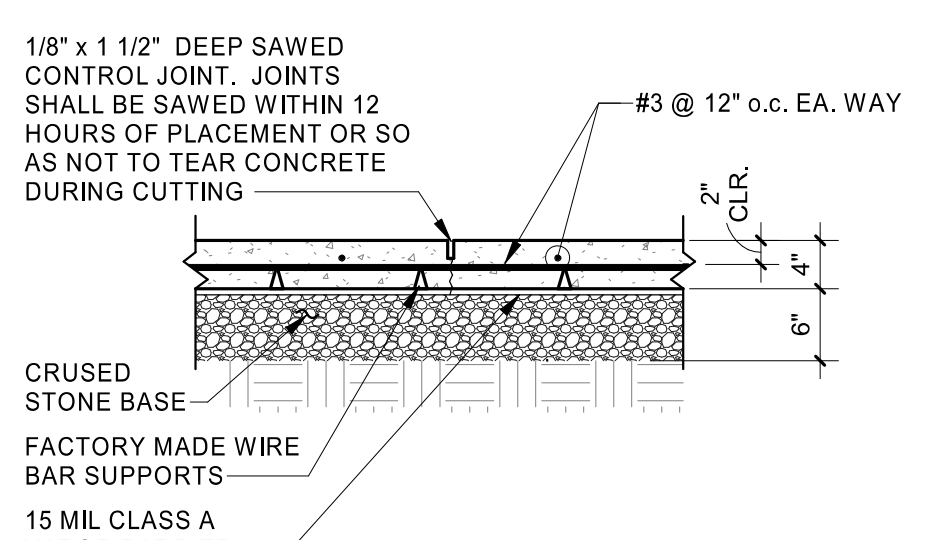
**1 TYP. HAIRPIN DETAILS**  
AS NOTED



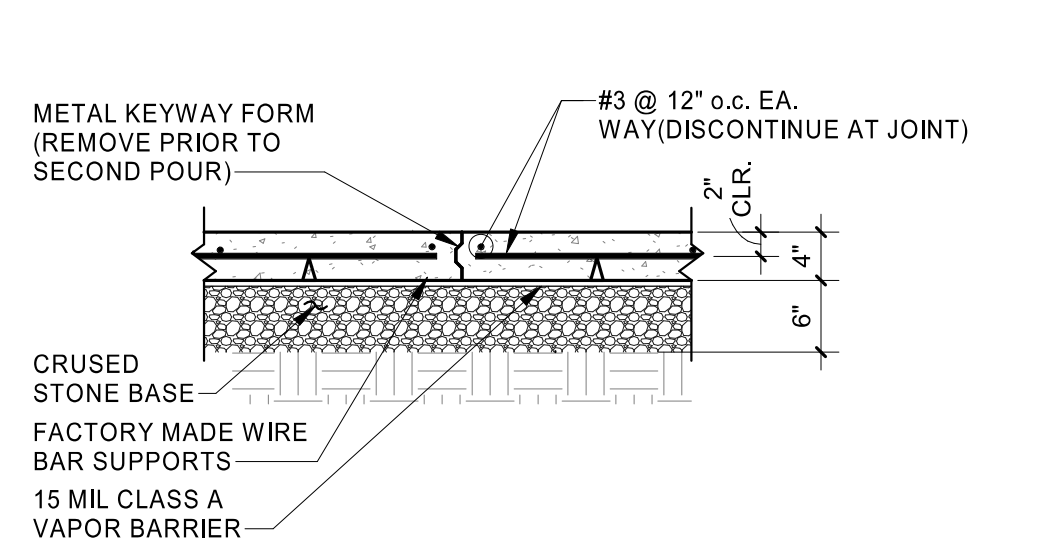
**8" SLAB-ON-GRADE CONTROL JOINT DTL.**  
3/4" = 1'-0"



**8" SLAB-ON-GRADE CONSTRUCTION JOINT DTL.**  
3/4" = 1'-0"



**4" SLAB-ON-GRADE CONTROL JOINT DTL.**  
3/4" = 1'-0"



**4" SLAB-ON-GRADE CONSTRUCTION JOINT DTL.**  
3/4" = 1'-0"

ISSUE BLOCK

NO.	DATE	DESCRIPTION

CHECKED BY: LST  
DRAWN BY: CRM  
DOCUMENT DATE: 02/06/23

LUNGSHEN TSAO  
LICENSED PROFESSIONAL ENGINEER  
20847  
2023.02.06 10:20:52-06'00"

NOTES & DETAILS

SHEET:  
**SDS001**