

STRUCTURAL NOTES:

- GENERAL**
- PRIOR TO STARTING WORK, REVIEW EXISTING UTILITIES WITHIN CONTRACT LIMITS OF WORK SITE AND IDENTIFY UNDERGROUND LOCATIONS, IF POSSIBLE. NOTIFY ENGINEER IF UTILITIES INTERFERE WITH NEW CONSTRUCTION.
 - PRIOR TO ANY EXCAVATION WORK, COMPLY WITH THE REQUIREMENTS OF PENNSYLVANIA ACT 287 OF 1974, AS AMENDED BY ACT 181 OF 2006, REGARDING UNDERGROUND UTILITY LOCATION.
 - OTHERS ARE LISTED TO ESTABLISH REQUIRED QUALITY AND STRENGTHS. OTHER PRODUCTS MAY BE USED, PROVIDED SUFFICIENT EVIDENCE IS SUBMITTED TO ESTABLISH THEY ARE ACCEPTABLE "EQUAL PRODUCTS."
 - CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO START OF WORK. NOTIFY ENGINEER OF ANY SUBSTANTIAL CHANGES IN DIMENSIONS OR CONDITIONS.
 - CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
 - ICC "INTERNATIONAL BUILDING CODE (IBC)", 2015
 - OSHA STANDARDS, CODE OF FEDERAL REGULATIONS, LATEST EDITION
 - ACI "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318)"
 - ACI "SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 308)"
 - ACI "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530)"
 - ACI "SPECIFICATION FOR MASONRY STRUCTURES (ACI 530.1)"
 - AISI "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS (AISI 900)"
 - ALL APPLICABLE LOCAL CODES AND STANDARDS
 - ALL REFERENCED STANDARDS SHALL INCLUDE CURRENT EFFECTIVE REVISIONS.
 - CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING AND TEMPORARY SUPPORT FOR WALLS, ETC. TO PROTECT PERSONNEL AND PROPERTY.
 - CONTRACTOR SHALL PROVIDE ALL NECESSARY WARNING SIGNS, BARRICADES, ETC, AROUND EXCAVATIONS TO PROTECT PERSONNEL AND PROPERTY.
 - REMOVE ALL DEBRIS FROM SITE AND DISPOSE IN A LEGAL MANNER.

- DESIGN LOADS**
- SEE "PRE-ENGINEERED METAL BUILDING NOTES" FOR BUILDING DESIGN LOADS.
 - GARAGE AND MAINTENANCE GRADE SLAB DESIGN CONSIDERED A TRUCK WITH A 39,000lb TOTAL WEIGHT (LOADED), 95% OF WEIGHT TO REAR AXLE, WITH REAR WHEELS 6' APART (CENTER TO CENTER), 100psi TIRE PRESSURE.
 - MAINTENANCE AREA EQUIPMENT PLATFORM DESIGN CONSIDERED A MECHANICAL ALLOWANCE OF 5psf, AND A LIVE LOAD OF 80psf.

- FOUNDATIONS**
- REMOVE ANY SOFT, UNCONSOLIDATED, OR ORGANIC MATERIAL BENEATH FOOTINGS AND GRADE SLABS, AND BACKFILL WITH COMPACTED CRUSHED STONE TO REQUIRED FOOTING/SLAB SUBGRADE ELEVATION. REPORT ANY SOFT OR UNSUITABLE SUBGRADE TO ENGINEER.
 - NO FOOTINGS SHALL BE PLACED ON SOFT, WET, FROZEN, OR LOOSE SOIL.
 - THE BOTTOM OF FOOTINGS SHALL BEAR ON SUITABLE VIRGIN MATERIAL HAVING A MINIMUM BEARING CAPACITY OF 2000psf.
 - SLABS SHALL BE PLACED ON SUITABLE MATERIAL HAVING A MINIMUM WESTERGAARD SUBGRADE MODULUS OF 150psi.
 - ALL FOOTINGS SHALL BEAR ON UNDISTURBED VIRGIN SOIL OR CONTROLLED COMPACTED FILL WITH A MINIMUM ALLOWABLE BEARING CAPACITY = 3,000 PSF. BEARING CAPACITY SHALL BE VERIFIED BY AN APPROVED GEOTECHNICAL TESTING AGENCY UNDER THE SUPERVISION OF A LICENSED GEOTECHNICAL ENGINEER.
 - CONTRACTOR SHALL VERIFY ANCHOR BOLT AND BASE PLATE LAYOUT WITH METAL BUILDING MANUFACTURER'S ERECTION DRAWINGS PRIOR TO START OF CONSTRUCTION. ANY BASE PLATES NOT FITTING ON PIER SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER.

- CONCRETE**
- FOOTING AND TENSION TIE CONCRETE SHALL HAVE $f'_c=3000\text{psi}$, AND SHALL BE AIR ENTRAINED FOR MODERATE EXPOSURE. PIER AND TRENCH DRAIN ENCASMENT CONCRETE SHALL HAVE $f'_c=4500\text{psi}$, AND SHALL BE AIR ENTRAINED FOR MODERATE EXPOSURE.
 - INTERIOR GRADE SLAB CONCRETE AND CONCRETE FOR INTERIOR WALL DOOR SILLS SHALL HAVE $f'_c=5000\text{psi}$. EXTERIOR GRADE SLAB CONCRETE AND CONCRETE FOR EXTERIOR WALL DOOR SILLS SHALL HAVE $f'_c=4500\text{psi}$, AND SHALL BE AIR ENTRAINED FOR SEVERE EXPOSURE.
 - MAXIMUM SLUMP (WITHOUT WATER REDUCING ADMIXTURE) IS 4". USE WATER REDUCING ADMIXTURE TO INCREASE SLUMP AS REQUIRED.
 - AIR ENTRAINING ADMIXTURE SHALL CONFORM TO ASTM C260. WATER REDUCING ADMIXTURE SHALL CONFORM TO ASTM C494 TYPE A. ALL ADMIXTURES SHALL BE COMPATIBLE.
 - REINFORCING SHALL BE ASTM A615 GRADE 60 DEFORMED BARS.
 - WELDED WIRE FABRIC (W/WF) SHALL BE ASTM A195.
 - PROVIDE ANCHOR BOLTS (SIZE, NUMBER, LOCATION, MATERIAL) IN ACCORDANCE WITH PRE-ENGINEERED METAL BUILDING REQUIREMENTS. ANCHOR BOLTS SHALL BE HEADED, HOT-DIPPED GALVANIZED, WITH 12" MINIMUM EMBEDMENT.
 - DRAINAGE FILL BASE BENEATH GRADE SLABS SHALL BE WASHED AND EVENLY GRADED CRUSHED STONE WITH 100% PASSING A 1 1/2" SIEVE AND NOT MORE THAN 5% PASSING A NO. 4 SIEVE.
 - DIAMOND PLATE DONNELS SHALL BE 3/8" x 4 1/2" x 4 1/2" STEEL PLATE, ASTM A36, ZINC ELECTROPLATED TO MEET ASTM B693, TYPE II. DIAMOND PLATE DONNELS SHALL HAVE MATCHING HIGH DENSITY ABS PLASTIC POCKET FORMERS WITH INTERNAL COLLAPSIBLE PINS AND SPACERS. INSTALL AT MID-HEIGHT OF SLAB.
 - GRADE SLAB CONCRETE SHALL BE CURED BY SPRAY APPLIED DISSIPATING CLEAR CURING COMPOUND COMPLYING WITH ASTM C309, TYPE 1. CURING COMPOUND SHALL BE COMPATIBLE WITH ALL CONCRETE ADMIXTURES, ETC. REMOVE RESIDUAL COMPOUND AS REQUIRED PRIOR TO THE APPLICATION OF FINISHES, COATINGS, ETC.
 - CONTINUOUS REINFORCING SHALL BE CONTINUOUS AROUND CORNERS, ETC.
 - SUPPORT GRADE SLAB REINFORCING ACCURATELY IN POSITION WITH CHAIRS OR OTHER SUPPORTS.
 - PROVIDE ANCHOR BOLT LOCATIONS AND TOP OF PIER ELEVATIONS/SURFACES TO TOLERANCES REQUIRED BY PRE-ENGINEERED METAL BUILDING MANUFACTURER FOR COLUMN BASE INSTALLATION WITHOUT GROUT, LEVEL PLATES, ETC.
 - ANCHOR ADHESIVE FOR REINFORCING SHALL BE HILTI "HIT-HY 200" ANCHOR ADHESIVE SYSTEM. PROVIDE HOLE SIZE, CLEAN HOLE, AND INSTALL ADHESIVE AND REINFORCING IN ACCORDANCE WITH HILTI'S INSTRUCTIONS.

- MASONRY**
- CONCRETE MASONRY UNITS (CMU) SHALL BE ASTM C90, HOLLOW LOAD BEARING, NORMAL WEIGHT. 8" SOLID CMU UNITS SHALL BE THIN VENEER UNITS, OR FACE SHELLS CUT FROM STANDARD 8" OR 4" UNITS, WITH ACTUAL THICKNESS OF 3/4" (MAX)
 - MORTAR FOR CMU SHALL BE ASTM C270 TYPE M OR S, TO PROVIDE A MINIMUM COMPRESSIVE STRENGTH OF MASONRY (f'_m) = 2000psi.
 - HORIZONTAL JOINT REINFORCING SHALL BE ASTM A951, LADDER TYPE, HOT DIPPED GALVANIZED, WITH (2) #4 GA SIDE RODS & CROSS RODS AT 16" CENTERS. PROVIDE HORIZONTAL JOINT REINFORCING IN CMU, 16" o.c. MAXIMUM.
 - REINFORCING SHALL BE ASTM A615 GRADE 60 DEFORMED BARS. ALL VERTICAL REINFORCING SHALL BE IN FULLY GROUTED CORES.
 - ALL CMU GROUT SHALL DEVELOP A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF 2000psi.
 - LINTELS FOR INTERIOR 8" CMU WALLS SHALL BE (2) 4"x8" REINFORCED CMU LINTELS WITH 6" MINIMUM BEARING, EACH END.
 - FULLY GROUT CMU BELOW LINTEL BEARINGS.
 - CMU SHALL BE INSTALLED IN RUNNING BOND.
 - IN ADDITION TO GENERAL VERTICAL WALL REINFORCING AND JAMB REINFORCING, PROVIDE #4'S VERTICAL AT CORNERS, CONTROL JOINTS (EACH SIDE), JAMBS, & ENDS OF WALLS.
 - FOUNDATION WALLS SHALL BE BACKFILLED EVENLY DURING CONSTRUCTION TO AVOID UNBALANCED BACKFILL CONDITIONS.

PRE-ENGINEERED METAL BUILDING NOTES

- THE PRE-ENGINEERED METAL BUILDING (PEMB) STRUCTURE SHALL BE A STAND-ALONE STEEL STRUCTURE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE 2015 "INTERNATIONAL BUILDING CODE (IBC)." PRIMARY FRAMES SHALL BE MOMENT RESISTING FRAMES. PROVIDE BRACED FRAMES AND PORTAL FRAMES WHERE INDICATED ON THE FOUNDATION PLAN.
- DESIGN LOADS SHALL NOT BE LESS THAN THE FOLLOWING - DEAD LOAD, CONSISTENT WITH COMPLETE PEMB PACKAGE
LIVE LOAD: 2000lb CONCENTRATED LOAD AT ANY POINT ALONG PRIMARY MEMBERS
MECHANICAL LOADS:
OPERATING WEIGHT OF ROOF-TOP AIR HANDLING UNITS, PLUS 20% VIBRATION MECHANICAL ALLOWANCE, 5psf
SNOW LOADS:
BASIC ROOF SNOW (CORRESPONDING TO 40psf GROUND SNOW, RISK CATEGORY II STRUCTURE), 28psf
ADDITIONAL SNOW, MORE CRITICAL OF THE FOLLOWING (WHEN ADDED TO BASIC ROOF SNOW), 12psf OR SNOW DRIFT (IN ACCORDANCE WITH IBC).
WIND LOADS: PRESSURES CORRESPONDING TO 115mph BASIC WIND SPEED, EXPOSURE C.
SEISMIC LOADS: LOADS CORRESPONDING TO $S_s = 0.19$, $S_1 = 0.061$, $T_L = 6s$, SITE CLASS D, RISK CATEGORY II STRUCTURE

- TOTAL VERTICAL DEFLECTION OF ROOF SYSTEM SHALL BE LESS THAN L/240.
 - TOTAL LATERAL DEFLECTION OF FRAMES AT EAWE DUE TO 10 YEAR WIND SHALL BE LESS THAN $H_{eave}/200$. TOTAL HORIZONTAL DEFLECTION OF GIRTS PROVIDING LATERAL SUPPORT FOR CMU WALLS DUE TO 10 YEAR WIND SHALL BE LESS THAN L/240, 1.5" MAXIMUM.
 - DESIGN AND CONSTRUCTION SHALL MEET OR EXCEED CURRENT METAL BUILDING MANUFACTURERS ASSOCIATION (MBMA) PROCEDURES. DESIGN SHALL BE CERTIFIED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE COMMONWEALTH OF PENNSYLVANIA. SUBMIT DRAWINGS AND DESIGN CALCULATIONS SEALED AND SIGNED BY THE CERTIFYING ENGINEER.
 - SUBMIT ANCHOR BOLT PLACEMENT PLAN AND COLUMN REACTIONS PRIOR TO FOUNDATION CONSTRUCTION. SEE FOOTING DESIGN LOAD SCHEDULE.
- MAXIMUM COLUMN ECCENTRICITIES (FROM CENTERLINE OF PIERS/FOOTINGS) USED FOR PIER AND FOOTING DESIGN ARE SHOWN ON FOOTING DESIGN LOAD SCHEDULE. IF FINAL COLUMN ECCENTRICITIES EXCEED THOSE USED FOR DESIGN, PROVIDE REVISED PIER/FOOTING DESIGNS, AS REQUIRED, FOR FINAL ECCENTRICITIES.

- PROVIDE VERIFICATION REPORT THAT FINAL COLUMN DESIGN LOADS (MAXIMUMS, UPLIFTS) ARE LESS THAN THOSE USED FOR FOOTING DESIGNS. IF DESIGN LOADS EXCEED THOSE USED FOR DESIGN, PROVIDE REVISED FOOTINGS, DESIGNED FOR FINAL LOADS.
- PROVIDE VERIFICATION REPORT THAT PIER DESIGNS ARE ADEQUATE FOR FINAL COLUMN DESIGN LOADS (MAXIMUMS, UPLIFTS), AND ANCHOR BOLT SIZES/LOCATIONS/EMBEDMENTS. IF PIER DESIGNS ARE INADEQUATE, PROVIDE REVISED PIER REINFORCING, DESIGNED FOR FINAL LOADS.
- VERIFICATION REPORTS AND DESIGN OF REVISED FOOTINGS AND PIER REINFORCING SHALL BE PROVIDED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE COMMONWEALTH OF PENNSYLVANIA. SUBMIT REPORTS AND DESIGN CALCULATIONS SEALED AND SIGNED BY THE CERTIFYING ENGINEER.

- COORDINATE PIER REINFORCING WITH ANCHOR BOLT SIZES/LOCATIONS/EMBEDMENTS.
- THE BASIS OF DESIGN FOR THE PRE-ENGINEERED BUILDING AND FOUNDATIONS IS MANUFACTURER VARCO-PRUDEN BUILDINGS. IF A MANUFACTURER OTHER THAN VARCO-PRUDEN IS ACCEPTED BY THE OWNER, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING CONSTRUCTION PLANS THAT ARE SIGNED AND SEALED BY A PA PROFESSIONAL ENGINEER. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ANY CHANGES TO THE PLANS INCLUDING BUT NOT LIMITED TO PRE-ENGINEERED STEEL, FOUNDATIONS, ANCHOR BOLTS, ETC.

COLD-FORMED LIGHT GAGE STEEL (CFS)

- STEEL JOISTS AND TRACK SHALL BE LIGHT GAGE GALVANIZED STEEL SECTIONS. PROPERTIES AND STRENGTHS SHALL BE IN ACCORDANCE WITH AISI 9100.
- SECTIONS SHALL HAVE THE FOLLOWING MINIMUM DIMENSIONS, THICKNESSES, PROPERTIES, AND STRENGTHS:
JOISTS -
8" x 1 5/8" x 14ga (68), 8" WEB x 1 5/8" FLANGE W/ 1/2" LIP, 14ga (0.0713"), $F_y=50\text{kai}$, $I_x = 4.7449\text{in}^4$, $I_{yc} = 25.266\text{in}^4$, $I_{yz} = 1.095\text{in}^4$
TRACK -
8" x 1 1/2" x 16ga (54), 8.198" WEB x 1 1/2" FLANGE, 16ga (0.0566"), $F_y=50\text{kai}$, $I_x = 4.7449\text{in}^4$, $I_{yc} = 25.266\text{in}^4$, $I_{yz} = 1.095\text{in}^4$
- SCREW ANCHORS SHALL BE HILTI "KWIK HUB-EZ (KH-EZ)" CONCRETE ANCHORS. INSTALL IN ACCORDANCE WITH HILTI'S INSTRUCTIONS.
- SCREWS SHALL BE ITW BUILDEX "TEKS" SELF-DRILLING FASTENERS. #10 SCREWS SHALL BE 10-16, 0.190" (NOM), WITH NOMINAL TENSILE STRENGTH OF 2,654lbs & NOMINAL SHEAR STRENGTH OF 1,718lbs.
- PLYWOOD FOR EQUIPMENT PLATFORM SHALL BE 23/32" PLYWOOD SHEATHING, C-D PLUGGED, EXP 1, WITH A 48/24 SPAN RATING, CONFORMING TO VOLUNTARY PRODUCT STANDARD PS-1, FASTEN TO CFS WITH FLUSH FASTENERS, 6" o.c. ALONG PANEL EDGES, AND 12" o.c. ALONG INTERMEDIATE SUPPORTS.
- INSTALL THE FOLLOWING CONNECTORS IN ACCORDANCE WITH THE CONNECTOR MANUFACTURER'S INSTRUCTIONS:
DIETRICH CONNECTORS FROM CLARKDIETRICH BUILDING SYSTEMS -
"X545 EASYCLIP" SUPPORT CLIP, INSTALLED WITH (3)#10 SCREWS TO JOIST, (2) 1/4" SCREW ANCHORS TO CMU
7. CONNECTORS SHALL BE GALVANIZED.
8. JOIST WEB HOLES (PUNCHOUTS) SHALL NOT BE WITHIN THE END BEARING LENGTHS.
9. TRACK SHALL BE CONTINUOUS (NO SPLICES).
10. WHERE SPECIFIC CFS CONNECTIONS OR FASTENING IS NOT SHOWN, PROVIDE MINIMUM IN ACCORDANCE WITH IBC.

FOOTING DESIGN LOAD SCHEDULE

FTG MARK	MAXIMUM COLUMN LOADS (k)							MINIMUM COLUMN LOADS (k)				MAXIMUM COLUMN ECCENTRICITY		
	Loc	Case	WORKING LOADS			FACTORED LOADS			FOR UPLIFT					
P _{max}			H _{psrp}	H _{par}	P _{umax}	H _u psrp	H _u par	Loc	Case	P _{min}	W _{Lup}	W _{LHpsrp}		
F1	ALL	1	78.9	33.3	6.1	119.2	51.7	10.2	ALL	1	3.3	34.4	-3.9	1/2' TO INTERIOR
F2	ALL	1	77.7	33.6	8.6	123.8	52.2	14.3	2G	1	5.1	47.3	-9.9	1/2' TO INTERIOR
										2	5.1	37.4	-17.5	
									5G 6G	1	4.7	40.9	-8.0	
F3	ALL	1	71.4	33.6	2.9	108.9	51.7	4.8	ALL	1	4.6	32.8	-5.1	1/2' TO INTERIOR
										2	4.6	31.2	-18.8	
F4	ALL	1	125.3	0	0	186.9	0	0	ALL	1	7.7	58.3	-	NO ECCENTRICITY
F5	ALL	1	25.5	0	0	38.4	0	0	ALL	1	2.5	10.8	-	NO ECCENTRICITY
F6	ALL	1	53.9	0	0	81.7	0	0	ALL	1	4.6	23.4	-	NO ECCENTRICITY
F7	ALL	1	6.7	2.5	2.7	10.6	4.2	4.5	ALL	1	0.4	8.4	-	
F8	ALL	1	7.9	2.4	0.9	11.9	4.0	1.5	ALL	1	0.7	5.3	-	
										2	0.7	5.3	-	
F9	1B 10B	1	10.8	3.1	0	16.2	5.2	0	1B 10B	1	0.6	7.2	-5.2	1/2' TO INTERIOR
										2	0.6	7.2	4.7	1/2' TO INTERIOR
										1	1.1	9.9	-3.6	1/2' TO EXTERIOR
F10	1E 10E 10G	1	17.5	3.6	3.8	28.5	6.0	6.4	1E 10E 10G	1	0.8	20.9	-6.0	1/2' TO EXTERIOR
										2	0.8	20.9	5.5	1/2' TO EXTERIOR
										1	1.2	10.6	-3.6	3/8' TO EXTERIOR
										2	1.2	10.6	3.3	3/8' TO EXTERIOR
F11	1G	1	21.5	4.7	8.6	32.7	7.9	14.4	1G	1	0.9	30.5	-	
										2	1.1	11.9	6.4	

DESIGN LOADS ARE PEMB COLUMN BASE LOADS ON PIERS.

P_{max}, P_{umax} = VERTICAL LOADS (+ DOWNWARD)
H_{psrp}, H_upsrp = HORIZONTAL LOADS, PERPENDICULAR TO ADJACENT BUILDING LINE (+ OUTWARD)
H_{par}, H_upar = HORIZONTAL LOADS, PARALLEL TO ADJACENT BUILDING LINE
P_{min} = MINIMUM "IN-PLACE" VERTICAL DEAD LOAD (+ DOWNWARD)
W_{Lup} = VERTICAL WIND UPLIFT LOAD, W (+ UPWARD)
W_{LHpsrp} = HORIZONTAL PERPENDICULAR WIND LOAD, OCCURRING WITH WIND UPLIFT LOAD, CONSIDERED FOR UPLIFT DESIGN

FOR FOOTINGS AT 1G, 7G, AND CORNERS, THE ADJACENT BUILDING LINES SHALL BE CONSIDERED BUILDING LINES A, G, AND Q.

* - BASE LOAD TRANSFERRED TO TENSION TIE. FOOTING DESIGN INCLUDED CONSIDERATION OF MOMENT DUE TO DISTANCE OF TIE REINFORCING (1'-4") FROM TOP OF PIER. TIE LOADS VARY. SEE TIE DETAIL FOR DESIGN TIE LOADS.

** - BASE LOAD TRANSFERRED TO ADJACENT GRADE WALL. NO FOOTING DESIGN MOMENT CONSIDERED. BASE LOADS ONLY OCCUR AT COLUMNS ADJACENT TO BRACED BAYS / PORTAL FRAME. BASE LOADS VARY. SEE GRADE WALL DETAILS FOR DESIGN GRADE WALL LOADS.

*** - BASE LOAD TRANSFERRED TO ADJACENT FOUNDATION WALL. NO FOOTING DESIGN MOMENT CONSIDERED. BASE LOADS ONLY OCCUR AT CORNER COLUMNS. BASE LOADS VARY. ADJACENT FOUNDATION WALL IS DESIGNED FOR A 2.5K MAXIMUM IN-PLANE HORIZONTAL BASE LOAD (ASD).

FOOTING SCHEDULE

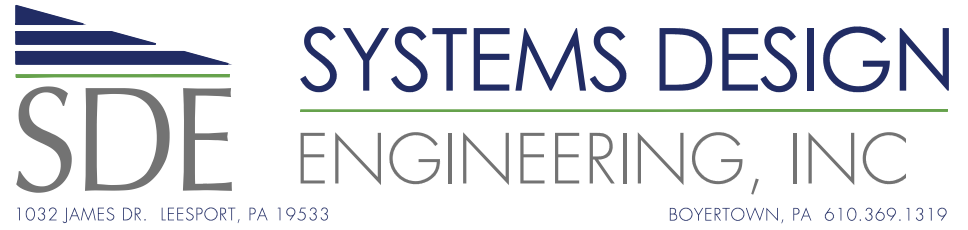
MARK	SIZE	REINFORCING	NOTES
F1	8'-0" x 8'-0" x 1'-4"	(9) #5'S E.W., TOP & BOTTOM	--
F2	8'-6" x 8'-6" x 1'-4"	(10) #5'S E.W., TOP & BOTTOM	--
F3	7'-8" x 7'-8" x 1'-4"	(9) #5'S E.W., TOP & BOTTOM	--
F4	9'-0" x 9'-0" x 1'-6"	(8) #6'S E.W., TOP & BOTTOM	--
F5	3'-9" x 3'-9" x 1'-0"	(4) #5'S E.W., @ MIDTH	--
F6	5'-9" x 5'-9" x 1'-0"	(5) #5'S E.W., TOP & BOTTOM	--
F7	4'-0" x 4'-0" x 1'-0"	(4) #5'S E.W., @ MIDTH	--
F8	3'-6" x 3'-6" x 1'-0"	(3) #5'S E.W., @ MIDTH	--
F9	7'-0" x 4'-0" x 1'-2"	(5) #5'S L.D., TOP & BOT. - (7) #5'S S.D., TOP & BOT.	L.D. IS PERPENDICULAR TO EXTERIOR WALL
F10	8'-0" x 7'-3" x 1'-4"	(9) #5'S E.W., TOP & BOTTOM	L.D. IS PERPENDICULAR TO EXTERIOR WALL
F11	8'-0" x 5'-6" x 1'-3"	(6) #5'S L.D., TOP & BOT. - (9) #5'S S.D., TOP & BOT.	L.D. IS PERPENDICULAR TO EXTERIOR WALL

- NOTES:**
- REINFORCING NOTED "E.W." SHALL BE INSTALLED EACH WAY.
 - REINFORCING NOTED "L.D." SHALL BE INSTALLED IN THE LONG DIRECTION.
 - REINFORCING NOTED "S.D." SHALL BE INSTALLED IN THE SHORT DIRECTION.
 - REINFORCING SHALL BE EVENLY SPACED.
 - SEE PIER DETAILS FOR FOOTING LAYOUT.
 - SEE TYPICAL COLUMN FOOTING DETAIL.

PIER SCHEDULE

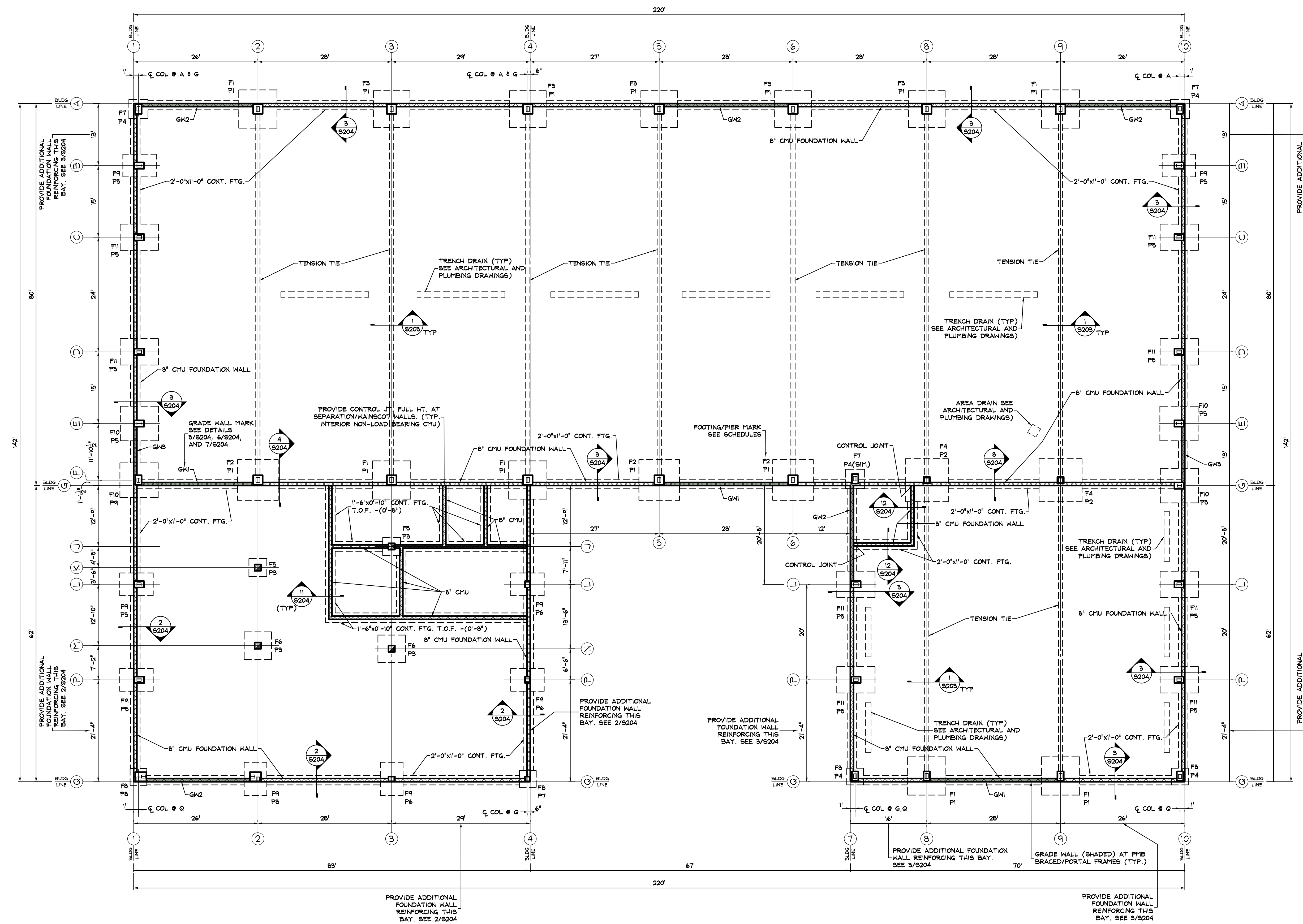
MARK	SIZE	REINFORCING DETAILS	NOTES
P1	24" x 24"	SEE PIER REINFORCING DETAILS	--
P2	16" x 16"	SEE PIER REINFORCING DETAILS	--
P3	16" x 16"	SEE PIER REINFORCING DETAILS	--
P4	16" x 24"	SEE PIER REINFORCING DETAILS	--
P5	16" x 24"	SEE PIER REINFORCING DETAILS	--
P6	16" x 12"	SEE PIER REINFORCING DETAILS	--
P7	12" x 12"	SEE PIER REINFORCING DETAILS	--
P8	23" x 28"	SEE PIER REINFORCING DETAILS	--
P9	16" x 24"	SEE PIER REINFORCING DETAILS	--

- NOTES:**
- SEE PIER DETAILS FOR PIER LAYOUT.
 - SEE TYPICAL COLUMN FOOTING DETAIL.

1 10/25/19		ISSUE FOR BID		JWS	
NO. DATE		REVISION		BY	
 <p>1032 JAMES DR. LEESPORT, PA 19333 PHONE: 610.916.8500 FAX: 610.916.8501</p>					
<p>MUHLENBERG TOWNSHIP PROPOSED PUBLIC WORKS BUILDING NOTES AND SCHEDULES</p>					
<p>SITUATE IN BERKS COUNTY PENNSYLVANIA</p>					
DRAWN BY	CHECKED	APPROVED	CADD FILE NAME		
JWS	RAS	TSU	S001 Notes and Schedules.dwg		
DATE	SCALE	DRAWING NUMBER			
08/23/19	NONE	D-19-0153-0144-S001			

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- FOUNDATION GENERAL NOTES:**
- EXCEPT WHERE NOTED, ALL TOP OF FOOTING (T.O.F.) ELEVATIONS ARE $-(2'-8")$, REFERENCED TO GRADE SLAB ELEVATION (HIGH POINT)
 - ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY; COORDINATE FINAL DIMENSIONS IN FIELD AND WITH METAL BUILDING MANUFACTURER'S DRAWINGS.
 - CONTRACTOR SHALL COORDINATE ALL VENDOR REQUIREMENTS FOR SPECIALIZED EQUIPMENT WITH STRUCTURAL ENGINEER PRIOR TO PLACING CONCRETE.
 - SEE DRAWINGS 5001 FOR GENERAL STRUCTURAL NOTES.
 - G.C. VERIFY AND COORDINATE FINAL GRADES WITH BOTTOM OF ALL EXTERIOR FOUNDATIONS. BOTTOM OF ALL EXTERIOR FOUNDATION SHALL BE 3'-6" MINIMUM BELOW GRADE.
 - THE BASIS OF DESIGN FOR THE PRE-ENGINEERED BUILDING AND FOUNDATIONS IS MANUFACTURER VARCO-PRUDEN BUILDINGS. IF A MANUFACTURER OTHER THAN VARCO-PRUDEN IS ACCEPTED BY THE OWNER, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING CONSTRUCTION PLANS THAT ARE SIGNED AND SEALED BY A PA PROFESSIONAL ENGINEER. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ANY CHANGES TO THE PLANS INCLUDING BUT NOT LIMITED TO PRE-ENGINEERED STEEL, FOUNDATIONS, ANCHOR BOLTS, ETC.



FOUNDATION PLAN
SCALE: 3/32" = 1'-0"

1	10/25/19	ISSUE FOR BID	JWS
NO.	DATE	REVISION	BY

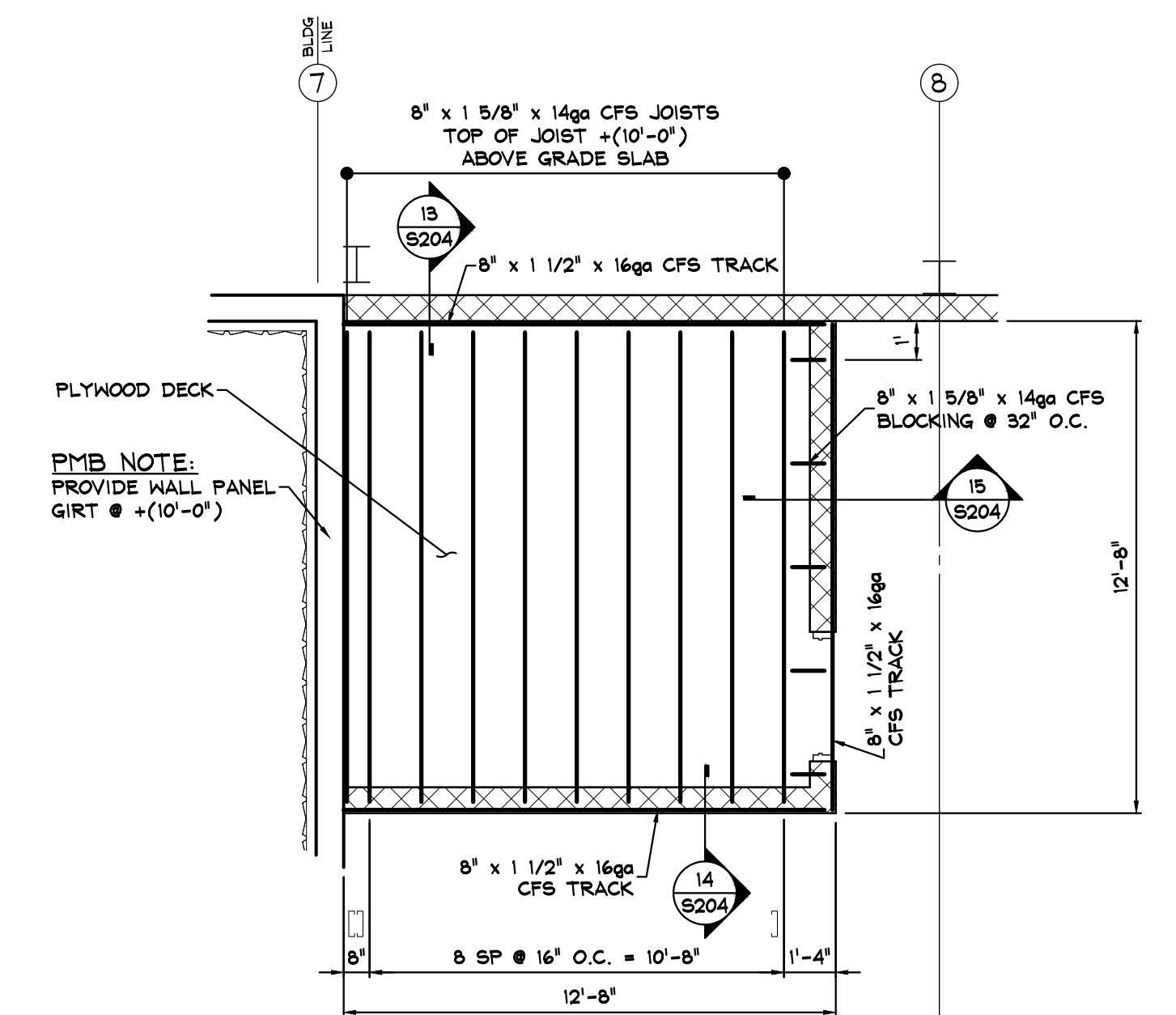
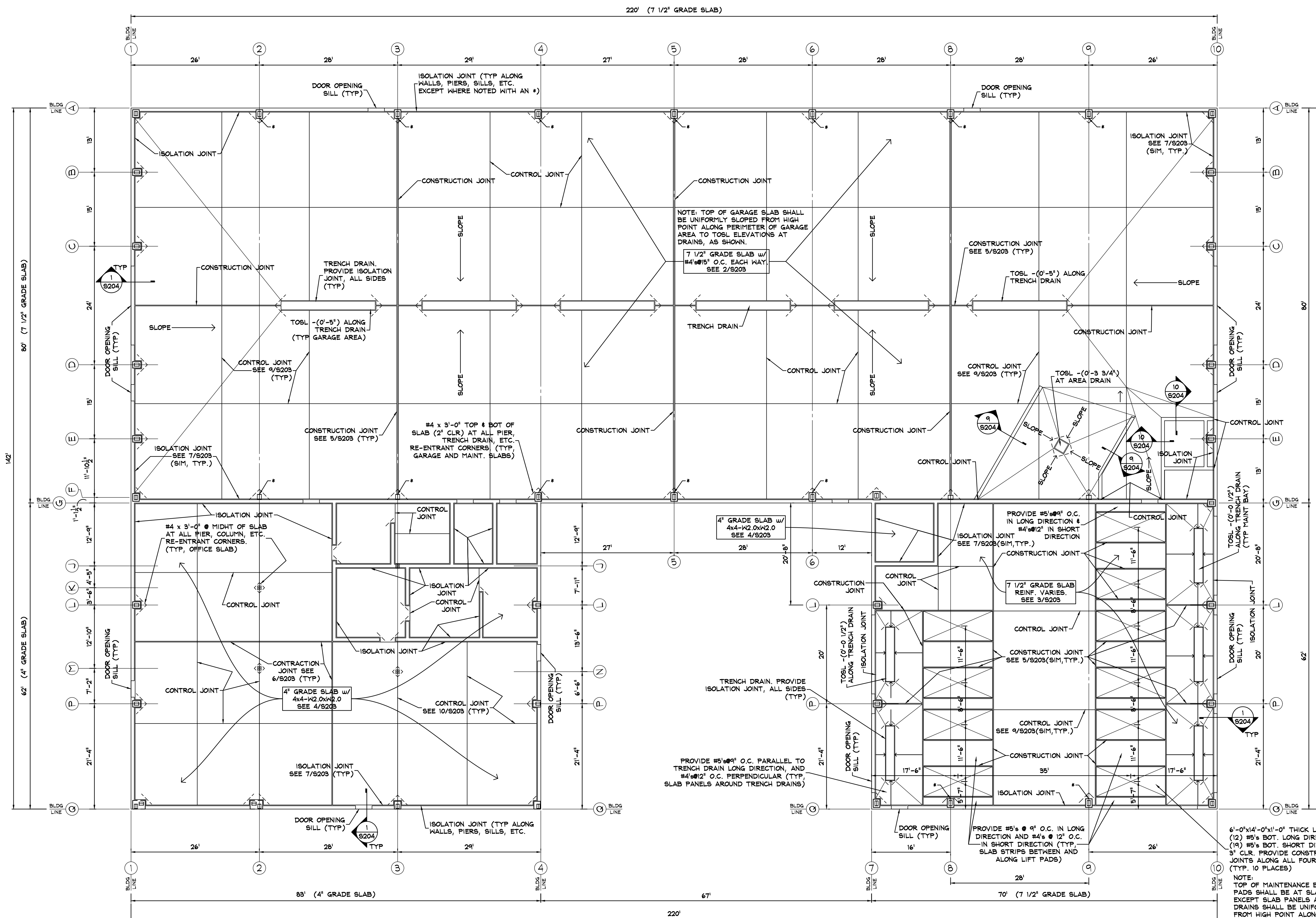
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MUHLENBERG TOWNSHIP
PROPOSED PUBLIC WORKS BUILDING
FOUNDATION PLAN

SITUATE IN
 BERKS COUNTY PENNSYLVANIA

DRAWN BY	CHECKED	APPROVED	CADD FILE NAME
JWS	RAS	TSU	S101 Foundation Plan.dwg
DATE	SCALE	DRAWING NUMBER	
08/23/19	3/32" = 1'-0"	D-19-0153-0144-S101	

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**OFFICE/PARTS/STORAGE AREA [124]
EQUIPMENT PLATFORM
FRAMING PLAN**
SCALE: 1/4" = 1'-0"

NOTE: PROVIDE GUARD ALONG OPEN SIDES OF EQUIPMENT PLATFORM. GUARD SHALL BE DESIGNED AND INSTALLED/ANCHORED TO CMU WALL (BOND BEAM) IN ACCORDANCE WITH OSHA REQUIREMENTS.

CONCRETE SLAB PLAN
SCALE: 3/32" = 1'-0"

- NOTES:
1. TOP OF SLAB (TOSL) ELEVATIONS ARE REFERENCED TO TOP OF GRADE SLAB ELEVATION (HIGH POINT).
 2. * * PROVIDE CONTACT JOINT ALONG FACE OF PIERS FOR PMB MOMENT FRAME COLUMNS (ABOVE TENSION TIES). SEE 8/5203.
 3. LOCATE OFFICE AREA GRADE SLAB CONTROL JOINTS BENEATH PARTITIONS WHERE POSSIBLE.

6'-0"x14'-0"x1'-0" THICK LIFT PAD. (12) #5'S BOT. LONG DIRECTION, (19) #5'S BOT. SHORT DIRECTION, 3" CLR. PROVIDE CONSTRUCTION JOINTS ALONG ALL FOUR SIDES. (TYP. 10 PLACES)
NOTE: TOP OF MAINTENANCE BAY SLAB/LIFT PADS SHALL BE AT SLAB HIGH POINT, EXCEPT SLAB PANELS AROUND TRENCH DRAINS SHALL BE UNIFORMLY SLOPED FROM HIGH POINT ALONG PANEL PERIMETER TOSL ELEVATIONS AT DRAINS, AS SHOWN.

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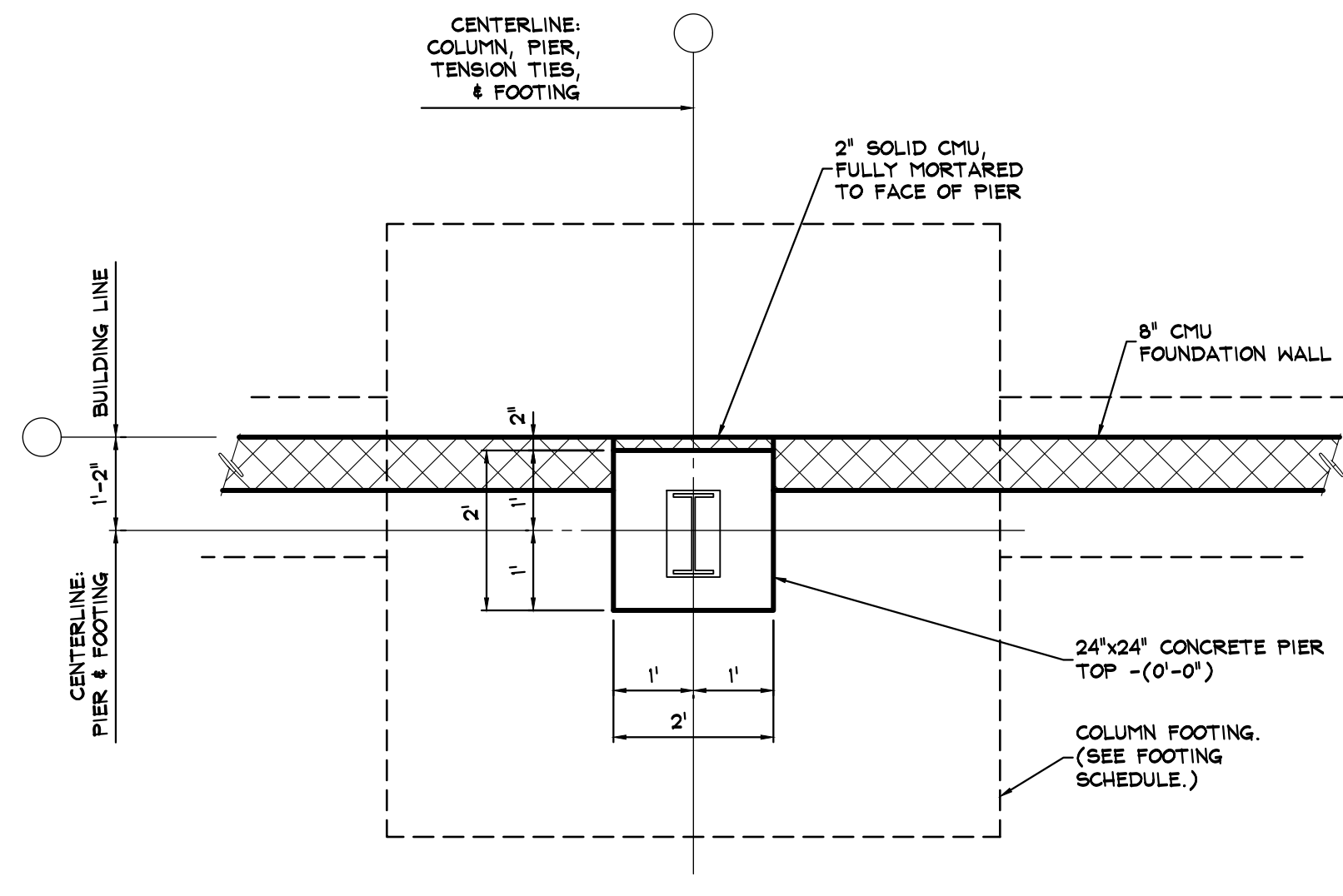
SYSTEMS DESIGN ENGINEERING, INC
1032 JAMES DR. HESPORT, PA 19533
PHONE: 610.915.8500 FAX: 610.916.8501

MUHLENBERG TOWNSHIP
PROPOSED PUBLIC WORKS BUILDING
CONCRETE SLAB PLAN
EQUIPMENT PLATFORM FRAMING PLAN

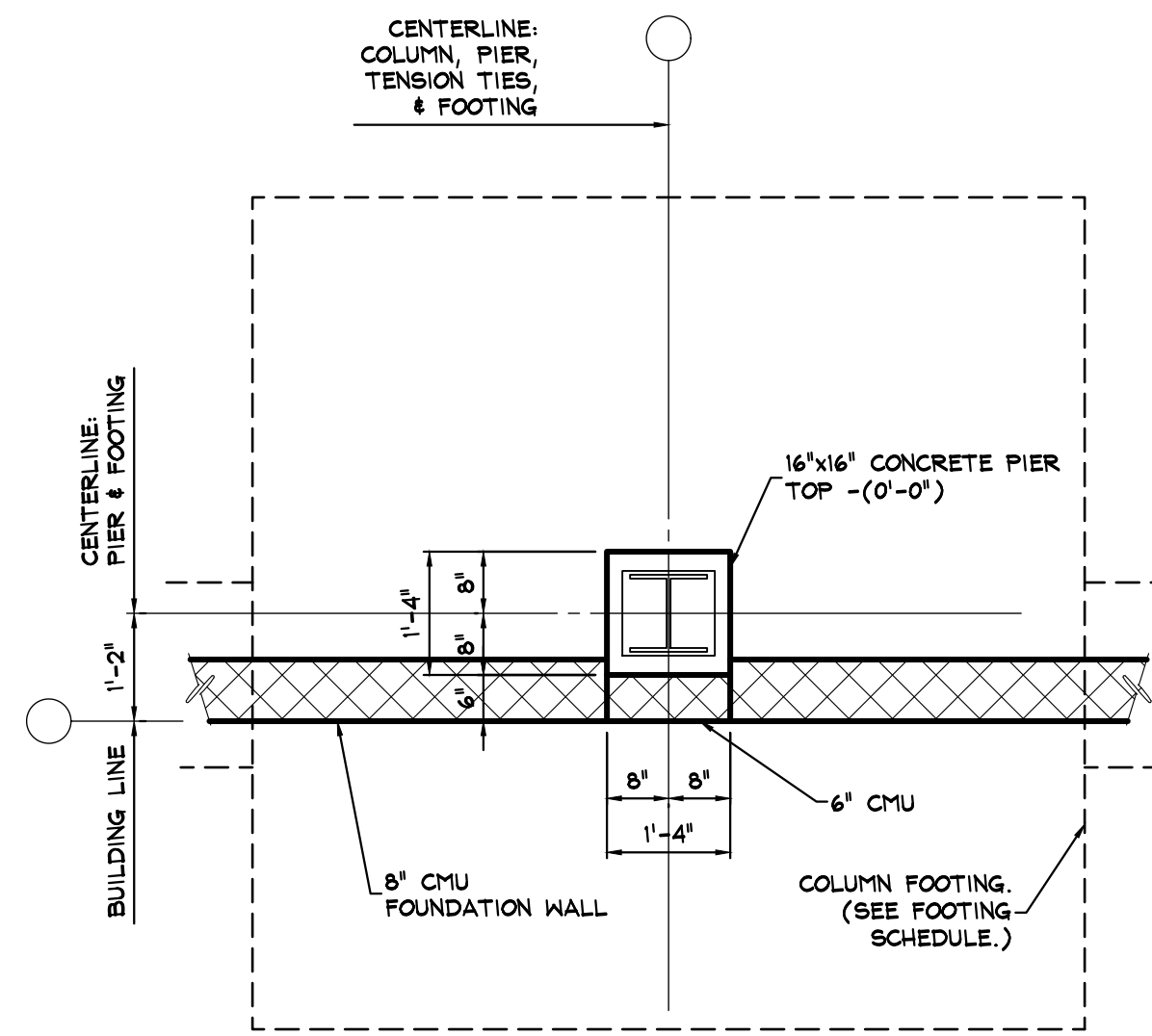
MUHLENBERG TOWNSHIP BERKS COUNTY PENNSYLVANIA

DRAWN BY	CHECKED	APPROVED	CADD FILE NAME
JWS	RAS	TSU	S102.Slab Plan.dwg
DATE	SCALE	DRAWING NUMBER	
08/23/19	3/32" = 1'-0"	D-19-0153-0144-S102	

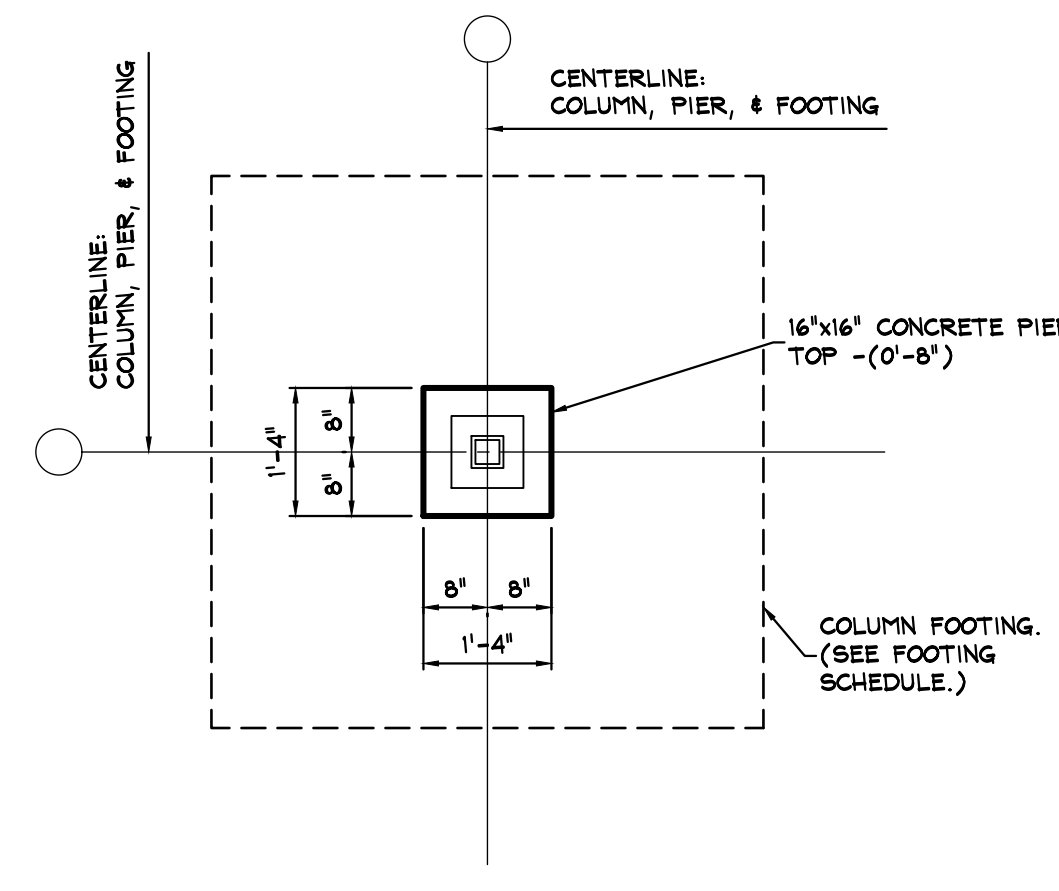
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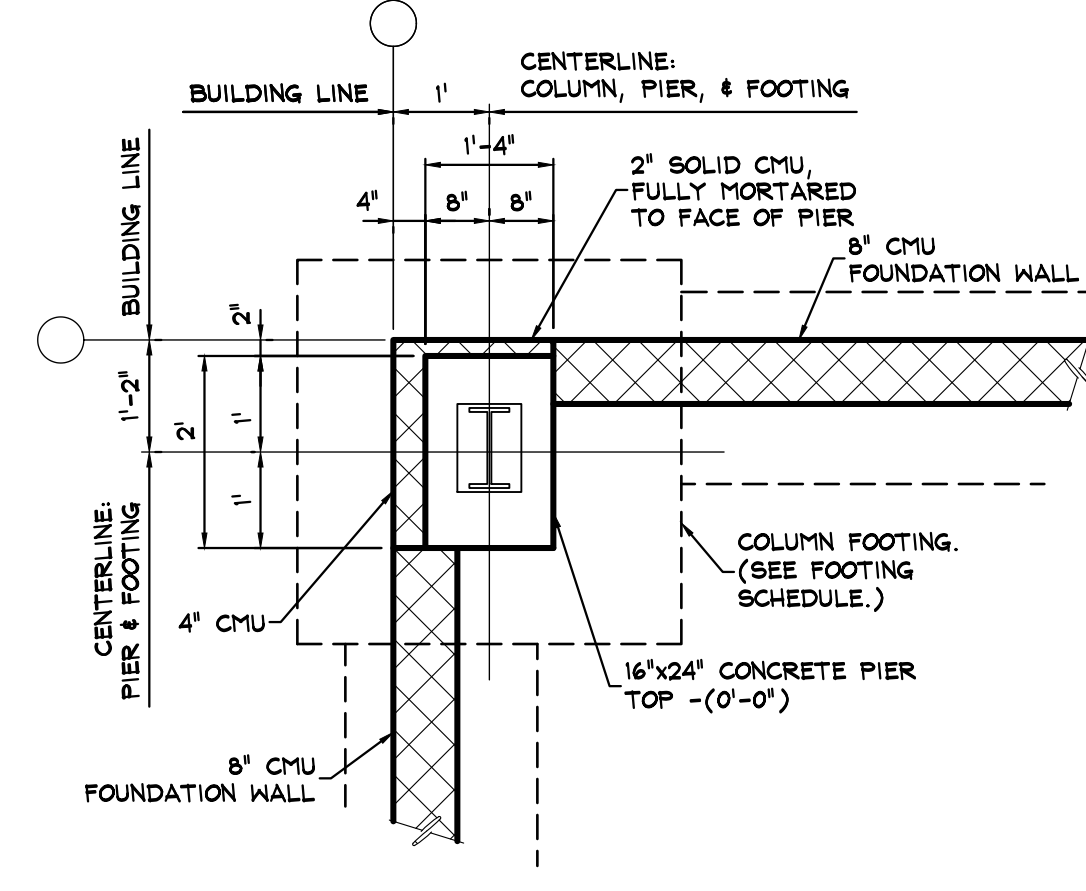
PIER P1 DETAIL
SCALE: 1/2" = 1'-0"



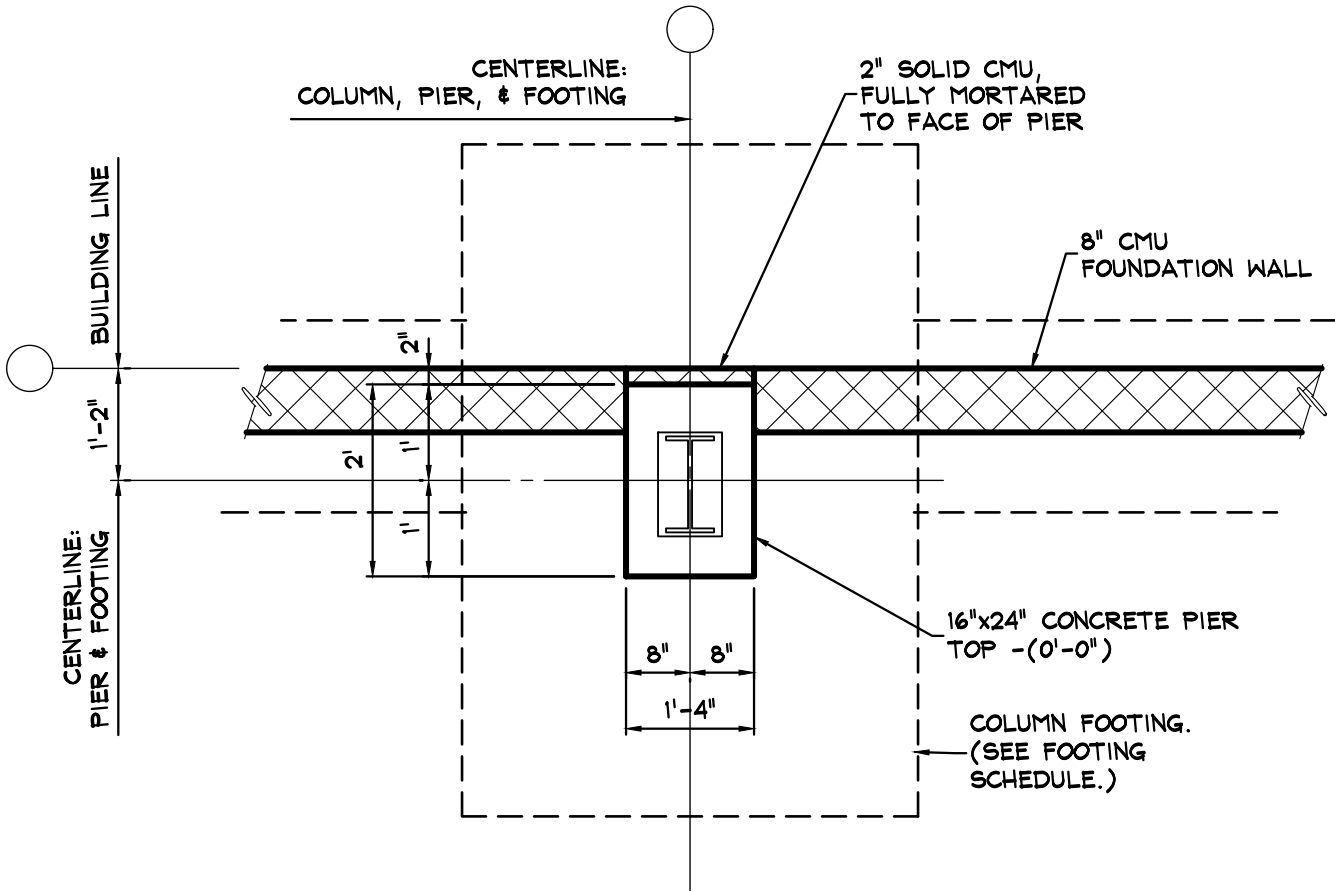
PIER P2 DETAIL
SCALE: 1/2" = 1'-0"



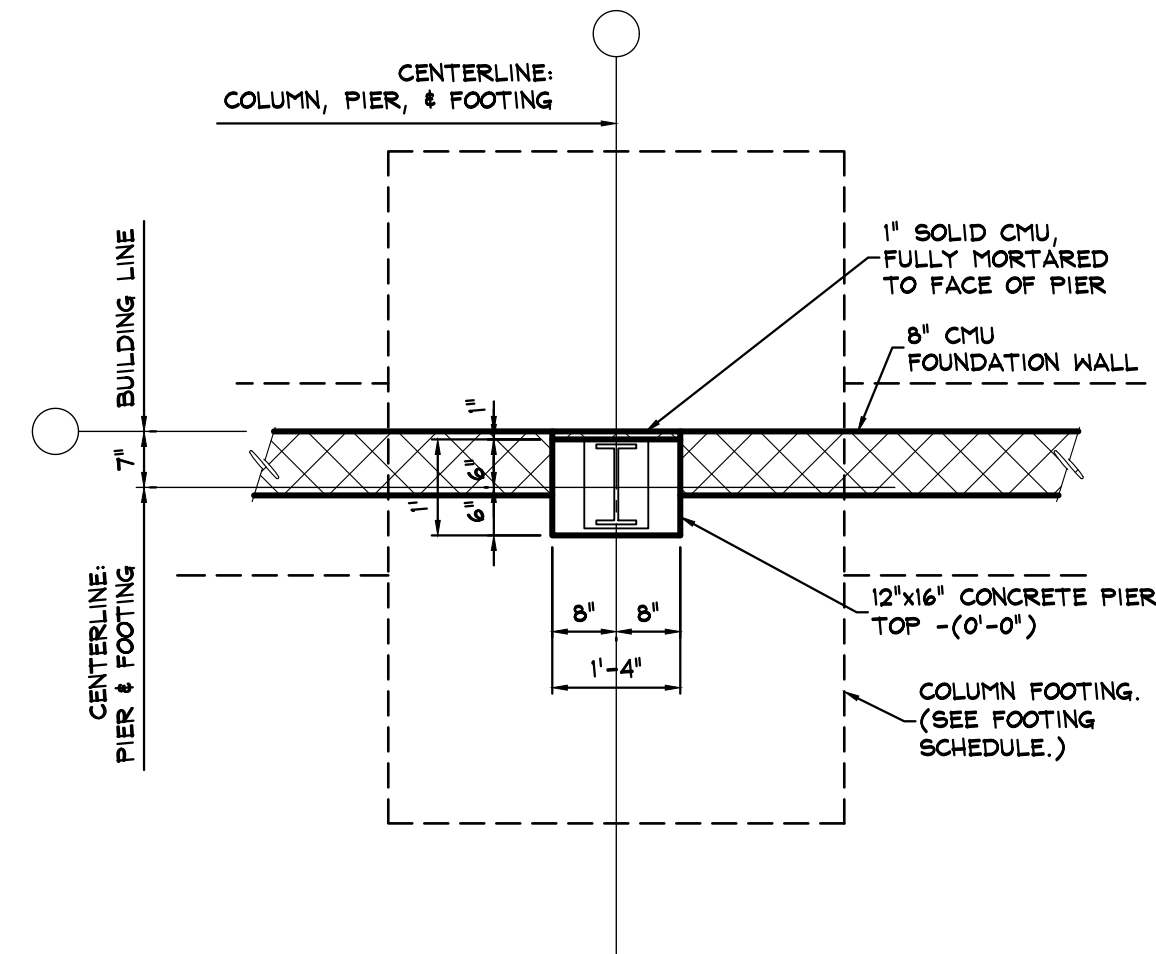
PIER P3 DETAIL
SCALE: 1/2" = 1'-0"



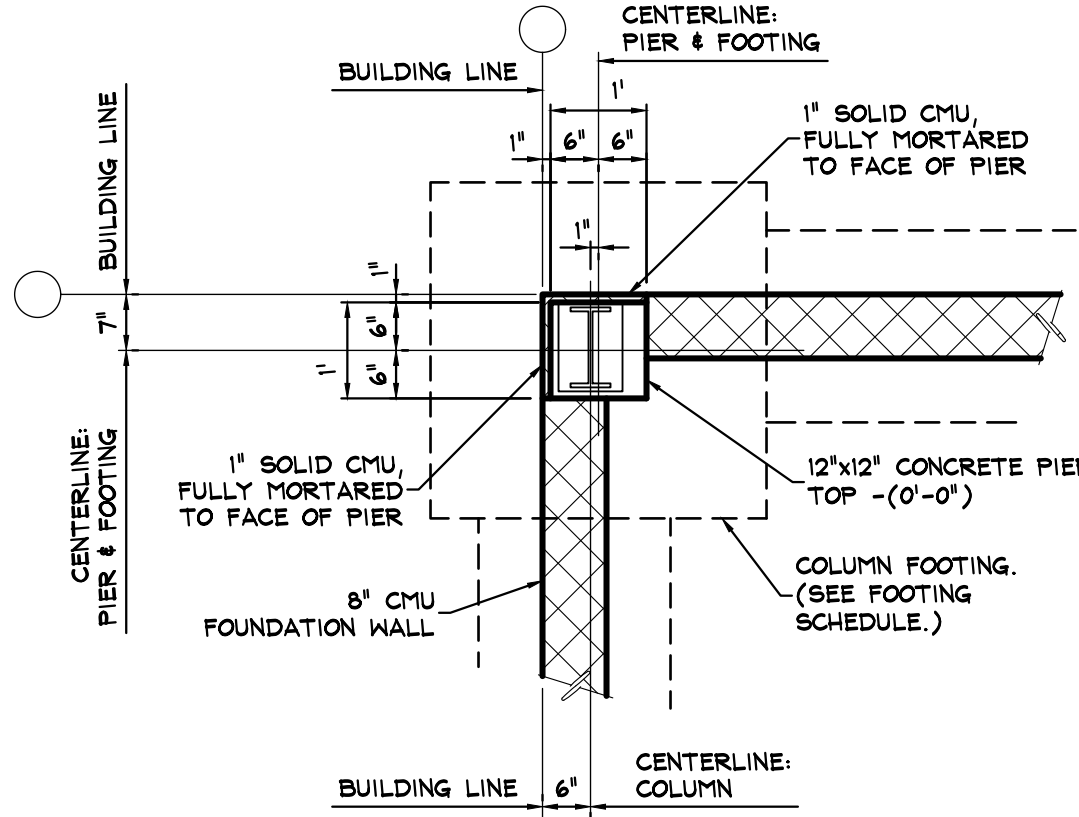
PIER P4 DETAIL
SCALE: 1/2" = 1'-0"
NOTE: CMU WALL LOCATIONS MAY BE OPPOSITE HAND.



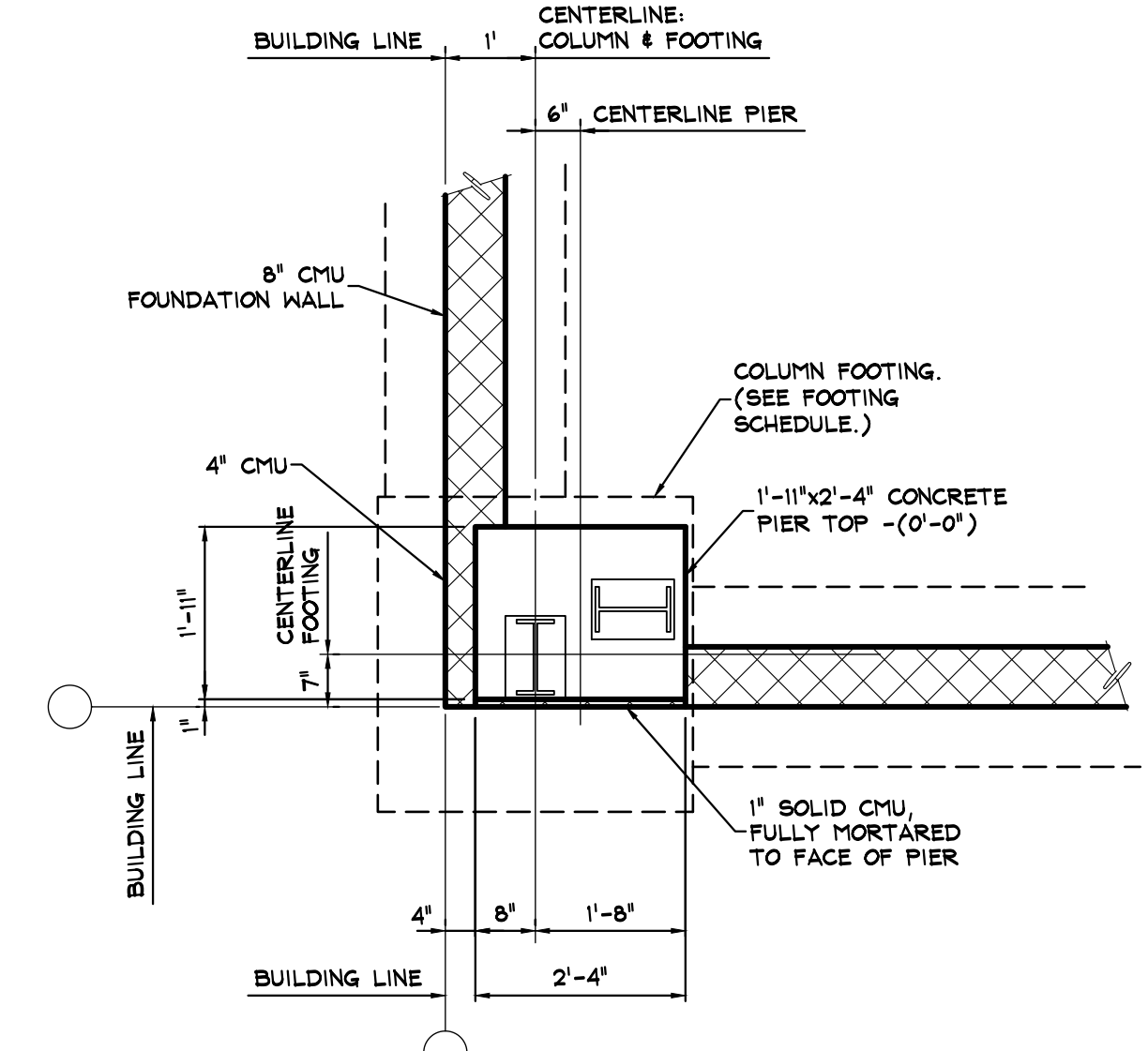
PIER P5 DETAIL
SCALE: 1/2" = 1'-0"



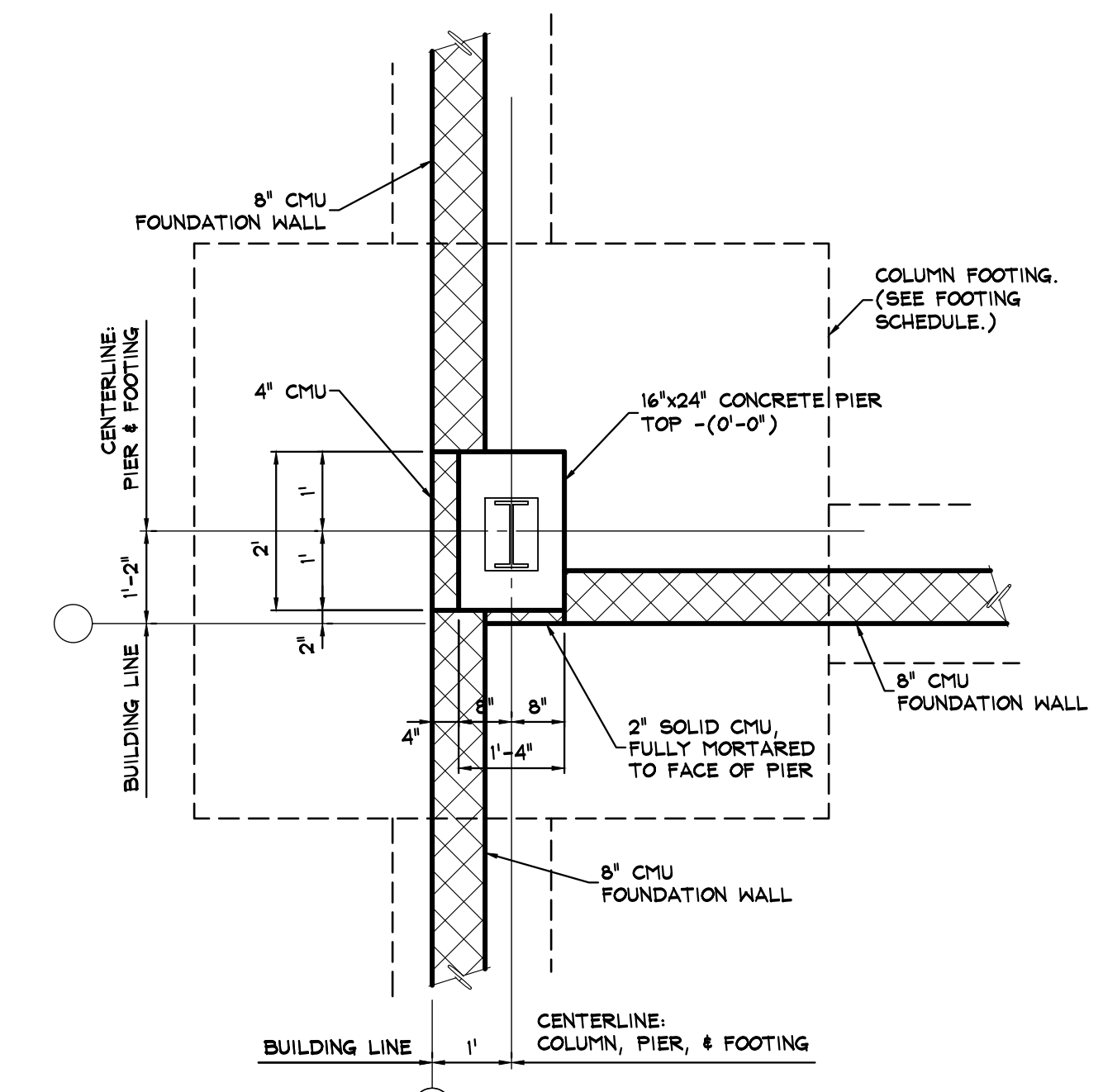
PIER P6 DETAIL
SCALE: 1/2" = 1'-0"



PIER P7 DETAIL
SCALE: 1/2" = 1'-0"



PIER P8 DETAIL
SCALE: 1/2" = 1'-0"
NOTE: PIER # 1/Q AS SHOWN, PIER # 2/Q, SIMILAR, OPPOSITE HAND.



PIER P9 DETAIL
SCALE: 1/2" = 1'-0"

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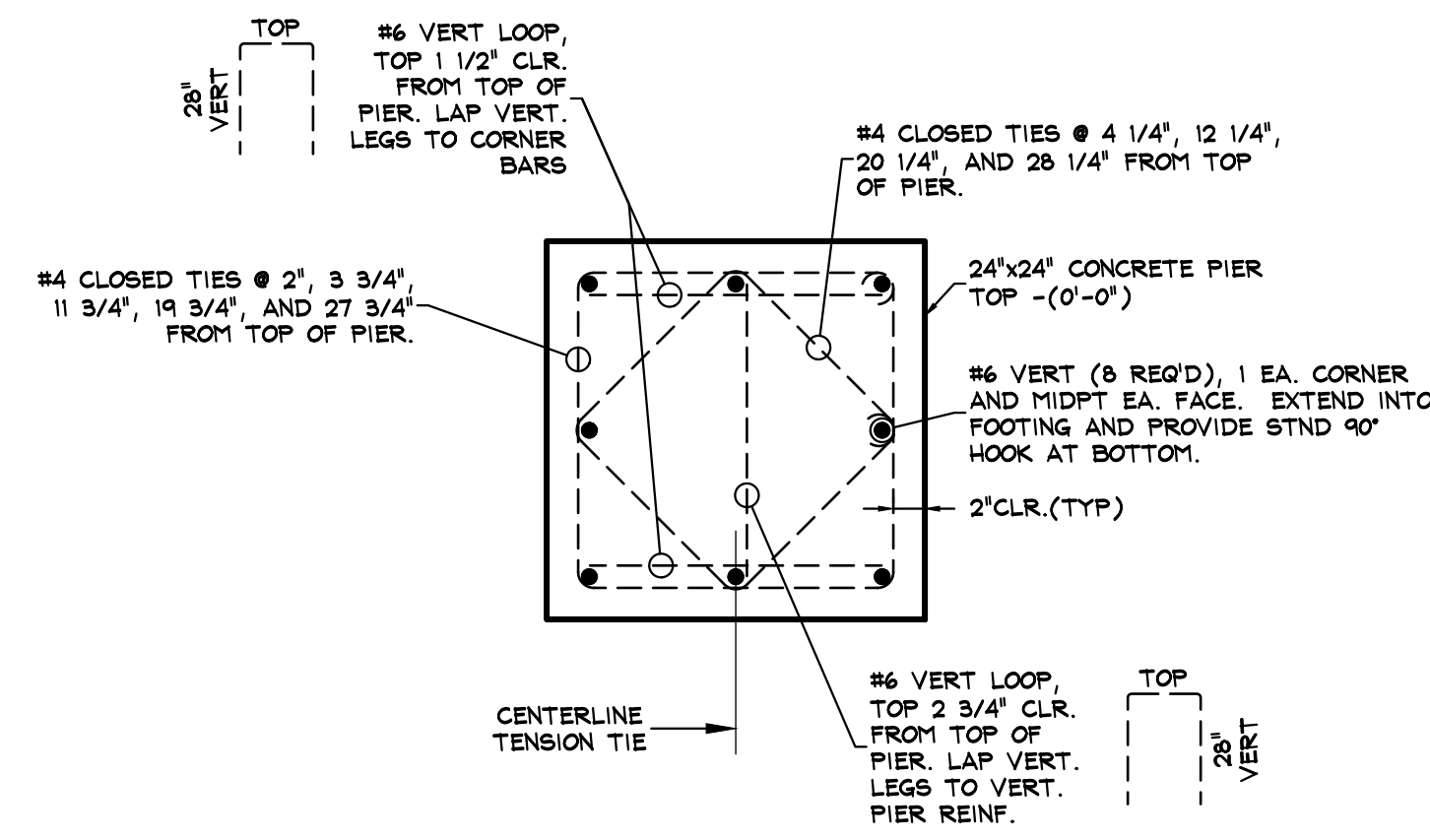
SYSTEMS DESIGN ENGINEERING, INC
 1032 JAMES DR. HESPORT, PA 19533
 PHONE: 610.916.8500 FAX: 610.916.8501
 SCHUYLKILL HAVEN, PA 570.385.5549

**MUHLENBERG TOWNSHIP
 PROPOSED PUBLIC WORKS BUILDING
 PIER LOCATION DETAILS**

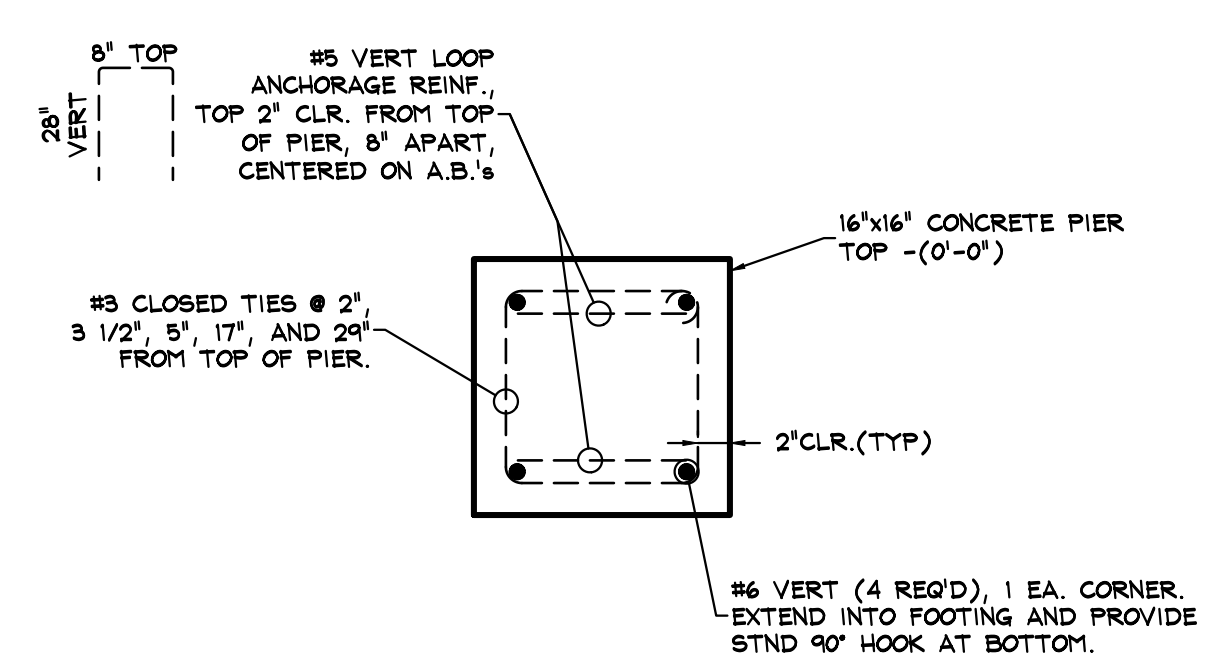
MUHLENBERG TOWNSHIP BERKS COUNTY PENNSYLVANIA

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JWS	RAS	TSU	S201 Pier Location Details.dwg
DATE	SCALE	DRAWING NUMBER	
08/23/19	AS NOTED	D-19-0153-0144-S201	

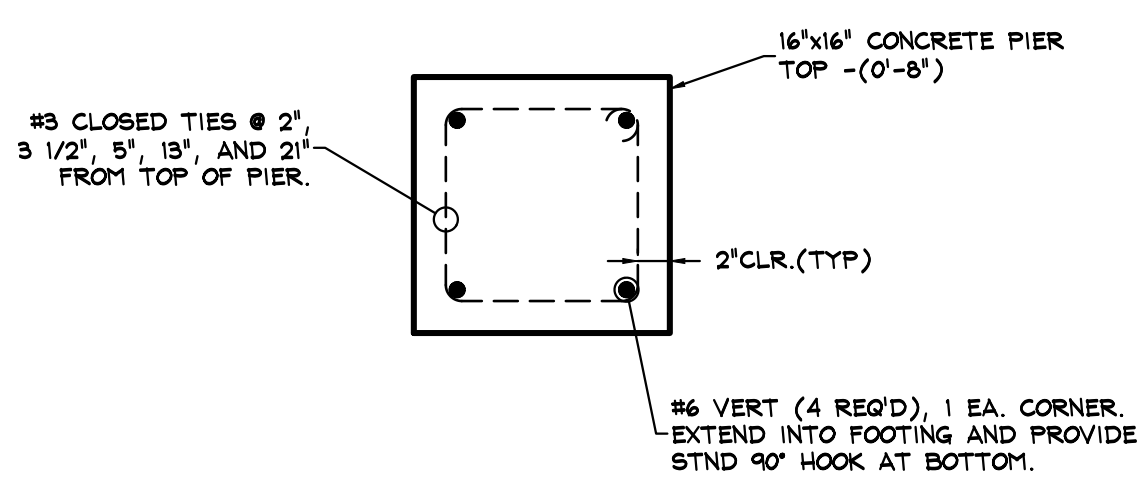
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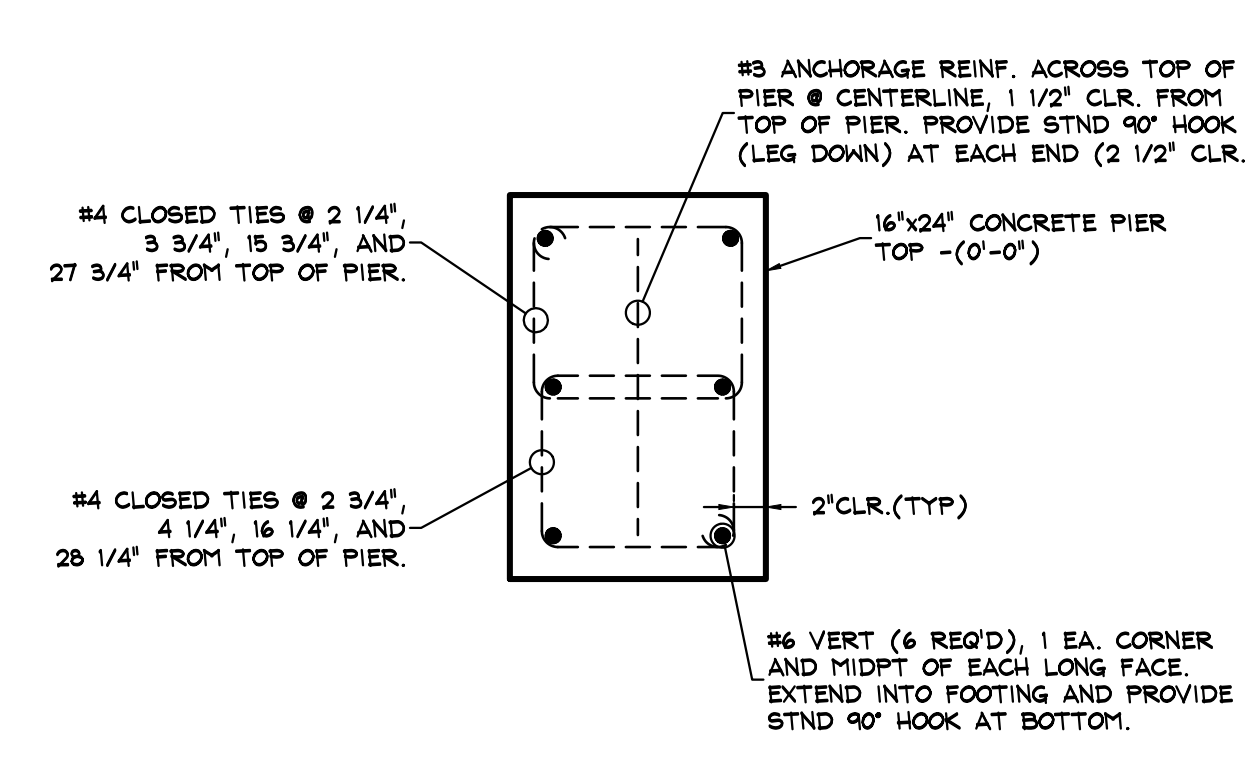
PIER P1 REINF. DETAIL
SCALE: 1" = 1'-0"
NOTE: SEE PIER P1 ANCHORAGE REINFORCING DETAIL FOR ADDITIONAL REINFORCING. (NOT SHOWN FOR CLARITY)



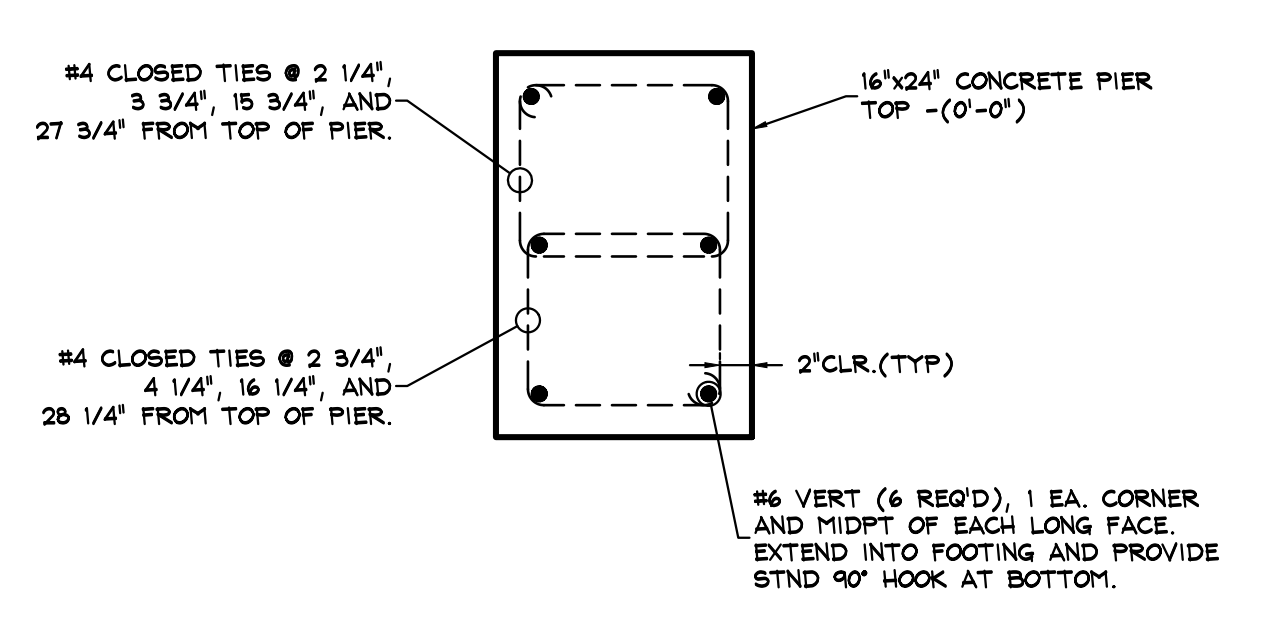
PIER P2 REINF. DETAIL
SCALE: 1" = 1'-0"



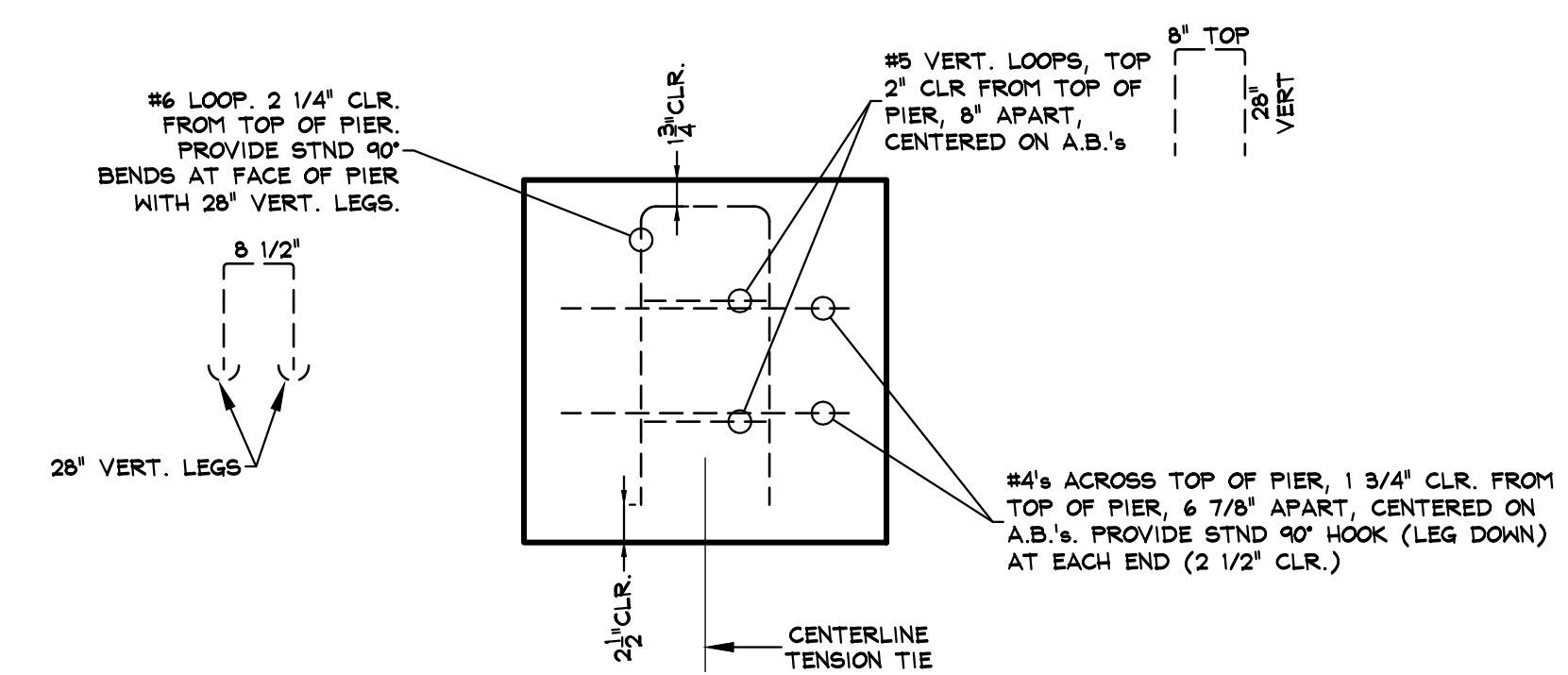
PIER P3 REINF. DETAIL
SCALE: 1" = 1'-0"



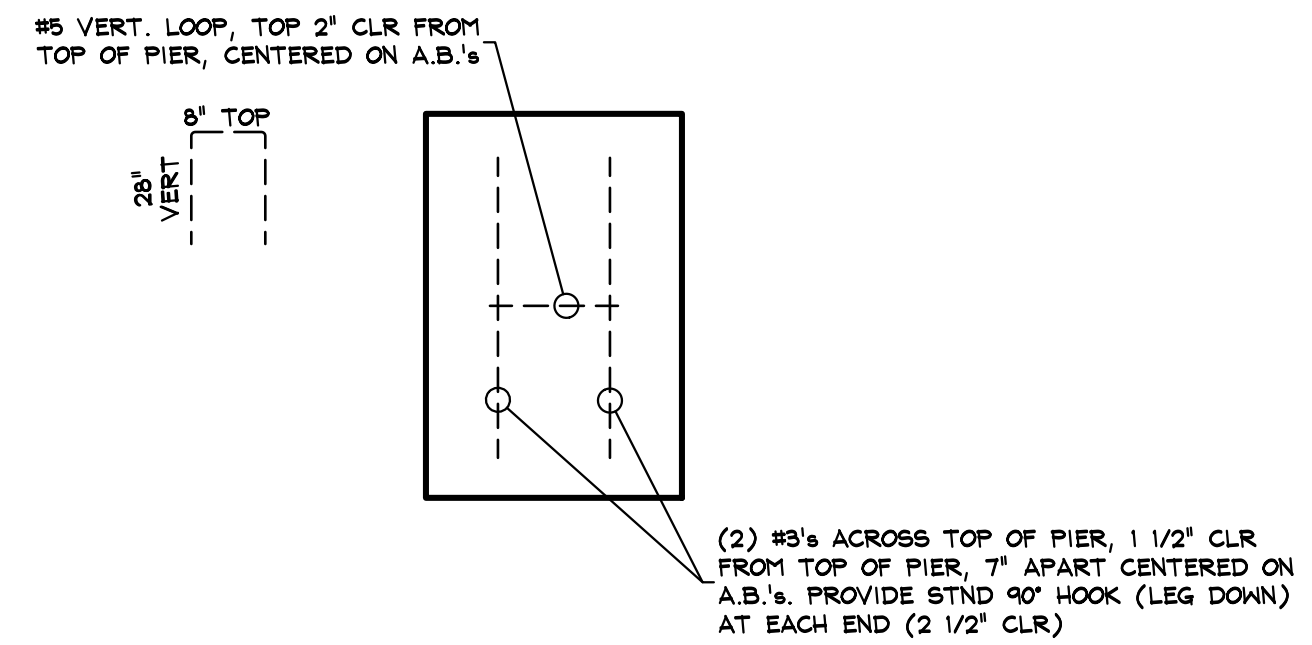
PIER P4 REINF. DETAIL
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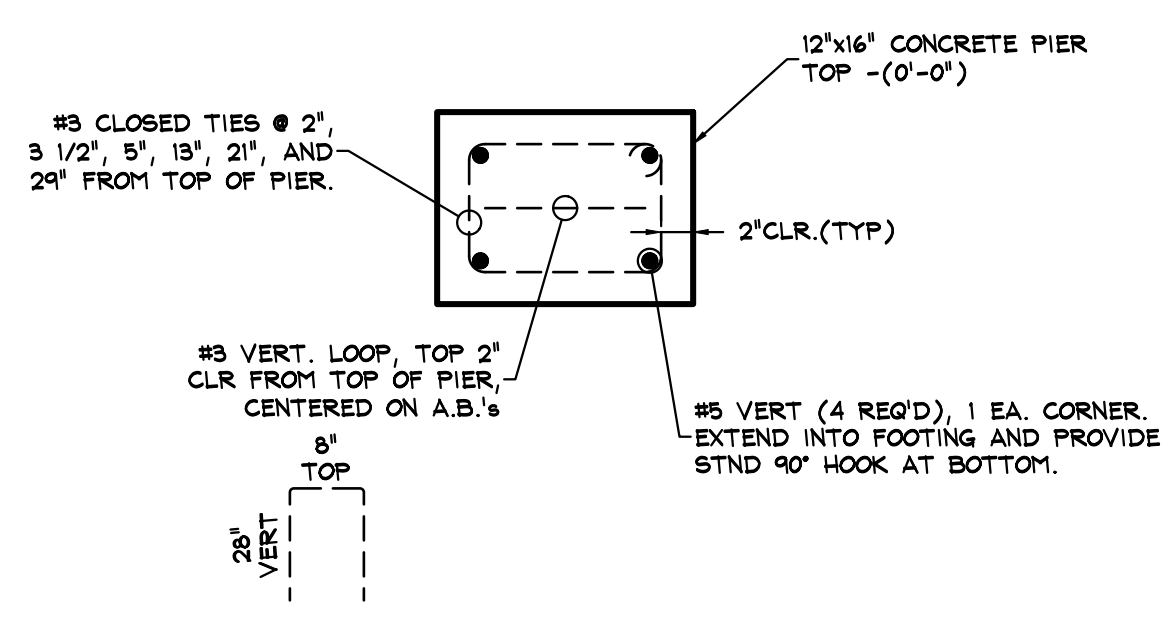
PIER P5 REINF. DETAIL
SCALE: 1" = 1'-0"
NOTE: SEE PIER P5 ANCHORAGE REINFORCING DETAIL FOR ADDITIONAL REINFORCING. (NOT SHOWN FOR CLARITY)



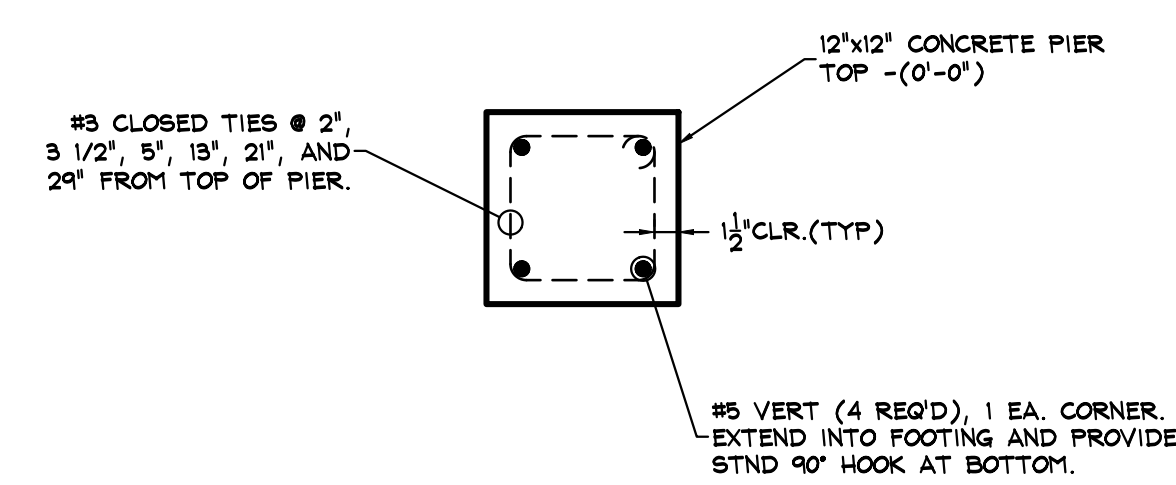
PIER P1 ANCHORAGE REINF.
SCALE: 1" = 1'-0"
NOTE: GENERAL REINFORCING NOT SHOWN FOR CLARITY.



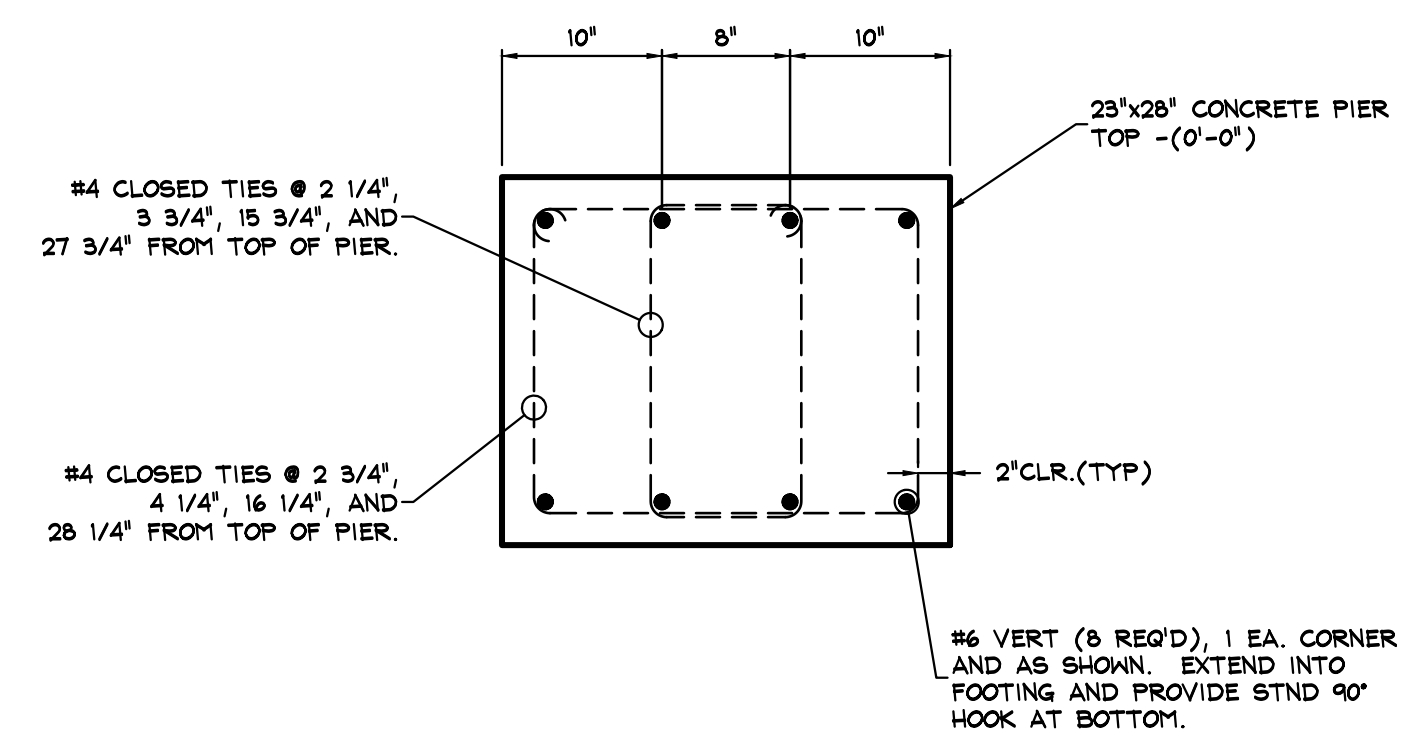
PIER P5 ANCHORAGE REINF.
SCALE: 1" = 1'-0"
NOTE: GENERAL REINFORCING NOT SHOWN FOR CLARITY.



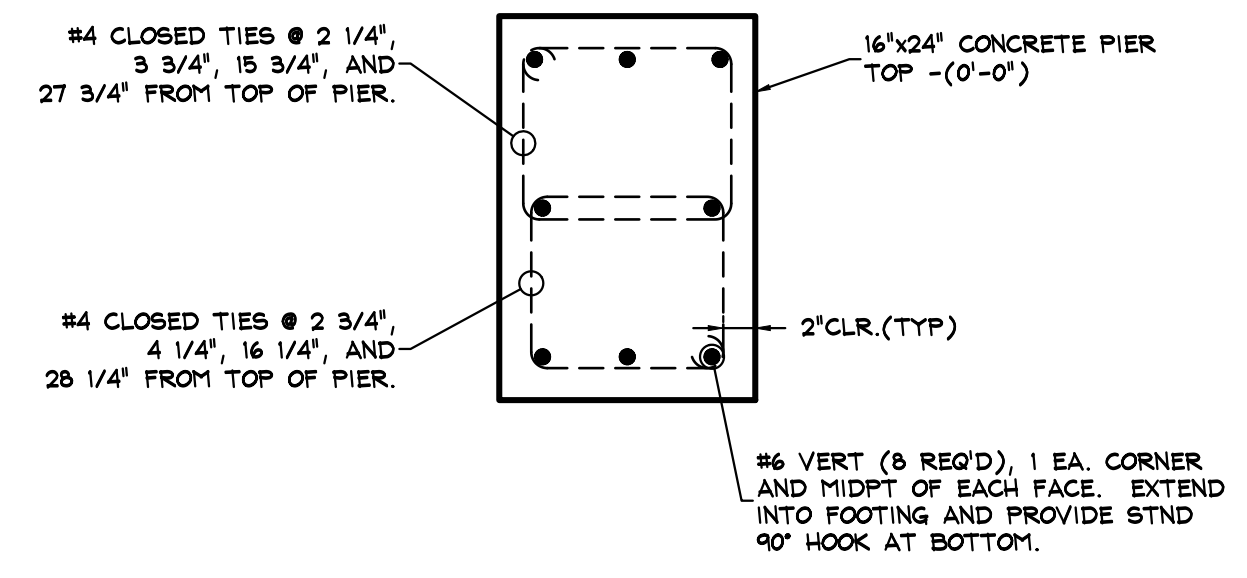
PIER P6 REINF. DETAIL
SCALE: 1" = 1'-0"



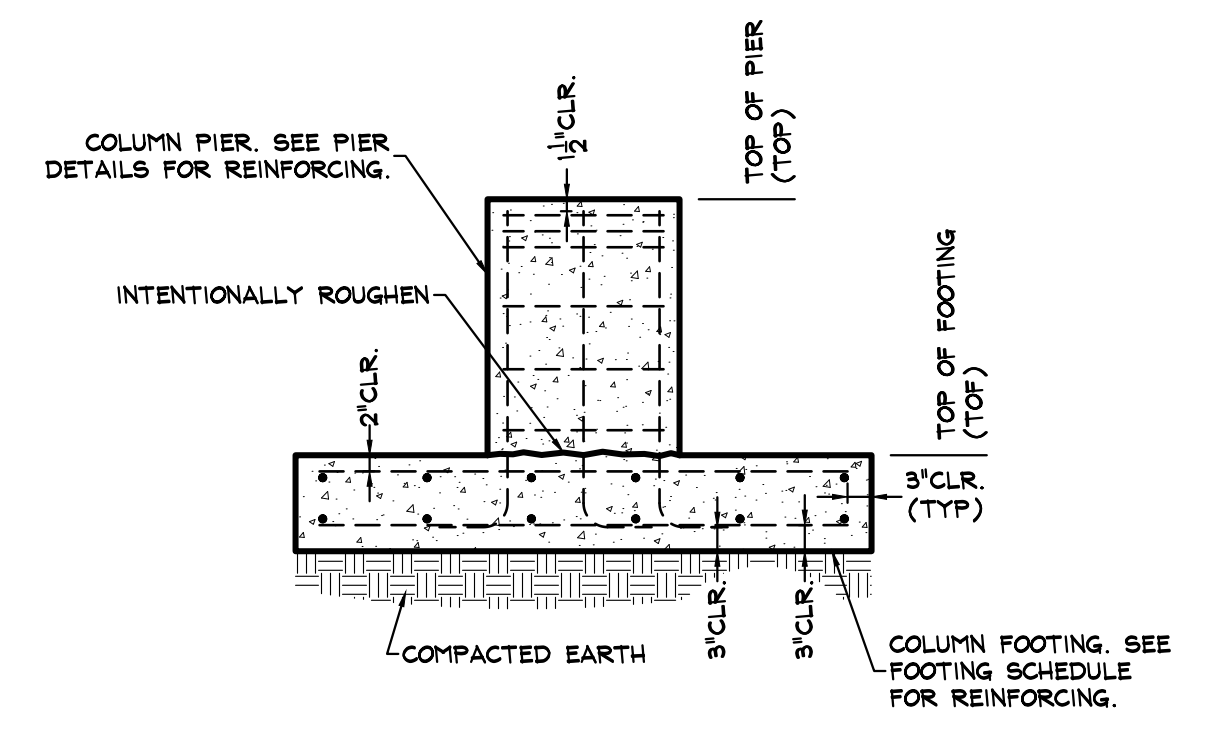
PIER P7 REINF. DETAIL
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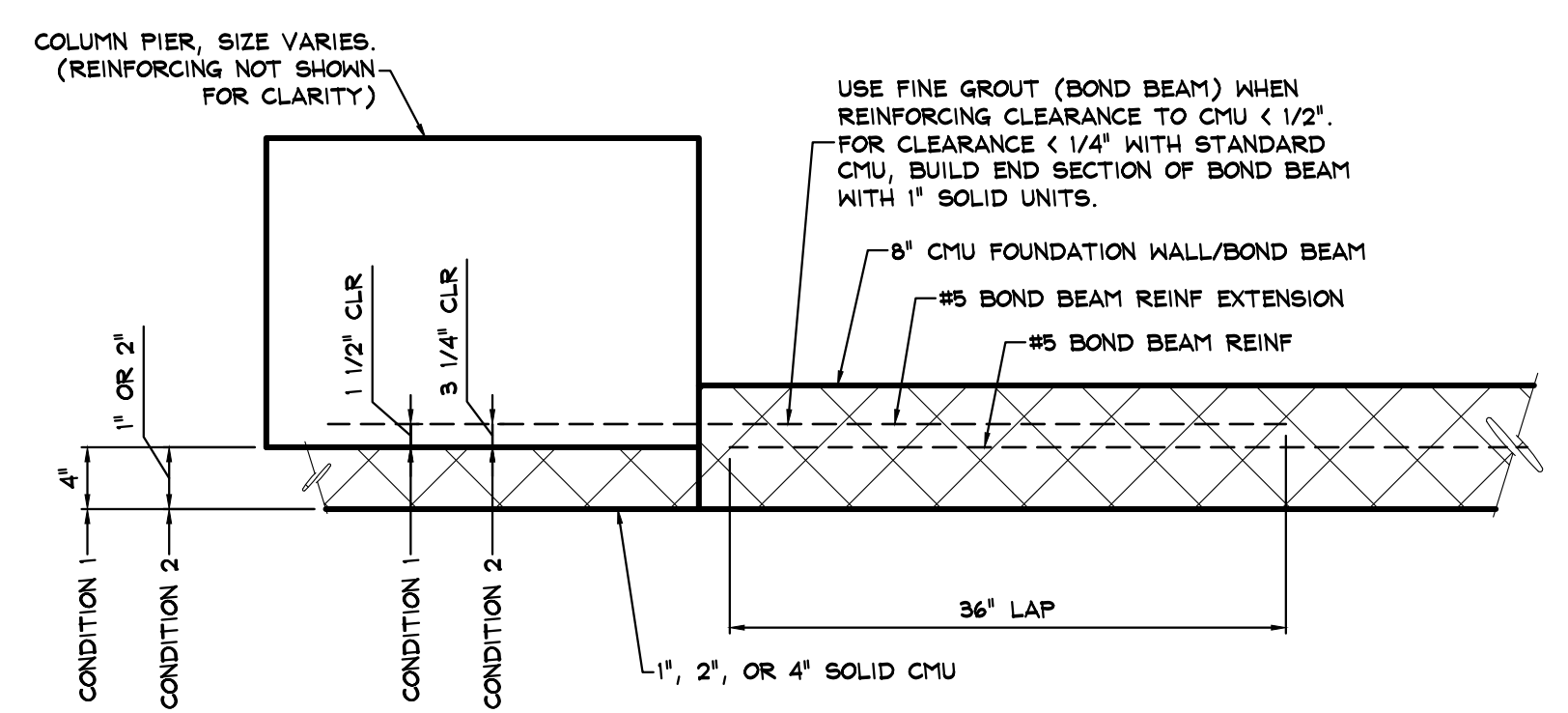
PIER P8 REINF. DETAIL
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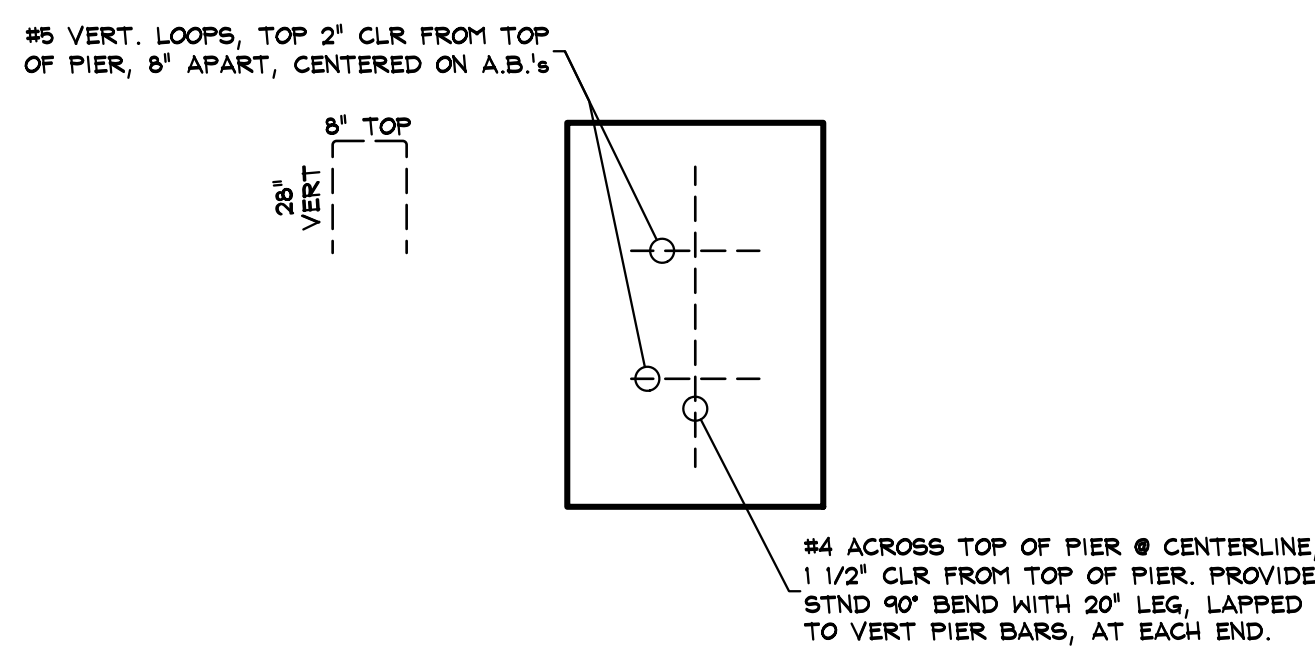
PIER P9 REINF. DETAIL
SCALE: 1" = 1'-0"
NOTE: SEE PIER P9 ANCHORAGE REINFORCING DETAIL FOR ADDITIONAL REINFORCING. (NOT SHOWN FOR CLARITY)



TYP. COLUMN FOOTING
SCALE: NO SCALE



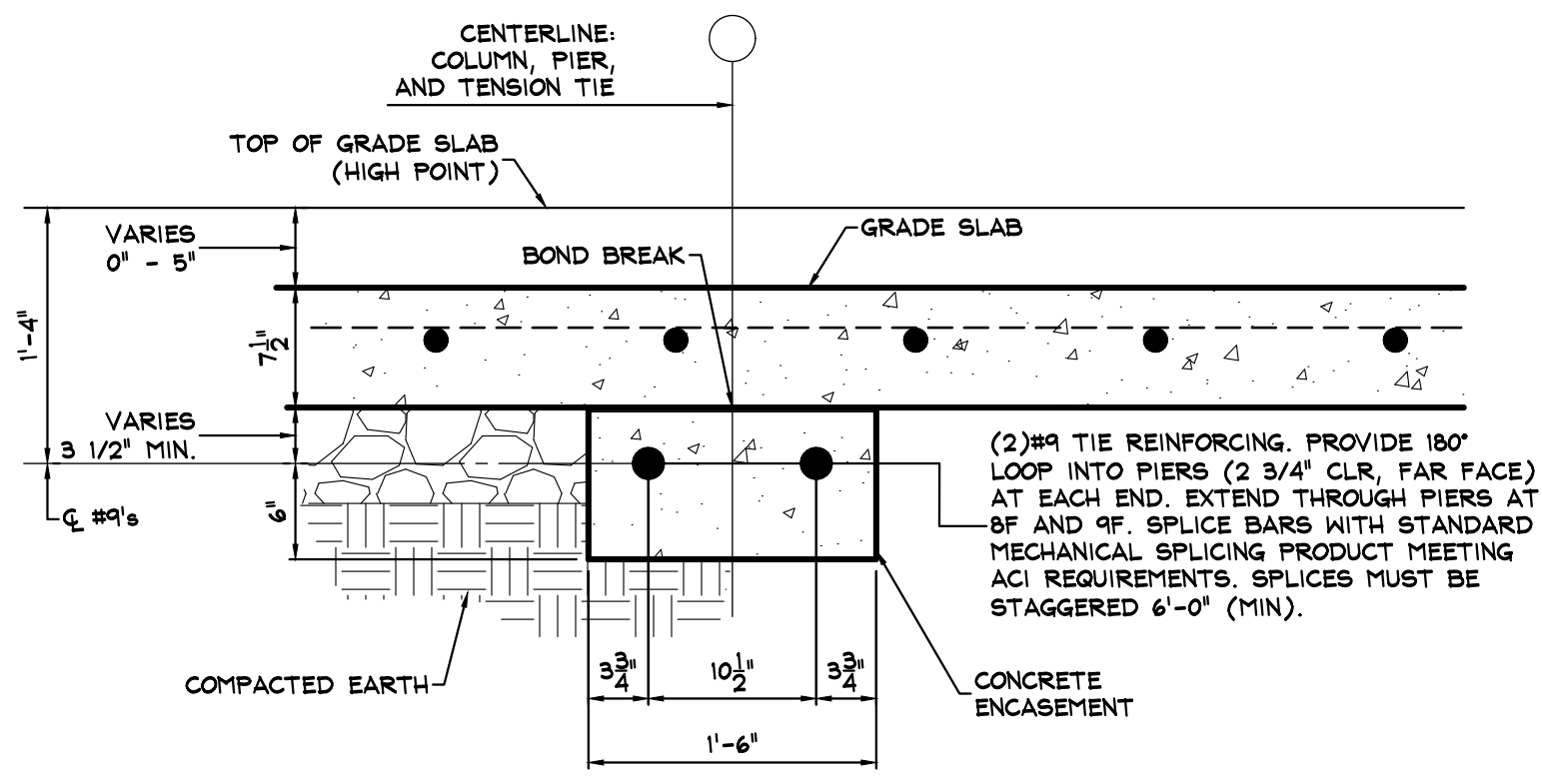
TYPICAL BOND BEAM REINFORCING EXTENSION INTO PIER
SCALE: 1" = 1'-0"
NOTE: STANDARD TWO-PIECE MECHANICAL SPLICING PRODUCT MAY BE USED FOR REINF EXTENSION TO ELIMINATE PROTRUDING DOWELS FROM PIER. PRODUCT MUST MEET ACI REQUIREMENTS.



PIER P9 ANCHORAGE REINF.
SCALE: 1" = 1'-0"
NOTE: GENERAL REINFORCING NOT SHOWN FOR CLARITY.

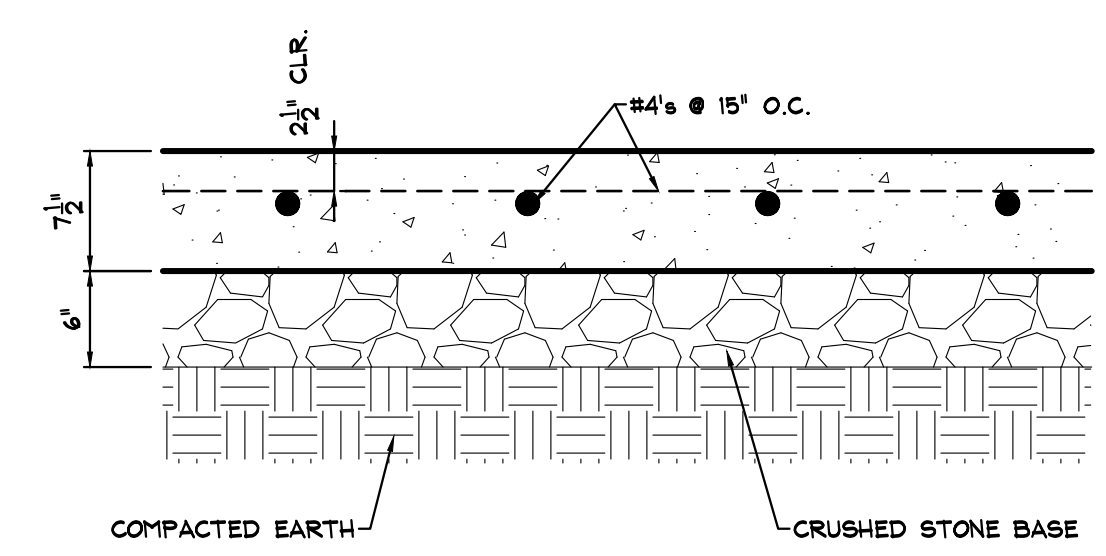
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<p>SYSTEMS DESIGN ENGINEERING, INC 1032 JAMES DR. LEESPORT, PA 19533 PHONE: 610.916.8500 FAX: 610.916.8501</p> <p>MUHLENBERG TOWNSHIP PROPOSED PUBLIC WORKS BUILDING PIER REINFORCING DETAILS</p>			
<p>MUHLENBERG TOWNSHIP DRAWN BY: JWS CHECKED: RAS DATE: 08/23/19</p>		<p>SITUATE IN BERKS COUNTY PENNSYLVANIA APPROVED: TSU CADD FILE NAME: S202 Pier Reinforcing Details.dwg DRAWING NUMBER: D-19-0153-0144-S202</p>	

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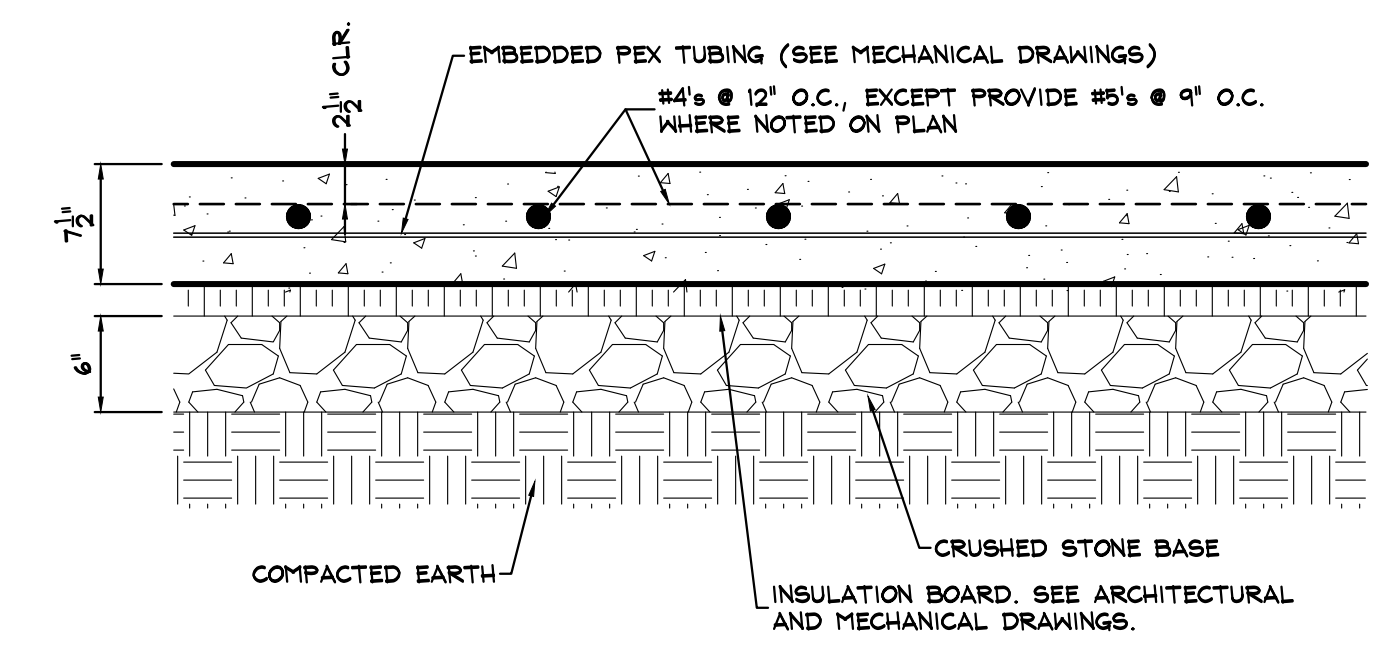
TENSION TIE
SCALE: 1" = 1'-0"
① 5203

NOTE:
TIE IS DESIGNED FOR TENSION LOADS RESULTING FROM THE FOLLOWING MOMENT FRAME MAXIMUM BASE REACTIONS (OUTWARD, FACTORED):
52.2K (COL. LINES 2 THROUGH 6)
35.1K (COL. LINES 8 AND 9)
DESIGN CONSIDERED THE FOLLOWING MOMENT FRAME MAXIMUM UNBALANCED HORIZONTAL BASE REACTIONS (PARALLEL TO FRAME, WIND):
16.9K (COL. LINES 2 THROUGH 6)
17.1K (COL. LINES 8 AND 9)



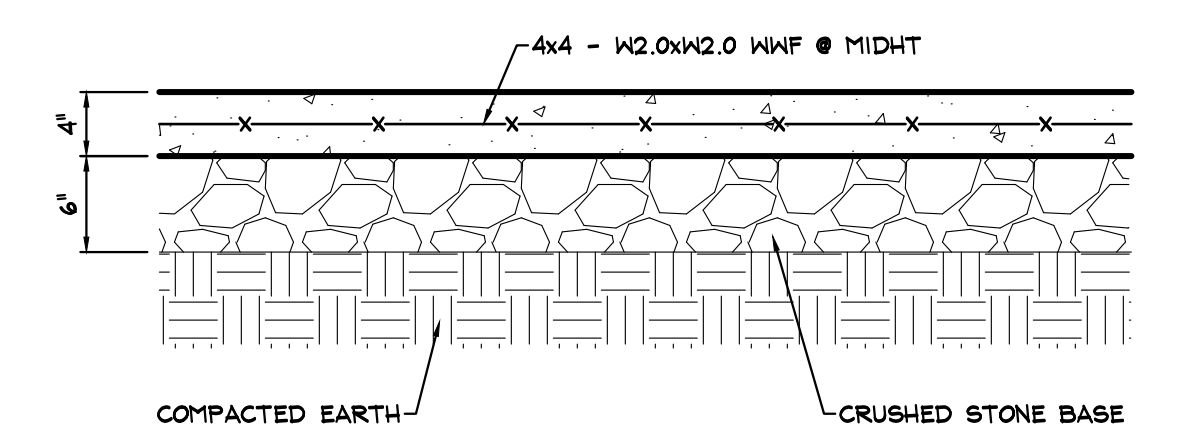
GARAGE GRADE SLAB
SCALE: 1" = 1'-0"
② 5203

AS CONSTRUCTED SLAB THICKNESS SHALL NOT BE LESS THAN 7 1/4" AND NOT GREATER THAN 8"



MAINT. BAY AREA GRADE SLAB
SCALE: 1" = 1'-0"
③ 5203

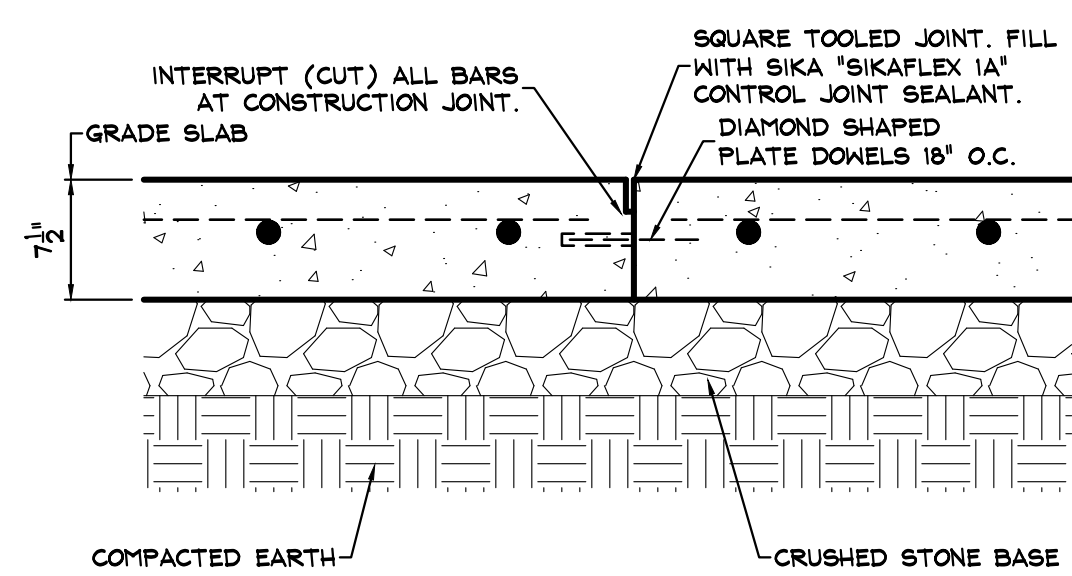
AS CONSTRUCTED SLAB THICKNESS SHALL NOT BE LESS THAN 7 1/4" AND NOT GREATER THAN 8"



OFFICE GRADE SLAB
SCALE: 1" = 1'-0"
④ 5203

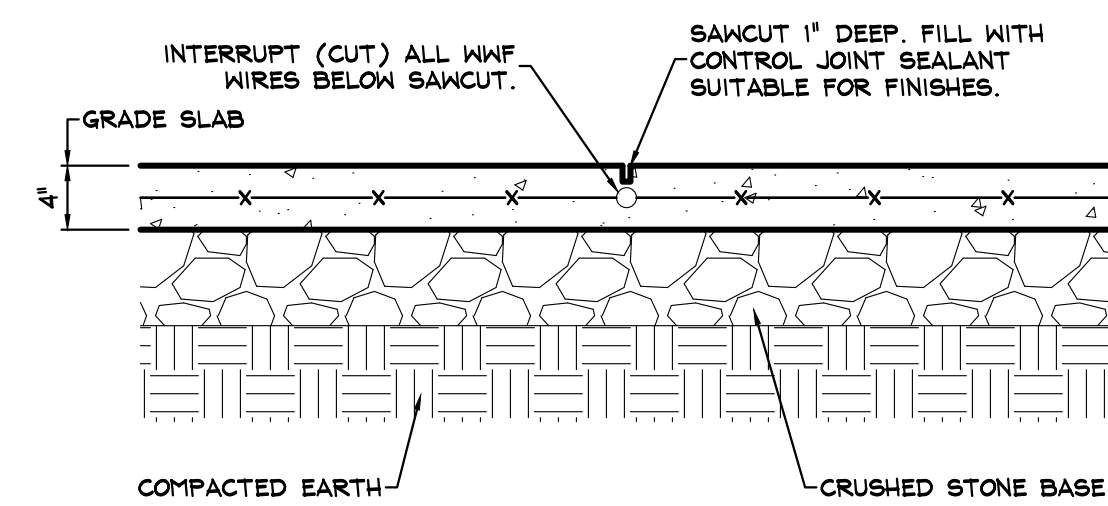
AS CONSTRUCTED SLAB THICKNESS SHALL NOT BE LESS THAN 3 3/4" AND NOT GREATER THAN 4 1/2"

NOTE: PROVIDE INSULATION BENEATH SLAB WHERE SHOWN ON ARCHITECTURAL DRAWINGS.

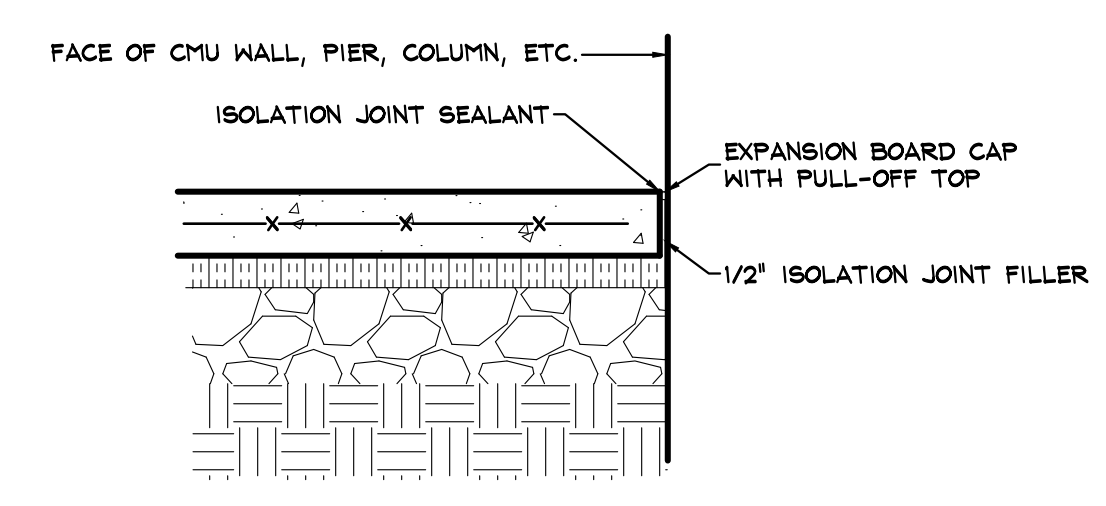


GARAGE GRADE SLAB CONSTRUCTION JOINT
SCALE: 1" = 1'-0"
⑤ 5203

NOTE: MAINT. GRADE SLAB SIMILAR.

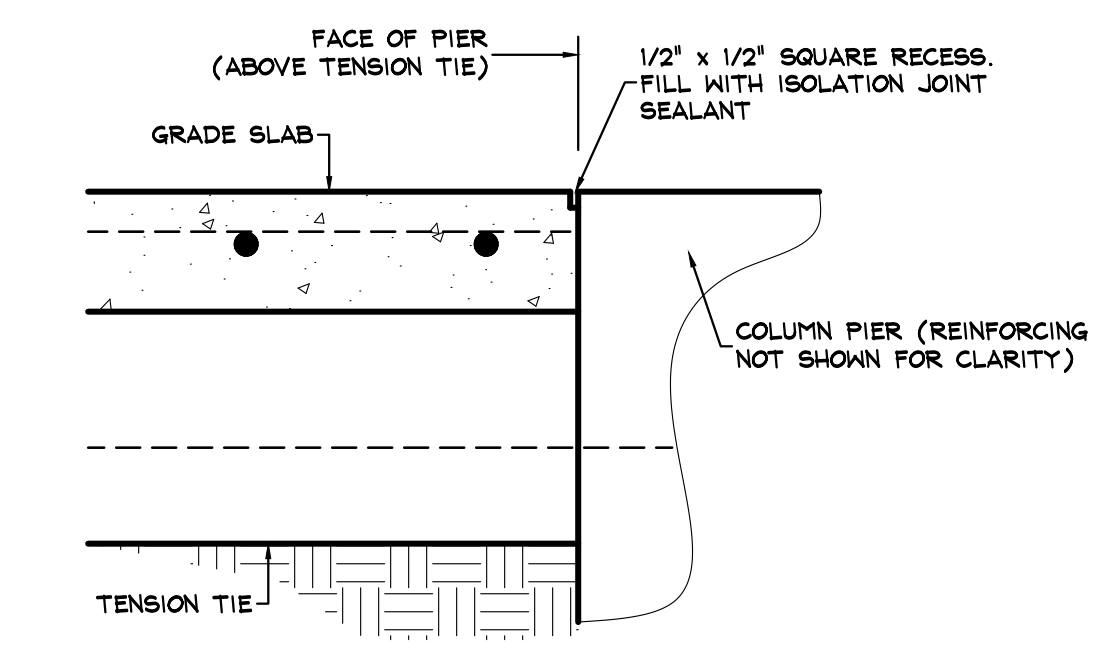


OFFICE GRADE SLAB CONSTRUCTION JOINT
SCALE: 1" = 1'-0"
⑥ 5203



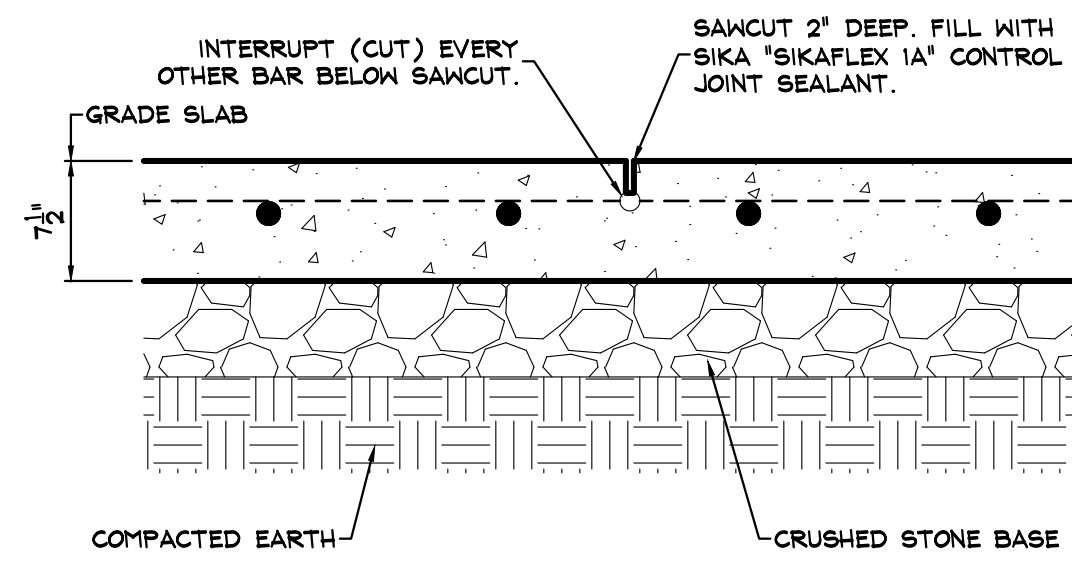
OFFICE GRADE SLAB ISOLATION JOINT
SCALE: 1" = 1'-0"
⑦ 5203

NOTES:
1. PROVIDE ISOLATION JOINT ALONG ALL WALLS, PIERS, ETC. DO NOT EXTEND THRU INTERIOR DOORWAYS.
2. GARAGE AND MAINT. GRADE SLAB SIMILAR



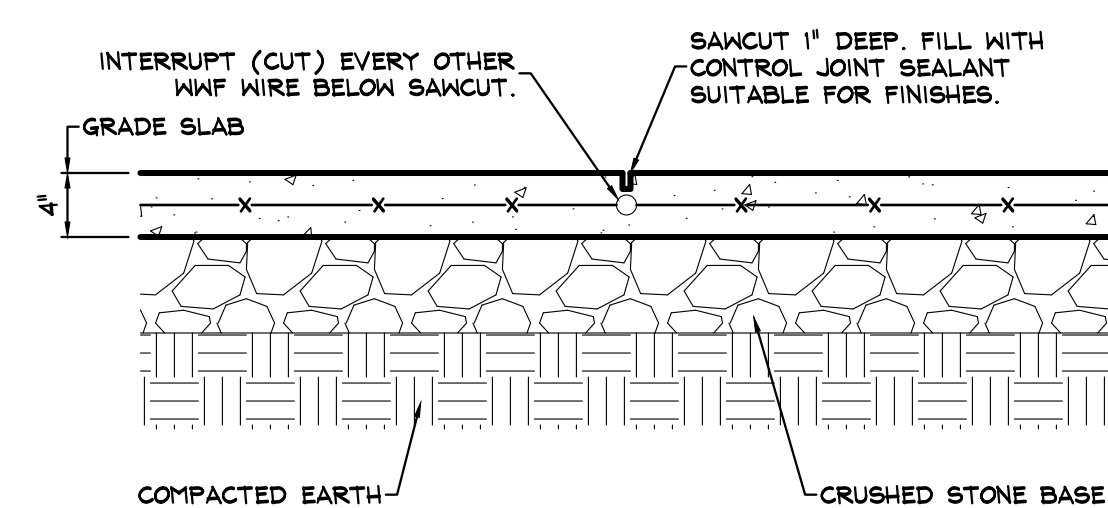
GARAGE GRADE SLAB CONTACT JOINT
SCALE: 1" = 1'-0"
⑧ 5203

NOTE: MAINT. GRADE SLAB SIMILAR

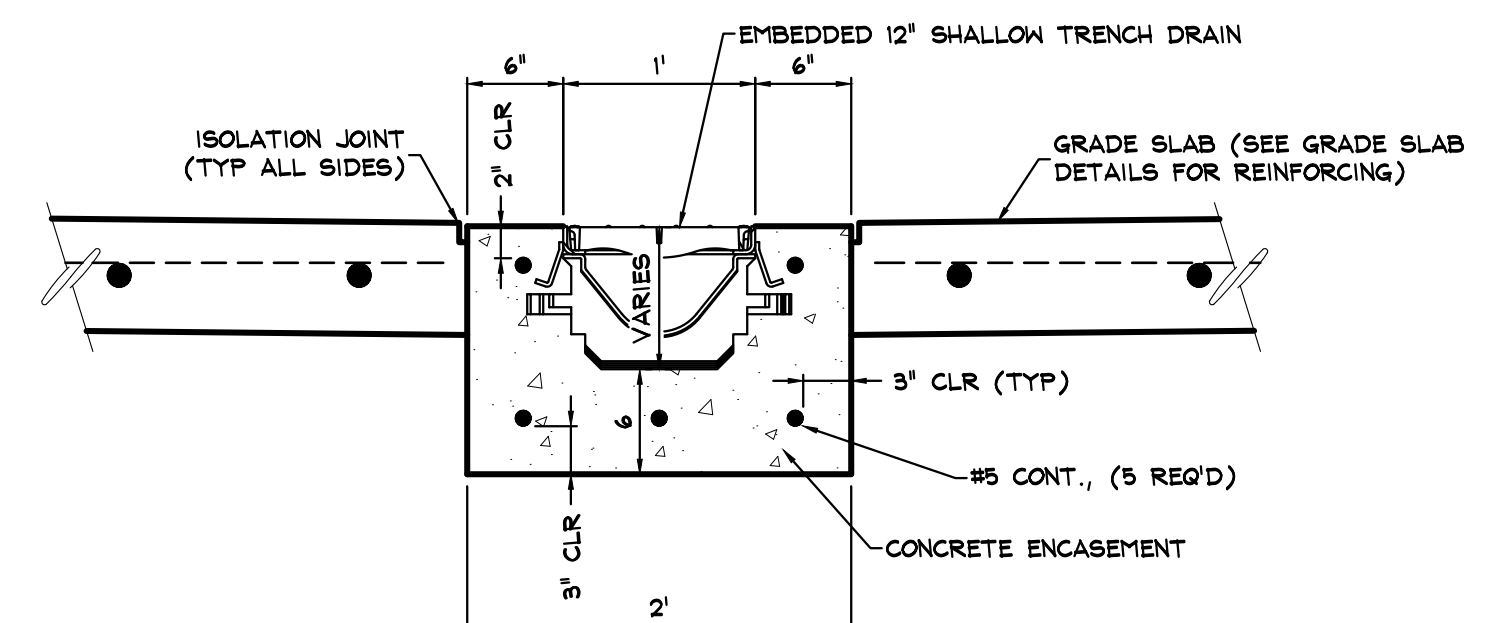


GARAGE GRADE SLAB CONTROL JOINT
SCALE: 1" = 1'-0"
⑨ 5203

NOTE: MAINT. GRADE SLAB SIMILAR. DO NOT CUT/DAMAGE PEX TUBING.



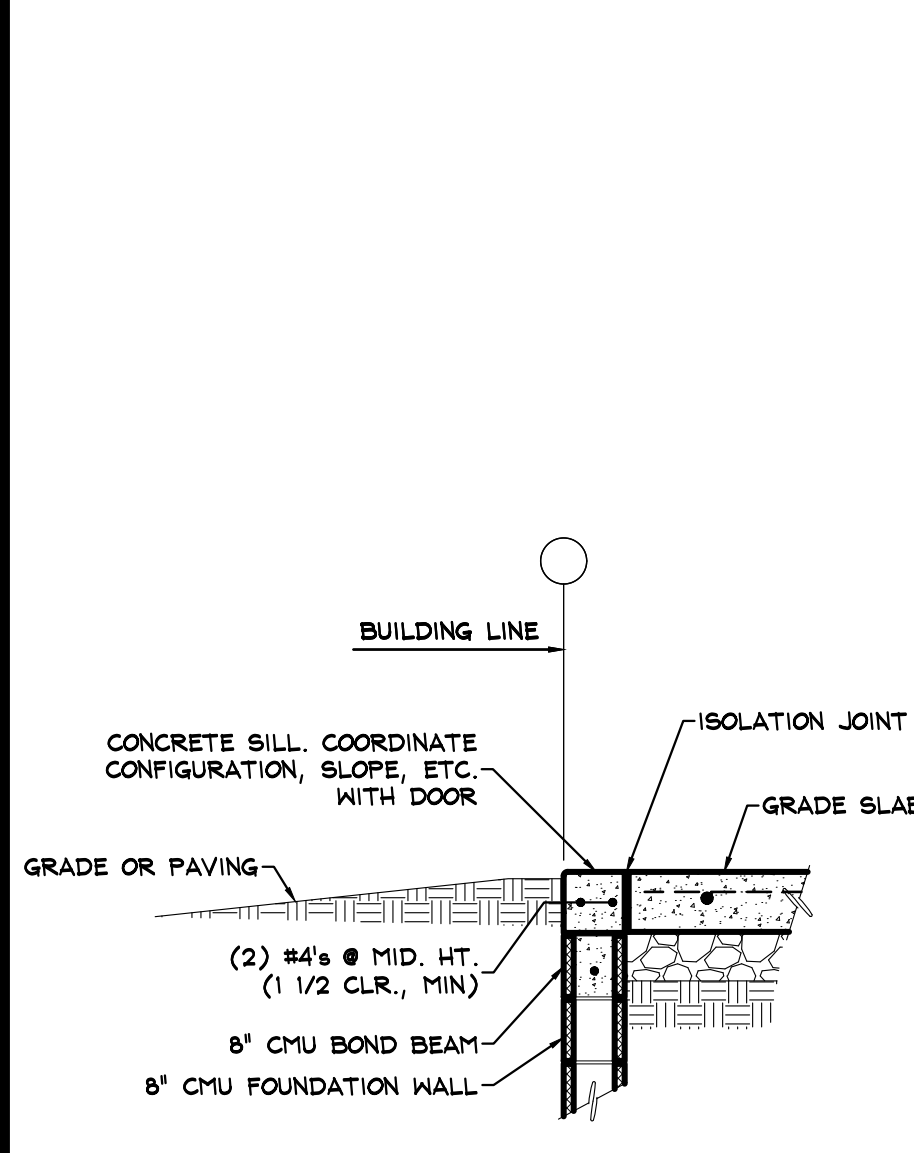
OFFICE GRADE SLAB CONTROL JOINT
SCALE: 1" = 1'-0"
⑩ 5203



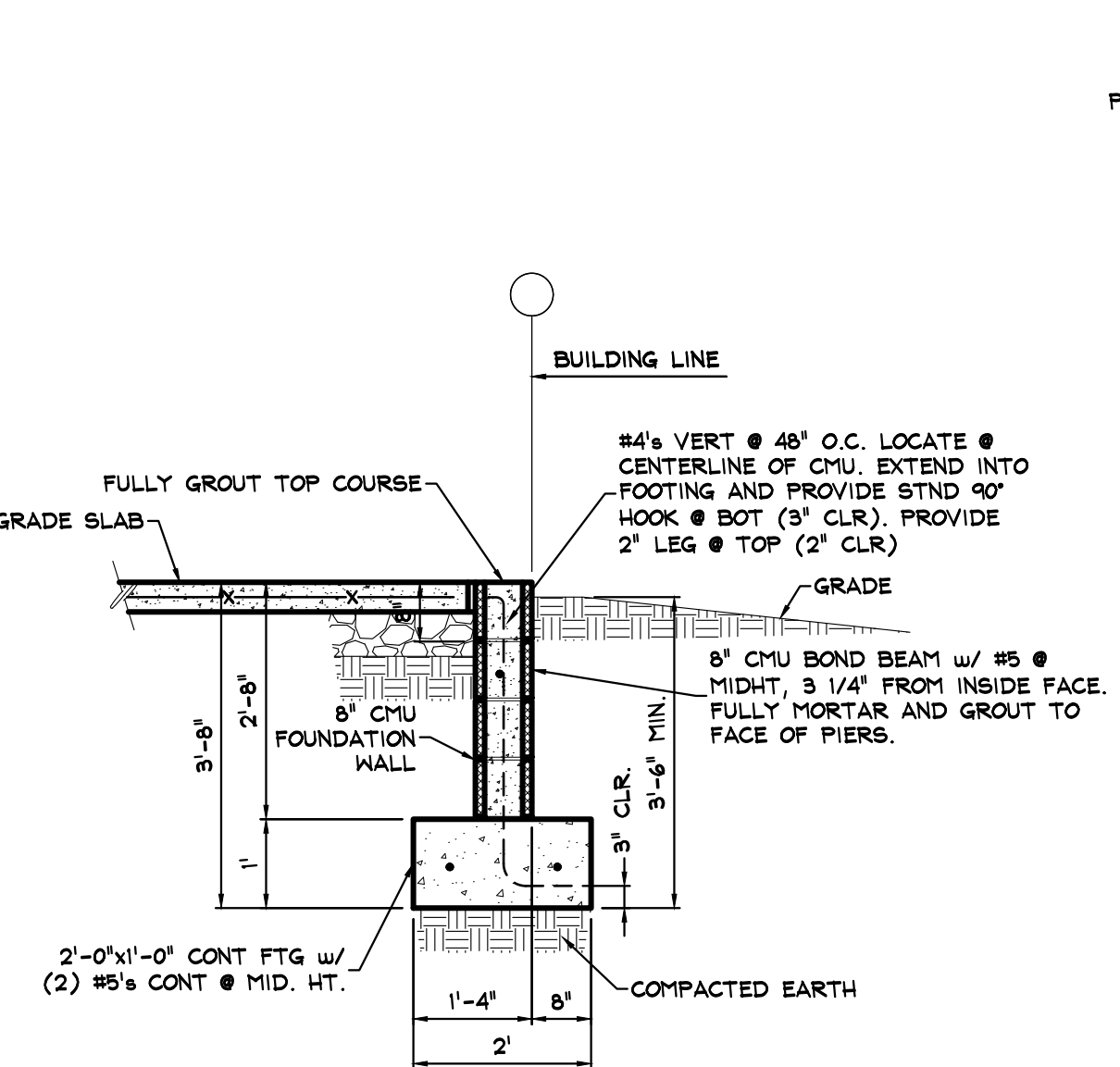
TRENCH DRAIN ENCASUREMENT DETAIL
SCALE: 1" = 1'-0"

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DRAWN BY	CHECKED	APPROVED	CADD FILE NAME
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DATE	SCALE	DRAWING NUMBER	
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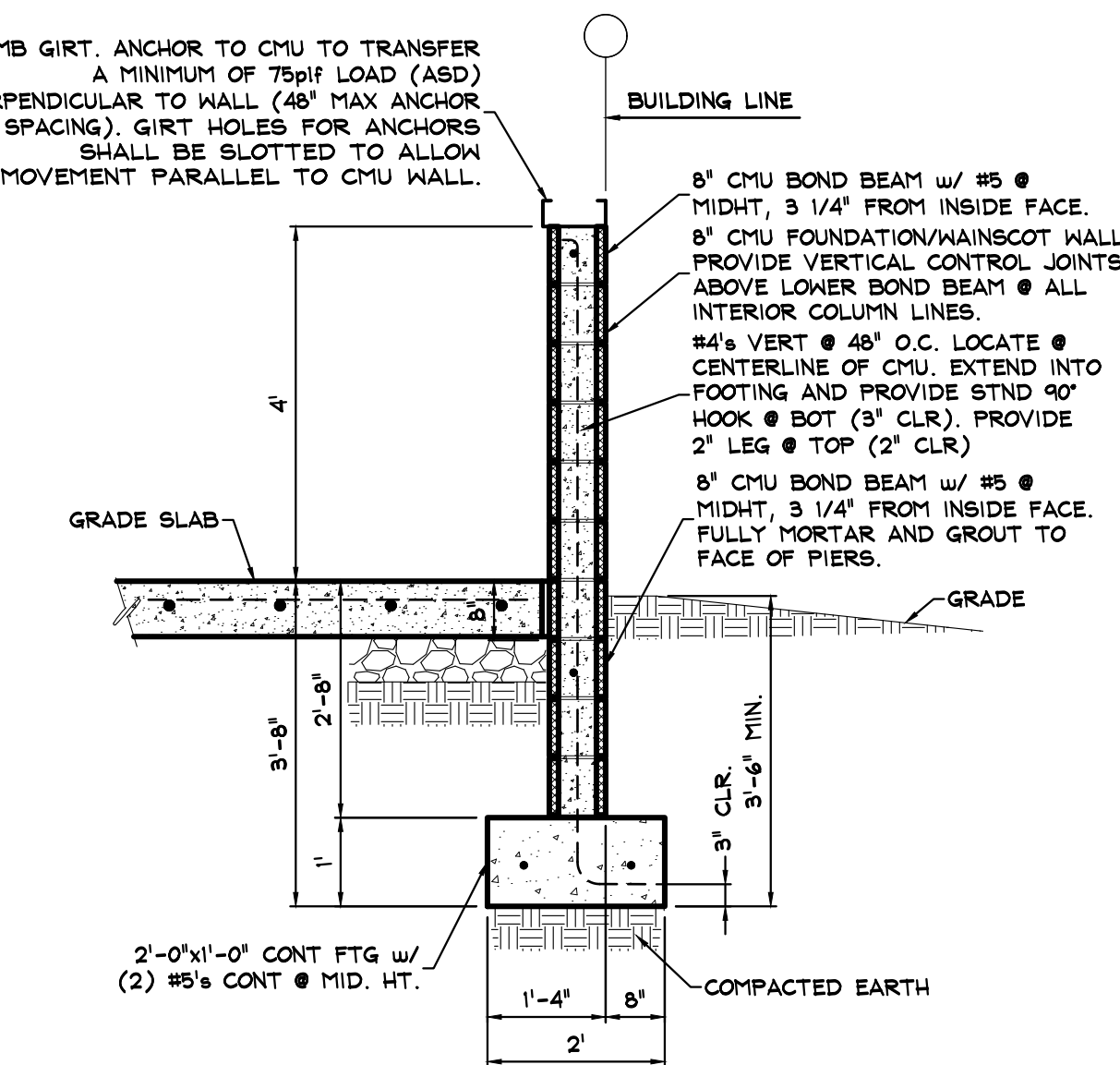


DOOR OPENING SILL
SCALE: 1/2" = 1'-0"



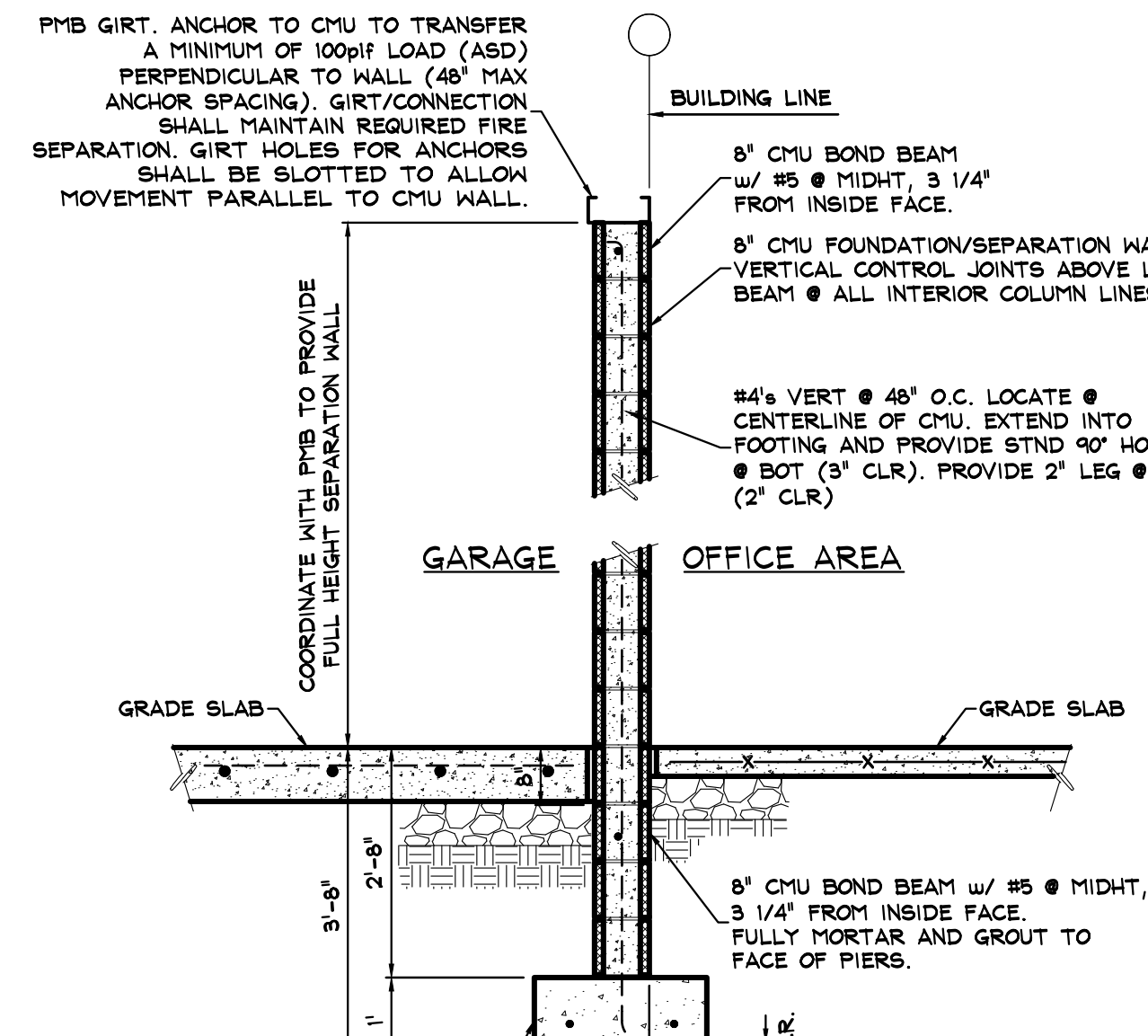
FOUNDATION WALL
SCALE: 1/2" = 1'-0"

NOTE: FOR BAYS ADJACENT TO CORNER PIERS (EXCEPT WHERE NOTED AS 'GRADE WALL'), PROVIDE ADDITIONAL #4'S BETWEEN EACH GENERAL #4 VERT., TO PROVIDE #4'S VERT. @ 24" O.C. EACH ADDITIONAL BAR SHALL BE LOCATED AND HOOKED AS SHOWN FOR GENERAL VERTS. EXTEND #5 BOND BEAM REINFORCING INTO CORNER PIER AND PROVIDE STND 90° HOOK, MIN 12" EMBED (EXCEPT 4" EMBED AT PIER P7). SEE DETAIL ON S202.



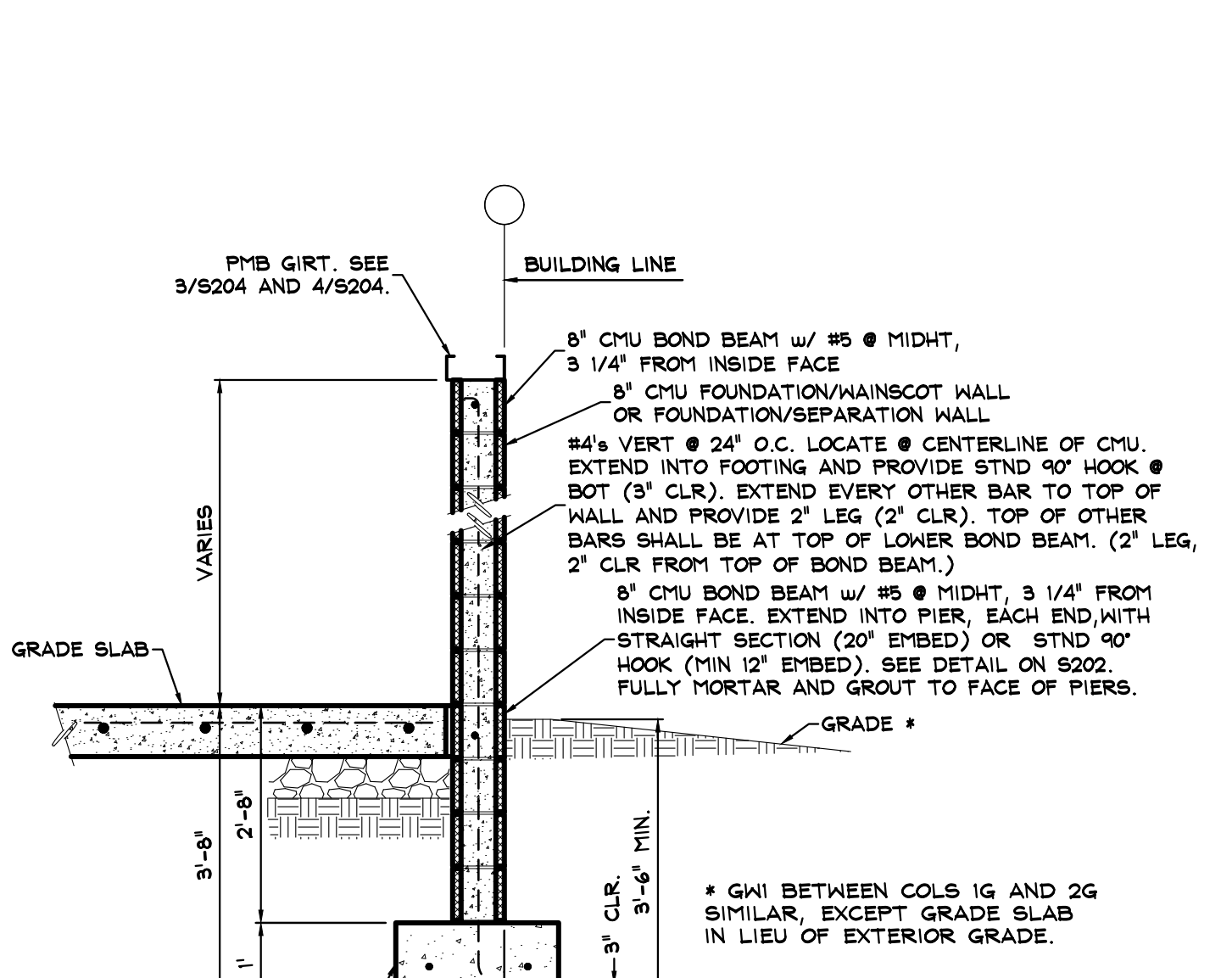
FOUNDATION/WAINSCOT WALL
SCALE: 1/2" = 1'-0"

NOTE: FOR BAYS ADJACENT TO CORNER PIERS (EXCEPT WHERE NOTED AS 'GRADE WALL'), PROVIDE ADDITIONAL #4'S VERT. BETWEEN EACH GENERAL #4 VERT., TO PROVIDE #4'S VERT. @ 24" O.C. EACH ADDITIONAL BAR SHALL BE LOCATED AND HOOKED AS SHOWN FOR GENERAL VERTS., EXCEPT TOP OF BARS SHALL BE AT TOP OF LOWER BOND BEAM (2" LEG, 2" CLR FROM TOP OF BOND BEAM) EXTEND #5 BOND BEAM REINFORCING INTO CORNER PIER AND PROVIDE STND 90° HOOK, MIN 12" EMBED. SEE DETAIL ON S202.



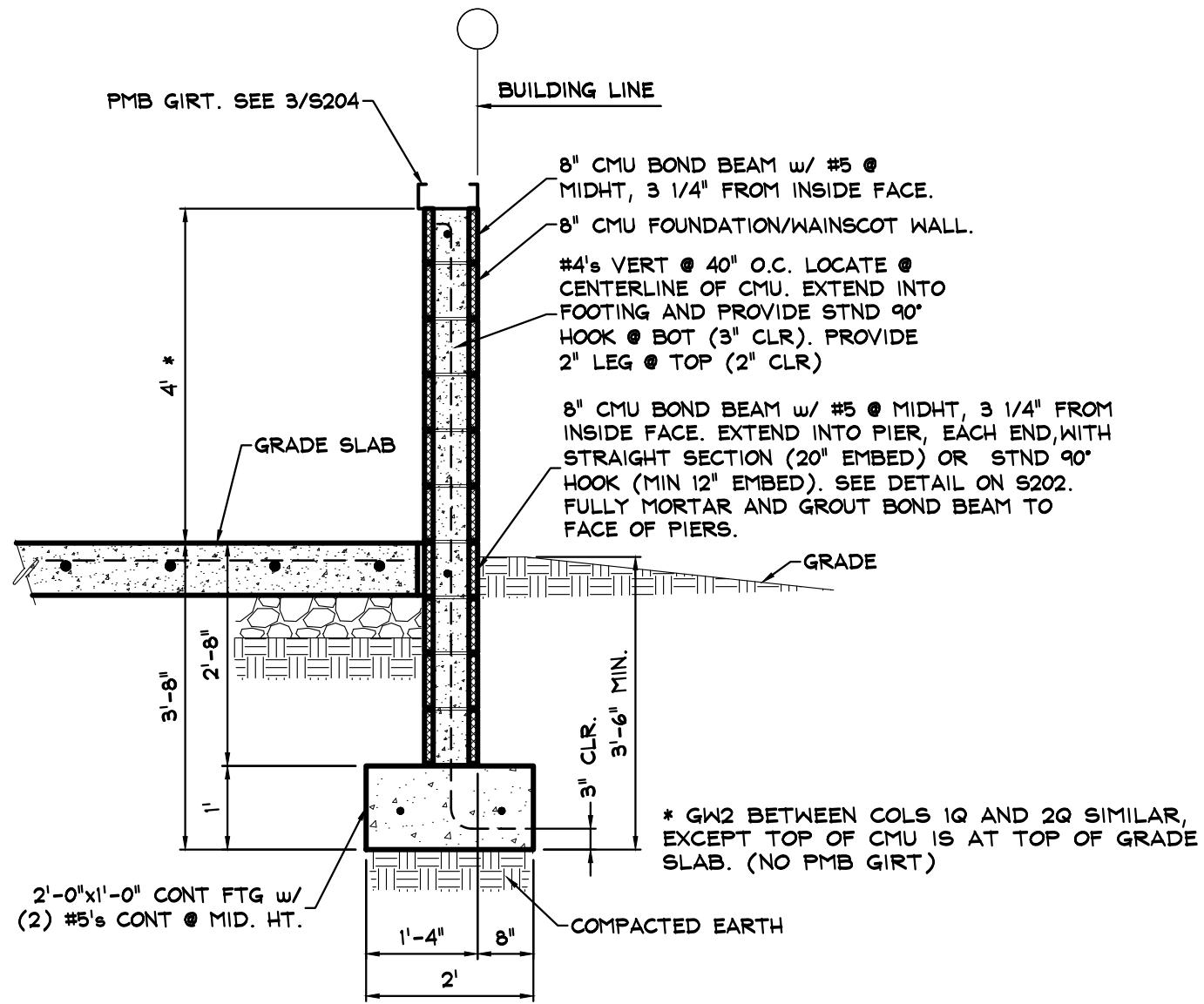
FOUNDATION/SEPARATION WALL ALONG OFFICE
SCALE: 1/2" = 1'-0"

NOTE: FOR BAYS ADJACENT TO CORNER PIERS (EXCEPT WHERE NOTED AS 'GRADE WALL'), PROVIDE ADDITIONAL #4'S VERT. BETWEEN EACH GENERAL #4 VERT., TO PROVIDE #4'S VERT. @ 24" O.C. EACH ADDITIONAL BAR SHALL BE LOCATED AND HOOKED AS SHOWN FOR GENERAL VERTS., EXCEPT TOP OF BARS SHALL BE AT TOP OF LOWER BOND BEAM (2" LEG, 2" CLR FROM TOP OF BOND BEAM) EXTEND #5 BOND BEAM REINFORCING INTO CORNER PIER AND PROVIDE STND 90° HOOK, MIN 12" EMBED. SEE DETAIL ON S202.



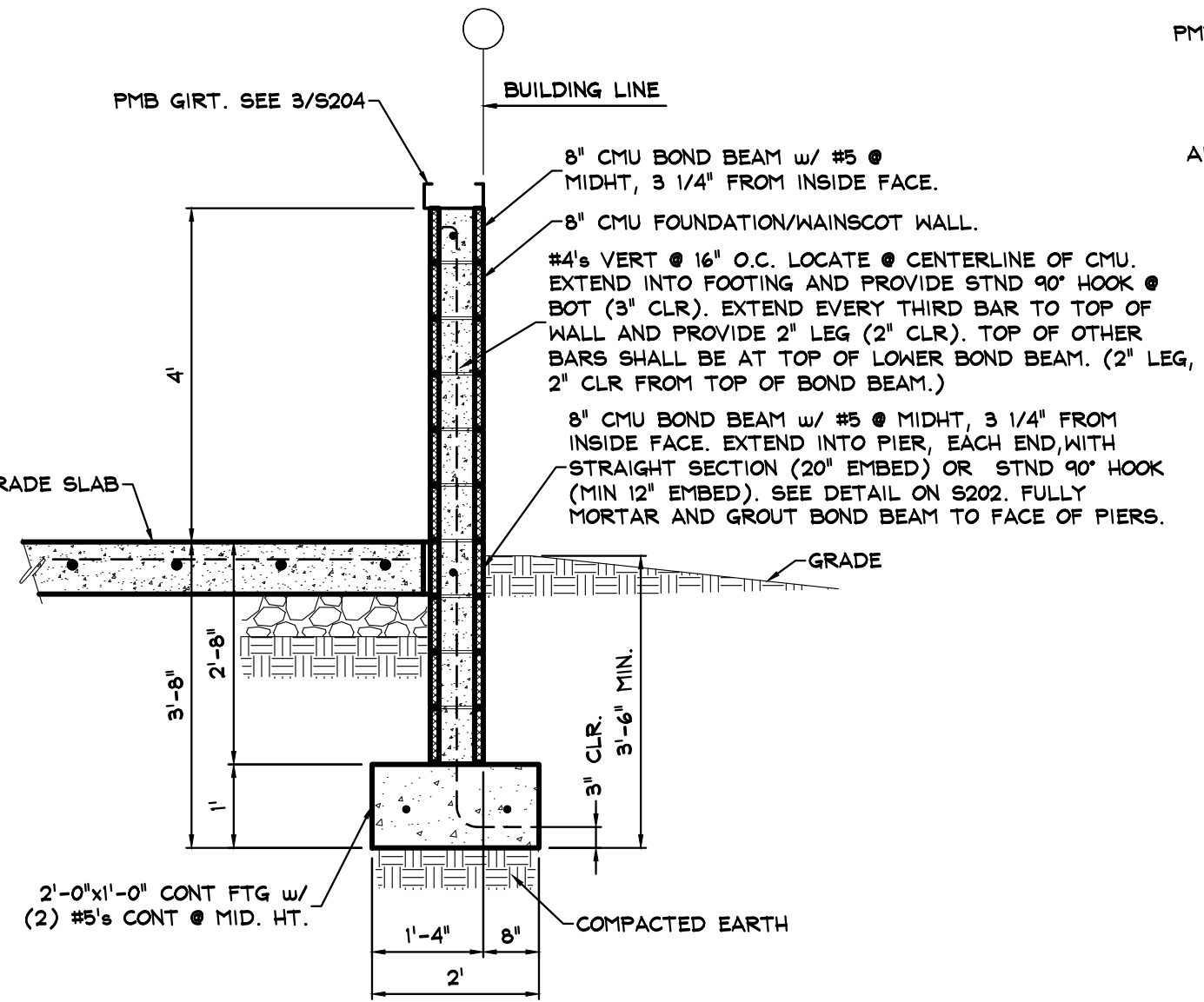
GRADE WALL GW1
SCALE: 1/2" = 1'-0"

NOTE: GRADE WALL IS DESIGNED FOR AN 8.6K MAXIMUM IN-PLANE HORIZONTAL BASE REACTION (ASD) FROM THE ADJACENT BRACED BAY COLUMN.



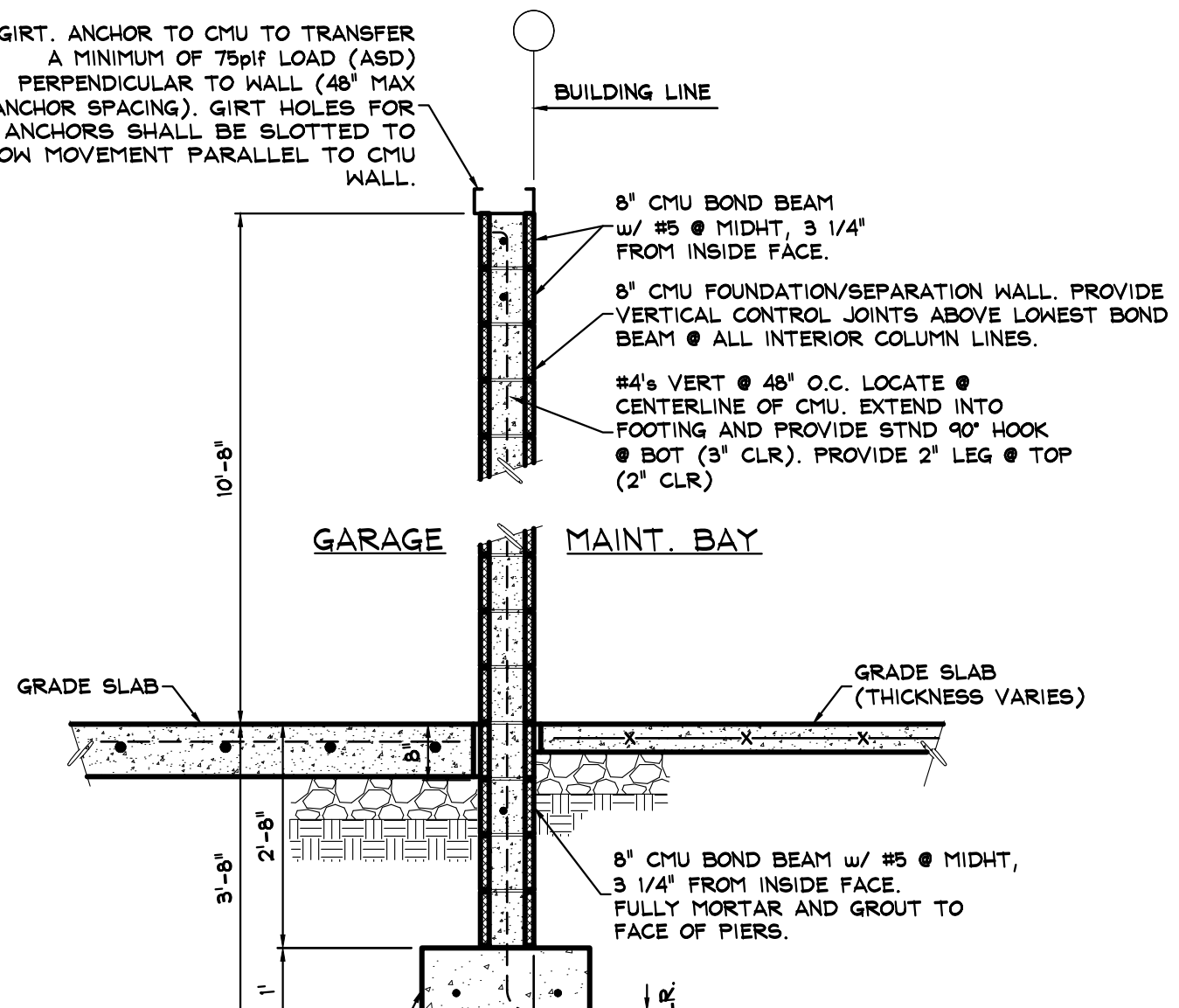
GRADE WALL GW2
SCALE: 1/2" = 1'-0"

NOTE: GRADE WALL IS DESIGNED FOR A 2.9K MAXIMUM IN-PLANE HORIZONTAL BASE REACTION (ASD) FROM THE ADJACENT BRACED BAY/PORTAL FRAME COLUMN.

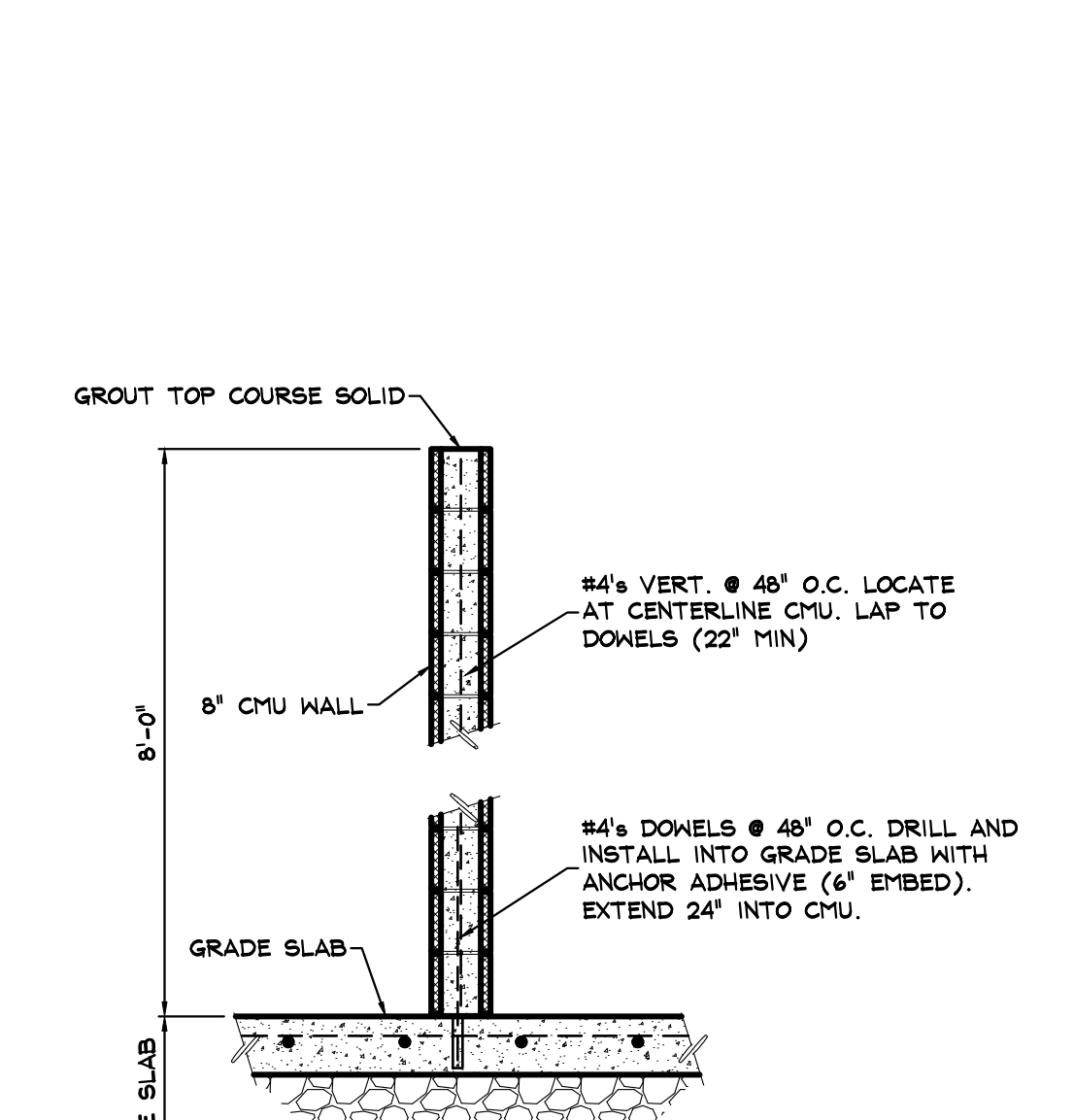


GRADE WALL GW3
SCALE: 1/2" = 1'-0"

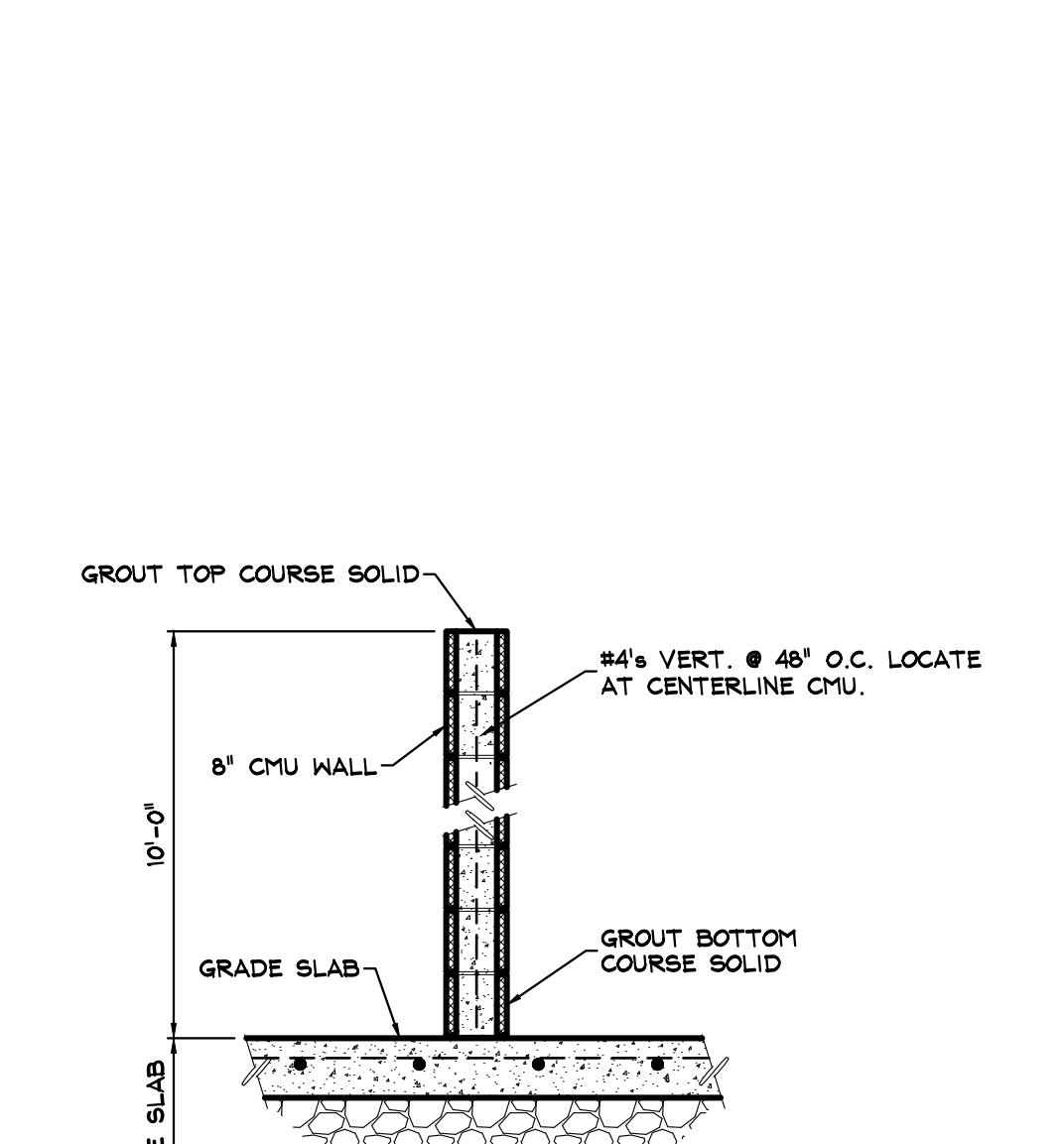
NOTE: GRADE WALL IS DESIGNED FOR A 4.7K MAXIMUM IN-PLANE HORIZONTAL BASE REACTION (ASD) FROM THE ADJACENT BRACED BAY COLUMN.



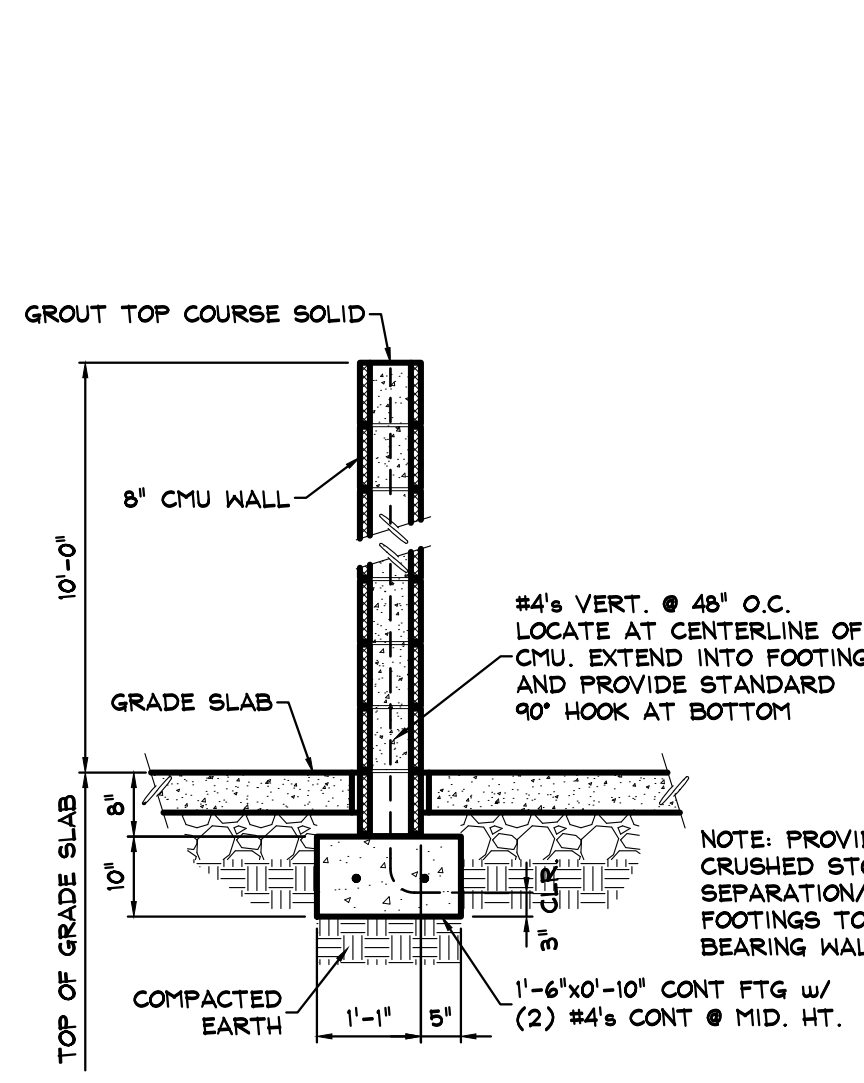
FOUNDATION/SEPARATION WALL ALONG MAINTENANCE BAY
SCALE: 1/2" = 1'-0"



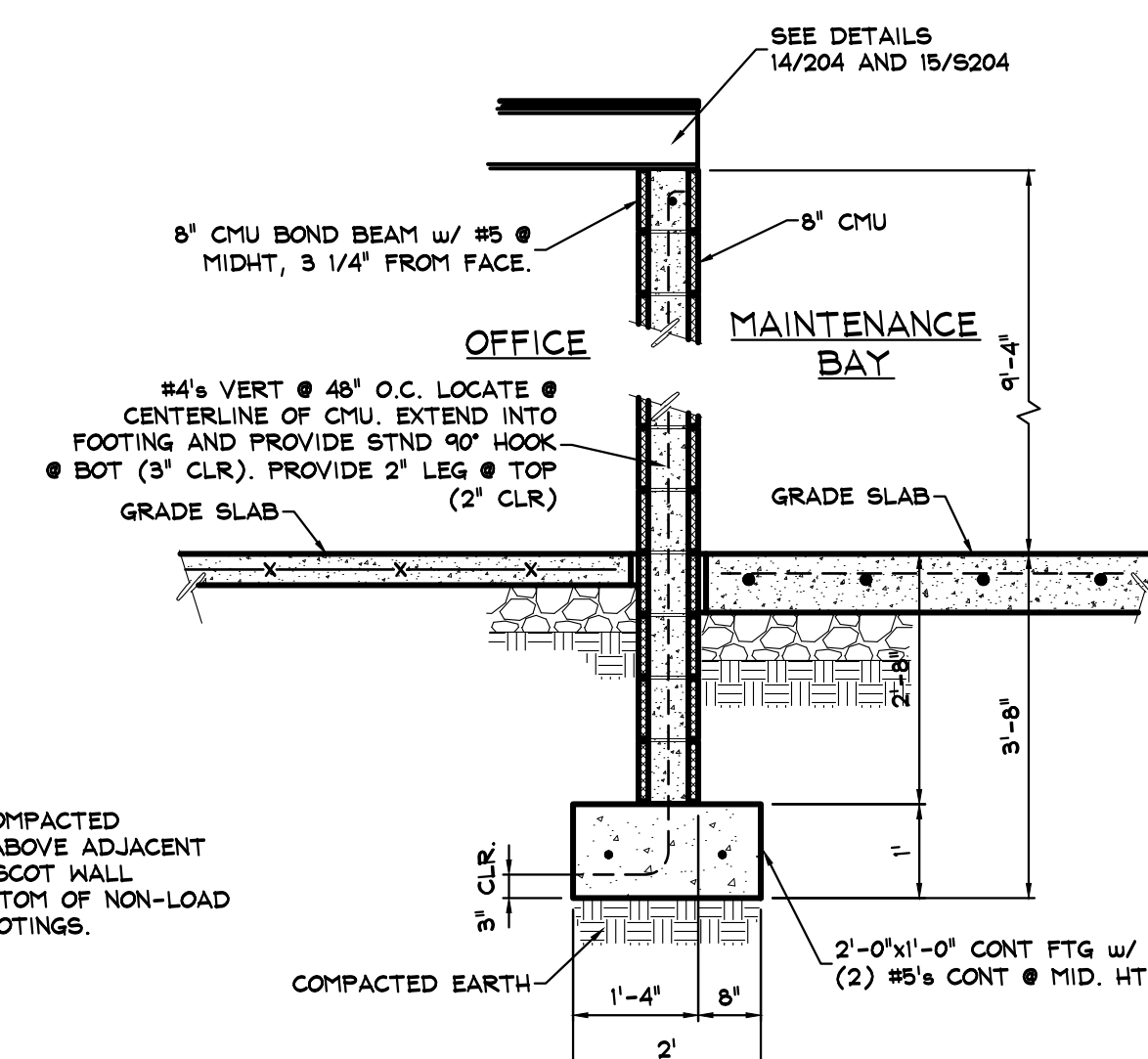
GARAGE WASH BAY WALLS
SCALE: 1/2" = 1'-0"



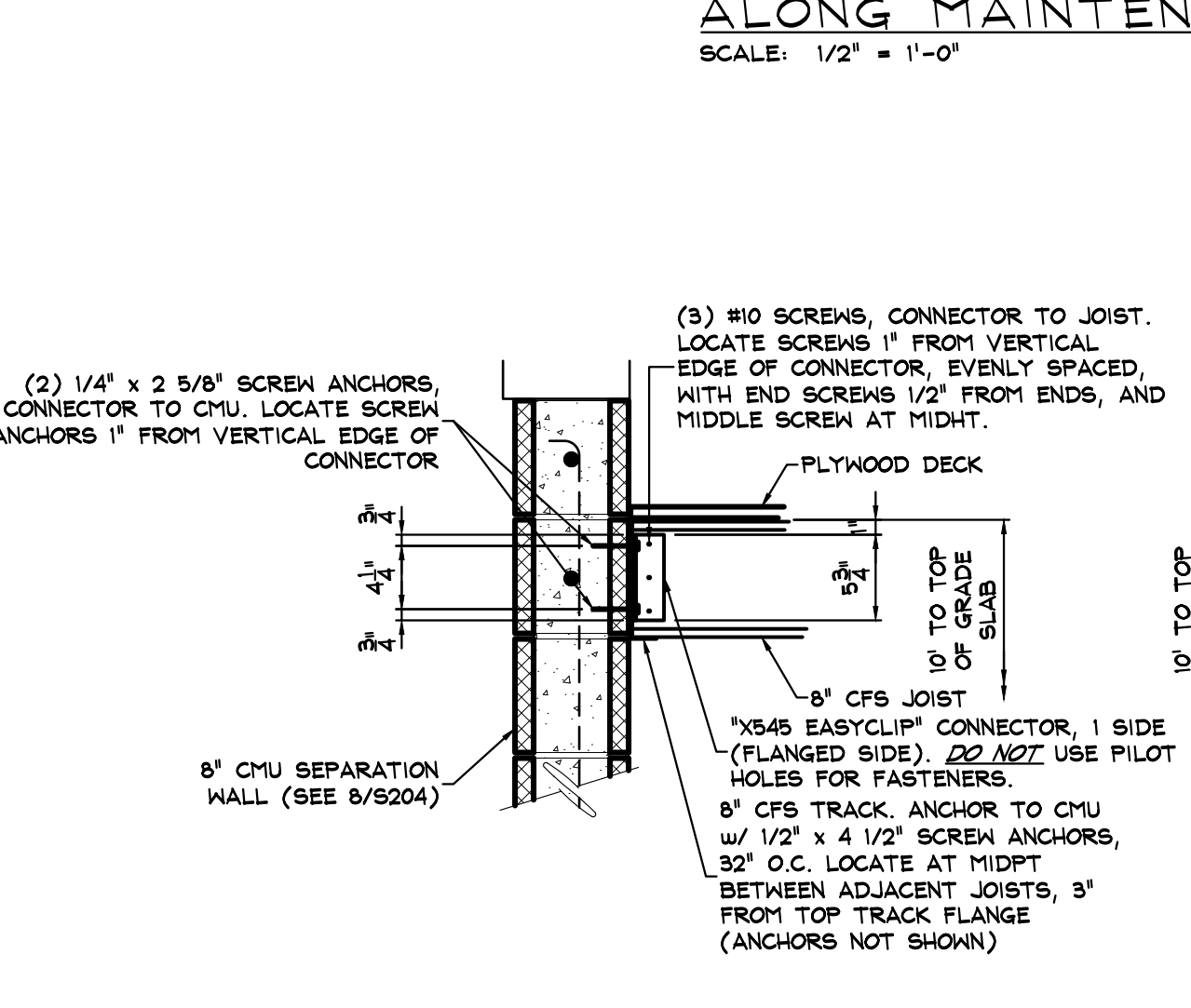
GARAGE RESTROOM / MECHANICAL ROOM WALLS
SCALE: 1/2" = 1'-0"



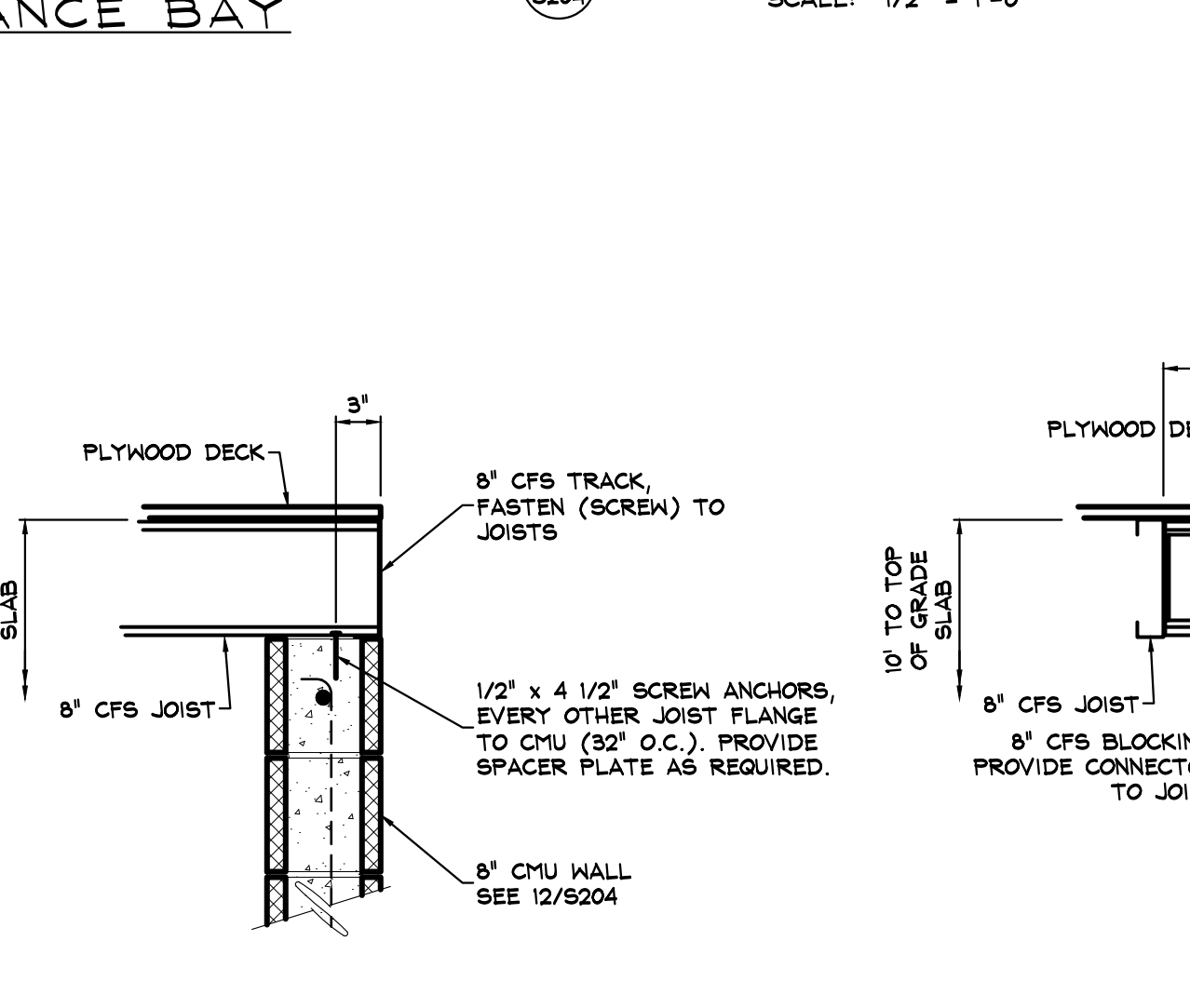
OFFICE AREA INTERIOR NON-LOAD BEARING WALLS
SCALE: 1/2" = 1'-0"



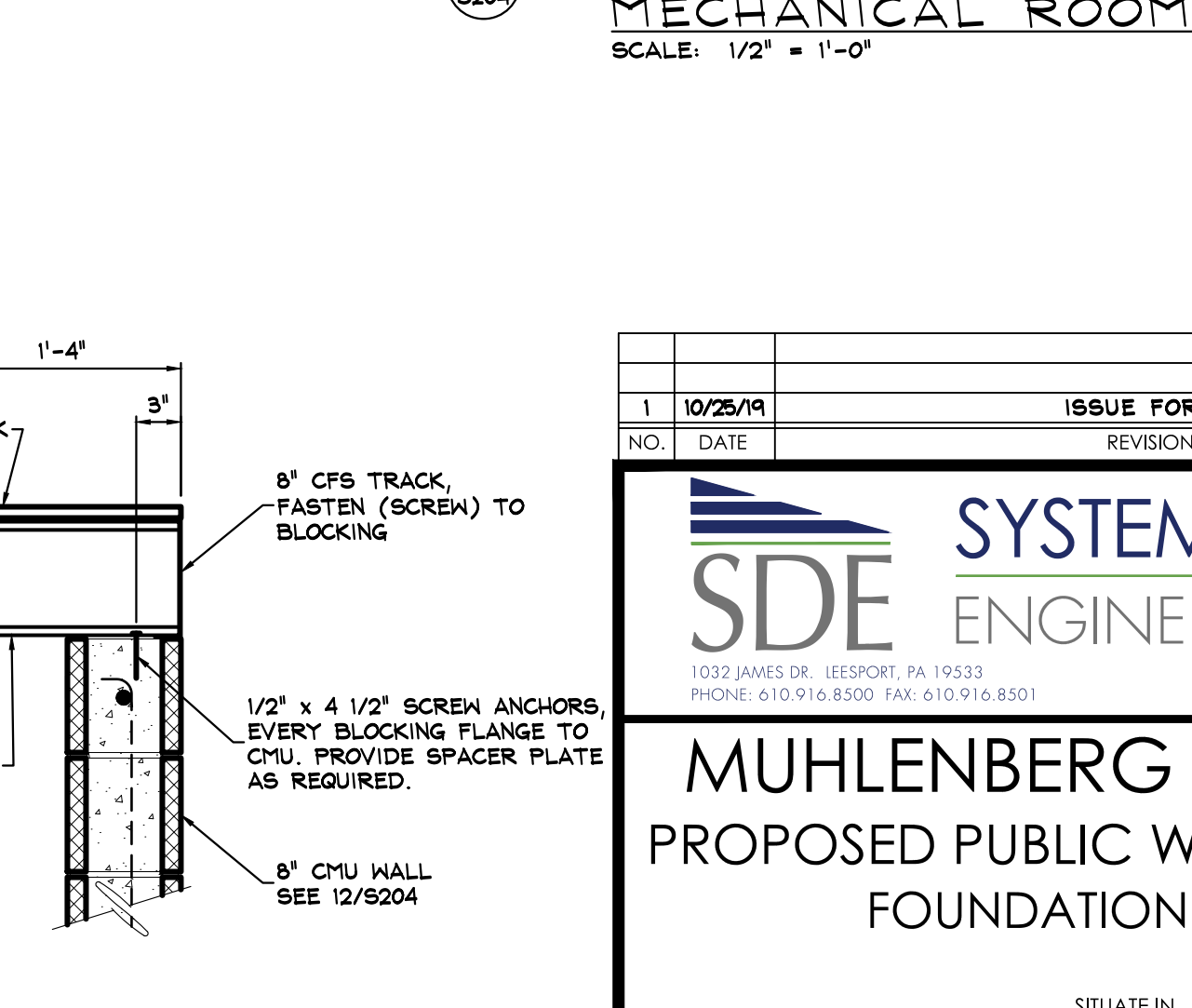
MAINTENANCE BAY OFFICE WALL
SCALE: 1/2" = 1'-0"



MECH PLATFORM SECTION
SCALE: 1" = 1'-0"



MECH PLATFORM SECTION
SCALE: 1" = 1'-0"



MECH PLATFORM SECTION
SCALE: 1" = 1'-0"

1		10/25/19	ISSUE FOR BID	JMS
NO.		DATE	REVISION	BY
MUHLENBERG TOWNSHIP PROPOSED PUBLIC WORKS BUILDING FOUNDATION DETAILS				
MUHLENBERG TOWNSHIP		SITUATE IN BERKS COUNTY		PENNSYLVANIA
DRAWN BY: JWS	CHECKED: RAS	APPROVED: TSU	CADD FILE NAME: S204 Foundation Details.dwg	
DATE: 08/23/19	SCALE: AS NOTED	DRAWING NUMBER: D-19-0153-0144-S204		

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