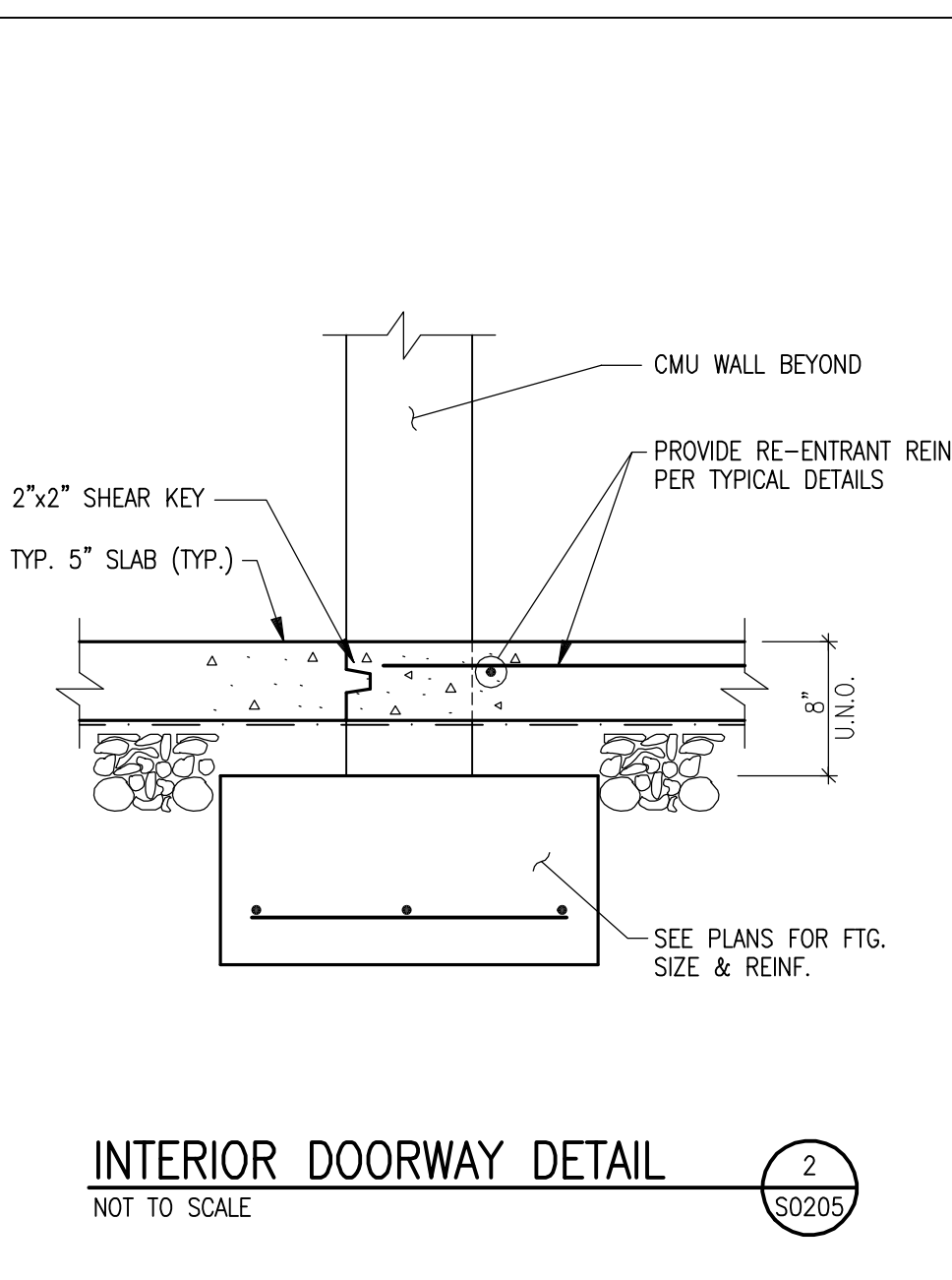
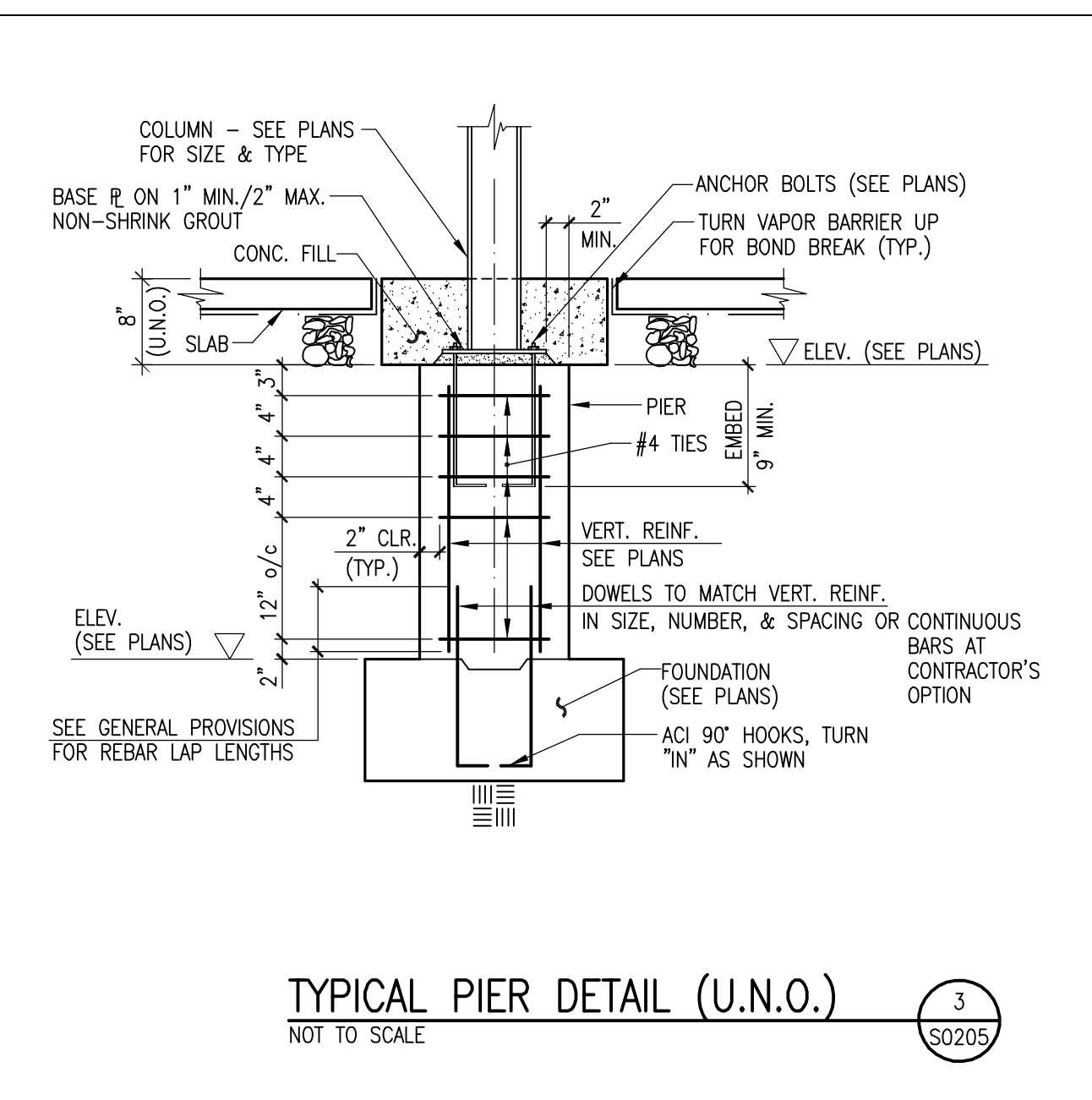


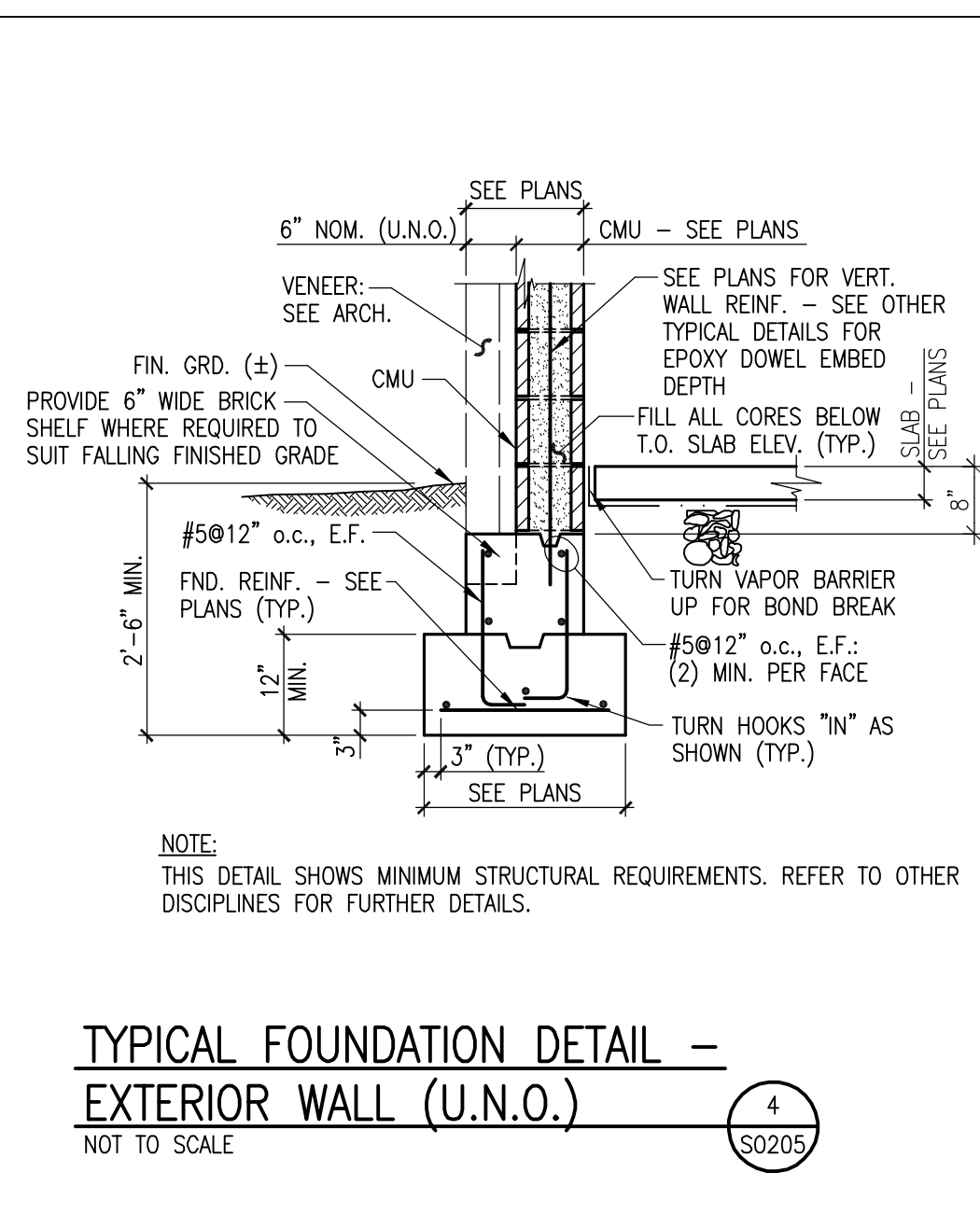
TYPICAL SECTION @ EXTERIOR DOORWAYS
NOT TO SCALE



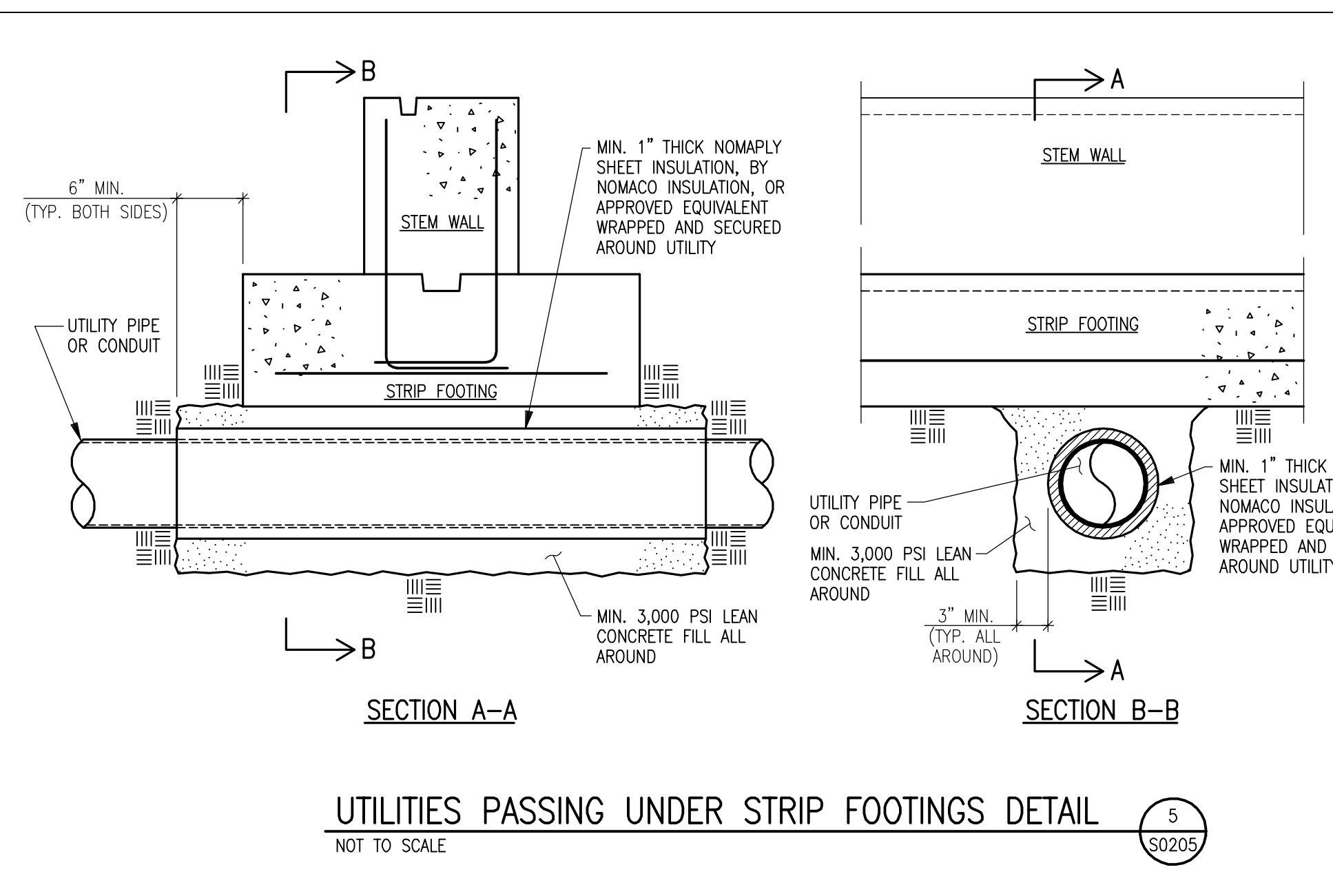
INTERIOR DOORWAY DETAIL
NOT TO SCALE



TYPICAL PIER DETAIL (U.N.O.)
NOT TO SCALE



TYPICAL FOUNDATION DETAIL - EXTERIOR WALL (U.N.O.)
NOT TO SCALE



UTILITIES PASSING UNDER STRIP FOOTINGS DETAIL
NOT TO SCALE

MINIMUM TENSION EMBEDMENT LENGTHS l_{dh} (in.) FOR STANDARD END HOOKS ON GRADE 60 IN NORMAL WEIGHT CONCRETE

BAR SIZE	NORMAL WEIGHT CONCRETE, f'_c , PSI			MIN. EMBED. LENGTH FOR 180° HOOKS
	3000	4000	5000	
#3	6	6	6	6
#4	8	7	6	7
#5	10	9	8	7
#6	12	10	9	8
#7	14	12	11	9
#8	16	14	12	10
#9	18	15	14	12
#10	20	17	15	14
#11	22	19	17	15
#14	37	32	29	20
#18	50	43	39	25

* FOR 180° HOOKS AT RIGHT ANGLES TO EXPOSED SURFACES, SEE MINIMUM LENGTHS TO PROVIDE 2" MINIMUM COVER TO TAIL FAR RIGHT COLUMN.

TENSION DEVELOPMENT LENGTHS (IN.) FOR UNCOATED BARS IN NORMAL WEIGHT CONCRETE

$f'_c = 4000$ PSI

BAR SIZE	TOP BARS						OTHER BARS					
	CATEGORY						CATEGORY					
	1	2	3	4	5	6	1	2	3	4	5	6
#3	14	14	14	14	14	14	12	12	12	12	12	12
#4	20	19	19	19	19	19	15	15	15	15	15	15
#5	31	25	23	23	23	23	24	19	18	18	18	18
#6	44	35	31	28	28	28	34	27	24	22	22	22
#7	59	48	42	33	33	33	46	37	32	26	25	25
#8	78	63	55	44	39	37	60	48	42	34	30	29
#9	99	79	69	56	50	42	76	61	53	43	38	32
#10	126	101	88	70	63	50	97	77	68	54	48	39
#11	154	123	108	86	77	62	119	95	83	67	59	48
#14	210	210	147	147	105	105	162	162	113	113	81	81
#18	309	309	216	216	154	154	237	237	166	166	119	119

TENSION LAP SPlice LENGTHS (IN.) FOR GRADE 60 UNCOATED BARS IN NORMAL WEIGHT CONCRETE

$f'_c = 4000$ PSI

BAR SIZE	LAP CLASS	TOP BARS						OTHER BARS					
		CATEGORY						CATEGORY					
		1	2	3	4	5	6	1	2	3	4	5	6
#3	A	14	14	14	14	14	14	12	12	12	12	12	12
	B	18	18	18	18	18	18	16	16	16	16	16	16
#4	A	20	19	19	19	19	19	15	15	15	15	15	15
	B	26	24	24	24	24	24	20	19	19	19	19	19
#5	A	31	25	23	23	23	23	24	19	18	18	18	18
	B	40	32	30	30	30	31	25	23	23	23	23	23
#6	A	44	35	31	28	28	28	34	27	24	22	22	22
	B	57	45	40	36	36	36	44	35	31	28	28	28
#7	A	59	48	42	33	33	33	46	37	32	26	25	25
	B	77	62	54	43	42	42	59	48	42	33	33	33
#8	A	78	63	55	44	39	37	60	48	42	34	30	29
	B	102	81	71	57	51	48	78	63	55	44	39	37
#9	A	99	79	69	56	50	42	76	61	53	43	38	32
	B	129	103	90	72	64	55	99	79	69	56	50	42
#10	A	126	101	88	70	63	50	97	77	68	54	48	39
	B	163	131	114	92	82	65	126	101	88	70	63	50
#11	A	154	123	108	86	77	62	119	95	83	67	59	48
	B	200	160	140	112	100	80	154	123	108	86	77	62

COMPRESSION DEVELOPMENT AND LAP SPlice LENGTHS FOR UNCOATED AND EPOXY-COATED BARS (ACI 318 AND AASHTO, INCH-POUND UNITS)

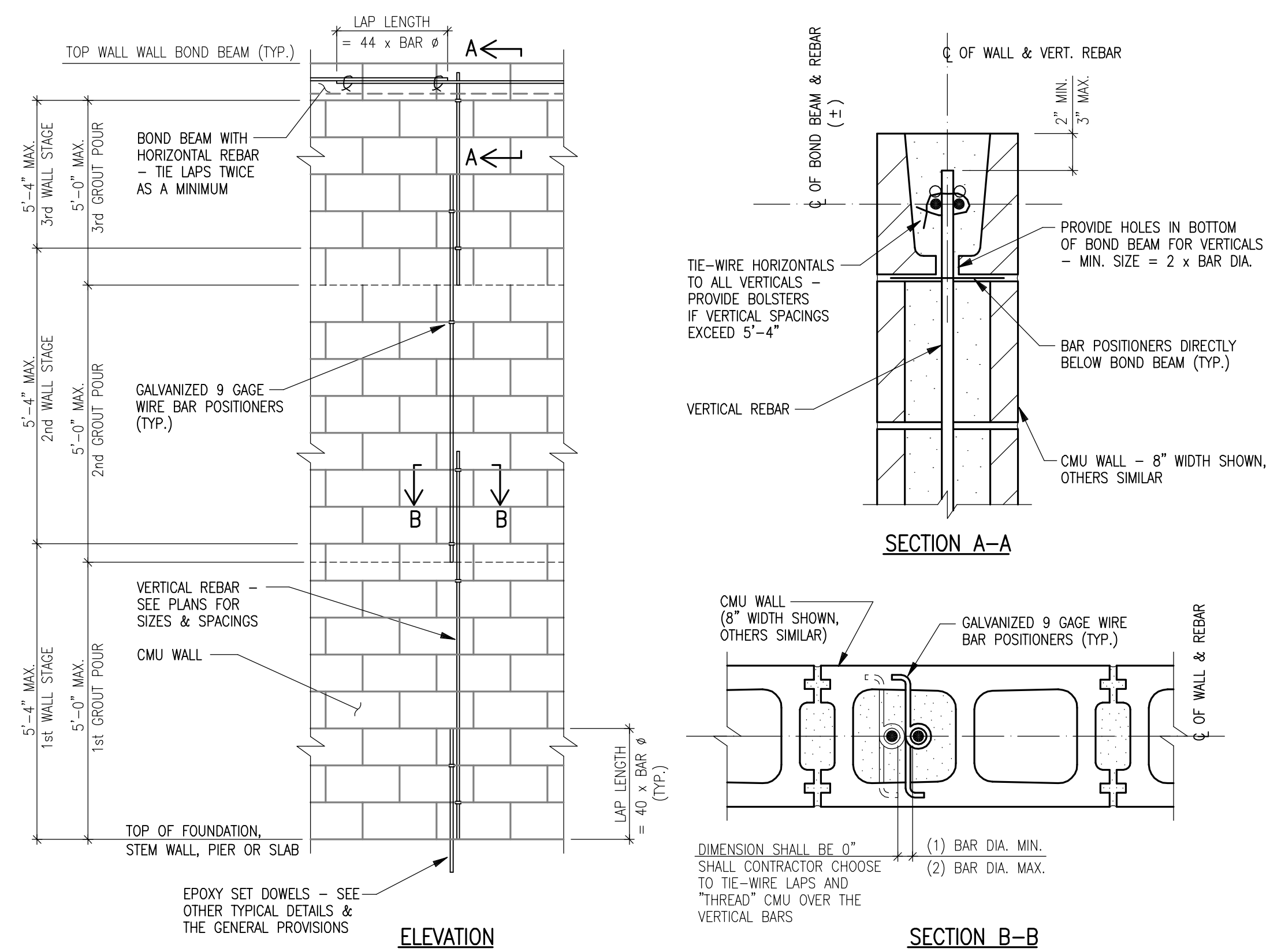
BAR SIZE	LAP CLASS	COMPRESSION LENGTHS (IN.) PER CONCRETE STRENGTH (PSI)				LAP SPlice
		CONCRETE STRENGTH (PSI)				
		3000 PSI	3500 PSI	4000 PSI	5000 PSI	
#3	A	9	8	8	8	12
#4	A	11	10	10	9	15
#5	A	14	13	12	12	19
#6	A	17	16	15	14	23
#7	A	19	18	17	16	27
#8	A	22	21	19	18	30
#9	A	25	23	22	21	34
#10	A	28	26	24	23	38
#11	A	31	29	27	26	43
#14	A	37	35	32	31	N/A
#18	A	50	46	43	41	N/A

NOTES:

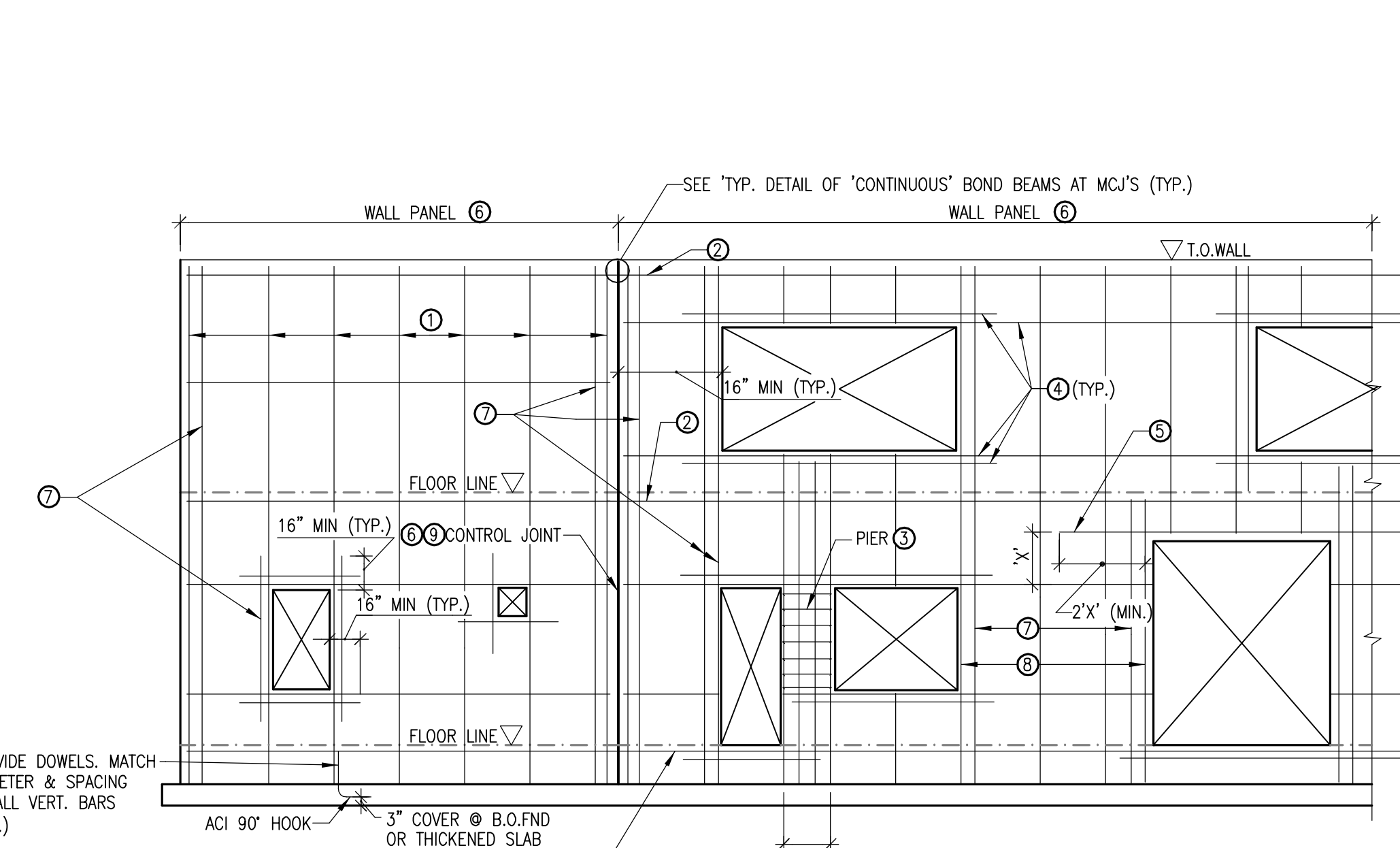
- TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL WEIGHT CONCRETE. LENGTHS ARE IN INCHES.
- ALL LAP SPlice AND DEVELOPMENT LENGTHS ARE IN INCHES.
- WHEN LAP SPlicing BARS OF DIFFERENT SIZES, USE LAP LENGTH OF THE SMALLER BAR SIZE, OR 'CLASS A' SPlice LENGTH OF LARGER, WHICHEVER IS GREATER.
- TENSION LAP SPlices & DEV. LENGTH SHOWN IN TABLES ARE APPLICABLE WHERE BAR SPACING $\geq (2 \times \text{CONC. COVER}) + \text{BAR DIA.}$, ALL ELSE REFER TO GEN. PROV. NOTE: 3.1.24.
- FOR COMPRESSION DEVELOPMENT LENGTHS, IF BARS ARE ENCLOSED IN SPIRALS OR TIES PER ACI 318-95, SECTION 12.3.3.2 OR AASHTO, ARTICLE 8.2.6.2.2 THEN A MODIFICATION FACTOR OF 0.75 MAY BE APPLIED BUT THE LENGTH MUST NOT BE LESS THAN 8 IN.
- FOR COMPRESSION LAP SPlice LENGTHS:
 - IF BARS ARE ENCLOSED IN A TIED COMPRESSION MEMBER PER ACI 318-95 SECTION 12.17.2.4 OR AASHTO, ARTICLE 8.3.2.4.1, THEN A MODIFICATION FACTOR OF 0.83 MAY BE APPLIED BUT THE LENGTH MUST NOT BE LESS THAN 12 IN.
 - IF BARS ARE ENCLOSED IN A SPIRALLY-REINFORCED COMPRESSION MEMBER PER ACI 318-95, SECTION 12.17.2.5 OR AASHTO, ARTICLE 8.3.2.4.1 THEN A MODIFICATION FACTOR OF 0.75 MAY BE APPLIED BUT THE LENGTH MUST NOT BE LESS THAN 12 IN.
- ACI 318-95 AND AASHTO DO NOT ALLOW COMPRESSION LAP SPlices OF #14 AND #18 BARS, EXCEPT TO #11 AND SMALLER BARS.
- 'CLASS A' LAP = 1.0L_d; 'CLASS B' LAP = 1.3L_d, WHERE L_d = TENSION DEVELOPMENT LENGTH.

TABLES FOR TENSION DEVELOPMENT LENGTH AND LAP LENGTH

NOT TO SCALE



TYPICAL DETAIL - CMU WALL STAGING & GROUTING EXAMPLE
NOT TO SCALE



NOTE:
SDC = SEISMIC DESIGN CATEGORY LISTED IN GENERAL PROVISION NOTE 1.3.8

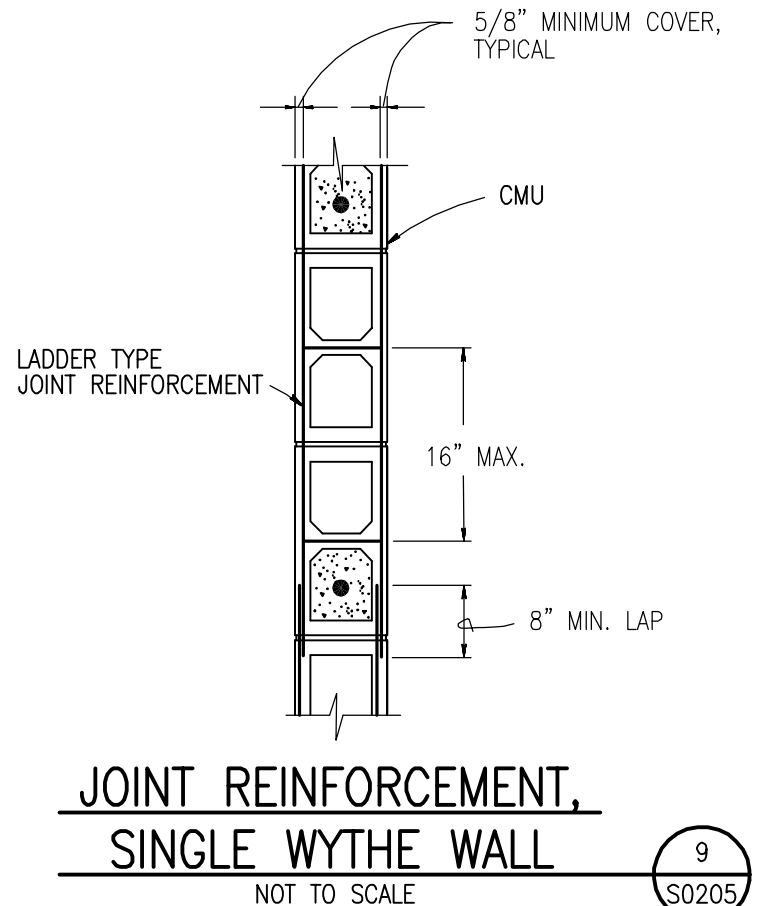
TYPICAL CMU CONTROL JOINT LOCATION AND REINFORCEMENT DETAILS WHEN SDC = 'C' OR 'D' (U.N.O.)
NOT TO SCALE

NOTES:

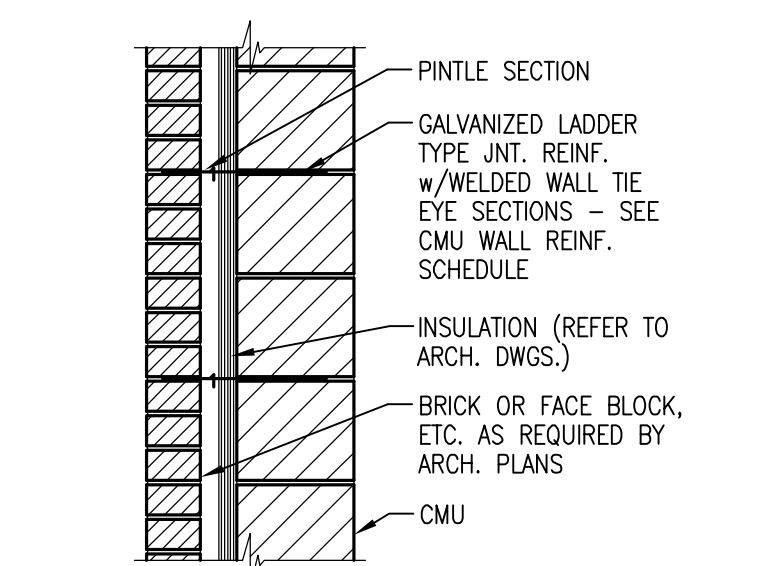
- TYP. VERT. REINF. AS SHOWN ON PLANS, AND PER 'CMU WALL REINF. SCHEDULES' AND TYP. DETAIL- 'REINF. ARRANGEMENT IN CMU SHEAR WALLS.' TYPICAL REINF. REQUIREMENTS CAN BE COINCIDENTAL WITH SPECIFIC REINF. REQUIREMENTS (NOT REQUIRED TO BE 'IN ADDITION TO').
- PROVIDE 'CONTINUOUS' BOND BEAMS AND BOND BEAM REINFORCEMENT AT ALL FLOOR AND ROOF LINES, AND AT INTERMEDIATE BOND BEAM LINES, WHERE REQUIRED BY CMU WALL REINF. SCHEDULE 'H.' SEE 'TYPICAL DETAIL OF 'CONTINUOUS' BOND BEAMS AT MCJ'S'. COORD. BOND BEAM AND REBAR LAPS AT 'STEPPED' ELEVATION CHANGES w/ GEN. PROVISION CMU REBAR NOTES.
- WHERE HORIZ. DISTANCE BETWEEN ADJACENT OPENINGS IS 32" OR LESS, PROVIDE PIER REINF. - VERTICAL BAR DIA. TO MATCH TYP. REINF. BAR DIAMETERS IN NOTE 1, PLACED AT 8" O.C.; TIES TO BE #3 @ 8" O.C.
- PROVIDE SILL BOND BEAMS, UNTELS AND REINF. PER CMU WALL REINF. SCHEDULE 'H.' SILL BOND BEAM AND UNTEL REINF. TO BE CONTINUOUS BETWEEN MCJ LOCATIONS, BUT NOT THROUGH MCJ'S. PROVIDE ADD'L. LAYER OF HORIZ. REINF. PER THE SCHEDULE AT EACH OPENING, EXTENDING 16"(MIN.) BEYOND EDGE OF OPENING.
- WHERE HEAD, OR SILL, ELEVATIONS OF OPENINGS IS NOT CONSTANT THROUGHOUT A WALL PANEL, UNTEL, & SILL BOND BEAM, REINF. SHALL BE OVERLAPPED, AS SHOWN.
- PROVIDE MCJ'S IN SDC = 'C' AND 'D' WALLS AT 25'-0" O.C. (MAX.) SPACING, BUT NOT WITHIN 16" OF JAMBS OF OPENINGS.
- PROVIDE VERT. REINF. AT LIMITS OF EA. PANEL, AND AT JAMBS OF EA. OPNG., IN ACCORDANCE WITH END OF SHEAR PANEL REQUIREMENTS GIVEN IN TYP. DETAIL- 'REINF. ARRANGEMENTS IN CMU SHEAR WALLS'. BARS TO BE CONTINUOUS WHERE UPPER AND LOWER OPNGS. ALIGN. EXTEND BARS TO FLOOR/ROOF LINE BOND BEAM WHERE LIMIT OF OPNG. IS 16" OR LESS FROM FLOOR/ROOF LINE BOND BEAM, AND 16" MIN. BEYOND LIMITS OF OPNG. ELSEWHERE.
- PROVIDE VERT. REINF. AT SIDE OF EA. OPNG. PER SCHED. 'SV'.
- MASONRY JOINT REINFORCEMENT TO BE DISCONTINUED AT MCJ'S AND EXPANSION JOINTS.
- GROUT ALL CELLS, BOND BEAMS AND UNTELS CONTAINING BAR REINF. AND CELLS AT ALL LOCATIONS OF 'BUILT-IN' OR 'EXP. BOLT' ITEMS, WITH SELF-CONSOLIDATING CONCRETE (3000PSI AT 28 DAYS)
- EXTEND VERT. REINF. TO T.O. PARAPET, OR TO NEXT STORY (U.N.O.)
- REINFORCED CMU WALL CONSTRUCTION TO CONFORM TO ACI 530.1
- MCJ = MASONRY CONTROL JOINT

DISCLAIMER NOTE:

THIS SET OF CONSTRUCTION DRAWINGS HAS BEEN UPDATED TO INCLUDE ANY CHANGES ISSUED THROUGH ADDENDUM OR OTHER MEANS. EVERY EFFORT HAS BEEN TAKEN TO INCLUDE ALL CHANGES TO DATE. THE CONTRACTOR IS STILL RESPONSIBLE FOR PROVIDING ANY ITEMS THAT WERE SHOWN AS PART OF THE ORIGINAL BID SET THAT MAY HAVE BEEN OVERLOOKED AND NOT INCLUDED IN THIS SET.



JOINT REINFORCEMENT - SINGLE WYTHE WALL
NOT TO SCALE



TYPICAL MASONRY WALL TIES AND JOINT REINFORCEMENT ARRANGEMENT
NOT TO SCALE

University of Louisville - Student Recreation Center (Phase #4 - Construction Set) Louisville, Ky

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CANNONDESIGN
UNIVERSITY OF LOUISVILLE

#	Revision Date

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U of L Project Number: Omni - 1105.000
Project Number: Cannon - 03667.00
Date: April 16, 2012
Checked By: ANTHONY
VPP

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