

**LAP SPICE AND DEVELOPMENT LENGTH SCHEDULE (INCHES)**

BAR SIZE (IN-LB)	BAR SIZE (METRIC)	F <sub>c</sub> = 3,000 PSI THRU 3,500 PSI								F <sub>c</sub> = 4,000 PSI								F <sub>c</sub> = 5,000 PSI							
		COMP				TENSION				COMP				TENSION				COMP				TENSION			
		LCE	LCS	LDH	LTE	LTE TOP	LTS TOP	LTS OTHER	LCE	LCS	LDH	LTE	LTE OTHER	LTS TOP	LTS OTHER	LCE	LCS	LDH	LTE	LTE OTHER	LTS TOP	LTS OTHER			
#3	#10	9	12	6	22	16	28	21	8	12	6	19	14	24	18	8	12	6	17	13	22	17			
#4	#13	11	15	8	29	22	37	28	10	15	7	25	19	32	25	9	15	6	22	17	29	22			
#5	#16	14	19	10	36	27	46	36	12	19	8	31	24	40	31	12	19	8	28	21	36	28			
#6	#19	17	23	12	43	33	56	43	15	23	11	37	28	48	37	14	23	9	33	25	43	33			
#7	#22	19	27	13	63	48	81	62	17	27	12	54	42	70	54	16	27	11	49	37	63	48			
#8	#25	22	30	15	72	55	93	71	19	30	13	62	47	80	62	18	30	12	55	42	72	55			
#9	#29	25	34	18	81	62	105	80	22	34	15	70	54	91	70	21	34	13	63	48	81	62			
#10	#32	28	38	20	91	70	118	90	24	38	17	79	60	102	78	23	38	15	70	54	91	70			
#11	#36	31	43	22	101	77	131	100	27	43	19	87	67	113	87	26	43	17	78	60	101	78			

- GENERAL NOTES:**
- LCE = COMPRESSION EMBEDMENT LENGTH
  - LCS = COMPRESSION LAP SPICE LENGTH
  - LDH = HOOK DEVELOPMENT LENGTH
  - LTE = TENSION EMBEDMENT LENGTH
  - LTS = TENSION LAP SPICE LENGTH
  - TOP BARS ARE HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 IN OF FRESH CONCRETE IS CAST BELOW THE BAR
  - ALL BARS THAT ARE NOT TOP BARS ARE OTHER BARS
  - UNLESS NOTED OTHERWISE, ALL HOOK BARS SHALL EXTEND TO THE FAR FACE (LESS 2" COVER)

- LAP SPICE NOTES:**
- ALL SPLICES SHALL BE WIRED IN CONTACT. TOP AND BOTTOM BEAM SPLICES SHALL BE STACKED VERTICALLY
  - ALL SPLICES ARE 'LTS' UNLESS NOTED OTHERWISE
  - SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPLICING DIFFERENT SIZED BARS
    - COMPRESSION LAP LENGTH SHALL NOT BE LESS THAN 'LCE' OF THE LARGER BAR
    - TENSION LAP LENGTH SHALL NOT BE LESS THAN 'LTE' OF THE LARGER BAR
  - LAP LENGTHS SPECIFICALLY DETAILED ON DRAWINGS SHALL GOVERN IN LIEU OF LAP LENGTHS SCHEDULED
  - BUNDLED BAR SPLICES
    - INDIVIDUAL BAR SPLICES WITHIN THE BUNDLE SHALL BE STAGGERED
    - INCREASE LAP LENGTH 20% FOR A 3 BAR BUNDLE
    - INCREASE LAP LENGTH 33% FOR A 4 BAR BUNDLE
  - IF A NOTE OR DETAIL CALLS FOR A BAR TO BE EMBEDDED L<sub>d</sub> (DEVELOPMENT LENGTH) INTO CONCRETE, THIS LENGTH SHALL CORRESPOND TO A 'LTE' LAP

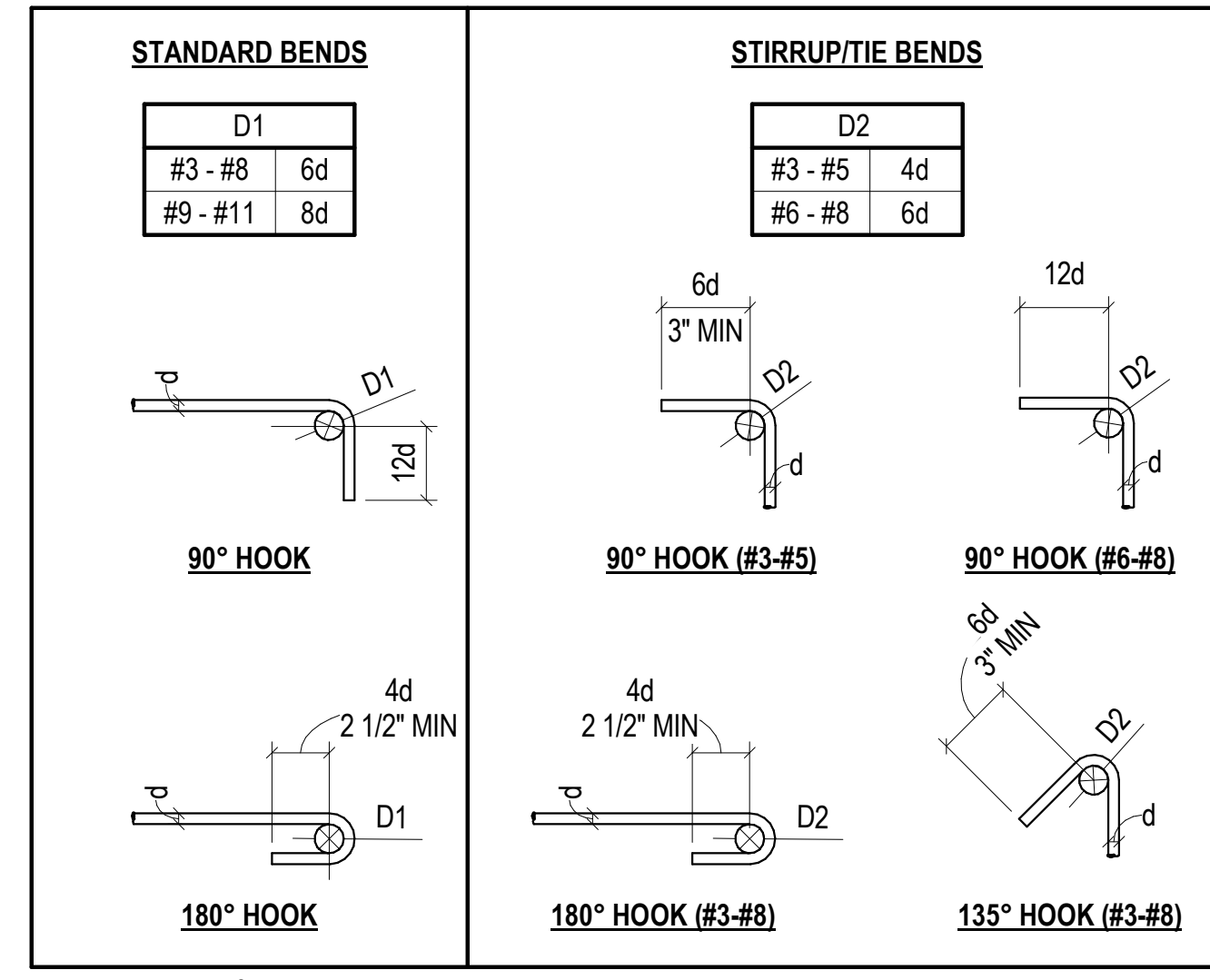
- ADJUSTMENTS TO GIVEN LENGTHS:**
- IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE SCHEDULED LENGTHS BY 50%
  - IF LIGHTWEIGHT AGGREGATE IS SPECIFIED, INCREASE SCHEDULED LAP BY LENGTHS 30%
  - SCHEDULED LENGTHS ASSUME:
    - CLEAR COVER IS GREATER THAN 1.5x BAR DIAMETER, BUT NOT LESS THAN 3/4"
    - CLEAR SPACING BETWEEN BARS IS GREATER THAN 2 BAR DIAMETERS
    - IF EITHER CONDITION A OR B IS NOT MET FOR A GIVEN BAR, INCREASE LENGTHS BY 50%
  - LENGTHS NOTED BASED ON F<sub>y</sub> = 60,000 PSI. FOR OTHER YIELD STRENGTHS, MULTIPLY LENGTHS NOTED BY F<sub>y</sub>/60,000
  - IF DEVELOPMENT OR LAP LENGTH IS SHOWN, BUT CANNOT BE ACHIEVED, EXTEND BAR TO FAR FACE (LESS 2" COVER) OF CONCRETE

**HOOK EMBEDMENT NOTES:**

- SCHEDULED HOOK EMBEDMENT LENGTHS ASSUME:
  - SIDE COVER IS 2 1/2 INCHES OR GREATER
  - COVER BEYOND IS 2 INCHES OR GREATER
- IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE SCHEDULED LENGTHS BY 20%
- IF LIGHTWEIGHT AGGREGATE IS SPECIFIED, INCREASE SCHEDULED LENGTHS BY 30%
- IF SIDE COVER IS LESS THAN 2 1/2 INCHES, INCREASE LENGTHS BY 40%

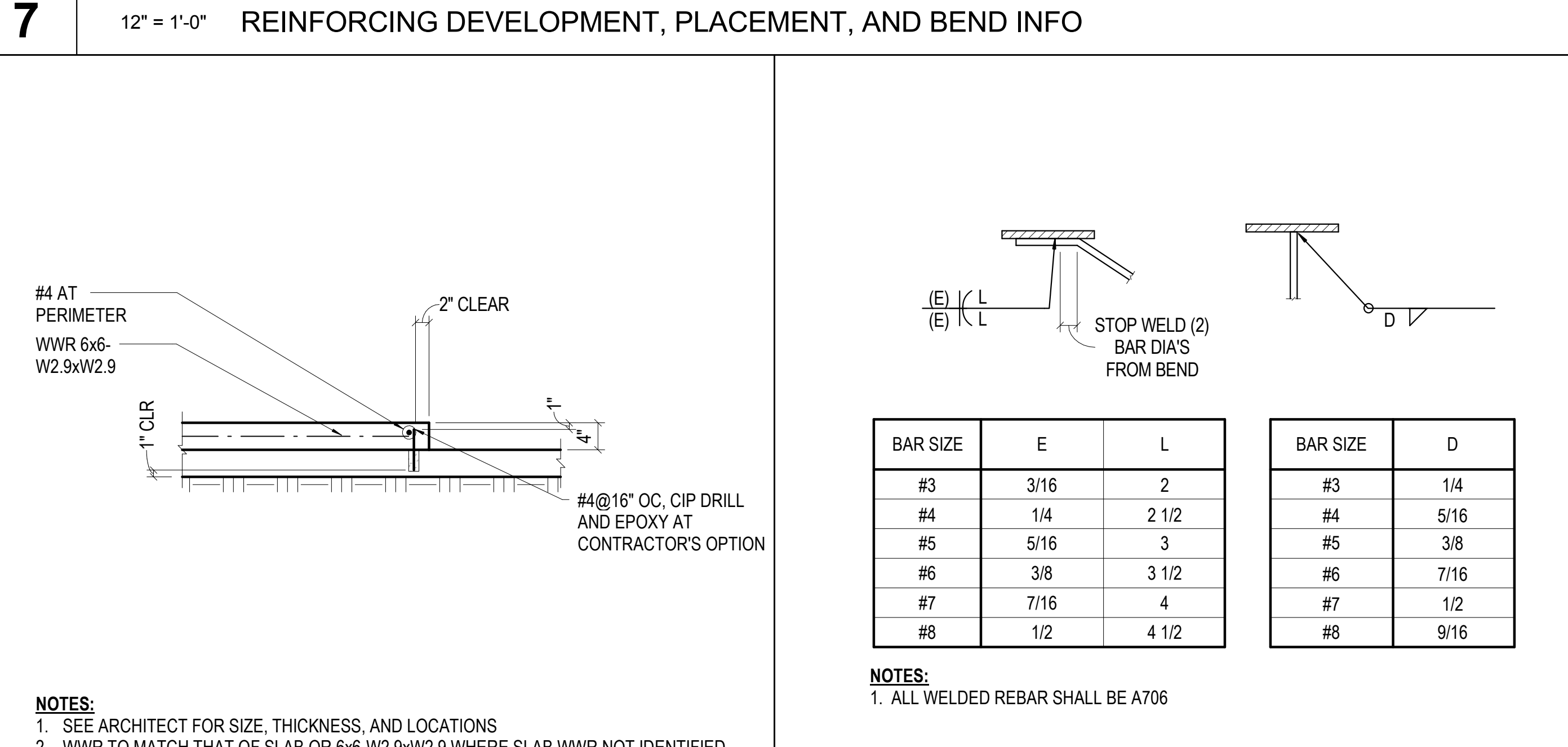
**REBAR COVER TABLE**

CASE	COVER (IN)
CONCRETE PLACED AGAINST EARTH	3
CONCRETE PLACED IN FORMS, EXPOSED TO WEATHER OR EARTH	2
COLUMNS AND BEAMS	1 1/2
SLABS OR WALLS NOT EXPOSED TO EARTH OR WEATHER	1



- TYPICAL REINFORCING BENDS**
- MAX OFFSET BEND**
- NOTES:**
- ALL BENDS SHALL BE MADE COLD
  - #14 & #18 BARS SHALL BE BEND TESTED & LAB APPROVED PRIOR TO BENDING

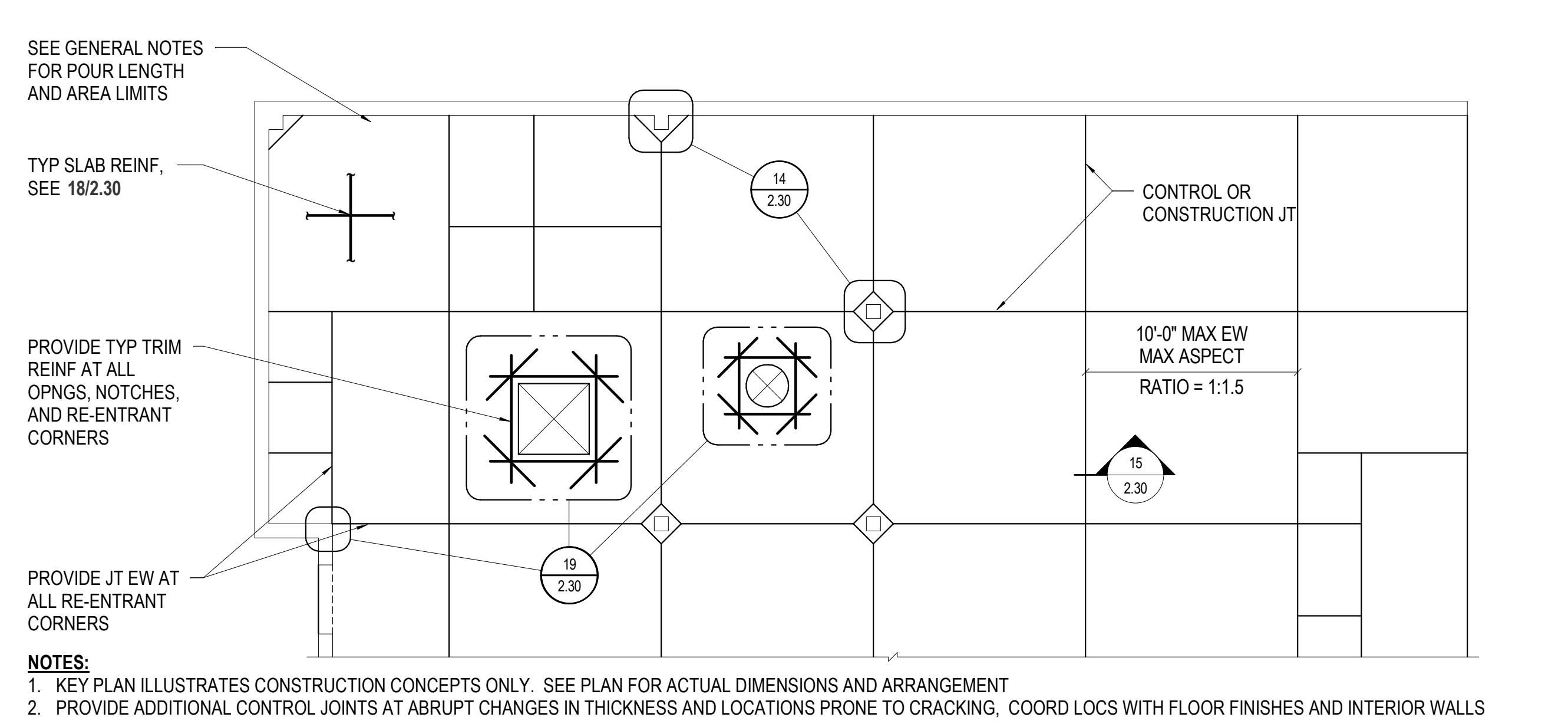
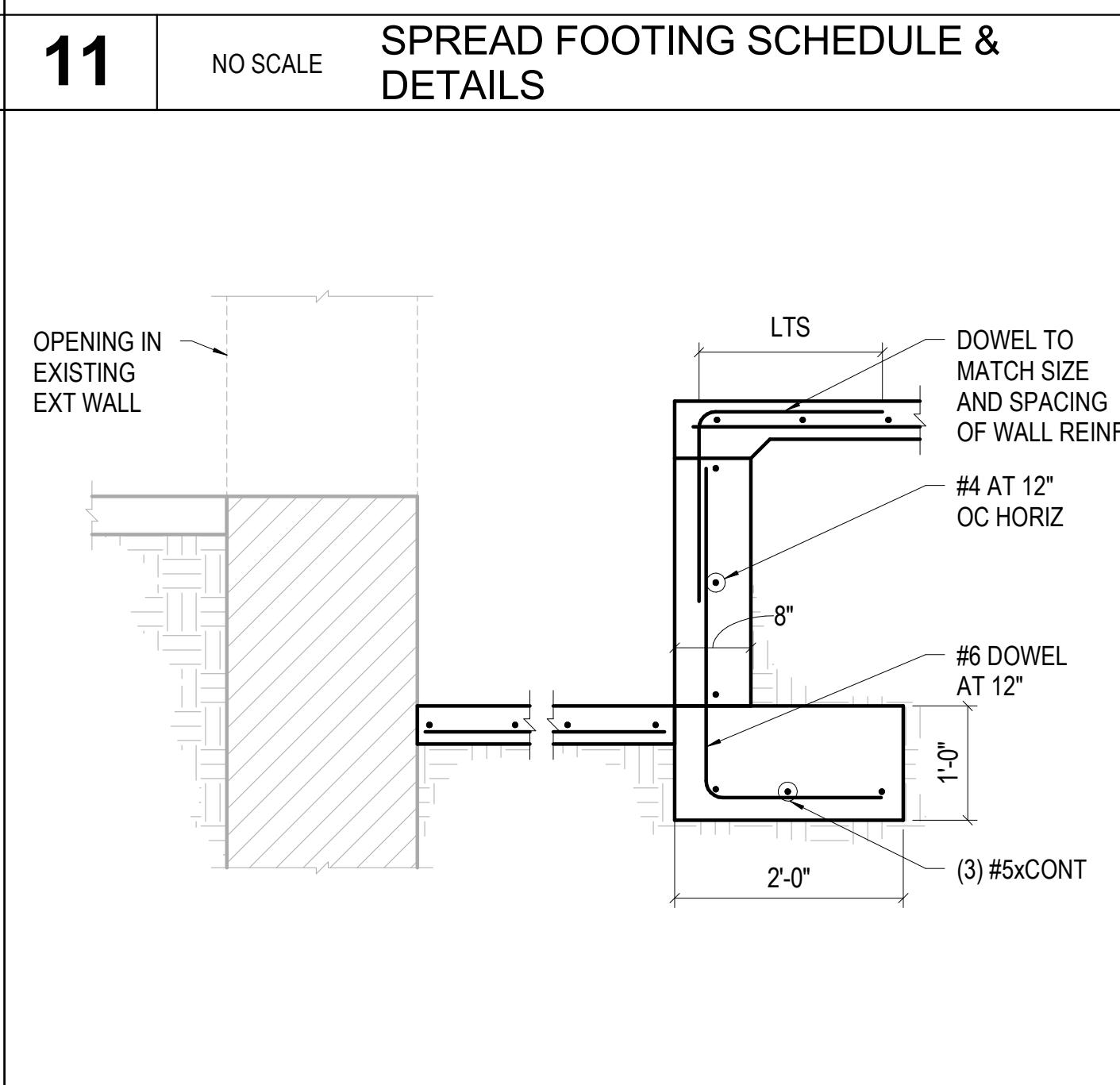
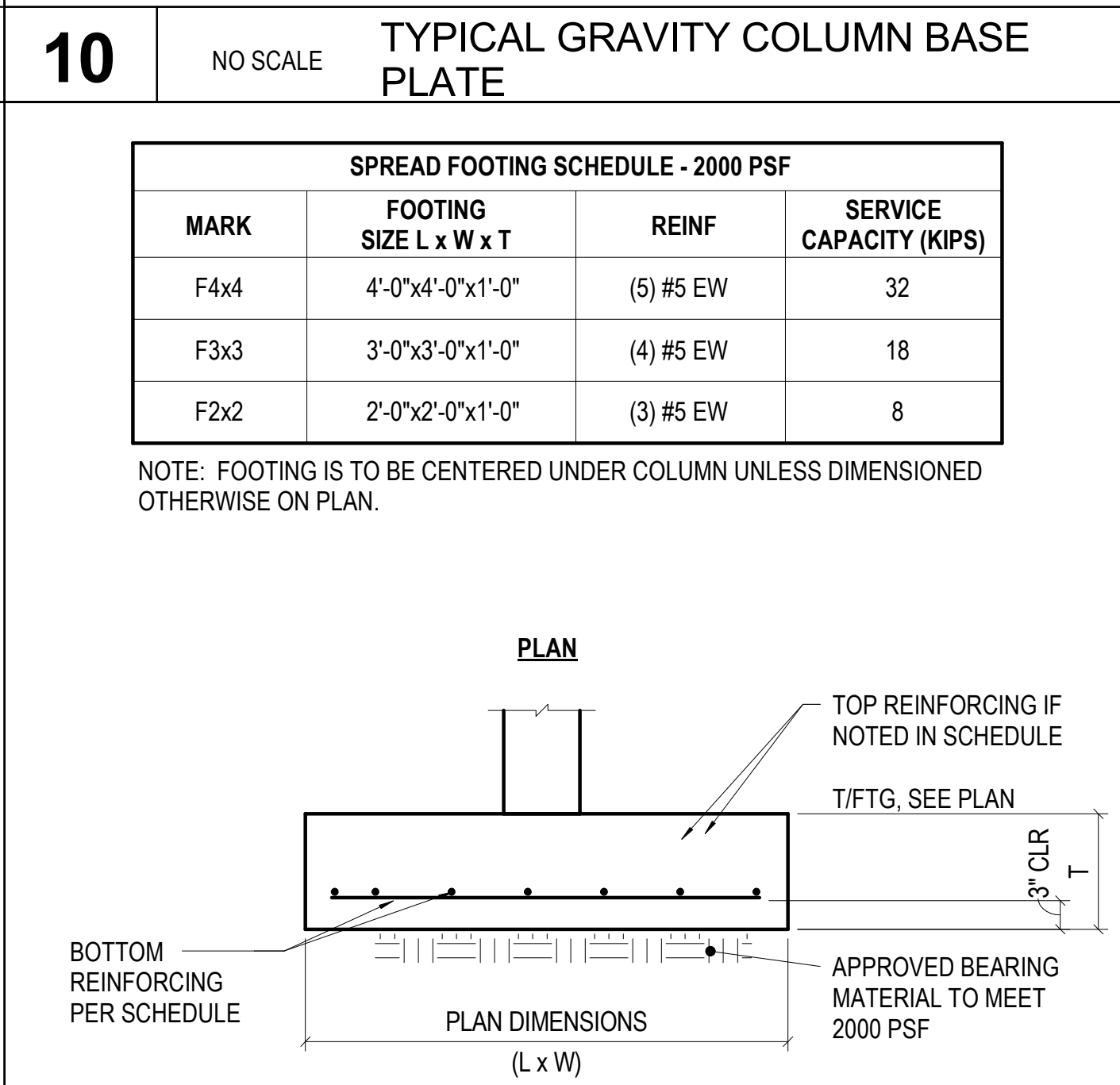
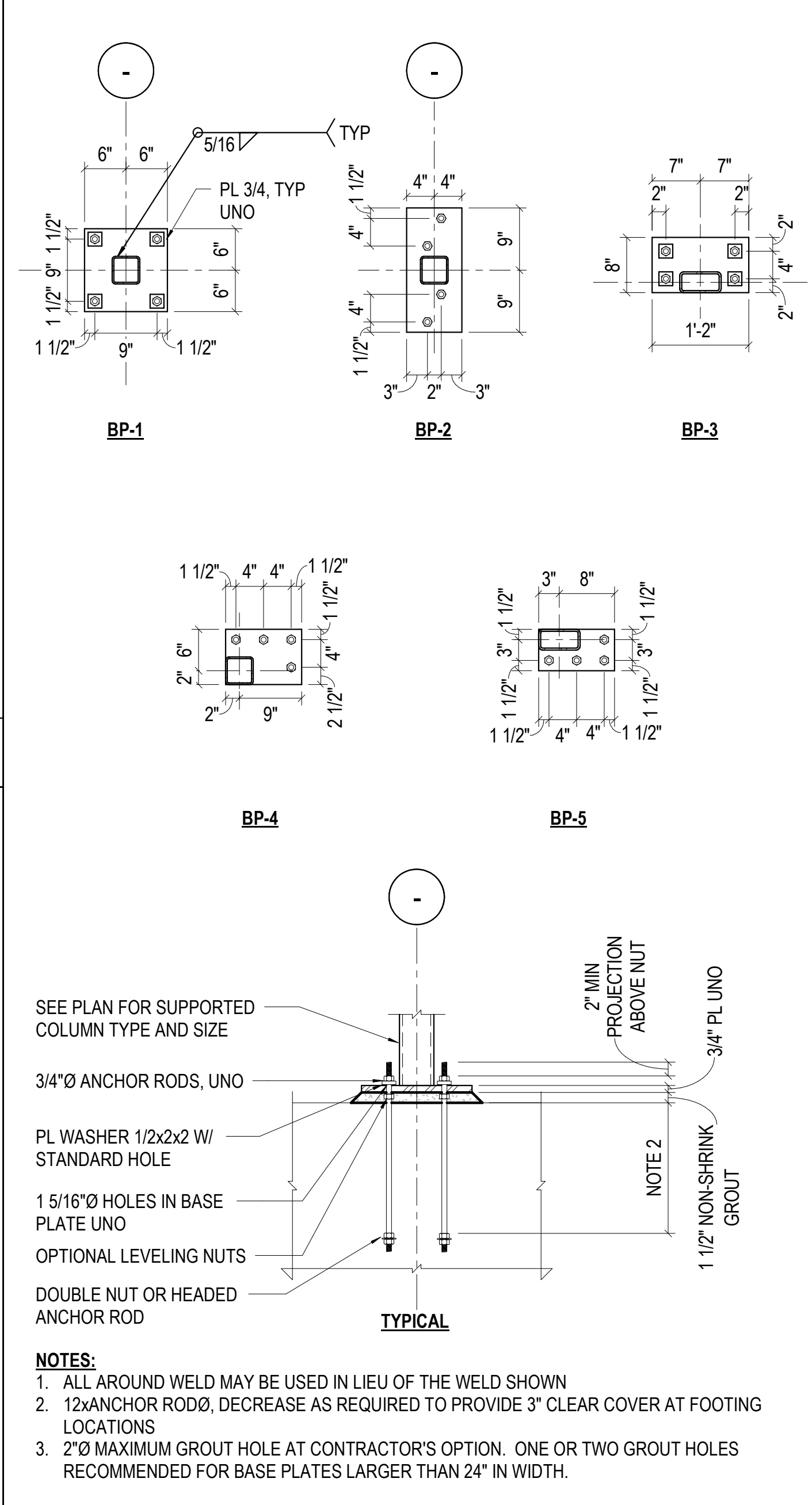
NOTE: SEE 4/2.30 FOR TYPICAL REBAR WELDING SCHEDULE WHERE APPLICABLE OR INDICATED ON PLANS



BAR SIZE	E	L	BAR SIZE	D
#3	3/16	2	#3	1/4
#4	1/4	2 1/2	#4	5/16
#5	5/16	3	#5	3/8
#6	3/8	3 1/2	#6	7/16
#7	7/16	4 1/2	#7	1/2
#8	1/2	4 1/2	#8	9/16

**NOTES:**

- ALL WELDED REBAR SHALL BE A706



**17 NO SCALE TYP SOG KEY PLAN**

**SLAB ON GRADE SCHEDULE**

TYPE	THICKNESS T	REINF	BAR POSITION
SOG4	4"	#4 @ 18" OC	CENTER
SOG6	6"	#4 @ 16" OC	CENTER

**TYPICAL SLAB-ON-GRADE SECTION**

**NOTES:**

- GRANULAR COURSE: 6" MIN COMPACTED GRANULAR FILL OR AS RECOMMENDED BY GEOTECHNICAL ENGINEER
- PREPARED/COMPACTED SUBGRADE TO MEET 2000 PSF MINIMUM.

