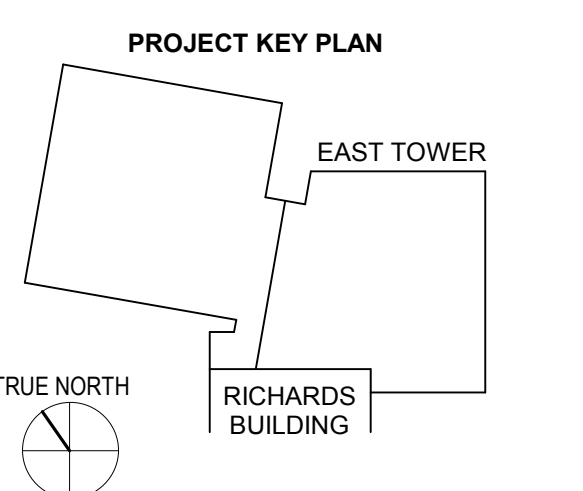
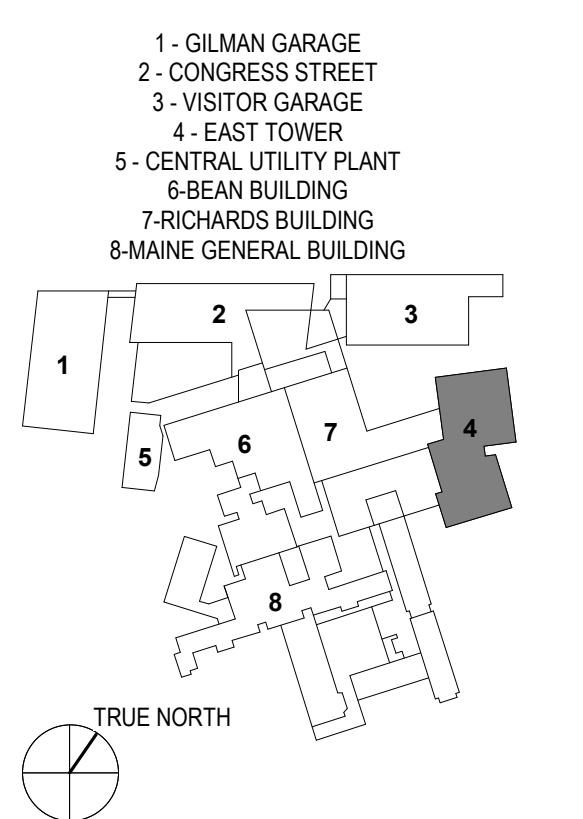


KEY PLANS



OVERALL KEY PLAN



CONSTRUCTION DOCUMENTS
JANUARY 28, 2018

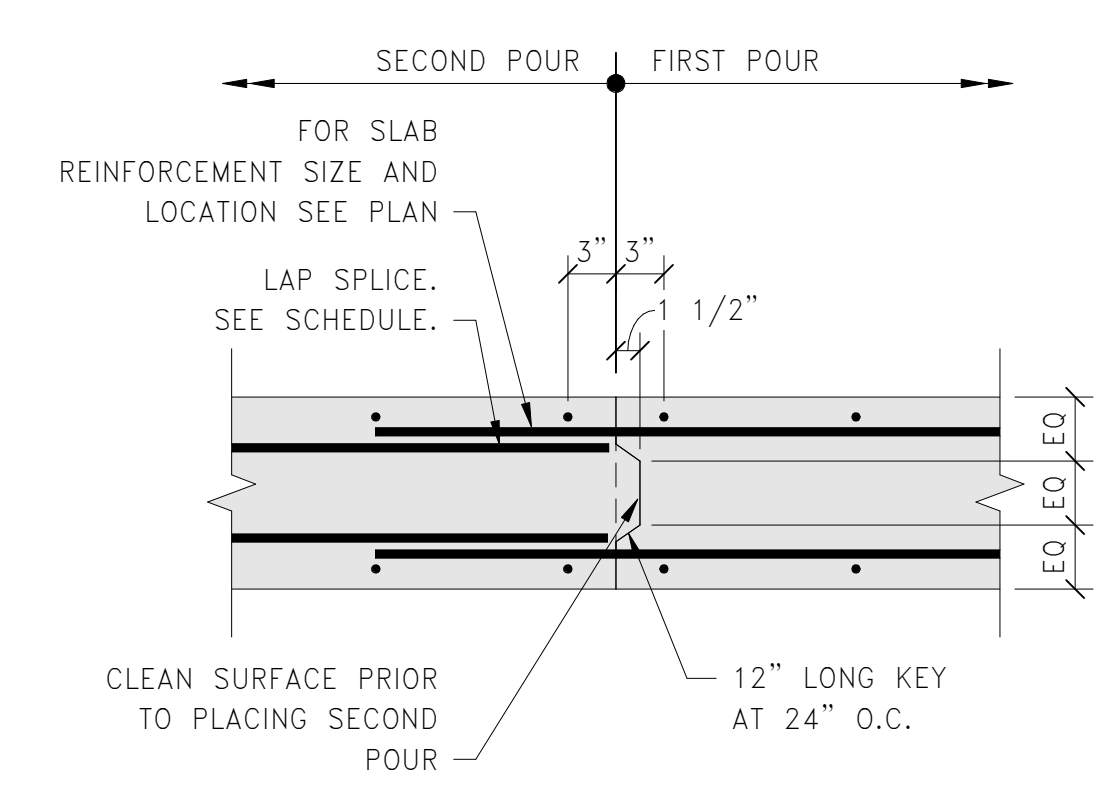
NO.	ISSUE	DATE
Job Number	152181.000	REE
Drawn		REE
Checked		BMH
Approved		JHT

TITLE
CONCRETE TYPICAL DETAILS
SHEET NUMBER

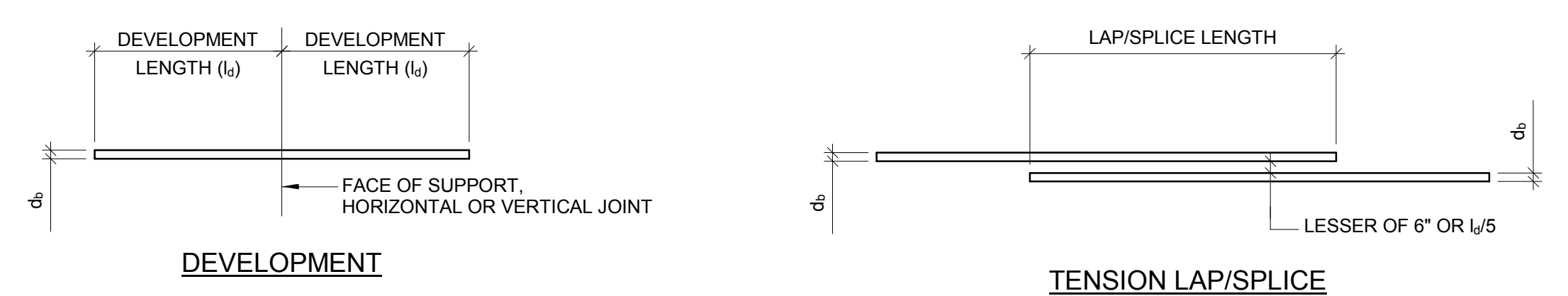
S00-11

BAR SIZE	TENSION DEVELOPMENT LENGTH						TENSION LAP/SPLICE LENGTH					
	TOP BARS			OTHER BARS			TOP BARS			OTHER BARS		
	4000 PSI	5000 PSI	6000 PSI	4000 PSI	5000 PSI	6000 PSI	4000 PSI	5000 PSI	6000 PSI	4000 PSI	5000 PSI	6000 PSI
#3	19	17	16	15	13	12	25	23	20	20	17	16
#4	25	23	21	19	17	16	33	30	27	25	23	21
#5	31	28	26	24	22	20	41	37	33	32	29	26
#6	37	34	31	29	26	24	49	45	40	38	34	32
#7	54	49	45	42	38	34	71	64	58	55	50	45
#8	62	56	51	48	43	39	81	73	66	63	56	51
#9	70	63	57	54	48	44	91	82	74	71	63	58
#10	79	71	64	61	54	50	103	93	84	80	71	65
#11	87	78	71	67	60	55	114	102	93	88	78	72

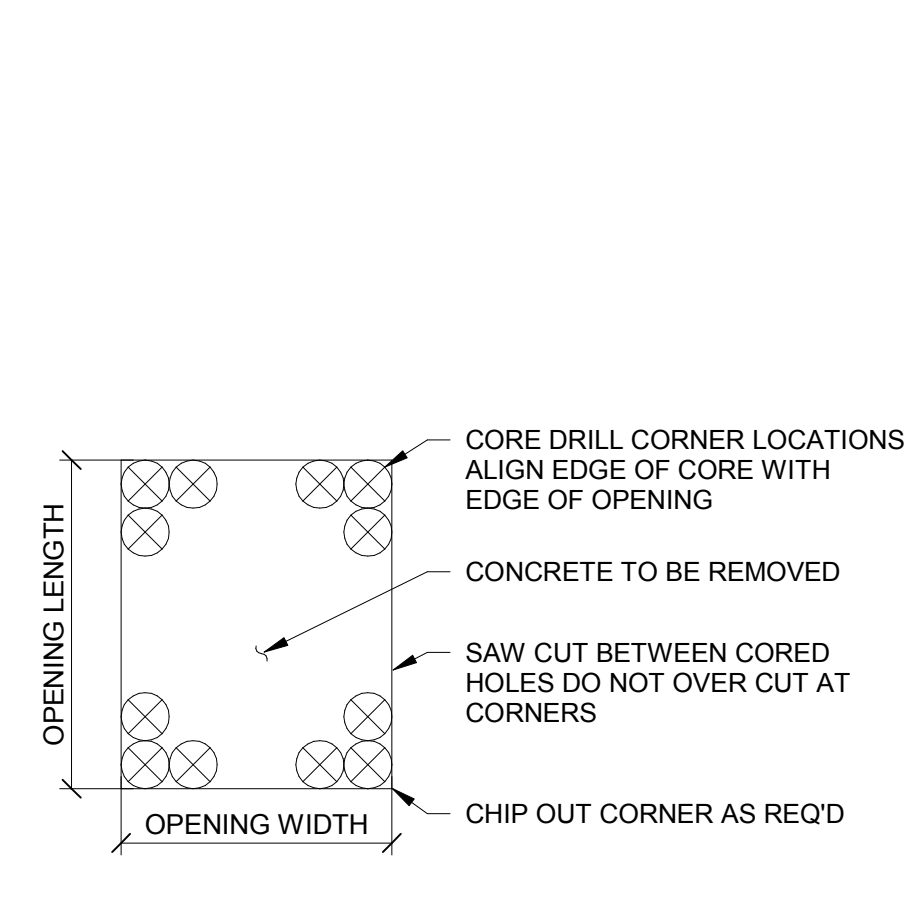
- NOTES:
1. REFER TO "HOOKED REINFORCEMENT TENSION DEVELOPMENT LENGTH SCHEDULE" WHEN THE STRAIGHT DEVELOPMENT LENGTH IN TENSION CANNOT BE ACCOMMODATED IN THE CONCRETE SECTION.
2. ALWAYS USE TENSION DEVELOPMENT LENGTH AND TENSION LAP SPLICE LENGTH VALUES.
3. TABULATED DEVELOPMENT AND LAP SPLICE LENGTHS ARE BASED ON REINFORCING STEEL YIELD STRENGTH $F_y=60$ KSI, NORMAL WEIGHT CONCRETE, AND CLASS B LAPS.
4. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF FRESH CONCRETE CAST IN THE MEMBER BELOW THE BARS TO BE DEVELOPED OR SPLICED. TOP BAR FACTOR DOES NOT APPLY TO VERTICAL BARS IN WALLS.
5. WHEN DIFFERENT BAR DIAMETERS ARE SPLICED, USE LARGER BAR LAP SPLICE LENGTH.
6. ALL TABULATED VALUES ARE MINIMUM LENGTHS, IN CASE OF CONFLICT WITH PLANS, SECTIONS, OR DETAILS USE THE LONGER LENGTH.
7. d_s = BAR DIAMETER
8. l_d = DEVELOPMENT LAP OR SPLICE LENGTH
9. ADJUST TABULATED LENGTHS BY THE FOLLOWING FACTORS WHERE APPLICABLE. NOTE THAT FACTORS ARE CUMULATIVE (E.G. $1.30(1.50 = 1.95)$)
A. LIGHT WEIGHT CONCRETE: 1.33
B. 3 OR LESS BUNDLED BARS: 1.20
C. 4 OR MORE BUNDLED BARS: 1.33
D. CLEAR SPACING LESS THAN $2d_s$ AND CLEAR COVER LESS THAN d_s : 1.50
E. CLASS A LAP SPLICE: 0.77
F. EPOXY COATED BARS: 1.50
10. WELDED AND/OR MECHANICAL SPLICES MAY BE USED AT IF APPROVED BY THE STRUCTURAL ENGINEER OF RECORD PROVIDED THAT THE SPLICE IS CAPABLE OF DEVELOPING AT LEAST 125% OF THE YIELD STRENGTH OF THE LARGER BAR IN TENSION, WHERE WELDED AND/OR MECHANICAL SPLICES ARE TO BE USED, THE GENERAL CONTRACTOR SHALL SUBMIT FULL DATA ON THE PROPOSED MATERIAL, PROCEDURES, AND INSTALLATION INSTRUCTIONS TO THE ENGINEER FOR REVIEW AS A SHOP DRAWING SUBMISSION.
11. USE MECHANICAL COUPLERS FOR #14 AND LARGER BARS.
12. LAP SPLICES IN CONCRETE MASONRY SHALL BE AS SPECIFIED IN "STRAIGHT REINFORCEMENT DEVELOPMENT LENGTH IN GROUTED MASONRY" DETAIL.
13. SPLICES OF HORIZONTAL REINFORCEMENT IN WALLS SHALL BE STAGGERED.
14. SPLICES IN WALLS CONTAINING TWO CURTAINS OF REINFORCEMENT SHALL NOT OCCUR IN THE SAME LOCATION.



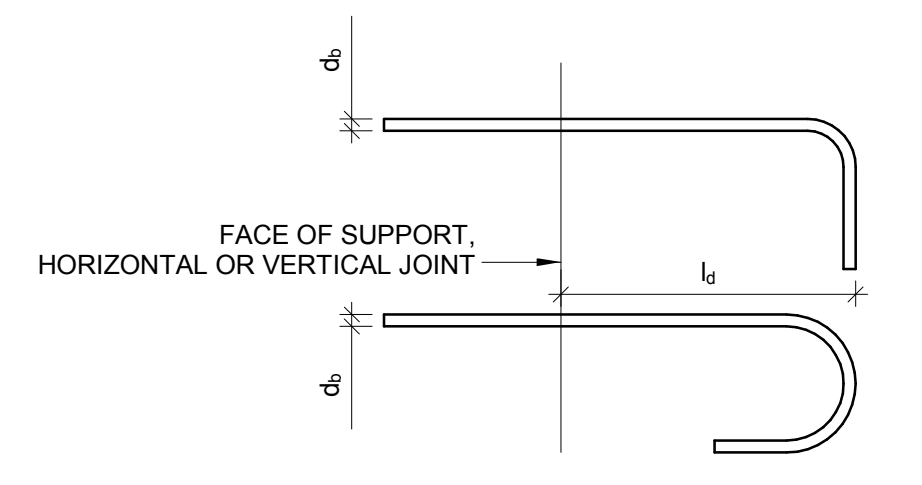
6 TYPICAL SLAB CONSTRUCTION JOINT
1" = 1'-0"



5 STRAIGHT REINFORCEMENT DEVELOPMENT AND SPLICE LENGTH SCHEDULE
NOT TO SCALE



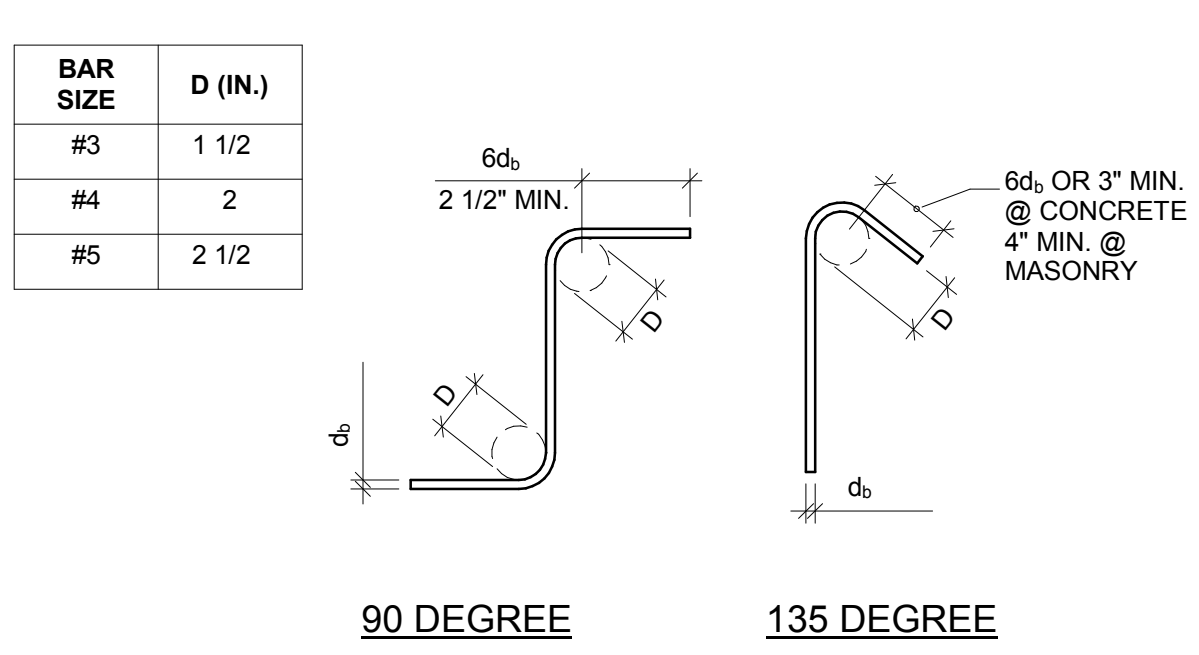
4 TYPICAL OPENING THROUGH (E) CONCRETE SLAB
NOT TO SCALE



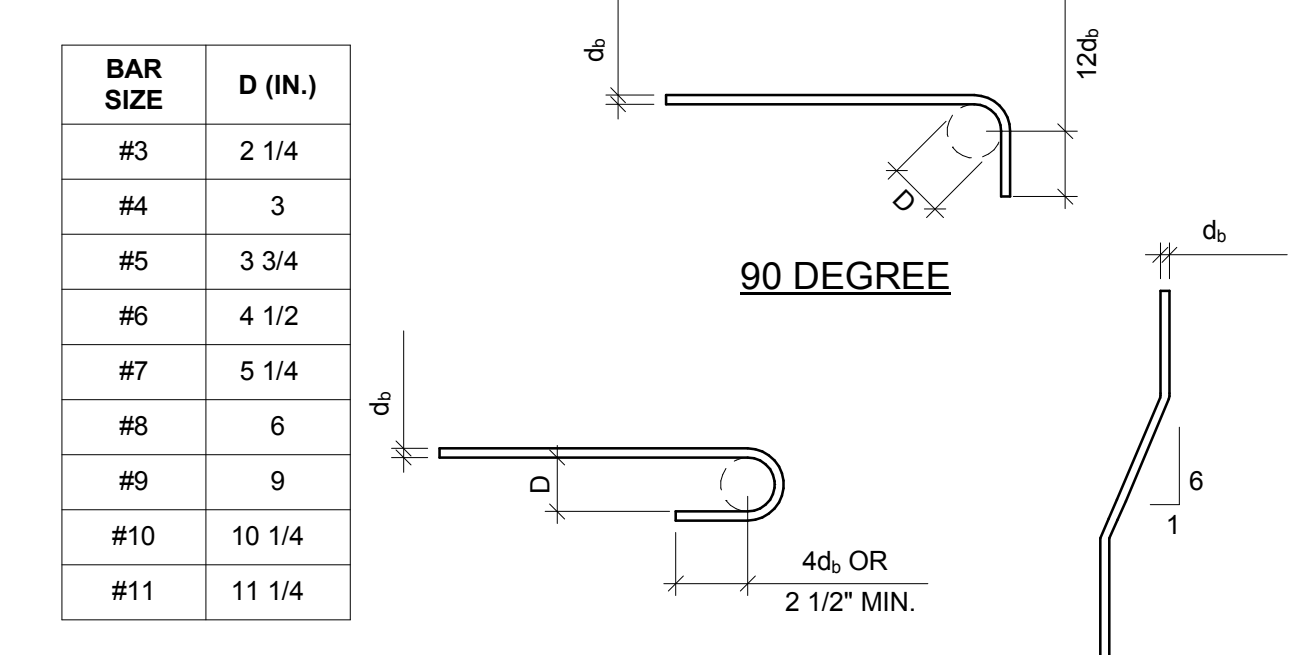
- NOTES:
1. SEE TYPICAL TIE AND STIRRUP HOOKS DETAIL FOR ADDITIONAL INFORMATION.
2. TABULATED DEVELOPMENT LENGTHS ARE BASED ON REINFORCING STEEL YIELD STRENGTH $F_y = 60$ KSI AND NORMAL WEIGHT CONCRETE.
3. ALL TABULATED VALUES ARE MINIMUM LENGTHS, IN CASE OF CONFLICT WITH THE PLANS, SECTIONS, OR DETAILS, USE THE LONGER LENGTH.
4. d_s = BAR DIAMETER
5. l_d = DEVELOPMENT LENGTH
6. ADJUST TABULATED LENGTHS BY THE FOLLOWING FACTORS WHERE APPLICABLE. NOTE THAT THE FACTORS ARE CUMULATIVE.
A. REINFORCING BAR STRENGTH OTHER THAN 60 KSI: $(F_y/60,000)$
B. LIGHT WEIGHT CONCRETE: 1.33
C. EPOXY COATED BARS: 1.2

3 HOOKED REINFORCEMENT TENSION DEVELOPMENT LENGTH SCHEDULE
NOT TO SCALE

BAR SIZE	TENSION DEVELOPMENT LENGTH (l _d) INCHES		
	4000 PSI	5000 PSI	6000 PSI
#3	8	7	6
#4	10	9	8
#5	12	11	10
#6	15	13	12
#7	17	15	14
#8	19	17	16
#9	22	20	18
#10	24	22	20
#11	27	24	22



2 TYPICAL TIE AND STIRRUP HOOKS
NOT TO SCALE



1 TYPICAL REINFORCEMENT BENDS
NOT TO SCALE