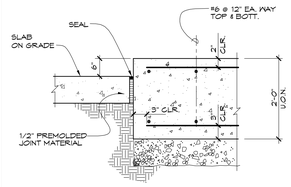
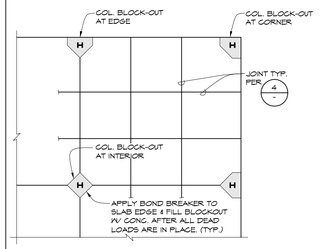
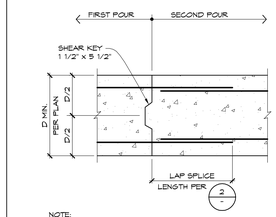


NOTES:
1. LOCATION AND SIZE OF PADS SEE PLANS.
2. ANCHORAGE SHALL BE PER MANUFACTURER'S APPROVED SHOP DRAWINGS.

ISOLATED FOOTING (37)

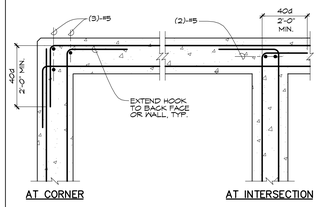


TYP. SLAB-ON-GRADE BLOCK-OUT AT COLUMNS (31)
2100-01UC



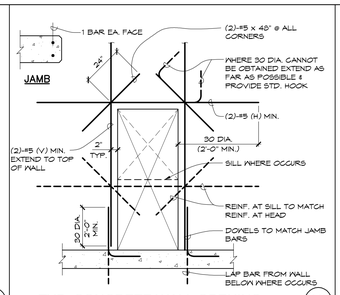
NOTE:
1. CONTRACTOR'S OPTION TO USE MECHANICAL BAR SPLICER IN LIEU OF LAP SPLICE. MECHANICAL SPLICE SHALL DEVELOP 125% OF THE SPECIFIED REBAR YIELD STRENGTH.

TYP. FOOTING CONSTRUCTION JOINT (25)
2200-04

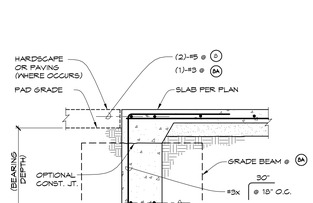


NOTE:
1. WHERE SINGLE LAYER OF REINF. OCCURS, BEND REINF. AS SHOWN FOR OUTSIDE BARS.
2. DETAIL APPLIES TO FOOTINGS, BEAMS AND CONCRETE WALLS
3. d = BAR DIAMETER

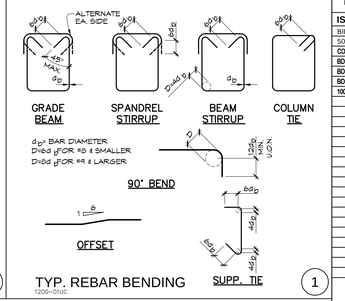
TYP. REINF. AT INTERSECTION (19)
2200-01UC



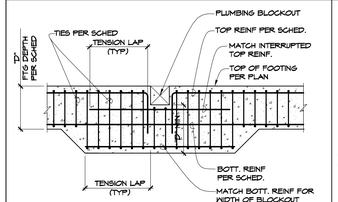
TYP. CONCRETE WALL OPENING (13)



TYPICAL SLAB EDGE (7)

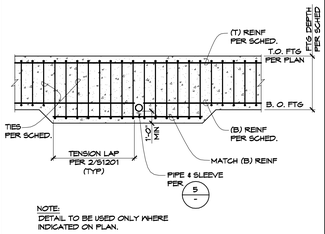


TYP. REBAR BENDING (1)
1200-01UC



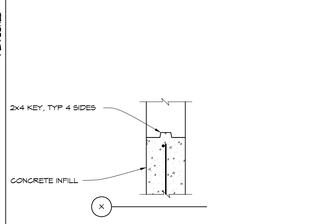
NOTE:
STEP NOT REQ'D WHERE DIMENSION OF BLOCKOUT PERPENDICULAR TO FTG. IS LESS THAN 1'-0", AS LONG AS ALL TOP REINFORCING IS CONTINUOUS AROUND BLOCKOUT.

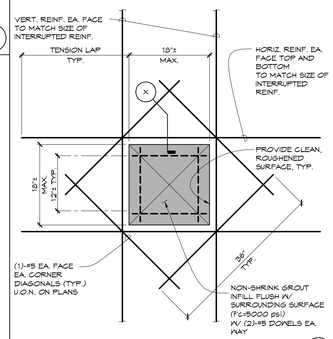
GRADE BEAM REINF AT PLUMBING BLOCKOUT (38)



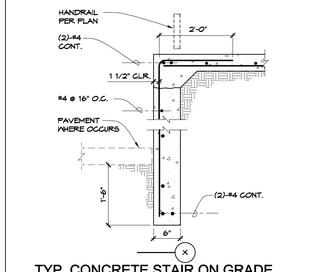
NOTE:
DETAIL TO BE USED ONLY WHERE INDICATED ON PLAN.

PIPE SLEEVE AT GRADE BEAM (32)

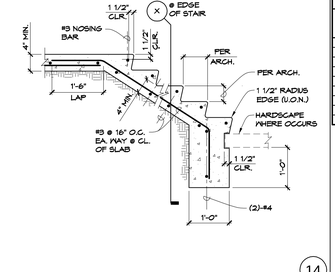




TYP. TIEBACK BLOCKOUT DETAIL (27)



TYP. CONCRETE STAIR ON GRADE (14)
2100-08UC



REBAR SPLICE AND DEVELOPMENT SCHEDULES (2)

SCHEDULE "A"

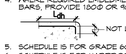
BAR#	CONC. f'c=3000 PSI SPLICE TOP	SPLICE OTHER	DEVELOPMENT TOP	DEVELOPMENT OTHER	l_{dh}
3	24	22	22	17	8
4	30	24	29	22	11
5	47	36	36	28	14
6	56	43	43	33	17
7	82	63	63	49	19
8	94	72	72	55	22
9	105	81	81	62	25
10	115	41	41	70	28
11	131	101	101	78	30

BAR#	CONC. f'c=4000 PSI SPLICE TOP	SPLICE OTHER	DEVELOPMENT TOP	DEVELOPMENT OTHER	l_{dh}
3	25	20	20	15	7
4	33	25	25	19	10
5	40	31	31	24	12
6	48	38	38	29	15
7	70	55	55	42	17
8	81	62	62	48	19
9	91	70	70	54	22
10	103	79	79	61	24
11	113	87	87	67	26

BAR#	CONC. f'c=5000 PSI SPLICE TOP	SPLICE OTHER	DEVELOPMENT TOP	DEVELOPMENT OTHER	l_{dh}
3	22	17	17	13	7
4	30	23	23	17	9
5	36	28	28	22	11
6	44	34	34	26	13
7	64	49	49	38	15
8	73	56	56	43	17
9	82	63	63	48	19
10	92	71	71	54	21
11	101	78	78	60	24

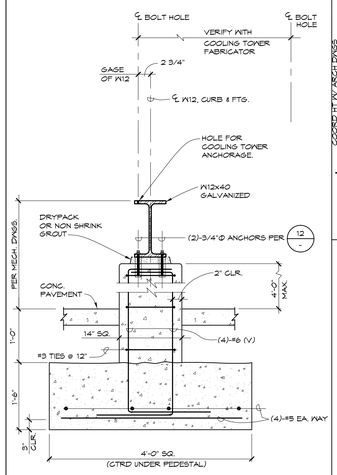
BAR#	CONC. f'c=6000 PSI SPLICE TOP	SPLICE OTHER	DEVELOPMENT TOP	DEVELOPMENT OTHER	l_{dh}
3	21	16	16	12	6
4	27	21	21	16	8
5	34	26	26	20	10
6	40	31	31	24	12
7	54	42	42	33	13
8	66	51	51	39	16
9	74	57	57	44	17
10	83	65	65	50	20
11	92	72	72	55	22

NOTES:
1. SPLICE AND EMBEDMENT LENGTHS ARE IN INCHES. SPLICES SHALL BE CLASS "B" U.O.N.
2. 0.8D OF SPLICE LENGTH MAY BE USED IF NOT MORE THAN 1/2 OF THE BARS ARE LAP SPLICED WITHIN A REQUIRED LAP LENGTH.
3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" CONC. BELOW. OTHER BARS ARE BOTTOM OR VERTICAL BARS.
4. WHERE REQUIRED EMBEDMENT CANNOT BE OBTAINED WITH STRAIGHT BARS, PROVIDE 180° OR 90° HOOK EQUAL TO LENGTH BELOW.



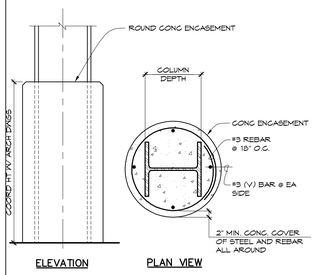
5. SCHEDULE IS FOR GRADE 60 BARS.
6. SCHEDULE IS FOR HARDROCK CONC. INCREASE SCHEDULE VALUES BY 1.33 FOR LIGHTWEIGHT CONC.
7. CLEAR SPACING BETWEEN BARS BEING DEVELOPED SHALL BE GREATER THAN 2d $_b$ AND CONCRETE COVER GREATER THAN d $_b$

REBAR SPLICE AND DEVELOPMENT SCHEDULES



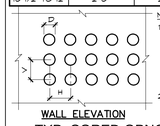
NOTE:
1. VERIFY ANCHORAGE BOLT HOLE PATTERN & SIZE W/C.T. FABRICATOR.

TYP. COOLING TOWER ANCHORAGE (40)
3719018



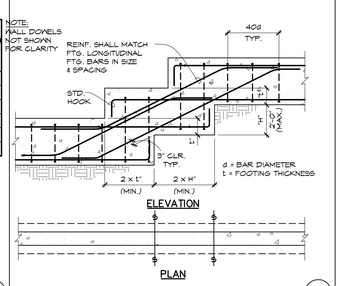
TYP. CONCRETE ENCASEMENT AT STEEL COLUMN (33)

CORE DIA. RANGE (D)	MIN. REQ'D. HORIZ. SPACING (H)	MAX. CORES IN HORIZ. ROW	MIN. REQ'D. VERT. SPACING (V)	MAX. CORES IN VERT. ROW
1/2" TO 2"	4"	10	4"	NO LIMIT
2 1/2" TO 4"	8"	5	8"	NO LIMIT
4 1/2" TO 6"	12"	4	12"	NO LIMIT
6 1/2" TO 8"	16"	3	16"	NO LIMIT
8 1/2" TO 10"	1'-4"	2	1'-4"	NO LIMIT
10 1/2" TO 12"	2'-0"	2	2'-0"	NO LIMIT

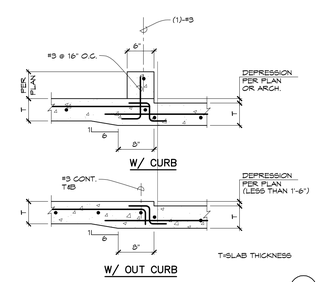


NOTES:
1. WHERE ACTUAL CORE SPACING IS CLOSER THAN REQUIRED MINIMUM OR THE MAXIMUM NUMBER OF CORES IN A ROW IS EXCEEDED, THEN REINFORCE OPENING PER 13
2. DO NOT DAMAGE OR CUT WALL REINFORCING UNLESS APPROVED BY ENGINEER OF RECORD.

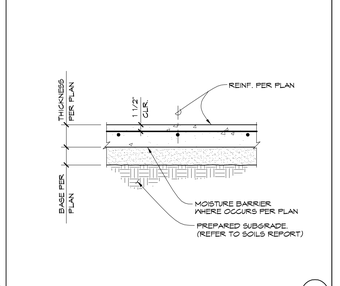
TYP. CORED OPNGS. IN EXISTING CMU OR CONC. WALL (21)
1200-04UC



TYP. STEPPED GRADE BEAM (15)
2200-07UC

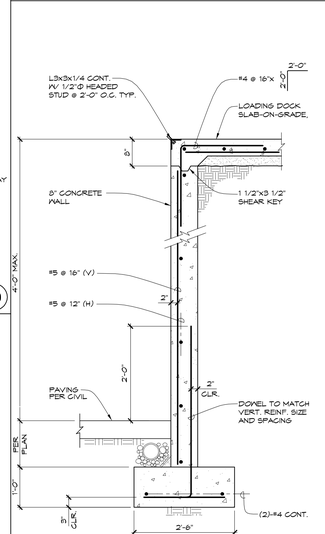


TYP. DEPRESSED SLAB ON GRADE (9)
2100-03UC



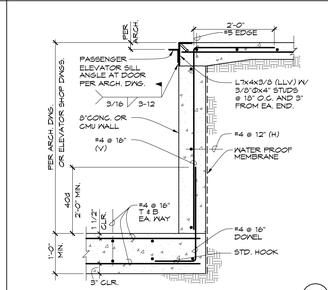
TYP. CONC. SLAB ON GRADE (3)

TYP. COOLING TOWER ANCHORAGE (40)
3719018

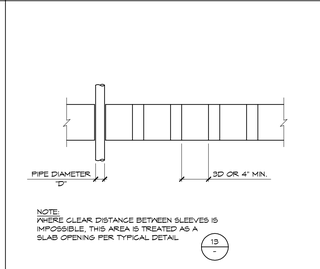


NOTE:
1. PLACE LOWER SLAB PRIOR TO BACKFILLING BEHIND WALL.
2. SHORE TOP OF WALL UNTIL TOP SLAB HAS CURED. (5 DAYS MIN.)

TYPICAL LOADING DOCK WALL (35)



TYP. CONC. ELEVATOR PIT (28)
3000-08UC



NOTE:
WHERE CLEAR DISTANCE BETWEEN SLEEVES IS IMPOSSIBLE, THIS AREA IS TREATED AS A SLAB OPENING PER TYPICAL DETAIL 13

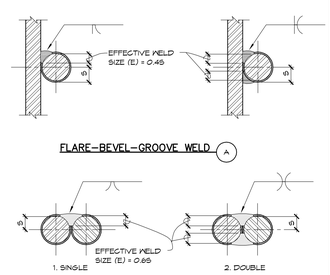
SERIES OF PIPES OR CONDUITS THROUGH SLAB OR WALL (22)

A. FLARE-BEVEL-GROOVE WELD

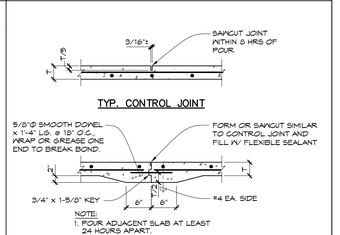
BAR SIZE	WELD LENGTH: WELD ONE SIDE	WELD BOTH SIDES
#3	5"	2 1/2"
#4	6 1/2"	3 1/4"
#5	8"	4"
#6	9 1/2"	4 3/4"
#7	11"	5 1/2"
#8	12 1/2"	6 1/4"
#9	14"	7"
#10	15 1/2"	7 3/4"
#11	17 1/2"	8 3/4"

B. FLARE-V-GROOVE WELD

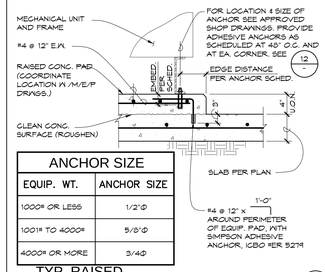
BAR SIZE	WELD LENGTH: WELD ONE SIDE	WELD BOTH SIDES
#3	2 1/2"	1 1/4"
#4	3"	1 1/2"
#5	3 1/2"	1 3/4"
#6	4"	2"
#7	4 1/2"	2 1/4"
#8	5"	2 1/2"
#9	5 1/2"	2 3/4"
#10	6 1/2"	3 1/4"
#11	7"	3 1/2"



TYP. REBAR WELDING DETAILS (10)
1200-08UC

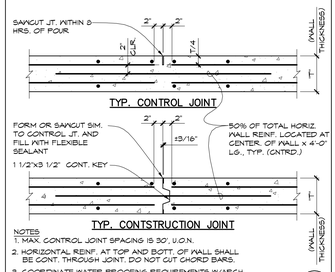


TYP. CONTROL/CONSTRUCTION JOINT (4)
2100-02UC



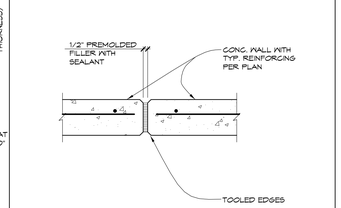
ANCHOR SIZE	
EQUIP. WT.	ANCHOR SIZE
1000# OR LESS	1/2"Φ
1001# TO 4000#	5/8"Φ
4000# OR MORE	3/4"Φ

TYP. RAISED EQUIPMENT PAD AND ANCHORAGE (29)
2280-01UC



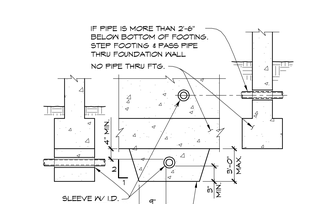
NOTES
1. MAX. CONTROL JOINT SPACING IS 30', U.O.N.
2. HORIZONTAL REINF. AT TOP AND BOTT. OF WALL SHALL BE CONT. THROUGH JOINT. DO NOT CUT CHORD BARS.
3. COORDINATE WATER PROOFING REQUIREMENTS W/ARCH.

TYP. WALL CONTROL/CONST. JOINT (23)
3000-02UC

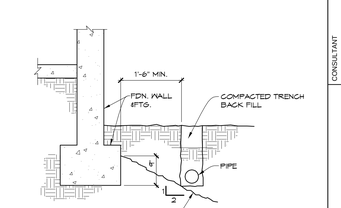


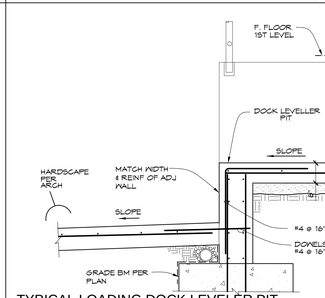
NOTES
1. HORIZONTAL REINF. AT TOP AND BOTT. OF WALL SHALL BE CONT. THROUGH JOINT. DO NOT CUT CHORD BARS.

CONC. WALL EXPANSION JOINT (17)

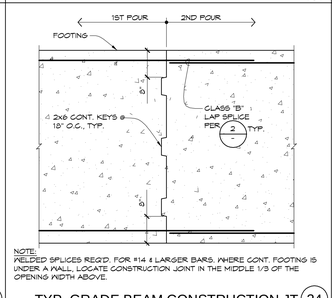


TYP. PIPE ADJACENT TO FOOTING (5)
2200-02UC





TYPICAL LOADING DOCK LEVELER PIT (30)



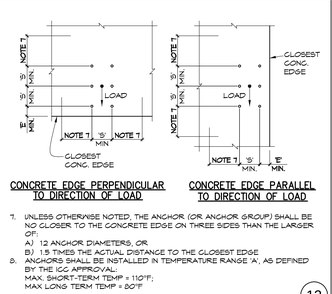
NOTE:
WELDED SPLICES REQ'D. FOR #14 & LARGER BARS. WHERE CONT. FOOTING IS UNDER A WALL, LOCATE CONSTRUCTION JOINT IN THE MIDDLE 1/3 OF THE OPENING WITH ABOVE.

TYP. GRADE BEAM CONSTRUCTION JT. (24)

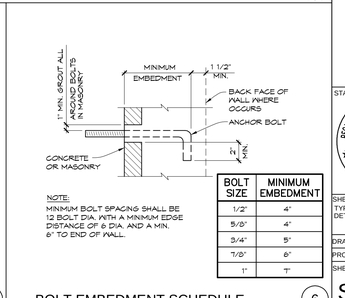
ANCHOR SIZE	REBAR SIZE	EMBED DEPTH (UON)	MINIMUM CONC THICK, 'T' (UON)	MINIMUM EDGE DIST, 'E' (UON)	MINIMUM SPACING, 'S' (UON)
3/8"Φ	#3	3"	4 1/4"	2 1/4"	4 1/2"
1/2"Φ	#4	4"	5 1/4"	3"	6"
5/8"Φ	#5	5"	6 1/4"	3 3/4"	7 1/2"
3/4"Φ	#6	6"	7 1/2"	4 1/2"	9"
7/8"Φ	#7	7"	8 3/4"	5 1/4"	10 1/2"
1"Φ	#8	8"	10"	6"	12"
N/A	#9	9"	11 1/4"	6 3/4"	13 1/2"
1 1/4"Φ	#10	10"	12 1/2"	7 1/2"	15"

NOTES:
1. SPECIAL INSPECTION IS REQ'D FOR INSTALLATION OF ANCHORS, U.O.N.
2. ADHESIVE SHALL BE HILTI HIT-RE-500-SD (ICC #ESR-2322)
3. THREADED ROD ANCHORS SHALL BE ISO 898-1 CLASS 5.8, ASTM A193 B7 OR ASTM F593, CN STAINLESS
4. REINF. STEEL ANCHORS SHALL BE ASTM A615 OR ASTM A706 GRADE 60
5. HOLES SHALL BE DRILLED INTO DRY CONCRETE WITH A HAMMER DRILL AND CARBIDE BIT
6. CONCRETE SHALL BE NORMAL WEIGHT, F'c SHALL BE 3000 PSI, MIN.

ADHESIVE ANCHOR SCHEDULE (12)
1200-02



7. UNLESS OTHERWISE NOTED, THE ANCHOR (OR ANCHOR GROUP) SHALL BE NO CLOSER TO THE CONCRETE EDGE ON THREE SIDES THAN THE LARGER OF:
   A) 12 ANCHOR DIAMETERS, OR
   B) 1.5 TIMES THE ACTUAL DISTANCE TO THE CLOSEST EDGE
8. ANCHORS SHALL BE INSTALLED IN TEMPERATURE RANGE 'A', AS DEFINED BY THE ICC APPROVAL
   MAX. SHORT-TERM TEMP = 110°F;
   MAX LONG TERM TEMP = 80°F



NOTE:
MINIMUM BOLT SPACING SHALL BE 12 BOLT DIA. WITH A MINIMUM EDGE DISTANCE OF 6 DIA. AND A MIN. 6" TO END OF WALL.

BOLT SIZE	MINIMUM EMBEDMENT
1/2"	4"
5/8"	4"
3/4"	5"
7/8"	6"
1"	7"

BOLT EMBEDMENT SCHEDULE (6)
1200-03UC

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ISSUED FOR	DATE
BID PK #1 100 DD	10.06.08
50% PROGRESS	10.24.08
CD-2 CODE REVIEW	11.17.08
BD PK #1 80 CD	12.01.08
BD PK #1 100 CD	02.16.09
BD PK #2 100 CD	03.26.09
100% CD	05.08.09

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Exp. 3-31-11
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STATE OF CALIFORNIA

SHEET NAME
TYPICAL CONCRETE DETAILS

DRAWN BY:

PROJECT #: 208005.000

SHEET NUMBER
S1201

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Date: May 05, 2009 - 4:17pm
SCALE: 1/12 OPTR: Alex