APPENDIX A

DEVELOPMENT PLAN

NOTES:

1. TOP OF SLAB ELEVATION SEE PLAN.
2. STRUCTURAL SLAB ON GRADE TO BE NORMAL WEIGHT STONE CONCRETE (f'c = 4000 PSI AT 28 DAYS) U.O.N. FOR THICKNESS AND REINFORCEMENT SEE PLAN.
3. ALL PILE CAPS TO BE CENTERED ON COLUMN OR BUTTRESS CENTERLINES U.O.N..
4. FOR TYPICAL FOUNDATION DETAILS AND NOTES, SEE FO-200 SERIES DWG'S.
5. FOR FOUNDATION SECTIONS SEE FO-300 SERIES DWG'S.
6. FOR COLUMN SIZE AND DETAILS SEE S-500 SERIES DWG'S.
7. WHERE FOUNDATION WALLS FRAME INTO BUTTRESSES OR COLUMNS PROVIDE DOWELS EACH FACE TO MATCH HORIZONTAL WALL REINF. (MIN. #4@12 EA FACE) U.O.N.
8. ALL SUB-GRADE PREPARATION SHALL BE PER GEOTECHNICAL REPORT.
9. PROVIDE 4" MIN. THICK NORMAL WEIGHT CONCRETE (f'c = 4000 PSI AT 28 DAYS) HOUSEKEEPING PADS REINFORCED WITH 6x6-W2.9xW2.9 WWF BENEATH MECHANICAL EQUIPMENT AS REQUIRED. COORDINATE SIZE THICKNESS AND LOCATION WITH ARCH. AND MECH. DWGS. SEE TYP DETAILS ON FO-201.
10. SUMP PIT LOCATIONS TO BE COORDINATED BY ARCH. & MEP DRAWINGS.
11. ALL PILES WITHIN 25'-0" OF ADJACENT FOUNDATIONS SHALL BE DRILLED.
12. COORDINATE LOCATION OF THE STRAP BEAM WITH THE COLUMN LOCATION.
13. U.O.N. WHERE T/SLAB EL.= -2'-0" T/PILE CAP EL.= -3'-4"
    WHERE T/SLAB EL.= 0'-0" T/PILE CAP EL.= -0'-8"

LEGEND:

a. (....) INDICATES TOP OF PILE CAP ELEVATION.
b. P INDICATES PILE CAP.
c. INDICATES DROP OF SLAB
d. XXxXX INDICATES PIER UNDER COLUMN. TOP OF PIER EL. SHALL BE 1'-4" BELOW TOP OF SLAB ON GRADE
e. INDICATES ADDITIONAL TOP REINFORCEMENT AT SUPPORTS.
f. INDICATES ADDITIONAL BOTTOM REINFORCEMENT AT SUPPORTS.
g. INDICATES ADDITIONAL TOP REINFORCEMENT CONTINUOUS AT SUPPORTS.
h. INDICATES ADDITIONAL BOTTOM REINFORCEMENT CONTINUOUS AT SUPPORTS.
I. INDICATES DRILLED 100T PILE.

STRAP BEAM SCHEDULE

MARK	SIZE (IN.)	BOTTOM REINFORCING CONT.	TOP REINF. REINFORCING CONT.	STIRRUPS SIZE	STIRRUPS TYPE	STIRRUPS SPACING (CONT.)	REMARKS
BM1	18x36	4-#9	3-#8	#5	1	@12" O/C	
SB1	24x48	5-#10	12-#11 (2 LAYERS)	#5	1	@12" O/C	(9)-#6 ⊏ HORZ. TIE @ PILE CAP
SB2	24x48	5-#9	12-#10 (2 LAYERS)	#5	1	@12" O/C	(9)-#5 HORZ. TIE @ PILE CAP
SB3	24x48	5-#6	7-#9	#5	1	@12" O/C	(9)-#5 HORZ. TIE @ PILE CAP
SB4	24x48	4-#10	6-#11	#5	1	@12" O/C	
SB5	24x48	5-#10	7-#11	#5	1	@12" O/C	
SB6	24x59	12-#10	18-#11 (2 LAYERS)	#5	1	@12" O/C	(11)-#7 HORZ. TIE @ PILE CAP
SB7	24x48	7-#10	16-#11 (2 LAYERS)	#5	1	@12" O/C	(9)-#6 HORZ. TIE @ PILE CAP
SB8	24x48	7-#6	7-#10	#5	1	@10" O/C	(9)-#5 HORZ. TIE @ PILE CAP
SB9	24x48	6-#6	7-#8	#5	1	@10" O/C	(9)-#5 HORZ. TIE @ PILE CAP
SB10	24x48	12-#10	18-#11 (3 LAYERS)	#5	1	@10" O/C	(9)-#7 HORZ. TIE @ PILE CAP
SB11	30x48	12-#10	27-#11 (3 LAYERS)	#6	2	@10" O/C	(9)-#7 HORZ. TIE @ PILE CAP

PIER SCHEDULE

SIZE (IN.)	REINF.	STIRRUPS SIZE	STIRRUPS TYPE	STIRRUPS SPACING (CONT.)
28x28	12-#8	#4	1	@12" O/C

TYPE 1 TYPE 2

STIRRUP TYPES
N.T.S.

6" SLAB ON GRADE
W/6x6-W2.9xW2.9 W.W.F
T/SLAB EL. TO BE -½" @ H.P.

10" SLAB
T/SLAB EL. 0'-0"
REINF. W/#5@12
CONT. T&B E.W.

10" SLAB
T/SLAB EL.-2'-0"
REINF. W/#5@12
CONT. T&B E.W.

T/SLAB EL. +1'-3"

T/SLAB EL. 1'-3"

T/SLAB EL. 0'-1"

RAMP UP

WALLABOUT STREET

GERRY STREET

HARRISON AVENUE

1 FO-100 FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

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07-29-11	ISSUED FOR FND. BID	
06-21-11	ISSUED FOR DOB	
06-02-11	ISSUED FOR DOB	
05-25-11	REVISED AS NOTED	
05-20-11	REVISED AS NOTED	
05-10-11	REVISED AS NOTED	
04-27-11	ISSUED FOR DOB	

REVISIONS

PROJECT:

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FOUNDATION PLAN

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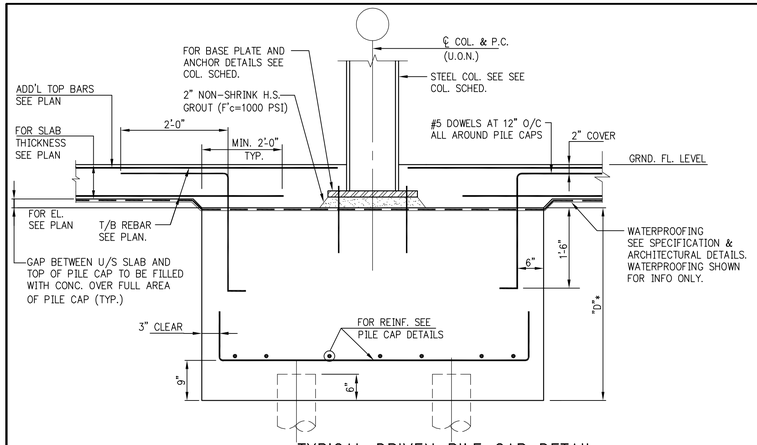
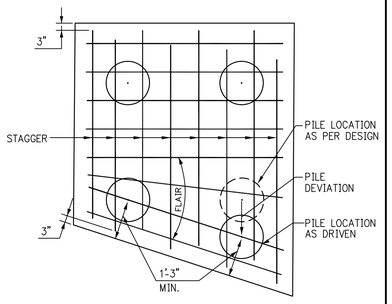


TYPICAL DRIVEN PILE CAP DETAIL
(PILE CAP CONCRETE NOT POURED MONOLITHICALLY WITH SLAB CONCRETE)

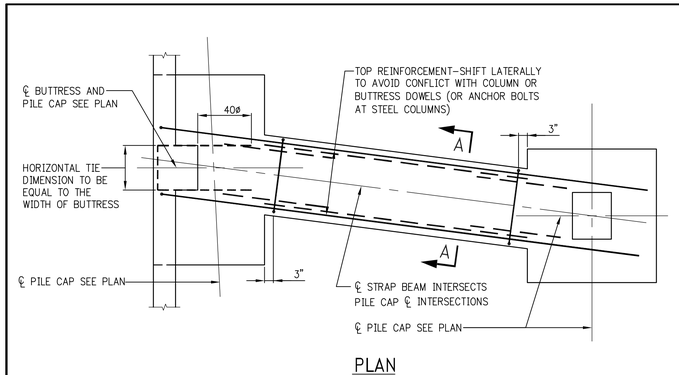
NOTES:
1. PILE DESIGN SHALL BE BASED ON GEOTECHNICAL REPORT.
2. PILES SHALL HAVE A MINIMUM NET WORKING LOAD CAPACITY OF 200 kips.



REINFORCEMENT & SHAPE ADJUSTMENT FOR PILE CAPS

(WHERE PILE DEVIATIONS ARE LESS THAN 1'-0")

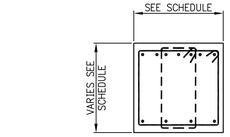
NOTE:
USE PILE CAP REINF. AS SHOWN IN PILE CAP DETAILS. (OR APPROVED SHOP DRAWING) UNLESS OTHERWISE SHOWN ON "SK" SKETCHES.



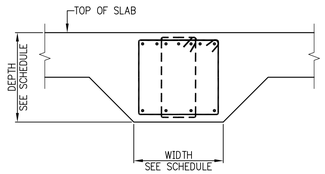
PLAN

STRAP BEAM BETWEEN PILE CAPS

NOTES:
STRAP BEAM MUST FRAME DIRECTLY TO PILE CAPS. STRAP BEAMS MAY NOT FRAME TO PIERS OR BUTTRESSES.

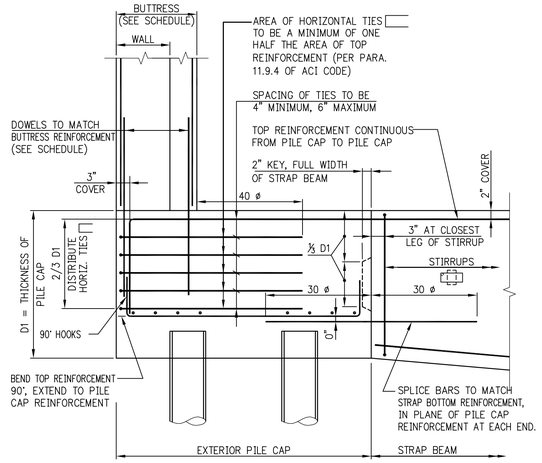


SECTION A–A



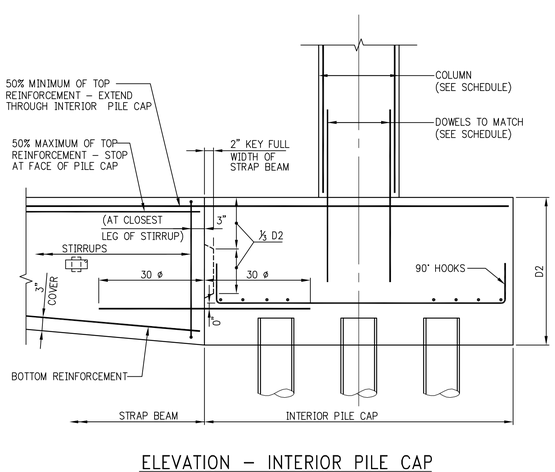
NOTE:
FOR SLAB DETAILS AND WATERPROOFING REQUIREMENTS SEE FOUNDATION PLANS AND DETAILS

ALTERNATIVE SECTION A–A
(AT STRAP BEAM MONOLITHIC WITH SLAB)

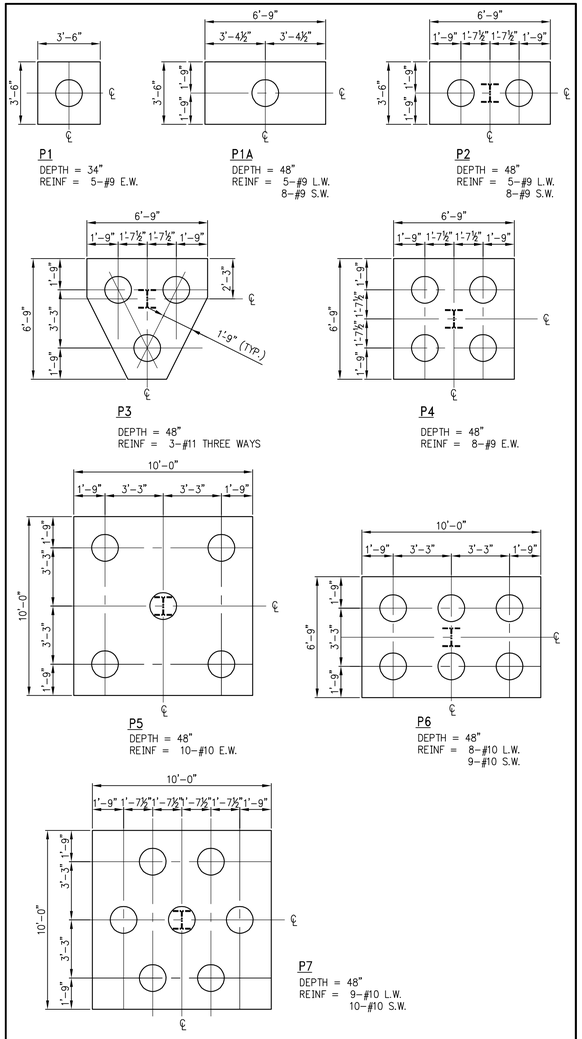


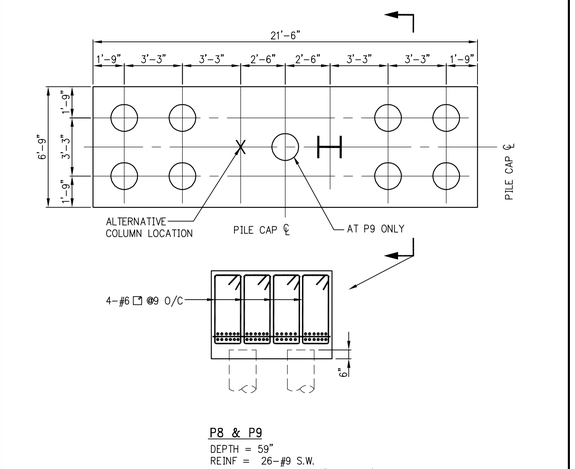
ELEVATION – EXTERIOR PILE CAP

NOTE:
SEE FOUNDATION DRAWINGS FOR STRAP BEAM SIZE, REINFORCEMENT, AND STIRRUPS.



ELEVATION – INTERIOR PILE CAP





100T PILES

NOTES:
1. ALL REINF. BARS WITH 90° HOOKS EACH END.
2. ALL REINF. SHOULD BE BOTTOM REINF. PER TYPICAL PILE CAP DETAIL ON FO-200 U.O.N.

A. PILE NOTES

1. FOUNDATION DESIGN AND PILE STRENGTH ARE BASED ON GEOTECHNICAL REPORT.
2. THE PROPOSED PILES ARE AS FOLLOWS:
   A. DRIVEN PILES TO BE CLOSED-ENDED STRAIGHT-SIDE STEEL PIPE PILE 13"ø, ⅜" WALL PIPE PILE (45 KSI), FILLED WITH CONCRETE (f'c=6000psi) AFTER DRIVING. THE END PLATE SHOULD BE 1½" (MIN.) THICK STEEL WELDED PLATE. PILE CAPACITY TO BE 200K IN COMPRESSION, LATERAL CAPACITY OF A SINGLE PILE IN A PILE GROUP TO BE 2K. LATERAL CAPACITY TO BE VERIFIED BY PILE DRIVEN CONTRACTOR.
   B. SEE SPECIFICATIONS FOR PILE DRIVING OPERATIONS.
3. PILE DRIVING TO BE SUPERVISED BY A LICENSED PROFESSIONAL ENGINEER.
4. ALL PILES TO CONFORM WITH THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE.
5. ALL PILES TO BE DRIVEN TO MINIMUM PENETRATION IN BEARING STRATUM AND TO MINIMUM DRIVING RESISTANCE AS PER GEOTECHNICAL REPORT.
6. A PLAN SHOWING THE IDENTIFICATION OF ALL PILES AND PILE NUMBERING PLAN SHALL BE FILED WITH THE BUILDING DEPARTMENT.
7. AN "AS-DRIVEN" PILE LOCATION PLAN(S) AND PILE LOG SHALL BE FILED BY THE CONTRACTOR AND APPROVED BY THE BUILDING DEPARTMENT. NO PILE CAPS ARE TO BE PLACED BEFORE THIS IS DONE.
8. PLANS TO INDICATE MINIMUM REQUIRED PENETRATION OF ALL PILES SHALL BE FILLED WITH THE BUILDING DEPARTMENT.
9. LOAD TESTS SHALL BE PERFORMED AS PER REQUIREMENTS OF THE NEW YORK BUILDING CODE.
10. ALL COSTS RELATIVE TO THE CERTIFICATION OF PILE DRIVING,PILE LOCATION, PILE IDENTIFICATION AND CORRECTIVE MEASURES RELATED TO PILE DEVIATIONS SHALL BE BORNE BY THE CONTRACTOR.

B. CONCRETE AND STEEL REINFORCEMENT

1. NO CONCRETE PILE CAPS SHALL BE POURED UNTIL PILES HAVE BEEN APPROVED BY A LICENSED PROFESSIONAL ENGINEER.
2. NO CONCRETE FOOTING, FOUNDATION PIER, OR FOUNDATION WALL SHALL BE POURED UNTIL SUBGRADE FOR SAME HAS BEEN APPROVED BY A LICENSED PROFESSIONAL ENGINEER.
3. ALL CONCRETE SHALL BE NORMAL WEIGHT CONTROLLED CONCRETE, U.O.N., AND COMPLY WITH A.C.I. BUILDING CODE AND THE CURRENT NEW YORK CITY. BUILDING CODE.
4. CONCRETE STRENGTH SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

–PILE CAPS AND STRAP BEAMS	5000PSI
–COLUMN BUTTRESSES AND PIERS	4000PSI
–GRADE BEAMS	4000PSI
–FOUNDATION WALL & OTHER BEAMS	4000PSI
–STRUCTURAL SLAB ON GRADE	4000PSI

5. ALL STEEL REINFORCEMENT SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 90,000 PSI AS PER A.S.T.M. A615 GRADE 60. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE NECESSARY CHAIRS, REBARS, TIES, SPACERS, ETC., TO SECURE AND SUPPORT THE REINFORCING WHILE PLACING THE CONCRETE.
6. ALL PILE CAP REINF. TO BE PLACED AS BOTTOM REINFORCING AS SHOWN ON PILE CAP DETAIL U.O.N.. TOP REINFORCING TO BE PROVIDED WHERE SHOWN OR NOTED.
   ABBREVIATIONS:
   L.W. = LONG WAY
   S.W. = SHORT WAY
   E.W. = EACH WAY
   ALL HOOKED BARS TO HAVE STANDARD 90° HOOKS U.O.N.. EXTEND STRAP BEAM REINFORCING TROUGH PILE CAP WHERE BEAMS INTERSECT PILE CAPS. SEE PLAN FOR REFERENCE TO DETAILS & SECTIONS.
7. ALL BARS MARKED CONTINUOUS, SHALL BE LAPPED AS PER TENSION LAP TABLES (MIN 36 DIA) AT SPLICES AND CORNERS EXCEPT AS OTHERWISE SHOWN ON PLANS. LAP CONTINUOUS TOP BARS AT CENTER BETWEEN SUPPORTS AND BOTTOM BARS AT SUPPORTS. HOOK TOP BARS AT DISCONTINUOUS ENDS.
8. VERTICAL CONSTRUCTION JOINTS IN ALL WALLS SHALL BE USED ONLY IF UNAVOIDABLE, OR UNLESS OTHERWISE NOTED, AND TO BE LOCATED AT LEAST 4'-0" FROM ANY SUPPORTING COLUMN OR WALL OPENING. DISTANCE BETWEEN JOINTS IN WALL SHALL BE ALLOWED AS PER SPECIFICATIONS. NO HORIZONTAL CONSTRUCTION JOINTS WILL BE ALLOWED IN GRADE BEAMS AT NORTH END.
9. IN NO CASE SHALL TRUCKS, BULLDOZERS, OR OTHER HEAVY EQUIPMENT BE PERMITTED CLOSER THAN 8'-0" FROM ANY FOUNDATION WALL UNLESS APPROVED BY THE ENGINEER.
10. TEMPORARY BRACING SHALL BE PROVIDED FOR ALL BUTTRESSES. WHERE BUTTRESSES DO NOT EXIST OR SPACING BETWEEN BUTTRESSES EXCEED 25 FEET, AND WHERE THE DIFFERENCE IN LEVEL BETWEEN INSIDE AND OUTSIDE GRADE IS MORE THAN 4'-0", INTERMEDIATE BRACING SHALL BE PROVIDED. WHERE RAMPS OCCUR, THE GRADE ELEVATION OUTSIDE OF RAMP WALLS SHALL BE USED IN FIGURING THE DIFFERENCE IN LEVEL. CORNER BUTTRESSES NEED NOT BE BRACED. NO BACKFILLING IS TO BE DONE BEFORE ALL SLABS BRACING WALLS ARE IN PLACE UNLESS APPROVED BY THE ENGINEER. PROVIDE TEMPORARY BRACING FOR ALL PIERS AND SUMP PITS.
11. CONTRACTOR TO INSTALL ALL PIPE SLEEVES, BOXED OPENINGS, ANCHOR BOLTS, ETC., AS REQUIRED FOR THE VARIOUS TRADES.
12. MINIMUM COVER FOR REINFORCING STEEL SHALL BE 1½" FOR SLABS AND COLUMNS (TIES, STIRRUPS OR PRIMARY REINFORCEMENT). FOR ALL CONCRETE EXPOSED TO WEATHER AND EARTH FILL, COVER SHALL BE 2". FOR CONCRETE PLACED AGAINST EARTH, MINIMUM COVER SHALL BE 3".
13. THE CONTRACTOR MUST SUBMIT REINFORCING SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. NO CONSTRUCTION IS TO BE STARTED UNTIL THE SHOP DRAWINGS ARE REVIEWED AND APPROVED BY THE ENGINEER.
14. THE STRUCTURAL ENGINEER OR HIS FIELD QUALIFIED REPRESENTATIVE MUST CHECK AND APPROVE ALL STEEL REINFORCING PRIOR TO CONCRETE PLACEMENT.

C. CODES AND TESTS

1. THIS STRUCTURE HAS BEEN DESIGNED UNDER THE PROVISIONS OF THE NEW YORK CITY BUILDING CODE, LATEST EDITION.
2. SPECIAL INSPECTION REQUIREMENTS PER THE LATEST NEW YORK CITY BUILDING CODE CONCRETE TESTS AND CURVES OF TESTS FOR THE PRELIMINARY DESIGN MIX PREPARED BY AN APPROVED LABORATORY MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW & ACCEPTANCE. NO CONCRETE SHALL BE PLACED WITHOUT THE DESIGN MIX BEING APPROVED BY THE ENGINEER.
3. DESIGN AND CONSTRUCTION OF FORMWORK IS TO COMPLY WITH THE A.C.I. 318 AND NYC BUILDING CODE REQUIREMENT.
4. ALL WORK MUST COMPLY WITH ALL CODES LISTED IN SPECIFICATIONS.

D. SPECIAL INSPECTIONS REQUIRED AS PER NYC BUILDING CODE:

1.	PILE FOUNDATIONS	BC 1704.8
2.	UNDERPINNING	BC 1704.9.1
3.	EXCAVATION – SHEETING, SHORING & BRACING	BC 1704.19, BC 3304.4.1
4.	CONCRETE – CAST-IN-PLACE	BC 1704.4
5.	CONCRETE DESIGN MIX	BC 1905.3
6.	CONCRETE TEST CYLINDERS	BC 1905.6
7.	FOOTING & FOUNDATION	BC 109.3.1
8.	STRUCTURAL SAFETY-STRUCTURAL STABILITY	BC1704.19

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06–21–11	ISSUED FOR DOB	
06–02–11	ISSUED FOR DOB	
05–20–11	REVISED AS NOTED	
04–27–11	ISSUED FOR DOB	

REVISIONS

PROJECT:

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TYP. FOUNDATION DETAILS 1

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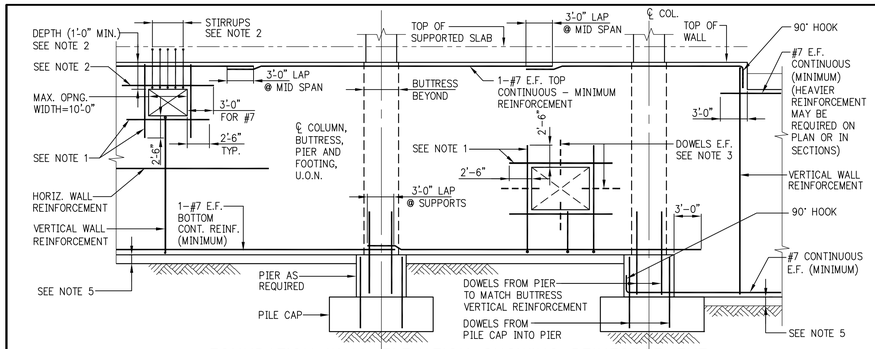
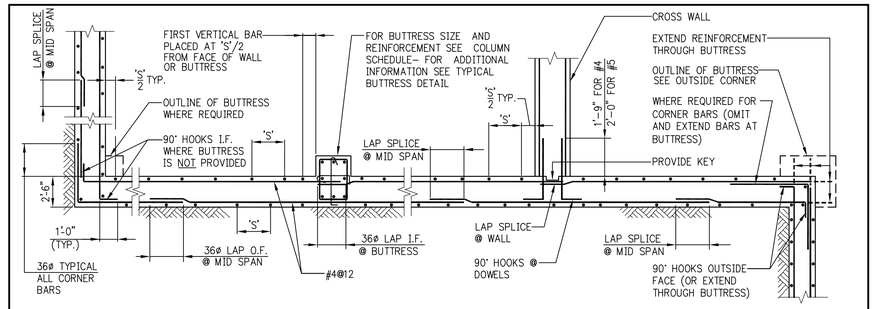


FOUNDATION WALL ELEVATION SHOWING REINFORCEMENT AT OPENINGS AND MISCELLANEOUS DETAILS

NOTES:

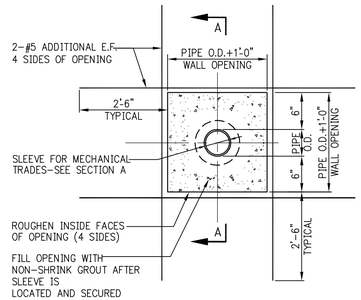
1. ADD #5 BARS (HORIZ. & VERT.) AT ALL FOUR EDGES OF OPENINGS. AREA OF ADDED BARS AT EACH EDGE TO BE EQUAL TO ONE HALF OF AREA OF INTERRUPTED BARS IN THE CORRESPONDING DIRECTION. PROVIDE A MINIMUM OF 1-#5 E.F.
2. WHERE TOP EDGE OF OPENING IS LESS THAN 2'-6" FROM TOP OF WALL ADD 1-#7 E.F. (IN LIEU OF #5) OVER OPENING. PROVIDE #4 ⊓ STIRRUPS @ 8" - EXTEND INTO SLAB WITH 2" COVER AT TOP OF STIRRUPS.
3. AT UTILITY ACCESS OPENINGS WHICH ARE TO BE FILLED IN WITH CONCRETE, PROVIDE DOWELS PROJECTING 1'-0" INTO OPENING. EITHER EXTEND HORIZONTAL AND VERTICAL WALL REINFORCEMENT, OR ADD # 4@12± E.F. DOWELS x2'-6" LONG.
4. FOR ACTUAL OPENING SIZES AND LOCATIONS, SEE PLANS, SECTIONS, ARCHITECTURAL DWGS., AND MEP DWGS. SUBMIT SHOP DRAWINGS WITH WALL ELEVATIONS SHOWING ALL OPENINGS AND REINFORCEMENT.
5. PROVIDE FOOTING OR CONCRETE MUD SLAB TO SUPPORT WALL FORMS AND WET CONCRETE. SEE FOUNDATION SECTIONS ON FS-300 SERIES DRAWINGS FOR ADDITIONAL DETAILS.



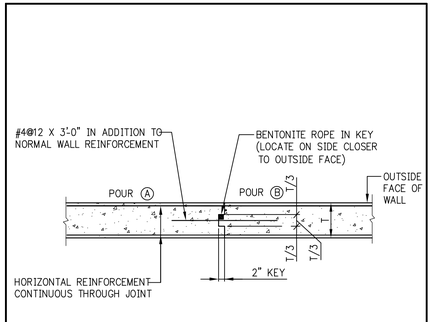
OUTSIDE CORNER | BUTTRESS | CROSS-WALL | RE-ENTRANT CORNER

NOTE:
VERTICAL CONSTRUCTION JOINT IN WALL IS NOT SHOWN HERE - SEE TYPICAL CONSTRUCTION JOINT DETAIL.

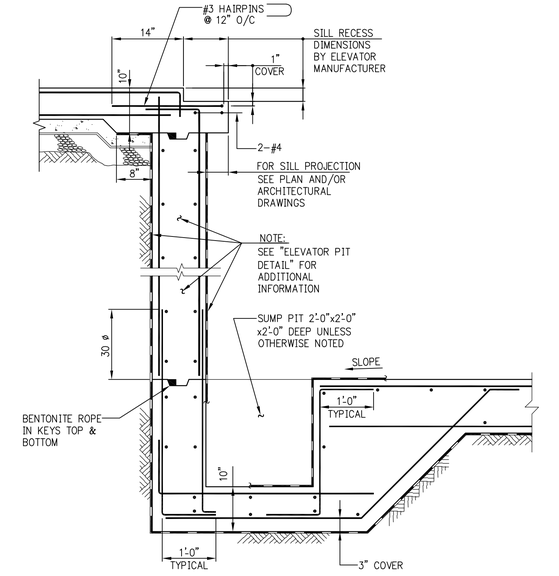
HORIZONTAL SECTION SHOWING PLACEMENT OF FOUNDATION WALL REINFORCEMENT



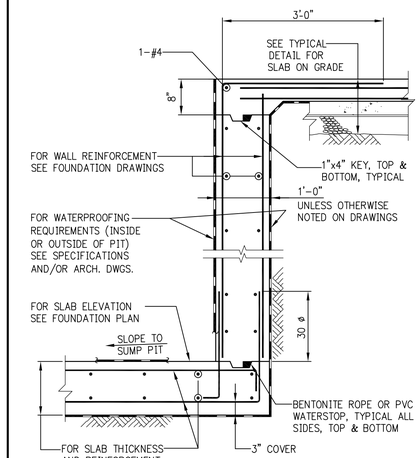
BOX-OUT OPENING THROUGH FOUNDATION WALL



PLAN VIEW OF JOINT

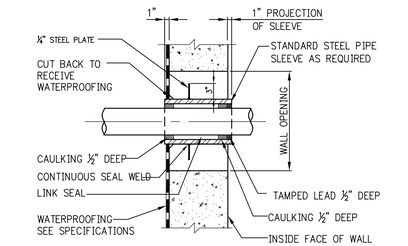


ELEVATOR PIT SILL AND SUMP PIT



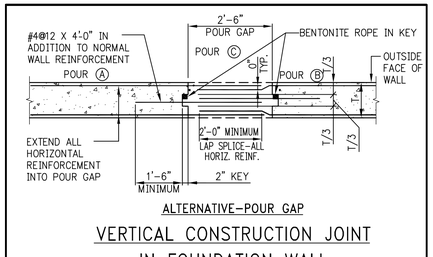
ELEVATOR PIT

NOTE:
PROVIDE ELEVATOR TIE-DOWN BEAM AS REQUIRED. SEE PLAN AND "ELEVATOR TIE-DOWN BEAM" DETAIL.



SECTION A-A

WATERPROOFED SLEEVE THROUGH WALL WITH WATERPROOFING

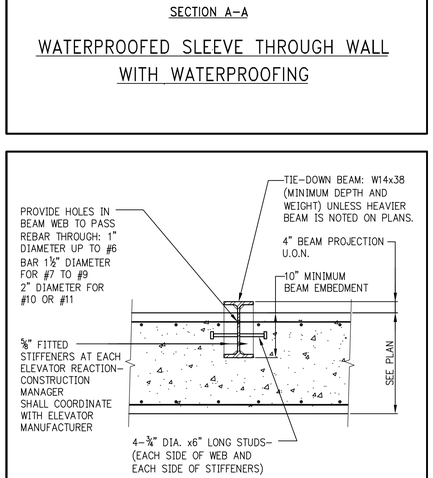


ALTERNATIVE-POUR GAP

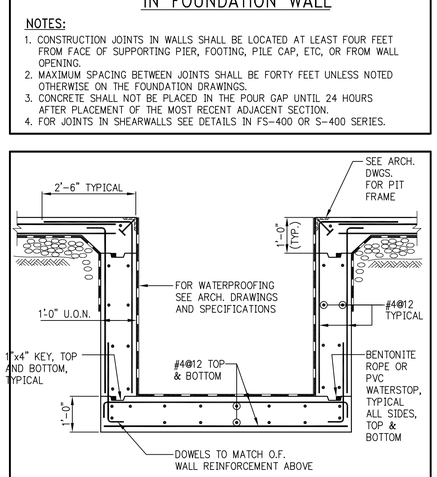
VERTICAL CONSTRUCTION JOINT IN FOUNDATION WALL

NOTES:

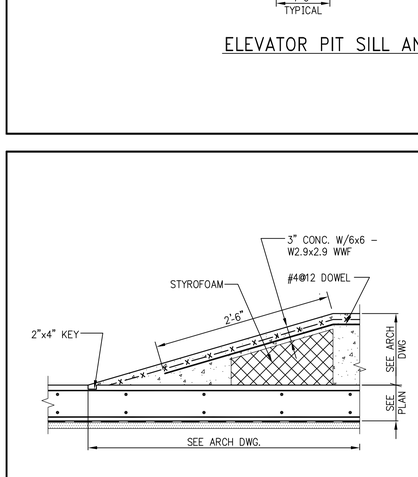
1. CONSTRUCTION JOINTS IN WALLS SHALL BE LOCATED AT LEAST FOUR FEET FROM FACE OF SUPPORTING PIER, FOOTING, PILE CAP, ETC, OR FROM WALL OPENING.
2. MAXIMUM SPACING BETWEEN JOINTS SHALL BE FORTY FEET UNLESS NOTED OTHERWISE ON THE FOUNDATION DRAWINGS.
3. CONCRETE SHALL NOT BE PLACED IN THE POUR GAP UNTIL 24 HOURS AFTER PLACEMENT OF THE MOST RECENT ADJACENT SECTION.
4. FOR JOINTS IN SHEARWALLS SEE DETAILS IN FS-400 OR S-400 SERIES.



ELEVATOR TIE-DOWN BEAM



TYPICAL PIT



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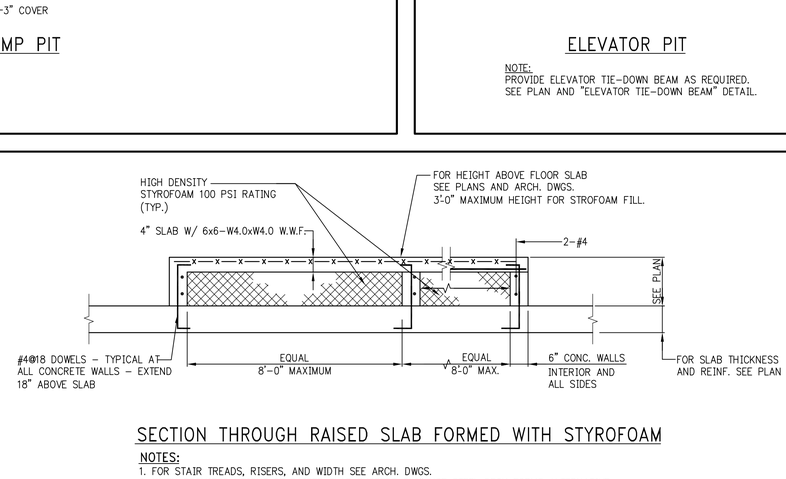

SECTION THROUGH RAISED SLAB FORMED WITH STYROFOAM

NOTES:

1. FOR STAIR TREADS, RISERS, AND WIDTH SEE ARCH. DWGS.
2. WHEN REQUIRED HEIGHT OF RAISED SLAB EXCEEDS 3'-0" USE STEEL DECK FORMS ALTERNATIVE. (STEEL DECK FORMED SLABS HAVE NO HEIGHT RESTICTIONS, MINIMUM OR MAXIMUM)

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06-21-11	ISSUED FOR DOB	
06-02-11	ISSUED FOR DOB	
05-20-11	REVISED AS NOTED	
04-04-11	ISSUED FOR DOB	

REVISIONS

PROJECT:

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TYP. FPUNDATION DETAILS 2

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DATE: 01/29/10
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TABLE #1:
CLASS B (1.3 ld) TENSION LAP SPLICE LENGTHS

TABLE 1.A: ¾" COVER TO OUTER LAYER BARS
OUTER LAYER LAP LENGTHS

BAR \ f'c	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000+
#3	16	16	16	16	16	16	16	16
#4	21	20	20	20	20	20	20	20
#5	31	27	24	24	24	24	24	24
#6	43	37	33	30	29	29	29	29
#7	69	60	53	49	45	42	40	38
#8	85	74	66	60	56	52	49	47
#9	103	89	80	73	67	63	59	56
#10	121	105	94	86	79	74	70	66
#11	140	122	109	99	92	86	81	77

NOTE: USE TABLE 1E IF BAR SPACING IS LESS THAN 4" O/C UP TO #8, 5" O/C FOR #9, #10, #11

TABLE 1.B: ¾" COVER TO OUTER LAYER BARS
INNER LAYER LAP LENGTHS

BAR \ f'c	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000+
#3	16	16	16	16	16	16	16	16
#4	20	20	20	20	20	20	20	20
#5	24	24	24	24	24	24	24	24
#6	30	29	29	29	29	29	29	29
#7	48	42	38	34	34	34	34	34
#8	61	53	47	43	40	39	39	39
#9	75	65	58	53	49	46	44	44
#10	89	77	69	63	58	55	51	49
#11	104	90	81	74	68	64	60	57

NOTE: USE TABLE 1E IF BAR SPACING IS LESS THAN 4" O/C UP TO #8, 5" O/C FOR #9, #10, #11

TABLE 1.C: 1½" COVER TO OUTER LAYER BARS
OUTER LAYER LAP LENGTHS

BAR \ f'c	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000+
#3	16	16	16	16	16	16	16	16
#4	20	20	20	20	20	20	20	20
#5	24	24	24	24	24	24	24	24
#6	29	29	29	29	29	29	29	29
#7	42	37	34	34	34	34	34	34
#8	53	46	41	39	39	39	39	39
#9	66	57	51	46	44	44	44	44
#10	79	68	61	56	51	49	49	49
#11	92	80	72	65	60	57	54	54

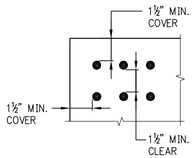
NOTE: USE TABLE 1E IF BAR SPACING IS LESS THAN 4" O/C UP TO #8, 5" O/C FOR #9, #10, #11

TABLE 1.D: 1½" COVER TO OUTER LAYER BARS
INNER LAYER LAP LENGTHS

BAR \ f'c	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000+
#3	16	16	16	16	16	16	16	16
#4	20	20	20	20	20	20	20	20
#5	24	24	24	24	24	24	24	24
#6	29	29	29	29	29	29	29	29
#7	37	34	34	34	34	34	34	34
#8	43	39	39	39	39	39	39	39
#9	53	46	44	44	44	44	44	44
#10	64	55	49	49	49	49	49	49
#11	75	65	58	54	54	54	54	54

NOTE: USE TABLE 1E IF BAR SPACING IS LESS THAN 5" O/C UP TO #8, 6" O/C FOR #9, #10, #11

TABLE 1.E: TWO OR MORE LAYERS WITH 1½" MIN. COVER AND 1½" MIN. CLEAR DISTANCE BETWEEN LAYERS:



NOTES FOR TENSION LAP SPLICES AND DEVELOPMENT LENGTHS

1. LENGTHS IN TABLE ARE IN INCHES.
2. FOR "TOP"' BAR SPLICE LENGTHS ("TOP" IS DEFINED BY ACI 318 AS HAVING MORE THAN 12 INCHES OF FRESH CONCRETE CAST BELOW THE BAR), TABULATED LENGTHS MUST BE MULTIPLIED BY 1.3.
3. WHERE TENSION DEVELOPMENT LENGTH (Ld) IS REQUIRED ON PLANS OR IN DETAILS, DIVIDE TABULATED VALUES BY 1.3.
4. CONCRETE IS NORMAL WEIGHT (144–150#/C.F.).
5. REINFORCEMENT IS UNCOATED, WITH Fy=60,000 PSI.
6. LENGTHS TABULATED MUST BE MULTIPLIED BY THE FOLLOWING MODIFICATION FACTORS:
   a. LIGHTWEIGHT CONCRETE.....1.3
   b. EPOXY–COATED BARS:
      1.) BARS WITH COVER < 3db, OR WITH CLEAR SPACING < 6db.....1.5 FOR BOTTOM & VERTICAL BARS, 1.3 FOR 'TOP' BARS *
      2.) ALL OTHER CONDITIONS.....1.2
   * FOR EPOXY–COATED 'TOP' BARS THE MAXIMUM FOR COMBINED FACTORS = 1.7
7. CLASS A LAP SPLICE LENGTHS ARE EQUAL TO TENSION DEVELOPMENT LENGTHS. SEE NOTE 3. APPLY APPROPRIATE MODIFICATION FACTORS.

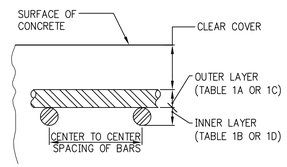
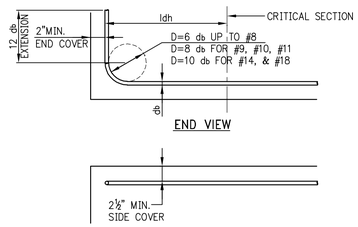


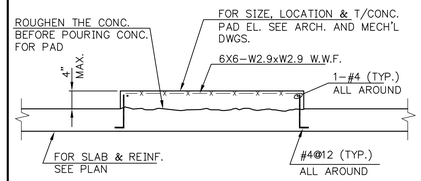
TABLE #2
TENSION DEVELOPMENT LENGTHS FOR STANDARD END HOOKS (ldh)
(LENGTHS IN INCHES)

BAR SIZE	CONCRETE STRENGTH (PSI)							
	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000+
#3	9	7	7	6	6	6	6	6
#4	11	10	9	8	7	7	7	6
#5	14	12	11	10	9	9	8	8
#6	17	15	13	12	11	10	10	9
#7	19	17	15	14	13	12	11	11
#8	22	19	17	16	15	14	13	12
#9	25	22	19	18	16	15	15	14
#10	28	24	22	20	19	17	16	16
#11	31	27	24	22	21	19	18	17
#14	37	32	29	27	25	23	22	21
#18	50	43	39	35	33	31	29	27

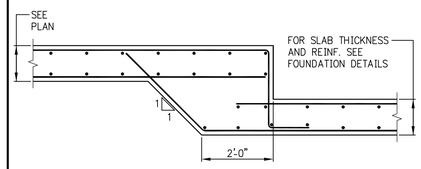
NOTES:

1. TABLE 2 CONFORMS TO ACI 318–2002 (AND 2005). TABULATED VALUES ARE BASED UPON ACI 12.5.2 , ASSUMING GRADE 60 REINFORCEMENT AND NORMALWEIGHT CONCRETE.
2. PER ACI 12.5.3 a), FOR #11 AND SMALLER BARS, IF COVER TO BAR IS 2½ INCHES OR MORE, AND FOR 90 DEGREE HOOK WITH COVER ON BAR EXTENSION BEYOND HOOK NOT LESS THAN 2 INCHES, A MODIFICATION FACTOR OF 0.7 MAY BE APPLIED. MINIMUM ldh SHALL NOT BE LESS THAN 8db NOR 6 INCHES.





TYPICAL CONCRETE PAD DETAIL



TYPICAL DETAIL @ STEP IN SLAB

TABLE #3
COMPRESSION LAP SPLICES
(LENGTHS IN INCHES)

BAR SIZE	GRADE OF REINFORCEMENT		
	60 KSI (30 DIA.)	75 KSI (44 DIA.)	80 KSI (48 DIA.)
#3	12	17	18
#4	15	22	24
#5	19	28	30
#6	23	33	36
#7	27	39	42
#8	30	44	48
#9	34	50	54
#10	38	56	61
#11	43	62	68
#14 AND #18	1. LAP SPLICES ARE NOT PERMITTED. USE MECHANICAL CONNECTIONS OR WELDED SPLICES FOR #14 AND #18, PER ACI 318 (12.14.3). 2. LAP SPLICES OF #14 AND #18 BARS TO #11 AND SMALLER BARS ARE PERMITTED PER ACI 318 (12.16.2).		
3. FOR BARS OF DIFFERENT SIZE, USE LARGER OF: SPLICE LENGTH OF SMALLER BAR (TABLE #3) OR DEVELOPMENT LENGTH OF LARGER BAR (FROM TABLE #4) PER ACI 318 (12.16.2).			

TABLE #4
DEVELOPMENT LENGTHS FOR BARS IN COMPRESSION
(LENGTHS IN INCHES)

BAR SIZE	fy = 60,000 PSI			fy = 75,000 PSI			fy = 80,000 PSI		
	CONC. f'c (IN PSI)			CONC. f'c (IN PSI)			CONC. f'c (IN PSI)		
	3,000	4,000	5,000 OR MORE	3,000	4,000	5,000 OR MORE	3,000	4,000	5,000 OR MORE
#3	12	12	12	12	12	12	12	12	12
#4	12	12	12	14	12	12	15	13	12
#5	14	12	12	17	15	14	18	16	15
#6	17	15	14	21	18	17	22	19	18
#7	19	17	16	24	21	20	26	22	21
#8	22	19	18	28	24	23	29	25	24
#9	25	22	21	31	27	25	33	28	27
#10	28	24	23	34	30	28	36	31	30
#11	31	27	26	38	33	31	40	34	33
#14	37	32	31	48	42	39	51	44	42
#18	50	43	41	62	54	51	65	56	54

NOTE:
TABLE #3 APPLIES FOR NORMALWEIGHT CONCRETE WITH f'c = 3,000 PSI OR GREATER.

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REVISIONS

PROJECT:

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TYP. FOUNDATION DETAILS 3

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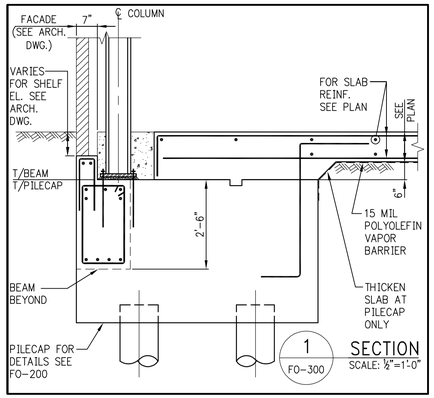

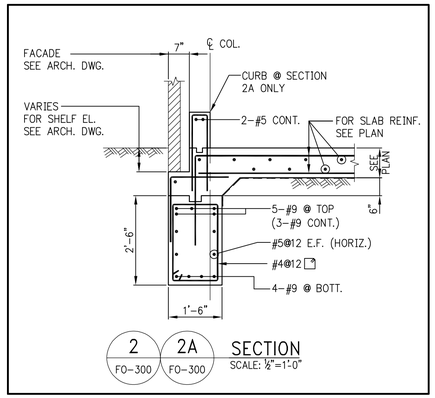

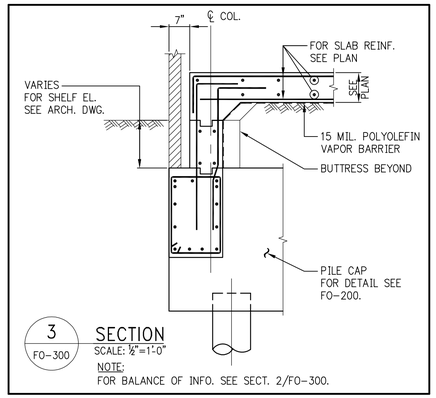

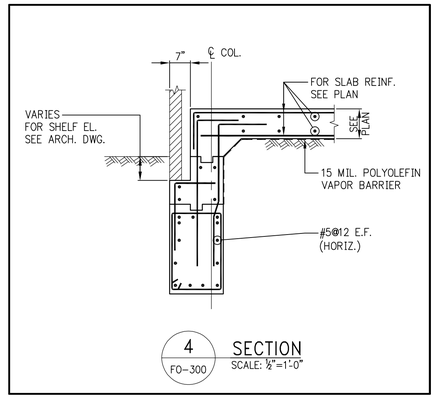

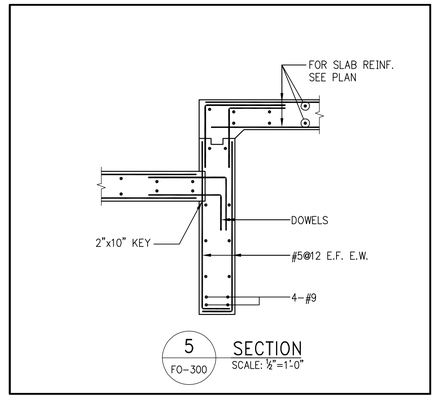

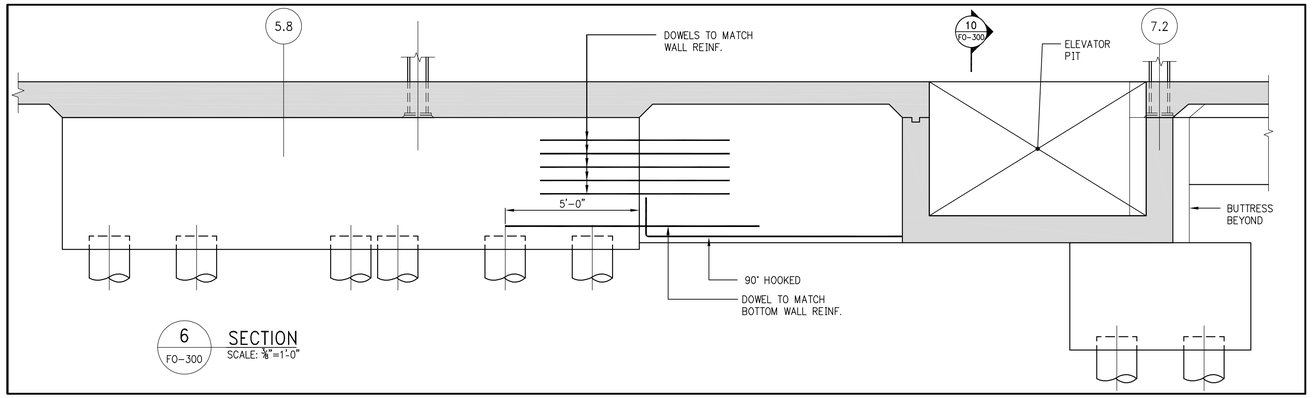

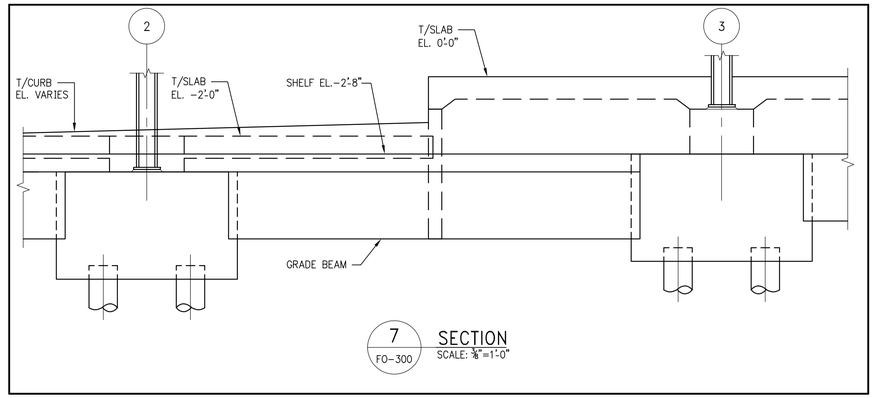

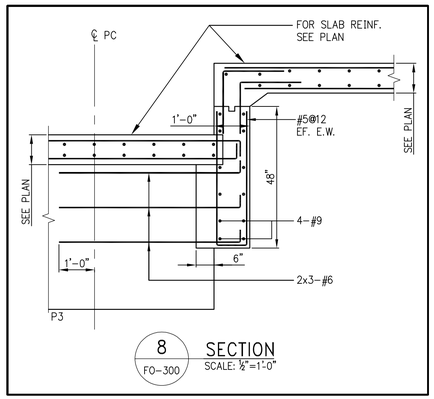

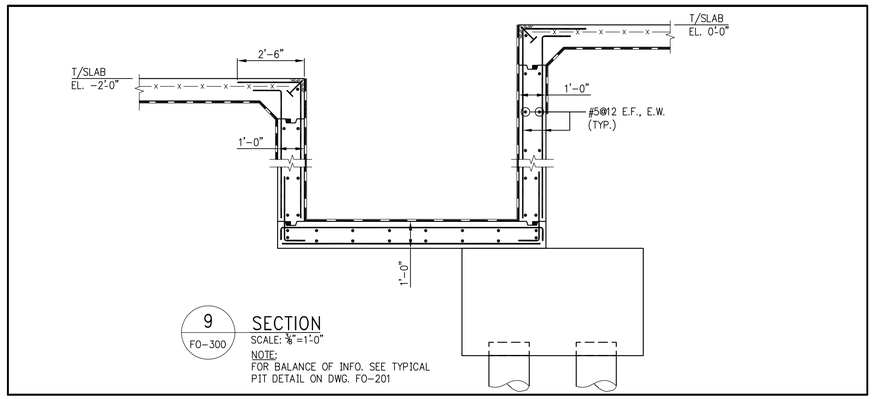

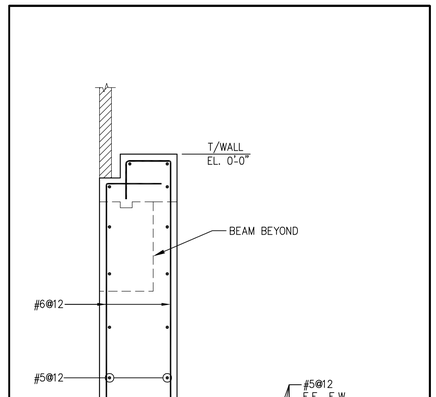

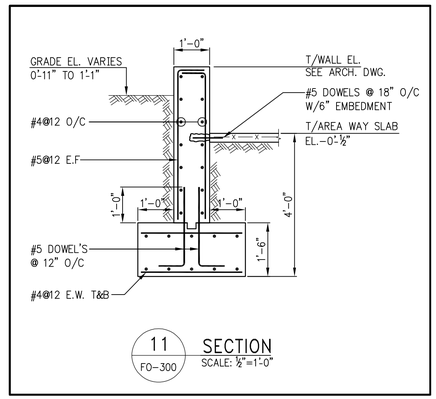

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LEGEND:

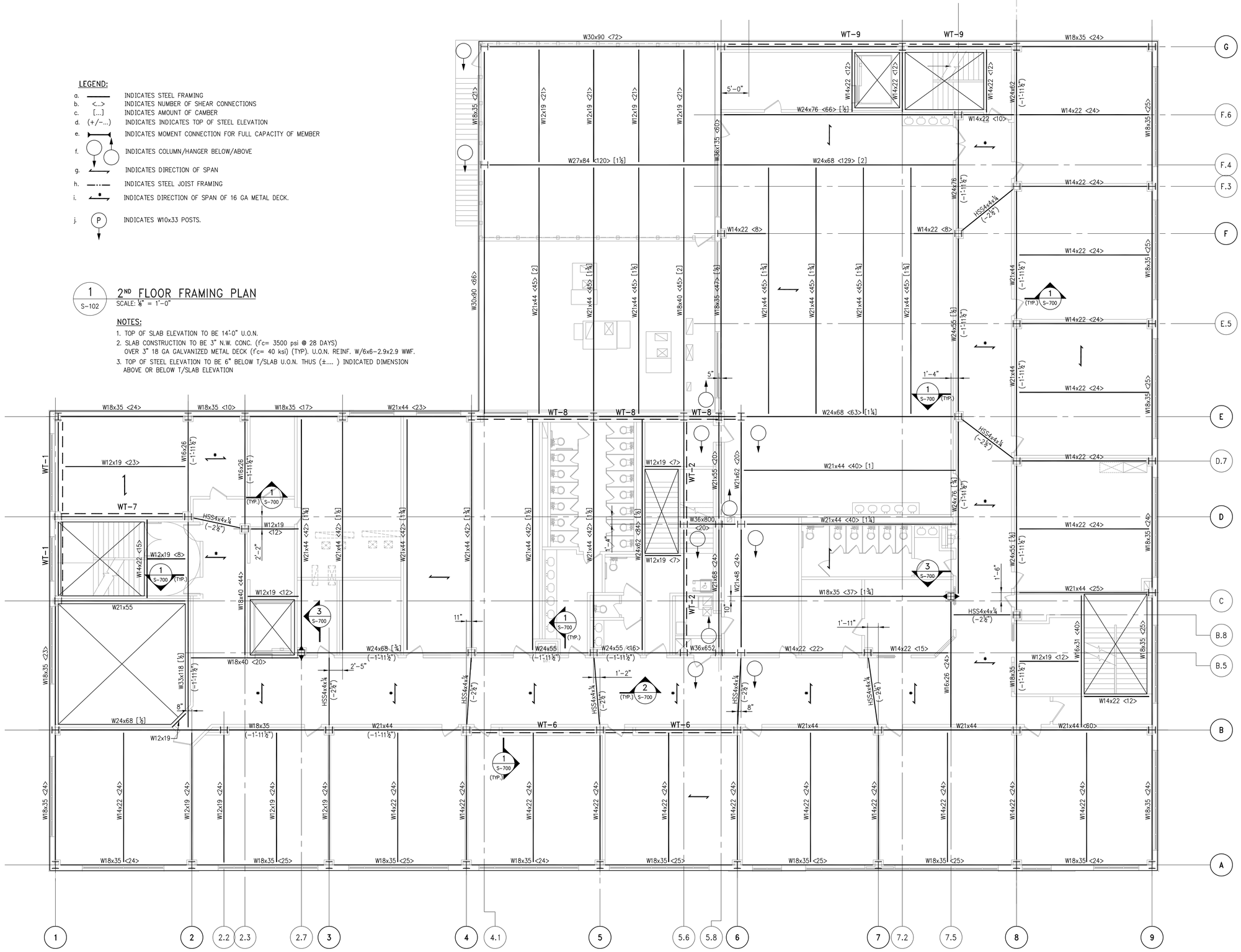
a. ——— INDICATES STEEL FRAMING
b. <...> INDICATES NUMBER OF SHEAR CONNECTIONS
c. [...] INDICATES AMOUNT OF CAMBER
d. (+/-...) INDICATES INDICATES TOP OF STEEL ELEVATION
e. INDICATES MOMENT CONNECTION FOR FULL CAPACITY OF MEMBER
f. INDICATES COLUMN/HANGER BELOW/ABOVE
g. INDICATES DIRECTION OF SPAN
h. INDICATES STEEL JOIST FRAMING
i. INDICATES DIRECTION OF SPAN OF 16 GA METAL DECK.
j. (P) INDICATES W10x33 POSTS.

1 / S-102 — 2ND FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"

NOTES:

1. TOP OF SLAB ELEVATION TO BE 14'-0" U.O.N.
2. SLAB CONSTRUCTION TO BE 3" N.W. CONC. (f'c= 3500 psi @ 28 DAYS) OVER 3" 18 GA GALVANIZED METAL DECK (f'c= 40 ksi) (TYP). U.O.N. REINF. W/6x6-2.9x2.9 WWF.
3. TOP OF STEEL ELEVATION TO BE 6" BELOW T/SLAB U.O.N. THUS (±....) INDICATED DIMENSION ABOVE OR BELOW T/SLAB ELEVATION



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2ND FLOOR FRAMING PLAN

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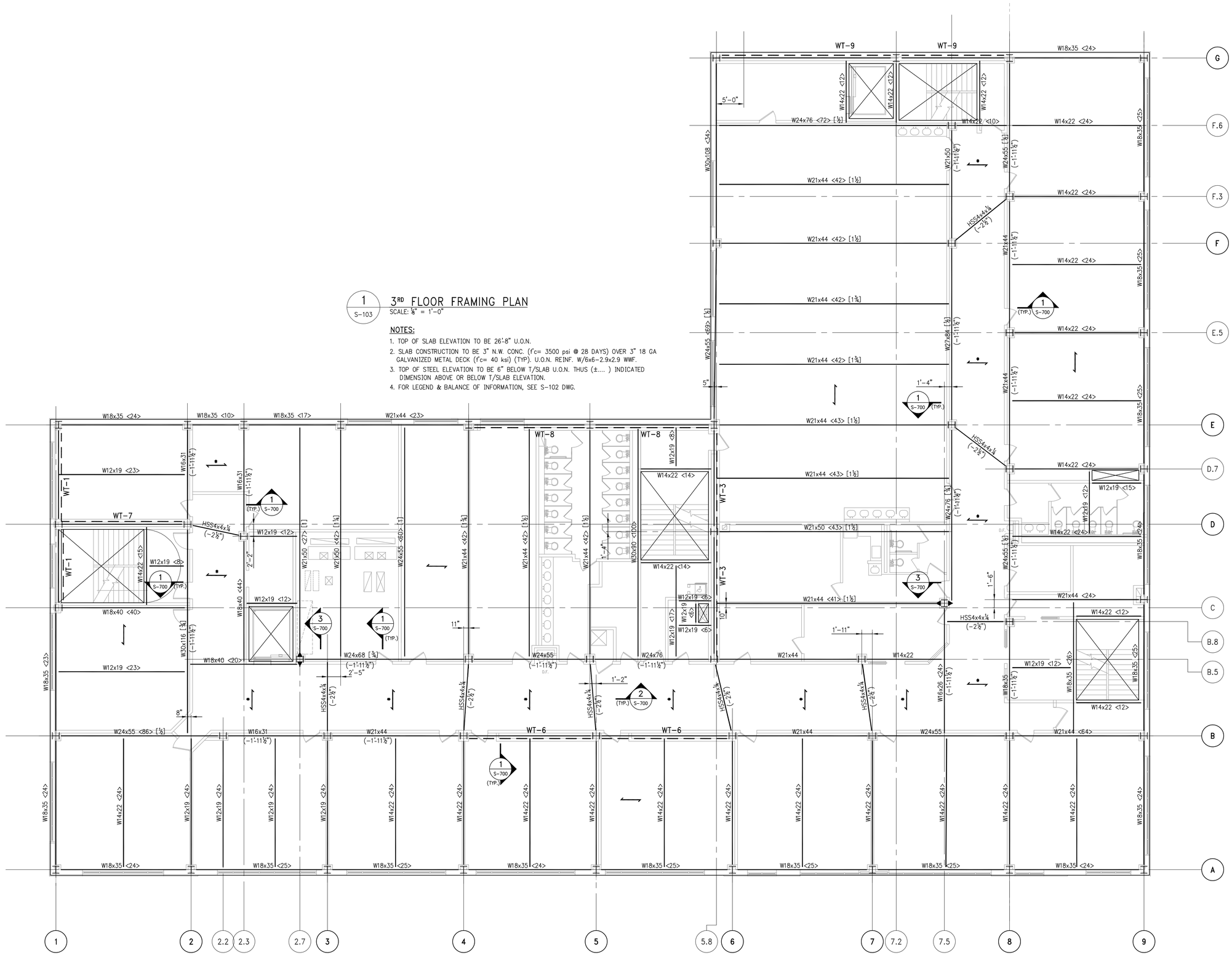

1 S-103 **3RD FLOOR FRAMING PLAN**

SCALE: ⅛" = 1'-0"

NOTES:

1. TOP OF SLAB ELEVATION TO BE 26'-8" U.O.N.
2. SLAB CONSTRUCTION TO BE 3" N.W. CONC. (f'c= 3500 psi @ 28 DAYS) OVER 3" 18 GA GALVANIZED METAL DECK (fc= 40 ksi) (TYP). U.O.N. REINF. W/6x6-2.9x2.9 WWF.
3. TOP OF STEEL ELEVATION TO BE 6" BELOW T/SLAB U.O.N. THUS (±....) INDICATED DIMENSION ABOVE OR BELOW T/SLAB ELEVATION.
4. FOR LEGEND & BALANCE OF INFORMATION, SEE S-102 DWG.

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3RD FLOOR FRAMING PLAN

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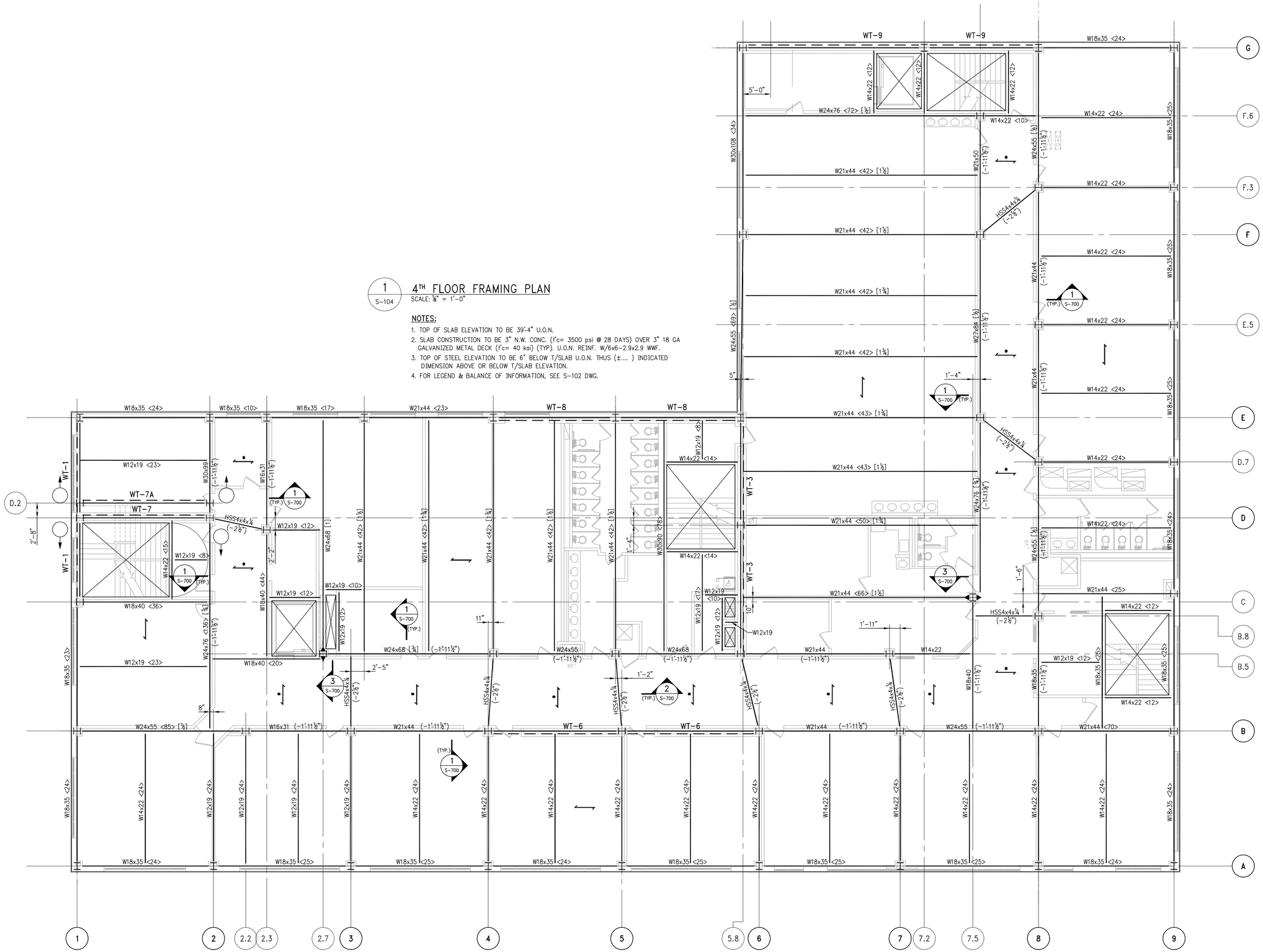

1 S-104

4TH FLOOR FRAMING PLAN

SCALE: ⅛" = 1'-0"

NOTES:

1. TOP OF SLAB ELEVATION TO BE 39'-4" U.O.N.
2. SLAB CONSTRUCTION TO BE 3" N.W. CONC. (f'c= 3500 psi @ 28 DAYS) OVER 3" 18 GA GALVANIZED METAL DECK (f'c= 40 ksi) (TYP). U.O.N. REINF. W/6x6–2.9x2.9 WWF.
3. TOP OF STEEL ELEVATION TO BE 6" BELOW T/SLAB U.O.N. THUS (±....) INDICATED DIMENSION ABOVE OR BELOW T/SLAB ELEVATION.
4. FOR LEGEND & BALANCE OF INFORMATION, SEE S-102 DWG.

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REVISIONS

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BROOKLYN, NY

4TH FLOOR FRAMING PLAN

SEAL & SIGNATURE

DATE: 01/29/10
PROJECT No: 2010014
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CHK BY:AT
DWG No. S–104.00
PAGE No:

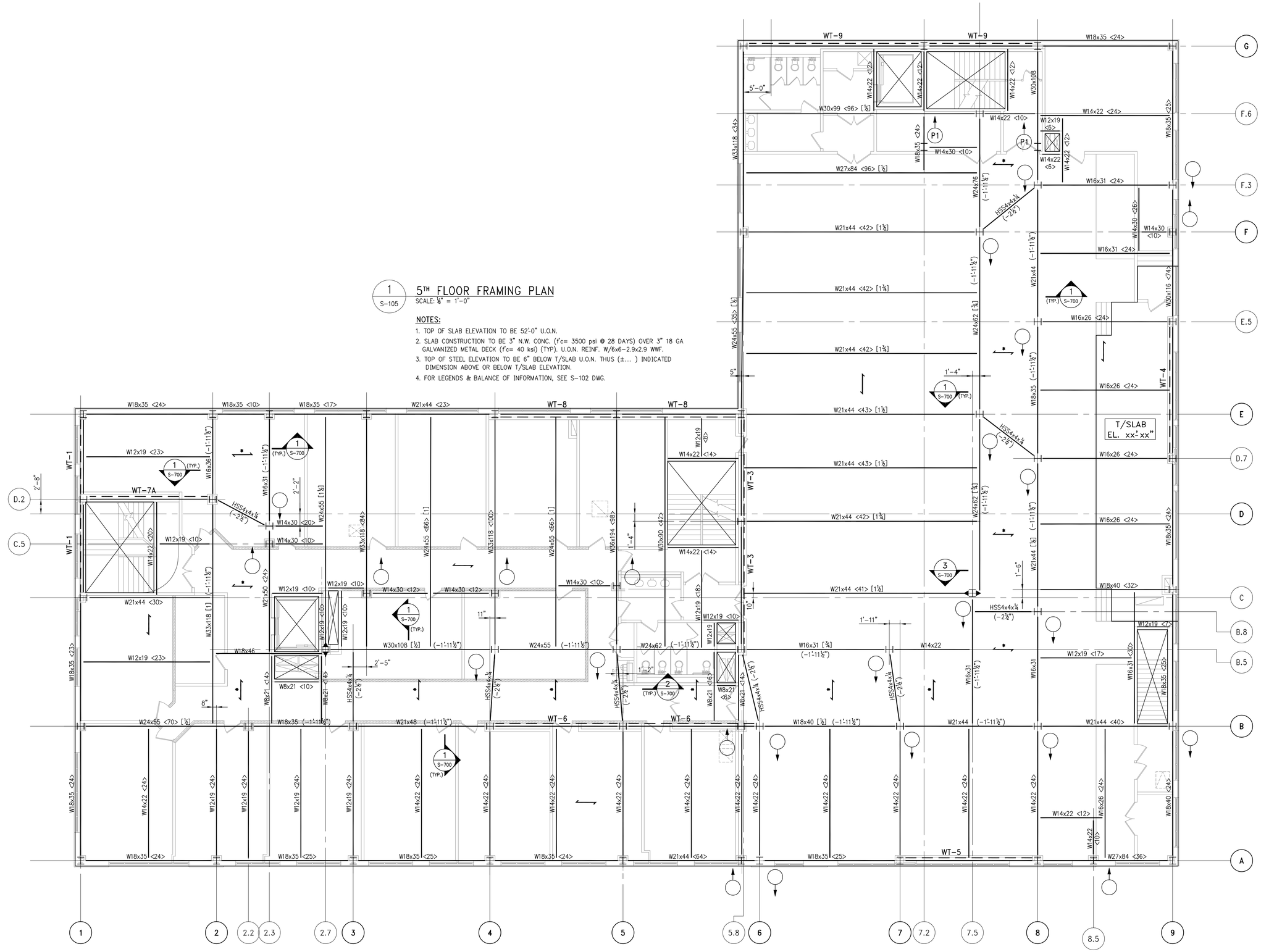
5TH FLOOR FRAMING PLAN

1
S-105

SCALE: ⅛" = 1'-0"

NOTES:

1. TOP OF SLAB ELEVATION TO BE 52'-0" U.O.N.
2. SLAB CONSTRUCTION TO BE 3" N.W. CONC. (f'c= 3500 psi @ 28 DAYS) OVER 3" 18 GA GALVANIZED METAL DECK (f'c= 40 ksi) (TYP). U.O.N. REINF. W/6x6-2.9x2.9 WWF.
3. TOP OF STEEL ELEVATION TO BE 6" BELOW T/SLAB U.O.N. THUS (±....) INDICATED DIMENSION ABOVE OR BELOW T/SLAB ELEVATION.
4. FOR LEGENDS & BALANCE OF INFORMATION, SEE S-102 DWG.



N

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5TH FLOOR FRAMING PLAN

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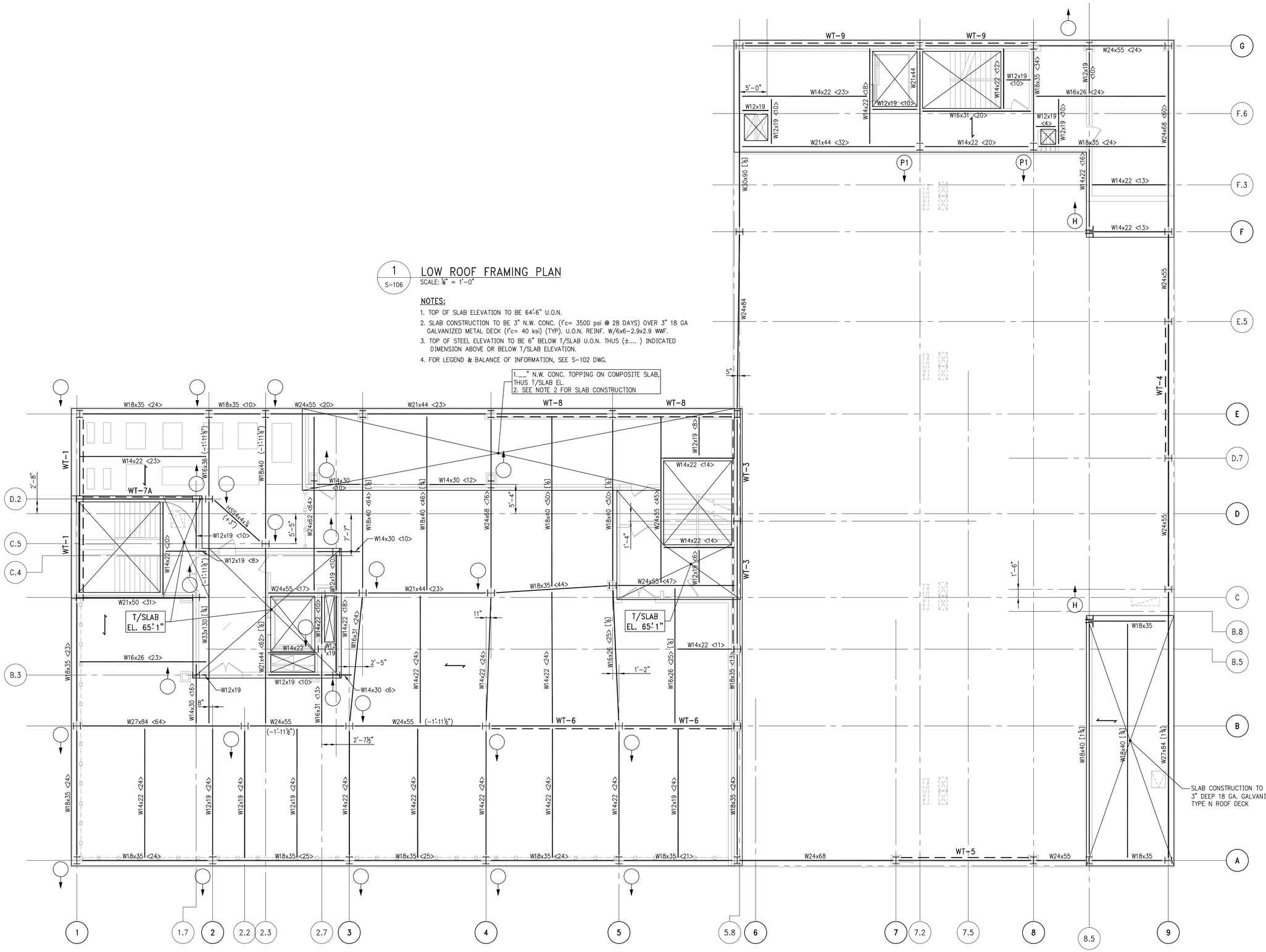

1 / S-106

LOW ROOF FRAMING PLAN

SCALE: ⅛" = 1'-0"

NOTES:

1. TOP OF SLAB ELEVATION TO BE 64'-6" U.O.N.
2. SLAB CONSTRUCTION TO BE 3" N.W. CONC. (f'c= 3500 psi @ 28 DAYS) OVER 3" 18 GA GALVANIZED METAL DECK (f'c= 40 ksi) (TYP). U.O.N. REINF. W/6x6-2.9x2.9 WWF.
3. TOP OF STEEL ELEVATION TO BE 6" BELOW T/SLAB U.O.N. THUS (±....) INDICATED DIMENSION ABOVE OR BELOW T/SLAB ELEVATION.
4. FOR LEGEND & BALANCE OF INFORMATION, SEE S-102 DWG.

1.___" N.W. CONC. TOPPING ON COMPOSITE SLAB, THUS T/SLAB EL.
2. SEE NOTE 2 FOR SLAB CONSTRUCTION

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ROOF FRAMING PLAN

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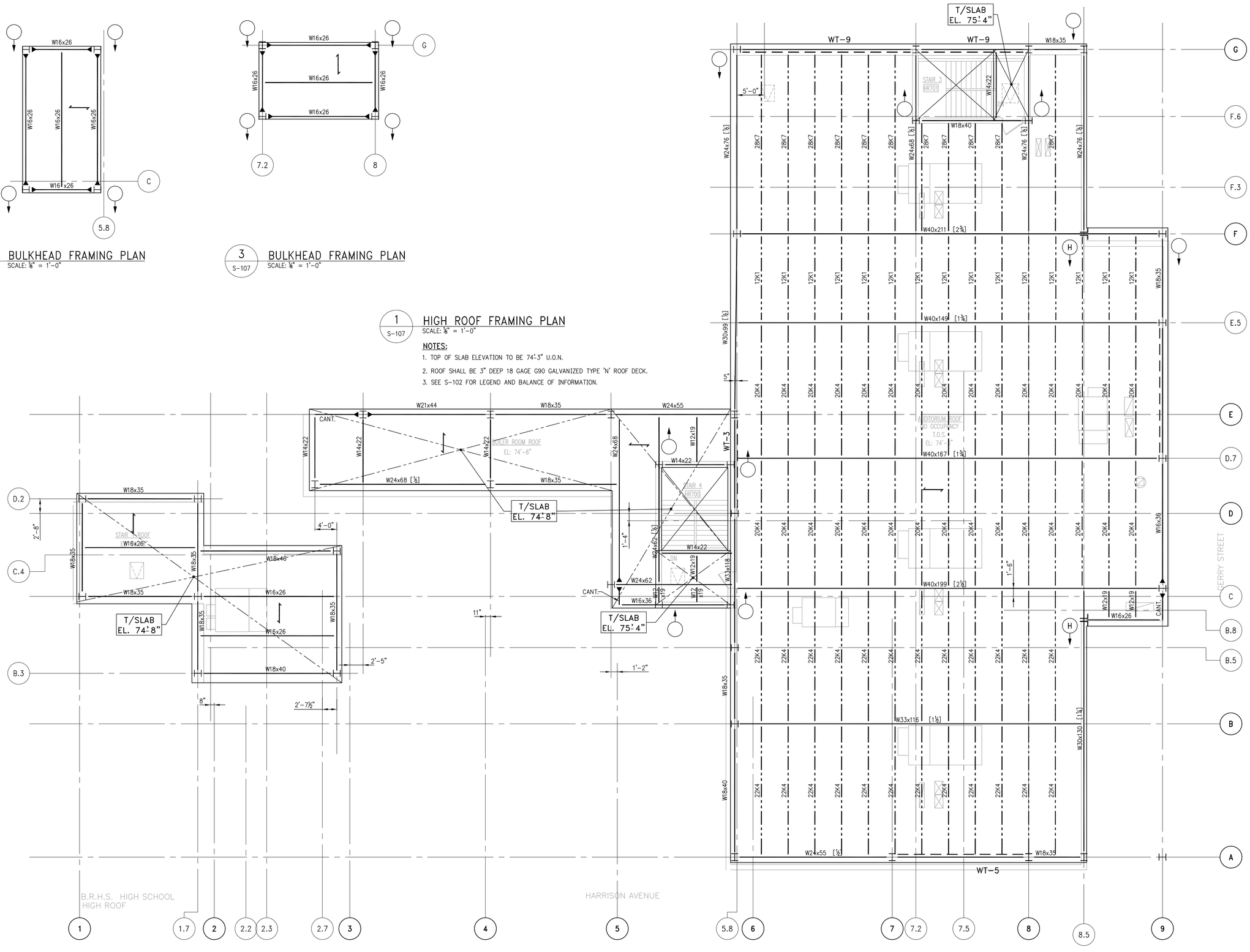
2 S-107 BULKHEAD FRAMING PLAN
SCALE: ⅛" = 1'-0"

3 S-107 BULKHEAD FRAMING PLAN
SCALE: ⅛" = 1'-0"

1 S-107 HIGH ROOF FRAMING PLAN
SCALE: ⅛" = 1'-0"

NOTES:

1. TOP OF SLAB ELEVATION TO BE 74'-3" U.O.N.
2. ROOF SHALL BE 3" DEEP 18 GAGE G90 GALVANIZED TYPE 'N' ROOF DECK.
3. SEE S-102 FOR LEGEND AND BALANCE OF INFORMATION.



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FRAMING PLAN PENTHOUSE ROOF

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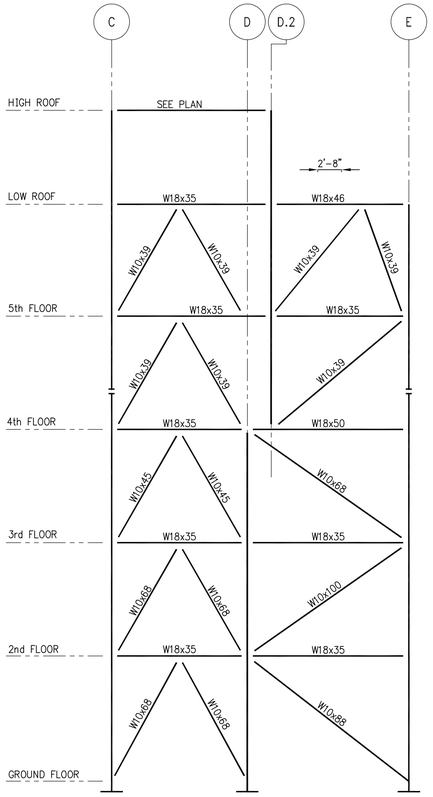
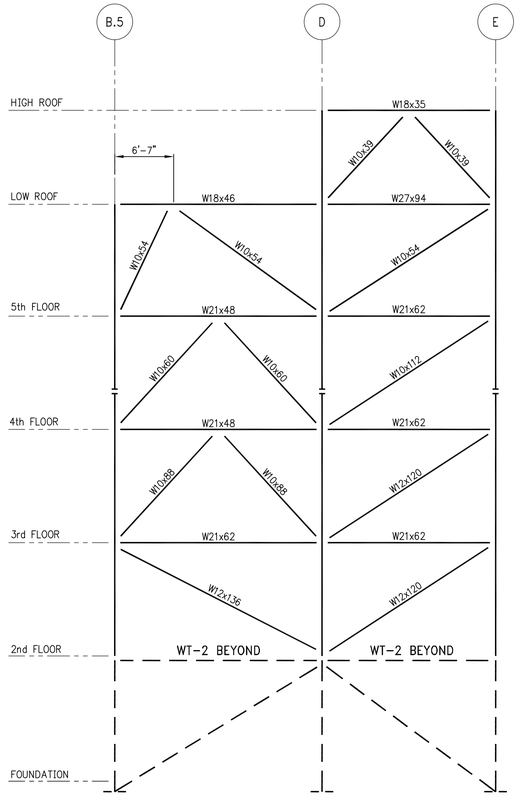
PAGE No:



WT-1 (@ GRID LINE 1)
SCALE: 1/8" = 1'-0"



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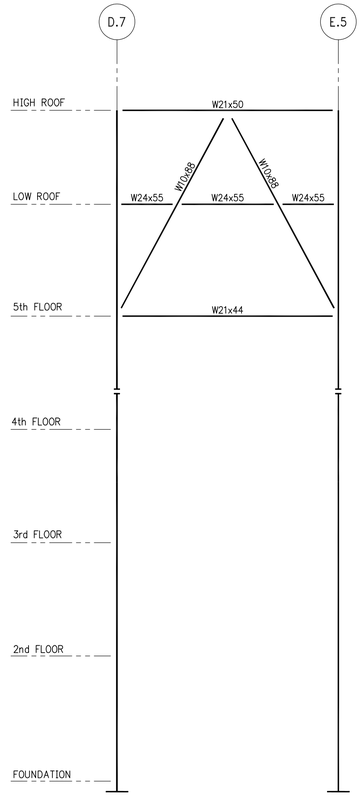
SCALE: 1/8" = 1'-0"



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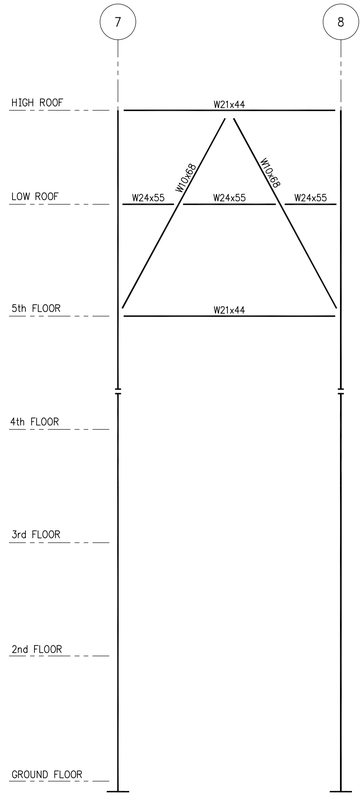
SCALE: 1/8" = 1'-0"



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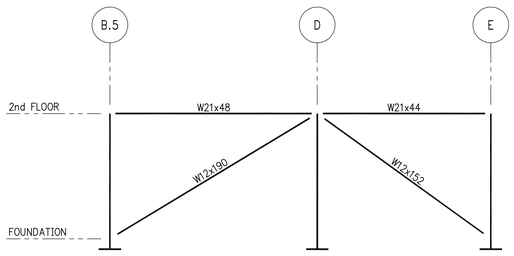
SCALE: 1/8" = 1'-0"



WT-2 (@ GRID LINE 5.6)
SCALE: 1/8" = 1'-0"

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TRUSS ELEVATIONS 1

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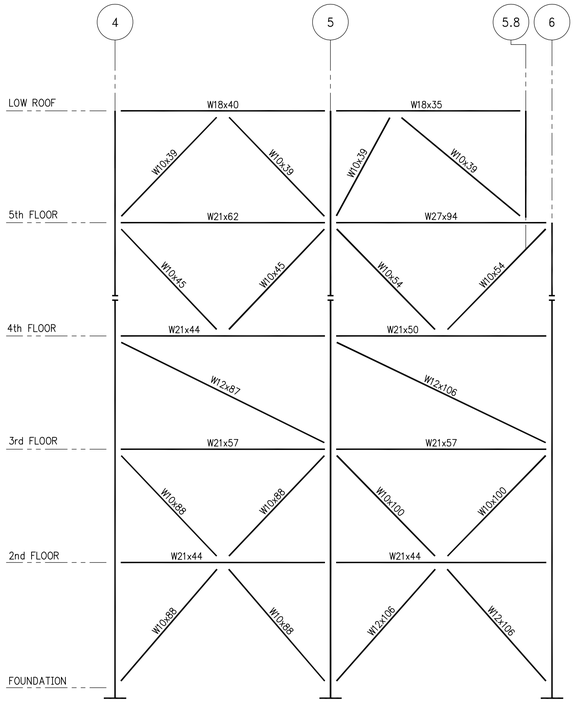
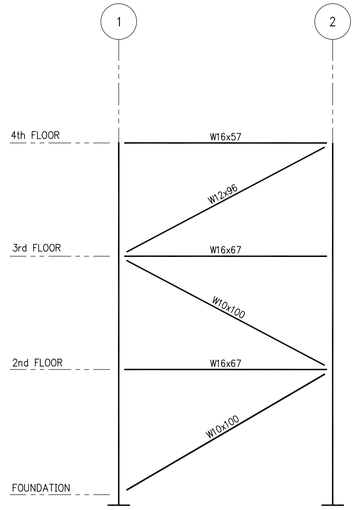
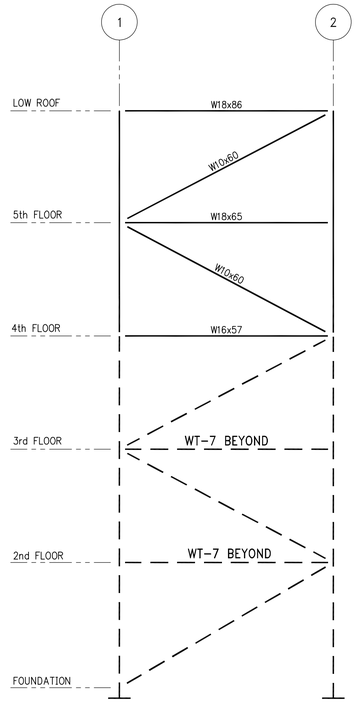
	PAGE No:



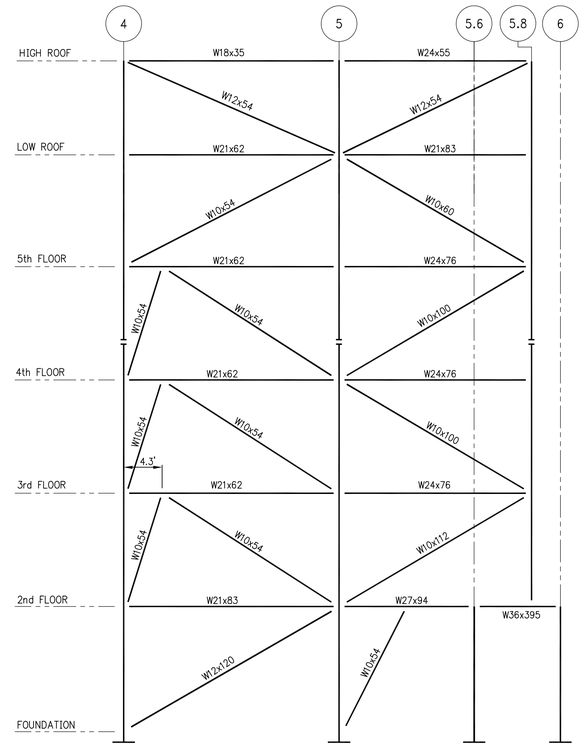
WT-6 (@ GRID LINE B)
SCALE: 1/8" = 1'-0"



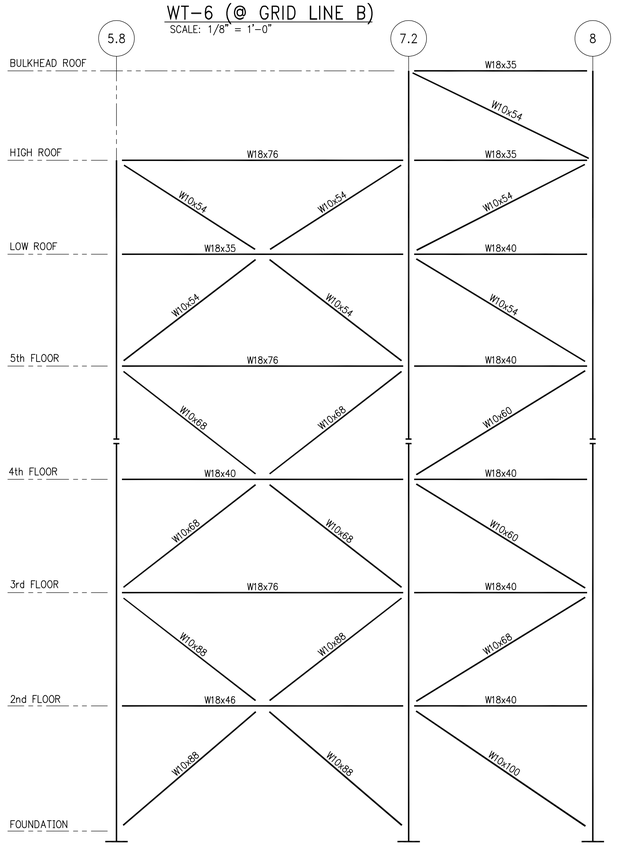
WT-7 (@ GRID LINE D)
SCALE: 1/8" = 1'-0"



WT-7A (@ GRID LINE D.2)
SCALE: 1/8" = 1'-0"



WT-8 (@ GRID LINE E)
SCALE: 1/8" = 1'-0"



WT-9 (@ GRID LINE G)
SCALE: 1/8" = 1'-0"

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TRUSS ELEVATIONS 2

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DATE: 04/27/11
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S-401.00
PAGE No:

COLUMN SCHEDULE

COL. NO. / FLOOR	A											B										B.3		B.5							B.8	C							C.4	C.5
	1	2	3	4	5	5.8	6	7	8	8.5	9	1	2.2	3	4	5	5.8	6	7	8	9	1.7	2.7		2.7	4	5	5.6	5.8	6	7	8	1	1.7	3	4	5	7.5	9	2.7	2.3
HIGH ROOF																																									
LOW ROOF						33		68	68	54							54					W10 x 33	W10 x 33						60				60	W10 x 33			49		60	W10 x 33	
5TH FL.	33 x	33 x	33 x	33 x	33 x	W10 x		W10 x	W10 x	W10 x	49 x	45 x	68 x	39 x	77 x	77 x	W10 x								54 x				W10 x				W10 x		W10 x 45	W10 x 33	W10 x		W10 x	W10 x 45
4TH FL.	W10	W10	W10	W10	W10		W10x49				W10	W10	W10	W10	W10	W10		W10x88	W10x49	W10x68	W10x49				W10	W10x100	W10x88				W10x33	W10x33						W10x68			
3RD FL.	4'-0" TYP.																												152 x												
2ND FL.	49 x	60 x	60 x	60 x	60 x		68 x	88 x	88 x		60 x	77 x	112 x	68 x	100 x	88 x		112 x	49 x	68 x	77 x				112 x	100 x	88 x		W12		45 x	49 x	136 x						68 x	88 x		
GROUND FL.	W10	W10	W10	W10	W10		W10	W10	W10		W10	W10	W10	W10	W10	W10		W10	W10	W10	W10				W10	W10	W10	W10 x 88	W12 x 120		W10	W10	W2						W10	W10		
FLOOR / COL. NO.	1	2	3	4	5	5.8	6	7	8	8.5	9	1	2.2	3	4	5	5.8	6	7	8	9	1.7	2.7		2.7	4	5	5.6	5.8	6	7	8	1	1.7	3	4	5	7.5	9	2.7	2.3
	A											B										B.3		B.5							B.8	C							C.4	C.5

NOTES:

1. COLUMN LOADS SHOWN IN SCHEDULE ARE WORKING LOADS IN KIPS.
2. ALL COLUMNS SHALL BE ASTM A-572 (Fy=50 KSI) STEEL U.O.N. WITH AN ASTERISK (*) INDICATING A-36 (Fy=36 KSI) STEEL .
3. ALL BASE PLATES TO BE ASTM A-572 (Fy=50 KSI) U.O.N..
4. FIRST DIMENSION OF BASE PLATE IS PARALLEL TO COLUMN WEB.
5. ALL SPLICES TO BE 3'-6" ABOVE FINISHED FLOOR, U.O.N..
6. FLOOR TO FLOOR DIMENSIONS SHOWN ARE TO TOP OF CONCRETE SLAB.
7. COLUMN SPLICE ELEVATION SHALL BE MAINTAINED AT THE THEORETICAL ELEVATION BY SHIMMING AT EVERY SECOND TIER.
8. HEAVY LINE AT TOP INDICATES TOP OF COLUMN. HEAVY LINE AT BOTTOM OF COLUMN INDICATES BOTTOM OF BASE PL..
9. INDICATES EITHER BEAM RUNNING OVER COLUMN OR COLUMN SITTING OVER BEAM.
10. FOR GENERAL NOTES, SEE DWG. S-600.
11. FOR COLUMN AND REINFORCEMENT DETAILS, SEE DWG. S- .
12. INDICATES SLOPING COLUMNS.
13. INDICATES COLUMN CHANGES DIRECTION OF SLOPE AT THIS LEVEL.
14. COLUMN NUMBERS FOR SLOPING COLUMNS ARE NOT IN SEQUENCE.
15. FOR COLUMN BASE PLATE DETAILS AND TENSION SPLICE REQUIREMENTS, SEE DWG. S-501.

COLUMN SCHEDULE

COL. NO. / FLOOR	D						D.2			D.7				E										E.5		F			F.3		F.4			F.6	G					
	1	2	2.3	5.6	5.8	6	1	1.7	2	2.7	4	8	9	1	2	2.3	3	4	5	5.6	5.8	6	7.5	8	9	5.8	7.5	9		8	9	4.3			7.5	4.1	5.8	7.2	8	8.5	9
BULKHEAD ROOF																																								
HIGH ROOF																																					W10 x 68	W10 x 68		
LOW ROOF					88			W10 x 33		W10 x 33	W10 x 33																	49 x											W10 x 33	
5TH FL.				W10 x			54 x		68 x				68 x	54 x	33 x	33 x	60 x	60 x	77 x		77 x				68 x	68 x		W10								65 x	68 x	88 x		45 x
4TH FL.			W10x54				W10		W10			W10x49	W10	W10	W10	W10	W10	W10	W10		W10			W10x49	W10	W10	W10x68		W10x60	W10x68				W10x88		W12	W10	W10		W10
3RD FL.					88 x																152 x																			
2ND FL.	77 x	120 x	54 x		W10							49 x	88 x	120 x	49 x	54 x	88 x	120 x	120 x		W12		88 x	49 x	100 x	120 x	68 x		60 x	68 x				88 x		136 x	88 x	112 x		68 x
GROUND FL.	W10	W12	W10	W10 x 100		W12 x 120						W10	W10	W12	W10	W10	W10	W12	W12	W10 x 100		W12 x 120	W10	W10	W10	W12	W10		W10	W10	W10 x 49			W10	W10 x 33	W12	W10	W10		W10
FLOOR / COL. NO.	1	2	2.3	5.6	5.8	6	1	1.7	2	2.7	4	8	9	1	2	2.3	3	4	5	5.6	5.8	6	7.5	8	9	5.8	7.5	9		8	9	4.3			7.5	4.1	5.8	7.2	8	8.5	9
	D						D.2			D.7				E										E.5		F			F.3		F.4			F.6	G					

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COLUMN SCHEDULE

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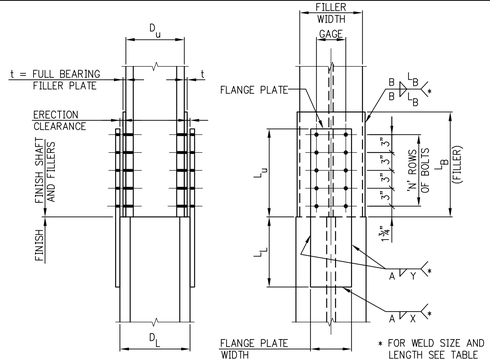
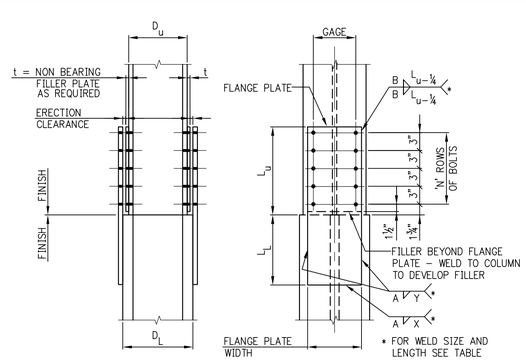


UPPER COLUMN DEPTH NOMINALLY TWO INCHES LESS THAN LOWER COLUMN DEPTH

(FILLERS DEVELOPED FOR BEARING)



UPPER AND LOWER COLUMNS SAME NOMINAL DEPTH

NOTE:

IF LOWER COLUMN DEPTH D_L IS LESS THAN UPPER COLUMN DEPTH D_U FILLER PLATES ARE TO USED AT LOWER COLUMN – INCREASE WELD SIZE BY THICKNESS OF FILLER PLATE.

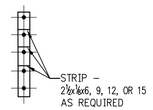
COLUMN SPLICES

FLANGE PLATES – MINIMUM REQUIREMENTS

COLUMN FLANGE WIDTH	COLUMN FLANGE THICKNESS tf	FLANGE PLATE MIN. WIDTH	FLANGE PLATE MIN. THICK	MINIMUM NUMBER OF ROWS OF ⅞"ø SLIP CRITICAL BOLTS 'N'	MINIMUM L_L (LOWER SHAFT)	MINIMUM SIZE OF FILLET WELDS 'A'*	MINIMUM SIZE OF FILLET WELDS 'B'**
6½	–	5	½	2	8	¼	¼**
8+	–	6	½	2	10	¼*	¼**
10+	–	8	½	2	10	¼*	¼**
12+	tf<1.50"	8	⅝	3	12	5⁄16	5⁄16
12+	tf>1.50"	10	¾	4	15	5⁄16	5⁄16
14+	–	10	½	3	12	5⁄16	5⁄16
15+	–	12	⅝	4	12	5⁄16	5⁄16
16+	tf<2.50"	12	¾	4	12	5⁄16	5⁄16
16+	tf>2.50"	14	¾	4	14	⅜	5⁄16
17+	–	14	1	5	16	⅜	5⁄16

* (WELD 'A') IF COLUMN FLANGE THICKNESS EXCEEDS ¾", THE MINIMUM WELD SIZE SHALL BE INCREASED TO 5⁄16"

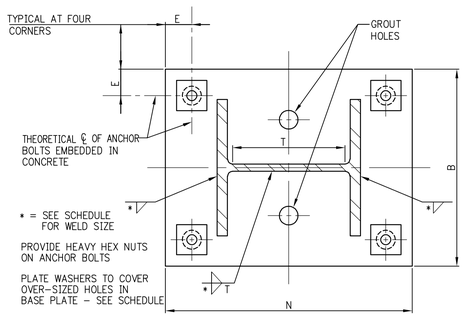
** (WELD 'B') IF EITHER THE UPPER COLUMN FLANGE OR THE FILLER PLATE THICKNESS EXCEEDS ¾", THE MINIMUM WELD SIZE SHALL BE INCREASED TO 5⁄16"



DETAIL OF STRIP SHIMS

COLUMN SPLICE REQUIREMENTS:

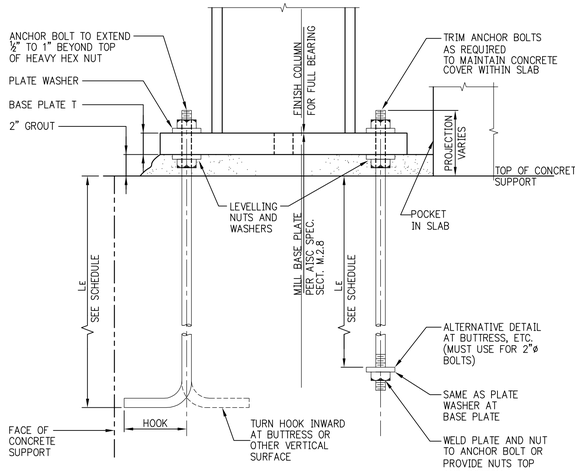
1. INTERFACE OF UPPER AND LOWER COLUMNS SHALL DEVELOP FULL CAPACITY OF SMALLER COLUMN IN BEARING.
2. FILLER PLATES TO BE SAME GRADE OF STEEL (Fy) AS COLUMNS.
3. FILLER PLATES SHALL DEVELOP THE PORTION OF THE SMALLER COLUMN FLANGE CAPACITY LOST DUE TO NON–ALIGNMENT OF FLANGES WHERE COLUMNS ARE NOT CENTERED OR OF DIFFERENT NOMINAL DEPTH.
4. SHOP DRAWINGS SHALL REQUIRE THAT CENTER PUNCH MARKS BE PLACED ON CENTERLINES OF ALL FACES OF UPPER AND LOWER SHAFTS.
5. CONTRACTOR MAY SUBMIT A PROPOSAL TO PROVIDE ALL–WELDED COLUMN FLANGE – PLATED SPLICES OR DIRECTLY WELDED FLANGE SPLICES, FOR THE ENGINEER'S REVIEW AND APPROVAL.
6. CONTRACTOR MAY SUBMIT A PROPOSAL TO PROVIDE A BUTT PLATE IN LIEU OF BEARING FILLERS AT COLUMNS WITH A DEPTH D_U NOMINALLY TWO INCHES LESS THAN DEPTH D_L, FOR THE ENGINEER'S REVIEW AND APPROVAL.



PLAN VIEW OF BASE PLATE AT COLUMN IN COMPRESSION ONLY

NOTE:

DO NOT USE THIS DETAIL FOR COLUMNS SUBJECTED TO UPLIFT FORCES OR LARGE BENDING MOMENTS.



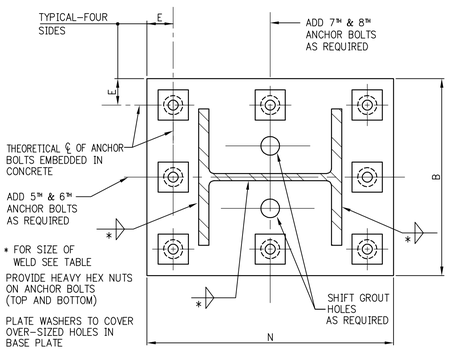
SECTION – COMPRESSION ONLY

MINIMUM BASE PLATE/ ANCHOR BOLT REQUIREMENTS (THIS SCHEDULE FOR COMPRESSION ONLY)

COLUMN SIZES	ALL W10 AND SMALLER SIZES. W12x58 AND LIGHTER	W12x65 TO MAXIMUM W12
* MINIMUM WELD SIZE – COLUMN TO BASE PLATE	5⁄16	5⁄16
MINIMUM ANCHOR BOLT REQUIREMENT	4–1" DIA.	4–1¼" DIA.
HOLE DIAMETER IN BASE PLATE	2"	2¼"
E = EDGE DISTANCE TO HOLES	2½"	2¾"
LE = BOLT EMBEDMENT LENGTH	1'-6"	1'-9"
BOLT HOOK DIMENSION OR PLATE REQUIREMENT	5"	6"
PLATE WASHER	⅜x3¼x3¼ W/1 1⁄16 HOLE	½x3½x3½ W/1 5⁄16 HOLE
MINIMUM 'N' FOR BOLT + WASHER	d COL. + 10"	d COL. + 11"
REMARKS		

NOTES FOR "COMPRESSION ONLY" BASE PLATE DETAILS

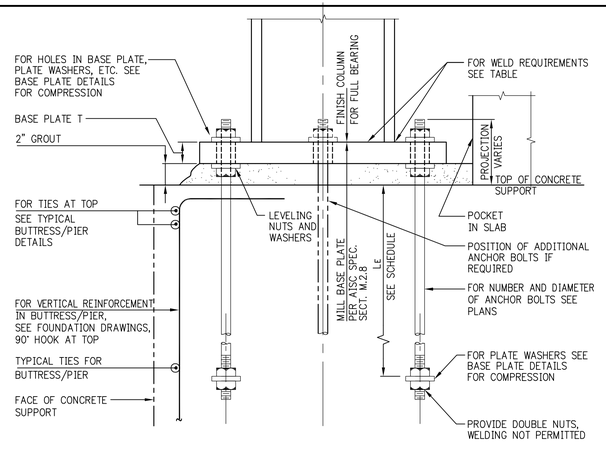
1. THESE DETAILS ARE NOT TO BE USED WHERE COLUMNS ARE SUBJECTED TO TENSION/UPLIFT FORCES OR WHERE LARGE COLUMN BASE MOMENTS INDUCE TENSION IN ANCHOR BOLTS. FOR THOSE CASES SEE TENSION/MOMENT BASE DETAILS.
2. ANCHOR BOLT MATERIAL SHALL BE ASTM F1554 (GRADE 36 U.O.N.)
3. ANCHOR BOLT NUTS SHALL BE DRAWN DOWN TIGHT TO A "SNUG–TIGHTENED" CONDITION. ANCHOR BOLTS DO NOT REQUIRE PRE–TENSIONING.
4. IF CONTRACTOR PROPOSES TO USE LEVELLING PLATES, HE SHALL SUBMIT HIS PROPOSED METHOD AND DETAILS FOR ENGINEER'S REVIEW AND APPROVAL. THIS MAY RESULT IN A REQUIREMENT TO MILL THE BOTTOM SURFACE OF THE BASE PLATE.
5. ANCHOR BOLT HOLES WHICH ARE FLAME–CUT IN BASE PLATES SHALL BE INSPECTED (AND CORRECTED AS NECESSARY) TO ASSURE PROPER CLEARANCES.
6. SEE PROJECT SPECIFICATIONS AND GENERAL NOTES FOR MATERIALS AND STRENGTH REQUIREMENTS FOR HIGH–STRENGTH NON–SHRINK GROUT.



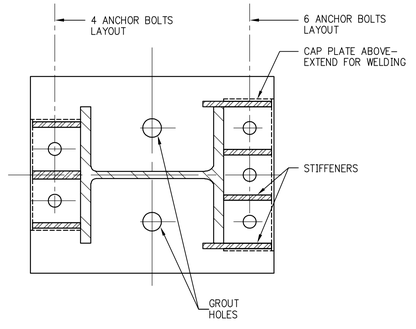
PLAN VIEW OF BASE PLATE AT COLUMN IN TENSION

NOTE:

USE THIS DETAIL FOR COLUMNS SUBJECTED TO UPLIFT FORCES OR LARGE BENDING MOMENTS WHERE CALLED FOR IN THE COLUMN SCHEDULE OR IN SPECIFIC PROJECT DETAILS.



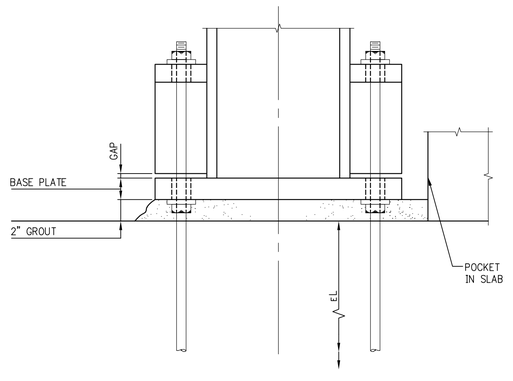
SECTION – COLUMN IN TENSION



PLAN VIEW OF ALTERNATIVE BASE PLATE/COLUMN ANCHORAGE FOR TENSION

NOTE:

FOR STIFFENER AND CAP PLATE SIZES AND WELDING REQUIREMENTS, SEE SPECIFIC PROJECT DETAILS.



SECTION THROUGH ALTERNATIVE ANCHORAGE FOR TENSION

NOTE:

SEE SECTION THROUGH BASE PLATE AT COLUMNS IN TENSION FOR ADDITIONAL INFORMATION.

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06–02–11	ISSUED FOR DOB	
04–27–11	ISSUED FOR DOB	

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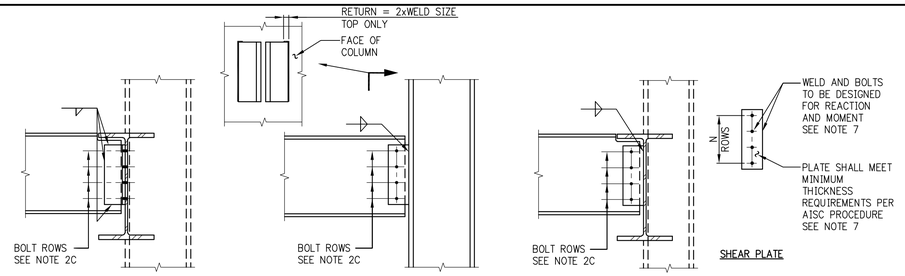
COLUMN TYPICAL DETAILS

SEAL & SIGNATURE

DATE: 04/27/11
PROJECT No: 2010014
DRAWING BY: CAD
CHK BY:AT
DWG No. S–501.00



CONNECTION WELDED TO BEAMS BOLTED TO COLUMN OR GIRDER

CONNECTION BOLTED TO BEAM WELDED TO COLUMN

CONNECTION BOLTED TO BEAMS WELDED TO COLUMN OR GIRDER

DOUBLE ANGLE CONNECTIONS TO BEAM OR COLUMN

NOTE: CONNECTION SIMILAR WHEN CONNECTING TO GIRDER OR COLUMN (SHOWN AS DASHED LINE)

SHEAR PLATE CONNECTIONS TO BEAM OR COLUMN

NOTE: CONNECTION SIMILAR WHEN CONNECTING TO GIRDER OR COLUMN (SHOWN AS DASHED LINE)

TABLE B MINIMUM NUMBER OF BOLTS FOR SIMPLE SHEAR CONN.	
BEAM SIZE	"N"
W8	2
W10	2
W12	3
W14	3
W16	3
W18	4
W21	4
W24	4
W27	5
W30	5
W33	6
W36	6
W40	7
W44	7

"N" = MINIMUM NUMBER OF BOLTS REQUIRED PER CONNECTION. THE TABULATED MINIMUM NUMBER OF BOLTS WILL GENERALLY BE EXCEEDED BY OTHER DESIGN CRITERIA.

SIMPLE SHEAR CONNECTIONS

(THESE CONNECTIONS MAY BE USED AT TYPE B MOMENT CONNECTIONS. FOR TYPE A MOMENT CONNECTIONS, SEE TYPE A SHEAR CONNECTIONS)

DESIGN OF SIMPLE SHEAR CONNECTIONS – REQUIREMENTS

1. WHERE BEAM END REACTIONS ARE SHOWN ON THE DRAWINGS, SIMPLE SHEAR CONNECTIONS SHALL BE DESIGNED FOR THE REACTIONS SHOWN. BUT IN NO CASE SHALL THE NUMBER OF BOLTS BE LESS THAN GIVEN IN TABLE B.
2. WHERE BEAM END REACTIONS ARE NOT SHOWN ON THE DRAWINGS, THE GREATEST OF THE THREE FOLLOWING CRITERIA SHALL BE USED IN DESIGN OF SIMPLE SHEAR CONNECTIONS:
   a. FOR COMPOSITE BEAMS, REACTION FROM AISC LRFD "MAXIMUM TOTAL UNIFORM LOAD" TABLES MULTIPLIED BY 2.0.
   b. FOR NON-COMPOSITE BEAMS, REACTIONS FROM UNIFORM LOAD TABLES CITED IN 2.a , MULTIPLIED BY 1.3.
   c. FOR MINIMUM NUMBER OF BOLTS SEE TABLE B.
3. MINIMUM BOLT DIAMETER SHALL BE 7/8 INCH (CONTRACTOR MAY USE LARGER DIAMETER BOLTS AT HIS OPTION).
4. BOLT TYPE SHALL BE ASTM A 325 (CONTRACTOR MAY USE A490 BOLTS AT HIS OPTION, SUBJECT TO MINIMUM NUMBER OF BOLTS REQUIREMENT).
5. ALL BOLTS SHALL BE FULLY PRETENSIONED.
6. PROVIDE WEB REINFORCING AS REQUIRED DUE TO WEB CUTS, COPES, ETC.
7. DESIGN OF DOUBLE ANGLE AND SHEAR PLATE CONNECTIONS SHALL BE BASED UPON THE LATEST AISC PROCEDURES SHOWN IN THE AISC MANUAL OF STEEL CONSTRUCTION.
8. ALTERNATIVE CONNECTION SYSTEM (SINGLE ANGLE) MAY BE USED ONLY AT FILLER BEAM TO BEAM CONNECTIONS (EXCLUDING EDGE BEAMS) PROVIDED THE CONTRACTOR'S PROFESSIONAL ENGINEER SUBMITS THE DESIGN CALCULATIONS TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL HAS BEEN DESIGNED IN ACCORDANCE WITH THE BUILDING CODE. ALL STEEL SHALL CONFORM TO THE FOLLOWING U.O.N.:
   – W-SECTIONS ASTM A992.
   – HSS MEMBERS ASTM A500 GR. B.
   – PLATES, ANGLES & CHANNELS ASTM A36 (Fy= 36 ksi).
2. AISC SPECIFICATIONS FOR "LOAD AND RESISTANCE FACTOR DESIGN (LRFD) FOR STRUCTURAL STEEL IN BUILDINGS" – LATEST EDITION SHALL APPLY, EXCEPT AS MODIFIED BY THE NOTES, SCHEDULES AND DETAILS SHOWN ON THE STRUCTURAL DRAWINGS OR ANY RESTRICTIVE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE.
3. THE FRAME SHALL BE CARRIED UP TRUE AND PLUMB AND TEMPORARY BRACING SHALL BE INTRODUCED WHEREVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING EQUIPMENT AND OPERATION OF SAME. SUCH BRACING SHALL BE THE RESPONSIBILITY OF THE STEEL CONTRACTOR AND SHALL BE LEFT IN PLACE AS LONG AS REQUIRED FOR SAFETY.
4. ALL CONNECTIONS SHALL BE IN ACCORDANCE WITH AISC SPECIFICATIONS.
5. ALL WELDED CONNECTIONS SHALL CONFORM TO THE NEW YORK CITY BUILDING CODE. PROVISIONS SHALL BE MADE FOR FIELD INSPECTION AND TESTING OF WELDS. ALL SHOP WELDS SHALL BE TESTED BY ANY OF APPROVED METHODS AND SHALL BE CERTIFIED.
6. ALL BOLT STEEL SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS, LATEST EDITION: HIGH STRENGTH BOLTS A–325 AND A–490, U.O.N.
7. ALL BOLTS SHALL BE 7/8" MINIMUM ON HOLES 15/16" UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
8. ALL SHOP CONNECTIONS SHALL BE HIGH STRENGTH BOLTED OR WELDED.
9. ALL COLUMN SPLICES, CONNECTIONS OF BEAMS TO COLUMNS, CONNECTION WITHIN THREE FEET OF COLUMNS, CONNECTIONS OF OR TO DIAGONAL MEMBERS, AND ALL BEAMS CARRYING MACHINE LOADS SHALL BE HIGH STRENGTH FRICTION CONNECTIONS.
10. IN ADDITION TO MOMENT CONNECTION, PROVIDE AISC STANDARD SHEAR CONNECTIONS FOR ALL GRAVITY AND WIND LOADS.
11. ALL SHEAR CONNECTORS SHALL BE 3/4" HEADED STUDS AND 5" LONG U.O.N.
12. ALL ENDS OF COLUMNS AT SPLICES AND ALL OTHER BEARING CONNECTIONS SHALL BE MILLED TO COMPLETE TRUE BEARING.
13. PROVISIONS SHALL BE MADE FOR COORDINATIONS OF OTHER TRADES INCLUDING CUTTING AND PUNCHING OF STRUCTURAL MEMBERS, WHERE REQUIRED BY THE DWG. OR FOR WHICH INFORMATION IS FURNISHED PRIOR TO FABRICATION.
14. THE USE OF A CUTTING TORCH IN THE FIELD WILL NOT BE PERMITTED.
15. WELDING ELECTRODES SHALL CONFORM TO E70XX ELECTRODES.
16. CONTRACTOR SHALL PROVIDE STIFFENERS PER CHAPTER K OF AISC SPECIFICATION (LRFD) REGARDING THE NEED FOR COLUMN STIFFENERS.
17. ALL WELDERS TO BE LICENSED BY THE STATE OF NEW YORK.
18. STRUCTURAL STEEL EXPOSED TO VIEW SHALL RECEIVE A 3 COAT EPOXY PAINT SYSTEM APPROVED BY THE E.O.R.

STEEL DECK NOTES:

1. STEEL DECK SHALL CONFORM TO THE CURRENT SPECIFICATIONS FOR THE DESIGN OF LIGHT GAUGE COLD FORMED STEEL STRUCTURAL MEMBERS AS PER THE AISI LATEST EDITION AND STEEL DECK INSTITUTE SPECIFICATIONS AND STANDARDS.
2. DECK SHALL BE ANCHORED BY WELDING THROUGH THE BOTTOM OF THE RIB TO STRUCTURAL STEEL AT MAXIMUM SPACING OF 12" WITH MINIMUM BEARING OR END LAP OF 2".
3. OPENING IN DECK SHALL BE TREATED AS FOLLOWS:
   A. FOR HOLES 6" OR LESS, PERPENDICULAR TO SPAN, NO REINFORCING REQUIRED.
   B. FOR HOLES OVER 6", BUT NOT MORE THAN 12", PROVIDE ONE 14 GAUGE REINFORCING PLATE 24"X24" AND WELD IN PLACE.
   C. ALL OTHER OPENINGS TO BE FRAMED AS SHOWN ON PLAN.
4. ALL STEEL DECK TO BE SPRAY FIREPROOFED U.O.N.

SUPERSTRUCTURE CONCRETE NOTES:

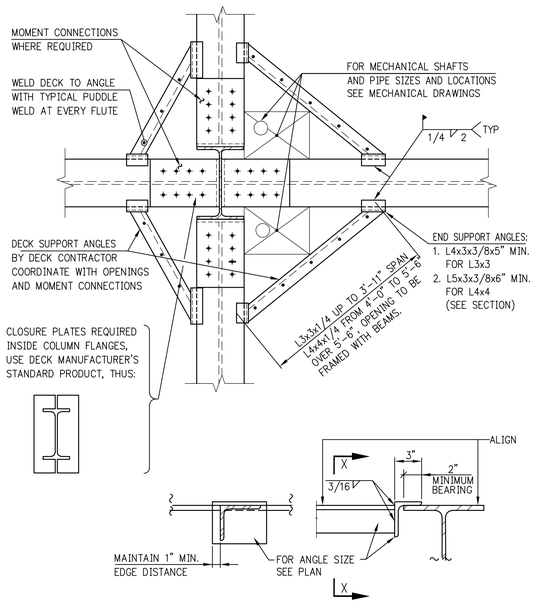
1. ALL CONCRETE OVER METAL DECK SHALL BE NORMAL WEIGHT STONE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS U.O.N.
2. CONCRETE COLUMNS AND WALLS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AS SHOWN IN PLANS.
3. ALL CONCRETE IS TO COMPLY WITH ALL REQUIREMENTS OF CURRENT ACI BLDG. CODE AND ALL OTHER RELEVANT SECTIONS OF THE NEW YORK CITY BUILDING CODE.
4. CONCRETE FOR FILL SHALL BE STONE CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF f'c=3500 PSI AT 28 DAYS U.O.N. FILL CONCRETE SHALL BE REINFORCED WITH 6X6–W2.9XW2.9 W.W.F.

SEISMIC DESIGN CRITERIA:
- SITE CLASS D
- S_{DS} = 0.472g
- S_{D1} = 0.187g
- SDC = C
- SEISMIC USE GROUP = II
- RESPONSE MODIFICATION COEFFICIENT, R = 3
- IMPORTANCE FACTOR = 1.25

WIND DESIGN CRITERIA:
- EXPOSURE = B
- BASIC WIND SPEED = 98 MPH
- IMPORTANCE FACTOR = 1.25

SPECIAL INSPECTIONS:

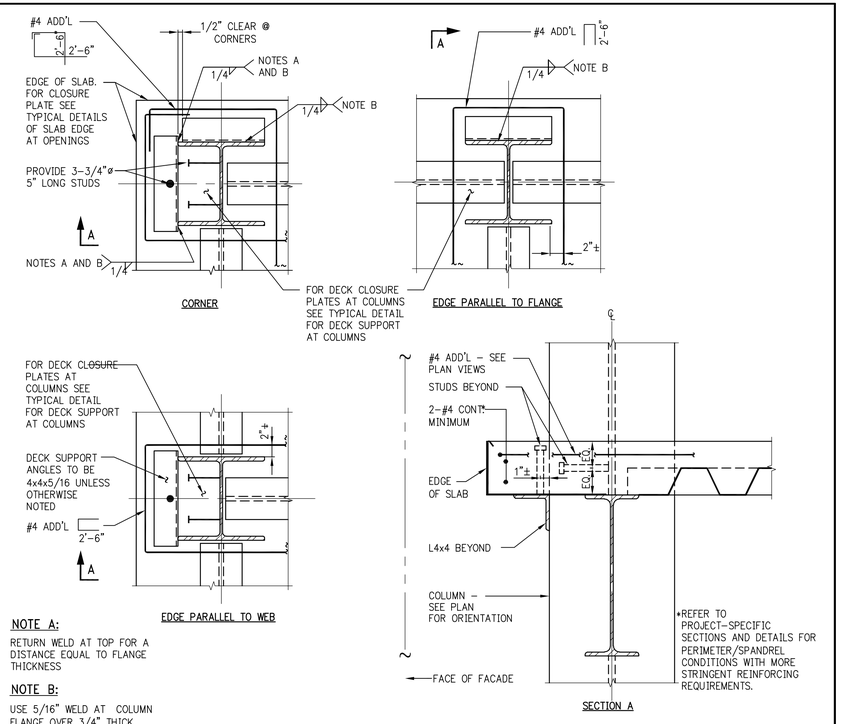
– STRUCTURAL STEEL–WELDING	BC1704.3.1
– STRUCTURAL STEEL–ERECTION & BOLTING	BC1704.3.2, BC1704.3.3
– CONCRETE–CAST–IN–PLACE	BC1704.4
– MASONRY	BC1704.5
– CONCRETE TEST CYLINDERS	BC1905.6
– CONCRETE DESIGN MIX	BC1905.3



VIEW X–X

SECTION AT SUPPORT (AT BEAM OR GIRDER)

DECK SUPPORT AT COLUMNS



NOTE A:

RETURN WELD AT TOP FOR A DISTANCE EQUAL TO FLANGE THICKNESS

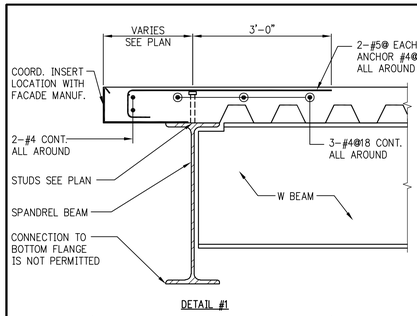
NOTE B:

USE 5/16" WELD AT COLUMN FLANGE OVER 3/4" THICK

DECK SUPPORT AT PERIMETER COLUMNS

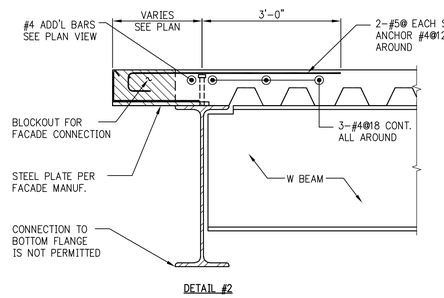
NOTE:

DECK IS NOT SHOWN. SEE FRAMING PLANS FOR SIZE AND DIRECTION OF SPAN.



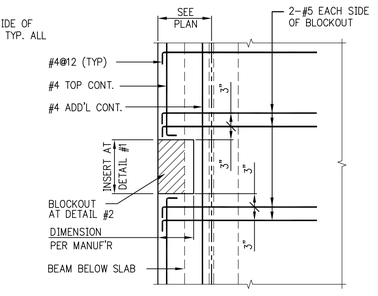
DETAIL #1

(WHERE FACADE ANCHOR IS EMBEDDED INTO SLAB)
(REBAR TO BE COORDINATED WITH INSERT LOCATION)



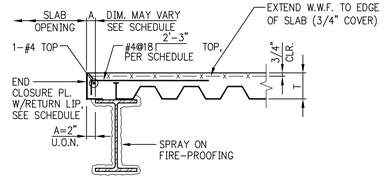
DETAIL #2

(WHERE FACADE ANCHOR IS SET INTO SLAB BLOCKOUT)
(REBAR TO BE COORDINATED WITH BLOCKOUT LOCATION)



DECK SUPPORT AT PERIMETER

PLAN VIEW AT FACADE ANCHORS



NOTES:

1. CLOSURE TO BEAR 2" ON FLANGE OF BEAM.
2. WELD CLOSURE TO TOP FLANGE PER MANUFACTURER'S RECOMMENDATIONS.
3. PROVIDE RETURN LIP AT ALL VERTICAL LEGS, 1" FOR 10 GAGE, 3/4" FOR 12 GAGE, 1/2" FOR 14 GAGE.

SLAB EDGES AT INTERIOR OPENINGS

(FOR EXTERIOR SLAB EDGES SEE DETAILS OF PERIMETER CONDITIONS)

END CLOSURE PLATE SCHEDULE

T= UP TO AND INCLUDING 6–4"		T= OVER 6–4", UP TO AND INCLUDING 8"		REMARKS
A	GAGE OF PLATE	A	GAGE OF PLATE	
UP TO 4"	14	UP TO 4"	12	
OVER 4" TO 8"	12	OVER 4" TO 8"	10	FOR A=6" OR GREATER PROVIDE #4@18 TOP
OVER 8" TO 10"	10			PROVIDE #4@18 TOP

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SUPERSTRUCTURE TYPICAL DETAILS 1

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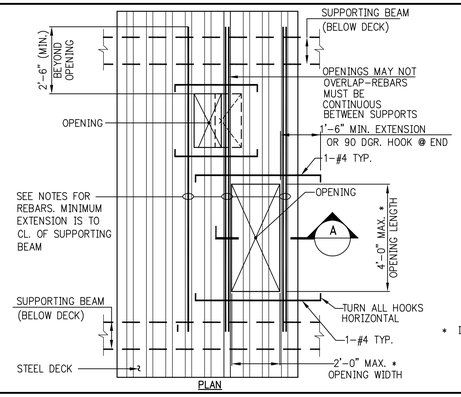
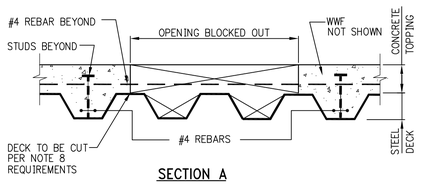




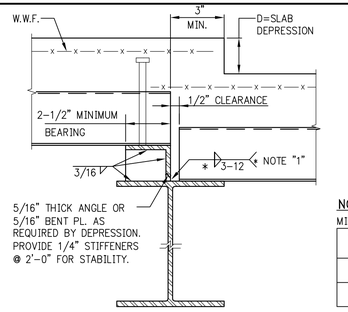
SECTION A

* IF EITHER MAXIMUM OPENING DIMENSION IS EXCEEDED, THE OPENING MUST BE FRAMED WITH BEAMS.

NOTES:

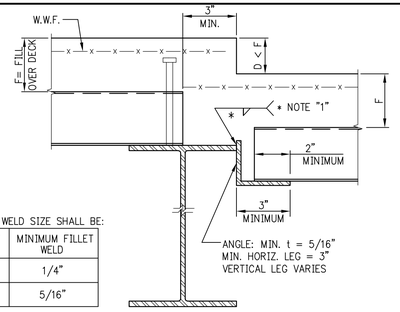
1. OPENINGS WHICH ARE DETERMINED BY THE CONTRACTOR TO BE REQUIRED BY JOB CONDITIONS, BUT WHICH ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS, SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL.
2. BLOCK OUT OPENING ON TOP OF DECK AND RIBS.
3. DECK IS NOT TO BE CUT WHEN OPENINGS ARE BLOCKED OUT.
4. PLACE REINFORCING BARS IN CONTINUOUS RIBS IMMEDIATELY ADJACENT TO OPENING AND IN TOPPING SLAB PERPENDICULAR TO RIBS.
5. WHEN RIBS ARE SPACED AT 12" OR 8" ON CENTER, REINFORCING REQUIRED = 2-#4 FOR EACH RIB PARTIALLY OR FULLY CUT, PLACE ONE HALF OF REBARS ON EACH SIDE OF OPENING, 2 BARS MAXIMUM PER RIB.
6. WHEN RIBS ARE SPACED AT 6" ON CENTER, REINFORCING REQUIRED = 1-#4 (MINIMUM) FOR EACH RIB PARTIALLY OR FULLY CUT. ADD 1-#4 IF AN ODD NUMBER OF RIBS IS CUT, PLACE ONE HALF OF REBARS ON EACH SIDE OF OPENING, ONE BAR PER RIB.
7. PROVIDE ADEQUATE CHAIRS AND SPACERS TO HOLD REBAR SECURELY IN PLACE DURING PLACEMENT OF CONCRETE.
8. AFTER CONCRETE HAS BEEN PLACED AND HAS ATTAINED AT LEAST 70 PERCENT OF ITS DESIGN STRENGTH, THE BLOCKOUTS MAY BE REMOVED AND THE STEEL DECK MAY BE BURNED OUT AT THE EDGES OF THE OPENING.
9. FOR HOLES UP TO 6" DIAMETER OR 6"x6", REINFORCING WILL NOT BE REQUIRED.

OPENING IN COMPOSITE SLAB



DETAIL 1

BEAM AT LOWER SLAB ELEVATION
(FIREPROOFING NOT SHOWN - ALL SECTIONS)



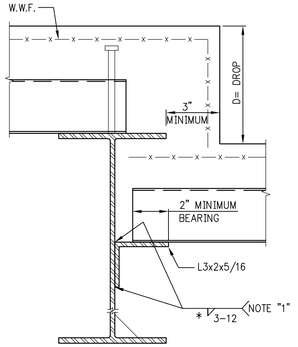
NOTE 1;

MINIMUM FILLET WELD SIZE SHALL BE:

THICKER PART JOINED	MINIMUM FILLET WELD
UP TO 3/4"	1/4"
OVER 3/4"	5/16"

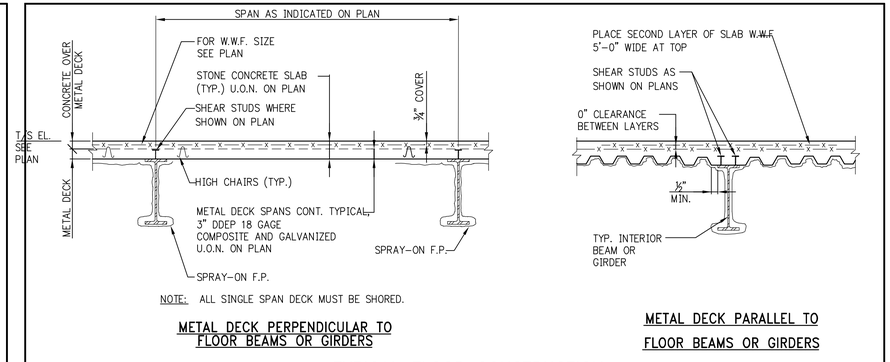
DETAIL 2

SLAB DEPRESSION D LESS THAN F
(CONCRETE OVER DECK)



DETAIL 3

DECK SUPPORT ANGLE ON WEB

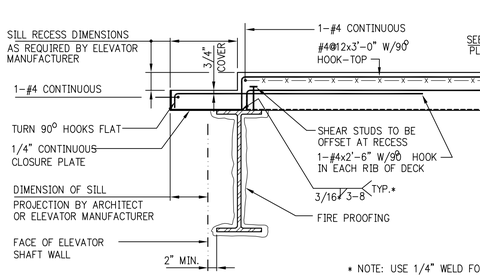


NOTE: ALL SINGLE SPAN DECK MUST BE SHORED.

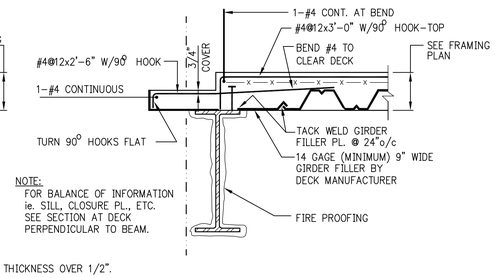
METAL DECK PERPENDICULAR TO FLOOR BEAMS OR GIRDERS

METAL DECK PARALLEL TO FLOOR BEAMS OR GIRDERS

TYPICAL FLOOR CONSTRUCTION



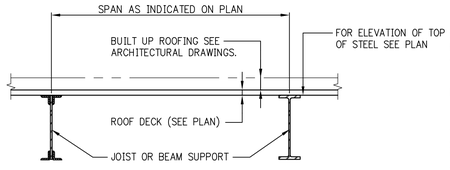
SECTION AT ELEVATOR DOORS-1
(DECK PERPENDICULAR TO BEAM)



SECTION AT ELEVATOR DOORS-2
(DECK PARALLEL TO BEAM)

* NOTE: USE 1/4" WELD FOR FLANGE THICKNESS OVER 1/2".

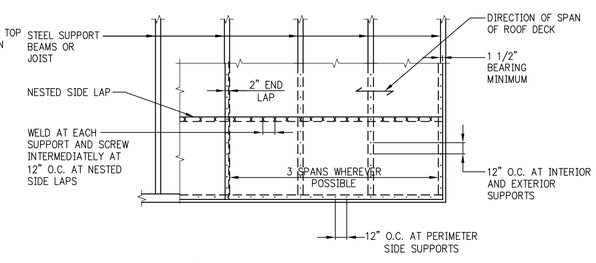
ELEVATOR SILL RECESS



ROOF DECK CONSTRUCTION

LEGEND:

1. x INDICATES #12 SELF-DRILLING SHEET METAL SCREW. (AS AN ALTERNATIVE 1" LONG FILLET WELDS MAY BE USED)
2. • INDICATES ⅝" DIAMETER PUDDLE WELD. WELDS TO PENETRATE ALL LAYERS OF DECK AT LAPS AND SHALL HAVE GOOD FUSION TO SUPPORTS. (ALTERNATIVELY, EQUIVALENT POWER ACTUATED FASTENERS MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER)



ROOF DECK ATTACHMENT
(ROOF DECK DIAPHRAGM)

LOADING SCHEDULE

FLOOR	DL		SDL					
	SLAB TYPE/ THICKNESS	SLAB WT	CEILING & HANGING	PARTITIONS	FLOOR FINISH	TOTAL DEAD LOAD	LIVE LOAD	LL REDUCTION
CLASSROOM	3"DECK+3"NW CONCRETE = 6"	60	10	0 *	5	75	40	YES
CORRIDOR	3"DECK+3"NW CONCRETE = 6"	60	10	0 *	5	75	60	YES
ROOF	3" ROOF DECK	15	10	0 *	10	35	40	NO
MECH ROOM	3"DECK+3"NW CONCRETE = 6"	60	20	0 *	20	103	150	NO
PLAY ROOF	3"DECK+3"NW CONCRETE = 6"	60	10	0 *	10	80	100	YES
LUNCH ROOM	3"DECK+3"NW CONCRETE = 6"	60	10	0 *	5	75	100	YES
AUDITORIUM	3"DECK+3"NW CONCRETE = 6"	60	10	0 *	10	80	60	YES
LIBRARY	3"DECK+3"NW CONCRETE = 6"	60	10	0 *	5	75	150	NO
EXERCISE ROOM	3"DECK+3"NW CONCRETE = 6"	60	10	0 *	5	80	100	YES
KITCHEN	10" STRUCTURAL SLAB	125	8	35	0	168	100	NO
LOBBY	10" STRUCTURAL SLAB	125	8	35	0	168	100	NO
CORRIDOR AT GROUND FLOOR	10" STRUCTURAL SLAB	125	8	35	0	168	100	NO
CLASSROOM AT GROUND FLOOR	10" STRUCTURAL SLAB	125	8	35	0	168	40	YES

NOTE: * LINE LOAD WAS APPLIED AT THE EXACT LOCATION OF THE PARTITION WALL AT EVERY FLOOR.

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REVISIONS

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SUPERSTRUCTURE TYPICAL DETAILS 2

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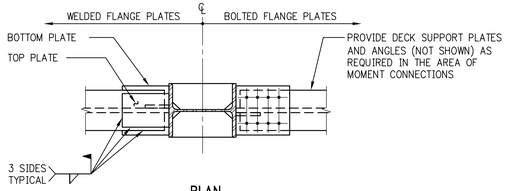
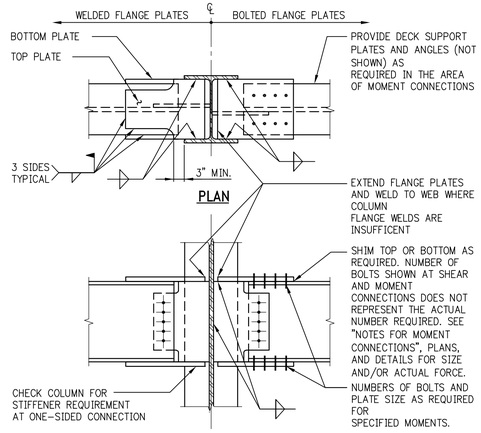
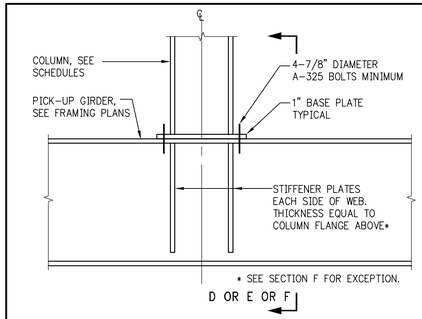


BEAM TO COLUMN FLANGE WITH BOLTED OR WELDED FLANGE PLATES



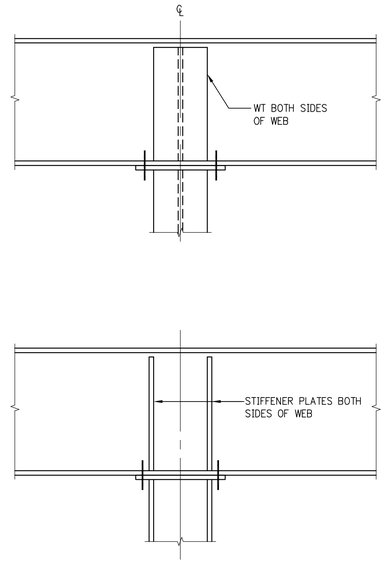
BEAM TO COLUMN WEB WITH BOLTED OR WELDED FLANGE PLATES



COLUMN OR POST PICK-UP

NOTE:

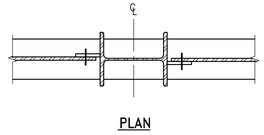
WT AND STIFFENER PLATES TO BE SAME GRADE OF STEEL AS COLUMN.

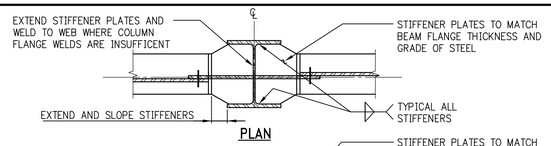


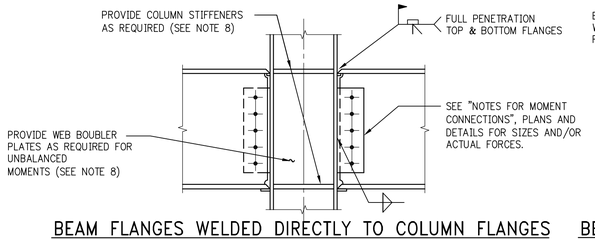
BEAM CONTINUOUS OVER COLUMN

NOTE:

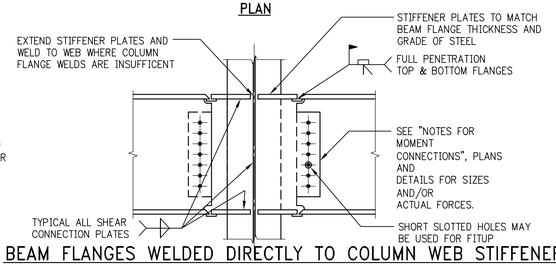
ALL DETAILS OF WT AND STIFFENER PLATES ARE SAME AS FOR COLUMN PICK-UP, BUT INVERTED.



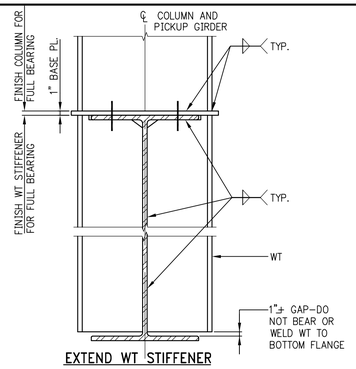




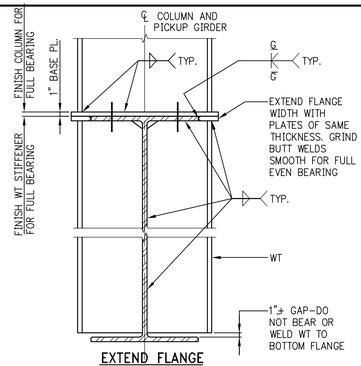
BEAM FLANGES WELDED DIRECTLY TO COLUMN FLANGES



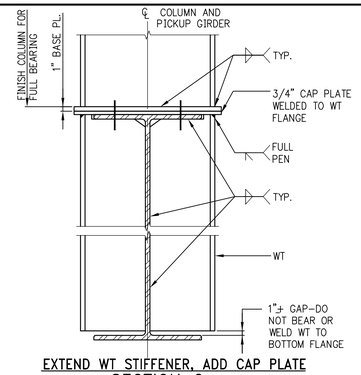
BEAM FLANGES WELDED DIRECTLY TO COLUMN WEB STIFFENERS



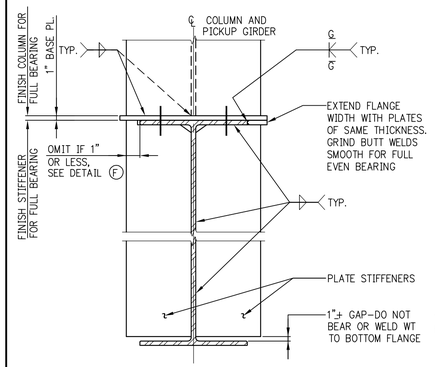
EXTEND WT STIFFENER
SECTION A



EXTEND FLANGE
SECTION B

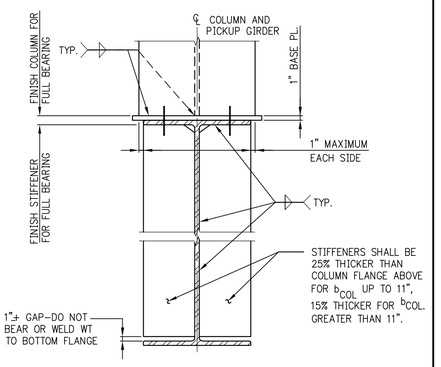


EXTEND WT STIFFENER, ADD CAP PLATE
SECTION C



EXTEND STIFFENER
SECTION D

EXTEND FLANGE
SECTION E



COLUMN LESS THAN 2" WIDER THAN GIRDER
SECTION F

ALTERNATIVE GIRDER STIFFENER DETAILS (D, E, & F) WHEN COLUMN FLANGE IS WIDER THAN PICKUP GIRDER

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SUPERSTRUCTURE TYPICAL DETAILS 3

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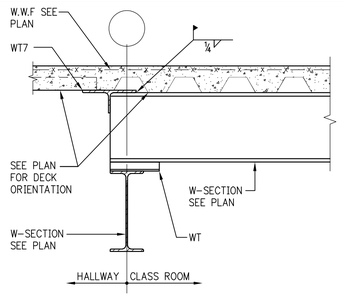
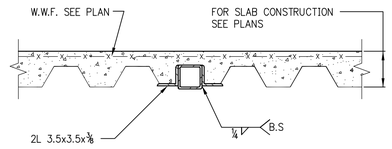
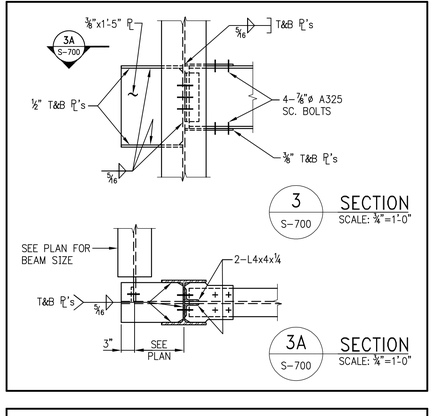


1 S-700 SECTION SCALE: ¾"=1'-0"



2 S-700 SECTION SCALE: 1"=1'-0"



3 S-700 SECTION SCALE: ¾"=1'-0"

3A S-700 SECTION SCALE: ¾"=1'-0"

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