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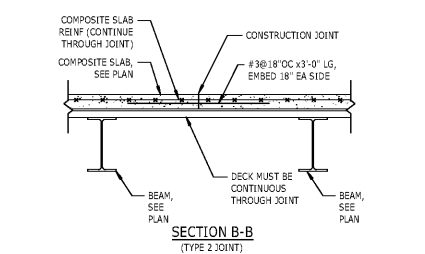
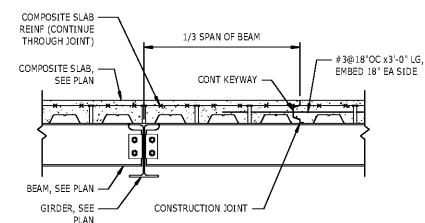
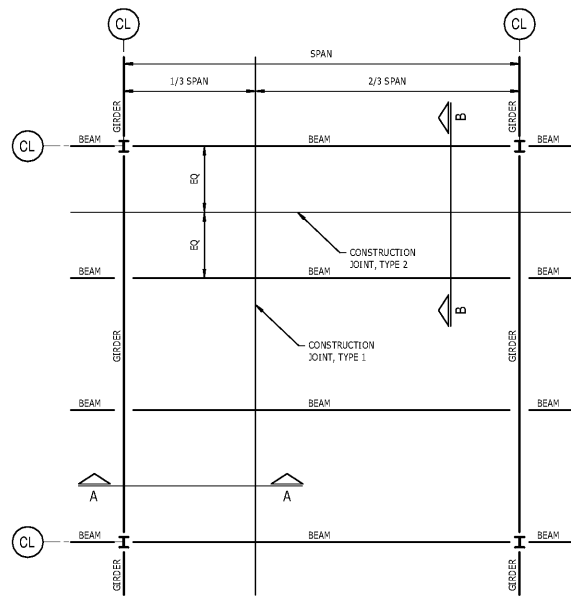
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REVISIONS

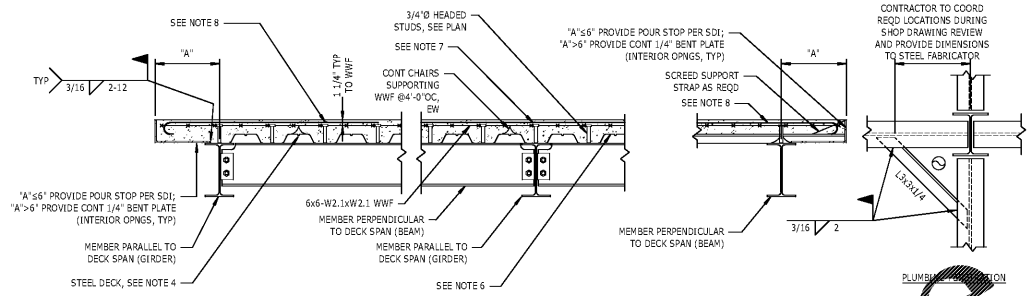
DATE: DECEMBER 7, 2018
 PROJECT NUMBER: 9197-000

SHEET TITLE:
TYPICAL STEEL FRAMING DETAILS

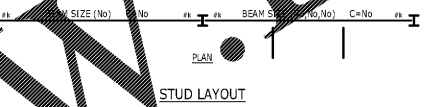
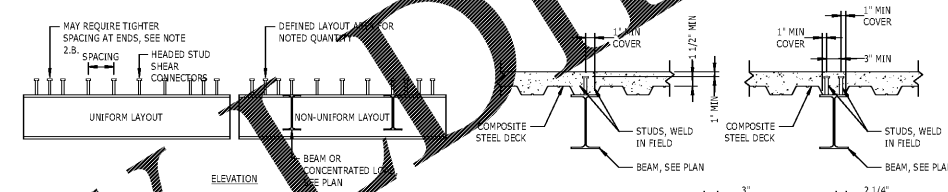
SHEET NUMBER:
S-501



9
 S-501
DETAIL
 TYPICAL CONSTRUCTION JOINTS IN COMPOSITE DECK
 NTS:
 1. CONTRACTOR SHALL SUBMIT LOCATION OF ALL CONSTRUCTION JOINTS FOR APPROVAL PRIOR TO CONSTRUCTION AND FABRICATION.

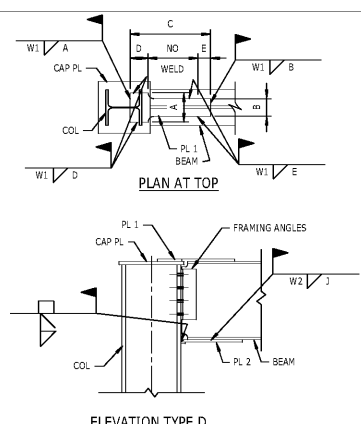


- NOTES:**
- THIS DETAIL APPLIES TO DECK SUPPORTED COMPOSITE SLABS, AS INDICATED ON PLANS.
 - WELD DECK TO SUPPORTS PER FLOOR DECKING ATTACHMENT DETAIL.
 - SUPPORT DECK AROUND COLUMNS WITH COLUMN CLOSURE. WHERE PLUMBING LINES ARE ADJACENT TO COLUMNS, PROVIDE DETAIL TO SUPPORT DECK PER PENETRATION DETAIL.
 - MINIMUM STEEL DECK PROPERTIES: 2'-20 GAGE COMPOSITE DECK WITH $f_y=40.9$ IN/FT, $f_u=40.6$ IN/FT, $S_p=0.33$ IN/FT, $S_x=0.13$ IN/FT, AND $F_y=40.9$ IN/FT.
 - COMPOSITE SLABS HAVE BEEN DESIGNED AS "ONE-PIECE CONSTRUCTION".
 - DECK SHALL BE CONTINUOUS OVER (2) OR MORE SPANS, TYPICAL. IF A SINGLE SPAN CONDITION IS REQUIRED AND SUPPORT BEAM SPACING EXCEEDS 10'-5", CONTRACTOR SHALL SHORE AREA.
 - PROVIDE #4@12"OC X5'-0" LONG TOP BARS CENTERED OVER ALL GIRDERS RUNNING PARALLEL TO DECK SPAN. PLACE BARS OVER WWF AND PROVIDE 3/4" MINIMUM COVER. PROVIDE SUPPORT CHAIRS @4'-0"OC EACH WAY. ROTATE IF REQUIRED TO FIT OVER SLAB THICKNESS.
 - AT INTERIOR SLAB EDGES, PROVIDE #4@12"OC X5'-0" LONG TOP BARS WITH STANDARD HOOKS AT ONE END AS SHOWN. HOOKS AT OTHER END SHALL BE DIMENSION "A" EXCEEDS 10". PROVIDE 3/4" MINIMUM COVER. DIMENSION "A" SHALL NOT EXCEED 10" UNLESS SPECIFIED OTHERWISE.
 - THE CONTRACTOR SHALL ASSUME CONCRETE OVERAGES IN ELEVATION. PROVIDE BEAM AND DECK DEFLECTIONS. UNLESS SHOWN ON PLANS, BEAMS ARE NOT CAMBERED. CONCRETE OVERAGES MAY BE CALCULATED BY THE CONTRACTOR FOR BEAM DEFLECTIONS INCLUDING ADDITIONAL DEFLECTIONS DUE TO PONDING AND DECK DEFLECTIONS PER SDI.

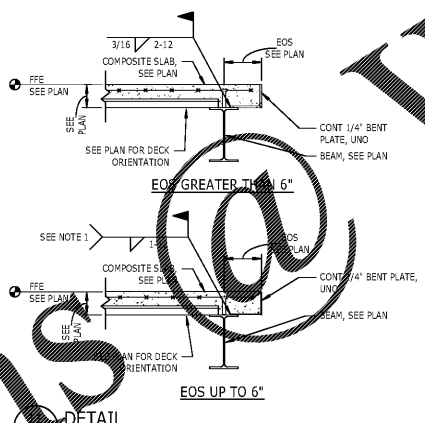


- NOTES:**
- ALL STUDS SHALL BE FIELD WELDED TO CENTERLINE OF BEAMS, UNO.
 - UNIFORM LAYOUT:
 A. METAL DECK IS PARALLEL WITH BEAM - UNIFORMLY SPACE ALL STUDS EQUALLY ALONG THE ENTIRE LENGTH OF BEAM. FOLLOW MAXIMUM AND MINIMUM SPACING NOTED.
 B. METAL DECK IS PERPENDICULAR TO BEAM - TAKE THE TOTAL QUANTITY OF STUDS NOTED AND COMPARE TO THE NUMBER OF RIBS IN THE DECK. IF THE QUANTITY IS LESS THAN THE NUMBER OF RIBS, THEN LOCATE ONE STUD IN EVERY OTHER RIB ALONG THE LENGTH OF THE BEAM. THEN, STARTING AT THE SECOND RIB FROM THE END AT BOTH ENDS OF THE BEAM, LAYOUT THE REMAINING STUDS IN THE OPEN RIBS WORKING YOUR WAY TOWARD THE CENTER. YOU WILL END UP WITH A TIGHTER SPACING NEAR THE SUPPORTS. IF THE QUANTITY OF STUDS EXCEEDS THE NUMBER OF RIBS, THEN A DOUBLE ROW OF STUDS WILL BE REQUIRED NEAR THE ENDS OF THE BEAM. LOCATE ONE STUD IN EACH RIB ALONG THE LENGTH OF THE BEAM, KEEPING IN MIND THE CLEARANCES IN ITEM 2.B ABOVE. HOWEVER, THE LAYOUT OF THE STUDS FOR EACH QUANTITY IS LOCATED BETWEEN TWO FRAMING BEAMS OR CONCENTRATED LOADS BOUNDING THE AREA.
 - NON-UNIFORM LAYOUT:
 A. METAL DECK IS PARALLEL WITH BEAM - UNIFORMLY SPACE THE NOTED QUANTITY OF STUDS EQUALLY BETWEEN TWO FRAMING BEAMS OR CONCENTRATED LOADS BOUNDING THE AREA. FOLLOW MAXIMUM AND MINIMUM SPACING NOTED.
 B. METAL DECK IS PERPENDICULAR TO BEAM - FOLLOW THE SAME PROCEDURE NOTED IN ITEM 2.B ABOVE. HOWEVER, THE LAYOUT OF THE STUDS FOR EACH QUANTITY IS LOCATED BETWEEN TWO FRAMING BEAMS OR CONCENTRATED LOADS BOUNDING THE AREA.
 - "(No)" INDICATES NUMBER OF SHEAR STUDS REQUIRED FOR ENTIRE BEAM LENGTH IF ONLY ONE QUANTITY IS NOTED. IF MULTIPLE QUANTITIES ARE NOTED, THEN NON-UNIFORM SPACING WILL BE REQUIRED.
 - "#k" INDICATES BEAM DESIGN END REACTION IN KIPS (UNFACTORED LOADS). MINIMUM BEAM REACTION TO BE 10k, UNO.
 - "$c \times no$" INDICATES REQUIRED BEAM CAMBER IN INCHES.

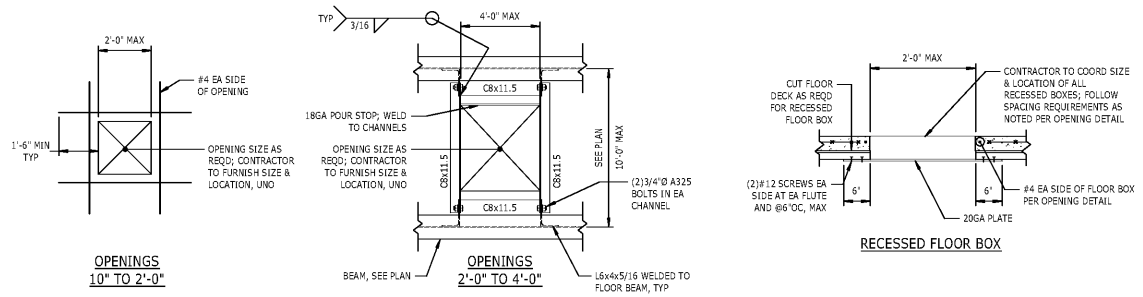
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 S-501
DETAIL
 TYPICAL COMPOSITE SLAB DETAILS
 NTS



10
 S-501
DETAIL
 MOMENT CONNECTION SCHEDULE AND DETAILS
 NTS
 1. PROVIDE ULTRASONIC TESTING AT FULL PENETRATION WELDS.



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 S-501
DETAIL
 TYPICAL EDGE OF SLAB
 NTS
 1. ATTACH POUR STOP TO BEAM PER STEEL DECK INSTITUTE REQUIREMENTS.



4
 S-501
DETAIL
 TYPICAL FRAMING AROUND SLAB OPENINGS
 NTS
 NOTES:
 1. PROVIDE REINFORCING AROUND ALL DUCT PENETRATIONS, CHASSES, ELECTRICAL BOXES, PLUMBING PIPES, AND OTHER OPENINGS IN SLABS, FOR OPENINGS FROM 10'x10' (OR 10'0" TO 2'-0"x2'-0" (OR 24'0").
 2. OPENINGS THAT ARE SPACED CLOSER THAN (2) TIMES THE OPENING SIZE SHALL BE CONSIDERED ONE OPENING.
 3. MINIMUM CLEAR DISTANCE BETWEEN OPENINGS IS 2'-0".
 4. ALL OPENINGS 10' TO 2'-0" MAY NOT BE SHOWN ON STRUCTURAL DRAWINGS.
 5. OPENINGS GREATER THAN 2'-0" NOT SHOWN ON STRUCTURAL DRAWINGS REQUIRE APPROVAL BY THE ENGINEER OF RECORD.

NOTES:
 1. PROVIDE CHANNEL FRAMING AROUND ALL DUCT PENETRATIONS, CHASSES, ELECTRICAL BOXES, PLUMBING PIPES, AND OTHER OPENINGS IN SLABS, FOR OPENINGS LARGER THAN 2'-0"x2'-0" (OR 24'0").
 2. OPENINGS THAT ARE SPACED CLOSER THAN (2) TIMES THE OPENING SIZE SHALL BE CONSIDERED ONE OPENING.
 3. MINIMUM CLEAR DISTANCE BETWEEN OPENINGS IS 1'-0".
 4. OPENINGS GREATER THAN 2'-0" NOT SHOWN ON STRUCTURAL DRAWINGS REQUIRE APPROVAL BY THE ENGINEER OF RECORD.

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