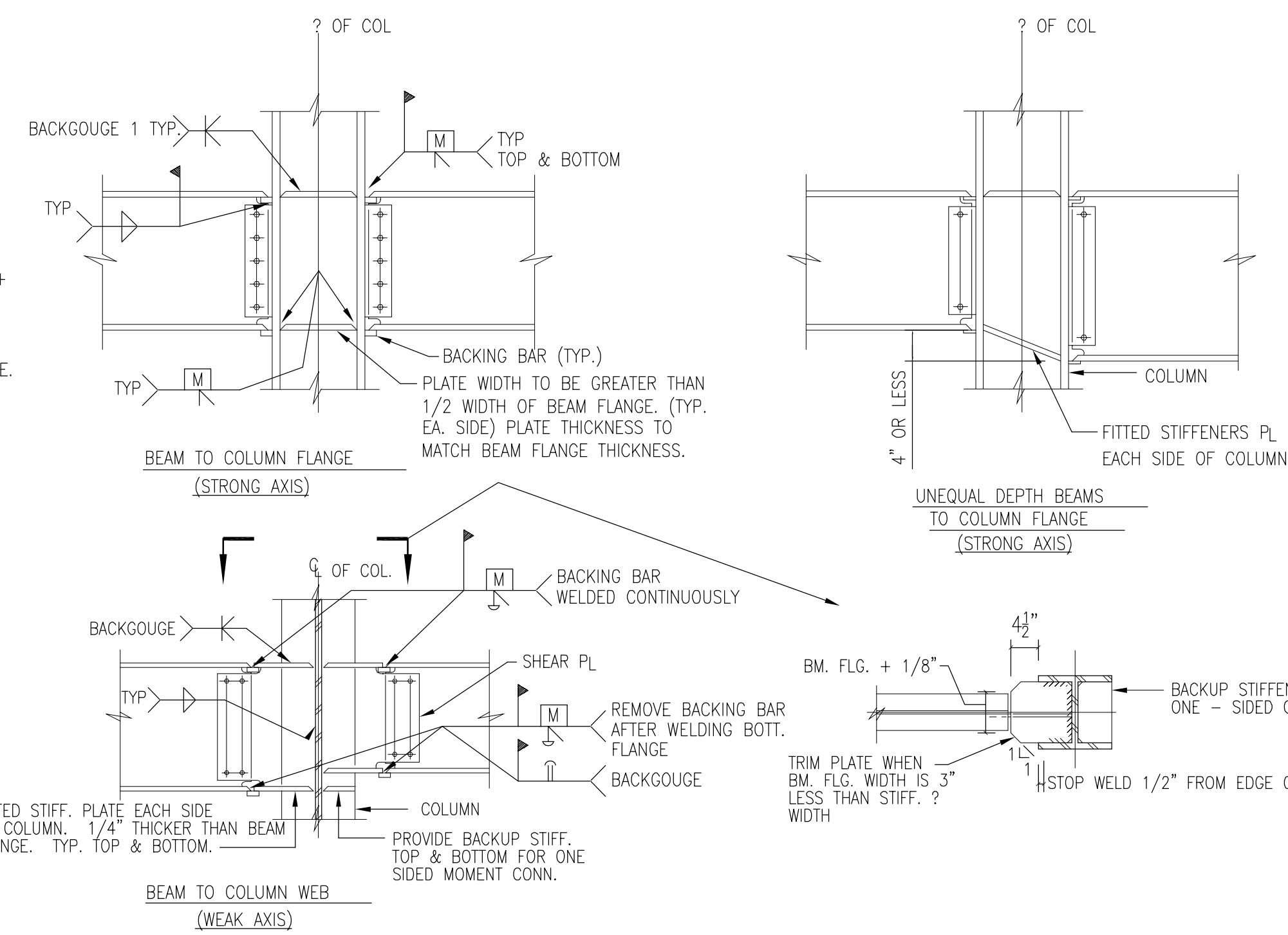
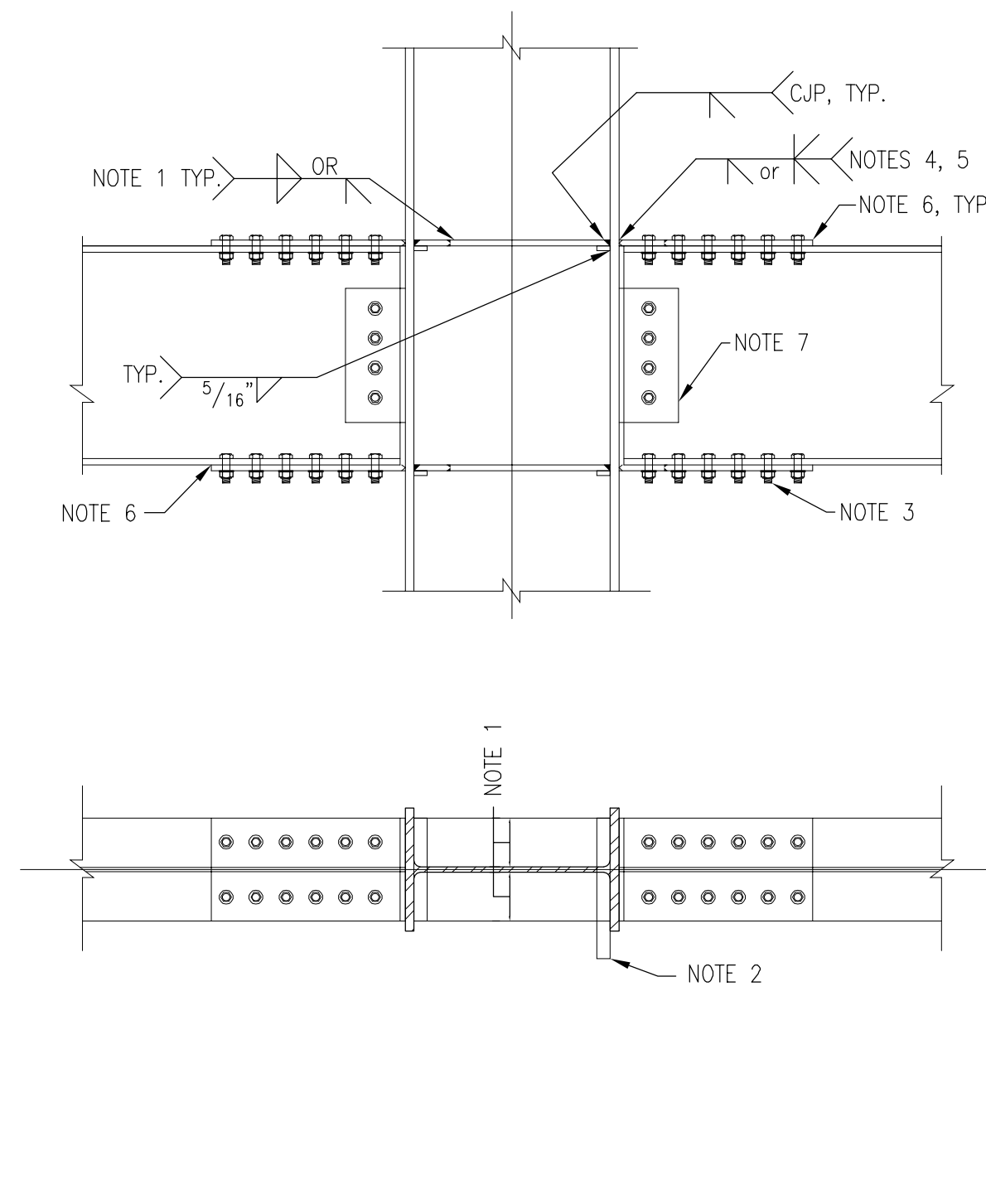


- STRONG AXIS NOTES:**
- MOMENT CONNECTION TO DEVELOP THE FULL CAPACITY OF THE BEAM.
 - SHEAR CONNECTION TO DEVELOP FACTORED REACTION LISTED IN SCHEDULE + 2.4(MP/SPAN).
 - REMOVE BOTTOM FLANGE BACKING BAR, BACK GOUGE, AND INSTALL REINFORCING 5/16" FILLET ON TOP & BOTTOM OF FLANGE.
 - WELD TOP FLANGE BACKING BAR CONTINUOUSLY TO COLUMN FLANGE OR CONTINUITY PLATE.
 - ADD REINFORCING FILLET TO TOP FLANGE WELD.
 - INSTALL ALL BOLTS TIGHT PRIOR TO FIRST TORQUING. TENSION BOLTS FULLY PRIOR TO WELDING.
 - SIMILAR DETAIL APPLIES AT COLUMN BASES MOMENT CONNECTED TO TRUSS CHORDS.



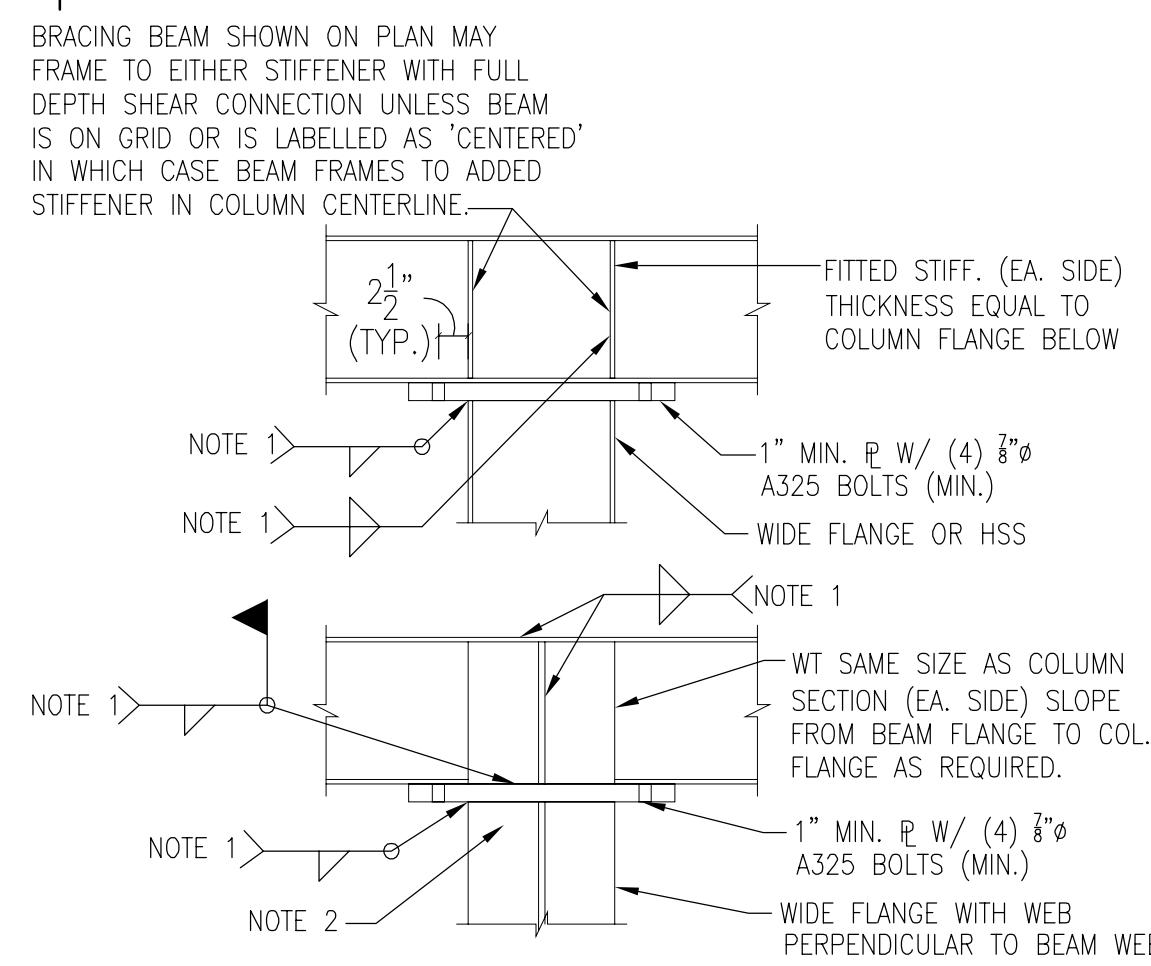
WELDED CONNECTIONS



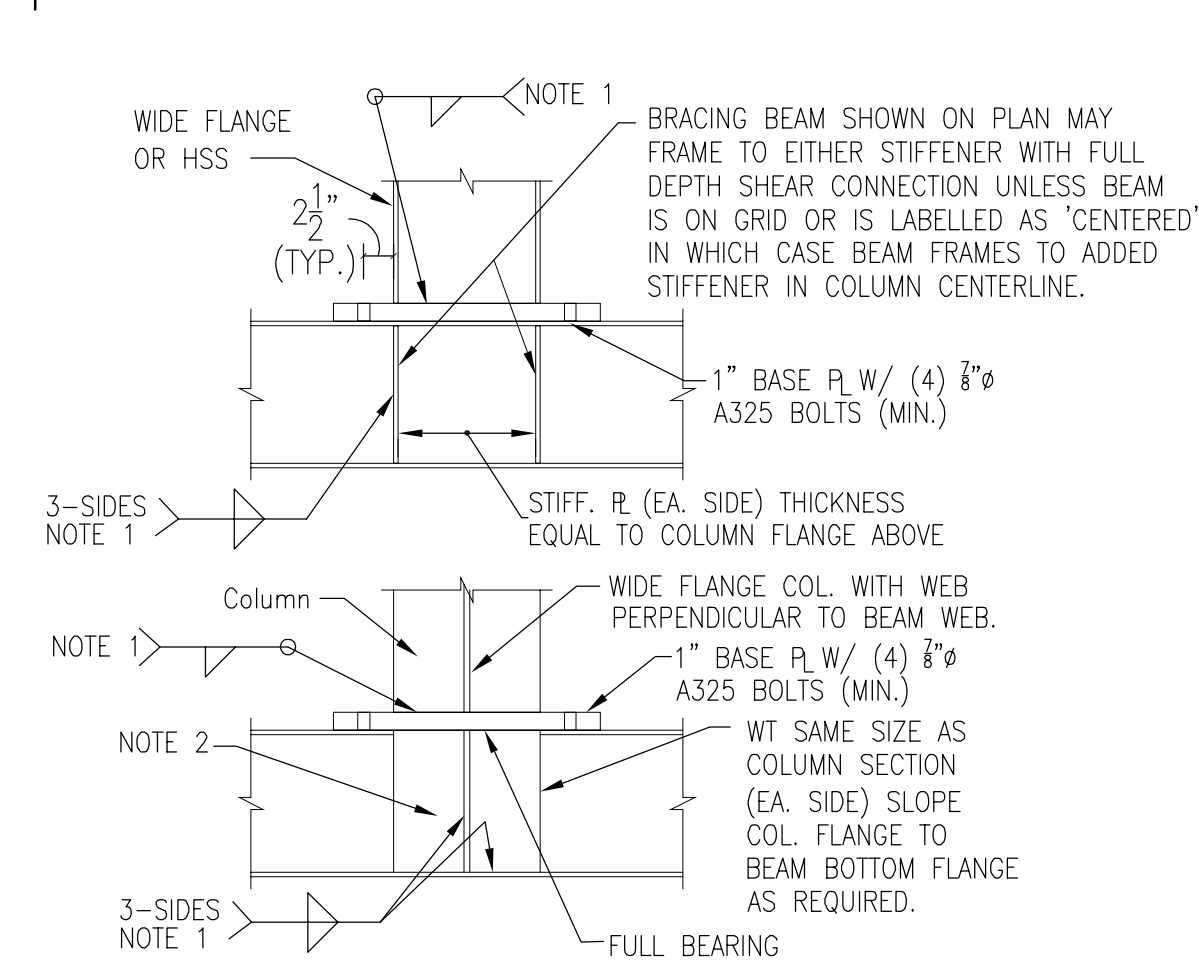
BOLTED CONNECTIONS

BOLTED MOMENT CONNECTION NOTES:

- MINIMUM WIDTH TO MATCH BEAM FLANGE, THICKNESS TO MATCH OR EXCEED FLANGE OF THICKER BEAM FLANGE AT CONNECTION.
- REMOVE WELD TABS TO 1/4" MAXIMUM FROM EDGE OF CONTINUITY PLATE. GRIND END OF WELD SMOOTH, NOT FLUSH, DO NOT GOUGE COLUMN FLANGE.
- ALL BOLTS PRETENSIONED, DESIGNED FOR BEARING. BOLT HOLES IN FLANGE PLATE ARE OVERSIZED, BOLT HOLES IN BEAM FLANGE ARE STANDARD.
- SHOP WELD: WHEN USING SINGLE BEVEL PREPARATION, REMOVE BACKING AFTER WELDING, BACKGOUGE, AND REINFORCE WITH 5/16" MIN. FILLET WELD.
- WHEN USING DOUBLE BEVEL PREPARATION, BACKGOUGE FIRST WELD BEFORE WELDING OTHER SIDE.
- SHIMS BETWEEN BEAM FLANGE AND FLANGE PLATES ARE ALLOWED. USE FULL COVERAGE SHIM PLATES OR FULL DEPTH FINGER SHIMS.
- HOLES IN SHEAR TABS ARE SHORT SLOTTED HORIZONTAL HOLES. HOLES IN BEAM WEB ARE STANDARD.
- MOMENT CONNECTION SHALL DEVELOP THE FULL CAPACITY OF THE BEAM.



- NOTES:**
- MIN. WELD SIZE PER TABLE 42.4 OF AISC-LRFD SPECIFICATION.
 - BRACING BEAM SHOWN ON PLAN FRAMES TO 3/8" SHEAR TAB WELDED TO WT WITH FULL DEPTH SHEAR CONNECTION (NOT SHOWN).

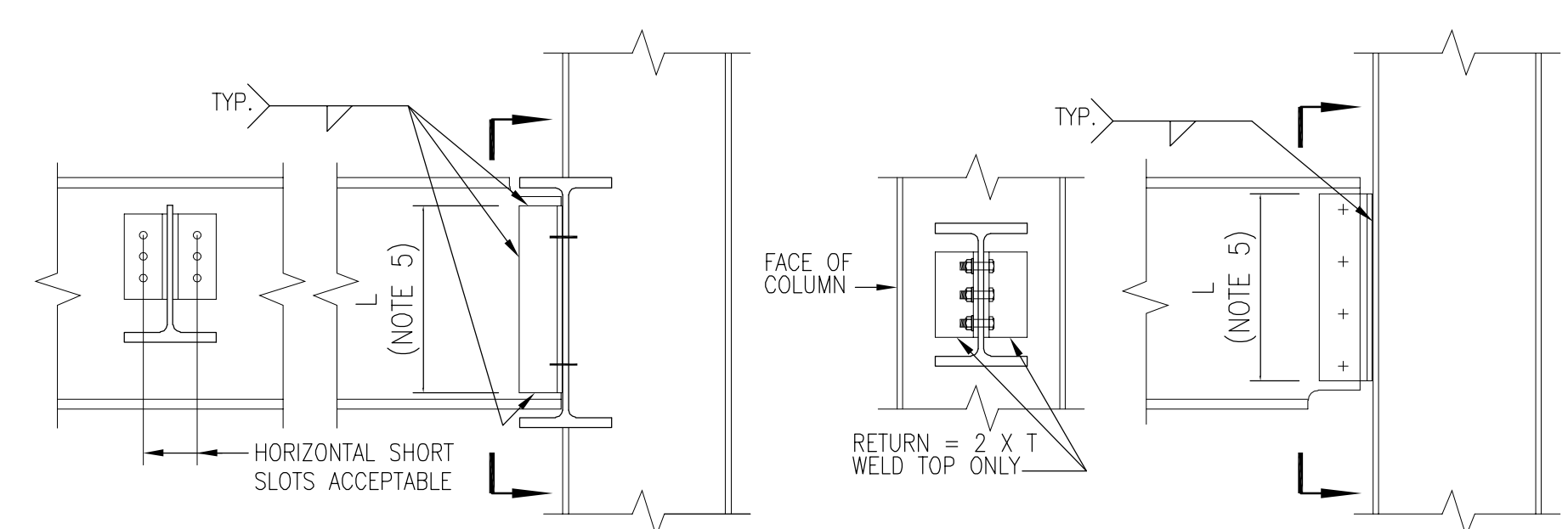


- NOTES:**
- MIN. WELD SIZE PER TABLE 42.4 OF AISC-LRFD SPECIFICATION.
 - BRACING BEAM SHOWN ON PLAN FRAMES TO 3/8" SHEAR TAB WELDED TO WT WITH FULL DEPTH SHEAR CONNECTION (NOT SHOWN).

TS-1 TYPICAL "BEAM-TO-COLUMN" MOMENT CONNECTION DETAILS 3/4"=1'-0"

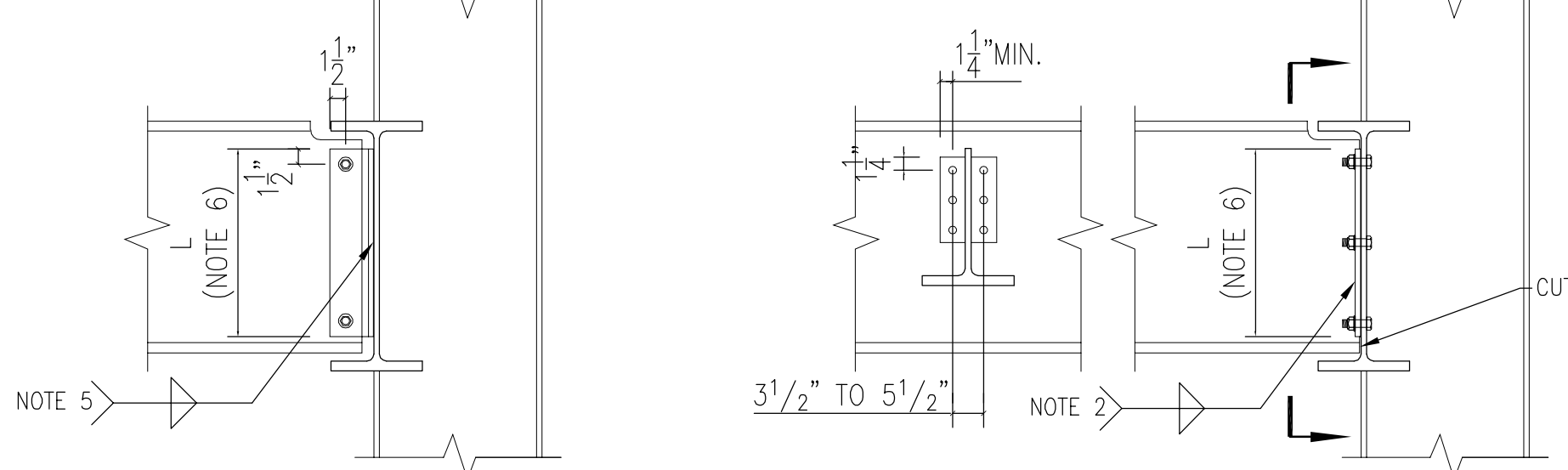
TS-2 STANDARD BEAM OVER COLUMN DETAIL 3/4"=1'-0"

TS-3 COLUMN BASE TO STEEL SUPPORT 3/4"=1'-0"



DOUBLE ANGLE CONNECTION TO BEAM OR COLUMN

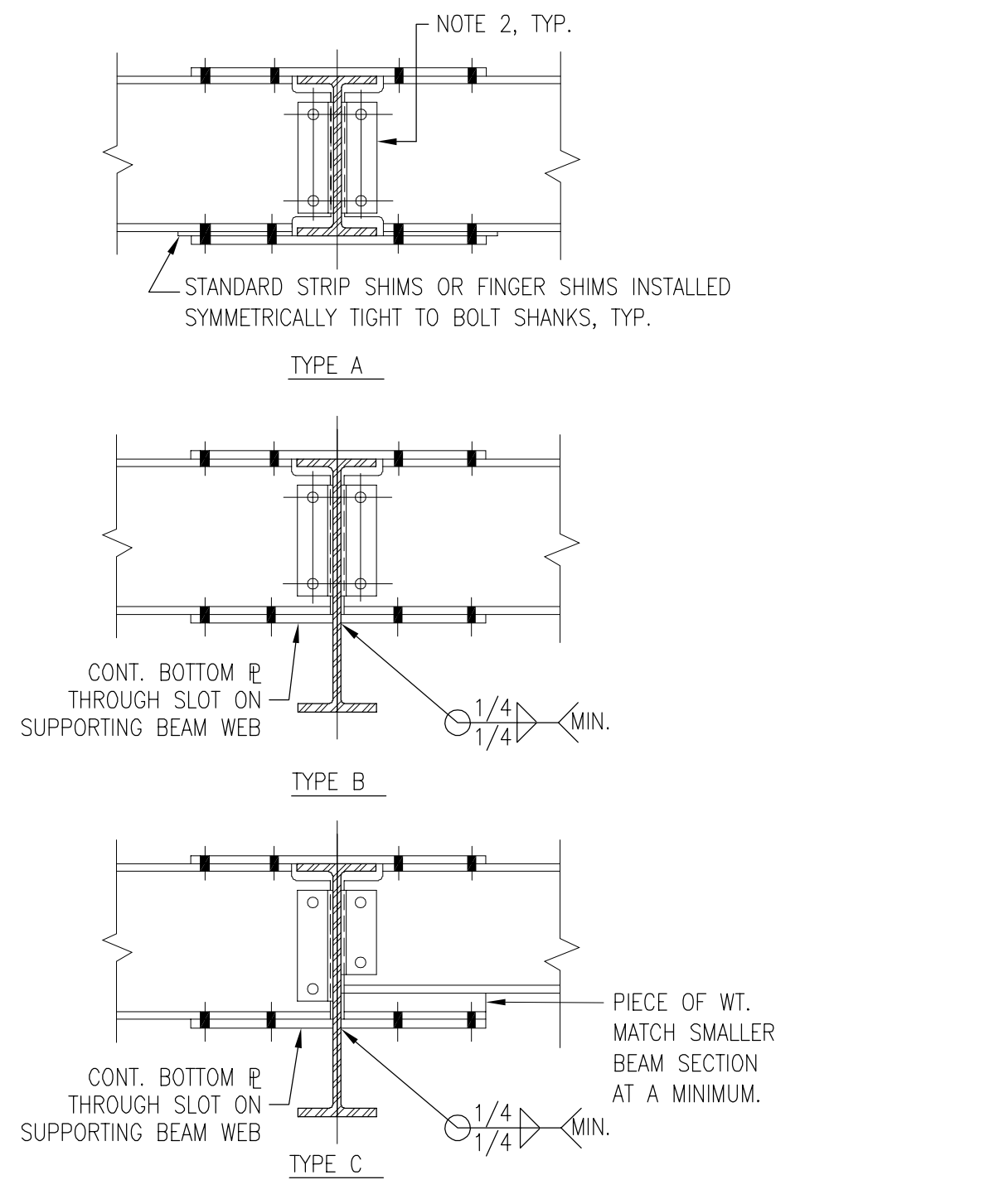
- NOTES:**
- DETAIL SIMILAR AT CONNECTION TO COLUMN FLANGE OR COLUMN WEB.
 - BOLTED TO BOLTED ALTERNATES ACCEPTABLE.
 - MINIMUM ANGLE THICKNESS: 3/8".
 - NEGLECT WELD RETURNS AT TOP OF ANGLES IN STRENGTH CALCULATIONS.
 - L = GREATER THAN 0.5 X BEAM "T" DIMENSION.



SINGLE PLATE CONNECTION SHEAR END PLATE CONNECTION

- NOTES:**
- DESIGN MODEL: AISC LRFD 2ND EDITION MANUAL, SECTION 9.
 - TREAT COLUMN FLANGES AND GRIDDERS WITH SHEAR TABS ON OPPOSITE SIDES WITHIN 6" AS RIGID ELEMENTS.
 - TREAT ALL OTHER GRIDER WEBS AS FLEXIBLE ELEMENTS.
 - MATE MATERIAL: ASTM A36 STEEL.
 - MINIMUM WELD SIZE = 3/4" X PLATE THICKNESS.
 - L = GREATER THAN 0.5 X BEAM "T" DIMENSION.
 - MAXIMUM PLATE THICKNESS = BOLT #/2 + 1/16".
 - DO NOT USE AT COLUMN WEBS.

TS-4 STANDARD BEAM CONNECTIONS 3/4"=1'-0"



"BEAM-TO-BEAM" MOMENT CONNECTIONS

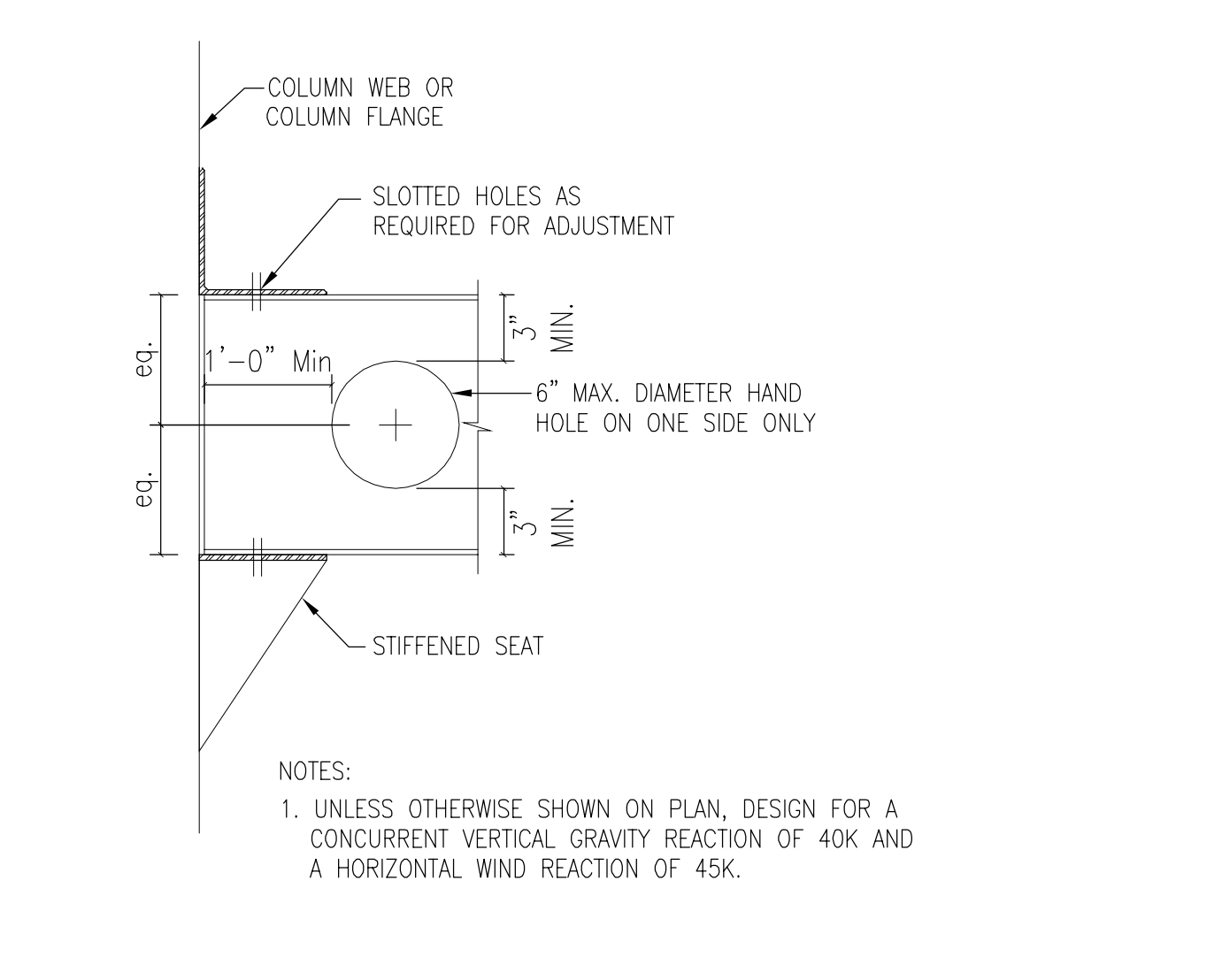
- NOTES:**
- DESIGN MOMENT PLATES FOR 0.8 PHI X 2 FY OF THE SMALLER BEAM.
 - U.O.N. ON PLAN, DESIGN SHEAR CONNECTION FOR BOX OF THE SHEAR STRENGTH OF THE COPED BEAM. REINFORCE WEB AS REQUIRED BY REACTIONS SHOWN ON PLAN. DOUBLE ANGLE, SINGLE PLATE, AND PLATE CONNECTIONS ACCEPTABLE.
 - ALL BOLTS ARE SUP. CRITICAL.
 - FIELD WELDED FLANGE PLATE ALTERNATES ACCEPTABLE.
 - DETAIL SHIMS PER AISC LRFD SPECIFICATION SECTION 4.6.
 - PROVIDE DECK SUPPORT AS REQUIRED.

TS-5 "BEAM-TO-BEAM" MOMENT CONNECTIONS 3/4"=1'-0"

NOMINAL BEAM DEPTH	REINFORCEMENT PLATE DIMENSIONS	WELD SIZE
D	B T Ld	T
14	4" 1" 8"	3/16"
18	3" 1/2" 6"	3/16"
21	3" 1/2" 6"	3/16"

- NOTES:**
- FOR CIRCULAR OPENINGS, L = H.
 - DIMENSIONS SHOWN ON PLAN ARE L X H.
 - R = MAX. RADIUS OF 2X1" OR 5/8".
 - U.O.N. ON PLAN, OPENINGS ARE CENTERED ON BEAM SPAN.

TS-6 DETAILS OF OPENINGS IN STEEL BEAMS 3/4"=1'-0"



- NOTES:**
- UNLESS OTHERWISE SHOWN ON PLAN, DESIGN FOR A CONCURRENT VERTICAL GRAVITY REACTION OF 40K AND A HORIZONTAL WIND REACTION OF 45K.

TS-7 STRUCTURAL TUBE TO COLUMN CONNECTION 3/4"=1'-0"

CLEAR SPAN	ANGLE SIZE (LLV)
4'-0"	L3 1/2 x 3 1/2 x 5/16
6'-0"	L3 1/2 x 3 1/2 x 5/16
8'-0"	L3 1/2 x 4 x 5/16
10'-0"	L3 1/2 x 5 x 5/16

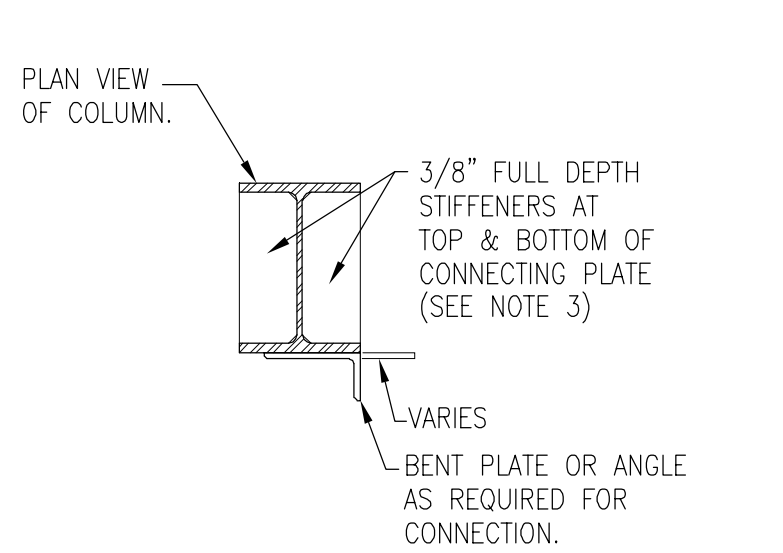
- NOTES:**
- ALL LINTELS ARE GALVANIZED.
 - 6" MINIMUM BEARING.
 - FOR DOUBLE WYTHE WALLS, USE TWO ANGLES BACK TO BACK. PLUG WELD TOGETHER AT 2'-0" O.C.

TS-8 BRICK LOOSE LINTEL SCHEDULE 3/4"=1'-0"

BEAM SIZE	REACTION (KIPS)	REACTION (KIPS) @ MECHANICAL FLOOR	MINIMUM NUMBER OF BOLTS
W8			2
W10			2
W12			3
W14			3
W16			4
W18			4
W21			5
W24			5

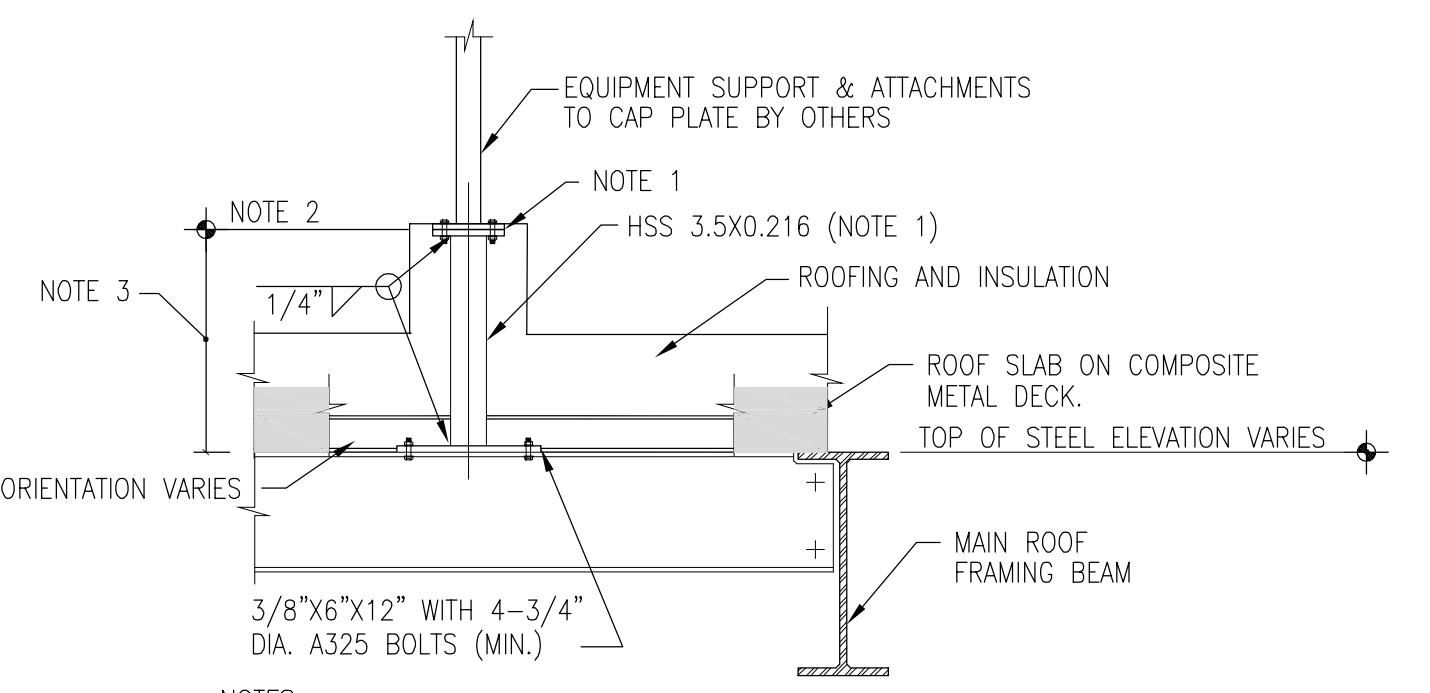
- NOTES:**
- SEE GENERAL NOTES FOR ADDITIONAL INFORMATION.
 - SHEAR VALUES ARE SERVICE LOADS. USE 1.5 LOAD FACTOR FOR LRFD CONNECTIONS.
 - SEE PLANS FOR BEAMS WITH AXIAL FORCES.
 - SEE DETAILS AND SECTIONS FOR BEAMS REQUIRING FULL DEPTH SHEAR CONNECTIONS.

TS-9 BEAM SHEAR REACTION TABLE 3/4"=1'-0"



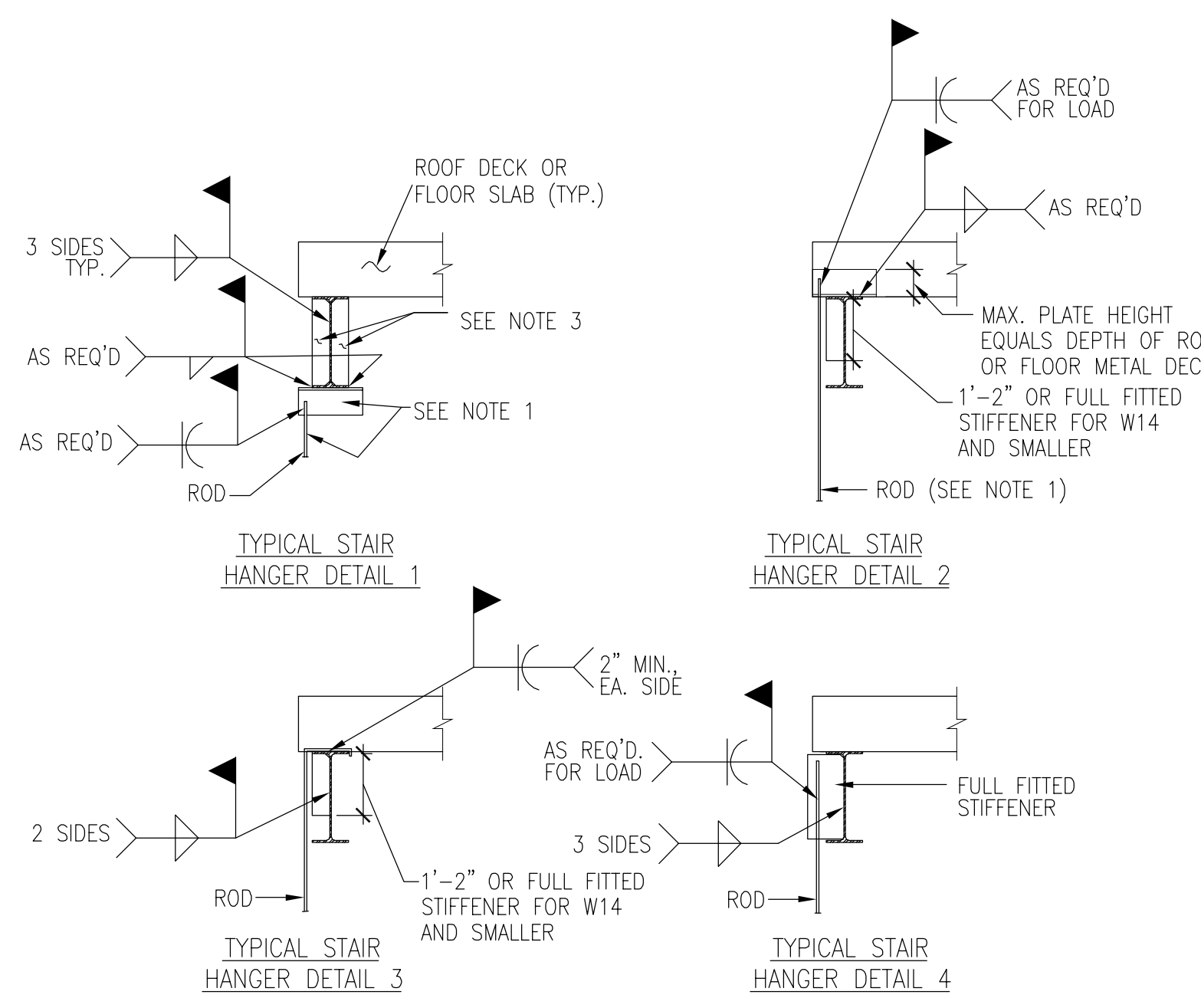
- NOTES:**
- WELDED CONNECTION AT CONTRACTOR'S OPTION IS ACCEPTABLE.
 - FULLY TENSIONED BOLTED CONNECTION.
 - FOR BEAMS PARALLEL TO COLUMN FLANGE, DIRECT WEB-TO-FLANGE CONNECTION IS ACCEPTABLE IF IT CAN DEVELOP REQUIRED STRENGTH. CAN USE ONE PAIR OF STIFFENERS ON CONNECTION SIDE OF COLUMN AT LEVEL OF BEAM FLANGES.

TS-10 TYPICAL OFFSET BEAM CONNECTION TO COLUMN FLANGE 3/4"=1'-0"



- NOTES:**
- 1/2"x12"x11'-0" CAP PLATE; COORDINATE WITH EQUIPMENT SUPPORTS FOR STUB LOCATION HOLES, NOTCHES, OR ANY OTHER ATTACHMENT DETAILS.
 - COORDINATE TOP OF PLATE ELEVATION WITH ROOFING, INSULATION, FLASHING DETAILS AND SLOPING ROOF STRUCTURE.
 - GALVANIZE STEEL AND CONNECTORS FROM CAP PLATE TO BASE PLATE.
 - SEE A AND H SERIES DRAWINGS FOR ROOFING, INSULATION & FLASHING.
 - PLUG WELD GALVANIZING DRAIN HOLE. PAINT WELD WITH ZINC-RICH PAINT FORMULATION.

TS-11 ROOF TOP EQUIPMENT SUPPORT 3/4"=1'-0"



- NOTES:**
- HANGER ASSEMBLY PLUS CONNECTION TO BE PROVIDED AND DESIGNED BY STAIR MANUFACTURER.
 - STIFFENERS AND PLATES SHOWN IN DETAILS ABOVE TO BE INSTALLED BY STAIR MANUFACTURER, (MINIMUM THICKNESS).
 - STIFFENER WELDS (MINIMUM) MIN. (IF ALTERNATE DESIGN IS REQUESTED, SUBMIT SIGNED & SEALED CALCULATIONS WITH DETAILS).
 - COORDINATE STEEL ERECTION AND HANGER INSTALLATION AS REQUIRED.

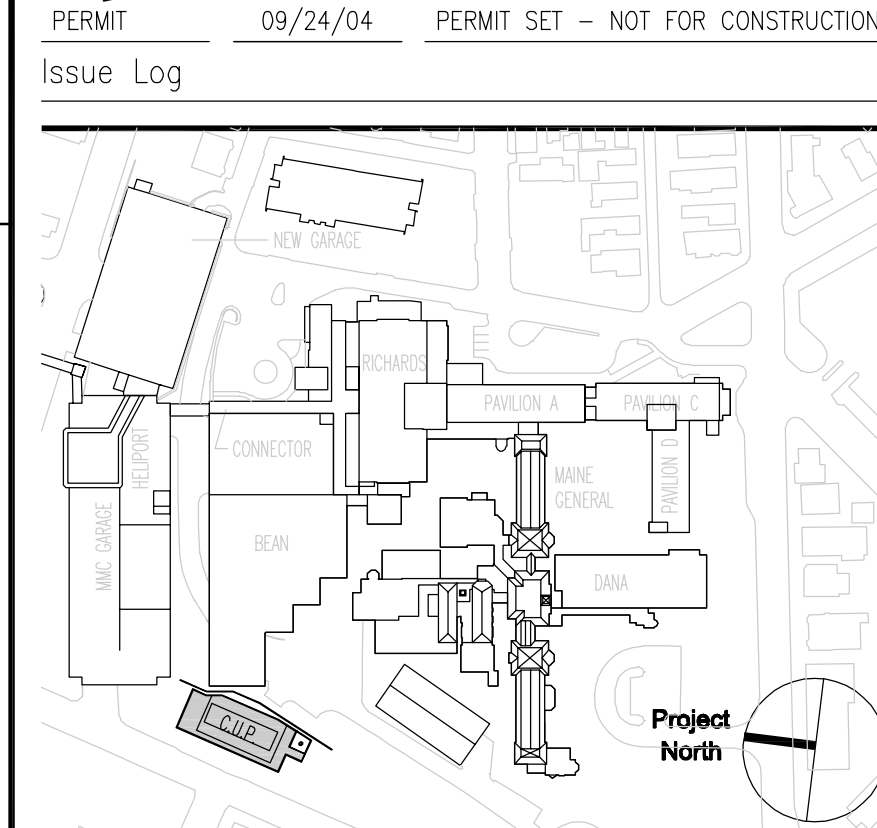
TS-12 STAIR HANGER DETAILS 3/4"=1'-0"

General Notes:

SGH
Simpson Gumpertz & Heger Inc.
Consulting Engineers
Boston, MA 41 Bayon Street, Suite 500, Waltham, MA 02453
San Francisco, CA The Landmark at One Market, Suite 600, San Francisco, CA 94105
Washington, DC 1855 Ploard Drive, Suite 225, Rockville, MD 20850

Telephone: (781) 907 9000
Facsimile: (781) 907 9009
Telephone: (415) 435 3700
Facsimile: (415) 435 3550
Telephone: (301) 417 0999
Facsimile: (301) 417 0965

MARK ISSUE DATE
PERMIT 09/24/04 PERMIT SET - NOT FOR CONSTRUCTION
Issue Log



Key Plan

TRO
ARCHITECTURAL PLANNING ENGINEERING INTERIOR DESIGN
The Ritchie Organization
80 Bridge Street
Newton, MA 02458-1154
617-969-9400

Maine Medical Center
Central Utility Plant
Portland, Maine

Drawing Title
**CENTRAL UTILITY PLANT (CUP)
TYPICAL STEEL DETAILS
(SHEET 1 OF 2)**

Commission No. 4677 Date Issued 24 SEPTEMBER 2004
Scale AS NOTED Sheet Number
Drawn By SWM/RWS/KEW JHT/JLT
Approved By S102
Checked By S102
Copyright © 2004 The Ritchie Organization