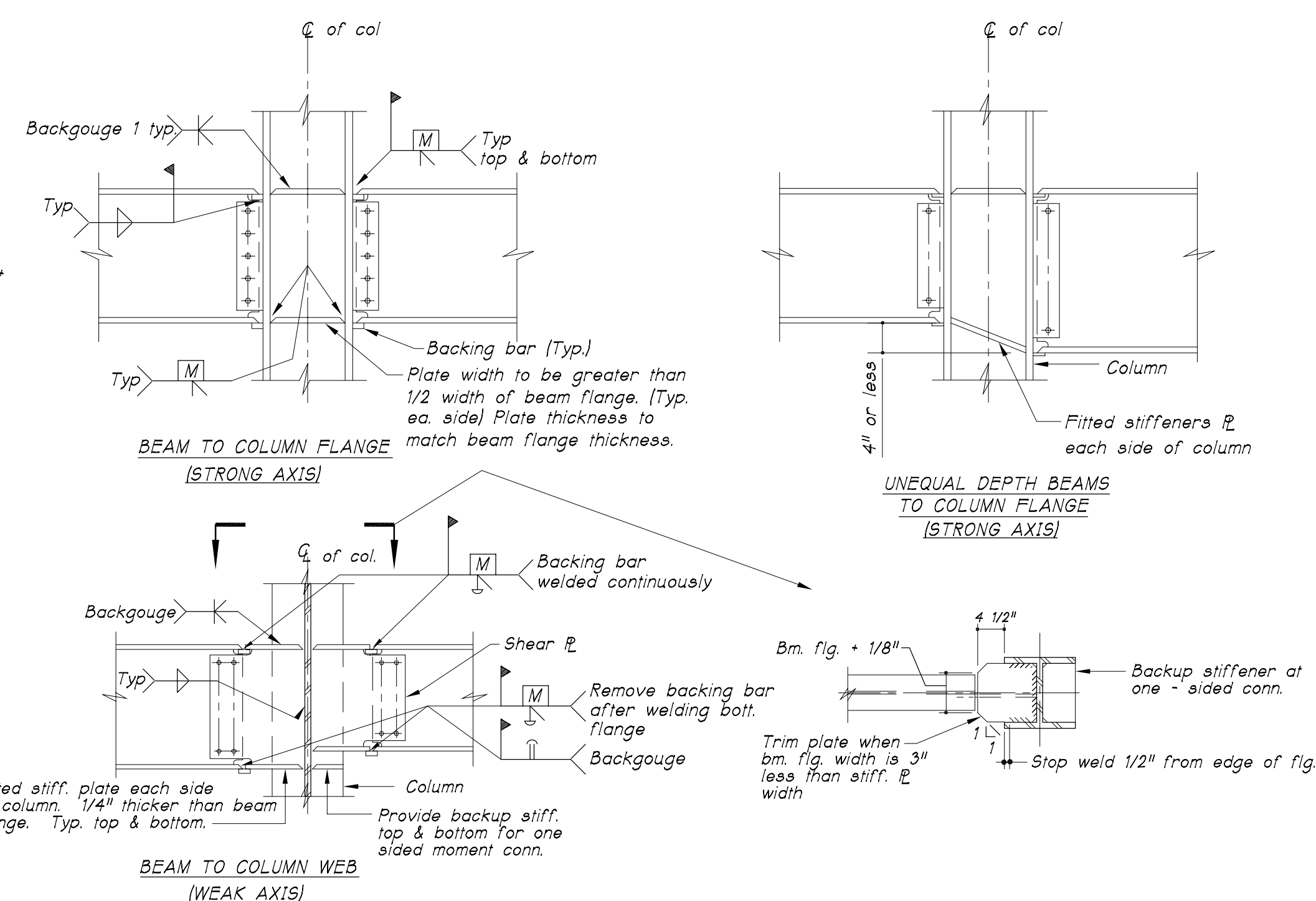
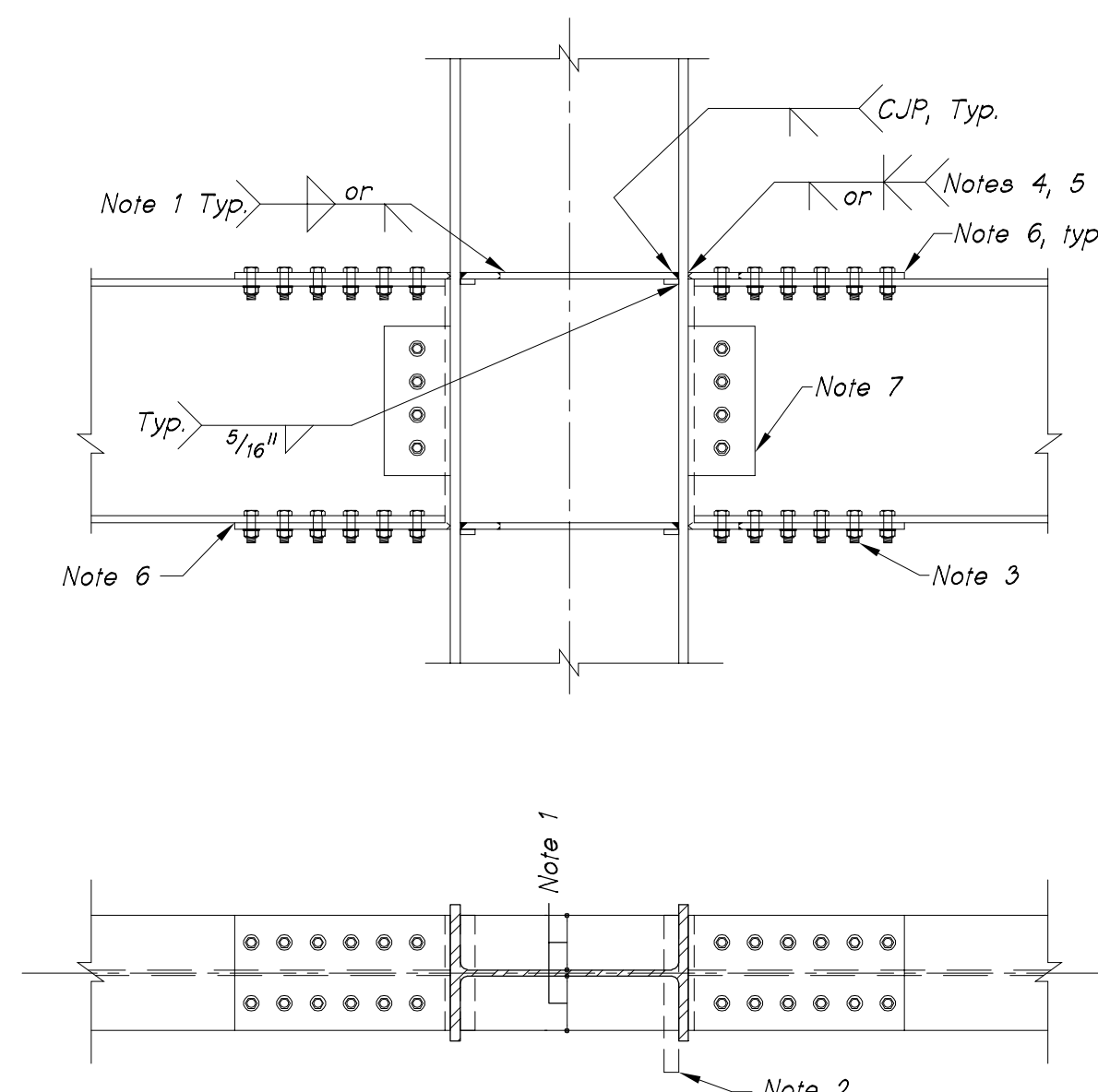


- STRONG AXIS NOTES:**
- Moment connection to develop the full capacity of the beam.
 - Shear connection to develop factored reaction listed in schedule - 2.4(Mp/φp).
 - Remove bottom flange backing bar, back gouge, and install reinforcing "T" fillet on top & bottom of flange.
 - Weld top flange backing bar continuously to column flange or continuity plate.
 - Add reinforcing fillet to top flange weld.
 - Install all bolts snug tight prior to first torquing. Tension bolts fully prior to welding.
 - Similar detail applies at column bases moment connected to truss chords.



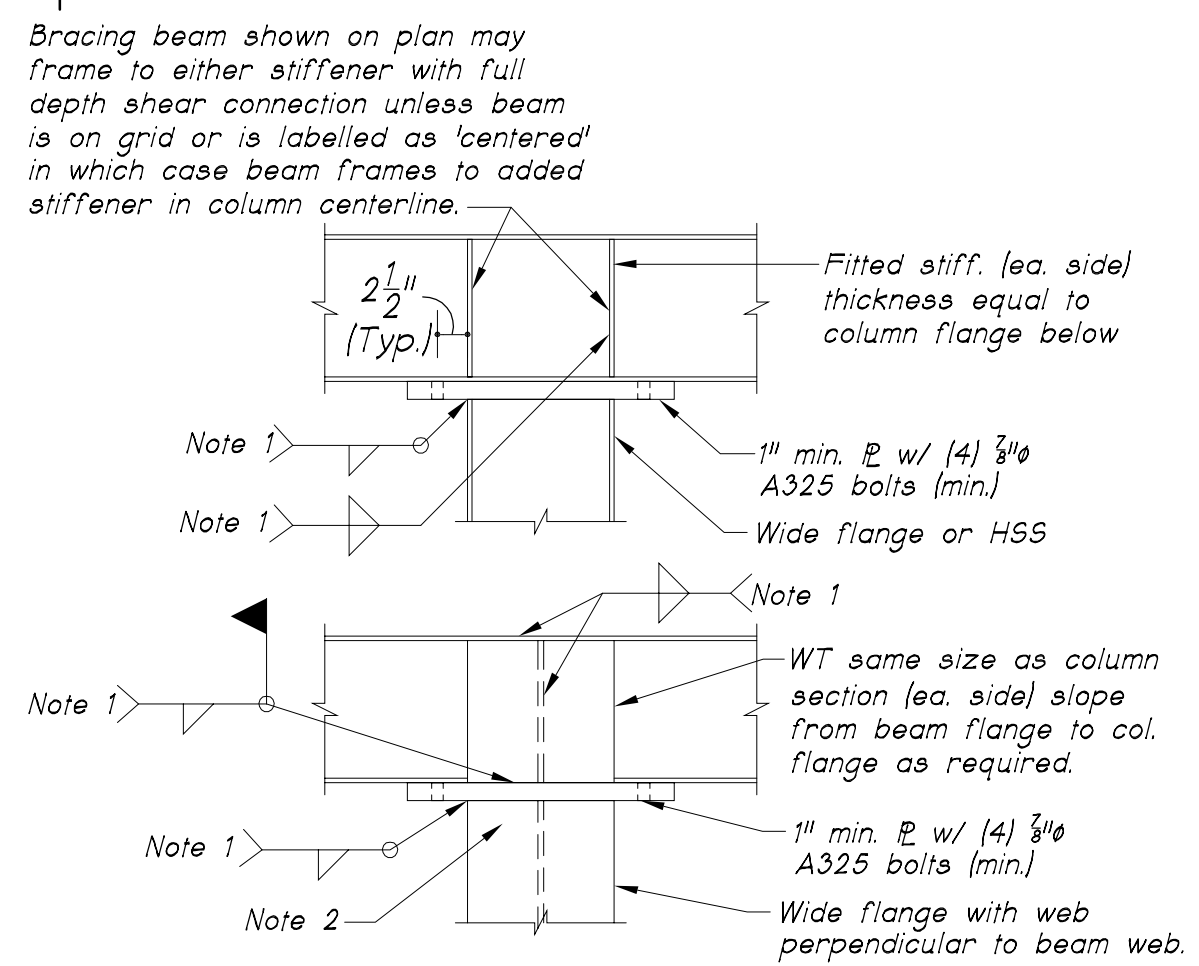
WELDED CONNECTIONS

TS-1 TYPICAL "BEAM-TO-COLUMN" MOMENT CONNECTION DETAILS

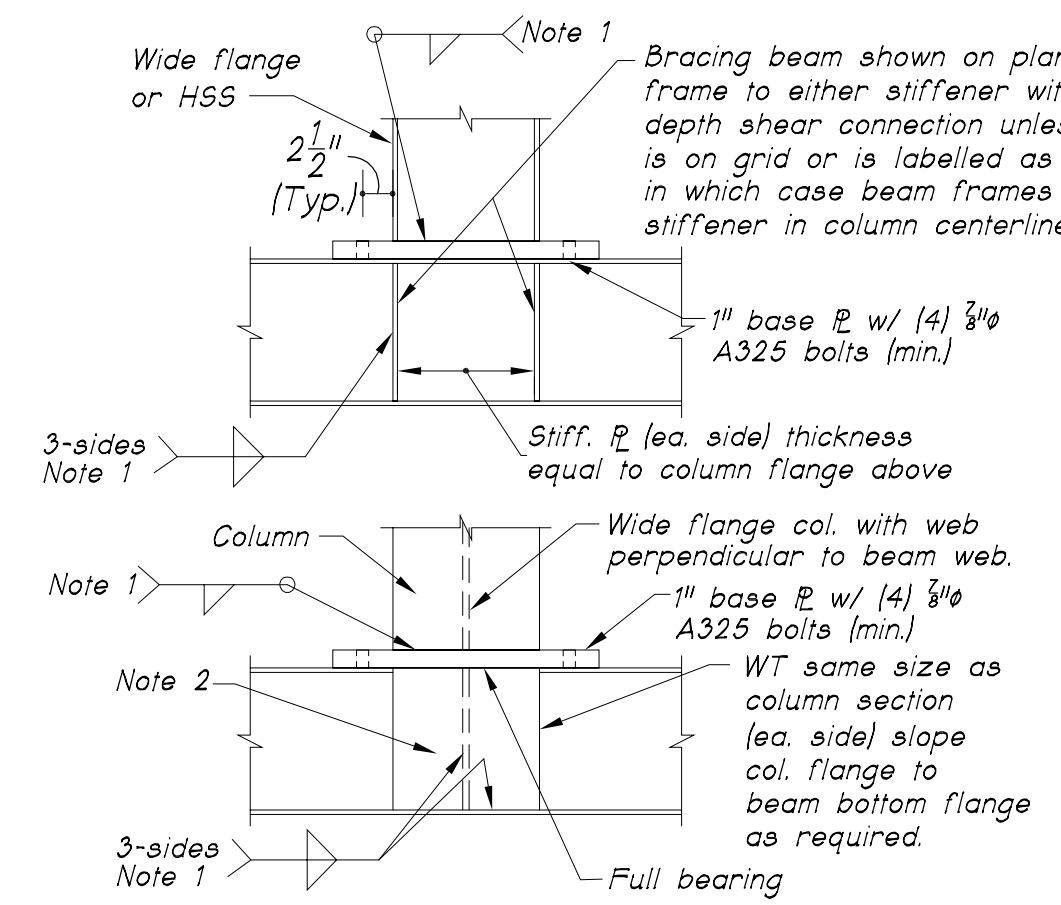


BOLTED CONNECTIONS

- 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 angle 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.

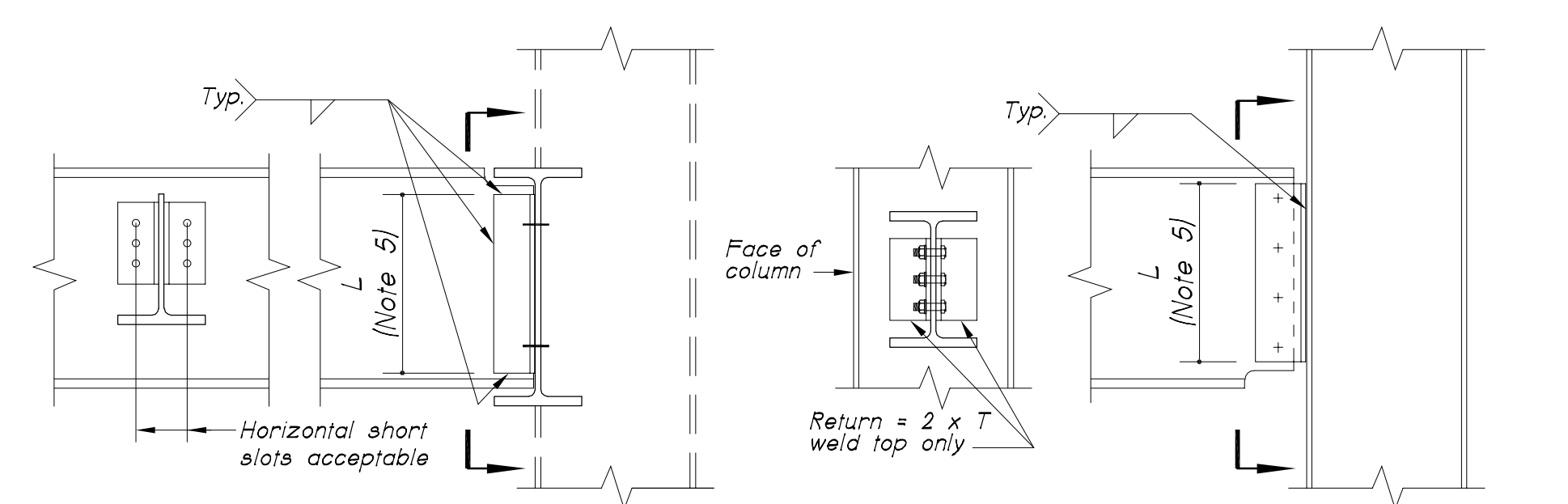


TS-2 STANDARD BEAM OVER COLUMN DETAIL

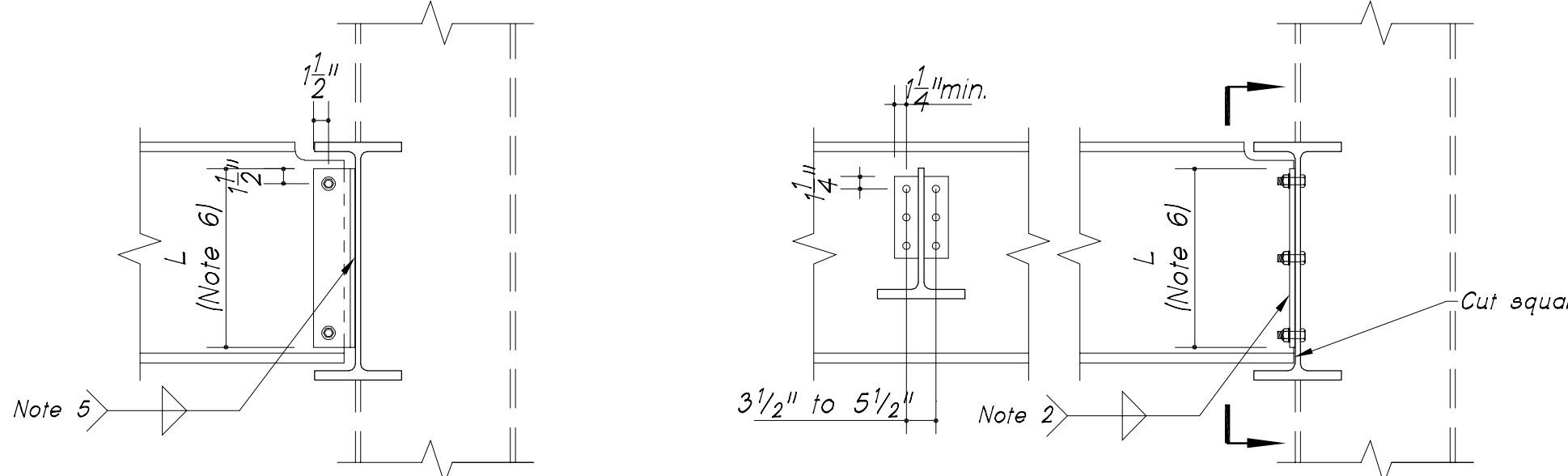


TS-3 COLUMN BASE TO STEEL SUPPORT

General Notes:

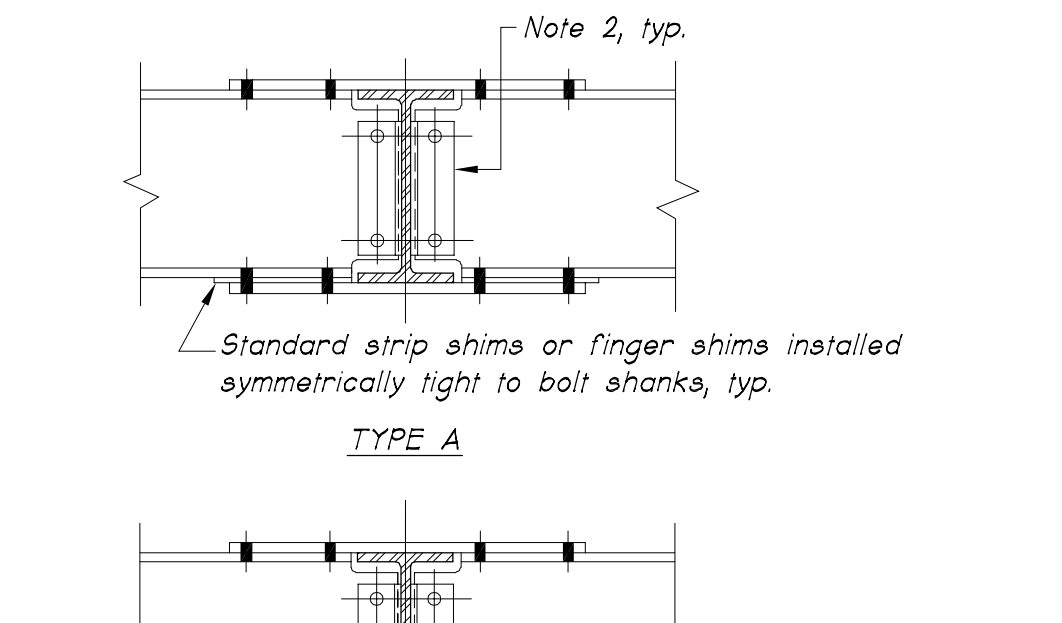


- NOTES:**
- Detail similar at connection to column flange or column web.
 - Bolted to bolted alternatives acceptable.
 - Maximum angle thickness = 5/8".
 - Neglect weld returns at top of angles in strength calculations.
 - L = greater than 0.5 x beam "T" dimension.



- NOTES:**
- Design model - AISC LRFD 2nd Edition Manual, Section 9.
 - Treat column flanges and girders with shear tabs on opposite sides within 6" as rigid elements.
 - Treat all other girder webs as flexible elements.
 - Note 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



- NOTES:**
- Design moment plates for 0.8 φ_t x 2 T_y of the smaller beam.
 - U.O.N. on plan, design shear connection for 80% 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 slip critical.
 - Field welded flange plate alternatives acceptable.
 - Detail shims per AISC LRFD specification Section J6.
 - Provide deck support as required.

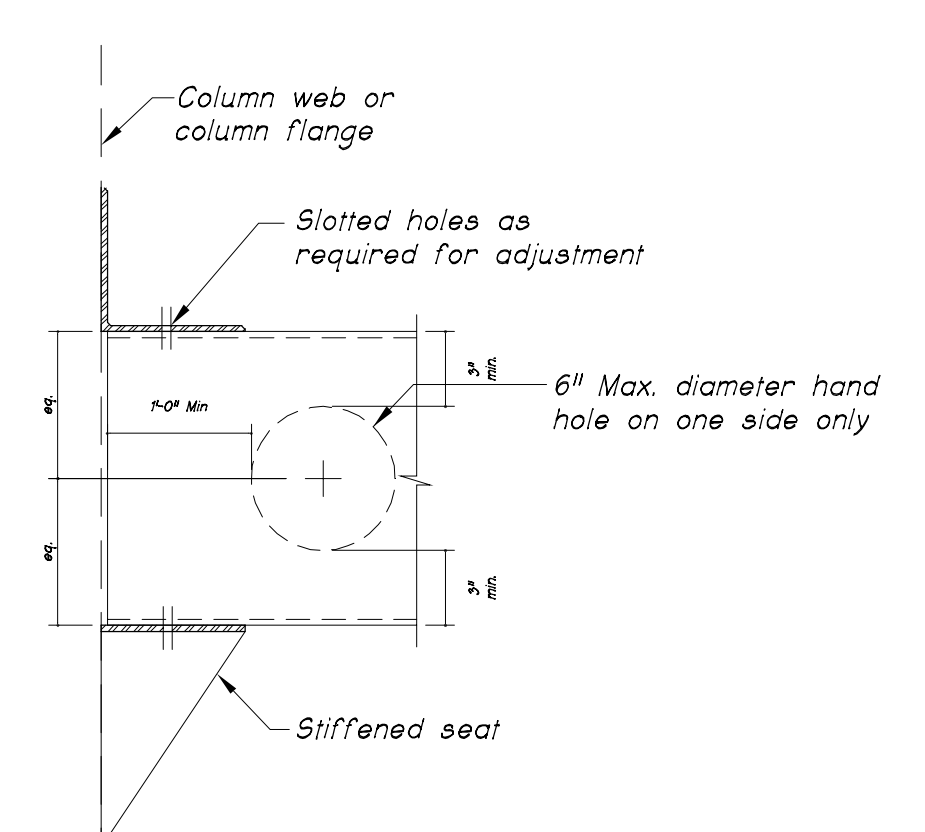
TS-5 "BEAM-TO-BEAM" MOMENT CONNECTIONS

Nominal Beam Depth D	Reinforcement Plate Dimensions b, t	Weld Size L _w , T
14	4" x 1/2"	3/16"
18	3" x 1/2"	3/16"
21	3" x 1/2"	3/16"

DETAILS OF OPENINGS IN STEEL BEAMS

- NOTES:**
- For circular openings, L = H.
 - Dimensions shown on plan are L x H.
 - R = Max radius of 2d_o or 5d_o.
 - U.O.N. on plan, openings are centered on beam span.

TS-6 DETAILS OF OPENINGS IN STEEL BEAMS



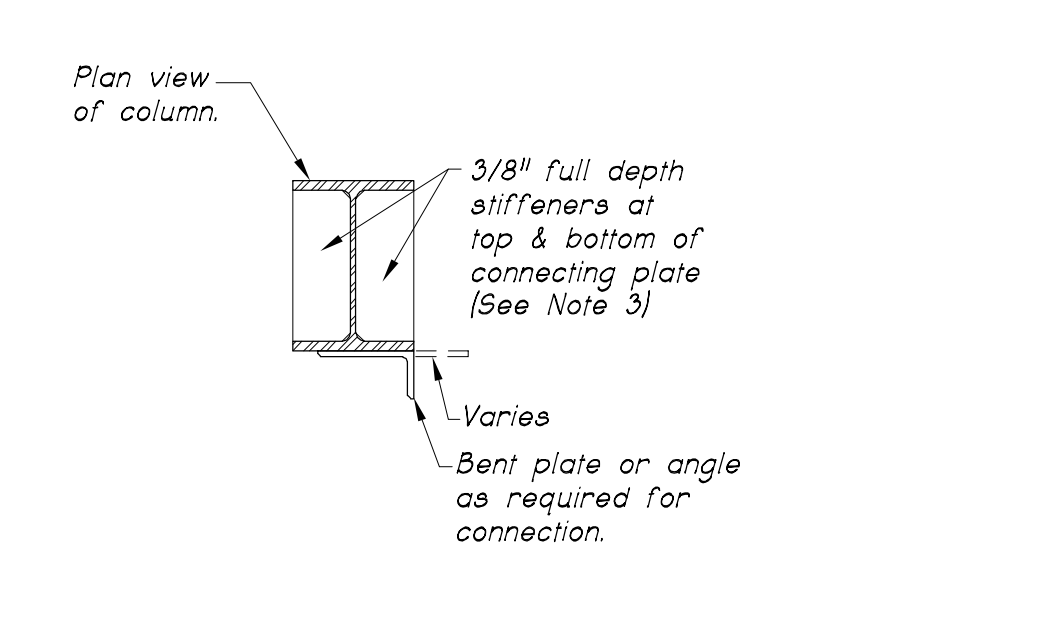
- NOTES:**
- Unless otherwise shown on plan design for a concurrent vertical gravity reaction of 40K and a horizontal wind reaction of 45K.

TS-7 STRUCTURAL TUBE TO COLUMN CONNECTION

Beam Size	Reaction (Kips)	Reaction (Kips) @ Mechanical Floor	Minimum Number of Bolts
W8	12	12	2
W10	15	15	2
W12	35	45	2
W14	40	60	3
W16	50	60	3
W18	50	60	4
W21	75	90	4
W24	90	95	6

- 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-8 BEAM SHEAR REACTION TABLE



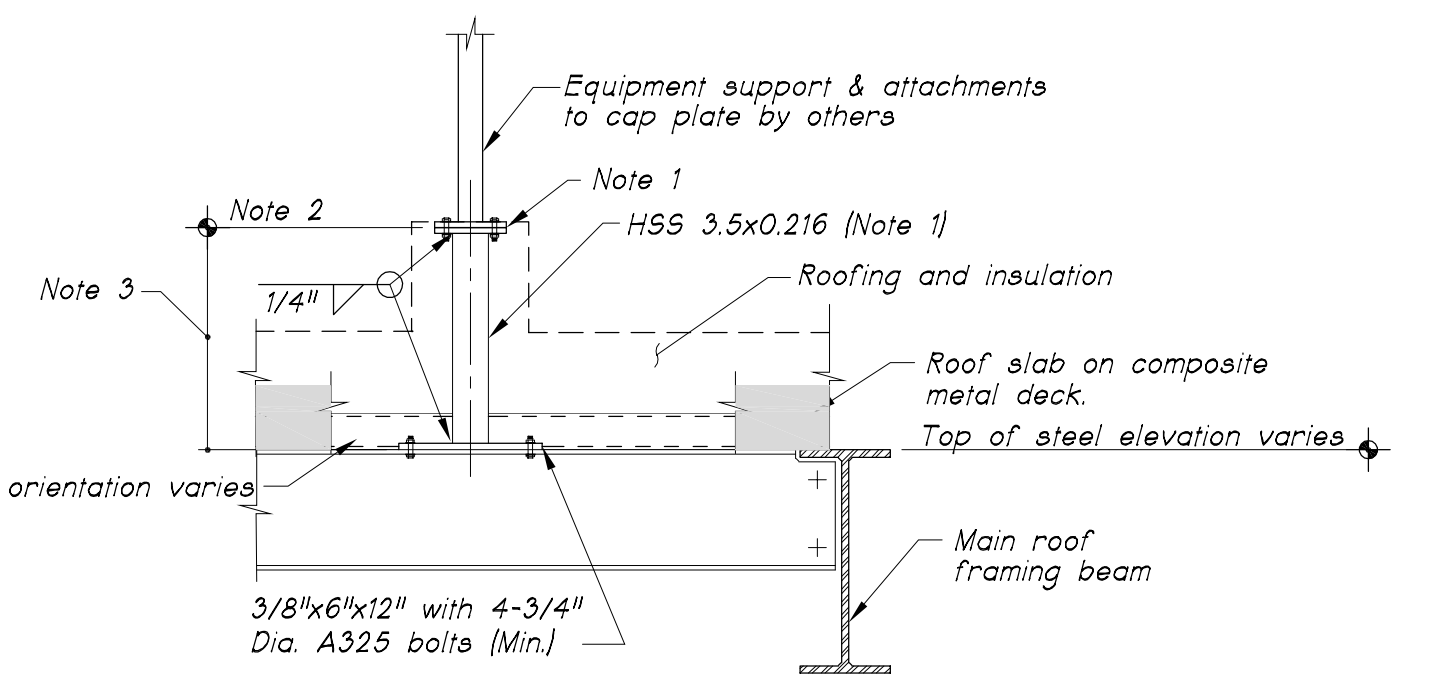
- NOTES:**
- Welded connection at contractor's option is acceptable.
 - Fully tensioned bolted connection.
 - For beams parallel to column flange, direct web-to-flange connection is acceptable if it can develop required strength. Can use one pair of stiffeners on connection side of column at level of beam flange.

TS-9 TYPICAL OFFSET BEAM CONNECTION TO COLUMN FLANGE

Clear Span	Angle Size (LLV)
4'-0"	L3 1/2 x 3 1/2 x 5/8
6'-0"	L3 1/2 x 3 1/2 x 5/8
8'-0"	L3 1/2 x 4 x 5/8
10'-0"	L3 1/2 x 5 x 5/8

- 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-10 BRICK LOOSE LINTEL SCHEDULE



- NOTES:**
- 1/2" x 12" x 1/2" Cap plate; coordinate with equipment supports for stud location holes, matches, or any other attachment details.
 - Coordinate top of plate elevation with roofing, insulation, flashing details and sloping roof steel 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 ROOFTOP EQUIPMENT SUPPORT

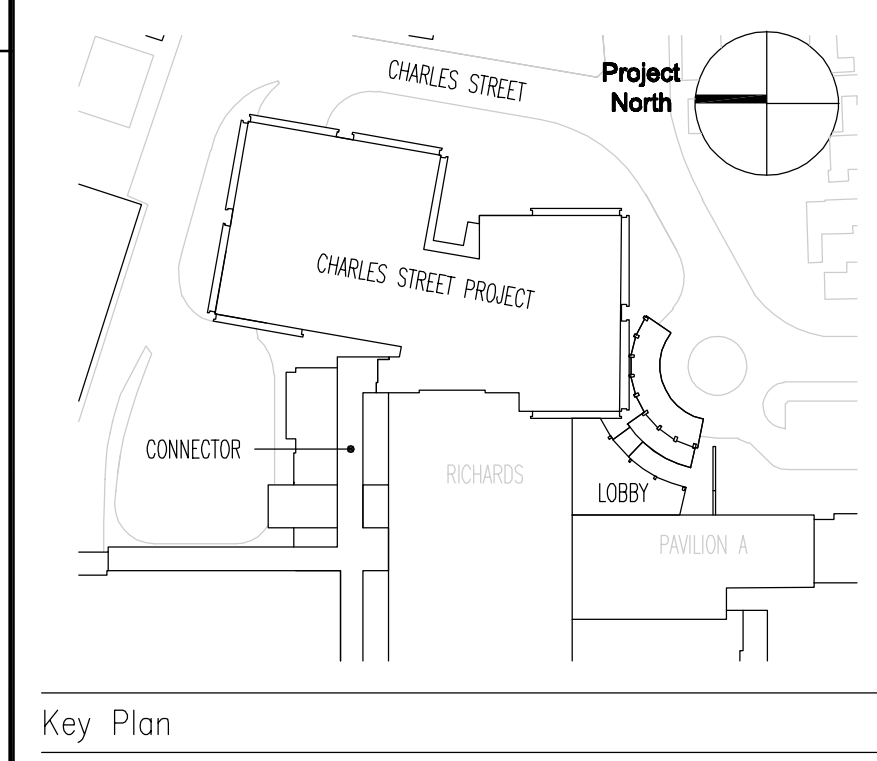
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Maine Medical Center
Charles Street Project
Portland, Maine MMC Project No. 21841

Drawing Title: TYPICAL STEEL DETAILS (Sheet 1 of 2)

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