Referenced Standards

2016 AISC *Shapes Database 15th Edition*
2016 AISC *Steel Construction Manual 15th Edition*
2016 AISC 360-16 *Specification for Structural Steel Buildings*
2016 AISC 303-16 *Code of Standard Practice for Steel Buildings and Bridges*
2009 RCSC *Specification for Structural Joints Using High-Strength Bolts*
2020 AWS D1.1/D1.1M:2020 *Structural Welding Code - Steel*

Plates

Material: If not specifically identified in the detail, plate material shall be ASTM 572 Grade 50 steel. Steel identified in details as "GR36" refers to ASTM A36, and steel identified in details as "GR50" refers to ASTM 572 Grade 50.

Naming convention: A plate identified as *PL 1/2x4x1'-3"* (GR50) refers to a 1/2-inch thick, 4-inch wide, and1-foot and 3-inch long, ASTM A572 Grade 50 plate. *Dimensions which are not constant over the plate extents are excluded from the callout and are determined from the geometry of the connection.

Filler plates, slip-critical:
1) All surfaces of filler plates, including the "down side" of developed filler plates, subjected to slip shall be prepared to achieve the design slip resistance. Refer to the "Slip-Critical Bolt Surface Preparation" typical detail.
2) "Finger shims" are acceptable as filler plates when they provide support around 75% of the perimeter of each bolt in the joint.
3) If a gap requiring a shim or shims is nominally wider than 1/8", and additional information is not provided in the detail, more than one undeveloped filler plate has been assumed in bolt design for slip (hf=0.85).

Welds

Material: If not specifically identified in the detail, filler metal electrode strengths shall be 70 kips-per-square-inch (ksi).

Fillet weld length: Refer to the "Fillet Weld Length Geometry" detail for definitions of specified weld length, weld runoff lengths, and edge clearances.

Maximum bevel weld size: The maximum single-bevel weld size for PJP and complete-joint penetration (CJP) welds is 1 1/2", after which double-bevel welds will be used for larger weld sizes.

Groove welds: The PJP size value indicated between parentheses in a detail is the effective throat. Depending on the weld process and position, 1/8" may need to be added to the effective throat to determine the groove preparation depth.

Bolts and Bolt Holes

Bolt hole abbreviations:
1) STD = AISC Standard Hole
2) OVS = AISC Oversized Hole
3) SSLT = AISC Short-Slot Hole*
4) LSLT = AISC Long-Slot Hole*

*Slotted hole orientations are parallel to expected axial and rotational displacements, and perpendicular to shear forces, unless the orientation is specifically identified in the detail.

Naming convention:
1) A bolt identified as *7/8"Ø A325-N IN STD HOLE* refers to a 7/8-inch diameter, ASTM A325 bolt designed with threads that may be included in the shear plane, installed in an AISC Standard Hole.
2) A bolt identified as *1 1/8"Ø A490-SC(B) IN OVS HOLE* refers to a 1-and-1/8-inch diameter, ASTM A490 slip-critical bolt with a Class B surface preparation, installed in an AISC Oversized Hole.
3) The specified hole type for a bolt group, such as "OVS", applies to all plies the bolt passes through unless different hole types are specifically identified for different plies.

Threads included ("-N") or excluded ("-X") in the shear plane:
1) If specifically identified as threads-excluded ("-X") in the detail, the threads have been considered to be excluded from the shear plane for design, and the bolt is expected to be detailed and constructed with threads excluded from the shear plane. If the direction of bolt installation affects if the threads are included in the shear plane, this information is indicated in the detail.
2) If specifically identified as threads-included ("-N"), or not specifically identified as threads included or excluded, the threads have been assumed to be included in the shear plane for design, and the bolt is expected to be detailed and constructed with the threads potentially included in the shear plane.

Tension-Control Bolts:
1) ASTM F1852 bolts are an acceptable substitute for ASTM A325 bolts if approved by the Engineer of Record (EOR); however in snug-tightened joints, follow the installation requirements of the EOR.
2) ASTM F2280 bolts are an acceptable substitute for ASTM A490 bolts if approved by the Engineer of Record (EOR); however in snug-tightened joints, follow the installation requirements of the EOR.

Connection Notes

Scale: NTS

Label: TYP-01

Revisions		
No.	Description	Date

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Client: Client Name

Original Issue Date: 10/25/2023
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Project Status: NOT FOR CONSTRUCTION
Engineer: XE
Approver: XE