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Connection Strengths in the 13th Edition Manual

As the 13th Edition Manual is published, it is important to review the changes to the design of connections. The following table summarizes the changes to the design of connections in the 13th Edition Manual.

Connection Type	Design Method	Design Strength
Single-Angle	LRFD	ϕR_n
Single-Angle	ASD	R_n/Ω
Double-Angle	LRFD	ϕR_n
Double-Angle	ASD	R_n/Ω
Welded	LRFD	ϕR_w
Welded	ASD	R_w/Ω

PJP Weld Throat

The design of PJP weld throats is governed by the design of the weld metal. The design strength of a PJP weld throat is given by:

$$\phi R_w = \phi F_w A_w$$

where ϕ = resistance factor, F_w = tensile strength of weld metal, and A_w = effective throat area of weld.

Washers for Anchor Rod Installations

The design of washers for anchor rod installations is governed by the design of the anchor rod. The design strength of a washer is given by:

$$\phi R_w = \phi F_w A_w$$

where ϕ = resistance factor, F_w = tensile strength of washer, and A_w = cross-sectional area of washer.

$$\phi R_n = \phi F_u A_n$$

where ϕ = resistance factor, F_u = ultimate tensile strength of steel, and A_n = net cross-sectional area of steel.

KL/r Modified for Single-Angle

$$KL/r = \frac{L}{r}$$

where L = unbraced length of member, and r = radius of gyration of member.

$$\phi R_n = \phi F_u A_n$$

where ϕ = resistance factor, F_u = ultimate tensile strength of steel, and A_n = net cross-sectional area of steel.

Shoring Removal

The design of shoring removal is governed by the design of the shoring. The design strength of a shoring is given by:

$$\phi R_n = \phi F_u A_n$$

where ϕ = resistance factor, F_u = ultimate tensile strength of steel, and A_n = net cross-sectional area of steel.

Double Angle Connection - Table 10-1

Connection Type	Design Method	Design Strength
Double-Angle	LRFD	ϕR_n
Double-Angle	ASD	R_n/Ω
Welded	LRFD	ϕR_w
Welded	ASD	R_w/Ω

