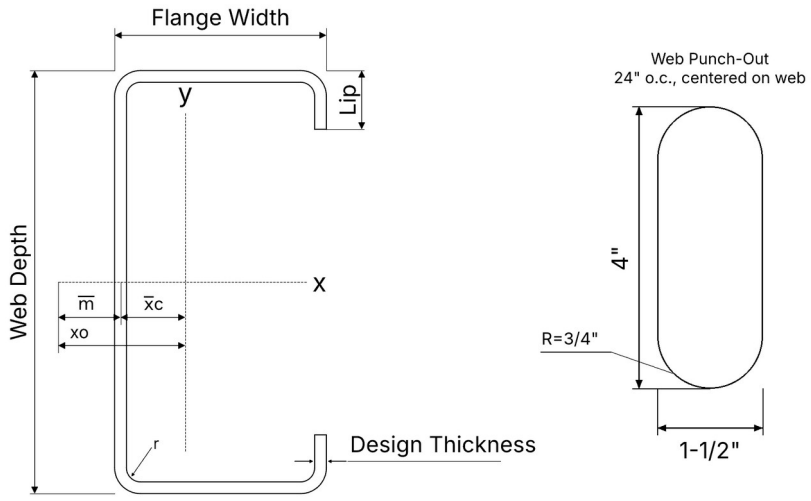
PRODUCT SUBMITTAL SHEET

Product Type: Structural Stud

Product Definition: 400S250-54-P (50ksi, Punched)

CSI Code: 05 41 00



Profile Properties:

Web Depth	4.000 in	Yield Strength Fy:	50 ksi
Flange Width	2.500 in	Unit Weight	1.89 lb/ft
Stiffening Lip	0.6250 in	Punchout Width / Length	1-1/2'' – 4''
Design Thickness	0.0566 in	Coating	G60 or G90
Thickness	54 mils (16 Ga)	Min. Steel Thickness	0.0538 in
Inside Bend Radius	0.0849 in	Tensile Strength Fu	65 ksi

Gross Section Properties:

Cross Sectional Area	Agross	0.5563 in2
Member weight per foot of length		1.89 lb/ft
Moment of Inertia. x-axis	Ix	1.5123 in4
Section Modulus. x-axis	Sx	0.7561 in3
Radius of Gyration. x-axis	rx	1.6487 in
Moment of Inertia. y-axis	Iy	0.4897 in4
Radius of Gyration. y-axis	ry	0.9382 in

Torsional Properties:

St. Venant Torsion Constant	J x 1000	0.5941 in4
Warping Constant	Cw	1.8213 in6
Distance Between Shear Axis and Neutral Axis	x0	-2.1242 in
Shear Center to Web Centerline	m	1.2443 in
Polar Radius of Gyration	r0	2.8479 in
Torsional Flexural Constant	β	0.4437
Limit of Unbraced Length	Lu	43.65 in

Effective Section Properties:

Effective Area	Aeff	0.3788 in2
Effective Moment of Inertia for Deflection	Ixe	1.3465 in4
Effective Section Modulus	Sxe	0.6226 in3
Allowable Bending Moment	Ma	18.6407 in.k
Allowable Moment (Distortional Buckling)	Mad	18.4248 in.k
Allowable Shear Force (Solid Section)	Vag	3372 lbs
Allowable Shear Force (Perforated Section)	VaPO	1223 lbs

Codes & Standards:

- Calculations are based on AISI S240-20 and AISI S100-16 (2020) w/S2-20.
- AISI S240-20 North American Standard for Cold-Formed Steel Structural Framing: Section A3 Material (ASTM A1003/A1003M); Section A4 Corrosion Protection (ASTM A653/A653M); Section A5 Products – thickness, shapes, tolerances, identification; Section C Installation (ASTM C1007).
- IBC 2024 International Building Code. ASTM C955. ASTM A1003. ASTM A653 SS Grade 50 Class 1. Coating G60 or G90 per AISI S240 Section A4.
- ICC-ES ESR-5905 UMS Joists, UMS Studs and UMS Tracks.
- LEED / Sustainability Credits: Environmental Product Declaration S-P Code: S-P-00869
- Note: Punch-outs 1-1/2'' × 4'' at 24'' o.c., first punch-out min. 12'' from end. Properties are for the full section away from punch-outs; VaPO accounts for the punch-out.

Structural Studs. The technical content of this literature is effective 10/30/2026 and supersedes all previous information.