



www.studsunlimited.com

Product Category: 05 41 00 - Structural Framing

Product Name: 400S162-54

Important Properties Notes:

- Calculated properties are based on AISI S100-12 with S2-10 Supplement, North American Specification for Design of Cold-Formed Steel Structural Members.
- The centerline bend radius is based on inside corner radii shown in thickness chart.
- Effective properties incorporate the strength cold work of forming as applicable per AISI A7.2.
- Tabulated gross properties are based on full-section of the studs, away from punchouts.
- For deflection calculations, use the effective
- Allowable moment includes cold-work of forming.
- For the steels that have both 33 and 50 ksi listing, if the design is based on 50 ksi, the 50 ksi steel needs to be specified. (ex. 362S162-43 (50 ksi))

Project Information

Name:

Address:

Contractor Information

Name:

Contact:

Phone:

Fax:

Architect Information

Name:

Contact:

Phone:

Fax:

Distributor/Rep Information

Name:

Contact:

Phone:

Email /Web:

Properties

400S162-54 Properties

| | |
|---------------------|---------------|
| Finish: | G60 |
| Web Depth | 4" in |
| Flange Width | 1 5/8 in |
| Design Thickness | 0.0566 in |
| Thickness | 54mils or 16G |
| Yield stress, F_y | 50 ksi |
| Weight | 1.508 lb/ft |



400S162-54 Section Properties

Gross Section Properties

| | |
|--|-----------------------|
| Cross sectional area (A) | 0.443 in ² |
| Moment of inertia (I _x) | 1.098 in ⁴ |
| Section Modulus (S _x) | 0.549 in ³ |
| Radius of gyration (R _x) | 1.574 in |
| Gross moment of inertia (I _y) | 0.159 in ⁴ |
| Gross Radius of gyration (R _y) | 0.6 in |

Effective Section Properties

| | |
|--|-----------------------|
| Moment of inertia for deflection (I _{xe}) | 1.077 in ⁴ |
| Section modulus (S _{xe}) | 0.49 in ³ |
| Allowable bending moment (M _a) | 14.67 in-k |
| Allowable bending moment from distortional buckling (M _{ad}) | 15.26 in-K |
| Allowable strong axis shear away from punch-out (V _{ag}) | 3372 lb |
| Allowable strong axis shear at punch out (V _{anet}) | 1223 lb |

Torsional Properties

| | |
|--|-----------------------|
| St. Venant torsion constant (J x 1000) | 0.473 in ⁴ |
| Warping constant (C _w) | 0.56 in ⁶ |
| Distance from shear center to neutral axis (X ₀) | -1.238 in |
| Distance from shear center to mid-plane (M) | 0.754 in |
| Radii of gyration (R ₀) | 2.09 in |
| Torsional flexural constant (Beta) | 0.649 |
| Unbraced Length (L _u) | 34.1 in |



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Limiting Heights Properties

Limiting Wall Heights - Curtain Wall 1-Span

| Spacing (inches) | 5psf | | | 15psf | | | 20psf | | | 25psf | | |
|---------------------|--------|---------|--------|---------|---------|---------|--------|---------|--------|---------|---------|--------|
| | L/120 | L/240 | L/360 | L/240 | L/360 | L/600 | L/240 | L/360 | L/600 | L/240 | L/360 | L/600 |
| 12 | 30'-5" | 24'-2" | 21'-1" | 18'-10" | 16'-5" | 13'-10" | 17'-1" | 14'-11" | 12'-7" | 15'-11" | 13'-10" | 11'-8" |
| 16 | 27'-8" | 21'-11" | 19'-2" | 17'-1" | 14'-11" | 12'-7" | 15'-6" | 13'-7" | 11'-5" | 14'-5" | 12'-7" | 10'-7" |
| 24 | 24'-2" | 19'-2" | 16'-9" | 14'-11" | 13'-1" | 11'-0" | 13'-7" | 11'-10" | 10'-0" | 12'-7" | 11'-0" | 9'-3" |

| Spacing (inches) | 30psf | | | 35psf | | | 40psf | | | 50psf | | |
|---------------------|---------|---------|--------|---------|--------|--------|--------|---------|--------|--------|--------|-------|
| | L/240 | L/360 | L/600 | L/240 | L/360 | L/600 | L/240 | L/360 | L/600 | L/240 | L/360 | L/600 |
| 12 | 14'-11" | 13'-1" | 11'-0" | 14'-2" | 12'-5" | 10'-5" | 13'-7" | 11'-10" | 10'-0" | 12'-7" | 11'-0" | 9'-3" |
| 16 | 13'-7" | 11'-10" | 10'-0" | 12'-11" | 11'-3" | 9'-6" | 12'-4" | 10'-9" | 9'-1" | 11'-5" | 10'-0" | 8'-5" |
| 24 | 11'-10" | 10'-4" | 8'-9" | 11'-3" | 9'-10" | 8'-3" | 10'-9" | 9'-5" | 7'-11" | 10'-0" | 8'-9" | 7'-4" |

Additional Specification Information

Studs Unlimited is an SFIA member. Studs Unlimited acts in accordance with the product and quality standards required by the SFIA program.

Studs Unlimited meets or exceeds ASTM C955, A653, and A1003.

LEED Specification Information

Materials & Resources Credit 2: Construction Waste Management - Studs Unlimited Steel Framing Products are formed from steel and are 100% recyclable. **(1 point)**

Materials & Resources Credit 4: Recycled Content intends to increase demand for building products that incorporate recycled content materials, therefore reducing impacts resulting from extraction and processing of new virgin materials. As discussed and demonstrated below, North American steel building products contribute positively toward points under Credits 4.1 and 4.2. The following is required by LEED-NC Versions 2.2 and 2009:

Credit 4.1 (1 point) Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.

Credit 4.2 (1 point) Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of pre-consumer content constitutes at least 20% of the total value of the materials in the project.

Materials & Resources Credit 5: Regional Materials - Contact Studs Unlimited directly for information at bjpowell@studsunlimited.com. Studs Unlimited is located in Oklahoma City, Oklahoma. **(1 point)**