05.40.00 (Cold-Formed Metal Framing)

Used in framing applications:
- Load-bearing walls
- Curtain walls
- Tall interior walls
- Floor & ceiling joists
- Trusses

**Structural Stud**

**Geometric Properties**
- Web depth: 6.000 in
- Flange width: 1.625 in
- Punchout width: 1.50 in
- Stiffening lip: 0.500 in
- Punchout length: 4.00 in
- Design thickness: 0.0451 in
- Min. steel thickness: 0.0428 in
- Yield strength, $F_y$: 33 ksi
- Fy with Cold-Work, $F_{ya}$: 36.3 ksi
- Ultimate, $F_u$: 45.0 ksi
- Color coding: Yellow

**Gross Section Properties of Full Section, Strong Axis**
- Cross sectional area (A): 0.447 in²
- Member weight per foot of length: 1.52 lb/ft
- Moment of inertia (I_x): 2.316 in⁴
- Section modulus (S_x): 0.772 in³
- Radius of gyration (R_x): 2.277 in
- Gross moment of inertia (I_y): 0.148 in⁴
- Gross radius of gyration (R_y): 0.576 in

**Effective Area Properties, Strong Axis**
- Effective Area (A_e): 0.256 in²
- Moment of inertia for deflection (I_x): 2.316 in⁴
- Section modulus (S_x): 0.767 in³
- Allowable bending moment (M_a): 16.68 in-k
- Allowable moment based on distortion buckling (M_ads): 13.06 in-k
- Allowable shear force in web (solid section): 1416 lb
- Allowable shear force in web (perforated section): 1240 lb
- Unbraced length (L_u): 39.0 in

**Torsional Properties**
- St. Venant torsion constant ($J \times 10^6$): 0.303 in⁴
- Warping constant (C_w): 1.095 in⁶
- Distance from shear center to neutral axis (X_0): -1.062 in
- Distance between shear center and web centerline (m): 0.670 in
- Radii of gyration (R_o): 2.577 in
- Torsional flexural constant (Beta): 0.830

**ASTM & Code Standards:**
- AISI North American Specification [NASPEC] S100-16
- Sheet steel meets or exceeds mechanical and chemical requirements of ASTM A1003
- ClarkDietrich's structural and nonstructural framing comply with the SFIA Code Compliance Certification Program, ICC-ES ESR-1166P and Intertek CCRR-0206
- For installation & storage information refer to ASTM C1007
- SDS & Product Certification Information is available at itools.clarkdietrich.com

**Sustainability Credits:**
For more details and LEED letters contact Technical Services at 888-437-3244 or visit www.clarkdietrich.com/LEED

LEED v4 MR Credit – Building Product Disclosure and Optimization: EPD (1 point) - Sourcing of Raw Materials (1 point) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points) - Innovation Credit (up to 2 points).

LEED 2009 Credit MR 2 & MR 4 – ClarkDietrich's steel products are 100% recyclable and have a national average recycled content of 34.2% (19.8% post-consumer and 14.4% pre-consumer). If seeking a higher number to meet Credit MR 5, please contact us at (info@clarkdietrich.com / 888-437-3244)