



STEEL FRAMING LLC

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GREEN Benefits & Recycled Content

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Project:

MRI Steel Framing is committed to supplying quality products that contribute to developing greener building projects as well as sustainability and environmental management.

MRI Steel Framing has an Environmental Product Declaration (EPD), Number SCS-EPD-08959, covering our Cold-Formed Steel Framing Products, which conforms to ISO 14025, 14040, 14044, and ISO 21930. This EPD is a Product Specific Type III and has a Cradle to Gate scope. More specifically, this Type III EPD has been externally reviewed following ISO 14071 and externally verified, and as such, is eligible to contribute 150% of a product for the purposes of LEED® credits under the LEED® v4.1 standard.

The MRI Steel Framing Environmental Product Declaration (EPD) can help your building project qualify for the following LEED® v4.1 for BD+C points:

MATERIALS AND RESOURCES CREDIT (MR)

- Environmental Product Declarations - Up to 2 Points
- Sourcing of Raw Materials - Up to 2 Points
- Material Ingredients - Up to 2 Points
- Construction and Demolition Waste Management - Up to 2 Points

INDOOR ENVIRONMENTAL QUALITY CREDIT (EQ)

- Low-Emitting Materials - Up to 3 Points
- Construction Indoor Air Quality Management Plan - Up to 1 Point
- Indoor Air Quality Assessment - Up to 2 Points

MRI Steel Framing products and accessories are manufactured from steel coil (100% by weight) containing 19.8% post-consumer recycled content and 14.4% post-industrial/pre-consumer recycled content for a total of 34.2% recycled content. These calculations are based upon information provided by the Steel Recycling Institute on minimum BOF (Basic Oxygen Furnace) steel recycled content.

In addition to the above mentioned EPD and LEED® information, MRI Steel Framing also has a Health Product Declaration (HPD) with a Unique Identifier Number of 27459 covering our full line of Interior Framing, Structural Framing, Slotted Deflection Track and Accessories; MasterSpec 05.40.00 and 09.22.16.

Product Category: 09.22.16 - Non-Structural Metal Framing

Product Name: 400SES125-27 Smart Stud 20 EQ

Available Finish: G40, G60

*Other standard coatings referenced in ASTM A1003

Web Depth:	4 in
Flange Width:	1-1/4 in
Design Thickness:	0.0283 in
Gauge:	27 mils or 20 EQ
Yield stress, Fy:	43 ksi
Weight:	0.64 lb/ft

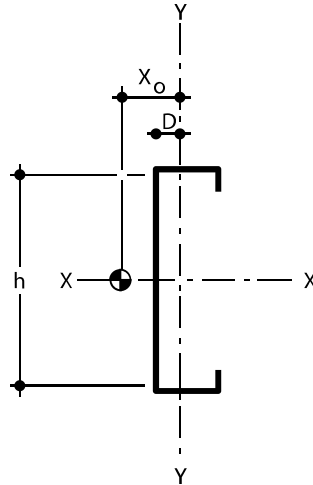
Gross Section Properties

Cross sectional area (A)	0.187 in ²
Moment of inertia (I _{xx})	0.438 in ⁴
Section Modulus (S _{xx})	0.219 in ³
Radius of gyration (R _x)	1.531 in
Gross moment of inertia (I _{yy})	0.031 in ⁴
Gross Radius of gyration (R _y)	0.410 in

Effective Section Properties

Moment of inertia for deflection (I _{xx})	0.431 in ⁴
Section modulus (S _{xx})	0.138 in ³
Allowable bending moment (Ma-L)	3.560 In-k
Allowable bending moment from distortional buckling (Ma-D)	3.26 In-k
Allowable strong axis shear away from punch-out (V _{ag})	533 lb
Allowable strong axis shear at punch out (V _{aNet})	398 lb

- Calculated properties are based on AISI S100-16/S2-20, North American Specification for Design of Cold-Formed Steel Structural Members and meets the requirements of the IBC 2021 Building Code.
- The centerline bend radius is based on inside corner radii shown in thickness chart.
- Effective properties incorporate the strength increase from the cold work of forming as applicable per AISI A7.2.
- Tabulated gross properties are based on full-unreduced cross section of the studs, away from punchouts.
- For deflection calculations, use the effective moment of inertia.
- Allowable moment includes cold-work of forming.


Torsional Properties

St. Venant torsion constant (J x 1000)	0.050 in ⁴
Warping constant (C _w)	0.098 in ⁶
Distance from shear center to neutral axis (X _o)	-0.744 in
Distance from shear center to mid-plane of web (m)	0.469 in
Radius of gyration (R _o)	1.751 in
Torsional flexural constant (β)	0.819
Unbraced Length (L _u)	25.0 in

Interior Non-Structural, Non-Composite Wall Height Table Notes

- Calculations are based on AISI Standard, North American Specification for the Design of Cold-Formed Steel Structural Members, 2016 edition (AISI S100-2016). All calculations are based on allowable strength design (ASD).
- When provided, factory punchouts will be located along the centerline of the webs of the members and will have a minimum center-to-center spacing of 24 inches. Punchouts for members > 2.5 inches deep are a maximum of 1.5 inches wide x 4 inches long. Members with depths 2.5" and smaller are maximum 3/4" wide x 4 inches long.
- For deflection determination, use the effective moment of inertia.
- The effective moment of inertia for deflection is calculated at a stress which results in a section modulus such that the stress times the section modulus at that stress is equal to the allowable local buckling moment, Ma-L.
- Tabulated gross and torsional properties are based on the full, unreduced section away from punchouts
- Effective X-X Axis properties of all stud and joist sections based on punched sections.
- Where section designations include a superscript '1', web height-to-thickness exceeds 200. Web stiffeners are required at all supports and concentrated loads.
- Where effective properties are not listed for a section, web depth-to-thickness or flange width-to-thickness limits from the AISI S100 are exceeded. Only gross properties are available.
- Allowable bending moment and moment of inertia for 6" studs based on the direct strength method (DSM).

Additional Information

MRI Steel Framing, LLC is an SFIA member. MRI acts in accordance with the product and quality standards required by the SFIA program.

MRI meets or exceeds ASTM C645, C754, A653, and A1003.

Current LEED credits available upon request

Non-Composite Limiting Heights – Fully Braced

Spacing (inches)	5psf L/120	5psf L/240	5psf L/360	7.5psf L/120	7.5psf L/240	7.5psf L/360	10psf L/120	10psf L/240	10psf L/360
12	20' 10"	17' 10"	15' 8"	17' 0"	15' 7"	13' 8"	14' 9"	14' 2"	12' 4"
16	18' 1"	16' 2"	14' 2"	14' 9"	14' 2"	12' 4"	12' 9"	12' 9"	11' 3"
24	14' 9"	14' 2"	12' 4"	12' 0"	12' 0"	10' 10"	10' 5"	10' 5"	9' 10"

Interior Nonstructural Composite

Spacing (inches)	5psf L/120	5psf L/240	5psf L/360	7.5psf L/120	7.5psf L/240	7.5psf L/360	10psf L/120	10psf L/240	10psf L/360	15psf L/120	15psf L/240	15psf L/360
12	24'-6"	19'-5"	17'-0"	21'-5"	17'-0"	14'-10"	18'-8" f	15'-5"	13'-6"	12'-3"	12'-3" f	11'-8"
16	22'-3"	17'-8"	15'-5"	18'-8" f	15'-5"	13'-6"	16'-2" f	14'-0"	12'-2"	10'-8"	10'-8" f	10'-6"
24	18'-8" f	15'-5"	13'-6"	15'-3" f	13'-6"	11'-8"	13'-3" f	12'-2"	10'-6"	---	---	---