

# 10 Things You Need To Know About Light Gage Steel Design

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Cold-formed steel studs, or light gage steel studs, are non-combustible, made from recycled material (adding points toward LEED certification), inherently mold resistant, durable and dimensionally straight—making them a logical choice for many applications. Here are some things to keep in mind when you're designing with steel studs.

## 1. What do those numbers mean?

All steel stud products manufactured by members of the Steel Stud Manufacturers Association (SSMA) have a four part nomenclature that identifies the size, type, and thickness (gage) of the member.

**600S162-54**

*means*



**Depth:** depth of the member in inches, to 2 decimal places, with no decimal point given. i.e.: 600 = 6"; 1000 = 10"; 550 = 5½"; 362 = 3<sup>5</sup>/<sub>8</sub> ".

**Member Type:** There are 2 main member types. Here they are with their corresponding letters:

S = Stud ("C" or channel member)

T = Track

Less common member types:

F = Furring channel

U = "U" channel

**Flange Width:** width of flange in inches, to 2 decimal places, with no decimal point given. i.e.: 162 = 1<sup>5</sup>/<sub>8</sub>"; 200 = 2"; 125 = 1¼".

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**Metal Thickness:** minimum uncoated thickness of the metal in mils.

In plain English, 600S162-54 refers to a 6" deep stud with a  $1\frac{5}{8}$ " flange; the stud is 16-gage (54 mils).

### 2. Mils to gage conversion

To convert the mils given to the standard gage designation, use this table:

Mils	=	Gage
33	=	20
43	=	18
54	=	16
68	=	14
97	=	12
118	=	10

### 3. Brick Veneer on Exterior Non-Bearing Walls

When you're designing for a brick veneer, make sure you've limited deflection for wind loading. The Brick Industry Association (Technical Note 28B) recommends a maximum allowable deflection of  $L/600$ . Your specialty engineer can recommend an economical solution like using the wind loads permitted in the 2002 Wisconsin Enrolled Commercial Building Code (IBC 2003). In the code (Table 1604.3, footnote f) wind loads are permitted to be taken as 0.7 times the "component and cladding" loads to determine calculated deflections. Your specialty engineer knows the codes for your state.

### 4. Stud Depths on Exterior Non-Bearing Walls

Always show the desired stud depths on your drawings; this may drive the architectural look of the element that is framed with light gage steel. With the desired depth established, the Structural Engineer of Record can let you know what the allowable wall heights are, based on loads and deflection criteria. With these criteria, the Specialty Engineer can accurately design the light gage steel studs.

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### **5. Slide Clips and Deflection Tracks**

Use slide clips and deep leg deflection tracks to allow for the vertical deflection of the roof/floor structure. Slide clips are appropriate where curtain wall studs bypass spandrel beams. Deflection tracks are appropriate where curtain wall studs frame to the underside of the floor structure.

### **6. Line Up Load Bearing Walls**

Line up bearing walls from floor to floor. Because of thin member limitations, it is critical for load transfer that cold formed steel bearing walls align vertically. If you are not able to align the bearing walls vertically, you should consider other framing systems.

### **7. Shear Wall Locations**

Early on in your project, identify potential shear wall locations. Lateral load resisting systems often used in conjunction with light gauge steel stud bearing walls, include: sheathed shearwalls (similar to conventional wood framing); strap x-bracing on one or both sides of a wall; or reinforced masonry or cast-in-place concrete shearwalls. Minimizing or eliminating openings in shear walls is highly recommended.

### **8. Light Gauge Steel Bid Documents**

The drawings you send out to light gauge steel contractors for bidding should show enough detail to enable the contractor to provide the Owner with an accurate bid. This saves many headaches during construction; the contractor knows exactly what's required and the Owner knows exactly what they're getting. Stud depths, minimum stud gages (if required for performance) and maximum stud spacing (for sheathing requirements) should always be detailed on the bid drawings.

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### 9. How the Specialty Engineer Affects the Bottom Line

Light gage steel studs are a component element and should be specified as a performance item. The light gage steel contractor will hire a Specialty Engineer to detail and design the steel studs to meet the performance criteria. A good Specialty Engineer will choose the most economical stud design that fits the loading requirements, deflection criteria and specified minimum gages.

### 10. Galvanized Coating

Always indicate your preferred galvanized coating in the specifications. There are two coatings available, the G-60 and the G-90. The Lead Zinc Research Organization (GalvInfoNote #19) recommends:

Coating	Recommended for
G60	indoor applications where the environment is relatively dry
G90	applications where there is a potential for dampness from condensation.