LightweightSteelFraming

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Changing Standard Thicknesses for Canadian Lightweight Steel Framing Applications

Starting in June 2004, Canada and the United States will both have a common set of standard base steel thicknesses for lightweight steel framing components (e.g. studs and joists). The North American cold formed steel industry has been pursuing the benefits of standardization, by harmonizing both framing products as well as engineering design practice. The *North American Specification for the Design of Cold-Formed Steel Structural members* (the CSA-S136-01 standard in Canada) is the current design document for cold formed steel structural members, and is the first North American structural design standard. This one document applies in Canada, United States and Mexico. With the further adoption of common thicknesses, the manufacturers of lightweight steel framing products in North America can work towards standardizing product geometries that will also benefit the construction industry. The new standard thicknesses are provided in Table 1 shown below.

Designation Thickness	Minimum Base Steel Thickness[1]		Design Thickness		Colour	Steel Framing Gauge No.
(mils)[2]	(in.)	(mm)	(in.)	(mm)		(for reference only)
18	0.0179	0.455	0.0188	0.478		25
30	0.0296	0.752	0.0312	0.792		20 - Drywall
33	0.0329	0.836	0.0346	0.879	White	20 - Structural
43	0.0428	1.087	0.0451	1.146	Yellow	18
54	0.0538	1.367	0.0566	1.438	Green	16
68	0.0677	1.720	0.0713	1.811	Orange	14
97	0.0966	2.454	0.1017	2.583	Red	12
118	0.1180	2.997	0.1242	3.155	Blue	10

Table 1 - Lightweight Steel Framing Standard Thicknesses (Effective June 1, 2004)

(1) Minimum thickness represents 95% of the design thickness, and is the minimum acceptable thickness of the base steel delivered to the jobsite.
(2) A "mil" is 1/1000 of an inch (e.g. 30 mils is 0.030 inches).

The gauge numbers listed in Table 1 are only provided as a convenience and are not to be used when ordering or specifying steel. They are shown for reference purposes only. It is also important to note that these thickness gauge equivalents are different than the more commonly used Manufacturers' Standard Gauge (MSG) system used for other structural sheet steel products (e.g. cladding and deck). With the transition to these new thicknesses it is even more important than before not to use gauge numbers: doing so will cause mistakes. Using the decimal thickness is the only way of ensuring that the product specified is the product delivered to the site.

The colours listed in Table 1 are used by the manufacturer to identify the product thicknesses. Typically this colour is spray-painted on the end of a bundle of members (e.g. stud, joist or track) for easy identification. These colour-thickness combinations are consistent with the requirements in the ASTM C955 *Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Track), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases*. It should be noted that these colour combinations

Canadian Sheet Steel Building Institute
652 Bishop St. N., Unit 2A
Cambridge, Ontario N3H 4V6
Tel.: (519) 650-1285
Fax: (519) 650-8081
Web Site: www.cssbi.ca

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are different from the colours commonly used in Canada at the present time. The change in colours will follow the change in standard thicknesses.

Sheet steel products are normally coated with a metallic coating (i.e. zinc or 55% aluminum-zinc alloy). The minimum thicknesses of typical hot-dipped metallic coatings are given in Table 2. These metallic coating thicknesses must be added to the base sheet thickness when determining the delivered sheet thickness. Metallic coatings are also subject to manufacturing tolerances the same as the base steel. Therefore, the actual thickness of the metallic coating will be greater than the minimum thicknesses listed in Table 2. This factor needs to be considered when attempting to verify the base steel thickness of a coated product. There are other coating types and weights in addition to those listed in Table 2 that may be used with other cold formed steel products.

Imperial Coating Designation	Minimum Thickness* (inches)	Metric Coating Designation	Minimum Thickness* (mm)
G40	G40	Z120	0.018
G60	G60	Z180	0.025
G90	G90	Z275	0.038
AZ50	AZ50	AZM150	0.041
AZ55	AZ55	AZM165	0.046
AZ60	AZ60	AZM180	0.051

Table 2 - Minimum Metallic Coating Thicknesses

* Thickness is total both sides of the sheet.

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