

The Right STUFL:

Universal Designator System for Cold-Formed Steel Framing Members

The Logic

The dimensions of the webs and flanges in the designators are used because they convey an intuitive picture of the shape, like a "2 x 4" describes a wood stud. The web depth was put first, instead of the flange width (the "2" in "2 x 4") because with steel the strength-to-weight ratio is usually optimized by increasing web depth instead of flange width, all else being equal.

The web depth and flange width are expressed in 1/100th or 1/1000th inches because fractions are messy, and with such a variety of depths and widths available, rounding to the nearest fractions of an inch is not sufficiently descriptive. Also, the metric system is expected to become universal, in which case the depths and widths would be expressed in millimeters, resulting in the same 3-digit format. Lastly, the logic behind the alpha designators (S for Stud, T for Track, etc.) should be obvious.

Minimum Base Steel Thicknesses

The minimum delivered base steel thickness designators are those used in Prescriptive Standards that are currently in the International Building Code (IBC) and International Residential Code (IRC), and correspond to ICBO's minimum prescribed thicknesses (expressed in mils). These minimum thicknesses are:

Gauge	Inches	Mil
25 gauge	.0179"	18 mil
22 gauge	.0269"	27 mil
20 gauge (Drywall)	.0296"	30 mil
20 gauge (Structural)	.0329"	33 mil
18 gauge	.0428"	43 mil
16 gauge	.0538"	54 mil
14 gauge	.0677"	68 mil
12 gauge	.0966"	97 mil
10 gauge	.1180"	118 mil

Stiffening Lips on C-Sections

The dimension of the stiffening lip by flange width and material thickness are as follows:

Material Thickness	Flange Width	Stiffening Lip
.0179" to .0296"	1-1/4"	3/16"
All thicknesses	1-3/8"	3/8"
All thicknesses	1-5/8"	1/2"
All thicknesses	2"	5/8"
All thicknesses	2-1/2"	5/8"

The Purpose

With the universal designator system for steel framing members and accepted minimum base steel thicknesses and stiffening lip dimensions, the section properties and load-carrying abilities of any given profile can be calculated and implemented. Regardless of the manufacturer, not only will the designation be identical for a standard steel framing member, but the section properties and load-carrying abilities of that standard member will be uniform throughout the Country. In addition to helping eliminate the confusion in the market stemming from the widely varying properties and loads published by manufacturers making essentially identical shapes, these standards greatly facilitate submittals for plan check, code approvals, prescriptive standards, software development, etc. The intent is to make the products easier to use in existing markets and to accelerate their acceptance in new markets.