

A look at how structural steel is used on a state-by-state basis.

economics

SO WHERE DOES ALL THAT STEEL GO?

BY JOHN CROSS, P.E.

THE AISC STEEL SOLUTIONS CENTER (SSC) is often asked questions like “How much structural steel is sold in New Jersey?” As much as we’d like to answer that question, the answer has always been “We don’t know.”

But what don’t we know? We don’t know how much structural steel each producing mill ships to each state; that’s proprietary information we shouldn’t know. We don’t know how much structural steel is sold by service centers in each state; that’s also proprietary information we shouldn’t know. We don’t know how much structural steel is purchased by the fabricators in a particular state; that too is proprietary. That level of sales information is the confidential property of each individual firm and should form part of *their* competitive strategy in the marketplace.

Does that mean that the SSC doesn’t know anything about the consumption of structural steel on a state-by-state basis? Absolutely not! While the SSC may not be able to indicate how much steel was sold to service centers or fabricators in a given state, we can provide a good estimate of the amount of structural steel consumed on a state-by-state basis.

AISC receives information on building project starts from McGraw-Hill Analytics and industrial project starts from Industrial Info Resources. From their data the level of construction activity in a given state can be determined. The McGraw-Hill information is provided on a square footage of construction basis and the Industrial Info Resources provides total project cost data, both further separated out by project type. By applying typical ratios of steel consumption against these square footage and project budget values, it is possible to estimate the amount of structural steel consumed on a state-by-state basis.

For the purpose of this discussion, structural steel tonnage includes wide-flange sections, hollow structural sections (HSS) and angles and channels with at least one dimension greater than 3 in. Plate steel is not included in these consumption estimates.

With all of that in mind, what are the numbers? In 2012 approximately 6.4 million tons of structural steel were consumed in the U.S. market. Based on typical consumption rates, 2.5 million tons were used in building construction, 2.4 million tons in non-building structures and 1.5 million tons in non-structure applications. (Non-building structures are projects not under roof such as chemical, petroleum, mining and energy projects, while non-structure applications include rack systems, marine applications, trailers, transportation, mobile homes and OEM applications.) The distribution of consumption between these three categories provides an interesting insight into the transition of the construction economy over the past several years.

Clearly the impact of the recession beginning in 2007 on building construction has resulted in a significant shift in the consumption pattern for structural steel (see Table 1).

	2006	2009	2012
Building Structures	61%	44%	39%
Non-building Structures	25%	33%	38%
Non-structural	14%	23%	23%

▲ Table 1: Change in Steel Consumption Patterns

On a state-by-state basis it is not possible to track the non-structure consumption of structural steel, but for the combined categories of building and non-building structures, state-by-state consumption is estimated in Table 2 (following page).

The consumption data presented on the chart is an estimate based on the start date of construction. It does not reflect the actual date of acquisition of the structural steel used on a project by a service center or fabricator.

An interesting variation on this study is to look at the consumption of structural steel on a per capita basis. The results are significantly different than simply evaluating state consumption. On a per capita basis the top five states including the District of Columbia are:

North Dakota	141.4 lbs/person
Louisiana	118.9
South Carolina	101.8
Montana	69.8
District of Columbia	69.2

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States with the least consumption on a per capita basis are:

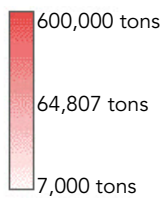
Hawaii	9.7 lbs/person
Rhode Island	13.0
Florida	15.8
Nevada	15.8
Maine	16.5

Can the SSC tell you how much structural steel was purchased on a state-by-state basis? No, but they can tell you how much structural steel was consumed in structures on a state-by-state basis. **MSC**



▲ Figure 1: Consumption of Structural Steel by State

▼ Figure 2: Consumption of Structural Steel on a per Capita Basis



State	Estimated Tonnage	Percent of Domestic Consumption
Texas	592,000	12.3%
California	394,000	8.2%
Louisiana	269,000	5.6%
South Carolina	236,000	4.9%
Georgia	223,000	4.6%
New York	203,000	4.2%
Pennsylvania	179,000	3.7%
Illinois	154,000	3.2%
Ohio	153,000	3.2%
Florida	149,000	3.1%
Indiana	133,000	2.8%
Michigan	123,000	2.5%
Virginia	115,000	2.4%
Massachusetts	111,000	2.3%
Missouri	106,000	2.2%
North Carolina	104,000	2.2%
Tennessee	104,000	2.2%
Colorado	102,000	2.1%
Alabama	92,000	1.9%
New Jersey	90,000	1.9%
Oklahoma	87,000	1.8%
Wisconsin	84,000	1.7%
Iowa	83,000	1.7%
Utah	72,000	1.5%
Minnesota	72,000	1.5%
Kansas	67,000	1.4%
Washington	62,000	1.3%
Kentucky	62,000	1.3%
Maryland	58,000	1.2%
Arizona	57,000	1.2%
North Dakota	48,000	1.0%
Connecticut	45,000	0.9%
West Virginia	35,000	0.7%
Montana	35,000	0.7%
Mississippi	33,000	0.7%
Oregon	32,000	0.7%
New Mexico	31,000	0.6%
Nebraska	31,000	0.6%
Arkansas	27,000	0.6%
South Dakota	23,000	0.5%
District of Columbia	22,000	0.5%
Nevada	21,000	0.4%
Idaho	20,000	0.4%
New Hampshire	16,000	0.3%
Wyoming	15,000	0.3%
Alaska	15,000	0.3%
Maine	11,000	0.2%
Delaware	8,000	0.2%
Vermont	7,000	0.1%
Rhode Island	7,000	0.1%
Hawaii	7,000	0.1%

▲ Table 2: Steel Consumption by State