



NEW MILLENNIUM
BUILDING SYSTEMS
Building a better steel experience.

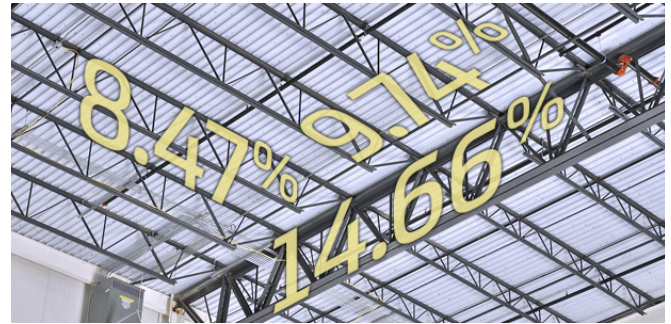


APPLICATION NOTES

December 2, 2016

Cost cutting by the numbers

We know of three proven ways to engineer costs out of a steel joist and deck project. As to how much you can save on a given project, here are some numbers that may surprise you.

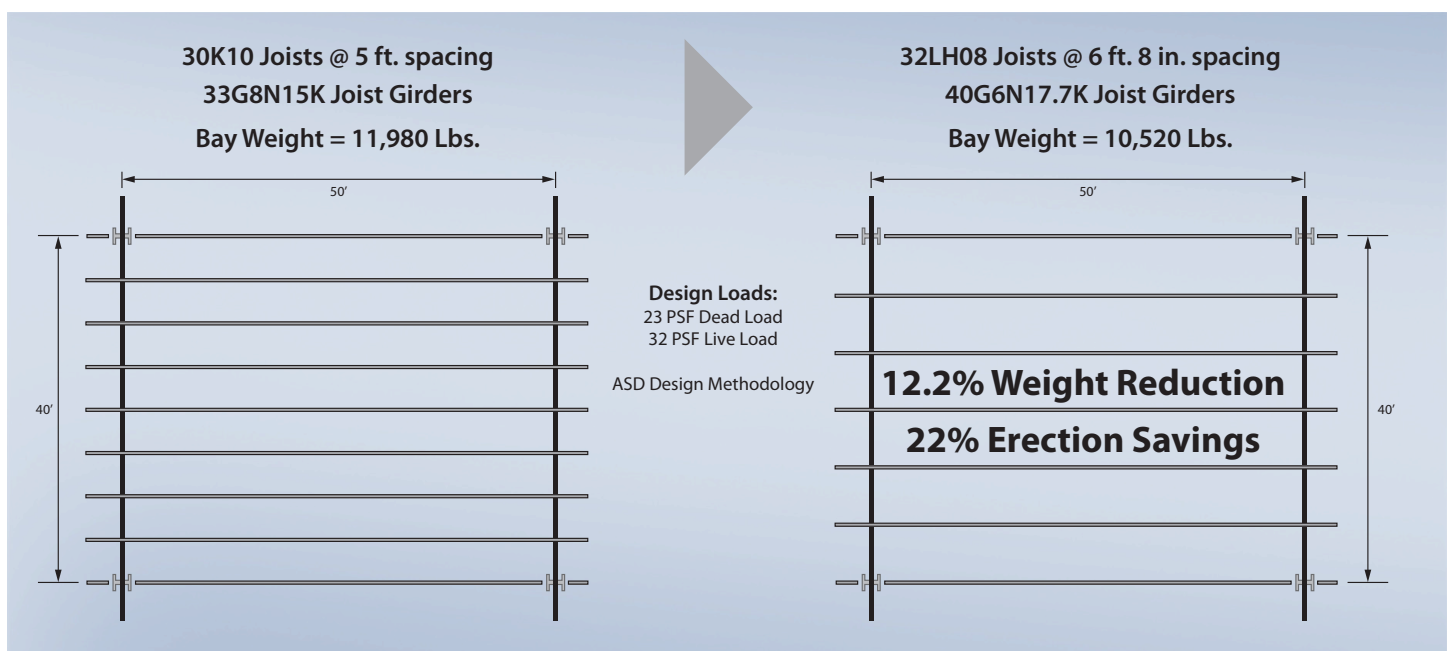


Steel joists and deck form tried-and-true systems for many roofing applications. These systems may conjure up images of distribution centers and projects considered low in design complexity; but even the most basic steel joist and deck structure is a highly engineered system, challenging the engineer to find and eliminate unnecessary costs.

1) Maximize deck capacity

A fundamental way to reduce costs on most any steel building project is to maximize deck capacity. The goal is to space deck support members to meet actual loads, rather than use "standard" load table specifications.

For example, a typical bay design may use standard 30K10 joists spaced five feet apart. By spacing the joists further apart, using 32LH08 joists, we can achieve a reduction in weight and a related reduction in erection costs.



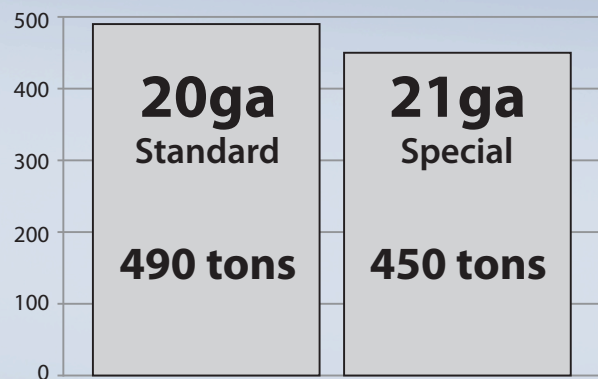
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2) Specify the deck gauge

A companion goal to maximizing deck capacity is to specify the thickness of the steel decking, rather than default to a standard gauge of steel deck. This reduces steel volume and piece count, cutting down on fabrication and erection costs.

For example, a project using 6,056 squares of steel B deck was initially specified to use 22 gage decking. By analyzing the diaphragm strength required for the interior and edges of the roof structure, it was determined that a 23 gage deck specification led to an 8% reduction in deck material costs and a 2% overall reduction in the total joist and deck package cost.

Material required per 500,000 sq. ft. of deck



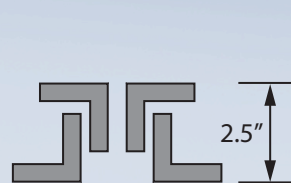
Saves \$25,000

3) Use deeper joist seats

For R type joist extensions, cost savings can often be achieved by increasing the extension seat depth. This can provide the required design strength with less steel. Any time the R-Type extension number is greater than the K-Series joist number, a deeper bearing seat should be considered.

For example, in an application where the seat depth is specified at 2.5", the joist requires a larger top chord and bearing angle. But if we use a 5" seat depth, we can meet the R10 value with a standard top chord and bearing angle. The resulting cost reduction to the project comes from the use of 40% less steel joist weight.

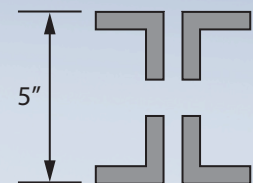
Deeper seats for R-type extensions



Top chord: 2 @ 2 x 2 x 3/16

Bearing angle: 2 @ 2 x 2 x 3/16

Joist weight: 228 lbs.



Top chord: 2 @ 1.5 x 1.5 x 1/8

Bearing angle: 2 @ 1.5 x 1.5 x 1/8

Joist weight: 139 lbs.

40% lighter



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