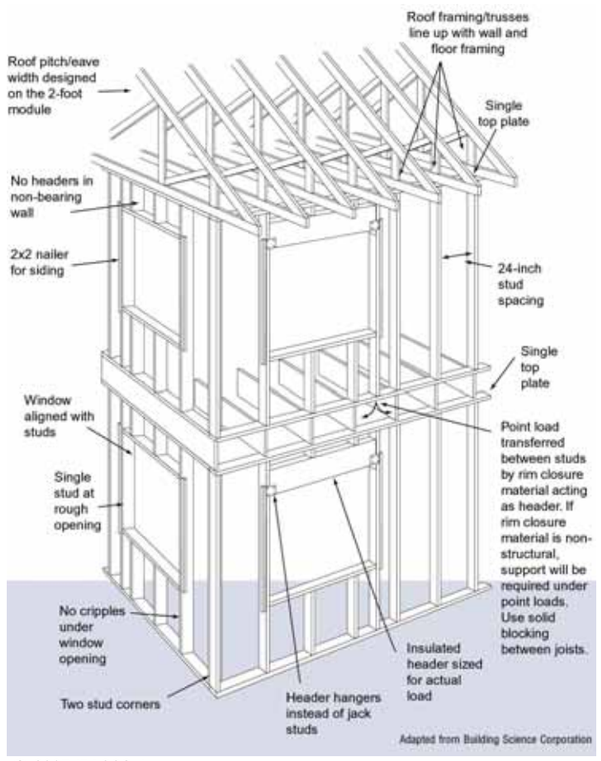
Optimum Value Engineering:

The Whole House Concept Expanded

by Libby Maurer

Discover what OVE means to component manufacturers and framers as well as how each is applying it.

It's only January, and we already have our fingers on the pulse of a likely candidate for this year's buzzword. Three words to be exact. If you've been hearing "optimum value engineering" an awful lot lately, you're not alone. Let's take a look at this concept and what it means to component manufacturers.



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What It Is

There are two schools of thought when it comes to optimum value engineering, or OVE. The first is a set of advanced framing techniques aimed at reducing material costs, material waste and labor on the jobsite. Don't let its imposing name fool you; these OVE techniques are all about making the house as affordable as possible while maintaining structural integrity for the safety of the end user.

Most of these techniques are applied on the jobsite during framing rather than in a controlled manufacturing environment. Here are some common OVE techniques:

- Two-stud corner framing with drywall clips
- Increasing floor joist and rafter spacing to 24"
- Eliminating headers in non-load bearing walls
- Increasing stud spacing from 16" to 24"
- Using single top plates with in-line framing to transfer loads directly

According to the Partnership for Advancing Technology in Housing (PATH), material cost savings of $500 for a 1,200 sq. ft. home and $1,000 for a 2,400 sq. ft. home can be realized if advanced framing is fully incorporated. PATH estimates labor savings of between three to five percent when OVE framing techniques are used. Since each OVE practice can be implemented independently, builders can take an incremental approach to allow framers to master a few at a time.

We've seen how OVE can cut framing expenses—great news for the builder and framer—but isn't there a design component to OVE? There certainly is, and that brings us to the second application of OVE. Component manufacturers are often involved with OVE on the front end of the truss design process for several reasons. One reason is to minimize material waste in the shop. Metal connector plates and joints can be optimized with a function found in most truss design software. Another reason optimization is necessary is if the homeowner has specified any of the advanced framing techniques discussed above. Because typical component design doesn't often take on-site framing details into account, OVE has major implications for the component manufacturer, long before walls or roof trusses are built. In structures where advanced framing techniques will be used, it will be crucial for component manufacturers to be involved in the design of wall framing up front. And those framing details will have to be accurately communicated to the builder and framing crew. You can see that much of the success of such on-site practices depends on the manufacturer's component design.

at a glance

- ❑ Optimum value engineering (OVE) has applications in the component design phase and on the jobsite.
- ❑ Using OVE techniques in the field can reduce framing expenses by as much as $1,000 per 2,400 square foot home, according to a study done by the Partnership for Advanced Technologies in Housing.
- ❑ Component manufacturers can use design software to optimize component design.

The OVE/Whole House Design (WHD) Link

If that other three-word phrase—whole house design—is becoming a peripheral thought, you're on the right track. You can also think of optimum value engineering as a concept that fits into whole house design. Due to an increase in the "one-stop shop" trend, component manufacturers are selling things like headers, connectors, and the miscellaneous framing lumber—in addition to wall panels or wall framing lumber, roofs and floors—in packages. As manufacturers adopt a more holistic view of engineering the entire structure, optimizing the engineering for that entire structure is the next most logical step toward greater efficiency.

The practical application of OVE within WHD looks like this: optimizing roof truss, floor truss and wall panel designs to a certain level that allows for the most efficient on-site framing solution. This means incorporating compatible trusses and wall panel designs, with the goal of manufacturing components that can be framed using the most efficient framing techniques and with the least possible materials possible. The entire process of design, manufacturing, delivery, handling and installation accounts for ease of application on the jobsite. This even includes all the miscellaneous framing lumber and other "accessories" needed by the framing crew to progress through the construction process without delay.

When optimum value engineering techniques are carried out properly, the engineering for each structural component, connection, installation and framing detail is optimized. The end result is that you've effectively encouraging everyone in the construction process to figure out how to be most efficient. This ultimately should lead to the best economic framing solution for each construction project. SBC

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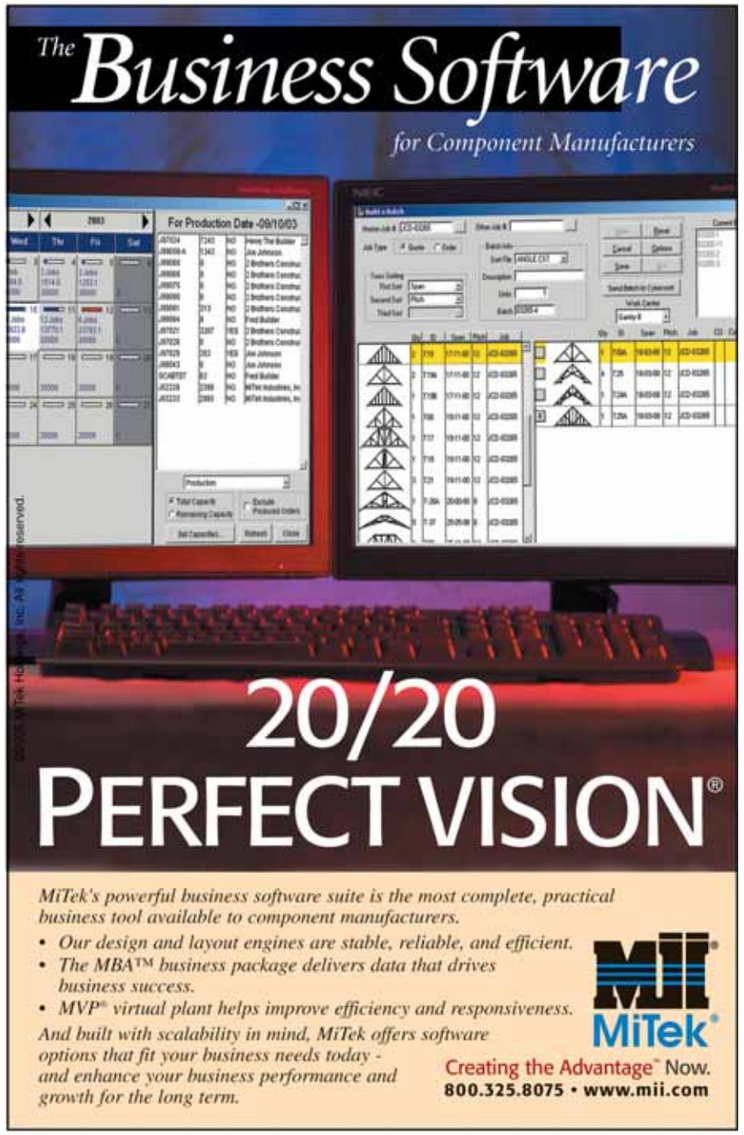

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