

FRAMING IN A TIME OF SHORTAGE

By facilitating and requiring collaboration among all construction trades, builders can mitigate the expense of framing rework and better avoid the consequences of the skilled labor shortage





By Glenn Cottrell

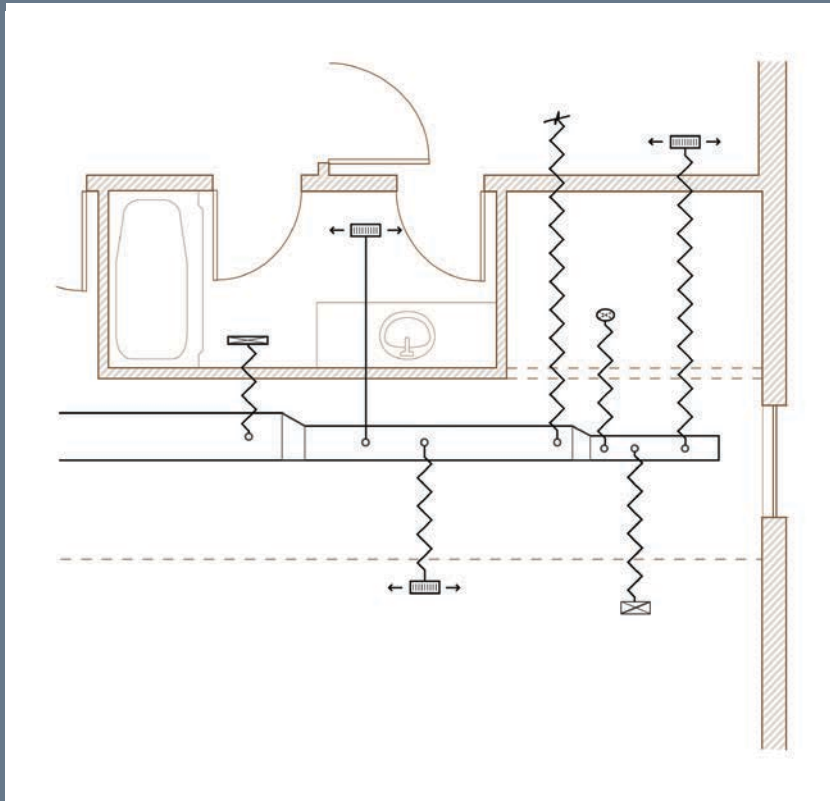
When the idea for this article first came to be, the initial concept was “advanced framing,” also known to old-schoolers as “optimum value engineering” or simply OVE. But this article isn’t about that.

Don’t get me wrong, advanced framing is a great concept and a valuable best practice. Reducing the number of sticks required to build a high-quality house frame has helped builders combat lumber price spikes, reduce jobsite waste, and achieve greater insulating values throughout the thermal shell. Advanced framing works. But the housing industry’s biggest problem right now isn’t volatile lumber prices or increasingly stringent energy codes. It’s the lack of skilled construction labor, specifically framers. And the problem is only getting worse.

LABOR IS SCARCE

I won’t go deep into the numbers or the reasons why, but suffice it to say that builders in many markets across the country, among all housing types and price points, are suffering the aftershocks of the housing bust when it comes to finding enough framers to keep up with demand for new homes.

By some estimates, our industry needs a half-million more construction workers right now; without them, builders report rising labor costs, quality sacrifices, slow cycle times, and an uncertain future. So we looked at advanced framing through the lens of the labor shortage, thinking perhaps that fewer studs, joists, headers, and cripples may reduce the amount of time and manpower it takes to frame a house.



FRAMING THE PROBLEM, AND SOLUTIONS

If you're going to gather your project team prior to construction to work out the kinks among their respective scopes of work, you'd better bring more than doughnuts and coffee to have a productive conversation that resonates.

Use two-dimensional plans, such as the one here, either printed or on a digital screen, to show the framing plan as it is intended to be built, overlaid with the MEP layouts to expose—and solve—problem areas among your trade contractors in real time.

No more chicken scratch that has to, literally, go back to the drawing board; with the team around you, changes can quickly be made, verified, agreed upon, and effected. Your subs will walk away confident of an "easy" install and impressed that you asked for and applied their voices to the process.

But our experience working with the field superintendents of several large-volume builders told us that such savings were unrealistic and rare. That's because advanced framing requires a thoughtful (and thus more time-consuming) approach, at least until it's embedded throughout your framing crews—itsself a tough nut given the transient nature of that trade, general lack of consistent training, and language barriers.

And besides, saving a little time on each frame job isn't really the issue; getting enough framers to the jobsite is. And calling them back to rework what the mechanical, electrical, and plumbing (MEP) trades leave in their wake not only increases costs of labor and materials but also jeopardizes the delicate sequence of events required to bring a home to market—and therefore your cash flow and profitability.

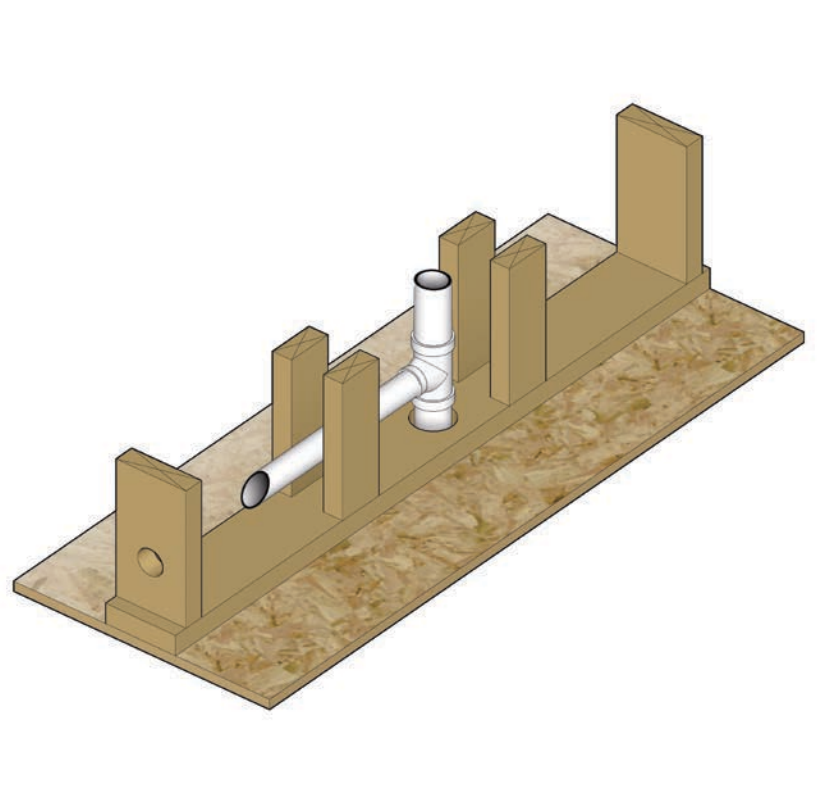
As great as it is, advanced framing alone won't solve the housing industry's labor shortage; fewer sticks may open up the frame

a little for the mechanical subs, but only just. We need to widen the lens, broaden our approach to innovation, and create a culture in which framers want to work for you and will show up when you call.

COME TOGETHER, RIGHT NOW

You have a structural engineer working for you, right? A crew of site supers and maybe even a few carpenters on the payroll? And, of course, your favorite (or at least most available) framing contractors. Toss in your in-house estimator and your MEP subs and invite everyone to a sit-down to go over your plans and specs.

Timing is critical, and these powwows aren't a one-shot deal. They start before you break ground on a new model home (especially if it's a new plan) and continue through the frame walk and after the MEP trades are done with their work.



FRAMING FOR PLUMBING STACKS

Flexible water and natural-gas piping have made it easier for plumbers to work around framing members to get where they need to go, but plumbing stacks aren't as accommodating. Like duct runs, large-diameter rigid ABS or PVC Schedule 40 pipes and vent stacks need space within the structural frame.

The illustration at left suggests a 2x6 exterior wall strategy (a better solution for a well-insulated shell, anyway) that enables the framer to turn a few 2x4 studs sideways around the stack area while maintaining the integrity of the frame. An interior 2x6 plumbing wall produces the same benefits. The solution accommodates the stack and gives the plumber room to set it correctly. The wider 2x6 studs also create a broader area to drill and place horizontal pipe runs to the stack.

The goal, of course, is to give everyone who has a stake in the structural frame a voice in its engineering and construction and to come up with a final plan that accommodates plumbing, electrical, and mechanical runs before the first load of lumber arrives on the jobsite. It also achieves a balance between structural integrity and affordability while helping stabilize your schedule, steady your budget, and standardize your cycle times.

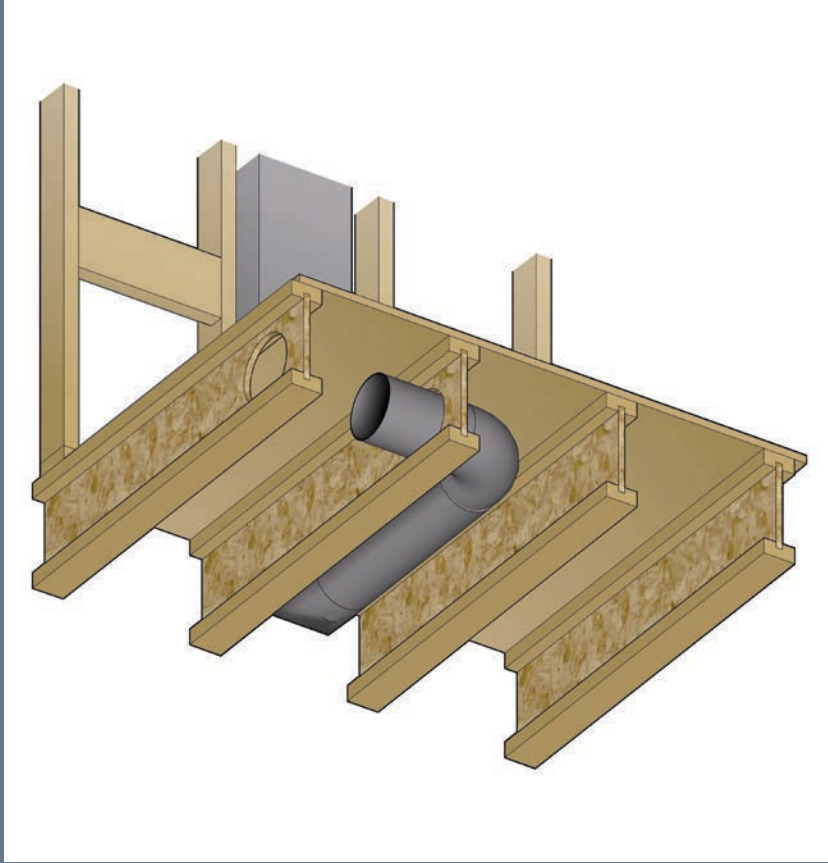
It helps even more if you can create the frame in a digital 2-D or (even better) 3-D environment and overlay the MEP plans on top of it, at which point it should be fairly obvious where the issues are ... and how to collectively solve them.

Such meetings also serve to encourage *esprit de corps* across the team, replacing the discord and disrespect among subcontractors that is, unfortunately, embedded in the current culture.

Chances are good that, if properly facilitated, pre-construction and subsequent in-process meetings will reveal some significant efficiencies and their share of aha moments—like the fact that engineered I-joists have factory-cut holes for pipe runs and can accommodate duct runs while maintaining the integrity of the joists—that build the knowledge base of everyone involved.

Perhaps most importantly, such collaboration creates a culture of shared responsibility and, ultimately, success. That's a pretty powerful drug that breeds the loyalty you seek from your framer and every other subcontractor you rely upon to build your homes.

Believe me, your framers will go along with it, even when change appears counterintuitive in the current labor market. Those I know are committed to following the plans provided (especially if they've had a hand in designing them) and appreciate details more than ambiguity.



FRAMING FOR DUCTWORK

The vast majority of new homes are heated and cooled by forced-air systems, requiring a network of duct runs of various sizes, shapes, and turns within the structural frame. HVAC contractors have been known to rip out, cut, or otherwise alter framing members (read: build an ugly chase) to accommodate their duct runs and vent openings.

As the illustration at left shows, a best-practice solution leverages wood I-joists or open-web floor trusses (a better floor frame, anyway) to integrate ductwork and other mechanical system components into framing. This practice allows the design to be implemented faster, eliminates variations to the framing and HVAC plans in the field, and minimizes interior bulkheads. Running ductwork in the floor cavity also reduces the number of 90-degree turns in the duct run for faster and better delivery of conditioned air.

PRACTICAL PRACTICES

Habitual collaboration among your design and building teams is essential and valuable, but I recognize that you may also appreciate some actual framing techniques that will better accommodate the MEP trades and mitigate rework by your framing crew. To that end, the sidebars throughout this article provide some illustrated guidance for a few methods we've found to be effective. Namely, better ways to communicate effectively with your framer and other trade contractors, as well as framing for ductwork and plumbing stacks—two areas that otherwise often result in framing rework.

Ideally, your framer will slowly but surely give up the rework clause (and income) in his contract. If not, don't be afraid to ask for that once it's clear that the team is in lockstep and that rework is no longer required.

LAST WORD

The root issue, of course, is that our industry refuses to transition away from labor-intensive, on-site stick building as its prevailing framing method. Sure, that method can be made better, but it's not the long-term solution to the current framing labor shortage and its ripple effect on costs, quality, and cash flow.

That solution lies in the widespread adoption of systems-built housing, beginning with factory-built framing components and evolving to whole-house panelization and modular packages that put most of the building process under one roof. It's a future that the current labor woes have brought into focus, but it remains to be seen if our industry will follow that path. **PB**

Glenn Cottrell is managing director of the Builder Solutions team at IBACOS.