Question of the Day…How do building designers determine truss layouts?
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We've all seen plans come in with framing layouts that don't seem (to us, anyway) to make any sense. The questions and initial reactions are many: *Why did the EOR make this a terminal hip and create the need for that massive special hanger?, Why hang all of that roof from one girder truss?, What were they thinking?,* and finally the proverbial, *Let me show them how this should be done!*

Truss placement…what is the best plan?

Building designers are often required to create a truss placement plan or layout to indicate to the framer/contractor/builder how they anticipate the flow of loads to pass through the structure and into the foundation or ground. On gable style roofs this is easy, as the bearing walls are typically parallel to the ridge and eaves. On hip style roofs, not so much. Numerous questions come into play:

- How does the architect/engineer/building designer know the most efficient framing style, setback or other parameters?
- Once a system is selected, how firm are they with the truss suppliers that their layout must be matched exactly?
- From an anticipated flow of loads perspective, we hope that the specifications are pretty clear. What happens when they are not?
- What happens when the local supplier's technician decides to flip framing directions or move specified girder placement locations? They may think that they can save some money on their quote and have a better chance at landing the job, but what about you, the building designer?
- You've done your work and have a complete load path planned within your contract documents. Do you require this exact load path be followed when accepting submittals? Not doing so could mean additional work on your part and added confusion on the jobsite.
- If beams, foundations or footings need to be re-sized or relocated, that means plan revisions. Who pays for those?

It is undoubtedly true that the local Component Manufacturer (CM) knows best what and where their manufacturing efficiencies come from. It could be in their selected lumber grades and/or size inventories or possibly in the material flow through their plant. It is also beyond a doubt that the building designer knows his building design and the associated flow of loads through it better than the CM. Why does one need to 'outsmart' the other?

Collaboration is the answer

It's mutually beneficial to the building designer and the CM to collaborate during the planning stages, so that the strengths of both parties can be utilized. Doing so creates partnerships and understanding that go well beyond the design project at hand. Each can learn from the other to further refine design process efficiencies. A classic example of this is the creation of the plans for permanent building stability bracing. Having input into the individual truss design could strategically place webs into alignment and facilitate lateral restraint and diagonal bracing placement in the finished structure, and allow that bracing plan be part of the original contract documents. This helps everyone in the construction process. The permanent bracing step would then be bid and the materials and labor accounted for instead of what seems to many of us, something that's only done when caught in inspection by the EOR or building official.

Neither the truss industry, the truss design software suppliers, nor the local CMs want to put plated truss design software into the hands of designers not affiliated with a component manufacturing plant. Doing so ultimately turns today's creative CMs into tomorrow's commodity truss producers. Ingenuity and creativity go out the window. Quality would soon follow, as it would become too expensive to do it right, and everyone only cared about getting it fast and cheap. Industry design platforms are making it easier and easier to collaborate. Are you open to the challenge and risk of partnering for success? It's easier than you may think and the benefits can be tremendous. Some CMs are already doing this and others have formed separate companies to take on the building designer role themselves. However you choose to approach it, collaboration early on in the project is the answer.

Happy New Year!