Q Our client wants us to install a 96-inch, three-panel glass door in a gable-end wall. The roof is framed with trusses. Do we need a structural header for the door?

A *Christopher DeBlois, a structural engineer in Roswell, Ga., responds:* If the house in question is a one-story house, or the door is on the second floor leading out to a deck, for example, then it's fair to assume that the primary load from the roof and ceiling is carried by the trusses to the front and rear walls, while the door you are installing is in an end wall. Most people assume this end wall is not a load-bearing wall, and it's not, in the sense that it's not holding up a floor or ceiling or roof, but there's still some weight—the weight of the wall above the header and of the gable-end truss (which is not really a truss but a flat-framed infill panel), and often there's a little bit of roof load from overhanging outriggers or a ladder-type projection framed along the rake. You need a header to support this weight. It just wouldn't be a very heavily loaded header.

In addition to holding up the weight, even though there's not a lot of it, you also have to limit deflection. If you don't, even if there's only a little bit of deflection, it could potentially cause problems with an operable door, especially the kind of folding panel doors that are popular right now. The doors may bind or simply won't open and close as cleanly as they should over time. The building code would allow L/240 for total load deflection, but I would at least cut that in half and go to L/480. This short span isn't going to require a giant header. Let's say the total header span for the rough opening is 102 inches. A double 9 1/2-inch LVL will limit you to around 1/16 inch or less total deflection, which is close to L/1700! So it's not going to be a heavy header at all, but certainly I wouldn't just flat frame it or put in a 2x8 or something like that.

As I sometimes find myself saying to potential builder clients with questions like this, you can spend a few hundred on an engineer's time to size the exact header, and I may come back and say, "You need two 9 1/2-inch LVLs, use one jack stud and two kings for this size of the opening, and here's my bill." Or you can look at the problem, and based on your experience on other jobs, you might say, "It seems like we've used two 2x10s, maybe 2x12s or a 12-inch LVL for an opening like this." Go spend a little extra and buy a 14-inch LVL header and put it in, knowing that it's probably gross overkill. The up-charge on the materials is still less than you would have paid me as an engineer to tell you that you didn't need a header that big. In residential work, if your choice for something simple like this is to pay an engineer to know you're getting the exact right header, or to put that same amount of money, or even a little less, into building a stronger house, I'd go with the stronger house. Even if it turns out you were unnecessarily conservative, just buy the big header. The labor's the same. You don't have to cut any more studs out, and you're still going to have the same amount of drywall to finish, the same trim. And if you end up with a stronger house than you otherwise would, that's OK.

Given all this, I advise going ahead and thinking conservatively of this as a "structural header." You can size it using the prescriptive spans from Table R502.5 in the IRC (free online at codes.iccsafe.org). This means you are treating the opening like a bearing wall, and we know that is overkill for the loads on the end wall, but again, it's perfectly fine to end up with a stronger house than you otherwise would have.

That said, there are loading conditions where I would not advise going it alone based only on your experience. If, for example, the roof is stick-framed and has a structural ridge supported by a column in the gable-end wall that you need to support, then you certainly should consult an engineer to advise on the temporary support of that wall during construction, as well as the header and bearing requirements to support the point load from the column supporting the roof ridge. Or if the door is on the first floor of a multistory building, the gable-end wall may be supporting floor loads that need to be taken into consideration. You still may be able to size the header using the proper roof and ceiling configuration, building width, and snow-loading conditions given in Table R502.5. Here again, I would advise taking a conservative approach and erring on the side of overbuilding.