Timber-Frame Hybrids

Adding timber-frame elements to key areas of a stick-frame house makes economic and aesthetic sense



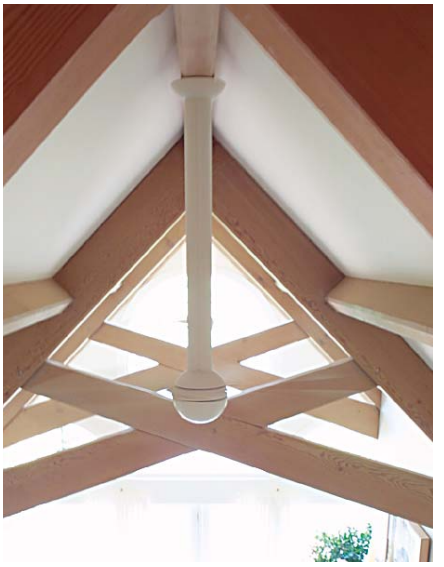
An inviting timber-frame entrance



The rustic look of exposed joists



Decorative porch posts and braces



Dramatic truss work in a great room

BY ANTHONY ZAYA

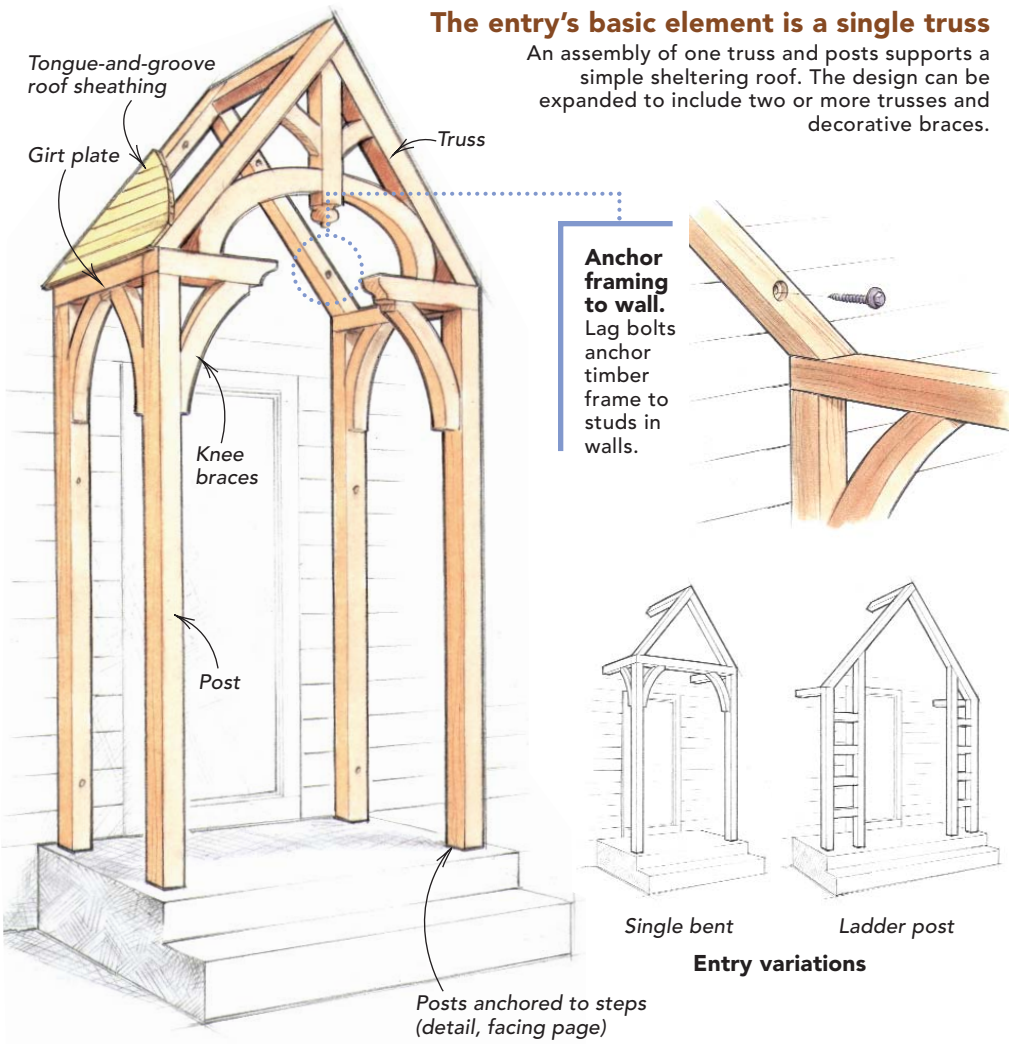
"You can't have your cake and eat it, too" might apply in the kitchen, but when you're building houses, you sometimes can have both. If you like timber-frame houses but can't afford one, consider a hybrid. Although a complete timber frame usually costs 10% to 20% more than a comparable stick frame, a small timber-frame structure integrated into a stick-frame house adds only a fraction of that cost. Hybrids also are less complicated to build than full timber frames, yet they retain the dramatic look of timber-frame structures in visible areas. These timber-frame parts can range in scale and complexity from a simple covered entry to an entire two-story addition. In a typical situation, a timber-frame company such as mine is used as a subcontractor and provides the materials and installation; we also have supplied materials and/or assembled components for builders. The following are some examples of projects we've built.

Entries and porches: A little timber goes a long way

A home's entrance serves as a transition between outside and inside; it should be pro-



Call attention to the house's entry. *An entry is a simple project and can consist of a single or pair of free-standing trusses bolted to the house's exterior wall.*



tecting and inviting. A timber-frame entrance (photo above) satisfies these requirements and is relatively easy to build. Typically composed of two trusses and connecting girts, the structure is lag-bolted to wall studs through the sheathing; the posts are anchored to a masonry pad or footings with noncorrosive standoffs and 1-in. dia. galvanized-steel pins (drawing facing page).

Building a flat-ceilinged timber-frame porch is also fairly easy (photo, facing page). The porch is built with a series of posts, girts and braces that support a simple stick-frame roof, which in turn ties the timber frame to the house.

Any number of styles is possible. Entrances can be as simple as a single bent with a ridge, purlins and side girts that die into the exterior wall. A large entrance can be even more elaborate. Railings can be integrated into the posts, or the posts can be doubled up. Whether on a porch or a deck, posts that look too feeble to support even themselves are the one thing that most diminishes the presence and personality of a house. We always recommend that substantial posts and girts be used—say, 8x8s and 6x10s, respectively. If these dimensions look too heavy, the beams' edges can be chamfered or beaded for a lighter look.

Sprucing up the ceiling with a floor system

A timber-frame floor/ceiling system usually consists of a massive central, or summer, beam that supports the smaller joists (top photo, p. 94). Most of our floor systems are in dining rooms, kitchens and halls. The entire assembly is let into pockets framed in the stick-built walls. In the simplest form, a series of heavy parallel joists sized and spaced according to span and load is supported by conventional wall framing. To support wider spans, a summer beam can be used (top drawing, p. 94); depending on the length of that beam, some supporting posts may be added.

The choice of material laid above the joists and summer beams also affects the room's overall feel. Basically, there are two approaches: drywall or wood. If drywall is the choice, it's best to place wood spacer strips along the joist centers (top drawing, p. 95). The drywall then can be placed on top of the timbers, and a sound-deadening floor (usually layers of plywood) or a conventional 2x-joist floor can be built above, especially if ductwork is an issue. For a wood ceiling, tongue-and-groove boards are usually the material of choice, followed by a built-up floor or 2x joists. Some builders may opt for a single layer of tongue-and-groove boards, but sound transmitted between floors can be irritating.

Opening a space with trusses

The most popular hybrid form is the timber-frame truss system (bottom photo, p. 94). Most

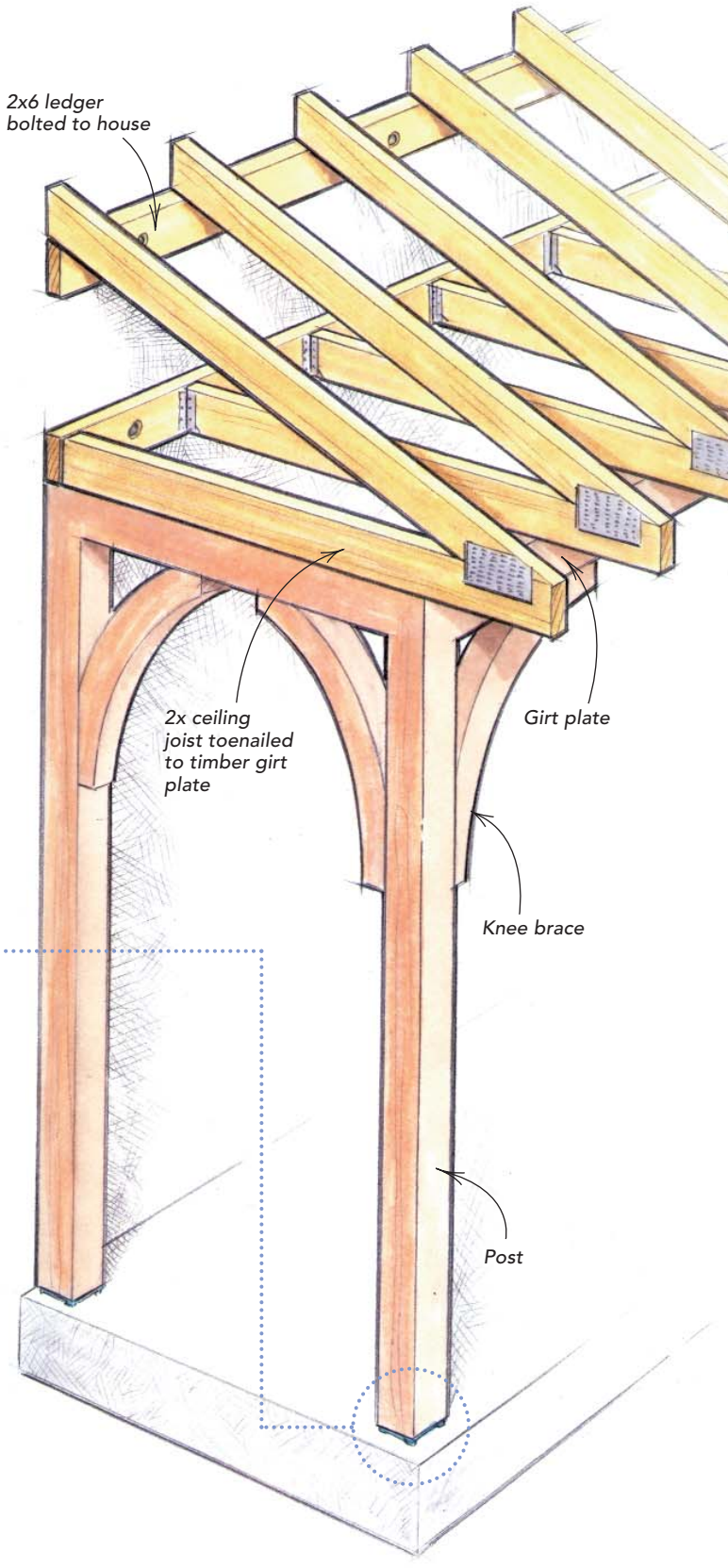
Drawings: Dan Thornton



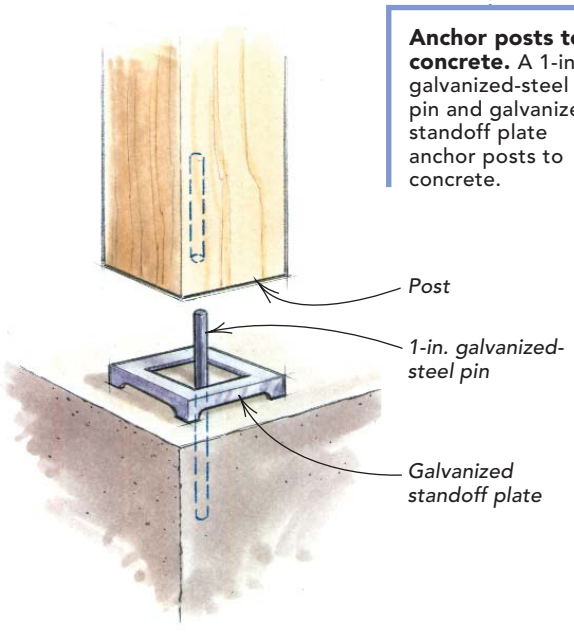
Big timbers are only half the story. *Porches can be built with a series of beefy posts and girt plates that support the stick-frame roof.*

Stick-frame roof a simple affair

Typically made of 2x6 rafters and 2x joists, the roof framing is attached to ledgers bolted to the house framing.



Anchor posts to concrete. A 1-in. galvanized-steel pin and galvanized standoff plate anchor posts to concrete.



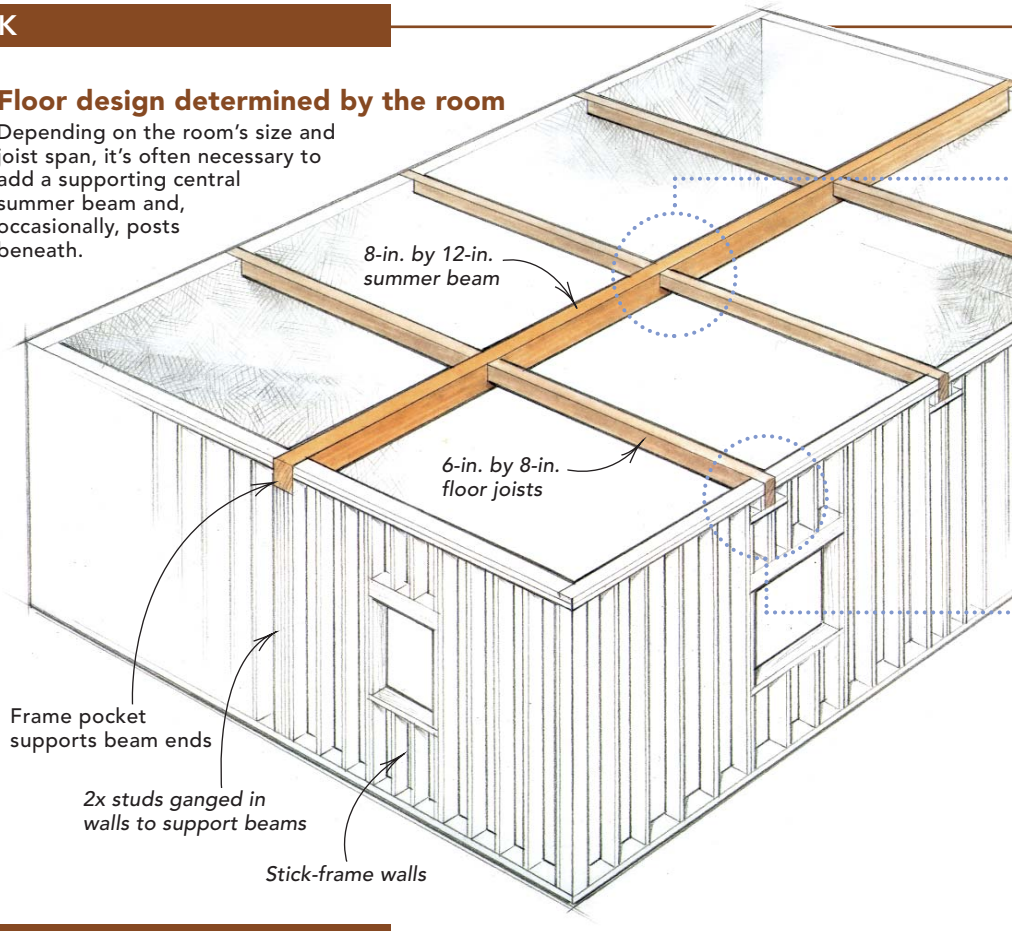
EXPOSED JOISTS CREATE A RUSTIC LOOK



Warm ceiling of wood. *Both structural and decorative, a timber-frame floor system is supported by pockets framed in the exterior walls.*

Floor design determined by the room

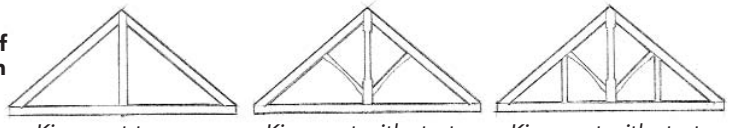
Depending on the room's size and joist span, it's often necessary to add a supporting central summer beam and, occasionally, posts beneath.



DRAMATIC TRUSS WORK OPENS A ROOM

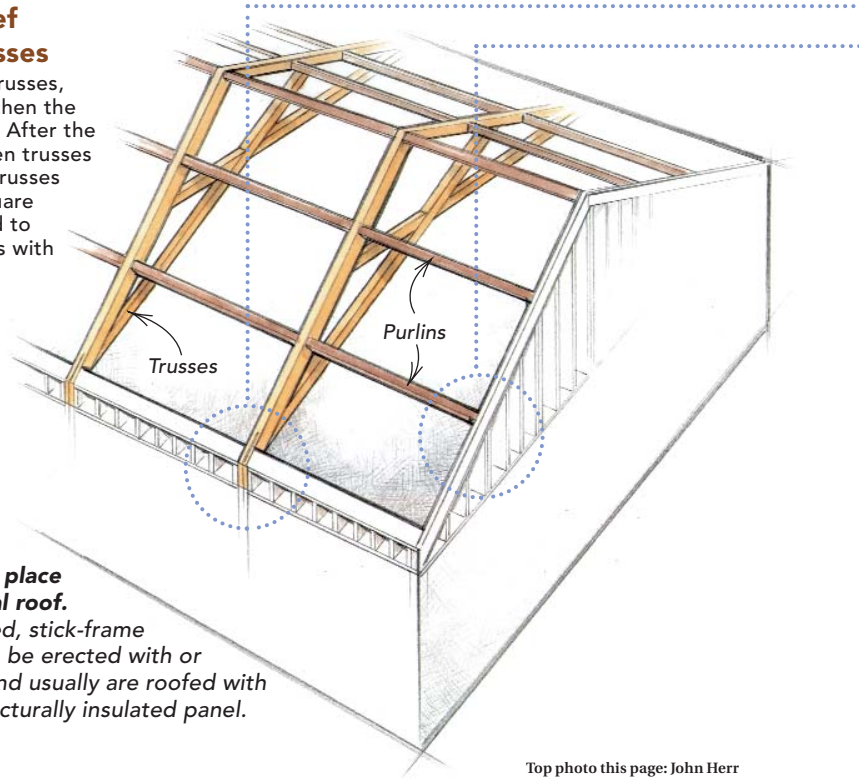


Examples of truss design



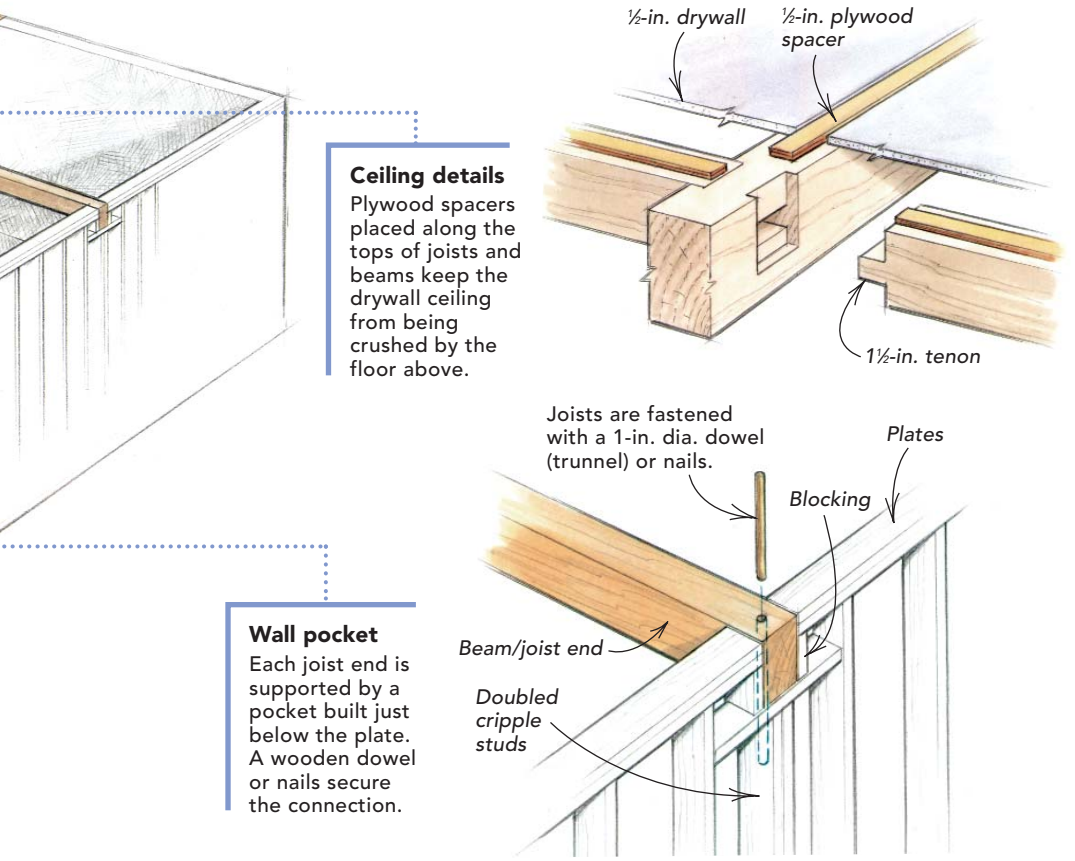
Purlins beef up the trusses

Set between trusses, purlins strengthen the roof structure. After the purlins between trusses are installed, trusses are racked square and connected to the gable walls with another set of purlins.



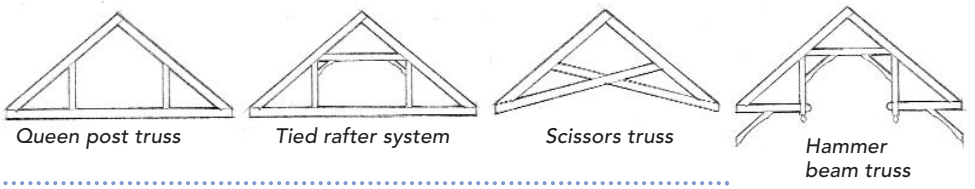
Trusses take the place of a conventional roof. *Set into reinforced, stick-frame walls, trusses can be erected with or without purlins and usually are roofed with some sort of structurally insulated panel.*

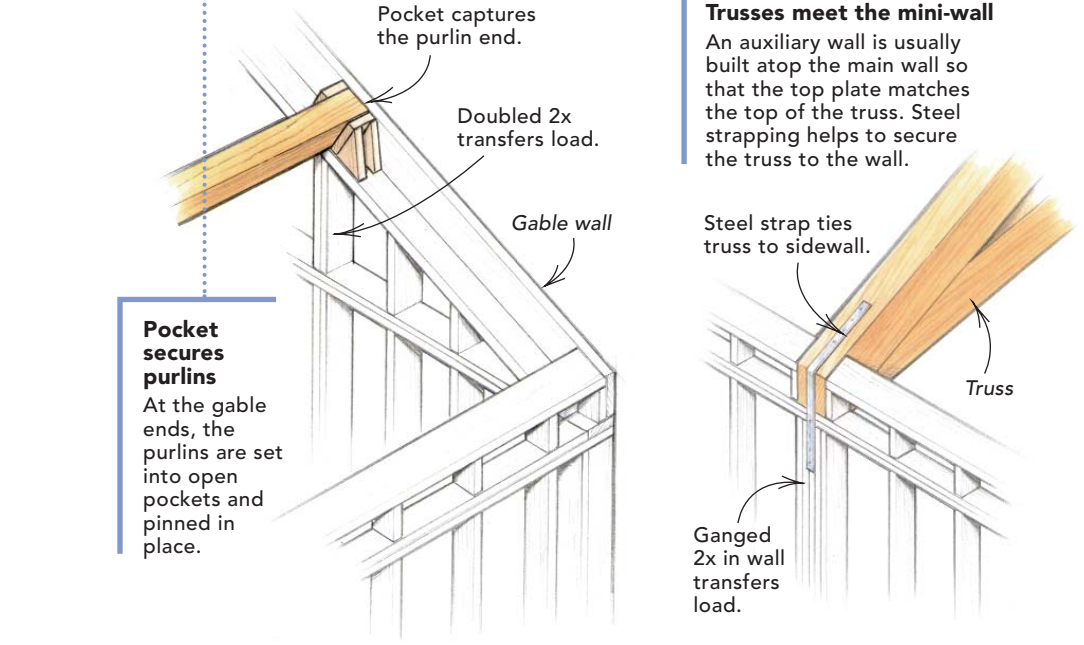
Top photo this page: John Herr



Ceiling details
Plywood spacers placed along the tops of joists and beams keep the drywall ceiling from being crushed by the floor above.

Wall pocket
Each joist end is supported by a pocket built just below the plate. A wooden dowel or nails secure the connection.





Pocket secures purlins
At the gable ends, the purlins are set into open pockets and pinned in place.

Trusses meet the mini-wall
An auxiliary wall is usually built atop the main wall so that the top plate matches the top of the truss. Steel strapping helps to secure the truss to the wall.

often, trusses are placed in a large open space, such as a great room. Heavy trusses generally can be spaced 16 ft. apart if they're connected with purlins (bottom drawings) spaced 4 ft. o. c. If the purlins don't fit in the design, more trusses with closer spacing do the trick. In such a scenario, tongue-and-groove ceiling boards run perpendicular to the trusses rather than parallel as they do with purlin connections. It's usually more economical to go with the purlins because fewer trusses are used.

Other considerations include roof pitch and span-loading requirements. In terms of structural effectiveness as well as aesthetics, scissors, hammer-beam and tied-rafter systems work better with steep pitches (12-in-12 or greater) and shorter spans (24 ft. or less). Whatever the choice, review any design with a licensed structural engineer.

Incidentally, for whatever type of project that we're working on, we have drawings sealed by a registered engineer because loading requirements can dictate not only shape but also timber size and spacing. The relatively low cost of an engineer's time is money well spent.

Truss design can make a space feel contemporary and light, medieval and heavy, or just about anything in between, depending on configuration (drawings left), timber species, surface and finish. Ceiling material also has an impact. White drywall or pickled tongue-and-groove boards can help a tight area to feel larger; dark painted drywall or clear-finished tongue and groove can make a high ceiling feel lower or make a large room feel more inviting. □

Anthony Zaya is a timber-framer in Lancaster County, PA. Photos by Charles Bickford, except where noted.

For more information, contact the following organizations.

Timber Framers Guild
(888) 453-0879
www.tfguild.org

Joiners' Quarterly
The Journal of Timber Framing & Traditional Building
(207) 935-3720
www.foxmaple.com

Timber Frame Business Council
(888) 560-9251
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