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Platform Frame Construction

Basic Description

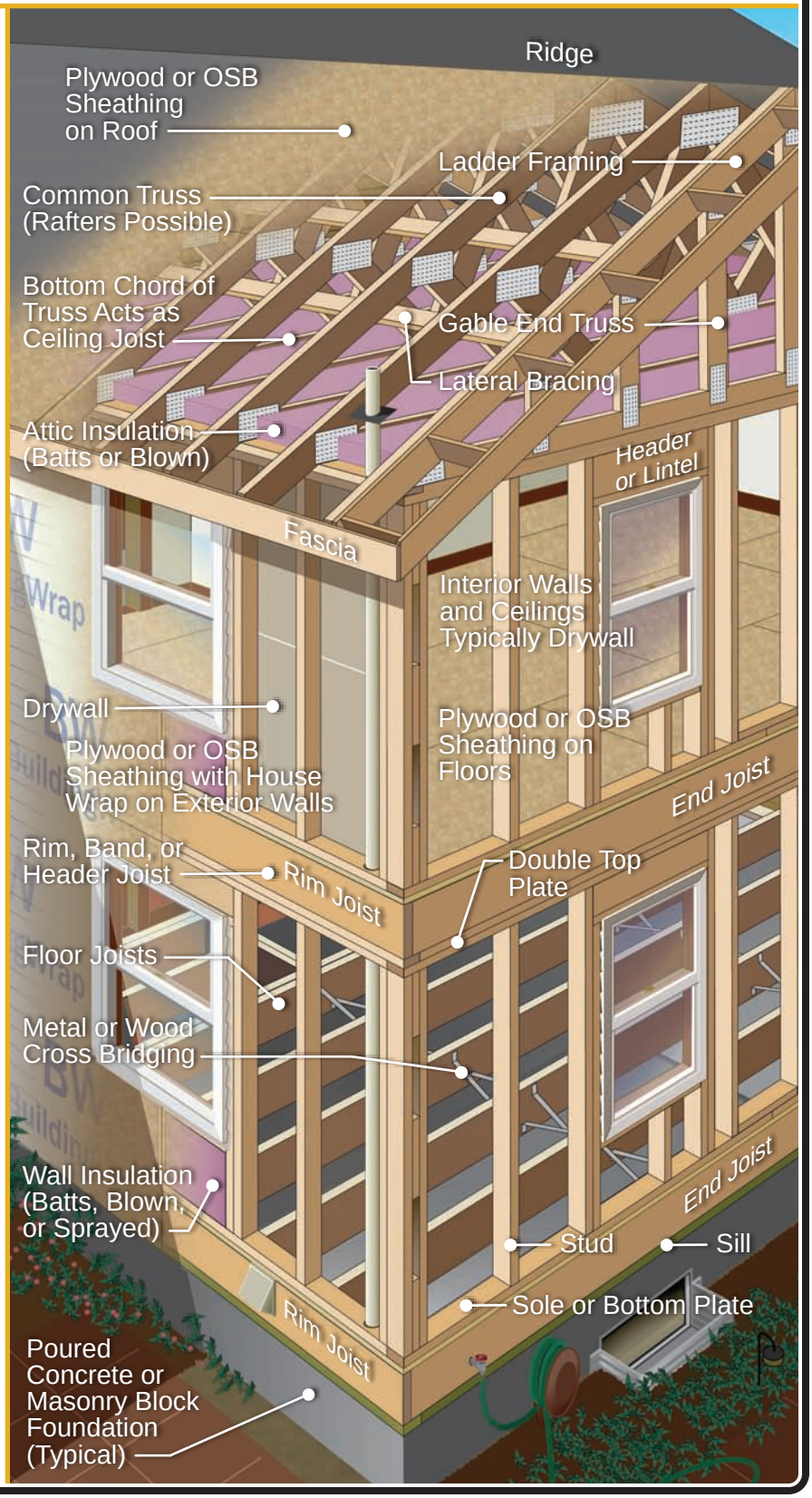
Platform framing, also known as western or modern framing, replaced balloon framing following the 1930's and is the most commonly used framing method today.

In platform framing the exterior wall framing is not continuous from the foundation to the roof, as in balloon framing, but is interrupted by each floor or "platform". This inherently eliminates the need for draft stops that are required in balloon framed walls. In addition, it allows the use of shorter, dimensionally cut lumber and its methodology of building one story at a time allows for safer construction during the building process.

Looking at the platform framing sequence: The first floor is built on top of the foundation walls like a platform. The first floor walls are then constructed and raised on the platform. Then the second story floor is built. Once the second floor decking or floor sheathing is in place, the second story walls are constructed and raised into place. After the final story is added, the roof trusses or ceiling joists and roof rafters are put into place.

Few homes today are entirely "stick" built (i.e. constructed board by board) using dimensional lumber. Over the years, the introduction of lumber products such as plywood and oriented strand board (OSB) sheathing, as well as factory-fabricated roof trusses have improved the building process. Today, the use of floor trusses and lightweight engineered lumber products for floor, wall, and roof assemblies are becoming widely used in platform framed homes.

Virtually any common finish can be applied to the exterior side of platform framed walls. Typical exterior finishes are wood, vinyl, and cement board siding, masonry veneer (provided the foundation is equipped with a brick ledge), stucco, exterior finish systems, etc. Interior walls are typically finished drywall, but can be plastered.



Foundation & Floor Assembly

Platform framed homes are erected on a foundation built typically of poured concrete or masonry block. When on a basement, the basement walls are typically set lower than on older homes with brick masonry foundations. Consequently, less foundation wall is generally exposed above grade.

Floors in early platform framed homes were typically built from dimensional lumber. Today, factory fabricated floor trusses and I-joists are very common. Floor joists typically run perpendicular to the ridge of the roof at 16 or 24 inches on center. Early floor sheathing was either dimensional 1x planking or 4x8 plywood sheathing. Today tongue and groove plywood or oriented strand board (OSB) is prevalent.

Wall Assembly

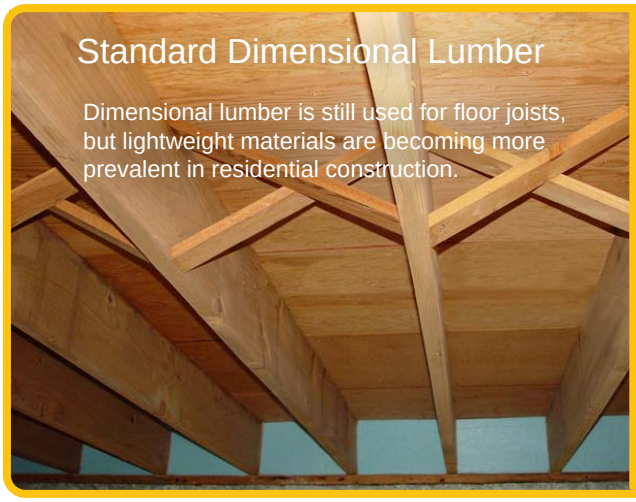
Dimensional 2x lumber has been the most commonly used material for wall framing. Some light gauge steel framing has surfaced and become increasingly popular over the past twenty years. Exterior wall sheathing is typically plywood or OSB sheathing. Some homes incorporate fiber board or insulation board for portions of the exterior wall sheathing. Exterior finishes vary as noted on the front page.

Roof Assembly

Typically, dimensional 2x rafters and ceiling joists or roof trusses are used for the roof framing. Roof sheathing is typically plywood or OSB, but 1x planking may also be used. The roofing materials that are applied vary widely by location.

Firefighter's Notes (con't)

3. Fire Propagation Properties for Platform Framing Were Good...Initially. Unlike balloon framing which allowed fire to freely propogate from the basement to the attic through the open exterior wall cavities and into spaces between floor joists, platform framing solved the problem by compartmentalizing the spaces between wall studs and floor joists. But with the advent of open floor trusses (see inset) being used instead of solid floor joists, the closed spaces are opening up once again allowing fire to move freely through the entire floor assembly. In addition, I-joists (shown below) now come with pre-cut holes to allow for easy installation of ductwork and other trades. These also provide an open path for fire.



Firefighter's Notes

1. Structural Method May be Identifiable From Outside the Home, But Structural Materials Used Will Vary for This Method. In general, in an area that is predominately wood frame construction, if the home was built after the mid-1940's or the foundation is poured or masonry concrete, then the home is likely platform framed. Yet knowing a home is platform framed introduces the fact that the later the house was built, the more likely the home incorporates engineered lightweight lumber or light gauge steel. Neighborhood surveys may be helpful in determining where lightweight construction exists.

2. The Surface to Mass Ratio of Any Platform Framed Home is Unpredictable. That's NOT a Good Thing. Early platform framed homes very likely used solid, dimensional lumber and plywood, which provides a moderate surface to mass ratio. But the later the home was built, the less mass even dimensional lumber had due to the reduction in the actual thickness of solid dimensional lumber provided by the lumber industry through the mid-1900's. As the years go by, materials keep getting lighter and lighter and introduce more resins and other chemicals.

4. Additions and Renovations To the Structure May Introduce Lightweight Materials. Keep in mind that additions and interior renovations to the existing structure will undoubtedly introduce more modern-day materials and methods into the home. This is simply something to look for and question when surveying neighborhoods in you area.

5. Unfinished Basement Ceilings. Basement ceilings and other areas that have exposed joists or trusses jeopordize the floor or roof system unnecessarily during a fire, causing premature failure.

Be Safe Out There.