Framing

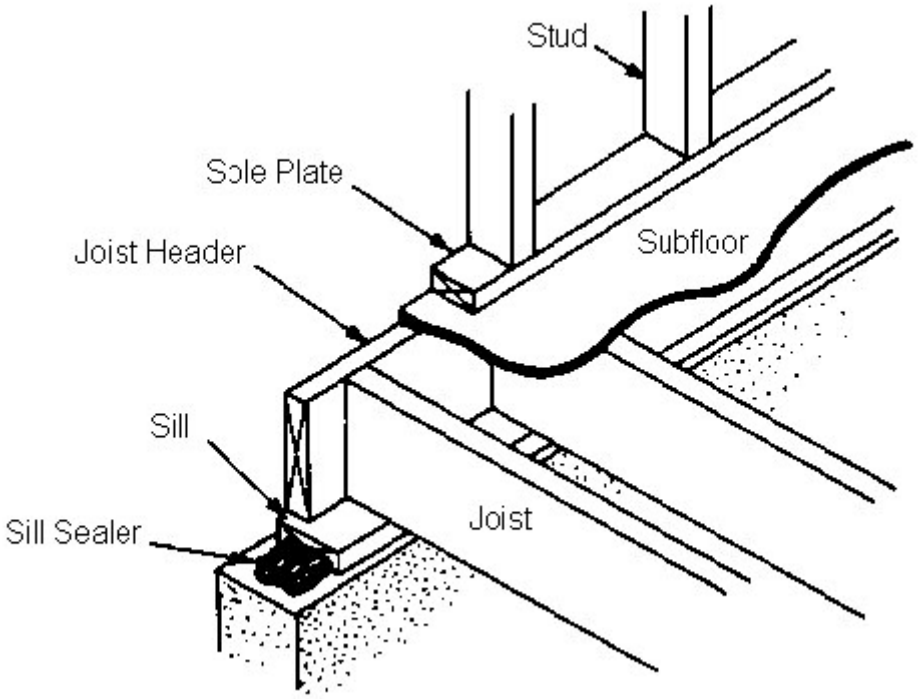
Balloon Framing

In balloon framing, now seldom used, the studs are continuous from the sill to the rafter plate. Ends of the second floor joists are supported on a ribbon. They are spiked to the stud as well.

Platform Framing

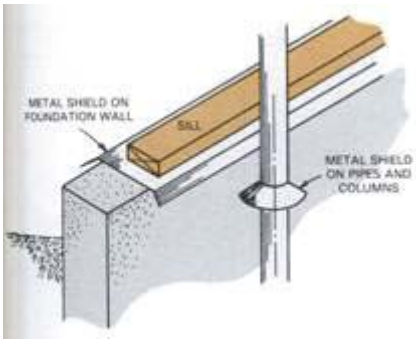
Most modern residential and light construction uses platform framing. The first floor is built on top of the foundation wall as though it was a platform. It provides a work area for assembling and raising wall sections safely and accurately. Wall sections are one story high. Outside walls and interior partitions support platforms for upper stories.

Platform Framing Parts



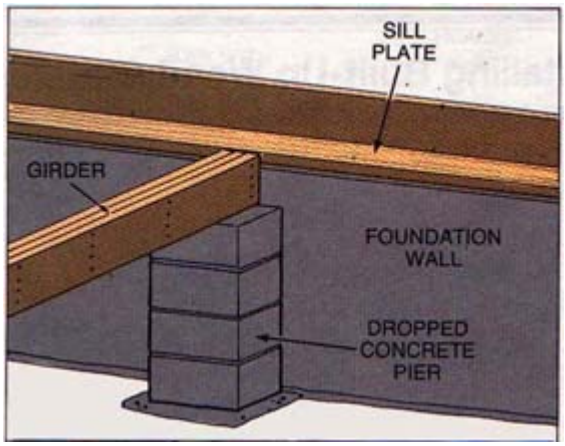
Sill Plate

In areas where termites are a problem, metal shields often are placed between the foundation wall and sill plate.



Girders and Beams

Girders, also called beams, resting on the foundation walls and on posts or columns, provide the needed support for the floor joists.



Steel Beams

In many localities, steel beams are used instead of wood girders.

Sizes depend on the load.

The load is calculated in the same way as for wood girders.

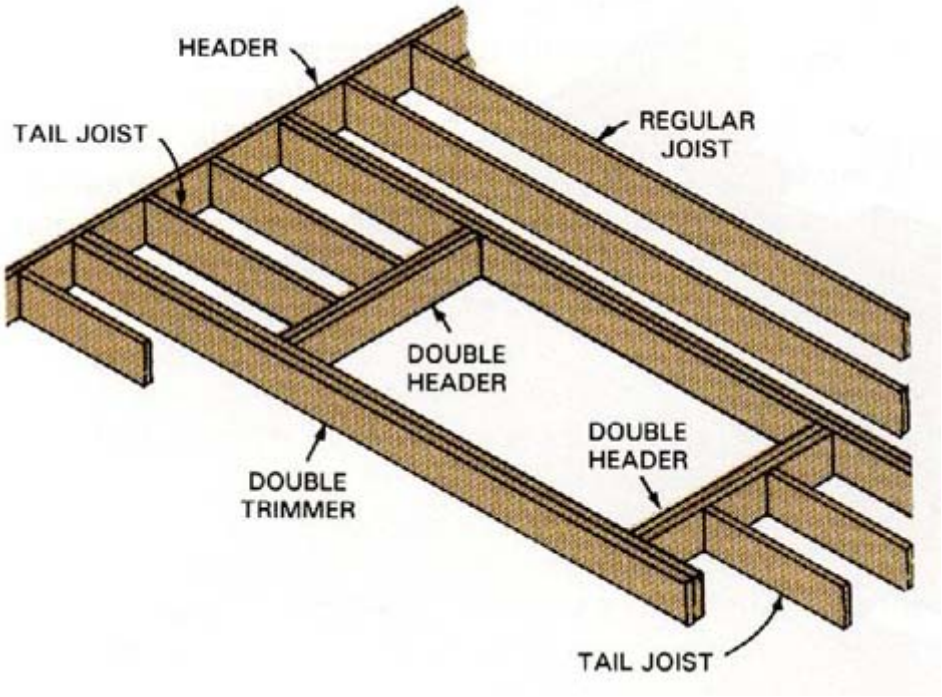
Joists

Floor joints are framing members that carry the weight of the floor between the sills and girders. Floor Joists are the supports of the floor frame.

The most common spacing of wooden joists is 16" O.C. (on center).

Joists must also be doubled around openings in the floor frame for stairways, chimneys, and fireplaces. These are called double trimmers.

Ends of the joists are nailed to header or rim joist that runs on top of the sill plate.

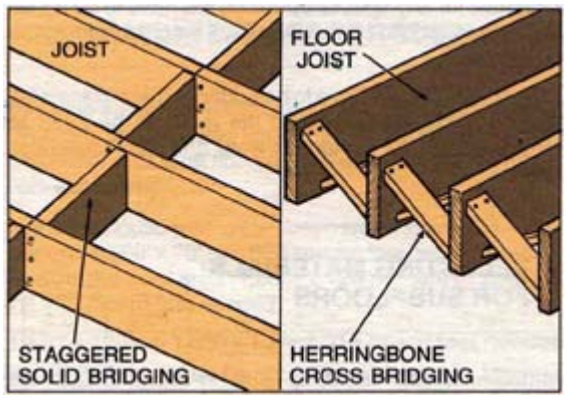


Bridging

Bridging is composed of pieces of wood or metal set diagonally between the joists to form an "X". Solid bridging is also called blocking.

It transfers the load from one joist to the next.

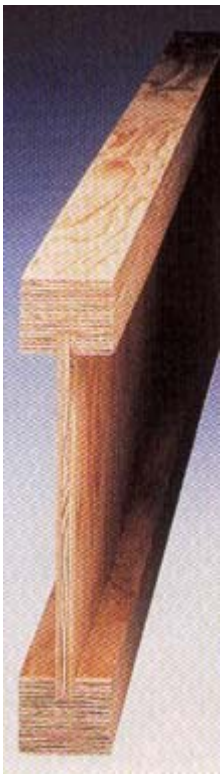
It should be installed at intervals of no more than 8 feet.



Solid-web Trusses

Solid-web trusses are generally called wood I-beams.

The web is made of 3/8" plywood or oriented strand board.

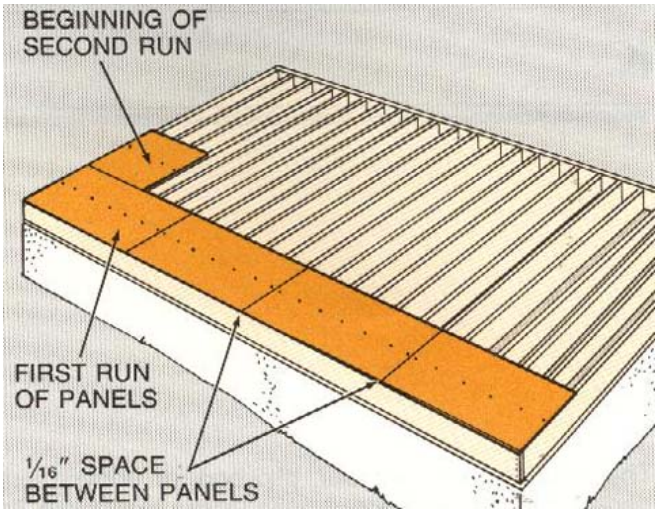


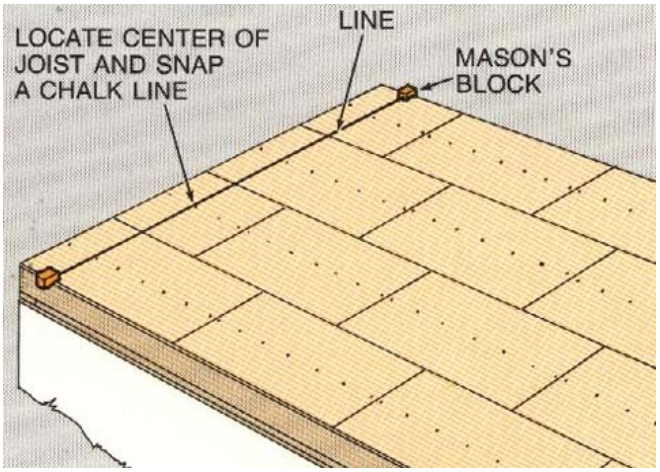
Sub-floors

The function of the subfloor is to:

- add rigidity to the structure
- provide a base for finish flooring materials
- provide a surface for the carpenter to lay out and construct framing

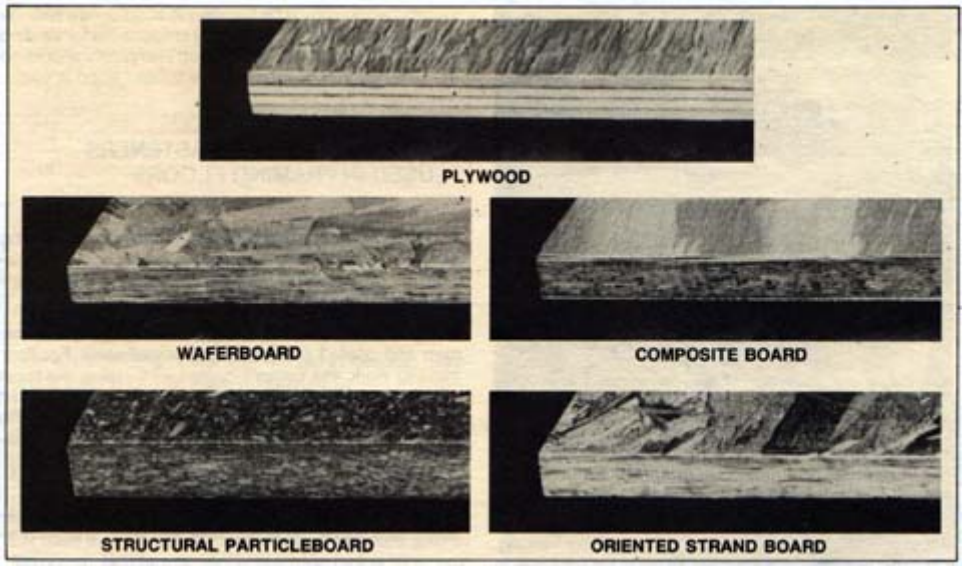
The laying of the sub-floor is the final step in completing the floor frame.



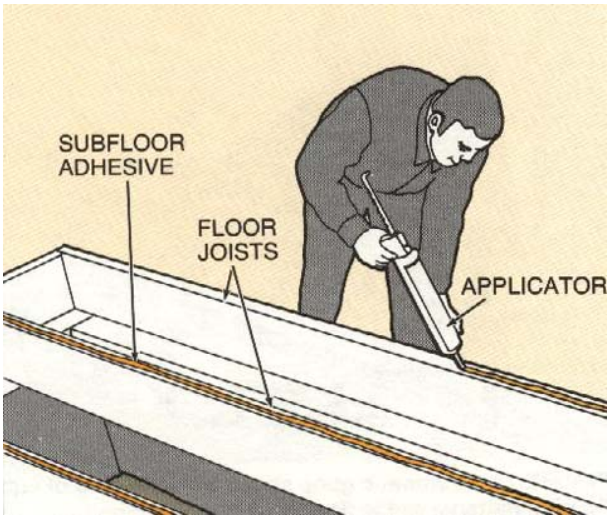


In most modern construction, plywood and oriented stand board are most used for sub-flooring.

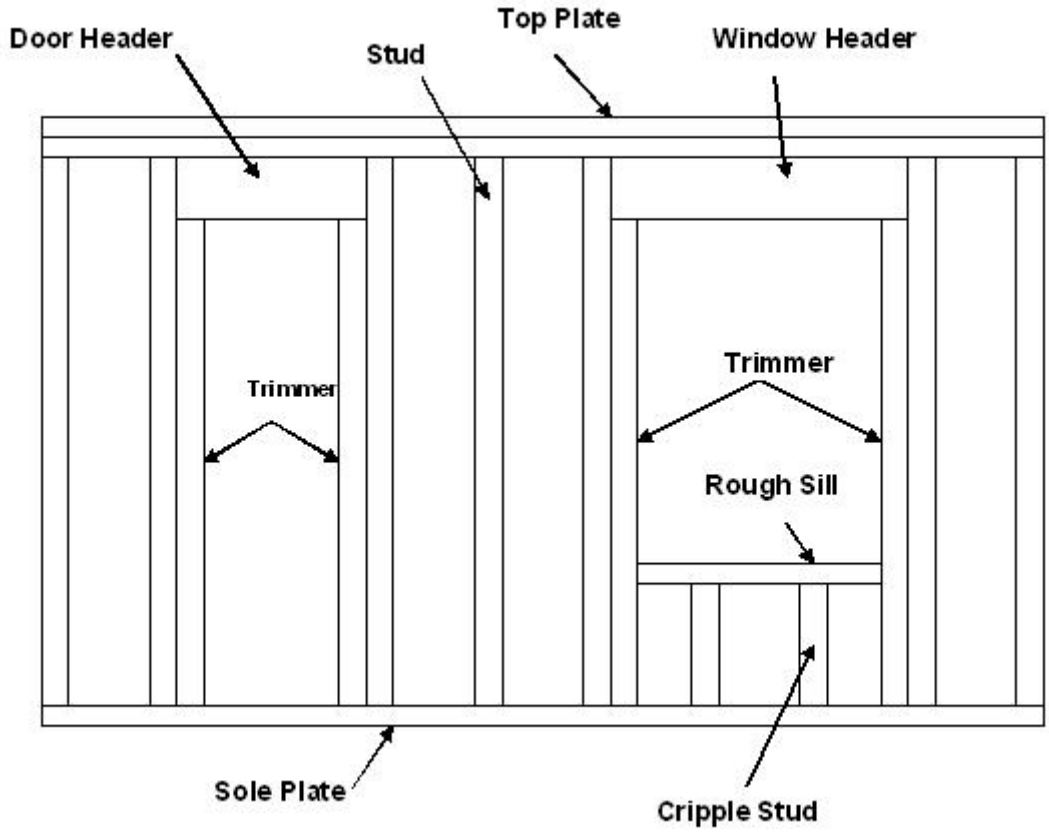
Other sheet materials such as composite board, waferboard, and structural particleboard are also approved for use as sub-flooring.



In a glued floor system, the sub-floor panels are glued and nailed to the joists.



Wall Terms



Wall Studs

Studs are normally 2" x 4" lumber. To provide extra insulation, 2" x 6" studs are sometimes used in colder climates.

When a partition includes a plumbing soil stack, it is typically framed with at least 2" x 6" members.

Most common spacing for studs is 16".

Pre-cut studs for 8' ceiling height are 92 5/8" long.

Trimmer studs are shortened studs that stiffen sides of rough openings that bear the direct weight of the header.

Cripple studs are the short studs below the rough window sill or above a header.

When studs are being positioned for assembling a wall frame, they should be placed with the crown up.

Wall framing materials are fastened together with 16d nails.

A carpenter's level is usually used to make sure wall sections are plumb in residential and light commercial construction.

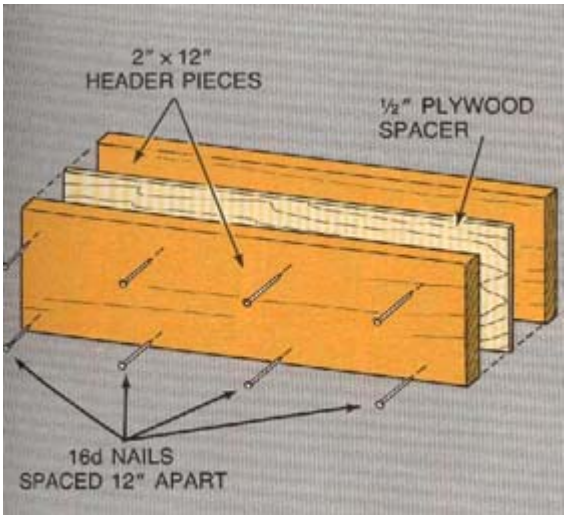
Partitions

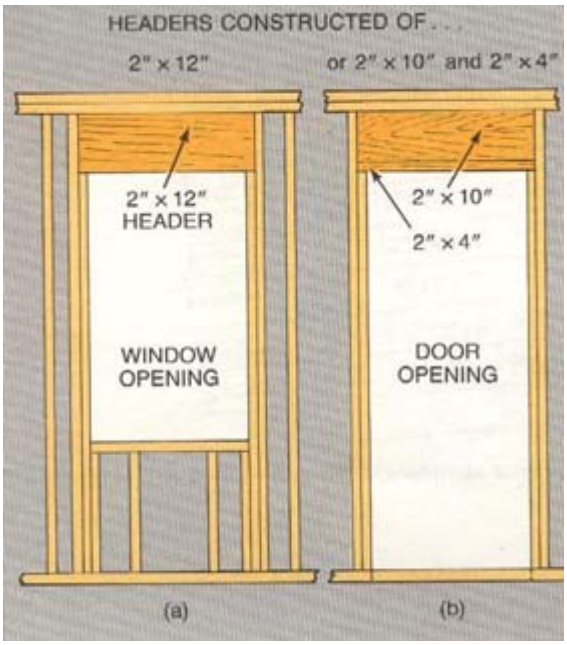
Inside walls of a structure are referred to as partitions.

Headers

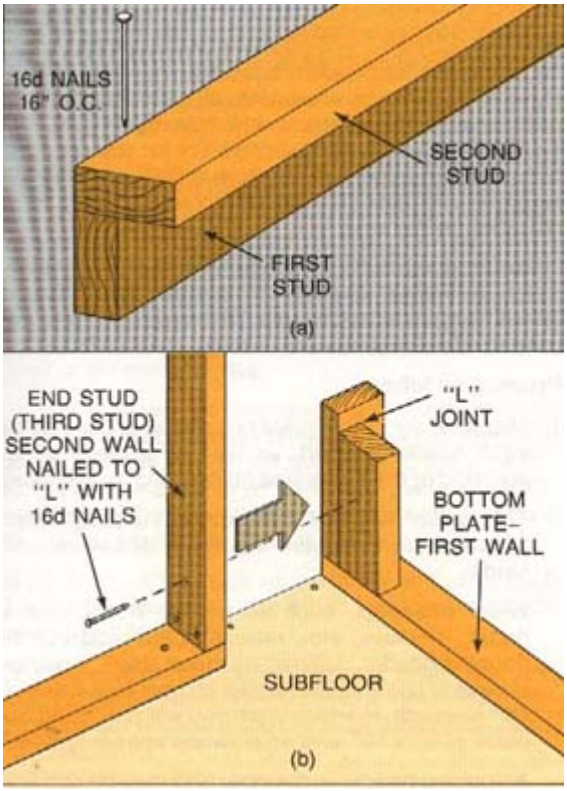
Structural members called headers carry the weight of the building across door and window openings and any other opening in a loadbearing partition.

Header length is equal to the rough opening plus the width of two trimmers.

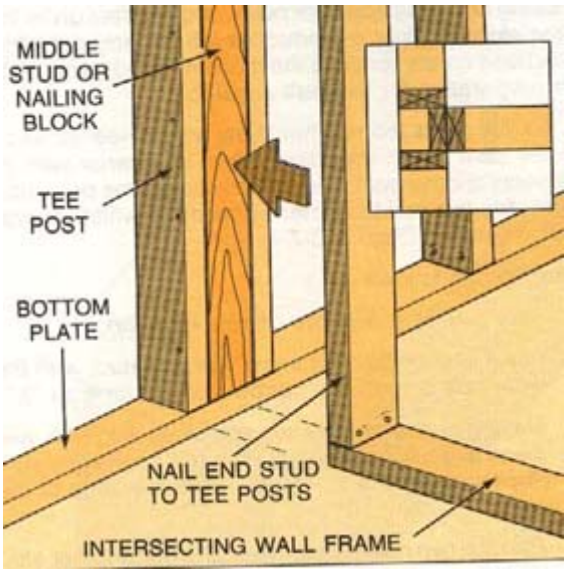




Corner & Partition Framing



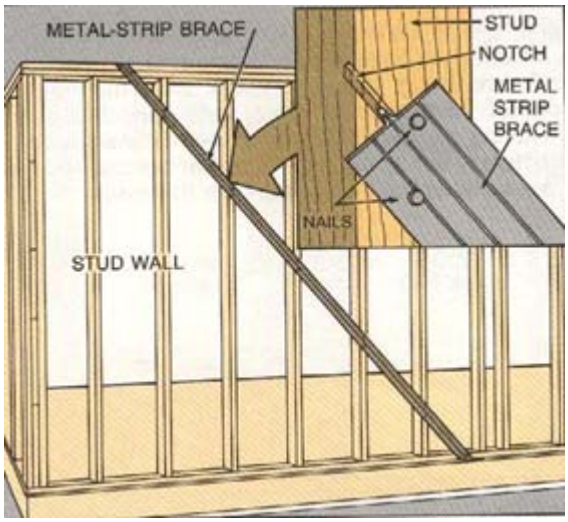
Corner framing



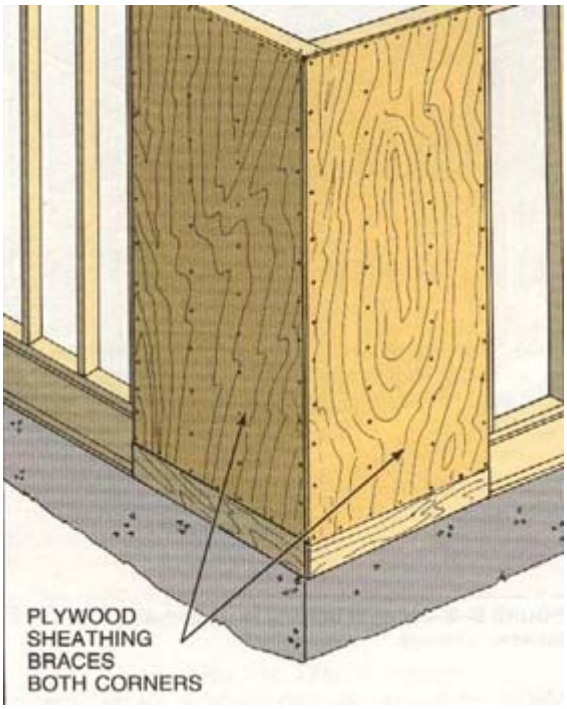
Partition framing

Bracing

Exterior walls usually need some type of bracing to resist lateral (sideway) loads.



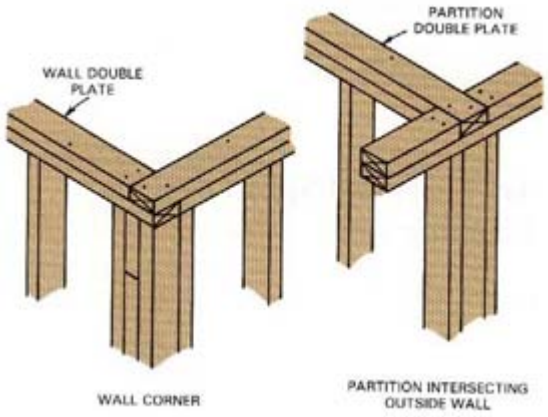
Metal Strip Bracing



Plywood Corner Bracing

Double Plate

To add support under ceiling joists and rafters, the top plate is doubled.

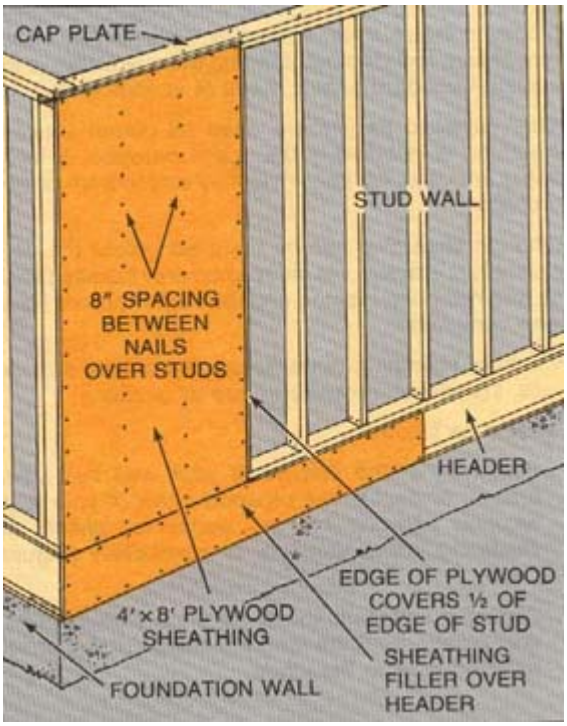


Wall Sheathing

Wall sections should be covered with sheathing before roof framing is started.

Plywood, insulation panels, and OSB are all acceptable materials that can be used for wall sheeting.

Sheathing adds rigidity, strength, and some insulating qualities to the wall.



House Wrap

House wrap comes in 9’ wide rolls and is designed to cover cracks at wall joints where air might enter or leave a building.

Framing with Steel

Steel-framed residential construction is increasing in popularity.

Metal studs can be used with either metal plates or wood plates.