WALL AND CEILING CONSTRUCTION

Residential wall construction is usually one of three types: skeleton frame, masonry or combination skeleton frame and masonry. Generally, the walls are constructed on-site but they can be prefabricated at a factory and erected on-site. Residential homes built this way are called prefab homes.

Framed Wall Construction
Provides support and shelter for the building through the proper arrangement of wall-framing components, which includes the sole plate, top plates, studs, headers and braces.

- Plates
  Horizontal wall components that tie all other components together, provide support and a nailing surface for studs, headers and braces
  - Sole Plate
    Bottom most horizontal component
  - Top Plate
    Top horizontal component
  - Double Top Plate
    Top most horizontal component
• **Wall Studs**
  Vertical 2 X 4 or 2 X 6 supports cut to a length of 7’-9” for an 8’ ceiling, placed between the sole plate and top plate, spaced 16” or 24” O.C. with the 1st stud positioned flush/even with the end of the sole plate
  - **King Post**
    Vertical component that spans from the sole plate to the top plate
  - **Jack Post**
    Vertical component that does not span from the sole plate to top plate due to various types of wall openings
  - **Trimmer**
    Vertical component that supports a header
• **Headers**
Horizontal components positioned above wall openings, adds extra support in that area of the wall
  - **Solid Bracing**
    Header fills the entire wall opening from the top of the rough opening to the bottom of the top plate
  - **Jack Construction**
    Jack Studs fill the wall opening from the top of the header to the bottom of the top plate

• **Corners**
Generally made from 2 king post studs with 2 X 4 blocking in-between

• **Bracing**
Diagonal wood or metal straps attached to the double top plate and sole plate, *plywood/O.S.B. nailed on either side of each corner* or the entire outside of the frame sheeted
Ceiling Construction
After the exterior and interior walls have been constructed, positioned, plumbed, braced, and double plated, ceiling joists are now put in place. These are usually positioned across the width of the house and in the same direction as the roof rafters. The size of ceiling joists required depends on; load to be supported, span distance, spacing of floor joists/trusses, wood species, grade of lumber.

Construction of the ceiling is similar to floor construction except a header is not required around the perimeter and smaller lumber is typically used.

### Ceiling Joist Span Data

20 psi Live Load, 10 psi Dead Load, Def. <240

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Works Cited