

UNIT F: Sections and Details

Competency: 206.00

Draw wall sections and details.

Objective: 206.03

Explain concepts of wood frame wall construction.

R1, pgs 497-591

R2, pgs 273-317

A. Wood frame wall construction

1. Materials

a. Wood studs should

- 1) Be straight
- 2) Have good stiffness
- 3) #2 grade or better
- 4) Moisture content of 15-19%

* b. 2x4 and 2x6 lumber are most popular sizes for wall construction

- 1) 2x6 materials can be used for exterior walls for additional insulation thickness
- 2) 2x4 materials used for most interior walls
- 3) 2x6 and 2x8 materials used to allow plumbing to pass through wall

2. Sole Plate/Bottom Plate

- a. Holds studs together in a wall unit
- b. Anchors wall to subfloor

* 3. Wall studs

- a. Spaced 16" or 24" O.C. *most common spacing*
- b. Length based on ceiling height

4. Top plate

- a. Ties intersecting walls together
- b. Provides additional strength between studs where ceiling joists/rafters do not bear directly above the stud

5. Headers

- a. Size depends on its span and loading
 - b. Carries load of the roof where studs have been removed from the wall to create an opening
 - c. Solid headers
 - 1) Fill the space above the opening
 - 2) Header formed by turning two units of framing lumber on edge with a $\frac{1}{2}$ " spacer between the members
 - 3) For 2x4 stud wall a 3- $\frac{1}{2}$ " thick unit
 - d. Cripple studs incorporate *cripples*.
 - 1) Studs are not full length.
 - 2) Fill the space above the header
 - e. Headers are supported by *trimmers* or *jack studs*.
6. Corner bracing
- a. Plywood, OSB, or similar material may be used in place of the let-in brace.
 - b. Diagonal metal straps may be used.
- B. Exterior finishing
- *1. Wall sheathing
 - a. Typically $\frac{1}{2}$ " thick
 - b. May be a structural material and/or an insulating material
 - c. Often applied to frame wall prior to wall being raised from the subfloor
 - d. Covered with a *housewrap paper* to reduce heat loss/gain
 2. Wall ties
 - a. Masonry wall is not a load bearing wall
 - b. Frame wall carries the load of the structure
 - c. Ties are bent to fit between mortar joints
 - d. Corrugated metal ties
 - 1) Placed 16" O.C. vertically
 - 2) Placed 32" O.C. horizontally