



Based on
IRC 2006

**Wall Bracing Example:
Seismic Design Categories A–B
Wind Speeds \leq 100 MPH**

Seismic Design Categories A–B and Wind Speeds \leq 100 MPH

Wall Bracing Example 1 - Wood Structural Panels (WSP)

(Example considers 1st story walls only)

90 mph Wind Speed
Seismic Design Category B
Method 3, Wood Structural Panels
Two story structure, 9' tall first story walls

In this example, wall lines from the floor plan shown on the next page are examined. The minimum wall bracing for each wall line is calculated and options for bracing are discussed.

Each wall line solution describes the following steps:

- Braced wall lines are defined. They include all exterior walls and any interior walls needed to meet on center spacing requirements. Check that all portions of the wall line are within 4 ft of the braced wall line
- The number of panels required for 25' on center spacing is calculated.
- Spacing between braced panels and from the end of the line to the first braced panel is checked for compliance with the IRC requirements.
- The percentage of bracing is checked. If more braced panels are needed, they are added between existing panels.
- Increase or reduce bracing percentage for wall heights, roof or ceiling dead load, brick veneer, and continuous sheathing.

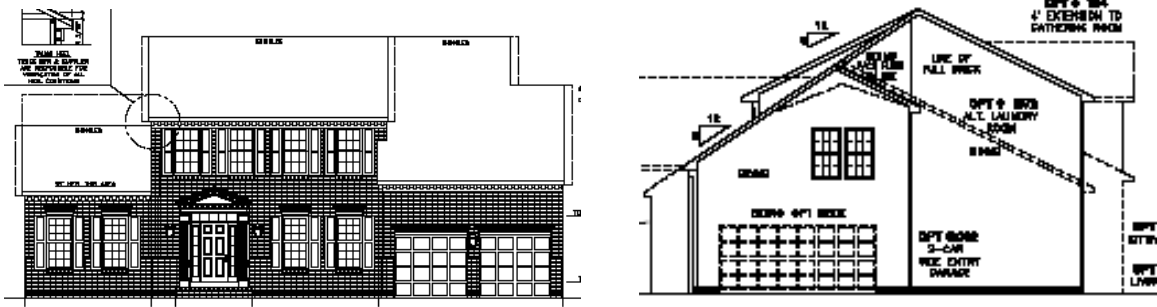


Figure 1: House Elevation

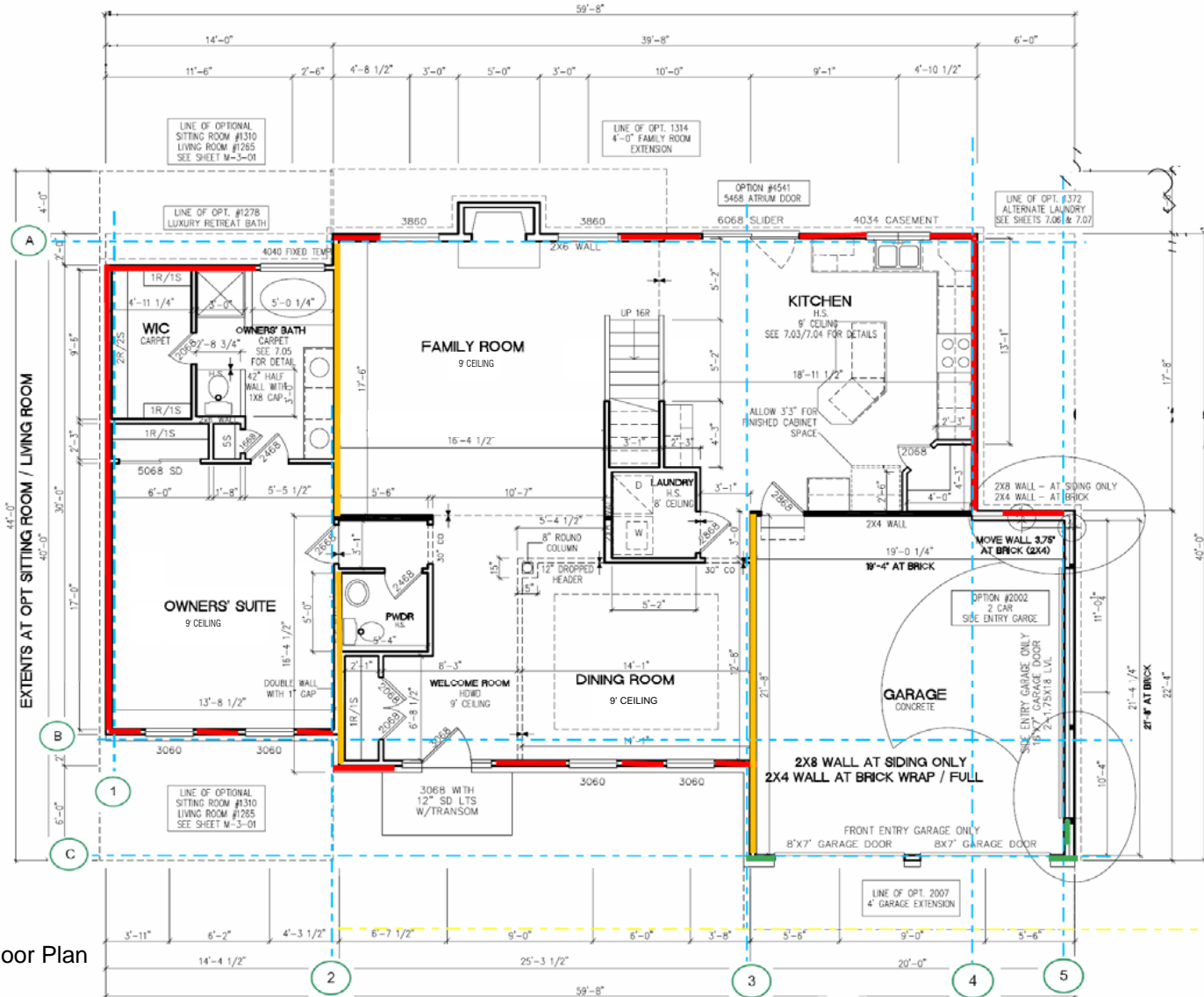
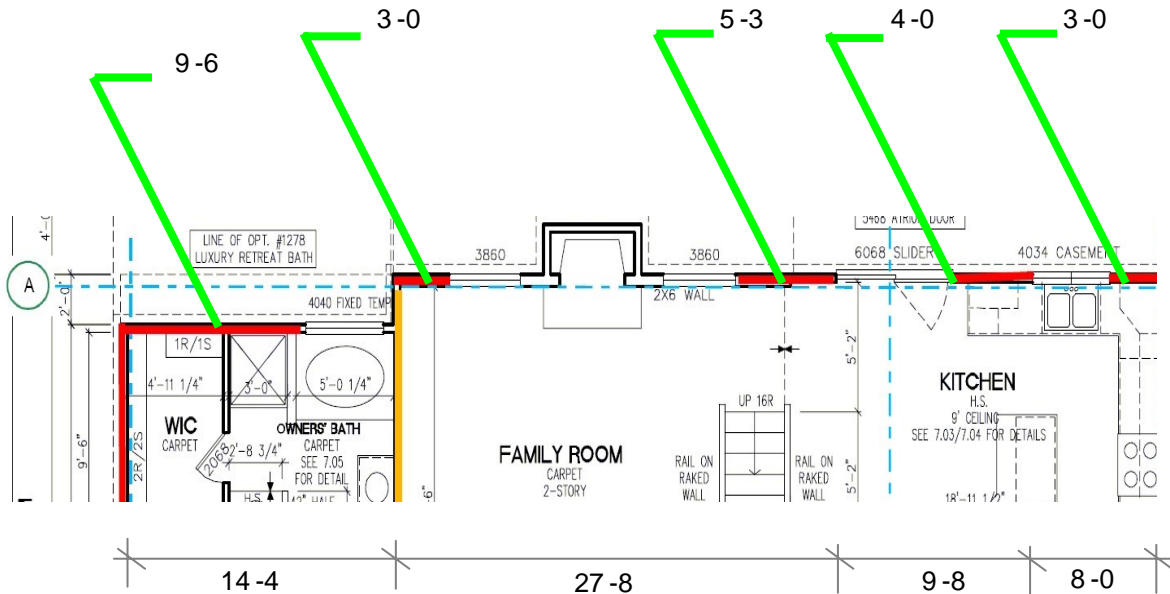


Figure 2: Floor Plan

Braced Wall Line A



Braced Wall Line (BWL) A: total wall line length = 59.67

The braced wall line offset of BWL A is 2' which is less than the maximum 4'.

Minimum braced panels: $59.67' / 25' \text{ o.c.} = 2.4 \text{ panels}$

Minimum 3 braced panels

Place one panel at each end of the wall line and panels within 25' of each other and the end panels.

- Place a 4' braced panel at the left end of the wall line.
- As there is not a 4' wall segment at the right end of the wall line, place the end panel in the 4' wall line segment. The right edge of the braced panel will begin 8' from the wall end which is less than the maximum 12'-6".
- Two center braced panels may go in the 3' wall segment to the right of the wall line offset and the 5'-3" wall segment.
- Check braced panel spacing:
 - There is 13'-10" between the center of the left end panel and the panel in the 3' wall segment
 - There is 24' between the panels in the 3' wall segment and the 5'-3" wall segment
 - There is 9'-8" between the panel in the 5'-3" wall segment and the right end panel.

All braced panels are spaced less than 25' on center.

- Check braced panel width:
 - The 5-3 wall section allows a 4 braced panel.
 - The 3 wall section next to the wall line offset has space for a 32 alternate braced panel or a 12 prefabricated panel.
- Check percentage of wall bracing:
 - 16% = Minimum wall bracing required for Seismic Design Category B
 - Wall Bracing Required: $59.67 * 0.16 = 9.5$
 - Length Provided = $3 \text{ panels} * 4 + 1 \text{ equivalent panel} * 4 = 16$

Length Provided \geq Length Required

O.K.

