

Frequently Asked Questions/UDC Wall Bracing Emergency Rules

1. What was the emergency necessitating the emergency rule provisions for wall bracing?

Some building designers, home builders, and regulatory officials performing permitting, plan review and inspections find the current rules for wall bracing for one- and two-family dwellings are too difficult to understand and apply, which results in unnecessary costs and delays in home building. Promulgating revisions to the rules through the emergency rule process is needed in order to avoid these costs and delays as soon as possible. In addition, the report that the Dwelling Code Council is required to complete by July 1, 2014, under section 101.62 (4) of the Statutes is expected to include recommendations to clarify and simplify these rules through the emergency rule process.

2. I am very comfortable using and complying with the current UDC Wall Bracing provisions. May I continue to use this method after the effective date of the Emergency Rules?

No, while the design wind pressure remains unchanged at 20 psf the new provisions are based on the 2012 IRC Simplified Wall Bracing Method. The 2012 IRC Simplified Method (and prior 2009 IRC Wall Bracing Provisions) is the result of an Ad Hoc Wall Bracing Committee established by ICC. This committee developed a rational design approach for wall bracing taking into consideration recent research and large scale testing by APA – The Engineered Wood Association, Simpson Strong Tie, and National Association of Home Builders as well as several conventional wood frame whole house tests. In some cases the emergency rules may require slightly more bracing and the bracing to be distributed in different locations than what was required under the previous UDC wall bracing provisions while at the same time providing a simplified approach and greater flexibility to achieve code compliance.

3. When reviewing plans and processing permit applications how does one determine which rules to apply?

The 'code applies' date is the date upon which a valid permit application is received by the authority having jurisdiction. If received prior to the effective date the current wall bracing provisions OR the simplified method in the emergency rules may be used. If received after the effective date of the emergency rules the emergency rules shall be used to determine compliance with the wall bracing requirements

4. Table 321.25-A The new stud height and spacing table doesn't appear to meet industry standards for deflection limits for interior finishes and windows is this a problem?

5. Table 321.25-H Is linear interpolation allowed in this table? Yes.
6. Figure 321.25-B footnote 'b'. Can you define what is meant by enclosed plan offsets and projections? Is a screen porch classified or defined as enclosed?
7. Figure 321.25-B Does the portal nframe design require 7/16" OSB or plywood on all sheathable surfaces? It depends on the bracing method being used for that rectangle side. If using the intermittent method - No. If using the Continuously Sheathed method - Yes.
8. On a gable end wall how do you measure the nominal wall height?
9. Are braced wall panels on a gable end wall required to be sheathed full height on the interior with ½" gypsum board where the wall extends above the ceiling and faces normally unfinished attic space on the interior of the dwelling?
10. On a dwelling with varying roof heights must I utilize the highest eave to ridge distance in applying the Bracing amount tables? Yes.
11. Table 321.25-I lists 1 panel required but s. SPS 321.25 (8) (c) 2. says you can never have less than 2 braced wall panels.
12. Figure 321.25-A, First 2 lines under Heading say a portal frame counts as one or 2 braced wall panels (depending on width) but footnote g. (5) under Table 321.25-I says a portal frame counts as ½ a braced wall panel.
13. Figure 321.25-B, Do rectangles have to abut at a wall line? Can it be a 100% interior wall line?
14. Can methods be mixed & matched from one floor to the next? Within one floor? Yes, bracing materials can be mixed on any given rectangle side, within a story or from one story to the next. In addition, bracing methods either intermittent or continuous can be mixed within a story or from one story to the next. However, on any given rectangle side you cannot mix intermittent and continuously sheathed methods.
15. Table 321.25-J, Eve-to-Ridge Height (feet) column: Should the numbers read, "0-10, 10-15, 15-20" or do you have to interpolate values for, say a 12-foot roof or an 18-foot roof?
16. Figure 321.25-C Where does the 21-foot spacing begin and end with a portal frame?
17. Table 321.25-J, Do adjustment factors add cumulatively (as with intermittent)?

File Reference: SPS 320-325/Wall Bracing FAQs 3.14

Wall Bracing Q and A

1. Question: Can a hole be made in a braced wall panel, and if so, are there restrictions on the location?

RESPONSE: One hole with a maximum dimension of 10% of the least panel dimension is permitted, provided it is in the middle 3/4ths of the panel. For a standard 4x8 panel, this would put the hole at least 12" from the top and bottom edges and 6" from the left and right edges.

2. Question: Tables 321.25-G & J and SPS 321.25 (8) (c) 6. require the interior side of all exterior walls to be sheathed with a minimum 1/2" gypsum wall board. Since portal frame wall panel are listed under Table 321.25-G, is it the intent to drywall the Portal Frame Method also?

RESPONSE: No. That is not the intent. The intent for the PF is to follow the same exception as in Section R602.10.4 (exception 1) in the 2012 IRC.

3. Question: The rules do not clearly state how the requirements and variables for the various tables are applied: for example each side of a given rectangle could have different wall heights, wind exposure category, opening heights, etc. Are the most restrictive requirements applied to the entire building, to each rectangle, to each rectangle side, or to each braced panel (for example opening height adjacent to a panel)?

RESPONSE: The above questions relate to striking a balance between specificity and complexity of the code vs. practicality. There is not necessarily one right answer to all of these questions. Answers to these questions may be best demonstrated through examples, rather than trying to anticipate various conditions that require some judgment or art in applying the provisions. With that in mind, here is how the specifics of these questions might be addressed:

1. If a side of a rectangle has different wall heights or story heights, then the worst case would apply to that rectangle from the standpoint of determining bracing amounts. Alternatives would be to draw the rectangle differently such that each rectangle encompasses constant conditions (same wall height, same number of stories). Alternatively, the design methodology referenced in the proposal could be used by a design professional to get a more exact answer. This same question could be asked of the IRC 602.12 simplified provisions which are similarly configured.
2. As far as wind exposure, this too could be based on the worst-case for all directions, or one could be more detailed and pick a wind exposure for each building plan direction. Either way works, one is just more conservative than the other. Both methods would be suitable.
3. As far as brace panels in differing wall heights, the brace panel limitations are always based on the context of its location and immediately surrounding conditions, not what may be going on with changing conditions elsewhere along a building side. So, the brace panel should be sized based on the wall height where it is located and the opening heights where it is located.

4. Question: If you can't have extrapolation as indicated in footnote a on both Table 321.25 – I and Table 321.25 – J, how can you have wall bracing on a 2 story balloon frame wall as

indicated in 321.25 (8) (c) 7. since both intermittent and continuous methods have a 12' maximum wall height? If allowed, how wide does the panel need to be?

RESPONSE: The prohibition from extrapolation in Tables 321.25-I & J is primarily dealing with not allowing use of the provisions on a larger building size than indicated in the bracing amount tables. The 2-story balloon frame wall provision in 321.25 (8) (c) 7. should be viewed as a special exception, based in part on judgment and practical experience and realizing that these features are generally only a portion of the overall structure. In this context, the brace panel widths for nominal wall heights listed in Table 321.25-G should be used. If the whole building were two story balloon frame walls (all sides), then this would be a problem because it is no longer a special condition, but applicable to the whole building. Thus, the context of this section can be taken to apply to balloon frame portions that are no longer in length of wall than the maximum spacing distance (21') between braced panels (e.g., per Figure 321.25-C as referenced in 321.25 (8) (c) 5., since it is talking about "portions" of a building, not the whole building.

5. Question: Are oversized 2" x 2" x 3/16" washers still needed for portal frame anchorage over concrete?

RESPONSE: Yes. The portal frame in Figure 321.25-A is based on the similar portal frame in the 2012 IRC (Figure R602.10.6.4). Thus, the 2" x 2" x 3/16" washers are still needed.

6. Question: Will SPS 320.09 (5) (b) 2. d. be revised to replace the term wall braced lines?

RESPONSE: Yes. Terminology in this section should be coordinated. For example, one way to change the subject text would be as follows: "The location and construction details of ~~the braced wall lines~~ wall bracing on each building side and story level."

7. Question: Mixing of methods is not clearly addressed. Is it safe to assume based on 321.25 (8) (c) 3. and 4. that each side of a circumscribed rectangle needs to stay as intermittent or continuous sheathing methods, or do both parallel sides of the rectangle need to be the same method?

RESPONSE: The way the provisions are written, the bracing method (intermittent or continuous) must remain the same on a given building side; however, the provisions can be applied to use different methods on different sides or different story levels on the same side.

8. Question: Since Portal Frame is under its own heading under Table 321.25-G, not under intermittent or continuous sheathing, how much credit do you get for a portal frame?

Since intermittent sheathing amounts are based on the number of panels, in footnote g under the intermittent braced wall panels, Table 321.25-I gives ½ panel credit for portal frame. This makes sense since it would allow the area in the rest of all sheathable surfaces to be sheathed with any acceptable sheathing material. Drywall would still be required per SPS 321.25 (8) (c) 6, Table 321.25-G footnote a, and Table 321.25-I footnote e. Continuous sheathing amounts however are based on the length of continuous bracing on exterior walls per Table 321.25-J.

Therefore a 16" panel in an 8' wall will only count for 16". (The 2012 IRC, in section 602.12.6.2 allows each CS-PF unit to be equal to .5 bracing units.)

RESPONSE: This is correct as described above. When used on a wall line (building side at a given story level) with intermittent bracing, each portal frame panel counts as ½ of an intermittent brace panel. When used on a wall line with continuous sheathing, each portal frame panel is counted for its actual length in contributing toward the length of continuous sheathing used on other portions of the same wall line (building side at a given story level). In both cases, the PF is not required to have gypsum on the interior side (see response to #2 above).

9. Question: Will the 12-foot 2 x 4 stud heights in Table 321.25-A allow walls to deflect too much?

RESPONSE: Extrapolating the basis for the current 10-foot 2 x 4 height to allow 12-foot 2 x 4 studs might not be adequately supported by engineering analysis at this time. This option is being deleted from the table.

10. Question: Is Figure 321.25-C intended to mean that the 12'-6" max. start to a panel means that the 12'-6" is a total added number in length for both edges of the circumscribed rectangle? Or, can both edges of the house have a panel that starts in 12'-6" each?

RESPONSE: The figure is meant to show that the panel can be located a maximum of 12'-6" from one or both ends of a building side.

File reference: SPS 320-325/Wall Bracing Q&A