



City of White Bear Lake
Building Department
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LATERAL WALL BRACING DESIGN

1. The overall building's braced wall lines need to be clearly identified on the plan. Buildings with an overall dimensions of less than 60' will basically have braced wall lines placed at each exterior wall line. Buildings that exceed 60 feet in length will need to have both exterior and interior braced wall lines. IRC R602.10.1.
2. Once the location braced wall lines are determined, then a calculation should be done to determine total minimum length of braced wall needed along each braced wall line. IRC 602.10.6.5.1.

The minimum length will ultimately be determined based on factors such as the exposure category, the roof eave to ridge height, the story height, and other factors that may apply. The calculation is based on Tables R602.10.3.(1), Table R602.10.3.(2), Table 602.10.3.(3) and Table R602.10.3.(4).

3. The prescriptive rules require that all braced wall lines intersect with another braced wall line. R602.10.1.1.
4. Offsets along a braced wall line, up to a total of 8 feet, are allowed to be considered to be along and in line with the braced wall line. Where offsets are greater than 8 feet then additional braced wall lines will be needed. R602.10.1.2.
5. The prescriptive rules require that each braced wall section be shown along each braced wall line. The basic rule for braced wall placement is that the braced walls are to be placed within 10' of each corner and not more than 20 feet apart. IRC R602.10.2.2.
6. There are minimum length requirements for braced walls depending on the type of braced wall being used. There are 16 different braced wall types that can be used. The wall types are identified in Table R602.10.4. The most common braced wall types used are CS-WSP and Portal frame. Once the wall type has been determined then the minimum length of that wall type must be verified. The minimum length is determined by using Table R602.10.5. A notation should be provided on the plans at each lateral braced wall section to indicate which type of lateral wall is being used. (CS-WSP, Portal Frame etc.)
7. The prescriptive rules require that each corner of the building be looked at to determine the end condition. The IRC has five possible end conditions. Two of the five end conditions require additional 800lb hold down devices. The end conditions are depicted in IRC Figure R602.10.7.
8. To perform effectively braced wall sections need to be properly nailed. The prescriptive code requires that braced wall panels be nailed with 6d or 8d nails 6" on center along all edges and 12" in the field, staples are not allowed under the prescriptive provisions.
9. Each braced wall section needs to be tied to the roof framing, floor framing and foundation to connect the shear wall to the overall building. Blocking details for braced walls can be found in IRC Figures R602.10.8(1), R602.10.8(2), R602.10.8.2(1), R602.10.8.2(2) and R602.10.8.2(3).
10. Details should be provided on the plans showing the nailing size and pattern for each wall type, sheathing thickness and type, specific strap and hold downs devices that may be required, blocking requirements to framing above and below etc.
11. Post and beam structures are outside of the prescriptive requirements and must be engineered. R602.10.9.(2)