

## Technical Bulletin

The thermal resistance of a building material is designated by its R-value. This is a measure of the ability to retard heat flow. The use of R-values helps makes it possible to add the thermal value of a whole series of materials, air films, and air spaces so the total R-value for a composite building section can be determined. Since R-value indicates the ability to retard heat flow, the higher the R-value, the greater the insulating power. All materials having the same R-value, regardless of thickness, weight, or appearance, are equal in insulating power.

There are times when more than one layer of insulation will be used. An example of this is in an attic. If the existing attic insulation is an R-19, you may choose to add another layer of R-19. Two layers of R-19 at 6¼" thick will achieve a total R-value of 38. So adding an R-19 batt to an existing R-19 batt will give you a total insulation value of R-38. This is of course assuming that the two batts achieve their label thickness – in this case about 12 inches.

If adding the batts together causes them to be compressed in an enclosed cavity, then you must add together the compressed values of the insulation, not the full values. An example of this is in walls. Adding two R-13, 3.5" batts to a 2"x6" (5.5") wood stud cavity will not provide an R-26. The total of 7" of insulation is reduced in thickness to 5.5" thereby losing the R-value associated with its full thickness. At this compression, each batt has an R-value of about 10.9, so adding them together in this cavity will give you a value of about R-22 for the cavity.

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