

Figure 3-18: Option A (left) and Option B (right)

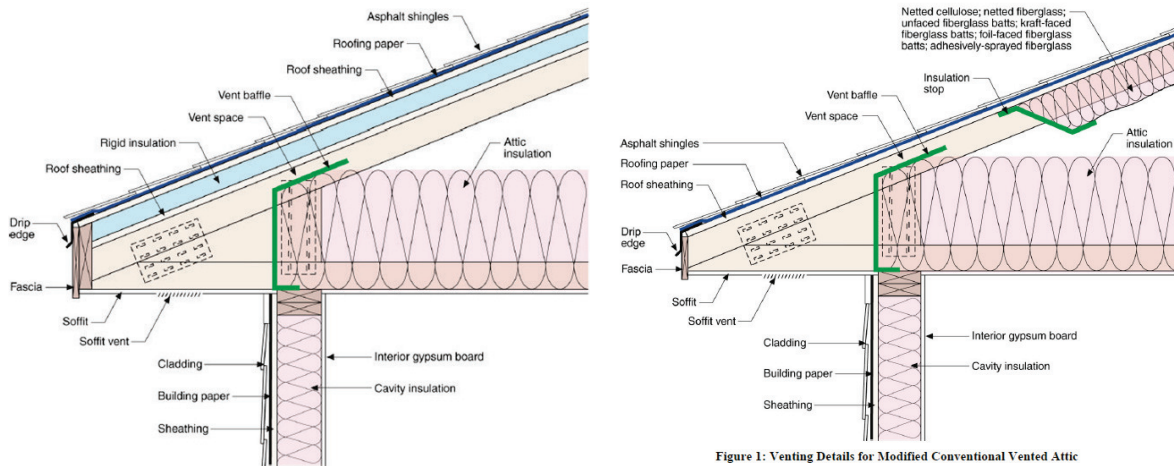


Figure 1: Venting Details for Modified Conventional Vented Attic

Source: Building Science Corporation

Option A requires insulation above the roof rafters, directly in contact with the roof deck, while Option B requires insulation installed between the roof rafters. The insulation values are different depending on whether there is an air gap present between the roofing materials and the roof deck. For roof constructions with an air gap present, which is standard for concrete or clay tile, R6 insulation is required above the roof rafters or R13 below the roof deck placed between the rafters. If there is no air gap present between the roofing and roof deck, R8 insulation is required above the roof rafter or R18 below the roof deck placed between the rafters.

The R-values for insulation installed above the roof rafters are lower than the R-values for insulation installed below the roof deck due to the added benefit of reduced thermal bridging when continuous insulation is applied to the roof deck. Further, when an air space is present between the roofing and the roof deck, the effect of insulation is greater than when there is no air space.

Standard residential roof construction practice in California for concrete/clay tiles is to have an air gap between the tiles and roof deck. For asphalt shingles, the practice is to place the roofing material directly on top of the roof deck without an air gap. It is, however, possible for builders to construct different construction assemblies than these standard assemblies such as providing air gaps between the asphalt shingles and roof deck through construction techniques explained later in this document.

The prescriptive requirement for roof deck insulation can also be met by placing ducts in conditioned space and getting HERS verification (Option C). The requirements to comply with Option C are explained in Chapter 4 of this manual.