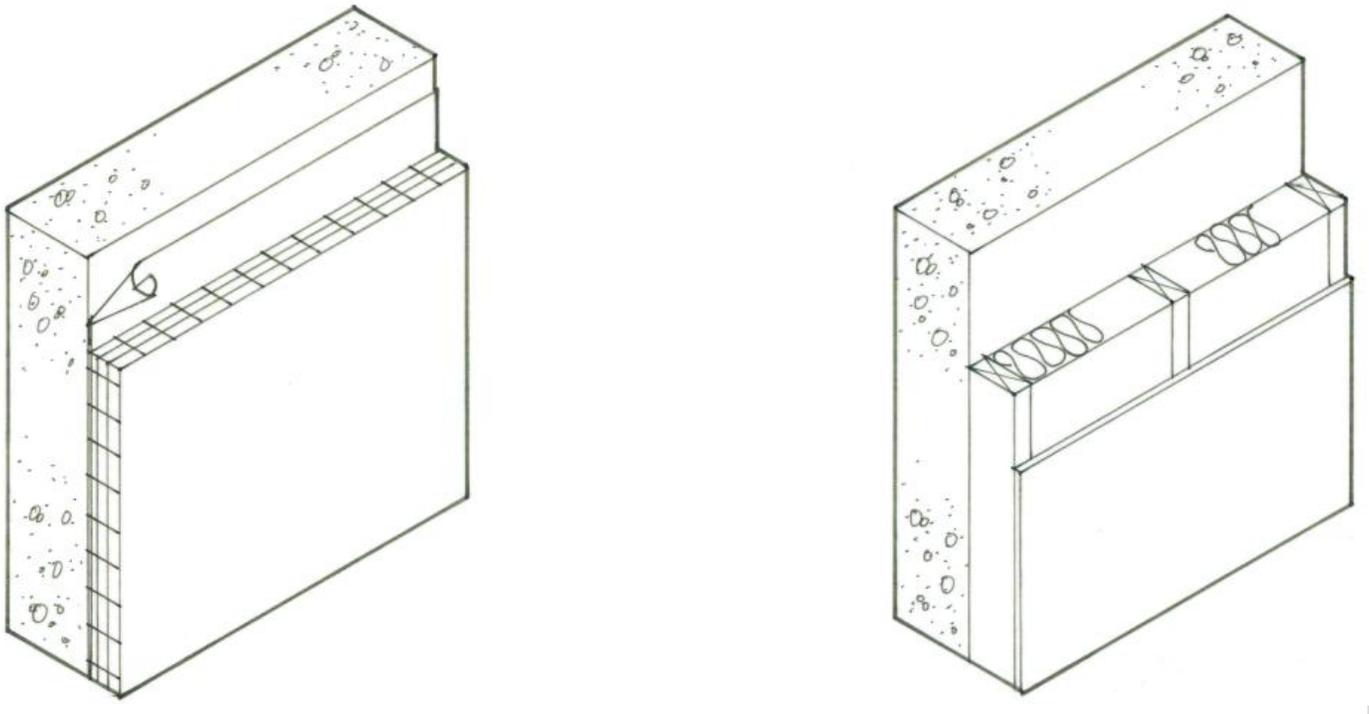




AEDG Implementation Recommendations: Walls

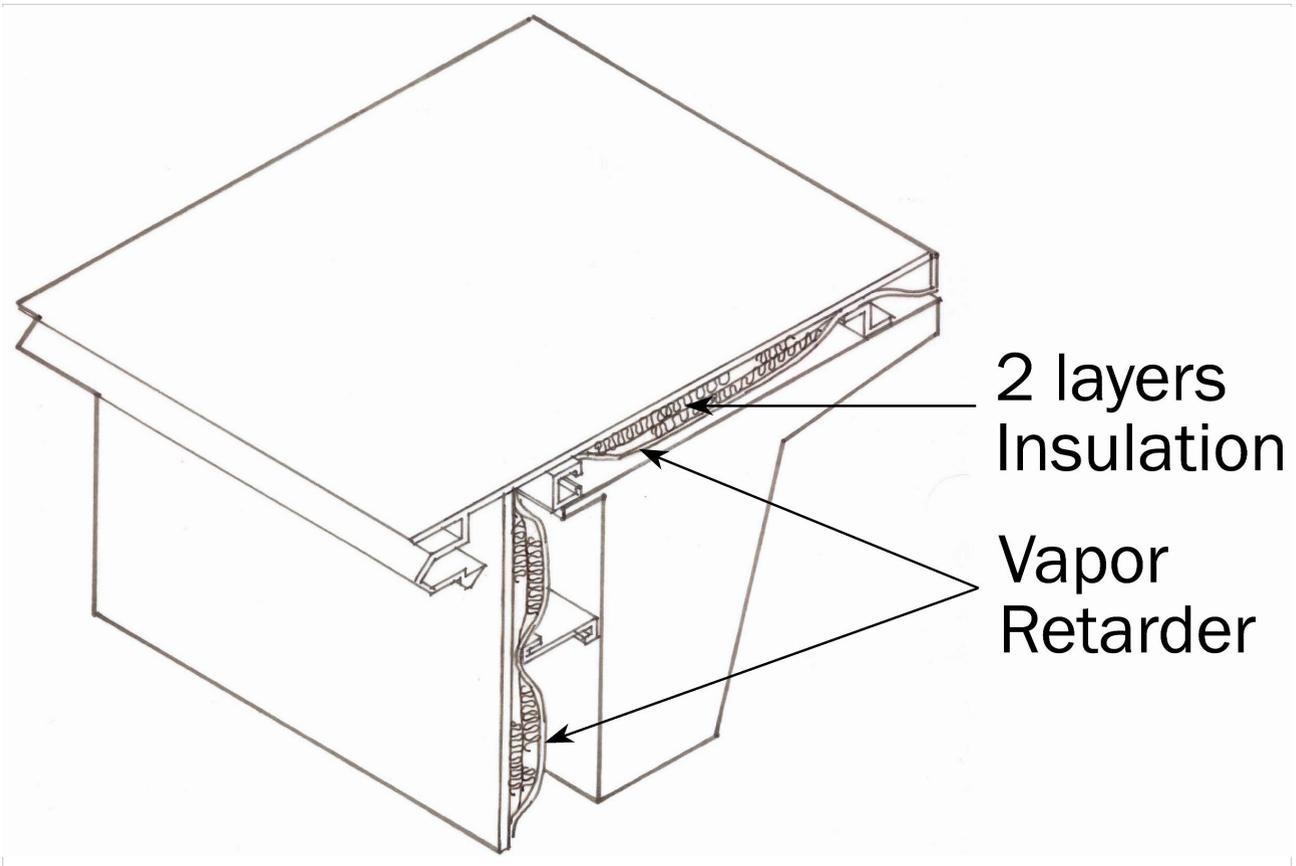
The Advanced Energy Design Guide (AEDG) seeks to achieve 30 percent savings over Standard 90.1-1999. This guide focuses on improvements to small office buildings, less than 20,000 square feet. The recommendations below are adapted from the implementation section of the guide, and should be used in cooperation with the whole document.* The full design guide is available from the ASHRAE website, [Advanced Energy Design Guide for Small Office Buildings](#).



Mass Walls

Mass walls are defined as those with a heat capacity exceeding 7 Btu/ft² F. Insulation may be placed either on the inside or the outside of the masonry wall. When insulation is placed on the exterior of the wall, rigid continuous insulation (ci) is recommended. When insulation is placed on the interior of the wall a furring or framing system should be used provided the total wall assembly has a U-factor that is less than or equal to the appropriate climate zone construction.

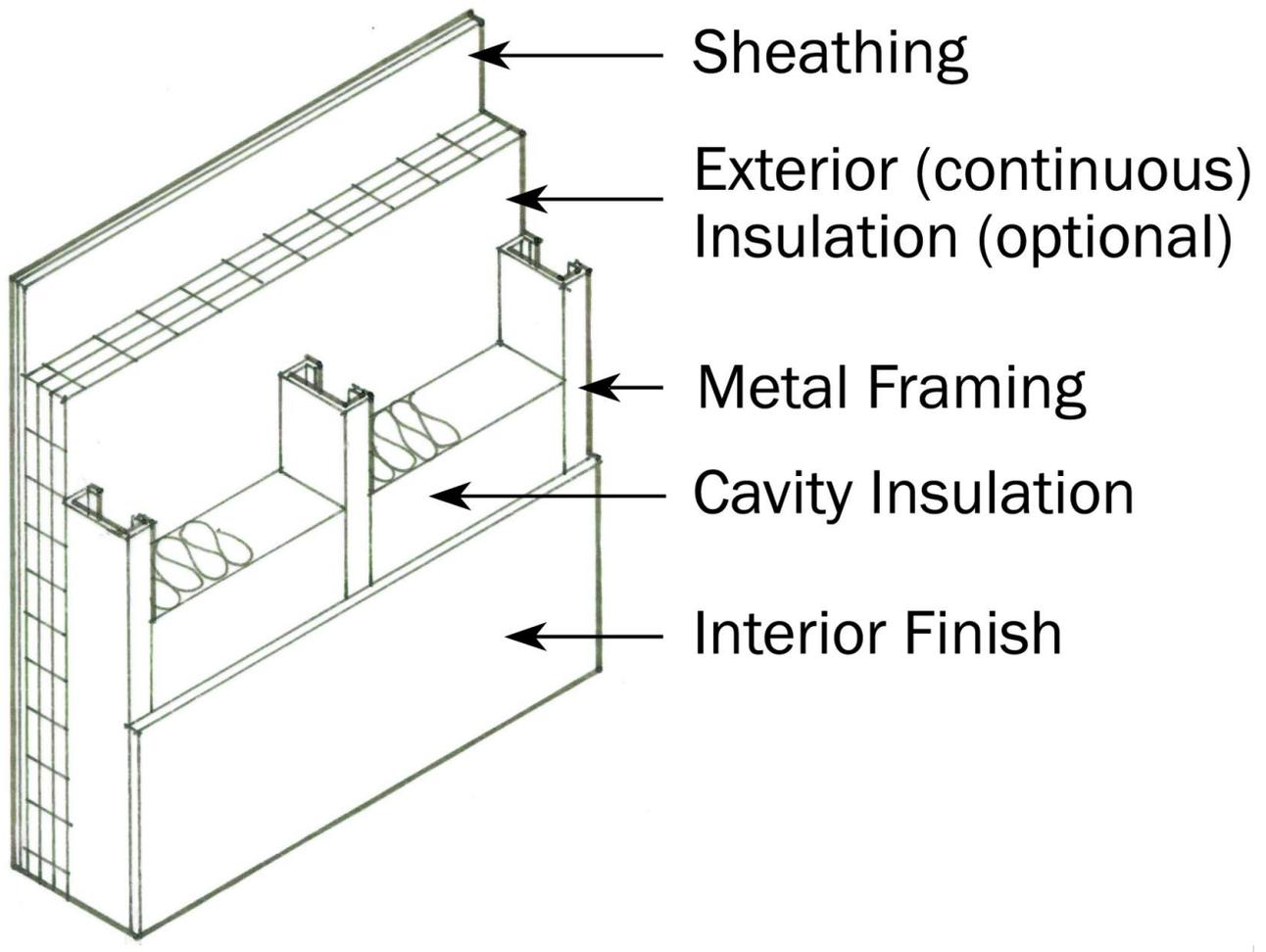
The greatest advantages of mass can be obtained when insulation is placed on the exterior of the mass. In this case, the mass absorbs internal heat gains that are later released in the evenings when the buildings are not occupied.



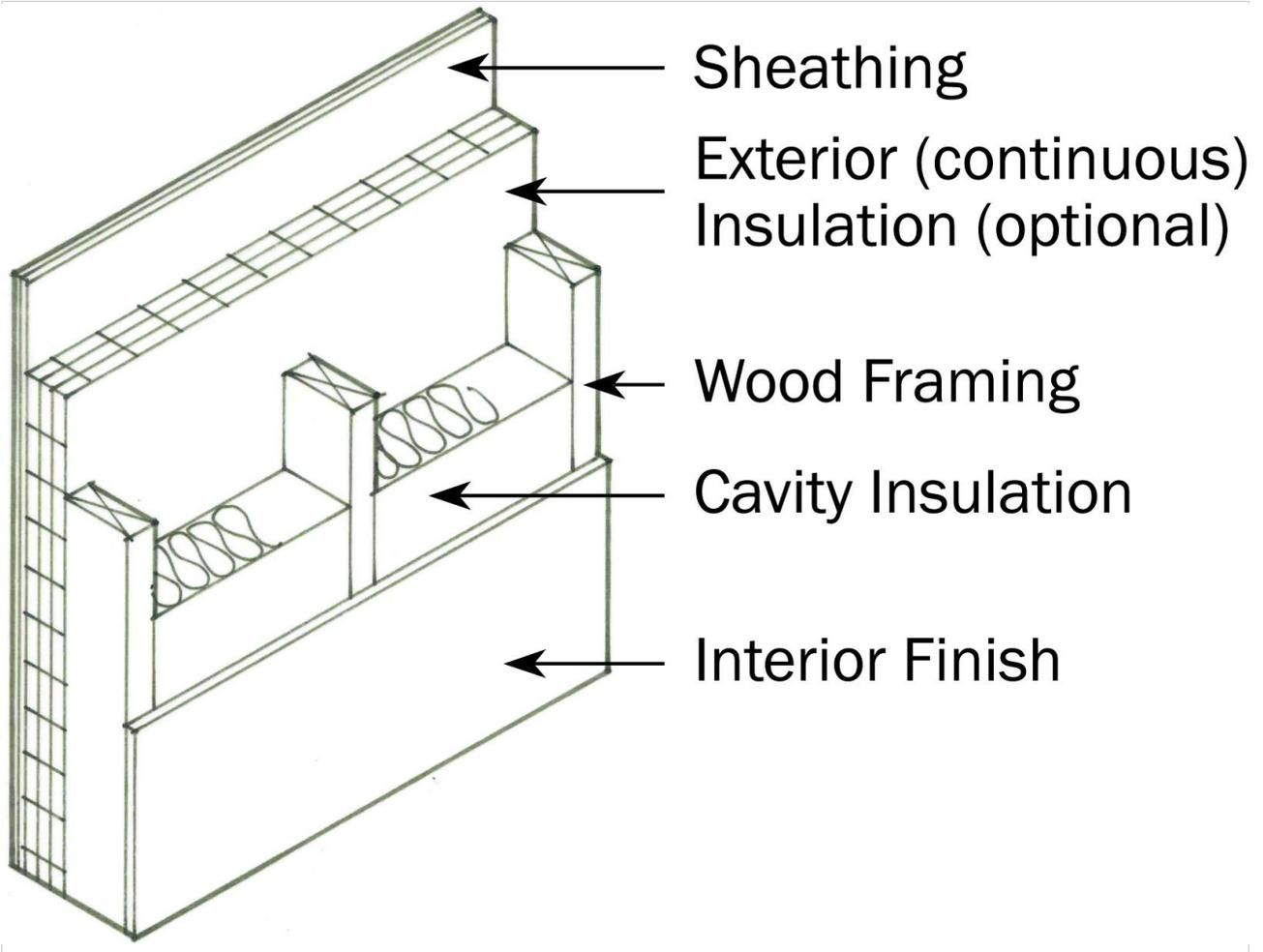
Walls, Metal Building

In climate zones 1-4, a single layer of fiberglass batt insulation is recommended. The insulation is installed continuously perpendicular to the exterior of the girts and is compressed as the metal skin is attached to the girts. In climate zones 5-8, two layers of fiberglass batt insulation are recommended. The first layer is installed continuously perpendicular to the exterior of the girts and is compressed as the metal skin is attached to the girts. The second layer of insulation is installed parallel to the girts within the framing cavity.

Walls, Steel Framed



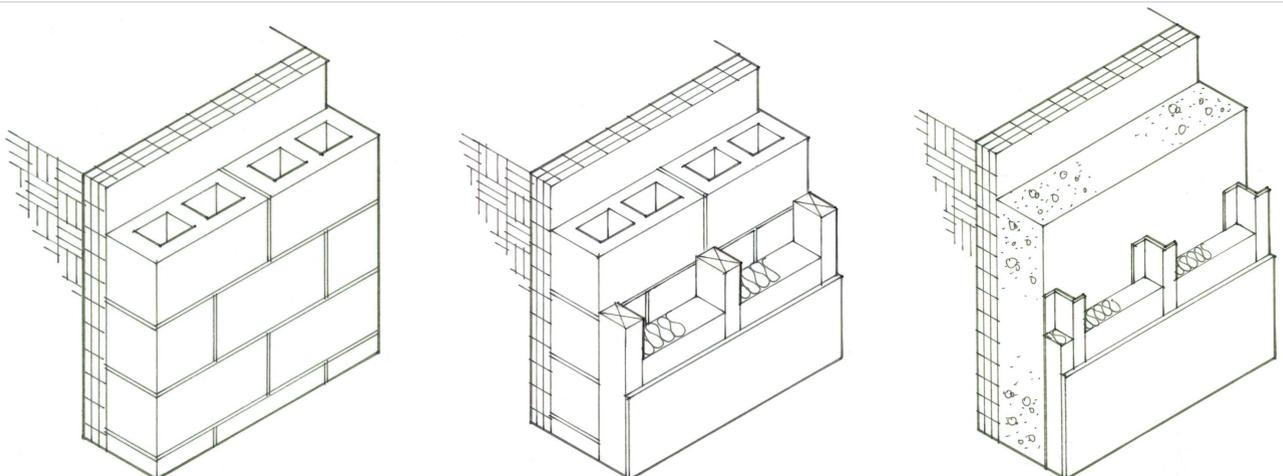
Cold formed steel framing members are thermal bridges to the cavity insulation. Adding exterior foam sheathing as continuous insulation (ci) is the preferred method to upgrade the wall thermal performance because it will increase the overall wall thermal performance and tends to minimize the impact of the thermal bridging. Cavity insulation is used within the steel-framed wall, while rigid continuous insulation is placed on the exterior side of the steel framing. Alternate combinations of cavity insulations and sheathings in thicker steel framed walls can be used provided the total wall assembly has a U-factor that is less than or equal to the appropriate climate zone construction.



Wood Frame and Other

Cavity insulation is used within the woodframed wall, while rigid continuous insulation (c.i.) is placed on the exterior side of the framing.

Below-Grade Walls





Insulation, when recommended, may be placed either on the inside or the outside of the below-grade wall. If placed on the exterior of the wall, (a) rigid continuous insulation (c.i.) is recommended. If placed on the interior, (b) a furring or (c) framing system is recommended provided the total wall assembly has a C-factor that is less than or equal to the appropriate climate zone construction.

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