

Unvented Roof Assemblies for All Climates

Unvented roof assemblies, such as conditioned attics and unvented cathedral ceilings, are becoming common in North American construction. It is estimated that over 100,000 have been constructed since 1995. These assemblies are created by eliminating ventilation openings, and moving the thermal, moisture and air control boundaries to the plane of the roof deck.

Why Unvented Roof Assemblies?

Enhanced Health & Comfort –

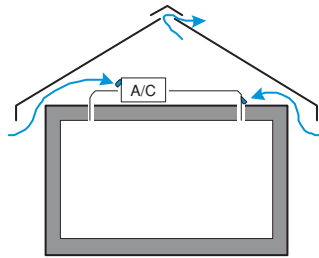
In unvented roof assemblies the attic space is at the same condition as the living space and air movement between the two does not contribute to energy waste, occupant discomfort or contaminant problems.

Greater Energy Efficiency – When mechanical equipment and ductwork are located in an unvented attic, leakage will occur to or from the conditioned living space, reducing heating, cooling and dehumidification loads and saving energy.

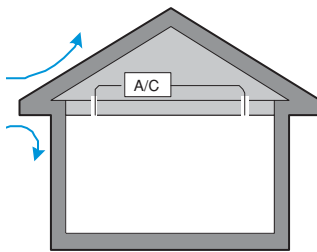
Improved Durability – Unvented roof assemblies do not provide openings that can allow the entry of wind driven rain or blowing snow which can cause moisture problems.

Better & Bigger Living Space at Less Cost – Unvented roof assemblies allow the construction of finished attics, high cathedral ceilings and interesting roof geometries, increasing the value of your home.

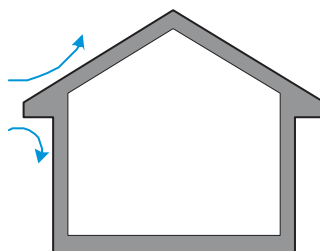
From more information on unvented roof assemblies, please visit Building Science Corporation Web site at www.buildingscience.com



(Conventional) Ventilated Attic



Unvented Cathedralized Attic



Unvented Cathedral Ceiling

Why Use Closed-Cell Spray Foam?

Closed-cell spray polyurethane foam (ccSPF) can be used to create an unvented roof assembly that works in all climate zones. When made with Honeywell Enovate® blowing agent, ccSPF can be used to construct an unvented roof assembly that:

Controls Airflow – ccSPF is air impermeable, adheres well to almost all construction surfaces and expands to fill voids creating an air seal and eliminating air leakage and preventing moisture laden air from causing condensation on the underside of the roof sheathing.

Controls Heat Flow – ccSPF has exceptional thermal performance relative to other insulations (i.e. the highest R-value per inch.) and can be used to create a very compact roof assembly that meets or exceeds the code required thermal performance.

Controls Vapor Diffusion – ccSPF is vapor semi-permeable so it acts as a throttle to control the rate of outward vapor diffusion during cold weather and inward vapor diffusion during warm weather.

Controls Rain Leakage – ccSPF has low water permeability, low water absorption, and excellent adhesion allowing it to act as a secondary rainwater

barrier to limit damage when primary roof assembly rainwater control membranes leak.

