



Cellulose Insulation Manufacturers Association

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TO: Architects, Specifiers, Building Officials
FROM: CIMA Technical Committee
SUBJECT: Unvented Roof-Ceiling Assemblies

Cellulose insulation manufacturers are unanimous in recommending the unvented packed cavity design for cathedral and cathedralized roof-ceiling assemblies insulated with cellulose insulation. This recommendation is based on published research and over a half-century of real world experience with such assemblies in all climate zones.

The 2006 International Residential Code acknowledges the effective performance of unvented roofs in warm climates and in colder climate zones if the assembly is insulated with air impermeable insulation. Cellulose insulation does not technically meet the air impermeable standard of the ASTM fenestration leakage test method cited in the code, but cellulose insulation at cavity density is effectively impermeable to air leakage and will perform no less effectively than air impermeable insulation as defined by code in preventing moisture condensation within the insulated assembly. Cellulose insulation is approximately 40 times less air permeable than fiber glass insulation, the material on which the assumption that venting is necessary is based.

Published controlled studies of test roof assemblies, surveys of actual roofs in the U.S. and Europe, and over 50 years of practical experience by cellulose insulation manufacturers and their contractor customers prove that the unvented packed cavity is the optimal design for cellulose-insulated roof-ceiling assemblies. CIMA will provide supporting documentation on request.

The Cellulose Insulation Manufacturers Association endorses and recommends the unvented design for cathedral and cathedralized ceilings with cellulose insulation provided that:

- 1) The ceiling cavities are not less than 10 inches in thickness
- 2) Cavities are totally filled by cellulose insulation with no gaps between the insulation and the roof underlayment
- 3) The insulation is installed at a minimum density of 3 pcf