Technical Bulletin *Bulletin No. 15, April 5, 2004*

SEALING ATTICS IN WARM, HUMID CLIMATES

by
David A. Wojcieszak, P.E., C.I.A.Q.P.
Wojcieszak & Associates, Inc., P.O. Box 2528, Stuart, Florida 34995
E-Mail: david@dwojo.com
(772) 286-8696

Introduction

Ventilated attics in warm, humid climates contribute a moisture load to the conditioned space which cannot be easily removed by the air conditioning system. Sweating of grills, air conditioning ducts, and air conditioning equipment are signs of a ventilated attic. Mold generated on the outside of sweating ducts will not normally affect the conditioned environment. However, sweating ducts that drip onto ceilings could lead to indoor environment problems. Mold which is allowed to accumulate on the supply grills can create indoor environment problems. The solution is to seal the attic.

Benefits and Trade-offs

Sealing the attic greatly reduces the moisture load into the conditioned space. It does come with a minor penalty. The attic temperature will increase slightly, thus shortening the life of the roofing system, specifically the fiberglass shingle. Life expectancy can be reduced by as much as ten percent. Metal roofs and cement tile roofs are not as greatly affected. The benefits of lower humidities and better moisture control far outweigh the shortened life expectancy of the shingles. It is important to note that building officials must be involved when sealing attics in existing structures.

SEALING METHODS

Gable End Vents, Mechanical Turbines and Motorized Fans

Sealing gable end vents, mechanical turbines, and motorized fans can be accomplished by installing a metal or painted wood plate over the opening inside the attic. This covering is to be caulked and screwed in place.

Ridge Vents

Ridge vents are somewhat more problematic. Metal or wood plates can be used, but applying a good construction foam in the opening works best. This method is also easier.

Soffit Vents – Continuous, Full Width

The full width soffit is normally constructed of perforated metal or plastic. Even if the material is not perforated, the soffits will leak. The most efficient method to connect full width, continuous soffits is to replace the soffit material with wood or a cementitious material such as "Hardie® Board" manufactured by James Hardie® Products. Hardie® Board is superior to the wood product. The new material is to be caulked and nailed in place with stainless steel nails.

Soffit Vents – Continuous, Narrow Width

The opening in the narrow continuous vent can be constructed of screen, perforated plastic, or vented metal. The perforated plastic is easiest to seal. Several coats of patch material, Benjamin Moore Elastic Patch Grade, Product No. 05401, can be troweled into the opening. Screen is not structural enough to support the patch material. A perforated plastic strip must first be installed over the screen to properly seal the opening. The vented metal material must also be removed and replaced with perforated plastic. Normally, the metal is too corroded for the patch material to stick to the metal. Stainless steel fasteners and screws are to be used to attach any new material. The patch material can then be primed and painted to match the adjacent surface.

Wood soffits with narrow, continuous vents can be sealed using wood filler. The filler is cut to fit the opening. The strip is nailed and caulked in place. Once again, it is primed and painted to match.

Soffit Vents – Tongue and Groove

Tongue and groove soffits and ceilings are considered to be ventilated. They must also be sealed. The easiest method is to apply Icynene foam to the back side of the wood to form the air barrier.

Soffit Vents – Intermittent

Intermittent soffit vents using prefabricated metal or plastic screens can be easily sealed. Remove the screen, caulk metal or wood on the back of the screen and replace the assembly. The assembly should also be caulked in place.