INDOOR ENVIRONMENTAL TECHNOLOGIES

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CASE STUDY
Building Science Issue (Attic)

Client	**Upscale Custom Home Builder**
Location	**Florida Gulf Coast**
Completion	**Sept thru October 2007**
Corrections Cost	**~$25,000**
Key Project Team	**Timothy Toburen**

Mold growth on back of medicine cabinet, third floor bathroom

OVERVIEW

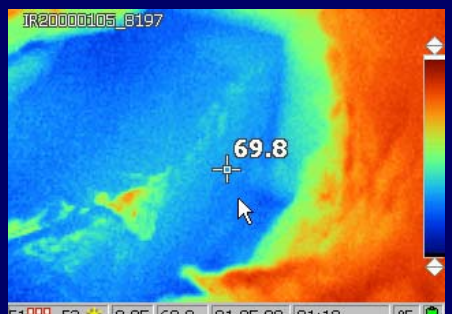
IET was retained by the builder to determine the cause of excessive sweating of HVAC ducting equipment and components in a $3 million home. The residence had been occupied less than one month. It also was showing elevated humidity conditions in the second story of the home. Mold growth was starting in both home and attic.

IET performed thermal imaging, analysis of data-logged temperature/humidity conditions, and analysis of pressure differential between the inside of the home and outdoors.

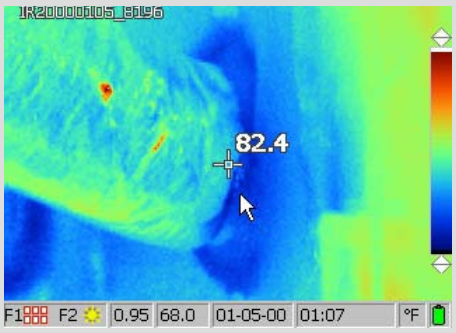
Results: Energy-efficiency measures taken during construction had contributed to the development of "cold attic syndrome," where air conditioning ducts in a ventilated but cool attic in a hot/humid climate are prone to excessive condensation. Various building design features had contributed to significant negative pressure and infiltration of exterior humid air into the occupied space, resulting in excessive humidity in the home and in interior wall cavities.

Recommendations: Seal attic from outside air. Install dehumidifier in attic to control humidity. Install separate ventilation air dehumidifier to ensure positive pressure in the occupied space and help control interior humidity.

See "Cold Attic Syndrome: A Case Study of Unintended Consequences" in the Articles section of this website for more information on this project.



Visible light and thermal images of duct boot with condensation and mold growth



Visible light and thermal images of flex duct to plenum attachment

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