



Manufactured Building

Wayne Goodwin | Commissioner of Insurance
Tim Bradley | Assistant State Fire Marshal

MEMORANDUM

DATE: November 2, 2009 (Replaces January 12, 2009 Memo)

TO: Manufacturers, Retailers, Set-Up Contractors, Building Inspectors, and Other Interested Parties

FROM: Joseph H. Sadler, Jr., PE
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RE: Supply and Return Crossover Duct Insulation R Values

Manufactured Homes

When multi-sectional manufactured homes are set-up in the field a crossover connection is usually required to connect the HVAC air supply ducts to each half of the home. The manufacturer ships a box of duct material with each home to be attached by the set-up contractor for the completion of the duct system. There have been some questions regarding the R value for the field installed crossover section of the duct system.

Part 3280, Manufactured Home Construction and Safety Standards, found in the **Code of Federal Regulations, Housing and Urban Development (HUD), Section 3280.715 (7)** states the following:

“Supply and return ducts exposed directly to outside air, such as under chassis crossover ducts connecting external heating, cooling or combination heating/cooling appliances shall be insulated with material having a minimum thermal resistance of R=4.0, with a continuous vapor barrier having a perm rating of not more than 1 perm.”

All crossover duct material supplied is required by the manufacturer for the completion of the factory designed and installed HVAC duct system is required to be insulated with a minimum value of **R-4.0** in accordance with the Federal regulations. Any field altered systems (site furnished duct, installation of additional equipment, etc.) or set-up of used manufactured homes must comply with the **2009 North Carolina Mechanical Code** and **2009 Energy Conservation Code**.

Modular Buildings

The crossover duct and the HVAC ducts in general for all North Carolina labeled modular buildings must comply with the **Section 604** of the **2009 North Carolina Mechanical Code** and the **2009 North Carolina Energy Code, Section 403** for residential buildings and **Section 503.2.7** for commercial buildings. The R value for the duct is required to be **R-8.0** for all areas located outside the building thermal envelope.