



# Cold Floors causes and cures

One of the building industry's oldest problems is the cold floor. Cold floors occur when they are built over unheated space – such as above a garage, over a porch, over a crawl space, and in cantilevered floors or bays that extend beyond the wall of the house. This problem is most noticeable when the floor has been tiled.

The building code in some areas dictates that these floors should be insulated to R-25. But experience tells most of us that an R-25 batt does not ensure a warm floor. In theory, the floor in a properly insulated room should be at room temperature. In practice things are quite different; it is common to find floor that are 10°F cooler than the room. Why? Because it is virtually impossible to install a batt so that it is in contact with, and stays in contact with, the floor above. It is impossible to install it accurately around the bridging which aligns the floor. Unfortunately, without protection from voids, air spaces and air movement, batts do not perform to their rated R-value. (R-values are determined under ideal, still-air laboratory conditions.) Because a space usually exists beneath the floor there is room for cold air to infiltrate from the exterior into the floor cavity between the insulation and the floor. When this happens it means that the floor is essentially not insulated.

## *Why heated plenums should not be used*

Some builders have tried to overcome the problem by using a heated plenum, with a dropped ceiling, insulated with a batt. Heated house-air is then ducted in to the space created under the floor. While this helps the problem, experience proves it does not solve it. This is especially obvious when water pipes are run within the plenum: frozen pipes are still commonplace.

Why? One possible reason is that the builder may not have insulated and air-sealed the exterior wall of the heated plenum, even though this is required by the building code. Neither do most builders place a vapor barrier over the batt insulation to protect it from the humid, heated air. The result is that moisture condenses in the batt and on the cold exterior plenum wall, creating a potential longterm structural problem. Its R value is also reduced.

If a return air duct is installed to remove the heated air, it runs the risk of conveying glass-fiber particles to the house.

If this is not done, it will starve the return-air system and depressurize the house, resulting in increased rates of undesirable air infiltration through the building envelope. Lastly, the heated plenum will only contain warm air when the thermostat in the living room turns the furnace on. This will prevent the pipes from freezing in most instances, but the floor will remain cold. This is a crude, faulty and costly design for which the homeowner will forever pay high energy costs.

## *Air sealing ICYNENE provides a solution*

Thousands of floor over porches, garages and crawl spaces have been insulated and air sealed with the ICYNENE system, without a single cold floor complaint or frozen pipe. Dozens of buildings with cold floors have been cured by an ICYNENE refit. They stand as testimony to the fact that this major building problem is finally solved. ICYNENE is a custom-installed cellular plastic which expands to fill the tiniest and most awkward spaces and adheres to the floor, eliminating air filled voids and air movement which have plagued generations of builders and homeowners.



## The Icynene™ Insulation System.

Sooner or later every home will have it.

For more information or for the Icynene Contractor nearest you, call Toll Free 1-800-758-7325