Bonus rooms have become increasingly popular in recent years. They provide more living space at less cost. Until recently, comfort in a bonus room has been overlooked. Builders have typically been reluctant to spend extra money for features that do not automatically add to the perceived value of a home. Many home buyers are not aware of the heating and cooling challenges a bonus room presents unless their previous home had a bonus room.

It could be said that bonus rooms are basically a roof and a floor since the walls are usually exposed to the attic. The floor is often exposed to an unconditioned garage. This type of construction creates real challenges for comfort control.

There are several options available for comfort control in a bonus room. Control is the key word. The most popular option is zoning. With zoning, a single heating and cooling system is capable of providing comfort in the main part of the home and the bonus room at the same time even though the cooling requirements are vastly different. A zone thermostat is located downstairs in the main living area and another zone thermostat located in the bonus room. On a hot day, the bonus room will need more cooling run-time minutes than downstairs. For example, the bonus room may need cooling 40 minutes in one hour, whereas the downstairs may only need 25 minutes. Zoning is designed to handle such situations as both zone thermostats have full control in the area where they are located. Since warm air rises, the situation is reversed during the heating season where the bonus room requires less heating run-time than downstairs. Again zoning provides heat only when and where it is needed.

A concept commonly called a slave thermostat is being touted as a "cheaper" alternative to balancing the temperature between the bonus and the rest of the home. All this slave thermostat does is control the fan from a bonus room. When the bonus room temperature rises, the slave thermostat energizes the system fan to circulate air throughout the house. Air circulation is not enough. It takes air circulation plus compressor control to provide comfort. If air circulation alone were the answer, continuous fan operation would achieve the desired results.
What has been learned from thousands of actual installations is that zoning provides comfort. The slave thermostat concept is unproven with no way to predict the results until it is too late.

**Slave Thermostat Concept:** When the temperature in the bonus room reaches set point, the slave thermostat turns on the indoor fan. Air is circulated throughout the house, pulling room temperature air from the return grilles. Within a few minutes, the air circulated through the duct work will absorb heat generated by the excessive attic heat, which is often more than 125 degrees. To make matters worse, ceiling return grilles will pick up air from the ceiling, which is always the warmest air in the room. Every BTU that is transferred to the conditioned space from the attic must eventually be removed by compressor operation. Not only will this concept add unwanted BTU’s to the conditioned space, energy is being wasted to operate the fan. In cooling, the slave thermostat in the bonus room offers no control over the most important comfort component, the compressor. Air circulation alone, especially increasingly warm air, will not provide comfort when more cooling is needed. The bonus room is at the mercy of a thermostat located elsewhere thermostat that has no clue what condition exists in the bonus room.

Not only will the slave thermostat concept not work in the cooling mode, it will not work in the heating mode either. While the slave thermostat concept is incapable of delivering cooling in the summer, it will deliver too much warm air in the winter as there is no way to prevent heated air from entering the bonus room every time the main thermostat calls for heat. Bonus rooms often require very little heat in the winter because some heat from below will automatically gravitate to the bonus room.

With no control over the compressor run-time in the bonus room, the slave thermostat concept is destined for failure.

For additional information about ZONING, call the experts....

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