



Heating and Air-Conditioning Equipment Matching and Moisture Control¹

There is a good chance your Florida residence has a “split” heating and air conditioning system. The system is split because it has two major components: the condenser (located outside) and the air handler (located inside). When an air handler or condenser needs to be replaced, specific government requirements must be met. Replacing only one component can result in mismatched products, meaning that the combined outdoor and indoor systems do not meet the efficiency standards or specifications set by the U.S. Department of Energy (USDOE) and required in the Florida Building Code (FBC).

The cooling efficiency of a heat pump or an air conditioner is rated by the *Seasonal Energy Efficiency Ratio (SEER)*, a ratio of the average amount of cooling provided during the cooling season to the amount of electricity used. Federal regulation mandates a minimum SEER of 13.0 for most residential air conditioners manufactured after January 23, 2006. The SEER rating is based on equipment performance in the Virginia climate. Some equipment may not produce the listed SEER in actual operation in Florida buildings. One of the main problems has been the inability of some higher efficiency equipment to meet the cooling load requirements of buildings when combined with a lower efficiency unit, causing a mismatch of the units. If your system does not meet the cooling load requirements, the system will run longer to achieve the desired temperatures which results in unnecessarily higher utility bills. When only one component is being replaced,

there are options that, when followed, will adhere to both federal and state requirements and provide for an efficient heating and cooling system.

Problems and Solutions

What are the options stated in the Florida Energy Code regarding the air conditioning and heating system’s matching process? What is the recommended SEER rating that performs most efficiently in Florida’s humid environment, and are upgrades necessary to bring it up to this standard even if it works properly?

When replacing a condenser or air handler separately, the federal and state requirement is that the new unit functions efficiently with or “matches” the old unit. If the unit to be replaced is provided by the same manufacturer as the working unit, and the manufacturer provides a letter stating its compatibility, capacity, and efficiency, the units are considered a match. Condenser and air handler units can also be matched through their certified ratings as provided by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), which is involved in the SEER certification process, and the Underwriters Laboratories Inc. (UL). If the replacement unit is not certified by these entities and was not provided by the same manufacturer and stated as a match, you can employ a Florida-registered engineer to specify component efficiencies whose combined efficiency meets the minimum code requirements.

¹ **DISCLAIMER** - This piece is intended to give the reader only general factual information current at the time of publication. This piece is not a substitute for professional advice and should not be used for guidance or decisions related to a specific design or construction project. At a minimum, you should refer to any updated laws, rules, codes, and regulations for requirements applicable to your specific project. This piece is not intended to reflect the opinion of any of the entities, agencies, or organizations identified in the materials and, if any opinions appear, are those of the individual author and should not be relied upon in any event.

Consumers who are currently operating equipment rated at 12 SEER and below are not required to replace their equipment. However, when the equipment becomes inoperative and needs to be replaced, these consumers will be faced with no option but to use units that are 13 SEER or above. The only choice may be to replace both the outdoor and indoor units in order to achieve the desired capacity and the current minimum efficiency standards. Units with a rating of 13 SEER conform to current state and federal requirements but may not be performing adequately in Florida.

If units are not providing sufficient dehumidification, the typical owner response is to lower the thermostat setting. In Florida's humid climate, a unit that has high dehumidification capability is recommended in order to perform adequately and efficiently. Since every degree the thermostat is lowered increases cooling bills 3 to 5 percent, systems that have nominally high efficiencies, but inadequate dehumidification, may suffer from higher-than-expected cooling bills.

QUESTIONS TO ASK YOUR AIR-CONDITIONING OR MECHANICAL CONTRACTOR:

Question: Can you do a load calculation in order to size new equipment properly for my structure?

Question: Does the equipment you are proposing meet Florida's current efficiency requirements?

Question: Since moisture control is so important for Florida's climate, can the proposed equipment maintain an indoor relative humidity of 55 percent or below?

Resources - Government Agencies/Offices:

Department of Community Affairs,
Florida Building Commission
1-850-487-1824, www.floridabuilding.org

U.S. Department of Energy
1-800-342-5363, <http://www.energy.gov>

Resources - Other:

Air-Conditioning, Heating, and Refrigeration Institute (AHRI)
1-703-524-8800, www.ari.org

American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
1-800-527-4723, www.ashrae.org

Florida Refrigeration & Air Conditioning Contractors Association (FRACCA)
1-727-576-3225 / www.fracca.org

Underwriters Laboratories, Inc. (UL)
1-847-272-8800 / www.ul.com

Don't know where to go for an answer to a specific question?

Contact Building A Safer Florida, Inc. 1-850-222-2772 or www.buildingasafeflorida.org

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