

Public Comment CE134-16 PART II WILLIAMS-B :

Proponent : Jeremiah Williams, representing U. S. Department of Energy (jeremiah.williams@ee.doe.gov) requests Disapprove.

Commenter's Reason: The committee accepted this proposal, which eliminates restrictions on heat pump controls, in part because manufacturers purportedly already deal with this issue. However, the fact that manufacturers or builders "already" achieve the intent a code section is not reason to eliminate that section. The code should retain those requirements to avoid the case of a manufacturer that does *not* already achieve the intent.

A review of thermostats available for heat pump operation found that most residential heat pump thermostats included no provisions to restrict supplemental heat during warm up after night setback. Programmable thermostats with a night setback function are required under R403.1.1. The two-stage control in many thermostats does not prevent supplemental heat from operating when there is an automatic or manual change of temperature setpoint to warm up the home. Much more expensive commercial thermostats include sequences that will ramp the heat pump and supplemental heat setpoints differently during warmup, but these are not in typical use for residential applications.

For residential applications, a typical method of meeting the requirements of R403.1.2 is to lock out the supplemental heat based on an outdoor air temperature when the heat pump alone can meet the load. This control is an option that requires installation of an outdoor temperature sensor, and can be left out of the bid for the heat pump installation. So, while this control is typically provided because it has been required in code for several cycles, deleting the requirement from code could lead to the option being deleted to reduce the heat pump cost.

Without lockout controls, or other controls that limit supplemental heat use, potentially every day when the house warms up, the less efficient supplemental heat will be operating in parallel with the heat pump. This results in an increase in energy use. An analysis of supplemental heat controls for heat pumps in a residential building found that in Climate Zone 5 when the lock-out controls for supplemental heat were eliminated, electric use for heating increased by about 20%. In milder Climate Zone 4, the increase was about 30%.

Requiring controls that lock out supplemental heat when the heat pump can meet the heating load is important to saving energy.

Part 1 of this proposal was disapproved by the commercial IECC committee by a vote of 12-0.

We urge disapproval of this proposal.