Washington State Building Code Council

Improving the built environment by promoting health, safety and welfare

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STATE BUILDING CODE OPINION NO. 24-11

CODE: 2021 International Mechanical Code

SECTION: 607.2.3 and 607.6.2.1.2, Fire Dampers and ERVs

QUESTION 1

BACKGROUND: In the 2015 IBC and 2015 IMC it was clarified that static fire dampers and static ceiling radiation dampers can only be installed in static systems. Further clarifications were added in 2021 IBC and 2021 IMC that static fire dampers and static ceiling radiation dampers shall only be installed in HVAC system that are automatically shut down in the event of a fire. Then further language was added that static ceiling radiation dampers shall be installed only in systems that are not designed to operate during a fire with exceptions for maintaining system operation.

QUESTION 1**:** Are energy recovery ventilators (ERVs) that serve only a single residential dwelling unit (small units with less than 100 CFM of outdoor and exhaust airflow, no recirculating return air) with ductwork that is installed in a rated floor/ceiling or roof/ceiling assembly with duct openings that are protected by static ceiling radiation dampers required to be automatically shut down in the event of a fire?

ANSWER 1: Yes. The code is silent on how to shut down an ERV, whether it is on the detection of smoke, fire or heat.

QUESTION 2

BACKGROUND: The IBC, IFC and IMC are silent on acceptable means of automatic shut down for small HVAC systems like energy recovery ventilators with static ceiling radiation dampers to comply with IMC Section 607.2.3. The ductwork in these systems is typically too small for listed smoke detectors and residential unit room smoke detectors are not typically listed for direct hard-wired HVAC system automatic shutdown.

QUESTION 2**:** Are heat detector duct limit switches in the return air stream to the ERV an acceptable means for automatic shutdown of the HVAC system? If so, what temperature setpoint should the fire static limit switch be set to (125 °F, 165 °F, other)?

ANSWER 2: **Yes. Since a static fire damper or a static ceiling radiation damper is actuated on melting the fusible link, this approach would be an acceptable means for shutting down the air handling system associated with the static damper. The temperature set point is not specified in the code and it is up to the designer to select the appropriate temperature based on the use and product, on approval of the AHJ.**

SUPERSEDES: None

REQUESTED BY: City of Bellevue