

U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Through-Penetration Firestop Systems

Learning Objective: The student shall be able to obtain installation details on through-penetration firestop systems.

Today's picture illustrates a common problem with through-penetration firestop systems: improper installation that renders the system ineffective.

Through-penetration firestop systems (caulk, pillows, protective wraps) must be installed in fire-resistance-rated assemblies to stop the passage of dangerous combustion products and maintain the integrity of the wall or ceiling in which they are installed.

Some of these products involve fairly sophisticated installation procedures that must be followed exactly if the material is expected to act as designed. Penetrations for pipe, tube, conduit, wires, ducts, and other equipment must be cleaned, properly prepared, and then sealed in accordance with strict manufacturer's recommendations.

Substituting materials different from the manufacturer's specifications, or installing the firestop products differently from what the manufacturer requires should not be done unless specifically permitted by a product's listing.

ANSI/UL 1479, "Fire Tests of Through-Penetration Firestops," defines the criteria for hourly F, T, L, and W ratings for firestop systems.

Rating	Criteria
F	Prohibits flame passage through the system and requires acceptable hose-stream test performance.
T	Prohibits flame passage through the system and requires the maximum temperature rise on the unexposed surface of the wall or floor assembly, on the penetrating item and on the fill material not to exceed 325 °F (163 °C) above ambient, and requires acceptable hose-stream test performance.
L	Determines the amount of air leakage through the firestop system at ambient and/or 400 °F (204 °C) air temperatures at an air-pressure differential of 0.30 inch (747 microbar) water column.
W	Determines the capability of the firestop system to maintain watertightness.



This wall penetration should be sealed in accordance with manufacturer's recommendations. Photo courtesy Sam McLain, Johnson City, TN.

For additional information, go to www.ul.com, and select "Online Certifications Directory." Type "XHEZ" in the UL Category Code field, and the first document on the list will be an informational guide ("XHEZ.GuideInfo) explaining through-penetration firestop systems.

