

U.S. Fire Administration / National Fire Academy

## Coffee Break Training

### Topic: Penetrations through Fire Resistive Construction

**Learning objective:** The student shall be able to explain the difference between T Ratings and F Ratings of through-penetration fire stop systems.

When pipes, ducts, conduits, wires or other objects penetrate fire resistive barriers such as walls, floors or ceilings, the openings create a path for heat and smoke to spread through a structure. The building codes require these “penetrations” to be firestopped with materials that meet the requirements of ASTM E 814, Standard Test Method for Through-Penetration Fire Stops or UL 1479, Standard for Safety for Through-Penetration Fire Stops.



These documents refer to T Ratings and F Ratings for the penetration fire stop materials. What is the difference?

- **T Rating.** The time period that the penetration firestop system, including the penetrating item, limits the maximum temperature rise to 325°F above its initial temperature through the penetration on the non-fire side in accordance with the test standards.
- **F Rating.** The time period that the through penetration fire stop system limits fire spread through the penetration in accordance with the test standards.

Thus, the T Rating references temperature limits, and the F Rating references fire spread control.

For additional information, see the standards referenced above, NFPA 5000, Building Construction and Safety Code™, Chapter 8, or International Building Code®, Chapter 7.