

Prevention of Toxic Smoke through “T” ratings

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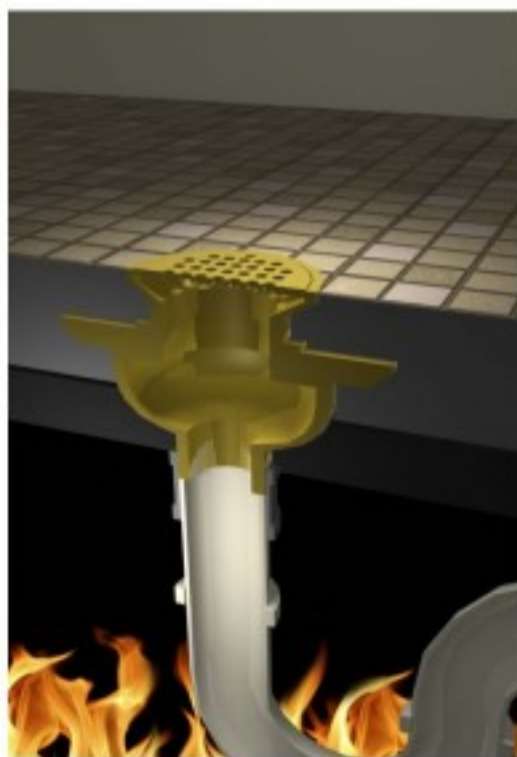
What do the terms F-rating and T-rating mean?

Penetrations through floor or wall fire barriers must be protected by code with firestop systems that have an F & T rating in accordance with the ASTM E814 or UL 1479 Standards. The F-rating equals the number of fire test hours with no occurrence of flaming through the unexposed side. The T-rating equals the time any part on the unexposed side of the penetration reaches 325° above the initial temperature. This temperature can ignite cotton and could cause additional fire transmission without any flaming.

When is the T-rating more important than the F-rating?

Cyanide toxicity is drastically increased when PVS is burned. Smoke inhalation causes the most deaths in building fires. This smoke from burning PVC plastic pipe connecting a floor drain could fill a large habitable area in a few minutes. An open end floor drain penetration that has a certified 2 hour T-rating guarantees the firestop system will quickly seal off PVC pipe connections with no toxic smoke transmission.

figure 1: Regular firestopping allows toxic smoke transmission



5 minutes into the start of the fire test: the plastic pipe starts to burn.



6 minutes into the fire test: the drain starts venting toxic smoke up through the strainer opening.



7 minutes to 18 minutes allows more heavy toxic smoke to vent through the top before closing. A drain with regular firestopping has a zero T-rating