

Safe Design

Fire Safety

armstrong.com/ceilings (search keyword: fire)

Local building codes, which require fire-safe construction for many building applications, rely on two ratings to evaluate compliance:

- Flame spread rating of a material
- Fire-resistance rating of a [construction assembly](#)

These ratings are based on ASTM standards, and compliance is determined by several independent, nongovernmental testing services such as Underwriters Laboratories, Inc.

Flame spread and fire-resistance ratings are two separate issues, and they must be addressed independently in selection and specification.

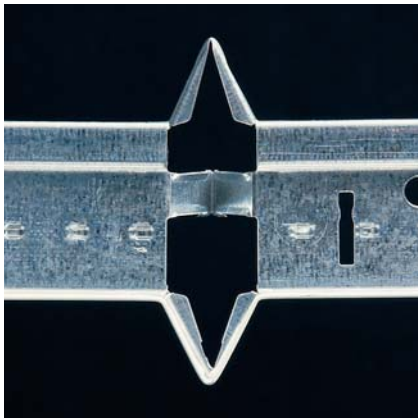


Use Only Fire Guard™ Products for Fire-Rated Assemblies

Armstrong ceiling panels and suspension systems listed in fire-rated assemblies are designated as **Fire Guard** products and are identified with the Fire Guard icon throughout this catalog.

Fire Guard Ceilings are specially formulated to provide enhanced resistance against structural failure.

Fire Guard Suspension Systems have patented expansion reliefs, to help maintain structural integrity of the ceiling.

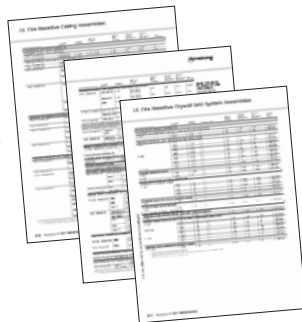


Main Runner expansion relief

Armstrong Resources Available to You:

- TechLine at
1 877 ARMSTRONG (276-7876)
- Armstrong Web Site:
Product Selector Tool
- Summary listing, UL Fire-Rated
Ceiling Assemblies – pages 242-244

armstrong.com/ceilings



Pgs. 242-244

Selecting the Right UL Fire-Rated Assembly

1. Establish the hourly rating needed to meet code requirements.
2. Determine the existing or planned building elements, including structural, mechanical, electrical and finish materials, in the fire-rated assembly.
3. Refer to the Fire Resistance Rating Summary (pgs. 245-246) to determine the UL design numbers and ceiling system products that correspond to the fire-rated assemblies that meet your needs.
4. Refer to the Fire Resistance Selector information on the Ceilings Selector chart on page 234 for a list of Fire Guard fire-resistive ceilings.
5. To meet your design criteria for final selection, review performance data for specific Fire Guard ceilings – pages 235-236, or on our web site at armstrong.com.

Two types of fire-rated construction assemblies pertain to acoustical ceiling systems:

Roof/Ceiling Assemblies

Ceiling system, lighting, HVAC outlets and other penetrants through the ceiling, the plenum, roof support structure and roof assembly including deck, insulation and roofing system.

Floor/Ceiling Assemblies

Ceiling system, lighting, HVAC outlets and other penetrants through the ceiling, the plenum, structural system, subfloor and finish floor.

Fire-Resistance Rating of a Ceiling Assembly (ANSI/UL 263 - ASTM E 119 and NFPA 251) (CAN/ULC - S101M)

The degree to which (measured in hours) the entire assembly, not individual components, withstands fire and high temperatures. Specifically, it is an assembly's ability to prevent the spread of fire between spaces while retaining structural integrity.

The resulting fire-resistance rating relates to the assembly in its entirety and is published or classified in the UL Fire Resistance Directory.

Flame Spread Rating of a Ceiling Material (ASTM E 84) (CAN/ULC - S102M)

The relative rate at which a flame will spread over the surface of the material. This rate is compared against a rating of 0 for inorganic reinforced cement board and a rating of 100 for red oak. Class A ceilings have flame spread ratings of 25 or less – the required standard for most commercial applications.

Armstrong Fire Resistant Ceiling Panels and tile meet both Class A surface burning characteristics per ASTM E 1264 as well as fire-resistive construction requirements as classified in the UL Fire Resistance Directory.

Continuous Versus Open Plenum Ceilings

A continuous ceiling may allow sprinklers and smoke detectors to activate faster, providing added escape time for occupant evacuation.

In buildings where a ceiling is not in place, the height of the space is normally greater and could delay the operation of the fire sprinkler or smoke detector systems.