Fire Risk and CODE Compliance For Fabric Wrapped Acoustic Panels
Historical Large Loss Fires With Combustible Interior Finishes

- Coconut Grove, Boston, 1942 - 492 fatalities
- Winecoff Hotel, Atlanta GA, 1946 - 119 fatalities
- Beverly Hills Supper Club, Southgate KY, 1977 - 165 fatalities
- The Station Night Club, West Warwick, RI, 2003 - 100 fatalities
- Kiss Night Club, Santa Maria, Brazil, 2016 - 240 fatalities

“Interior finishes have contributed to some of the deadliest assembly occupancy fires on record, and new building products continue to raise concerns among fire and life safety communities”.

“The regulation of rapid progression fire on interior finish materials is as relevant today as it was 70 years ago”

Sources:
Inside Threat, Published July 1, 2014, NFPA (The National Fire Protection Association)
Underwriters Laboratory, UL’s Iconic Steiner Tunnel Withstands The Test Of Time
Applicable ASTM Fire Test Standard And Classifications

- ASTM E84 provides the fire classification of a tested product as a measure of Flame Spread and Smoke Development.

**Fire Classifications:**
- Class A Rating, 0-25 Flame Spread, 0-450 Smoke Development
- Class B Rating, 26-75 Flame Spread, 0-450 Smoke Development
- Class C Rating, 76-200 Flame Spread, 0-450 Smoke Development

Product Test per ASTM E84 Steiner Tunnel (also reference UL 723 and NFPA 255)
The Primary Components of Industry Standard Acoustic Panels

- The industry standard acoustic substrate is nominal 6-7 PCF density fiberglass core available from US manufacturers (JM, OC and Knauf).
- These fiberglass panel manufacturers report Class A, fire classification performance Flame Spread and Smoke Development for unfinished panels per ASTM E84.

- Industry standard, Guilford of Maine Style 2100, FR-701 is 100% polyester, acoustically transparent fabric. This is the most widely used fabric by the acoustic panel industry.
- The manufacturer reports the fabric has a Class A rating per ASTM E84.
Related CODE Requirements

- IBC 2012 – Chapter 7, Fire And Smoke Protection Features
  - Section 720 - Thermal and Sound Insulating Materials
  - Section 720.3, Exposed Insulation – Insulating materials, where exposed as installed in buildings of any type of construction, shall have a flame spread index on not more than 25 and a smoke development index of not more than 450 (Class A Rating)

- IBC 2012 – Chapter 8, Interior Finishes
  - Section 801.2, Interior Wall and Ceiling Finish – The provisions of Section 803 shall limit the allowable fire performance and smoke development of interior wall and ceiling finish materials based on occupancy type. (Class A finish is required on a range of occupancy types)

Note: Related CODE section language addresses materials and finishes, not product components. The intent is for product test data to reflect supplied product fire performance.
Building CODE States Minimum Requirements
(The project AHJ may require more restrictive measures)
Other Factors Impacting “As Built” Panel Fire Performance

- To prevent fabric sagging, specifiers typically require panel fabric to be fully face bonded.
- Accordingly, panel manufacturers apply full face bonding adhesive.
- The type of adhesive used, application method, etc. can play a key role in the composite panel fire performance characteristics per ASTM E84.
- Combined, the fiberglass insulation core, fabric, optional impact laminate, and layer(s) of bonding adhesive directly influence as supplied product flame spread and smoke development performance.
- To confirm critical life safety code compliance, panels must be tested in the *As Built* condition.
Typical Fabric Wrapped Acoustic Panels
(1 + 1 + 1 Doesn’t = 1)

- Class A, fiberglass insulation core
- Class A fabric wraps the insulation core, typically adhesive bonded (per Specification)
- Option, high impact laminate (also adhesive bonded)
- The combined panel “components” do not necessarily meet a Class A rating
- Panel testing is required to confirm the As Built, composite fire performance
Many acoustic panel suppliers only report Class A “component” ratings.

Possibly “As Built” panels haven’t been tested or they failed to achieve a Class A classification.

Avoid project issues (product rejection, remove & replace, project delays and potential liability judgements) for non compliance to CODE.

SPI Absorption Plus Wall, Deck / Cloud, Impact / Tackable and Baffle Panels achieve a Class A rating.
Absorption Plus Panel Testing Per ASTM E84 (UL 723, NFPA 255)

- Panel conditioning before test
- Panel finish side to fire
- Panel tunnel fire test exposure begins
- Business end, direct flame impingement
- Successful test completion
IMPORTANT: To ensure the reliability of product fire exposure results, testing must be performed by an Accredited Test Facility

- **The International Accreditation Service** (IAS) provides objective evidence that an organization operates at the highest level of ethical, legal and technical standards. IAS is a nonprofit, public-benefit corporation that has been providing accreditation services since 1975. It is a subsidiary of the International Code Council (ICC), a professional membership association that develops the construction codes and standards used by most municipalities within the United States. IAS accreditation programs are based on recognized national and international standards that ensure domestic and/or global acceptance of its accreditations.

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