

Science and Testing Inform the Engineering Judgment – 4 Questions with Angie Ogino

Engineering judgments (EJ) help bridge the gap when it comes to a building's non-fire-rated exterior curtain wall intersecting with a fire-rated floor assembly. This perimeter fire containment (PFC) joint in the building code presents a concern for professionals in the life safety community. We caught up with Angela Ogino, Technical Services Leader for Owens Corning® Thermafiber® to discuss how EJs can support PFC assembly decisions, what factors EJs should address, and resources to support life safety professionals responsible for specifying and installing assemblies.

1. In a vigorous design and code environment, what role do EJs play?

The nature of commercial architecture is to integrate creativity into the building design. However, such innovation may pose a challenge when it comes to finding a tested, third-party PFC assembly matching every detail of the curtain wall construction; for example, the hourly fire-resistance of the rated floor intersecting with the non-rated curtain wall and ancillary components.

But the confusion surrounding codes specific to perimeter areas is a critical concern. Neglecting to consider how variances in design might affect an assembly's performance could create a tragic outcome in the event of a fire. That's where EJs can support a decision. In situations where there are minor variances between an assembly and a tested system, the comprehensive evaluations and customized solutions in an EJ can support specifiers of passive life safety systems.

Over the past half-century, Thermafiber® has compiled a vast library of tested perimeter fire containment conditions. This test data is a great resource to help architects evaluate PFC assemblies. If a listed assembly doesn't exist to meet the needs of an architect's design, Thermafiber® can draw on experience to propose a system that meets testing criteria. Even with so many assemblies, we occasionally find occasions where a tested assembly is missing. In those cases, Thermafiber/Owens Corning conducts third-party testing to assure the highest level of safety is accounted for in our PFC systems.

2. What do you do when a listed assembly does not exist to meet a building's design?

First, we make certain there is a tested and listed assembly that closely represents the project conditions. Then we address any differences between the tested system and the project design details. Finally, we base our project specific solution on internal test evaluations and best engineering principles.

Park Tower at Transbay in San Francisco is an example of our collaborative approach. The 43-floor building's design featured a back pan assembly installed on the inside surface of the spandrel façade. Back pans are not as prevalent in the Western U.S., but this feature was important to the façade's aesthetic design.

The Thermafiber Insolutions® team collaborated with the curtain wall manufacturer to evaluate options. We found only a few back pan assemblies listed and none met the construction details required for the facade.

Teams designed an alternative assembly, conducted a UL ASTM E 2307 full scale test and got it approved in time to meet the project deadline. The collaboration resulted in a new system (CW-D-1037).

3. What should every EJ include?

The International Firestop Council's (IFC) "Recommended IFC Guidelines for Evaluating Firestop Systems in Engineering Judgments" is an excellent resource. The Insolutions team has curated a library of assemblies spanning more than 50 years. As far as EJ best practices go, Thermafiber® specifies that an EJ must be project specific. At least one third-party tested system evaluated to ASTM E2307 or an appropriate standard based on the applicable jurisdiction must be referenced as the basis of design in order to properly evaluate the hourly F-rating. The EJ must include a full description of the system components, including the design criteria required for the system's operation. Additionally, the EJ must be based on interpolation of previously tested systems installed in similar conditions. It is important to note that an EJ is not a substitute for fire testing. Any new fire containment assembly should be tested for design and operation performance.

4. Beyond testing, what other best practices exist to help manage risk and liability with PFC systems?

In 2017, the U.S. Department of Homeland Security created the "Safety Act" designation. This designation provides protection against liability related to acts of terrorism, including parties involved in installing PFC assemblies, such as firestop contractors. Owens Corning Thermafiber® is honored to be the first insulation manufacturer to receive this designation.



Above: The SAFETY Act designation provides architects with protection against liability related to acts of terrorism.



Above: Angela Ogino is the Technical Services Leader at Owens Corning® Thermafiber® Insulation. She can be reached at Angela.Ogino@owenscorning.com.