

THIN FILM INTUMESCENT FIRE *RESISTIVE* VS *RETARDANT* COATING

Fire protection is a life safety issue. Specifying the appropriate products to meet United States, Canadian and International building codes is a must. Technological advancements in state-of-the-art, thin film, intumescent fire resistive coating has dramatically increased the necessity for specifying the appropriate fire protective systems. All intumescent coatings are not created equal and, unfortunately, have led to some misuse of this technology. A clear understanding of the two, distinct classifications is critical.

THIN FILM INTUMESCENT FIRE **RESISTIVE** COATINGS

The key word for this material classification is fire resistive.

These products provide 1, 1 ½, 2, 3 and 4 hour ratings on structural columns and beams. They must have proper fire test certification from a recognized, third party approved fire test laboratory based on ASTM E 119 (UL 263, NFPA 251, CAN/ULC-S101) standards.

See the following before and after photographs of an ASTM E119 furnace test. Note on the second picture the char formation of the intumescent fire resistive coating.



Figure 1—ASTM E119 Furnace Test of Fire Resistive Coating on a Structural Steel Column

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Figure 2—Fire Resistant Coating Char Development on a Structural Steel Column in ASTM E119 Fire Test

THIN FILM INTUMESCENT FIRE **RETARDANT** COATINGS

The key word for this material classification is fire retardant.

Fire retardant materials are classified under the category of fire retardant coatings and are qualified on the basis of surface burning characteristics (flame spread) and smoke generation. Unlike fire resistant coatings, they have not been rated for hourly ratings.

Based on the results of ASTM E84 testing, fire retardant coatings are classified as follows:

CLASS	FLAME SPREAD	SMOKE DEVELOPED
Class A	0 – 25	0 - 450
Class B	26 – 75	0 - 450
Class C	76 - 200	0 - 450

WHAT TO LOOK FOR IN YOUR SPECIFICATION

Unfortunately, it is common for designers to mistakenly specify intumescent fire retardant coatings in lieu of intumescent fire resistant coatings. If this improperly written specification is followed through to actual application of the product, the required hourly fire rating is not achieved and will not have proper fire test certification.

AIA MASTERSPEC has developed specifications for both Thin Film Intumescent Fire Resistant Coatings and Thin Film Intumescent Fire Retardant Coatings. It is important to make sure the specification chosen is the right one. AIA MASTERSPEC for Thin Film Intumescent Fire **Resistive** Coatings is specified in section 078123 “Intumescent Mastic Fireproofing”. AIA MASTERSPEC for Thin Film Intumescent Fire **Retardant** Coatings are specified in section 099646 “Intumescent Painting.” In conclusion, there are very few instances where fire Retardant materials would be applied to structural steel members.