

TECHNICAL GUIDANCE ON VERIFYING PASSIVE FIRE PROTECTION MEASURES (INTUMESCENT PAINT OR CEMENTITIOUS COATING) ON STEEL BUILDINGS

1. Design documentation review phase:

Below documents are necessary to be submitted to RSC for review prior to conducting any work subjected to passive fire protection by using fire rated intumescent paint or cementitious coating over steel structures.

1.1 Site condition assessment data

To ensure the proper implementation of fire resistive coating on steel structural member, it is important consider the environmental condition of the site to evaluate if the site condition is suitable for application of fire resistive paint/ cementitious coating. Manufacturer's application guideline is important to be followed for proper evaluation of site condition.

1.2 Manufacturer's declaration on site condition data the site condition is suitable for specified intumescent paint.

It is important to have the manufacturer's declaration on site condition assessment data to identify whether the manufactured fire resistive paint or cementitious coating is suitable to apply by properly maintained its required properties.

1.3 Listing certificate of intumescent paint/ cementitious coating

3rd party credible certification is a pre- requisite for application of intumescent paint/ cementitious coating. Along with that, listed design guideline/ number from the 3rd party certification body will also need to be followed to ensure proper application and dry film thickness of the material.

1.4 Manufacturer's technical datasheet.

Manufacturer's technical datasheet will provide the detailed technical specification of the product.

1.5 Detailed drawing of the structure

Identify the structural members (primary, primary/secondary) a drawing may be necessary at some point to evaluate the construction type and fire resistance rating as required by the Standard. This also includes the checking of additional load increment related concerns by putting the fire resistive coating on structural members as well.



1.6 Qualification of applicator/ installation contractor

Unqualified/ untrained applicator shall not be able to maintain application process according to the way the manufacturer has guided which may hamper the integrity or performance of the material. It is an important factor to ensure the integrity of application process which solely depending on the applicators experience and knowledge on application process. Qualification/ applicator's training endorsed by the manufacturer will allow to identify primarily that the work methods are known to applicator.

1.7 Disclaimers

The RSC shall in no way be held responsible for any of the mistakes or omissions by the design/installation consultant in discharging his professional duties. The factory is responsible to ensure installation of the system as per design reviewed by the RSC. It is the responsibility that goes to factory management that the appropriate and certified materials have been used by the installation contractor/applicator and all pre- requisite criteria from the manufacturer have been followed all through.

2. Application phase:

2.1 All necessary manufacturers application guidelines must be followed during application of the intumescent paint.

Proper control measure should be taken by the factory management that the applicator is following all application guidelines and processes on site while applying the intumescent paint/ cementitious coating. It is the responsibility that goes to the applicator for maintaining the application integrity with proper evidence and collective data.

2.2 Ensuring proper adhesion between fire resistive coatings and steel surface.

Proper adhesion between fire resistive coating and steel surface which is mainly related to climate conditions as well as the process within the structure constructed to serve its purpose. Spray applied fire resistive coatings generally require a primer for adherence. A decorative/protective topcoat may also be necessary – especially in humid environments. A reinforcing mesh can be used to better retain the char layer on certain shapes. Manufacturers application guideline must be followed for steel surface preparation and ensuring proper adhesion between fire resistive coatings and steel surface.

2.3 Monitoring the climate condition

Manufacturers generally have the specifications on applicability of the material for specified relative humidity, ambient air temperature and difference between the surface and dew point temperature that must be followed before application. That means, monitoring the climate condition is an important part while applying intumescent paint/ cementitious coating. Day to day climate condition data must be monitored and recorded while applying such material.

2.4 Evidence preservation on application process

It is necessary to preserve the application photographs (containing date stamp) by the factory from time to time for future verification.





2.5 Data preservation on dry film thickness

Applicator/ contractor shall be required to perform DFT measurement from various locations of structural members for proper evaluation of fire rating. DFT measurement data will be preserved for future verification and annexed to work completion certificate issued by the application contractor to the factory.

2.6 Work completion certificate

Work completion certificate must be provided to the factory issued by the application contractor annexing all DFT data.

2.7 Disclaimers

It is the responsibility that goes to factory management that the appropriate and certified materials have been used by the installation contractor/applicator and all pre- requisite criteria from the manufacturer have been followed all through.

3. Post application verification phase:

3.1 Documentation review

Factories need to submit to RSC all required documentation as mentioned in section 1 and 2 prior to the date of inspection and on the date of verification.

3.2 Dry film thickness verification

The proper dry film thickness determination of applied fire rated intumescent paint/ cementitious coating is the pre- requisite to ensure that the treated steel structure has gained the required fire rating as required by BNBC 2006. Dry film thickness (DFT) shall be verified during the inspection to determine the required fire rating according to 3rd party certification and manufacturers recommendation. Installation contractors are responsible to measure the DFT in various locations of structural members by performing non- destructive tests with proper equipment witnessed by the RSC.

3.3 Evidence collection and reporting

The RSC inspector must take and preserve adequate photographic evidence upon the verification and archived for future references. Follow-up inspection report will cover the detailed finding and progress status.

3.4 Disclaimers

It is the responsibility that goes to the installation contractor who has performed the work with adequate training and expertise and maintained all necessary requirements prescribed by the intumescent paint/ cementitious coating manufacturer.

It is the responsibility that goes to factory engineers or consultants to ensure proper application of fire rated intumescent paint/ cementitious coating provided that the materials are listed from the credible 3rd party certification authority, installer have followed all necessary requirements prescribed by the intumescent paint/ cementitious coating manufacturer and the process of application and design.