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ASSOCIATION
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Structural steel fire -protection using intumescent coating systems in conjunction with:
- existing paint layers
- zinc rich primers

Association for Specialist Fire Protection

formerly

ASSOCIATION OF SPECIALIST FIRE PROTECTION CONTRACTORS AND MANUFACTURERS

STRUCTURAL STEEL FIRE PROTECTION USING INTUMESCENT COATING SYSTEMS IN CONJUNCTION WITH EXISTING PAINT LAYERS

Existing steelwork requiring refurbishment will usually be treated with a coating system. The existing paint finishes are likely to be old and the effectiveness of their adhesion to the substrate, or between layers of coating, may be poor.

It is possible that the paint system may not be consistent throughout the building and that varying systems have been applied to different pieces of steel. With so many variables it is not possible to confidently predict the performance of the intumescent coating system under fire conditions. The only safe option is complete removal of the coatings and the application of a primer/primer system compatible with the intumescent system.

Abrasive blast cleaning is the preferred method of preparing the steel to ensure the old paint coatings are effectively removed. Sa 2½ to BS7079 (IS0 8501-l) is the accepted standard and provides a suitable base for the application of the new priming system.

There are some situations where site conditions may make abrasive blast cleaning impractical. In these cases the use of manual cleaning methods may be considered.

Impact tools such a4 chipping hammers and needle guns are reasonably effective in removing old paint coatings but are labour intensive. Power rotary wire brushes will wear away the paint layers. They may not achieve 100% removal but will get back as near as is practical to bare steel, which may be acceptable where a compatible surface tolerant primer is used. The intumescent system manufacturer should be approached to provide appropriate supporting evidence.

Where a manufacturer wishes to demonstrate that compliance with the Building Regulations can be achieved by the application of an Intumescent system over existing painted surfaces of know generic type and thickness, fire test evidence should be available in every case to provide a technical justification. Agreement should be reached with the client, the building control officer, and other interested parties as to the applicability of the test data to the circumstances which prevail on the specific site.

THE USE OF INTUMESCENT COATINGS IN CONJUNCTION WITH ZINC RICH PRIMERS

Zinc rich primers, usually based on epoxy resin or silicate binders, are often used as corrosion protection coatings on structural steelwork.

During weathering, the zinc provides protection by sacrificially corroding in preference to the steel. This can lead to the formation of zinc salts on the surface of the coating.

If subsequent coatings, including intumescents, are applied over this layer of zinc salts, problems may be experienced with intercoat adhesion. In such situations therefore, it is essential that the zinc salts are completely removed by, for example, washing down with clean fresh water.

Where full removal of zinc salts cannot be guaranteed, the only safe option is to remove the zinc coating and reprime the steelwork.

Zinc salts can be prevented by applying a tie-coat over the primer at the fabrication stage. The intumescent coating can then be applied to the tie-coat after normal site preparation.

In all cases, the intumescent coating manufacturer should be consulted to confirm the compatibility of the priming system with the intumescent system and, where applicable, the tie coat.

Association for Specialist Fire Protection (ASFP)

The Association was formed in 1976, and currently represents the majority of UK contractors and manufacturers of specialist fire protection products, with associate members representing regulatory, certification, testing and consulting bodies.

ASFP seeks to increase awareness and understanding of the nature of fire and the various forms, functions and benefits provided by passive fire protection.

It is willing to make available its specialist knowledge on all aspects of fire protection and can assist specifiers and main contractors in identifying products suitable for specific requirements, both in the UK and overseas.

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