

FIRETECT®

STEEL COATING

FIRE PERFORMANCE
FOR STEEL CONSTRUCTIONS



KLF

Building Products

Fire resistant steel constructions



When designing a building, an architect looks at construction, functionality and aesthetics. In recent years, as buildings have become more complex structures, fire performance has become a major part in the design process. In case of fire, it is essential that the fire is limited to a designated area to allow humans to escape and to minimize damage to other areas or buildings.

The Building Codes prescribe the minimum fire performance level for residential or office buildings, leisure and industry complexes. The local building codes specifically describe the test methods to meet the performance norms.

In general, the local codes are concerned with material performance, i.e. the total thermal performance of materials and construction in areas such as spread of flame, flashover, integrity and thermal insulation (maximum temperature rise).

In case of fire, the temperature in a building can easily rise above 1000 °C as will the temperature of the steel construction of a building. When steel beams or columns have reached their critical steel temperature, they will lose their load bearing and eventually bend or sag, which might result in structural collapse of a building. Therefore, it is important to protect the steel elements from fire.

Choosing a steel coating

Thin film intumescent coatings are particularly suitable to make steel beams and columns fire resistant. The coatings are durable, aesthetic and space-saving, require little - if any - building re-design and can be applied easily and fast. They are also very suitable in case of maintenance of building services without compromising accessibility. The steel construction of a building remains visible and elegant with a highly decorative appearance and is .. fire proof!



Principles of intumescent steel coatings

With the appearance of a conventional coating, a steel construction can be made fire resistant thanks to the intumescent principle of a special steel coating. In case of fire, the rise in temperature will result in a controlled chemical reaction of the steel coating. Thanks to its expansive properties, the steel coating will expand three-dimensionally many times its original thickness. In doing so, an insulating char barrier is formed around the steel construction with a very low thermal conduction coefficient. This thermal barrier will provide the required fire resistance to the underlying steel.

Choosing Firetect® Steel coating WB

Architects, real estate developers, fire departments, contractors and installation companies put increasing demands on building products. The products must not only be aesthetic and fire resistant, but also the economical aspects are important. For example, safe and fast application, competitive material loadings and environmental considerations are important as well. Therefore, KLF Building Products, manufacturer of Firetect® fire resistant cladding and the Firetect® fire stopping range, has developed its own steel coating, based on its own experience and the growing demands of the market: Firetect® Steel coating WB meets all your demands!

The Firetect® Steel coating WB distinguishes itself from other steel coatings by its texture: it is a high quality finish water based thin paint, thus very user and environmentally friendly and safe in use. Due to its high volume of intumescent pigments and components, Firetect® Steel coating WB can be applied with a minimum film thickness to meet the required fire protection of the steel. The steel coating is also extremely competitively priced! The steel coating is suitable for most steel constructions, including external steelwork (provided a correct top coating is applied and maintained).



Steel work, treated with Firetect® Steel coating WB fully complies with the NEN 6069 and NEN 6072 standards as well as comparable European standards. The steel coating is ready for use and is available in a

white colour. If a decorative coloured finish is required, steelwork can be over coated with a common top coating. Firetect® Steel coating WB is neutral, not toxic and nearly odourless, so it is safe and easy when applied. The product will not release corrosive or flammable gases in a fire and thus will not contribute to the fuel load.

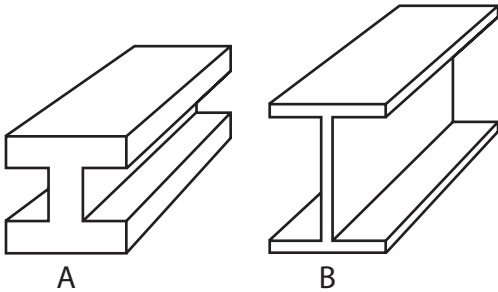


Material loadings

In order to meet the required fire resistance, **Firetect® Steel coating WB** should be applied at the correct dry film thickness (DFT). This is determined by the Hp/A factor of the steel and the required fire resistance.

Hp/A factor

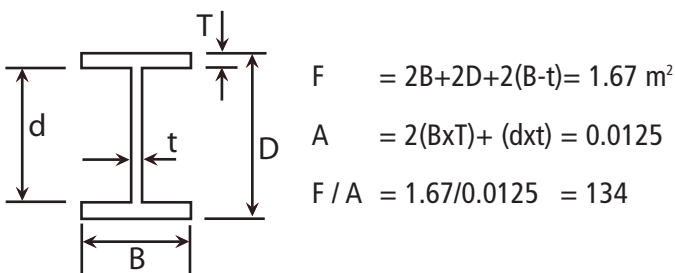
The temperature rise of steel members is directly related to the surface exposed to the fire (Hp) and the cross-sectional sector of the steel (A). The more surface area exposed to a fire or the thinner the steel section, the faster the temperature will rise.



In case of fire, steel section A will reach its critical steel temperature sooner than steel section B.



The Hp/A factor can be easily calculated for all steel sections.



When both the Hp/A factor as well as the required fire resistance are determined, the necessary dry film thickness (DFT in microns) of **Firetect® Steel coating WB** can be easily calculated using the material loading tables. In general: the higher the Hp/A factor of a steel section, the more fire protection is needed. This is achieved by an increasing film thickness of **Firetect® Steel coating WB**.

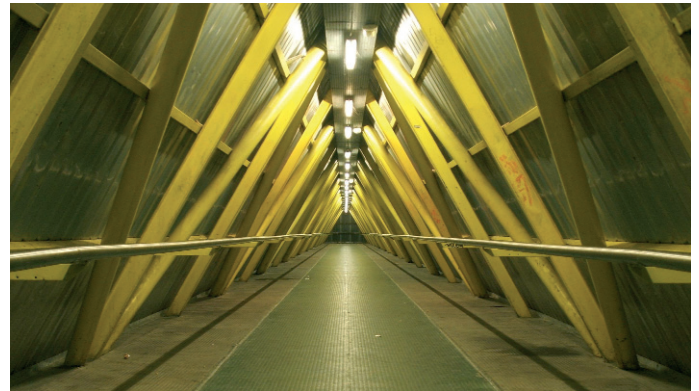
$$\frac{\text{DFT}}{670} = \text{liters} / \text{m}^2$$

For kg/m², multiply by 1,34 *

Firetect® Steel coating WB = effective and economical

Thanks to the outstanding thermal performance of **Firetect® Steel coating WB**, only a small amount of coating is needed to meet a specific fire resistance period. The drying time is short and often only one film thickness is sufficient. Therefore, installation companies can provide a very competitive price when submitting project tenders.

* **Note** This calculation is theoretical and makes no allowance for wastage, overspray etc. Loss factors should be taken into account when determining practical usage requirements. KLF Building Products recommends application by a skilled fire protection installer; good working practices significantly reduce material wastage and therefore costs. Material loadings tables are available upon request.



Firetect® fire resistant products are applied by installation companies, specialized in fire protection. Because fire performance is always tailor-made and the site must comply with the local building standards, **KLF Building Products** strongly recommends that only professional fire protection installers be used to apply such specialist materials. Recommended installation companies normally only work with approved products and will provide a guarantee certificate of fire performance. Effective passive fire protection is a long-term investment. Therefore, it is recommended to ensure that installers provide a maintenance agreement as part of the contract.

Considering the complexity of the legislation, standards and test results, **KLF Building Products** advises consultation with a fire safety engineer for every non standard or complex site requirement. No rights are implied from information presented within this brochure, test reports or test results. **KLF Building Products** reserves the rights to make changes to its published technical information without prior notice.

For more information, please consult the technical datasheets or the material safety sheet for **Firetect® Steel coating WB**. For technical advice, please contact your dealer or **KLF Building Products**.

Firetect® Steel coating WB

- 🔥 Fire resistant thanks to advanced thermal performance
- 🔥 Smooth and very durable finish
- 🔥 Suitable for most steel constructions
- 🔥 Exceptional value for money
- 🔥 Economical in use, low film thicknesses
- 🔥 Fast and easy application
- 🔥 Highly decorative finish
- 🔥 Enhances the original building design
- 🔥 Tested according to NEN / Building Codes
- 🔥 User friendly, no environmental hazard
- 🔥 Space-saving

Firetect®

for fire safe building

KLF Building products = all-in-one supplier

With the introduction of Firetect® Steel coating WB, KLF Building Products can now truly claim to be an international all-in-one supplier of high performance passive fire protection products! All Firetect® fire resistant products are high quality, tested according to the Dutch and international standards, durable, user friendly and fully compatible. Applying the products result in a considerable cost saving. Together with in-house expertise and innovative entrepreneurship, KLF Building Products has proved to be a very reliable partner in creating fire safe building.

Whether you use steel, wood or concrete, Firetect® products offer you an all-in-one solution for meeting constructional, economical, esthetical or acoustical challenges in fire safe building.

Delivery program for KLF Building Products

Firetect® fire resistant cladding

Fire resistant board materials for steel, concrete or wooden supporting constructions

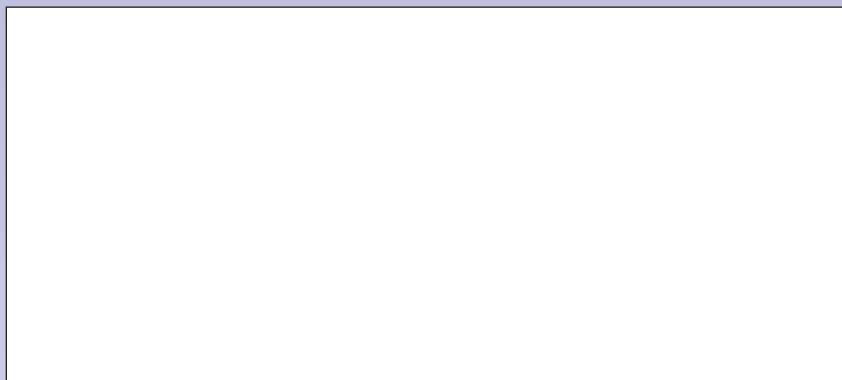
Firetect® fire stopping range

Fire seal products for fire rated penetrations such as sealants, collars, pillows, mortar, wraps

Firetect® Steel coating WB

Fire resistant steel coating for both internal and external use (provided a correct top coating is used).

Your dealer



Firetect® is a registered product of:

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