



FIRE RESISTANT AQUASTEEL WB+

FACTS & FIGURES

INTRODUCTION

The following is intended to assist contractors and applicators who wish to use Zeroflame AquaSteel WB+ Intumescent Coating on structural steel. Additional information is to be found on the container label and assistance may be sought from Zeroflame.

FACTS

1. Zeroflame AquaSteel WB+ is an intumescent coating which provides ½ hour and 1 hour fire resistance on all standard sizes and profiles of structural steel.
2. Zeroflame AquaSteel WB+ has been tested to internationally recognized fire test standards (BS476: Part 20/21: 1987 Test Reference CF655).
3. Zeroflame AquaSteel WB+ is water based, non-hazardous and contains no solvents or other constituents harmful to the environment.
4. Zeroflame AquaSteel WB+ has been specially formulated for non-specialist application.
5. Zeroflame AquaSteel WB+ can be applied by brush, roller or spray.
6. Zeroflame AquaSteel WB+ is a high-solids coating permitting rapid build with a minimum number of coats.
7. Zeroflame AquaSteel WB+ is compatible with most commonly used anti-corrosion primers with the exception of primers based on chlorinated rubber, bitumen and thermoplastics. Galvanized steel or zinc rich primers require a tie coat of a suitable primer.
8. In common with all water-based coatings, application and drying conditions for Zeroflame AquaSteel WB+ are important. Low ambient and surface temperatures and high relative humidity can significantly affect application rates and curing times.
9. Zeroflame AquaSteel WB+ can be used without a finish coat in buildings which are consistently dry and having stable atmospheric conditions. In areas subject to wetting, or fluctuating temperatures and RH, a sealing coat should be used.
10. During the building phase, Zeroflame AquaSteel WB+ should be protected from exposure to the elements until fully cured. If exposure exceeds 2 weeks a sealing coat is recommended.

FACTS cont...

11. Zeroflame AquaSteel WB+ is matt white but if a colour finish is required a range of compatible coloured finishes is available.
12. To establish compliance with the specification and with Building Regulations, a 'Confirmation of Supply and Declaration of Application Document' may be required. An application form is included on the product label.

FIGURES

1. Zeroflame AquaSteel WB+ is supplied in 10, 5 and 2.5 litre containers.
2. Zeroflame AquaSteel WB+ coverage rates are as follows:

30 Minutes Fire Resistance (BS476: Part 20/21: 1987)

'I' Sections	Coverage Rate
3 sided (or less) Beams	3m ² / litre
Columns and 4 sided Beams	2.3m ² / litre
Hollow Sections	
Square and Rectangular	1.2m ² / litre
Circular	0.43m ² / litre

60 Minutes Fire Resistance (BS476: Part 20/21: 1987)

'I' Sections	Coverage Rate
3 sided (or less) Beams	1.2m ² / litre
Columns and 4 sided Beams	0.5m ² / litre
Hollow Sections	
Square and Rectangular	0.43m ² / litre
Circular	0.43m ² / litre

3. Zeroflame AquaSteel WB+ coverage rates apply to structural steel having the following minimum thicknesses:

Section	Flange/Wall Thickness	Hp/A
Universal Beams 3 sided	Flange Thickness - 7.6mm	300m ⁻¹
Universal Columns + 4 sided Beams	Flange Thickness - 6.8mm	300m ⁻¹
Hollow Sections (½ Hour)	Wall Thickness - 4.0mm	300m ⁻¹
Rectangular Hollow Sections (1 Hour)	Wall Thickness - 6.0mm	205m ⁻¹
Circular Hollow Sections (1 Hour)	Wall Thickness - 8.0mm	140m ⁻¹

Advice should be sought from Zeroflame if minimum thickness is less than above.

FIGURES cont...

4. Zeroflame AquaSteel WB+ maximum application rates per coat are as follows at surface and ambient temperatures greater than 5°C and RH less than 80%:

Application Type	Wet Film	Dry Film
Brush/Roller	1.0mm	0.72mm
Spray	1.5mm	1.08mm

(The above application rates may not be achieved if the temperatures are lower and the relative humidity is higher).

5. Zeroflame AquaSteel WB+ drying times are dictated by the conditions pertaining at the time. At a temperature of 20°C and 60% RH, allow the following times between coats:

Application Type	Time
Brush/Roller	4 Hours minimum
Spray	6 Hours minimum

Protect the surface from rain or wetting during curing. If applying a top seal, apply within 2 weeks.

6. Suggested Application Equipment:

Application Type	Details
Brush	3" Synthetic Filament Brush
Roller	4" Roller, 3/8" nap fabric
Spray	Operating Pressure: 2500-3000 psi Tip Size: 19-25 thou Fan Angle: 20°-40° Hose Diameter: 10mm, internal Hose Length: Not exceeding 60 metres

Do not thin the product.

Wash all equipment with water immediately after use.

All information in this data sheet is provided in good faith by Decor Ireland and is believed to be correct at the time of printing. Decor Ireland reserves the right to change product specification in line with their policy of continuing product development.

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SPECIFICATION

INTRODUCTION

The 'ZeroFlame Range' stands for 'Fire Protection Simplified' and ZeroFlame AquaSteel WB+ is no exception.

In a single product are combined the virtues of water borne technology, simplified coverage rates and efficient fire protection.

DESCRIPTION

ZeroFlame AquaSteel WB+ provides up to 1 hour fire resistance on all standard steel sizes and profiles. It can be applied by conventional methods and does not require specialist equipment.

ZeroFlame AquaSteel WB+ is suitable for use in environmentally stable, dry internal locations without a sealer coat. In areas subject to wetting or severe condensation or where a coloured finish is required, a compatible top seal should be applied.

ZeroFlame AquaSteel WB+ is white and is supplied in 10, 5 and 2.5 litre containers, each of which is labelled with full instructions, including details on how to obtain a Certificate of Supply and Application. Certificates should always be obtained to authenticate the application and fire rating of the product at each site where it is used.

SPECIFICATION

Priming: Structural steel should always be prepared and primed with an anti-corrosion primer, preparation being to the primer manufacturer's specification. The choice of primer is dependent on the environmental conditions applying on the site. Most anti-corrosion primers are compatible with ZeroFlame AquaSteel WB+, with the following exceptions:

Chlorinated Rubber
Thermoplastic
Bitumen based

ZeroFlame AquaSteel WB+ may be applied over galvanising, zinc rich or zinc powder primers provided a suitable tie coat is first applied.

To provide a suitable base for ZeroFlame AquaSteel WB+, primers should not exceed 100 microns dry film thickness.

SPECIFICATION cont....

When specifying Zeroflame AquaSteel WB+, choose a relevant clause from the following options:

30 Minutes Fire Resistance

- I. To achieve 30 minutes fire resistance on I section steel being **horizontal beams exposed on 3 sides or less** apply Zeroflame AquaSteel WB+ Intumescent Coating at a theoretical coverage rate of 3.0m²/litre to achieve a dry film thickness of 0.24mm.
- II. To achieve 30 minutes fire resistance on I section steel being **horizontal beams exposed on all sides or vertical columns** apply Zeroflame AquaSteel WB+ Intumescent Coating at a theoretical coverage rate of 2.3m²/litre to achieve a dry film thickness of 0.28mm.
- III. To achieve 30 minutes fire resistance on **square, circular or rectangular hollow section steel** apply Zeroflame AquaSteel WB+ Intumescent Coating at a theoretical coverage rate of 1.9m²/litre to achieve a dry film thickness of 0.37mm.

60 Minutes Fire Resistance

- I. To achieve 60 minutes fire resistance on I section steel being **horizontal beams exposed on 3 sides or less** apply Zeroflame AquaSteel WB+ Intumescent Coating at a theoretical coverage rate of 1.4m²/litre to achieve a dry film thickness of 0.49mm.
- II. To achieve 60 minutes fire resistance on I section steel being **horizontal beams exposed on all sides or vertical columns** apply Zeroflame AquaSteel WB+ Intumescent Coating at a theoretical coverage rate of 1.1m²/litre to achieve a dry film thickness of 0.103mm.
- III. To achieve 60 minutes fire resistance on **square, rectangular or circular hollow section steel** apply Zeroflame AquaSteel WB+ Intumescent Coating at a theoretical coverage rate of 0.55m²/litre to achieve a dry film thickness of 1.28mm.

If a finish coat is required (consult Zeroflame for details of suitable Finishes)

Apply Finish coat in 1 or 2 coats, depending on the colour, at a theoretical coverage rate of 8-10m²/litre on fully cured Zeroflame AquaSteel WB+ Intumescent Coating.

Notes:

The above specifications relate to structural steel having the following minimum thicknesses:

Section	Flange/Wall Thickness	Hp/A
Universal Beams	Flange Thickness - 7.6mm	300m ⁻¹
Universal Columns	Flange Thickness - 6.8mm	300m ⁻¹
Hollow Sections (½ Hour)	Wall Thickness – 3.6mm	300m ⁻¹
Rectangular Hollow Sections (1 Hour) 4 Sides	Wall Thickness - 6.0mm	205m ⁻¹
Rectangular Hollow Sections (1 Hour) 3 Sides	Wall Thickness - 8.0mm	205m ⁻¹
Circular Hollow Sections (1 Hour)	Wall Thickness - 6.0mm	205m ⁻¹

For thinner / lighter members, please consult Zeroflame.

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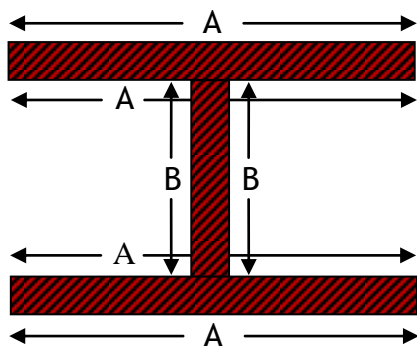
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FIRE RESISTANT **AQUASTEEL WB+**

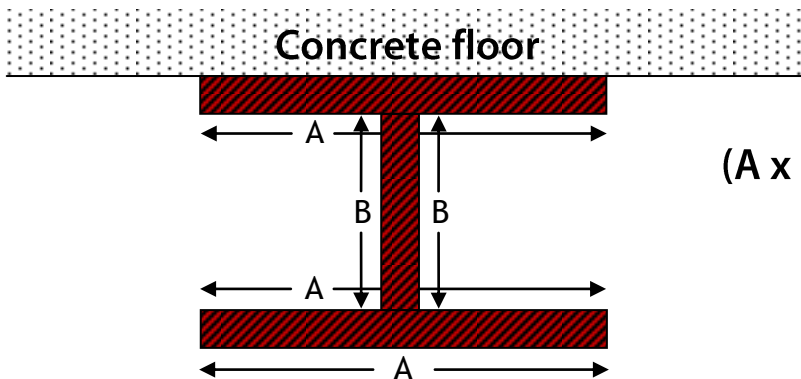
**CALCULATION OF THE SURFACE AREA
OF A BEAM OR COLUMN**

WHEN COATING 4 SIDES

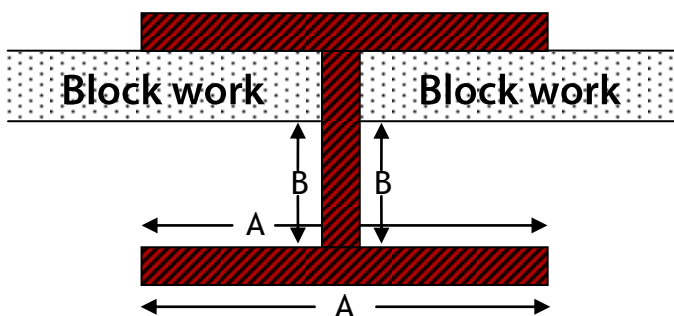


$$(A \times 4) + (B \times 2) \times \text{Length of beam} \\ = \text{Surface Area}$$

WHEN COATING 3 SIDES

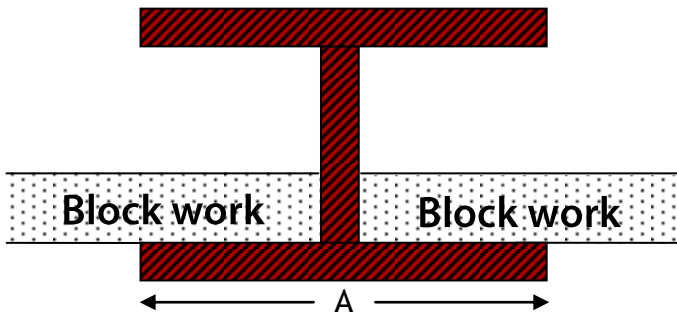


$$(A \times 3) + (B \times 2) \times \text{Length of beam} \\ = \text{Surface Area}$$



$$(A \times 2) + (B \times 2) \times \text{Length of beam} \\ = \text{Surface Area}$$

WHEN COATING FLANGE ONLY



$A \times \text{Height} = \text{Surface Area}$

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