



Construction

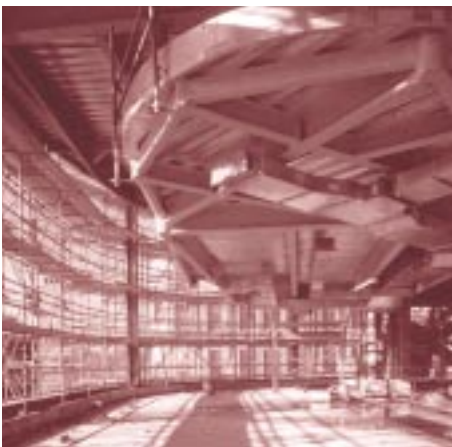
Cafco 300

Data Sheet C/F/C-3

Use with:

Cafco Bondseal

See Data Sheet C/F/A-1



Cafco 300 protects the structural steel at Atlantic Quay, Glasgow

Cafco 300 is a spray or trowel applied, single package factory controlled premix, based on vermiculite and gypsum, for internal use.

Cafco 300 is a lightweight coating that provides very efficient fire resistance with minimal thickness to steel and concrete frames, metal floor and roof decks, and to return air plenums.

Building types that will benefit from the use of Cafco 300, include a wide range of educational, leisure and entertainment centres, and commercial projects.

Properties and performance

Colour and finish

Off-white, with a monolithic spray texture.

Minimum practical thickness

10mm when unreinforced. 15mm when reinforcement.

Theoretical coverage

217m²/tonne at 15mm thickness.

Number of coats

One or more, as required.

Cure

By hydraulic set.

Initial set

10 to 15 hours at 20°C and 50%RH without accelerator.

Density

310kg/m³ ± 15% without accelerator. Approximately 10% less with accelerator.

Bond impact

No cracks or delaminations to ASTM E760.

Air erosion resistance

No erosion to ASTM E859.

Compressive strength

3.59kg/cm² to ASTM E761.

Deflection

No spalling, delamination or cracking to ASTM E759.

Flame spread

Class 0 as defined by the Building Regulations.

Thermal conductivity

0.078W/mK.

pH value

8 - 8.5.

Corrosion resistance

Does not promote corrosion of steel. However, a primed substrate is recommended for long term corrosion resistance. See 'Preparation'.

Fire resistance

Structures protected with Cafco 300 have been assessed for up to 240 minutes fire resistance as defined in BS 476: Parts 6, 7 and 21 for cellulosic fires.

The fire resistance test results relate solely to the constructions tested and test conditions imposed.

Cafco International provides computer based thickness calculations to meet specific fire ratings on receipt of details.

Fire protection thickness

Establishing the correct thickness

The thickness of the fire protection for a given period of fire resistance in a cellulosic type fire, relates to the Hp/A ratio of the section. Hp/A is the ratio of the heated perimeter exposed to fire to the cross-sectional area of steel.

All column and beam sections have their own specific Hp/A ratio. Refer to the 'Technical Introduction' to establish the Hp/A ratio for a particular beam or column section, or contact Cafco International. Then use Tables 1 and 2 below to ascertain the thickness of Cafco 300 that meets the required period of fire resistance for I section beams and H section columns.

For advice on thickness calculations for hollow sections, castellated sections, composite floors, upgrading of concrete slabs and more complex situations, please contact Cafco International.

Table 1: Cafco 300 thicknesses for I section beams (3 sided exposure). Critical temperature 620°C, continuous concrete topping.

Hp/A	Cafco 300 thickness (mm) for fire resistance of:					
	30 (mins)	60 (mins)	90 (mins)	120 (mins)	180 (mins)	240 (mins)
30	10	10	10	10	15	20
40	10	10	10	13	19	25
50	10	10	11	14	21	28
60	10	10	12	16	24	31
70	10	10	13	17	26	34
80	10	10	14	18	27	36
90	10	10	15	19	29	36
100	10	11	15	20	30	40
110	10	11	16	21	31	41
120	10	11	17	22	32	43
130	10	12	17	22	33	44
140	10	12	17	23	34	45
150	10	12	18	24	35	46
160	10	12	18	24	36	47
170	10	13	19	24	36	48
180	10	13	19	25	37	49
190	10	13	19	25	37	50
200	10	13	19	26	38	50
210	10	13	20	26	38	51
220	10	14	20	26	39	51
230	10	14	20	26	39	52
240	10	14	20	27	40	52
250	10	14	20	27	40	53
260	10	14	21	27	40	53
270	10	14	21	27	41	54
280	10	14	21	28	41	54
290	10	14	21	28	41	55
300	10	14	21	28	41	55
310	10	15	21	28	42	55

Table 2: Cafco 300 thicknesses for I section beams and H section columns (4 sided exposure). Critical temperature 550°C.

Hp/A	Cafco 300 thickness (mm) for fire resistance of:					
	30 (mins)	60 (mins)	90 (mins)	120 (mins)	180 (mins)	240 (mins)
30	10	10	10	12	17	23
40	10	10	11	14	21	28
50	10	10	13	16	24	32
60	10	10	14	18	27	35
70	10	10	15	20	29	38
80	10	11	16	21	31	40
90	10	12	17	22	32	43
100	10	12	18	23	34	45
110	10	13	18	24	35	46
120	10	13	19	25	36	48
130	10	14	19	25	37	49
140	10	14	20	26	38	50
150	10	14	20	27	39	52
160	10	14	21	27	40	53
170	10	15	21	28	41	53
180	10	15	22	28	41	54
190	10	15	22	29	42	55
200	10	15	22	29	42	56
210	10	16	22	29	43	57
220	10	16	23	30	43	57
230	10	16	23	30	44	58
240	10	16	23	30	44	58
250	10	16	23	30	45	59
260	10	16	24	31	45	59
270	10	17	24	31	45	60
280	10	17	24	31	46	60
290	10	17	25	31	46	61
300	10	17	25	32	46	61
310	10	17	25	32	47	61
330	10	18	25	33	48	63

Note: UK maximum steel temperatures are normally accepted at 550°C (for columns) and 620°C (for 3 sided beams) for fully loaded steel members.

Preparation

Typical substrates

Unprimed and primed steel, concrete structural frames, and return air plenums.

Substrate preparation

The substrate shall be clean, dry and free from dust, loose millscale, loose rust, oil and any other condition preventing good adhesion. Steelwork and concrete substrates should be covered with **Cafco Bondseal**, an adhesive/keycoat, prior to the application of Cafco 300.

Application

Initial steps

Application of Cafco 300 must be carried out by an applicator recognised by Cafco International and applied in accordance with the Installation Guide available from Cafco International.

Methods

Mix Cafco 300 with potable water in a suitable mixer and apply by a spraying machine approved by Cafco International.

Cafco 300 may also be float finished using conventional hand tools or spray textured.

Limitations

Cafco 300 may be applied if the substrate or air temperatures are a minimum of 4°C and rising, and must be maintained for 24 hours before, during and 24 hours after application. Maximum air and substrate temperature is 45°C.

Substrate temperature should be at least 2°C above dewpoint temperature.

Packaging, storage, shelf life

Packaging

20kg bags.

Storage

Protect from frost, excessive heat (above 45°C) and strong radiant sunlight.

Shelf life

6 months maximum.

Environmental

Do not discharge into drains, watercourses or soil.

Health and safety

Cafco International's activities are conducted with due regard to all statutory requirements with appropriate safeguards against exposing employees and the public to health and safety risks.

A full copy of Cafco International's Health, Safety and Environment Policy document is available on request.

See Safety Data Sheet (including COSHH Regulations) Code Reference **Saf-3**.

Quality assurance

Cafco International operates a quality system in accordance with BS EN ISO 9002: 1994, and has received full accreditation by BSI to these standards.

Operating to these standards means that all activities, which have a bearing upon quality, are set out in written procedures. Systematic and thorough checks are made on all materials and their usage. Test equipment is subjected to regular checks and is referred back to national standards.

The information given in this data sheet is based on actual tests and is believed to be typical of the product. No guarantee of results is implied however, since conditions of use are beyond our control.

Further information

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