Promat

PROMATECT®-H
Beam Cladding

Introduction

Numerous research programmes show that some types of fully stressed steel sections can achieve a fire resistance of 30 minutes without any additional protection materials being applied. However, these apply to a limited number of steel sections only, based on the allowable Section Factor Hp/A. Section Factor is a common term used in fire protection for steelwork and is discussed in detail below.

Typical building regulations usually require certain elements of structure to be fire resistant for more than 30 minutes and up to a specified minimum period of time. The thickness of any fire protection material depends on a number of factors, such as:

- Duration of fire resistance specified;
- Type of protection used (e.g. board, paint, spray etc);
- Perimeter of the part of steel section exposed to fire;
- Shape and dimensions of the steel section.

To determine how these various factors affect the fire resistance, all Promat products and systems have been tested at nationally accredited laboratories around the world to a variety of standards, e.g. BS476: Part 21, AS1530: Part 4, DIN 4102 and ASTM E119.

Tests carried out in accordance with BS476: Part 21 are performed on both loaded and unloaded beams and columns which are clad with fire protection material. Steel surface temperatures are monitored with thermocouples to assess the performance of the cladding. Steel that is fully stressed in accordance with the design guides BS449 or BS5950: Part 1 (Australian equivalent AS4100), begin to lose their design margin of safety at temperatures around 550°C. The table at top right shows how the strength of steel reduces as temperatures rise.

Variation of effective yield strength factor of normal structural steels with temperature

Temperature (°C)	20	100	200	300	400	500	600	700	800
Effective yield strength factor	1.00	1.00	1.00	1.00	1.00	0.78	0.47	0.23	0.11
Example: At 700°C, the effective yield strength of Grade 43 (S275) steel is 0.23 x 275 = 63.25N/mm².									

The above is extracted from the ASFP publication "Fire Protection for Structural Steel in Buildings", commonly known as "The Yellow Book".

A range of unloaded sections are also tested to obtain data for analytical calculation with the aid of a computer, to measure exactly how much protection is needed for the most common steel sections and for providing fire resistance for different time periods.

IMPORTANT NOTE: When using Promat protection systems for structural steelwork, conservative limiting temperatures of 550°C and 620°C are referred to for columns and beams respectively and are in general use throughout this section. Apart from temperature data, the fire tests also need to demonstrate the ability of cladding to remain in place, usually described as "stickability" of the material, for the maximum duration for which the protection may be required. The availability of thin boards and the low weight of Promat systems, plus the possibility of prefabrication, ensure maximum cost-efficiency.

Section Factor (Hp/A)

The degree of fire protection provided depends on the Hp/A Section Factor for the steel section. The Hp/A factor is a function of the area of the steel exposed to the fire and the mass of the steel section. The higher the Hp/A, the faster the steel section heats up and so the greater the thickness of fire protection material required.

It should be noted that in recently published European design standards, the section factor is presented as A/V which has the same numerical value as Hp/A. A/V measures the rate of temperature increase of a steel cross-section by the ratio of the heated surface area to the volume. It is likely to gradually replace the use of Hp/A.

Depending on type of material used for protection, the calculation method for Hp/A value may differ. Generally there are two methods of construction for the protection materials. These are box protection and profile protection.

Box Protection

For box protection, Hp is the sum of the inside dimensions of the smallest possible rectangular or square encasement of the steel section (except for circular hollow sections) as shown on pages 4 and 5.

Where a steel section abuts or is built into a fire resisting wall or floor, the surface in contact with or the surface within the wall or floor is ignored when calculating Hp.

However, the value A is always the total cross-sectional area of the whole steel section.

Profile Protection

Encasements following the profile of the steel section will generally have a higher Hp/A section factor than a box encasement. One exception is circular hollow sections as detailed in the following pages. If required, please contact a local Promat Technical Department for further advice.

The serial size and mass per metre of most steel sections are available in tables from steel manufacturers. Sometimes such tables also provide Hp/A values calculated for 3 or 4-sided box protection.

Upon request, Promat Technical Department will provide assistance in calculating Hp/A section factors and required material thicknesses. As a general guide, please refer to pages 4 and 5. Below is an example of calculation section for a beam box protection.

Example: Steel beam, serial size 406mm x 178mm x 54kg/m to be encased on 3 sides

Serial size = 406mm x 178mm
Actual size = 406.2mm x 177.6mm
Hp = B + 2 D
= 177.6 + 402.6 + 402.6
= 982.8mm (0.9828m)
A = 68.1cm² (0.00681m²)
Hp/A = 0.9828 ÷ 0.00681
= 144.3
= 145m^{-1}

The value of A, the cross-sectional area, can be obtained either from steelwork tables or by accurate measurement. However, if the mass per metre is known then the Hp/A value can be calculated as follows:

$$\frac{Hp}{A} = \frac{7850 \times Hp}{W}$$

Where W = Mass of per metre (kg/m)

Where 7850 = Nominal density of steel

NOTE: Calculation for profile protection can be simplified by ignoring the thickness of the steel section. As such, the value obtained is slightly conservative. For instance, a universal beam protected on all 4 sides, the calculation of perimeter Hp is simplified to 4B + 2D. The shape of the steel section can also play an important role when determining the required thickness of a protection material. Following are some notes for reference. For details on steel profiles not outlined here, please consult Promat Technical Department.

Castellated Sections / Cellform Beams

These heat up more quickly than the original section from which they were produced. Protection thickness should therefore be 20% greater than those calculated from the Hp/A value of the original section from which the castellated section is formed.

However, it should be noted that the above information is now considered somewhat out dated and a new, more scientific approach is applied for the protection of castellated sections. The following is taken from *Fire protection for structural steel in buildings*, 4th Edition published by the ASFP (see www.asfp.org.uk).

The recommended method of obtaining the section factor (Hp/A) for castellated sections is now amended as follows. The recommendation from the Steel Construction Institute, as published in RT1085, that for castellated sections and cellular beams manufactured from all rolled steel sections and from welded plate, the Section Factor for both passive and active fire protection systems should be calculated as:

Section factor [m^{-1}] = 1400/t

Where t = the thickness [mm] of the lower steel web and applies for beams made from all steel rolled sections and from welded steel plate.

It should be noted that there are a number of conditions attached to the use of this calculation methods, which are detailed in the ASFP "Yellow Book" publication detailed above.

It should further be noted that the above rule does NOT apply to intumescent coatings, where the ability of a reactive coating product to provide protection to the critical areas of the beam is very product specific. Individual protection products, normally quite similar in performance when compared on the basis of rolled steel sections, may require radically different thicknesses for the same cellular beam.

Structural Hollow Section

The same thickness of Promat board materials can be used on hollow sections as on 'I' sections of the same Hp/A value. This rule does NOT apply to intumescent coatings.

Bracing

Bracing is included in a structure to give resistance to wind forces and provide overall stiffness. Masonry walls and steel cladding contribute to a structure's rigidity but these are rarely taken into account in design. Also, the probability of a major fire occurrence concurrent with maximum wind load is remote (see BS5950: Part 8). It seems unreasonable therefore to apply the 550°C steel temperature criteria to bracing. While each case must be judged on individual merits, protection to bracing is generally not necessary, but where it is required the Hp/A value of the bracing section or 200m^{-1} should be used, whichever is the lesser.

Lattice Members

As the determination of the protection necessary to protect lattice members requires broad consideration of the lattice design, please consult a local Promat Technical Department for advice concerning such steel sections.

Partially Exposed Members

Where columns or beams are partly built into or are in close contact with walls or floors, the protection afforded to the steelwork by the wall or floor should be taken into account. In those instances where the steel section sits within or against masonry or concrete constructions, this will give protection to the adjacent surface of the steelwork. Thus, for the purpose of determining the heated perimeter (Hp), this should be taken as only that part of the steel section which is exposed. It should be noted that where the steelwork penetrates both sides of a fire resisting construction, i.e. a wall protruding into a space which has an open end, simultaneous attack from fire on both sides may occur on columns partially exposed within the wall. In such an instance, the section factor should be calculated based upon the sum of the areas exposed to fire on either side of the wall and the total volume of the steel section. Note that separating elements are generally required to offer a performance including the insulation criteria of 140°C/180°C. Therefore, where a steel section passes through a separating element and is exposed on both sides, consideration must also be given to providing sufficient protection not only to maintain the temperature of the steel section below 550°C but also to ensure the surface temperature on the unexposed face does not exceed the 140°C/180°C insulation criteria of the separating element. Due allowance for any expected building movement should also be considered.

External Lightweight Walls

Where the structural elements form portal legs supporting a lightweight external wall, the insulation performance required of the wall may contribute to the protection of any column flange falling within the thickness of the wall. In such cases, please consult the local Promat Technical Department to confirm the board thickness and which areas of such columns should be protected.

Internal Lightweight Walls/Partitions

Where a column or beam is built into a fire resistant lightweight wall or partition, the protection to the steelwork can generally be designed on the assumption that only one side of the wall or partition will be exposed to fire at any one time. The wall or partition should be adequately secured to the column in such a way as to ensure the wall or partition will not apply stress on the protection encasement. Due allowance for any expected building movement should be considered.

Floors

Where beams are wholly within the cavity of a timber floor protected by a PROMATECT®-H ceiling, test evidence shows that the cavity air temperature of the floor is such that the beam will be adequately protected to the same fire resistance by the ceiling that protects the floor. Where the beam is wholly or partly below the line of the PROMATECT®-H ceiling then Hp should be based upon the portion of the steel beam that is below ceiling level.

Beams Supporting Composite Floors With Profiled Metal Decking

A series of fire resistance tests, jointly sponsored by ASFP members (including Promat) and others, demonstrates that it is not always necessary to fill the void formed between the top flange of a beam and the underside of a profiled steel deck. Recommendations based on the research have been published by the Steel Construction Institute (UK) and for decks running perpendicular to the beams, are as follows:

Dovetail decks

Voids may be left unfilled for all fire resistance periods; unless a fire resisting wall or partition is located beneath the beam.

Trapezoidal decks

Generally, voids may be left unfilled for up to 60 minutes fire resistance. Also, for 90 minutes if the board thickness used is appropriate for the Hp/A + 15%. Care should be taken to ensure that if the voids are unfilled, the main encasement will need to be adequately secured. Please refer to the Promat Technical Department for advice.

For periods over 90 minutes the voids should be filled.

In all instances, voids should also be filled if a fire wall is located beneath the beam, for all fire resistance periods. These recommendations apply to board encasements. The trapezoidal steel deck slab should be designed to act structurally with the beam. If this is not the case, the voids should be filled for all fire resistance periods.

How To Specify

1. Choose the material to be used.

PROMATECT®-H
Suitable where a higher degree of impact resistance is needed or where the appearance of the casing is required to match wall or ceiling linings. Limited to 120 minutes (ASTM: 180 minutes) fire protection.

PROMATECT®-L
An attractive white board with a smooth face, often requiring decoration, providing up to 240 minutes fire protection.

PROMATECT® 100 & PROMATECT® 250
A white board with a flat and smooth surface that provides high insulation performance with minimum thickness, offering up to 150 minutes fire protection.

VICUCLAD®
A lightweight, cost-effective, easily worked fire protection board which can offer up to 240 minutes protection.

VICUTUBE®
Tubular half sections providing protection to steel circular hollow sections or plastic pipes.

PROMAPAINT®
Water-based intumescent coating providing flexibility to apply on steelwork of various shapes, offering up to 120 minutes fire protection.

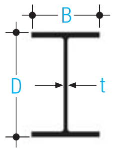
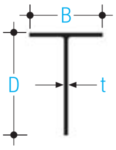
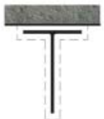
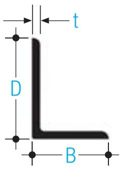
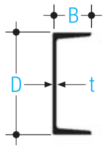
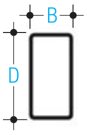
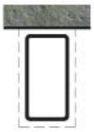
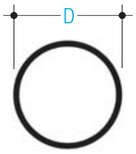
2. Determine the period of fire protection required.

3. Determine the section factor (Hp/A) of the steel section.
See opposite page.

4. Using the Hp/A factor and the required fire protection period, determine the board thickness and fixing details.
Please refer to page 6.

Hp/A Section Factor Profile

Protection configurations with values of perimeter Hp for use in the calculation of section factor Hp/A (A/V)

Steel section	Profile protection				
Universal beams, universal columns and joists (plain and castellated)  Hp	4 sides  2B + 2D + 2(B - t) = 4B + 2D - 2t	3 sides  B + 2D + 2(B - t) = 3B + 2D - 2t	3 sides (partially exposed)  B + 2d + (B - t) = 2B + 2d-t	2 sides  B + D + 2(B - t)/2 = 2B + D -t	1 side (partially exposed)  B
Structural and rolled tees  Hp	4 sides  2B + 2D	3 sides (flange to soffit)  B + 2D	3 sides (toe of web to soffit)  B + 2D + (B - t) = 2B + 2D - t		
Angles  Hp	4 sides  2B + 2D	3 sides (flange to soffit)  B + 2D	3 sides (toe of flange to soffit)  B + 2D + (B - t) = 2B + 2D - t		
Channels  Hp	4 sides  2B + 2D + 2(B - t) = 4B + 2D - 2t	3 sides (web to soffit)  2B + D + 2(B - t) = 4B + D - 2t	3 sides (flange to soffit)  B + 2D + 2(B - t) = 3B + 2D - 2t		
Hollow sections (square or rectangular)  Hp	4 sides  2B + 2D	3 sides  B + 2D			
Hollow sections (circular)  Hp	 πD				

Example:
Using 305mm x 305mm x 240kg/m universal beam

B = 317.9mm D = 352.6mm
t = 23mm A = 305.6cm^2

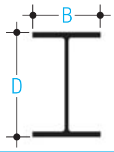
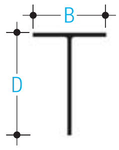
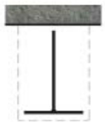
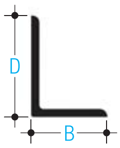
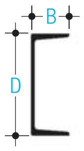
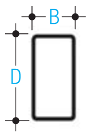
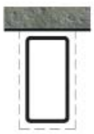
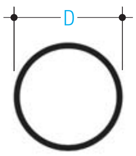
a) Profile protection – 4-sided exposure
Hp = 4B + 2D - 2t
Hence Hp = 4 x 317.9 + 2 x 352.6 - 2 x 23 = 1930.8mm = 1.931m
Hp/A = 1.931/0.03056 = 63.1m^{-1}

b) Profile protection – 3-sided exposure
Hp = 3B + 2D - 2t
Hence Hp = 3 x 317.9 + 2 x 352.6 - 2 x 23 = 1612.9mm = 1.613m
Hp/A = 1.613/0.03056 = 52.8m^{-1}

NOTE: The values are approximate in that radii at corners and roots of all sections are ignored. In these figures Hp/A = A/V.

Hp/A Section Factor Box

Protection configurations with values of perimeter Hp for use in the calculation of section factor Hp/A (A/V)

Steel section	Box protection				
Universal beams, universal columns and joists (plain and castellated)  Hp	4 sides  2B + 2D	3 sides  B + 2D	3 sides (partially exposed)  B + 2d	2 sides  B + D	1 side (partially exposed)  B
Structural and rolled tees  Hp	4 sides  2B + 2D	3 sides (flange to soffit)  B + 2D	3 sides (toe of web to soffit)  B + 2D		
Angles  Hp	4 sides  2B + 2D	3 sides (flange to soffit)  B + 2D	3 sides (toe of flange to soffit)  B + 2D		
Channels  Hp	4 sides  2B + 2D	3 sides (web to soffit)  2B + D	3 sides (flange to soffit)  B + 2D		
Hollow sections (square or rectangular)  Hp	4 sides  2B + 2D	3 sides  B + 2D			
Hollow sections (circular)  Hp	 πD	NOTE: The air space created in boxing a section improves the insulation and a value of Hp/A. Therefore, Hp higher than profile protection would be anomalous. Hence, Hp is taken as the circumference of the tube and not 4D.			

Example:
Using 305mm x 305mm x 240kg/m universal beam

B = 317.9mm D = 352.6mm
t = 23mm A = 305.6cm²

c) Box protection – 4-sided exposure
Hp = 2B + 2D

Hence Hp = 2 x 317.9 + 2 x 352.6
= 1341mm = 1.341m

$Hp/A = 1.341/0.03056 = 43.9m^{-1}$

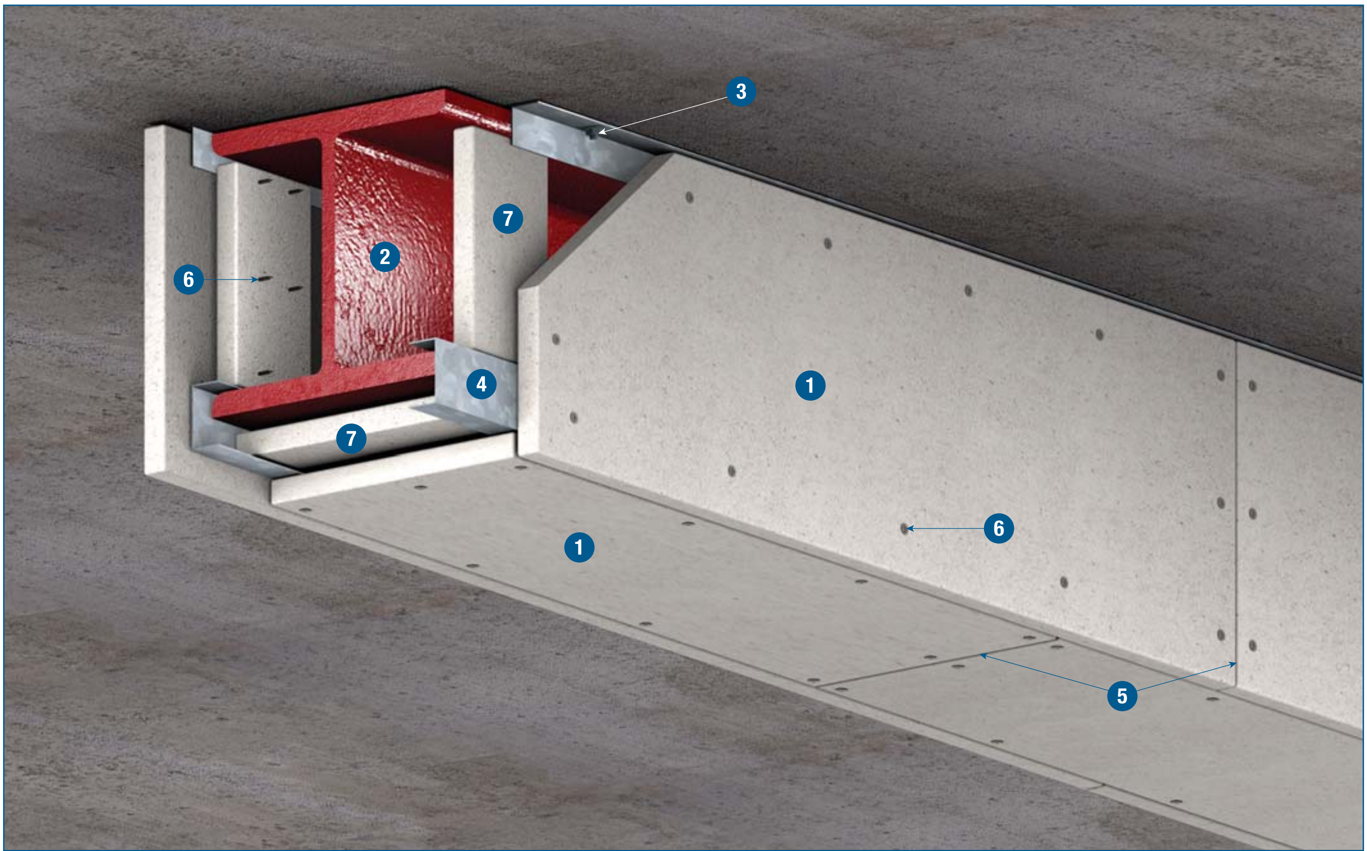
d) Box protection – 3-sided exposure
Hp = B + 2D

Hence Hp = 317.9 + 2 x 352.6
= 1612.9mm = 1.613m

$Hp/A = 1.613/0.03056 = 52.8m^{-1}$

NOTE: The values are approximate in that radii at corners and roots of all sections are ignored. In these figures Hp/A = A/V.

3-sided channel fixing (option a)



TECHNICAL DATA

1. 1 layer of PROMATECT®-H board, thickness in accordance with Table 1 or 2 below.
2. Structural steel beam
3. Continuous galvanised steel angle, minimum 32mm x 19mm x 0.9mm thick or similar, fixed to flange or floor slab at nominal 500mm centres using proprietary anchor fixing.
4. Continuous galvanised steel channel, 19mm x 38mm x 19mm x 1.6mm thick or similar, resting on lower flange, mechanical fixing to flange not required.
5. Staggered joints in adjacent boards by at least 300mm
6. Screw PROMATECT®-H to angles and channels with self-tapping screws at 200mm centres and to cover strips at 100mm centres. Screw length should be board thickness + 20mm.
7. PROMATECT®-H cover strips, 100mm wide x casing thickness, located behind joints. Screw casing to cover strips at 100mm centres or staple fix at 50mm centres.

Hp/A Ratio Table 1: PROMATECT®-H for up to 120 minutes fire rating in accordance with the requirements of BS476: Part 21 and AS1530: Part 4

Fire resistance (minutes)	Board thickness (mm)																			
	6	9	12	15	18	20	21	24	25	26	27	29	30	31	32	33	34	35	36	37
30	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260
60	47	88	156	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260
90	–	37	56	79	110	136	151	212	238	260	260	260	260	260	260	260	260	260	260	260
120	–	–	34	46	59	70	76	95	103	111	119	139	150	161	174	188	204	221	241	260

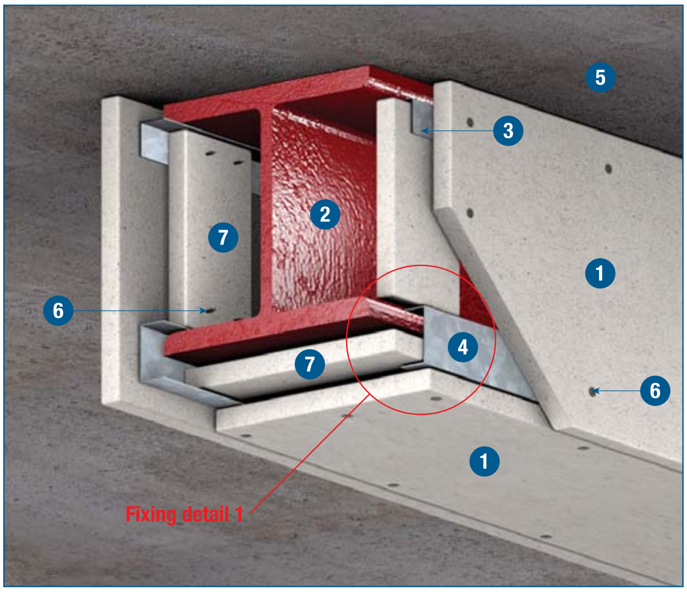
Maximum Hp/A section factor (m^{-1})

Hp/A Ratio Table 2: PROMATECT®-H for up to 180 minutes fire rating in accordance with the requirements of ASTM E119

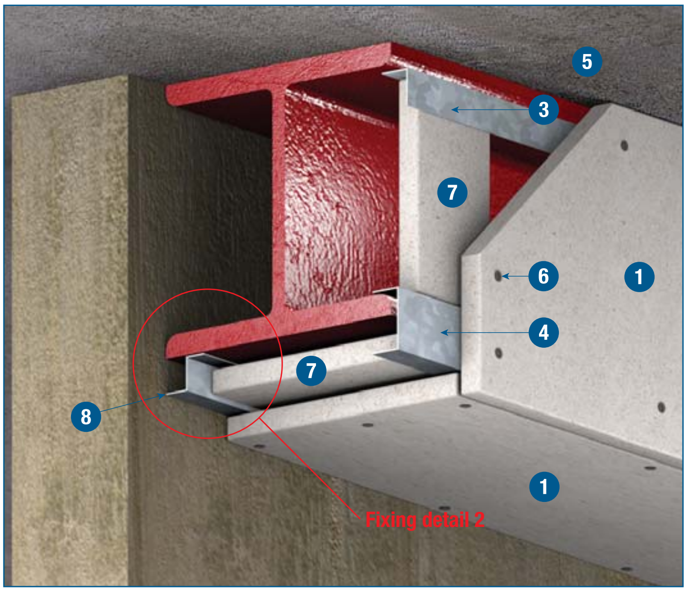
Fire resistance (minutes)	Board thickness (mm)								
	8	10	12	15	20	25	30	35	40
30	300	300	300	300	300	300	300	300	300
60	89	139	179	239	300	300	300	300	300
90	60	79	89	139	239	300	300	300	300
120	–	–	60	79	139	219	300	300	300
180	–	–	–	–	60	79	119	159	300

Maximum Hp/A section factor (m^{-1})

3-sided channel fixing (option b)



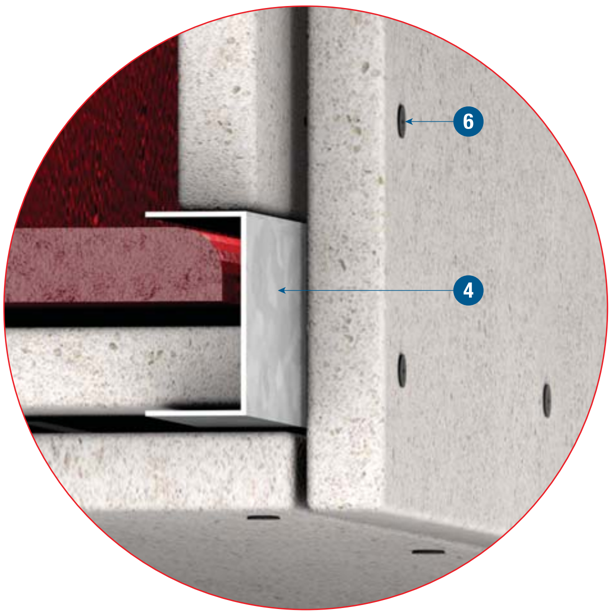
2-sided channel fixing



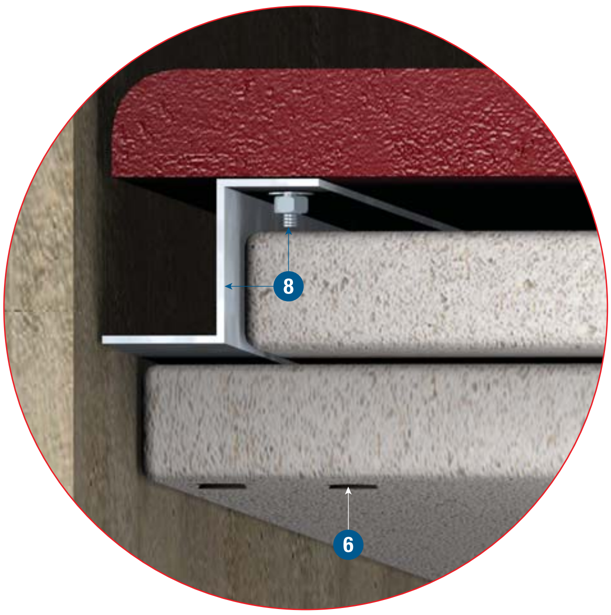
TECHNICAL DATA

1. 1 layer of PROMATECT®-H board, thickness in accordance with Table 1 or 2 at bottom of opposite page.
2. Structural steel beam
3. Continuous galvanised steel angle, minimum 32mm x 19mm x 0.9mm thick or similar, fixed to flange or floor slab at 500mm centres.
4. Continuous galvanised steel channel, 19mm x 38mm x 19mm x 1.6mm thick or similar, resting on lower flange, mechanical fixing to flange not required.
5. Substrate soffit
6. Screw PROMATECT®-H to angles and channels with self-tapping screws at 200mm centres and to cover strips at 100mm centres. Screw length should be board thickness + 20mm.
7. PROMATECT®-H cover strips, 100mm wide x casing thickness, located behind joints. Screw casing to cover strips at 100mm centres or staple fix at 50mm centres.
8. Continuous galvanised steel top hat or Z-section, fixed to bottom flange of section using proprietary anchor fixing (see below Fixing detail 2) and to PROMATECT®-H soffit board at nominal 200mm centres to allow differential movement. Seal between edge of PROMATECT®-H board and substrate using PROMASEAL® AN Acrylic Sealant.

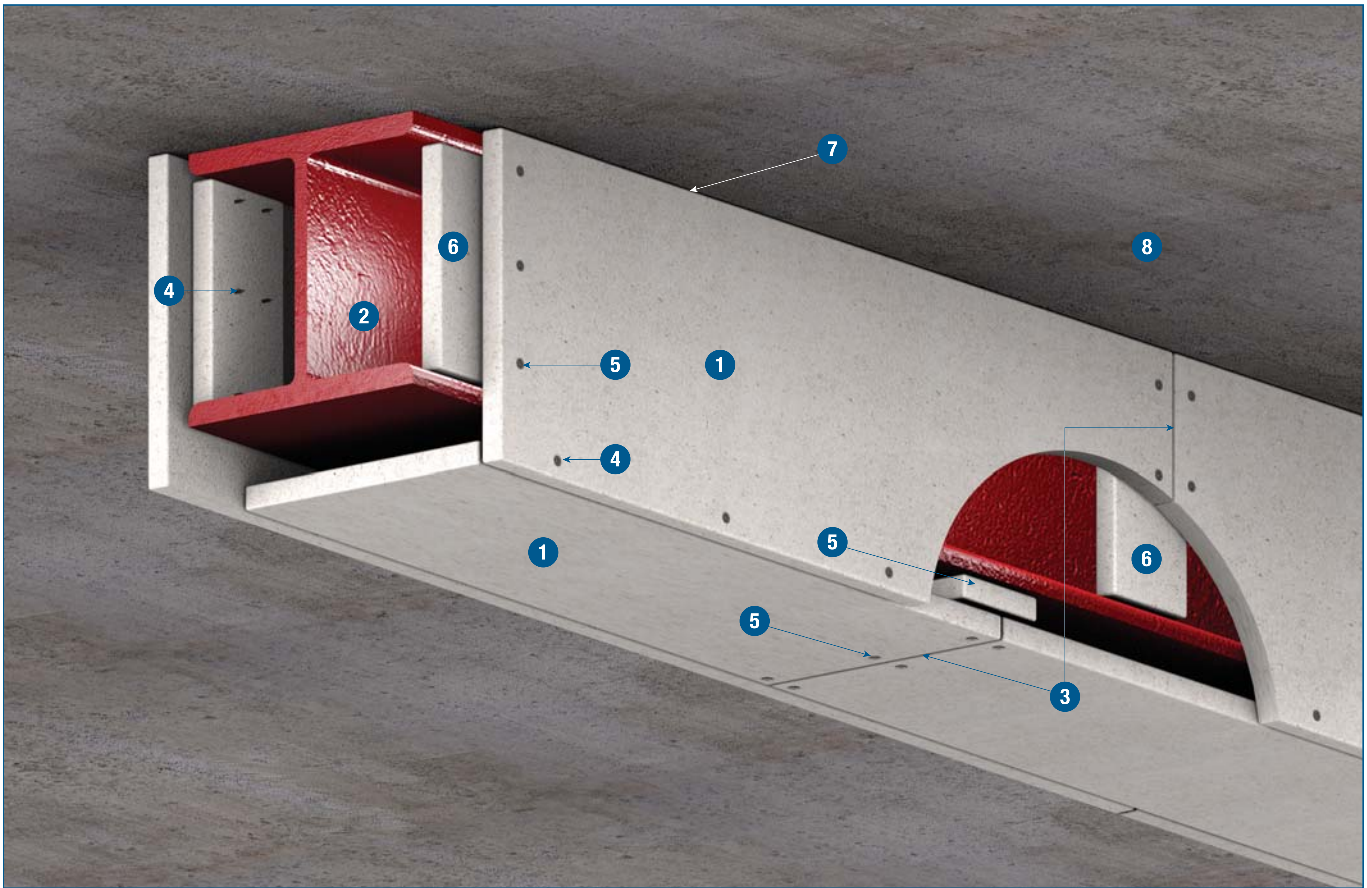
Fixing detail 1



Fixing detail 2



3-sided edge fixing



TECHNICAL DATA

1. 1 layer of PROMATECT®-H board, minimum 15mm thickness in accordance with Table 1 or 2 at bottom of page 6.

2. Structural steel beam

3. Stagger joints in adjacent boards by at least 300mm

4. Screw or staple PROMATECT®-H to cover strips and soldiers at 100mm and 50mm centres respectively.

   Secure side boards to soffit boards using fixings in accordance with the table below. Care should be taken not to overtighten screws. When screw fixing, it is advisable to drill pilot holes, particularly with boards 15mm thick.

Board thickness	Deep threaded drywall type screws, preferably with ribbed heads at 200mm centres	Steel wire staples at 100mm centres
15mm	40mm	44/10/1mm
20mm	55mm	50/10/1mm
25mm	60mm	50/10/1mm

5. PROMATECT®-H cover strips, 100mm wide x casing thickness, located behind joints. Screw casing to cover strips at 100mm centres or staple fix at 50mm centres.

6. PROMATECT®-H soldiers, 100mm wide x minimum 25mm thick, tightly wedged into web at maximum 1220mm centres. Secure casing to soldiers using screws at 100mm centres or staples at 50mm centres.

   NOTE: For deep beams which are being clad with thicker boards for longer duration fire resistance, it may be advisable to use soldiers installed at nominal 600mm centres, in order to reduce the load on the soldiers and provide a more secure installation. For beams in excess of 600mm deep, a T-section soldier should be used to provide a stiffer and stronger support.

7. Seal any irregularity between edge of board and substrate using PROMASEAL® AN Acrylic Sealant, which should be applied to the full depth of the board thickness, e.g. for 20mm board, the sealant should be 20mm deep.

8. Concrete substrate

Architectural Specification

Only general information can be provided in this document. It is recommended that the local Promat Technical Department be contacted to confirm details that are pertinent to any particular situation.

The installation methods described herein are suitable for steel sections up to 686mm deep and 325mm wide. For larger section; or when protecting multiple sections within a single encasement, please consult the local Promat Technical Department.

Where a column box encasement abuts a beam protected with a profiled fire protection system, e.g. intumescent paint, the column webs should be sealed at their tops using PROMATECT®-H.

The following are standard Architectural Specifications for structural steelwork protection using PROMATECT®-H. Please note that fixing PROMATECT®-H can be carried out by using either pressed steel sections or soldiers and screw fixings. The end user must determine the suitability of any particular design to meet the performance requirements of any application before undertaking any work. If in doubt, the advice of a suitably qualified engineer should first be obtained.

(Using pressed steel sections fixing)	(Soldiers and screw fixing)
Area of Application Exposed faces of steelwork internal to building, for up to 120 minutes fire protection in accordance with the requirements of **BS476: Part 21: 1987**, **AS1530: Part 4: 2005** or **ASTM E119-2007**.[1]	
Location ____[2]	
Type of Fixing Using pressed steel sections.	**Type of Fixing** Soldiers and screw fixing.
Type of Construction ___________[3] minutes PROMATECT®-H 3 or 4 sided encasement fire protection to structural beams and columns.	
Lining Boards PROMATECT®-H fire protection board ___________mm[4] thick as manufactured by Promat International (Asia Pacific) Ltd., in board size ___________mm x ___________mm[5], cut to size on site/pre-cut in accordance with schedule of sizes[6] and fixed in accordance with manufacturer's recommended details and fixing instructions.	
Fixing **COLUMNS** Boards to be fixed edge to 38mm x 19mm x 1.6mm pressed steel channels or similar, by means of ___________mm[7a] self-tapping screws at nominal 200mm centres. **BEAMS** Boards to be fixed by means of ___________mm[7a] self-tapping screws at nominal 200mm centres to nominal 38mm x 19mm x 1.6mm continuous pressed steel channels or similar at bottom steel flange and to 19mm x 32mm x 0.9mm continuous pressed steel angles secured to soffit of floor/roof slab or top steel flange. The angles should be fixed at nominal 500mm centres.	**Fixing** **COLUMNS** Boards to be fixed by board-to-board edge screwing, using ___________mm[7b] deep threaded screws at nominal 200mm centres. Allow minimum 25mm penetration. **BEAMS** Side boards to be fixed to 100mm x 25mm thick PROMATECT®-H soldiers wedged between flanges at nominal 1220mm centres, using ___________mm[7b] deep threaded screws at nominal 100mm centres. Side boards to be fixed to soffit boards using screws at 200mm centres.
Jointing For beam casings only, board joints to be backed with 100mm wide internal cover strips of PROMATECT®-H secured with ___________mm[8a] self-tapping screws at nominal 100mm centres. Cover strips to be same thickness as casing.	**Jointing** For beam casings only, board joints in the soffit to be backed with 100 wide internal cover strips of ___________mm[8b] thick PROMATECT®-H secured with deep threaded screws to one side of board joint only.
Follow-on Trades Surface of boards to be prepared for painting/plastering/tiling[9] in accordance with manufacturer's recommendations.	

NOTES:

- [1], [6], [9] delete as appropriate.
- [2] insert location, e.g. "beams and columns to offices interior", or give steelwork drawing reference.
- [3] insert required fire resistance level (not exceeding 120 minutes for BS or AS and not exceeding 180 minutes for ASTM).
- [4] insert required thickness by reference to Section Factor (Hp/A) on page 2 and fire resistance period.
- [5] select board size on basis of economy in cutting. Standard board size is 2440mm x 1220mm.
- [7a] insert screw length which is at least 20mm longer than the casing thickness.
- [7b] insert screw length which gives minimum 25mm penetration having regard to casing thickness.
- [8a] insert screw length which is at least 5mm longer than twice the casing thickness.
- [8b] cover strips to be not less than casing thickness.

This specification relates to 3 or 4-sided casings. For 1 or 2-sided casings, please consult the local Promat Technical Department.

For latest information of the Promat Asia Pacific organisation,
please refer to www.promat-ap.com

ASIA PACIFIC HEADQUARTERS

Promat International (Asia Pacific) Ltd.
Unit 19-02-01, Level 2 PNB Damansara
No.19 Lorong Dungun, Damansara Heights
50490 Kuala Lumpur
MALAYSIA
Tel: +60 (3) 2095 5111
Fax: +60 (3) 2095 6111
Email: info@promat-ap.com

AUSTRALIA

Promat Australia Pty. Ltd.
1 Scotland Road
Mile End South, SA 5031
Tel: 1800 PROMAT
Fax: +61 (8) 8352 1014
Email: mail@promat.com.au

New South Wales Office
Promat Australia Pty. Ltd.
Unit 1, 175 Briens Road
Northmead, NSW 2152
Tel: 1800 PROMAT
Fax: +61 (2) 9630 0258
Email: mail@promat.com.au

Victoria Office
Promat Australia Pty. Ltd.
3/273 Williamstown Road
Port Melbourne, VIC 3207
Tel: 1800 PROMAT
Fax: +61 (3) 9645 3844
Email: mail@promat.com.au

CHINA

Promat China Ltd.
Room 503, Block B, Qi Lin Plaza
13-35 Pan Fu Road
510180 Guangzhou
Tel: +86 (20) 8136 1167
Fax: +86 (20) 8136 1372
Email: info@promat.com.cn

Beijing Office
Promat North China
(Division of Promat China Ltd.)
Room 1507 Building 5, SOHO Xiandaicheng
No.88 Jianguo Road, Chaoyang District
100022 Beijing
Tel: +86 (10) 8589 1254
Fax: +86 (10) 8589 2904
Email: info@promat.com.cn

HONG KONG

Promat International (Asia Pacific) Ltd.
Room 1010, C.C. Wu Building
302-308 Hennessy Road
Wanchai
Tel: +852 2836 3692
Fax: +852 2834 4313
Email: apromath@promat.com.hk

INDIA

Promat International (Asia Pacific) Ltd.
(India Representative Office)
610-611, Ansal Imperial Tower
C-Block, Community Centre
Naraina Vihar, Naraina
110028 New Delhi
Tel: +91 (11) 2577 8413 (general)
+91 (99) 6705 0813 (west area)
+91 (99) 8994 0505 (south area)
Fax: +91 (11) 2577 8414
Email: info-india@promat-asia.com

MALAYSIA

Promat (Malaysia) Sdn. Bhd.
Unit 19-02-01, Level 2 PNB Damansara
No.19 Lorong Dungun, Damansara Heights
50490 Kuala Lumpur
Tel: +60 (3) 2095 8555
Fax: +60 (3) 2095 2111
Email: info@promat.com.my

SINGAPORE

Promat Building System Pte. Ltd.
10 Science Park Road, #03-14 The Alpha,
Singapore Science Park II
Singapore 117684
Tel: +65 6776 7635
Fax: +65 6776 7624
Email: info@promat.com.sg

VIETNAM

Promat International (Asia Pacific) Ltd.
(Vietnam Representative Office)
Room 606 Giay Viet Plaza
180-182 Ly Chinh Thang Street
Ward 9, District 3, Hochiminh City
Tel/Fax: +84 (8) 3931 5964 (south area)
Tel/Fax: +84 (4) 3565 8677 (north area)
Hotline: +84 904 055 055
Email: info@promat-asia.com
trangoc@promat-asia.com

Your local Promat supplier

For Promat International groups worldwide: www.promat-international.com

1. This document is produced on the basis of information and experience available at the time of preparation. Promat is constantly reviewing and updating all of its test data and reserves the right to change products and specifications without notice.

2. Promat is not responsible if recipients of fire test reports, assessments or literature incorrectly interpret said contents and use products based on those interpretations.

an Etex GROUP company