CERTIFICATE OF APPROVAL
No CF 422

This is to certify that, in accordance with
TS00 General Requirements for Certification of Fire Protection Products
The undermentioned products of

PROMAT UK LTD

The Sterling Centre, Eastern Road, Bracknell, Berkshire, RG12 2TD
Tel: 01344 381 300 Fax: 01344 381 301

Have been assessed against the requirements of the Technical Schedule(s) denoted below and are approved for use subject to the conditions appended hereto:

CERTIFIED PRODUCT	TECHNICAL SCHEDULE
Promatect 250 board	**TS14 Board/Spray Protection for Steelwork**

Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council

Issued: 4th May 2006
Reissued: 12th July 2011
Valid to: 11th July 2016

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Promatect 250 board

1. This approval relates to the use of Promatect 250 board for the fire protection of I-shaped and hollow steel sections, structural tees, angles and channels. The precise scope is given in Tables 1 to 18 which show the thickness of Promatect 250 board required to provide fire resistance periods in accordance with BS476: Part 21: 1987 of up to 150 minutes for differing sections and section factors (Hp/A) at various critical steel temperatures.

2. This certification is designed to demonstrate compliance of the product or system specifically with Approved Document B (England and Wales), Section 2 of the Technical Standards (Scotland), Technical Booklet E (N. Ireland). If compliance is required to other regulatory or guidance documents there may be additional considerations or conflict to be taken into account.'

3. The product is approved on the basis of:

   i) Initial type testing
   ii) Audit testing at the frequency specified in TS14
   iii) A design appraisal against TS14
   iv) Inspection and surveillance of factory production control
   v) Production surveillance under ISO 9001:2008

4. The data at a critical steel temperature of 550°C relate to beams and columns with fire exposure on one, two, three or four sides. The data at a critical steel temperature of 620°C relate to beams, supporting concrete floor slabs, with fire exposure on three sides. The data is applicable to Promatect 250 board applied as a box protection to horizontal, vertical, flexural and compression members supporting loads up to the maximum design loads specified in BS449: Part 2. Separate consideration is required where this is not the case.

5. The data at critical steel temperatures of 350°C, 400°C, 450°C, 500°C, 550°C, 600°C, 620°C, 650°C and 700°C relate to beams and columns with fire exposure on one, two, three or four sides. The data is applicable to Promatect 250 board applied as a box protection to horizontal, vertical, flexural and compression members. The critical steel temperature is determined from BS5950: Part 8 depending on the load ratio applied to the member. Separate consideration is required where this is not the case.

6. The approval relates to on going production. Product and/or its immediate packaging is identified with the manufacturers' name, the product name or number, the CERTIFIRE name or name and mark, together with the CERTIFIRE certificate number and application where appropriate.

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Promatect 250 board

Application technique

For four-sided column casings Promatect 250 soldiers are wedged between the flanges at the top and bottom of the column. The soldiers are 120mm wide x casing thickness. The boards are fixed to the soldiers and to each other using steel staples, 50mm long x 12.5mm wide x 1.6mm thick, at 150mm centres. The end staples are located nominally 40mm from the corner of the board. Soldiers may be fitted behind board joints as an option. Cover strips are not required over joints in the boards covering the flanges. Board to board joints on adjacent sides are staggered by at least 530mm. For single layer boards 12 or 15mm thick the length of the staples may be reduced to 35mm.

For three-sided beam casings the fixing method is the same except that the soldiers are required to be fitted at the ends of the beam and at maximum 1250mm centres and the soffit board is fitted between the side boards. Soldiers must coincide with board joints.

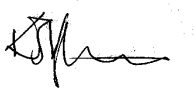
For double-layer casings, the first layer is the thicker of the two layers and is fixed as a single-layer casing. The outer layer is then secured through the first layer into the soldiers and to each other using staples, 50mm long, at 150mm centres. Board joints are staggered between layers by at least 530mm.

On steel sections up to 400mm deep, the soldiers may be cut in half, with the cut sloping by 5mm from side to side, and the two parts tapped together to wedge the soldier in position. For steel sections deeper than 400mm and up to 686mm deep, each soldier is strengthened using a Promatect 250 stiffener to form a T-shaped soldier. The stiffener is the same thickness as the standard soldier and is wedged between the flanges. The standard soldier is stapled to the outer edge of the stiffener to form the T-shaped soldier.

For steel sections deeper than 686mm and up to 1.0m deep, each soldier is strengthened using a Promatect 250 stiffener to form a T-shaped soldier. The stiffener is glued and stapled to the soldier using Vicubond adhesive. The stiffener is the same thickness as the standard soldier. The T-shaped soldiers are glued in position in the steel section using Vicubond adhesive and the Promatect 250 facing boards stapled to the T-shaped soldiers, as per the standard fixing recommendations.

Alternatively, for steel sections up to 1.2m deep, the framed casing arrangement may be used, as detailed below.

The application technique for four-sided beam casings is the same as for three-sided beam casings with the addition of the board protection on top of the beam, fitted between the side boards.



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Promatect 250 board

As an alternative to using Promatect 250 soldiers, for steel sections up to 686mm deep, the side boards may be secured using continuous galvanised steel angles, 32mm x 18mm x 0.8mm thick, or equivalent. The angles are fastened to the steel beam or column with minimum M4 steel screws at 500mm maximum centres. The boards are fastened to the angles with steel drywall screws at 200mm nominal centres. Board to board side panel joints are backed with Promatect 250 cover strips, 120mm wide x 15mm thick, fastened with staples.

3 and 4-sided framed casing to deep web beams greater than 686mm deep

The construction of the framed casings for deep web beams greater than 686mm deep is shown in Figure 1.

Framing: 32mm x 52mm x 32mm x 0.5mm steel channel fixed to the underside of the top flanges and the upper side of the bottom flanges of the steel beam. Vertical steel channels, 32mm x 52mm x 32mm x 0.5mm, are fitted into the horizontal channels at 1250mm centres.

Fixings:

Channel to flange: shot fired 3.7mm x 16mm steel nails (Hilti ENK 16 S12 or equivalent) or self-tapping 9.5mm x No.8 panhead screws at 500mm maximum centres.

Board to channels: No. 8 countersunk self-tapping hardened steel or dry wall screws at nominal 200mm centres. Screw length should allow minimum of 10mm penetration through the channel.

Board to board: steel staples, 50mm long x 12.5mm wide x 1.6mm thick, at 150mm centres. The end staples are located nominally 40mm from the corner of the board. Board to board joints on adjacent sides are staggered by at least 530mm. For single layer boards 12 or 15mm thick the length of the staples may be reduced to 35mm.

Cover strips:

Promatect 250 internal cover strips, 100mm wide x minimum thickness of the side panels, at the position of vertical board joints in the Promatect 250 side panels. The side panels are fastened to the cover strips, on both sides of the joint, with steel staples, 50mm long x 12.5mm wide x 1.6mm thick, at 150mm centres. The soffit panels are fitted between the side panels and fastened with steel staples, 50mm long x 12.5mm wide x 1.6mm thick, at 150mm centres. For single layer boards 12 or 15mm thick the length of the staples may be reduced to 35mm.

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For double-layer casings, the first layer is the thicker of the two layers and is fixed as a single-layer casing. The outer layer is then secured through the first layer into the vertical and top flange channels using No. 8 countersunk self-tapping hardened steel or dry wall screws at nominal 200mm centres The outer layer is also fastened to the inner layer around the top and side perimeters of each panel using staples, 50mm long, at 150mm centres. The soffit panels of the outer layer are fitted between the side panels in the same way as for the inner layer. Board joints are staggered between layers by at least 530mm.

For beams with lower flange widths over 325mm up to 600mm additional support is provided for the Promatect 250 soffit boards using steel Z-sections at 610mm centres. The fixings for the Z-section to steel flange and for the soffit board to the Z-section are the same as for the channel.

4-sided casing:

The 4-sided casing is the same as for the 3-sided casing except that the side panels extend above the steel beams for the thickness of the board and Promatect 250 boards are fitted between the side panels to protect the top of the beam. The staple fixings are the same as for other board to board joints. No joint cover strips are required.

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Promatect 250 board

Table 1

Beams – critical steel temperature 550°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	177				12
		260	102			15
			135			18
			162	92		20
			192	106		22
			249	129	87	25
			260	176	114	30 or (15 + 15)
				211	132	33 (15 + 18)
				238	146	35 (15 + 20)
				260	168	38 (18 + 20)

Table 2

Columns – critical steel temperature 550°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	209	82			12
		260	114	68		15
			153	87	61	18
			185	102	70	20
			223	118	80	22
			260	145	96	25
				201	126	30 or (15 + 15)
				243	147	33 (15 + 18)
				260	163	35 (15 + 20)
					190	38 (18 + 20)

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Table 3

Beams – critical steel temperature 620°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	260				12
			115			15
			173			18
			232	94		20
			260	113		22
				149	85	25
				243	120	30 or (15 + 15)
				260	148	33 (15 + 18)
					171	35 (15 + 20)
					213	38 (18 + 20)

Table applies to beams with concrete slabs.

Table 4

Columns – critical steel temperature 620°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	260	91			12
			142	67		15
			227	92	57	18
			260	112	68	20
				137	79	22
				186	99	25
				260	144	30 or (15 + 15)
					182	33 (15 + 18)
					214	35 (15 + 20)
					260	38 (18 + 20)

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Table 5

Beams – critical steel temperature 350°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	77				**12**
		117	55			**15**
		180	73			**18**
		245	88	53		**20**
		260	105	62		**22**
			138	76	53	**25**
			221	106	70	**30 or (15 + 15)**
			260	130	82	**33 (15 + 18)**
				149	92	**35 (15 + 20)**
				183	107	**38 (18 + 20)**

Table 6

Columns – critical steel temperature 350°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	77	40			**12**
		117	55	36		**15**
		180	73	46	33	**18**
		245	88	53	38	**20**
		260	105	62	44	**22**
			138	76	53	**25**
			221	106	70	**30 or (15 + 15)**
			260	130	82	**33 (15 + 18)**
				149	92	**35 (15 + 20)**
				183	107	**38 (18 + 20)**

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Table 7

Beams – critical steel temperature 400°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	96				**12**
		148	65			**15**
		232	88			**18**
		260	105	63		**20**
			126	73		**22**
			166	90	62	**25**
			260	126	82	**30 or (15 + 15)**
				153	96	**33 (15 + 18)**
				176	107	**35 (15 + 20)**
				216	125	**38 (18 + 20)**

Table 8

Columns – critical steel temperature 400°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	98	48			**12**
		153	67	43		**15**
		241	89	55	40	**18**
		260	108	64	46	**20**
			130	74	52	**22**
			171	92	63	**25**
			260	129	83	**30 or (15 + 15)**
				157	98	**33 (15 + 18)**
				181	109	**35 (15 + 20)**
				223	128	**38 (18 + 20)**

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Table 9

Beams – critical steel temperature 450°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	116				**12**
		179	76			**15**
		260	102			**18**
			122	72		**20**
			146	83		**22**
			191	102	70	**25**
			260	142	92	**30 or (15 + 15)**
				173	108	**33 (15 + 18)**
				197	120	**35 (15 + 20)**
				241	140	**38 (18 + 20)**

Table 10

Columns – critical steel temperature 450°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	125	58			**12**
		196	81	51		**15**
		260	108	65	47	**18**
			131	76	54	**20**
			158	88	61	**22**
			209	109	74	**25**
			260	153	98	**30 or (15 + 15)**
				187	115	**33 (15 + 18)**
				215	128	**35 (15 + 20)**
				260	151	**38 (18 + 20)**

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Table 11

Beams – critical steel temperature 500°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	138				**12**
		249	80			**15**
		260	113			**18**
			141	75		**20**
			178	88		**22**
			258	112	71	**25**
			260	168	98	**30 or (15 + 15)**
				218	119	**33 (15 + 18)**
				260	135	**35 (15 + 20)**
					163	**38 (18 + 20)**

Table 12

Columns – critical steel temperature 500°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	164	62			**12**
		260	90	53		**15**
			130	70	48	**18**
			165	83	56	**20**
			214	99	64	**22**
			260	128	79	**25**
				199	111	**30 or (15 + 15)**
				260	136	**33 (15 + 18)**
					155	**35 (15 + 20)**
					192	**38 (18 + 20)**

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Table 13

Beams – critical steel temperature 600°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	260				12
			108			15
			158			18
			206	91		20
			260	109		22
				141	84	25
				222	117	30 or (15 + 15)
				260	142	33 (15 + 18)
					162	35 (15 + 20)
					200	38 (18 + 20)

Table 14

Columns – critical steel temperature 600°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	260	86			12
			131	66		15
			201	88	57	18
			260	107	67	20
				129	77	22
				172	97	25
				260	138	30 or (15 + 15)
					172	33 (15 + 18)
					200	35 (15 + 20)
					253	38 (18 + 20)

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Table 15

Beams – critical steel temperature 650°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	260				12
			124			15
			193			18
			260	97		20
				117		22
				157	86	25
				260	123	30 or (15 + 15)
					152	33 (15 + 18)
					177	35 (15 + 20)
					224	38 (18 + 20)

Table 16

Columns – critical steel temperature 650°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	260	98			12
			158	69		15
			260	95	57	18
				117	68	20
				144	80	22
				201	101	25
				260	150	30 or (15 + 15)
					191	33 (15 + 18)
					228	35 (15 + 20)
					260	38 (18 + 20)

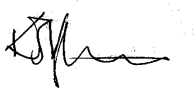

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Table 17

Beams – critical steel temperature 700°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	260				12
			128			15
			212			18
			260	94		20
				114		22
				156	80	25
				260	117	30 or (15 + 15)
					147	33 (15 + 18)
					172	35 (15 + 20)
					222	38 (18 + 20)

Table 18

Columns – critical steel temperature 700°C						
Section factor Hp/A – m^{-1}	Fire resistance period - minutes					Board thickness - mm
	30	60	90	120	150	
	260	260	111			12
			197	70		15
			260	100	57	18
				126	68	20
				160	80	22
				237	103	25
				260	159	30 or (15 + 15)
					211	33 (15 + 18)
					259	35 (15 + 20)
					260	38 (18 + 20)

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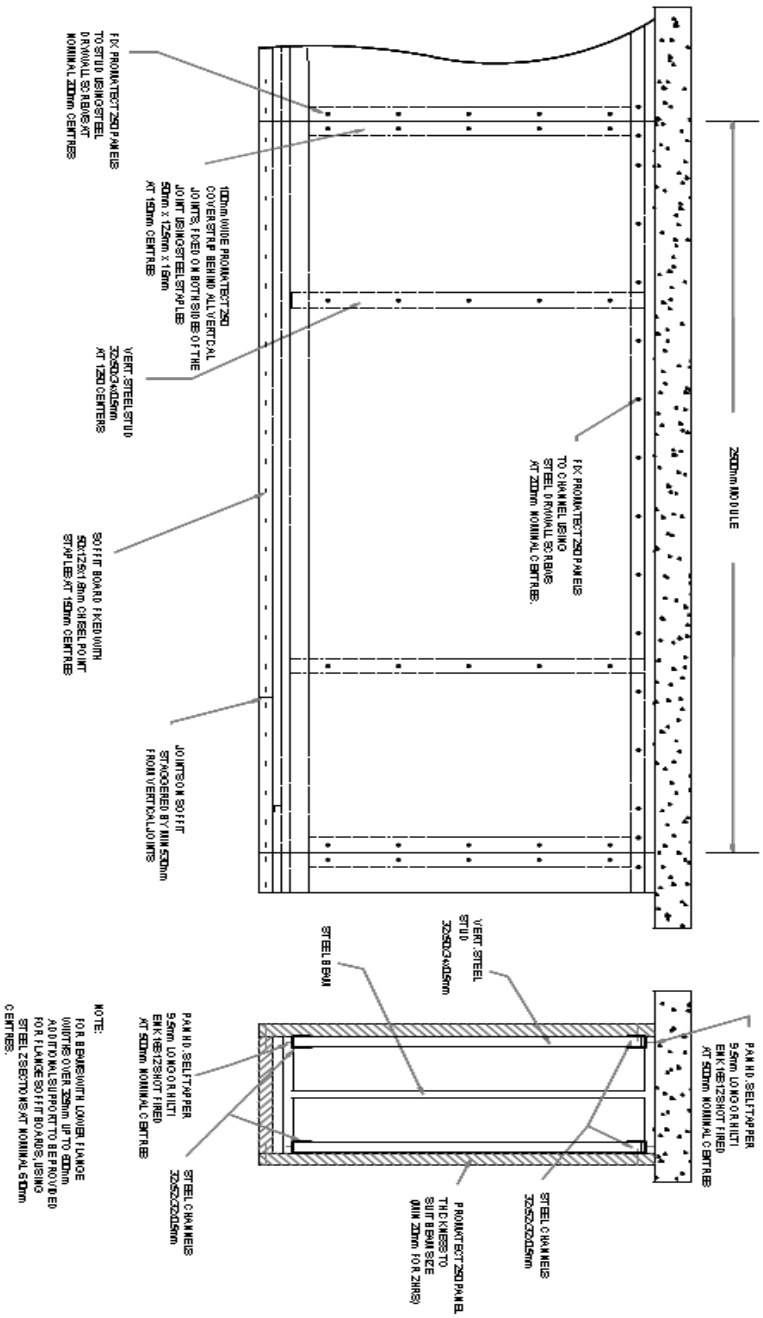
Figure 1 3-sided casing to deep web beams over 686mm deep



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