



Kingspan Insulation Ltd  
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Leominster  
Herefordshire  
HR6 9LA

**STRICTLY CONFIDENTIAL**

**Metsec Sotech and Kingspan Kooltherm K15 BS8414-2 Test Analysis**

**EXECUTIVE SUMMARY VERSION**

Test Date : Friday 14<sup>th</sup>, 17<sup>th</sup>, 20<sup>th</sup> December 2007

Report Date: 07 January 08

Project number: IJM00371

Prepared on behalf of Kingspan Insulation Ltd by

Signature

Name

Ivor Meredith

Position

Technical Project Manager

Date

07/01/08



The Phenolic was burning on its own steam and the BRE had to extinguish the test early because it was endangering setting fire to the laboratory.

Why did it fail.

The new technology Phenolic is very different in a fire situation to the previous technology which has passed several similar tests. The old technology would turn into a light ash and fall away leaving no substance to feed the fire. Please refer to Archive test pictures 47 and 48 which clearly shows this.

The Phenolic burnt very ferociously and gave the top cavity barrier a serious hammering. It did however hold out and there was a slim chance that it may have held out long enough for the crib to start burning down and then this test would have been successful.

What could be done in a future test to increase the chance of success.

The BRE made us move the fire barriers up half a metre because they couldn't be fitted where they were in our 2005 test. The extra half a metre of burning phenolic outside of the main cone of the crib flame may have been enough to cause the top cavity barrier to breach prior to the burn down of the timber crib.

Perhaps a better fire barrier would have improved the situation however this one was fairly robust.

Perforations in the Phenolic foil facers have caused a reduction in the Euroclass when tested in the SBI. Loss of the perforations may help?

In all honesty from what I have seen the way the phenolic burned is of the most concern. Therefore we need to add a fire retardant. Which could also help us get Class O.

Also we could look at opening the edges of the rig (not finishing it properly) to ensure some of the heat escapes. In this test all edges were effectively sealed.

Comments from the BRE:

The official line :-It's a system failure no individual component can be solely held responsible for the failure.

However (unofficial comments) It was apparent that the insulation was fully involved in the test. Surface spread of flame was apparent and the core continued to burn when the flame source had been extinguished. They stated they did not remember the product performing like that last time.

Next Sotech test : the same construction is being tested but this time utilising Rockwool duoslab instead of Kooltherm K15 (and the same frame internal finish and sheathing). Fortunately Kingspan are allowed to witness this test to see where the real differences are in product performance.

**Picture 45 shows the previous BS 8414-1 test performed by Sotech with duoslab. As you can see the product does not really get involved in the test**

**Other Ideas:**

We build an indicative test rig. This test costs 12K a go. It would seem we need to do a lot more work to get the material to pass confidently.

We do an full test with just the K15 fixed to a masonry substrate as the test we did in 2004 (no cladding). This will show the contribution of the product. However if we supply the same product I don't think it will pass.

If this test passes we repeat the test onto a steel frame but without cladding. This data should be digestible by the market to prove the product works onto a steel frame. Although this data would not be acceptable from the BREs point of view (but they wouldn't write that in the report).

I had a meeting with Paul Moses to see if there are any variances in PF production that may aid the fire performance or hamper it. The reason I did this is because originally I thought the product had very bad fire resistant properties due to some lab test we did. The only variance is the time the product is hanging about before it goes into the oven to cure i.e. sometimes its 10 minutes and sometimes its one hour. I suggest we repeat the fire resistance lab test more thoroughly looking at product that has been standing around prior to cure and product that has literally come straight of the line and gone into the ovens.

The BRE will shortly be issuing some stills from the video of the crucial points in the test once these are with us I will recirculate along with the complete report.

On the following pages are the pictures taken at the test and after it.

Following that all the material data sheets have been included and the panel frame layouts.



## 1. Background, MSK = Metsec, Sotech & Kingspan

Following many unsuccessful and heavy discussions with the BRE about increasing our scope of approval of K15 in a Rainscreen construction tested to BS 8414-1 / 2 we were loosely advised that if we tested with an 'approved' rainscreen system we could then go to market and say we were tested with approved components. Therefore if you use approved components the construction will meet the criteria laid out in the various UKs Building Regulation documents in respect of the 18metre rule (refer to section 2)

In 2005 Kingspan tested to the new British Standard formally known as Fire Note 9 BS 8414-1 and based on the advice of BRE we used a non combustible board as cladding as the BRE stated 'if you test with a non combustible cladding then you could state you system works with all non combustible cladding systems.' After successfully passing this test the BRE moved the goal posts and stated that we could only say that our system works with that specific non combustible board. However the test result met the criteria of BS 8414-1 and BR 135 and is a very useful document when securing specifications for facades above 18m where the substrata is masonry. The reason for this shift in the BRE's opinion is that they are still learning about this test and Kingspan were one of the first to test a ventilated rainscreen construction.

However last year the second version of the BS 8414 series was published. This raised the issue that the BS 8414-1 data that we were using did not cover steel frames. Although we continue to use the 2005 test some fire regulators were asking for evidence to support BS 8414-2. Offsite are currently preparing their BS 8414-2 test frames and I am informed they will be burning two in February however to ensure we did not eliminate our metsec market it seemed essential to do a test with them. Also having had several conversations with Mark Stevens in Sherburn it would seem he is very apprehensive about us using any of the Offsite façade test data to benefit any projects which utilise non Kingspan frame systems. Also following discussions I understand that he proposes that they will be going to market with this data saying they have tested the full system i.e. what is tested is exactly what is built which we cannot currently do. As we cannot test every system K15 is used in we currently just promote evidence that it has the ability to pass – this has satisfied the market however BRE are adamant that approval only applies to what is tested and their assessment possibilities are currently very minimal thus this could be pointed out by our direct competition as well. I suspect if Offsite move forward with this message they could inadvertently cast doubt on our claims and devalue the test reports that we have now and those we plan to have in the future. The Rainscreen market is not like our roofing market there is no Sarnafil, Trocal, Alwitra or Firestone thus we need to either test with everything or just so what we are doing which is the practical and economic approach.

The only 'approved' rainscreen system at this time in the Redbook is Sotech's Optima Aluminium cassette system. The system currently holds approval with Rockwool however John Egginton the Director of Sotech is happy to promote phenolic and metsec as the insulant and frame of choice if we could get a pass to BS 8414-1. Thus we embarked on a shared test with the cost split three ways. As Kingspan have no experience of any real rainscreen system that has the ability to pass this seemed a logical route to move down. Apart from using the previous market leading insulation for rainscreens 'duoslab' Sotech have no real apparent ties with Rockwool. As its currently their approved insulant they continue to advise when the building is above 18metres that

the BS 8414-1 specification must be used. Thus pointing the contractor / Architect in the direction of Rockwool.

### 3. The tested system

Following much discussion we agreed on a system that we and the BRE believed had the best chance of passing.

Below details the construction from inside to the exposed face:-

12.5 British Gypsum Fireline  
12.5mm British Gypsum Standard Wallboard

150mm deep at 600mm ctrs Metsec Steel Frame System sitting on concrete floor slabs of 270mm depth (frame design in back of the report)

9mm Promatect HD Sheathing board Calcium Silicate fixed to the face of the metsec. (literature and COSHH data at back)

100mm Kooltherm K15 (works order report and process control data at back of report)

The K15 was fire broken at floor level. This is described below and the literature is in the back of the report.

Eurofox horizontal and vertical railing system and helping hand brackets

20mm cladding zone airgap

Sotech 1.5mm Aluminium Cassette Rainscreen Cladding Panels. Max size 1370x480mm

**Fire Breaks** - The K15 was broken at the intermediate floor levels by a 120x75(height)mm thick AIM mineral wool cavity barrier. Although the Aim barrier practically breached the 20mm ventilated cavity a 40mm x 4mm intumescent strip (with extra puff) is fitted to the face of the barrier with pigtail screws. This then expands into the back of a C channel which is fitted at fabrication time to the back of the cassette cladding panel.

To ensure effective connection between the back of the Aim barrier and the sheathing lots of gun grade intumescent is applied.

The fire break system was chosen as it offered the highest amount of fire resistance. In our previous successful test we used the Promat Rainscreen Barrier. The Promat Rainscreen Barrier (RSB) is basically a grate which contains ventilation slats and an intumescent backing, it has a lot less thickness weight and no insulation compared to the chosen system. Although originally I wanted to go with the Promat I suspect this system may have been better from the test point of view. However I intend to do a further investigation on the RSB comparing it to the AIM product just to see if its possible for it to remain functioning with the heat levels involved.

On the 2005 test we fitted the first zone fire barriers at 0.5m above the fire aperture and the next floor level was positioned at 3metres above that. Unfortunately although this was the original plan the BRE could not fit a floor slab at 0.5 above the aperture so they made us shuffle the fire break system up half a metre.



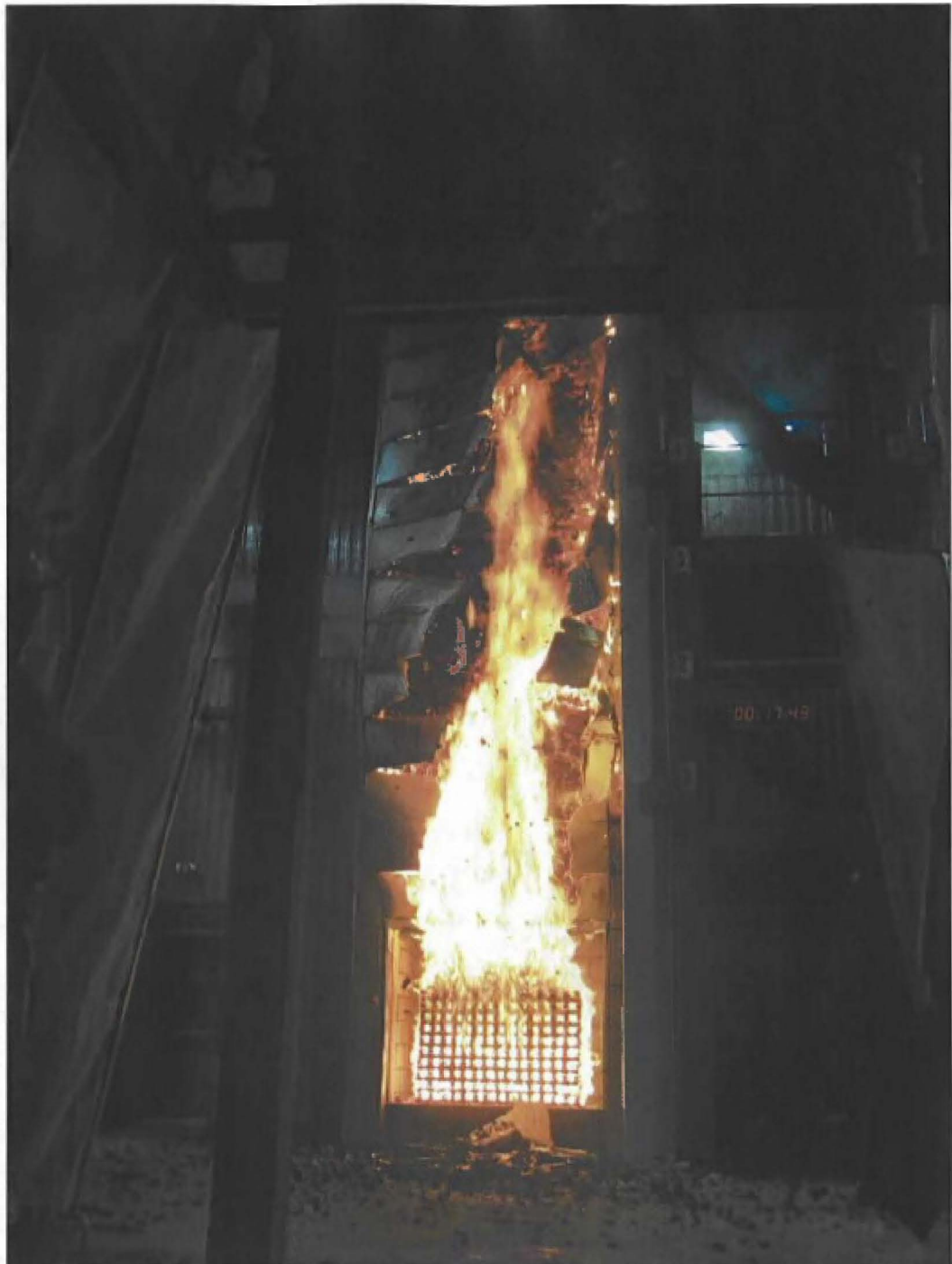






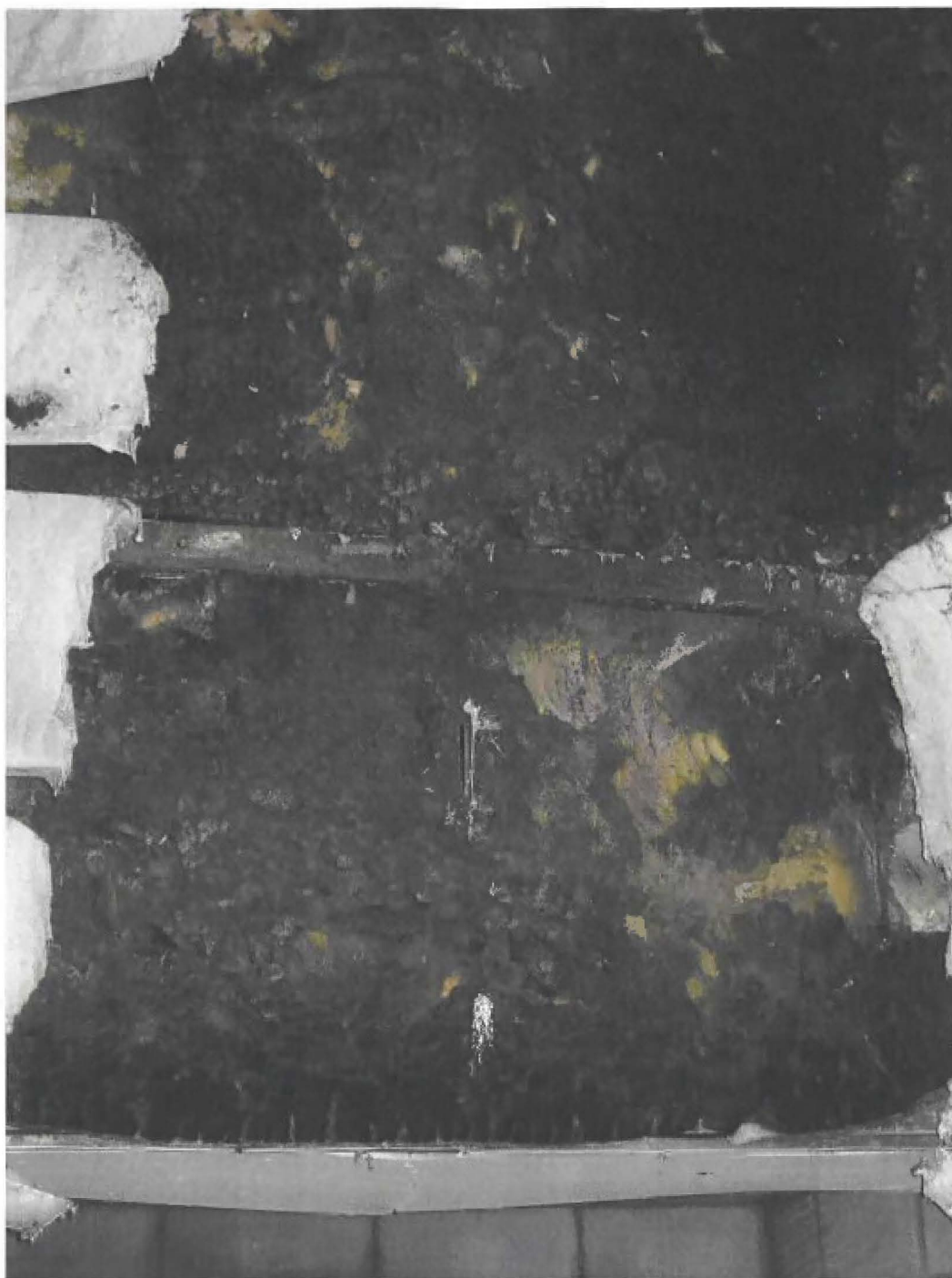


























45. Sotech Optima Rainscreen System BS 8414-1 with Duoslab -





46. Sotech Rainscreen BS 8414-2 test with New Technology K15 MSK December 07



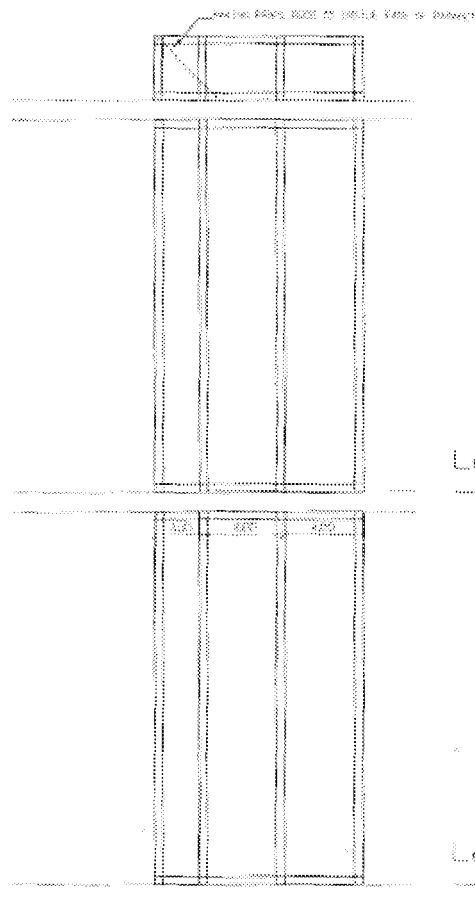
47. KINGSPAN BS 8414-1 Old Technology Phenolic Test 2005 – 25minutes in



48. Old Technology Phenolic with non combustible board cladding – BS 8414-1 2005

=====REPORT ENDS=====

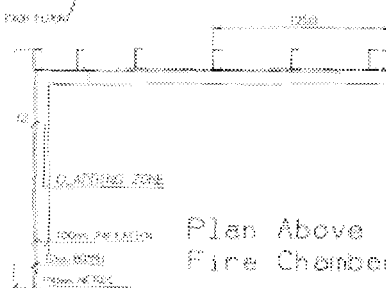
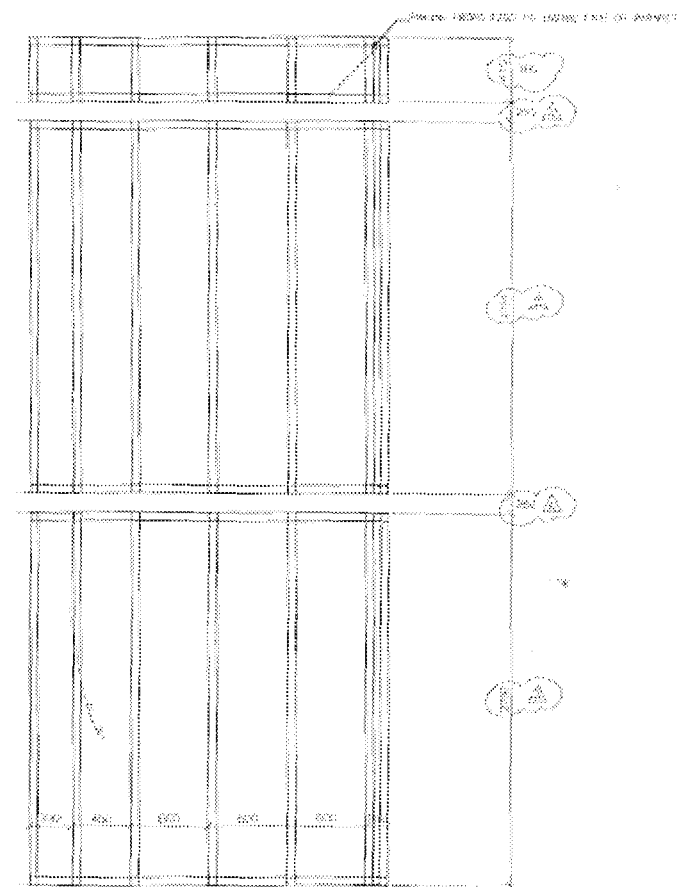




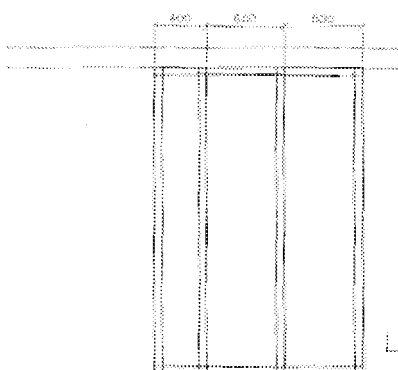
Level 2

Level 1

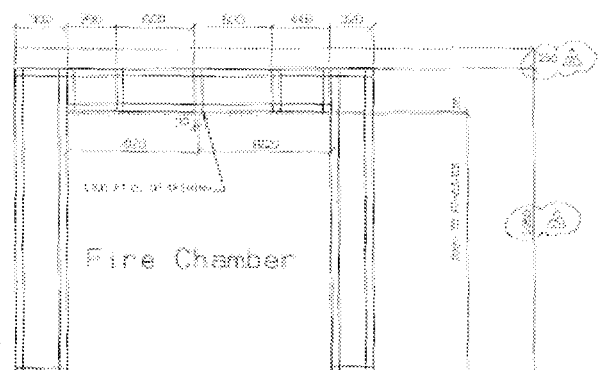
WALL MUST BE 10' FROM EXTERIOR FACE OF WALLS



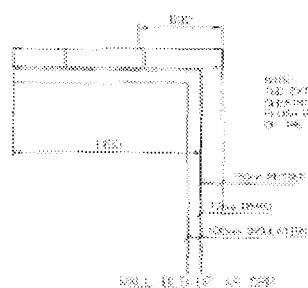
Plan Above  
Fire Chamber



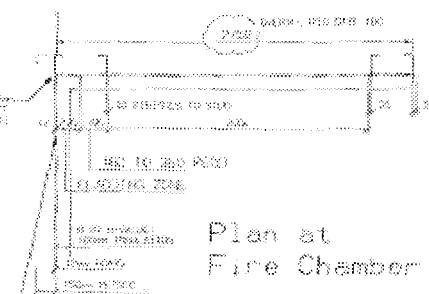
Level 0 (Grd)



Fire Chamber



Plan at  
Fire Chamber



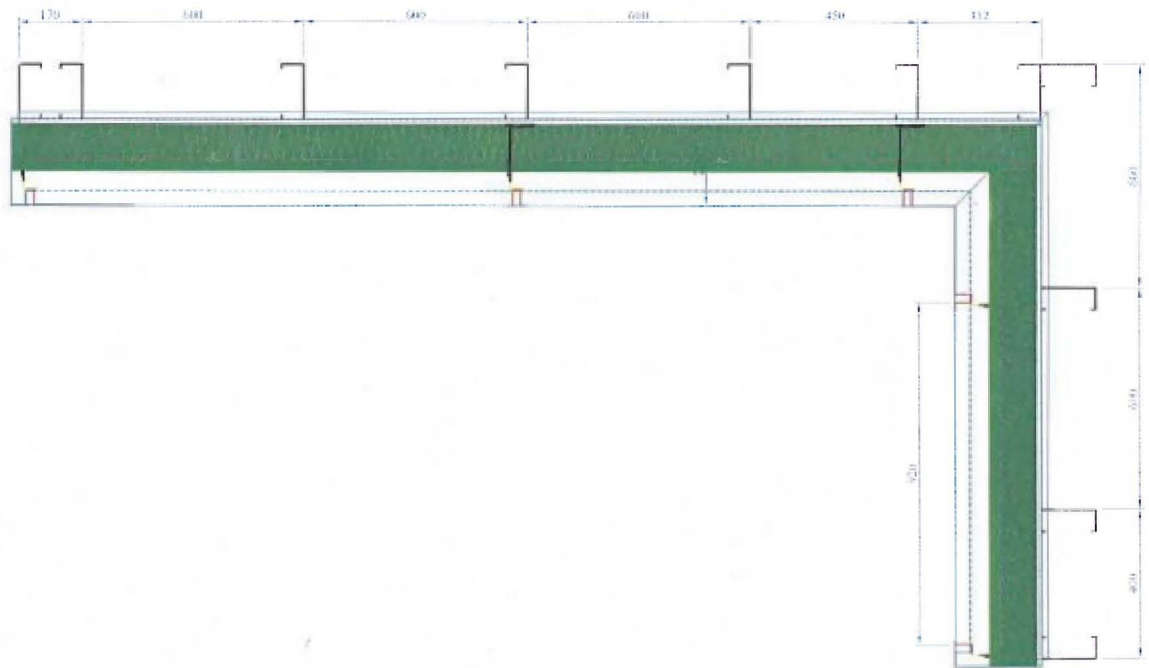
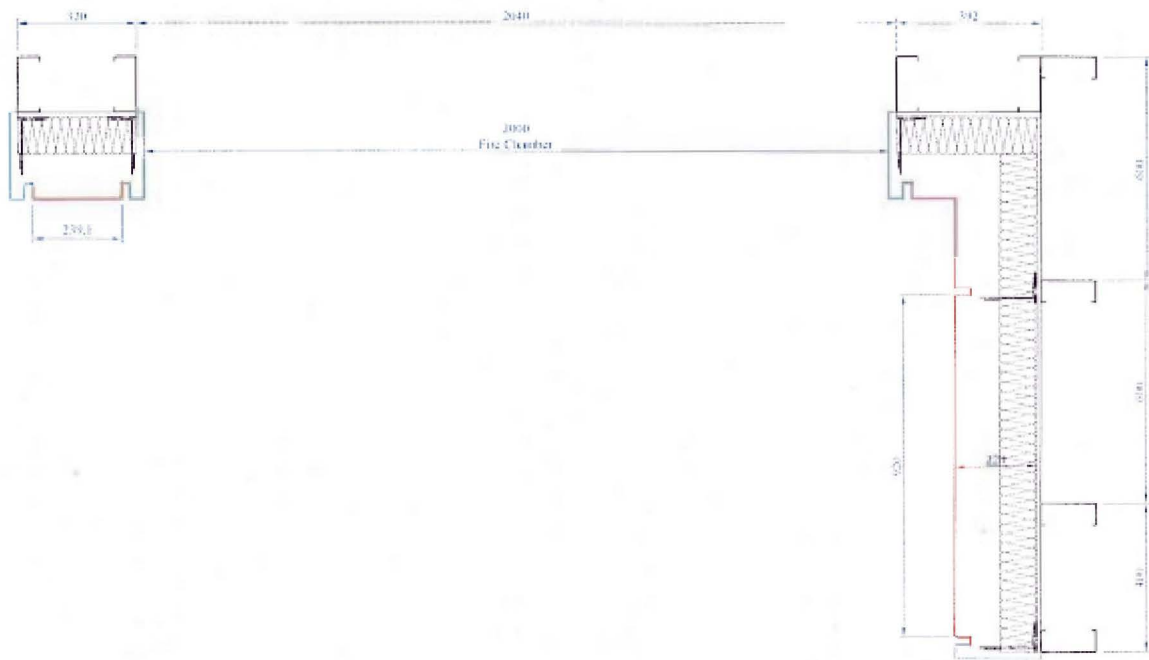
Plan at  
Fire Chamber

REMARKS: 1. ALL DIMENSIONS ARE IN FEET AND INCHES. 2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED. 3. ALL DIMENSIONS ARE TO BE VERIFIED BY THE CONTRACTOR.

THIS DRAWING IS A COPY







## AIM WALL CAVITY BARRIER & FIRE BARRIER SLAB

December 2003

### Introduction

AIM Wall Cavity Barrier is made from foil faced high density rock wool and is suitable for use in all cavity walls, as well as for fire stopping between a curtain wall system and a concrete floor slab.

The barrier prevents the passage of flame and smoke for the period of fire rating, specified below.

Wall Cavity Barrier is offered cut to suit cavity width, or supplied as Fire Barrier Slab for cutting to size on site. The foil facing is imprinted with the AIM logo and arrows which ensures authenticity of the product and assists with the cutting procedure, when slab is used. The Barrier is supplied unfaced when 50mm wide or less.

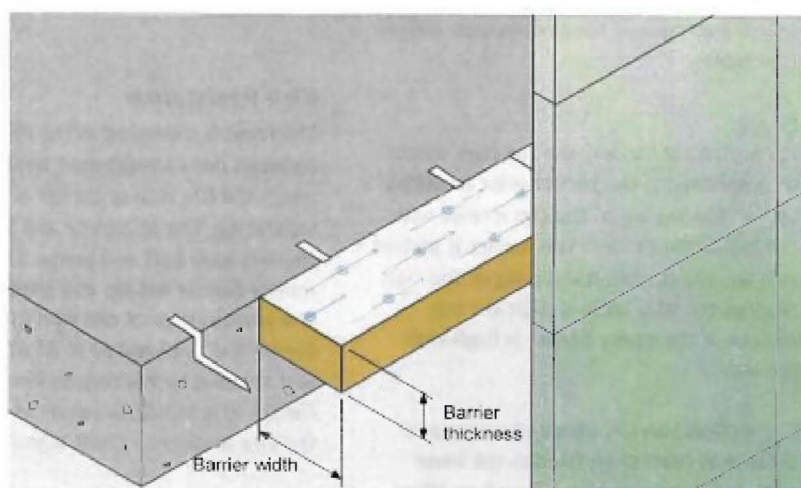
The barrier is permanently held in place by compression and by clips when used in the horizontal, without the need for adhesive or intumescent mastic. Wall Cavity Barrier is available notched and in non standard lengths.

### Curtain Wall Systems

AIM Wall Cavity Barrier is suitable for use in curtain wall cladding systems. However the performance of the fire barrier is dependent upon the integrity and stability of the cladding system in the region of the barrier, for the duration of fire rating required.

In addition to this consideration, should the curtain wall cladding bow or distort significantly in a fire, the gap that the fire barrier is filling may widen and integrity

**Foil Faced Mineral Wool Fire and Smoke Barrier for all cavity walls and curtain walls, horizontal and vertical use**



- **Lengths: 1200mm**
- **Available cut to size or in slabs**
- **Foil Facing (with AIM logo)**
- **Cavity widths: 15 - 600mm**  
(barrier to be compressed by about 5%)

will be lost. If this is a possibility, the cladding system must be attached to the structural floor, close to the fire barrier, with steel brackets to ensure that the distance of separation cannot increase.

There are a great variety of Curtain Wall Cladding Systems available. The system manufacturer must confirm suitability of its use with fire barrier for the fire resistance period required

### AIM FIRE BARRIER SLAB



- Foil facing imprinted with AIM logo  
Cut in the direction of the arrow
  - Slab thickness: 60 minutes -75mm  
90 minutes -90mm  
120 minutes -100mm
  - Slab size: 1200x600mm or 1200x1200mm\*
- \* Full pallets only

## Installation

AIM Wall Cavity Barrier is push fitted into place; it must fit tightly and completely. The barrier must be compressed by about 5% when installed.

### Clips

Clips are required when the barrier is installed horizontally. They may be omitted when the barrier is installed vertically into cavities less than 250mm, provided the barrier is supported at its base.

Two clips per length are required for cavities up to 400mm, three clips per length are required for cavities over 400mm (see table).

### Fitting

For horizontal barrier, the zed clips should be embedded in the barrier prior to fitting so that the top leg of the clip is level with the top of the barrier. The barrier is pushed into the cavity until the top leg of the clips touches the floor slab, so that the top surface of the cavity barrier is flush with the slab.

For vertical barrier, where clips are used these may have to be fixed to the inner wall, before the barrier is installed. When the barrier has to be installed before the outer wall layer, the barrier may require retaining straps to prevent it falling off prior to completion of the wall.

Where AIM Wall Cavity Barrier has butt end joints, these must be tight. Make sure that the ends of adjoining barriers are fitted closely together.

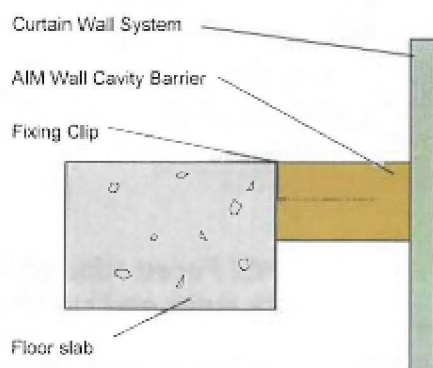
### Caution

If the gap to be filled is between two building components which might separate in a fire, the two components must be connected with steel brackets to ensure that the distance of separation cannot increase. (See notes on Curtain Wall Systems overleaf)

### Masonry Cavity Walls

**Horizontal Barrier.** Bed the fixing clips into the joints in the internal leaf. A damp proof membrane or cavity tray must be installed into the cavity wall immediately above, and to the outside of, the fire barrier. Clips may be omitted in masonry cavity walls, provided the barrier is installed immediately above a row of metal wall ties where these are spaced at no more than 600mm centres.

## FLOOR SLAB TO CURTAIN WALL



Clip Selection Table

Maximum Cavity mm	No. of Clips per Length of Barrier	Clip Gauge mm
400	2	0.9
500	3	1.2
600	3	1.6

### SAFETY NOTE - CLIPS

Clips must not be installed with the sharp points left exposed at any time, due to risk of serious injury.

## Fire Resistance

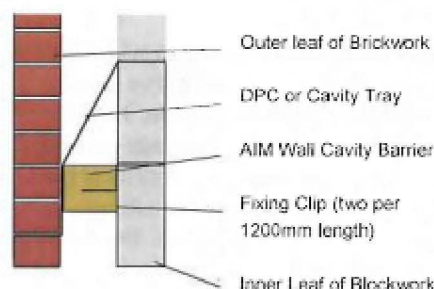
Thickness is measured as the distance between one compartment and the next, which the fire stop or barrier is separating. The 60 minute and 90 minute barriers have butt end joints. The 120 minute barrier has lap end joints. The performance of AIM Wall Cavity Barrier has been tested to BS 476 part 20 and assessed by Warrington Fire Research Centre to achieve the values as stated in the Fire Resistance Chart below.

Fire Resistance Minutes	Thickness of Fire Barrier mm
60	75—up to 300mm cavity 100—up to 600mm cavity
90	90—up to 300mm cavity 100—up to 600mm cavity
120	100mm with lap joints
240	100 EHD* with lap joints

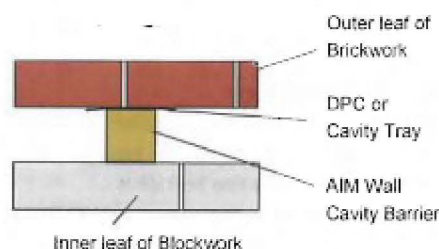
\*EHD = Extra high density barrier

AIM Wall Cavity Barrier is incombustible to BS 476 part 4, rated Class 1 Surface Spread of Flame to BS 476 part 7 and complies with the performance requirements of Class O of the Building Regulations.

## CAVITY WITHIN MASONRY WALL (barrier running horizontally)

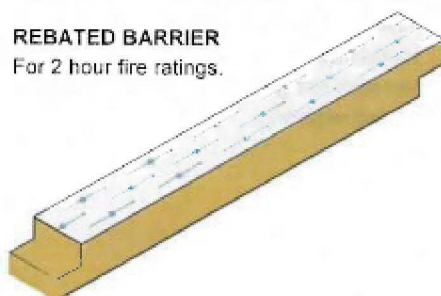


## CAVITY WITHIN MASONRY WALL (barrier running vertically)



## REBATED BARRIER

For 2 hour fire ratings.



## AIM Limited

Comforts Place Farm, Tandridge Lane  
Lingfield, Surrey, RH7 6LW  
Tel: 01342 893 381  
Fax: 01342 892 453  
email: sales@aimlimited.co.uk  
web: aimlimited.co.uk



# SAFETY DATA SHEET

**Promat**

Trade name: PROMATECT®-HD, fire protection board

## 1. Identification of the Product and of the Company / Undertaking:

Identification of the article: PROMATECT-HD  
(Trade Name)  
Company: PROMAT UK LIMITED  
THE STERLING CENTRE, EASTERN ROAD, BRACKNELL, BERKSHIRE, RG12 2TD  
Tel: [REDACTED]  
Fax: [REDACTED]  
e-mail: technicaluk@promat.co.uk

## 2. Composition/Information on Ingredients:

Description: PROMATECT-HD is a rigid board with a smooth surface and is off-white in colour.  
Composition: PROMATECT-HD is an autoclaved calcium silicate board, manufactured from a combination of cement, sand, cellulose and selected fillers.  
Product approved uses: PROMATECT-HD is suited for internal, semi-exposed and external applications such as internal wall and ceiling linings, external claddings, fascia and eaves linings, wet and/or tiled areas.  
NOTE: PROMATECT-HD is non-loadbearing.

## 3. Hazard Identification:

Indication of the hazards: During machining the product:  
Inhalation: Acute over exposure to dust may cause irritation of the respiratory tract.  
Skin Contact: Prolonged or repeated contact may cause mild irritation.  
Skin Absorption: No known hazard.  
Ingestion: Mild discomfort.  
Eyes: Mild transient irritation. No known specific hazard.

## 4. First Aid Measures:

Inhalation: Remove to fresh air.  
Skin Contact: Wash thoroughly with water.  
Ingestion: Give plenty to drink.  
Eyes: Flush copiously for at least 15 minutes. If irritation or discomfort persists – seek medical advice.

## 5. Fire Fighting Measures:

PROMATECT-HD is non-combustible in accordance with BS 476: Part 4: 1970.

## 6. Accidental Release Measures:

Not applicable

## 7. Handling & Storage:

Handling: Instructions for handling and machining  
Off-loading heavy loads of boards and panels should be carried out with care to avoid unnecessary strain on handlers.  
Persons employed in machine cutting or drilling or fixing should wear approved protective goggles conforming to BS EN 166:2002.  
Gloves should be worn for protective handling.  
Approved respirator protective equipment should be made available to persons working in concentrations above or around the WEL limits.  
Dust should be controlled by local exhaust ventilation at source, when using power tools.  
Normal protective working overalls are adequate.

Storage: Board should be kept in a dry place. No other special storage, handling or labelling requirements are necessary.

Additional working precautions: PROMATECT-HD is a fragile material within the meaning of Regulation 7 of The Construction (Health, Safety and Welfare) Regulations 1996. PROMATECT-HD should not be used temporarily or permanently to cover holes in floors, where it may be exposed to foot traffic unless it is supported over its entire surface by a loadbearing material. During the construction of cavity barriers, suspended ceilings etc., fixers must work from independent scaffolds or platforms and notices should be displayed warning personnel against walking and standing on PROMATECT-HD surfaces both during and after construction.

Trade name: PROMATECT®-HD, fire protection board

**8. Exposure Controls/Personal Protection:**

Occupational Exposure Limits (OEL):

Workplace Exposure Limit (WEL) 10mgm<sup>-3</sup> (total inhalable dust)  
 8 hour time weighted average 4mgm<sup>-3</sup> (respirable dust)

Personal protective equipment:

Respiratory protection: use an approved respirator (type P2) whenever the dust level is likely to exceed the occupational exposure limit

Eye protection: use safety glasses whenever machining the product (e.g. drilling, sawing, sanding, etc).

Hand and skin protection: use working clothes and gloves to protect against mechanical injury.

**9. Physical and Chemical Properties**

Appearance:

<u>Delivery form:</u>	<u>Colour</u>
rigid, self supporting board	off-white
Important safety parameters:	-
Boiling point / boiling range:	-
Melting point / melting range:	-
Flash point:	-
Flammability (solid, gas):	-
Autoflammability:	-
Explosive properties:	-
Oxidizing properties:	-
Vapour pressure:	-
Nominal dry density	1300kg/m <sup>3</sup> .
Solubility	
water solubility:	not soluble
fat solubility (solvent-oil):	-
pH value:	ca. 12
Partition coefficient (n-octanol/water):	-
Viscosity:	-

**10. Stability and Reactivity:** PROMATECT-HD is chemically inert and unaffected by the majority of fumes, acids and alkalis. In the case of extreme or aggressive environments, the advice of Promat Technical Department should be sought.

**11. Toxicological Information:** No observations of toxic effects are reported to, known by or expected by the producer.

**12. Ecological Information:** Nothing to report.

**13. Disposal Considerations:**

Procedures for spill/leaks: Collect dust with vacuum or soak with water and sweep up.  
 Waste Management: Waste should be disposed of by an approved contractor.

**14. Transport Information**

Transport by road: no special instructions  
 Transport by inland shipping: no special instructions  
 Transport by sea shipping: no special instructions  
 Transport by air: no special instructions



# SAFETY DATA SHEET

**Promat**

Trade name: PROMATECT®-HD, fire protection board

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## 15. Regulatory information

### Labeling according to EEC-directives:

This product is a manufactured article, not a substance nor a preparation.  
According to the European Union Regulations, no label is required.

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## 16. Other information

The recommendations for machining and installation of PROMATECT®-HD, fire protection building boards, as indicated in the Promat Fire Protection Handbook, have to be followed.

The health and safety information contained herein is believed to be accurate and correct based on our current knowledge at the date of issue and no liability can be accepted for any loss, injury or damage resulting from its use. It is intended as a guide for the safe handling, storage and use under normal conditions, but does not necessarily refer to the particular requirements of a customer when further advice should be obtained.

This data sheet and the information it contains are not intended to supersede any terms or conditions of sale and does not constitute a specification. Nothing contained herein is to be construed as a recommendation for use in violation of any patent or applicable laws or regulations.

**Promat**



Uniclass L661:P21	EPIC F5212
CI/SIB	
Rf	

May 2006

# PROMATECT®-HD

**Compressed dense building board for external use**

## GENERAL DESCRIPTION

PROMATECT®-HD is compressed to form a dense building board which is suitable for external use and can withstand impact and abrasion.

PROMATECT®-HD is manufactured from a homogenous mixture of Portland cement, organic fibres and selected mineral fillers and autoclaved resulting in a product with high dimensional stability and high strength

## APPLICATIONS

- Cladding and infill panel
- Rainscreen cladding
- Sheathing
- Non-combustible external board

## Typical Mechanical Properties

Flexural strength $F_{rupture}$	Average, dry	N/mm <sup>2</sup>	10.5
Modulus of elasticity E	Average, dry	N/mm <sup>2</sup>	8500



## Board Format Data

Thickness (mm)	Length x Width (mm)	Approx. Weight (kg/m <sup>2</sup> )		Boards per pallet
		Dry	With approx. 6% moisture	
4.5	2400 x 1200	6.9	6.3	120
6	2400 x 1200	7.8	8.3	90
9	2400 x 1200	11.7	12.4	61
12	2400 x 1200	15.6	16.5	46

## General Technical Data

Designation	Calcium silicate
Material class	Non-combustible
Surface spread of flame	Class 1
Building Regulations classification	Class 0
Nominal dry density (average) Kg/m <sup>3</sup>	1300
Alkalinity (approximately) pH	11
Thermal conductivity (approximately) at 20°C W/mK	0.35
Coefficient of expansion (20-100°C) m/mK	$6 \times 10^{-4}$
Nominal moisture content, ambient %	6
Moisture movement (ambient to saturated) %	0.06
Thickness tolerance of standard boards mm	± 0.4
Length x Width tolerance of standard boards mm	± 2.0
Surface condition	Front face: Smooth, Sanded Back face: Smooth, Sanded

## Allowable Radius of Curvature

Thickness (mm)	Minimum bending radius, R (m)	
	Lengthways	Widthways
4.5	3.24	3.35
6	4.32	4.46
9	6.48	6.70
12	8.64	8.93

**NOTE:** All physical property values are averages based on standard production. The figures can change dependent on the test methods used. If a particular value is of prime importance for a specification requirement, please contact Promat Technical Services Department.



### HANDLING

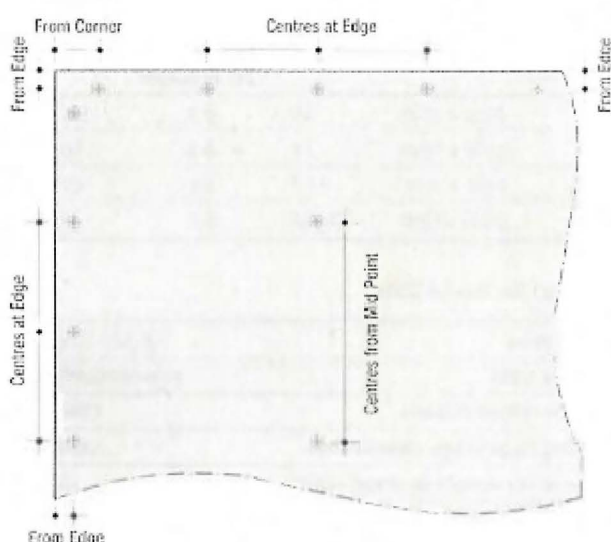
PROMATECT®-HD is supplied on pallets suitable for forklift unloading.

### STORAGE

PROMATECT®-HD should be stored flat, in the dry, clear of the ground and well protected from weather and other trades. The pallet packaging should not be regarded as sufficient protection for storage in the open.

All boards should be stored on pallets. The loose storage of PROMATECT®-HD sheets on their edge is not recommended.

### FIXING



Fixing guide as below, used with above drawing:

	From Edge Minimum	From Corner Minimum	Centres at Edge Maximum	Centres from Mid Point Maximum
<b>SCREWS</b>	12mm	50mm	300mm	300mm
<b>NAILS</b>	12mm	50mm	200mm	200mm

**Support Centres** - PROMATECT®-HD is normally supported at 600mm centres. If additional impact or wind load resistance is required, consideration should be given to reducing fixing centres to 400mm or 300mm.

### WORKABILITY

PROMATECT®-HD can be cut and installed using standard wood working tools and equipment. Sheets can be hand cut using a sheet saw with hardened steel teeth. Sheets greater than 6mm thick may be cut more easily using a power saw with tungsten carbide tipped blades or a jigsaw.

Drilling can be carried out either by hand operation or power drills with high speed drill bits.

The edges of the boards can be planed, bevelled etc, using rasps or surfers.

Nails can be driven directly through PROMATECT®-HD without pre-drilling provided they are at least 12mm from the edge of the board, and the back face of the board is fully supported. In areas of high humidity, galvanised nails should be used. Panel pins, oval or lost head nails should not be used. Nails should be located 50mm from corners.

### HEALTH AND SAFETY

A safety data sheet is available from the Promat Technical Services Department and, as with any other materials, should be read before working with the board. The board is not classified as a dangerous substance and so no special provisions are required regarding the carriage and disposal of the product to landfill. They can be placed in an on-site skip with other general building waste which should be disposed of by a registered contractor.

### TECHNICAL INFORMATION

For additional details of product properties and application please contact Promat Technical Services Department on Telephone: 01344 381400 Fax: 01344 381401.

# Promat



Promat UK Limited

The Sterling Centre, Eastern Road, Bracknell, Berkshire RG12 2TD  
Telephone: [REDACTED] Fax: [REDACTED] www.promat.co.uk

an **Etex** GROUP company



## PHENOLIC LINE WORKS ORDER REPORT NEW TECHNOLOGY

FORMULATION	AVERAGE Kg/min
Acid (V236)	
IPC (V245)	
IP (V246)	
Resin R330U (V242)	
Total Output	

Date	8-11-07
Works order no.	151417
Product code	K15
Thickness	100
Width	1200
Length	2400
No. of Operators	10

From Dispense Timer	
Linear Meters	598
Dispense Time	73
Line Speed	
Dispense Time m <sup>2</sup>	717.44

From Packaging Sheet and saws	
Total good boards	<del>243</del> 216
Total good m <sup>2</sup>	<del>699.84</del> 622.08
Reject m <sup>2</sup>	
Scrap m <sup>2</sup>	

Start Time	04.12	Finish Time	05.25	Total	73	Lost	0	Dispense	73
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Top Facing			
Part No.	QA Ref	Linear Meters Used	
W439	LKT 18	588	
	LKT +		

Bottom Facing			
Part No.	QA Ref	Linear Meters Used	
W439	LLQ 6	588	

Comments
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13-29

## Phenolic Line Process Control Sheet New Technology

Date:	8-11-07	Product	K15	Thickness	100
Board Dimensions	1200 x 2400		Works order No.:	151417	

Formulation	PBW	Kg/Min		Line Speed	
Acid (V236)		M i x		Top Facing	W439
IPC (V245)					
IP (V246)				Bottom Facing	W439
Resin R330U (V242)					
Total					

Tunnel Temp °C		Conveyor °C		Pouring Plates °C			
Section 1	Section 2	Upper	Lower	1	2	3	4

Roller Settings	Laydown	Conveyor
Shim Settings (mm)	Left	Right

Time	Adjustments	Reason



**PRE-CURE PACKING SHEET FINISHED LENGTH (BLUE)**

DATE <b>8-11-07</b>	W/ORDER No <b>151417</b>	QTY PER PACK	PACKS PER STACK	LAST INCOMPLETE STACK
PRODUCT <b>K15</b>			<b>21</b>	Packs =
THICKNESS <b>100mm</b>				Boards =
DIMENSIONS <b>1200 x 2400</b>				<b>12</b>

**2 OVENS**

ONLY TICK OFF COMPLETE STACKS							
STACK	BIN	STACK	BIN	STACK	BIN	STACK	BIN
<del>1</del>	2	34		67		100	
<del>2</del>		35		68		101	
<del>3</del>		36		69		102	
<del>4</del>		37		70		103	
<del>5</del>		38		71		104	
<del>6</del>		39		72		105	
<del>7</del>		40		73		106	
<del>8</del>		41		74		107	
<del>9</del>		42		75		108	
<del>10</del>		43		76		109	
<del>11</del>		44		77		110	
<del>12</del>		45		78		111	
<del>13</del>		46		79		112	
<del>14</del>		47		80		113	
<del>15</del>		48		81		114	
<del>16</del>		49		82		115	
<del>17</del>		50		83		116	
<del>18</del>		51		84		117	
<del>19</del>		52		85		118	
<del>20</del>		53		86		119	
<del>21</del>		54		87		120	
<del>22</del>		55		88		121	
<del>23</del>		56		89		122	
<del>24</del>		57		90		123	
<del>25</del>		58		91		124	
<del>26</del>		59		92		125	
<del>27</del>		60		93		126	
<del>28</del>		61		94		127	
<del>29</del>		62		95		128	
<del>30</del>		63		96		129	
<del>31</del>		64		97		130	
<del>32</del>		65		98		131	
<del>33</del>		66		99		132	

Record here the number of rejects that were actually wrapped and put out for second quality : ENTER SERIAL NUMBER		
Qty	Size	Sq. Mtrs
<b>6</b>	<b>1200 x 2400</b>	<b>17.28</b>
SERIAL NUMBER - LINE NUMBER AND DATE		

Record here the number of boards that were reclaimed from the run and cut for cavity :		
Qty	Size	Sq. Mtrs

TOTAL "GOOD" BOARDS FROM W/ORDER

**243**

TOTAL "GOOD" SQ. METRES FROM W/ORDER

**699.84**

Note : Do not include any cavity reclaimed from the production run here.

ROW NUMBER/S

**OVEN 2**

COUNT CHECKED

Must be signed Team Leader (or in absence Number 1).

MUST BE SIGNED BY LOGISTICS OPERATIVE

MPR/1 [ ]



**LOGISTIC PACKING SHEET**

DATE <u>8-11-07</u>	W/ORDER No <u>151417</u>	QTY PER PACK  <u>3</u>	PACKS PER STACK  <u>8</u> <hr/> <u>24</u>	LAST INCOMPLETE STACK
PRODUCT <u>KOIS</u>				Packs = <u>      </u>
THICKNESS <u>100</u>				Boards = <u>      </u>
DIMENSIONS <u>1200 x 2400</u>				

ONLY TICK OFF COMPLETE STACKS							
STACK	BIN	LOC	STACK	BIN	LOC	STACK	BIN
<del>1</del>			34			67	
<del>2</del>			35			68	
<del>3</del>			36			69	
<del>4</del>			37			70	
<del>5</del>			38			71	
<del>6</del>			39			72	
<del>7</del>			40			73	
<del>8</del>			41			74	
<del>9</del>			42			75	
10			43			76	
11			44			77	
12			45			78	
13			46			79	
14			47			80	
15			48			81	
16			49			82	
17			50			83	
18			51			84	
19			52			85	
20			53			86	
21			54			87	
22			55			88	
23			56			89	
24			57			90	
25			58			91	
26			59			92	
27			60			93	
28			61			94	
29			62			95	
30			63			96	
31			64			97	
32			65			98	
33			66			99	

Record here the number of rejects that were actually wrapped and put out for second quality :		
<b>ENTER SERIAL NUMBER</b>		
Qty	Size	Sq. Mtrs
SERIAL NUMBER = LINE NUMBER AND DATE		
<u>24</u>	<u>1200 x 2400</u>	<u>69.12</u>
<b>RECEIVED</b> <u>09 NOV 2007</u>		

Record here the number of boards that were reclaimed from the run and cut for cavity :		
Qty	Size	Sq. Mtrs

TOTAL "GOOD" BOARDS FROM W/ORDER

216

TOTAL "GOOD" SQ. METRES FROM W/ORDER

622.08

Note : Do not include any cavity reclaimed from the production run here.

Must be signed Team Leader (or in absence Number 1)

MUST BE SIGNED BY LOGISTICS OPERATIVE

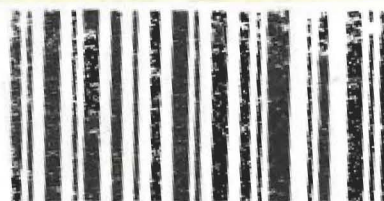
ROW NUMBER/S  
BLO1

COUNT CHECKED  
RB

RB

MPR/1 [                      ]

K015



151417

100

Thickness (mm)  
Dikte (mm)

Width (mm)  
Breedte (mm)

1200

Length (mm)  
Lengte (mm)

2400

No. of Boards  
Aantal Platen

3

Production Date  
Datum Productie

08-11-07 23:06

For correct storage and handling advice, see manufacturer's brochure and consult Kingspan Insulation.  
Voor nadere informatie over de juiste opslag en behandeling raadpleegt u de brochures van de fabrikant Kingspan Insulation B.V.



Keep boards dry  
Platen droog houden



Do not damage board face  
Beschadig de platen niet



Carry on edges  
Dragen Bij uitenden



UK:  
IRL:  
NL:  
B:

]

MPR/1 [

KIN000008847\_00