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IRISH AGRÉMENT BOARD

BUILDING PRODUCT CERTIFICATION

CERTIFICATE No. 03/0197

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Xtratherm Thin - R Thermal Liner, Insulated Dry Lining Board (XT^{B}/TL and XT/TL grades)

Isolation de murs Wärmedämmung

The Irish Agrément Board is designated by Government to issue European Technical Approvals.

Irish Agrément Board Certificates establish proof that the certified products are **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 to 2002.**

The Irish Agrément Board operates in association with the **National Standards Authority of Ireland (NSAI)** as the National Member of UEAtc.

PRODUCT DESCRIPTION

This Certificate relates to the Xtratherm XT^{B}/TL and XT/TL Thermal Liner, a composite panel consisting of a Polyisocyanurate (Polyiso) foam core with composite kraft paper face or trilaminate foil back, bonded to plasterboard for internal applications. Polyisocyanurate (Polyiso) is a thermoset closed cell rigid foam insulation manufactured in accordance with I.S. EN 13165: 2001 Thermal Insulation Products for Buildings – Factory made Rigid Polyurethane Foam (PUR) Products - Specification (having regard to the description of Polyisocyanurate (PIR) in paragraph one of the Scope of standard). During a continuous manufacturing process, liquid raw materials expanded by blowing agents are applied between facings. This Certificate certifies compliance with the requirements of the Building Regulations 1997 to 2002.

USE

The product is used for the thermal insulation of existing or new, solid or cavity masonry walls or ceilings of dwellings or buildings of similar occupancy type and conditions. It also facilitates the control of surface and interstitial condensation in walls and ceilings.

MANUFACTURE AND MARKETING

The product is manufactured by **Xtratherm Limited and marketed by Hytherm (Sales) Limited both of Kells Road, Navan, Co.Meath.**

PART 1 CERTIFICATION

1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), Xtratherm XT^{B}/TL and XT/TL Thermal Liner if used in accordance with this certificate can meet the requirements of the Building Regulations 1997 to 2002 as indicated in Section 1.2 of this Agrément Certificate.

1.2 BUILDING REGULATIONS 1997 to 2002

REQUIREMENT:

Part D - Materials and Workmanship

D1 - Xtratherm XT^{B}/TL and XT/TL Thermal Liner, as certified in this Irish Agrément Certificate, meets the requirements of the building regulations for workmanship.

D3 - Xtratherm XT^{B}/TL and XT/TL Thermal Liner as certified in this Irish Agrément certificate is comprised of proper materials fit for their intended use. (See Part 4 of this Certificate).

Part B – Fire Safety

B2 - Internal fire spread (linings)
The plasterboard side of Xtratherm XT^{B}/TL and XT/TL Thermal Liner is considered to be Class 0. It may therefore be used on the internal surfaces of buildings of every purpose group.

B3 - Internal fire spread (structure)
Xtratherm XT^{B}/TL and XT/TL Thermal Liner when installed in contact with the wall or ceiling will not require the installation of cavity barriers and may be used in buildings of any purpose group.

Xtratherm XT^{B}/TL and XT/TL Thermal Liner when installed with a residual cavity between the board and the wall or ceiling, will require the provision of cavity barriers (See Part 4.1 of this Certificate) and may be used in buildings of every purpose group.

Part C - Site Preparation and Resistance to Moisture

C4 - Resistance to weather and ground moisture.
Xtratherm XT^{B}/TL and XT/TL Thermal Liner when installed in compliance with the conditions indicated in Part 3 of this Certificate will not promote the passage of moisture and will minimise the risk of surface or interstitial condensation.

Part J - Heat Producing Appliances

J3 - Protection of Building
In the opinion of the Irish Agrément Board, (IAB), Xtratherm XT^{B}/TL and XT/TL Thermal Liner, if used in accordance with this Certificate (See Part 4.1(ii)) meets the requirements of the Building Regulations 1997 to 2002.

Part L - Conservation of Fuel and Energy

L1 - Conservation of Fuel and Energy
Based on the measured thermal conductivity of Xtratherm XT^{B}/TL at λ = 0.019 $Wm^{-1}k^{-1}$ and Xtratherm XT/TL at λ = 0.023 $Wm^{-1}k^{-1}$, walls and ceilings incorporating Xtratherm XT^{B}/TL and XT/TL Thermal Liner can meet current 'U-value' requirements (see Part 4.4 of this Certificate).

PART 2 TECHNICAL SPECIFICATION AND CONTROL DATA

2.1 PRODUCT DESCRIPTION

Xtratherm XT^{B}/TL and XT/TL Thermal Liner is a composite panel consisting of a rigid Polyisocyanurate (Polyiso) board core factory bonded to plasterboard during manufacture with a kraft paper facing. The plasterboard is 9.5, 12.5 or 15 mm thick manufactured to BS 1230 Part 1 *Gypsum Plasterboard. Specification for Plasterboard excluding materials submitted to secondary operations*. Polyisocyanurate (Polyiso) is a closed cell rigid foam insulation manufactured in accordance with I.S. EN 13165: 2001 (having regard to the description of Polyisocyanurate (PIR) in paragraph one of the Scope of standard). The XT^{B}/TL board does not contain CFC's. The XT/TL board does not contain either CFC or HCFC gases and has zero Ozone Depletion Potential.

Table 1 shows the Xtratherm XT^{B}/TL and XT/TL Thermal Liner product range.

The boards are available in the following grades and sizes:	
Length:	2438, 2740 mm
Width:	1200 mm
Thickness:	25, 38, 45, 50, 55, 65 and 70 mm *
Grade:	PIR
Other sizes are available subject to quantity.	
* Refers to insulation thickness only	

2.2 MANUFACTURE

Xtratherm XT^{B}/TL and XT/TL Thermal Liner are manufactured from a formulation of chemicals, which is poured onto the kraft paper facer and plasterboard; subsequently autohesively adhered to the facers during the foaming process, then laminated to plasterboard. The plasterboard face provides a durable surface to accept traditional finishing techniques.

2.3 DELIVERY, STORAGE AND MARKING

Xtratherm XT^{B}/TL and XT/TL Thermal Liner are polyethylene shrink-wrapped for delivery to site on pallets. Each board has the manufacturer's name on its surface. Each pack carries a label bearing the CE Marking together with the product description, product characteristics (λ and R values), manufacturer's name, IAB identification mark and IAB Certificate number for the system.

Installation instructions and details outlining the steps necessary to ensure proper installation are included in each pack.

The pallets should be mechanically off-loaded and boards can be removed individually. It is essential for successful fixing, that boards must be stored flat on a level, dry surface. Packs should be stored inside..If the product is left outside at any stage, it should be raised off the ground on skids, and remain level. The product must be protected from prolonged exposure to sunlight and should be stored under cover or protected with tarpaulins.

The boards must not be exposed to a naked flame or other ignition sources.

2.4 INSTALLATION PROCEDURE

2.4.1 Xtratherm XT^{B}/TL and XT/TL Thermal Liner is for installation on the internal surface of walls and ceilings of new or existing buildings. The fixing method depends on the substrate.

Installation should be in accordance with good drylining practice and the manufacturers instructions. All installations require careful planning and setting out.

Before fixing the product, sufficient time must be allowed to disperse the solvents contained in wood preservatives and damp proofing treatments where applied.

2.4.2 Systems and Fixings

Thermal bridging
Walls should be insulated to full height and returned at door/window reveals to prevent cold bridging. The thickness of Xtratherm XT^{B}/TL and XT/TL Thermal

Liner at reveals may, if necessary, be reduced to a minimum thickness of 25 mm. Services should be fixed in place before drylining commences. The void between the wall and the Thermal Liner can accommodate certain services, however the Polyiso insulation should not be chased. The area around any services that penetrate the Thermal Liner must be sealed to prevent air leakage and thermal looping.

Thermal looping/fire stops
Fire stops must be provided using proprietary methods or by applying a continuous 50 mm ribbon of dry wall adhesive to the top and bottom edge of each sheet. A treated timber batten will also suffice.

Installation procedure 1 – Adhesive dabs
Align Xtratherm Thermal Liner on the wall allowing a 20 mm expansion joint at the top and bottom of the panel and mark the position of the panel on the wall. Apply adhesive dabs to the wall ensuring a continuous 50 mm ribbon top and bottom to provide firestops. Dabs should be applied in accordance with BS 8212: 1995 *Code of Practice for Dry Lining and partitioning using Gypsum Plasterboard* and BS 8000 Part 8: 1994 *Workmanship on Building Sites. Code of Practice for Plasterboard Partitions and Dry Linings*. Lift the Xtratherm Thermal Liner into position using wedges on the floor to position the boards. Apply pressure to the board to level and embed the adhesive. Building regulations may require the provision of vertical cavity barriers in long runs of lining. Such barriers can be formed using a continuous vertical line running down the centre of the board.

Additional mechanical fixings should be provided to each board applying a minimum of 3 metal fixings, after the adhesive has set, in accordance with BS8212: 1995 and manufacturers instructions.

Installation procedure 2 – Adhesive dabs and battens
Align Xtratherm Thermal Liner squarely on the wall allowing a 20 mm expansion joint at the top and bottom of the panel and mark the position of the panel on the wall. Fix a pre-treated timber batten horizontally at ceiling level and another 20 mm above the finished floor level, Cut strips from the top and bottom insulation backing on the Thermal Liner to accommodate the battens. The insulation should be cut back to accommodate an adjoining panel at external corners. Apply adhesive dabs to the back of the panel. Continuous ribbons must also be placed around all service penetrations and openings. Lift the Thermal Liner into position using wedges on the floor to position the boards. Apply pressure to the board to level and embed the adhesive. Fix the Liner to the top and bottom battens. Screws should be fixed to the timber batten at 150mm centres, at least 12mm in from the board edge. The fixings should penetrate at least 25mm into the batten.

A minimum of 3 number metal nailable plugs should be used per sheet.

Installation procedure 3 – Battens only
Align Xtratherm Thermal Liner squarely on the wall allowing a 20 mm expansion joint at the top and bottom of the panel and mark the position of the panel on the wall. Fix a pre-treated timber batten horizontally at ceiling level and another 20 mm above the finished floor level. Fix vertical battens at max 600 mm centres, and additional battens to support all board edges. Ensure the battens are wide enough to offer 20mm support to all four edges of the plasterboard and pack if necessary to level the Liner. Trim all openings with battens. The insulation should be cut back to accommodate an adjoining panel at external corners. Lift the Xtratherm Thermal Liner into position using wedges on the floor to position the panels. Fix the Liner to the battens. Screws should be fixed to the timber batten at 150mm centres, at least 12mm in from the board edge. The fixings should penetrate at least 25mm into the batten.

On-site trimming of boards where necessary to maintain continuity of insulation around doors, windows or other opes is easily executed using a fine tooth saw or builder's knife.

Tapered edged boards are jointed and finished in accordance with standard dry lining procedure offering a surface suitable for paper hanging and paint finishes.

Good workmanship and appropriate site procedures are necessary to achieve expected thermal and air tightness performance.

Installation procedure 4 – Ceilings
Xtratherm Thermal Liner may be used to line either horizontal or sloped ceilings. All four edges of the boards should be suppored by rafters, joists or battens by at least 20mm. This may necessitate the addition of timber noggins where necessary. Large headed clout nails, sheridised nails or drylining screws should be used to fix the boards. Fix the Liner to all the rafters at 150mm centres. Fixings should be located at least 12mm in from the board edge, and penetrate at least 25mm into the timber.

PART 3 DESIGN DATA

3 GENERAL

3.1 Xtratherm XT^{B}/TL and XT/TL Thermal Liner when installed in accordance with this Certificate, is effective in reducing the 'U' value (thermal transmittance) of new or existing walls and ceilings.

Xtratherm XT^{B}/TL and XT/TL Thermal Liner may be used to insulate clay or calcium silicate bricks, concrete blocks, hollow concrete block, or natural and reconstituted stone blocks. It is essential that such walls are designed and constructed to prevent moisture penetration having regard to the Driving Rain Index.

3.2 Buildings subject to the relevant requirements of the Building Regulations 1997 to 2002 should be constructed in accordance with IS 325: Part 1: 1986 *Use of Masonry, Part 1: Structural Use of Unreinforced Masonry,* and BS 5628: Part 3: 2001 *Code of Practice for use of Masonry: Materials and Components, Design and Workmanship.* Particular attention should be paid to the exclusion of moisture in that the designer should select a construction appropriate to the local wind driven rain index, paying due regard to the design detailing, workmanship and materials to be used. Where reinforced masonry is involved, the design should be in accordance with BS 5628: Part 2: 2000, *Code of Practice for use of Masonry, Structural Use of Reinforced and Prestressed Masonry.* The relevant recommendations of Section 3 of BS 5390: 1976 *Code of Practice for Stone Masonry,* should be followed where the wall incorporates stone or cast stone.

3.3 With dry lining installations forming a void of 20 mm or more, services can be incorporated behind the dry lining, making the chasing of the wall unnecessary. When using adhesive systems, or where the services have a greater depth than the void, the wall should be chased rather than the insulation.

3.4 All mould or fungal growth should be treated prior to the application of the product.

3.5 When bonding is by adhesives, it is essential that a satisfactory bond is achieved between the walling material and the adhesives. Backgrounds of high suction will behave differently to those of low suction. The Certificate holder's advice should be sought in case of difficulty.

3.6 It is very important that manufacturers instructions regarding the use of recessed lighting with this product should be followed.

PART 4 TECHNICAL INVESTIGATIONS

4.1 BEHAVIOUR IN FIRE

The plasterboard used in the Xtratherm XT^{B}/TL and XT/TL Thermal Liner is deemed to be Class 'O' in accordance with the Building Regulations, 1997 and so the insulated board qualifies as the highest product performance classification as defined in Technical Guidance Document B - Fire Safety (paragraph A10 of Annex A). The insulation component of the board should be isolated from possible sources of combustion. To achieve this Xtratherm XT^{B}/TL and XT/TL Thermal Liner should be installed in accordance with the following: -

(i) Combustible material shall be separated by solid non-combustible material not less than 200 mm thick from a flue pipe to an oil, solid fuel or gas heating appliance as indicated in Section 2 of Technical Guidance Document J – Heat Producing Appliances.

(ii) The Xtratherm XT^{B}/TL and XT/TL Thermal Liner should be separated by a minimum distance of 150 mm from an oil, solid fuel or gas heating appliance as indicated in Diagram 8 of Technical Guidance Document J - Heat Producing Appliances, of Building Regulations 1997.

(iii) Xtratherm XT^{B}/TL and XT/TL Thermal Liner when installed with a residual cavity between the board and the wall, will require the provision of cavity barriers and may be used in buildings of any purpose group provided: -

(a) cavity barriers in walls are provided at maximum distances apart of 10 m unless a Class 1 material is exposed to the cavity when a spacing of 20 m may be adopted.

(b) every such cavity shall be closed by a cavity barrier around the whole perimeter of the wall or ceiling element and around the perimeter of any opening through such elements; and

(c) cavity barriers in spaces between a floor and ceiling are provided at maximum distances of 20 m for any class of surface exposed to the cavity.

(d) where any wall or ceiling containing a cavity meets another such element, the cavities shall be closed so that they do not communicate with one another.

(e) direction on the provision and spacing of cavity barriers is given in Tables 3.2 and 3.3 of Technical Guidance Document B – Fire Safety to the Building Regulations 1997.

4.2 WATER PENETRATION

4.2.1 Xtratherm XT^{B}/TL and XT/TL Thermal Liner, the closed cell structure does not allow water uptake by capillary action.

4.2.2 Xtratherm XT^{B}/TL and XT/TL Thermal Liner, when used in accordance with this Certificate, presents no significant risk of water penetration.

4.3 THERMAL INSULATION

The aged/design insulation thermal conductivity 'λ' value' of the insulation component of Xtratherm XT^{B}/TL and XT/TL Thermal Liner when measured in accordance with I.S. EN 12667: 2000 *Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meters method – Products of high and medium thermal resistance,* is as per the following Table 2. The 'λ' values and (R) resistance values stated are in accordance with the 90/90 principals as stated in the harmonised European Standard EN 13165: 2001. The U values are calculated in compliance with IS EN ISO 6946 *Building components and building elements. Thermal resistance and thermal transmittance. Calculation method (Combined method).*

Table 2 (λ values)

	XT^{B}/TL	XT/TL
Gas tight kraft	0.019	0.023
Foil (MF)	0.019	0.023

The high thermal resistance of Xtratherm XT^{B}/TL and XT/TL Thermal Liner ensures that cold bridging and extra heat loss around the edges of openings can be avoided. The actual values of Rmin and Rmod required is a function of the lintel/window design and can be calculated according to the methods given in BRE Information Paper 12/94 - Assessing condensation risk and heat loss at thermal bridges around openings. In addition BRE Information Paper 17/01 provided information on 'Assessing the effects of thermal bridging at junctions and around openings. However, a minimum thickness of 25 mm of XT^{B}/TL (or XT/TL) will be suitable.

Lintel jamb and cill designs similar to those shown in Diagram 3 of the TGD to Part L, Building Regulations 1997 will be satisfactory to limit thermal bridging.

The required maximum U-values for external walls can be obtained with Xtratherm XT^{B}/TL and XT/TL Thermal Liner constructions as indicated in Table 5.

4.4 MATERIALS IN CONTACT WITH ELECTRICAL WIRING

Where electrical cables have no option but of running within the insulation component of the Thermal Liner, then the cables must be enclosed in a suitable conduit, e.g. rigid PVC as outlined in the National rules of the Electro Technical Council of Ireland (E.T. 101).

4.5 CONDENSATION RISK

Xtratherm XT^{B}/TL and XT/TL Thermal Liner has a high vapour resistance and is therefore unlikely to be affected by surface or interstitial condensation, provided all joints between boards are filled and taped in accordance with Standards Dry Lining practice. Interstitial condensation analysis for average winter environmental conditions for both hollow blockwork and cavity wall constructions indicate no condensation risk. When insulating buildings the recommendations of I.S. EN 13788 – *Hydrothermal Performance of Building Components and Building Elements – Internal Surface Temperature to avoid Critical Surface Humidity and Interstitial Condensation – Calculation Methods,* should be followed to minimise the risk of condensation within the building elements and structures.

4.6 INFESTATION

Xtratherm XT^{B}/TL and XT/TL Thermal Liner panels do not promote infestation, as there is no food value in the materials used.

4.7 WALL MOUNTED FITTINGS

The recommendations of the manufacturer should be followed. Any object fixed to the wall, other than lightweight items, e.g. framed pictures, should be fixed through the lining board into the wall behind, using proprietary fixings.

4.8 MAINTENANCE

Damaged boards can be easily replaced prior to the installation of counter battens. No maintenance of the insulation will be required provided that the plasterboard inner layer remains intact.

4.9 DURABILITY

Xtratherm XT^{B}/TL and XT/TL Thermal Liner boards are rot-proof and durable. As cavity wall insulation, Xtratherm Partial Fill Cavity Wall Board is judged to be stable and will remain effective as an insulation system for the life of the building, so long as it is installed in accordance with this certificate.

4.10 TESTS AND ASSESSMENTS WERE CARRIED OUT TO DETERMINE THE FOLLOWING:

- density
- water vapour resistance
- water uptake
- dimensional accuracy
- compressive and cross breaking strength
- dimensional stability
- thermal conductivity
- efficiency of the construction process

The physical properties of Xtratherm Thermal Liner Board are shown in Tables 3 and 4.

4.11 OTHER INVESTIGATIONS

(i) Existing data on product properties in relation to fire, toxicity, environmental impact and the effect on mechanical strength/stability and durability were assessed. The Xtratherm XT^{B}/TL does not contain CFC's; XT/TL boards do not contain CFC or HCFC gasses and has Zero Ozone Depletion Potential.

Table 3. Physical properties of Xtratherm Thermal Liner Board (PIR) XT^{B}/TL and XT/TL

Property	Declared Value		Test Method
Long Term Water absorption by immersion	WL(T)3		EN 12087
Dimensional Stability	DS(TH)9		EN 1604
Density	32 kg/m^3		EN 1602
Compressive Stress	> 140 kPa		EN 826
	XT^{B} / TL	**XT / TL**	
Thermal conductivity value	0.019 W/mK	0.023 W/mK	EN 12667
Thermal resistance			
– 25 mm	1.32 m^2 K/W	1.09 m^2 K/W	
– 38 mm	2.00 m^2 K/W	1.65 m^2 K/W	
– 50 mm	2.63 m^2 K/W	2.17 m^2 K/W	
– 55 mm	2.89 m^2 K/W	2.39 m^2 K/W	
– 65 mm	3.42 m^2 K/W	2.83 m^2 K/W	
– 70 mm	3.68 m^2 K/W	3.04 m^2 K/W	

Thermal resistance shown are for insulation only.
Thermal resistances of plasterboard should be added; 15mm – 0.08K/W, 12.5mm – 0.07K/W or 9.5mm – 0.05K/W

Table 4. Physical properties of Xtratherm Thermal Liner Board (PIR) XTB/TL (MF) and XT/TL (MF)*

Property	Declared Value		Test Method
Long Term Water absorption by immersion	WL(T)2		EN 12087
Dimensional Stability	DS(TH)9		EN 1604
Density	32 kg/m^3		EN 1602
Compressive Stress	> 150 kPa		EN 826
	XT^{B} / TL (MF	**XT / TL (MF)**	
Thermal conductivity value	0.019 W/mK	0.023 W/mK	EN 12667
Thermal resistance			
– 25 mm	1.32 m^2 K/W	1.09 m^2 K/W	
– 35 mm	1.84 m2 K/W	1.52 m2 K/W	
– 40 mm	2.11 m2 K/W	1.74 m2 K/W	
– 50 mm	2.63 m2 K/W	2.17 m2 K/W	
– 55 mm	2.89 m2 K/W	2.39 m2 K/W	
– 60 mm	3.16 m2 K/W	2.61 m2 K/W	
– 65 mm	3.42 m2 K/W	2.83 m2 K/W	
– 70 mm	3.68 m2 K/W	3.04 m2 K/W	

* mechanically fixed
Thermal resistance shown are for insulation only
Thermal resistances of plasterboard should be added; 15mm – 0.08K/W, 12.5mm – 0.07K/W or 9.5mm – 0.05K/W

(ii) The manufacturing process was examined including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

(iii) Site visits were conducted to assess the practicability of installation and the history of performance in use of the product.

(iv) Driving rain resistance was assessed.

(v) A condensation risk analysis was performed.

The management systems of Xtratherm Limited have been assessed and registered as meeting the requirements of ISO 9001:2000 by SGS Limited (Certificate number GB03/59360)

Table 5. Thicknesses of Xtratherm Thermal Liner Board required to achieve specified U values

Xtratherm Thermal Liner on Dabs

W/mK (λ)	**XT^B/TL On Dabs 0.019**			**XT/TL On Dabs 0.023**		
m^2K/W (U)	0.45	0.37	0.27	0.45	0.37	0.27
On Hollow Block	30mm	40mm	60mm	35mm	50mm	70mm
On Block Cavity Wall	30mm	35mm	55mm	35mm	45mm	65mm

Default values have been used in calculation

Xtratherm Thermal Liner on Battens

W/mK (λ)	**XT^B/TL(MF) On Battens 0.019**			**XT/TL(MF On Battens 0.023**		
m^2K/W (U)	0.45	0.37	0.27	0.45	0.37	0.27
On Hollow Block	25mm	35mm	55mm	35mm	45mm	65mm
On Block Cavity Wall	25mm	35mm	50mm	30mm	40mm	60mm

Default values have been used in calculation

PART 5 CONDITIONS

5.1 CONDITIONS OF CERTIFICATION

The National Standards Authority of Ireland ("NSAI") following consultation with the Irish Agrément Board ("IAB") has assessed the performance and method of installation of the system and the quality of the materials used in its manufacture and certifies the system to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this certificate and in accordance with the manufacturer's instructions and usual trade practice. This certificate shall remain valid so long as:

(a) the specification of the product is unchanged;

(b) the Building Regulations, 1997 to 2002 and any other regulation or standard applicable to the product/process/system, its use or installation remain unchanged;

(c) the product continues to be assessed for the quality of its manufacture and marking by NSAI;

(d) no new information becomes available, which in the opinion of the NSAI would preclude the granting of the certificate;

(e) the system continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.

5.2 The IAB mark and certification number may only be used on or in relation to the system in respect of which a valid certificate exists. If the certificate becomes invalid, the certificate holder must not use the IAB mark and certification number and must remove them from products already marked.

5.3 In granting this certificate, the NSAI makes no representation as to:

(a) the presence or absence of patent rights subsisting in the product/process/system; or

(b) the legal right of the certificate holder to market, install or maintain the product/process/system; or

(c) whether individual products have been manufactured or installed by the certificate holder in accordance with the descriptions and specifications set out in this certificate.

5.4 This certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which may be appropriate.

5.5 Any recommendations contained in this certificate relating to the safe use of the certified product or process are preconditions to the validity of the certificate. However, the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act, 1989 or of any other current or future statute or current or future common law duty of care owed by the manufacturer or by the certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage, including personal injury, arising as a direct or indirect result of the use of this product or process.

5.7 Where reference is made in this certificate to any Act of the Oireachtas, regulation made thereunder, statutory instrument, code of practice, national standards, manufacturer's instructions or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this certification.

THE IRISH AGRÉMENT BOARD

This Certificate No. 03/0197 is accordingly granted by NSAI to Xtratherm Limited on behalf of The Irish Agrément Board.

Date of Issue: December 2003

Signed: Simon Kelly

Chief Executive, NSAI

Readers may check that the status of this Certificate has not changed by contacting the Irish Agrément Board, NSAI, Glasnevin, Dublin 9. Ireland.

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