

FAKRO Roof Window Systems

Fenêtre pour toit en pente Dach Fenster

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 2006**.

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 FAKRO Roof Window Systems:

- Pivot Windows: FTP, FTL
- Top Hung & Pivot Windows: FPP, FKP, FKL
- Access Windows: FWP
- Emergency Escape Windows: FEP

These window systems are constructed from continuous timber or laminated wood core, covered in polyester powder-coated aluminium on the outside and glazed with a sealed, double-glazed low emissivity argon-filled unit with toughened glass.

This Certificate certifies compliance with the requirements of the Building Regulations 1997 to 2006.

USE:

The FAKRO FTP and FTL pivot windows are the basic type of roof window. These windows open only in a centre pivot method and can be rotated through 180° and this function is used when cleaning the outer pane or operating the awning blind.

The FAKRO FPP, FKP and FKL top hung and pivot windows ensure unobstructed access to the window and a wide view to the outside through the open window. The outward opening function from 0° to 35° enables an easy approach to the window and a wide view. The centre pivot function is used for cleaning and also operating the awning blind. FAKRO FPP, FKP and FKL in the appropriate sizes also provide means of escape in accordance with the Building Regulations 1997 to 2006.

The FAKRO FWP access windows enable safe and easy access to the roof and also act as escape windows. The sash can be opened to 90°.

The FAKRO FEP emergency escape window opens to a wide angle and allows for access to the roof or for use as an emergency escape window. This window can be opened with either an outward opening function which opens to 40° and enables easy approach to the window, or an additional outward opening function to 68°.

MANUFACTURE AND MARKETING:

The products are manufactured on behalf of:
PP FAKRO Sp z.o.o,
Wegierska 144a,
33-300 Nowy Sacz,
Poland.

The products are marketed by:



Unit 2,
Tougher Business Park,
Newbridge Road,
Naas,
Co. Kildare,
Ireland.
Tel: 045 409050
Fax: 045 409051
Email: sales@tradecraft.ie
Website: www.tradecraft.ie

1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), FAKRO Roof Window Systems, if used in accordance with this Certificate can meet the requirements of the Building Regulations 1997 - 2006 as indicated in Section 1.2 of this Certificate.

1.2 BUILDING REGULATIONS 1997 to 2006 REQUIREMENT:

Part D – Materials and Workmanship

D3 – FAKRO Roof Window Systems as certified in this Irish Agrément Certificate are comprised of proper materials fit for their intended use (see Part 4 of this Certificate).

D1 – FAKRO Roof Window Systems as certified in this Certificate, can meet the requirements of the building regulations for workmanship.

Part A – Structure

A1 – Loading

FAKRO Roof Window Systems, as certified in this Certificate, have adequate strength and stability (see Part 4 of this Certificate).

Part B – Fire Safety

B1 – Means of Escape in Case of Fire

Windows in ground or higher floors may be used as a means of escape in the case of fire. Where a window is required to provide an alternative means of escape, a FAKRO Roof Window System can meet the requirements when it provides an unobstructed opening of not less than 450 mm high by 450 mm wide, and is positioned as required by BS 5588-1:1990 *Fire precautions in the design, construction and use of buildings –Code of practice for residential buildings*, and in accordance with Part B1 of the Building Regulations 1997 to 2006.

Any restrictor fitted must be easy to operate.

B2 – Internal Fire Spread (Linings)

The glazing used in FAKRO Roof Window Systems can be regarded as non-combustible material and therefore can be taken as having a Class O classification.

B4 – External Fire Spread

When used in roof windows, unwired glass at least 4mm thick can be regarded as having an AA designation, in accordance with Part B4 of the Building Regulations 1997 to 2006.

Part C – Site Preparation and Resistance to Moisture

C4 – Resistance to Weather and Ground Moisture

FAKRO Roof Window Systems as certified in this Certificate will not adversely affect the resistance of the roof to the passage of moisture.

Part F – Ventilation

F1 – Means of Ventilation

Opening FAKRO Roof Window Systems can meet or contribute to meeting the requirements of this Regulation. The background ventilation requirements can be met by the adjustable trickle vents incorporated in the roof windows. For example, a FAKRO V35 air inlet 320mm long with 20 holes of dimensions 16 x 22mm will provide background ventilation in the order of 7040mm² which exceeds the requirements.

Part L – Conservation of Fuel and Energy

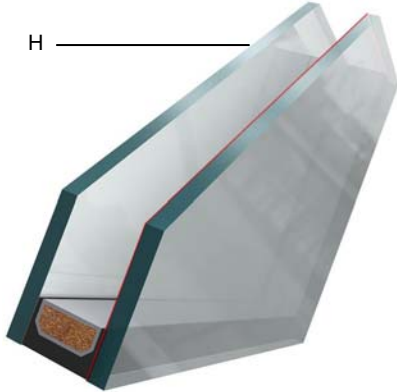
L1 - Conservation of Fuel and Energy

For the purpose of heat loss calculations for buildings, the U-value for FAKRO Roof Window Systems when fabricated and installed in accordance with this Certificate, shall be taken as indicated in Section 4 of this Certificate. By reason of the low thermal conductance of the frame material, the window systems can readily satisfy the maximum U-value and glazing requirements for heat loss.

Table 1: Technical Specifications of FAKRO Pivot Windows

FTP-V

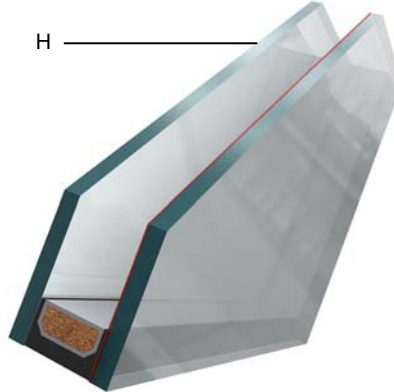
Window specifications
Window U-value = $1.4W/m^2K$
Acoustic insulation $R_w = 32dB$



Glazing U-value = $1.0W/m^2K$
Glazing 4H – 16 – 4T
H – toughened glass
Air inlet V35
with airflow at $21-38m^3/h$

FTP-W

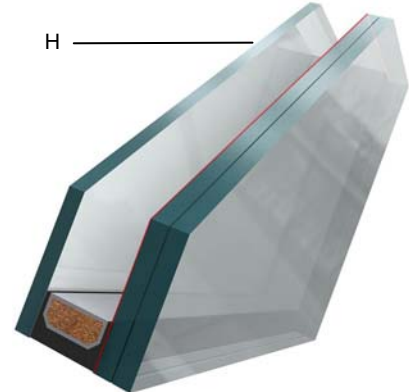
Window specifications
Window U-value = $1.4W/m^2K$
Acoustic insulation $R_w = 32dB$



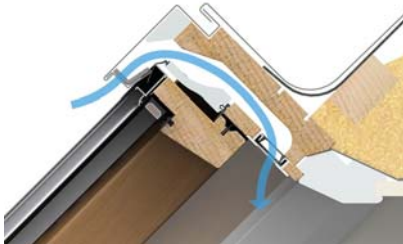
Glazing U-value = $1.0W/m^2K$
Glazing 4H – 16 – 4T
H – toughened glass
Air inlet V35
with airflow at $21-38m^3/h$

FTL-V

Window specifications
Window U-value = $1.4W/m^2K$
Acoustic insulation $R_w = 35dB$



Glazing U-value = $1.0W/m^2K$
Glazing 4H – 16 – 33.1T
H – toughened glass
Air inlet V35
with airflow at $21-38m^3/h$



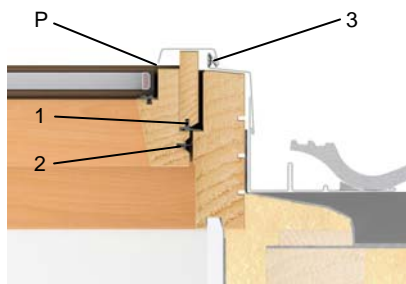
Highest quality pine, vacuum impregnated, double coated with clear water based acrylic lacquer



Highest quality pine, vacuum impregnated, four coats of white polyurethane

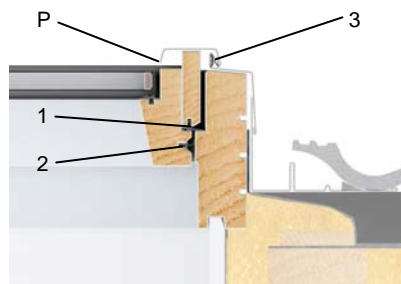


Highest quality pine, vacuum impregnated, double coated with clear water based acrylic lacquer



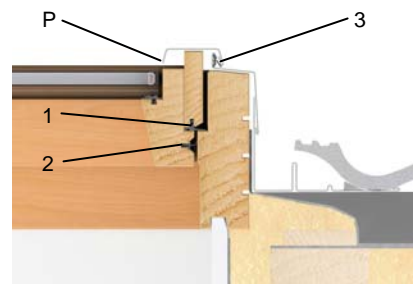
1 – Clinging seal
2 – Border seal
3 – Side seal

P – Coated profile, tightening the glazing



1 – Clinging seal
2 – Border seal
3 – Side seal

P – Coated profile, tightening the glazing



1 – Clinging seal
2 – Border seal
3 – Side seal

P – Coated profile, tightening the glazing

2.1 PRODUCT DESCRIPTION

FAKRO Roof Window Systems are fabricated from preserved softwood frames featuring polyester powder-coated aluminium on the external faces and clear water-based acrylic lacquer on the internal faces of the frames and sashes.

Window Type	Window Code	Modular Size (mm)	Glazing Area (m ²)
FTP	01	550 x 780	0.21
	02	550 x 980	0.29
	03	660 x 980	0.38
	04	660 x 1180	0.47
	05	780 x 980	0.47
	06	780 x 1180	0.59
	07	780 x 1400	0.72
	08	940 x 1180	0.75
	09	940 x 1400	0.92
	10	1140 x 1180	0.94
	11	1140 x 1400	1.16
	12	1340 x 980	0.91
FPP	06	780 x 1180	0.59
	07	780 x 1400	0.72
	08	940 x 1180	0.75
	09	940 x 1400	0.92
	10	1140 x 1180	0.94
FKP, FKL	05	780 x 980	0.47
	06	780 x 1180	0.59
	07	780 x 1400	0.72
	08	940 x 1180	0.75
	09	940 x 1400	0.92
	10	1140 x 1180	0.94
FWP	03	660 x 980	0.38
	04	660 x 1180	0.47
FEP	07	780 x 1400	0.72
	09	940 x 1400	0.92
	11	1140 x 1400	1.16

Table 2: Product Range

Framing members comprise softwood sections formed by cutting the required profiles from either continuous timber or laminated material. The softwood is preservative treated.

The aluminium profiles covering the outer and the sash frames and the flashings sealing the joint between the frame and the roof slope are extruded from 0.6mm thick aluminium sheet, which meets the requirements of IS EN 485-1:1994 *Aluminium and aluminium alloys – Sheet, strip and plate – Technical conditions for inspection and delivery*, and is secured to the wood core with stainless steel screws.

The polyester powder coating has a minimum thickness of 25µm.

All windows are factory-glazed using sealed double-glazed units. The units comprise a 4mm thick outer pane made of toughened glass, a 16mm argon-filled cavity and a 4mm thick inner pane made of glass featuring a low emissivity coating.

Glazing units are sealed into the wooden sash using EPDM gaskets on the inside and flexible putty on the outside. The glazing unit is held with steel brackets.

Opening lights are operated by either one or two handles constructed from polyester powder-coated aluminium alloy with a polyester varnish. The hinges are constructed from zinc-coated galvanised steel. A key operated lock can be installed at the bottom of the sash pivot.

EPDM weatherstripping is located in the grooves around the periphery of the opening light frame below the hinge axis and around the outer frame above the hinge axis. The weatherstripping above the hinge axis is fixed using special cover strips screwed to the frame, and the weatherstripping below the hinge axis is fixed to the jambs of the opening light using cover strips screwed to the jambs. The weatherstripping is pressed into the special groove in the bottom member of the opening light and secured using stainless steel staples.

2.1.1 FTP Roof Windows

These centre pivot windows are easy to operate and the two-part hinge allows the sash to be open in a range of positions. The sash can be rotated through 180° to allow easy cleaning and maintenance. The handle is positioned on the lower part of the sash for easy operation, and secured open in two positions. FTP roof windows are suitable for roofs with pitches between 15° and 90°.



Figure 1: FTP Roof Window

2.1.2 FPP Roof Windows

These top hung and pivot windows can be opened in two distinct ways: outwards from the top, and via a centre pivot. The outward opening function enables the sash to be opened in any position from 0° to 35°, whilst the pivot function allows the sash to be rotated through 180°. The window is operated by handle positioned on the lower part of the sash – opening method can be switched using the sliding switch on the frame (accessible when the window is open). FPP roof windows are suitable for roofs with pitches between 15° and 55°.



Figure 2: FPP Roof Window

2.1.3 FPP & FKP Roof Windows

These top hung centre pivot windows have two methods of opening. The sash can be opened at angles 10°, 20° and 35°, and the sash can also be rotated 180° around its axis for easy cleaning of the outer surface. Due to the unique hinge construction, the pivot function can be activated even when the window is opened. The handle positioned at the lower part of the sash enables the window to be opened slightly, whilst the top handle serves to revolve the sash and to change the method of opening. FPP roof windows are suitable for roofs with pitches between 15° and 55°.

2.1.4 FWP Roof Windows

These side hung access and escape windows include all the regular roof window characteristics but are side hung to allow easy access on to the roof in the event of an emergency. Being a side hung window it can be opened to the right or to the left. The large unobstructed dimensions of the sash enable easy access to the roof and comply with the Building Regulations 1997 to 2006. The handle is situated on the side of the sash. It allows the window to be left ajar in three different positions: in one position the window is closed, whilst the other two allow the window to be open and ventilate the room. FWP roof windows are suitable for roofs with pitches between 15° and 55°.



Figure 3: FWP Roof Window

2.1.5 FEP Roof Windows

These top hung emergency escape windows allow the user to open the emergency exit upward, due to the large dimensions and ability to lift the sash to an angle of 40° or 68°. The window has a centre pivot function which is activated by the upper catch. The handles are placed on the bottom part of the window and enables the user to raise the sash to 40°. The

window is fitted with two locking catches which after release raises the sash from an angle of 40° or 68°. FEP roof windows are suitable for roofs with pitches between 15° and 55°.



Figure 4: FEP Roof Window

2.2 MANUFACTURE

The cores of the window framing members are profiled from softwood and treated with preservative. Members of the outer frames and sashes are glued at the corners and additionally joined with quadruple and triple tenons respectively. External profiles are covered with aluminium sections which are secured with stainless steel screws.

2.2.1 Quality Control

Quality control checks are carried out on the incoming raw materials, during production and on the finished product. These checks include timber quality, quality and strength of glue laminated wood, preservative treatment, dimensions, operation, and colour.

2.3 DELIVERY, STORAGE AND MARKING

FAKRO Roof Windows are delivered to site glazed, suitably protected to avoid damage during transportation. The windows should be stored under cover in a clean area, on edge, and suitable supported to avoid distortion or damage prior to installation.

Each window has a label bearing the marketing company's mark, the IAB logo and the IAB Certificate number.

2.4 INSTALLATION

- FTP Roof Windows may be installed on roofs with a pitch of between 15° and 90°. The recommended distance between the bottom edge of the roof window and the floor should be between 1100mm and 1700mm. The level of installation depends on the roof pitch and the size of the window. For example, for a roof pitch of 50°, the distance from the bottom

edge of the roof window and the floor should be 1300mm.

- FPP, FKP, FKL, FWP and FEP Roof Windows may be installed on roofs with a pitch of between 15° and 55°. The recommended distance between the bottom edge of the roof window and the floor should be 1100mm.
- The roof window must be installed above a complete row of tiles or slates – tiles/slates under the window must not be cut. In the case of metal roof sheets or similar, the roof window must be installed above a horizontal lap. In the case of roofing materials with a high or large profile, it is recommended that the upper edge should be cut (tile or slates), or flattened (metal roof sheets or similar) under the edge of roof window to prevent front flashing apron against tearing.
- The left and right hand abutment gaps should be set at between 30-60mm on either side from the tile edge to the window frame. A back gutter of between 60-150mm at the head of the frame to the bottom edge of the tile or slate.
- The roof window sits directly on the rafters and is secured by four brackets. The distance between the two rafters should be approximately 20-50mm wider than the width of the roof window. If the roof has a different rafter spacing, a vertical trimmer may be necessary. If a vertical trimmer is needed, positioning of a head trimmer and a sill trimmer should allow proper lining construction. The trimming should be made in a way that will give the structural stability required to meet the Building Regulations 1997 to 2006.
- Mark the roof window opening depicting window dimensions and then cut the felt leaving 100mm upstand to the head, sill and both side abutments. Cut the battens out where the window is to be fitted. In order to install a drainage gutter above the roof window which will divert water around the back of the window, cut out a section of counter batten and cut the felt diagonally.
- Unpack the window, take out the metal claddings and installation kit.
- Take out the sash from the window frame by opening the bottom handle and rotating the sash approximately 150°. Press the push button in the hinge pins. Remove the sash, making sure that the pins slide out from both of the hinges simultaneously.
- Unscrew the bottom sill flashing cover from the frame. Remove the wooden protection slats from the frame.

- Screw the four metal brackets to the frame, two to each side abutment, approximately 100mm from the corners. Metal brackets should be screwed to the frame so that the number on the metal angle corresponds to the thickness of the batten and the groove on the frame appropriate to the desired installation depth.
- Place the frame in the prepared opening in the roof ensuring the brackets are resting on the rafters or counter battens, and check that the groove to the side of the frame relating to the depth of installation is level with the top surface of the battens. Use a spirit level to check that the bottom of the frame is horizontal. Secure only the bottom two brackets to the rafters.
- Re-connect the sash to the frame holding it with the sill section in an upward direction, with the outside surface of the sash facing towards installer. Slide the protruding sash pins simultaneously into the frame hinges.
- Close the roof window. The push button is automatically released when the sash is closed.
- Open the roof window slightly and check if the gap between the bottom edge of the frame sill and the bottom edge of the sash is even along its whole length. If it is not, put a plastic wedge (from assembly kit) under the upper left or right hand side metal angle, on the side where the gap is narrower.
- Close the roof window and check if the vertical gaps between the sash and the frame are equal along their whole length. If they are not, slightly move the upper part of the frame left or right with a chisel, hammer or crowbar. Fix the upper metal brackets to the rafters once the frame has been levered into the correct position.
- If vapour-permeable felt is used it is recommended to install a back drainage gutter above the window. Cut the felt across the full width of the frame, approximately 200mm up from the back of the frame corner on one side, with the diagonal line meeting a point approximately 250mm up from the other corner at the back of the frame. Ensure the felt laps the back gutter piece by at least 100mm. This will drain away any water from condensation or leaks. Fix the felt to the sides of the frame using felt tacks or staples.
- Fit the top metal cladding supplied with the window. Make sure that the window is in proper working condition. Ventilation air inlet should be left in a fully opened position.
- Flashing fitting instructions are provided in the flashing package supplied with the window system.
- When installing the window onto battens, a separate and additional set of installation instructions will be included with the window system.

3.1 GENERAL

FAKRO Roof Window Systems are suitable for most existing roofs but it is important that the roof is checked by a suitably qualified person to ensure that the possible removal of roof supporting members will not cause any problems and that it can bear any possible additional loads imposed upon it by the installation of the roof windows.

FAKRO Roof Window Systems are suitable for replacing existing roof windows.

3.2 WEATHERTIGHTNESS

When installed in accordance with the certificate holder's instructions and this Certificate, the FAKRO Roof Window Systems will provide a weatherproof construction.

Selected samples from the windows were tested generally in accordance with MOAT No. 1:1974 *Directive for the assessment of windows*. Assessment of the results shows that the roof window is suitable for use where the test pressure classes defined in BS 6375-1:2004 *Performance of windows and doors – Classification for weathertightness and guidance on selection and specification* are applicable.

For unusual building layouts, building shapes, or ground topography, the designer will need to give particular consideration to prevailing exposure conditions and should design in accordance with BS 6399-2:1997 *Loading for buildings – Code of practice for wind loads*.

3.3 VENTILATION

The approximate opening area for rapid natural ventilation for the FTP Roof Window is shown in Table 3.

Window Code	Opening Area (m ²)
01	0.32
02	0.41
03	0.51
04	0.62
05	0.61
06	0.75
07	0.90
08	0.92
09	1.11
10	1.25
12	1.11

Table 3: Opening Area for Rapid Natural Ventilation

The background ventilation requirements of the Building Regulations 1997 to 2006 can be met by the adjustable trickle vents incorporated in the roof windows.

3.4 SAFETY

FAKRO Roof Window Systems can comply with the recommendations of BS 8213-1:2004 *Windows doors and rooflights – Design for safety in use and during cleaning of windows, including door-height windows and roof windows – Code of practice* with regard to the positioning of hand operated controls.

Account must be taken of the recommendations given in BS 6262-1:2005 *Glazing for buildings – General methodology for the selection of glazing*.

3.5 SECURITY AGAINST INTRUSION

The opening lights are fitted with a lock mechanism. When fastened in the closed position the opening light cannot be opened by manipulation from the outside. In addition, key operated locks are available.

The arrangement of the aluminium cladding and glazing retaining profiles with screw fixings ensures that removal of the glass is difficult.

3.6 EASE OF OPERATION

The FAKRO Roof Windows can be operated without difficulty when correctly installed.

3.7 MAINTENANCE

FAKRO Roof Window Systems can be re-glazed and the gaskets, putty and weatherstripping replaced, but these operations should be carried out by a representative of the certificate holder.

The external glazing and external frame members can be cleaned using water containing household detergent. If dirt is allowed to build up on the members over long periods it may become more difficult to restore the surface appearance. The external pane of the glazing unit can be cleaned from the interior of the building.

Care should be taken when using proprietary materials for cleaning the glass, to ensure that deposits are not allowed to remain on the wood or aluminium surfaces where they may cause discolouration and damage to the surface. In addition, care must be taken to avoid damage to, or discolouration of, the members when stripping paint from adjacent timber.

The pivot hinges and locking mechanism should be lubricated periodically to minimise wear and to ensure smooth operation.

4.1 BEHAVIOUR IN FIRE

The glazing used in FAKRO Roof Window Systems can be regarded as non-combustible material and therefore can be taken as having a Class O classification.

When used in roof windows, unwired glass at least 4mm thick can be regarded as having an AA designation and is classified as low vulnerability material.

4.2 STRUCTURAL STABILITY

FAKRO Roof Window Systems can be selected to have adequate resistance to wind loads calculated in accordance with BS 6399-2:1997.

The windows have been tested to a maximum imposed load of 1700N/m². The magnitude of the actual snow load imposed will depend on a number of factors, such as height above sea level, geographical location and roof arrangement. There it is recommended that BS 6399-3:1988 *Loading for buildings – Code of practice for imposed roof loads* is used to calculate the actual snow load when the roof is used in situations where a load greater than 1700N/m² can be expected.

4.3 THERMAL INSULATION

The thermal transmittance (U value) of the FAKRO Roof Window Systems can be taken as 1.4W/m²K.

4.4 CONDENSATION RISK

Experience of window systems similar to the FAKRO Roof Window Systems has shown that, in normal domestic or similar applications, roof windows do not constitute a significant condensation risk when correctly installed.

4.5 DURABILITY

The windows are constructed from preservative treated softwood, which is covered by aluminium cladding. Therefore the life of the FAKRO Roof Window Systems is expected to be at least equal to conventional timber windows.

Fittings, including the pivot hinges and locking handles, will have similar durability except where windows are to be installed in areas subject to particularly aggressive conditions. These conditions can prevail in coastal locations or near sources of industrial pollutants and replacement of fittings may be necessary within the life of the window.

The gaskets and weatherstripping may need to be replaced within the life of the window.

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

- Air permeability
- Watertightness
- Effect of wind loads
- Effect of thermal differential
- Efficiency of window fittings
- Mechanical loading tests
- Ease of operation
- Basic security test

4.7 OTHER INVESTIGATIONS

- (i) Existing data on product properties in relation to fire, environmental impact and the effect on mechanical strength/stability and durability were assessed.
- (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) A condensation risk analysis was performed.

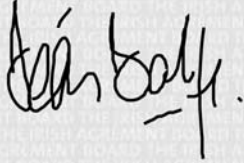
- 5.1** National Standards Authority of Ireland ("NSAI") following consultation with the Irish Agrément Board ("IAB") has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for 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 for five years from date of issue so long as:
- (a) the specification of the product is unchanged.
 - (b) the Building Regulations 1997 to 2006 and any other regulation or standard applicable to the product/process, its use or installation remains 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 product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
 - (f) the registration and/or surveillance fees due to IAB are paid.
- 5.2** The IAB mark and certification number may only be used on or in relation to product/processes 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 the products already marked.
- 5.3** In granting Certification, the NSAI makes no representation as to;
- (a) the absence or presence of patent rights subsisting in the product/process; or
 - (b) the legal right of the Certificate holder to market, install or maintain the product/process; 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/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 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. **07/0276** is accordingly granted by the NSAI to **PP FAKRO Sp z.o.o** on behalf of The Irish Agrément Board.

Date of Issue: **June 2007**

Signed



Seán Balfe
Director of the Irish Agrément Board

Readers may check that the status of this Certificate has not changed by contacting the Irish Agrément Board, NSAI, Glasnevin, Dublin 9, Ireland. Telephone: (01) 807 3800. Fax: (01) 807 3842. www.n sai.ie