



## Plastivan NV

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**Agrément  
Certificate  
No 06/4326**

Designated by Government  
to issue  
European Technical  
Approvals

## PLASTIVAN WHITE PVC-UE ROOFLINE SYSTEM

Accessoires en PVC-U pour toits  
Zubehör (von PVC-U) für Dächer

## Product



- THIS CERTIFICATE RELATES TO THE PLASTIVAN WHITE PVC-UE ROOFLINE SYSTEM.
- The system is for external use at the roofline as a substitute for timber or other conventional materials.
- The components of the system are available in one shade of white.
- It is essential that the system is installed in accordance with the manufacturer's instructions and the Design Data and Installation parts of this Certificate.

## Regulations

### 1 The Building Regulations 2000 (as amended) (England and Wales)



The Secretary of State has agreed with the British Board of Agrément the requirements of the Building Regulations to which roofline systems can contribute in achieving compliance. In the opinion of the BBA, the Plastivan White PVC-UE Roofline System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: C2(a)(b)(c)

Resistance to moisture

Comment:

The system will contribute to providing protection against the penetration of moisture to the inner surface of the building on which it is installed. See section 7.1 of this Certificate.

Requirement: F2

Condensation in roofs

Comment:

When used in accordance with this Certificate, Plastivan vented soffit boards can contribute in enabling a roof to meet this Requirement. See sections 7.4 to 7.7 of this Certificate.

Requirement: Regulation 7

Materials and workmanship

Comment:

Plastivan vented soffit boards are acceptable. See section 12.1 of this Certificate.

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## 2 The Building (Scotland) Regulations 2004



In the opinion of the BBA, the Plastivan White PVC-UE Roofline System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards as listed below.

Regulation:	8	Fitness and durability of materials and workmanship
Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The system can contribute to a construction satisfying this Regulation. See section 12.1 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	3.10	Precipitation
Comment:		The system will contribute to satisfying this Standard with reference to clause 3.10.1 <sup>(1)(2)</sup> by giving protection against the penetration of moisture to the inner surface of the building on which it is installed. See section 7.1 of this Certificate.
Standard:	3.15	Condensation
Comment:		Plastivan vented soffit boards can contribute to enabling a roof to meet this Standard with reference to clause 3.15.2 <sup>(1)</sup> . See sections 7.4 to 7.7 of this Certificate. (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

## 3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, the Plastivan White PVC-UE Roofline System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The components of the system are acceptable. See section 12.1 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The system will contribute to providing protection against the penetration of moisture to the inner surface of the building on which it is installed. See section 7.1 of this Certificate.
Regulation:	C5	Condensation
Comment:		Plastivan vented soffit boards can contribute towards enabling a roof to meet the requirements of this Regulation. See sections 7.4 to 7.7 of this Certificate.

## 4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections: *6 Delivery and site handling (6.2), 8 Practicability of installation (8.2) and 13 General (13.4).*

## Technical Specification

### 5 Description

5.1 The Plastivan White PVC-UE Roofline System is for external use on roofs as a substitute for timber or other conventional methods.

5.2 The system comprises a range of white cellular PVC-U (PVC-UE) boards (see Figure 1), including vented soffit boards (see Figure 2), together with ancillary components, including vented hollow soffits, a rigid soffit ventilator and other extruded trims, and injection-moulded joints and end caps (see Figure 3).

5.3 The components are available in one shade of white.

5.4 PVC-UE soffit boards are available both unvented and, for ventilating the roof void, as vented soffit boards (see Figure 2).

5.5 The cellular boards comprise a cellular PVC-U core beneath a white, outer weatherable PVC-U skin. Both core and skin formulations include a calcium/zinc based stabiliser. The boards are manufactured by co-extruding the skin compound onto a foamable core compound, cooling and forming into shape. Cellular PVC-U is formed during the process by the evolution of gas from sodium bicarbonate in the core compound.

5.6 Vented soffit boards are produced by routing 30 mm by 4 mm slots into unvented soffit boards at regular intervals. The boards are available with a single row of slots, suitable for providing ventilation to satisfy the requirement for ventilation equivalent to a continuous air gap of at least 10 mm wide, at the eaves.

5.7 Characteristics of the cellular boards are shown in Table 1.

Table 1 Characteristics of the cellular boards

Standard length (m)	5
Nominal thickness (mm)	See Figure 1
Nominal thickness of outer skin (mm)	0.6
Average density (kgm <sup>-3</sup> )	0.48

5.8 The trims are manufactured using conventional extrusion and injection-moulding techniques.

Figure 1 Cellular boards

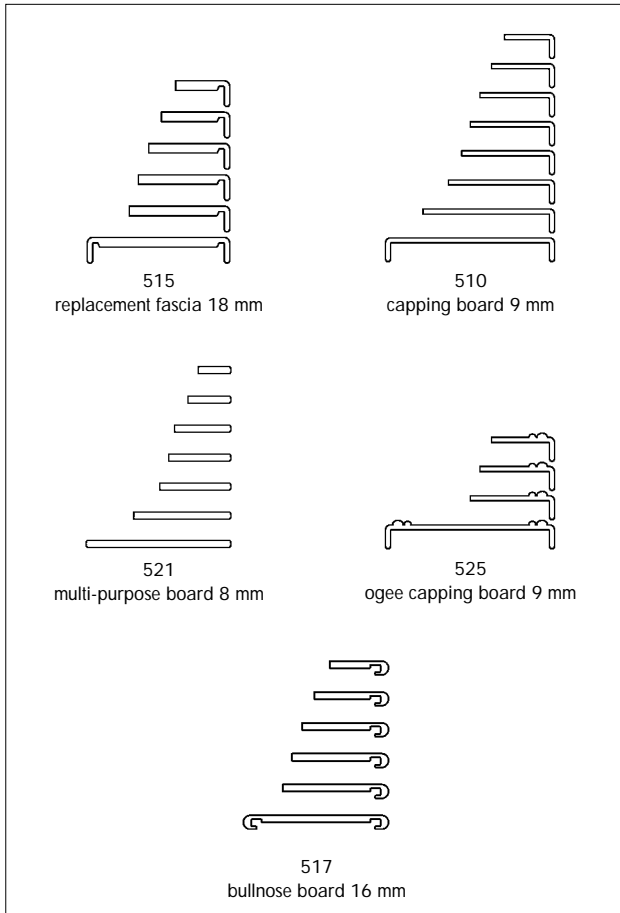


Figure 2 Vented (soffit) boards

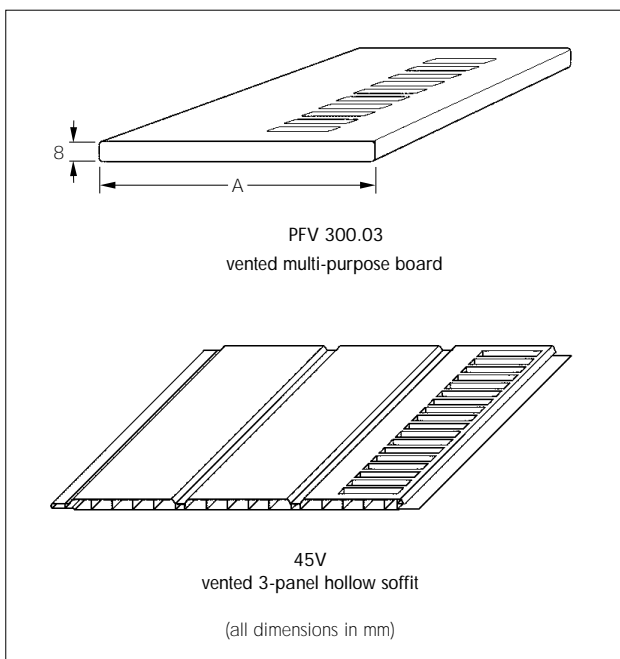
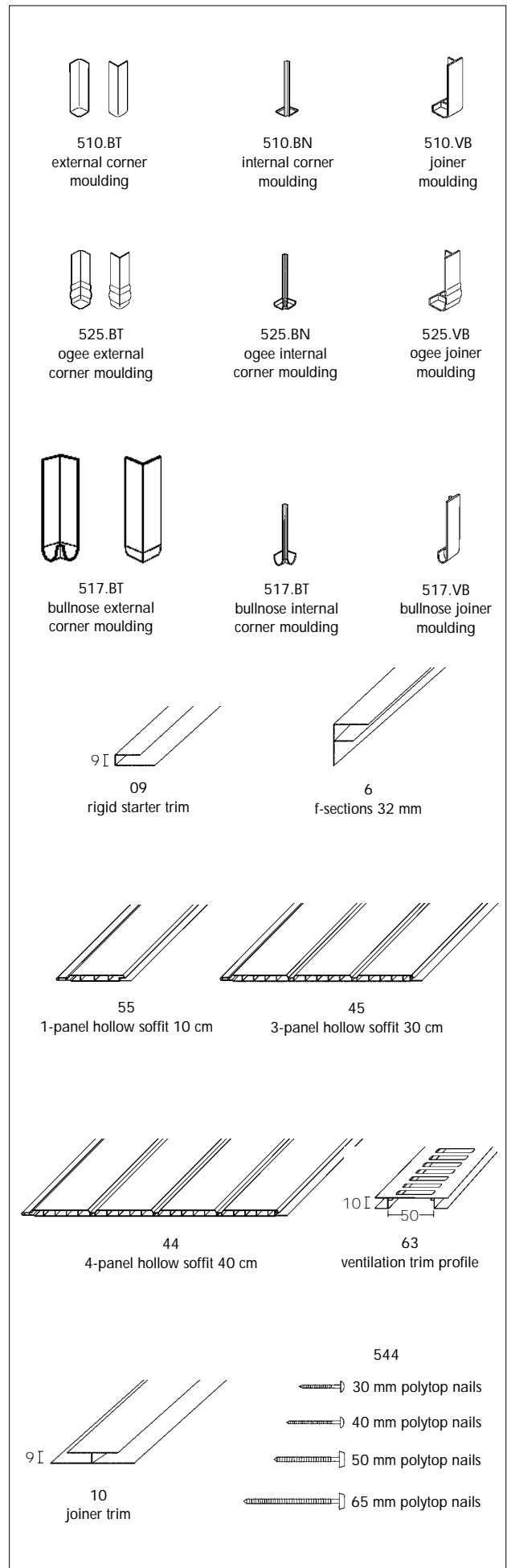


Figure 3 Ancillary components (all dimensions in mm)



5.9 Continuous quality control is undertaken during the manufacture of cellular boards to include checks on colour, dimensions, straightness, weight per metre and brilliancy.

5.10 Austenitic stainless steel annular nails of varying length with white, moulded UV stable PVC heads can be supplied and should be used to fix cellular boards to rafter feet, and other timber framework. Stainless steel pins of varying length with white-moulded UV stable PVC heads are available for the fixing of the soffit boards.

## 6 Delivery and site handling

6.1 The cellular boards and trim profiles are delivered to site in packs sealed in polythene sleeves bearing the Certificate holder's marking and the BBA identification mark incorporating the number of this Certificate. Pack quantities vary dependent upon the type of profile.

6.2 The packs should be unloaded by hand, stored on a clean, level surface in stacks not exceeding one metre in height and restrained from collapse. If stored externally, the packs should be kept under cover.

## Design Data

### 7 General



7.1 The Plastivan White PVC-UE Roofline System is suitable for use externally to provide a protective and decorative trim at the roofline where timber or other conventional materials would normally be used. The product will provide adequate protection to the interior of the building from the penetration of moisture.

7.2 The system must be fixed only to structurally sound building substrates, at centres not exceeding 600 mm. Rafter feet and gable ladders should be adequately supported by noggings to ensure rigidity. Replacement, rather than over fixing, of existing fascia, is recommended. Timber roof structures, to which the system is fixed, must be designed and/or constructed in accordance with the relevant Building Regulations and, as appropriate, in compliance with one of the following technical specifications:

- BS 5268-2 : 2002
- BS 5268-3 : 1998
- The Building Regulations 2000 (as amended) (England and Wales), Approved Document A1/2, section 2B
- The Building Regulations (Northern Ireland) 2000, Part D *Structure*.

7.3 The cellular PVC-U components have a similar coefficient of thermal expansion to that of conventional solid PVC-U. A gap equivalent to 10 mm at the end of a 5 m length (ie 20 mm

between abutting 5 m lengths) should be provided at the end of each board and at the joint trim, to allow for movement. Care should be taken not to install the system in extremes of temperature. The recommended temperature for installation is between 5°C and 25°C.

### Ventilation



7.4 The ventilated soffit board can contribute towards providing the necessary roof space ventilation. Guidance on the provision of adequate ventilation is given in the 1995 edition of the Approved Document F2, *Condensation in roofs*, to The Building Regulations 2000 (as amended) (England and Wales), and in BS 5250 : 2002, Clause 8.4.

7.5 When providing roof space ventilation, it is essential that the airway should not be allowed to become blocked by the loft insulation. This may be achieved by the use of a suitable BBA approved insulation retainer producing an air passage with an effective area (assumed equal to the geometric free area) at least equal to that of the soffit ventilator used.

7.6 The ventilated soffit boards with a single row of slots have an effective ventilated area of 13755 mm<sup>2</sup> per metre run (equivalent to a continuous slot 13.8 mm wide at eaves level) and are suitable for the applications given in section 7.7. For applications requiring greater ventilation (eg roofs with a pitch of less than 15°) a second ventilation soffit board or alternative ventilation to the roof void is required.

7.7 For roofs with a pitch of 15° or more, where both the ceiling and insulation are horizontal, soffit ventilators with a minimum effective area of 10000 mm<sup>2</sup> per metre run, if used in accordance with section 7.5, can provide adequate ventilation to insulated loft spaces as set out in BS 5250 : 2002, Clause 8.4. The soffit ventilators should run along the eaves of the longest opposite sides of a rectangular roof to provide adequate cross-ventilation. The ventilators are suitable for use with traditional (semi-permeable) and high performance (impermeable) sarking felts. Consideration should be given to the use of high-level ventilation openings to increase the ventilation rate for roofs as referred to in BS 5250 : 2002, Clause 8.4. The use of high-level ventilation openings is strongly recommended in roofs with a pitch greater than 35° or roof spans in excess of 10 m.

7.8 Where soffit ventilators are used in lean-to or mono-pitched roofs, high-level ventilation, in accordance with BS 5250 : 2002, Clause 8.4, must be provided.

7.9 Where a pitched roof abuts a wall, additional high-level ventilation must be arranged to provide an open area at least equal to a 5 mm slot running the full length of the abutment.

7.10 The vented soffit boards meet NHBC requirements for protection against the ingress of birds, rodents or large insects.

7.11 The dimensions of the slots in ventilated soffit boards are such that the risk of blockage is limited. However, blockage by insects and debris would impair their performance as vents and they should be examined occasionally and cleared if necessary.

## 8 Practicability of installation

8.1 The components of the system are easy to work using normal woodworking tools for cutting, drilling and shaping. Handsaws should have a fine-toothed blade. Hand-held and bench-mounted power tools with a carbide-tipped blade should be run at speeds similar to, or higher than, those normally used for timber.

8.2 Special training is not required to install the roofline system correctly, provided the manufacturer's instructions and the procedures outlined in section 14 are followed. However, general care needs to be exercised when working at roof level.

## 9 Strength and stability

9.1 When installed in accordance with this Certificate, the system will withstand, without damage or permanent deflection, the wind loads likely to be encountered in the United Kingdom. In exposed locations care should be taken to ensure that all profiles are adequately fixed.

9.2 The system has adequate resistance to the hard and soft body impacts likely to occur in practice.

9.3 PVC-U gutters, as specified in BS 4576-1 : 1989 may be screw-fixed directly through the replacement fascia or bullnose boards. Gutter bracket spacings must not exceed one metre; reduced spacings are recommended in the Scottish Highlands. Other lightweight gutters may also be screw-fixed to the board provided the maximum bracket-loading, covered in BS 4576-1 : 1989, is not exceeded.

9.4 Apart from the exception detailed in section 9.3, the fascia boards are not loadbearing and must not be independently used to support fixtures such as roof tiles, non-lightweight gutters, other components of the roof structure or television aerials. Suitably fixed telephone wires and power cables may be run along the boards but the main brackets for these services should be fixed through the fascia to structurally sound timber.

## 10 Performance in relation to fire

10.1 The cellular boards achieve a Class 1Y surface spread of flame rating for white PVC-UE profiles when tested in accordance with BS 476-7 : 1997.

10.2 On exposure to fire PVC-U tends to char and may fall away. The spread of flame along its surface is limited. It is unlikely that the roofline system will significantly affect the overall fire performance of any roof in which it is installed.

10.3 Where it is normal practice to carry the eaves box over, between dwellings, it is important that the box is fire-stopped at compartment walls.


## 11 Maintenance

11.1 The system can be cleaned by washing with water and mild detergent. Solvent-based cleaners should not be used. For the removal of more resistant stains, the manufacturer's advice must be sought. The material can be cut and drilled, using normal woodworking tools, if repairs are required.

11.2 The slots in the ventilated soffit boards should be examined periodically and, if necessary, cleared (see section 7.11).

11.3 As with all PVC products, paint can adversely affect the impact strength of the cellular PVC-U sections, therefore painting is not recommended.

## 12 Durability

 12.1 Accelerated weathering tests indicate that the product should function effectively as a roofline system for a period in excess of 20 years. The system will retain its decorative qualities for a period in excess of 20 years with only minor changes in surface appearance. These changes should not detract significantly from the overall appearance of a product situated at roof level.

12.2 Where the timber substrate is preservative treated with copper/chrome/arsenic<sup>(1)</sup> or copper/chrome/boron, care must be taken to ensure that sufficient time is allowed for complete fixation of the preservative (approximately seven days) to avoid corrosion of screws and nails used to fix the components.

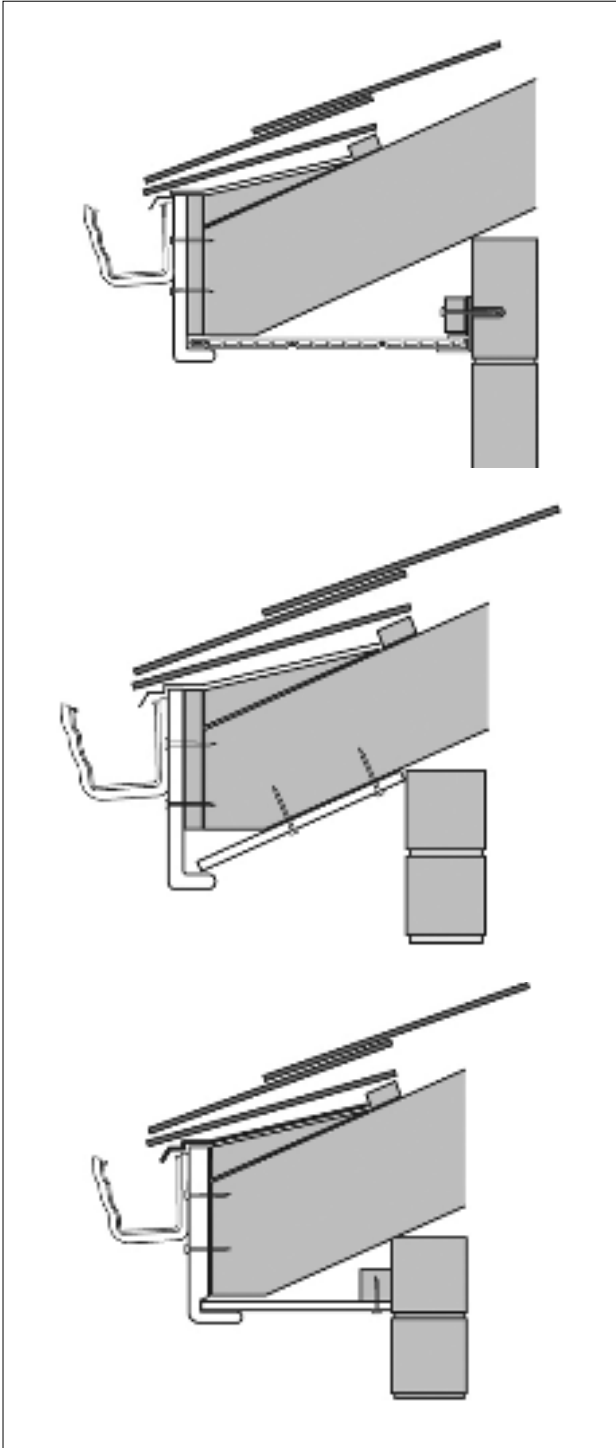
(1) CCA products should not be used in domestic applications according to European Union Restrictions.

## Installation

### 13 General

13.1 Installation of the Plastivan White PVC-UE Roofline System must be carried out in accordance with the manufacturer's instructions and the requirements of this Certificate (see Figure 4).

Figure 4 Typical installation details



13.2 Fascia boards and barge boards should be fixed to preservative treated, structurally sound, solid timbers at centres not exceeding 600 mm, using the fixings specified by the manufacturer. The nails should be selected to give minimum 40 mm penetration into the timber support.

13.3 Care should be taken when handling boards at roof level.

13.4 When using power tools to cut or shape the product, it is recommended that eye protection and a course-particle dust mask are used.

13.5 Existing support timbers should be checked for soundness and, where necessary, replaced.

13.6 Sarking felt should be checked to ensure that it is in good condition and extends onto the verge rafter and over the fascia and into the gutter at the eaves. A continuous fillet should be installed at the eaves to prevent the felt sagging between the rafters. Damaged or worn felt should be replaced in accordance with good practice.

13.7 Ventilated boards should be selected and installed so that the roof ventilation conforms to the relevant Building Regulations.

### 14 Procedure

14.1 Selected boards and accessories are assembled and cut to size.

14.2 Preservative-treated fixing boards are cut to size and clamped and fixed to rafter ends allowing a slight protrusion past the end of the eaves.

14.3 The summary for the installation details of fascia, soffit and barge boards (see sections 8 and 13) should be read with reference to the appropriate diagrams in Figure 4.

14.4 Soffit boards are fixed to the underside edge of the fixing boards using ventilated soffit boards where appropriate. Ventilating soffit boards should not be trimmed to size in the width.

14.5 Fascia boards are fixed to timber fixing boards at centres not exceeding 600 mm, using at least two fixings per rafter end. When the product is installed in particularly exposed locations it is recommended that the fascia boards are fixed to support timbers at maximum 400 mm centres.

14.6 Where necessary, fascia boards are jointed between rafters using the appropriate joint trim cut to size. The trim is fixed by nailing it to the end of one board only, allowing a 10 mm gap for expansion at the end of each board.

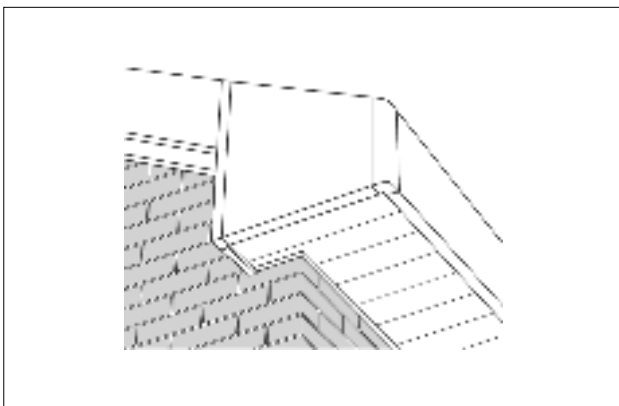
14.7 At external corners, the appropriate corner joint trim, cut to size, is used and pushed into the end of a trimmed board leaving a 5 mm gap for thermal expansion.

## Barge boards

14.8 Barge boards are cut to length and a fascia centre joint fitted to the end of one board to close the joint, leaving a 10 mm thermal expansion gap. Each board is fitted directly to the gable ladder or nogging.

14.9 At the corner where the barge board meets the fascia board and soffit it will be necessary to construct a corner box section. There are a number of methods to creating the box section, two of which are detailed in Figure 5.

Figure 5 Recommended box section designs



## Technical Investigations

The following is a summary of the technical investigations carried out on the Plastivan White PVC-UE Roofline System.

## 15 Tests

Tests were carried out on white profiles to determine:

- resistance to impact
- colour stability and effect of UV
- resistance to tile/snow loading
- presence of voids
- effect of nailing
- fixings pull through strength
- flexural strength
- density
- stress relief and effect of heat (trims only)
- ash content.

## 16 Investigations

16.1 An examination was made of existing data relating to:

- behaviour of the product in fire
- accelerated weathering data.

16.2 The dimensions of cellular boards and trims were checked.

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

16.4 Assessments were made of the resistance of the products to wind suction, the ventilation characteristics of the ventilated soffit boards and the practicability of installation.

16.5 The practicability of the installation was assessed.

## Bibliography

BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame of products*

BS 4576-1 : 1989 *Specification for unplasticized polyvinyl chloride (PVC-U) rainwater goods and accessories— Half-round gutters and pipes of circular cross-section*

BS 5250 : 2002 *Code of practice for control of condensation in buildings*

BS 5268-2 : 2002 *Structural use of timber — Code of practice for permissible stress design, materials and workmanship*

BS 5268-3 : 1998 *Structural use of timber — Code of practice for trussed rafter roofs*

### 17 Conditions

17.1 This Certificate:

- (a) relates only to the product that is named, described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) is valid only within the UK;
- (d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (e) is copyright of the BBA;
- (f) is subject to English law.

17.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

17.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabrication including all related and relevant processes thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;
- (b) continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine; and

(c) are reviewed by the BBA as and when it considers appropriate.

17.4 In granting this Certificate, the BBA is not responsible for:

- (a) the presence or absence of any patent, intellectual property or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the actual works in which the product is installed, used and maintained, including the nature, design, methods and workmanship of such works.

17.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.



In the opinion of the British Board of Agrément, the Plastivan White PVC-UE Roofline System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 06/4326 is accordingly awarded to Plastivan NV.

On behalf of the British Board of Agrément

Date of issue: 31st March 2006

A handwritten signature in black ink, appearing to read 'G.A. Cooper', is written over a white background.

Chief Executive