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Agrément Certificate
11/4861
Product Sheet 1

CASALI ROOF WATERPROOFING MEMBRANES

CASALI DERMABIT-EXTRA 30160 3MM, 4170 4MM AND 43170 MINERAL

This Agrément Certificate Product Sheet(1) relates to Casali Dermabit-Extra 30160 3mm, 4170 4mm and 43170 Mineral, a range of reinforced modified-bitumen membranes for use loose-laid, partially bonded or fully adhered as waterproofing on flat or pitched roofs with limited access.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Weathertightness — the membranes will resist the passage of moisture into the building (see section 6).

Properties in relation to fire — the membranes, when used in a suitable specification, can enable a roof to be unrestricted under the national Building Regulations (see section 7).

Resistance to wind uplift — when correctly specified, the membranes will resist the effects of any likely wind suction acting on the roof (see section 8).

Resistance to mechanical damage — the membranes will accept, without damage, the limited foot traffic and loads associated with installation and maintenance (see section 9).

Durability — under normal service conditions, the membranes will provide a durable roof waterproof covering with a service life in excess of 20 years (see section 11).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate

On behalf of the British Board of Agrément

Date of Fourth issue: 20 March 2018

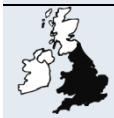
John Albon – Head of Approvals Construction Products

Claire Curtis-Thomas
Chief Executive

Originally certificated on 2 September 2011

Regulations

In the opinion of the BBA, Casali Dermabit-Extra 30160 3mm, 4170 4mm and 43170 Mineral, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**B4(2)**	**External fire spread**
Comment:		On a suitable substructure, the use of the membranes can enable a roof to be unrestricted under this Requirement. See section 7 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The membranes, including joints, can enable a roof to satisfy this Requirement. See section 6.1 of this Certificate.
Regulation:	**7**	**Materials and workmanship**
Comment:		The membranes are acceptable. See section 11.1 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The use of the membranes satisfies the requirements of this Regulation. See sections 10 and 11.1 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.8	Spread from neighbouring buildings
Comment:		The membranes, when applied to a suitable substructure, are classified as having low vulnerability and can enable a roof to be unrestricted under this Standard, with reference to clause 2.8.1(1)(2). See sections 7.1, 7.2 and 7.4 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The membranes, including joints, can enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1(1)(2) and 3.10.7(1)(2). See section 6.1 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The products can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		Comments in relation to the products under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1(1)(2) and Schedule 6(1)(2).

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23(a)(i)**	**Fitness of materials and workmanship**
Comment:	**(iii)(b)(i)**	The membranes are acceptable. See section 11.1 and the *Installation* part of this Certificate.

Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The membranes, including joints, can enable a roof to satisfy the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		On a suitable substructure, the use of the membranes can enable a roof to be unrestricted under the requirements of this Regulation. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.3 and 3.4) of this Certificate.

Additional Information

NHBC Standards 2018

In the opinion of the BBA, Casali Dermabit-Extra 30160 3mm, 4170 4mm and 43170 Mineral, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies.*

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 13707 : 2013. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Casali Dermabit-Extra 30160 3mm, 4170 4mm and 43170 Mineral are torch-applied, polyester-reinforced, Amorphe PolyAlpha Olefine (APAO) resin or synthetic co/terpolymeralphaolefine modified bitumen roof waterproofing membranes, with either a silica sand (30160 3mm, 4170 4mm) or mineral (43170) finished upper surface, and a thermofusible thermoplastic film on the lower surface.

1.2 The membranes are manufactured to the nominal characteristics given in Tables 1 and 2.

Table 1 Nominal characteristics

Characteristic (unit)	30160 3mm	4170 4mm	43170 Mineral
Thickness (mm)	3	4	4(1)
Width (m)	1	1	1
Length (m)	10	10	8/10
Mass per unit area ($kg \cdot m^{-2}$)	3	4	5.2
Roll weight (kg)	30	40	42/52

(1) Excluding mineral finish.

Table 2 Nominal physical characteristics

Characteristic (unit)	30160 3mm	4170 4mm	43170 Mineral
Tensile strength* (N per 50 mm)			
longitudinal	700	850	850
transverse	600	650	650
Elongation at break* (%)			
longitudinal	40	40	40
transverse	40	40	40
Tear strength* (N)			
longitudinal	150	170	170
transverse	150	170	170
Low temperature flexibility* (°C)	-20	-20	-20
Watertightness* (60 kPa)	Pass	Pass	Pass
Resistance to static loading* (kg)	≥15	≥20	≥20
Resistance to impact* (mm)	≥1000	≥1250	≥1250

1.3 Ancillary items for use with the membranes include:

- Dermaprimer — a solution of bitumen in solvents for priming substrates
- Idroprimer — a water based bitumen emulsion for priming substrates
- protection sheet — a non-woven polyester sheet for protecting the waterproofing sheet from damage in a ballasted system.

1.4 Other items or components which may be used with the membranes, but which are outside the scope of this Certificate, are:

- Vaporex AL Vapour Barrier — for use in systems where a vapour barrier is required.
- Reflex AR — a protective reflecting aluminium paint for reducing the effect of solar radiation
- Acrytop — a protective coating for reducing the effect of solar radiation
- Dermacolor Cool Roof — a high reflectance white based paint for reducing the effect of solar radiation.

2 Manufacture

2.1 The membranes are manufactured by saturating the reinforcement and coating with the modified bitumen. The finished products are surfaced with thermofusible polyethylene film, and sand or mineral chips as appropriate. The sheets are then cooled, trimmed and reeled.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Casali SpA has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by SGS (Certificate No IT06/0617).

2.4 The membranes are manufactured by Casali SpA and marketed in the UK by Roofco Ltd, Ross Street, Darnall, Sheffield, South Yorkshire S9 4PU, Tel: 0114 2436001, Fax: 0114 2436060, e-mail: roofco@allroofing.co.uk

3 Delivery and site handling

3.1 The membranes are delivered to site in rolls sealed with tape. The tape bears the product name and the BBA logo incorporating the number of this Certificate.

3.2 Individual rolls must be stored in an upright position on a clean, level surface and kept dry. They must be protected from direct sunlight and from heat sources.

3.3 Dermaprimer is supplied in 25 litre cans and Idroprimer is supplied in 20 kg cans.

3.4 The Certificate holder has taken the responsibility of classifying and labelling the products under the *CLP Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures.* Users must refer to the relevant Safety Data Sheet(s).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out Casali Dermabit-Extra 30160 3mm, 4170 4mm and 43170 Mineral.

Design Considerations

4 Use

4.1 Casali Dermabit-Extra 4170 4mm (with surface finish of Reflex AR, Acrytop, or Dermacolor Cool Roof or BS 8217 : 2005 type) and Casali Dermabit-Extra 43170 Mineral are satisfactory for use as fully or partially bonded waterproofing for flat or pitched roofs with limited access, as a single layer or as part of a built-up specification and, where necessary, in conjunction with appropriate roofing felts to BS 8747 : 2007.

4.2 Casali Dermabit-Extra 30160 3mm is satisfactory for use as an underlayer in conjunction with Casali Dermabit-Extra 4170 4mm or 43170 Mineral, in fully or partially bonded waterproofing for flat or pitched roofs with limited access, as part of a built-up multilayer specification including exposed, painted or under heavy protection roofs.

4.3 Casali Dermabit-Extra 4170 4mm and 43170 Mineral are suitable for use as single-ply, loose-laid waterproofing layers, ballasted with aggregate on flat roofs with limited access, or under heavy protection (eg concrete slabs) on flat roofs with regular pedestrian traffic.

4.4 Mineral finished membranes are suitable for use, where appropriate, as an exposed cap sheet or in detail work.

4.5 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters etc. Where traffic in excess of this is envisaged, special precautions, such as additional protection to the membrane, must be taken.

4.6 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. For design purposes, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls, etc. Completely flat roofs are defined for the purpose of this Certificate as those having a finished fall of less than 1:80. Pitched roofs are defined as those having falls in excess of 1:6 or 10°.

4.7 Decks to which the membranes are to be applied must comply with the relevant requirements of either BS 6229 : 2003 or BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2018, Chapter 7.1.

4.8 Insulation materials to be used in conjunction with the membranes must be in accordance with the Certificate holder's instructions and either:

- as described in the relevant clauses of BS 8217 : 2005, or
- the subject of a current BBA Certificate and used in accordance with, and within the scope of, that Certificate.

5 Practicability of installation

The membranes should only be installed by installers who have been trained and approved by the Certificate holder.

6 Weathertightness

6.1 The membranes, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture into the building and enable a roof to comply with the requirements of the national Building Regulations (see section 15).

6.2 The membranes are impervious to water and will achieve a weathertight roof capable of accepting minor structural movements.

7 Properties in relation to fire

7.1 The following systems will be unrestricted under the national Building Regulations:

- a 0.7 mm thick profiled galvanized steel deck, one layer of BS 747 : 2000 Type 1F felt bonded to the deck with 95/25 oxidised bitumen, one layer of 50 mm thick polyurethane foam insulation board, one layer of 2 mm thick glassfibre-reinforced underlay, and a top layer of Casali Dermabit-Extra 43170 Mineral
- a 0.7 mm thick profiled galvanized steel deck, one layer of BS 747 : 2000 Type 1F felt bonded to the deck with 95/25 oxidised bitumen, one layer of 50 mm thick polyurethane foam insulation board, one layer of BS 747 : 2000 Type 3G perforated felt (loose-laid), one layer of BS 747 : 2000 Type 3B felt bonded with 95/25 oxidised bitumen and one layer of Casali Dermabit-Extra 4170 4 mm torch-applied and coated with Reflex AR.

7.2 The membranes, when used in protected specifications, including on inorganic covering listed in the Annex of Commission Decision 2000/553/EC, can also be considered to be unrestricted.

7.3 When used on flat roofs with one of the surface finishes defined in The Building Regulations (England and Wales), Appendix A, Table A5, Part iii, or The Building Regulations (Northern Ireland), Table 5.6, Part IV (and listed below), the roof is deemed to be of classification B_{ROOF} (t4):

- bitumen-bedded stone chipping covering the whole surface to a depth of not less than 12.5 mm
- bitumen-bedded tiles of a non-combustible material
- sand cement screed, or
- macadam.

7.4 The designation of other specifications should be confirmed by:

England and Wales — test or assessment to Approved Document B, Appendix A, Clause A1
Scotland — test to conform to Mandatory Standard 2.8, clause 2.8.1
Northern Ireland — test or assessment by a UKAS-accredited laboratory, or an independent consultant with appropriate experience.

8 Resistance to wind uplift

8.1 The adhesion of partially and fully bonded systems is sufficient to resist the effects of wind suction, thermal cycling or other minor structural movements likely to occur in service.

8.2 The ballast requirements for loose-laid systems should be calculated in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and its UK National Annex. The membrane should always be ballasted in accordance with BS 8217 : 2005 with a minimum depth of 50 mm of aggregate. In areas of high-wind exposure, the Certificate holder's advice should be sought. Alternatively, concrete slabs on suitable supports can be used.

9 Resistance to mechanical damage

The membranes can accept the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads. Where traffic

in excess of this is envisaged, such as for maintenance of lift equipment, a walkway should be provided using, for example, concrete slabs supported on bearing pads.

10 Maintenance

10.1 The membranes must be the subject of annual inspections and maintenance to ensure continued performance.

10.2 Maintenance should include checks and operations to ensure that, where applicable:

- adequate ballast is in place and evenly distributed over the membrane
- protection layers are in good condition
- exposed membrane is free from the build-up of silt, unwanted vegetation and other debris.

11 Durability

11.1 Under normal conditions, the membranes will have a service life in excess of 20 years.

11.2 After some years, the slate finished product may experience some localised loss of the mineral surfacing in areas where complex detailing of the roof design is incorporated.

Installation

12 General

12.1 Installation of Casali Dermabit-Extra 30160 3mm, 4170 4mm and 43170 Mineral must be carried out by installers trained and approved by the Certificate holder in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989, BS 8217 : 2005, the Certificate holder's instructions and this Certificate.

12.2 Substrates to which the membranes are to be applied must be sound, dry, clean and free from sharp projections such as nail heads and concrete nibs. When used over a rough substrate, a suitable protection layer must be laid first.

12.3 Installation should not be carried out during inclement weather (eg rain, fog or snow). When the temperature is below 5°C, suitable precautions against surface condensation must be taken.

12.4 Detailing must be in accordance with the Certificate holder's instructions.

13 Procedure

Fully bonded applications

13.1 Bonding is achieved by melting the lower surface by torching and pressing the membrane down. Care must be taken not to overheat the coating.

13.2 Side laps should be a minimum of 100 mm and end laps a minimum of 200 mm. Where used partially bonded, the membrane must be fully bonded to the substrate for at least one metre immediately before and after the end lap. A bead of molten material must exude from all laps to indicate a satisfactory seal and should be levelled out using a heated, rounded-tip trowel.

13.3 At falls in excess of 1:6 the normal precautions against slippage and the provision for mechanical fixings as required by BS 8217 : 2005 should be observed.

13.4 If the roof is likely to be subjected to uncontrolled pedestrian access, the substructure and surface finish must satisfy the requirements of the relevant clauses of BS 8217 : 2005.

13.5 When used for remedial work, existing waterproofing layers must be made sound, and existing surface finishes (eg surface dressing) must be removed. The exposed surface is then primed.

13.6 On completion of the roof, Casali Dermabit-Extra 4170 4mm may have a surface finish applied in accordance with BS 8217 : 2005, Clauses 6.12 (Table 3) and 8.19. Surface finishes in the Code of Practice include:

- stone aggregate in dressing compound
- pre-cast concrete paving flags
- proprietary tiles in bonding compound.

13.7 Casali Dermabit-Extra 43170 Mineral finished cap sheet does not require further surface protection.

Partially bonded applications

13.8 A layer of Type 3G felt to BS 8747 : 2007 should be loose-laid edge to edge over the substrate.

13.9 Casali Dermabit-Extra 30160 3mm and 4170 4mm are fully torch-welded onto the perforated layer, ensuring that the bitumen seeps evenly into the perforations.

Loose-laid applications

13.10 Side laps should be a minimum of 100 mm and end laps a minimum of 200 mm. The laps should be welded by torching the lower surface and pressing the membrane down.

13.11 To combat the effects of wind uplift the membranes should be ballasted by gravel, 0.2 mm thick polythene protective sheet covered by at least 50 mm of well-rounded gravel (gravel size 15/30 mm), or paving slabs. If paving on plastic pads are used, a separation layer of either 0.2 mm thick polythene or a nonwoven (polypropylene/polyester) sheet (minimum mass 200 $g \cdot m^{-2}$) should be placed between the membrane and the pads.

14 Repair

Any damage can be repaired by cleaning the affected area and applying a patch as described in the Certificate holder's instructions.

Technical Investigations

15 Tests

15.1 An assessment was made of data in relation to:

- dimensions
- mass per unit area
- watertightness
- low temperature flexibility
- flow resistance
- dimensional stability
- static loading
- resistance to impact
- adhesion of granules
- peel resistance and shear resistance of joints
- resistance to peel from support
- resistance to slippage
- resistance to cyclic movement
- nail tear resistance
- wind uplift (fully bonded to polyurethane insulation board)
- unrolling at low temperature
- heat ageing for 24 weeks at 70°C followed by low temperature flexibility and flow resistance
- heat ageing for 4 weeks at 80°C followed by resistance to peel

- ageing on exposure to water (1 week at 23°C) followed by low temperature flexibility.

15.2 An assessment was made of data from tests on joints in relation to:

- air pressure
- tensile strength
- ageing on exposure to water (1 week at 60°C) followed by peel shear resistance.

15.3 An assessment was made of data from tests on the coating mass in relation to:

- fines content
- determination of softening point
- penetration at 25 and 60°C
- cold temperature flexibility
- heat aged properties of coating mass, 180 days at 70°C followed by softening point, cold temperature flexibility and penetration at 60°C.

15.4 An assessment was made of data from tests on the reinforcement in relation to:

- mass per unit area
- tensile strength and elongation.

16 Investigations

16.1 An assessment was made of existing data on fire performance.

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

Bibliography

BS 747 : 2000 *Reinforced bitumen sheets for roofing — Specification*

BS 6229 : 2003 *Flat roofs with continuously supported coverings – Code of practice*

BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*
BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

BS 8217 : 2005 *Reinforced bitumen sheets for roofing — Code of practice*

BS 8747 : 2007 *Reinforced bitumen sheets (RBMs) for roofing — Guide to selection and specification*

BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 — Actions on structures — General actions — Wind actions*
NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to *Eurocode 1 — Actions on structures – General actions – Wind actions*

BS EN 13707 : 2004 *Flexible sheets for waterproofing – Reinforced bitumen sheets for roof waterproofing – Definitions and characteristics*

EN ISO 9001 : 2008 *Quality management systems – Requirements*

17 Conditions

17.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

17.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

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

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

17.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

17.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

17.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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