

Catnic Ltd

Pontypandy Industrial Estate
Caerphilly CF83 3GL
Tel: 029 2033 7900
e-mail: catnic.sales@tatasteel.com
website: www.catnic.com

Agrément Certificate
15/5279
Product Sheet 2

SSR² ROOFING AND CLADDING SYSTEM

SSR² WALL PANEL

This Agrément Certificate Product Sheet⁽¹⁾ relates to the SSR² Wall Panel, comprising profiled plastisol-coated Galvalloy steel panels used in conjunction with a fully supporting continuous layer of OSB3 or plywood for use in residential buildings as a protective/decorative cladding panel.

(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

Strength and stability — the product can be designed to resist wind loads normally encountered in the UK (see section 6).

Weathertightness — the product has adequate resistance to the passage of moisture (see section 7).

Behaviour in relation to fire — the product is not classified as non-combustible, but will achieve a Class O/'low risk' classification, as defined in the national Building Regulations (see section 8).

Durability — in normal UK conditions, the product will have a service life in excess of 25 years (see section 10).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément




Date of First issue: 18 December 2015

Brian Chamberlain
Head of Technical Excellence

Claire Curtis-Thomas
Chief Executive

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

©2015

tel: 01923 665300
fax: 01923 665301
clientservices@bba.star.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, SSR² Wall Panels, 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: A1	Loading
Comment:	The product is acceptable for use as set out in sections 6.1 to 6.6 of this Certificate.
Requirement: B3(4)	Internal fire spread (structure)
Comment:	The product is unrestricted under this Requirement. See section 8 of this Certificate.
Requirement: B4(1)(2)	External fire spread
Comment:	The product may be unrestricted under this Requirement. See section 8 of this Certificate.
Requirement: C2(b)(c)	Resistance to moisture
Comment:	The product will satisfy the stated requirements. See section 7 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The product is acceptable. See sections 10.2 and 10.3 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)(2)	Durability, workmanship and fitness of materials
Comment:	The product can contribute to a construction satisfying this Regulation. See sections 9, 10.2 and 10.3 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard: 1.1(a)(b)	Structure
	The product is acceptable, in accordance with clause 1.1.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 6.1 to 6.6 of this Certificate.
Standard: 2.4	Cavities
Comment:	The product, when used in conjunction with fire-resistant materials, can contribute to satisfying this Standard, with reference to clauses 2.4.2 ⁽¹⁾⁽²⁾ , 2.4.3 ⁽²⁾ , 2.4.7 ⁽¹⁾ and 2.4.9 ⁽²⁾ . See section 8.5 of this Certificate.
Standard: 2.6	Spread to neighbouring buildings
Standard: 2.7	Spread on external walls
Comment:	The product can contribute to satisfying this Standard, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ , 2.6.6 ⁽²⁾ and 2.7.1 ⁽¹⁾⁽²⁾ . See section 8 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The product will contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ , 3.10.5 ⁽¹⁾⁽²⁾ and 3.10.7 ⁽¹⁾⁽²⁾ . See section 7 of this Certificate.
Standard: 7.1(a)(b)	Statement of sustainability
Comment:	The product can contribute to satisfying 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:	All comments given for this product 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	Fitness of materials and workmanship
Comment:	The product is acceptable. See sections 10.2 and 10.3 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	The product will contribute to satisfying this Regulation. See section 7 of this Certificate.
Regulation: 30	Stability
Comment:	The product is acceptable, as set out in sections 6.1 to 6.6 of this Certificate
Regulation: 34	Internal fire spread – Linings
Regulation: 35	Internal fire spread – Structure
Comment:	The product is unrestricted under this Regulation. See section 8 of this Certificate.
Regulation: 36	External fire spread
Comment:	The product is judged to satisfy the Class 0 requirements. See section 8 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.2 and 3.3) of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of SSR² Wall Panels, provided they are installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards 2016, Chapter 6.9 Curtain walling and cladding.*

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard BS EN 14783 : 2013 for the SSR² Wall Panels (514 mm and 305 mm cover width). An asterisk (*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance.

Technical Specification

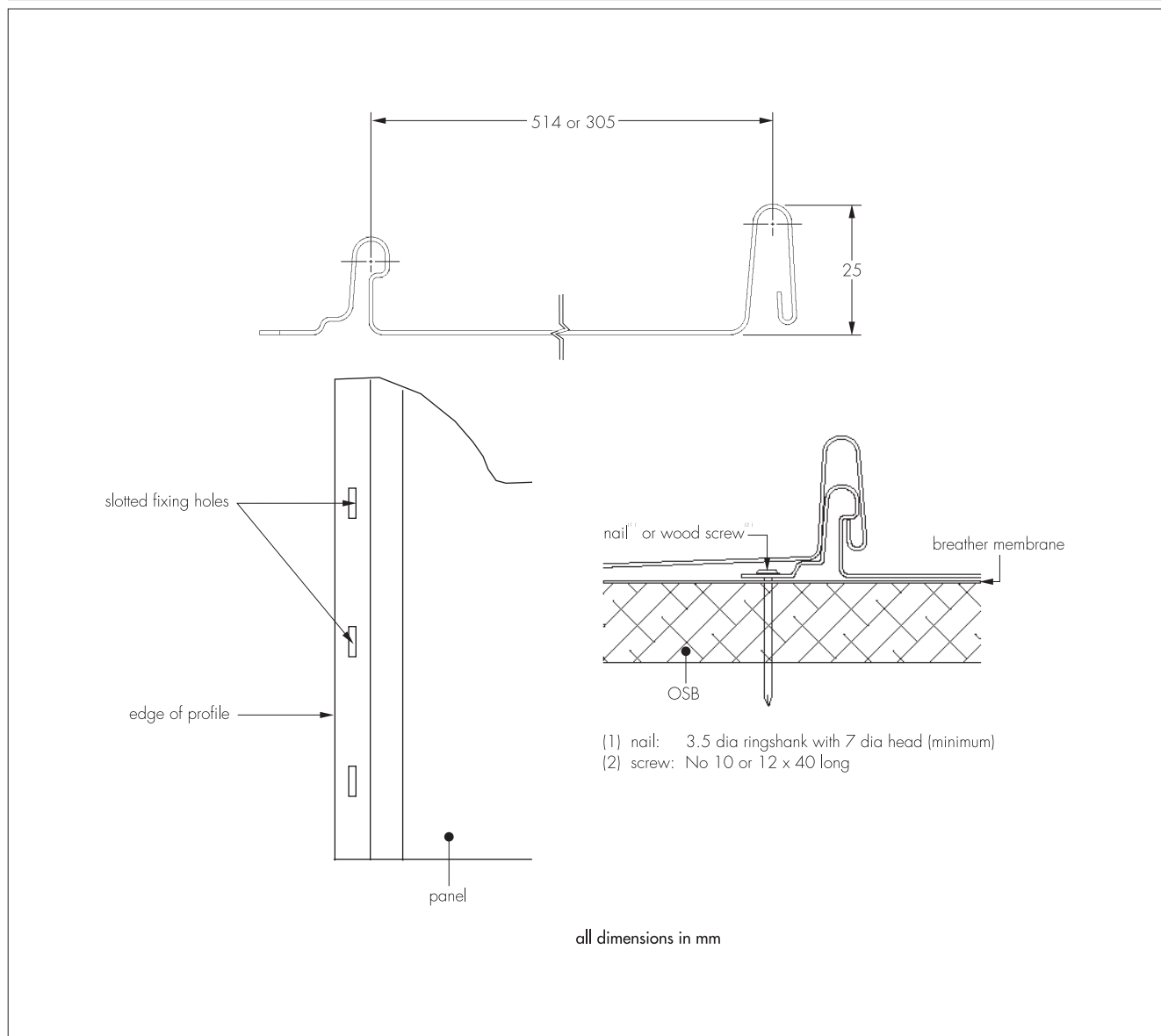
1 Description

1.1 The SSR² Wall Panel comprises an outer skin profiled from 0.7 mm thick, Galvalloy treated, grade S220GD steel sheets⁽¹⁾ to BS EN 10346 : 2015. The sheet is treated with a 200 µm thick HPS 200 plastisol coating on the exposed face and a 10 µm thick polyester coating on the reverse face.

(1) Subject of BBA Certificate 91/2717.

1.2 The panels are available in maximum lengths of 12.5 m with nominal panel widths of 514 mm and 305 mm with the profile shown in Figure 1.

Figure 1 Panel profile



1.3 The panels are available in a range of standard colours (see Table 1).

Table 1 Colour range

Colour	Nearest RAL Classic card, Design card or BS Card finish
Winter Sky	RAL 7040
Alaska	RAL 7000
Merlin	BS 18B25
Anthracite	RAL 7016
Terracotta	BS 04C39
Oxidised	RAL 0502010
Patina	RAL 1807025

Note: Additional colours can be produced using the Certificate holder's Repertoire colour consultancy service, but the performance of these colours is outside the scope of the Certificate.

1.4 The SSR² Wall Panel characteristics and declared performance in accordance to BS EN 14783 : 2013 are given in Table 2.

Table 2 Panel characteristics and declared performance

Characteristic	Performance*
Yield strength (kN·mm ⁻²)	0.7 mm sheet — 220
Tensile strength (kN·mm ⁻²)	0.7 mm sheet — 300
Elongation (%)	0.7 mm sheet — 20
Water permeability	Impermeable
Dimensional change	12 x 10 ⁻⁶ k ⁻¹
Water vapour and air permeability	Impermeable
Release of dangerous substances	Not classified as dangerous
Durability	Coating S220+ZA255
Reaction to fire	C-s2, d0

1.5 Other specified items used with the panels include:

- breather membrane — to BS EN ISO 12572 : 2001 (resistance 0.15 MN·s·g⁻¹)
- panel fixings — 3.3 mm diameter by 40 mm in length nails (eg Z FRP40W3) or wood screws for fixing panel to support such as OSB3 or plywood.

1.6 Other ancillary items specified for used with the panel but outside the scope of this Certificate include:

- sheathing — a continuous layer of minimum 15 mm or 18 mm thick OSB3 manufactured to BS EN 300 : 2006 or plywood board manufactured to BS EN 636 : 2012 to provide fully supported sheathing behind the panels
- fire board and fire breaks — especially for residential use
- insulation — for use such as mineral wool slab, PUR and PIR board
- insect mesh
- fasteners — clips, screws, nails and installation aids
- flashings — eg at corners, drip flashing, coping flashing.

2 Manufacture

2.1 SSR² Wall Panel profiles are manufactured from a single coil of plastisol-coated Galvalloy steel in the production process. This is supplied and processed into slit coils and then formed into specified profiles on the roll formers.

2.2 In a coil-coating process, the steel coil is degreased, chemically pre-treated and coated on the face and reverse sides and then profiled by roll-forming

2.3 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.

3 Delivery and site handling

3.1 The profiled panels are normally delivered to site in pre-specified lengths according to the dimensions of the wall on which they are to be installed, and palletted in packs of six or four depending on length and weight. Delivery is normally by lorry and unloading carried out by crane or moffet. The site must have adequate access and a suitable surface for this traffic.

3.2 During transport, the panels must be suitably restrained to prevent abrasion and their edges and corners protected against damage.

3.3 The panels should be stored on a firm, dry base, on bearers with a maximum spacing of 900 mm, away from the possibility of damage, and suitably protected. They should be stored as close as possible to the building where they are to be installed.

3.4 The panels should be handled in accordance with the Manual Handling Operations Regulations 2004 (revised version). The panels should be lifted from the stack rather than dragged across it.

3.5 When being moved by hand, the panels should be turned and carried on their edge using appropriate personal protective equipment (PPE).

3.6 Where possible, the panels should be lifted manually in the vertical position in single sheets to fix onto the wall. If a hoist is required, only suitable slings or ropes should be used, not chains. Care should be taken to avoid distortion due to bending.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on SSR² Wall Panels.

Design Considerations

4 General

4.1 SSR² Wall Panel is satisfactory for use on walls of new and existing buildings as:

- a protective/decorative covering over cold and warm cladding construction supported on a continuous layer of minimum 15 mm thick OSB3 or plywood board for use in residential buildings
- a weather proof covering to the outer skin of a structural insulated panel system (provided that they have a minimum thickness of 15 mm OSB3/plywood).

4.2 The design of the wall cladding must include:

- a minimum of 50 mm ventilated cavity system incorporating an insect guard to all ventilation openings to provide a back ventilated area
- all ventilation openings should be suitably protected, or baffled, to prevent the ingress of birds, vermin and rain
- an effective breather membrane between the OSB3/plywood board and the steel sheets to ensure that the system is protected
- a design thickness of OSB3/plywood board greater than 15 mm board and reduced vertical support spacings, to cope with higher wind pressure, if required

4.3 The wall to which the cladding is fixed must be watertight and resistant to the transmission of heat and sound.

4.4 The panels are dimensionally stable. The fixing arrangement and the recommended construction tolerances will adequately accommodate thermal movements.

4.5 It is important for designers, planners, contractors and/or installers to ensure that the installation of the product is in accordance with the Certificate holder's instructions and the information given in this Certificate.

5 Practicability of installation

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

6 Strength and stability



6.1 A suitably qualified and experienced individual must check the design and installation of the panels fixed onto the substrate in accordance to the relevant national Building Regulations and national Standards.

Wind loading

6.2 Design wind 'actions' should be calculated in accordance with BS EN 1991-1-4 : 2005. Due consideration should be given to the higher-pressure coefficients applicable to corners of the building as recommended in this Standard.

6.3 The contribution of the sheets and support board on the stability of the substrate is assumed to be negligible. The substrate wall must be able to take wind actions and any racking loads and be capable of sustaining the weight of the wall panel on its own as no contribution from the sheeting may be assumed in this respect. The adequacy of the substrate is outside the scope of this Certificate and must be verified by a suitably qualified and experienced individual.

6.4 The characteristic pull-out resistance of the fixing was carried out on the 15 mm OSB3 board and was calculated from pull-out failure values (determined by tests) and is given in Table 3.

Table 3 Characteristic pull-out resistance (kN)

Fixing type	Thickness of OSB3 board (mm)	Characteristic resistance (kN)
Z-FRP40W3	15	0.88
Z-FRP40W3	18	1.10

6.5 The characteristic pull-through resistance of the fixing was carried out on the 15 mm OSB3 board and was calculated from the pull-through failure values (determined by tests) and given in Table 4.

Table 4 Characteristic pull-through resistance (kN)

Fixing type	Thickness of OSB3 board (mm)	Characteristic resistance (kN)
Z-FRP40W3	18	1.00

6.6 The ultimate resistance/wind load resistance values have been confirmed from calculations and are given in Table 5.

Table 5 Ultimate resistance and wind load resistance values

Characteristic (units)	Panel width (mm)	
	305	514
Ultimate resistance (kN·m ²)	7.74	0.96
Wind load resistance (kN·m ²)	5.16	0.64

Note:

Allowing for a normal wind load factor of 1.5 on the ultimate resistance value, provided the designer ensures:

- fixing centres do not exceed 200 mm, and the panels will have adequate flexural resistance against all wind succession pressure likely to be experienced in the UK
- design of the panel must be such as to limit the mid-span deflections under succession pressure to L/100 or 20 mm, whichever is the lesser.


Impact loading

6.7 A construction comprising of panels 514 mm wide fixed by round head nails at 300 mm centres (except in the perimeter at 250 mm centres) to 18 mm OSB3 boards, was found to adequately resist hard and soft body impacts when tested to MOAT 43 : 1987. Therefore, the system supported to this specification may be considered suitable for use in Categories II, III and IV as defined in Table 4 of ETAG 034-1 : 2012 (reproduced in Table 6 of this Certificate).

Table 6 Location areas

Use category	Description
I	A zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use.
II	A zone liable to impacts from thrown or kicked objects, but in public locations where the height of the kit will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care.
III	A zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects.
IV	A zone out of reach from ground level.


7 Weathertightness

 7.1 The panels, when incorporated into a cladding system designed and installed in accordance with conventional good practice as per section 13, will adequately resist the passage of moisture.

7.2 The panels are suitable for use in back-ventilated and drained cladding systems.

7.3 The ventilation pathway behind the cladding must not be allowed to become blocked and openings should be suitably protected, or baffled, to prevent the ingress of birds, vermin and rain.

8 Behaviour in relation to fire

 8.1 When tested to BS 476-6 : 1989, a Goosewing Grey⁽¹⁾ sample of the product had an index of performance (I) of 2.8, and a sub-index (II) of 1.1. When tested to BS 476-7 : 1997, a similar sample achieved a Class 1 result. The product, therefore, has a Class 0/‘low risk’ surface as defined in the various national Building Regulations.

(1) Refer to BBA Certificate 91/2717.

8.2 The reverse side specifications are also Class 0/'low risk' surfaces.

8.3 For reaction to fire, the performance of the panel is declared as C-s2, d0* in accordance to BS EN 13501-1 : 2007. The panel is suitable for use in buildings less than 18 m in height.

8.4 For resistance to fire, the performance of a wall incorporating the panels can only be determined by tests from a suitably accredited laboratory and is not covered by this Certificate.

8.5 Cavity barriers should be incorporated behind the cladding as required under the national Building Regulations and must not block essential ventilation pathways. Particular attention should be paid to preventing the spread of fire from within a building breaching the cladding system through window and door openings.

9 Maintenance



9.1 Annual maintenance inspections should be carried out to ensure that all rainware is present and in good working order and that flashings and pans are in place and secure.

9.2 Maintenance painting should be considered approximately every 30 years for inland areas and 25 years for coastal areas, or earlier if inspections show this to be necessary or if a higher aesthetic standard is required. For suitable paint systems, the advice of the Certificate holder should be sought.

9.3 In some areas (eg coastal and industrial), it may be necessary to clean the installation periodically, both to restore its appearance and to remove potentially corrosive deposits. Hosing with a neutral detergent diluted with water is an effective method.

9.4 Damaged panels should be replaced as soon as is practicable, in accordance with the Certificate holder's instructions. Special tools are available to assist in the replacement of complete panels. Access to an individual panel for the purpose of replacement will require the prior removal of all panels located on either side, back to the edge of the wall.

10 Durability

10.1 The performance of the plastisol coating will depend on its environment, location and degree of exposure. The product will retain a good appearance for the time intervals given in section 9.2.



10.2 The panel is resistant to all normal atmospheric corrosive agents (including those found in coastal and industrial locations) and will withstand considerable distortion without loss of adhesion between the coating, the primer and the steel substrate.

10.3 The plastisol coating and Galvalloy surface treatment on SSR² Wall Panels (external sheets) will protect the steel substrate against corrosion for a period in excess of 40 years in normal industrial, urban, suburban and rural environments.

10.4 The performance of the coating will depend on its environment, location, aspect face and use (ie roofing or cladding). The product will retain a good appearance for at least 25 years in non-corrosive environments and at least 20 years in coastal or severe industrial environments.

11 Reuse and recyclability

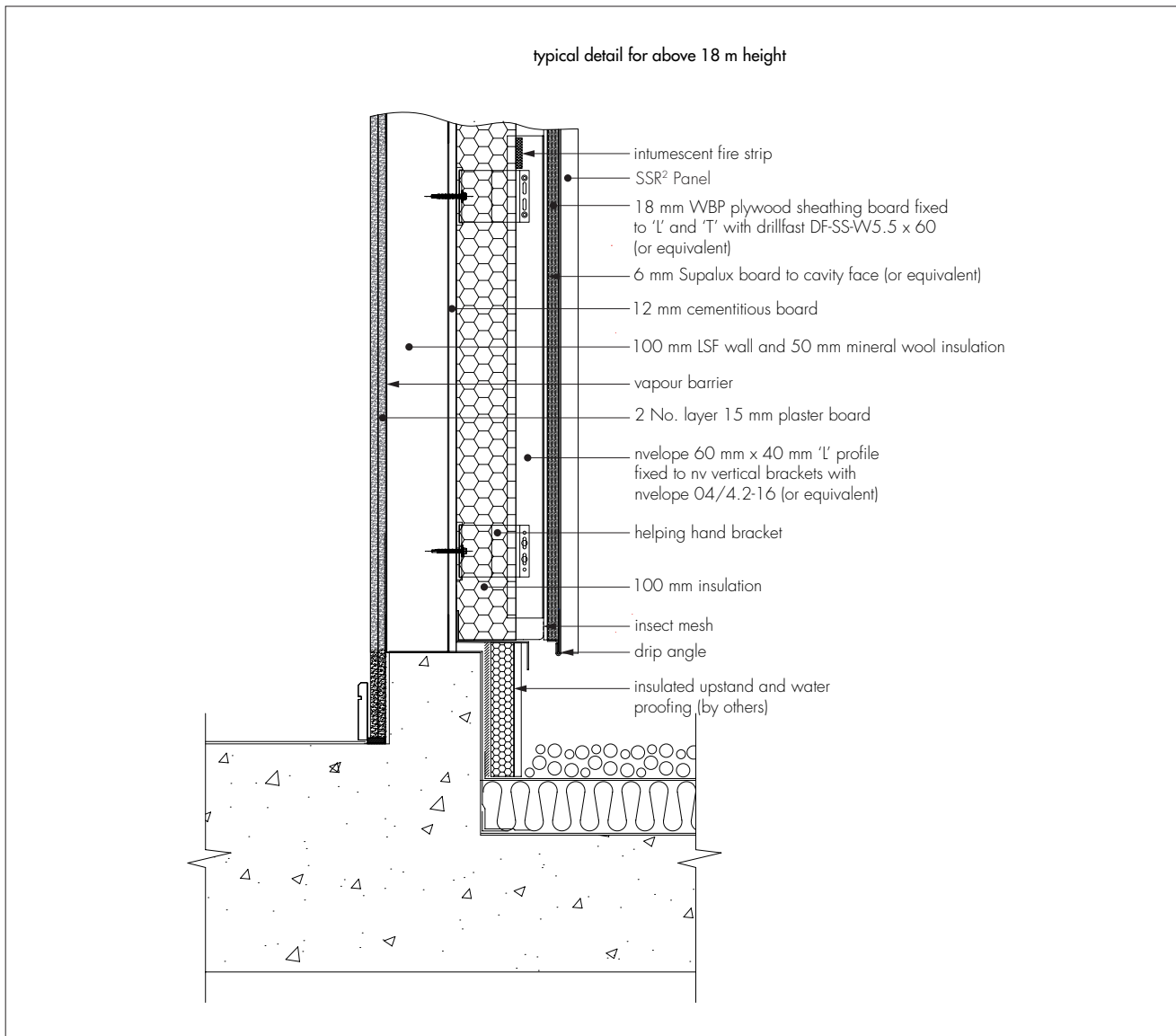
The Galvalloy steel substrate of the product can be fully recycled.

Installation

12 General

12.1 SSR² Wall Panels must be installed in accordance with the Certificate holder's recommendations, the requirements of this Certificate and specifications laid down by the consulting engineer. Typical installations are shown in Figure 2.

Figure 2 Typical installation



12.2 Installers must be trained and approved by the Certificate holder who can provide technical assistance at the design stage and at the start of the installation, and supply the necessary equipment.

13 Procedure

13.1 Wall dimensions are checked against the drawings and for squareness. The window flashings, bottom drip, wall eave and drip dimensions are similarly checked.

13.2 The wall flashings should be placed in the correct sequence before installing the panels (see Figure 2).

13.3 Working from the right or left hand end of the wall (as viewed from ground level), the first panel is cut or formed and installed with the leading edge in line with the wall edge and its nail strip on the opposite edge (see Figure 1).

13.4 For detailing around windows and doors, the manufacturer's guidance must be followed and processes based on work instructions available.

13.5 The next panel is clipped onto the first and secured to the wall at the predetermined fixing centres, ensuring its rib is parallel with that of the first. Subsequent panels are similarly fitted.

13.6 To allow for thermal movement, the fixings must be of the correct size, located centrally in the nail strip holes with adequate clearance, and not bear too tightly against the plate (see Figure 3).

13.7 Once the penultimate panel has been installed, the left or right hand end panel can be fitted to suit the wall edge, and the corner detail completed.

13.8 To minimise thermal expansion in hot, sunny weather, the panels should be protected from direct sunlight until ready for use. Conversely, when installing in cold weather, the panels may be 'stretched' against the previously installed panel rib before fixing down (see Figure 4).

13.9 To ensure good weathertightness and efficient rainwater run-off, all components such as edge details and sealants must be used in accordance with the Certificate holder's specifications and manufacturer's instructions.

Figure 3 Fixing details

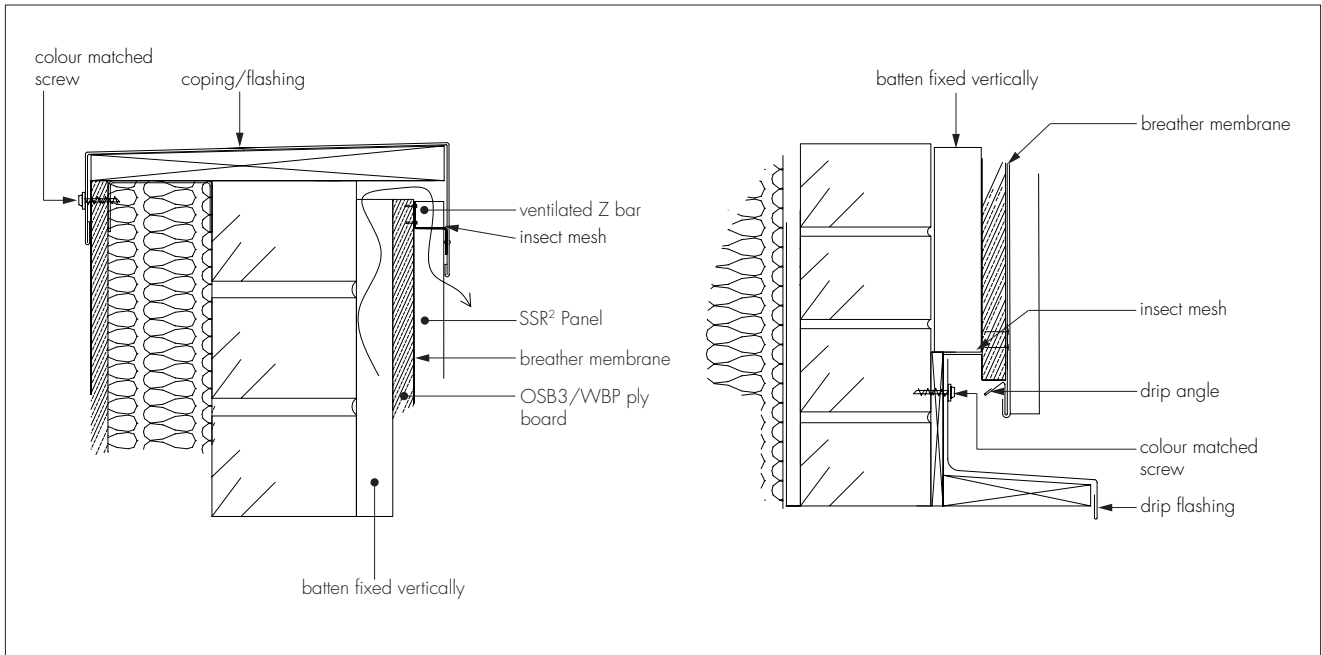
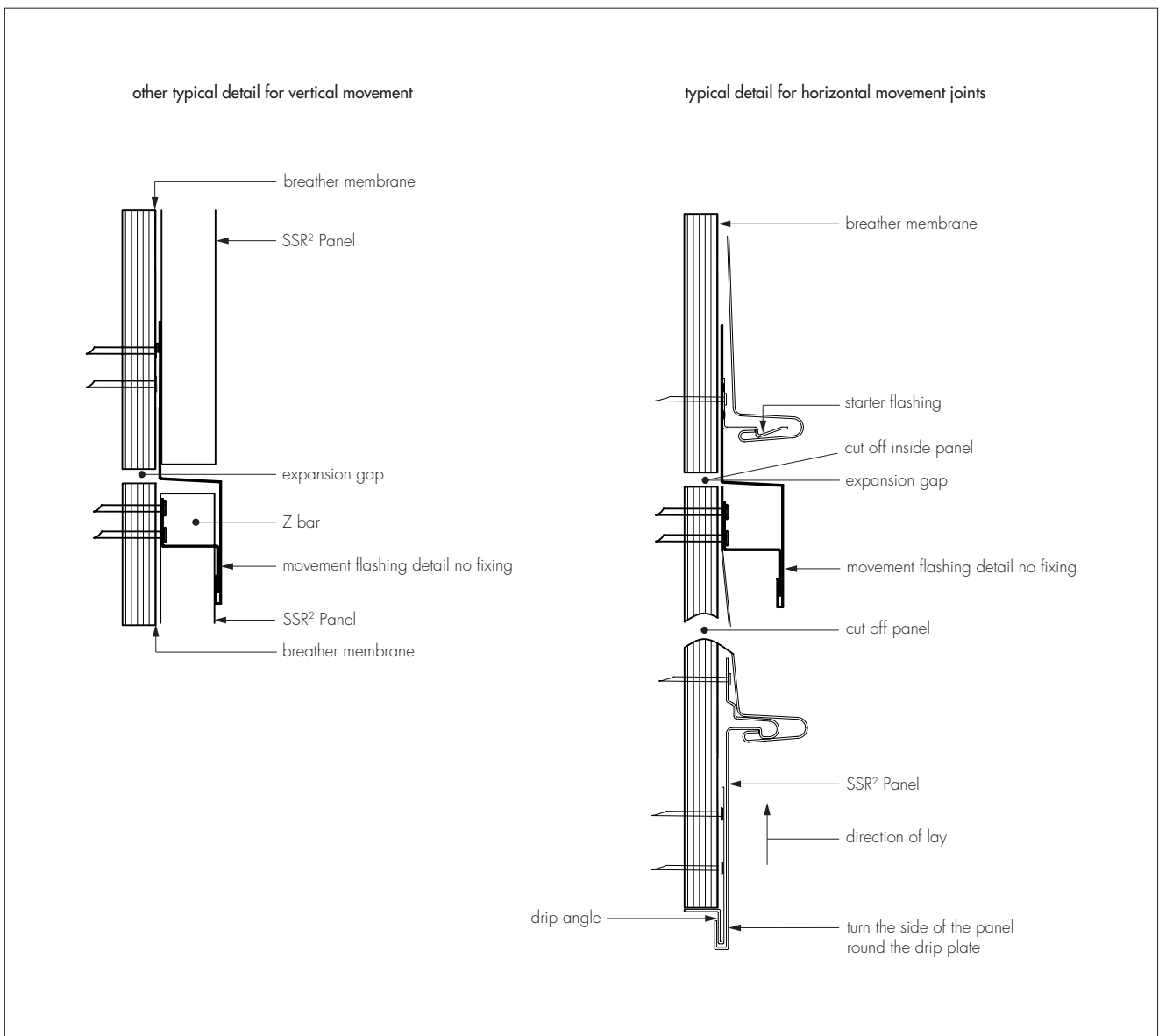


Figure 4 Movement joints



14 Tests

Based on test data an assessment was made of the panel's performance in relation to:

- behaviour under thermal actions
- structural ability of fixings onto OSB3 board
- impact
- reaction to fire
- rain penetration
- durability.

15 Investigations

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

Bibliography

- BS 476-6 : 1989 *Fire tests on building materials and structures — Method of test for fire propagation for products*
BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame products*
BS EN 300 : 2006 *Oriented Strand Boards (OSB) Definitions, classification and specifications*
BS EN 636 : 2012 *Plywood — Specifications*
BS EN 1991-1-4 : 2005 *Eurocode 1 : Actions on structures — General actions — Wind actions*
BS EN 10346 : 2015 *Continuously hot-dip coated steel flat products — Technical delivery conditions*
BS EN 13501-1 : 2007 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*
BS EN 14783 : 2013 *Fully supported metal sheet and strip for roofing, external cladding and internal lining. Product specification and requirements*
BS EN ISO 12572 : 2001 *Hygrothermal performance of building materials and products. Determination of water vapour transmission properties*
ETAG 034-1 : 2012 *Ventilated Cladding Kits comprising Cladding components and associated fixings*
MOAT 43 : 1987 *UEAtc Directives for Impact Testing Opaque Vertical Building Components*

16 Conditions

16.1 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 or 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.

16.2 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.

16.3 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.

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

16.5 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.

16.6 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.