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Agrément Certificate

11/4845

Product Sheet 3

PANELES ARAUCO BOARDING

ARAUCOPY FOR SHEATHING

This Agrément Certificate Product Sheet⁽¹⁾ relates to AraucoPly for Sheathing, a loadbearing softwood plywood panel suitable for use in dry and humid conditions as sheathing in domestic and non-domestic buildings, subject to height restrictions.

(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

Structural performance — the product, when incorporated into a wall structure, can contribute to structural strength and stiffness by distributing the dead and imposed loads to the supporting structure (see section 6).

Behaviour in relation to fire — the reaction-to-fire classification is of D-s2, d0 for the product and is restricted in some cases (see section 7).

Resistance to moisture — provided adequate precautions are taken, the product has adequate moisture resistance (see section 8).

Durability — the sheathing will have a life equal to that of the building in which it is installed (see section 11).

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 Second issue: 3 December 2021

Originally certificated on 11 October 2011

Hardy Giesler
Chief Executive Officer

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 MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

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Regulations

In the opinion of the BBA, AraucoPly for Sheathing, 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 has sufficient strength and stiffness to sustain and transmit design loads to the primary structure without excessive deflection. See sections 4.1 and 6 of this Certificate. |
| Requirement: | B3(1)(2)(3)(4) | Internal fire spread (structure) |
| Comment: | | The product can contribute to satisfying the regulatory requirements. See sections 7.1 and 7.2 of this Certificate. |
| Requirement: | C2(b)(c) | Resistance to moisture |
| Comment: | | The product can be incorporated into a wall structure, suitably designed to prevent excessive interstitial and surface condensation. See section 8 of this Certificate. |
| Regulation: | 7(1) | Materials and workmanship |
| Comment: | | The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate. |
| Regulation: | 7(2) | Materials and workmanship |
| Comment: | | The product is restricted by this Regulation. See section 7.2 of this Certificate. |



The Building (Scotland) Regulations 2004 (as amended)

| | | |
|--------------------|------------------|---|
| Regulation: | 8(1) | Durability, workmanship and fitness of materials |
| Comment: | | The use of the product satisfies the requirements of this Regulation. See section 11 and the <i>Installation</i> part of this Certificate. |
| Regulation: | 9 | Building standards construction |
| Standard: | 1.1(a)(b) | Structure |
| Comment: | | The product has sufficient strength and stiffness to sustain and transmit design loads to the primary structure without excessive deflection, in accordance with clauses 1.1.1 ⁽¹⁾⁽²⁾ , 1.1.2 ⁽¹⁾⁽²⁾ and 1.1.3 ⁽¹⁾⁽²⁾ of this Standard. See sections 4.1 and 6 of this Certificate. |
| Standard: | 2.1 | Compartmentation |
| Standard: | 2.2 | Separation |
| Standard: | 2.3 | Structural protection |
| Standard: | 2.9 | Escape |
| Comment: | | The product can contribute to satisfying the regulatory requirements in accordance with clauses 2.1.1 ⁽²⁾ , 2.1.12 ⁽²⁾ , 2.2.1 ⁽¹⁾⁽²⁾ , 2.2.2 ⁽¹⁾⁽²⁾ , 2.2.3 ⁽¹⁾⁽²⁾ , 2.2.4 ⁽¹⁾⁽²⁾ , 2.2.5 ⁽²⁾ , 2.2.6 ⁽¹⁾ , 2.2.8 ⁽¹⁾ , 2.3.2 ⁽¹⁾⁽²⁾ , 2.9.4 ⁽¹⁾ and 2.9.24 ⁽²⁾ of these Standards. See section 7.1 of this Certificate. |
| Standard: | 3.10 | Precipitation |
| | 3.15 | Condensation |
| | | A vapour control layer must be provided on the room side of the construction to prevent damage arising from the passage of moisture vapour from the interior of |

the building, in accordance with clauses 3.15.3⁽¹⁾⁽²⁾, 3.15.6⁽¹⁾⁽²⁾ and 3.15.7⁽¹⁾⁽²⁾. See section 8 of this Certificate.

(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 product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate. |
| Regulation: | 28(b) | Resistance to moisture and weather |
| Comment: | | Walls constructed from the product can satisfy this Regulation. See section 8 of this Certificate. |
| Regulation: | 29 | Condensation |
| Comment: | | A vapour control layer must be provided on the room side of the construction to prevent damage due to interstitial condensation. See section 8 of this Certificate. |
| Regulation: | 30 | Stability |
| Comment: | | The product has sufficient strength and stiffness to sustain and transmit design loads to the primary structure without excessive deflection. See sections 4.1 and 6 of this Certificate. |
| Regulation: | 35(1)(2)(3)(4) | Internal fire spread – structure |
| Comment: | | The product is restricted by this Regulation. See section 7.1 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 1.3), 3 *Delivery and site handling* (3.5) and 12 *General* (12.1 and 12.2) of this Certificate.

Additional Information

NHBC Standards 2021

In the opinion of the BBA, AraucoPly for Sheathing, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Part 6 *Substructure (excluding roofs)*, Chapters 6.2 *External timber-framed walls* and 6.3 *Internal walls*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13986 : 2004.

Technical Specification

1 Description

1.1 AraucoPly for Sheathing comprises thin layers of pinewood with a thickness of 2.54 and 3.50 mm before pressing, 2.4 and 3.0 mm after pressing, bonded together with phenolic resins (class 3 in accordance with BS EN 314-2 : 1993). The panel is manufactured to the specification detailed in BS EN 13986 : 2004.

1.2 The panel is produced in a range of thicknesses and is available in sizes depending on the thickness and edge treatment: square or tongue-and-groove edge (see Table 1). The panel is either sanded or unsanded.

| Panel thickness (mm) | Panel size (mm) | |
|----------------------|-----------------|---------------------------------------|
| | square edge | tongue-and-groove edge (on two sides) |
| 9 | 2440 x 1220 | – |
| | 2400 x 1200 | – |
| 12 | 2440 x 1220 | 2440 x 1220 |
| | 2400 x 1200 | 2440 x 1220 |
| 15 | 2440 x 1220 | 2440 x 1220 |
| | 2400 x 1200 | 2440 x 1220 |
| 18 | 2440 x 1220 | 2440 x 1220 |
| | 2400 x 1200 | 2440 x 1220 |
| 21 | 2440 x 1220 | 2440 x 1220 |
| | 2400 x 1200 | 2440 x 1220 |
| 25 | 2440 x 1220 | – |
| | 2400 x 1200 | – |
| 30 | 2440 x 1220 | – |
| | 2400 x 1200 | – |

1.3 The nominal density of the panel is 450 kg·m⁻³.

2 Manufacture

2.1 The product is manufactured by Maderas Arauco S.A in Los Horcones and Paneles Arauco in Ranquil, in Chile.

2.2 Logs are fed into soaking chambers and peeled into thin layers in lathe machines. The layers are dried and sorted into different grades (those with defects repaired in a patching machine) prior to the application of glue. The layers are bound together to form boards, pressed by machine and defects repaired before trimming into panels and sanding to size and thickness.

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 Handling, storage and delivery of the panels should be carried out in accordance with the requirements of PD CEN/TR 12872 : 2014 and BS 8103-3 : 2009.

3.2 To prevent distortion, panels should be stacked flat, clear of the floor, on level bearers, at centres not exceeding 600 mm.

3.3 The panels should be stored on a level surface in a dry environment.

3.4 Each panel carries a production and dispatch label. The production label bears the product name, grade, size, thickness, production date and product ID. The dispatch label contains product description, customer, destination and ID number (to enable the product to be traced, if required).

3.5 For delivery, panels should be covered in transit to protect from weather and to minimise changes in moisture content. Care should be taken to protect the edges and corners, and the protective cover must not be removed until boards are ready for installation (see section 8.4).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on AraucoPly for Sheathing.

Design Considerations

4 General



4.1 AraucoPly for Sheathing is satisfactory for use as sheathing in dry and humid conditions as specified for plywood in PD CEN/TR 12872 : 2014.

4.2 Fabrication and installation of the panels, including the provision of moisture movement gaps, must be in accordance with PD CEN/TR 12872 : 2014 and BS EN 1995-1-1 : 2004 and its UK National Annex. Exposure to the elements should be minimised during installation.

4.3 Timber structures in which the product is incorporated must be designed and constructed to comply with BS EN 1995-1-1 : 2004 and its UK National Annex.

4.4 In accordance with BS EN 636 : 2012, the product is suitable for use in environmental conditions covered by use classes 1 and 2 for wood and wood-based products, as defined in BS EN 335 : 2013. In such environments, the panel must be covered and fully protected from the elements. It is recommended that the moisture content of the product should not exceed 16% for any significant period, or 20% at any time. Prolonged exposure to an air temperature of 20°C and a relative humidity of 90% may result in the recommended moisture content being exceeded.

4.5 The design thermal conductivity (λ value) of plywood, given in BS EN 12524 : 2000, is $0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ and as such will not have a significant effect on the thermal transmittance (U value) of the wall construction.

5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Structural performance



6.1 The design racking resistance of a timber-frame wall incorporating the product nailed to studding should be calculated in accordance with the guidance given in BS EN 1995-1-1 : 2004 and its UK National Annex, by a chartered structural engineer or similarly experienced and qualified person, based upon the vertical design load on the wall and the nail spacing and nail characteristics used to attach the sheathing.

6.2 As a guide, when calculated in accordance with BS EN 1995-1-1 : 2004, Method B, the basic racking resistance of a timber-frame wall⁽¹⁾ without vertical loading and with 9 mm thick sheathing fixed with nails⁽²⁾ at 100 mm spacing is $3.62 \text{ kN}\cdot\text{m}^{-1}$, and at 150 mm spacing is $2.77 \text{ kN}\cdot\text{m}^{-1}$.

(1) Studs: timber grade C16, minimum size 38 mm by 75 mm and spaced at a maximum of 600 mm.

(2) Nails: minimum diameter 3.1 mm, minimum length 50 mm and ultimate tensile strength $700 \text{ N}\cdot\text{mm}^{-2}$.

7 Behaviour in relation to fire



7.1 The panel has a reaction-to-fire classification of D-s2, d0 in accordance with BS EN 13986 : 2004, Table 8.



7.2 In England and Wales the product should not be used on external walls of buildings that have a storey at least 18 m above ground level and contain: one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.

7.3 Designers should refer to the relevant national Building Regulations and guidance for alternative approaches, detailed conditions of use, particularly in respect of requirements for fire resistance, cavity barriers, service penetrations and combustibility limitations for other materials and components used in the overall wall construction, for example, thermal insulation and cladding.

7.4 Where the panel is incorporated in a wall construction which is subject to fire resistance requirements, an appropriate assessment or test must be carried out by a United Kingdom Accreditation Service (UKAS) accredited laboratory for the test concerned.

8 Resistance to moisture



8.1 In common with all timber products, softwood plywood is subject to moisture movement. As a guide, an increase in moisture content of 1% increases the length by 0.02%, width by 0.03% and thickness by 0.5%.

8.2 Under similar environmental conditions, softwood plywood will take longer to equilibrate and will attain an equilibrium moisture content approximately 2 to 3% lower than solid timber.

8.3 To avoid distortion and damage to finishes, movement gaps, in accordance with the recommendations of PD CEN/TR 12872 : 2014, should be provided when installing the panel.

8.4 To minimise subsequent movement, before installation all wet site operations should be completed and the panel conditioned as close as is practicable to the environmental conditions likely to occur in service.

8.5 Damp-proof membranes and vapour control layers should be incorporated as necessary in accordance with the requirements of BS 8103-3 : 2009 and BS 5250 : 2011.

8.6 In a wall construction, in calculations for interstitial condensation according to BS 5250 : 2011, the water vapour resistance factor (μ) of plywood can be taken as 187 (dry cup) and 65 (wet cup) from BS EN ISO 10456 : 2007, Table 3.

8.7 Walls must have an effective vapour control layer on the warm side, suitable weather protection on the outside, a vented cavity and membrane in accordance with BS 5250 : 2011. The product should be treated as conventional sheathing panel with regard to detailing and damp-proofing at openings, eaves and sole plate, the fixing of wall ties.

8.8 The outer weatherproofing should have adequate resistance to wind-driven rain, particularly in regions classified as severe exposure.

9 Formaldehyde content

When tested for release of formaldehyde in accordance with BS EN 717-1 : 2004, the panel achieved a Class E1 formaldehyde specification in accordance with BS EN 13986 : 2004. Therefore, when used in accordance with this Certificate, the quantity of formaldehyde gas emitted from the panel alone will not raise the overall building level to an extent which will affect habitability.

10 Maintenance

As the product has suitable durability, is normally confined within the building structure and is, in most cases, covered with finishes, maintenance is not required.

11 Durability



11.1 The product has adequate durability and should have a life equal to that of the wall in which it is installed.

11.2 Care should be taken when designing, detailing and constructing buildings to ensure that moisture does not accumulate within the product.

Installation

12 General

12.1 The product can be cut and fixed using conventional woodworking tools. Normal precautions should be taken to avoid inhalation of wood dust when cutting, drilling and sanding the panels.

12.2 The product can withstand normal site handling and fixing. Damaged panels should not be used. Normal safety precautions should be observed when handling large panels.

13 Procedure

13.1 Installation of AraucoPly for Sheathing should be by use of conventional methods in accordance with PD CEN/TR 12872 : 2014 or BS 8103-3 : 2009, and the manufacturer's recommendations.

13.2 Exposure to weather should be minimised during installation. If wetted, boards must be allowed to dry out thoroughly before applying any floor coverings or surface coatings, or subjecting them to the full design load.

Technical Investigations

14 Investigations

14.1 An assessment was made of test reports relating to:

- material characteristics in accordance with the requirements of BS EN 636 : 2012 for plywood
- reaction to fire in accordance with BS EN 13823 : 2002 and BS EN ISO 11925-2 : 2002.

14.2 Calculations were carried out in accordance with BS EN 1995-1-1 : 2004 and its UK National Annex to determine the racking resistance of the product.

14.3 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 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*
- BS 8103-3 : 2009 *Structural design of low-rise buildings — Code of practice for timber floors and roofs for housing*
- BS EN 314-2 : 1993 *Plywood — Bonding quality — Requirements*
- BS EN 335 : 2013 *Durability of wood and wood-based products — Use classes: definitions, application to solid wood and wood-based products*
- BS EN 636 : 2012 + A1 : 2015 *Plywood— Specifications*
- BS EN 717-1 : 2004 *Wood-based panels — Determination of formaldehyde release — Formaldehyde emission by the chamber method*
- BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*
- NA to BS EN 1995-1-1 : 2004 + A2 : 2014 *UK National Annex to Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*
- BS EN 12524 : 2000 *Building materials and products — Hygrothermal properties — Tabulated design values*
- BS EN 13823 : 2002 *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*
- BS EN 13986 : 2004 + A1 : 2005 *Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking*
- BS EN ISO 10456 : 2007 *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*
- BS EN ISO 11925-2 : 2002 *Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Single-flame source test*
- PD CEN/TR 12872 : 2014 *Wood-based panels — Guidance on the use of load-bearing boards in floors, walls and roofs*

15 Conditions

15.1 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.

15.2 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.

15.3 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.

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

15.5 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.

15.6 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.