

SMARTPLY OSB (Oriented Strand Board)

**Planche Universelle
Universalbrett**

NSAI Agrément (Irish Agrément Board) is designated by Government to issue European Technical Approvals.

NSAI Agrément Certificates establish proof that the certified products are '**proper materials**' suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 and subsequent revisions**.



PRODUCT DESCRIPTION

This Certificate relates to SMARTPLYOSB (Oriented Strand Board) 6mm - 40 mm board for use as wall sheathing, structural flooring, heavy duty/industrial flooring, roof sarking and roof decking, in domestic dwellings. The board is manufactured from wood flakes, which are dried and blended with resin and wax and pressed into a mat. This mat is then cured, trimmed to size and sanded (if required). The board is available in OSB/2 and OSB/3 grades.

USE

The board uses include, but are not limited to, wall sheathing, structural flooring, heavy duty/industrial flooring, roof sarking and roof decking and when supported at centres not exceeding 600mm. The range includes 6 mm

board for use as floor wearing surface, 9 and 11 mm wall sheathing, 15 and 18 mm floor and roof decking, >25 mm thick board for industrial flooring applications.

MANUFACTURE AND MARKETING:

The product is manufactured and marketed by

SMARTPLY

Belview, Slieverue via Waterford

Tel: +353 (0) 51 851233

Fax: +353 (0) 51 851130

Web site: www.smartply.com

Email: info@coillte.com

1.1 ASSESSMENT

In the opinion of NSAI Agrément, SMARTPLY OSB, if used in accordance with this Certificate, meets the requirements of the Irish Building Regulations 1997 and subsequent revisions, as indicated in Section 1.2 of this Certificate.

1.2 BUILDING REGULATIONS REQUIREMENT:

Part A – Structure

A1– Loading

The SMARTPLY OSB board contributes to the structural strength and stiffness of a floor by distributing the dead and imposed loads to the supporting structure. (See Part 3 of this Certificate).

Part B – Fire Safety

B2, B7 – Internal fire spread (linings)

The SMARTPLY OSB board can contribute to meeting this regulation. See section 4.1 of this certificate.

B3, B8 – Internal fire spread (Structure)

The SMARTPLY OSB board have been assessed for surface spread-of-flame rating and reaction-to-fire classification. The product can meet this requirement provided they are incorporated into a wall and roof construction as described in Section 4.1 of this certificate.

B4, B9 – External Fire Spread

SMARTPLY OSB board when incorporated into a wall construction which is subject to a fire resistance requirement can meet the requirements of this regulation when incorporated into a wall and roof construction as described in Section 4.1 of this certificate.

Part C – Site Preparation and Resistance to Moisture

C4 – Resistance to Weather and Ground Moisture

SMARTPLY OSB board meets the requirements of this regulation when installed as indicated in Section 2.4, in walls, floors and pitched roofs constructed in compliance with Part 3 of this Certificate.

Part D – Materials and Workmanship

D3 – Proper Materials

SMARTPLY OSB board, as certified in this Certificate, is comprised of proper materials fit for their intended use (See Part 4 of this Certificate).

D1 – Materials & Workmanship

SMARTPLY OSB board, as certified in this Certificate, meets the requirements of the building regulations for workmanship.

Part F – Ventilation

F1 – Means of Ventilation

SMARTPLY OSB board can meet the requirements of this regulation, when installed in accordance with Part 2 and 3 of this Certificate.

F2 – Condensation in Roofs

SMARTPLY OSB board meets the requirements of this regulation, when designed and installed in accordance with Section 2.4 and Part 3 of this Certificate.

Part J – Heat Producing Appliances

J3 – Protection of Building

SMARTPLY OSB board, if used in accordance with this Certificate, meets the requirements of this regulation. Combustible material shall be separated by solid non combustible material not less than 200 mm thick, from any heating appliance or from any flue pipe or opening to a heating appliance.

Part L – Conservation of Fuel and Energy

- Dwellings

- Buildings other than Dwellings

L1 - Conservation of fuel and energy

The SMARTPLY OSB board when incorporated into building elements will not significantly contribute to the thermal resistance of that element.

2.1 PRODUCT DESCRIPTION

SMARTPLY OSB board comprises wood flakes/strands bonded together with a blend of resins and wax. The board is manufactured in accordance with EN300 – Oriented Strand Boards (OSB) – Definitions, Classification and Specifications.

2.1.1 PRODUCT RANGE

SMARTPLY OSB boards are manufactured in grades OSB/2 and OSB/3. The boards are available in a range of sizes, typically 2440 x 1220, and a range of thicknesses as described in Table 1 of this certificate. Boards are generally available as square edged in all thickness ranges; alternatively boards are available as tongued and grooved on the two long edges or on all four edges on a limited range of board sizes (See Table 1). Other sizes are available on request. The boards are available sanded if required.

2.2 MANUFACTURE

SMARTPLY OSB is produced from Irish grown, small diameter spruce and pine. Logs meeting specified requirements are debarked before passing through a flaking machine, which slices the logs into strands of predetermined dimensions and uniform thickness. The strands/flakes are dried to a low moisture content and screened to remove the fines. The dried wafers then are conveyed to the blender, where they are blended with resin and wax. The flakes are formed into a mat and mechanically aligned so that the outer two surface layers are in the direction of the major axis (the strength direction) and the core layer oriented at right angles to create a three ply structure. This design increase the structure and performance of the board as it distributes the strength, stiffness and spanning capacity of the panels (boards) along and across the boards. The mat is then cured under pressure and temperature, cooled, cut to size, stamped, stacked and packaged.

2.2.1 QUALITY CONTROL

Quality control is carried out on a continuous basis from incoming raw material to finished product and quality control includes a visual examination of the logs, checks on moisture content and dimensions of the flakes/strands, percentage resin and wax, time and temperature of pressing, and dimensional and strength tests on the finished board. The boards are then stored on level bearers to prevent distortion. Quality is achieved by the implementation of the internationally recognised quality management system I.S. EN ISO 9001:2008 which is certified by the National Standards Authority of Ireland.

2.3 DELIVERY, STORAGE AND MARKING

SMARTPLY OSB boards are delivered banded together in Bundles up to two tonnes or as specified by customers.

The boards should be covered during transport in such a way as to minimise changes in moisture content due to weather.

On site the boards must be stored clear of the ground on level bearers to prevent distortion. In common with most timber products, effective protection against the weather during storage is essential.

Each board bears the SMARTPLY logo, date of manufacture and shift code of production and Agrément Certificate number plus board grade and arrows to indicate major axis. The major axis is the direction parallel to the grain of the wood fiber in the face and back surfaces of the panel. This is generally the long dimension of the panel, unless the markings on the panel indicate otherwise. Wood is strongest in the direction parallel to grain. As a result, the strength and stiffness properties of wood based panels are greater in the direction parallel to the strength axis than perpendicular to it.

2.4 INSTALLATION PROCEDURE

Floors

All Floors

2.4.1 All installation must be in accordance with the manufacturer's instructions and meet all relevant requirements of I.S. EN 1995-1-2:2005: *Design of timber Structures- General*.

2.4.2 SMARTPLY OSB boards when installed as flooring should be laid with the major axis of the boards crossing the joists.

2.4.3 The tongued and grooved or square edged boards must be nailed or screwed to all supports using ring shank nails or screws (with a minimum penetration to the support of 2.5 x board thickness) at a maximum of 150mm centres on all joists. The cross joints on the board should be staggered and the joints between the boards should be glued (on tongued and grooved boards).

2.4.4 In flooring applications all cut edges or square edge boards which are not supported with joists must be supported on noggins.

2.4.5 Unsupported edges of boards at the perimeter of a floor, and edges that are not coincident with joists, should be supported on bridgings.

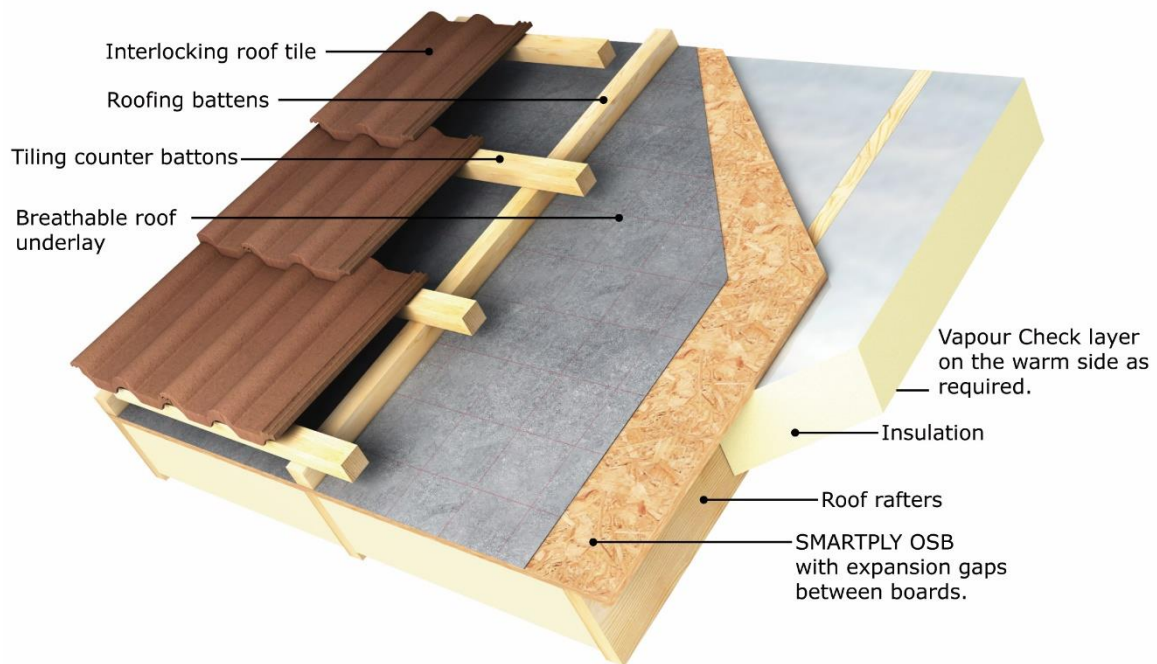


Figure 1 - Pitched Roof (Sarking)

Product	Thickness (mm)	2997 x 1197	26987 x 1197	2650 x 1197	2500 x 1197	2440 x 1220	2440 x 1205	2440 x 1197	2440 x 590	2400 x 1220	2400 x 600	2397 x 1200	2397 x 1197	1980 x 1197	1829 x 1197	1340 x 1197	597 x 1197	597 x 2397
OSB/2 SE	6					•												
	8					•												
	11					•												
	15					•												
	18					•												
OSB/2 T&G2	18						•											
OSB/2 T&G4	18								•									
OSB/3 SE	9	•	•	•	•	•		•		•		•	•	•	•			
	10					•							•					
	11		•			•							•		•			
	12					•												
	15					•							•					
	18					•							•					
	20					•												
	22					•												
OSB/3 T&G2	12.5						•					•						
	15						•					•						
	18						•					•						
	22						•					•						
OSB/3 T&G4	12							•										
	15							•			•							
	18							•			•							
	22							•			•							
	24							•										

SE = Square Edge
 T&G2 = Tongue and Groove profile on the two long edges
 T&G4 = Tongue and Groove profile on all four edges

Table 1 - Product Range

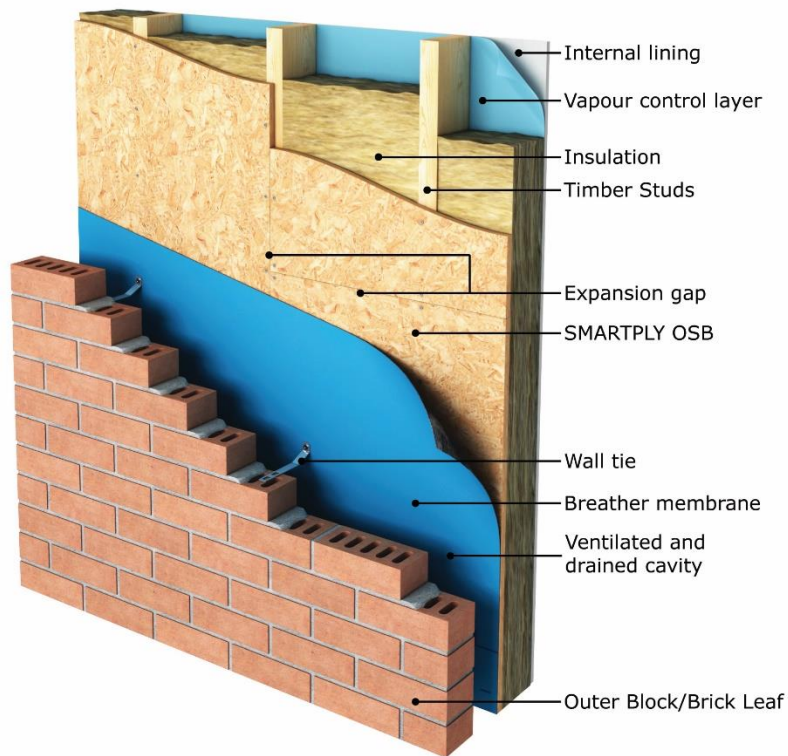


Figure 2 - Typical wall sheathing detail

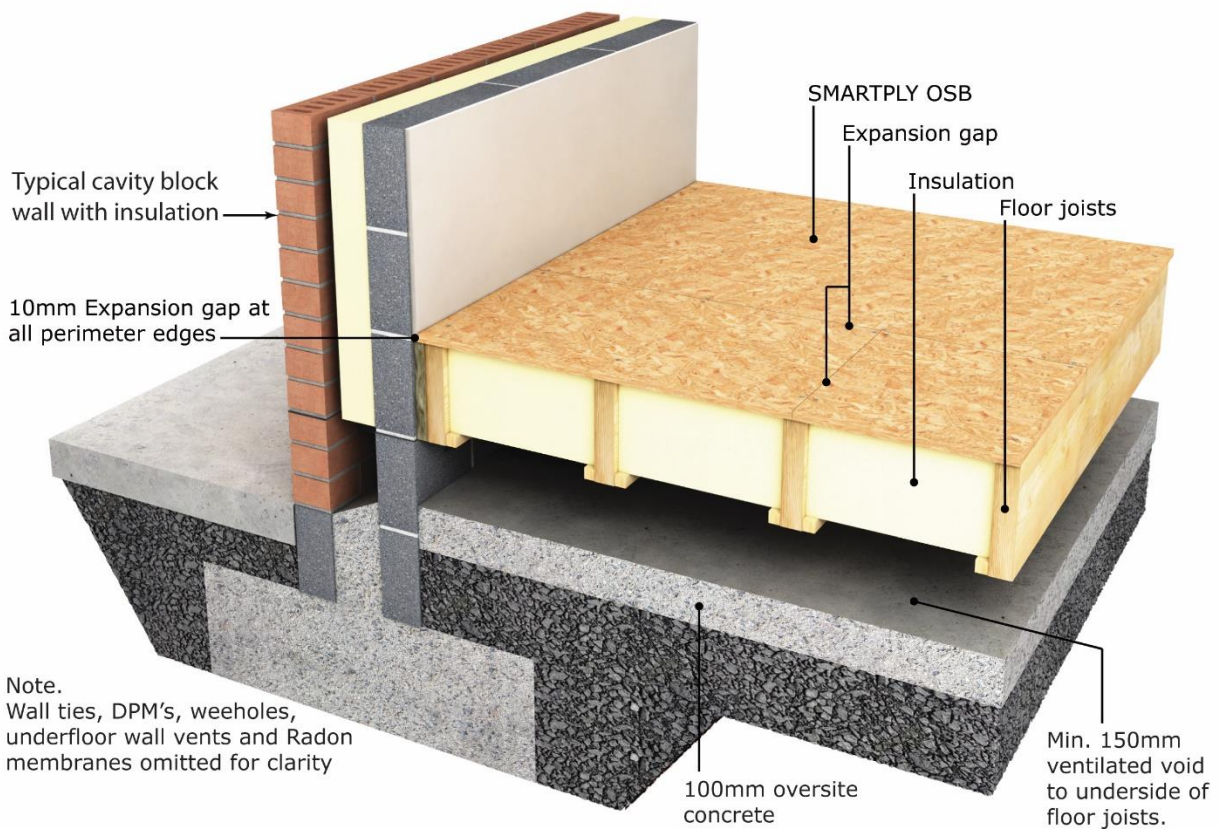


Figure 3 - Typical floor detail

2.4.6 Provision must be made for possible expansion by providing a gap wherever boards abut any rigid upstand such as a perimeter wall, column, or fireplace surround. This gap should be not less than 10mm wide. Large floors may need a wider gap and intermediate expansion gaps to allow for a possible overall expansion of 2mm per metre length of floor.

2.4.7 SMARTPLY OSB Board is suitable for temporary exposure to the elements during installation; however, such exposure must be for the shortest possible period. Where possible therefore, flooring should not be laid until the dwelling is glazed and substantially watertight. If wetted, the boards must be allowed to dry out thoroughly before applying any floor coverings or surface coatings or subjecting the boards to the full design load. Where exposure to moisture is a possibility OSB/3 should be used as it is more resistant to moisture.

2.4.8 Single boards can be lifted manually. When boards are lifted mechanically, care must be taken to ensure that the lifting ropes or slings do not cause damage to edges.

Ground floors

2.4.9 SMARTPLY OSB boards can be installed on suspended timber ground floors or solid concrete floors provided that the floor has been satisfactorily designed to prevent the passage of ground moisture and/or radon gas to the interior of the building in accordance with Technical Guidance Document (TGD) Part C to the Building Regulations. In addition the ground floor design must meet the thermal requirements outlined in TGD Part L to the Building Regulations.

Wall Sheathing

2.4.10 In accordance with normal good practice for wood-based sheathing materials used in cold frame construction, external walls in which the boards are incorporated must include an effective vapour check on the room side, suitable weather protection on the outside surface, ventilated cavity and damp-proof courses. SMARTPLY OSB/3 Board should be treated as conventional plywood sheathing with regard to detailing at openings, eaves, and sole plate, the fixing of wall ties and breather paper, and the effect of openings on racking strength.

2.4.11 The moisture content of sheathing material is affected by the humidity conditions existing in the cavity of which it forms one face. Provision should be made for possible expansion due to the uptake of moisture. The cavity should be of conventional construction for timber frame, freely drained and ventilated. The outer masonry leaf should have adequate resistance to wind-driven rain, particularly in regions classified as severe exposure. Raked mortar joints or high

porosity masonry should be avoided, particularly in these latter areas.

Roof General

2.4.12 It is essential that adequate ventilation be provided in accordance with TGD Part F to the Building Regulations and that the thermal performance meets the requirements outlined in TGD Part L to the Building Regulations.

Roof Decking

2.4.13 Installation of SMARTPLY OSB boards on roof decks should be in accordance with the general provisions of sections 2.4.1 to 2.4.6 of this certificate. SMARTPLY OSB boards can be incorporated into cold, inverted and warm flat roofs which have been robustly designed in accordance with the requirements of BS 5250:2011, *Code of practice for control of condensation in buildings*. This requires a conventional timber roof decking to have a properly designed roof waterproofing systems, flashing, vapour control systems and drainage systems.

Pitched Roof

2.4.14 Installation of SMARTPLY OSB boards on pitched roof, as a continuous sarking board, should be in accordance with the general provisions of sections 2.4.1 to 2.4.6 of this certificate. SMARTPLY OSB boards can be incorporated into cold and warm pitched roofs, which have been robustly design in accordance with the requirements of BS 5250:2011, *Code of practice for control of condensation in buildings*. This requires a conventional timber pitched roof to have a properly designed roof waterproofing systems, flashing, vapour control systems and drainage systems.

3 General

3.1 The product has been assessed for use as structural flooring, wall sheathing and roof decking in domestic dwellings and other residential buildings for installation in environmental conditions where the moisture content does not exceed 16% for any significant period and does not exceed 20% at any time as defined in I.S. EN 1995-1-1:2004 AMD 2 2014 + NA/A1 2013: *Eurocode 5: Design of timber structures - Part 1-1: General – Common rules and rules for buildings* (service classes 1 and 2).

SMARTPLY OSB Board will provide a suitable substrate for floor coverings nailed or stuck down with solvent or water based adhesives or loose laid. For all applications the provision of moisture movement gaps must be installed in accordance with the provisions outlined in I.S. EN 1995-1-1:2004 AMD 2 2014 + NA/A1 2013.

3.2 Flooring

SMARTPLY OSB Board can accept the loads associated with domestic use as defined in I.S. EN 1991-1-1:2002: *Eurocode 1: Actions on structures - Part 1-1: General actions - Densities, self-weight, imposed loads for buildings* for designed joist spacing's of not more than 600 mm provided the fixings are in accordance with part 2 of this Certificate.

3.3 Wall Sheathing

When incorporating SMARTPLY OSB sheathing in timber framed walls, the safe racking resistance of the wall should be calculated in accordance with the guidelines given in I.S. EN 1995-1-1:2004 by a chartered Engineer or similarly experienced and qualified person.

The basic racking resistance for 9mm board when used with timber frame studs grade C16 (75x38mm studs at 600mm c/c) without vertical load when calculated in accordance with method B of I.S. EN 1995-1-1 shall be 3.62 kN.m^{-2} for nails at 100mm spacing and shall be 2.77 kN.m^{-2} for nails at 150mm spacing. The nail must have a minimum diameter of 3.1mm, length of 50mm and ultimate tensile strength of 700 N.mm^{-2} .

3.4 Roof Decking

The board is suitable for use, with an appropriate waterproofing specification, as a roof deck having a minimum finished fall in excess of 1:80 (depending on the waterproofing specification) and where no access is provided to the roof other than that necessary for cleaning and repair.

As for conventional timber roof decking, a vapour control layer must be provided in cold roof

designs to prevent damage to the structure as a result of the passage of moisture in the form of vapour from the interior of the building.

3.5 Roof Sarking

The board is suitable for use as a sarking layer subject to the same structural/environmental considerations as for roof decking. As for conventional sheet sarking systems a counter batten system and waterproof run off membrane system, must be included in roof design to ensure run off to gutters.

3.6 Structural Performance

The timber structures in which the board is incorporated must be designed and constructed to comply with I.S. EN 1995-1-1:2004 AMD 2 2014 + NA/A1 2013.

3.7 CE marking

The manufacturer has taken the responsibility of CE marking the products in accordance with harmonised standard I.S. EN 13986:2004+A1:2015, *Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking*. An asterisk (*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance (DoP).

As described in section 3.1 of this certificate, the products are intended for use as structural elements in internal and humid applications and when combined with their reaction to fire classification, the assessment of performance and verification of constancy system 2+ has been applied.

The essential performance characteristic for OSB/2 and OSB/3 as provided by the manufacture's DoP are listed in Table 2 and Table 3 of this certificate.

4.1 Behaviour in relation to fire

4.1.1 The surface of the boards is classified as Class 3 as defined in BS 476: Part 7: 1997 Method of test to determine the classification of the surface spread of flame of products. Therefore, when used in a construction containing a cavity the maximum cavity dimension in any direction is limited to 10 m.

4.1.2 An intermediate floor construction incorporating tongued and grooved SMARTPLY OSB board supported on timber joists at least 35 mm wide with a ceiling of 12.5 mm plasterboard fixed with 40 mm galvanized nails at 150 mm centres with joints taped and filled and backed by timber has been assessed as having a modified half-hour fire resistance.

4.1.3 When classified in accordance with the requirements of I.S. EN 13501-1: *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*, SMARTPLY OSB board having a thickness in the range of 6-18mm will achieve a reaction to fire classification of D-s2,d0 (excluding floors). SMARTPLY OSB boards >18mm thick will have a reaction to fire classification D-s1,d0. When used in floor construction, SMARTPLY OSB boards, having a minimum thickness >10mm will achieve a reaction to fire classification of DFL-s1 (flooring).

4.1.4 Where any other form of floor construction incorporating SMARTPLY OSB board is subject to fire resistance requirements, an appropriate assessment or test must be carried out by a laboratory accredited for the test concerned.

4.2 Behaviour in relation to moisture

4.2.1 As with all timber products, OSB is subject to moisture movement. As a guide, a 1% increase in moisture content will increase the length of the OSB board by 0.02%, width by 0.03% and thickness by 0.5%.

4.2.2 The hygroscopic properties of SMARTPLY OSB Board differ from those of solid timber and under the same exposure conditions, the equilibrium moisture content of the board can be 2 to 3% less than the value for solid timber.

4.2.3 In common with other timber products SmartPly SMARTPLY OSB Board is subject to moisture movement. Excessive movement may result in distortion. To limit such movement S.R. CEN/TR 12872:2014 recommends that panels

should be conditioned in the service class for the intended end use by loose laying (for example on floors) or stacking with spacers as appropriate. Once fixed, panels should be protected from rain, dampness and accidental wetting as much as possible.

4.2.4 In normal service during the period between production and installation, SMARTPLY OSB Board can be expected to increase in moisture content and generally achieve the equilibrium moisture content specified in S.R. CEN/TR 12872:2014. Where, for example, installation is planned immediately following production or the service moisture content is expected to be at the higher end of the range referred to, a check on the moisture content of the board prior to installation is advised. In all cases, the moisture movement gaps referred to in section 2.4.6 must be provided.

4.2.5 SMARTPLY OSB board should be protected from wetting when used in high risk areas such as kitchens and bathrooms. For such conditions OSB/3 must be used.

4.2.6 For the purposes of hygrothermal analysis when carrying out assessments of interstitial condensation risk analysis, I.S. EN ISO 10456: *Building materials and products - Hygrothermal properties - Tabulated design values and procedures for determining declared and design thermal values* provides a water vapour permeability value (μ -value) of 50 for oriented standard boards (OSB).

OSB/2	I.S. EN 13986:2004 Internal use as structural components in dry conditions									
Essential characteristics	Performance									
Thickness range (mm)	>6 to 10		>10 to 18		>18 to 25		>25 to 32		>32 to 40	
Angle to major axis	0	90	0	90	0	90	0	90	0	90
Characteristic Strength (N/mm ²) Bending f_m	18.0*	9.0*	16.4*	8.2*	14.8*	7.4*	NPD	NPD	NPD	NPD
- Compression f_c	15.9*	12.9*	15.4*	12.7*	14.8*	12.4*	NPD	NPD	NPD	NPD
- Tension f_t	9.9*	7.2*	9.4*	7.0*	9.0*	6.8*	NPD	NPD	NPD	NPD
- Panel Shear f_v	6.8*		6.8*		6.8*		NPD*		NPD*	
- Planar shear f_r	1.0*		1.0*		1.0*		NPD*		NPD*	
Mean Stiffness (MOE) (N/mm ²) Tension E_t	3800*	3000*	3800*	3000*	3800*	3000*	NPD	NPD	NPD	NPD
- Compression E_c	3800*	3000*	3800*	3000*	3800*	3000*	NPD	NPD	NPD	NPD
- Bending E_m	4930*	1980*	4930*	1980*	4930*	1980*	NPD	NPD	NPD	NPD
- Panel Shear G_v	1080*		1080*		1080*		NPD		NPD	
- Compression G_t	50*		50*		50*		NPD		NPD	
¹ Reaction to fire (excluding floorings)	¹ D-s2,d0*		D-s2,d0*		D-s2,d0*		D-s2,d0*		D-s2,d0*	
Reaction to fire (floorings)	NPD		D _{FL} -s1*		D _{FL} -s1*		D _{FL} -s1*		D _{FL} -s1*	
Water vapour permeability μ	NPD		NPD		NPD		NPD		NPD	
Release of formaldehyde	E1*		E1*		E1*		E1*		E1*	
Release (content) of pentachlorophenol (PCP)	NPD		NPD		NPD		NPD		NPD	
Airborne sound insulation (surface mass) (R)	NPD		NPD		NPD		NPD		NPD	
Sound absorption α (250 – 500 Hz)	0.10*		0.10*		0.10*		0.10*		0.10*	
Sound absorption α (1000 – 2000 Hz)	0.25*		0.25*		0.25*		0.25*		0.25*	
Thermal conductivity λ	NPD		NPD		NPD		NPD		NPD	
Durability										
Thickness range (mm)	6 to 10		>10 to <18		18 to 25		>25 to 32		>32 to 40	
Internal bond (N/mm ²)	0.34*		0.32*		0.30*		0.29*		0.26*	
Swelling in thickness (%)	20*		20*		20*		20*		20*	
Mechanical (creep k_{def}) service class 1	2.25*		2.25*		2.25*		2.25*		2.25*	
Thickness Range (mm)	>6 to 40									
Load-duration class	Permanent Action		Long Term Action		Medium Term Action		Short Term Action		Instantaneous Action	
Mechanical (duration of load k_{mod}) Service class 1	0.30*		0.45*		0.65*		0.85*		1.10*	
Biological	Use class 1									
Characteristic Point load $F_{max, k}$ (N) (for floors and roofs)	NPD		NPD		NPD		NPD		NPD	
Point load mean stiffness (N/mm) (for floors and roofs)	NPD		NPD		NPD		NPD		NPD	
Characteristic Point load serviceability $F_{ser, k}$ (N) (for floors and roofs)	NPD		NPD		NPD		NPD		NPD	
Soft Body Impact resistance Floor/roofs, Walls	NPD		NPD		NPD		NPD		NPD	
¹ minimum thickness 9mm										

Table 2 - Performance characteristics OSB/2

OSB/3	EN 13986:2004									
	Internal use as structural components in humid conditions									
Essential characteristics	Performance									
Thickness range (mm)	>6 to 10		>10 to 18		>18 to 25		>25 to 32		>32 to 40	
Angle to major axis	0	90	0	90	0	90	0	90	0	90
Characteristic Strength (N/mm²) Bending f_m	18.0*	9.0*	16.4*	8.2*	14.8*	7.4*	NPD	NPD	NPD	NPD
- Compression f_c	15.9*	12.9*	15.4*	12.7*	14.8*	12.4*	NPD	NPD	NPD	NPD
- Tension f_t	9.9*	7.2*	9.4*	7.0*	9.0*	6.8*	NPD	NPD	NPD	NPD
- Panel Shear f_v	6.8*		6.8*		6.8*		NPD		NPD	
- Planar shear f_r	1.0*		1.0*		1.0*		NPD		NPD	
Mean Stiffness (MOE) (N/mm²) Tension E_t	3800*	3000*	3800*	3000*	3800*	3000*	NPD	NPD	NPD	NPD
- Compression E_c	3800*	3000*	3800*	3000*	3800*	3000*	NPD	NPD	NPD	NPD
- Bending E_m	4930*	1980*	4930*	1980*	4930*	1980*	NPD	NPD	NPD	NPD
- Panel Shear G_v	1080*		1080*		1080*		NPD		NPD	
- Compression G_t	50*		50*		50*		NPD		NPD	
¹ Reaction to fire (excluding floorings)	¹ D-s2,d0*		¹ D-s2,d0*		D-s1,d0*		D-s1,d0*		D-s1,d0*	
Reaction to fire (floorings)	NPD		D _{FL} -s1*		D _{FL} -s1*		D _{FL} -s1*		D _{FL} -s1*	
Water vapour permeability μ	NPD		NPD		NPD		NPD		NPD	
Release of formaldehyde	E1*		E1*		E1*		E1*		E1*	
Release (content) of pentachlorophenol (PCP)	NPD		NPD		NPD		NPD		NPD	
Airborne sound insulation (surface mass) (R)	NPD		NPD		NPD		NPD		NPD	
Sound absorption α (250 – 500 Hz)	0.10*		0.10*		0.10*		0.10*		0.10*	
Sound absorption α (1000 – 2000 Hz)	0.25*		0.25*		0.25*		0.25*		0.25*	
Thermal conductivity λ	0.11*		0.11*		0.11*		NPD		NPD	
Durability										
Thickness range (mm)	6 to 10		>10 to <18		18 to 25		>25 to 32		>32 to 40	
Internal bond (N/mm²)	0.34*		0.32*		0.30*		0.29*		0.26*	
Swelling in thickness (%)	15*		15*		15*		15*		15*	
Moisture resistance - Internal bond after boil test (N/mm2)	NPD		NPD		NPD		NPD		NPD	
Moisture resistance - Internal bond after cyclic test (N/mm2)	NPD		NPD		NPD		NPD		NPD	
Bending strength after cyclic test – major axis (N/mm²)	9*		8*		7*		6*		6*	
Mechanical (creep k_{der}) service class 1	1.50*		1.50*		1.50*		1.50*		1.50*	
Mechanical (creep k_{der}) service class 2	2.25*		2.25*		2.25*		2.25*		2.25*	
Thickness Range (mm)	>6 to 40									
Load-duration class	Permanent Action		Long Term Action		Medium Term Action		Short Term Action		Instantaneous Action	
Mechanical (duration of load k_{mod}) Service class 1	0.40*		0.50*		0.7*		0.90*		1.10*	
Mechanical (duration of load k_{mod}) Service class 2	0.30*		0.40*		0.55*		0.70*		0.90*	
Biological	Use classes 1 & 2									
² T&G Products	Spacing	12.5mm T&G	15mm T&G	18mm T&G	22mm T&G	24mm T&G				
³ Characteristic Point load $F_{max,k}$ (N) (for floors and roofs)	400mm	3019*	4815*	5494*	6709*	7610*				
	600mm	2766*	3807*	4712*	6575*	7272*				
Point load mean stiffness (N/mm) (for floors and roofs)	400mm	395*	563*	797*	1161*	1305*				
	600mm	188*	322*	426*	669*	754*				
³ Characteristic Point load serviceability $F_{ser,k}$ (N) (for floors and roofs)	400mm	2113*	3370*	3846*	4696*	5327*				
	600mm	1936*	2665*	3298*	4603*	5091*				
Soft Body Impact resistance Floor/roofs	400mm	Class I*	Class I*	Class I*	Class I*	Class I*				
	600mm	Class II*	Class I*	Class I*	Class I*	Class I*				
Soft Body Impact resistance Walls	Spacing				> 9mm					
	400mm				Class III*					
	600mm				Class III*					
¹ minimum thickness 9mm for thickness range >6 – 10mm & performance D-s1,d0 for 18mm within thickness range >10 to 18										
² NPD for square edge products										
³ characteristic means lower 5 th percentile calculated according to EN 1058										

¹ minimum thickness 9mm for thickness range >6 – 10mm & performance D-s1,d0 for 18mm within thickness range >10 to 18

² NPD for square edge products

³ characteristic means lower 5th percentile calculated according to EN 1058

Table 3 - Performance characteristics OSB/3

4.3 Thermal insulation

4.3.1 The thermal conductivity value combined with the relatively narrow width of the boards is such that they will not have a significant effect on the thermal transmittance (U-value) of the construction into which they are incorporated. When calculating the thermal transmittance (U-value) of a building element which incorporates SMARTPLY OSB Board, a thermal conductivity of 0.13 W/m²K should be used.

SMARTPLY OSB board can be incorporated into bridged junctions such as window jambs reveals, eaves, ground floor external wall junctions or locations which have reduced cross sectional area provided an assessment to BRE IP1/06 *"Assessing the effects of thermal bridging at junctions and around openings"* and BRE Report BR 497 *"Conventions for calculating linear thermal transmittance and temperature factors"* determine that it is safe to do so. Alternatively best practice guidance as outline in the *Acceptable Construction Details*, published by the Department of the Environment, Community and Local Government (DoECLG), should be followed at bridged locations.

By adopting either method outlined above, best practice when incorporating SMARTPLY OSB Board at bridged junction will be observed. This will limit thermal heat loss at these junctions and minimise the risk of mould growth arising from surface condensation.

4.4 Physiological properties

In common with most other wood-based panels, SMARTPLY OSB Board can emit small amounts of formaldehyde gas. The total extractable formaldehyde content is not greater than 8mg/100g when measured in accordance with EN 300 Table 1: 1997: & EN120 (1996). Therefore the quantity of gas emitted from the flooring alone, in the context of use given in this Certificate, is such that its use will not increase the level of gas within the building to an extent which will affect habitability.

4.5 Practicability of installation

4.5.1 SMARTPLY OSB Board is easily cut and fixed using conventional woodworking tools. For better performance, the use of TCT tooling is recommended.

4.5.2 The boards can withstand normal site handling and fixing; if damaged they must not be used.

4.6 Durability

4.6.1 When used in the conditions set out in this certificate, SMARTPLY OSB Board will have adequate resistance to bacterial and fungal attack and physical degradation due to moisture.

4.6.2 Care should be taken in design, detailing and construction of buildings to ensure that moisture does not accumulate within the board. Moisture contents in excess of those stated in this Certificate may lead to failure of the material through fungal attack or physical breakdown.

4.6.3 As with all building materials, care should be taken in detailing buildings to prevent vermin and other pest infestation.

4.6.4 When used in suspended ground floors, attention must be given to the adequate provision of timber treatment, under-floor space and ventilation in accordance with the requirements of section 2.4.9 of this certificate.

4.6.5 The service life of SMARTPLY OSB Board is dependent upon the environment. When installed in accordance with this Certificate it will have a life at least equivalent to that expected from wood based sheet materials.

4.7 Tests and assessments

4.7.1 SMARTPLY OSB board have been fully assessed against the requirements of the harmonised European standard I.S. EN 13986:2004+A1:2015 *Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking*.

4.7.2 To indicate the long term performance of the boards, tests were carried out on OSB/3 boards in accordance with I.S. EN 300:2006 to examine the strength loss after exposure to boiling water and for susceptibility to thickness swelling. The resistance of OSB board to attack by decay fungi and insects was also assessed.

4.7.3 To determine the surface spread of flame classification in accordance with BS 476: Part 7: 1997.

4.7.4 The panels achieve a Class E1 formaldehyde specification in accordance with the test requirements outlined in Annex B of I.S. EN 13986:2004. As a result, the quantity of formaldehyde gas emitted from the panel alone will not raise the overall building level to an extent which will affect habitability.

5.1 National Standards Authority of Ireland ("NSAI") following consultation with NSAI Agrément has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer's instructions and usual trade practice. This Certificate shall remain valid for five years from date of issue or revision date so long as:

- (a) the specification of the product is unchanged.
- (b) the Building Regulations and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.
- (c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.
- (d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.
- (e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
- (f) the registration and/or surveillance fees due to NSAI Agrément are paid.

5.2 The NSAI Agrément mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate holder must not use the NSAI Agrément mark and certification number and must remove them from the products already marked.

5.3 In granting Certification, the NSAI makes no representation as to;

- (a) the absence or presence of patent rights subsisting in the product/process; or
- (b) the legal right of the Certificate holder to market, install or maintain the product/process; or

(c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.

5.4 This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which may be appropriate.

5.5 Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act 2005, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.

5.7 Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standards, manufacturer's instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.

NSAI Agrément

This Certificate No. **02/0093** is accordingly granted by the NSAI to **SMARTPLY** on behalf of NSAI Agrément.

Date of Issue: **June 2002**

Signed



Kevin D. Mullaney
Director of NSAI Agrément

Readers may check that the status of this Certificate has not changed by contacting NSAI Agrément, NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland.

Telephone: (01) 807 3800. Fax: (01) 807 3842. www.nsai.ie

Revisions:

- **August 2016:** Updated references to Building Regulations and standards; New reference to CE marking of the products.
- **07th November 2023:** References to Building Regulations updated.