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Wood Information Sheet

WIS 2/3-23

Subject: Wood-based panels
Revised: September 2012

Introduction to wood-based panel products

Wood-based panel products are sheet materials that contain a significant amount of wood in the form of strips, veneers, chips, strands or fibres. The categories described in this Wood Information Sheet (WIS) are:

- plywoods
- particleboards
- oriented strand board (OSB)
- fibre building boards.

Within each of the above categories are a number of specific panel types and grades. Some of these are defined in BS EN product standards while others are made to commercial specifications.

The 'Choose and use' sheet *Wood-based sheet materials* [1] provides up-to-date information for builders, including uses.

PanelGuide [2] is a comprehensive source of information on wood-based panels that is available from both the TRADA and Wood Panel Industries Federation websites.

TRADA Technology recommends *Eurocode 5* [3] for structural design of timber. However, this WIS includes a summary of variations when using *BS 5268-2 Structural use of timber. Code of practice for permissible stress design, materials and workmanship* [4].

This WIS is an overview of wood-based panels with signposts to more detailed information sources that are listed at the end. It outlines the manufacture and characteristics of the basic types and also indicates some of the speciality products derived from them.

Contents

Figure 1: Softwood plywood is usually made from European grown spruce or pine, while birch is a common hardwood plywood
Photo: Wood for Good

Key points

- CE marked wood-based panels generally comply with the Harmonised Standard BS EN 13986.
- Design using Eurocode relies on characteristic design values supplied by the manufacturer or from BS EN 12369.
- Veneer plywoods are generally 'interior', 'exterior' or 'marine' quality, the durability depending on the moisture resistance of the glue and the biological durability of the wood.
- Wood particleboard (also known as chipboard) is suitable for a variety of interior applications, but is unsuitable for exterior use.
- Cement-bonded particleboard is considerably denser than particleboard. It is resistant to fire, insects, weathering and moisture and has good sound absorbance.
- Similar in principle to particleboard, oriented strand board (OSB) has better structural performance but is unsuitable for long-term exterior uses.
- Of the fibre building boards, the most common is medium density fibreboard (MDF).

Types of wood-based panels

Plywood was developed to provide panels with dimensional stability and good strength properties, both along and across the sheet. Plywood manufacture needs straight, well-grown timber. Plywood consists of an assembly of layers glued together, with the direction of the grain in adjacent layers usually at right angles. There are two types:

- veneer plywood that has all the plies made of veneers orientated with their plane parallel to the surface of the panel
- core plywoods, such as blockboard and laminboards, which have a central core of wood strips or other materials, with two or more outer wood veneers.

Wood particleboard and fibre building boards were developed to provide utility sheet materials with uniform properties. Historically they used mainly forest thinnings, lower quality trees or sawmill waste as the feedstock. In recent years the manufacture of particleboard in particular has utilised increasing levels of recycled wood fibre. From the original utility panels, a whole family of panel products has evolved, catering for a wide variety of end uses.

Plywood, particleboards and fibre building boards all include both general purpose or utility boards and special purpose products.

OSB is made up of small, thin, resin-bonded strands of wood, compressed into layers to form a mat. There are two main types:

- OSB/2 load-bearing boards for use in dry conditions
- OSB/3 load-bearing boards for use in humid conditions.

CE marking and harmonised standards

There is now a comprehensive series of BS EN product standards presenting requirements for a range of wood-based panels. Unlike the previous British Standards, which were largely prescriptive and based on manufacturing requirements, BS ENs specify performance. Each category of board material has its own product standards. These are supported by other standards dealing with, for example, test methods, quality control procedures and guidance on use.

At a higher level in the standardisation hierarchy is the so-called 'Harmonised Standard' for wood-based panels: *BS EN 13986 Wood-based panels for use in construction. Characteristics, evaluation of conformity and marking* [5]. This defines the requirements for CE marking of panels for all kinds of use in construction. While CE marking is mandatory in most EU countries, in the UK, CE marking is not currently obligatory but compliance with the requirements of *BS EN 13986* is still the preferred route for demonstrating compliance with the Construction Products Directive. From July 2013, CE marking will become mandatory in all EU countries under the new Construction Product Regulations (CPR). This also imposes greater obligations on the whole supply chain to ensure that materials comply with the applicable standards and that relevant technical information is passed on to all that need it.

TRADA Technology's *WIS 2/3-56: CE marking: implications for timber products* [6] describes the process under the CPR and includes an example using wood-based panels.

Where there is no applicable product standard, products may also be CE marked by the award of a European Technical Approval by a Notified Body or through a National Technical Specification agreed with the European Commission. This procedure will change slightly under CPR.

The Wood Panel Industries Federation (WPIF) has an Industry Standard *Wood-based panels: Particleboards, fibreboards and oriented strand boards (OSB) for non-construction uses* [7], relating to panels not supplied for use in the construction industry. Such applications include furniture, packaging, toys, coffins, motor vehicles, aircraft and ships. Panels produced under this Industry Standard will be marked 'This product is for non-construction use'. WPIF also publish a code of practice for floating floors.

Structural panels

Within *BS EN 13986*, structural panels are subject to what is called 'Attestation of Conformity (AOC) Level 2+'. This requires that the manufacturer has its Factory Production Control (FPC) System certified by a European Notified Body, such as BM TRADA Certification. This demonstrates that the manufacturer has a suitable FPC in place to enable it to check whether or not production meets the requirements of the standard. By affixing the CE mark to a batch of material, the manufacturer is claiming that particular batch meets the standard and the performance level stated on the panel or in the accompanying literature.

Structural design

Design to *Eurocode 5* requires characteristic design values for the product, based on testing. These values should be included in the manufacturer's Declaration of Conformity (DOC) that should be prepared before placing the product on the market. Under the new CPR, this information will be termed a 'Declaration of Performance (DOP)' and there is an obligation for all parties in the supply chain to ensure this technical information is passed along the chain. Where a specific strength property is required, purchasers should

check the DOC/DOP prior to purchase to ensure that it meets the correct specification.

See TRADA Technology's *WIS 2/3-57: Specifying wood-based panels for structural use* [8] for further information.

The panels must be manufactured to a suitable specification and have design characteristic values available. These may be taken from:

- BS EN 12369-1: Wood-based panels. Characteristic values for structural design. OSB, particleboards and fireboards [9]
- BS EN 12369-2: Wood-based panels. Characteristic values for structural design. Plywood [10]
- BS EN 12369-3: Wood-based panels. Characteristic values for structural design. Solid-wood panels [11]

or derived in accordance with:

- BS EN 789 Timber structures. Test methods. Determination of mechanical properties of wood based panels [12]
- BS EN 1058 Wood-based panels. Determination of characteristic 5-percentile values and characteristic mean values [13].

Variations when using BS 5268

BS5268-2 lists a number of specific plywood types that are suitable for structural applications and gives design permissible stresses for these. These products are manufactured to national Standards which ensure minimum strength properties in the finished product and are subject to approved quality control procedures. These tables cover products from Canada, Finland, Sweden and the USA but should only be used with plywood of the specific grades listed.

For panel products other than plywood and for plywood of a type not listed BS 5268-2 gives factors to convert these European characteristic values to permissible stresses that are compatible with BS 5268-2.

Veneer plywood

The practice of cross laminating veneers for special end uses can be traced back to the Egyptian Empire. Their crude forms of plywood used sliced veneers bonded with natural adhesives such as animal glue and blood albumen. Techniques changed little until the late 19th Century when the rotary peeling machine (lathe) was invented. Standard plywood veneer is still produced using a lathe, which peels a log to a continuous strip (like unwinding a roll of paper). Most decorative veneer is sliced from flitches after the log is cut into quarters.

Production

Production depends on factors such as the size and species of log, the type of plywood to be produced and the scale of operation.

The following sequence is typical:

1. Conditioning – soaking the log in cold or hot water or steaming. This ensures that the log is at a high and consistent moisture content throughout, which facilitates peeling and helps yield smooth veneer with less tendency to split or tear.
2. Peeling – rotating the log against the lathe blade which lies against the full length of the log, producing veneer of consistent thickness.
3. Clipping – passing the ribbon of veneer from the lathe through manual or automatic clipping machines which cut the veneer to size, or into smaller strips if defective material has to be removed. In some mills, clipping is done after continuous ribbons of veneer have been dried.
4. Drying – feeding the wet veneer through a drier to reduce its moisture content to about 4%–8%. This facilitates bonding of veneers and minimises warping of the finished plywood. Driers may be continuous or batch process according to the age of the plant and whether ribbons or clipped veneer are being dried.
5. Jointing or veneer repair – joining small strips of veneer into full-size sheets by edge gluing, stitching or using perforated paper adhesive tape. Open defects, such as knot holes, may be repaired using plugs or filler to upgrade the veneer in accordance with grading rules.
6. Grading – sorting the dried, clipped or reconstituted veneers into grades, usually by visual inspection.
7. Glueing – applying synthetic resin adhesive by roller spreader, spray, extrusion or curtain coating. Veneers are assembled normally with the grain of each at 90° to the adjacent veneer. (Plywood with special characteristics is produced when this rule of bonding at right angles is not followed.) The assembly is known as a lay-up.
8. Pressing – cold pre-pressing to consolidate the lay-ups. This prevents veneers slipping while the lay-up is handled and encourages the transfer of wet adhesive. The lay-ups are then subjected to pressure and heat in batches, typically in a multi-daylight press.
9. Trimming, filling and sanding – after cooling, surface defects may be filled or repaired (if required) and most plywood is then sanded.

Standards

Veneer plywood should comply with *BS EN 636 Plywood. Specifications* [14]. The requirements given in *BS EN 636* are usually supplemented by national or industry specifications covering, for example, grading of veneers. If it is to be used in construction then these specification details must be established for compliance with *BS EN 13986* in order for the product to be CE marked. This is different to other panel products where the applicable standards classify the boards into specific types for use in construction.

Plywood produced in accordance with *BS EN 636* and *BS EN 13986* must be appropriately marked. Specifiers should satisfy themselves that plywood complies with the relevant ENs or that the required level of performance can be demonstrated in other ways.

Performance

Plywood is a versatile product that can combine attractive surface appearance with resistance to hazardous conditions while retaining comparatively high strength-to-weight properties.

Plywoods are produced with glue bonds that range from those suitable only for interior use to those which will withstand external exposure. TRADA Technology's *WIS 2/3-11: Specification and use of wood-based panels in external conditions* [15] explains the specification for external exposure.

Three main types of glue are used for plywood manufacture:

- Urea formaldehyde (UF) – suitable for interior use. Some boards may also be suitable for use in humid environments but not for use in exterior situations.
- Melamine urea-formaldehyde (MUF). This is a UF fortified with melamine. MUF is generally intermediate in resistance to moisture/weather, although some reputable manufacturers make exterior or even marine plywoods with melamine based adhesive.
- Phenol formaldehyde (PF) – suitable for use in humid or in exterior situations. The durability of the veneer species should also be taken into account when selecting plywood for such uses.

The durability of plywood depends on the type of adhesive and the natural durability of the wood species of which it is made. The durability of the wood species may be enhanced by treatment with preservatives.

Common types of veneer plywood in the UK

Structural Plywood

Plywood for use in construction must be CE marked as described above. If the plywood is for structural use, i.e. it is capable of carrying structural loads; the manufacturer must conduct large scale tests on the product and provide characteristic values for use in design.

Utility plywoods

Utility plywoods comprise non-structural plywoods that are available in a surface appearance grade suitable for joinery, furniture and limited exterior uses.

Decorative/overlaid plywoods

Special end-use plywoods are commonly available. An example of a common overlay is a phenolic film, which gives enhanced resistance to abrasion and water penetration.

Marine plywood

Marine plywood should comply with *BS 1088-1 Marine plywood. Requirements* [16].

BS 1088-1 specifies two types of marine plywood:

- standard marine plywood
- lightweight marine plywood.

Unlike earlier versions, *BS 1088-1:2003* does not specify the species to be used; instead it gives requirements for a minimum level of durability and a limit on nominal density.

BS 1088 plywoods are commonly available from UK suppliers. Material sold as marine plywood, without reference to *BS 1088*, may not be of the same quality. Check the manufacturer's specification before purchase to ensure that the product is suitable.

Wood core plywood

Blockboards and laminboards are composite boards with a core made up of strips of wood, each not more than 30mm wide, laid separately and glued or otherwise joined together to form a slab. One or more veneers is glued to each face with the direction of the grain of the core strips running at right angles to that of the adjacent veneers.

Production

The technique of manufacturing blockboard and laminboard developed alongside the plywood industry in the early 20th Century. Blockboard uses strips of wood about 25mm wide for

its core, while laminboard cores are composed of strips of veneer on edge (or occasionally strips cut from plywood). Laminboard generally has the more stable core, as the veneers of which it is made all have the same orientation. Ply mills may introduce block or laminboard manufacturing facilities to use residues and to produce lower cost utility types of boards suitable for some interior purposes. The method of production is similar to that for plywood and the 'wet' stages of veneer manufacture are identical.

Wood particleboard

Wood particleboard (also known as chipboard in the UK) is made of small wood particles and a binder (synthetic resin adhesive). Boards are available typically from 3mm to 50mm thick and may be of uniform construction through their thickness, of graded density or of distinct three- or five-layer construction.

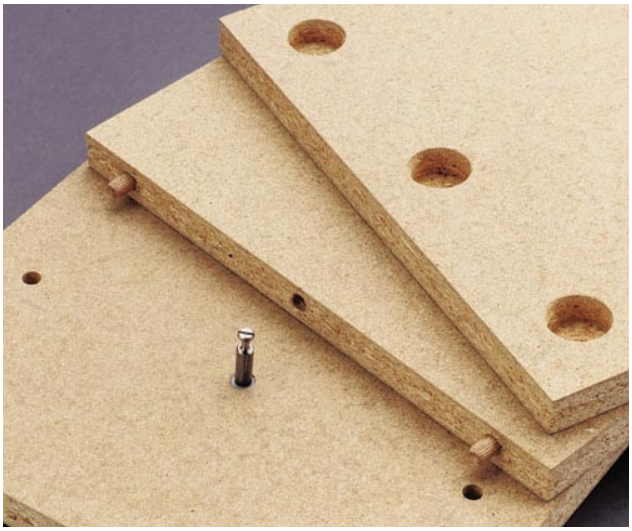

Figure 2: Wood particleboard
Photo: Wood for Good

Production

Chipboard development started before World War II, following the discovery of synthetic thermo-setting adhesives. It is not as demanding in terms of raw materials and skilled labour as plywood, and wood particleboard mills are now located in most countries of the world.

Production involves mechanically breaking up wood and reconstituting it using synthetic resin adhesives. The proportion of adhesive in the finished product amounts to only a few percent by weight, although its cost is much more significant. The process is highly automated and most woody parts of a tree are usable. Chips are often produced from green logs, but increasing levels of recycled timber are now being used, such as end-of-life pallets. The proportion of recycled timber used in UK-manufactured panels is typically 65% to 70%.

When produced from green logs, the basic stages of production are:

1. Debarking – removing bark from logs.
2. Chipping or milling – cutting solid wood raw material such as forest thinnings and sawmill slabs to predetermined lengths and feeding into a chipper. Planer shavings and similar waste are milled to the required particle size. Surface and core chips are often prepared in different ways and held in separate silos.
3. Drying – passing wood chips through a dryer to reduce their moisture content to about 2.5% to facilitate gluing and hot pressing. Core and surface chips may be dried to slightly different moisture contents.
4. Sifting/particle classification – grading particles to produce a 'furnish' with a specified mix of particle sizes. Oversize chips are re-milled. Fine dust is removed and this may remove much of the remaining bark.
5. Glue blending – mixing dry chips with synthetic resin, often urea formaldehyde or MUF, and with other appropriate additives such as hardener, wax emulsion and fungicide. Proportioning of glue and chips has to be very exact and may be deliberately varied, surface chips often having higher glue contents.
6. Mat forming – coating a mattress of wood chips with adhesive by dropping them on to caul plates or belts. Depending on the type of mat-forming machinery this will produce either homogeneous, graded-density or layered mats.
7. Pressing – compressing (sometimes with pre-compressing) to a predetermined thickness in a high pressure and temperature press, which may be multi-daylight, single daylight or continuous. With multi- and single-daylight presses, the mat is cut into discreet sections which are pressed between platens. In the case of a continuous press, a continuous ribbon of mat is compressed between two moving, heated belts, the gap between tapering down to the final board thickness. The continuous panel is cut to size after pressing.
8. Trimming and sanding – after cooling, trimming each panel and then sanding to precise thickness.

Extruded particleboard – most wood particleboard is produced by processes similar to those described above, but there are also boards formed by extrusion. Extruded boards are made by forcing the particle and resin mix through a wide heated die. The particles align themselves with their longer dimension at right angles to the direction of extrusion. These boards are only suitable as core material for products such as panels and doors.

Standards

Wood particleboards should comply with *BS EN 312 Particleboards. Specifications* [17].

Performance

BS EN 312 defines seven types of wood particleboard. They range from boards suitable for general purposes, interior fitments and furniture, to loadbearing types for use in interior and humid conditions. Particleboard is not suitable for exterior use.

Other particleboards

The technology of manufacturing particleboards, with raw materials other than wood chips, such as flax shives and bagasse, evolved from that used for wood particleboard.

Flaxboard is manufactured from shives obtained from the flax plant and is frequently complementary to linen fibre manufacture. Bagasse is the fibrous residue left after extraction of sugar from sugar-cane. Its production is seasonal, coinciding with the cane harvest. Other agricultural residues have also been used.

Cement-bonded particleboard

Cement-bonded particleboard is made from small particles of wood, bonded with either Portland or magnesite cement, formed and cured into panels.

Production

The first plant was set up to produce dense wood cementboard in Switzerland in the early 1970s, and since then there has been a gradual increase of plants around the world. Cement-bonded particleboard production differs from other particleboards because the wood content of the product is low (about 20%–30% by weight), and the pressing does not use high temperatures. The process is as follows:

1. Raw materials – storing logs for about two months to neutralise extractives in the wood that may retard cement curing. Bark is removed from all logs.
2. Flaking and milling – feeding logs into a flaker. The flakes are then refined to suitable dimensions in an attrition mill and stored in silos.
3. Sifting/screening – separating core material (larger particles) from the surface material (smaller, finer particles). Also, at this stage, oversize particles are re-cycled back to the attrition mill and excessive fine dust is drawn off.
4. Blending and forming – blending wood particles, cement, water and chemicals together; then the wet mix is spread on to caul plates.
5. Pressing and curing – stacking the formed mats and caul plates in a clamping device to form a package where initial setting of the cement occurs; then the clamp is released. The stacks remain in setting chambers for about eight hours to control final curing.
6. Trimming, maturing/conditioning – trimming boards to size. They remain in a curing warehouse for up to 18 days and are then conditioned to an equilibrium moisture content.

Standards

Cement-bonded particle boards comply with BS EN 634, which is in two parts:

- *BS EN 634-1 Cement-bonded particle boards. Specification. General requirements* [18]
- *BS EN 634-2 Cement-bonded particleboards. Specifications. Requirements for OPC bonded particleboards for use in dry, humid and external conditions* [19].

Performance

Cement-bonded particleboard has a density in the range 1000 kg/m^3 to 1200 kg/m^3 (approximately twice that of plywood) and about 1.75 times the density of standard grade wood particleboard. This imposes restrictions on its end use. There can be difficulties encountered in cutting and machining due to abrasion of the cutters and it can be brittle, but claimed advantages over other wood-based panel products are:

- superior dimensional stability in wet conditions and retention of smooth surface
- superior behaviour in fire
- high resistance to fungi, insects and weathering
- good sound absorbance.

Oriented strand board

Oriented strand board (OSB) is made from large wood strands having a length at least twice their width, which are orientated in predetermined directions in each layer to simulate some of the characteristics of plywood.

Figure 3: OSB panels used as flooring
Photo: Wood for Good

Production

Early manufacture was based on waferboard production (using rectangular wafers), starting in 1962. During the 1970s a German company, Bahre-Bison, developed a process of producing wood strands and of aligning these strands either along the length of the board or at right angles to it. This board product was termed oriented strand board and has now largely replaced waferboard. OSB production has many similarities with standard particleboard manufacture. The process is as follows:

1. Debarking – removing bark from logs if the proportion is above that allowable.
2. Waferising, strand cutting and drying – cutting logs to length and putting into a waferiser that reduces them to strands that are cut parallel to the grain and dried in a rotary drier.
3. Blending – mixing an adhesive with the wood furnish, sometimes with a proportion of wax emulsion in a rotary blender. Commonly used adhesives include phenol formaldehyde (PF) or melamine urea formaldehyde (MUF), but isocyanates are becoming more common.
4. Mat forming – forming the board in layers. The former for the first layer orientates the strands of the first surface predominantly in one direction. The second (core) layer is then formed on top with the strands either randomly orientated or orientated at right angles to those in the surface layer. The other surface is then formed with strands aligned parallel to those in the first layer. Physical or electrostatic methods of orientation can be used. The orientation is not always immediately apparent from a visual inspection of the surface.
5. Pressing – curing and pressing the resinated mat to a required density and thickness, usually in a multi-daylight press or a continuous press.
6. Trimming, conditioning and sanding – after cooling, trimming boards to size, conditioned and sanding, according to requirement.

Standards

OSB should comply with *BS EN 300 Oriented strand boards (OSB). Definitions, classification and specifications* [20].

Performance

OSB is widely used for wall sheathing, flooring underlays, roof sheathing and decking. It is not recognised in BS EN standards as being suitable for exterior use but coated boards are often used in applications such as hoarding, where a long service life is not required. Boards are available in four grades from general purpose boards to heavy duty loadbearing boards for use in humid conditions, but only OSB/2 and OSB/3 are commonly available in the UK.

Fibre building boards

Fibre building boards, usually exceeding 1.5mm in thickness, are manufactured from fibres of ligno-cellulosic material. There are two basic types:

- wet process – the primary bond derives from the felting of the fibres and their inherent adhesive properties
- dry process – an adhesive is added to the fibres and they are dried to below 20% moisture content before mat forming and pressing.

Production

The earliest fibre building boards, produced in the late 19th Century, contained large amounts of repulped newsprint and were of relatively low density. Somewhat later, insulating boards were produced from ground wood pulp. During the 1920s and early 1930s further techniques were developed to break solid wood down into fibres and reconstitute these under heat and pressure as a strong and durable panel, hardboard.

Wet process manufacture

This is the most common technique for manufacturing hardboards, medium boards and insulating boards. The initial stages of production are the same for each type, but the later stages, after mat forming, differ.

The production process is as follows:

1. Chipping – cutting up the raw material, such as forest thinnings, sawmill waste, plywood peeler log cores.
2. Reduction to fibres – softening the chips by pre-heating in low-pressure steam and then feeding by Archimedean screw between segmented grinding discs, one of which rotates at great speed. This is usually performed by the 'defibrator' method.
3. Board (wet lap) forming – laying pulp stock onto a moving wire mesh and removing water by gravity, suction and the action of 'thicknessing' rollers to produce what is termed a 'wet lap' in which the fibres are interlocked or 'felted'.
4. Pressing and curing hardboards and medium boards – cutting the wet lap to press lengths and transferring onto wire mesh plates before being pressed in a heated multi-daylight press. Press closure drives the remaining water out through the mesh and compresses the mats, while the heat promotes fibre-to-fibre bonding. After pressing, the boards are further cured and conditioned to a suitable moisture content in heat treatment and humidifying chambers. The greater the press closure pressure, the higher the density of the finished board. The wire mesh leaves an imprint on one face of higher density boards.

5. Curing – conveying lengths of wet lap through ovens to dry out moisture and re-establish the natural bonding.
6. Finishing – cutting boards to size and further processing, such as painting or machining into ceiling tiles or acoustic boards.

Dry process manufacture

The most common dry process board is medium density fibreboard (MDF).

The dry process was developed from the traditional wet process and the fibre is produced in the same way. Differences in the production process are:

- Resin application – adhesive (usually urea formaldehyde) and wax emulsion are applied to the fibre within the inlet pipe to the drying tube. Other agents may be added during or after manufacture to modify particular properties of the board.
- Drying/storage – drying of the fibre/adhesive mix is performed in a long drying tube (blowline). The dry fibre is stored in silos to await further processing.
- Mat-forming – a mattress is dry-formed on caul plates. This is gradually compressed by steel belts. For thick boards, more than one mat may be piled on another.
- Pressing – the dry mattress is pre-pressed to consolidate it and then cut and formed to press sizes, finally to be cured with heat and pressure in a multi-daylight press. Continuous presses are also common.
- Trimming and sanding – after cooling, each panel is trimmed and sanded to precise dimensions.

Standards

Fibreboards comply with BS EN 622, which is in five parts:

- BS EN 622-1 Fibreboards. Specifications. General requirements [21]
- BS EN 622-2 Fibreboards. Specifications. Requirements for hardboards [22]
- BS EN 622-3 Fibreboards. Specifications. Requirements for medium boards [23]
- BS EN 622-4 Fibreboards. Specifications. Requirements for softboards [24]
- BS EN 622-5 Fibreboards. Specifications. Requirements for dry process boards (MDF) [25].

Performance

Hardboards – fibre building board with a density exceeding 900 kg/m^3 and defined minimum properties of strength and dimensional stability. Part 2 of the Standard defines a range of board types for different application, both structural and non-structural. Tempered hardboard is available from suppliers, but is not defined in the standard. It has a higher resistance to water absorption than standard hardboard, and the density usually exceeds 960 kg/m^3.

Mediumboards – there are two types:

- low density – 400 kg/m^3 to 560 kg/m^3
- high density – 560 kg/m^3 to 900 kg/m^3.

MDF – density exceeds 450 kg/m^3.

Softboard – fibre building board with density less than 400 kg/m^3. Softboard can be modified by impregnation with bitumen and/or other moisture resistant additives during or after manufacture.

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Further reading

WIS 2/3-17: Wood-based sheet materials for formwork linings, TRADA Technology, 2012

WIS 2/3-20: Edge sealants for wood-based boards, TRADA Technology, 1993

About TRADA

The Timber Research and Development Association (TRADA) is an internationally recognised centre of excellence on the specification and use of timber and wood products.

TRADA is a company limited by guarantee and not-for-profit membership-based organisation. TRADA's origins go back over 75 years and its name is synonymous with independence and authority. Its position in the industry is unique with a diverse membership encompassing companies and individuals from around the world and across the entire wood supply chain, from producers, merchants and manufacturers, to architects, engineers and end users.

Our aim

To provide members with the highest quality information on timber and wood products to enable them to maximise the benefits that timber can provide.

What we do

We seek to achieve this aim through active and on-going programmes of information and research. Information is provided through our website, an extensive collection of printed materials and our training courses.

Research is largely driven by the desire to update and improve our information so that it continues to meet our members' needs in the future.

TRADA Technology is contracted by the Timber Research and Development Association to prepare and publish all Wood Information Sheets.

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