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P20

Unframed Isolated Trims/Skirtings/Sundry Items

This guide provides an introduction to writing specifications for unframed isolated trims, skirtings and sundry items and should be read in conjunction with the guide Introduction to Writing Architectural Specifications. Together these guides provide an in depth reference for the development of specifications based on a simple framework that can be applied to projects of all sizes.

Contents

This guidance note covers the prescriptive specification of unframed isolated trims, skirtings and sundry joinery items. Reference should be made to the following sections for the specification of repair works to existing joinery and the provision of other joinery items:

- C51 Repairing/Renovating/Conserving timber
- K21 Timber strip/board fine flooring/linings
- L10 Windows
- L20 Doors
- L30 Stairs/Walkways/Balustrades
- N10 General fixtures/furnishings/equipment

Where external trims are made with timber and form an integral part of the first fix carpentry works (e.g. they form part of the roof carpentry works package) it is recommended that these items are specified within Works Section G20 Carpentry, Timber framing and First fix joinery

Design Considerations

Unframed isolated trims, skirtings and sundry items are distinct elements, they are not a component nor constituent part of a larger element, product or system. Examples include internal trims such as skirting, dado rails, curtain rails, etc and external elements such as barge boards, facia boards, etc. While traditionally made of timber, elements may also be made from other materials, e.g. PVC.

The overall performance and appearance of trims, skirtings and other sundry items must satisfy the specific requirements of the project. Project requirements include aesthetic and functional criteria as well budget; design life; time and environmental considerations. Once these requirements are established the key characteristics and associated levels of performance required can be identified.

The selection of products and materials should be undertaken in consultation with suppliers and reference to relevant British Standards, Statutory Regulations and current best practice.

Timber Trims, Skirtings & Sundry Items

Aesthetic Characteristics

The importance of the timber's aesthetic characteristics will depend upon whether a transparent or an opaque finish is to be applied to it.

Where an opaque finish is specified considerations principally relate to the trim's dimensions and profile. The choice of species will be less critical. Where a transparent finish is specified the choice of timber species will be of greater significance. Considerations will include:

- Colour.
- Grain.
- Quality (extent of imperfections such as knots, splits, etc).
- Texture.

Note the appearance of timber may be changed by the application of transparent finishes. Likewise untreated timber may change when exposed to the environment.

Quality

Quality relates to the degree of imperfections present within the timber, including:

- Size and clustering of knots.
- Presence of splits, ring shakes (tangential separation of the wood fibres along parts of the annual rings) and checks (separation of fibres along the grain).
- Presence of resin pockets.
- Discolouration of sapwood.
- Presence of wane (original underbark surface).
- Rate of growth of softwood.
- Degree of slope of grain.
- Presence of exposed pith (soft tissue).
- Degree of decay and insect attack.

The quality required, i.e. the level of defects permissible, will depend on the desired standard of finish, whether trims are external or internal and type of finish to be applied.

Durability

The durability of wood depends upon its ability to withstand various forms of biological attacked, primarily fungal (causing dry and wet rot) and insect attack. As natural characteristics of wood vary from species to species so does durability. BS EN 350-2 identifies the durability of common soft and hardwood species to fungal and different forms of insect attack.

Durability against fungal attack is defined within BS EN 350-2 using a five class system:

- Class 1 Very durable
- Class 2 Durable
- Class 3 Moderately durable
- Class 4 Slightly durable
- Class 5 Not durable

These durability classes only relate to the fungal attack of Heartwoods, all Sapwoods are classified as 'not durable'.

Durability classes established in accordance with BS EN 350-2 provide an indication of performance when the wood is in contact with the ground (equal to conditions defined by Class 4 within BS 335-1). Where wood is not in contact with the ground its treatability (its water absorption characteristics) will also influence the service life of the wood, i.e. wood that is less absorbent for a given durability class will last longer than a wood that is more absorbent.

Durability of heartwoods against insect attack is defined within BS EN 350-2 using a two or three class system depending on the species of insect concerned:

- Durable (does not imply total resistance to insect attack).
- Moderately Durable (referenced in relation to termites and marine borers only).
- Susceptible.

Where a wood does not provide the desired level of durability for its end use and location it may be treated with preservative.

Workability

The ease with which timber can be worked varies from species to species. The level of workability required will depend on the scope of works, the extent of on site alterations/fabrication needed and desired level of craftsmanship.

Dimensional Movement

Dimensional movement refers to the changes in the dimensions of dried timber that occur when it is subjected to changes in its environment, i.e. temperature and humidity.

The acceptable level of movement will depend upon the quality of finish required and the range of temperatures and humidity anticipated within the timber's environmental.

Moisture Content

Variations in moisture content of timber cause the wood to expand and contract, mainly across the grain. As a result timber that has not been dried to the appropriate moisture content (i.e. reflecting the moisture content that it will achieve in its final environment) will be subject to shrinkage, warping and splitting.

The appropriate moisture content will depend on:

- Whether timber is to be located internally or externally.
- Where internal, if the space is to be heated or unheated.
- Where heated, the average temperature range.

British Standards

BS 1186-3 sets out the requirements for timber species and quality classifications of wood trim as well as limited guidance on fixing.

To comply with BS 1186-3 wood trim products should be reported in accordance with stated classifications. Compliance with BS 1186-3 alone does not denote any specific level of performance.

Note BS EN 942 is sometimes incorrectly referenced. BS EN 942 relates to the provision of timber to be incorporated into joinery items, e.g. timber used to form a window, door or doorset. While broadly covering the same topics and recommendations, the classification systems used differ. Recommended moisture content levels although in line with those provided by BS 1186-3 also differ slightly.

Performance Classification

The performance classifications for timber trims set out within BS 1186-3 are:

Quality

According to the size and clustering of knots together with the assessment of ten other types of defect the quality of timber for trims is classified into four different classes:

- Class CSH – knot diameter limited to 6mm.
- Class 1- knot diameter limited to 22.5mm.
- Class 2 – knot diameter limited to 35mm.
- Class 3 – knot diameter limited to 50mm or no more than 35% of board width.

Class CSH and Class 1 timber are suitable for high quality of specialised trim while Class 2 and Class 3 timber are suitable for general purpose trim.

Workability

Timber is classified in accordance with the ease by which it can be worked:

- A: Easily worked on a bench or by machine.
- B: Of average workability.
- C: Difficult to work on a bench.

Dimensional Movement

Timber is classified in accordance with the degree of dimensional change that occurs due to changes in moisture content:

- S: Small (suitable for internal joinery).
- M: Medium.
- L: Large.

Moisture Content

The recommended moisture levels for different environments set out within BS 1186-3 are:

- 13% - 19% External.
- 13% - 17% Internal with intermediate heating.
- 10% - 14% Internal with continuous hearting, 12-19^{o}C.
- 8% - 12% Internal with continuous hearting, 20-24^{o}C.

Treatment of Timber

BS EN 335-1 defines five different service situations that wood and wood based products may be exposed to by reference to User Classes, these are:

Class 1 Interior covered (dry).

Class 2 Interior or exterior (occasionally wet).

Class 3.1 Exterior, above ground and protected (occasionally wet).

Class 3.2 Exterior, above ground and unprotected (frequently wet).

Class 4.2 Exterior, in ground contact and/or fresh water (predominantly or permanently wet).

Class 4.2 Exterior, in ground (severe) and/or fresh water (permanently wet).

Class 5 In salt water (permanently wet).

User Classes provide a way of reporting the suitability of wood and wood products for different end use environments. It also gives a means for specifying the level of preservative treatment required.

Where a wood does not have the desired level of durability for its end use and location it may be treated with preservative. The type of treatment, and how it's applied, will depend on several factors:

- Natural durability of the species of timber.
- Required level of durability after treatment.
- Treatability of the timber (its resistance to penetration by preservatives, also referred to as its permeability).
- The ease of any future maintenance, i.e. the re-application of preservatives.
- Location and use (some preservative treatments are not suitable for agricultural or internal uses).

The most effective means of applying preservative treatment is by industrial pre-treatment. Pre-treatment methods have the advantage that preservatives can be applied in a measured and controlled manner suitable for the species of wood, its end use and desired service life. Methods of pre-treatment are:

- Vacuum, high pressure treatments - Use Classes 1 to 4.
- Double vacuum, low pressure treatments - Use Classes 1, 2 and 3.1.

There are a large range of preservatives that can be used to treat timber. These may be broadly defined as either being copper based or non metallic.

Copper based preservatives may corrode certain metal products (including fasteners, hardware and flashing). To prevent premature corrosion and failure it is important to follow the recommendations of the preservative manufacturer for all metal products.

Some non metallic treatments do not become fixed in the wood and can readily leach out overtime. The need to re-apply preservative at regular intervals should be taken into consideration.

Timber Certification

The UK Government's timber procurement policy requires that all timber and wood-derived products must be independently verifiable and either from a:

- Legal and Sustainable source; or
- FLEGT-licensed or equivalent source;

The policy is mandatory for all Central Government Departments, Executive Agencies and Non Departmental Public Bodies. Local Authorities, and other public bodies.

The policy provides a recognised benchmark and its adoption within the private sector is encouraged by the Government and may be considered as general good practice when specifying timber based products.

Compliance with the UK Government timber procurement policy is achieved by ensuring that Contracts contain a suitably worded condition. Usually this will take the form of an appropriately worded clause within the Specification or Contract Preliminaries.

In order to assist compliance with the policy the government has identified two types of evidence that can be used to demonstrate the legality and sustainability of timber and timber products:

- Category A : Certification of materials under one of the approved schemes
- Category B: All other forms of evidence, for example audit statements, government documentation or supplier declarations.

The use of certified materials provides the most common and simplest form of ensuring compliance. Four certification schemes have been confirmed by The UK Government's Central Point of Expertise on Timber (CPET) as demonstrating that timber and wood products come from legal and sustainable sources. These are:

- FSC (COC): Forest Stewardship Council Chain of Custody.
- PEFC: Programme for the Endorsement of Forest Certification Schemes.
- CSA: Canadian Standards Association.
- SFI: North American Sustainable Forest Initiative.

The PEFC is an "umbrella scheme" which endorses national schemes, including the Canadian scheme (CSA) and the North American (SFI) schemes. It is the UK Government's policy to treat all four schemes as equivalent when purchasing timber and wood products.

Specification Guidance

Form of Specification

The specification of trims, skirtings, etc will generally be prescriptive in nature, even where the Contractor is responsible for the design of the works under the Contract terms. This is because there is usually a desire to control the appearance and performance of items to a level where the benefits of a performance specification are negated.

This guide covers the prescriptive specification of trims, skirting and sundry items.

Scope

The Scope provides a brief description of the works specified within the particular section and details any contractual matters that are relevant to them. Care should be taken to avoid repeating particulars already included within the Contract Preliminaries.

Scope of Specification

To help the reader quickly understand which elements of the works are covered in this Works Section it is useful to provide a brief description of items specified, e.g. *softwood skirting to corridors*

Form of Specification

State whether the specification is performance based or prescriptive together with any contractual requirements or information that relate to the Works Section. Do not include any requirements or information already set out within the Contract Preliminaries.

Where the specification is prescriptive in nature requirements placed on the Contractor may include:

- The selection, supply and incorporation into the works of all listed accessories and sundry items in conjunction with Manufacturer's recommendations.
- The selection, supply and use of all minor items required for the installation of specified materials.

It is normal for the terms of a contract or the Contract Preliminaries to state that the Contractor may offer equivalent and, or, substitute products. Where this is not applicable to all Works Sections an appropriate statement must be provided.

Execution of the Works

Any general requirements or information relating to the installation of trims, skirtings, etc which are not contained within the Contract Preliminaries should be listed. These may include:

Reference Documents

A list of all instructions, guidance and standards concerning handling, storage, installation and maintenance of materials that the Contractor is to comply with while executing the works must be given. This may include:

- Installation instructions and recommendations provided by the manufacturer(s) where these are available.
- British Standards, *e.g. BS 1186-3:1990 Timber for and workmanship in joinery. Specification for wood trim and its fixing and, or, NHBC Standards.*
- Workmanship clauses provided within the Specification.

In some circumstances conflicts might exist between the requirements set out within the documents listed. A statement should be included that sets out which documents take precedence or confirms whether compliance with the most or least onerous condition is required.

Dimensions

Construction tolerances and the imperfect nature of existing works mean that dimensions provided within the Contract Documents may not reflect final built dimensions. It is therefore advisable to require the Contractor to confirm actual site dimensions before cutting trims, skirting, etc.

Product

Within prescriptive specifications the Contractor needs sufficient information to:

- Gain a clear and full understanding of the required works.
- Price the works.
- Order all materials, products and systems required in the execution of the works.

The level and type of product information provided will vary depending on the scope of the project, the type of contract and the nature of the works.

The different trims, skirting, etc that might be specified within this Works Section can be grouped by type of material and trim, *e.g. Softwood Skirting.*

Timber Items

- Species: State common name and source, e.g. Canadian Redwood. Where timbers have similar names the botanical name can also be provided for clarity.
- Quality Class: State class of timber required referencing British Standard, *e.g. Class 2 to BS 1186-3.*
- Finished Size: Provide size in millimetres.
- Edge Profile: Describe profile of edges, *e.g. pencil round.*

For MDF products the Quality Class need not be specified. The required Formaldehyde Class should be state though.

- Formaldehyde Class: e.g. For all internal trims/joinery MDF must be *Formaldehyde Free.*

Non Timber Products

- Manufacturer: Name of manufacturer, website and telephone number.
- Reference: Product/system reference name and, or, code.
- Size: Provide size in millimetres.
- Fixing: Method of fixing.

Accessories/Related Components

Where related components are required and provided by the same manufacturer it is recommended these items are specified as an additional item within the relevant product clause.

Additional Information

Additional descriptive or performance related information can be provided where it is felt that this will aid the Contractor in understanding the scope of works, how they are to be achieved and the required level of workmanship. Examples may include:

- Preservative Treatment: Information provided can include the following criteria:
  i. Design Life: *e.g. 60 years*
  ii. Treatment Reference: *e.g. name of proprietary treatment.*
  iii. Required Durability Classification (BS EN 335-1) of timber post treatment.
- Location: Where a number of different types of trim are required in some circumstances it may be advantageous to indicate the location of specific items.
- Method of Fixing: Specify the method of fixing where no manufacturer's instructions are provided, e.g. for timber trims.
- Finish: Include the specification reference for any finishes that are to be applied.

Where additional information is provided it should be grouped together with the relevant item or clause.

Accessories

Where related components are specified in detail all necessary information needed to order the correct materials or products must be provided. Information to be provided includes:

- Manufacturer: Name of manufacturer, website and telephone number.
- Reference: Product/system reference name and, or, code.

Check with the manufacturer of the principal materials, products and system to ensure that the selected components are compatible with them.

Workmanship

Additional requirements relating to the installation of specified materials and products can be provided within Workmanship Clauses. Requirements typically relate to:

- Scope of works, e.g. frequency of movement joints
- Additional design information, e.g. setting out information, joint widths, etc
- Quality control, e.g. permissible tolerances, discarding non-compliant materials
- Method of working, e.g. sequencing or works.

In the majority of instances guidance provided by BS 11836 Part 3 will be sufficient to enable the Contractor to undertake the work to a high standard. Additional requirements may be provided that expand upon, alter, confirm or emphasise requirements already outlined within the reference documents (i.e. where work needs to be undertaken to an historic building in a particular manner).

Storage of Timber

Where timber is stored on site it must be placed within a stable environment, at a temperature and level of humidity that maintains the moisture content of the timber within the required range. This ensures timber has the correct moisture content at the time of fixing. It also helps to reduce the risk of timber warping, splitting, shrinking or weakening due to fluctuations in moisture content.

BS 1186-3 while advising against the storage of timber in the open (albeit suitably covered) the standard does not preclude it and it is left to the discretion of the Contractor. It is therefore recommended that, unless impractical, the Contractor is instructed to store timber within an appropriate and stable environment, i.e. not in the open.

Moisture Content

To reduce the risk of timber warping, splitting, shrinking or weakening due to fluctuations in its moisture content once installed, timber should be:

- Left to stand in its end use environment for a period of time prior to installation to ensures its stability
- Installed only once the building is sealed and provides a dry environment reflective of the final conditions
- Installed after the completion and drying out of adjacent wet trades.

Advise the Contractor that any timbers that become warped, split, shrunk or weakened are to be discarded and not incorporated into the works.

Fixing Joinery

The method of fixing trims should be specified against each type of trim.

Additional information relating to the method of fixing can be set out within an appropriate workmanship clause. This may include, but not be limited to:

- All nail heads to be punched below the surface of the wood and the hole filled.
- All screw heads to be countersunk at least 2mm with holes plugged or filled and finished to match wood finish.
- Plugs within wood where the grain remains visible to be aligned so that the direction of the plug's grain matches that of the wood.

Where trims are nail or screw fixed there is a risk that wood may split during fixing. It is recommended that the Contractor is required to remove all trims that become split during fixing unless agreed otherwise.

Treatment of Cut Surfaces

Where pre-treated timber is used any surface exposed by drilling or cutting is coated with a cut end preservative. Failure to coat will affect the value of the preservative.

Where the type of preservative is not specified, instruct the Contractor to check that preservative treatments used are suitable for the pre-treated timber.

Joints

At corners and within long lengths of trim joints will need to be formed. State type of joint to be used together with the method of fixing. For example:

- Joints at Corners: *e.g. Mitred.*
- Running Joints: *e.g. Glued and pinned scarf joint cut at a 45^{o} angle .*
- Minimum Length of Trim: *e.g. 900mm either side of running joints.*

Packing

The performance of fire or acoustic rated construction may be impacted upon by the presence of voids between trims and substrates. Where packing is required (e.g. around fire rated openings) instruct the Contractor to pack voids between trims and substrate ensuring:

- Packing materials placed adjacent to fixing points provide sufficient room for application of sealant to exposed edges.
- Packing materials are inert, non compressible and non degradable.

Finishing of Joinery

To ensure a high quality finish instruct the Contractor to undertake any additional works that are required beyond the simple fixing of trims. Instructions must ensure that trims are in a condition suitable for the application of any specified finishes. Requirements might include, but not be limited to:

- Gaps between trims and adjacent surfaces to be filled with white paintable sealant, applied in accordance with the manufacturer's instructions to provide a continuous even run with a uniform profile.
- Surfaces to be rubbed down to provide a smooth and even surface suitable for specified finishes.
- Sharp edges to be rounded 1-2mm.
- All dust and debris to be removed.

Finishing should also take into account any fire or acoustic performance requirements, i.e. sealing of all gaps between trims and substrates with sealant.

Samples, Tests, Certificates, etc

The following guidance should be read in conjunction with the guidance provided for Samples, Tests, Certificates, etc within Specright's Introduction to Writing Architectural Specifications.

Samples

Where the specification is prescriptive in nature, it is recommended that materials and products are reviewed prior to writing the specification.

Product samples may be requested where the specification is prescriptive in nature but the aesthetic quality of proposed trims needs to be checked to ensure compliance with the specification, e.g. to review the correct procurement of trims with complex profiles.

Electrical Moisture Test

The requirement for testing will depend upon the nature and sequencing of the works together with methods of working employed by the Contractor.

The electrical resistance method is suitable for measuring timber with a moisture content of 7% - 30%, although over 20% measurements are generally considered to be unreliable. The method of testing varies depending upon the model of meter used. It is therefore important that the instructions provided by the meter manufacturer are followed to ensure that:

- Adjustment is made to take account of the wood species and wood temperature.
- Electrodes are sufficiently long enough to penetrate into the timber by the recommended depth.
- Calibrate measurements according to type/size of tip used to take readings.
- Adjustment is made for the effect that preservatives may have on readings.
- Because measurements may vary depending on the local properties of the timber, measurements are taken at multiple points to establish the average and maximum moisture content

Set out the requirements for testing, including:

- Timing of Tests: *e.g. at time of delivery,* or, *immediately before installation.*
- Test Frequency: *e.g. each batch.*
- Test Method: *Electrical resistance method to BS EN 13183 -2* or *in strict accordance with meter manufacturer's instructions.*
- Test Results: *State item/batch tested, date and moisture content.*
- Reporting: e.*g. Retain on site for inspection,* or, *submit to Employers Agent.*

Note that although BS EN 13183-2 may be referenced the current version of the Standard is limited in scope and instructions provided by the meter manufacturer are likely to be more thorough.

Additionally where testing is to be carried out to high quality timber trims it is recommended that the Contractor is advised that probes must be inserted into those timber faces that will be concealed in the final works.

Timber Certification

Where all timber and wood-derived products must be provided from independently verifiable legal and sustainable, or equivalent, sources this requirement together with the permitted method for demonstrating compliance must be given. Requirements should include:

- Scope: range of materials/products to be from a certified sustainable source, *e.g. each batch of timber and wood derived products utilised during the course of the works.*
- Acceptable forms of evidence: i.e. list of approved certification schemes.
- Reporting: e.g. *Retain on site for inspection, or, submit to Employers Agent.*

Standards & References

Joinery Timber

BS 1186-3	Timber for and workmanship in joinery. Specification for wood trim and its fixing (AMD 9386) Requirements for the species, moisture content, classification, quality and workmanship of fixings.

Durability

BS EN 350-2	Durability of wood and wood-based products, natural durability of solid wood
BS EN 355-1	Durability of wood and wood-based products, definitions of use classes

Electrical Moisture Test

BS EN 13183-2	Moisture content of a piece of sawn timber. Estimation by electrical resistance method

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