

Chapter 2.3

Timber preservation (natural solid timber)



2.3 Timber preservation (natural solid timber)

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SCOPE

This Chapter gives guidance on meeting the Technical Requirements and recommendations for the protection of natural solid timber against fungal decay when exposed to damp conditions and against insect attack.

LIMITATIONS

This Chapter only refers to treatment of natural solid timber. It does not relate to timber products such as plywood and wood particle boards.

This Chapter only gives acceptable treatment schedules and does not cover:

- condition of the timber before treatment
- techniques of operating the treatment process, which is the responsibility of the organisation carrying out the operation.

DESIGN STANDARDS

2.3 - D1 Design shall meet the Technical Requirements

Design that follows the guidance below will be acceptable for timber selection and preservation.

STATUTORY REQUIREMENTS

2.3 - D2 Timber and its preservative treatment shall comply with all statutory requirements

Design should be in accordance with relevant Building Regulations and other statutory requirements.

DURABILITY

2.3 - D3 Timber and joinery used in the construction of dwellings shall either have adequate natural durability or, where treatment is undertaken, receive a satisfactory preservative treatment against fungal decay and insect attack

Timber and external joinery should be either:

- naturally durable and resistant to insect attack, or
- treated with preservative in accordance with this Chapter.

Appendix 2.3-A provides information to establish whether or not treatment is necessary for a particular element or timber species and also the type of treatment.

METHOD OF TREATMENT

2.3 - D4 The method of treatment and treatment process shall reasonably ensure that the timber is safely and satisfactorily protected against fungal decay and insect attack

For timber or joinery which requires treatment, it is important that it is carried out to appropriate standards which are both suitable and safe. Treatments in accordance with procedures set out in British Standards, Codes of Practice or which have been satisfactorily assessed by an independent authority, will be acceptable, unless otherwise notified in writing.

COMPATIBILITY WITH METAL COMPONENTS

2.3 - D5 Measures shall be taken to prevent adverse effects from incompatibility between metal components and treated timber

In situations where occasional dampness is expected, metal fittings in contact with timber treated with copper containing preservatives should be galvanized. Where timber treated with copper organic

preservatives is likely to become wet, fittings of austenitic stainless steel should be used.

Copper containing treatments can create a corrosive cell between mild steel and aluminium.

MATERIALS STANDARDS

2.3 - M1 All materials shall: (a) comply with the Technical Requirements (b) take account of the design

Materials that comply with the design and the guidance given in Appendix 2.3-A will be acceptable for timber preservation.

The specification should state the specific treatment and standard required.

Preservative treatments should comply with all relevant standards and Codes of Practice. Proprietary treatments not contained in this Chapter or in British Standards should comply with Technical Requirement R3 (see Chapter 1.1 'Introduction to the Standards and Technical Requirements').

In all cases, preservatives must meet the requirements of the Control of Pesticides Regulations (1986) administered by the Health and Safety Executive.

The safety instructions published by the manufacturers should be followed.

References to British Standards and Codes of Practice include those made under the Construction Products Directive (89/106/EEC) and, in particular, appropriate European Technical Specifications approved by a European Committee for Standardisation (CEN).

In situations where occasional dampness is expected, metal fittings in contact with timber treated with copper containing preservatives should be galvanized. Where timber treated with copper containing preservatives is likely to become wet, fittings of austenitic stainless steel should be used.

SITWORK STANDARDS

2.3 - S1 All sitework shall: (a) comply with the Technical Requirements (b) take account of the design (c) follow established good practice and workmanship

Sitework that complies with the design and the guidance below will be acceptable for timber preservation.

Timber treated with copper containing preservatives should be re-dried to a moisture content of 20% for at least 7 days before being in contact with metal fittings.

In situations where occasional dampness is expected, metal fittings in contact with timber treated with copper containing preservatives should be galvanized. Where timber treated with copper containing preservatives is likely to become wet, fittings of austenitic stainless steel should be used.

Check that when delivered to site, timber and joinery products have received the specified treatment. This should be stated on the delivery note.

PROTECTION AND STORAGE

2.3 - S2 Timber and joinery shall be stored and protected to ensure it is in a suitable condition when installed in the dwelling

It is important when timber and joinery products are stored that they are:

- protected from damage immediately upon delivery
- protected from the weather
- stored off the ground
- stored in a way which limits the risk of distortion
- stored so that air can circulate freely around them.

TREATMENT OF CUT SURFACES

2.3 - S3 Timber which has been preservative treated and cut shall be re-treated on the cut surfaces

Timber should not be cut after treatment but where this is unavoidable (either at the treatment plant or on site) all cut surfaces should be given two liberal applications of a suitable colour tinted preservative. The purpose of the colour tinting is to enable checks to be made that re-treatment has been carried out.

Only in situations where colour tinting will affect the appearance of the timber when fixed to the dwelling will clear preservatives be acceptable for this purpose.

The site applied preservative should be compatible with the original treatment.

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APPENDIX 2.3-A

Table 1 - Timber component groups and preservative treatment required (based on BS 8417)

| Component group | Examples | Hazard class | Desired service life | Preservative type required (see note 1) | | | Preservative treatment not required: |
|--|--|--------------|----------------------|---|----------------------------------|-------|--|
| | | | | Copper organic | Organic Solvent or Microemulsion | Boron | |
| Internal joinery, intermediate floor joists | Architraves, internal doors, intermediate floor joists | 1 | 60 | ✓ | ✓ | ✓ | unless a specific request for treatment against insect attack has been made |
| Roof timbers (dry) | Pitched roofs: rafters, purlins, joists, wall plates | 1 | 60 | ✓ | ✓ | ✓ | unless a specific request for treatment against insect attack has been made |
| Roof timbers (dry) in areas with house longhorn beetle | Ditto | 1 | 60 | ✓ | ✓ | ✓ | Where timber used is: <ul style="list-style-type: none"> softwood - heartwood only (see note 2) and of durability class 1 - 3 (see note 3) or hardwood |
| Roof timbers (risk of wetting) | Flat roofs joists, sarking, tiling battens, valley boards, timbers exposed to risk of condensation | 2 | 60 | ✓ | ✓ | ✓ | Where timber used is heartwood only (see note 2) and of durability class 1 - 2 (see note 3) |
| Roof timbers (risk of wetting) in areas with house longhorn beetle | Ditto | 2 | 60 | ✓ | ✓ | ✓ | Where timber used is heartwood only (see note 2) and of durability class 1 - 2 (see note 3) |
| External walls/ground floors | Timber frames, ground floor joists, I-beam studwork | 2 | 60 | ✓ | ✓ | ✓ | Where timber used is heartwood only (see note 2) and of durability class 1 - 2 (see note 3) |
| Sole plates (see note 4) | | 2 | 60 | ✓ | ✓ | ✓ | Where timber used is heartwood only (see note 2) and of durability class 1 - 2 (see note 3) |
| External joinery, coated (not in ground contact) (see note 5) | Window frames, door frames, doors, cladding (coated), soffits, fascias, barge boards | 3 | 30 | ✗ (see note 6) | ✓ | ✓ | Where timber used is heartwood only (see note 2) and of durability class 1 - 3 (see note 3) |
| Uncoated external timbers (not in ground contact) | Decking, balcony infill, cladding (uncoated) | 3 | 15 | ✓ | ✗ | ✗ | Where timber used is heartwood only (see note 2) and of durability class 1 - 2 (see note 3) |
| Timber in contact with the ground | Decking timber in ground contact, timber below dpc | 4 | 15 | ✓ | ✗ | ✗ | Where timber used is heartwood only (see note 2) and of durability class 1 - 2 (see note 3) |

Notes to table 1

- 1 Preservative treatment of timber should be in accordance with the recommendations of BS 8417 (with the exception of sole plates - see note 4). For preservatives listed in the supplement to the WPA Manual treatment recommendations are given in table 9, BS 8417.
- 2 Almost always, packs of timber contain sapwood. It should be assumed that timber is sapwood and preservative treated accordingly unless the timber has been specifically selected as heartwood only.
- 3 Natural durability classes are given in table 2.
- 4 Sole plates should be positioned above dpc. Preservatives used should be resistant to leaching or, for boron, treatment should be to full cross section retention standard. Treatment should be carried out in accordance with the WPA manual.
- 5 The hardwoods known as Meranti, Seraya or Lauan should be treated in the same way as European redwood / Scots Pine when used for joinery.
- 6 Generally, copper organic preservatives are not used for treating joinery items, but they can be used to treat claddings which are to be coated.

Table 2 - Natural durability of building timbers (heartwood only)

| Durability Class | Timber Type | Timber Species | |
|-----------------------|-------------|--|--|
| 1. Very durable | Softwoods | None | |
| | Hardwoods | Opepe Padauk-Andaman Afromosia Greenheart Guarea Iroko Jarrah Okan Pyinkado Teak Kapur Padauk Peroba | - Malaysian - Sabah - Burma - White |
| 2. Durable | Softwoods | Cedar | - Western red (imported) |
| | Hardwoods | Basralocus Ekki Chestnut Karri, Kempas Louro Oak Mahogany | - Sweet - Red - American White - European - American |
| 3. Moderately durable | Softwoods | Pine Cedar Fir Larch Pine | - Caribbean pitch - Western red (UK) - Douglas (North American) - Douglas (UK) - Dunkeld (UK) - European - Hybrid - Japanese - Tamarack - Western - Maritime - American pitch |
| | Hardwoods | Keruing Oak Mahogany | - Sabah - Malaysian - Tasmanian - Turkey - African |
| 4. Slightly durable | Softwoods | Fir Pine Redwood Fir Hem-fir Pine Spruce Spruce-pine-fir | - Noble - Silver - Canadian red - Corsican - Jack - Parana - Ponderosa - Radiata - Scots - Southern - Western white - Yellow - European - Balsam - Grand - USA and Canada - Lodgepole - Eastern Canadian - Engelmann - European (Whitewood) - Sitka - Western white - Canada |
| | Hardwoods | Elm Oak Beech Elm | - Dutch - English - White - American red - Silver - Rock -Wych |
| 5. Not durable | Softwoods | None | |
| | Hardwoods | Alder Beech Birch Chestnut Lime Sycamore | - European - Silver - European - Paper - Yellow - European horse |

APPENDIX 2.3-B

Additional sources of information

BS 8417 Preservation of Timber - Recommendations.

BS EN 599 - Part 1 Durability of wood and wood-based products - Performance of preventive wood preservatives as determined by biological tests - Part 1: Specification according to hazard class.

Industrial Wood Preservation - Specification and Practice ('the WPA Manual') (2008).

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