



service classes of plywood*. If the plywood is to be used as decking for flat roofs, especially cold decking, it is recommended that CDX grade or better should be used since the decking may be subjected to condensation.

Exposure of the plywood to wetting in the finished roof is highly dependent on both the adequacy of roof design and the standard of workmanship during erection. If either of these two factors are in doubt, then the designer should consider treating the outer plies with a suitable preservative. Suitable treatment would require a 10-minute dip in an organic solvent preservative to Type F/N of BS 5707-1, or use of any of the preservatives complying with section 8 clause 63 of BS 5589 so that the outer veneers are completely penetrated. British Standard BS 6566-7 (soon to be replaced by DD ENV 1099) for the treatment of plywood should also be consulted. Plywood that has been treated with a water-borne preservative should be dried to a moisture content of less than 20% before installation in a structure whose design has been based on use in service classes one and two.

6.3 Fungal decay

When the risk of fungal attack is assessed, only hazard class 2 need be addressed since the continuous dry conditions of hazard class 1 preclude the development of fungi.

BS EN 460, which relates the need for preservative treatment to hazard class, states that the natural resistance (durability) of all timbers against wood-destroying fungi is normally sufficient for hazard class 2 usage, but that treatment may sometimes be advisable for timbers of durability class 4 or 5. Reference should be made to BS EN 350-2 to determine the durability class of the wood species included in the plywood. It should be noted that durability class 5 includes the sapwood of all timbers. Clearly it is difficult to assess the proportion of sapwood present in plywood because its method of production, in effect, reorganises the distribution of sapwood and heartwood found in solid timber. Where sapwood and heartwood cannot be readily differentiated, for example as with spruce, the whole of the plywood must be considered to be of sapwood for the purposes of treatment decisions.

6.4 Insect attack

In the UK, attack by the house longhorn beetle is possible in the area to the south of London and defined within the Approved Document to support Regulation 7. Here it is strongly recommended that treatment against attack by this insect is carried out on all susceptible timber and wood-based products. Reference to BS EN 350-2 should be made to determine susceptibility of the timber species used in the plywood. Where mixed species are used or sapwood is present, the most susceptible wood should be used as a guide for treatment. However, because of the size of the insect, for plywood in which all veneers are 3 mm or less in thickness, no preservative treatment is necessary. Where it is deemed necessary to prevent attack by the common furniture beetle, reference again should be made to BS EN 350-2 but any durability requirements should be ignored if the veneers are 1.5 mm or less in thickness.

6.5 Roof components

Panel products incorporated into roof structures can be used either as sarking in pitched roofs or as flat roof decking. The British Standard BS 5268-5, although principally concerned with solid timber, provides an indication of the need for enhanced durability in roof components. Pitched roof sarking in most domestic buildings is regarded as safe from fungal attack (hazard class 1)

*An Interim Technical Data Sheet^[5] is available from TRADA providing converted grade stresses for use with Eurocode 5.

and therefore plywood of any timber species can be used without the need for treatment. Where the specifier concludes that there is a significant risk of insect attack, treatment may be necessary (see clause 3), especially where sapwood is present or the timber used in the panel construction is one where differentiation between heartwood and sapwood is difficult. Where there is a risk of wetting, eg from condensation (hazard class 2), treatment against fungal attack is regarded as desirable.

For flat roof decking, the recommendations for higher durability against fungal attack are related to the opportunity for the boards to become wet in service. A ventilated cold deck construction or a warm deck that will only experience low humidity may be regarded as hazard class 1 and requires no enhanced durability; any plywood will perform satisfactorily. For decking in warm roofs that will experience intermittent or continuous high humidity (hazard class 2), the need for resistance to biological degrade becomes progressively greater and a decision on treatment will have to be made based upon perceived risk. Considerations on insect attack are the same as for pitched roofs.

6.6 Treatment methods

Treatment of American plywood can be achieved by treating the finished board material. BS 1282 provides guidance on the types of preservative formulations available and their method of application (see also BRE Digest 378^[6]). For preservation in hazard classes 1 and 2, both organic solvent and waterborne preservatives are available. Formulations should be selected to prevent insect attack, fungal attack, or both, depending on circumstances. BS 5707 provides information on organic solvent formulations and BS 4072 on copper/chromium/arsenic waterborne formulations. Waterborne boron compounds (defined in the BWPDA Manual^[7]) may also be used.

Wood preservative treatment schedules for plywood are not so well established as for solid timber and treatment facilities may be restricted. To help with deciding on a preferred treatment process, advice should be obtained from the preservative manufacturer. In general, the procedures described in BS 5268-5 can be used. However, since it is likely that plywood will be treated in whole sheets and then cut to size during installation, it is essential to ensure that any cut edges are sealed or treated at the time of cutting.

Further guidance on pre-treatment processes and wood preservatives for various end-uses can be found in BS 5589.