

## 2.3 Selection of panels for specific end use: general requirements

In the selection of panels for specific end-uses a number of criteria must be considered and satisfied (Figure 2.1) including,

- panels for use in construction must comply with the Essential Requirements of the Construction Products Directive (CPD): the most straightforward way of demonstrating this is by compliance with the **Harmonised Standard BS EN 13986** for wood-based panels. The panels must be marked with sufficient information (on the product, packaging or accompanying documentation) to confirm such compliance;
- where relevant, the panels must be capable of carrying the **imposed loads** as set out in either BS 6399 (if permissible stresses in design are used according to BS 5268 Pt 2) or Eurocode 1 and 0 (if design is by limit state according to Eurocode 5), or to meet specific loads where known;
- the panels must be appropriate for the ambient environmental conditions of the projected end-use. Panels in the following tables are listed according to use in one of three **service classes**. The service class system is mainly aimed at assigning strength values and for calculating deformations under defined environmental conditions.

**Service class 1:** is characterised by a moisture content in the materials corresponding to a temperature of 20°C and the relative humidity of the surrounding air only exceeding 65% for a few weeks per year.

Note: In service class 1 the average moisture content in most panels will not exceed 11%.

**Service class 2:** is characterised by a moisture content in the materials corresponding to a temperature of 20°C and the relative humidity of the surrounding air only exceeding 85% for a few weeks per year.

Note: In service class 2 the average moisture content in most panels will not exceed 15%.

**Service class 3:** climatic conditions leading to higher moisture contents than in service class 2.

Further criteria relating to e.g. thermal conductivity, vapour permeability, durability, dimensional stability and sound adsorption may also have to be taken into account in the selection of panels for particular applications.

Tables 2.1, 2.2, 2.4, 2.6, 2.9, 2.11, 2.12, 2.13, 2.16, 2.17, 2.20, 2.21 below set out the types and grades of panels that are available for a specific end-use within construction, given a particular load level and a particular environmental condition.

It should be appreciated that

- 1) these tables give the **minimum grade of panel** that will satisfy a particular set of requirements. Panels of higher quality than the minimum may be substituted, and in certain circumstances their selection may result in a reduced thickness of panel being used;
- 2) although all the panels meeting the grade specifications in a particular table satisfy the particular requirements, the level of performance of different brands of these panels may vary considerably. Moreover some may be endowed with high levels of properties not included in the tables, such as dimensional stability, or sound adsorption; these properties are normally covered in the manufacturer's literature;
- 3) the design of structures using any one of these panels is dependent on the availability of the relevant design stresses and their subsequent modification to account for environmental factors and duration of load. These factors in design are set out and discussed in Section 2.2 of PanelGuide.

**Fig 2.1 - PANEL SELECTION AND USE**

