

# METRIC AND INCH UNITS

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## BRITISH STANDARDS INSTITUTION

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### BRITISH STANDARD: AEROSPACE SERIES

#### SPECIFICATION FOR

## SITKA SPRUCE AS ROUGH TIMBER

### FOREWORD

This British Standard has been prepared under the authority of the Aerospace Industry Standards Committee, at the request of the Timber Trade Federation of the United Kingdom to deal with the requirements for Sitka spruce as rough timber, previously specified in Ministry of Aviation Specification D.T.D. 28C which has recently been cancelled.

Timber to this standard, rather than ungraded timber, should increase the probability of the material proving satisfactory for aerospace purposes. However, it should not be assumed that such timber will necessarily prove acceptable where there is a requirement to meet specifications for finished material.

All dimensions and dimensional tolerances are given in both British and metric units. These two sets of requirements are not interchangeable and the relevant set should be applied, depending on whether the timber is ordered in British or metric units.

### SPECIFICATION

#### 1. SCOPE

This British Standard specifies the requirements, in both British and metric units, for two classes of Sitka spruce as rough timber for aerospace purposes.

#### 2. QUALITY

2.1 The timber shall be of the best description obtainable of Sitka spruce (*Picea sitchensis*, Carr).

2.2 The timber shall have been cut from logs of a living tree.

#### 3. SEASONING

The timber shall have been either naturally or artificially seasoned, to the satisfaction of the inspector, to a moisture content, when determined by the method described in Appendix A, of not more than 27% of the weight of the dry wood.

#### 4. CHARACTERISTICS

4.1 The rate of growth of any piece shall be not less than 18 nor more than 24 annual rings to each 3 in (metric: 75 mm) when measured in a radial direction through the zone of maximum growth on either end.

4.2 The material shall not contain bands of compression wood exceeding in aggregate 10% of the width of the piece.

#### 5. FREEDOM FROM DEFECTS

5.1 *Rot and discoloration.* All pieces shall be free from rot, decay and all forms of insect decay and/or discoloration.

5.2 *Tool marks and injury.* All pieces shall be free from picaroon holes, hook marks, stripped edges or other damage that may be caused by bad handling, to the satisfaction of the inspector.

5.3 *Shakes.* All pieces shall be free from shakes likely to seriously impair the value of the timber.

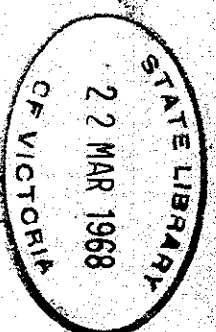
#### 5.4 *Pitch pockets*

5.4.1 Pieces less than 10 ft (metric: 3.00 m) long and 6 in (metric: 150 mm) wide shall be free from pitch pockets.

5.4.2 Lengths of 10 ft (metric: 3.00 m) and upwards may contain, on each of any two faces, one pitch seam or pocket not more than 2 in (metric: 50 mm) long or the equivalent in minor pockets provided that they are not in the same annual ring. Where the number of pitch pockets exceeds that amount, the disposition shall be such that an estimated yield of not less than 80% in lengths of not less than 10 ft (metric: 3.00 m) containing pitch pockets not exceeding the permissible limit, shall be obtained.

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Price 3/- net.



**5.5 Sapwood and wane.** Bright sapwood shall be allowed at the discretion of the inspector, having regard to the possibility of subsequent decay or deterioration, and wane shall not exceed one half the estimated sapwood. The estimated yield of sound timber from lengths containing sapwood and/or wane shall be not less than 80% in clear lengths of not less than 10 ft (metric: 3.00 m).

**5.6 Grain defects**

**5.6.1** Pieces less than 10 ft (metric: 3.00 m) long shall be free from knots, burls, curls, gnarls, undulating and irregular grain, and any interruption in the growth which may constitute a weakness.

**5.6.2** The slope of grain, when determined by visual inspection, shall not exceed the following:

- (1) Class 1 : 1 in 15
- (2) Class 2 : 1 in 12

The class required shall be stated in the contract or order.

**5.6.3** Each piece 10 ft (metric: 3.00 m) or more long shall be free, on all four sides, from the defects referred to in 5.6.1 and shall comply with 5.6.2, to the extent that the estimated yield in clear lengths shall be in accordance with Table 1.

TABLE 1  
BRITISH UNITS METRIC UNITS

All dimensions are in feet		All dimensions are in metres			
Length of piece	Min. estimated yield	Min. clear length	Length of piece	Min. estimated yield	Min. clear length
10 up to and incl. 13	90	8	3.00 up to and incl. 4.00	90	2.40
Over 13	80	10	Over 4.00	80	3.00

**5.7 Waste.** Should the waste from all causes in any piece of timber exceed the allowance permitted in 5.4.2, 5.5 and 5.6.3, the inspector may accept the timber provided that:

- (1) The contractor agrees to accept a measurement excluding the excess of this waste above 20% or 10% as appropriate.
- (2) In no case is the total waste more than 33 1/3% of the piece.

This British Standard, having been approved by the Aerospace Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council of the Institution on 29th December, 1967.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

*British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.*

The following BSI references relate to the work on this standard:  
Committee reference ACE/2. Draft for comment 66/23626.

6. DIMENSIONAL TOLERANCES

6.1 Tolerances on the dimensions called for in the contract or order shall be allowed as follows:

(1) **Thickness.** In accordance with Table 2, except that if full sawn material is called for in the contract or order it shall not be undersize at the time of manufacture but may be oversize within the appropriate tolerance given in the table.

(2) **Width.** In accordance with Table 2.

(3) **Length.** To the nearest 6 in (metric: 150 mm).

TABLE 2

BRITISH UNITS METRIC UNITS

All dimensions are in inches		All dimensions are in millimetres	
Nominal width or thickness	Tolerance	Nominal width or thickness	Tolerance
1	plus 1/8 minus 1/16	27	plus 3 minus 1
2	1/4	50	6.5 1.5
3-8	1/4	75-200	6.5 3
Over 8	1/2	Over 200	12.5 6.5

7. HISTORY

If required, the history of the parcel or consignment shall be declared by the contractor.

8. IDENTIFICATION

Each piece passed by the inspector shall be stamped with the mark of the inspector and shall have the class and agreed chargeable dimensions marked on it.

APPENDIX A

METHOD FOR THE DETERMINATION OF MOISTURE CONTENT

Take a small sample of the timber from an appropriate position, weigh it ( $W_1$ ) and then desiccate it in an oven at a temperature of 100-105°C until the weight is constant ( $W_0$ ), taking great care to prevent any change in the moisture content between the cutting of the sample and the first weighing and also between removal from the oven and the subsequent weighing.

Calculate the moisture content as follows:

$$\text{Moisture content, per cent} = \frac{W_1 - W_0}{W_0} \times 100$$