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SPECIFICATION FOR MOSAIC PARQUET PANELS
PART 2 : METHOD OF TESTS

Gr.8

SRI LANKA STANDARDS INSTITUTION

DRAFTING COMMITTEE ON PARQUET PANELS

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~~Draft~~ Sri Lanka Standard

SPECIFICATION FOR MOSAIC PARQUET PANELS

PART 2 : Test Methods

FOREWORD

This Standard was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 9/10/89, after the draft, finalized by the Drafting Committee on Parquet products, had been approved by the Civil Engineering Divisional Committee.

Despite many alternative finishes available, timber floor finishes retain their popularity due to attractive appearance, better insulation and acoustics, tolerance to impact without causing indentations or breakages, and good resistance to acids, alkalis and oils. Compared to other timber floor finishes parquet floor finishes are attractive, relatively defect free during service and economical. Mosaic parquet retains most of the beneficial properties of parquet, while achieving further cost reductions due to reduction of thickness, more economic use of timber as sizes of fingers are small, absence of tongues and grooves, ease with which production can be mechanized , faster laying and low repair cost due to ease with which it can be replaced. Popular uses of mosaic parquet are in auditoria, ballrooms, banquet halls, living areas, offices, and hotels.

Sri Lanka Standard on mosaic parquet was considered worthwhile due to likely greater usage; need to specify requirements suited to local conditions; the possibility of importing panels or fingers in the future; and to enable the use of hitherto under utilized local timber species.

This part of the standard deals with test methods. Part 1 of this standard covers the general characteristics of three grades of mosaic parquet panels: select, commercial and industrial.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or measurement shall be rounded off in accordance with CS 102. The number of significant figures to be retained in the rounded off value should be the same as that of the specified value in this standard.

In the preparation of this standard the assistance derived from the publications of the International Organization for Standardization, the British Standards Institution, the Standards Australia and the Bureau of Indian Standards is gratefully acknowledged.

1 SCOPE

This part of the standard specifies the test methods applicable to mosaic parquet panels.

2 REFERENCES

CS 102 Presentation of numerical values
SLS ... Specification for mosaic parquet panels
Part 1 : General characteristics

3 DEFINITIONS

For the purpose of this part of the standard the following definitions shall apply:

3.1 back of raw parquet block : The side opposite to the face of raw parquet block.

3.2 checks : A small separations of the wood fibres in a longitudinal direction.

3.3 component square of mosaic parquet flooring : An assembly of fingers placed edge to edge making up a square, the side of which is usually equal to length of the finger.

3.4 face of raw parquet block : The best side of the raw parquet block.

3.5 mosaic parquet finger : A small solid wood component of regular form with machine planed edges, fine sawn or planed faces and fine sawn ends.

3.6 mosaic parquet panel : An assembly of component squares having the same dimensions, placed edge to edge in a chequered or other pattern, in a single layer and pre-assembled by juxtaposition, either by means of a material fixed temporarily (paper glued on the face for example) or by means of a sufficiently flexible material, permanently fixed to the back.

3.7 parquet : Aggregates of wood strips (fingers or blocks) assembled to a pattern in horizontal plane and forming the upper part of the floor.

3.8 plain-sawn timber : Timber converted so that the growth rings meet the face in any part at an angle of less than 45° (see Figure 1 of SLS ..... Part 1 : 1991).

3.9 quarter-sawn timber : Timber converted so that the growth rings meet the face at an angle of not less than 45° (see Figure 2 of SLS ..... Part 1 : 1991).

3.10 raw parquet block : A solid piece of wood having flat and reasonably parallel faces and rectangular cross-section, obtained by sawing, and having the dimensions required for the manufacture of parquet strips.

3.11 sound timber : Timber free from rot, timber infection or timber infestation.

3.12 subfloor : The base on which the wood mosaic parquet or an underlay is to be laid.

3.13 underlay : A layer of sheet material fixed to a wooden subfloor, or layer of material spread upon a concrete subfloor in a plastic condition to produce a plane and smooth subfloor to which wood mosaic parquet is to be bonded.

4 DETERMINATION OF NOMINAL DIMENSIONS AND COMPLIANCE OF TOLERANCE REQUIREMENTS

4.1 Fingers

4.1.1 Apparatus

Vernier calliper, capable of determining dimensions to an accuracy of 0.05 mm, and applying a clamping force which will not cause any deformation greater than the accuracy of it.

4.1.2 Procedure

4.1.2.1 Measure to an accuracy of 0.05 mm the width and thickness of every finger, selected in accordance with 10 of SLS ..... : Part 1 : 1991 using the vernier calliper at the middle and the two ends of the finger. Record the average width and thickness of the fingers. Take these values as the width and thickness, respectively.

4.1.2.2 Measure to an accuracy of 0.05 mm the length of every finger, used in 4.1.2.1, with the vernier calliper at the middle and two ends of the finger. Record the average length of the finger and take this value as the length.

4.1.2.3 Set the vernier calliper to the specified nominal thickness (see 5.1 of SLS ...: Part 1 : 1991) plus the positive tolerance (see 5.3 of SLS ...: Part 1 : 1991). Check whether thickness of the finger at any point can be accommodated within the jaws of the vernier calliper. If it cannot be accommodated ,at any point, consider the finger to have failed to satisfy the tolerance requirement on the specified nominal thickness.

Set the vernier calliper to the specified nominal thickness (see 5.1 of SLS ...: Part 1 : 1991) minus the negative tolerance (see 5.3 of SLS ...: Part 1 : 1991). Check whether thickness of the finger,can be accommodated within the jaws of the vernier calliper. If it can be accommodated at any point, consider the finger to have failed to satisfy the tolerance requirement on the specified nominal thickness.

Repeat the procedure for every finger used in 4.1.2.1.

4.1.2.4 Repeat the procedure given in 4.1.2.3 for the width of fingers.

4.1.2.5 Repeat the procedure given in 4.1.2.3 for the length of fingers.

4.2 Component squares.

4.2.1 Apparatus

4.2.1.1 Vernier Calliper, as specified in 4.1.1.

4.2.1.2 Two steel rollers, 10 mm in diameter and longer than the diagonal of component square with a tolerance of 0.05 mm per metre length on straightness of each roller.

4.2.1.3 Two G-clamps, capable of being opened at least 30 mm and of robust construction such that two steel rollers placed on either side of a component square can be held firmly.

4.2.2 Procedure

4.2.2.1 Select any side of a component square as the length side. Measure its length using the vernier calliper to an accuracy of 0.05 mm, at the middle and two ends on lines parallel to the length side selected above.

Repeat the procedure for every component square selected in accordance with 10 of SLS..... : Part 1 : 1991

Record the average length of each component square taking all the measurements done on that square and check whether this average value is within the nominal length as indicated by the manufactures and the toierance requirement specified for each component square. (See Table 2 of SLS .....: Part 1 : 1991)

4.2.2.2 Select the side other than the length side (see 4.2.2.1) as the width side of a component square. Measure its width using the vernier calliper to an accuracy of 0.05 mm, at the middle and two ends on lines parallel to the width side selected above.

Repeat the procedure for every component square selected in accordance with 10 of SLS ... Part 1 : 1991.

Record the average width of each component square taking all the measurements done on that square and check whether this average value is within the nominal width as indicated by the manufacturer and the tolerance requirement specified for each component square (See Table 1 and Table 2 of SLS .....Part 1: 1991).

4.2.2.3 Place one steel roller on the wearing face along a diagonal of a component square and place the other steel roller on the back face and directly opposite the first. Clamp the two steel rollers by the two G-clamps Measure the space between the two rollers directly outside the component square at either end using the vernier calliper as the thickness of the component square.

Repeat the procedure and make measurements on the other diagonal.

Repeat the procedure for every component square selected in accordance with 10 of SLS ... : Part 1 : 1991.

Record the average thickness of each component square taking all the measurements done on that square and check whether this average value is within the nominal thickness as indicated by the manufacturer and the tolerance requirement specified for each component square (See Table 2 of SLS .....Part 1 : 1991).

4.3 Parquet panels.

4.3.1 Apparatus

4.3.1.1 Vernier calliper, as specified in 4.1.1.

4.3.1.2 Steel rule, capable of being read to 0.25 mm.

4.3.1.3 Two steel rollers, 10 mm in diameter and longer than a diagonal of panels with a tolerance of 0.05 mm per metre length on straightness of each roller.

4.3.1.4 Two G-clamps, capable of being opened at least 30 mm and of robust construction such that two steel rollers placed on either side of a parquet panel can be held firmly.

4.3.2 Procedure

4.3.2.1 Select any side of a parquet panel as the length side. Measure its length, using the steel rule to an accuracy of 0.25 mm, at the middle and two ends on lines parallel to the length side selected above.

Repeat the procedure for every panel selected in accordance with 10 of SLS ... : Part 1 : 1991.

Record the average length of each panel taking all the measurements done on that panel and check whether this average value is within the nominal width as indicated by the manufacturer and the tolerance requirement specified for a panel (See Table 1 and Table 2 of SLS .....Part 1 : 1991).

4.3.2.2 Select the side other than the length side (see 4.3.2.1) as the width side of a panel. Measure its width, using the steel rule to an accuracy of 0.25 mm, at the middle and two ends on lines parallel to the width side selected above.

Repeat the procedure for every panel selected in accordance with 10 of SLS ... Part 1 : 1991.

Record the average width of each panel taking all the measurements done on that and check whether this average value is within the nominal width as indicated by the manufacturer and the tolerance requirement specified for a panel (See Table 1 and Table 2 of SLS .....Part 1 : 1991).

4.3.2.3 Place one steel roller, parallel to the length side (see 4.3.2.1), on the wearing face near the middle of a panel and place the other steel roller on the back face and directly opposite the first. Clamp the two steel rollers using the two G-clamps. Measure the space between the two rollers directly outside the panel at either end using the vernier calliper as the thickness of the panel.

Repeat the procedure and make measurements at each end parallel to the length side. Similarly make measurements, parallel to the side other than the length side (see 4.3.2.1), at the middle and each end of the panel.

Repeat the procedure for every panel selected in accordance with 10 of SLS ... : Part 1 : 1991.

Record the average thickness of each panel taking all the measurements done on that panel and check whether this average value is within the nominal thickness as indicated by the manufacturer and the tolerance requirement specified for each panel (See Table 2 of SLS .....Part 1 : 1991).

4.3.2.4 Measure the two diagonals of a panel to an accuracy of 0.25 mm, using the steel rule.

Repeat the procedure for every panel selected in accordance with 10 of SLS .... : Part 1 : 1991.

Record the average diagonal length of panels taking all the measurements into account. Check whether this average value is within the nominal theoretical diagonal (see Note under Table 2 of SLS .... : Part 1 : 1991) and the tolerance requirement specified.

5 DETERMINATION OF MOISTURE CONTENT

5.1 Apparatus

5.1.1 Balance, capable of weighing up to an accuracy of 0.01 g.

5.1.2 Drying equipment, capable of drying wood to absolutely dry condition.

5.1.3 Desiccator, containing an absorbent for drying air as completely as possible.

5.2 Preparation of test pieces

5.2.1 Test pieces for determination of moisture content shall be prepared from material selected in accordance with 10 of SLS ... : Part 1 : 1991. The test piece shall be made preferably in the form of right prisms having a rectangular cross-section of one side 20 mm, and the other side equal to the thickness of a finger, and length along the grain of 25 $\pm$ 5 mm. After preparation, the test pieces shall be stored under conditions which ensure that their moisture content remains unchanged.

5.3 Procedure

5.3.1 Weigh the test piece (to an accuracy of 0.5 per cent of its mass in the absolutely dry condition).

5.3.2 Dry the test piece to a constant mass at a temperature of 103 + 2° C.

Constant mass is considered to be reached if the loss in mass between two successive weighings carried out at an interval of 6 hours is equal to or less than 0.5 per cent of the mass of the test piece.

5.3.3 After cooling the test piece in a desiccator, weigh it rapidly enough to avoid an increase in moisture content by more than 0.1 per cent. The accuracy of weighing shall be at least 0.5 per cent of the mass of the test piece.

5.4 Calculation and expression of results
The moisture content, W, of each test piece, as a percentage of mass, after drying shall be calculated to an accuracy of 1 per cent from the formula :

$$W = \frac{m_1 - m_2}{m_2} \times 100$$

where,
m_1 is the mass, in grams, of the test piece before drying ; and
m_2 is the mass, in grams, of the test piece after drying.

6 DETERMINATION OF PENETRATION OF COPPER-CHROME-ARSENIC (CCA) PRESERVATIVE

6.1 Apparatus

A spraying apparatus, capable of delivering the liquid in the form of a fine and uniform spray. A glass spraying bottle fitted with rubber blowball is suitable. The bottle shall be free from any metal parts, particularly where reagent or its vapour is likely to come into contact.

NOTE - Alternatively, a brush suitable for applying the reagent on the specimen may be used in place of the spraying apparatus.

6.2 Reagent

Diphenylcarbazide solution, prepared by dissolving 0.5 g of symdiphenylcarbazide in 15 ml of glacial acetic acid and adding 125 ml of distilled water or water of at least equal purity.

The solution should be freshly prepared if there are intervals of more than a day between tests.

6.3 Selection of the sample

The sample consists of all the mosaic parquet panels selected for tests in accordance with 10 of SLS ..... Part 1 : 1991.

6.4 Preparation of specimens

Select five fingers from each of the sample panels randomly. Take a cross-section of the finger nearly mid-way and far enough from holes or such defects to avoid the effect of end penetration. Cross-sections cut from timber that has been redried after treatment can be tested immediately, but it is necessary to dry cross-sections taken from freshly treated timber. Plane the surface of the cross-section smooth, taking care that the direction of planing is from the untreated to the treated wood. If it is not possible to plane the surface, free it from adhering sawdust.

6.5 Procedure

Spray or brush the reagent solution evenly over the cross-sectional surface to be tested. Ensure that no metal part comes into contact with the reagent.

6.6 Interpretation of the result

After a minute or two a bright red colour will appear where the preservative has penetrated. Examine the surface within 15 minutes from applying the reagent to determine the extent of penetration (See 4.6 of SLS ..... Part 1 : 1991).

7 DETERMINATION OF PENETRATION OF BORON PRESERVATIVE

7.1 Apparatus
Two spraying apparatus, as specified in 6.1, one for each reagent solution.

7.2 Reagents
7.2.1 Solution "A": 10 per cent alcoholic extract of turmeric, Add 10 g turmeric powder (available from reputed suppliers of laboratory chemicals) to 100 ml 95 per cent ethyl alcohol (industrial methylated spirit is quite suitable) and boil the mixture under a reflux condenser for one hour. Cool and filter the solution.

7.2.2 Solution "B": Hydrochloric - salicylic acid solution. Dilute 20 ml concentrated hydrochloric acid to 100 ml volume with ethyl alcohol (industrial methylated spirit grade is suitable). Dissolve 6 g salicylic acid in the solution. Allow to stand overnight and filter off from any solid present.

7.3 Selection of the sample
The sample consists of all the mosaic parquet panels selected for tests in accordance with 10 of SLS .... Part 2 : 1991.

7.4 Preparation of specimens
Select five fingers from each of the sample panels randomly. Avoid those with excessive proportion of resin pockets, shakes and knots. Reject any with visible splits or crevices, if there are reasons to believe that these defects were present in the timber before treatment ; specimens with splits which occurred during drying after treatment are acceptable for testing.

Take a cross-section of the finger nearly mid-way and far enough from holes or such defects to avoid the effect of end penetration. Cut with a clean and dried fine-toothed saw, which is sharp and not too coarse, so as to obtain a smooth and even surface.

In order to avoid carry-over of treating solution across the surface of the timber, and from specimen to specimen, the timber should be in a fairly dried condition before sawing.

Specimens shall be brought to air-dry condition before test reagents are applied.

7.5 Procedure

Apply a spray of solution "A" thinly but thoroughly and uniformly over the surface of the timber section to be tested and allow to dry for one minute to three minutes. Follow by a spray application of solution "B".

In regard to the darker coloured timbers, it is best to allow the tested surface to dry somewhat before reading, but as experience is gained and with careful observation in good light the test can usually be read immediately.

7.6 Interpretation of the results

With most species of timber likely to be encountered in practice the following relationship, given in Table below, between the colours observed and the borate concentration (expressed as boric acid equivalent) can be assumed :

Table 1 : Relationship between colour observed and borate concentration

Colour		Boric acid(H_3BO_3) per cent
Reddish-brown Brown Brownish-yellow	Red	0.30 or more
	Intermediate colours	0.30 to 0.15
	Yellow	less than 0.15

The colour shall be obtained in this test shall be red for all the timber specimens, if the timber to be considered as adequately treated with Boron preservative.