

ANNEX 1

FLOOR COVERINGS

1 General

1.1 Regulation 36(1)(a) and paragraph 2.5 and 2.6 of these Instructions refer.

1.2 A Floor covering as referred to herein may be either:

1.2.1 a composition underlay or a final surface finish material which is to be laid on the topside of decks in way of crew accommodation spaces in compliance with the Regulations; or

1.2.2 a covering fitted in the upper or underside of overhead decks exposed to the weather and in way of crew accommodation spaces in compliance with the Regulations.

1.3 Submissions requesting approval should be prepared by the Manufacturer and forwarded to a Nominated Body for type approval (see Merchant Shipping Notice No. M.1645). The submission should include:

1.3.1 full details of the intended use of the material and the methods of laying to be adopted;

1.3.2 a specification of the constituents of the material, the proportions being given by weight;

1.3.3 a minimum of two samples which represent the proposed methods of laying, and which are of size at least 150 millimetre x 150 millimetre and attached to 3 millimetre thick steel plating. The following should be noted:

1.3.3.1 in the case of a finished deck covering this should be superimposed on a suitable underlay where an underlay is appropriate;

1.3.3.2 in the case of a multi-layer deck covering including floating decks, the sample should fully represent the deck covering as it is intended to be laid;

1.3.4 independent laboratory reports of tests confirming the characteristics of the materials as required by the relevant Regulations; and

1.3.5 a deposit on fees.

1.4 The Nominated Body may approve particular deck coverings subject to conditions indicated on any approval document issued, and which will include "subject to the deck covering proving satisfactory in service".

1.5 Formal approval will not be given for coverings solely for use in sanitary accommodation, galleys and laundries in compliance with Regulations. In such cases, acceptance on a specific ship will be given by a surveyor at the ship taking into account their suitability.

1.6 Acceptance of a covering is subject to the condition that in composition, weight and other properties it does not differ from the sample tested.

1.7 The Nominated Body reserves the right to withdraw acceptance if the material proves unsatisfactory in service, or if the conditions attached to the acceptance are not observed. If a manufacturer ceases to manufacture an accepted covering the MCA should be notified.

2 Material Characteristics

2.1 Unless otherwise agreed, all tests are to be undertaken by a recognised independent laboratory at the manufacturer's expense.

2.2 The material is to provide a good foothold and easily be kept clean. To date these features have been assessed from consideration of the samples provided, and from in-service reports where necessary. If relevant test data is available, however, this should be submitted for record and consideration by the MCA.

2.3 The materials are required to be sufficiently hard and tough to stand up to service conditions, and have sufficient flexibility to prevent cracking having regard to the working of the ship at sea.

2.4 The materials are required to remain in satisfactory and serviceable condition over the range of temperatures experienced in service weather Arctic, Temperate or Tropical.

2.5 A deck covering should preferably not contain any substance which may have a corrosive effect on the metal deck, but where such substances are present a suitable protective coating is to be applied to the deck before the covering is laid.

2.6 A deck covering should be capable of being laid on a clean metal deck and should adhere effectively to the deck, either by itself or by the use of a suitable adhesive.

2.7 The materials used for deck coverings should not be likely to have any injurious effect on personnel whilst being laid, or on crew and passengers in service.

3 Coverings for the Floors of Crew Accommodation

3.1 All finished deck coverings should be approved by a NB and be laid on similarly approved underlays. Underlays should present a flush upper surface and should not be less than 6.5 millimetre in thickness in crew sleeping rooms and 8.0 millimetre in all other crew spaces. Where there are deformities in the upper surface of the deck plating these minimum thicknesses are to be increased.

3.2 Materials such as vinyl sheeting or tiles may be used as the finished covering in these spaces. Finished coverings should not in general be less than 2 millimetre in thickness and should adequately adhere to the underlay. Proposals to use a finished deck covering of thickness less than 2 millimetre will be considered on merit.

3.3 Adhesive used to bond finished coverings to underlays should be insoluble in water. If the adhesive is of a type which gives off vapour while being used, it should be ensured that all necessary precautions are taken against the associated risks.

3.4 Trowel laid coverings for underlays or for combined underlays and finished coverings may be used. Examples of this type of coverings are those based on rubber latex or synthetic resins which are mixed with cement, sand and various other fillers. Full particulars of such materials should be submitted for consideration.

3.5 In the case of coverings of the magnesium oxychloride type an anti-corrosive coating at least 6 millimetres in thickness is to be first applied so as to cover completely metal deck to protect the plating against possible corrosive action.

3.6 All coverings in crew accommodation should be rounded up where the floor meets the boundary bulkhead.

3.7 Except in the case of underlays of magnesium oxychloride type, or where the deck forms the crown of an oil fuel tank, formal acceptance by the MCA is not required for anti-corrosives and adhesives which are not now included in the MCA's list of accepted covering. Surveyors are to be satisfied on survey that such materials and their application are satisfactory.

4 Coverings on the underside of weather decks which are crowns of crew accommodation

4.1 The material should be applied to the deck so as to avoid harbourage for dirt and vermin but consideration will be given to proposals to apply the material to the topside of ceilings.

4.2 In all cases consideration should be given to the fitting of a vapour barrier fitted to the exposed surface of the material to prevent condensation as far as may be practicable.

4.3 Particulars of the method of fixing the material should be submitted for approval.

5 Decks Exposed to Appreciable Heat or Cold

5.1 These decks include those in way of machinery spaces, galley, heated oil tanks, refrigerated spaces, etc.

5.2 Floors of crew accommodation which are exposed on the underside to appreciable heat or cold are to be suitably insulated. If adequate insulation is not fitted on the underside then suitable insulating material should in general be fitted on the deck and covered with an accepted deck covering.

6 Floors of Hospitals and Similar Spaces

6.1 Floors of such spaces are required to comply in general with the requirements specified in paragraph 3. They are to have a smooth but not slippery surface which can easily be kept clean. The number of joints in the covering should be kept to a minimum and hence vinyl tiles or other similar materials in tile form will not be accepted.

6.2 A cove should be formed at the boundaries. The material should be such that it will not be damaged by surgical spirit or other liquids which may be expected to be used in such spaces.

6.3 Vinyl sheeting firmly adhered to an acceptable underlay is recommended as a suitable flooring in hospital wards and similar.

7 Floors of Bathrooms, Washplaces, Water Closets and Similar Spaces

7.1 Floors of these spaces should be covered with ceramic tiles or other similar coverings. The tiles should be laid in cement or other suitable underlay and coved at the boundaries.

7.2 It is recommended that the floors of these spaces be light in colour.

7.3 Particular attention should be given to foothold characteristics under wet conditions.

7.4 Where a sleeping room has a semi-private or private bathroom the same type of flooring used for the sleeping room may, if desired, be fitted in the bathroom.

8 Thermal Conductivity

8.1 Materials for use on decks which are exposed to the weather and also the crowns of crew and passenger accommodation are to be insulated for thermal conductivity.

8.2 Coverings fitted within accommodation spaces need not in general be tested for thermal conductivity, but the materials should be such as will provide a warm and comfortable surface. This will be assessed from the samples submitted.

8.3 Test samples should be 300 millimetre x 300 millimetre x 38 to 50 millimetre thick and are to be placed on each side of a hot plate, the whole being clamped between two cold plates maintained at a constant temperature.

8.4 The temperatures of the hot and cold surfaces are to be measured by means of thermocouples, the heat input to the hot plate being obtained by observation of the watts dissipated in its heating coil.

8.5 The results are to be expressed in kilocalories transmitted per square metre per hour for one metre thickness and one centigrade difference in temperature (kcal/ m²h °C).

8.6 For the purpose of comparison the thermal conductivity of wood may be taken as 0.124 kilocalorie per square metre per hour for one metre thickness and one degree centigrade difference in temperature between the faces.

9 Fire Standards

9.1 The Merchant Shipping (Crew Accommodation) Regulations 1997 require a deck covering which is laid on decks in crew accommodation on United Kingdom registered ships to be such that it will not readily ignite. See appropriate Merchant Shipping (Fire Protection) Regulations/Instructions to Surveyors.

9.2 Approval for materials which are required by other Merchant Shipping Regulations to be non-combustible are also dealt with by Headquarters. Standards to be achieved are included in the MCA's Fire Protection Instructions.

10 Water Absorption

10.1 Coverings of the foamed concrete type or those containing magnesium oxychloride are not considered suitable for use on decks exposed to the weather.

10.2 For certain coverings it will be necessary to incorporate expansion joints at each edge of the covering where it abuts deck houses or coamings, and this joint is to be covered with a suitable covered fillet.

10.3 If the covering is in more than one layer, a waterproof membrane or other suitable material or other effective arrangement may be adopted so as to ensure that if the upper layer (or layers as the case may be) cracks the remainder of the covering will not become saturated in the course of service.

10.4 Test samples are to be 150 millimetre x 50 millimetre x 50 millimetre unless, owing to the nature of the material, this is unsuitable. The surface of the samples should not be painted or coated.

10.5 For the purpose of this test two samples of the material are to be weighed, immersed in water for 48 hours and then weighed again. They are then to be dried to a constant weight. The report of the test should show the moisture content before and after immersion expressed as a percentage of the dry weight.

10.6 The moisture content should not exceed 7 per cent of the dry weight of the material.

10.7 If the covering is in more than one layer, each layer should be tested separately unless the covering is constructed in an agreed manner as described in paragraph 10.3 above.

10.8 In the case of a covering that is to be used within crew accommodation, and where a material is otherwise satisfactory but owing to its nature it is not practicable to keep the moisture content to the required figure, the MCA will consider the results on their merits.

11 Oil Resistance

11.1 Where the floors of crew accommodation are also the crowns of oil fuel tanks the coverings are to be tested for oil resistance.

11.2 Alternatively, oil resisting compound may be laid in the way of the crown of oil tanks, and shall be of at least 1.5 millimetre thickness. It will be necessary to ensure that such a compound does not suffer appreciably at the temperatures likely to be experienced in service in the case of heated tanks.

11.3 Compounds if of a suitable nature, may also form the adhesive for securing the coverings to the underside of decks (see paragraph 4 of this annex).

11.4 Coatings and adhesives used as primer or for securing materials direct to crowns of oil tanks are also to be tested for oil resistance.

11.5 A sample of the material to be tested of 300 millimetre x 300 millimetre, and of the thickness proposed to be used, is to be weighed and then immersed in fuel oil maintained at a temperature of 66°C for 24 hours. It is then to be carefully cleaned, weighed again, and broken up to allow the amount of oil penetration to be measured. The increase in weight shall not be

more than 1 per cent, and penetration should be such as to be classed as "not appreciable" i.e. less than 1 millimetre.

12 Other Tests

Other tests in addition to those stated above may be required, depending on the nature of the covering material being submitted for consideration.