8 July 2018

Dear BSSTC member,

Agenda item 5 - Discussion paper – BSS Hire Boat Requirements 10.1.1 – Slip-resistant surfaces – Appendix N *[Doc C2, BSSTC #52]*

As referred to at the previous meeting and as set out below, this paper proposes a revised Appendix N in support of Hire Boat Requirement Check 10.1.1.

The revised Appendix:

a. Includes reference to the objective of the Check
b. Does not include any duplication of material already in the Check
c. Includes copies of the two Crew Area labels currently used in the Hire Boat Code
d. Lays out the information clearly into the following separate sections:
   - Objective
   - Designation of Crew Areas
   - What are suitable slip-resistant surfaces
   - What are gaps in in suitable slip-resistant surfaces
   - Companionway steps
   - Slip-resistant surfaces provided by loose coverings
   - Door mats
e. Relates what are and are not suitable slip-resistant surfaces back to the investigation and review work undertaken by the BSS in 2016.

It is requested that BSSTC members come to the forthcoming meeting prepared to discuss this paper.

Two additional photographs are yet to be added at Appendix section Niii (x). It is also recognised that other photographs included within the current draft could be improved. If members have any photographs which they feel might work better than those within the existing document please raise this at the forthcoming meeting.

Drafted by David Fuller BSS Lead QCA on behalf of Graham Watts, BSS manager

8 July 2018

N APPENDIX – SUITABLE SLIP-RESISTANT SURFACES (CHECK 10.1.1)

This appendix provides additional information concerning the BSS hire boat requirement for all designated external Crew Areas, companionway steps, and boarding planks to be provided with suitable slip-resistant surfaces.

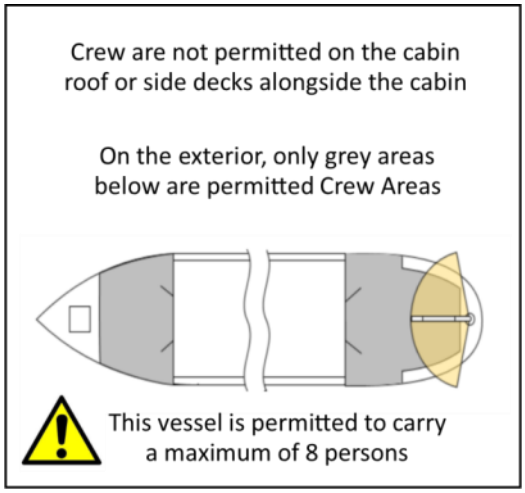
N.i OBJECTIVE OF THE BSS REQUIREMENT AT CHECK 10.1.1

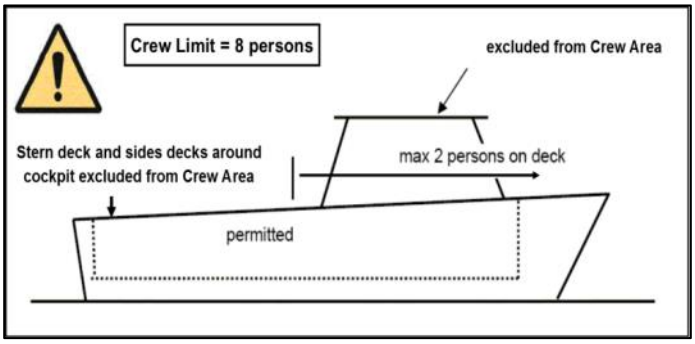
The objective at Check 10.1.1 is to ensure that events concerning hirers slipping and falling (particularly falling overboard and in other key areas), are kept as low as reasonably practicable by requiring areas on the exterior of the boat where hirers are permitted to walk and/or stand, boarding planks and companionway steps to be provided with suitable slip-resistant surfaces.

N.ii DESIGNATION OF CREW AREAS

It is a hire operator's responsibility to designate Crew Areas; Examiners must not second-guess a hire operator's intention as to the designation of Crew Areas.

For each boat Examiners must identify the extent of the designated external Crew Areas from the hire operator. On boats where a Crew Area label (as the examples, below) is permanently affixed at a helm position Examiners may take the label as proof of the designated Crew Areas. However, where such labels are not provided, or they are incomplete, Examiners must seek direct instruction from the hire operator as to the designated Crew Areas for each boat.





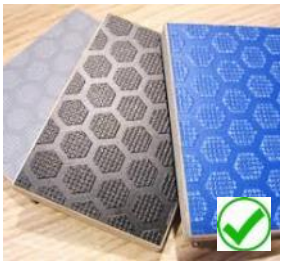
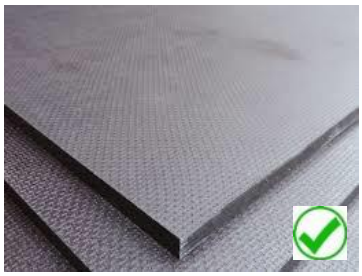
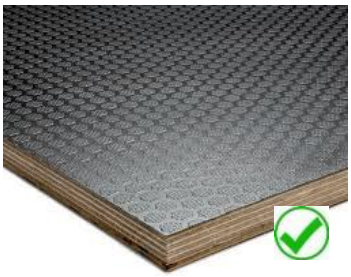
Examples of Crew Area labels as might be found on hire boats.

N.iii SUITABLE SLIP-RESISTANT SURFACES

Suitable slip-resistant surfaces are those **intentionally** prepared, machined, covered, moulded, etc. to provide increased adherence between the foot (or shoe) and the surface of the deck. During 2016 the BSS carried out an extensive review of the deck surfaces found on hire boats and measured the slip-resistance of different surfaces using a SlipAlert® slip-resistance tester. To follow are examples of materials and surfaces identified as being suitably slip resistant, and others found not to be suitably slip-resistant.

a. Materials and surfaces identified as potentially being suitably slip-resistant:

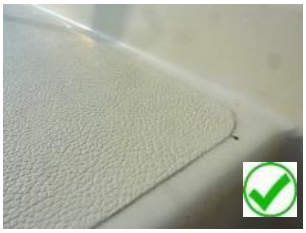
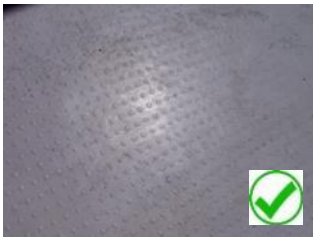
i. Man-made boards with phenolic coatings (e.g. WISA, BUFFALO etc)

ii. Polymer-bonded embossed / plain sheeting (e.g. TREADMASTER)



iii. Integral (moulded) FRP slip resistant surfaces

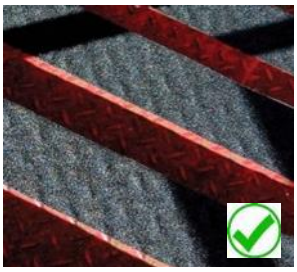

iv. Slip-resistant paint coatings



v. Adhesive tapes (bonded natural aggregate / synthetic bead)



vi. Over-coated/painted embossed metal plate



Embossed metal plate may only be considered as being suitably slip-resistant if it has been covered/painted with a suitable slip-resistant coating. This is because the manufacturers contacted during the BSS review were unable to provide appropriate assurances that their products have inherent slip-resistance, and because on testing with the SlipAlert® the results were inconclusive.

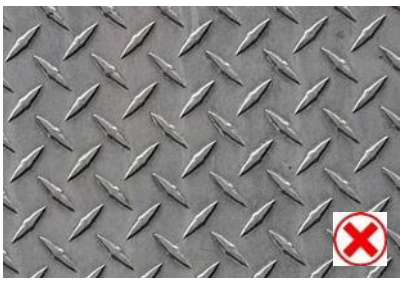
vii. Embossed rubber plate

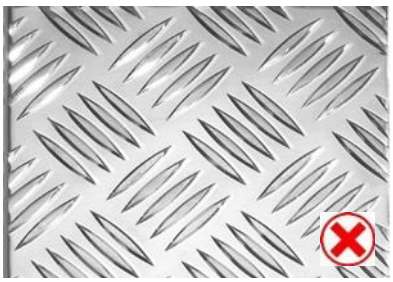
Unlike plain embossed metal plate, proprietary embossed rubber plates can be considered as having an intended slip-resistant surface. As shown below, such plating is mostly available for step treads.

viii. Unpainted timber (e.g. teak decks)

b. Deck surface types identified as <u>not</u> being suitably slip-resistant :

ix. Metal plate (including embossed metal plating and plain sheeting)





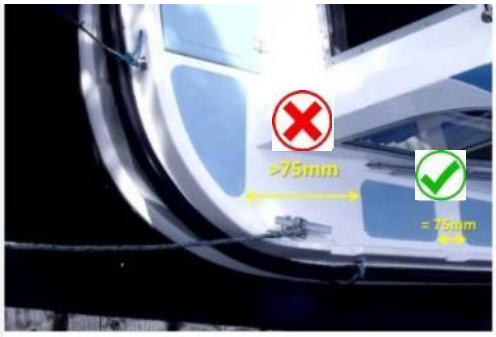
x. Normal coach-type paints and varnish

When selecting slip-resistant surfaces hire operators are recommended to choose on the basis of their slip-resistant performance as supported by the manufacturer or supplier, and by their longevity.

P.iv GAPS IN OTHERWISE SUITABLE SLIP-RESISTANT SURFACES

To keep the chances of hirers slipping as low as reasonably practicable it is important that gaps in otherwise suitably slip-resistant surfaces are kept to a minimum. Except on glazed areas any gap must not be greater than 75mm. On glazed areas, such as deck hatches, gaps may be up to 500mm. Both of these distances derive from the international standard *BS EN ISO Small craft - Man-overboard prevention and recovery*. The 75mm distance is likely to be based on average foot widths. As set out below, the causes of gaps can be separated into three main categories.

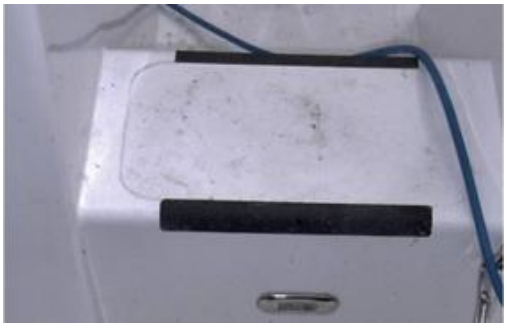
a. Break in the continuity of the intended slip-resistant surface



On this cruiser the white-coloured deck areas have no suitable slip-resistant surface, but the blue areas do. The gap between the blue slip-resistant surfaces adjacent to the deck cleat is greater than 75mm and therefore not compliant. In this example the deck adjacent to the cleat will need to have a slip-resistant coating or material applied. The gap further forward along the side deck is smaller than 75mm and is therefore acceptable.

The 500mm gap allowance on glazed areas is to allow standard 500mm x 500mm (or smaller) deck hatches to be excluded. It is also possible that some hire operators will specifically exclude deck hatches from the designated Crew Area (such as by labelling the hatch 'NO STEP' or by the area of the hatch being excluded on the Crew Area label).

The 500mm distance is transversely and longitudinally, not diagonally.



Slip-resistant surfaces do not need to extend to the outer edges of individual areas, but the gap to the outer edge must not exceed 75mm. Following risk assessment some hire operators may elect to enhance the slip-resistance of outer and rounded edges, perhaps by the application of adhesive tape.

b. Degradation of the intended slip-resistant surface through wear or other physical damage

A surface must be considered as no longer slip-resistant where the original slip-resistant finish as intended by the manufacturer or applicator is no longer present. For example, if the slip-resistant surface wears off a Buffalo board exposing the underlying plywood, the plywood cannot be considered as a slip-resistant surface. Also, if slip-resistant paint wears off a mild steel deck, the exposed mild steel plate cannot be considered as being slip-resistant as it is not the intended slip-resistant surface of the deck. There must be no gaps of more than 75mm in the original intended slip-resistant surface.

Gaps in the intended slip-resistant paint coatings caused by wear are greater than 75mm and as such this deck area is not compliant.

Gap in the intended Hexa Grip board slip-resistant surface caused by wear is greater than 75mm and as such this deck area is not compliant.

The original, intended slip-resistant paint coating on this narrowboat bow side deck has been degraded by the application of too much gloss paint over the original surface.

Gaps in the intended slip-resistant paint coatings caused by wear are greater than 75mm and as such this deck area is not compliant.

Although the slip-resistant paint coating has worn the areas of wear are less than 75mm across and as such this deck area is compliant.

Although the slip-resistant paint coating has worn the areas of wear are less than 75mm across and as such this deck area is compliant.

c. Contamination of the intended slip-resistant surface

Examples of contamination include fuel, oil, grease, anti-freeze solution, sewage, toilet tank additives etc and organic growth. Contamination of slip-resistant surfaces can significantly degrade their effectiveness.

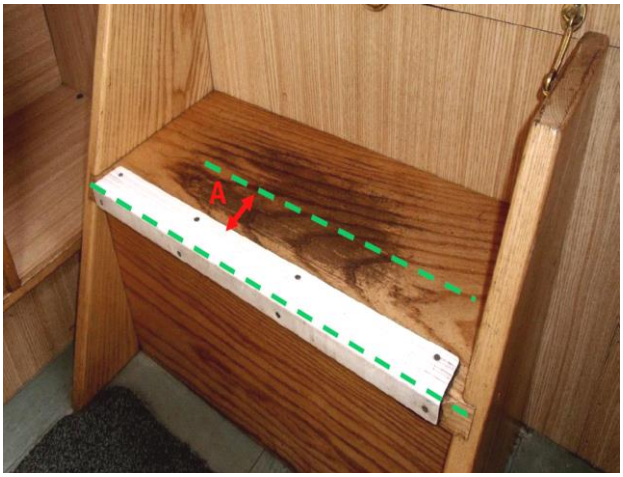
Oil contamination on Hexa Grip board over a length greater than 75mm.

Algae/organic contamination on a GRP moulded deck surface.

Algae/organic contamination on a teak deck.

Hire operators are recommended to take the opportunity prior to each hire period to inspect and if necessary remove any contaminates from slip-resistant surfaces. Hire operators are also recommended to introduce a calendar-based schedule of deeper cleaning (as recommended by the slip-resistant material / coating manufacturers), to avoid any 'layering' of contaminants.

N.v COMPANIONWAY STEPS



Companionway steps are required to have suitable slip-resistant surfaces due to such areas often getting wet, either directly from rain and/or from foot-fall, and due to the risk of significant injury in the event a slip and fall does take place.

Suitable slip-resistant surfaces on companionway steps need not be continuous, but there must be no gaps greater than 75 mm on the leading edge of each step.

The leading edge is taken to extend from the front edge half-way towards the back edge of each step. Therefore, for the step shown in the photograph above to be compliant, the gap 'A' below must be less than 75mm. If it's not, additional slip-resistant material will need to be fitted as the varnished timber cannot be considered to be suitably slip-resistant.

N.vi SLIP-RESISTANT SURFACES PROVIDED BY LOOSE COVERINGS

Any loose coverings in place to provide a suitable slip-resistant surface, such as rubber mats or gratings must not be capable of unintended movement. Such coverings must be held in place by fixings or by the layout of adjacent boat structures.

N.v DOOR MATS

Door mats located adjacent to entry/exit points are not covered by the BSS requirements. However, where relevant, the deck beneath such mats must have a suitable slip-resistant surface.