U.S. Department of Transportation
United States Coast Guard

Marine Safety Center Technical Note

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Subj: INTACT STABILITY CONSIDERATIONS FOR GLASS PANELS/WINDOWS LOCATED ABOVE THE BULKHEAD DECK ON SUBCHAPTER H & T VESSELS

Ref: (a) 46 CFR Part 170.173
(b) Commandant (G-MTH) Policy Letter PFM 1-89 dated 27 Jan 89
(c) Commandant (G-MTH-3) letter 9079/39, 9625, 16710/O.N. 927011 dated 6 Apr 1990
(d) 46 CFR 171.122(g)

1. PURPOSE: This memorandum consolidates previous guidance and promulgates MSC policy for the consistent evaluation of glass panels/windows located above the bulkhead deck in the application of intact stability criteria for Subchapter H and Subchapter T vessels on all routes.

2. DISCUSSION:

a. The application of the intact stability requirements found in references (a) and (b) requires that the locations of a vessel's downflooding points be known. The determination of whether glass panels/windows constitute a downflooding point has historically been a point of contention.

b. Reference (c) addressed this issue on the M/V MASSACHUSETTS, a Subchapter T vessel, and clearly indicated that glass panels/windows were considered downflooding points for vessels operating on exposed and partially protected routes. Specifically, reference (c) emphasized that "while fixed windows are not technically "openings", the catastrophic brittle failure mode of glass leads us to consider them as such when they are positioned in the first tier above the bulkhead deck, either in the bow flare or within the range of heel angles addressed by the applicable stability criteria."

c. Reference (c) further stipulates that glass panels/windows which are fitted with efficient inside deadlight covers are not considered downflooding points when evaluating compliance with references (a) and (b). These deadlight covers need not be hinged, but must be readily accessible. If the covers are not hinged, the ease with which they can be installed by the crew must be to the satisfaction of the cognizant OCMI.

d. Reference (c) did not address this issue for vessels on protected routes. Consistent with the reasons described in paragraph 2.b above, windows on these vessels are still considered points of downflooding. However, because of the reduced risk associated with vessels operating on protected routes, the necessity for deadlight covers is eliminated provided an adequate measure of stability is maintained in all loading conditions. Specifically, sufficient righting energy to comply with the applicable standards must be developed prior to submergence of a point providing 3 inches of margin below the window sill. Policy guidance covering the use of glass panels/windows for vessels on protected routes is provided in paragraph 3 below.

e. For Subchapter H vessels, reference (d) requires the installation of deadlight covers, that can be secured watertight, for each port light located between the bulkhead deck and the next deck above the bulkhead deck on all routes. This regulation never envisioned the construction of broad beam, small freeboard, high passenger density vessels operating on protected waters. Accordingly, guidance contained in paragraph 3 below modifies this requirement.

3. ACTION:

a. All glass panels/windows located in the first tier of the superstructure/deckhouse above the bulkhead deck of a passenger vessel, certificated under Subchapters H or T, are considered potential downflooding points for the purposes of assessing the intact buoyant volume, regardless of the route upon which the vessel operates. The following route specific points must be considered in the intact stability analysis:

(1) Exposed Routes (Subchap. H)

(a) Reference (d) applies.

(2) Exposed (Subchap. T) and Partially Protected Routes (Subchap's H & T)

(a) If glass panels/windows are fitted with efficient inside deadlight covers then these locations will not be considered as downflooding points. The deadlight covers need not be hinged, but must be readily accessible. If the covers are not hinged, the ease with which they can be installed by the crew must be to the satisfaction of the cognizant OCMI.

(b) All glass panels/windows located within 25% of the LBP aft of the FP must be provided with efficient deadlight covers as described in item (2)(a) above.

(3) Protected Routes (Subchap's H & T)

(a) Same as item (2)(a) above for exposed and partially protected routes.

(b) If the vessel is not fitted with efficient deadlight covers but develops the required 10 foot-degrees of righting energy specified by paragraph 4.a.(2)(c) of reference (b) prior to the submergence of a point located 3 inches below the sill of the glass panel/window, then the location of the glass panel/window may be accepted even if it is below the minimum 15 degrees requirement specified by paragraph 4.a.(2)(b). The other criteria of paragraph 4.a.(2) must still be satisfied.

b. In all cases where deadlight covers are used to preclude glass panels/windows from being considered downflooding points, or where deadlight covers are required in the forward 25% of a vessel, the following annotation will be included in the vessel's stability letter:

Deadlight covers for all glass panels/windows located (specify location) must be carried onboard the vessel at all times and must be installed when adverse sea conditions are anticipated.

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