

Protection of load bearing structures

HSC Code Ch.7.4.2.3 reads:

“Main load-carrying structures within areas of major fire hazard and areas of moderate fire hazard and structures supporting control stations shall be arranged to distribute load such that there will be no collapse of the construction of the hull and superstructure when it is exposed to fire for the appropriate fire protection time. The load-carrying structure shall also comply with the requirements of 7.4.2.4 and 7.4.2.5.”

Interpretation

Protection time

The structural fire protection time of main load bearing structures located within areas of major fire hazard (classified as A) and areas of moderate fire hazard (classified as B), and load bearing structures supporting control stations shall, as a minimum, be the same as that required by tables 7.4-1 and 7.4-2 (as applicable), for the divisions enclosing the space where these supports are located. In accordance with para. 7.4.1.1 in no case shall the structural fire protection time be less than 30 min.

Load bearing structures made of steel, other than those constituting the divisions dealt with in tables 7.4-1 and 7.4-2 (as applicable), need not be insulated.

Extent of structural fire protection

The structures considered shall be all load-carrying structures within areas of major and moderate fire hazard (classified as A or B) as well as all structures (irrespective of where they are located) which are necessary to support control stations.

The vertical extent of structure supporting control stations shall be considered all the way down to and including spaces within the hull(s). However, all structures within voids in the hull can be exempted from this consideration based on HSC Code 7.4.2.1 (first part).

Fire testing

Approvals from the standard fire test *according to the IMO FTP Code, Annex 1, Part 11* for a bulkhead or deck of a given material can be applied for protection of pillars of the same material. The structural fire protection time shall be considered to be the same as that achieved in the fire test.

Load case

When load carrying capability calculations are performed for an assumed fire within a space, all insulated or un-insulated steel structures, including pillars, as well as fire insulated aluminium and FRP structures in the space may be included; un-insulated aluminium and FRP structures shall not be included. A single fire concept can be applied where a fire is only presumed to originate in one enclosed space and not propagate to another enclosed space.

Note:

1. This UI is to be uniformly implemented by IACS Societies on high speed craft the keels of which are laid on/after 1 January 2014.

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Example: Structures within a public space support a wheelhouse and a separate enclosed public space on the wheelhouse deck. Two load calculations shall then be made:

- i) One presuming a fire below the wheelhouse; utilizing, in the load calculations un-insulated steel and insulated aluminium and FRP structures within the public space on the wheelhouse deck;*
- ii) Another presuming fire within the public spaces on the wheelhouse deck; utilizing, in the load calculations, un-insulated steel and insulated aluminium and FRP structures within the public space below the wheelhouse.*

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