

**Section 3.0**

**C O N S T R U C T I O N   R E Q U I R E M E N T S**

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### 3.1 Application

3.1.1 This section applies in respect of all small vessels.

### 3.2 Strength

3.2.1 Structural strength shall be commensurate with the intended service of the small vessel, taking into account the maximum anticipated loads. A non-pleasure craft may meet that requirement in different ways, including if it is in a good state of repair and either:

- (a) built in accordance with good boat building practices and construction standards recognized by the marine community; for example, for small vessels, Nordic Boat Standard (commercial vessels less than 15 m), International Organization for Standardization (ISO), American Bureau of Shipping (ABS), Lloyd's Register of Shipping (LRS), Bureau Veritas (BV), Det Norske Veritas (DNV), Germanischer Lloyd (GL); or
- (b) of a design with a record of at least 5 years history of safe operation, without any occurrence, in an area where the wind and wave conditions are no less severe than those likely to be encountered in the intended area of operation.

3.2.2 Proper alignment and continuity of structural members and efficiency of structural connections and endings shall be ensured. All openings and cutouts shall have well-rounded corners and not impair the required structural strength of the hull and superstructure.

3.2.3 Seats, thwarts, bulkheads, and other major structural components that are attached to the shell of the vessel shall be robustly connected in a manner that does not create stress concentrations.

3.2.4 Materials subjected to stress at high or low temperatures shall have properties resistant to failure at the full range of anticipated temperatures.

### 3.3 Fittings and Through-hull Openings

3.3.1 All openings and penetrations in structures shall:

- (a) if the small vessel is a non-pleasure craft, the keel of which was laid or the construction or manufacture or fibreglass lay-up of which was started on or after April 1, 2005, will provide a degree of water tightness in accordance with ISO 12216;
- (b) be kept to a minimum; and
- (c) be fitted with reliable means of closure.

3.3.1.1 Every closure shall be of a strength and design to maintain watertight integrity.

- 3.3.2 Through-hull penetrations shall:
- (a) be kept to a minimum;
  - (b) be consistent with the operational needs of the small vessel; and
  - (c) have adequate local strength compensation equivalent to the unpierced structure in which it is located and be of such construction that it will maintain watertight integrity.
- 3.3.2.1 Means shall be provided for positively shutting off underwater penetrations (except for wet exhaust systems) and, where fitted in a fire risk area, the means of shut-off shall be of material that is not susceptible to fire damage.
- 3.3.3 Local stiffening and reinforcement shall be provided for of deck-mounted machinery, equipment, fairleads, masts, mooring cleats, towing bollards, and other miscellaneous fittings. Such stiffening and reinforcement shall take into account the maximum anticipated deck loading.

### **3.4 Doors, Hatches, Windows, and Port Lights**

- 3.4.1 The closing appliances such as exterior doors, hatches, windows and port lights shall be of marine construction, using good boat building practices, with reliable means of securing them while underway. Hinged doors and hatches shall open outward and generally be hinged on the forward or outboard side. The required degree of water tightness of closures shall be appropriate for their location on the small vessel and the operational exposure of the small vessel to the environmental conditions. If the small vessel is a non-pleasure craft, the keel of which was laid or the construction or the manufacture or fibreglass lay-up of which was started on or after April 1, 2005, the required degree of water tightness of closures shall be in accordance with the provisions of ISO 12216.
- 3.4.2 Windows, port lights, and skylights shall be fitted with safety glass or equivalent material of equal strength. Where a non-pleasure craft is intended to operate more than 20 nautical miles from shore, windows, port lights, and skylights shall be mechanically fastened in place in accordance with the manufacturers instructions.

### **3.5 Ballast**

- 3.5.1 When provided, ballast shall be secured to prevent movement during vessel operations.

### 3.6 Personal Watercraft

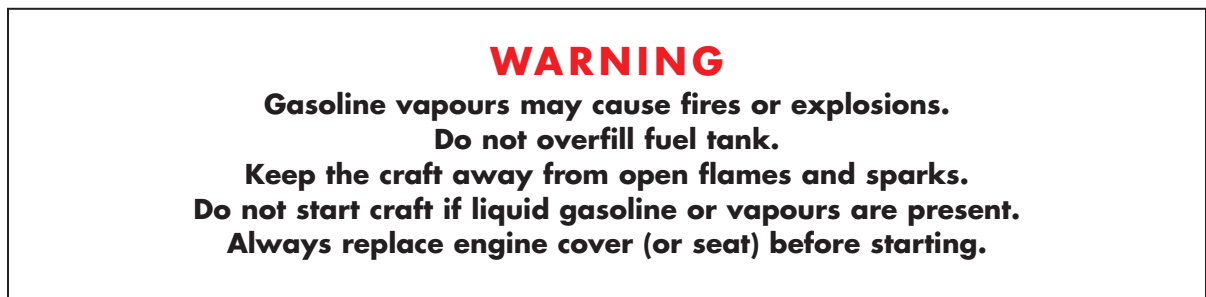
#### 3.6.1 Alternative Construction Standards

- 3.6.1.1 Every personal watercraft constructed or manufactured on or after January 1, 1997, may, as an alternative to other sections of this Standard, be constructed or manufactured in accordance with ISO 13590 *Small Craft – Personal Watercraft*.
- 3.6.1.2 Every new personal watercraft constructed or manufactured on or after January 1, 1997, shall have a Conformity Label in accordance with subsection 2.3.2.

#### 3.6.2 Warning Label for the Ventilation of the Engine Compartment

- 3.6.2.1 All personal watercraft built on or after January 1, 1997, shall carry a prominently displayed warning label, which may be included with other information, that states that the seat or lid is to be opened to minimize the risk of fire and explosion. The Warning Label described shall include the information as shown in Figure 3-1.

**Figure 3-1 Personal Watercraft Warning Label**



### 3.7 Navigation Lights

- 3.7.1 The *Collision Regulations* under the *Canada Shipping Act* apply in respect of navigation lights.

### 3.8 Precautions against fall

#### 3.8.1 Application

- 3.8.1.1 This section applies in respect of non-pleasure craft only.

### 3.8.2 Bulwarks, Guardrails, Stanchions, etc.

- 3.8.2.1 Where practicable, the perimeter of an exposed deck that is intended to be used by persons on board shall be fitted with bulwarks, guardrails, stanchions, and netting, or any combination thereof, to protect any person from falling overboard while the vessel is underway.
- 3.8.2.2 Non-skid surfaces shall be used in working and traffic areas to minimize the possibility of any person slipping.
- 3.8.2.3 Grab rails shall be provided to assist movement of any persons on board.
- 3.8.2.4 On passenger vessels, the bulwarks, guardrails, stanchions and netting, or any combination thereof, shall be at least 915 mm (3 ft) above the weatherdeck. The distance between the horizontal rails shall not be more than 230 mm (9 in), unless netting of a strength preventing a person from falling overboard is provided. When application of such measures would impede the working of the vessel, equivalent safety measures shall be considered.
- 3.8.2.5 There shall be provisions to prevent children from falling overboard when the vessel's intended use includes carrying children.

## 3.9 Guard Rails and Grab Rails

### 3.9.1 Application

- 3.9.1.1 This section applies to pleasure craft only.
- 3.9.2 All pleasure craft shall comply with ABYC *Standards for Small Craft* H41.6

## 3.10 Pollution Discharge Advisory

- 3.10.1 Manufacturers, builders, importers and owners of small vessels note:

*Pleasure Craft Sewage Pollution Prevention Regulations*, the *Non Pleasure Craft Sewage Pollution Prevention Regulations* and Provincial Regulations apply with respect to the discharge of sewage.

**Note:** Refer to Appendix 3 of TP1332 for illustrations of typical sewage systems arrangements.