

Queensland



*Transport Operations (Marine Safety) Act 1994*

**TRANSPORT OPERATIONS  
(MARINE  
SAFETY—DESIGNING AND  
BUILDING COMMERCIAL  
AND FISHING SHIPS)  
INTERIM STANDARD 1996**

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Queensland



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SAFETY—DESIGNING AND BUILDING  
COMMERCIAL AND FISHING SHIPS)  
INTERIM STANDARD 1996**

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# TRANSPORT OPERATIONS (MARINE SAFETY—DESIGNING AND BUILDING COMMERCIAL AND FISHING SHIPS) INTERIM STANDARD 1996

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## PART 1—PRELIMINARY

### Short title

1. This standard may be cited as the *Transport Operations (Marine Safety—Designing and Building Commercial and Fishing Ships) Interim Standard 1996*.

### Commencement

2. This standard commences on 1 July 1996.

### Definitions

3. In this standard—

“**AC**”, for electrical work, means alternating current.

“**classification society**” has the meaning given by the *Transport Operations (Marine Safety) Regulation 1995*.

“**commercial ship**” has the meaning given by the *Transport Operations (Marine Safety) Regulation 1995*.

“**electrical work**” has the meaning given by the *Electricity Act 1994*.

“**fishing ship**” has the meaning given by the *Transport Operations (Marine Safety) Regulation 1995*.

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“**licensed electrical contractor**” has the meaning given by the *Electricity Act 1994*.

“**rule**” includes a code, regulation or standard issued by a classification society.

“**ship**” means a commercial or fishing ship, or a part of those ships.

“**ship builder**” means a person who builds a ship.

“**ship designer**” means a person who designs a ship.

“**USL Code**” means the Uniform Shipping Laws Code adopted by Commonwealth, State and Territory Ministers.

### **Purposes of standard**

4. The purposes of this standard are to—

- (a) set standards for designing and building ships; and
- (b) help people to understand the general safety obligations imposed on them under part 4, division 1<sup>1</sup> of the Act.

### **How to understand this standard**

5.(1) This standard provides 2 approaches for designing and building ships.

(2) The approaches are—

- (a) a performance based approach allowing for innovation in the way ships are designed and built; and
- (b) a prescriptive based approach following the requirements of the USL Code, or a rule, about the way ships are designed and built.

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<sup>1</sup> Part 4 (General safety obligations and standards), division 1 (General safety obligations)

## **PART 2—PERFORMANCE BASED APPROACH**

### *Division 1—Designing ships*

#### **Stress**

**6.(1)** A ship designer should design a ship so that the calculated stress in any machinery component or member of the ship should not be greater than the maximum permissible stress derived from the minimum guaranteed mechanical properties of the material used in the component or member.

**(2)** The design should include an adequate safety factor for the ship.

#### **Verifying design**

**7.(1)** A ship designer should verify the sufficiency of the design of a ship including the specifications, details and calculations for the design.

**(2)** The material specifications and design details should—

(a) contain enough information and detail to allow a comparison to other design standards; and

(b) state the design is adequate for the intended service.

**(3)** The design calculations should take into account all static and dynamic forces the ship may meet that may be induced by the sea, weather, motion and any stowed or wheeled cargo.

**(4)** If design calculations are not provided, appropriate sections of the ship should be tested and analysed to determine the adequacy of the structural design and suitability for the intended service.

**(5)** If design calculations or test section results are not provided, full scale actual trials should be completed in all weather conditions to determine actual loadings to indicate the adequacy of the structural design and suitability for the intended service.

**(6)** The structural sufficiency of a ship may also be demonstrated by documented comparison to a similar ship of approximately similar size,

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power and displacement that has proven structural adequacy in commercial operations for 5 years.

### **Components**

**8.** A ship designer should design all components contributing to the ship's structural strength to resist deformation from possible water pressure generated by the static and dynamic forces of the sea in all weather conditions.

### **Structure**

**9.** A ship designer should design the ship's structure to—

- (a) resist deformation by impulse forces generated by engines and propellers; and
- (b) withstand structural failure under anticipated operational impact forces.

### **Designing vision and access components**

**10.** A ship designer should design all vision and access components fitted as part of a ship's structure to be of adequate strength to stop water entering the ship through the components in all weather conditions in the intended operating area.

### **Designing for passenger comfort and protection**

**11.** A ship designer should design a ship's structure and accommodation to give reasonable comfort and protection from injury to everyone on the ship in all weather conditions in the intended operating area.

### **Designing structure for protection from fire**

**12.** A ship designer should design a ship's structure to—

- (a) protect everyone on the ship from fire on the ship; and

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- (b) include access ways to help the quick, safe and unimpeded escape of everyone from the ship if there is a fire.

### **Designing propulsion machinery**

**13.** A ship designer should design a ship's propulsion machinery, components and associated systems to be—

- (a) adequate for the intended purpose; and
- (b) of robust design to operate reliably in all conditions in the intended operating area.

### **Designing steering system**

**14.** A ship designer should design a ship's steering system to—

- (a) control the ship in all sea and weather conditions; and
- (b) include a way of maintaining steerage if the main steerage system fails.

### **Designing machinery etc. to minimise fire risk**

**15.** A ship designer should design a ship's machinery and associated systems to minimise the risk of fire from a malfunction in the machinery or system in any operating condition.

### **Designing bilge pumping system**

**16.(1)** This section applies if the safe operation of a ship may be effected by an accumulation of water within the ship.

**(2)** A ship designer should design the ship to include a bilge pumping system capable of removing the water to enable stability to be achieved or maintained under reasonable conditions of list or trim.

**(3)** The system should be designed to stop water flowing from 1 compartment to another.

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(4) The valves for controlling the bilge sections should be able to be efficiently and easily operated.

(5) The components of the system should be accessible under ordinary circumstances.

### **Buoyancy and stability**

**17.(1)** A ship designer should design a ship so the ship's form and structure gives an adequate reserve of intact buoyancy and stability in all anticipated loading conditions necessary to stop the ship capsizing in all weather conditions in the intended operating area.

(2) If the ship is a class 1 commercial ship, the form and structure of the ship should give an adequate reserve of intact buoyancy and stability in all anticipated loading conditions necessary to maintain the safety of passengers and crew in all weather conditions in the intended operating area.

(3) The ship designer should do calculations to demonstrate the stability of the ship is adequate in all loading conditions in the intended operating area for the assigned load line.

### **Subdivision**

**18.** A ship designer should design a class 1 commercial ship so the ship's form and structure gives an adequate reserve of damaged stability in all anticipated conditions if any 1 compartment of the ship is open to the sea.

## ***Division 2—Building ships***

### **Ship building facilities**

**19.(1)** A ship builder should build ships with equipment and in premises appropriate for the ship being built.

(2) The installation of welding machines at the premises should be arranged to ensure the correct welding process for the ship.

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### **Ship to be built as specified in design and specifications**

**20.(1)** A ship builder should build a ship as specified in the design and specifications for the ship.

**(2)** If there are no specifications for a ship, the ship builder should build the ship using good quality materials and best industry practice.

### **Building vision and access components**

**21.** A ship builder should build all vision and access components fitted as part of the ship's structure to be of adequate strength to stop water entering the ship through the components in all weather conditions in the intended operating area.

### **Building for passenger comfort and protection**

**22.** A ship builder should build a ship's structure and accommodation to give reasonable comfort and protection from injury, to everyone on the ship in all weather conditions in the intended operating area.

### **Other entry of water**

**23.** A ship builder should build a ship to stop water entering the hull in all weather conditions in the intended operating area.

### **Building structures to give protection from fire**

**24.** A ship builder should build a ship's structure to—

- (a) protect everyone on the ship from fire on the ship; and
- (b) include access ways to help the quick, safe and unimpeded escape of everyone from the ship if there is a fire.

### **Building propulsion machinery**

**25.** A ship builder should build a ship's propulsion machinery, components and associated systems to be—

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- (a) adequate for the intended purpose; and
- (b) of robust design to operate reliably in all conditions in the intended operating area.

### **Building steering system**

**26.** A ship builder should build a ship's steering system to—

- (a) control the ship in all sea and weather conditions; and
- (b) include a way of maintaining steerage if the main steerage system fails.

### **Shielding hazardous machinery**

**27.** When building a ship, a ship builder should ensure the ship's machinery that is hazardous is shielded to prevent the risk of injury.

### **Building machinery etc. to minimise fire risk**

**28.** A ship builder should build a ship's machinery and associated systems to minimise the risk of fire from a malfunction in the machinery or system in any operating condition.

### **Building bilge pumping system**

**29.(1)** This section applies if the safe operation of a ship may be affected by an accumulation of water within the ship.

**(2)** A ship builder should build the ship to include a bilge pumping system capable of removing the water to enable stability to be achieved or maintained under reasonable conditions of list or trim.

**(3)** The system should be built to stop water flowing from 1 compartment to another.

**(4)** The valves for controlling the bilge sections should be able to be efficiently and easily operated.

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(5) The components of the system should be accessible under ordinary circumstances.

### **Identifying components of associated machinery**

**30.** When building a ship, a ship builder should provide an efficient and effective way to quickly identify and locate each component of the associated machinery system in normal and emergency operations.

## **PART 3—PRESCRIPTIVE BASED APPROACH**

### *Division 1—Designing ships*

#### **Designer should comply with USL Code or rule**

**31.(1)** A ship designer should design a ship to comply with—

- (a) the USL Code; or
- (b) a rule; or
- (c) a combination of them.

**(2)** However, a part of a ship should not be designed to comply with a combination of—

- (a) the USL Code and a rule; or
- (b) the rules.

### *Division 2—Building ships*

#### **Builder should comply with USL Code or rule**

**32.(1)** A ship builder should build a ship to comply with—

- (a) the USL Code; or

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- (b) a rule; or
- (c) a combination of them.

(2) However, a part of a ship should not be built to comply with a combination of—

- (a) the USL Code and a rule; or
- (b) the rules.

## **PART 4—COMMON REQUIREMENTS FOR BOTH APPROACHES FOR SHIP BUILDING**

### **Electrical work**

**33.(1)** A ship builder should ensure that AC electrical work on a ship is done by a licensed electrical contractor.

(2) Subsection (1) does not apply to AC electrical work that is repair work if—

- (a) the repairs are done by a crew member of the ship who—
  - (i) is a marine engineer; and
  - (ii) holds an engineer class 1 certificate of competency; and
- (b) the repairs are recorded in the ship's log.

### **Employees**

**34.(1)** A ship builder should ensure the builder's employees are appropriately qualified and sufficiently trained for their ship building work.

(2) Welding operators employed to build aluminium ships should have the qualifications stated in AS 1663.

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**Premises for building fibre reinforced plastic ships**

**35.** A ship builder who builds fibre reinforced plastic ships should ensure the premises where the ships are built to conform with AS 4132.3.

**PART 5—EXPIRY**

**Expiry**

**36.** This standard expires 6 months after it commences.

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## ENDNOTES

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### 2 Date to which amendments incorporated

This is the reprint date mentioned in the Reprints Act 1992, section 5(c). However, no amendments have commenced operation on or before that day. Future amendments of the Transport Operations (Marine Safety—Designing and Building Commercial and Fishing Ships) Interim Standard 1996 may be made in accordance with this reprint under the Reprints Act 1992, section 49.

### 3 Key

#### Key to abbreviations in list of legislation and annotations

AIA	=	Acts Interpretation Act 1954	(prev)	=	previously
amd	=	amended	proc	=	proclamation
ch	=	chapter	prov	=	provision
def	=	definition	pt	=	part
div	=	division	pubd	=	published
exp	=	expires/expired	R[X]	=	Reprint No.[X]
gaz	=	gazette	RA	=	Reprints Act 1992
hdg	=	heading	reloc	=	relocated
ins	=	inserted	renum	=	renumbered
lap	=	lapsed	rep	=	repealed
notfd	=	notified	s	=	section
om	=	omitted	sch	=	schedule
o in c	=	order in council	sdiv	=	subdivision
p	=	page	SIA	=	Statutory Instruments Act 1992
para	=	paragraph	SL	=	subordinate legislation
prec	=	preceding	sub	=	substituted
pres	=	present	unnum	=	unnumbered
prev	=	previous			

## **4 List of legislation**

### **Transport Operations (Marine Safety—Designing and Building Commercial and Fishing Ships) Interim Standard 1996 SL No. 169**

notfd gaz 28 June 1996 pp 1164–70

ss 1–2 commenced on date of notification

remaining provisions commenced 1 July 1996 (see s 2)

**Note**— This standard exp 1 January 1997 (see s 36)