SP 3.1 – FLOATING BUILDINGS

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Purpose

To provide design criteria for permanently moored floating buildings not intended for navigational use and built on a floatation system.

Commencement

SP 3.1 commences on-

a) 1 September 2006.

Application

This standard applies if-

a) a building development application is made for the construction of a *floating* building and is in addition to and not a substitution for, other provisions of the *Building Regulation 2006* which may apply to floating buildings.

Associated Requirements

Compliance with this standard may not be the only requirement. Local Government planning schemes, local laws, State Acts and other IDAS codes may impose additional or alternative requirements.

Referenced Standards

There are no Australian Standards referenced in this standard.

Other Relevant Legislation

- *Building Act 1975*
- *Integrated Planning Act 1997*
- *Local government planning schemes*

Definitions

Note: Italicised words within the body of the text are defined.

Acceptable solution means a solution which is deemed to satisfy the performance criteria.

building work has the same meaning as the *Building Act 1975.*

floating building means a permanently moored *floating building* built on a flotation system and not intended for, or useable in, navigation.

metacentre, in relation to a *floating building*, means the intersection of the verticals through the centre of buoyancy of the *floating building* when in equilibrium and when tilted.

metacentric height, in relation to a *floating building*, means the distance between the centre of gravity and the *metacentre*.

Fire Authority means the Queensland Fire and Rescue Service.

Performance criteria			Acceptable solution
Access			
P1	A *floating building* must have adequate means of access to and from the shore appropriate to the likely number of people accommodated in the *floating building*.	**A1**	a) A *floating building* has - (i) if more than 1 exit is required by the Building Code of Australia (BCA), at least 1 permanent access for each required exit; or (ii) if paragraph (i) does not apply, at least 1 permanent access. b) The permanent access must be a gangway, bridge or similar structure - i) at least 1m wide, or a width required to satisfy D1.6 of the BCA, whichever is the greater, measured clear of all obstructions; and ii) giving access to: A) the shore; or B) a pontoon, float or wharf or similar structure at least 1.5m wide measured clear of handrails and giving permanent access to the shore.
Flotation system			
P2	A *floating building* must have a floatation system which maintains an acceptable level of stability appropriate to the use or likely use of the building and which: a) will not be affected by minor impact; and b) is watertight; and c) is capable of withstanding the most adverse combination of loads it is likely to be exposed to.	**A2**	A *floating building* has a flotation system which - a) extends - i) over the total plan area of the superstructure disregarding projections such as roof overhangs, bay windows, enclosed decks and other architectural features; and ii) to within 2m of such projections; and iii) is a solid structure of reinforced concrete; and iv) is a fully enclosed cellular

			construction with voids provided for buoyancy filled with expanded polystyrene or similar durable foam material; and v) is watertight; and vi) is provided with a timber buffer or the like to protect it from minor accidental impact; and vii) is designed: A) to maintain positive stability with a minimum measurement of not less than 250mm from the waterline to the top edge of the flotation system under the most adverse combination of loads to which the *floating building* is likely to be subject including dead loads, live loads and wind loads calculated in accordance with the BCA and loads resulting from: (1) water turbulence; or (2) flooding of the waterway; or (3) tidal action; or (4) water flooding associated with fire fighting or accidental cause; or (5) accidental impact; and B) to maintain a minimum freeboard, being the measurement from the waterline to the top edge of the flotation system at the point where it has the least dimension under the action of dead and live loads only, of not less than 400mm; and

			C) so that the *metacentre* is always above the centre of gravity when the *floating building* is tilted and so that the *metacentric height* is not less than 300mm; and viii) is provided with buoyancy tanks or other devices to enable a reasonably horizontal floor level to be provided when subject to various combinations of asymmetrical dead and live loads both before and after occupation; and ix) is permanently restrained under the most adverse combination of loads to which it is likely to be subjected, by at least 4 mooring piles that allow it to freely float with the rise and fall of the water resulting from tides, flood, storm surge, wave action or other cause, but limit lateral movement relative to the mooring pile to 20mm.
Mooring piles			
P3	Mooring piles must be designed to adequately and safely resist all lateral loads resulting from the most adverse combination of loads which are likely to act on the flotation system and superstructure of the *floating building* and any vessel attached to the *floating building* or mooring piles.	**A3**	Piles used as moorings for floating buildings resist the combination of loads acting on the floatation system and superstructure of the floating building and any vessel attached to the floating building or mooring pile.

Materials (generally)			
P4	All materials used in a *floating building* or any structure associated with a *floating building* and necessary for the purposes of this Part, must be suitable for the conditions to which they are exposed.	**A4**	All materials used for decking, cladding, waterproofing, or structural purposes in a *floating building* or any mooring, gangway, bridge, pontoon, float, wharf or the like giving support or access to a *floating building* are suitable for marine use.
Materials (fastenings)			
P5	All fastenings used in a *floating building* or any structure associated with a *floating building* and necessary for the purposes of this MS, must be appropriate for the conditions to which they are exposed taking into account their ability to be maintained or replaced if necessary.	**A5**	All nails, bolts, brackets and other fastenings used for structural purposes are – a) if easily visible and accessible for maintenance purposes, hot dip galvanised steel or other material of equivalent durability; and b) if not easily visible and accessible for maintenance purposes, marine grade bronze, copper, stainless steel or other material of equivalent durability; and c) if made of metal and used in combination with other metals, designed to minimise the effect of electrolytic action.
Location			
P6	The location of a *floating building* must maintain an acceptable level of amenity between any other building and any proposed building**.**	**A6**	A *floating building* is located so that the minimum distance between the outermost projection of the *floating building* to any other building or the location of any proposed building is 3m plus 1mm for every 3mm in height in excess of 4.5m.

Safety equipment			
P7	A *floating building* must have appropriate life safety devices suitable for marine use.	**A7**	A *floating building* is provided with at least 1 marine type life ring.
Fire fighting equipment			
P8	A *floating building* must have access to appropriate levels fire fighting equipment to safeguard against fire spread: a) to allow occupants time to evacuate safely without being overcome by the effects of fire; and b) so that occupants can undertake initial attack on a fire; and c) so that the *fire authority* has the necessary equipment for fire fighting operations; and d) to other parts of the building; and e) between buildings.	**A8**	A *floating building* is located so that no point on the floor of the *floating building* is either: a) beyond the reach of a fully extended hose reel that is connected to the water supply and situated in or in the vicinity of the *floating building*; or b) more than 90m from a hydrant.
Minimum water depth			
P9	Water depth under a *floating building* must at all times be sufficient to prevent grounding of the building.	**A9**	The water depth under a *floating building* is at least 1m at all times.
Balustrades and handrails			
P10	The perimeter of a *floating building* and all gangways, pontoons, wharfs, stairways, ramps and the like which provide access to a *floating*	**A10**	a) The perimeter of every part of a *floating building* not wholly enclosed by walls has a balustrade that complies with the following -

	building, must be provided with a barrier which must be: a) continuous and extend for the full extent of the hazard; and b) of a height to protect people from accidentally falling from the floor or roof or through the opening; and c) constructed to prevent people from falling through the barrier; and d) capable of restricting the passage of children; and e) of strength and rigidity to withstand: i) the foreseeable impact of people; and ii) where appropriate, the static pressure of people pressing against it.		i) a continuous handrail or guardrail or the like fixed at a vertical height of not less than 1000mm above the floor surface and in the space between the handrail, guardrail or the like and the floor surface there are no openings, or windows or panels which can be opened, which are either wider than 125mm when measured horizontally, or if wider than 125mm when measured horizontally, wider than 125mm when measured vertically; ii) all members located more than 150mm and up to and including 760mm above the floor surface are vertical or otherwise designed to eliminate any toe hold; iii) if access through the balustrade is required—a gate specifically designed to restrict access by young children is provided. b) The perimeter of all gangways, pontoons, wharfs, stairways, ramps and the like which provide access to a *floating building* have a balustrade that complies with the following - i) a continuous handrail fixed at a vertical height of not less than 865mm above the nosings of the treads and the floor surface of the access bridge or landing, and in the space between the handrail and stair treads or floor there are no openings, or windows or panels which can be opened, which are either

			wider than 300mm when measured horizontally or if wider than 300mm when measured horizontally, wider than 420mm when measured vertically.
Non-slip surfaces			
P11	The external floor surfaces of a *floating building* and the floor surfaces of all gangways, pontoons, wharfs, stairways, ramps and the like which give access to a *floating building* must be finished in a approved manner to prevent slipping.	**A11**	All external floor surfaces of a *floating building* and the floor surfaces of all gangways, pontoons, wharfs, stairways, ramps and the like which give access to a *floating building* are slip resistant.