**GUIDE FOR**

# PORTABLE ACCOMMODATION MODULES JANUARY 2013

## NOTICE NO. 2 – July 2016

The following Rule Changes become **EFFECTIVE AS OF 1 JULY 2016.**

*(See http://www.eagle.org for the consolidated version of the Guide for Portable Accommodation Modules 2013, with all Notices and Corrigenda incorporated.)*

*Notes - The date in the parentheses means the date that the Rule becomes effective for new construction based on the contract date for construction, unless otherwise noted. (See 1-1-4/3.3 of the ABS Rules for Conditions of Classification – Offshore Units and Structures (Part 1).)*

**SECTION 2 DESIGN REVIEW OF MODULE**

## 9 Fire Integrity

*(Revise Paragraph 2/9.1, as follows:)*

### 9.1 Fire Integrity of Exterior Boundaries *(1 July 2016)*

The exterior boundaries are to be steel but are not required to be of "A" class standard. However, external doors are to be self-closing and at least "A-0" class standard.

If the module is to be rated "A-0", "A-60", or "H-60", exterior boundaries are to be constructed of minimum 4 mm thick steel with the appropriate insulation. Alternatives may be considered where appropriate testing has been carried out.

Reference should also be made to the special requirements contained in Subsection 2/13.

See Chapter 2, Section 1 of the ABS *Rules for Building and Classing Facilities on Offshore Installations (Facilities Rules)* for the definition of "H-60" divisions.

Where a boundary is penetrated for the passage of electric cables, pipes and vent ducts, such penetrations are to maintain the integrity of the boundary penetrated.

*(Revise third-from-last paragraph of Paragraph 2/9.3, as follows:)*

### 9.3 Fire Integrity of Interior Bulkheads *(1 July 2016)*

*(Preceding text remains unchanged.)*

The fire resistance of doors is to be equivalent to that of the division in which they are fitted.

*(Following text remains unchanged.)*

*(Add new Paragraph 2/9.7, as follows:)*

## 9.7 Penetrations of Cables *(1 July 2016)*

Where cables pass through watertight, firetight, or smoke-tight bulkheads or decks, the penetrations are to be made through the use of approved stuffing tubes, transit devices or pourable materials installed in accordance with manufacturer's installation procedures to maintain the watertight integrity or fire-rating of the bulkheads or decks. These devices or pourable materials are not to damage the cable physically or through chemical action or through heat build-up. After installation, all watertight and fire-rated cable penetrations are to be visually examined and tested in presence of and to the satisfactions of the attending Surveyor. Where cable conduit pipe or equivalent is carried through decks or bulkheads, arrangements are to be made to maintain the integrity of the water, fire or gas tightness of the structure.

*(Add new Paragraph 2/9.9, as follows:)*

## 9.9 Penetration of Piping *(1 July 2016)*

### 9.9.1 General

Where pipes penetrate bulkheads and decks which are required to be fire-tight or smoke-tight, the penetrations are to be made by approved methods which will maintain the same degree of fire-tight or smoke-tight integrity.

### 9.9.2 Pipes Penetrating "A" Class Divisions

Where pipes penetrate "A" class divisions, such penetrations are to be tested in accordance with the Fire Test Procedures Code. If the penetration is constructed of steel or fitted with a steel sleeve at least 3 mm thick and at least 900 mm (35.4 in.) long (preferably 450 mm (17.7 in.) on each side of the division) and provided with fire insulation having the same length and fire integrity as the division, testing is not required.

Uninsulated metallic pipes penetrating "A" class divisions are to be of materials having a melting temperature which exceeds 950°C (1742°F).

### 9.9.3 Pipes Penetrating "B" Class Divisions

Where pipes penetrate "B" class divisions, such penetrations are to be tested in accordance with the Fire Test Procedures Code. Testing is not required however if:

*i)* Pipes having diameters greater than or equal to 150 mm (5.91 in.) penetrating "B" class divisions are steel or lined with steel sleeves at least 1.8 mm (0.07 in.) thick and at least 900 mm (35.4 in.) long (preferably 450 mm (17.7 in.) on each side of the division).

*ii)* Pipes having diameters less than 150 mm (5.91 in.) are to be steel or lined with steel sleeves at least 1.8 mm (0.07 in.) thick and at least 600 mm (23.6 in.) long (preferably 300 mm (11.81 in.) on each side of division).

*iii)* Pipes other than steel or copper are connected to the ends of the sleeve defined in *i)* and *ii)* by flanges or couplings; or the clearance between the sleeve and the pipe is not to exceed 2.5 mm (0.10 in.); or any clearance between pipe and sleeve is to be made tight by means of non-combustible or other suitable material.

Uninsulated metallic pipes (including copper) penetrating "B" class divisions have a melting temperature which exceeds 850°C (1562°F).

# 23 Structural Requirements

*(Revise Paragraph 2/23.3, as follows:)*

## 23.3 Side and End Bulkhead Plating *(1 July 2016)*

### 23.3.1 Steel Plating

The steel plating is to be not less in thickness than that obtained from the following equation:

$$t = 3s\sqrt{h} \quad \text{mm}$$

$$t = s\sqrt{h}/50 \quad \text{in.}$$

where

$s$ = spacing of stiffeners, in m (ft)

$h$ = design head specified by designer, in m (ft)

Any steel plating considered effective in the stacking or racking analysis is required to have a minimum thickness of 5.0 mm (0.2 in.).

In no case is the plating thickness for steel to be less than 3.0 mm (0.12 in.).

### 23.3.2 Aluminum Plating

In the case of aluminum plating, the minimum thicknesses $t_{alum}$ is to be obtained from the following:

$$t_{alum} = t \times \sqrt[3]{\frac{E_{steel}}{E_{aluminum}}}$$

where

$t$ = minimum required steel plating thickness as defined in the above

$E_{steel}$ = Young's modulus of elasticity of steel

$E_{aluminum}$ = Young's modulus of elasticity of aluminum

## 23.7 Corrugated Bulkheads

*(Revise Subparagraph 2/23.7.1, as follows:)*

### 23.7.1 Plating *(1 July 2016)*

*23.7.1(a) Steel Plating.* Steel plating is to be not less in thickness than that obtained from the following equation:

$$t = 3s\sqrt{h} \quad \text{mm}$$

$$t = s\sqrt{h}/50 \quad \text{in.}$$

where

$t$ = thickness, in mm (in)

$s$ = spacing, in m (ft), the greatest of dimensions $a$, $b$ or $c$, as indicated in Section 2, Figure 2. The angle $\phi$ is to be 45 degrees or more.

$h$ = design head specified by designer, in m (ft)

The ratio of thickness (mm, in) to spacing (m, ft) of corrugated steel bulkheads is to be greater than 22 (0.267), unless a detailed buckling analysis is performed and submitted.

Any steel plating considered effective in the stacking or racking analysis is required to have a minimum thickness of 5.0 mm (0.2 in.).

In no case is the steel plating thickness to be less than 3.0 mm (0.12 in.)

*23.7.1(b) Aluminum Plating.* In the case of aluminum plating, the minimum thicknesses $t_{alum}$ is to be obtained from the following:

$$t_{alum} = t \times \sqrt[3]{\frac{E_{steel}}{E_{aluminum}}}$$

where

$t$ = minimum required steel plating thickness as defined in the above

$E_{steel}$ = Young's modulus of elasticity of steel

$E_{aluminum}$ = Young's modulus of elasticity of aluminum

In the case of corrugated aluminum bulkheads, a detailed buckling analysis is to be performed and submitted.

## 23.11 Bottom Deck

*(Revise Subparagraph 2/23.11.1, as follows:)*

### 23.11.1 Plating *(1 July 2016)*

*23.11.1(a) Steel Plating.* The steel plating thickness $t$ is not to be less than that obtained from the following equation:

$$t = ks\sqrt{p/\omega} + a \quad \text{mm (in.)}$$

where

$k$ = $3.94 \times 10^{-3}$ ($2.18 \times 10^{-3}$)

$s$ = spacing of beams, in mm (in.)

$p$ = intended deck loading in kN/m$^2$ (kgf/m$^2$, lbf/ft$^2$) but is not to be taken less than the minimum deck loading given in Section 2, Table 3

$\omega$ = 7.04 (718, 44.8)

$a$ = 1.5 (0.06)

Any steel plating considered effective in the stacking or racking analysis is required to have a minimum thickness of 5.0 mm (0.2 in.).

In no case is the steel plating thickness to be less than 3.0 mm (0.12 in.)

*23.11.1(b) Aluminum Plating.* In the case of aluminum plating, the minimum thicknesses $t_{alum}$ is to be obtained from the following:

$$t_{alum} = t \times \sqrt[3]{\frac{E_{steel}}{E_{aluminum}}}$$

where

$t$ = minimum required steel plating thickness as defined in the above

$E_{steel}$ = Young's modulus of elasticity of steel

$E_{aluminum}$ = Young's modulus of elasticity of aluminum

*(Revise Paragraph 2/23.19, as follows:)*

### 23.19 Racking Resistance *(1 July 2016)*

For modules with bulkheads constructed with a plating thickness below 5 mm ($^1/_5$ in.), calculations are to be submitted to show that the module is provided with sufficient racking capacity to withstand a load equal to the design *h*/2 distributed over the area of any side bulkhead. *h*/2 is used to account for the difference between maximum pressure and average pressure over a large area. For these calculations, it may be assumed that 50% of the load acts across the top of the module and 50% of the load acts across the bottom of the module. The buckling strength of end bulkheads and stiffeners is to be sufficient for the racking load. Buckling strength of plated structures is to be sufficient when determined in accordance with the ABS *Guide for Buckling and Ultimate Strength Assessment for Offshore Structures*, or another recognized standard acceptable to ABS.

## SECTION 3 SURVEY OF MODULE AT FABRICATION YARD

*(Revise Subsection 3/5, as follows:)*

### 5 Survey Requirements *(1 July 2016)*

Tightness testing of the module is to be by hose test or equivalent. All exterior windows, doors, sidescuttles, and similar penetrations are to be hose-tested after installation.

During installation of deck and bulkhead watertight and fire-rated cable penetrations, the attending Surveyor is to confirm that the installer is familiar with and has access to the manufacturer's installation procedures for stuffing tubes, transit devices or pourable materials.

After installation, all watertight and fire-rated cable penetrations are to be visually examined.

The general alarm, public address, fire detection and alarm and any other safety devices are to be tested and confirmed to be in operating condition. Alarm interfaces are to be examined.

The attending Surveyor is to confirm that the as-built module is in compliance with the approved plans.