



FOAM BUOYANCY SHEET

(This form is to be completed by the Foam installer before initial survey)

Name of Vessel: _____		M&H Number: _____	
Material of Superstructure: _____		Material of Hull: _____	
	Symbol	weight	kg
Weight of Hull to Deck-line (excluding deck):	Wh	_____	_____
Weight of Deck and Superstructure:	Wss	_____	_____
Weight of Engine/s:	Wm	_____	_____
Weight of all Machinery (winches/pot tipper/refrigern.etc.):	Wm	_____	_____
Weight of Batteries:	Wm	_____	_____
Weight of fuel fitted above the foam buoyancy:	Wm	_____	_____
Sum of Weights – Machinery and fuel (Wm)	Σ Wm	_____	_____
Weight of Equipment (Anchors, chain, life-raft, nets etc.):	We	_____	_____
Weight of Crew and Passengers:	Wp	_____	_____
Density of Foam: (Standard foam density = 44, Minimum = 32)	Df	_____	_____
Density of hull material: (see Note 2 over page).	Dh	_____	_____
Weight to be supported (not including foam, or fuel	Total:	_____	_____
under the flooded water-line)			

$$\text{Foam Required} = 1.2 \times \left(\frac{\text{Wh}}{\text{kg}} \times \left[1 - \left(\frac{1000}{\text{Dh}} \right) \right] + \frac{\text{Wss}}{\text{kg}} + \frac{\text{Wm}}{\text{kg}} + \frac{\text{We}}{\text{kg}} + \frac{\text{Wp}}{\text{kg}} \right) / \{ 1000 - \text{Df} \}$$

m^3 kg kg/m^3 kg kg kg kg kg/m^3

Foam Required = _____ m ³	Foam Fitted = _____ m ³
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Describe the fitting of foam, sheets supplied (fire retardant foam?), how coated (plastic bag, fire retardant paint), where fitted, how secured:

Number and size of sheets supplied: _____

Supplied by: _____ Coated with? _____

Where fitted: _____

How secured (straps, baffles, wedged, combination): _____

I certify that the above estimates of weight, density and volume are confirmed by measurement, or by accurate estimates issued by suppliers or builders. I also confirm that the amount of foam buoyancy fitted is that stated on this form.

Builder/Owner/Agent - describe	Printed Name	Signature	Date.
See over for important notes:			

Without calculation to be absolutely sure that the vessel will float if holed or swamped, you may fit as many cubic metres of foam as the vessel and passengers combined weigh in tonnes.

Vessels that may have foam fitted as a means of life-saving are:

Class One vessels in lieu of (or in combination with) Single Compartment Sub-division if the vessel is less than 15 metres measured length.

Class Two (C, D and E) and class three (C, D and E) vessels less than 15 metres measured length in lieu of life-rafts, dinghies and aids to buoyancy.

Notes:

* For H&D vessels, see draft instruction 42/99, which, *inter alia*, refers to AS 1799.1 and this form.

1. *Passengers and crew* are nominally taken to weigh:

Where passengers are not to be immersed	(all decked vessels class 1C and above)	75 kg each
	(all decked vessels class 2E/3E and above)	75 kg each
	(all decked vessels class 1E/1D)	65 kg each

Where passengers may be partially immersed, refer to AS 1799.1

2. Densities of materials used in vessel construction may be:

Df *Foam Buoyancy*; 44 kg/m³ or as quoted by supplier; (Minimum 32 Kg/m³ see Note 4. Below)

Dh *Wood*; 1000 kg/m³.

Laminated wood; 1200 kg/m³ or as measured.

Fibre reinforced plastics (not sandwich construction); 1600 kg/m³.

Fibre Sandwich; use fibre above, but allow foam to contribute to buoyancy (if closed cell).

Aluminium; 2700 kg/m³.

Steel; 7900 kg/m³.

3. The USL Code Section 10, Appendix N, assumes the entire vessel is permitted to contribute to buoyancy, and hence no water plane area is assumed. This is only true of open boats. The Code therefore asks for the centre of mass of the foam to be above the centre of gravity of the flooded vessel - again - true for open boats.

On decked vessels, this Department requires the deck to stay above water, so as long as the foam is fitted as outboard as possible, the foam's centre of gravity is less important (however, the higher it is fitted in the vessel, the more stable will be the vessel when flooded - hence foam should be fitted as high as possible under the main deck, as outboard as possible).

4. Foam Density Minimum: Polyurethane - 32 kg/m³. Other properties see Sect 10, Appendix N.

5. Fitting:

- The foam must not be sprayed in situ, but cut from manufactured slabs and fitted (off the hull in aluminium and steel boats).
- The foam must be coated on all surfaces with a fire retardant paint or resin. If the foam is self extinguishing, the coating may be latex paint or plastic bags.
- The foam must be protected from physical damage, and from direct sunlight.
- The foam must be at least 500mm from any source of heat (engine, dry exhaust).
- The foam must be secured so that it will not move when immersed (remember, a foam block of only 400 x 400 x 400 mm will give buoyancy of 64 kg.). The foam must also not vibrate loose from vessel movement or be loosely fitted such that the coating over the foam may be abraded.
- **Approved foams** in conventional vessels is polyurethane closed cell (brittle light yellow foam if not fire retarded, slightly green if fire retarded, depending upon additive) or Microlen[®] closed cell polyethylene (flexible compressible white foam), as approved on National Marine Safety Committee website Polystyrene is not regarded as a foam buoyancy material for the purposes of the USL Code.