

Buoyancy of Small Vessels

On all categories of vessels other than category A & R, built-in buoyancy only replaces the life raft when it is sufficient to provide a stable level platform upon which the crew can be secured in an emergency (fully flooded, swamped or capsized).

Category R vessels are not required to carry life rafts, however, they still require sufficient buoyancy so as to keep the vessel afloat in an emergency.

Buoyancy must consist of either foam or approved plastic bottles, or a combination of both. Buoyant material may not be affected by oil or oil products. Foam should be of a suitable closed cell type (usually a polyurethane type) and until such time as “approved” bottles are identified the only plastic bottles used should be high density Polyurethane H.D.P.E (Grade 2) plastic bottles with secure watertight caps.

Amount of buoyancy to be provided

It should be obvious that a simple standard amount of buoyancy will not be appropriate as vessels are constructed of various materials such as steel, aluminium, or from lightweight and buoyant materials such as foam sandwich construction. To be precise, an individual calculation has to be made in every case to ensure that the vessel achieves the desired platform.

An industry norm has been developed where 60% (of the gross weight) built-in buoyancy has been shown to be sufficient on wood and GRP constructions. SAMSA accepts this standard on categories B, C, D and E vessels so constructed.

It is important to note however that this is only a tried and tested formula on the type of vessels for which it is intended, namely the mass of wood and GRP ski-boats which make up the majority of the vessels at sea.

Regarding category R vessels and the exempted vessels mentioned in regulation 37, SAMSA, in conjunction with the Boat Building Industry Association of South Africa (BIASA), has determined that sufficient buoyancy is provided to meet the requirements of the regulations when 30% of the vessel's weight (*weight of boat, engine fuel, stores, equipment but not persons*) is fitted as buoyancy. Once again, this refers to the common wood and GRP constructed vessels.

A different buoyancy requirement applies to inflatable vessels which must have at least 3 compartments; the vessel must stay afloat with the largest two chambers being deflated. Note, a rigid hull is not included in this calculation, and also that extreme uses of inflatable vessels for commercial use such as cargo carrying or the like may require additional buoyancy to the satisfaction of SAMSA, by way of foam filled hulls or additional compartments, as this was never the intention of this exception.

Documenting built-in buoyancy

It is important that owners be able to demonstrate to a surveyor, safety officer or any enforcement officer (*SAPS, municipal police or other designated enforcement officer*) that their vessel complies with the buoyancy standards.

Buyers of vessels should be cautious that they are not ill-informed when purchasing vessels. Be wary of sellers who are unable or unwilling to underwrite and certify their vessels by producing a proper buoyancy certificate. It is illegal to sell a vessel that does not comply. However, a seller may sell a non-compliant vessel only if they make a full declaration of the non-compliance.

The form of the Buoyancy Certificate

The following principles must be applied to all forms of buoyancy certificate.

1. It must be clear who the issuer is, for instance the boat builder, private surveyor, safety officer, owner etc.
2. The vessel itself must be clearly identified by a photograph, serial number or similar.
3. The basic dimensions and build details of the vessel must be included to aid the reader with not only identifying the vessel but also making it possible to detect any major alterations which may affect the validity of the certificate.
4. The quantity, type and distribution of buoyancy must be described in detail.
5. The net weight (*light weight*) of the vessel must be noted, as this is the best method of monitoring absorbency or water retention of either foam or bottles.
6. Any limitations, conclusions or comments must be clearly noted; especially when bottles are used as they have a limited lifespan.