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OVERVIEW: Lifeboats can be difficult to enter when evacuating people wearing immersion gear and can be cramped and uncomfortable when underway. However, the internal dimensions and thus capacity ratings of lifeboats currently in service may not have taken into account the increase in body size and body weight of the population as a whole. This could increase the risk of personnel injury during evacuations and could affect the buoyancy and stability of lifeboats.

lifeboat design and body size

The US oil and gas industry has learned that some of the assumptions made in the design of lifeboats are incorrect. For example, the average Gulf of Mexico offshore worker weighs 210 pounds (95 kg) but lifeboats are designed on the assumption that their average weight is 165 pounds (75 kg) (as set out in IMO *Life-saving appliances (LSA) code*). Key parameters that need to be considered are: shoulder, elbow and hip width, and body weight.

Anthropometry

Designers refer to tables of 'anthropometric data' to design equipment for specific users e.g. UK offshore workers ('anthropometry' is the measurement of various dimensions of the human body). The problem is that some of the data currently in use are almost certainly out of date. It is known, for example, that between 1981 and 1995, average UK male stature (height) increased by 17 mm. Lifeboats in use on UK oil platforms may have been designed using earlier data that may not account for the current ethnic mix of offshore workers or increases in their size and weight. (Note that designers *do* typically make allowance for personnel wearing escape suits and other PPE.)

The implications are:

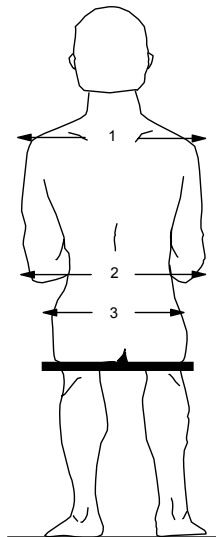
- Loading of lifeboats, even under exercise conditions, could be hazardous (because, for example, access ways and hatches are too small)
- Evacuation times may not be achieved because of difficulties in loading lifeboats
- Personnel could be injured when launching and manoeuvring lifeboats because of cramped conditions and overloading.

Recommendations

- Offshore operators should check the basis of the design and rating of their lifeboats
- The industry needs to feed back any problems to lifeboat suppliers
- Individual platforms may need to consider installing additional lifeboats if the current provisions do not have the required capacity, especially when extra staff are present, such as during construction or workover
- Emergency plans may need to be revised to take account of increased evacuation times and the possibility of injuries
- Using anthropometric data is only a starting point in lifeboat design: companies should develop their own approaches to ensure safe lifeboat loading.

References and further information

DTI *Adultdata: The handbook of adult anthropometric and strength measurements – data for design safety*, (1998).
 Open Ergonomics Ltd. *PeopleSize* (2000). See Open Ergonomics Ltd. website: <http://www.openerg.com/psz.htm>.
 IMO *Life-saving appliances (LSA) code*, IMO (2003), ISBN 92 810 5143 6.



Parameter	Value (Note 1)
1. Shoulder width	496,7 mm
2. Elbow width	449,0 mm
3. Hip width (seated)	392,8 mm (Note 2)
4. Weight	79,8 kg

Notes:

1. Data source: Open Ergonomics Ltd. *PeopleSize* (which is quoted in DTI *Adultdata*); this refers to UK males.
2. IMO *Life-saving appliances (LSA) code* specifies a seat width of at least 430 mm.

Figure 1 - Key anthropometric parameters

Table 1 Anthropometric data for UK males

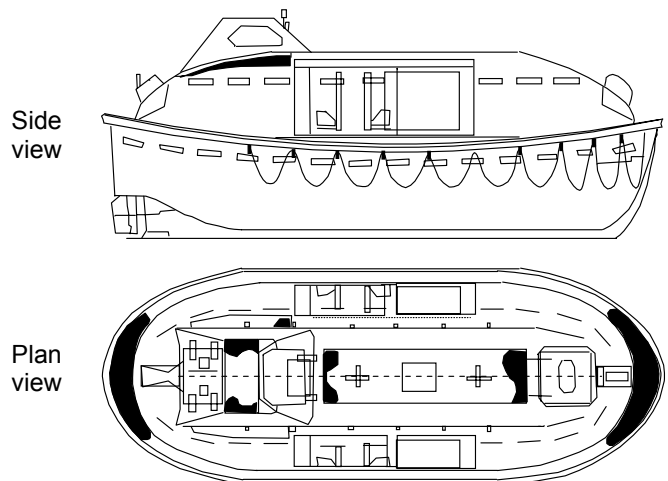


Figure 2 - Lifeboat rated for between 32 and 80 personnel depending on model