Un-Decked Boats 19ft to 23 ft



Safety

 Reserve Buoyancy: current EPS foam is fitted in a small forward floor section and under the gunwales. Proposed buoyancy will be by volume at least in excess of 10% of the boat weight with OBM and accessories.

Existing in pic below



Examples of buoyancy distribution below







An estimated weight of the additional buoyancy is about 10 kgs



Improvements to Structure Framing and Lamination Schedule







Proposed example of longitudinal girders giving the boat improved strength along the length

Lamination Schedule designed for the vessel, example below:

LAMINATE SCHEDULE (Layer 1 = Closest to Mould)			STIFFENER SCHEDULE (Layer 1 = Closest to Mould)		
LAYER	MATERIAL	WEIGHT (g/m²)	LAYER	NAME	WEIGHT (g/m²)
BOTTOM / SIDE LAMINATE			KEELSON / BOTTOM TRANS. HEIGHT = 75mm; WIDTH = 50mm;		
OUT	GELCOAT	-	IN	CSM	300
2	CSM	300	2	WR	610
3	CSM	450	3	CSM	300
4	WR	610	4	WR	610
5	CSM	300	OUT	CSM	300
6	CSM	300	SIDE TRANS, STIFF		
7	WR	610	HEIGHT = 50mm; WIDTH = 50mm;		
8	CSM	300	IN	CSM	300
9	WR	610	2	WR	610
IN	CSM	450	3	CSM	300
MAIN DECK LAMINATE			4	WR	610
OUT	GELCOAT	-	OUT	CSM	300
2	CSM	300	BTM / SIDE LONGL STIFE		
3	CSM	450	HEIGHT = 40mm; WIDTH = 40mm;		
4	WR	610	IN	CSM	300
5	CSM	450	2	WR	610
6	WR	610	OUT	CSM	300
IN	CSM	300	001	COM	500

Bilge Options





Self Draining Interior







FRP construction practice and Quality Assurance

- Following a designed lamination schedule
- Controlled work space environment (dust free, styrene extraction, temp and humidity monitoring)
- Adequate time between laminate sets and final laminate cure time.
- Attention to detail of hand layup for removal of excess resin and air bubbles
- QC practice of maintaining records of raw materials and lamination control sheets
- Testing of laminate samples for hardness, strength and flexure.
- A training course has been proposed for boat builders and local inspectors.
- Design QC below

FLOW CHART FOR QUALITY ASSURANCE PLAN FOR G.R.P. BOAT'S HULL STRUCTURE



FLOW CHART FOR QUALITY ASSURANCE PLAN FOR G.R.P. BOAT'S HULL STRUCTURE





Design Revisions

• Marginal increase in aft deadrise angle together with an increased





beam and pronounced spray rails.

Increased fore deck



Finishing of rough FRP edges



Sail socket

• Sail mast socket to have mast foot base below deck for the use of a sail as an alternate means of propulsion. Fishers in Kalpitiya are currently using sails to reduce fuel consumption and costs.



A Stainless Steel Keel shoe to prevent damage during beach launching and recovery.



Rounded gunwales for smooth deployment and recovery of gill nets



Mooring and anchoring stainless steel eyes





Structural design





Marine Safety grab bag

2 Manual Inflatable lifejackets

- Very light-weight and compact personal flotation device that may be inflated by either activating a self-contained CO¹ cartridge or blowing through an inflation tube.
- Floating signalling device used during day-time, it lasts indefinitely and is visible for miles by airplanes.
- Signalling device used at night or in foggy conditions to
- attract the attention of nearby boats.
- Signalling device used during day-time to attract the attention of nearby boats as well as airplanes.

Long-range, AAA battery-operated laser device used at night to attract the attention of nearby boats as well as airplanes; the rescue laser replaces flares or parachuterockets (no expiry date and can be air-shipped) although the latter may still be required under national sea salety regulations.

- Personal locator beacon When activated the PLB transmits a signal with the beacon's ID and vessel position to the nearest searchand-rescue operation centre via satellite relay.
- 8 Solas strobe light AAA battery-operated, waterproof, flashing light that is visible for miles at night and continuously indicates the distressed boat's position.
- 9 Batteries AAA-size dry cell batteries used in portable electronic

devices such as hand-held GPS and VHF radios, strobe light and rescue laser.

10 Hand-held VHF radio (waterproof)

Multi-channel, two-way radio (can transmit and receive), which enables boat-to-boat and boatto-land communication; the operating range is 5-10 nautical miles in open water and distress signals should be sent on channel 16 (international calling frequency for distress messages).

Floating emergency grab bag Water-proof bag used to store all of the items below;

it should be of a size large enough to store additional items such as tinned food, water bottles, a knile and some fishing tackle.

16



11 Compass A device used to determine geographic direction and consisting of a horizontally-mounted magnetic needle that is free to pivot until aligned with the Earth's magnetic field.

12 Emergency blankets Very low-weight, low-bulk first-aid blanket made of heat-reflective plastic sheeting; it reduces the heat loss in a person's body and because of its large, metallic and radar-reflective surface, it can be used as an improvised signalling device by drifters if the sun is shining, and as a reference point for searchers.

13 Mobile phone

Useful communication tool in areas with adequate mobile phone coverage; does not allow boat-to-boat communication with unidentified/unknown boats and, from a legal/regulatory point of view, does not replace the VHF radio.

14 Hand-held GPS Navigation device that uses the Global Positioning System (GPS) and relies on a network of satellites to give the user's geographical position; it increases the salety of boat operators navigating at night or with poor visibility and, in a distress situation, the exact geographic position of the vessel is known and can be given to the rescue team using the VHF radio or mobile phone. 15 Medical kit

Box or bag containing medical supplies and tools to give emergency medical treatment to a sick or injured person on board.

16 Sea anchor or drogue (125 cm) Device, usually made of canvas, deployed upwind of the vessel to keep the vessel heading into the wind and to slow its drift; unlike conventional bottom anchor, the sea anchor can be deployed at any depth.

Life Saving Equipment





FRP Removable ice boxes



Thank you for your attention

Any questions?