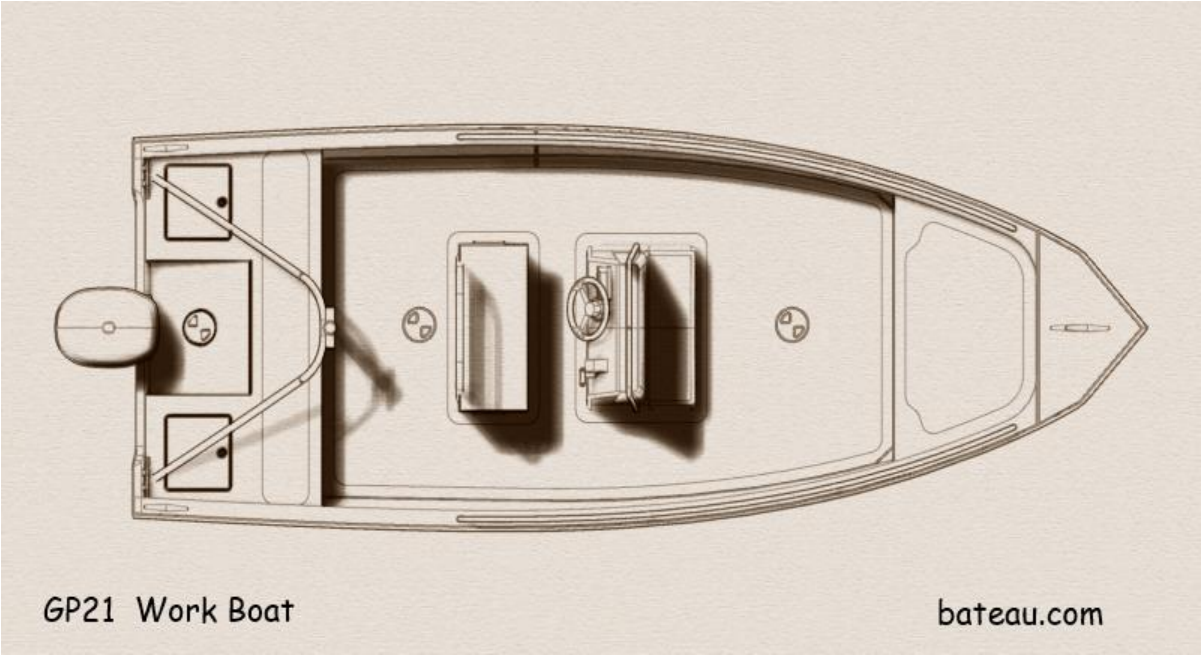
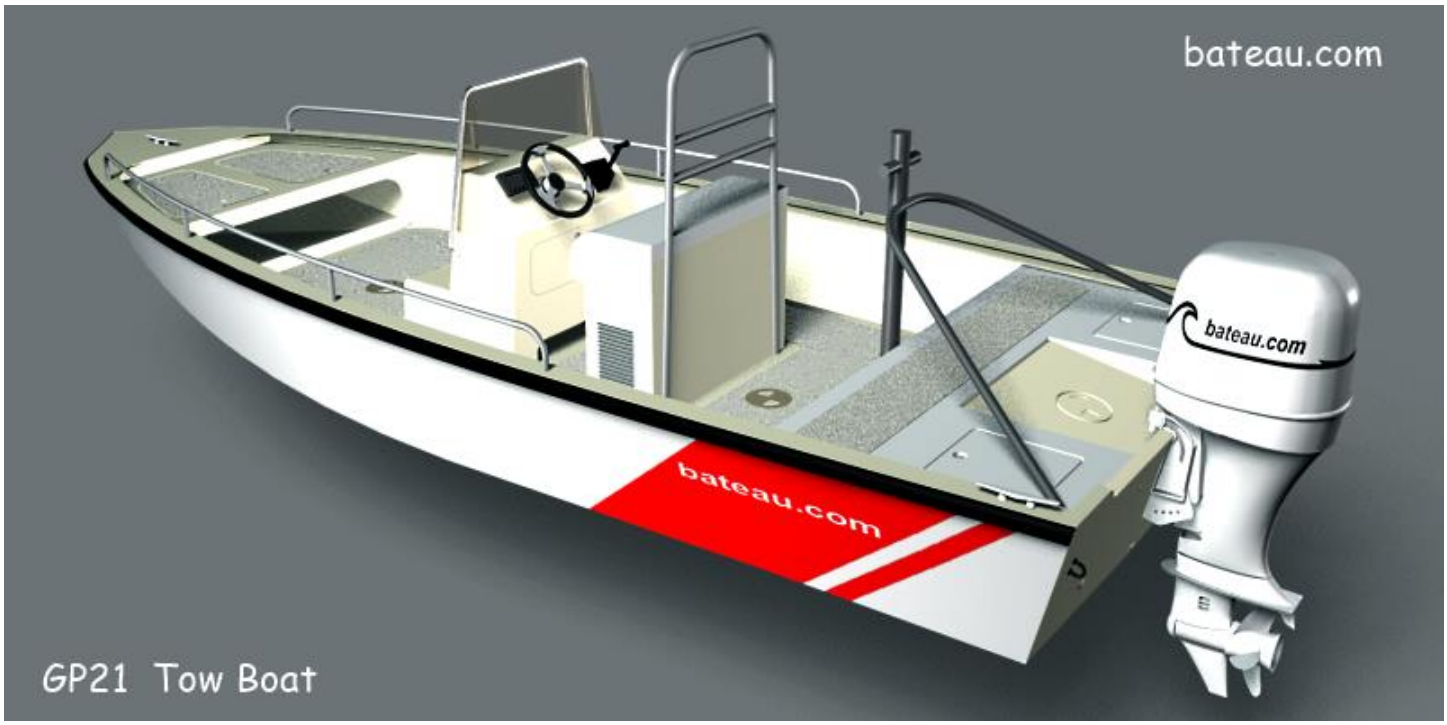


Specifications:		
LOA:	21'	6.4 m
Max. Beam:	8'	2.44 m
Hull draft (2000 lb):	8	.2 m
Displacement at DWL:	3500 lb	1587 Liters
PPI at DWL:	578 lbs	102 kg/cm
Fuel:	50 Gallons	200 liters
Recommended engine	90-150 HP	65-115 KW
Material:	Epoxy-fiberglass-plywood composite	

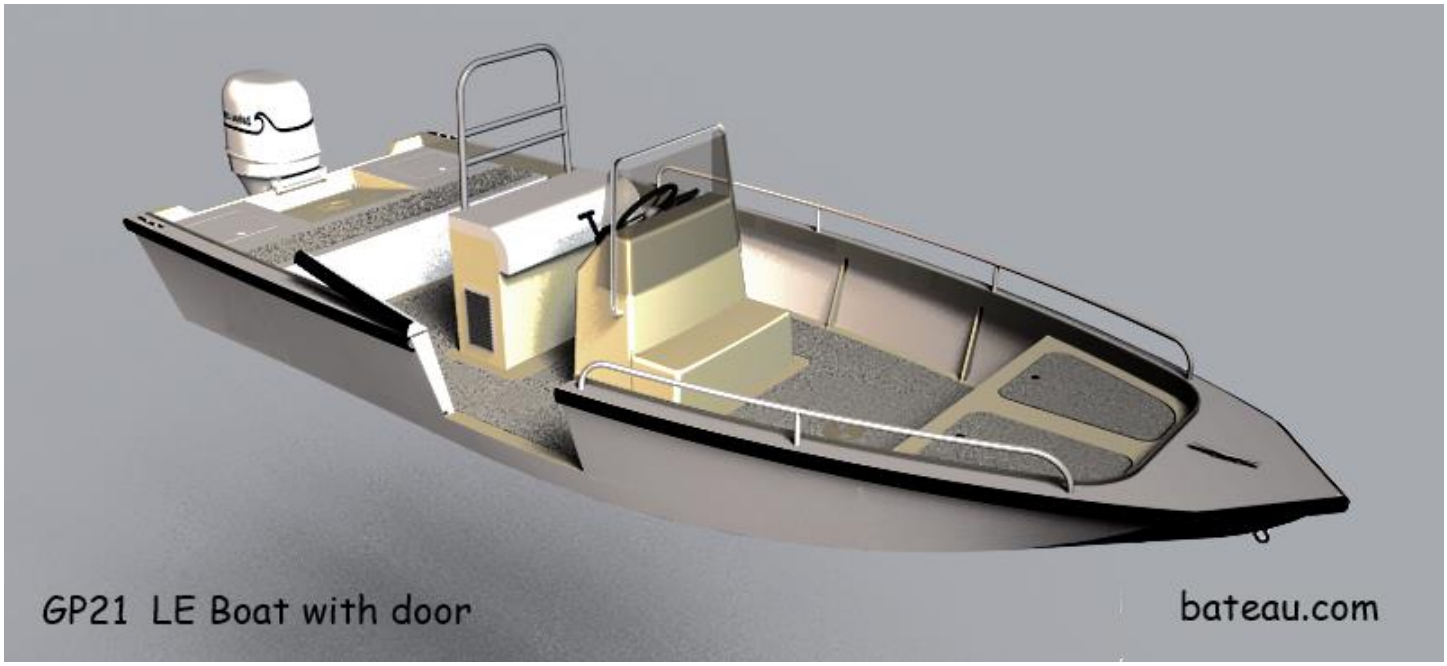
Plan # 308 is the Work Boat version of our GP21 boat series (General Purpose boat 21').

The large capacity and stability of the GP21 makes it the ideal platform for different types of work boat: tow boat, regatta committee boat, buoy tender, mooring tender, law enforcement and rescue boat all with or without pilothouses.

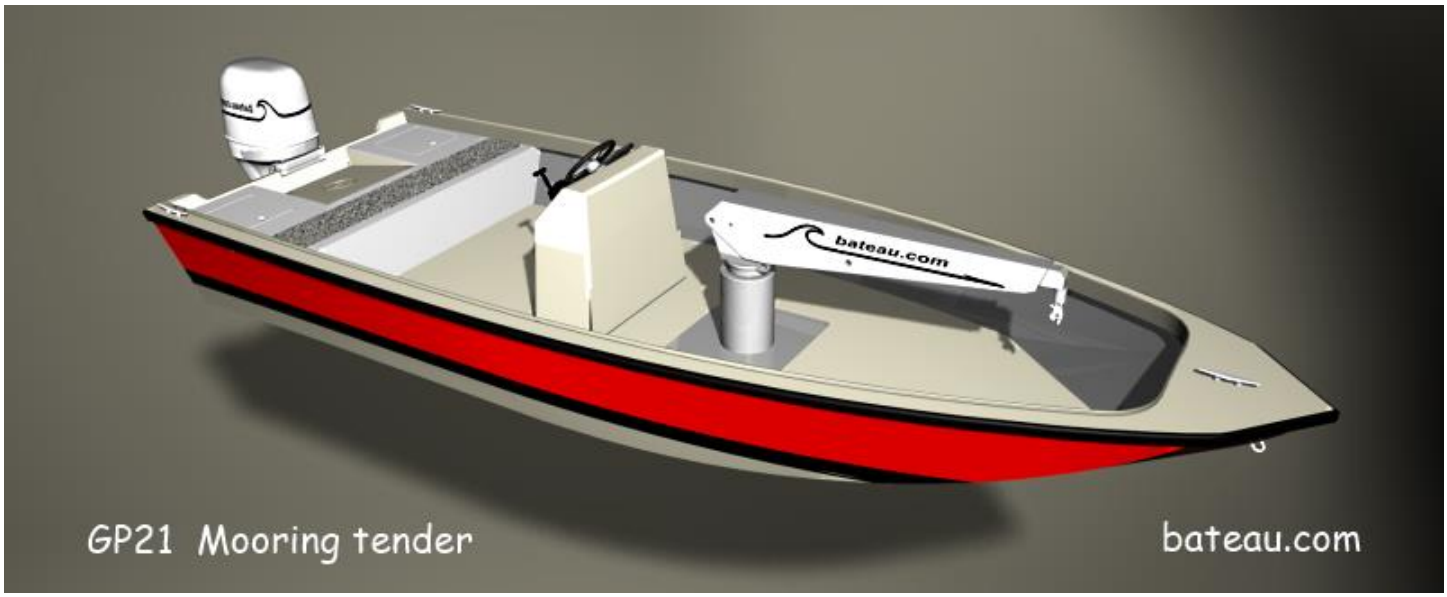


The tow/rescue boat can be fitted with a samson post (tow bar) or a swing rail bolted on the transom like the TurboSwing. The plans show specifications for a tow post bolted to the stringers and frame structure. A seat/bolster with protective backrest is also shown on the plans.

Build this boat and go in business with a TowUS franchise or similar.



An LE version will probably require a side door for easy boarding or man overboard recovery. That door figures on the plans.



Yacht clubs and marinas will put the crane tender to good use for handling mooring, buoys and pilings. The plans show how to bolt the crane base plate to the stringers and floor frames.
All version can be fitted with one of our pilothouses.

The plans included dimensioned drawings for 3 different types of pilothouses.

For commercial use, we include the capacity tag calculations for this boat.

The GP21 is a wide garvey hull with good planing characteristics, stable, roomy and smooth running in a moderate chop. The hull is based on a proven work boat shape. There are several companies producing variations on that type of hull, mostly in aluminum.

This hull shape is a good compromise between comfort and performance. The wide hull is stable and has plenty of usable deck area but the deadrise, in particular at the bow, is deep enough to run smoothly in a chop. The vee at the transom is only 3 degrees but a sharp 26 degrees at the cutwater. Also, at the chine, the bow becomes much narrower, almost like a standard vee hull but the side panel flares open to a wide deck.

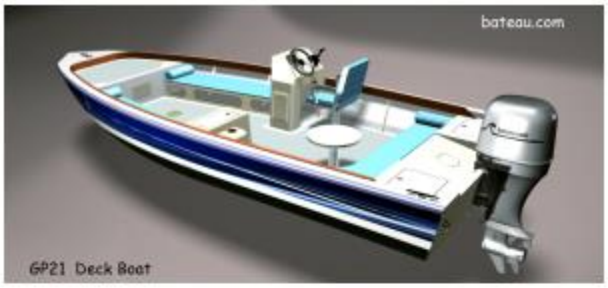
Estimated hull weight (with all components but empty tank and medium size motor) varies greatly with layout and features but will average 1,400 lbs.

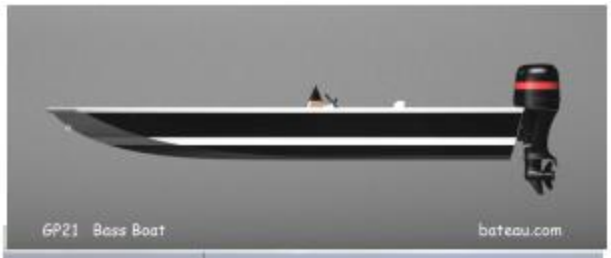
Speed estimates for a displacement of 3,000 lbs and 90 HP give a top speed of 26 mph. Same boat with 150 HP: 34 mph. At 2,000 lbs (light) and 90 HP: 32 mph and up to 41 mph with a 150. Note that our estimates have always been pessimistic but we prefer a good surprise.
Keep in mind that the work boat will be on the heavy side and in the case of a tow boat, will have different prop and gear ratio. In that case, the figures above will not apply.

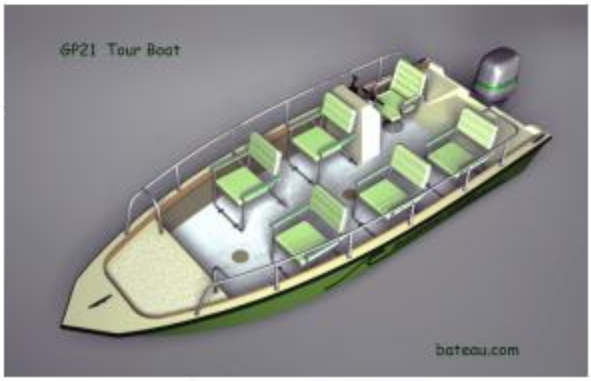
The work boat has a small forward deck with gunwale at the level of the sheer and a casting deck a few inches lower

but can also be built without that deck and gunwale, fitted with a sturdy rubrail and a wide sheer clamp. That option is shown on the plans.

We designed 5 layouts: Center Console, Bass Boat, Deck Boat, Work Boat, Tour Boat. Those layouts are shown on different drawings.







Building Method:
The material is a plywood core between skins of fiberglass in epoxy. The assembly is done the stitch and glue way like all our designs for boats of that size. See our "Building on a Jig" tutorial

MDF molds are set on a pair of strongbacks and stringers are used to space the molds. The molds are then planked with plywood panels and the outside fiberglass skin is applied. The hull is turned over, jig removed and the inside fiberglass is applied producing a complete fiberglass hull. The interior framing is installed, with the sole, followed by the other components like frames, seats, consoles or pilothouse, decks etc. As for all our boats, there are no fasteners: it is built as a fiberglass boat but on a plywood core.

Skill Level:
The building method is simple and does not require wood working skills. If you can cut plywood with a circular saw and handle a grinder, you can build this boat. No tricky bevels, no fancy routing but if you have those skills and tools, you can use them to finish the boat to a high standard.
Basic understanding of resin and fiberglass is needed. Those skills can be learned by building a small canoe from our free plans While there is nothing difficult in building this boat, it is a moderately large project that will take some time. A builder with the experience gained on a smaller boat will progress much faster, save on materials and not run the risk of running out of steam.

Options:
Included in this set of plans are drawings and notes for the base boat plus 3 different layouts: center console, deck boat and bass boat. The builder can combine features like deck sizes, seating and frame location to personalize his boat.

The work boat layout can be modified but please keep the LCG where it belongs, we show its location on the plans. Deck size, hatches location etc. can be customized to the builder's preference.

Included in the plans is technical support for reasonable changes: we will not redesign the boat but help with customized specifications is available.

Builders who want have a complete catalog of options should buy the full set of plans for all versions. That set is sold as packages for the GP21-Tour Boat or the GP21-Work Boat.

Bill Of Materials:
To assemble the base hull, ready to fair and paint, an experienced builder will need about 100 hours:

Cut molds: 5 hours
Jig set up: 10 hours
Cut hull panels and transom: 8 hours
Plank hull: 5 hours
Outside seams: 5 hours
Outside fiberglass: 15 hours
Outside rough fairing and primer: 10 hours.
Roll the hull: 3 hours
Remove molds and inside seams: 8 hours
Inside wide fabric: 5 hours
Install and tab stringers, floor frames: 8 hours
Motorwell and bow frame: 5 hours.
Cleats on stringers: 4 hours
Sole installation with tabbing: 5 hours.

A first time builder will need about twice that time. This total is for real work hours and does not include the time spent hesitating about options, dreaming or admiring your work while the epoxy cures!

No rigging is included but you will have to add some time to install the fuel tank, chase tubes, drill scuppers etc.

Plywood standard sheets 4x8' (122x244cm)		
10 mm (3/8")	13+3	
12 mm (1/2")	10	
Fillers and Fairing		
Wood Flour	5 lb	2 kg
Fairing Compound	3 qt	3 l.
Fiberglass fabric 50" wide (125 cm) or tape 6" wide (15 cm) (totals)		
Biaxial tape 45/45 12 oz. (400 gr)	400 yards	366 m
Woven Tape 9oz 4"	100 yards	91 m
Biaxial fabric 12 oz. 45/45 (400 gr)	80 yards	74 m
Resin		
Epoxy, total	30 gal	100 Kg
Foam		
Foam (optional)	12 gal	(6 2 gallon kits)

This BOM covers the base version hull ready to paint: hull with structural framing, motorwell, full sole. It does not include any option. For options, see the plans specific to that version. Not included are battens for cleats (2x2), those are cheap and available everywhere.

The supplies for the jig are not included. Plan for a pair of strongbacks about 20' long and between 6 and 10 sheets of MDF for the molds.

Cost:
The cost of materials varies depending on your location, your choice of epoxy brand, core type and options. Use our Bill Of Materials with the local cost of materials.

All materials are available for purchase online from the web sites below:
Epoxy, fiberglass, foam, paint and more: BoatBuilderCentral.com

Despite the cost of shipping, those materials may cost cost less online than purchased locally.

Labor:
The hull shell can be built in 200 hours but a finished boat will require 300 to 800 hours depending on the level of detail and the skills of the builder.

More:
Visit our message board, help pages, tutorial pages and read our FAQ: most questions are answered there.

License:

As with all our plans, you have the right to build one boat from those plans. The designer holds the copyright to the design and you purchase a license to build one boat. If you plan to build more than one boat, please contact us about licensing fees.

Building standards:

These plans were drafted according to the ABYC rules. The ABYC (American Boat and Yacht Council) defines the boat building standards in collaboration with the USCG.
Professional builders may be subject to more requirements. Consult the designer.

The ABYC standards are very close to the ISO norms and CEE requirements but no European certification was applied for since this is not required for amateur boat building in Europe. CEE/ISO certification is available to professional builders for a fee.

Plans Packing List:

Plans are available in metric or US units.

- B308/1. Specifications. Hull dimensions and specs.
- B304/2. Jig.
- B304/3. Stations Spacing. Also shows the LCB.
- B304/4. Stations. Used to trace the molds and the outline of the frames.
- B304/5. Stringers.
- B304/6. Panels. and sole
- B304/7. Nesting. all hull panels, transom, and stringers.
- B304/8. Construction. Shows typical assemblies and systems.
- B308/2. Framing with construction section.
- B308/3. Decks Dimensions and nesting for the deck parts.
- B308/4. Samson post base Base plate
- B308/5. Samson post Dimensions
- B308/6. Bolster Dimensions and nesting
- B308/7. Crane base
- B308/8. Side Door and railing
- B308/9. Pilothouse
- Typical electrical diagram.

- GP21 Building Notes

In addition to step by step instructions and how to cut a mold or frame, the building notes explain how to cut notches in the stringers and molds for easy set up on the jig.
Included in the package but not used to build this version, are the plans for:

- Drawing 305 GP21 Center Console (5 drawings)
- Drawing 306 GP21 Bass Boat (4 drawings)
- Drawing 307 GP21 Deck Boat (5 drawings)
- Drawing 309 GP21 Tour Boat (5 drawings)

Pilothouses and Console file: 29 drawings and building notes for all our consoles and pilothouses.
Hydrostatics report for the GP21 hull.
Capacity tag calculations (ABYC/USCG 2014).
Total 60 drawings in this package plus building notes.
Those drawings are included for those who want to customize their boat using components from other versions.
With every online order, the builder will receive a **free copy of our "Epoxy-Plywood Composite" workshop manual.**
This detailed manual will be emailed as a PDF file.

Please understand that you purchase one set of plans and the right to build only one boat from them, not one of each.

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