

PNG TRIUMPH

The PNG *TRIumph* is a concept design produced to satisfy the requirements set forth by the Worldwide Ferry Safety Association's 2014 Ferry Design Competition. With the aid of industry and faculty mentors, this project was undertaken by five graduate students from the University of British Columbia. Safety considerations were of prime importance during the design. The *TRIumph* is intended to be innovative, providing superior stability while maintaining its affordability. Further safety, affordability, and innovation design considerations are detailed below.

Safety

Rules & Regulations

- Designed to Lloyd's Register 100A1 Passenger Ferry Tri specifications
- Compliance with SOLAS 2000 with 2 compartment flooding
- Accommodation spaces designed to MLC 2006 specifications
- Compliance with 2008 IMO Intact Stability Code

Stability

- Increased damage stability redundancy due to mono-tri hybrid design
- Survivability with at least 258% passenger overcrowding

Operational Safety

- Greater sea keeping performance compared to equivalent monohull or catamaran
- Side hull flare improves roll and heave damping
- Higher cross-deck structure height reduces wave slamming impacts
- Large double bottom and cross-

deck structure allow for ease of construction and safer maintenance

- Increased manoeuvrability, redundancy, and control during docking with the addition of a bow thruster and twin propeller azimuth drives

Safety Equipment

- Quick deployment chute evacuation system allow for evacuation of 215 persons in 11 minutes
- Two 101 person life rafts per side
- Two SOLAS approved fast rescue boats located on car deck for quick launching in emergencies
- One 50 person lifeboat per side - Easy to follow evacuation routes to muster areas
- Conveniently located life vests under seats and in cabins

Innovation

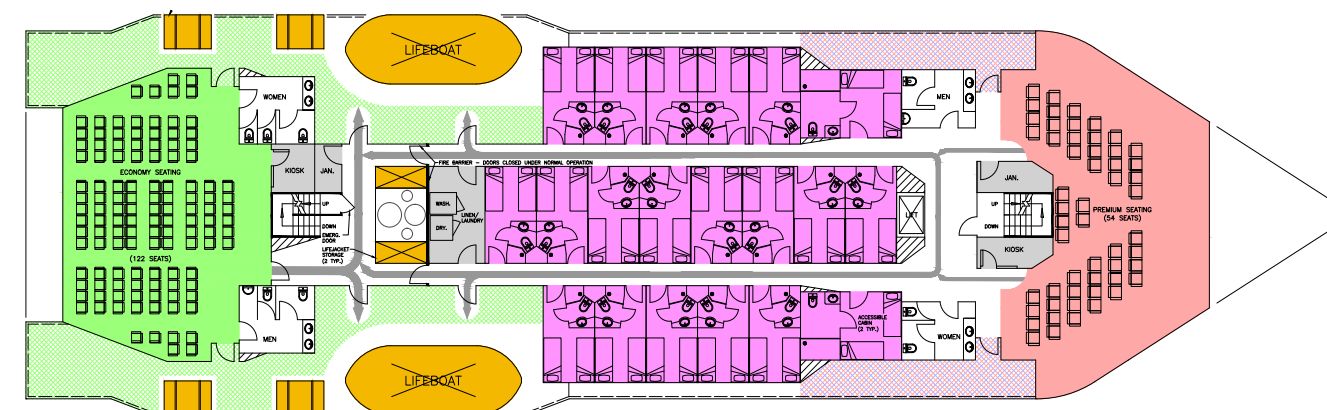
- Hull selection feasibility study was done to arrive at superior tri-mono hybrid hull form
- Optimal side hull length and location for increased manoeuvring performance, deck space, and wave cancellation effects
- Excellent stability characteristics allow for ballast-less operation leading to reduced lifecycle costs and maintenance
- Counter-ballast in opposing side hull helps correct heel if a side hull is flooded
- Selected propeller system optimizes for maximum manoeuvrability and efficiency
- Large deck area with a trimaran permits easy future adaptability to other markets while maximizing revenue from cargo
- Longitudinal and transverse hybrid framing system helps reduce cost and weight

- Convenient and pleasing viewing areas located throughout the vessel increasing passenger enjoyment
- Accessible design features larger cabins, restrooms, hallways, and multi-deck lift access
- Modular cabin design for ease in manufacturing
- If acquisition cost permits, solar panels could provide large savings

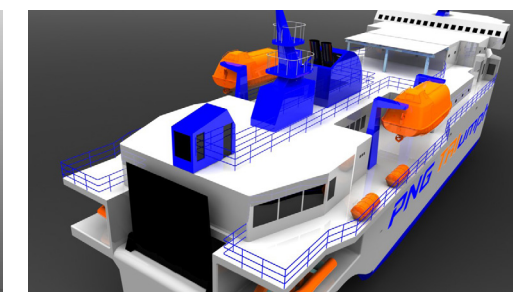
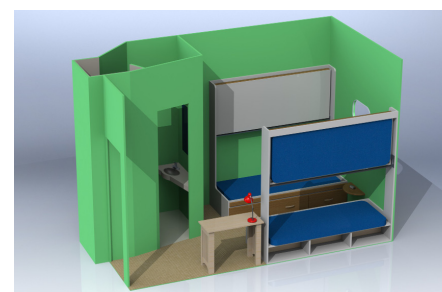
Affordability

- Hull form uses hard chine, fully-developable geometry to simplify and reduce construction costs as well as allow for production in less-sophisticated shipyards.
- Hybrid framing system designed to reduce man-hours and cost
- Twin propulsion and engine arrangement offers increased efficiency and wider power operating range
- Structure designed with mild steel to minimize material and assembly (ie. welding) costs
- Designed with block construction and pre-outfitting in mind
- Medium speed diesel engines reduce operating costs
- Large deck area permits easy future adaptability to other markets while maximizing revenue from cargo
- Excellent stability characteristics allow for ballast-less operation leading to reduced lifecycle costs and maintenance
- Enclosed free space was minimized throughout the vessel to discourage overcrowding and minimize air conditioning loads

VESSEL PARTICULARS		ACCOMODATION		PROPULSION	
LOA (m)	63.4	First Class Cabins	18	Main Engines	2 x MAK 6M 20C
LWL (m)	60.2	Accessibility Cabins	2	Gen. Sets	3 x CAT Acert C18
Beam (m)	16.5	Premium Seating	54	Propellers	2 x Schottel STP 1010 Twin Propeller
Draught (m)	3.7	Economy Seating	122		
Design Speed (kn)	14	Crew Cabins (MLC 2006)	4		
Auto Capacity	36	Passenger Capacity	256		



■ CABINS ■ PREMIUM ■ ECONOMY ■ SERVICE ■ SAFETY
■ CAB./PREM. DECK SPACE ■ ECONOMY DECK SPACE



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