

# High-Speed Vessel Design

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FERRY PASSENGERS  
ADVISORY COMMITTEE  
AUGUST 2023



# Ferry Operational Criteria

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Meet existing transit times

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Integrate with existing terminals & facilities

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500 passenger capacity

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Accessible to all

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Bike accommodations



# New CARB Commercial Harborcraft Rules

*“The purpose and intent of this section is to reduce diesel particulate matter (PM), oxides of sulfur (SOx), and oxides of nitrogen (NOx), and greenhouse gas (GHG) emissions from diesel propulsion and auxiliary engines on harbor craft that operate in any of the waters subject to this section (“Regulated California Waters”).”*

## Noteworthy elements from the new CHC rules:

- Renewable Diesel Fuel (R99) now required for diesel engines
- Engine Idle Time Limits (Jan 1, 2024)
- Phase out of EPA Tier II & III engines
- Requirement of Diesel Particulate Filter in addition to EPA Tier IV
- Short Run Ferry (<3nm) must be zero emission by 2025

Learn More...

<https://ww2.arb.ca.gov/our-work/programs/commercial-harbor-craft>

# Driveline Analysis and Selection



Vessel Arrangement Factors



Vessel Performance Factors



Engine Factors



Operating Metrics

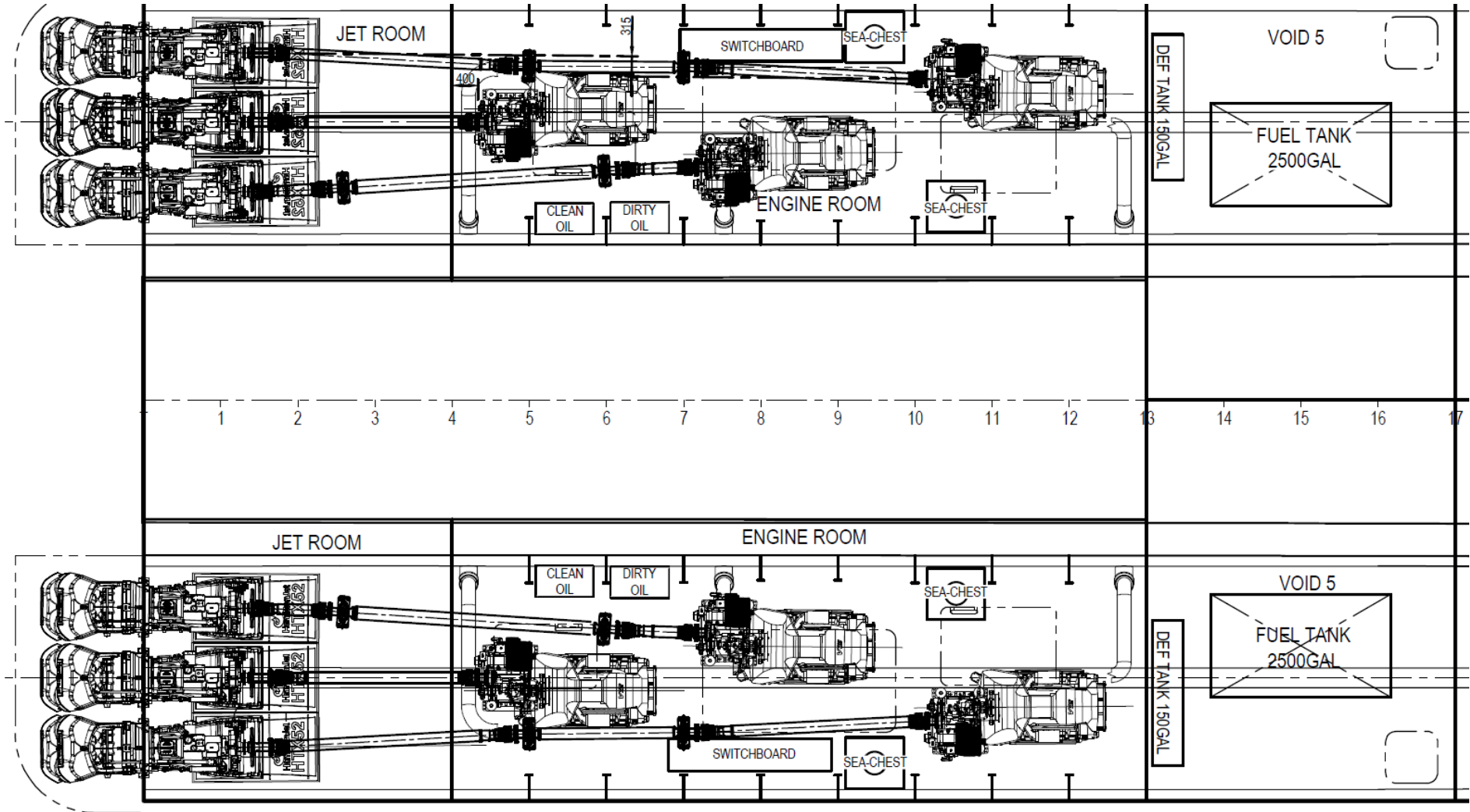


Costs – Operating and Capital

# EFFICIENCY

MAN 24L D2862  
Six engine configuration

	MV Napa	New Vessel
No. of Propulsion Engines	4	6
Generators	2 @ 150kW	None
Power Per Engine (kW)	1,908 kW	906 kW
Power All Engines (kW)	7,632 kW	5,437 kW
Predicted Speed	40 kts	36 kts
Predicted Speed with 1 Engine Offline	32 kts	34 kts
	<b>Fuel Reduction</b>	<b>28%</b>
	<b>Emmissions Reduction</b>	<b>77%</b>

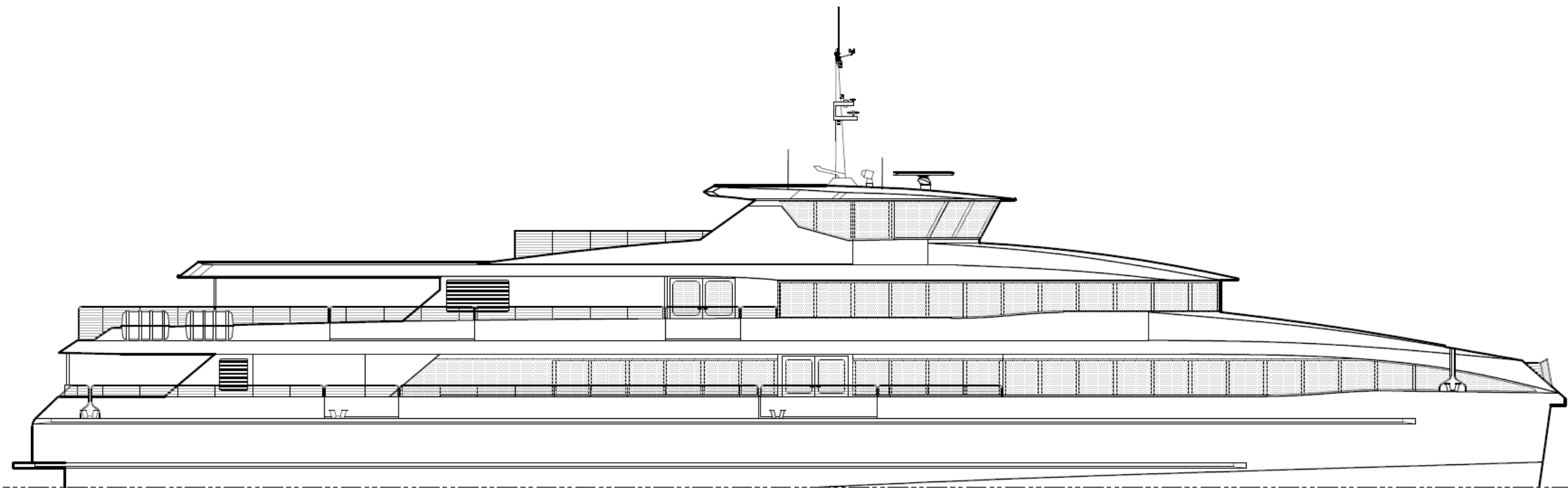


## PRINCIPLE PARTICULARS

(APPROX)

Length Extreme	50.50 m	Draft (Full Load)	1.30 m
Length WL	47.21 m	Fuel	2 x 6625 L/1750 USG
Beam (Overall)	13.00 m	Fresh Water	1 x 1900 L/500 USG
Beam (Moulded)	12.60 m	Sullage	1 x 1900 L/500 USG
Depth (Moulded)	3.50 m		

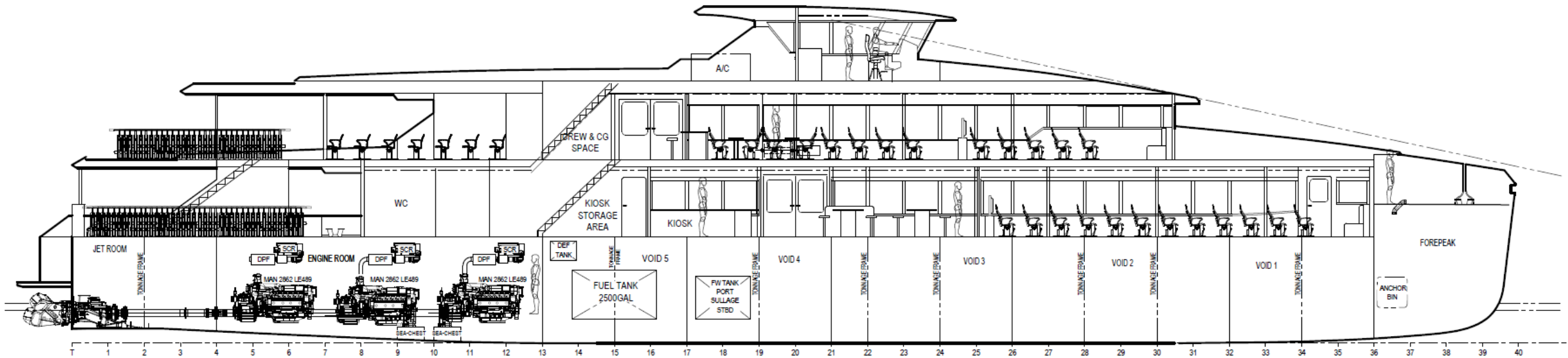
PASSENGERS	500
SEATS - INTERNAL TOTAL	462 (+ 6 WHEELCHAIR)
INTERNAL - MAIN DECK	273 (+ 4 WHEELCHAIR)
INTERNAL - UPPER DECK	189 (+ 2 WHEELCHAIR)
SEATS - EXTERNAL TOTAL	59 (+2 WHEELCHAIR)
EXTERNAL - MAIN DECK	0
EXTERNAL - UPPER DECK	59 (+2 WHEELCHAIR)
SEATS - TOTAL	521
Bikes	76



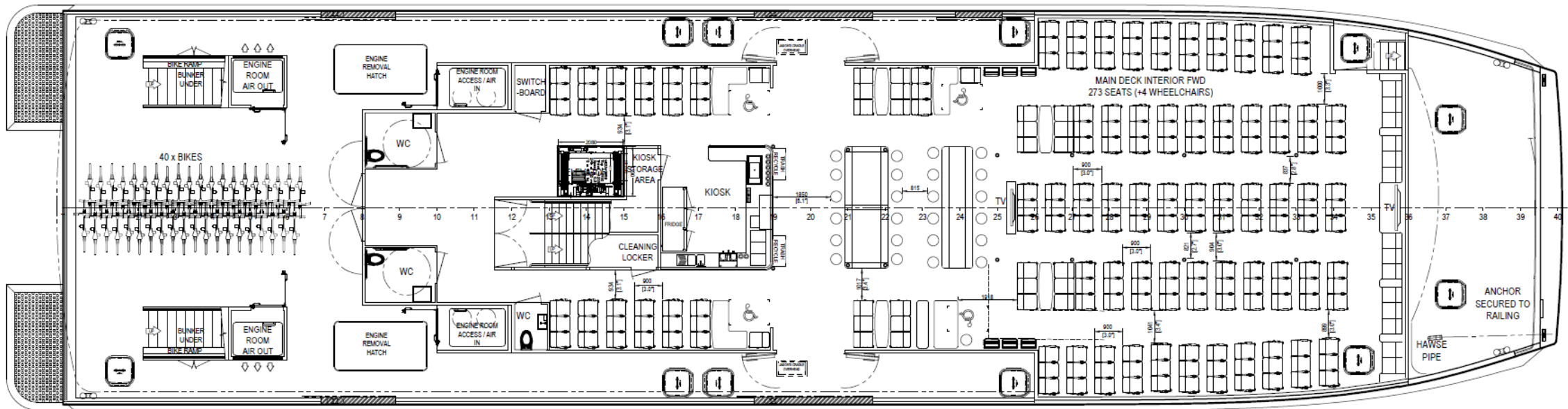
# Profile

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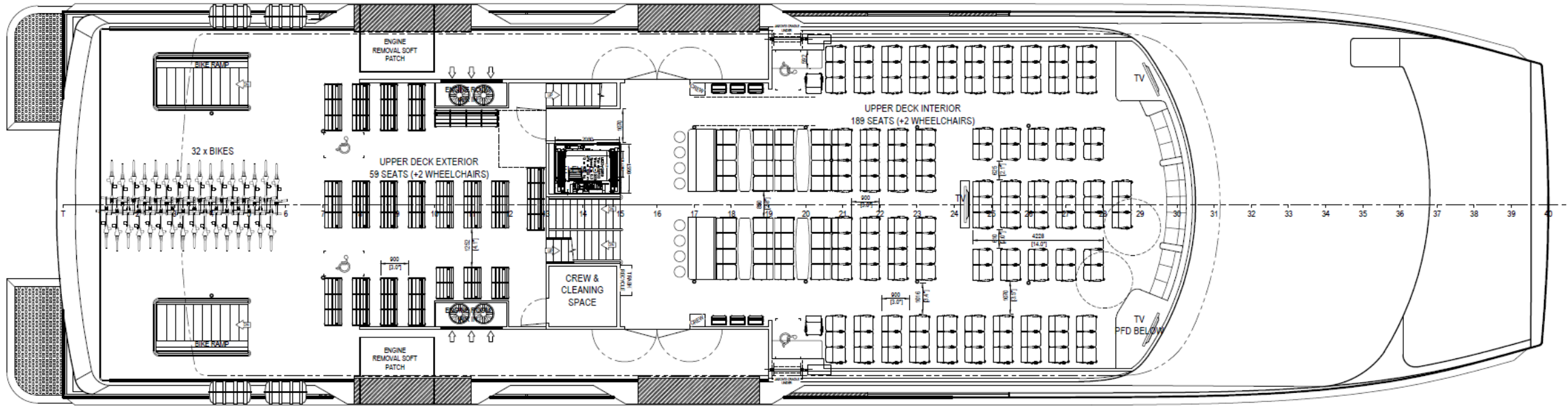




# Profile



# Main Deck



# Upper Deck

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