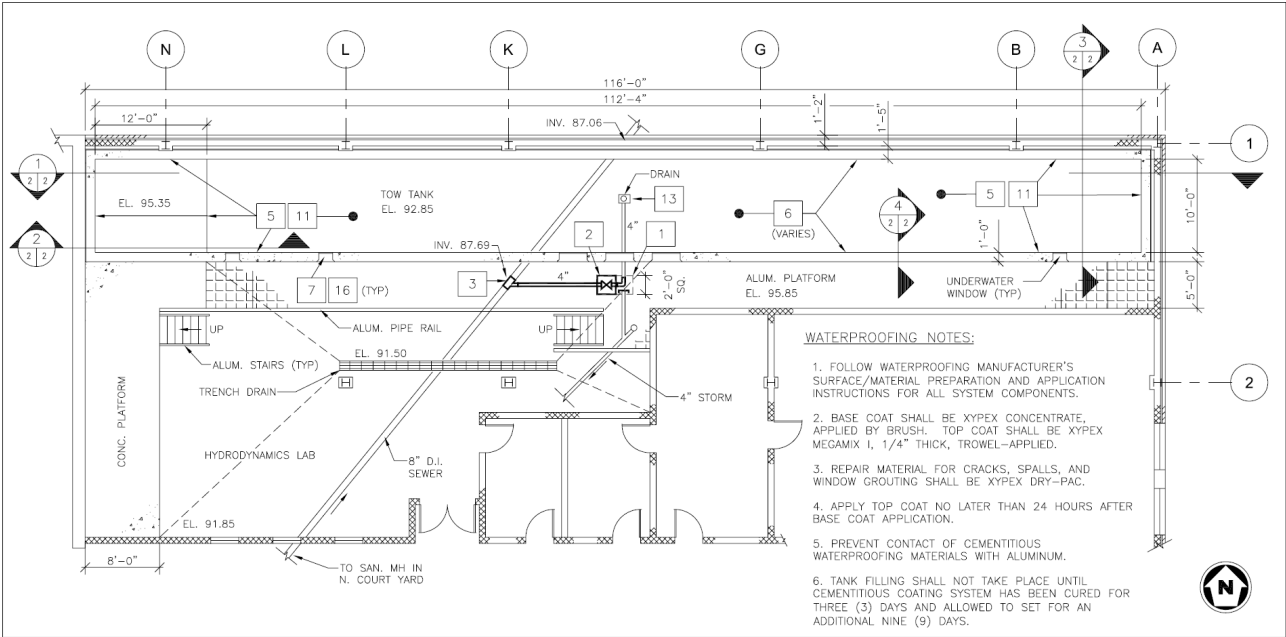


Name of organization United States Coast Guard Academy	Year of information updating 2025
Year established 1876	Year of joining the ITTC 2025
Address 31 Mohegan Ave (pen) New London, CT 06320	Status in the ITTC Application
Contact details (phone, fax, e-mail) Michael Daeffler (860) 701-6320 Michael.S.Daeffler@uscga.edu	Website https://uscga.edu/ m
Type of facility Towing Tank	Year constructed/upgraded Upgraded 2018
Name of facility Marine Hydrodynamics Laboratory	Location (if different from the above address) MacAllister Hall Room 111

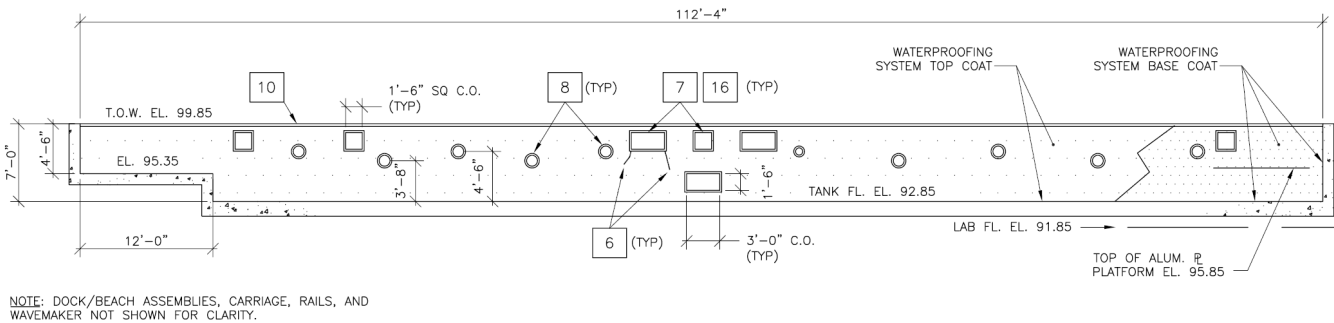
Main characteristics (dimensions of tank/basin/test section; for simulators: full mission, part task or desktop)
The towing tank is 110 ft long x 10 ft wide x 6 ft deep using a cable driven carriage capable of maximum speed of 10 ft/sec to test scaled ship models. Plunging Wedge wavemaker with fixed beach damping also available.

Drawings of facility

Top-view plan



Corss-section-view plan



Detailed characteristics (carriages, wave/current/wind generators, instrumentations, etc.)

Maximum Carriage Velocity: 8 ft/s

Tank Size: 110 ft long x 10 ft wide x 6 ft deep

Water Capacity: 50,000 gallons (fresh)

Tank Material: Concrete, coated with cementitious crystalline waterproofing

Carriage: 10ft x 10ft Square Steel Tube frame, 4 steel wheels rolling on railroad tracks

Carriage Model Interface: Tow post with linear bearings to allow free motion in heave and hinge to allow free motion in pitch. Yaw, Sway, and Roll are fixed.

Drive System: Continuous loop Stainless steel cables powered by 5HP Baldor Vector Motor and pulley

Drive System Controller: Baldor H2 Vector Drive with closed loop RPM control

Wavemaker: Plunging Wedge with Slider crank setup driven by Litton 7.5HP AC Motor with Eddy Current Clutch

Wavemaker Driver Controller: Motor Speed Controller for open loop wave period control

Wavemaker Height Control: Manual adjustment of drive mechanism arm lengths

Wave Damping: Fixed semipermeable wooden beaches on the far side of wavemaker.

Sensors:

DAQ: National Instruments cDAQ-9171 with NI9205 32-channel voltage input module

Velocity: Micro-epsilon octoNCDT ILR1182-30

Resistance: Custom machined parallelogram force block with Trans-Tek LVDT 0231-0000

Heave/Pitch/Squat: N/A

Wave Shape: N/A

Visual: 7 windows along the side of the tank and underwater lights; arrangement shown the cross-section drawing above.

Applications (Tests performed)

Primarily used by Naval Architecture and Marine Engineering students for calm-water resistance testing of ship models during the capstone design projects.

Published description (Publications on this facility)

Colella, K.J., Keith, W.L. Measurements and scaling of wall shear stress fluctuations. *Experiments in Fluids* 34, 253–260 (2003). <https://doi.org/10.1007/s00348-002-0552-2>