

NUDURA Project Profile

LOCATION: Naval Base in Newport, Rhode Island



PROJECT TYPE

Military - Navy

DECIDING FACTORS

- Energy Efficiency
- Durability
- Comfort
- Fire resistance
- LEED contributions

PROJECT DESCRIPTION: Officer Candidate Training Quarters

Aiming for LEED Gold

FAST FACTS

- New \$38M (118,000 sq. ft.), three storey Officer Training Command Quarters in Naval Station Newport constructed with NUDURA Insulated Concrete Forms.
- NUDURA forms provided comfort, fire resistance, longevity & energy efficiency. Will contribute significantly to the energy model, resulting in maximum LEED points for energy performance.
- NUDURA forms provided additional strength to the structure withstanding winds up to 250 mph.
- OTC students will enjoy common areas, building utility rooms, training support and administrative spaces.
- Forms were lightweight, minimizing the risk of back injuries.
- Minimal waste produced during construction.



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Energy Savings

The OTCQ project at Naval Station Newport is a high performance building that has a number of design elements that make this building very energy efficient while fulfilling the mission of providing occupant safety, health and comfort. The building envelope includes NUDURA insulated concrete form (ICF) walls. These walls use mass combined with insulation to create a flywheel effect to the thermal characteristics of the building. In the New England climate, this flywheel effect allows the walls to absorb heat during most days when conventional buildings would require cooling. During the cool evenings this residual heat makes its way into the rooms thus minimizing the heating energy required. The mass becomes cooler during the evening and then in the morning acts as a heat sink absorbing heat from the room and minimizing the cooling energy required.

In addition to the high performance envelope, there are a number of mechanical elements that contribute to the energy savings of the building: A Dedicated Outdoor Air System (DOAS), air handling units that use low face-velocity coils and air filters to minimize pressure drop, a centralized laundry area to keep fan energy and makeup air heating minimized, the chilled water and heating hot water systems that match pump energy to actual heating and cooling requirements. One of the biggest single loads in a facility of this nature is the domestic hot water load. The domestic hot water system for this building has two features to minimize energy used for this process. A solar thermal collector system on the roof provides 30% of the hot water heating energy over the course of the year. This is supplemented by an energy recovery bundle in the air conditioning chiller that uses the heat that is removed from the building during the cooling process to heat the hot water.

The building is also provided with system level metering of the energy using equipment. This allows maintenance personnel to monitor energy consumption and verify performance to original specifications. This also will allow maintenance personnel to make adjustments and repairs as unexplained excursions from normal energy consumption will make it apparent when systems fall out of calibration.



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