



## MAINE ARMY NATIONAL GUARD AUGUSTA, MAINE



### *Winner of the 2022 Secretary of the Army Energy & Water Innovation and Technology Award*



#### PROJECT OVERVIEW

The Maine Army National Guard is located in Augusta, Maine. It serves as the Joint Force Headquarters for the state, as well as the location of the Counterdrug Task Force, Recruiting and Retention Battalion, Medical Detachment, 52nd Troop Command, and the 152 Component Repair Company. The Maine Army National Guard planned to replace 8 inefficient Roof Top Units and update controls for 2 gas fired boilers and radiators in one of the buildings. While in the design phase they

discovered through a building heat loss analysis that a reduction in energy use and the potential for energy savings was possible with additional upgrades. The following changes were added to the original design including new exterior windows, 3 YANMAR Heat Recovery VRF/GHPs to replace the RTU and boilers, 3 ERV to replace the ventilation system and new CO2 and occupancy controls.

#### REASON FOR CHOOSING YANMAR

YANMAR VRF/GHP was selected for the energy savings possibilities. The VRF/GHP system would reduce peak electric demand and increase heating efficiency and capacity especially in the colder climate in Maine. YANMAR VRF/GHP offered great economic benefit and energy resilience for the facility. With the added benefit

of Heat Recovery all areas can maintain customized and comfortable conditions regardless of other spaces demands.

#### ABOUT YANMAR AMERICA ENERGY SYSTEMS

YANMAR America Energy Systems in the North, Central and South American headquarters for the company's Variable Refrigerant Flow and Combined Heat and

Power systems. Our team and products are focused on sustainability, reliability, and efficiency.



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### QUICK FACTS

<b>APPLICATION:</b>	Army National Guard
<b>LOCATION:</b>	Augusta, ME
	January 2021
<b>PRODUCT INSTALLED:</b>	NFXP168J Heat Recover

### OVERVIEW

Reduced operation costs  
Reduced installation costs  
Zone control  
Efficient heating capability



### RESULTS

Analysis was completed after installation of the project. It was determined that first year savings for the VRF/GHP system was \$82,000 and it would have an 8.5 years simple pay back. The Maine Army National Guard was the recipient of the 2022 Secretary of the Army Energy Aware for Innovation and New Technology for this project.

### CONCLUSION

The MEARNG is leading and participating in several innovated energy initiatives that currently support the transition to low-carbon and affordable energy sources to help grow Maine's/Federal clean energy economy and creating new solutions for climate and energy challenges. The Yanmar GHP system aligned with their goals for a more sustainable future.

**The Gas Heat Pump System has resulted in the following annual savings:**

- **Over 45% reduction of Grid produced electric kWh**
- **Over 50% reduction in Grid peak demand KW**
- **Over 45% reduction in fuel consumption (oil & natural gas)**
- **Over \$70,000\* in annual energy savings.**
- **Over 65 Tons in CO2 savings**

\*figures were provided by the Maine Governor's Energy Office.