



Energy Study Could Result in Significant Savings in Yokosuka

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YOKOSUKA, Japan (NNS) -- A recent study and site visit at The Sullivans School on April 6 by Naval Facilities Engineering Command (NAVFAC) Far East could result in significant energy and cost-savings for Commander Fleet Activities Yokosuka (CFAY).

NAVFAC Far East and NAVFAC Engineering Service Center engineers, in cooperation with the Oak Ridge National Laboratory (ORNL), visited CFAY to determine the feasibility of installing a geothermal heat pump (GHP) system using an innovative technology that would harness the nearby waters of Recreation Bay to heat and cool the school.

"Indoor air is usually between twenty and twenty-seven degrees Celsius. Over the year, outdoor air temperature varies," explained ORNL GHP expert John Shonder. "But the temperature of the earth, just a couple of meters below your feet, is the same, year-round.

"It's generally cooler than the outdoor air temperature when cooling is needed and warmer than the outdoor air temperature when heating is needed, so it provides a much better source for heating and cooling than the outdoor air. Water in the bay – which is in contact with the earth – maintains about the same temperature."

Traditional air-conditioning systems are inefficient because of the significant difference between the outdoor and indoor air temperatures; because of the difference, the systems have to work harder and expend more energy. GHP systems greatly increase efficiency by utilizing the constant temperature of the ground, which reduces energy use and cost for facilities.

The NAVFAC/ORNL team will use the collected data to generate computer simulation models to verify the efficiency of the existing heating and cooling systems at the school, and then they will virtually replace them with GHP systems to determine the potential energy efficiency gain and savings. Based on the findings, the use of a GHP system at The Sullivans School could be a reality within two-three years.

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