

WOOLWICH CENTRAL SCHOOL

Leveraging Daylight for a More Learning-Friendly Environment

The Woolwich School recently completed its \$16.2 million, 66,000 square foot addition and renovation project for some 375 students in Pre-K through Grade 8. The project includes a 52,600 square foot, three-story classroom addition to the school's existing structure to replace portable classrooms. The gymnasium and cafeteria were renovated to create a separate cafeteria space and middle school-sized gym, bleachers and locker rooms. All original buildings were completely upgraded with new ventilation, electrical and HVAC systems. The building is heated by a wood chip boiler using locally harvested biofuel, with fossil fuel used only as a backup.

The challenge

Project architects, Lewis & Malm Architecture, had a distinct vision to make the revamped school more green, energy efficient and learning-friendly – a school for the 21st century. They especially wanted to optimize daylight to help create a more stimulating environment for students. High levels of daylight in educational environments have been proven to increase attendance and achievement rates, reduce fatigue and improve student health. With sunlight, however, comes solar heat and glare - both of which need to be controlled for the best daylighting results.

The solution

To help manage the impacts of sunlight, Lewis & Malm selected Unicel's award-winning Vision Control® insulated glass units with integrated cord-free louvers and its exterior sunshading solution.

This included:

Cafeteria Curtain Wall - Comprised of 36 Vision Control® units with 10mm low-E glass on both sides of a 2.5" airspace glazed into Unicel's clear anodized curtain wall. These Vision Control® units are motorized to better filter daylight and control solar heat gain and glare, while allowing for push button room darkening for performances.

Windows - Includes 24 Vision Control® units with 6mm low-E glass both sides of a 2" airspace glazed into operable sashes hinged at the top and opening outwards for maximum daylighting benefits. Given the design requirements for natural ventilation to help reduce HVAC costs, Unicel created the operable windows to ensure adjustable air flow. Unlike corded integrated blinds that typically sag in operable sashes, Vision Control® does not sag and remains perfectly aligned even in an open-awning position.

Classroom Forums Curtain Wall on Three Floors - Comprised of 90 Vision Control® units with 6mm low-E glass both sides of a 2" airspace glazed into Unicel's clear anodized curtain wall. Again, these Vision Control® units are motorized to better leverage and control the effects of the sun.

Sunshades - Comprised of 36 exterior outrigger sunshades, extending 3' beyond the face of the building, spanning all three floors - each composed of 4" louvers angled at 45 degrees. These sunshades filter sunlight into the building while minimizing the impacts of solar heat gain and glare.

Project Summary

Project Name:	Woolwich School
Location:	Woolwich, Maine
Architects:	Lewis & Malm, Bucksport, ME
General Contractor:	Ledgewood, Portland, ME
Glazing Contractor:	Oakes & Parkhurst, Manchester, ME
Integrated Louvers, Curtainwalls, Exterior Sunshades, Windows:	Unicel Architectural, Montreal, Canada



Results

The glassed-in cantilevered entrance captures the sunlight and filters it into the interior. Daylight is harnessed throughout the facility with louvers and sunshades to help reflect light into classrooms and create optimal day lit conditions for students. To conserve energy, monitors will automatically turn off the electric lights when enough daylight enters the interior spaces. Additional daylight is brought to each classroom on all three floors through automatically controlled light tubes extending to the roof.

The new Woolwich Central School is slated to open in September 2012 on the site of the former school on Nequasset Road.



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