Retrofit Program Overview

Memorial University Facility Upgrades

Facility upgrades include the following scope of work:

- Energy management system upgrade
- New lighting that will reduce energy consumption while providing better illumination
- Lighting control strategies
- Existing 1970 vintage chiller will be replaced with a high-efficiency environmentally friendly model
- Upgrades on the chemistry fume hood exhaust system to improve the safe removal of the noxious gases from the research labs
- Various HVAC, humidification and mechanical upgrades
- Weather-sealing of the buildings to reduce heat and cooling losses

BENEFITS

The University, faculty, staff, students and surrounding community will benefit from the pollution reduction generated through the implementation of this project. By reducing pollution, the University is helping to avert the serious problems associated with environmental hazards like smog, acid rain and global warming. Thus, the University is providing a better world for tomorrow.
This project will reduce carbon dioxide emissions by 7,311 metric tons annually, equivalent to removing 1150 cars from the road each year.

- $1.5 million annual energy and operational savings
- Significant reduction in greenhouse gas emissions
- Permanent reduction in energy consumption
- Improved facility comfort for students, faculty and staff
- Guaranteed results

**Construction Overview**

The project is complete with the guarantee commencing on April 1, 2009 and the last major retrofit was completed on May 29, 2009.

Below is the final progress report updated June 2009. The accompanying list of work undertaken as part of the Energy Retrofit includes the various activities performed throughout Memorial University’s facilities.
- Lighting Retrofit - fixtures upgraded to high efficient fluorescent lamps and electronic ballasts and timers, infrared, motion sensors installed for better control of lighting
- Building Envelope - windows, doors and gaps sealed to reduce drafts and eliminate heat and cooling losses
- Insulation Upgrade - pumps, valves and pipes insulated with removable thermal jackets to reduce thermal heat loss while allowing for future maintenance on equipment
- Boiler Controls & Burner Management Upgrade - boiler controls and burners upgraded to allow for more efficient control of the system
- Heat Reflectors - PVC reflectors with a ribbed aluminized surface installed on cabinet type heaters to reduce heat loss through exterior walls and redirect heat into rooms
- DDC System Upgrade - additional control points will be added to the system to allow for better control of mechanical HVAC equipment
- Humidification Upgrade - existing electric steam humidification system replaced with more efficient compressed air and water mist system
- Chiller Replacement - high efficiency environmentally friendly chiller installed
- Fume Hood Retrofit - new exhaust fans, ducts, exhaust valves and controls installed
- Vending Misers - infra-red sensor installed on vending machines to detect occupants and monitor compressor operation
- VAV Retrofit - Existing dual duct system will be converted to variable volume fan systems with controls, actuators and space sensors installed
- 3-Way Valve - Valves installed to allow for better control of heating system
- BTU Metering - sub meters installed to ensure accurate and timely measurement of fuel consumption
- Ventilation Modifications - Controls installed to adjust ventilation requirements to match occupancy level.
- Perimeter Heating Valves - Valves installed to provide better control of heating system
- Zone Dampers - dampers installed to match ventilation levels to occupancy
- Transformer Upgrade - replace older transformers with high efficiency models
- Air Handling Unit Modifications - air handling unit for rare books replaced with high efficiency model
- Low Leakage Dampers - new dampers installed on a number air handling units to reduce air leakage