

# THE IDEA PROJECT



IDEA and DESIGN (New Construction) C BLDG (Renovation):  
OWNER: Dalhousie University | ARCHITECT: DSRA | CONSTRUCTION MANAGER: Lindsay Construction  
MECHANICAL & ELECTRICAL CONSULTING ENGINEERS: M&R Engineering Ltd  
PROJECT MANAGER: Dalhousie University

D BLDG (Renovation): ARCHITECT: DRKR MECHANICAL ENGINEER: Mark Lawrence  
ELECTRICAL ENGINEER: Emtech GENERAL CONTRACTOR: RCS Construction  
PROJECT MANAGER: Dalhousie University

F&P BLDG (Renovation): ARCHITECT: DRKR MECHANICAL & ELECTRICAL ENGINEER: CBCL  
STRUCTURAL ENGINEER: BMR GENERAL CONTRACTOR: Pomerleau  
PROJECT MANAGER: Dalhousie University

is a transformational \$64-million investment to Dalhousie's Engineering and Architecture campus in the heart of Halifax's emerging innovation district. The Project included the upgrades of three existing buildings and the construction of two new buildings: the Emera IDEA Building (4,803 square meters) and the Richard Murray Design Building (3,683 square meters).

## ENERGY EFFICIENCY THROUGH DESIGN AND SYSTEMS

The building roof systems has an average R value of 40; the wall systems a value of 30. R-value measures

number the less heat loss there is. Combined with the high-performance curtain wall system, the building's

an equivalent code compliant commercial building. With the increased insulation and construction of the building, the HVAC and controls systems have been designed to utilize the building's mass as thermal storage, further reducing peak heating and cooling demands. The Design building has triple-

the D building was undertaken. Triple-pane windows, additional insulation, and thermally-broken connections were added throughout.

to energy loss. Dalhousie air leakage standards were used to guide the water testing of wall assemblies and thermal scanning.

- Reduced lighting power density using natural daylighting, occupancy sensor controls, and LED lighting.
- A radiant heating and cooling system reduces energy use compared to air based systems by using small horsepower pumps rather than large horsepower fans.
- Heat is recovered from exhaust air and transferred to incoming ventilation air reducing heating and cooling requirements.
- All heating/cooling pumps and air handling unit fans are equipped with variable frequency drives (VFD's) that reduce the motor speed.
- "Carbon dioxide (CO2) demand-control ventilation" is utilized throughout the facility to measure the CO2 levels within each of the spaces and adjust the amount of outdoor air.

- Enhanced commissioning was performed. This includes third-party comprehensive document review.

## RENEWABLE ENERGY

The ground absorbs energy from the sun. It acts like a battery in storing relatively constant temperatures all-year round. A test well was used before the installation to determine the thermal conductivity of the ground. A ground temperature of 10.9 was measured.

source/heat sink for the IDEA and Design Buildings and nearby buildings, reducing energy use and reliance of

compound to prevent surface water from penetrating

through the bore holes. In the pipe, a food grade glycol/water solution is used to capture energy from the ground through heat transfer. This is a closed loop system so the same solution circulates repeatedly between the building and the bore holes.

In the summer, the cooler ground temperatures allow





created to make it easier to sort and store the materials for collection into the appropriate waste streams for