



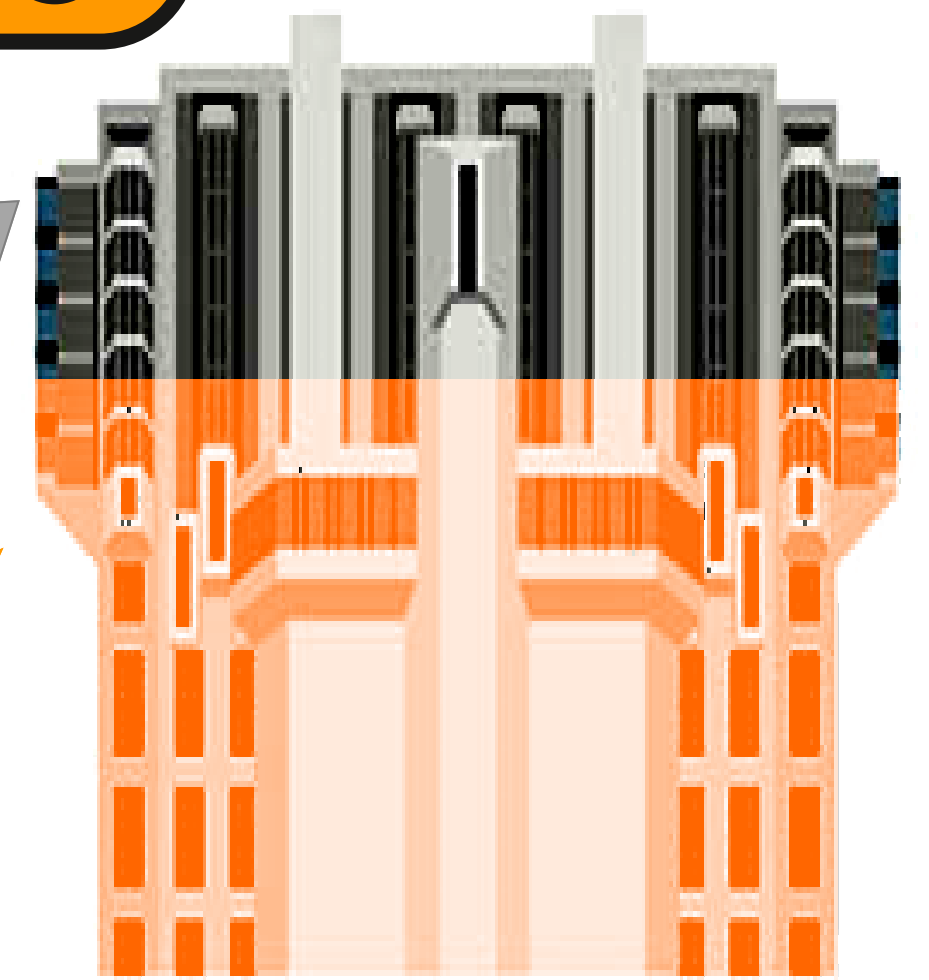
Robarts Library Energy Reduction Project — Occupancy Sensor Driven HVAC Control System *Project Stats at a Glance*

**TOTAL BUILDING ANNUAL ENERGY USE BEFORE
(2013 BASE YEAR)**
98,200 GJ

**BUILDING HVAC
USAGE BEFORE**

TOTAL BUILDING ANNUAL ENERGY USE AFTER
64,416 GJ

**BUILDING HVAC USAGE AFTER
(44% REDUCTION)**



CURRENT AND CUTTING-EDGE TECHNOLOGY EMPLOYED



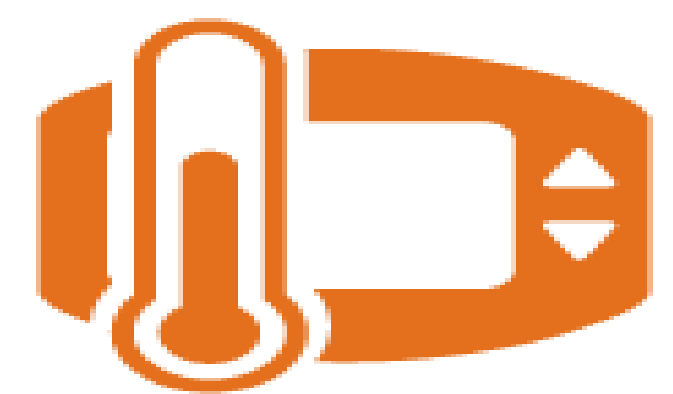
**CUSTOMIZED
OCCUPANCY
SENSORS**
(PROVIDES REAL-
TIME OCCUPANCY
LEVELS)



**NEW BAS
(BUILDING
AUTOMATION
SYSTEM)**



**VSDs
(VARIABLE SPEED DRIVES)**



**WIRELESS
ROOM LEVEL
THERMOSTATIC
CONTROL SYSTEM**



\$1 million
**PROJECT ANNUAL
SAVINGS TO ROBARTS**
VERIFIED BY M&V PROGRAM
AND SUB-METERS



1.65 YEARS
**SIMPLE PROJECT
PAYBACK**

**TOTAL PROJECT COST:
\$2.2M**



TOTAL INCENTIVES RECEIVED (27%)
INCENTIVES RECEIVED FROM TORONTO HYDRO &
ENBRIDGE REPRESENTS 27% PERCENT OF TOTAL
PROJECT COST (\$595,500)

**NET PROJECT
COST: \$1.6M**

33,784 GJ TOTAL BUILDING ANNUAL
ENERGY SAVED PER YEAR
COMPARED TO THE BASE YEAR
BASED ON METERED DATA



1,221 tonnes eCO₂

TOTAL GHG AVOIDANCE FOR THIS PROJECT
BASED ON ANNUAL ELECTRICITY AND THERMAL ENERGY SAVED



GHG EMISSIONS FROM 438
TONS OF WASTE SENT TO LANDFILL

