

Watershed Conservation Centre

Low Impact Development Symposium
Presentation March 20, 2014



UPPER THAMES RIVER
CONSERVATION AUTHORITY





WATERSHED CONSERVATION CENTRE

- New Building Justification
 - Built in 1969 (1979 addition), capacity of 35 (56 plus portables)
 - Health and safety issues
 - Code violations
 - Heating and cooling problems
 - Two used portables added in 1990s as a temporary solution
 - Work stations in Dam
 - One meeting room
 - IT room was a closet
 - Inadequate parking facilities
 - Floods, rodents ...





WATERSHED CONSERVATION CENTRE

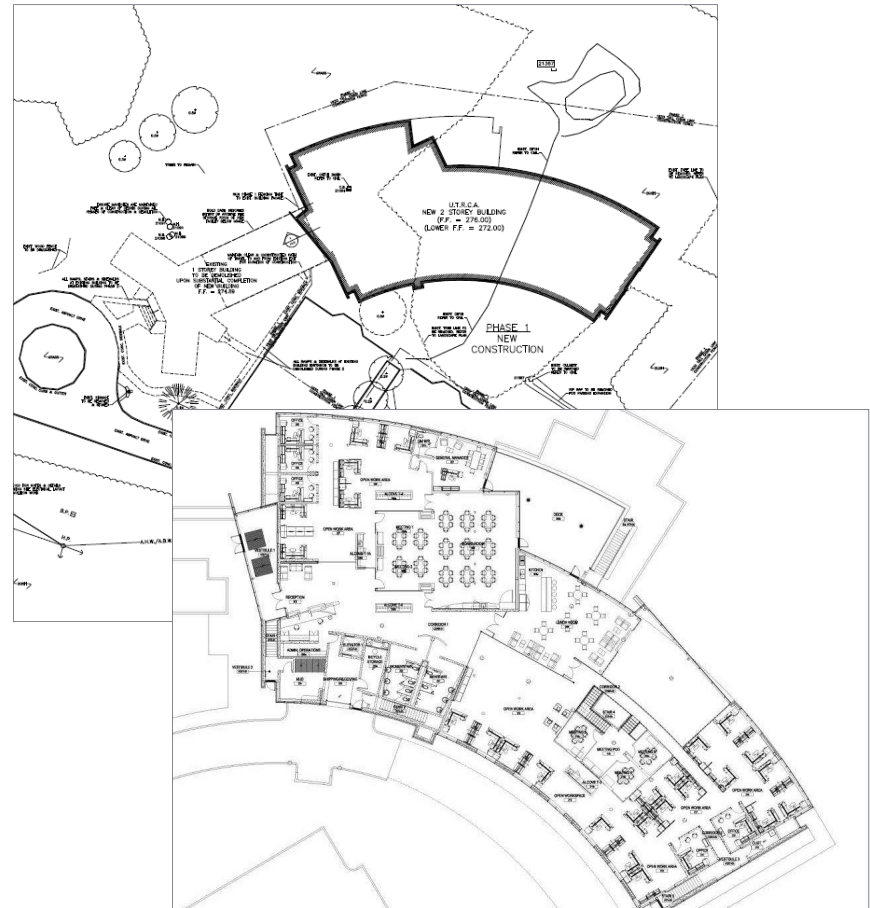
- Timeline
 - 2004 Strategic Plan Process
 - 2005 RFP Needs Assessment
 - Building Condition Report
 - Design Options
 - Functional Plan
 - 2007 Building Committee
 - 2008-2010 Design/funding stage
 - September 2010 Contract award – construction
 - June 2012 Phase 1 Complete
 - January 2013 Phase 2 Complete





WATERSHED CONSERVATION CENTRE

- Guiding Principles
 - Maximize options for energy conservation and environmental design
 - Ensure efficient program and service delivery
 - Address current and future needs
 - Long-term fiscal responsibility






WATERSHED
CONSERVATION
CENTRE



WATERSHED CONSERVATION CENTRE

- 60 + year life expectancy
 - 36,000 sq/ft
 - Construction costs \$9.6M (\$265 sq/ft)
 - Total costs \$12.3M
 - Allowance for growth (25%)
 - Growth connection (east end)
 - NPO access
 - LEED Platinum Certification (target)
 - Estimated return on cost of energy efficient systems 4-6 years; energy savings may pay for capital cost of building
-
- 





WATERSHED CONSERVATION CENTRE

- LEED (Leadership in Energy and Environmental Design)
 - North America's premier green building rating system
 - 3rd party rating system, awards points to buildings according to the sustainable features they incorporate in 6 categories:
 - Sustainable sites
 - Water efficiency
 - Energy and atmosphere
 - Materials and resources
 - Indoor environmental quality
 - Innovation and design
- WCC is designed to achieve LEED platinum certification





WATERSHED CONSERVATION CENTRE

Current Status - Platinum

LEED Summary	Targeted	Pending	Decision Required	Not Pursued
Sustainable Sites	11	0	0	3
Water Efficiency	5	0	0	0
Energy & Atmosphere	16	0	1	0
Materials & Resources	6	1	2	5
Indoor Environment	12	1	0	2
Innovation	5	0	0	0
Total	55	2	3	10



A photograph of a modern, multi-story building with large glass windows, illuminated from within, set against a dark blue night sky. The building is part of a banner that also contains the title text.

WATERSHED CONSERVATION CENTRE

Sustainable Sites (11)

- Reducing light pollution of the night sky(LED parking lot lights)
- Reducing heat island effect(white membrane roof/non-roof)
- Promoting use of hybrid vehicles (3% of building occupants)
- Limit parking capacity
- Reduce development footprint
- Protect/restore open space
- SWM rate/quantity/treatment
- Bicycle storage & change rooms









WATERSHED CONSERVATION CENTRE

• **Water Efficiency (5)**

- Indoor water reduction (low flow facilities) (30%) (64%)
- Landscape irrigation (cistern)

• **Materials & Resources (6)**

- Construction waste diversion (50%) (91%)
- Collection & storage of recyclables
- Recycled content (15%) (20%)
- Regional materials (20%) (30%)
- Certified wood (50%) (81%)









WATERSHED CONSERVATION CENTRE

▪ **Indoor Environment (12)**

- Carbon Dioxide Monitoring
- Ventilation effectiveness
- Construction IAQ , during construction & before occupancy
- Thermal monitoring & comfort
- Low-emitting adhesives & sealants, paints & coatings, carpets
- Daylight to 90% of spaces







WATERSHED CONSERVATION CENTRE

▪ **Innovation (5)**

- Green building education
- Reduce use of potable water for sewage conveyance (40%) **(50%)**
- Green housekeeping
- Low emitting furniture systems
- LEED accredited professional

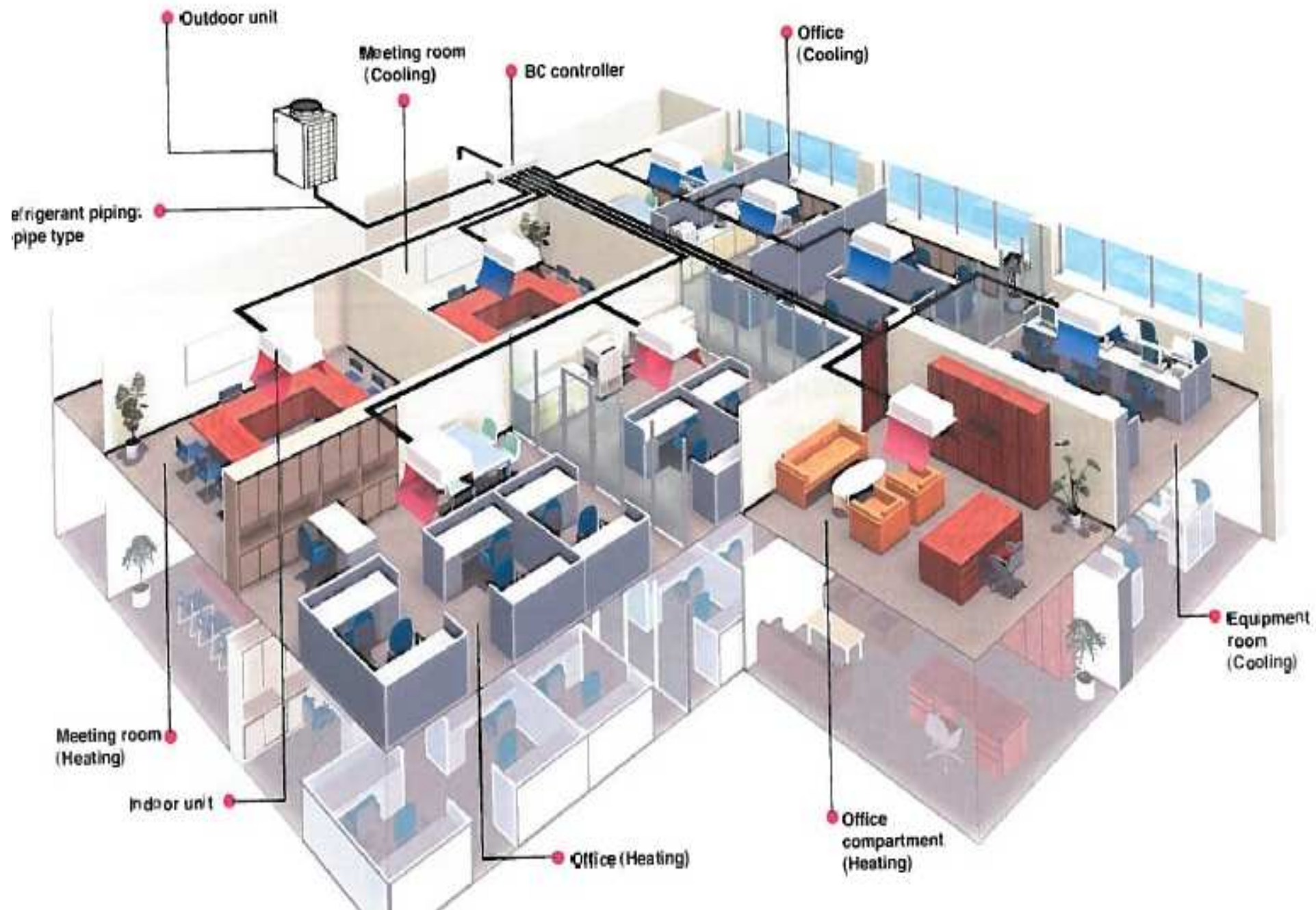




WATERSHED CONSERVATION CENTRE

- **Energy and Atmosphere (16)**
 - Optimize energy performance (24-64%) (40%) (71%)
 - Air-to-air heat exchange system
 - Fresh air pre-heated through solar wall – winter
 - Fresh air pre-cooled through ground tubes – summer
 - Heat recovery system on exhaust air
 - Heat recovery system to produce hot water
 - Daily/weekly temperature setbacks
 - Lighting controlled by occupancy sensors/daylight harvesters
 - Green energy from Fanshawe Hydro Plant



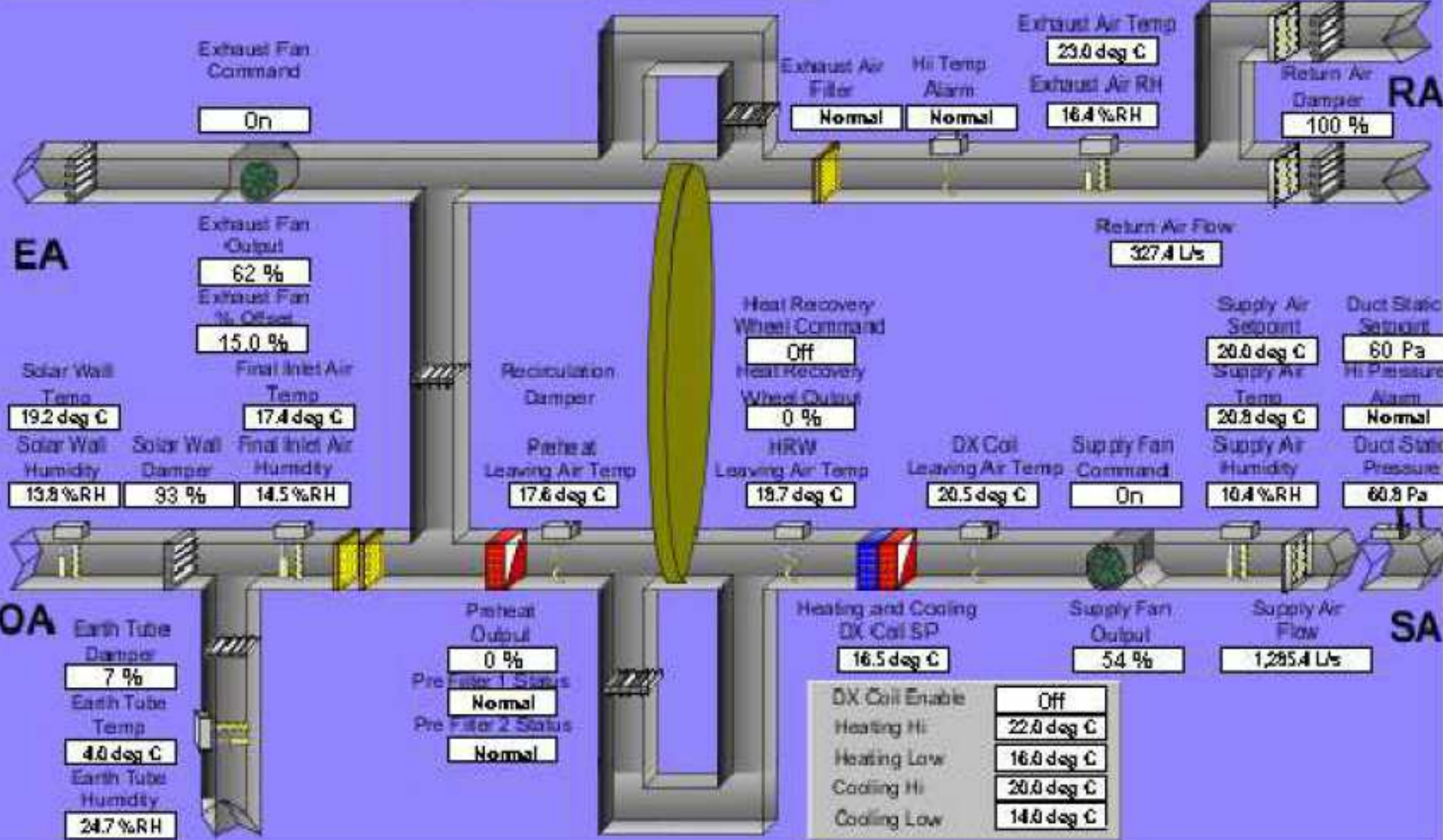






OCCUPANCY	<input type="button" value="Occupied"/>	SYSTEM MODES	THRESHOLDS (BASED ON GA-T)	
ECON ENABLE	<input type="button" value="Off"/>	HRW + DX HTG	<input type="button" value="True"/>	<input type="button" value="0.0 deg C"/>
DEFROST ENABLE	<input type="button" value="Off"/>	HRW ONLY	<input type="button" value="False"/>	<input type="button" value="9.0 deg C"/>
		ECON ONLY	<input type="button" value="False"/>	<input type="button" value="16.0 deg C"/>
		HRW + DX CLG	<input type="button" value="False"/>	

Outside Air Temp:
 Outside Air Humidity:
 Exhaust Air Flow:
 Exhaust Air Dampers:



DX Coil Enable	<input type="button" value="Off"/>
Heating Hi	<input type="button" value="22.0 deg C"/>
Heating Low	<input type="button" value="16.0 deg C"/>
Cooling Hi	<input type="button" value="20.0 deg C"/>
Cooling Low	<input type="button" value="14.0 deg C"/>



Questions?