

Targeted	Pending	Decision Req'd	Not Pursued	LEED® Scorecard for East Markham CC & L										
39	2	3	26	Certified: 26 to 32 points Silver: 33 to 38 points Gold: 39 to 51 points Platinum: 52 or more points										
8	0	1	5	Sustainable Sites										
				SSp1 Erosion & Sedimentation Control: Design and implement an erosion & sedimentation control (ESC) plan that conforms to EPA Document EPA 832/R-92-005, Storm Water Management for Construction Activities (Chapter 3), or local standards, whichever is more stringent.					Proposed Measures		Benefits / Comments			
									Erect and maintain silt fence around site, tarp or seed stockpiled soil, filter storm drains, install gravel entrance, truck wash station and dewatering stations.		Mitigates the loss of soil and protects downstream water ways and wetland habitats.			
1				SSc1 Site Selection: Site must not be: part of a Provincial Land Reserve, public parkland, habitat for rare or endangered species, ecologically sensitive land, land less than 1.5 m (5 ft) above 100 yr. floodplain, or less than 0.9 m (3 ft) above 200 yr. floodplain, or within 30.5 m (100 ft) of any wetland.					Reject sites that meet any of the prohibited criteria.		Protects ecologically sensitive areas and minimizes potential damage caused by flooding.			
			1	SSc2 Development Density: Site and surroundings must have a high site development density of greater than 13,800 m2/hectare (50,000 ft2/acre). The density radius is meters, this defines the extent of required development density.					Select a site that is surrounded by an area of high development density (i.e. two-storey downtown development).		Intensification minimizes urban sprawl and preserves farm land.			
			1	SSc3 Redevelopment of Contaminated Sites: Demonstrate that the site is considered contaminated (compared to mandated levels) by a regulatory agency and must show that appropriate measures are used to clean up the contamination as required by the Provincial Contaminated Sites Program.					Select a site that is classified as a contaminated site and revitalize through remediation and reuse. Site is to be capped and done regardless of LEED		Rehabilitates contaminated land. Cost is part of base building.			
1				SSc4.1 Public Transportation Access: Buildings must be located within 400 m (1/4 mile) of 2 or more public bus lines or within 800 m (1/2 mile) of a commuter rail, light rail or subway station having frequent service.					Select a site that has nearby access to public transportation (bus lines and/or commuter train). Several bus lines are within 400m.		Reduces automobile use and traffic congestion, while expanding commuting options.			
1				SSc4.2 Bicycle Storage & Changing Rooms: Provide secure bicycle storage, with convenient changing/shower facilities (within 183 metres or 200 yards of the building). Space for 5% (bicycle racks and showers) of occupants must be provided for commercial/institutional buildings.					Provide cast-in place bike racks for FTE (Verify FTE occupancy load) occupants and allow staff access to existing showering facilities. At least 39 bike racks must be indicated on the Site or Landscape Plan.		Improves employee health and minimizes the need for fossil-fuel based transportation. Based on \$150/bike stall.			
			1	SSc4.3 Hybrid or Alternative Fuel Vehicles: Provide high efficiency hybrid or alternative fuel vehicles and preferred parking for 3% (people) of building occupants (carshare programs are acceptable).					Consider purchasing natural gas, propane or hybrid vehicles for building occupant use. Electric vehicles are not typically viable.		Reduces pollution caused by conventional automotive transportation.			
			1	SSc4.4 Limit Parking Capacity: Provide preferred parking designated for use exclusively by carpools/car co-ops equal to 10% (spaces) of total non-visitor parking spaces. Size parking capacity not to exceed minimum local zoning requirements, OR add no new parking capacity for rehabilitation projects					Do not exceed zoning parking requirements specified by local zoning authority. Provide preferred parking spaces for carpool or car share programs.		Minimizes construction costs for parking and encourages occupants to carpool.			
			1	SSc5.1 Protect or Restore Open Space: On a previously developed site, restore a minimum of 50% (m2) of the site area (excluding the building footprint) by replacing impervious surfaces with native or adaptive vegetation.					Restore site with native species that are indigenous (or have adapted to the local climate) and are not invasive. Once established, these species must not require irrigation or fertilization. Playing fields will not contribute to this credit		Helps restore ecologically damaged sites, creates biodiversity and reduces cost of fertilizing and cutting grass.			
			1	SSc5.2 Reduce Development Footprint: Reduce the development footprint to exceed local zoning open space requirements by 25% (m2).					Designate non-developed area on the site to maintain natural habitat., Playing fields can be used in achieving this credit		Open space improves satisfaction by offering outdoor amenity space.			
1				SSc6.1 SWM, Rate & Quantity: The site pre-development imperviousness is less than 50%. Design for no increase in rate and quantity of stormwater runoff from pre-development to post-development conditions.					Control stormwater through a wet pond as well as collecting roof water in cistern for irrigation and toilet/urinal flushing.		Minimizes impact on municipal stormwater system and potentially speeds building approval process.			
1				SSc6.2 SWM, Treatment: Remove 80% of annual post-development total suspended solids and 40% of annual post-development total phosphorous from stormwater based on average annual loadings from all storms less than or equal to the 2 year/24 hour storm.					Control stormwater through a wet pond as well as collecting roof water in cistern for irrigation and toilet/urinal flushing.		Protects downstream waterways from debilitating algae blooms and water contamination, potentially speeds building approval process.			
1				SSc7.1 Heat Island Effect, Non-Roof: Provide shade (within 5 years) and/or use highly reflective material (reflectance at least 0.3) and/or use open grid pavement for at least 30% of non-roof surfaces OR put 50% of the parking spaces underground OR use open-grid pavement (< 50% impervious) for at least 50% of the parking area.					A two story parking deck should provide sufficient covered parking to achieve this credit.		During summer, these measures help to cool the local micro climate and provide more comfortable outdoor environment.			
1				SSc7.2 Heat Island Effect, Roof: Use highly reflective (Energy Star® compliant) and a high emissivity (min of 0.9) roofing for a minimum of 75% of roof area OR install a vegetated roof for a minimum of 50% of roof area. Combinations of these two measures can also be applied.					Use ENERGY STAR and high emissivity (>0.9) roofing material (e.g., white TPO or PVC roofing), light coloured steel roof.		Minimizes cooling costs by reducing the roof temperature.			
1				SSc8 Light Pollution Reduction: Design outdoor lighting to IESNA requirements. Design exterior lighting to be shielded or full cutoff as required. Any luminaire within a distance 2.5 times the mounting height shall have shielding so that no light will trespass over the property line. Maximum candela of interior lighting shall fall within the property and building.					Prevent any light trespass across site boundary. Design to IESNA recommendations for exterior lighting (RP-33-99). Design exterior fixtures over 1000 lumens to be shielded and fixtures over 3500 lumens to be full cutoff. Accomplished though a larger number of shorter lamp posts.		Saves exterior lighting energy costs and prevents lighting complaints from neighbours. Cost allowance for replacing 25 tall lamp (assuming \$2000) posts with 40 shorter lamp posts (\$1500) with an additional \$1000 per new post for added base and wiring.			
5	0	0	0	Water Efficiency										
				WEc1 Landscape Irrigation: Reduce potable water consumption for irrigation by 50% (1 point) or 100% (2 points) relative to baseline by using only captured rain or recycled site water OR design the landscape so that a permanent irrigation system is not required.					Proposed Measures		Benefits / Comments			
									Design landscaping with drought resistant vegetation, drip irrigation, cistern water for irrigation and/or design landscape to eliminate the need for a permanent irrigation system. Irrigation area is too large to reach 50% reduction		Ease side of site will use native and adaptive vegetation requiring no irrigation. The sports fields and landscaping on the West will be using irrigation. SHA to evaluate the use of drip irrigation along with moisture sensors in order to achieve 50% irrigatino savings.			
1				WEc2 Wastewater: Reduce usage of potable water for sewage conveyance by 50% OR treat 100% of wastewater to tertiary standards on-site.					In addition to WEc3 features, install a cistern and piping to allow rain water to flush toilets		Reduces the annual water cost and demand on municipal water and wastewater treatment facilities. Based on 30m3 Cistern and additional plumbing line to toilets.			
2				WEc3 Indoor Water Use Reduction: Reduce potable water use by 20% (1 point) or 30% (2 points) relative to the baseline calculated for the building (not including irrigation) by meeting specified fixture flow requirements.					Specify dual-flush toilets (flush valve 6/4.2L), half flush urinals (1.9L), ultra-low flow faucets (1.9L), low flow showerheads (6.8L/min), automatic controls on faucets & showers.		Reduces the annual water cost and demand on municipal water and wastewater treatment facilities. Based on 40 (200\$ premium) dual flush toilets & 70 (\$30 premium) low flow showerheads			
6	1	0	10	Energy & Atmosphere										
					Proposed Measures					Benefits / Comments				

				EAp1 Fundamental Commissioning: Engage a commissioning authority (not an individual on the design or construction team) to design, implement and document a commissioning plan. Complete a commissioning report.	Engage a CA to review design intent documentation, incorporate commissioning requirements into construction documents, develop a commissioning plan, verify equipment installation, test functional performance, verify training, review O&M manuals, write commissioning report.	Saves energy by verifying the building is optimized to operate as designed and reduces callbacks and tenant complaints.
				EAp2 Minimum Energy Performance: Reduce the design energy consumption to meet CBIP requirements (25% reduction of energy use compared with designed) OR reduce designed energy cost by 18% relative to ASHRAE/IESNA 90.1-1999 (without amendments) reference building.	Meet CBIP energy efficiency requirements - see EAc1 for measures.	Long-term savings in annual energy costs over the life of the building.
				EAp3 Elimination of CFCs & Halons: Use no CFC-based refrigerants in HVAC&R equipment and no halons in fire suppression equipment.	Specify non-CFC refrigerants for all building equipment. Provide an acceptable phase-out plan if services are provided from a central plant with CFCs.	Reduces the use and release of ozone-depleting chemicals that contribute to global warming.
3	1		6	EAc1 Optimize Energy Performance: Reduce design energy cost (excluding non-regulated loads) vs. MNECB OR ASHRAE/IESNA 90.1-1999, by 24-64% and 15-60% respectively (worth up to 10 points depending on performance achieved - see LEED® - Canada Table 1-New Buildings).	Heating and Cooling to be provided by district energy system. Design and install T5HO lighting in gymd & pool with occupancy and daylighting sensors. Install CO2 controlled ventilatin as well as ERV system. All shower drains to utilize Grey Water Heat Recovery. Glazing to be soft coat low-e, argon filled with warm edge spacers.	Allows for significant reduction in annual energy costs and emissions of greenhouse gases. Capital cost savings are also available by downsizing equipment through design optimization.
			3	EAc2 Renewable Electricity: Supply 5% (1 point), 10% (2 points) or 15% (3 points) of total annual energy use, by cost (regulated loads only), from on-site renewable energy sources.	Specify on-site solar electric (photovoltaic) systems, solar thermal and/or wind energy systems.	Reduces annual energy cost and provides on-site heat/power generation.
1				EAc3 Best Practice Commissioning: Engage an independent commissioning authority (from a third party firm) to design, implement and document a commissioning plan and provide peer review of design and construction documents with additional tasks as specified.	Expand commissioning scope to include an independent early review of design, independent review of drawings and specs and an independent review of shop drawings. Also, develop re-commissioning manual and re-commission within 1 year of project completion.	Provides an independent third-party review of the design to minimize deficiencies and resolve building operational issues.
1				EAc4 Elimination of HCFCs: Install base building level HVAC&R equipment that do not contain HCFCs.	Specify HFC refrigerants in all HVAC&R equipment.	Eliminates use of ozone-depleting chemicals and avoids future refrigerant change out after HCFCs are banned
1				EAc5 Measurement & Verification: Develop a long-term continuous performance measurement and verification plan, for loads and efficiencies of basic building systems, that follows IPMVP requirements (see Reference Manual - ten categories).	Install metering equipment for lighting systems, motors, VFD drives, chillers, economizers, heat recovery systems, ventilation systems, boilers, process loads and water risers. Compare monitoring results to energy simulations after one year of operation.	Provides energy cost savings by identifying and correcting any building operational problems.
			1	EAc6 Green Power: Engage in a minimum two year contract to purchase electricity certified (Ecologo or Green-e) by a green power producer for a minimum of 50% of the electricity consumed by the building (regulated loads only).	Purchase certified green power from electricity supplier.	Encourages the development of utility level wind and micro-hydro power thereby reducing greenhouse gas emissions.
7	1	0	6	Materials & Resources		
				MRp1 Collection & Storage of Recyclables: Provide an easily accessible area that serves the entire building and is dedicated to the separation, collection and storage of materials for recycling, including (at a minimum); paper, corrugated cardboard, glass plastics and metals.	Proposed Measures Include a recycling area on building plans that allows for easy recycling of paper, corrugated cardboard, glass, metal and plastic (at a minimum) during building operation.	Benefits / Comments Supports municipal recycling programs and lengthens lifetime of current landfill sites.
			3	MRc1 Reuse Existing Building: Maintain 75% of existing building structure and shell (floors, walls and framing, excluding windows, non-structural roofing materials) (1 point) or 95% (2 points), or shell plus 50% of non-shell areas (3 points) with or without 75% and 95% existing building structure.	Reuse existing buildings that are on the project site.	Reduces demolition waste and saves the materials and time required to construct a new building.
1	1			MRc2 Construction Waste Diversion: Develop and implement a waste management plan. Divert a minimum of 50% (1 point) or 75% (2 points) of construction, demolition and land-clearing waste from the landfill by recycling/salvaging materials (by weight or volume).	Specify and implement a Waste Management Plan to divert a minimum of 75% (by weight or volume) of construction waste from the landfill.	Reduces landfill tipping fees and lengthens the lifetime of current landfill sites.
			2	MRc3 Salvaged Materials: Specify 5% (= 1 point) or 10% (= 2 points) of building materials used (by cost) are salvaged or refurbished.	Use salvaged material that has been recovered from old buildings for reuse.	Reduces demand for new materials and saves material costs.
2				MRc4 Recycled Content Materials: Specify 7.5% (= 1 point) or 15% (= 2 points) of building materials by cost to be recycled content (full cost for post-consumer, half cost for post-industrial).	Use recycled drywall, mineral wool insulation, steel (e.g. rebar), carpet, flyash in concrete, etc.	Creates demand for recycled materials and reduces the embodied energy of building materials.
2				MRc5 Regional Materials: Specify that 10% (= 1 point) or 20% (= 2 points) of building materials and products, by cost, (for which at least 80% of each) be extracted and manufactured within 800 km of the project site. If materials are shipped by rail or water, the allowable radius is 2400 km. Combinations of the above are also permitted.	Most materials should be manufactured and extracted/harvested within 800 km. Give preference to locally manufactured and extracted/harvested materials.	Minimizes transportation energy and costs while encouraging a sustainable local economy.
			1	MRc6 Rapidly Renewable Materials: Specify 5% (= 1 point) of the building materials by cost are rapidly renewable (i.e. materials that renew fully within 10 years).	Use linoleum flooring, bamboo flooring, wheatboard, soy foam insulation, straw paneling, etc.	Reduces the burden on non-renewable material resources.
1				MRc7 Certified Wood: Specify that 50% of total wood-based materials, by cost, be FSC certified (both harvesters and manufacturers).	Give preference to FSC products, when locally available and acceptably priced, to ensure that 50% of wood-based materials in the building are FSC certified. Main cost for wood is expected to be from Gym flooring, should be able to cover 50%, if FSC product is specified.	Protects forests from exploitation through unsustainable forestry and manufacturing practices.
1				MRc8 Durable Building: Engage a Building Science Professional to develop and implement a Building Durability Plan in accordance with the principles in CSA S478-95 (R2001) - Guideline on Durability in Buildings.	Develop a Building Science Durability plan that identifies the Design Service Life (DSL) of the building assemblies. For critical elements, specify assemblies with DSL's that are equivalent to the overall building DSL.	Extends the useful life of a facility and saves costs associated with future repairs.

9	0	1	5	Indoor Environmental Quality	Proposed Measures	Benefits / Comments
				EQp1 Minimum IAQ Performance: Comply with ASHRAE 62-2004 "Ventilation for Acceptable Indoor Air Quality", and addenda approved at the time the building was permitted. This is a mandatory requirement of the Ontario Building Code.	Design building to meet ASHRAE Standard 62-2004.	Ensures ventilation rates are appropriate in all areas.
				EQp2 Tobacco Smoke Control: Prohibit smoking in the building OR establish negative pressure in rooms with smoking (as specified) OR reduce air leakage between smoking and non-smoking areas in residential buildings (as specified).	Provide a "Non-Smoking" building and designate outside smoking areas be at least 7.5m away from entrance areas and air intakes.	Protects occupant health by eliminating potential sources of tobacco smoke.
1				EQc1 Carbon Dioxide Monitoring: Install permanent carbon dioxide monitoring sensors and ventilation controls to limit CO2 levels in accordance with ASHRAE 62-2001, Appendix C.	Install CO2 sensors throughout the building (at least 1 per air-handling system or zone). Provide controls to adjust O/A rates based on measured CO2 levels.	Saves energy during unoccupied periods and provides sufficient ventilation during periods of high occupancy.
			1	EQc2 Increase Ventilation Effectiveness: Design for a minimum mechanical ventilation air change effectiveness of 0.9 according to ASHRAE 129-1997. If naturally ventilated, demonstrate a distribution and laminar flow pattern for at least 90% of room/zone area and for at least 95% of occupied hours.	Design a displacement ventilation system or other high performance ventilation arrangement. Provide a detailed narrative and calculations OR test effectiveness on-site.	Improves indoor air quality thereby reducing employee absenteeism.
1				EQc3.1 Construction IAQ, During Construction: Design and implement an IAQ Management plan to SMACNA standards. Protect building materials and ductwork from contamination, use MERV 8 filtration media per ASHRAE 52.2-1999 and make provisions for inspection and correction of deficiencies that could adversely affect IAQ.	Implement an IAQ Management plan that includes protection of ductwork and absorptive materials, continuous housekeeping, non-smoking work place and proper scheduling to prevent trade overlap.	Minimizes contamination of materials and protects the health of workers and future occupants.
1				EQc3.2 Construction IAQ, Before Occupancy: Provide a building flush-out at 100% outdoor air according to LEED® requirements (before or overlapping with occupancy), OR, conduct baseline IAQ testing prior to occupancy (but after construction is complete).	Perform IAQ Testing OR flushout building for 3 to 18 days prior to occupancy and purge building for 3 hours each day prior to occupancy.	Removes most indoor air pollutants from construction practices and materials prior to occupancy. Allowence for testing.
1				EQc4.1 Low-Emitting Adhesives & Sealants: Select adhesives, sealants and sealant primers that have VOC contents below specified limits (SCAQMD rule #1168).	Use water-based adhesives and sealants. Specify adhesives and sealants that meet CARB requirements.	Reduces emission of indoor air pollutants (i.e., VOCs, formaldehyde, etc.) to improve occupant health and reduce absenteeism.
1				EQc4.2 Low-Emitting Paints & Coatings: Select paints and coatings that have VOC contents below the specified limits of Green Seal Standard GS-11 AND select anti-corrosive coatings with VOC contents below Green Seal GS-03, AND if not covered by the above, select paints and coatings that satisfy SCAQMD Rule #1113.	Use ECOLOGO paints with VOC contents below 150 g/L (non-flat) and 50 g/L (flat).	
1				EQc4.3 Low-Emitting Carpets: Carpets must meet the Carpet and Rug Institute's Green Label requirements.	Use CRI Green Label or equivalent certified carpets.	
			1	EQc4.4 Low-Emitting Composite Wood and Agrifibre: Composite wood and agrifiber products and laminate adhesive assemblies must contain no added urea-formaldehyde resins.	Use Medite II (or other urea-formaldehyde free board) and exterior grade plywood (phenol formaldehyde only) for millwork, trim, sheathing etc., where LDF, MDF, HDF or interior grades of particle board or plywood might otherwise be used.	
			1	EQc5 Indoor Chemical & Pollutant Source Control: Design to minimize chemical pollution cross-contamination of regularly occupied areas. This includes housekeeping areas.	Use entryway grates, deck to deck partitions and separate exhaust for areas with contaminated air. Provide separate plumbing for chemical liquid waste to suitable storage containers. Use MERV 13 filters in all HVAC equipment.	Controls pollutants at the source, thereby improving indoor air quality and reducing cleaning costs.
			1	EQc6.1 Controllability of Systems, Perimeter: Provide a minimum average of one operable window and one lighting control zone per 18.5 m2 (200 ft2) for all regularly occupied spaces within 4.5 m (15 ft) of the perimeter wall.	Ensure operable windows and lighting controls meet credit requirements, specifically in group multi-occupant rooms.	Gives employees control over their work environment, thereby improving occupant satisfaction and productivity.
			1	EQc6.2 Controllability of Systems, Non-Perimeter: Provide controls for each individual for air-flow, temperature and lighting for at least 50% of the occupants in non-perimeter, regularly occupied areas.	Use underfloor air distribution system, flow adjustable diffusers or a VAV box for every 2 people. Provide occupant control of lighting.	
1				EQc7.1 Thermal Comfort, ASHRAE 55: Comply with ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy.	Design HVAC system to dehumidify to maintain ASHRAE comfort conditions.	Improves tenant comfort leading to increased productivity and usable floor area.
1				EQc7.2 Thermal Comfort, Permanent Monitoring: Provide permanent temperature and humidity monitoring with operator control for thermal comfort.	Design BAS to include thermal comfort monitoring and control functionality.	
1				EQc8.1 Daylight 75% of Spaces: Provide a minimum daylight factor of 2% (excluding all direct sunlight penetration), or at least 250 Lux (25 footcandles), in 75% of regularly occupied spaces (for critical visual tasks).	Provide daylighting using north-facing glazing (windows and skylights).	Increased natural lighting, potential energy savings, improved connectivity to outdoors and visual stimulation, thereby resulting in increased employee satisfaction and productivity.
		1		EQc8.2 Views for 90% of Spaces: Provide a direct line of sight to vision glazing from 90% of regularly occupied areas, have a window-to-floor area ratio of at least 0.07.	Provide open concept rooms with views to the outdoors.	
4	0	1	0	Innovation & Design Process	Proposed Measures	Benefits / Comments
1				IDc1 Green Building Education: Implement a comprehensive green building education program consisting of signage, a case study and an interactive kiosk.	Generate a general LEED® Narrative for the project which is used as text for the signage, case study and interactive kiosk.	Educates employees and visitors about the green benefits of the building and creates positive public image.
1				IDc1 Water Efficiency Exceptional Performance: Reduce usage of potable water for sewage conveyance by 100%, OR reduce potable water use by 40% relative to the baseline calculated for the building (not including irrigation).	Specify dual-flush toilets, half-flow urinals, ultra-low flow faucets, ultra-low flow showerheads, automatic controls on faucets, AND cistern water for sewage conveyance.	Conserves freshwater supplies and minimizes the demand on the municipal water supply system.
1				IDc1 Green Housekeeping: Develop a green housekeeping program using Green Seal certified cleaning products and high recycled content disposable materials (e.g., paper towels), and implement the program for the life of the facility.	Specify Green Seal certified products and develop and implement a housekeeping program that includes employee training, product MSDS information and policy.	Minimizes amount of chemicals that negatively impact indoor air and drain water.
		1		IDc1 Indoor Air Biofiltration System: Integrate a biofiltration system into the interior walls of the building representing an area that is 1% of the building GFA	As the building is estimated at 12000m2. A green wall of at least 120m2 would be necessary to achieve this credit.	New Innovation Credit Benefit
1				IDc2 LEED® Accredited Professional: At least one principal participant on the project team must be a LEED® Accredited Professional.	Enermodal staff are LEED® Accredited Professionals.	Team guidance through the LEED® Design, Construction and Certification process.