

STAFF REPORT: PLANNING & BUILDING SERVICES



REPORT TO: Council
MEETING DATE: January 25, 2010
REPORT NO.: SRB.10.04
SUBJECT: New Town Hall
PREPARED BY: David Finbow, Director, Planning & Building Services

A. Recommendations

1. **THAT** Council receive Staff Report SRB.10.04 with respect to the New Town Hall for information purposes;
2. **THAT** Council endorse the proposed New Town Hall Site Plan, Elevations and Floor Plans appended to this Report;
3. **THAT** Council authorize the construction of the New Town Hall with a project budget of \$8.448 million as reflected in the 2010 Proposed Capital Project Form;
4. **THAT** Council authorize the retention of Chamberlain Construction Services Limited for Construction Management Services at an upset price of \$262,250.00; and,
5. **THAT** Council direct the Director, Planning & Building Services to report on a monthly basis to Council, through the Finance & Administration Committee, on the project budget;

B. Background

Previous Council Resolutions

Council at its meeting of July 6, 2009 considered Staff Report PL.09.86 and authorized:

1. Town Staff to proceed with a Request for Proposal for Construction Management Services – Town Hall with such services to be initially secured on the basis of a Canadian Standard Construction Management Contract (CCA-5)
2. That the Mayor and Clerk execute the CCA-5, with the selected construction firm upon the written advice of the Town's solicitor, CAO and Director, Planning & Building Services;
3. That the New Town Hall proceed upon the execution of the CCA-5 Contract;
4. That the Mayor and Clerk be authorized to execute contracts related to the various components of construction of Town Hall (bulk excavation, footings/foundation, structural steel, etc.) upon the written advice of the Town's solicitor and Director, Planning & Building Services;
5. That Town Staff, in consultation with the Town's Architect, proceed with the retention of a LEED Consultant on the basis of an informal quotation process in order to expedite construction with it being noted that the cost for these services will be in excess of the informal quotation limitation found in the Town's Purchasing Policy of \$10,000;
6. That the Mayor and Clerk execute a contract with the LEED Consultant upon the written advice of the Town's solicitor and the Town Hall Project Steering Committee;
7. That the Mayor and Clerk execute a contract with Envision Tatham for landscape architectural services in order to expedite construction;

8. That the Mayor and Clerk sign an Agreement between the Government of Canada, the Province of Ontario and The Blue Mountains for Infrastructure Stimulus funding for the New Town Hall Facility subject to approval by the Director of Finance and Information Services and the Town Solicitor.

Site Works

As Council is aware, a significant amount of work has occurred to-date including demolition, removal of underground tanks and contaminated material removal. With respect to the contaminated soil removal, it is noted that the environmental consultant and licenced petroleum contractor costs alone represent approximately \$505,000.

New Town Hall Design

Chamberlain Architect Services Limited was selected following through a competitive design competition. Elevations and schematics to the satisfaction of the New Town Hall Steering Committee were completed (see attached) and the consultant team are now moving towards completion of construction ready drawings with related specifications. It is important to note that through the assistance of Enermodal Engineering, significant strides have been made with respect to energy efficiency and there is a real possibility that the New Town Hall will achieve LEED Gold Certification (see attachments).

Infrastructure Stimulus Funding

The Town received a commitment from the Infrastructure Stimulus Funding (ISF) Program of \$4.6 million. The critical date associated with this funding is that the New Town Hall must be substantially completed by **March 31, 2011**.

Federation of Canadian Municipalities (FCM) Grant and Loan Funding

Two applications have been submitted to FCM with respect to the New Town Hall - one being for Brownfields and the second being for Energy. Initial FCM comments reflect that there is greater likelihood that the Energy application will be successful with it being noted that same reflecting: \$3 million loan at 1.5% below the Bank of Canada Bond Rate; and, a \$300,000 grant. With respect to the loan, the Director, Financial & Information Services advises that Infrastructure Ontario is currently offering loans to municipalities at 4.74%, based on a 20 year term, whereas FCM's loan is reflective of 2.5% (representing an interest difference of \$839,000 over the term).

Construction Management Services

The New Town Hall Steering Committee has had a number of discussions with respect to this matter and has concluded that given the benefits of construction management services in terms of representing the Owner's interests; the benefits, in this instance, of working with a "single shop"; the ability to ensure that requests for quotes for services are inclusive and potentially local; and, the ability to proceed almost immediately (versus a protracted RFP and/or Tender Call), that it is beneficial to proceed with Chamberlain Construction Services Limited on a sole source basis.

Chamberlain Construction brings extensive construction management experience to the table and has considerable contacts within the construction industry in order to seek out sub-trades. In addition, the seamlessness of retaining Chamberlain Construction will certainly assist with ensuring compliance with the ISF substantial completion date of March 31, 2011 is met.

The fee negotiated with Chamberlain Construction for Construction Management Services represents approximately 4.5% of the estimated construction cost and is considered fair. The rates for reimbursable expenses (Site Rep., Site Rep Truck, General Labour, etc.) are still being negotiated but it is expected that same can be finalized in short order.

C. The Blue Mountains' Strategic Plan

"Providing a strong, well managed municipal government."
"Addressing the Town's infrastructure needs."

D. Environmental Impacts

None.

E. Budget Impact

Per 2010 Proposed Capital Project Form

F. Addendums

1. 2010 Proposed Capital Project Form
2. Site Plan, Elevations, Floor Plans
3. Enermodal Engineering LEED Scorecard
4. Enermodal Engineering Energy Summary
5. Enermodal Engineering Costing Analysis

Respectfully submitted by:

David Finbow
Director, Planning & Building Services



PROPOSED CAPITAL PROJECT FORM

Department: Administration
 Proposal: **New Town Hall**
 Year of Initiation: 2005
 Year of Completion: 2011
 Submission Date: October 1, 2009
 Submitted by: D. Finbow

A Description

Since 2004 the Town, in conjunction with its consultants, has been reviewing our administrative office space needs to address the Town's current and future needs. In early 2008 Council appointed a New Town Hall Steering Committee and authorized the Committee to proceed with developing schematics for a New Town Hall. Late in 2008 the Town proceeded with a Request for Proposals for Architectural Services with Chamberlain Architects being selected.

Schematic design has now been completed reflective of a building having a total ground and second floor area of approximately 19,225 square feet and a basement floor area of approximately 7,226 square feet (total of 26,451 square feet).

Given that certain contracts and expenses have now been realized, and with a better understanding of current construction costs, the Project Budget has been updated as follows:

Description	
Land Acquisition Costs (Former Gas Station & Retail Store & MNR/ORC acquisition)	\$850,000*
Demolition of Retail Store, Gas Station, UGT Removal, Town Hall	\$145,000
Removal of Impacted Soils	\$200,000
Environmental Consultant	\$60,000
Placement of Engineered Fill	\$200,000
Design Services (Architects & Engineers)	\$540,000
Proposed Building:	
Basement	7,226 sq ft
First and Second Floor	19,225 sq ft
Estimated Cost Per Square Foot (LEED Silver)	
Basement	\$130/sq ft
First and Second Floor	\$240/sq ft
Total Estimated Construction Cost	\$5.6 million
External Parking Lot Development	\$85,000
Furniture, Fixtures & Equipment	\$250,000

Site Works, Landscaping	\$300,000
Moving	\$50,000
Contingency @ 3.5%	\$168,000
TOTAL	\$8,448,000

B Purpose

To provide adequate Town Hall Administrative Office Space.
 Creating appropriate work environments for Town Staff in order to promote productivity.
 To provide a comprehensive and enhanced community gathering space.
 To demonstrate leadership in environmental design and sustainability.
 To demonstrate leadership in community improvement.

C The Blue Mountains' Strategic Plan

Providing a strong, well managed municipal government.

D Environmental Impacts

Promoting an active community.
 Promoting a walkable community.
 Decreasing our energy footprint.

E Expected Staff Resources/Key Personnel

Director, Planning & Building Services
 Administrative Assistant, Planning & Building Services
 New Town Hall Project Steering Committee

F Expected Capital Resource Requirements

YEAR	Interim Financing	Land Acquisition	Engineering	Construction	Moving	Furniture, Fixtures & Equipment	Demolition	Site Works, Landscaping	Contingency/Parking Lot Lands
2007		\$425,000(1)							
2008		\$270,000(2)							
2009		\$155,000(3)	\$225,000(4)	\$400,000			\$43,000		\$85,000(5)
2010			\$300,000(4)	\$4,500,000					
2011	\$3,600		\$75,000(4)	\$1,100,000	\$50,000	\$250,000	\$102,000	\$300,000	\$168,000(6)
2012	\$20,000								
2013	\$18,600								
2014	\$17,100								

- (1) 40 Bridge Street East (Gas Station)
- (2) 32 Bridge Street East (Retail Store)
- (3) MNR/ORC Land Acquisition
- (4) Environmental Consultant, Architect, S/M/E Engineers, Geotechnical Engineer, LEED Consultant, Landscape Architect
- (5) External Parking Lot Development
- (6) Contingency @ 3% (Unforeseen emergencies or design shortfalls)

G Estimated Project Costing Economic Driver

Estimate of work

H Expected Project Timeline

Construction March 2010

Substantial Completion March 2011

Occupancy May 2011

I Expected Operational Resource Requirements

Director, Building & By-law/CBO

Town CAO

J Proposed Source of Financing & Funding, (in conjunction with Treasury)

YEAR	Grants	Taxation	User Fees (Bldg)	User Fees (Water)	User Fees (Sewer)	Capital Reserves	Development Charges	Sale of Town Owned Surplus Land	Debt
2007						\$425,000(1)			
2008						\$270,000(2)			
2009	\$600,000					\$308,000			
2010	\$3,168,000	\$73,500	\$8,820	\$17,640	\$17,640	\$900,000	\$376,000		\$238,400
2011	\$832,000	\$73,500	\$8,820	\$17,640	\$17,640				\$1,095,400
2012		\$73,500	\$8,820	\$17,640	\$17,640				-\$97,600
2013		\$73,500	\$8,820	\$17,640	\$17,640				-\$99,000
2014		\$73,500	\$8,820	\$17,640	\$17,640				-\$105,000
TOTAL	\$4,600,000					\$1,930,000	\$376,000		\$1,040,300

Notes to Table:

(1) 40 Bridge Street East acquisition from Working Capital Reserve

(2) 32 Bridge Street East acquisition from Working Capital Reserve

Financing Costs based on application to FCM Brownfield Redevelopment Program.

Financing of project through FCM at estimated 1.5% interest rate.

K Anticipated Cost Savings or Additional Revenues

\$4,600,000 Grant provided from Infrastructure Stimulus Funding confirmed June 2009 .

Increased productivity attributable to appropriate work environments.

Anticipated Long Term Energy Savings

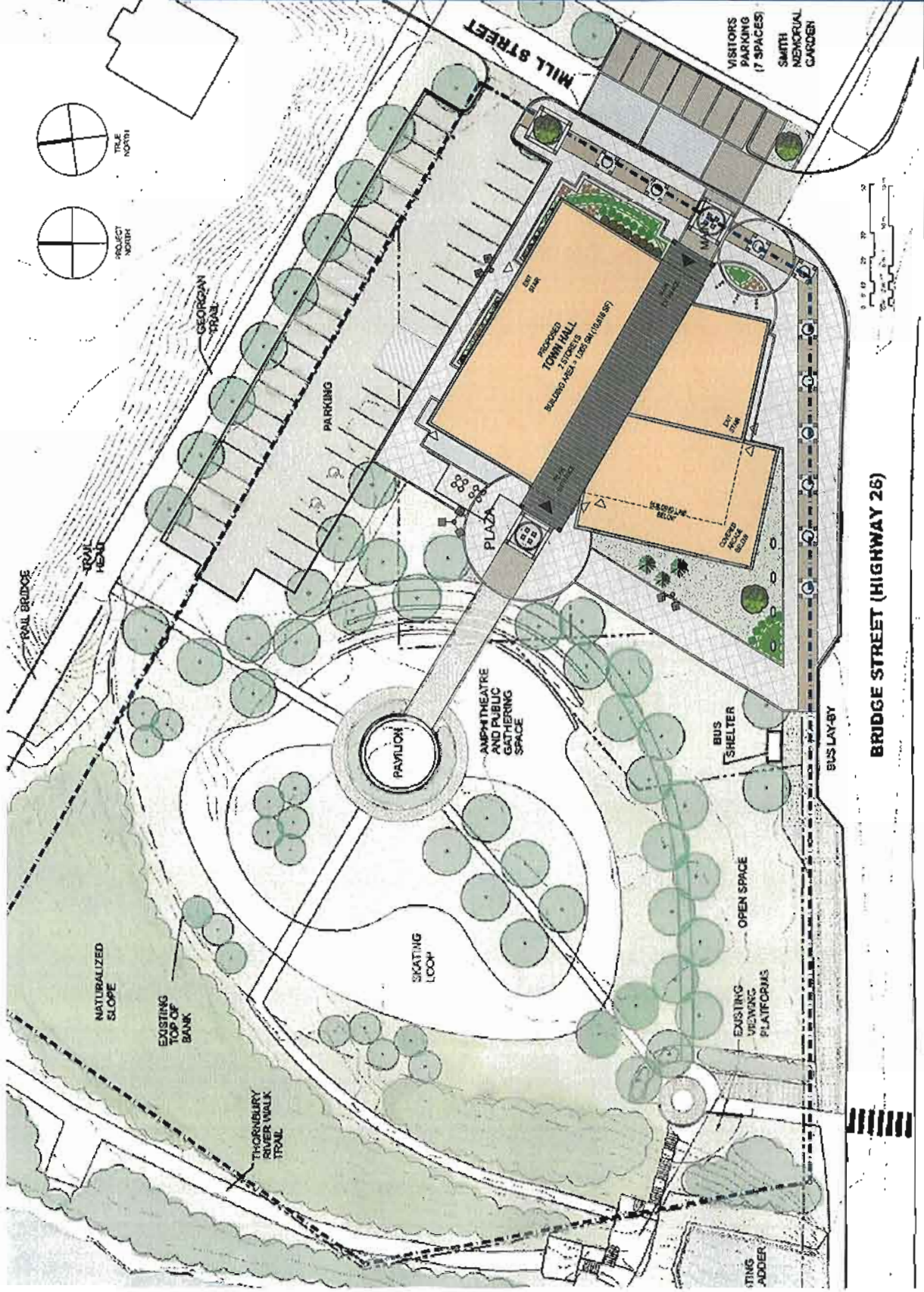
L Location Map

M Attachments, as applicable

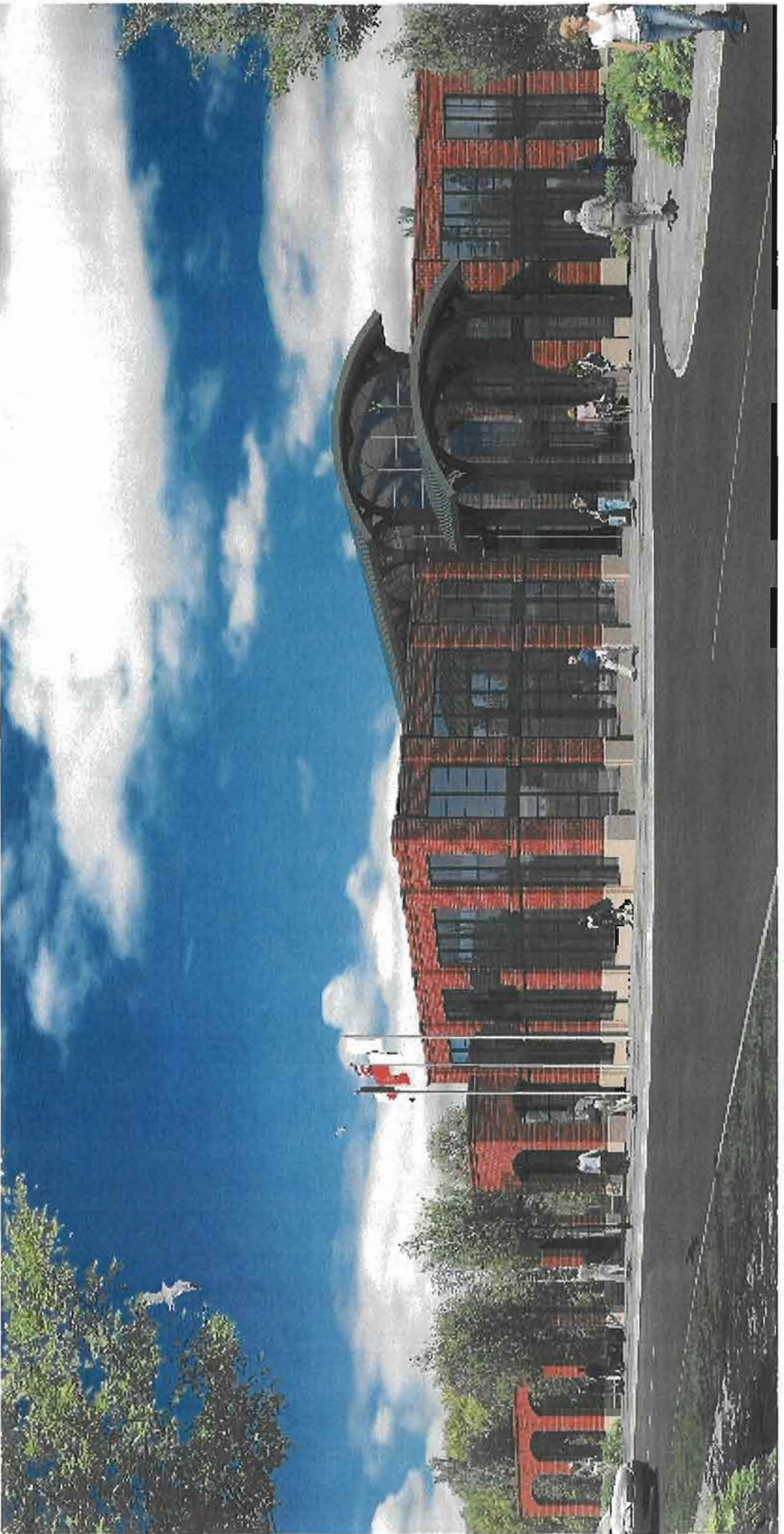
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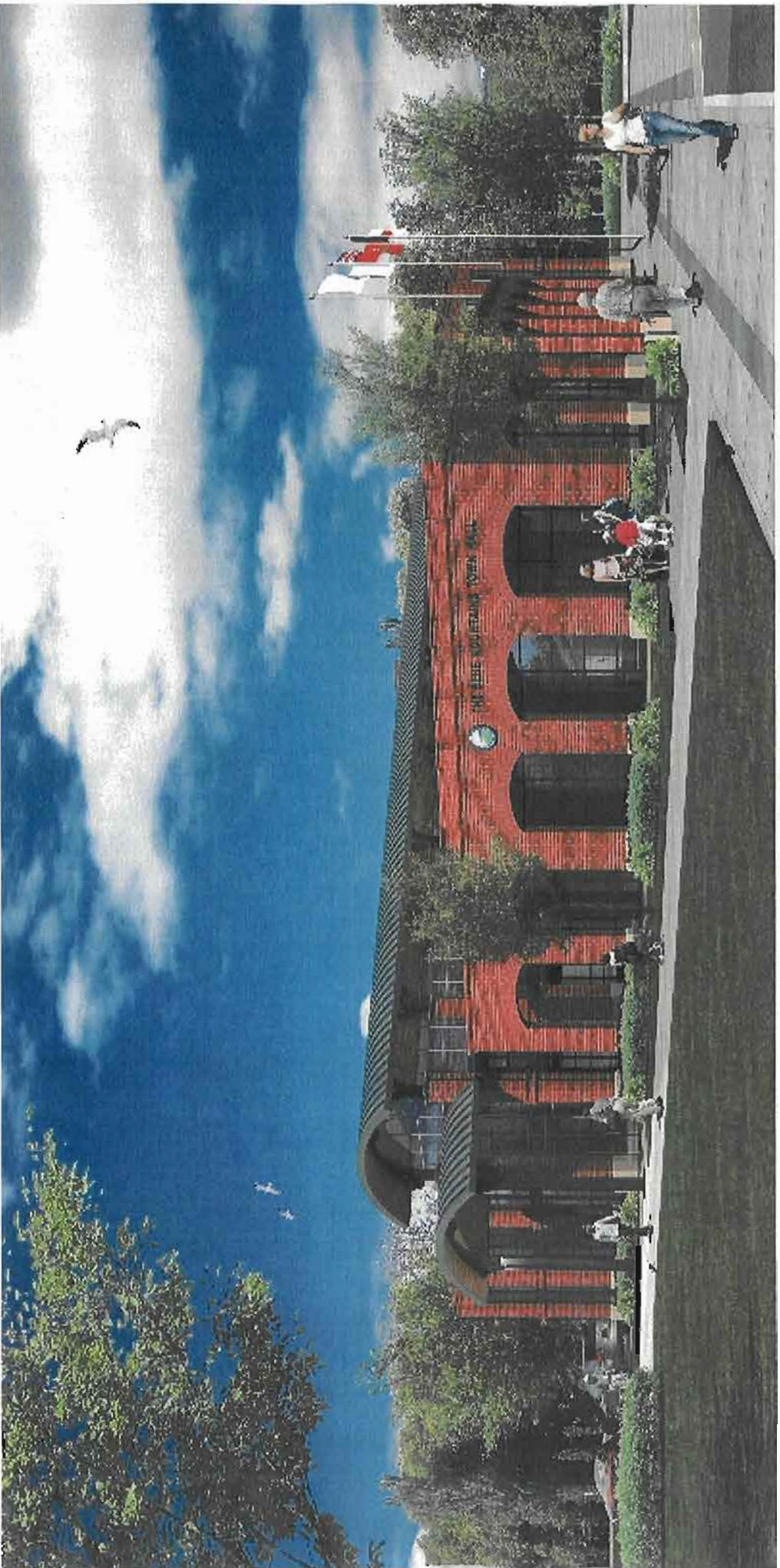
David Finbow

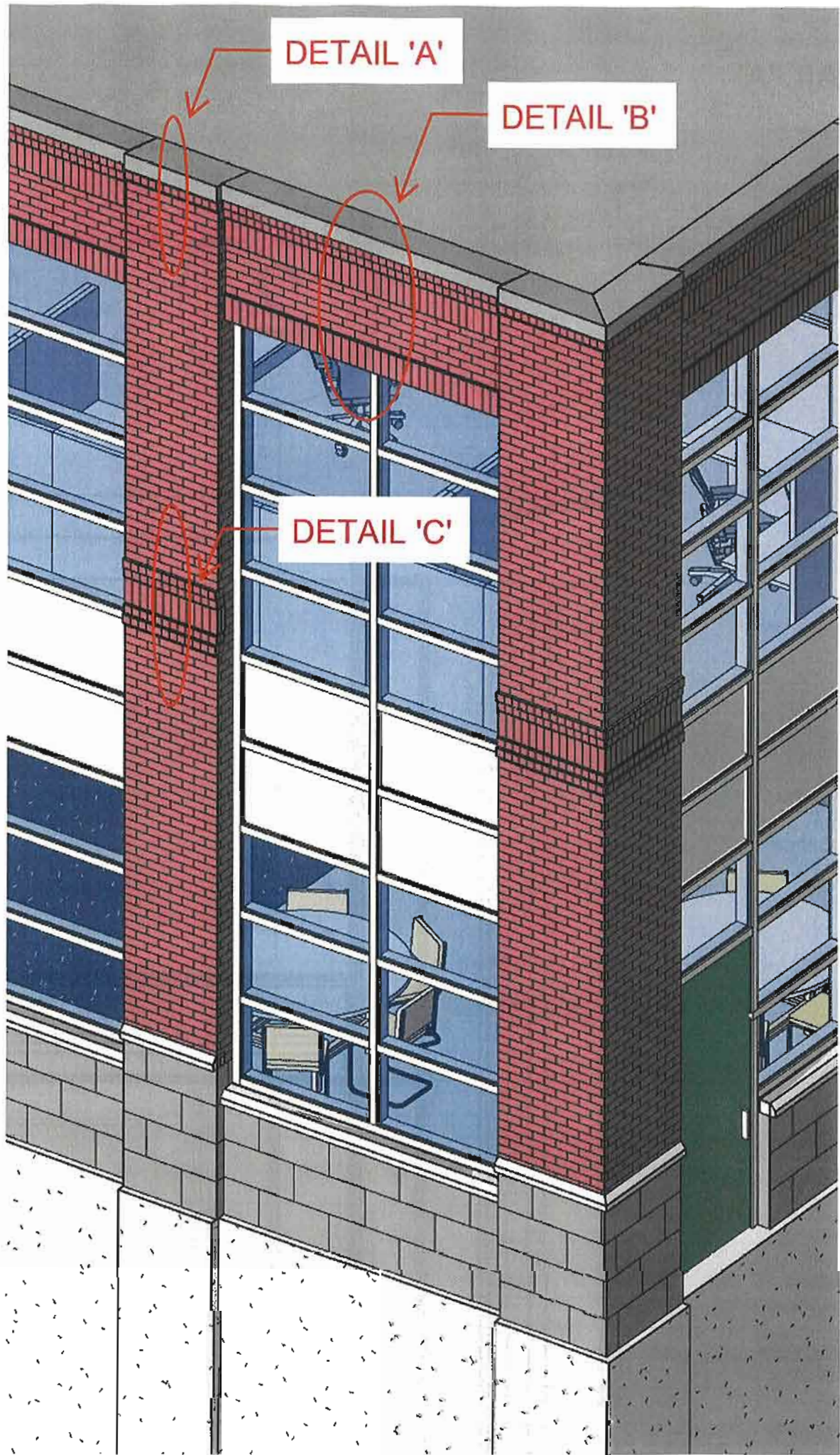
Director, Planning & Building Services



2.



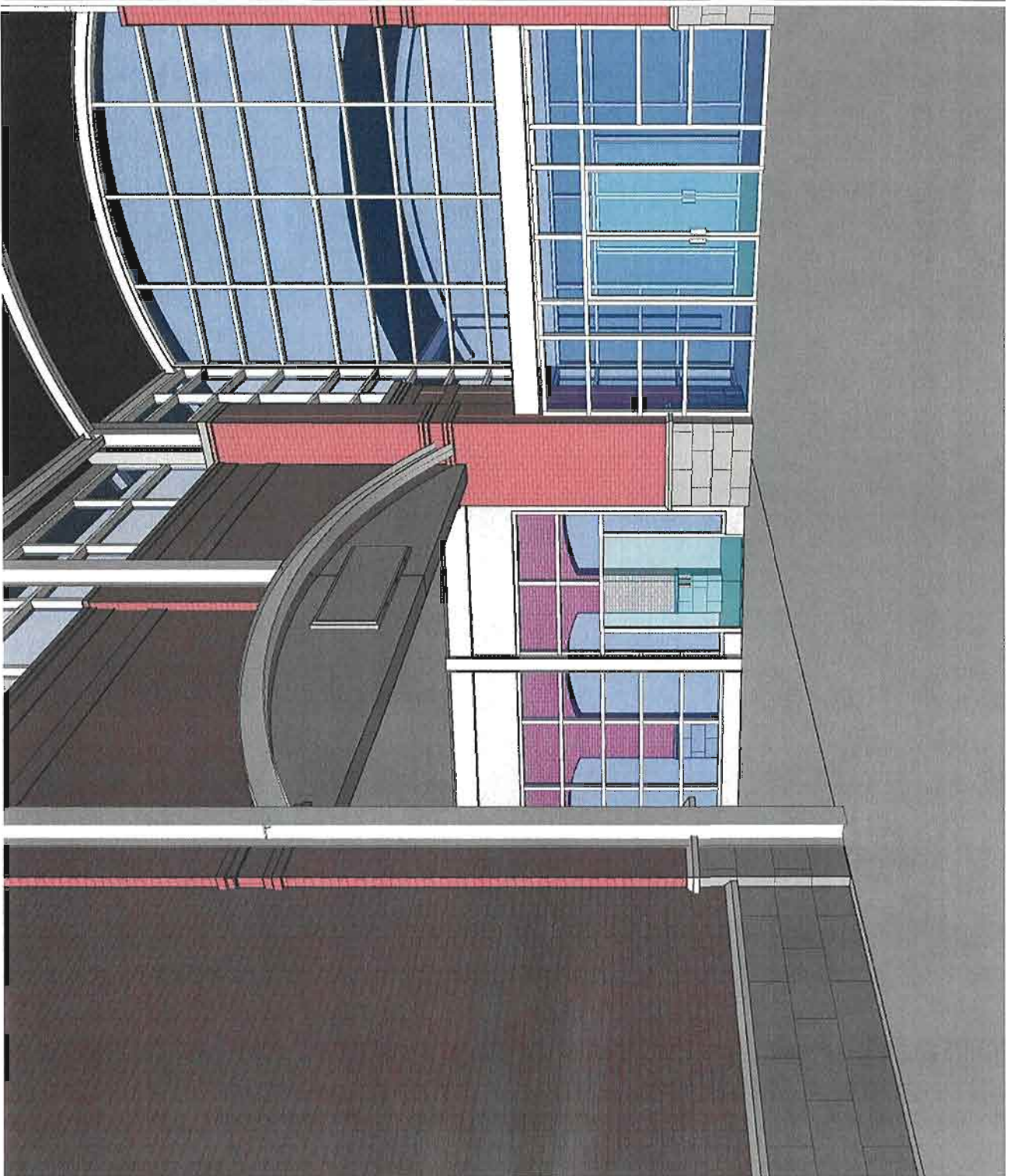


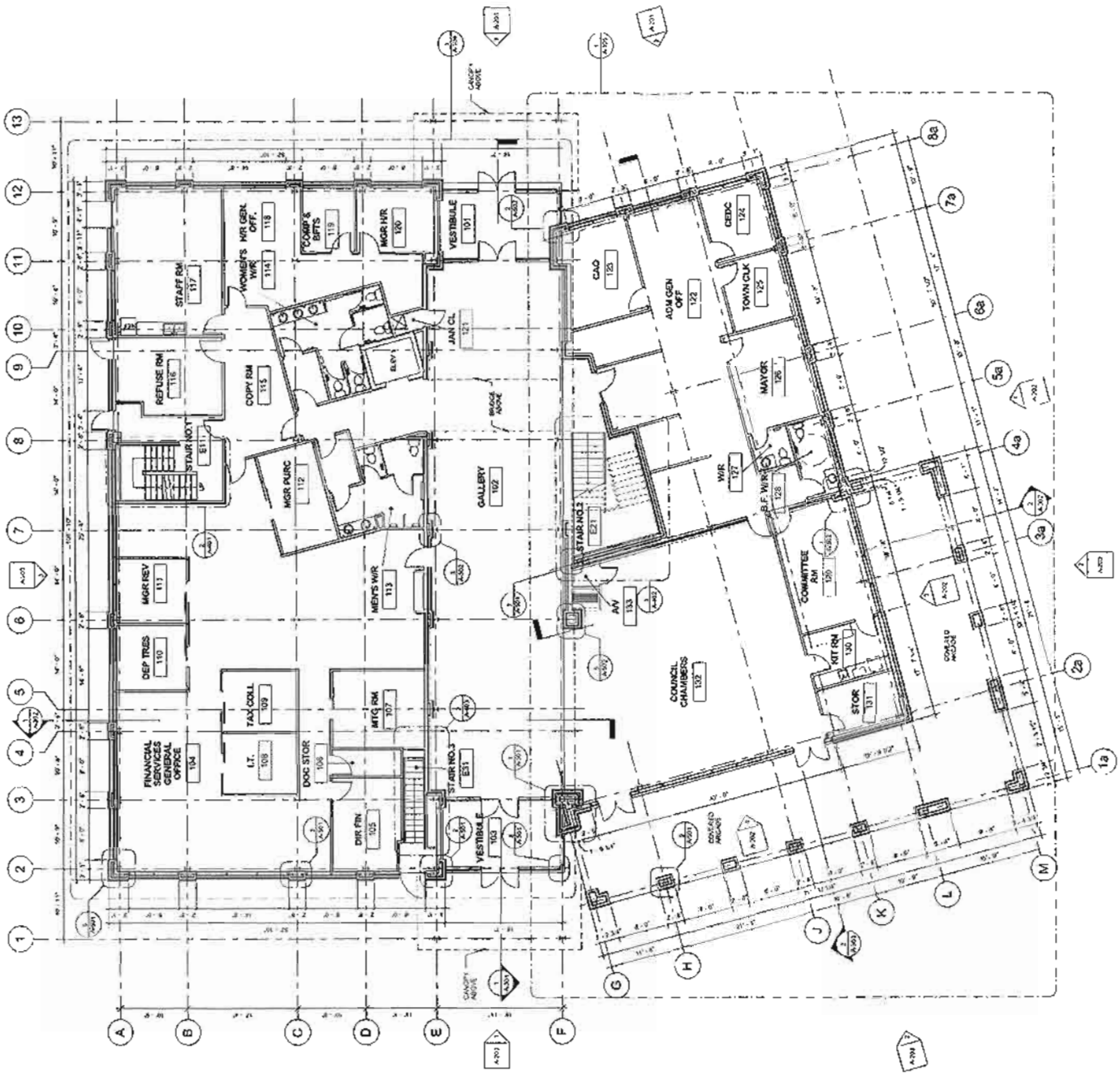


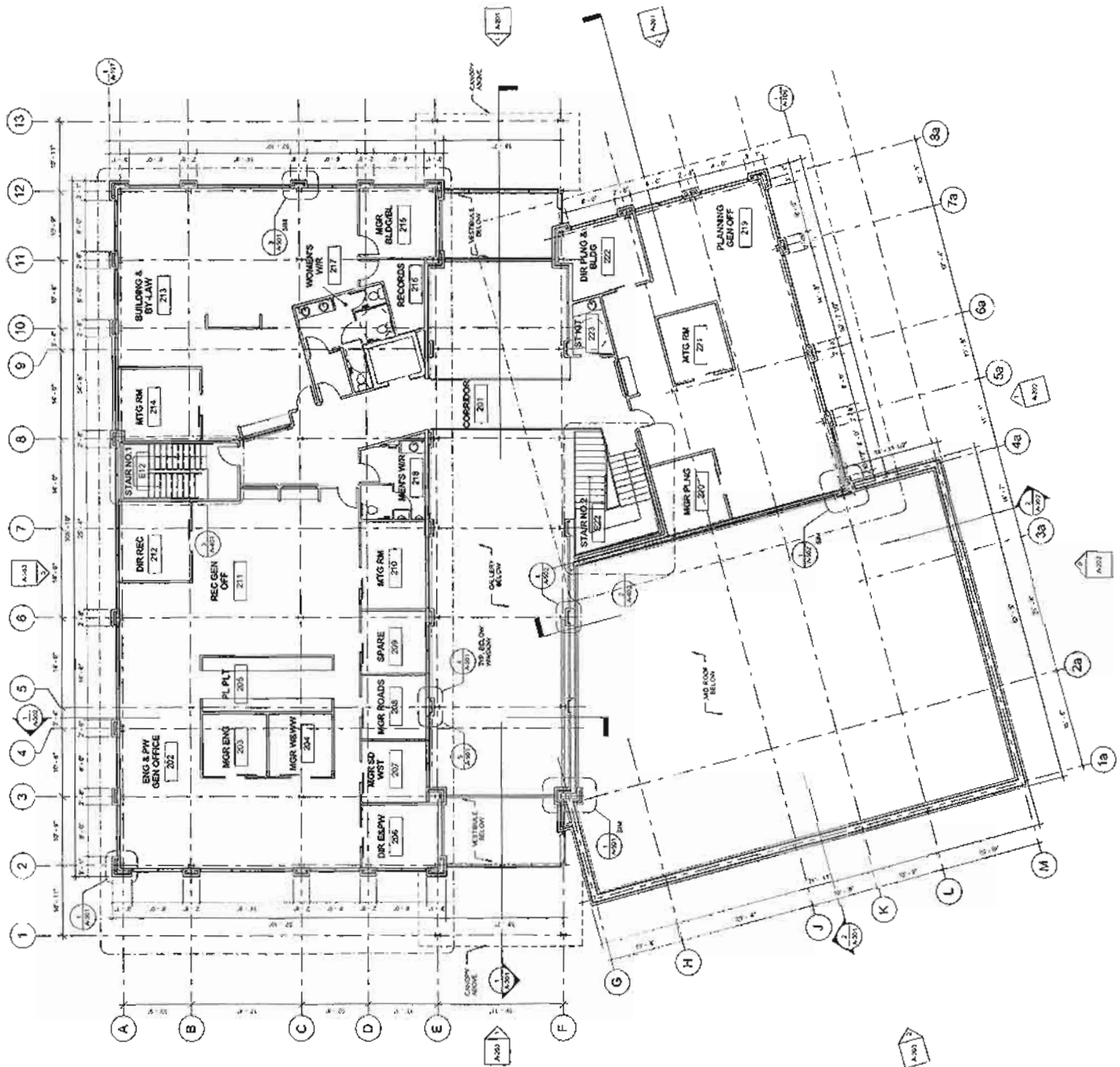
DETAIL 'A'

DETAIL 'B'

DETAIL 'C'







Targeted	Pending	Decision Req'd	Not Pursued	LEED® Scorecard for Town Hall of Blue Mountains			
41	8	9	12	Certified: 26 to 32 points	Silver: 33 to 38 points	Gold: 39 to 51 points	Platinum: 52 or more points

9	3	0	2	Sustainable Sites			
1	1	1	1	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.			
1	1	1	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.			
1	1	1	1	SSc2 Development Density: Site must have a development density of greater than 13,800 m ² /hectare (60,000 ft ² /acre) AND be located in an area with the same density OR be within 800 meters or a residential zone with 25 units/hectare and a minimum of 6 amenities with pedestrian access.			
1	1	1	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.			
1	1	1	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.			
1	1	1	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) for 5% (8 bicycle stalls and 1 showers) of building occupants OR requirements of local authority, whichever are more stringent.			
1	1	1	1	SSc4.3 Hybrid or Alternative Fuel Vehicles: Provide low consumption high efficiency hybrid or alternative fuel vehicles and preferred parking for 3% (4 people) of building occupants (carshare programs are acceptable at a ratio of 1 car for every 20 users).			
1	1	1	1	SSc4.4 Limit Parking Capacity: Provide preferred parking designated for use exclusively by carpools/car co-ops equal to 10% (4 spaces) of total non-visitor parking spaces. Size parking capacity not to exceed minimum local zoning requirements (323 spaces), OR add no new parking capacity for rehabilitation projects.			
1	1	1	1	SSc5.1 Protect or Restore Open Space: On a previously developed site, restore a minimum of 50% (m ²) of the site area (excluding the building footprint) with native/adaptive vegetation OR if pursuing SSc2 restore a minimum of 20% (m ²) of the site area (Including the building footprint) taking into account 'green' (vegetated) roof surfaces.			
1	1	1	1	SSc5.2 Reduce Development Footprint: Reduce the development footprint to exceed local zoning open space requirements by 25% (12520 m ²).			
1	1	1	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.			
1	1	1	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.			
1	1	1	1	SSc7.1 Heat Island Effect, Non-Roof: Provide shade (within 5 years) and/or use highly reflective material (SRI at least 29) and/or use open grid pavement for at least 50% of non-roof surfaces OR put 50% of the parking spaces underground or covered by structured parking (i.e. minimum 2 levels) or covered by a building.			
1	1	1	1	SSc7.2 Heat Island Effect, Roof: Use roofing material having a high Solar Reflectance Index (SRI) equal to or greater than 78 for a low-sloped roof or 29 for a steep-sloped 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.			
1	1	1	1	SSc8 Light Pollution Reduction: Design outdoor lighting only for safety and comfort while not exceeding 80% of the lighting power densities for exterior areas and 50% for building facades and landscape features as defined in ASHRAE/IESNA Standard 90.1-2004 while following zone requirements. Interior lighting shall fall within the property and building OR automatically turned off during non-business hours.			

5	0	0	0	Water Efficiency			
2	1	1	1	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.			
1	1	1	1	WEc2 Wastewater: Reduce usage of potable water for sewage conveyance by 50% OR treat 100% of wastewater to tertiary standards on-site.			
2	1	1	1	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.			

7	3	5	2	Energy & Atmosphere
*				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.
*				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.
*				EAp3 Elimination of CFCs & Halons: Use no CFC-based refrigerants in HVAC&R equipment and no halons in fire suppression equipment.
6	2	2	0	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).
		1	2	EAc2 Renewable Electricity: Supply 5% (1 point), 10% (2 points) or 20% (3 points) of total annual energy use, by cost (regulated loads only), from on-site renewable energy sources.
	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.
1				EAc4 Elimination of HCFCs: Install base building level HVAC&R equipment that does not contain HCFCs.
		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).
		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).

5	1	2	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.
			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.
2				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).
		1	1	MRC3 Salvaged Materials: Specify 5% (= 1 point) or 10% (= 2 points) of building materials used (by cost) are salvaged or refurbished.
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 pre-consumer).
1	1			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.
			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).
		1		MRC7 Certified Wood: Specify that 50% of total wood-based materials, by cost, be FSC certified (both harvesters and manufacturers excluding temporary construction applications of wood).
			1	MRC8 Durable Building: Engage a Building Science Professional to develop and implement a Building Durability Plan in accordance with the principles in CSA S478-05 (R2001) - Guidelines on Durability in Buildings.

10	1	2	2	Indoor Environmental Quality
				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.
				EQp2 Tobacco Smoke Control: Prohibit smoking in the building OR establish negative pressure (minimum 5Pa) in rooms with smoking (as specified) AND in both cases designate outside smoking areas to be at least 7.5m away from entrance areas and air intakes.
1				EQc1 Carbon Dioxide Monitoring: Install permanent carbon dioxide monitoring sensors and ventilation controls to limit CO2 levels in accordance with ASHRAE 62-2004, Appendix C.
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.
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.
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).
1				EQc4.1 Low-Emitting Adhesives & Sealants: Select adhesives, sealants and sealant primers that have VOC contents below specified limits (SCAQMD rule #1168) applied within the weatherproofing system.
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. Applies to products applied on-site and within the weatherproofing system.
1				EQc4.3 Low-Emitting Carpets: Carpets must meet the Carpet and Rug Institute's Green Label requirements.
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.
			1	EQc5 Indoor Chemical & Pollutant Source Control: Design to minimize chemical pollution cross-contamination of regularly occupied areas including housekeeping areas.
	1			EQc6.1 Controllability of Systems, Perimeter: Provide a minimum average of one operable window and one lighting control zone per 18.5 m ² (200 ft ²) for all regularly occupied spaces within 4.5 m (15 ft) of the perimeter wall.
			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.
1				EQc7.1 Thermal Comfort, ASHRAE 55: Comply with ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy.
1				EQc7.2 Thermal Comfort, Permanent Monitoring: Provide permanent temperature and humidity monitoring with operator control for thermal comfort.
		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).
		1		EQc8.2 Views for 90% of Spaces: Provide a direct line of sight from 90% of regularly occupied areas through vision glazing and achieve a window-to-floor area ratio of at least 0.07.

5	0	0	0	Innovation & Design Process
1				IDc1.1 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).
1				IDc1.2 Green Building Education: Implement a comprehensive green building education program consisting of signage, a case study and an interactive kiosk.
1				IDc1.3 Green Cleaning - Purchase of Sustainable Cleaning Products & Materials: Use environmentally preferable cleaning products for at least 30% of total purchases of cleaning products.
1				IDc1.4 Building Exterior & Hardscape Management Plan: Employ an environmentally sensitive, low-impact building exterior and hardscape management plan that helps preserve surrounding ecological integrity.
1				IDc2 LEED® Accredited Professional: At least one principal participant on the project team must be a LEED® Accredited Professional.

* This scorecard is intended to serve as a benchmarking tool to assess potential LEED Canada NC v1.0 performance. It does not confirm a LEED rating nor guarantee credit compliance. This document is the sole property of Enermodal and is only to be used for the project listed above. This document is not to be used in any other capacity without the expressed consent of Enermodal Engineering.



Energy Summary for: The Blue Mountains – Town Hall

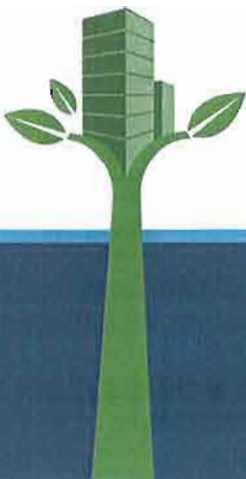
November 24, 2009

Prepared for:

The Town of The Blue Mountains

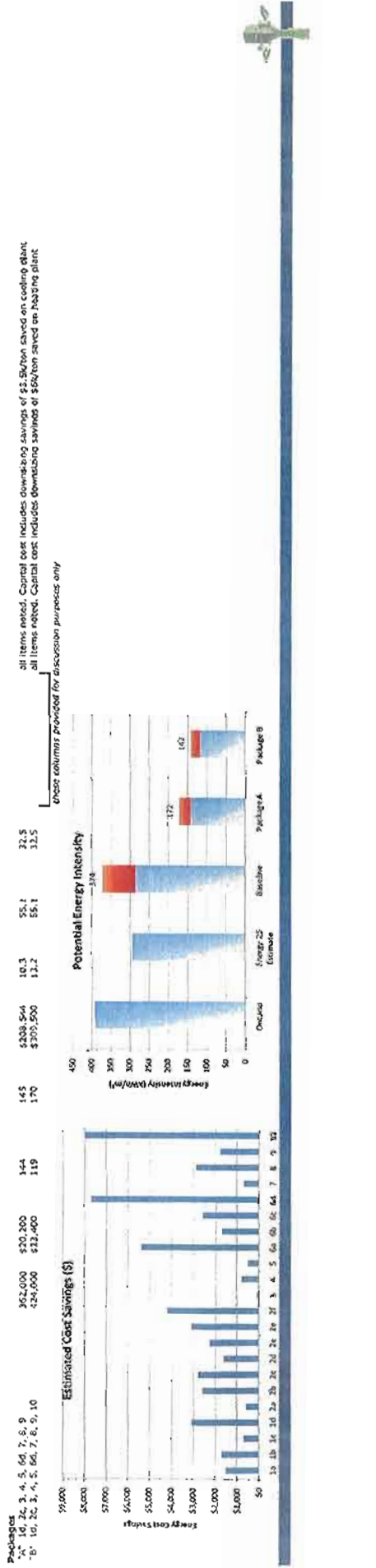
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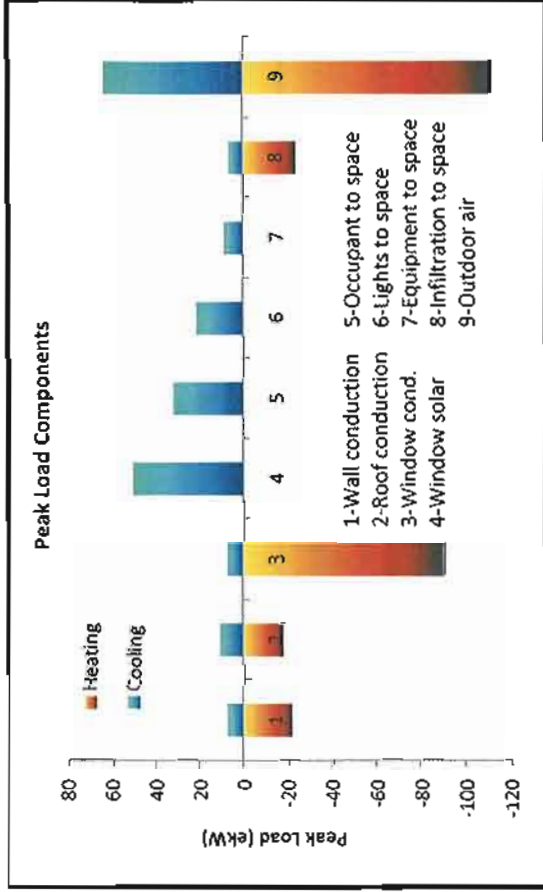
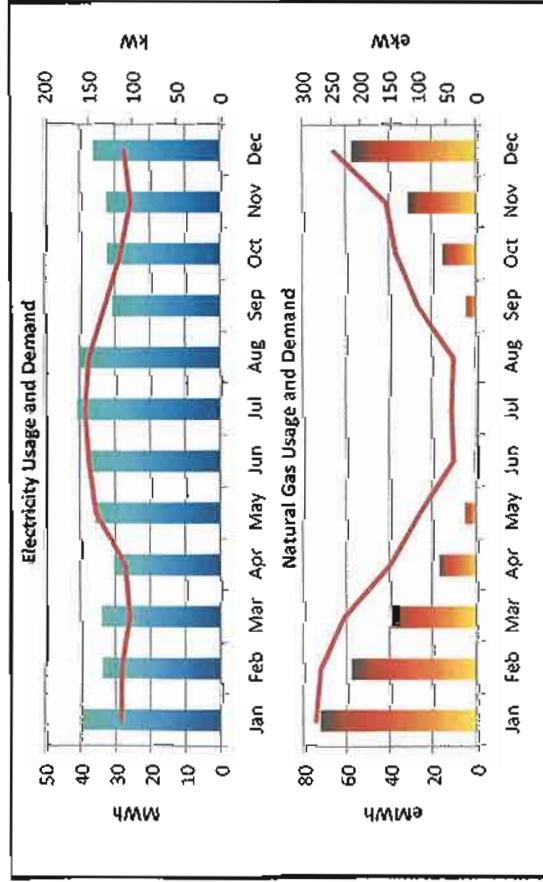
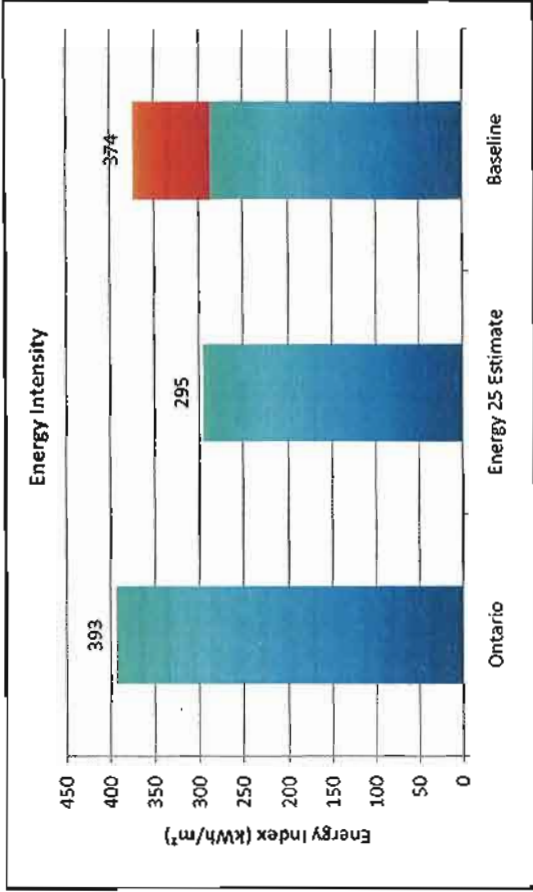
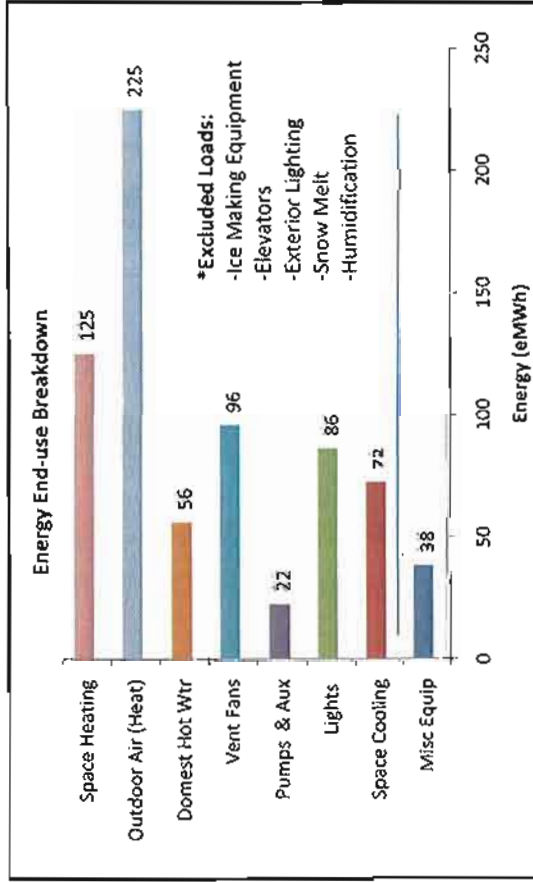


Energy Upgrades

Upgrade	Estimated Energy Savings (kWh)	Estimated Cost Savings (\$)	Intensity (kWh/m ²)	Intensity Savings (kWh/m ²)	Estimated Cost (\$)	Simple Payback	Estimated Plant Reduction - Cooling (kW)	ESTIMATED Tonnage Reduction - Cooling (kW)	ESTIMATED TONNAGE REDUCTION - COOLING (kW)	ESTIMATED TONNAGE REDUCTION - COOLING (kW)	Description
Lighting											
1a) Lighting 20% below ASHRAE 90.1-2004	12,000	\$1,500	284	5	\$0	0.0	-0.3	4.1			Use CEE certified bulbs and ballasts. Net cost is assumed to be negligible to account for more expensive bulbs and ballasts; but less than, occupancy control installed in all open and closed offices, meeting rooms, storage/copy rooms, and Council chambers, not included in mechanical/electrical rooms (where better controls should be considered). Capital cost of \$150 per sensor based on 65 sensors.
1b) Occupancy Sensors	14,000	\$1,700	283	5	\$5,750	\$7	-0.3	4.7			Multi-step dimming daylighting control installed in all above ground perimeter spaces. Capital cost increase of \$150 per sensor and \$30 per ballast.
1c) Daylighting Sensors	6,000	\$700	285	2	\$10,500	14.6	-0.2	1.8			Includes the above three lighting measures.
1d) Occupancy, Daylighting and Reduced Lighting	25,000	\$3,100	279	10	\$19,500	6.3	-0.7	8.6			
Windows											
2a) 40% VV Rate in Office Areas Spandrel	9,000	\$600	285	4	\$0	0.0	5.9	5.7			Outside the window-well rise of the office area to 40% by including additional spandrel in the curtainwall system (similar to recent design concept showing curtain wall ratio but incorporate bright glazed aluminum frame windows on the office and atrium). Capital cost increase is \$100/m ² based on 860 m ² of window.
2b) Triple glazed windows with AI frames	54,000	\$2,600	267	22	\$86,000	32.1	32.2	9.9			Incorporates both measures 2a and 2b. Lower window-well ratio and bright glazed aluminum windows.
2c) 2a plus 2b	55,000	\$2,800	266	22	\$33,000	11.8	32.8	14.4			Reduce the window-well ratio of the office area to 40% by replacing curtainwall system with masonry and punched windows. Capital cost increase is assumed to be negligible.
2d) 40% VV Rate in Office Areas Masonry	30,000	\$1,600	276	12	\$0	0.0	18.6	11.2			Use double glazing on 330m ² of office area, replace double glazed aluminum windows in the office area with double glazed fiberglass. Capital cost increase is \$100/m ² based on 330m ² .
2e) 2d plus 2b (Triple Glazed Fiberglass in Office Areas)	46,000	\$2,300	270	18	\$9,900	4.3	28.0	13.1			With reduced window-well ratio, replace double glazed aluminum windows in the office area with triple glazed fiberglass. Capital cost increase is \$150/m ² based on 330m ² .
2f) 2e plus Triple Glazed Fiberglass in Office Areas	63,000	\$3,100	263	25	\$49,500	16.0	38.1	15.3			Incorporating measure 2e, add bright glazed aluminum frame windows to the atrium. Capital cost is \$100/m ² based on 370m ² .
2f) 2e plus Triple Glazed Aluminum in Atrium	84,000	\$4,200	255	36	\$86,500	20.6	52.1	21.3			
Envelope											
3) R23 Walls	2,000	\$100	288	1	\$2,500	\$5.0	0.9	0.1			Add an additional 1" XPS insulation outside of the studs (2.5" total) to achieve R23 overall. Capital cost is \$10/m ² based on 250m ² of wall area.
4) R10 Spandrel	18,000	\$900	281	7	\$9,500	11.9	10.1	1.1			Add additional 1" polystyrene foam insulation between studs behind the spandrel panels. Capital cost is \$50/m ² based on 190m ² of spandrel.
5) R30 Roof	11,000	\$500	284	4	\$51,000	102.0	7.0	1.2			Add additional 2" polystyreneurea insulation to the roof deck. Capital cost is \$50/m ² based on 1020m ² .
Outdoor Air											
6) 75% Effective ERV	109,000	\$5,400	221	67	\$47,500	8.8	0.0	0.0			Incorporate 75% effective energy recovery wheel into the design of the make up air units. Capital cost is \$10/dm based on 4750 dh.
6b) Demand Central Ventilation	39,000	\$1,700	273	15	\$69,000	35.3	0.0	0.0			Include capacity to moderate outdoor air based on CO2 control. This includes changing the make up air units to variable speed drives, adding space level CO2 sensors and VAV boxes to control the amount of outdoor air. Capital cost is \$5000/MAU unit based on 2 units, \$1000/sensor based on 25 sensors, and \$1000/VAV box based on 25 VAV boxes.
6c) Spandrel Ventilation	50,000	\$2,600	269	20	\$7,600	2.9	0.0	0.0			Provide ventilation separate from the heat pump supply. This allows for a higher ventilation effectiveness (which reduces air supply requirements), thereby reducing the capital cost of the make up air units by 20%. The change incorporates additional duct work, and diffusers in the space, but overall smaller sized ductwork. Additionally, heat pumps will be able to cycle off during "heating" hours. Capital cost is \$2/dm.
6d) 5a, 4b, 5c Combined	200,000	\$7,700	268	80	\$105,000	13.7	0.0	0.0			Includes all three outdoor air measures.
Pump											
7) SD Pumps	7,000	\$700	286	3	\$10,000	14.3	0.0	0.0			Variable speed drives on the pumps, \$5000 per pump. Capital cost is \$20/m ² based on 400 m ² .
8) Copper Boiler	20,000	\$7,000	276	12	\$1,000	1.0	0.0	0.0			Model includes no efficiency savings (i.e., equivalent to just installing GSHP on base design). Cost for GSHP is \$6000/ton (less \$3500/ton for existing WHUP infrastructure @2500/ton net premium).
9) Low Flow Fibres	47,000	\$1,800	270	19	\$1,800	1.0	0.0	0.0			Variable speed drives on the pumps, \$5000 per pump. Capital cost is \$20/m ² based on 400 m ² .
10) Ground Source Heat Pump	186,000	\$5,000	215	73	\$162,500	20.3	0.3	-11.5			Model includes no efficiency savings (i.e., equivalent to just installing GSHP on base design). Cost for GSHP is \$6000/ton (less \$3500/ton for existing WHUP infrastructure @2500/ton net premium).
Package											
11) 2a, 2b, 2c, 4, 5, 6a, 7, 8, 9	362,000	\$70,300	164	145	\$338,564	10.3	55.1	32.5			All items noted. Capital cost includes downsizing savings of \$15.50/ton saved on cooling plant all items noted. Capital cost includes downsizing savings of \$64/ton saved on heating plant.
11b) 1a, 1b, 1c, 2, 4, 5, 6a, 7, 8, 9, 10	424,000	\$32,400	119	170	\$303,500	13.2	55.1	32.5			All items noted. Capital cost includes downsizing savings of \$64/ton saved on heating plant.



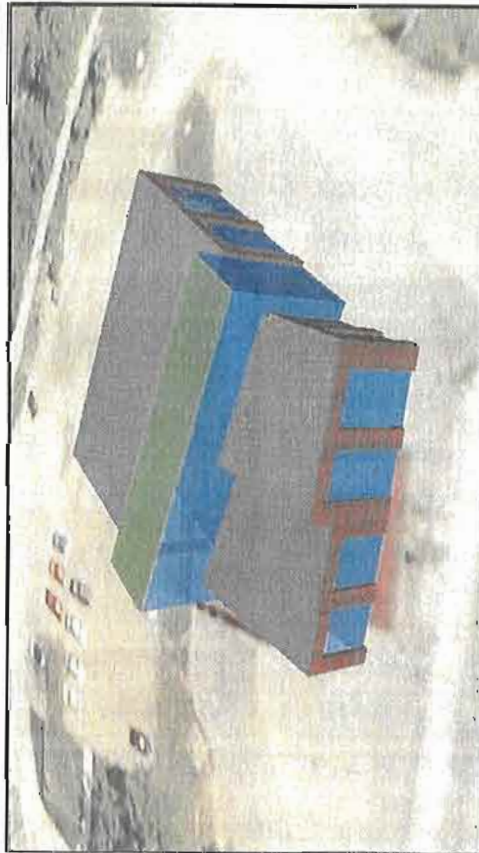
Energy Analysis



Estimated annual energy bill: \$80,000 (excluding additional loads listed above*)

Estimated annual CO2 emissions: 179 tons

Modeling Assumptions - pg. 1 of 2



Bldg Orient.	Window to Wall		Floor Heights (ft)		
	Floor-to-Ceiling %	Building Level	Fir-to-Fir	Fir-to-Cig	
N	55%	Basement	9	8	
E	55%	First and Second	12	10	
S	61%	Council Chambers	20	20	
W	56%	Alum.	35	35	
TOTAL	56%	Total Building Area (sf)	26,900		

Envelope Construction	Description	R-Value (IP)*
Spandrel Wall	1m x 1.7m, semi-rigid insul. in pan	4.5
Brick	Brck, 1.5" XPS, 3.5" spray foam in studs	18
Roof	4" polystyrene insul.	20
UG Floors	2" XPS perimeter insulation	10

Window	Description	U-Value (IP)	SHGC
Standard Glass	CoG: Low-e (0.04), Arg. (13mm)	0.24	0.36
	Total: Alum. Frm. (3mm t.b.), Alum. spacer	0.38	0.34
Glass Doors	CoG: Low-e (0.04), Arg. (13mm)	0.24	0.36
	Total: Alum. Frm. (3mm t.b.), Alum. edg. spcr.	0.56	0.31

Utility Rates	
Electricity: Hydro One Demand:	\$6.00 per KW peak
Consumption:	\$0.07* per kWh
Natural Gas: Enbridge Consumption:	\$0.40* per m ³

*Rates are historically averaged for analysis purposes and may differ from actual rates.

System	HVAC Delivery Systems Strategy & Controls	Cost Est.	Size Est.
Zone Level Heating and Cooling System	Water loop heat pump system: - Zone-level thermostatic control - Heat pump supply fan: - TSP = 1.5" w.g. Eff = 40% - Heating COP: 4.2 (Default OBC values) - Cooling COP: 3.28 (Default OBC values)	\$3500/ton installed	50 tons
Fresh Air Delivery System	Constant volume 100% Make-up air units (3): - Integrated heating and cooling coil - Supply: TSP = 3" w.g. Eff = 50% - Return: TSP = 2" w.g. Eff = 30% - Deliver fresh air to hp inlet	\$1000/ton installed	15 tons

System	HVAC Building Plant & Circulation Strategy & Controls	Cost Est.	Size Est.
Circulation Loop	Circulation loop: - Pumps: Head = 40 ft. w.g. Eff = 60% - Constant flow control	\$50/GPM	150 GPM
Heating Plant	Heating loop: - Central boiler Eff = 80% - Supply 180°F Return 160°F - Pumps: Head = 10 ft. w.g. Eff = 60% - Constant flow control	\$100/MBH (boiler) \$50/GPM (loop)	350 MBH (60s./MBH) 35 GPM
Cooling Plant	Fluid cooler loop: - 3 closed-circuit fluid coolers - 2spd. fan, maintain 90°F max. temp. - Pumps: Head = 10 ft. w.g. Eff = 60% - Constant flow control	\$175/ton (FLD, cooler) \$50/GPM (loop)	65 tons (300s./Ton) 85 GPM

System	Domestic Hot Water System Strategy & Controls	Cost Est.	Size Est.
DHW Loop	DHW loop: - Electric water heaters - Constant temp. control - Pumps: 10 ft. w.g. Eff = 60% - Recirculating loop with constant flow control	\$5/MBH (tank/heater) \$50/GPM (pump)	50 MBH 5 GPM

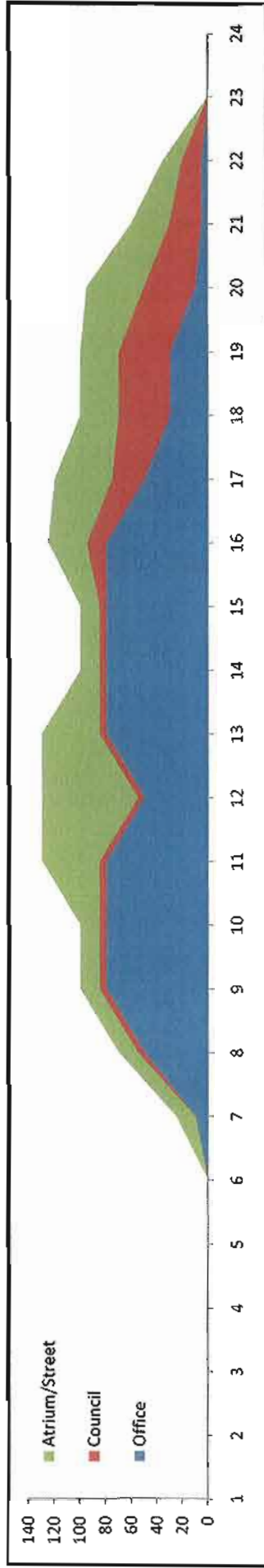


Modeling Assumptions - pg. 2 of 2

Occupancy Area	Expected Occupants	
	Max	Peak Occupancy
Office	80%	100
Council	80%	50
Atrium/Street	50%	150

TYPICAL DAILY SCHEDULE OF OCCUPANCY IN THE GIVEN AREA (Mon -Fri)																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Office	0%	0%	0%	0%	0%	0%	10%	50%	80%	80%	80%	50%	80%	80%	80%	80%	50%	30%	30%	10%	5%	5%	0%	0%
Council	0%	0%	0%	0%	0%	0%	0%	0%	10%	10%	10%	10%	10%	10%	10%	30%	50%	80%	80%	50%	30%	0%	0%	0%
Atrium/Street	0%	0%	0%	0%	0%	0%	10%	10%	10%	10%	30%	50%	30%	10%	10%	20%	30%	20%	30%	20%	10%	0%	0%	0%

Building Occupancy Curve:



Space Condition Load:

Area	L/s/occ	Ventilation		System	Heating Setpoints		Cooling Setpoints		Humidity	
		L/s/m ²	Delivery		Occ.	Un-Occ.	Occ.	Un-Occ.	Min.	Max.
Office	3.125	0.3	0.8	1.0 (Subject to Review)	21°C	16°C	24°C	29°C	35%	65%
Council	3.125	0.3	0.8	1.0	20°C	15°C	25°C	30°C	35%	65%
Atrium/Street	3.125	0.3	0.8	1.0	20°C	15°C	25°C	30°C	35%	65%

Lighting Loads:

Area	Illumin. (lux)	Illuminance Reference	Density (W/m ²)	Density Reference	System Description	
					Control	Power (kW)
Office	50-300	IESNA	12.0	ASHRAE 90.1-2004	Suspended T8 Fixtures in typical 4" lengths Electronic, Rapid-Start Ballasts	Manual Switches
Council	50-300	IESNA	14.0	ASHRAE 90.1-2004		
Atrium/Street	50-100	IESNA	14.0	ASHRAE 90.1-2004		

Non-Regulated Loads:

Load	Load In Zone	Density (W/m ²)	Reference	Power (kW)
Plugs & Equipment	All	10	estimate	N/A
Exterior Lighting	Whole Building	N/A	ASHRAE 90.1 Levels	N/A





Summary of Energy Efficiency Costing analysis:

Below is a list of Energy related measures that are being investigated for the Town Hall of The Blue Mountains.

These measures are being incorporated into the projects Energy Model Shopping List for design analysis, discussion & recommendation purposes.

Please review and comment on our proposed measures and the estimated cost associated with each prior to the week of November 23, 2009.

Building Enclosure

Windows Base Case: Double glazed, low-e (e=0.05), Argon, non-aluminum edge spacer, thermally broken aluminum frame (u-value = 2.14, shgc = 0.34), 56% Window-wall ratio	
Upgrades	
Lower Window : Wall Ratio	Uncertain*
* Unclear on net cost of window reduction. Savings in windows and spandrel, but additional cost for wall.	
Fiberglass Frame (u-value = 1.53, shgc = 0.32)	\$30/m ²
Triple Glazed with Aluminum Frame (u-value = 1.43, shgc = 0.29)	\$100/m ²
Triple Glazed with Fiberglass Frame (u-value = 0.90, shgc = 0.27)	\$150/m ²
Roof Base Case: 3" Polyisocyanurate (R18.5)	
Upgrades	
Add 2" polyisocyanurate (5" total) to roof assembly: (R28.5)	\$50/m ²
Walls Base Case: 1.5" XPS outboard with 3.5" polyurethane foam between steel studs (R18.5)	
Upgrades	
Add 1" XPS (2", total) XPS outboard with 3.5" polyurethane foam between studs (R21)	\$10/m ²
Spandrel Base Case: R4 Spandrel (2" batt inside pan)	
Upgrades	
1" polyurethane foam insulation between studs behind Spandrel Panels	\$50/m ²
General Comment: Insulation Installation - Overlapping Rigid Insulation. More Labour, better actual performance.	



Town of the Blue Mountains Town Hall – Energy Upgrade Options

Electrical

Lighting Base Case: ASHRAE 90.1-2004 default levels	
Upgrades	
20% Better than ASHRAE 90.1-2004 (9.6W/m ² for Office) Accomplished using: <ul style="list-style-type: none"> • T8 or T5HO lighting • CEE Ballasts 	Negligible cost increase
Lighting Controls Base Case: No occupancy or daylighting control	
Upgrades	
Occupancy sensor in closed spaces	\$150/sensor
Daylighting and occupancy sensor in perimeter spaces	\$150/sensor, \$30/ballast

Mechanical

Ventilation Base Case: Constant volume make up air unit providing fresh air to the heat pump return. No CO ₂ control strategy or integrated heat recovery.	
Upgrades	
75% effective ERV	\$10/cfm
CO ₂ control (Add sensors, VAV boxes, and VFD on MUA units)	\$1000/sensor, \$1000/VAV Box, \$5000/drive
Separate heat pump supply from ventilation	Uncertain*
*Unclear on the net cost of reducing duct size, adding ductwork and diffusers, reducing the OA required/MUA unit size by 20%. Improved performance, ventilation & occupant comfort.	
Heating Base Case: Standard efficiency boiler (80%) with constant speed heat pump loop	
Upgrades	
Condensing boiler	\$20/MBH
VSD pumps	\$5,000/pump, \$500/2-way valve
Domestic Hot Water Base Case: Standard flow fixtures, single water heater in mechanical room	
Upgrades	
Low – flow fixtures	\$100/fixture
General Comment: Distributed DHW – Several small DHW heaters where hot water is required. Reduces stand-by losses and pump power (if required).	
Plant Characteristics: Standard efficiency boiler and fluid cooler providing make-up for the heat pump loop	
Upgrades	
Ground Source Heat Pump	\$20/Linear Foot @200ft depth, \$3000/ton

Square Foot Cost Estimate Report

5.

Estimate Name: **Untitled**

Building Type: **Office, 2-4 Story with Face Brick with Concrete Block Back-up / Steel Joists**
 Location: **BARRIE, ON**
 Stories Count (L.F.): **2.00**
 Stories Height: **12.00**
 Floor Area (S.F.): **26,981.00**
 Labor Type: **Union**
 Basement Included: **Yes**
 Date Release: **Year 2010**
 Cost Per Square Foot: **\$161.82**
 Total Building Cost: **\$4,366,000**



Costs are derived from a building model with basic components. Scope differences and market conditions can cause costs to vary significantly.

		% of Total	Cost Per SF	Cost
A Substructure		8.1%	11.42	\$308,000
A1010	Standard Foundations		2.82	\$76,000
	Strip footing, concrete, reinforced, load 11.1 KLF, soil bearing capacity 6 KSF, 12" deep x 24" wide			
	Spread footings, 3000 PSI concrete, load 200K, soil bearing capacity 6 KSF, 6' - 0" square x 20" deep			
A1030	Slab on Grade		2.80	\$76,600
	Slab on grade, 4" thick, non industrial, reinforced			
A2010	Basement Excavation		1.66	\$42,000
	Excavate and fill, 10,000 SF, 8' deep, sand, gravel, or common earth, on site storage			
A2020	Basement Walls		4.24	\$114,500
	Foundation wall, CIP, 12' wall height, pumped, .444 CY/LF, 21.59 PLF, 12" thick			
B Shell		26.1%	36.75	\$991,500
B1010	Floor Construction		16.73	\$451,500
	Cast-in-place concrete column, 12" square, tied, 200K load, 12' story height, 142 lbs/LF, 4000PSI			
	Fiat slab, concrete, with drop panels, 6" slab/2.5" panel, 12" column, 15'x15' bay, 75 PSF superimposed load, 153 P:			
	Floor, concrete, slab form, open web bar joist @ 2' OC, on W beam and wall, 25'x25' bay, 26" deep, 75 PSF superirr			
	Floor, concrete, slab form, open web bar joist @ 2' OC, on W beam and wall, 25'x25' bay, 26" deep, 75 PSF superirr			
	Fireproofing, gypsum board, fire rated, 2 layer, 1" thick, 14" steel column, 3 hour rating, 22 PLF			
B1020	Roof Construction		3.13	\$84,500
	Floor, steel joists, beams, 1.5" 22 ga metal deck, on columns and bearing wall, 25'x25' bay, 20" deep, 40 PSF superi			
	Floor, steel joists, beams, 1.5" 22 ga metal deck, on columns and bearing wall, 25'x25' bay, 20" deep, 40 PSF superi			
B2010	Exterior Walls		9.97	\$269,000
	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, perlite core fill			
B2020	Exterior Windows		2.93	\$79,000
	Windows, aluminum, awning, insulated glass, 4'-5" x 5'-3"			
B2030	Exterior Doors		1.15	\$31,000
	Door, aluminum & glass, with transom, narrow stile, double door, hardware, 6'-0" x 10'-0" opening			
	Door, aluminum & glass, with transom, bronze finish, hardware, 3'-0" x 10'-0" opening			
	Door, steel 18 gauge, hollow metal, 1 door with frame, no label, 3'-0" x 7'-0" opening			

	% of Total	Cost Per SF	Cost
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B3010	Roof Coverings	2.84	\$76,600
	Roofing, asphalt flood coat, gravel, base sheet, 3 plies 15# asphalt felt, mopped		
	Insulation, rigid, roof deck, composite with 2" EPS, 1" perlite		
	Roof edges, aluminum, duranodic, .050" thick, 6" face		
	Flashing, aluminum, no backing sides, .019"		
	Gravel stop, aluminum, extruded, 4", duranodic, .050" thick		
C Interiors		20.0%	28.21
C1010	Partitions	2.81	\$70,500
	Metal partition, 5/8" water resistant gypsum board face, no base layer, 3-5/8" @ 24" OC framing, same opposite face		
	1/2" fire rated gypsum board, taped & finished, painted on metal furring		
C1020	Interior Doors	5.10	\$137,600
	Door, single leaf, kd steel frame, hollow metal, commercial quality, flush, 3'-0" x 7'-0" x 1-3/8"		
C1030	Fittings	1.04	\$28,000
	Toilet partitions, cubicles, ceiling hung, plastic laminate		
C2010	Stair Construction	4.41	\$119,000
	Stairs, steel, cement filled metal pan & picket rail, 16 risers, with landing		
C3010	Wall Finishes	1.04	\$28,000
	Painting, interior on plaster and drywall, walls & ceilings, roller work, primer & 2 coats		
	Vinyl wall covering, fabric back, medium weight		
C3020	Floor Finishes	7.93	\$214,000
	Carpet, tufted, nylon, roll goods, 12' wide, 36 oz		
	Carpet, padding, add to above, minimum		
	Vinyl, composition tile, maximum		
	Tile, ceramic natural clay		
C3030	Ceiling Finishes	6.08	\$164,000
	Acoustic ceilings, 3/4" mineral fiber, 12" x 12" tile, concealed 2" bar & channel grid, suspended support		
D Services		44.3%	62.28
D1010	Elevators and Lifts	17.07	\$460,600
	1 - Hydraulic, passenger elevator, 1500 lb, 2 floors, 100 FPM		
	Hydraulic passenger elevator, 3000 lb, 3 floors, 12' story height, 2 car group, 125 FPM		
D2010	Plumbing Fixtures	3.08	\$83,000
	Water closet, vitreous china, bowl only with flush valve, wall hung		
	Urinal, vitreous china, wall hung		
	Lavatory w/trim, vanity top, PE on CI, 20" x 18"		
	Service sink w/trim, PE on CI, wall hung w/trim guard, 24" x 20"		
	Water cooler, electric, wall hung, 8.2 GPH		
	Water cooler, electric, wall hung, wheelchair type, 7.5 GPH		
D2020	Domestic Water Distribution	0.41	\$11,000
	Gas fired water heater, commercial, 100< F rise, 100 MBH input, 91 GPH		
D2040	Rain Water Drainage	0.54	\$14,500
	Roof drain, CI, soil, single hub, 4" diam, 10' high		
	Roof drain, CI, soil, single hub, 4" diam, for each additional foot add		
D3050	Terminal & Package Units	15.23	\$411,000
	Rooftop, multizone, air conditioner, offices, 25,000 SF, 79.16 ton		
D4010	Sprinklers	3.24	\$87,600
	Wet pipe sprinkler systems, steel, light hazard, 1 floor, 5000 SF		
	Wet pipe sprinkler systems, steel, light hazard, each additional floor, 5000 SF		
	Standard High Rise Accessory Package 3 story		
D4020	Standpipes	0.80	\$21,500
	Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, 1 floor		

		% of Total	Cost Per SF	Cost
	Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, additional floors			
D5010	Electrical Service/Distribution		3.65	\$98,500
	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 1000 A			
	Feeder installation 600 V, including RGS conduit and XHHW wire, 1000 A			
	Switchgear installation, incl switchboard, panels & circuit breaker, 1200 A			
D5020	Lighting and Branch Wiring		11.30	\$305,000
	Receptacles incl plate, box, conduit, wire, 16.5 per 1000 SF, 2.0 W per SF, with transformer			
	Miscellaneous power, 1.2 watts			
	Central air conditioning power, 4 watts			
	Motor installation, three phase, 460 V, 15 HP motor size			
	Fluorescent fixtures recess mounted in ceiling, 1.6 watt per SF, 40 FC, 10 fixtures @32watt per 1000 SF			
D5030	Communications and Security		6.71	\$181,000
	Telephone wiring for offices & laboratories, 8 jacks/MSF			
	Communication and alarm systems, fire detection, addressable, 50 detectors, includes outlets, boxes, conduit and w			
	Fire alarm command center, addressable with voice, excl. wire & conduit			
	Internet wiring, 8 data/voice outlets per 1000 S.F.			
D5090	Other Electrical Systems		0.26	\$7,000
	Generator sets, w/battery, charger, muffler and transfer switch, gas/gasoline operated, 3 phase, 4 wire, 277/480 V, 7			
	Uninterruptible power supply with standard battery pack, 15 kVA/12.75 kW			
E Equipment & Furnishings		1.5%	2.06	\$65,500
E1090	Other Equipment		2.06	\$65,500
	30 - T.V. SYSTEMS, VHF reception & distribution, 30 outlets			
	20 - Sound system, speaker, ceiling or wall			
	1 - Sound system, amplifier, 250 W			
	10 - Detection Systems, smoke detector, duct type, excl. wires & conduit			
	10 - Detection Systems, heat detector, smoke detector, ceiling type, excl. wires & conduit			
	20 - Emergency lighting units, nickel cadmium battery operated, twin sealed beam light, 25 W, 6 V each			
	10 - Closed circuit television system (CCTV), surveillance, for additional camera stations, add			
	1 - Closed circuit television system (CCTV), surveillance, one station (camera & monitor)			
F Special Construction		0.0%	0.00	\$0
G Building Sitework		0.0%	0.00	\$0
Sub Total		100%	\$140.71	\$3,796,500
Contractor's Overhead & Profit		15.0%	\$21.11	\$569,500
Architectural Fees		0.0%	\$0.00	\$0
User Fees		0.0%	\$0.00	\$0
Total Building Cost			\$161.82	\$4,366,000

Square Foot Cost Estimate Report

Estimate Name: **The Blue Mountains New Town Hall**
The Blue Mountains
Bridge Street East
Thornbury
ON
N0H2P0

Building Type: **Town Hall, 2-3 Story with Face Brick with Concrete Block Back-up / Steel Frame**
 Location: **BARRIE, ON**
 Stories Count (L.F.): **2.00**
 Stories Height: **12.00**
 Floor Area (S.F.): **26,981.00**
 LaborType: **Union**
 Basement Included: **Yes**
 Data Release: **Year 2010**
 Cost Per Square Foot: **\$149.07**
 Total Building Cost: **\$4,022,000**



Costs are derived from a building model with basic components. Scope differences and market conditions can cause costs to vary significantly.

** Estimate Only

		% of Total	Cost Per SF	Cost
A Substructure		8.1%	10.49	\$283,000
A1010	Standard Foundations		2.35	\$63,500
	Strip footing, concrete, reinforced, load 11.1 KLF, soil bearing capacity 6 KSF, 12" deep x 24" wide			
	Spread footings, 3000 PSI concrete, load 200K, soil bearing capacity 6 KSF, 6' - 0" square x 20" deep			
A1030	Slab on Grade		2.80	\$75,600
	Slab on grade, 4" thick, non industrial, reinforced			
A2010	Basement Excavation		1.56	\$42,000
	Excavate and fill, 10,000 SF, 8' deep, sand, gravel, or common earth, on site storage			
A2020	Basement Walls		3.78	\$102,000
	Foundation wall, CIP, 12' wall height, pumped, .444 CY/LF, 21.59 PLF, 12" thick			
B Shell		30.4%	39.34	\$1,061,500
B1010	Floor Construction		20.63	\$554,000
	Cast-in-place concrete column, 12" square, tied, 200K load, 12' story height, 142 lbs/LF, 4000PSI			
	Steel column, W10, 200 KIPS, 16' unsupported height, 49 PLF			
	Flat slab, concrete, with drop panels, 6" slab/2.5" panel, 12" column, 15'x15' bay, 75 PSF superimposed load, 153 P:			
	Floor, composite metal deck, shear connectors, 5.5" slab, 25'x30' bay, 23.5" total depth, 125 PSF superimposed load			
	Fireproofing, gypsum board, fire rated, 2 layer, 1" thick, 10" steel column, 3 hour rating, 17 PLF			
B1020	Roof Construction		3.65	\$98,500
	Floor, steel joists, beams, 1.5" 22 ga metal deck, on columns, 25'x30' bay, 25" deep, 40 PSF superimposed load, 60			
B2010	Exterior Walls		7.78	\$210,000
	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, perlite core fill			
B2020	Exterior Windows		3.93	\$106,000
	Windows, aluminum, awning, insulated glass, 4'-5" x 5'-3"			
B2030	Exterior Doors		0.83	\$22,600
	Door, aluminum & glass, with transom, narrow stile, double door, hardware, 6'-0" x 10'-0" opening			
	Door, steel 18 gauge, hollow metal, 1 door with frame, no label, 3'-0" x 7'-0" opening			
B3010	Roof Coverings		2.61	\$70,500
	Roofing, asphalt flood coat, gravel, base sheet, 3 plies 15# asphalt felt, mopped			

% of Total	Cost Per SF	Cost
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Insulation, rigid, roof deck, composite with 2" EPS, 1" perlite
 Roof edges, aluminum, duranodic, .050" thick, 6" face
 Flashing, aluminum, no backing sides, .019"

C Interiors		19.7%	25.54	\$689,000
C1010	Partitions		3.39	\$91,500
	Metal partition, 5/8" fire rated gypsum board face, 1/4" sound deadening gypsum board, 2-1/2" @ 24", same opposite 1/2" fire rated gypsum board, taped & finished, painted on metal furring			
C1020	Interior Doors		2.85	\$77,000
	Door, single leaf, wood frame, 3'-0" x 7'-0" x 1-3/8", birch, solid core			
C1030	Fittings		0.30	\$8,000
	Toilet partitions, cubicles, ceiling hung, plastic laminate			
C2010	Stair Construction		4.47	\$120,500
	Stairs, steel, cement filled metal pan & picket rail, 20 risers, with landing			
C3010	Wall Finishes		1.24	\$33,500
	Painting, interior on plaster and drywall, walls & ceilings, roller work, primer & 2 coats Ceramic tile, thin set, 4-1/4" x 4-1/4"			
C3020	Floor Finishes		7.21	\$194,500
	Carpet tile, nylon, fusion bonded, 18" x 18" or 24" x 24", 35 oz Terrazzo, maximum Vinyl, composition tile, maximum			
C3030	Ceiling Finishes		6.08	\$164,000
	Acoustic ceilings, 3/4" mineral fiber, 12" x 12" tile, concealed 2" bar & channel grid, suspended support			
D Services		40.9%	53.06	\$1,431,500
D1010	Elevators and Lifts		18.66	\$503,500
	1 - Hydraulic, passenger elevator, 1500 lb, 2 floors, 100 FPM Hydraulic passenger elevator, 3000 lb, 3 floors, 12' story height, 2 car group, 125 FPM			
D2010	Plumbing Fixtures		3.87	\$104,500
	Water closet, vitreous china, bowl only with flush valve, wall hung Urinal, vitreous china, wall hung Lavatory w/trim, vanity top, PE on CI, 19" x 16" oval Kitchen sink w/trim, countertop, PE on CI, 24" x 21", single bowl Service sink w/trim, PE on CI, corner floor, 28" x 28", w/rim guard Water cooler, electric, wall hung, wheelchair type, 7.5 GPH			
D2020	Domestic Water Distribution		0.26	\$7,000
	Gas fired water heater, commercial, 100< F rise, 75.5 MBH input, 63 GPH			
D2040	Rain Water Drainage		0.32	\$8,500
	Roof drain, CI, soil, single hub, 4" diam, 10' high Roof drain, CI, soil, single hub, 4" diam, for each additional foot add			
D3050	Terminal & Package Units		7.62	\$205,500
	Rooftop, single zone, air conditioner, offices, 10,000 SF, 31.67 ton			
D4010	Sprinklers		2.87	\$77,500
	Wet pipe sprinkler systems, steel, light hazard, 1 floor, 5000 SF Wet pipe sprinkler systems, steel, light hazard, each additional floor, 10,000 SF			
D4020	Standpipes		2.78	\$76,000
	Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, 1 floor Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, additional floors			
D6010	Electrical Service/Distribution		1.11	\$30,000
	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 400 A Feeder installation 600 V, including RGS conduit and XHHW wire, 400 A Switchgear installation, incl switchboard, panels & circuit breaker, 400 A			

		% of Total	Cost Per SF	Cost
D5020	Lighting and Branch Wiring Receptacles incl plate, box, conduit, wire, 16.5 per 1000 SF, 2.0 W per SF, with transformer Wall switches, 1.0 per 1000 SF Miscellaneous power, 1.2 watts Central air conditioning power, 8 watts Motor installation, three phase, 460 V, 15 HP motor size Fluorescent fixtures recess mounted in ceiling, 1.6 watt per SF, 40 FC, 10 fixtures @32watt per 1000 SF		11.75	\$317,000
D6030	Communications and Security Communication and alarm systems, fire detection, addressable, 25 detectors, includes outlets, boxes, conduit and w Fire alarm command center, addressable with voice, excl. wire & conduit Internet wiring, 8 data/voice outlets per 1000 S.F.		3.61	\$97,500
D6090	Other Electrical Systems Generator sets, w/battery, charger, muffler and transfer switch, gas/gasoline operated, 3 phase, 4 wire, 277/480 V, 1		0.20	\$5,500
E Equipment & Furnishings		0.9%	1.20	\$32,500
E1090	Other Equipment 20 - Detection Systems, smoke detector, duct type, excl. wires & conduit 20 - Detection Systems, heat detector, smoke detector, ceiling type, excl. wires & conduit 15 - Emergency lighting units, nickel cadmium battery operated, twin sealed beam light, 25 W, 6 V each		1.20	\$32,500
F Special Construction		0.0%	0.00	\$0
G Building Sitework		0.0%	0.00	\$0
Sub Total		100%	\$129.63	\$3,497,500
Contractor's Overhead & Profit		15.0%	\$19.44	\$524,500
Architectural Fees		0.0%	\$0.00	\$0
User Fees		0.0%	\$0.00	\$0
Total Building Cost			\$149.07	\$4,022,000