Canadian URBAN Institute

Sustainable Building

Canada on the Move

PREPARED FOR

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WORLD SUSTAINABLE BUILDING CONFERENCE

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APPENDICES

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APPENDIX A: NATIONAL LIST OF FEDERAL AND PROVINCIAL SUSTAINABLE BUILDING INITIATIVES ACROSS CANADA

Federal Programs

Government Organization & Policy	Recipients	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal / Energy)	Sustainable Building Encouragement	Contact
Building Energy Technology Advancement (BETA) Plan *Subunit:* Natural Resources Canada - CANMET *Start:* 1989 *Program Type:* R&D and Financial	Building Industry	Accelerates the development of and adoption of innovative technologies to improve energy efficiency in residential and commercial buildings.	R&D Applied Research Studies Product/ Process Development	Advisory Services, Audits, Demonstrations, Energy management, Monitoring, Labelling	Developed multiple demonstration projects and state-of-the-art software, such as HOT2000; NECB COMPLY; BUILDTRA; FRAME VISION; and BGTool.	The program provides target services for the design, construction, operation and renovation of buildings that save energy and improve the environment. The target is to reduce energy by 50% without compromising indoor air, durability and comfort.	Buildings Group CANMET Energy Technology Centre Natural Resources Canada www.buildingsgroup.nrcan.gc.ca
C-2000 *Subunit* Natural Resources Canada - CANMET *Start:*1993	Industrial Commercial/ institutional Multiple-unit residential structures.	The program is designed to achieve a high level of energy and environmental performance by using current building technologies, such as the integrated design process.	Employed a rigid set of criteria for the building team – including a 50% reduction relative to a comparative MNECB.	All segments of energy efficiency and water efficiency, in addition to air quality and overall functionality.	Annual operating budget of $250,000 12 buildings have been completed using the C-2000 projects including commercial, residential and industrial.	The process of developing a building using C-2000 encourages the application of high performance building principles, including maintenance of site ecology and improved levels of indoor environmental quality.	Buildings Group CANMET Energy Technology Centre Natural Resources Canada www.buildingsgroup.nrcan.gc.ca
Green Building Challenge (GBC) Natural Resources Canada- Office of Energy Efficiency Start: 1991 Program Type: Incentive	An International Consortium of countries pursuing an environmental performance system.	The GBC has encouraged 20 countries to work on developing an integrated design process and evaluation system to reflect different priorities technologies,	International Building Community and Domestic Community	GB Tool Integrated Design Process	There have been over 4 international conferences since the inception of the program.	The challenge has enabled the international community to advance the state-of-the-art building environmental performance assessment methodologies.	Buildings Group CANMET Energy Technology Centre Natural Resources Canada www.buildingsgroup.Nrcan.gc.ca

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		building traditions and cultural values in buildings.					
Green Building Tool (GBTool) Subunit: Natural Resources Canada-CANMET Start: 1997 Program Type RAD	GBTool is used by GBC and C-2000 for audit purposes.	Assessment framework which provides a description of the building and its performance relative to regional benchmarks.	Detailed assessment pages, Conferences, International comparisons		GBTool is often used to assist development teams assess the impact of buildings and various options.	Used to achieve sustainable building "potential" performance before occupancy.	Buildings Group CANMET Energy Technology Centre Natural Resources Canada www.buildingsgroup.Nrcan.gc.ca
Capital Cost Allowance Class 43.1 *Subunit:* Tax Policy Branch Department of Finance *Start:* 1994 *Program Type:* Incentive	Industrial Commercial/ Institutional	Program uses an accelerated capital cost allowance at a rate of 30% under the Income Tax Regulations to encourage investment in renewable resources.	Tax Incentives Advisory Services Promotional	Renewable Energy and Active Solar & Photovoltaics	Not specified	No direct benefits associated with the production of green power.	CANMET Energy Technology Centre www.nrcan.gc.ca Department of Finance Business Income Tax Divisions www.fin.gc.ca Canada Custom and Revenue Agency www.ccra-adrc.gc.ca
Canadian Renewable and Conservation Expenses (CREC) *Subunit:* Tax Policy Branch Department of Finance *Start:* 1996 *Program Type:* Incentive Status: No longer operating.	Industrial Commercial Institutional	Designed to promote renewable energy projects (suppliers of energy). Program allows investors to write-off intangible costs associated with renewable	Tax Incentives Advisory Services Promotional	Renewable Energy and Active Solar & Photovoltaics	Not specified	No direct benefits. Associated with the production of green power.	CANMET Energy Technology Centre www.nrcan.gc.ca Department of Finance Business Income Tax Divisions www.fin.gc.ca Canada Custom and Revenue Agency www.ccra-adrc.gc.ca

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		energy – i.e. feasibility studies (50% property under class 43.1).					
Integrated Design Process Guidelines Subunit: Natural Resources Canada, CANMET Energy Technology Centre	Industrial Commercial Institutional Multiple-unit Residential Structures	A set of guidelines that were created from the results of the C-2000 pilot program. The aim is to produce buildings with a high level of healthy and energy efficient performance assisted by advanced building techniques.	Employs a rigid set of criteria for the building team during the design process. Requires anywhere between 4-10 design meetings per project.	All segments of energy efficiency and water efficiency, in addition to air quality and overall functionality.	Energy modelling and cost control monitoring are ongoing during every meeting.	The process of developing a building using Integrated Design Process guidelines encourages additional application rules and standardized methods when constructing sustainable buildings.	Sustainable Buildings CANMET Energy Technology Centre, Natural Resources Canada www.sbc.nrcan.gc.ca/
Canada Lands Company (CLC)	Municipal Sector and private-sector	The CLC strives to incorporate sound principles of sustainable development for each project including energy efficiency, R-2000 and sustainable building practices.	The CLC is responsible for the development and selling of lands and involves PPP and municipal agreements.	Renewable energy, brownfields remediation, sustainable community development and reinvestment.	CLC is involved with brownfield remediation and sustainable community development across Canada.	No direct benefits. Associated with encouraging sustainable building practices by adopting other government programs.	Canada Lands Company www.clcl.ca/en/home/htm
Model National Energy Code for Buildings and Houses Subunit: NRC-	Commercial & Residential building sector	Specifies minimum requirements for energy	Advisory services Building standards Displays/Exhibits	All segments of energy efficiency.	Ontario is the only province to adopt the code. The	Critical component for moving the building industry to higher energy efficiency	Canadian Commission on Building and Fire Codes www.nationalcodes.ca

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Canadian Commission on Building and Fire Codes Start: 1992 Program Type Standards/ Convention		codes to increase energy efficiency of new houses, buildings, and additions. Monitors and analyzes the impact of the codes and supports their implementation and adoption.	Promotional material and seminars		municipalities of Montreal and Vancouver have also made references to the codes. Most provinces have modified the building code for their own purposes.	levels and providing a benchmark for building evaluation systems, such as LEED, CBIP, C-2000, GBTool and Green Globes.	
Equilibrium Housing Program Subunit: Canadian Mortgage and Housing Corporation (CMHC) Start: 2007 Program Type: Information R&D	Residential Housing	A national housing initiative that brings both the public and private sectors together to develop homes that combine resource and energy efficient technologies to reduce environmental impacts.	Demonstration Information Awareness Applied Research R&D	All	Within its inaugural year, the pilot program has chosen developers to deliver 12 different pilot project demonstrations showcasing new high-performance energy efficient homes.	Provides builders and developers with new approaches towards the installation of environmentally sustainable homes.	Canadian Mortgage and Housing Corporation. www.cmhcschl.gc.ca
Healthy Housing Subunit: Natural Resources Canada-via Federation of Canada Municipalities Start: 2002 Program Type: R&D	Residential new and existing	Aims to change how new homes are built, how existing homes are renovated and operated, and how communities are planned to enhance	Advertising Demonstrations Displays and exhibits R&D Applied Research Basic Research	Renewable energy appropriate to application.	Not specified	Not directly related to sustainable building. Emphasis is on reduced cost for housing, especially in northern communities.	Canadian Mortgage and Housing Corporation www.cmhcschl.gc.ca

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		occupant health, energy efficiency, resource efficiency and affordability.					
High rise and Multiples Innovation Group Subunit : Canadian Mortgage and Housing Corporation Start- Program Type: R&D	Commercial & Residential building sector	The group examines and promotes research into issues surrounding high-rise construction, operation, maintenance and repair.	Applied R&D Advisory Services Displays/Exhibits Promotional Material and Seminars	Areas examined include envelope, energy efficiency, acoustical performance, healthy indoor environment, maintenance, operations, renovations, and repair of high-rise and multiple residential construction.	Not specified	The group, similar to C-2000, is advancing sustainable building practices in high-rise units, including the application of Green Globes and LEED.	Research Division of Canada Mortgage and Housing Corporation www.cmhc.ca
Green Municipal Enabling Fund Subunit: Natural Resources Canada-via Federation of Canadian Municipalities Start: 2000 Program Type: Incentive	Municipal Government	Support studies assess the technical, environmental or economic feasibility of innovative projects.	Displays, Alliances (PPP), Seminars Financial incentive	Covers energy and energy services, water, solid waste management, sustainable transportation services and technologies, and sustainable community planning.	No specific targets are set for spending in urban areas. There is an operating budget of $50 million over a seven year period to cover 50% or $100,000 of a study.	Not applicable. Fund does support some municipal sustainability projects.	Federation of Canadian Municipalities, Sustainable Communities and Environmental Policy www.fcm.ca
Green Municipal Investment Fund Subunit: Natural Resources	Municipal Government and its contracts with	Municipal government can borrow at the preferred	Displays, Alliances (PPP), Seminars Financial	Covers projects which improve environmental quality typically	No specific targets are set for spending in urban areas.	Sustainable buildings are eligible for funding.	Federation of Canadian Municipalities, Sustainable Communities and Environmental Policy

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Canada-via Federation of Canadian Municipalities Start: 2000 Program Type: Incentive	the private-sector Partners.	interest rate of 1.5% below Government of Canada bonds-to cover finances of up to 15% of the capital cost of a innovative environmental project.	incentive	GHGs.	Operating budget $200 million revolving fund.		www.fcm.ca
Eco-Action Subunit: Natural Resources Canada Program Type: Awareness Information Incentive	Residential Commercial Institutional Buildings High-rise Buildings	Provides federal support for a variety of programs catering towards many different programs. Replaces CBIP and REDI programs and covers both jurisdictions.	Several community, commercial and residential initiatives.	Renewable Energy and Passive Solar Technology	None specified at this time.	No direct benefit towards sustainable building development. Promotes sustainable technologies towards more sustainable living standards.	Government of Canada, Natural Resources Canada www.ecoaction.gc.ca/index-eng.cfm
Eco-Energy Efficiency Subunit: Natural Resources Canada Program Type: Awareness Information Incentive	Residential Commercial Institutional Industry Single, Mid-rise, High-rise Buildings	A program that promotes smarter energy use with retrofit programs towards residential buildings, homes, industrial buildings and commercial/ Institutions.	Information Incentive Promotional	All	Federal government will invest over $300 million into programs.	Promotes the best practices of energy saving investments in the industry with retrofits for both homes and commercial buildings.	Government of Canada, Natural Resources Canada www.nrcan.gc.ca
Eco-Energy Renewable Initiative	Residential Commercial	Program that aims to provide	Awareness Promotional	Renewable energy in the	The federal government is	Provides new approaches towards	Government of Canada, Natural Resources Canada

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Subunit: Natural Resources Canada Program Type: Awareness Information Incentive	Institutional	clean renewable energy to power and heat buildings and homes. It is actually two programs in one, and focused with obtaining alternative sources of electricity and the other finding alternative methods to heat homes.	Incentives	form of a variety of sources including: wind, biomass, small hydro, geothermal, tidal, solar, air, and water heating technologies.	investing more than $1.5 billion into this initiative that encompasses two different programs. Preliminary estimates suggest by 2011, 700 buildings will have solar heating systems installed.	powering and heating homes. Programs will encourage new applications for new renewable energy and promote them both within the marketplace and towards future policy and regulation initiatives.	www.nrcan.gc.ca
Industry Canada (Department) Subunit: Government of Canada	All	To foster a growing competitive knowledge-based economy that improves upon conditions for investment, innovation, performance, increase market share and the effective operation of the marketplace.	Programs Investment Advocacy Regulation	All	Not specified	Helps accelerate the proliferation of new green technologies by assisting in job growth and creation by assisting environmental firms compete domestically and internationally. Allows for greater chances and opportunity for sustainable building development.	Industrial Canada Government of Canada www.ic.gc.ca
Market Incentive Program Subunit: Natural Resources Canada-Renewable and Electrical Energy	Industrial-Electric Utilities, electricity Retailers, energy	Provides incentives to electric utilities, electricity retailer, energy marketers, and	Financial Incentives Promotional	Renewable Energy-active solar & photovoltaics, small hydro and wind.	Not specified	None directly. Program is encouraging the development of the sustainable building market.	Natural Resources Canada-Renewable and Electrical Energy Division www.reed.nrcan.gc.ca

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Division Start: 2002 Program Type: Financial Incentive	marketers, electricity distributors	electricity distributors to produce market-based programs to encourage the use of emerging renewable technologies.					
National Roundtable on the Environment and Urban Sustainability Canada- Start: 2001 Program Type: R&D	Federal Municipal Commercial Institutional Agricultural Residential	To encourage sustainable development in municipalities by encouraging alternative strategies for improving quality of life and competitiveness of urban regions and cities.	R&D Demonstrations Displays and Exhibits, Conferences, Forums, Seminars, and Printed/ Audiovisual.	Allocation of dollars for infrastructure. Stimulating shifts towards public transit.	Changing fiscal policy and tax systems to encourage the efficient use of land. Overcoming barriers towards brownfield development.	Not directly. Encouraging municipalities to pursue all avenues for achieving a sustainable community, including sustainable building development.	Natural Resources Canada-Renewable and Electrical Energy Division www.reed.nrcan.gc.ca
Renewable Energy Market Development Subunit: Natural Resources Canada-Renewable Electrical Energy Division Start: 1995 Program Type: Information	Industry	Encourage the uptake of renewable energy technologies by industry in Canada.	Information R&D	Renewable Technologies and Applications	Not specified	None directly	Natural Resources Canada-Renewable and Electrical Energy Division www.reed.nrcan.gc.ca
Renewable Energy Development Initiative (REDI) Subunit: Natural Resources Cananda-Renewable Electrical	Industrial Commercial/ Institutional new and existing Agricultural	Encourages the market demand for commercially-reliable, cost-effective,	Advertising, Demonstrations, Displays and Exhibits, Financial Incentives and	Active solar heated water, active solar air heating, high energy efficiency	Not specified	Lowers the costs of energy efficiency equipment required/used in sustainable building development.	Natural Resources Canada-Renewable And Electrical Energy Division www.reed.nrcan.gc.ca

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Energy Division Start: 1998 Program Type: Financial Incentive		renewable energy systems for space and water heating and cooling.	Printed Audiovisual Incentives	biomass combustion, ground-source heat pumps.			
Commercial Building Incentive Program (CBIP) Subunit: Natural Resources Canada-Office of Energy Efficiency Start: 1998 Program Type: Incentive *Status: Finished* Retrofit program integrated into EcoEnegy	Commercial Institutional Multiple-unit Residential structures	The program encourages building owners to incorporate energy-efficient technologies and practices in the design of new commercial and institutional buildings. Program offers up to $60,000- to compensate for the incremental costs incurred through modelling and evaluation.	Grants/Subsidies R&D Applied Research Studies Product/ Process Development	All	Program has a budget of $10 million or more a year. There are 320 completed buildings with 1271 underway (registered to meet 25% above the MNECB).	CBIP is being incorporated as a benchmark for Canada's LEED building evaluation system and is used closely with the C-2000 integrated design process for buildings.	Office of Energy Efficiency Natural Resources Canada www.oee.nrcan.gc.ca
Canadian Industry Program for Energy Conservation (CIPEC) Subunit: Natural Resources Canada, Office of Energy Efficiency Start: 1975 Program Type: Voluntary Partnership/ Incentive	Industry /Business	Program helps deliver new energy saving initiatives and tools to industry associations and companies to cut costs and increase efficiency.	Awareness Incentive Information	All	The program has been able to influence 98% of Canadian Industry to reduce energy consumption by 9.1% between the years 1990 and 2004.	This program assists with delivering incentives that include retrofit programs for industrial building energy retrofit projects	Office of Energy Efficiency, Natural Resources Canada www.oee.nrcan.gc.ca

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Energy Guide Labelling Program Subunit: Natural Resources Canada-office of Energy Efficiency Start:1992 Program Type: Information	Industrial Commercial Institutional Housing	Program encourages consumers to purchase energy efficiency equipment by providing them with information on the energy performance of competing products.	Advisory Services Seminars Facility staff, training, employee awareness, technology information	Variety	Nearly 50% of consumers recognize Energy Guide and its significance. Indication from industry higher sales for energy efficiency products.	No Direct Benefit. Encourages energy efficiency in homes via the purchase of home products by owners and developers.	Office of Energy Efficiency, Natural Resources Canada www.oee.nrcan.gc.ca
Energy Innovations Initiative Subunit: Natural Resources Canada-Office of Energy Efficiency Start:1992 Program Type: Financial Incentive or Tax Measure	Commercialism Institutional Existing	The program provides assistance to organizations to reduce operating costs and GHG emissions in existing buildings via energy audits and retrofits.	Require buy-in from senior levels of a company and provides working level support through advice, technical, contractual and planning information; facility staff training and employee awareness.	Not specified	Budget of $10 million plus a year. Since inception $40 million in projects, 17% coverage of all commercial institutional sector in floor space 23% education, 16% commercial offices, 15% retail and 19% hotels. Market penetration for 2002 was 34%.	No direct benefit. Program is targeted to retrofits and can be phased in with projects that involve additions or upgrades to existing HVAC and water systems.	Office of Energy Efficiency, Natural resources Canada www.oee.nrcan.gc.ca
EnerGuide for Houses Subunit: Natural Resources Canada-Office Of Energy Efficiency Start 1997	Residential Existing-low rise buildings Residential Low rise buildings	Improve energy efficiency of homes through audits by 20%.	Advisory Services Audits Labelling Non-regulated standards	Renewable Energy and Passive Solar	Avenge annual energy savings from homes which received an audit- 17.6%. Over 37,000 homes have	None directly. Increased awareness of energy efficiency in homes can lead to further changes in building regarding water efficiency, air	Office of Energy Efficiency, Natural Resources Canada www.oee.nrcan.gc.ca

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Program Type: Awareness Information					been audited since its inception.	quality etc.	
Energy Performance Regulations *Subunit*: Natural Resources Canada – Office of Energy Efficiency *Start:1992* *Program Type:* Standards	Industrial Commercial/ Institutional Residential	The regulations assist with removing inefficient energy-using equipment from the Canadian market by requiring minimum energy efficiency levels for variety of equipment.	Voluntary or Regulated	Renewable energy and geothermal.	Regulations cover 80% of the energy used in the residential sector and 50% in the commercial sector. This is equivalent to 970 PJ from a total of 1377 PJ.	None directly. In order for sustainable buildings to achieve energy efficiency reductions, the appropriate technologies and equipment must be available and competitively priced against non-regulated options.	Office of Energy Efficiency, Natural Resources Canada www.oee.nrcan.gc.ca
Energy Star™ for Appliances Subunit: Natural Resources Canada-Office of Energy Efficiency Program Type: Incentive	Residential Commercial	An initiative that heavily promotes the sale and use of energy efficient home appliances as well as consumer electronics in order to increase energy efficiency in homes and save energy consumption.	Financial Incentive Awareness Promotional	Consumer Electronics Office Equipment Refrigerators Home Heating appliances	None specified at this time.	By increasing the energy efficiency of household and consumer appliances, the program may encourage energy efficient habits to move towards new sustainable building development.	Office of Energy Efficiency, Natural Resources Canada www.oee.nrcan.gc.ca
Energy Star™ for New Homes Subunit: Natural Resources Canada-Office of Energy Efficency	Residential	An initiative that aims to promote energy efficiency for new homes that is 30% more	Construction Promotional Labelling Audits	Heating and cooling systems, ducts, Ventilation systems, and Heat Insulation	Significant long-term savings will be seen in monthly energy bills. Benefits include	The program offered by the federal government promotes sustainable building development through the branding of Energy	Office of Energy Efficiency, Natural Resources Canada www.oee.nrcan.gc.ca

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Start: 2005 Program Type: Incentive Operating in Provinces: Ontario and Saskatchewan		efficient than those built to minimum provincial building codes. Licensed Energy Star builder constructs the Energy Star Home for future homeowners.		materials.	better in-door air quality and the creation of a healthy comfortable environment. Also reduces strain on energy consumption, thereby reducing GHG emissions.	Star™ homes.	
Federal Building Initiative Subunit: Natural Resources Canada-Office of Energy Efficiency Start: 1991 Program Type: Incentive	Commercial Institutional Existing Government Facilities	Program provides complete executive and managerial support for the technical, planning and contractual support required for sustainable building development	Demonstrations, Displays, Alliances (PPP), Seminars	Renewable Energy Systems and Technologies-Sustainable building Practices	Private sector has invested $154 million for new buildings worked on Annual savings of $22 million (6% of total federal emissions from 1990-1997), and 14% reduction in GHGs.	The program was a precursor to the development of a turnkey operation for sustainable building development. The program has since been modeled by various US federal agencies..	Office of Energy Efficiency, Natural resources Canada www.oee.nrcan.gc.ca
Industrial Building Incentive Program (IBIP) Subunit: Canadian Mortgage and Housing Corporation Start- Program Type: R&D Status: Finished Integrated into EcoAction Program.	Industrial	Improve the energy efficiency and reduce GHG emissions through the integration of building and process energy use.	Grants/Subsidies R&D Applied Research Studies Product/Process Development	All		Promotes the development of industrial buildings to consider a variety of factors between the product produced and the building itself.	Office of Energy Efficiency, Natural Resources Canada www.oee.nrcan.gc.ca/ibip

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R-2000 *Subunit:* Office of Energy Efficiency, Natural Resources Canada *Start:* 1982 *Program Type*: Awareness/ Information through standards	Residential	Energy efficiency of residential buildings - Voluntary technical standard exceeding conventional codes for energy efficiency - Licensing of R-2000 builders -Promotional initiatives.	Advertising Advisory Services Demonstrations Displays & Exhibits Grants Printed & Audiovisual Seminars/ Workshops Building standards.	Renewable Energy, Geothermal, Passive solar, water efficiency and air quality.	140 builders are training in the R-2000 program with 20 new builders added in the last year alone.	The standard addresses water efficiency, use of recycled materials and indoor air quality. It exceeds the requirements for energy efficiency and environmental responsibility required by current Canadian building code(s) and is 30% more efficient than similar buildings constructed to MNECB.	Office of Energy Efficiency, Natural Resources Canada www.oee.nrcan.gc.ca

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New Brunswick								
	Energy Efficient New Homes Program Subunit: NB Efficiency Start: 2007 Program Type: Financial Incentive	Residential	Provides financial assistance to support the construction of new homes built to EnerGuide 80 and R-2000 standards.	Grants Incentives	Solar, heating, lighting etc.	Additional incentives are given to homeowners who install non-electric central heating options as well as Energy Star™ appliances.	Initiatives may encourage more wide spread use of such energy efficient practices in other building developments.	New Brunswick Efficiency and Conservation Agency (NB Efficiency) http://www.efficiencynb.ca
	Energy Smart-Commercial Buildings Retrofit Incentive Program Subunit: NB Efficiency Start: 2007 Program Type: Financial Incentive	Commercial/ Business	Assists existing commercial building owners and operators to make their buildings more energy efficient, reduce operating costs and increase overall operating quality.	Grants Incentives	All	Financial assistance of up to $3,000 for pre-evaluation and up to $50,000 towards retrofitting costs.	Promotes energy saving techniques to become energy efficient. Similar principles can be applied to other building developments outside the commercial sector.	New Brunswick Efficiency and Conservation Agency (NB Efficiency) http://www.efficiencynb.ca
	Existing Homes Energy Upgrade Program Subunit: NB Efficiency Start: 2007 Program Type: Financial Incentive	Residential	Financial assistance is available to homeowners that want to make their homes more energy efficient. Homes must first be processed through the federal government's	Grants Loans Incentives Audits	All	Offers home-owners $100 coupon for pre-evaluation of the home. Additionally up to $2000 in grants are available to offset the costs of the retrofit. Loans of up to $10,000 are also offered.	Encourages more re-evaluations of current housing stock and the respective retrofits that need to be installed. Encourages the proliferation of more sustainable building techniques.	New Brunswick Efficiency and Conservation Agency (NB Efficiency) http://www.efficiencynb.ca

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			EcoEnergy evaluation process.					
	Retrofit Program for Low income Households Subunit: NB Efficiency Start: 2007 Program Type: Financial Incentive	Residential	To improve the energy efficiency of low income households	Grants	Heating systems, air ventilation, air sealing	$4,500 is used to fund the single and semi-detached homes. $1,500 is to be used to fund the multi-unit residences including apartments and condos.	Does not directly affect sustainable building initiatives. Does however, advocate for more energy efficiency in most types of homes including multi-residential units	New Brunswick Efficiency And Conservation Agency (NB Efficiency) http://www.efficencynb.ca
	Start Smart-New Commercial Buildings Incentive Program Subunit: NB Efficiency Start: 2007 Program Type: Financial Incentive	Commercial/ Business	To promote the design and construction of energy efficient buildings within the province meeting and/or exceeding MNECB standards.	Financial Incentive	All	Commercial buildings should be running at 30% higher efficiency than MNCEB standards. One time grant of $60,000 is distributed.	No direct benefits for sustainable buildings. Sets standards that are slightly higher than those of the national standard.	New Brunswick Efficiency And Conservation Agency (NB Efficiency) http://www.efficencynb.ca
	Upgrades program for Multi-unit Residential Building (MURB) Subunit: NB Efficiency Start: 2007 Program Type: Financial Incentive	Multi-unit Residential	Provides financial assistance to MURB owners and operators who want to make their own buildings more energy efficient.	Audits Grants Incentives	All	The amount of the grant depends on the number of the units and the amount of energy that is consumed. Efficiency New Brunswick will subsidize the evaluation/audit portion of the program by	The first program of its kind in Canada, energy efficiency standards are now expanded to include multi-residential unit buildings, encouraging further awareness among the public in regards to	New Brunswick Efficiency and Conservation Agency (NB Efficiency) http://www.efficiencynb.ca/

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						50%.	energy efficient retrofits and sustainable building techniques.	
Nova Scotia								
	Environmental Home Assessment Program Subunit: Clean Nova Scotia (NGO) Program Type: Financial Incentive	Residential	A program that promotes energy efficiency through giving expert advice on various water saving systems, heating systems as well as waste and refuse collection (septic systems).	Information Grants/Subsidies Incentives Audits	Water saving devices, Samples of environmentally friendly cleaners	$50 rebate on septic tank pumping is given. Samples of different water quality and efficiency products are also distributed for free.	No direct benefits for sustainable building development. However, awareness of green sustainable practices are increased and may contribute to the sustainable building movement.	Clean Nova Scotia (NGO) http://www.clean.ns.ca
	Home Energy Evaluations Subunit: Clean Nova Scotia (NGO) Program Type: Information/ Awareness	Residential	Provides Home Energy evaluations that give expert advice on energy saving methods and alternative sources of energy.	Information Audits	Not specified	Not specified	No direct benefits for sustainable building development. Encourages more households to pursue environmentally sustainable initiatives to save on energy efficiency.	Clean Nova Scotia (NGO) http://www.clean.ns.ca
	Green Buildings Act Subunit: Government of Nova Scotia Start: 2008 Program Type:	Government/ Institution	A major government initiative that declares all future government buildings must	Information Brochures Advisory Fact sheets Non-regulated and regulated standards.	All	Not specified	A major sustainable building initiative that begins within the government level. Regulation	Government of Nova Scotia http://www.gov.ns.ca

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
	Standards		comply with green energy and environmental design standards.				shows government intentions towards sustainable building development. Other initiatives outside of the government sector may follow by example.	
	Solar Hot Water Rebate Subunit: Conserve Nova Scotia Program Type: Information/ Incentive	Commercial/ Industrial	A rebate program that allows for discounts on the installation of a solar water heating system in commercial and industrial facilities.	Information Incentive Audits Reporting.	Solar Energy water heating, Space heating	A 10% rebate discount on those projects that incorporate solar energy water heating systems.	No direct benefit. Contributes to energy efficient initiatives to allow for the progression of the sustainable building movement in general.	Conserve Nova Scotia (agency) http://www.conservens.ca
Quebec								
	Building Initiatives Program Subunit: Hydro-Quebec Program Type: Financial Incentive	Commercial / Industrial	A financial assistance program that provides funding to hire specialists to give recommendations towards opportunities for future energy efficient improvements. The program also provides businesses with	Advisory Information Audits Printed Materials Grants	All	Businesses can expect grants upwards towards $50, 000 (50% of costs of energy analysis) for hiring specialist analysts to outline future opportunities. Implementation of such energy saving projects are subsidized by 75%.	Encourages the commercial and industrial sector to pursue more efficient energy practices into current and future developments. May turn into standard business practice.	Hydro Quebec www.hydroquebec.com/

APPENDIX A: NATIONAL LIST OF FEDERAL AND PROVINCIAL SUSTAINABLE BUILDING INITIATIVES ACROSS CANADA

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
			grant/funding to implement retrofit electricity saving projects as well as the construction of new energy efficient buildings.					
	Empower Program for Building Optimization Subunit: Hydro-Quebec Program Type: Financial Incentive	Businesses/ Institutional/ Multi-residential	Program offers grants to owners for implementing new energy saving measures in their buildings. Encourages more businesses, institutional and multi-residential owners and users to retrofit own buildings.	Grants	All	Offers participants up to $500, 000 in financial assistance.	If there are enough participants, it is a possibility that these optimization practices may catch the attention of developers.	Hydro Quebec www.hydroquebec.com/
	IDEAS-Technology, Downstream and Experimentation Initiatives Subunit: Hydro-Quebec Program Type: R&D	Business / Commercial	Aims to stimulate the commercial market with new technologies and to provide financial incentives to encourage customers to initiate and implement	Grants Demonstrations Technical Assistance Maintenance Installation	All (Experimental)	Program can provide upwards to 75% support for the project.	Experimental-pilot programs that are implemented as a result of this program may lower costs of energy efficient technologies required in sustainable building development	Hydro Quebec www.hydroquebec.com

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
			experimental projects.					
	Industrial Analysis and Demonstration Program Subunit: Hydro-Quebec Program Type: Financial Incentive	Industrial	Financial assistance is provided for businesses that have embarked on first-time implementation of new energy efficient technologies.	R&D Grants Demonstrations	All -new advanced technologies in energy efficiency		Program may trigger the development of new technology and techniques that can be implemented towards new and improved sustainable building developments.	Hydro Quebec www.hydroquebec.com
	Industrial Initiatives Program Subunit: Hydro-Quebec Program Type: Financial Incentive Standard	Industrial	Offers financial assistance for large power customers for projects that are designed to reduce specific electricity consumption.	Grants Audits Reporting Standards	All	Grants of up to $8 million per site can be obtained. 25% start up costs and 50% follow-up equipment start-up will proceed.	This program aims not only to use electricity more efficiently but to change common practice and habits.	Hydro Quebec www.hydroquebec.com
	Newly Built Home: Novoclimat Grant Subunit: Hydro-Quebec Program Type: Financial Incentive	Residential/ Single-family Row housing/ Semi-detached	Aims to give financial support towards the construction of high-quality homes built to Novoclimat standards.	Grants subsidies Construction Information	All	Novoclimat homes can save owners up to 25% a year in heating costs.	Program may increase the popularity of having high-quality energy efficient homes. May convince developers there is more demand than previously thought, lowering prices on market.	Hydro Quebec www.hydroquebec.com
	Renovating: Renoclimat Grant Subunit: Hydro-Quebec	Residential/ homeowner	Offers advice from an expert and grant money from the	Grants/ subsidies Construction Information	All	Homes that have been retrofitted under this	Program may bring increased awareness to the public and to	Hydro Quebec www.hydroquebec.com

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Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
	Program Type: Financial Inventive		province to retrofit the home. The program is actually a re-named version of the federal government's EcoEnergy program.	Audits		program have enjoyed energy savings of up to 36%.	encourage the implementation of new retrofit concepts.	
	Quebec Building Code Subunit: Regie du Batiment du Quebec Start: Program Type	All	Regie du Batiment oversees the implementation of standards for buildings including the application of the MNECB.	Audits Advisory Services Labelling Fact Sheets Information Brochures Call Centre Non-regulated and regulated standards.	All	Not specified	Not specified	Regie du Batiment du Quebec http://www.rbq.gouv.qc.ca
Ontario								
	Building Code 2006	Building Industry	The Ontario Building Code (2006) balances energy efficiency with affordability and encourages innovation and flexibility within all building design and construction.	New technologies include: solar photovoltaic systems, active solar hot water systems, rooftop storm-water retention, and storm/grey water use to enhance "green" building.	Under the Ontario Building Code 2006: In 2007 houses built will be 21% more energy efficient By 2012 all new homes will be 35% more efficient and meet or exceed EnerGuide 80 For non-residential buildings: By 2012 all new	The building code strengthens the energy efficiency standards in Ontario's residential and commercial building code.	Encourages the commercial, residential and industrial sector to pursue more efficient energy practices into current and future developments.	Ministry of Municipal Affairs and Housing http://www.obc.mah.gov.on.ca/site4.aspx

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
					commercial buildings will be 25% more energy efficient than under MNECB standards.			
	Retail Sales Tax Rebate for Efficient Appliances	Consumers, Retailers, Developers, Building Managers	This is a rebate-based program that encourages consumers to purchase energy efficient appliances that result in less energy consumption in the long term.	Energy Star qualified in the EnerGuide Appliance Directory	The Ontario government is making it easier and more cost effective for Ontarians to "go green" by purchasing energy efficient home appliances.	The energy savings procured by buying and using energy efficient appliances will contribute towards reaching energy efficient standards as outlined in the new building code and combating climate change.	Can encourage energy efficiency and contribute to an overall sustainable building practice.	Ministry of Finance Retail Sales Tax Division http://www.trd.fin.gov.on.ca
	The Affordable Housing and Energy Efficiency Program	Residential	The program incorporates energy efficiency measures and practices in the affordable housing units, under the Canada-Ontario Affordable Housing Program. More specifically, it encourages the use of ENERGY	Energy Efficient products that meet Energy Star standards.	A financial rebate of up to $850 per unit, during Phase One, to offset the incremental cost of energy-efficient products and Energy Star™ qualified products. The program aims to eventually provide funding for 15,000	The program encourages a culture of conservation and reduces greenhouse gas emission through the reduction of electrical energy use in residential buildings.	Provides support for the purchase of Energy Star certified equipment and support training to building managers on energy efficiency.	Ministry of Municipal Affairs and Housing http://www.mah.gov.on.ca/ahp

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
			STAR products to residents in affordable housing units.		different housing units.			
	Tax Rebate for Solar Energy Systems	Consumers, Retailers, Developers, Building Managers	This is a rebate-based program on the purchase of a new solar energy system installed into residential premises, including a multi-residential building, or any expansion or upgrade to an existing solar energy system.	Applies to a solar photovoltaic system that converts solar energy into electricity, or a solar thermal system that converts energy into heat.	A government target for all generating capacity in the province to come from renewable sources by 5% in 2007 and 10% by 2010.	Not a direct green benefit but the tax rebate encourages energy efficiency and contributes to an overall sustainable building practice in residential low and tall buildings.	Can encourage energy efficiency and contribute to an overall sustainable building practice in residential low-rise and high-rise development.	Ministry of Finance Retail Sales Tax Division www.trd.fin.gov.on.ca
	High Performance New Construction	Builders and architects - commercial, institutional, industrial or multi-unit residential buildings.	The High Performance New Construction Program (HPNC) provides design assistance and significant financial incentives for new construction or additions, and major renovation projects that exceed Code. The greater the electricity	Financial Incentives for Prescriptive Projects: Building owners will receive $250 for every verified kilowatt saved. Building owners: • for up to 25% above Code: $250 for every verified kilowatt saved • for 25.5% –	Electrical and heating systems.	Incentives offset the cost of energy efficiency measures. Lower long-term operating costs. Improved marketability.	Encourages the building industry to design and build more sustainable buildings. The practice can become widespread and lead to a general reduction in electricity consumption.	1-888-OPA-HPNC www.hpnc.ca.

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
			savings, the greater the incentives.	50% above Code: $300 for every verified kilowatt saved • for greater than 50% above Code: $400 for every verified kilowatt saved A custom project must be eligible for a minimum of $10,000 in incentives. The HPNC Program will also support 100% of the cost of modelling a building (up to $10,000) for the building owner. Architects: • for 25.5% – 50% above Code: $50 for every verified kilowatt saved • for greater than 50% above Code: $100 for every verified				

APPENDIX A: NATIONAL LIST OF FEDERAL AND PROVINCIAL SUSTAINABLE BUILDING INITIATIVES ACROSS CANADA

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
				kilowatt saved.				
	PowerWise	Individuals	The PowerWISE community provides tools and tips to facilitate energy conservation in the home.	The PowerWise community provides information about electricity, heating and insulation.	All	Reduced energy consumption heating and electrical costs.	Gives individuals the information they need to proactively increase their home energy efficient. By familiarizing people with such practices, sustainable building may become more widely accepted and adopted as standard practice.	http://www.powerwise.ca
	Ontario Home Energy Audit Program	Homeowners	The Home Energy Audit identifies improvements homeowners can make to their home's heating, cooling, hot water heating and other energy uses that could result in hundreds of dollars in energy savings each year.	The Government of Ontario will pay 50% of the Home Energy Audit, up to $150. The Home Energy Retrofit Program provides homeowners with rebates of up to $5,000 for home energy improvements.	All	Reduced energy consumption and heating and electrical costs.	Financial incentives give individuals the ability to make their homes and lives more energy efficient. By familiarizing people with such practices, sustainable building may become more widely accepted and adopted as standard practice.	http://homeenergyontario.ca/
Manitoba								
	Centennial	Residential/	A sub program	Program	All	Estimated to	This type of	Manitoba Hydro

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Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
	Project	Commercial /Industrial	of Manitoba's Power Smart program, it delivers programs to low income and rental housing within central neighbourhoods .	delivered through rebate and other financial incentives including grants		have an initial saving of water, up to $25,000 The program is also expected to save $30,000 in annual energy savings.	program promotes green efficient use of energy on a much larger scale. Providing service to low income and rental groups may begin to show the greater public the diverse applications sustainable buildings can have today.	http://www.gov.mb.ca/
	Island Lake First Nations Energy Efficiency and Retrofit Subunit: Manitoba Hydro Program Type: Incentive	Residential/ Aboriginal	A pilot project that aims to provide aboriginal communities with more energy efficient homes through retrofits and new home construction projects.	Financial grants, Construction Information	All	May offer new job opportunities for aboriginal communities living in Manitoba.	If program is successful, it can serve as an example towards advocating sustainable buildings and large potential to be applied to multi-facetted areas in society.	Manitoba Hydro http://www.gov.mb.ca/
	Manitoba Hydro-Smart Program Subunit: Manitoba Hydro Program Type: Information Incentive	Residential/ Commercial/ Industrial	To meet energy needs through efficiency improvements rather than investing in new sources of energy generation.	Program provides appliance, lighting, and heating rebate and incentive programs. Additional financial support through the use of loans	All	Not specified	Better energy efficiency methods may be used and help spread the movement of constructing more energy efficient buildings.	Manitoba Hydro http://www.hydro.mb.ca/

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
				are available for building retrofits and construction of new energy efficient buildings				
	Green Manitoba (Agency)	Government / Institutional / Commercial Industry Residential	A government funded agency that aims to assist in delivering environmental and community development programs on a community based level.	Provides practical energy saving tips through Audits to communities and businesses that can be implemented through awareness and informative programs.	All	Not specified	No direct sustainable building benefits. But is a part of overall requirement to introduce, advocate and implement more energy efficiency techniques.	Green Manitoba (Agency) http://www.greenmanitoba.ca
	Manitoba Energy Code Subunit: Science, Technology, Energy, and Mines (STEM) Start: (Pending-in development) Program Type: Standards	Commercial/ Business Institution	A set of regulations that proposes to provide more direction for the installation of cost-effective buildings. and support the provincial goal of attaining economic development and environmental sustainability	(Pending-Unknown)	All	Aims to provide more regulated building developments with a requirement of building energy efficiency up to 25% better than MNECB.	Strong government initiatives for provincially owned and funded buildings may later translate into more varied support for sustainable buildings outside the direct control of the province.	Manitoba Science, Technology, Energy and Mines (STEM) http://www.gov.mb.ca/
	Manitoba Green Building Policy for	Government Commercial/	Requires that provincially	Not specified	All	Minimum standards for	Strong government	Manitoba Science, Technology, Energy and

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Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
	Government Funded Projects Subunit: Science, Technology, Energy and Mines (STEM) Start: 2006 Program Type: Standards	Institutional/ Industrial	owned and funded buildings achieve a minimum of LEED Silver standards.			building efficiency in this program is 33% better than MNECB.	initiatives for provincially owned and funded buildings may later translate for more varied support for sustainable buildings outside the direct control of the province.	Mines (STEM) http://www.gov.mb.ca/
Saskatchewan								
	Energy Efficiency Program for New Housing (Green Strategy) Subunit: Government of Saskatchewan Start: 2007 Program Type: Financial Incentive	Residential	Program encourages potential homeowners to invest money into residential buildings built to EnerGuide 80 standards. Examples include: Energy Star and R2000 Homes.	Grant Incentive	Include: -Drain water heat recovery -Solar water thermal heating systems	A program investment of $1 million, grants will assist home-owners in building energy efficient homes.	Additional financial incentives are present within the program for every drain water heat recovery or new thermal heating system installed within the new homes.	Government of Saskatchewan (Green Strategy) http://www.saskatchewan.ca/green/
	Green Technology Commercialization (Green Strategy) Subunit: Government of Saskatchewan Start: 2007 Program Type: Financial Incentive	Commercial/ Business	A program that provides funding to promote the development and overcome barriers to commercialization of new and existing green technology in small and	Grant Incentive	All	$1,135,000 is available in funding.	Indirectly affects sustainable building initiatives since the program allows for easier commercial integration of new green technology.	Government of Saskatchewan (Green Strategy) http://www.saskatchewan.ca/green/

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
			medium sized enterprises.					
	Residential Energy Efficient Retrofit Support-EnerGuide Subunit: Government of Saskatchewan/ SaskEnergy Start: 2007 Program Type: Incentive	Residential	An additional energy saving technique that provides additional retrofit support for the EnerGuide program	Grant Incentive Rebate	All -Domestic solar water thermal heating system	Initial grant funding of $300,000 provided. Additional incentives are given in the form of rebates if installation of more energy efficient heating systems in the home occurs	By advancing and encouraging the use of new energy efficient technology, sustainable building initiatives will also benefit with those energy efficient components of green development becoming more affordable and commercially viable.	Government of Saskatchewan (Green Strategy) http://www.saskatchewan.ca/green/ SaskEnergy http://www.saskenergy.com/
	EnerGuide for Houses Subunit: SaskEnergy Start: 2005 Program Type: Financial Incentive	Residential/ Small Business	Enables home owners to obtain grants for home energy upgrades and retrofits. The program has since been extended in 2007 and enhanced with new benefits and incentives.	Grants Information Incentives Installation	Retrofits now include: -air conditioning, water heating systems, solar pre-heat systems, and grey water heat	Can receive a provincial grant of up to $5,000 for home energy upgrades.	Acting as a complementary program to its federal counterpart, the program provides even more incentive to provincial residents to retrofit their own homes, encouraging sustainable building practices	SaskEnergy http://www.saskenergy.com
	Energy Performance Contracting Subunit:	Commercial Institutional	A program works with commercial and institutional	Delivered through partnership between	All	Not specified	Encourages more commercial businesses to use sustainable	SaskEnergy http://www.saskenergy.com

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Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
	SaskEnergy Start: 2007 Program Type: Incentive		organizations to improve energy efficiency by upgrading heating, lighting and ventilation in their respective facilities.	SaskEnergy and Honeywell Limited. Contract agreement is initiated			building practices.	
	New Government Building Initiative Subunit: Government of Saskatchewan Start: 2007 Program Type: Standard	Government Institutional	All provincial government buildings and buildings receiving at least 30% funding from the provincial government must be designed to use 25% less energy than the standard set by MNECB.	Not specified	All	Not specified	No direct affect on sustainable building initiatives. Alternatively these initiatives may later encourage sectors outside of government to implement similar energy efficient initiatives.	Government of Saskatchewan http://www.gov.sk.ca/
	Saskatchewan Home Energy Improvement Program (SHEIP) Subunit: Government of Saskatchewan Program Type: Financial Incentive	Residential	Provides financial assistance for low-medium income households and tenants, when embarking on energy efficient retrofits for existing houses.	Several smaller programs that specialize in low- income, medium, rental demographics. The program is delivered through issuing grants to qualified households.	All	SHEIP is targeted to assist over 8,000 households over the life span of the program.	No direct benefits. It demonstrates however, that government is willing to incorporate energy efficient retrofits into social service programs.	Government of Saskatchewan http://cr.gov.sk.ca/sheip
Alberta								

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Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
	Alberta Innovation and Science (Department) Subunit: Province of Alberta	Business/ Private/ Public Commercial	Provides strategic investments towards sustainable development within the province. Priority research areas include energy, information, communications technology, and life sciences.	R&D Advocate Information Incentive	-Energy efficient Technology -Information & Communication Technology -others	Not specified	R&D programs may result in the discovery and creation of new technologies that can be applied towards future sustainable building development.	Alberta Innovation and Science http://www.innovationalberta.com
	Climate Change Central	Government/ Institution/ Commercial/ Industry business	A public-private partnership that promotes the development of innovative initiatives to global climate change.	R&D Investments Information Partnerships between government levels, businesses, institutions	All	Not specified	Resulting greenhouse gas initiatives could indirectly benefit sustainable building developments	Climate Change Central http://www.climatechangecentral.com
	EnerVision: Greener Home Solutions	Government/ Institution/ Commercial/ Residential/ Industry	Is a non-profit organization with the mission to make the building community more green. The organization has also been given jurisdiction by the federal government to	Information Program facilitation/delivery	All	Not specified	Resulting sustainable building initiatives could directly benefit sustainable building developments elsewhere in the nation.	EnerVision Greener Home Solutions http://www.enervisionalberta.com

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
			assist in administering R-2000 and EnerGuide programs.					
Northwest Territories								
	Commercial Energy Audit Program Subunit: Environment and Natural Resources Start: 2007 Program Type:	Commercial/ Business Corporation	Allow local businesses to have easily accessible and affordable energy audits. To prepare businesses for qualification into other federal energy efficient retrofit programs.	Financial incentive Audits	Not specified	First year of program provides $100,000 in funding. The remainder of the years the program will see the funding being distributed across the region.	Not directly related to sustainable building development. It does however, give the commercial sector the opportunity to re-evaluate energy efficiency in their facilities, leading to possible future sustainable building initiatives.	Government of Northwest Territories Environment and Natural Resources http://www.enr.gov.nt.ca/
	Energy Conservation Program Subunit: Environment and Natural Resources Start: 2007 Program Type: Information Advocacy/ Incentive	Government/ Institutions NGOs Agencies	To encourage the efficient use of energy, water, and natural resources.	Information Incentive/subsidies	Water systems Heat recovery systems	Maximum funding is to be $50,000	No direct affect on sustainable building initiatives. Can be seen as a foundation for future energy efficient initiatives and sustainable building developments.	Government of Northwest Territories Environment and Natural Resources http://www.enr.gov.nt.ca/
	Energy Efficiency	Residential	To help	Consists of	Solar energy,	Not specified	No direct	Government of Northwest

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Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
	Incentive Program Subunit: Arctic Energy Alliance Start: 2007 Program Type: Financial Incentive		residents reduce energy costs and lower GHG emissions.	various grants and rebate incentives that promote efficient use of appliances, mechanized equipment and efficient use of energy in buildings (retrofits).	Hot water heating, Wood stoves, Pellet stoves Retrofits		implication on green house development. Lowering GHG emissions through these initiatives could promote long-term sustainable building development.	Territories Environment and Natural Resources http://www.enr.gov.nt.ca/
	Small Renewable Fund Subunit: Environment and Natural Resources Start: 2007 Program Type: Financial Incentive	Residential/ Business	Provides funding for residents and businesses that choose to power their buildings using alternative energy sources.	Grants/subsidies Audits Records and reports	All (Except solar power, water heating systems, stoves)	$5,000 provided per year to each recipient.	No direct contributions to sustainable building initiatives. Alternative energy source initiative may contribute to an overall sustainable building practice.	Government of Northwest Territories Environment and Natural Resources http://www.enr.gov.nt.ca/
British Columbia								
	B.C. Green Building Code Initiative, 2006	BC Building Industry.	Identify and remove barriers within provincial codes and regulations, propose new provisions for sustainable buildings regulation, and support implementation through an administrative	For residential energy efficiency - Energuide Rating System of 77. For high-rise residential and commercial buildings - ASHRAE 90.1 standards.	To attain targets of 18.5% more energy efficiency than those outlined in MNECB, by enforcing strict sustainable building practices in the planning, design and construction of new homes and	The Act is a primary legal document that secures the foundation for future sustainable building initiatives and help to create the necessary political and commercial will to implement		

APPENDIX A: NATIONAL LIST OF FEDERAL AND PROVINCIAL SUSTAINABLE BUILDING INITIATIVES ACROSS CANADA

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
			framework.		commercial buildings across the province.	new sustainable building development.		
	Energy Efficiency Building Strategy	Residential	Provide nearly $100 million for initiatives that range from constructing self-sufficient homes using renewable and waste energy sources to providing capital funding to retrofit existing provincial and public sector buildings.	All green technologies	Introduced over $23 million per year of provincial tax exemptions for energy conservation equipment and requires all provincial buildings to meet LEED Gold or equivalent green standards.	Facilitates conversion to sustainable building technologies and sets a province-wide institutional example.		
	Smart Development Partnership Program	Municipal governments	Provide local governments with up to $50,000 to support sustainable land-use planning.		Develops effective land use planning and management. Supports land use patterns that encourage walking and bicycle use.	Streamlining the development approval process stimulates private sector investment.		
	Towns for Tomorrow	Communities	The program will invest $21 million in capital projects to assist communities with achieving integrative and prosperous communities.	Water and energy infrastructure, heating systems, air ventilation.	The program supports water quality and energy improvements, enhancement of protective and emergency infrastructure services, and	Brings sustainable development practices to smaller communities.		

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
					the long-term development of recreation, tourism and cultural amenities.			
	BC Sustainable Energy Association SolarBC Program	Residential, municipal buildings, schools.	Install solar water heating rooftop units on 100,000 residential and commercial buildings province wide by 2020. The Province of British Columbia will invest $5 million into the program through the Ministry of Energy, Mines and Petroleum Resources.	Small solar water heating systems.	Residents can receive up to $1,625 in rebates from the provincial and federal governments to put toward the cost of solar water heating systems. SolarBC also supports the BC Energy Plan conservation target to acquire 50 per cent of BC Hydro's resource needs through conservation by 2020.	The program is intended to stimulate the demand for solar technologies, popularize residential solar energy systems, train installers, and enhance manufacturing, system technologies and infrastructure support.		
	Green Buildings BC Retrofit Program		Encourages BC-funded school districts, universities, colleges and health care institutions to retrofit their	Heating systems, air ventilation, air sealing, lighting.	Improve the energy efficiency of older buildings and infrastructure.		The program facilitates the procurement of retrofit services from the private sector so retrofit projects no longer have to	Green Buildings BC http://www.greenbuildingsbc.com/

Provincial Programs

Province	Government Organization & Policy	Recipient	Scope and Objective	Delivery Mechanism	Technology	Results (Fiscal Energy)	Sustainable Building Encouragement	Contacts
			facilities to improve their energy and water efficiency, and reduce their greenhouse gas emissions and waste generation.				compete with other priorities for funding.	

APPENDIX B: NATIONAL LIST OF MUNICIPAL SUSTAINABLE BUILDING INITIATIVES

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
Nova Scotia						
Halifax	Halifax Regional Municipal (HRM) Community Energy Plan	All	The HRM Community Energy Plan are local plans that directly implement the regional urban processes of sustainability which include transportation planning, renewable energy source planning, and a community-visioning program.	Renewable energy technologies (wind, solar).	The goal is to attain 50% reduction in a communities' dependency on fossil fuel.	Working with key stakeholders the HRM community energy plan assists and encourages municipalities to identify cleaner energy sources including renewables, and more efficient ways to use energy.
Ontario						
Kingston	LEED Assessment	Municipal buildings	All large municipal building and retrofit projects must undertake an assessment of LEED® as a design goal for Council's consideration before finalization of a project's design.	All	New City facilities are designed to achieve at least a LEED® silver rating, and will expect to save at least a 40 percent savings in energy costs.	The City is able to demonstrate the advantages of building to LEED standards to developers and encourage them to follow this practice. By setting a precedent, the City may consequently require that any project it funds also achieve LEED certification.
Ottawa	Green Building Policy	Corporate buildings	All new buildings with a footprint greater than 500 square metres will be designed and delivered in accordance with the LEED Certified performance level.	All	The Policy aims to reduce operating costs to the City through the use of improved energy and water efficiency and storm water management.	The City encourages the application of sustainable design principles during retrofit and renovation projects of its current structures where practical.
Toronto	Better Buildings Partnership –	Multi-unit residential Commercial	A public and private partnership that	All	As of 2006, the program has yielded	The program is open to sponsorship from

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
	Existing Buildings	Industrial	promotes and implements energy efficiency and building renewal retro-fits with the goal of reducing $C0_2$ emissions to combat climate change and renew Toronto's aging building stock.		an economic impact of $161 million in energy savings and new jobs. $C0_2$ emissions have been reduced by 194,500 tonnes.	both the private and public sector. The program can attract the private sector to fund the partnership, allowing for greater awareness of sustainable practices involved with retrofitting buildings.
	Better Buildings Partnership - New Construction Program	All	The program objective is to design and construct buildings that are at least 25% more energy efficient than buildings that meet the MNECB minimum standard. The program consists of two parts, the initial design assistance and construction savings.	All	Get $1,000 per peak watt saved per metres squared of gross floor area. If qualified and depending on gross floor area up to $73,000 (garnered from both programs) financial incentives can be earned.	The program improves upon building design and construction practices. It may encourage building owners from the private sector to adopt more sustainable practices in the design and construction of "green" buildings.
	Energy Efficiency Plan	All	The Energy Efficiency Plan determines Toronto's future energy needs and identifies feasible options for meeting those needs. The overall goal of the plan is to reduce energy consumption and costs of operating a building, while preserving the environment.	Renewable energy technologies.	To implement energy efficiency measures by 2010 to meet the immediate energy demand constraints in Toronto.	Toronto's Sustainable Energy Plan recommends the creation of funding programs that encourage energy efficiency and renewable energy initiatives.
	ICI Water Saver Plan	Commercial Industrial	The program allows the city to buy back	Water efficient appliances	Receive a rebate of 30 cents per litre of	Urban centres have realized that water

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
		Institutional	water and sewer capacity. Incentives are offered to businesses, institutions, and industry that choose to replace their older equipment and adopt more sustainable practices.	-water efficient equipment/machinery	water saved.	efficiency is a growing concern that must be addressed. Future green building developments are likely to capitalize on this need to conserve water.
	Toronto Green Development Standard	All	Program provides an integrated set of targets, principles and practices to guide the development of city-owned facilities and to encourage sustainable development in the private sector.	Building Design Tools	Building Design Tools	Minimize energy performance through efficient building design.
	Toronto Peak Saver Program	Residential/ Commercial	Toronto Hydro customers who have central air conditioning and own a home or building can be eligible for the *peaksaver* program. During peak periods, Toronto Hydro will stop the use of air conditioners or water heaters for a short period of time. Air conditioners will be interrupted for 15 minutes out of every 30 minutes and water heaters for a maximum of 4 hours. Commercial	Air conditioners and water heaters.	$0.50 credit on consumer's Toronto Hydro-Electric System bill.	This program allows Toronto Hydro to reduce the strain on the electrical system during peak periods. It also encourages Hydro customers to contribute to energy conservation and the reduction of greenhouse gas emissions.

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
			customers are eligible if their air conditioners and water heaters are approximately the same size as used by residential customers. All program participants must agree to remain on the *peaksaver* program until December 31, 2010.			
	Washing Machine Rebate Program	Residential/ Commercial	The City of Toronto offers property owners, managers, and residents a rebate for high efficiency (HE) washing machines that are purchased or leased.	Washing machine appliance.	Commercial owners and managers can receive up to $125 cash back for each new HE commercial washing machine purchased or leased, and homeowners can receive a $60 rebate when they purchase a HE washer.	The program encourages cash incentive amounts for energy conservation and the reduction of greenhouse gas emissions from the purchase or lease of residential and commercial high-energy washers.
	Green Roof Program	Residential, commercial, institutional	Provides a grant of $50 per square metre of eligible green roof area up to a maximum of $10,000 for single family homes and a maximum of $100,000 for all other property owners in the City of Toronto.	Green roofs	Green roofs delay water draining into storm drains and relieving pressure on existing stormwater pipes during flash rainfalls. Green roofs also reduce the urban heat island effect, provide opportunities for local food production and reduce energy consumption and cooling costs.	The program promotes the commercial installation of green roofs and raises citizen awareness of the benefits of this technology.

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
	Deep Lake Cooling System	Downtown Toronto	The system uses cold water pumped from Lake Ontario to cool buildings in the downtown core.	District energy and water circulation systems.	Deep lake cooling reduces thermal discharge from power plants to the lake, reduces electricity demand by 91 percent and reduces GHG emissions.	The system has the capacity to air-condition 3.2 million square metres of office space and 6,800 homes.
	Building Owners and Managers Association of the Greater Toronto Area Conservation and Demand Management Program	Any privately owned, existing buildings that are at least 25,000 square feet and within the City of Toronto borders.	$60 million is being made available through the BOMA CDM Program for energy-saving retrofits. Applicants are eligible for rebates of up to 40% on energy saving project costs. BOMA Toronto offers the CDM incentives for sustainable, measurable and verifiable energy retrofits that result in on-peak demand reductions and annual energy savings. The Ontario Power Authority provides the funding while BOMA Toronto manages the Program.	Building automation systems, equipment replacement, HVAC, lighting retrofits, building Envelope, ground source heat pumps, tenant sub-metering, chiller replacement, lighting controls, variable speed drives, deep lake water-cooling, lighting redesign.	Jump start energy savings projects that would not otherwise have been initiated; Reduce building operating costs; Reduce negative impact on the environment; Ease Toronto's energy supply constraints during peak summer hours.	Supported by financial incentives, builders will be able to fully adopt sustainable building measures at little personal cost. In time these can become standard practice in the industry.
East Gwillimbury	LEED Silver Policy	Private and Public buildings.	All new Town facilities and industrial, commercial, institutional and high-rise residential buildings must comply	All	Considerable energy cost savings can pay the cost of LEED Silver certification.	Developers are forced to adopt LEED standards in all contracts and operations.

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
			with LEED Silver standards. Major renovations must also meet LEED Silver standards starting in 2010.			
	Energy Star	Residential developers	The municipal policy directs developers of residential developments of ten or more units to construct to ENERGY STAR™ qualification.	Consumer Electronics and appliances, heating and cooling systems.	Lower energy bills, improved comfort, government backed quality assurance, lower impact on the environment, higher resale value.	Canada Mortgage and Housing (CMHC) offers a 10% refund on its mortgage loan insurance premium when a borrower buys or builds an energy efficient home meeting certain minimum requirements.
London	EnerGuide Partnership	Residential developers	The program is designed to encourage improved house design by enabling developers to provide energy efficiency upgrade packages to potential homebuyers, while offering homeowners the ability to verify energy upgrades through audits and a certification process.	Consumer Electronics and appliances, heating and cooling systems.	Lower energy bills, improved comfort, quality assurance, lower impact on the environment, higher resale value.	The program has successfully brought together development practitioners from both the public and private sector to advance climate change initiatives, while making a direct difference on how new homes are constructed and equipped.
Vaughan	Energy Star for New Homes	Residential	An initiative that aims to promote energy efficiency for new homes to be 40% more efficient than those built to minimum provincial building codes.	Consumer Electronics Office Equipment Refrigerators Home Heating appliances	Not specified	Increasing the energy efficiency of household and consumer appliances may encourage energy efficient habits to move towards new green building

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
			Licensed Energy Star builder constructs the Energy Star™ Home.			development
Pickering	Sustainable Development Guidelines	Neighbourhoods	The program demonstrates how sustainable development should be done and what constitutes sustainable development. The Guidelines are a draft of certification system for neighbourhoods.	Sustainable design practices.	The City offers incentives to developers at each level of the guidelines that they exceed. Developments thus attain higher levels of sustainability and the neighbourhoods benefit from improved design and better environmental quality.	
Markham	Markham Centre Plan	Town Residents Business	The town of Markham's own Master Plan for the future development of the municipality's downtown core. The plan has placed sustainable development as a high priority.	All	Future development within Markham Centre will be more favourable towards projects that meet LEED standards. Some proposed condominium developments already have plans for using 30% less energy and 40% less water than non-LEED certified buildings.	. A new community that has the potential to implement new green building developments, creating a new standard for urban development in a city.
	No Catch to Conserve Program	Small Business	Pilot incentive program that offers up to $1,000 worth of energy efficiency upgrades for small businesses in order to reduce energy costs, reduce demand on electricity and help contribute to a	All	The program offers up to $1,000 in funding for free energy efficiency installations for those small businesses that qualify.	No direct benefit.

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
			cleaner environment.			
Welland	Water Conservation Program	Residential	The program provides information and incentives to residents to reduce their water demand. Monetary incentives are given for the replacement of appliances to more efficient models, and for the installation of Rain Barrels for outdoor water use.	Plumbing systems, rainwater capture systems.	Private residents can reduce their water consumption and costs through a on-time investment subsidized by the City.	The program raises individual awareness of the need for water conservation and it promotes the use of efficient appliances and grey water capture systems.
Caledon	Green Development Incentive	Developers	Directed at new commercial and industrial buildings to encourage the use of green technologies.		Development charge discount of 5% for green technology use and 20-27.5% reduction for the use of LEED standards.	The GDIP program is designed to expand environmental commitment and explore green development opportunities.
York	Sustainable Development Through LEED®	Developers	The Municipality may grant 20 to 40 percent increased water and sewage servicing allocation to buildings above 5 stories in height that are certified to a minimum LEED Silver standing, are serviced by a major transit system and are located within a Regional Centre or Corridor.	All	Developers would post Letters of Credit to the Municipality in the amount of $6,400 per Servicing Allocation Credit, awarded with an upper limit of $500,000. These are used to fund community programs and services such as education and water conservation.	The program encourages developers to seek LEED certification in exchange for greater development rights.
Alberta						
Calgary	Multi-Unit Residential Toilet Replacement Program	Multi-unit Residential	Rebates of $50 are given to building owners, tenants and	Water efficient “low flow” toilets.	Participants in the program are saving on average $87 per toilet	No direct benefit. The program encourages new energy/water

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
			even individual users that replace their current toilets with more water efficient toilets.		a year. Buildings can often save up to 30% of their yearly water bill.	efficient practices within multi-residential buildings. A growing practice that may later convince builders and developers to adopt.
	Residential Toilet Replacement Program	Residential	Rebates of $50 are given to household owners that replace existing toilets with water efficient toilets.	Water efficient "low flow" toilets.	Can save over $100 on annual water and sewer bills.	No direct benefit. The program encourages more energy/water efficiency in residential households, a growing trend that may later convince builders and developers to adopt as a standard practice.
	Sustainable Building Policy	All	To ensure that city facilities are designed, developed and operated according to sustainable practice in all new and existing building developments in order to achieve measurable life cycle cost savings	N/A	All new building and retrofit developments must exceed or meet Silver LEED standards.	Directly effects green building development within city jurisdiction and abroad through new strict sustainable standards applied to new urban/building development
	Ride the Wind Program	Transit Public	The power used to run the city's CTrain is generated using 12 wind turbines.	Wind turbine	Using wind powered energy, reduces C02 emissions by 26,000 tonnes	No direct benefit towards green building development. The program demonstrates that sustainable technologies have the capacity to support city infrastructure with consumption needs that are as large

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
						as a transit system.
	Greenmax Program	All	A program that gives Enmax electricity customers the option to purchase wind generated power.	Wind Turbine	Has the potential to significantly reduce carbon dioxide emissions.	No direct benefits. The program encourages individuals to adopt more sustainable practices through purchasing power (for example buying wind generated energy).
British Columbia						
Vancouver	Build Smart Program	Design and Construction Industry	Program is an informative resource that encourages the use of green building strategies and technologies.	N/A	N/A	Provides a comprehensive consolidation of information on green building strategies and available programs for builders who wish to pursue sustainable building practices.
	Sustainable Region Initiative (SRI)	Local and Regional Government	A framework and action plan for the Greater Vancouver Regional District that will determine how plans and strategies for the future are developed, adopted, implemented and evaluated.	N/A	N/A	Encourages long-term sustainable practices at regional and local level of government. Future developments within the region will be approved according to the action plan and framework, allowing for more regional control over future urban development.
	Vancouver Green Building Strategy	All	The strategy sets high environmental standards for the construction of new buildings.	A policy objective for civic buildings and special development projects.	The strategy supports the use of LEED which rates different elements of a building design and construction to	The Green Building Strategy supports and builds on many of the environmental initiatives already being undertaken by

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
					produce buildings that respect the environment, reduce emissions and the use of resources and energy, and ultimately improve the health and well-being of occupants.	the City of Vancouver including the new National Works Yard (which holds a LEED Gold rating), the #1 Kingsway (mixed-use development using green building design principles), and the Corporate Climate Change Action Plan which addresses energy reduction goals.
	Energy Efficiency Purchasing Policy	City of Vancouver	Requires the City to purchase energy efficient equipment, supplies and appliances whenever possible.	All	The policy supports the use of Energy Star and EnerGuide standards throughout all City operations and contracts.	Ensures that the City is making long-term cost-effective purchasing decisions, without requiring an assessment of each item.
	Discretionary Zoning	Developers	This type of zoning entitles a development to higher densities provided a number of public benefits are met, such as compliance with LEED Silver standards.	Planning practice	Developers have the opportunity to build to higher densities in exchange for using green building practices.	This incentive program encourages developers to embrace green building standards at the start of a project.
Burnaby	Simon Fraser University Density Bonuses	Simon Fraser University	The bonus allows up to an additional 10 percent density for green building features in excess of the requirements. The bonus is granted for enhanced stormwater management,	All	Developers have the opportunity to build to higher densities in exchange for using green building practices.	Encourages developers and institutions to include green building amenities and features in new and existing development. The policy also promotes the use of

Municipal Programs

Municipality	Program/ Policy	Recipient	Scope and Objective	Technology	Results (Fiscal/Energy)	Sustainable Building Encouragement
			enhanced energy efficiency (23% better than ASHRAE 90.1, and alternative energy systems.			green building LEED and ASHRAE 90.1 standards.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Greater Toronto Area					
George Brown, Centre for Advanced Building Technologies	Bachelor of Applied Technology Construction and Environment – The program provides students with specialized knowledge and skills required to appraise, interpret, assemble, enforce or prescribe recommendations on complex construction and environmental regulations and laws.	The program offers a Bachelor's degree in Applied Technology. This is a 4-year program that offers courses in environmental protection, ISO Registration / Compliance, Waste Management, Quality Assurance, New Codes Compliance, Safety	Students enhance their skills in environmental policies, regulations and law.	Program offers paid work placements	Graduating students can work in a wide range of industrial sectors, including engineers, environmental protection, waste management, building and construction and safety.
	Bachelor of Applied Technology Construction Science and Management – The program reviews environmentally friendly construction materials and methods in accordance with increased standards.	A 4-year Bachelors degree in Applied Technology. Courses are offered in environmental law, physics and material science, housing and small buildings, construction technology, building code acts, environmental issues, zoning, sustainable development, risk management, and innovation and constructability.	The program provides a solid education in building sciences as well as practical business and managerial training, including strong negotiating, organizational, and interpersonal skills.	None identified at this time.	Program leads to employment opportunities as a construction manager.
	Building Renovation Technician – The program centers on residential renovations, custom home construction, cabinetry, site layout, demolition, framing and finishing, and the building code.	This is a 2-year Ontario College Diploma. Courses offered include residential building renovation, architectural plans, site management and safety, math, drafting, building science and the environment.	Students acquire skills in custom millwork, stair construction, basic wiring and plumbing, drywall techniques and masonry.	Program offers field placement with a renovation contractor.	This is a one-of-a-kind program in Ontario that provides students with employment opportunities in a variety of supervisory jobs in the construction industry.
	Building Restoration Technician – the program focuses on the technical and practical skills required to revitalize existing concrete	A 2-yearl Ontario College Diploma that offers courses in building renovation and restoration, architectural	Students learn about brick, block and stone-laying techniques, construction and restoration of veneer, concrete installation and	Program offers field placement with a restoration contractor.	Opportunities in the market include restoration mason, concrete technician, site supervision, project

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	and masonry structures.	plan interpretation, math, site management and safety, and methods of measurement.	repair, and historical building restoration methods. Also, the business skills in project management, quantity surveying, and estimating are emphasized.		management, estimating brick, and stone mason.
Seneca. Centre for the Built Environment	Building Systems Engineering Technician – This program has a strong focus on renewable building systems technology and training students to understand energy efficiency principles and design.	Accreditation includes one degree program and a diploma program.	In this program, both theory and practice of heating, air conditioning, refrigeration, air handling, electricity and control systems are taught. Emerging renewable energy technologies are highlighted. Energy efficiency principles are applied to all studies. Building systems software training is included. Furthermore, hands-on experience exists throughout the program.	Field placement is provided during the last program semester. Opportunities for co-op placement and involvement with employers throughout the building industry are integrated into the program.	Features a new Centre for the Built Environment, including one degree program and a diploma program.
	Renewable Energy Training Programs –Photovoltaic Technician Program. The program does not provide a certificate or degree and is mainly distance learning. Students receive comprehensive overview of related electric theory and the fundamentals of photovoltaic systems.	None offered at this time. Modular delivery allows students to take more than one program – expansion for wind energy, geothermal and solar thermal energy.	Students receive fundamental training in PV equipment, PV stand along systems, principles of electrical devices, DC & AC circuit analysis, meter principles, and receive hands-on training at a lab facility.	Sponsored by the Canadian Solar Industries Association. Receive support through the Toronto Region Conservation Authority (TRCA), Living City initiative at the Kortright Centre – sustainable test lab.	First distance and classroom program of its kind in Ontario targeted at industry upgrading and promotion of renewable energy.
	Energy Training Office - is an international training resource centre founded in the early 1980s. The centre, and its primary product, the Building Environmental Systems (BES), has won	Students have the option of taking the BES course or the Renewable Energy Training Program. Students who take either program are eligible for the Inter-provincial Facility	Focus is on economic competitiveness, energy efficiency and environmental sustainability. The program provides skill building courses in	Joint agreement with SAIT and Marguerite Bourgeous to implement the Inter-provincial Facility Training Accreditation Council which credits trainees in building operations and	The centre has an international focus which supports training across Canada and within Seneca for the Centre for the Built Environment. Training is available

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	international recognition and has partners across the globe. Recently the Office expanded its delivery options to include sustainable technologies in Photovoltaics, Wind Energy, Geothermal and Solar Thermal Energy.	Training Accreditation. Students graduating from the BES receive a Class I, II or Facility Manager Certificate.	Heating, Air Conditioning, Air Handling systems, Controls systems, and Electricity and Water Treatment.	energy management training. Partners - NRCan Federal Buildings initiative, Ministry of Environment, Energy Institute UK, Canadian colleges. Affiliate with Prince's Foundation UK, Canada Green Building Council, among others.	through distance education and is completely modular allowing it to be easily adapted to regional requirements. The Energy Training Centre has the ability to quickly adapt and provide new energy related programming, as exemplified with the development of the Renewable Energy Training Program.
	Integrated Environmental Site Remediation (IER) – This program examines site contamination, with specific emphasis on scientific evaluation, property assessment and sustainable redesign.	Specialized health and safety training, as well as being exposed to a diverse range of science, technical and management skills in the trade. IER is a unique program, examining all aspects of site contamination, including scientific evaluation, property assessment and sustainable redesign.	This program integrates the academic areas of science, law, planning, communications, engineering and computer applications focusing on environmental site remediation and land redevelopment.	Graduates will work with such groups as consulting engineers, municipal decision makers, urban planning consortiums, international development agencies, property management and private developers. Industry collaborations have also been formed with the Cement Association of Canada, Canada Mortgage and Housing Corporation (CMHC), and the Toronto and Region Conservation Authority (TRCA).	Features a new Centre for the Built Environment, including one degree program and a diploma program. Seneca College also encompasses the Seneca Sustainability Partnership, which is a leader in site remediation, green buildings and air and water enhancement which reflects the partnership's commitment to work with technologists, technicians and the trades in ensuring the life cycle of applied urban sustainability measures in the built environment.
	Environmental Technology/ Technician – This program centres on providing technical skills to students, allowing them to be capable to work within the traditional engineering industries. The	Program currently offers industry field placements.	Skills emphasized include project management, contracting and the coordination of construction projects and environmental initiatives	Field Placement is provided during the last semester. Both the Environmental Technology Program and the Technician Program offer an optional Co-operative	Features a new Centre for the Built Environment, including one degree program and a diploma program.

Appendix C: National List of College, University and Continuous Education and Training Programs

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	areas of study focus on equipping students with the capacity to work within the environmental sector with strengths in environmental technology, water resources and applied sciences, engineering and problem solving abilities; and public and communication skills.			Education Program. Graduates of the program are eligible for credit at the following universities: Griffith University and Royal Roads University.	

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Cambrian	Energy Systems Technology – This program focuses on energy systems for residential and small commercial buildings. The program is designed to provide students with the basic skill sets to install and operate alternative energy systems utilizing renewable fuels – sun, wind, water, geothermal heat, and biomass.	None identified at this time.	Skills emphasized by the program are centred on energy management, energy efficiency and energy conservation measures, sustainable building and development and others.	Cambrian College is in the process of developing a Sustainable Energy Systems Centre of Excellence. This facility will be used by entrepreneurs and businesses to develop and prototype alternate energy systems and green building systems.	Only College offering a rare diploma focused on maximizing sustainable energy. Graduates of this new program are candidates for employment with architects and energy firms that focus on green building design or with business and contractors involved in the development, installation and sales of alternative energy systems and green building systems.
Centennial, School of Engineering Technology & Applied Science	Integrated Energy Systems Technology – This program offers a unique blend of technical, managerial and entrepreneurial skills that are now sought after in modern energy and sustainable building companies.	Professional Technology Option Academically – qualified students enhance their education by working a full calendar year as paid employees in the field.	The program's focus is on opportunity to learn how to use modern sustainable energy technologies in a manner consistent with urban environments. Skills emphasis is on the link between technology development and installed systems. This program includes theory, hands-on labs and technical problem solving. Academically qualified students enhance their education by working three terms as paid employees in the field.	Qualified graduates are eligible to participate in an articulated program with selected universities and institutes. These partnerships allow graduates to apply academic credit towards further study. Partners include: Athabasca University, Science degree, and Lakehead University, Engineering degree.	Flexible; students may graduate after two years and become technicians, continue with paid work experience and follow a more academic path to an advanced diploma. Students may also move on, if qualified, to degrees in science at Athabasca University or an engineering degree at Lakehead University.
	Wind Energy Generation, Conversion and Control – This program is designed to upgrade a skilled technologist to install, repair and maintain small wind power systems through a supplementary certificate.	No specialization options. The program is directed at trades people and engineers with experience in mechanical, electrical and utility systems.	The hands-on program teaches motors, generators, power electronics, mechanics of wind turbines, data acquisition, fundamentals of wind energy and the integration of wind	None identified at this time.	Among the first institutions to target the upgrade market with a supplementary certificate program.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
			generation with electrical systems.		
	Solar Energy Generation, Conversion and Control – This program provides experienced technologists with a familiarization course on the intricacies of installing, repairing and maintaining solar photovoltaic (PV) systems for residential and small-commercial installations. The program focuses on the integration of photovoltaic generation with electrical systems.	No specialization options. The program is directed at trades people and engineers with experience in mechanical, electrical and utility systems.	This program focuses on motors, generators, power electronics, photovoltaic systems, module support systems, wiring, data acquisition, fundamentals of solar energy.	None identified at this time.	Among the first institutions to target the upgrade market with a supplementary certificate program.
Humber, School of Applied Technology	Architectural Technology – This program teaches students how to develop design presentation drawings and technical working drawings for various building types. Focus is placed on building specifications, building material estimations, and building cost controls. Students will also learn about the administration of building contracts, the management of construction projects and building inspections.	The program is specialized for in-housing projects with small design firms or house inspection contractors. The course focuses on the principles of building materials, methods of construction, building science, structural and environmental systems and building code regulations.	Students are taught the fundamental design and planning principles for buildings and site development.	None identified at this time.	Opportunities in the market include working with a contracting firm as a project coordinator or estimator, building inspector or planning examiner for a municipality.
International Academy of Art & Design	Sustainable Architectural Technology - The program places emphasis on engaging industry and appropriating technological innovation. Students have an opportunity to take environmental responsibility and sustainability beyond	None specified at this time.	The Academy seeks to graduate students who have the training and skills in sustainable building technology. Areas of emphasis include integrated design, product selection, and adaptive heritage reuse (measure of	Academy provides placements in the field as well as in instruction by individuals in respective fields addressing sustainable issues with current projects.	Fast-track option is available; industry professionals act as instructors. The program is accredited by the Association of Architectural Technologies of Ontario (AATO) and its students are automatically

Appendix C: National List of College, University and Continuous Education and Training Programs

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	awareness and into action, and environmental leadership.		waste reduction).		granted membership.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Ontario College of Art and Design (OCAD)	Environmental Design – This program focuses on the conceptual and technical design in the urban environment. Students learn the theory and practical sides of interior design from an environmental perspective.	The program offers a 4-year Bachelor of Design/OACAD diploma. The courses offered include Modernism and Modernity in Design, Design Methodologies, Building technology & Structure, Interior Design Studio, Socially Responsible Design, Urban Life: Art Design and the City, and Interior Design and Construction.	Skills emphasized include developing a student's ability to research design, conceptualize and present projects in the commercial, residential, retail, hospitality and institutional sector.	None specified at this time.	Opportunities in the market place include careers in interior design and architecture firms.
Greater Golden Horseshoe Area					
Fleming	Sustainable Building Design & Construction - The program allows students to develop a skill set in the design of structures using green, natural or sustainable building methods, technologies and materials and renewable energy resources.	None identified at this time.	This program was designed to meet the needs of those in the construction industry seeking a specialized skill set. Career opportunities include working with existing sustainable building companies, energy companies, and working with home builders and designers of homes.	As a practical component of this program students are involved in the construction of a sustainable structure.	Only program offering a sustainable buildings design program.
Georgian	Environmental Technology – The program provides a broad based education that emphasizes both engineering and Environmental Science principles and practices, particularly in the areas of water/wastewater treatment, waste management, and air, water and soil pollution.	A 3-year Ontario College Advanced diploma focusing on the principles and practices of engineering and environmental science.	Skills emphasized include water/wastewater treatment, waste management, and air, water and soli pollution. The program stresses the need to consider environmental consequences in engineering projects and to minimize environmental impacts.	Students may participate in a co-op work term directly related to environmental building improvement and maintenance. The program is also recognized by Royal Roads University in British Columbia. Upon graduation at Georgian	Opportunities are offered in civil engineering and environmental technologies.

Appendix C: National List of College, University and Continuous Education and Training Programs

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
				College, students can then earn a 1-year degree in Environment Science at Royal Roads University.	

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Mohawk	Urban and Regional Planning Technician – This program provides students with "planning tools" to help design and construct sustainable communities.	A 2-year Ontario College diploma.	Students learn of the planning processes in the initial stages of a building project.	None specified at this time.	Opportunities in the market place include planning technicians for real estate and utility companies.
	Civil Engineering Technology – The program trains students to work with certified engineers in the field.	A 3-year Ontario College diploma offering courses in CAD, Surveying, Drafting, Estimating, Transportation Technology, Structural Design, Municipal Government, Materials, Highway Technology, and GIS.	The Centre for Co-operative Education, and Graduate and Student Employment facilitates the development of program related work opportunities for full-time students.	None specified at this time.	A 12-16 month paid internship provided to students in their last year with certified engineers.
	Construction Engineering Technology – The program provides a combination of technical and trade skills to students.	A 2-year Ontario College diploma with courses offered in Construction Materials, Drafting, Plan Reading, CAD, and Ontario Building Code regulations.	Skills are emphasized in trade work.	None specified at this time.	Opportunities in the market place include the public and private sector in construction trades and apprenticeships, and general contracting.
Niagara	Construction Engineering Technology – The program provides an apprenticeship in construction and related trades.	A 3-year Ontario College Certificate plus an in-school basic-carpentry apprentice program.	Skills within the trade industry is prominent in this program.	On the job training with a sponsoring company from the industry is required one day per week in the final term.	Carpenters may advance to foreman, construction superintendent, trade subcontractor, or general contractor.
Ontario					
Algonquin, School of Advanced Technology	Geographic Information Systems - This program provides a general introduction and application of GIS technologies and concepts to individuals who have a previous degree or diploma.	A one-year Ontario College Graduate Certificate designed to introduce GIS technologies and concepts to those with a previous degree or diploma in a related field.	Students learn to acquire, manipulate and present spatial data being used in sustainable building projects. An independent GIS project course is created by students in their final term.	The College has partnerships with Athabasca University (a degree in BSc) and Carlton University BA in Geography) where students can receive advanced standing and credits.	Opportunities in the market place include the implementation of GIS in various business environments.
	Construction Engineering Technician/Civil Engineer Technician – The program is a blend of theory and practice	A 2-year Ontario College Advanced certificate plus a one-year degree in conjuction with Lakehead	Many courses are available to students in surveying, construction materials, and estimating.	The School has a partnership with Lakehead University, and many links with the local construction	Opportunities in the market place are found in many areas of the construction industry,

Appendix C: National List of College, University and Continuous Education and Training Programs

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	and ma	University for Civil Engineering Technician. The program is recognized by the Ontario Association of Certified Engineering Technicians and Technologists.	The program also offers a lab or practice component. At the end of the second year, students can chose to enter the third year of the Civil Engineering Technology Program.	industry for student summer job opportunities.	including cost estimator for residential, commercial, and civil projects; surveyor; project manager; and building inspector.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Boreal (French)	Environmental Remediation Technician – The program focuses on environmental remediation, looking at building sites and recommending solutions for environmental problems.	A 3-year diploma in REIM. Courses offered include Surveying, GIS Applications, Chemistry, Math, and Ecology.	Students acquire the tools and techniques used to analyze and monitor water, air, land, and waste control. Other skills include the analysis of various substance effects and the scientific data with governmental standards and legal requirements.	None specified at this time.	None specified at this time.
Canadore	Building Construction Engineering – The program is centred on developing skilled trades people.	An 18-month Ontario College Diploma where students study topics of materials estimating, geometric designs and constructions for floors, roofs, and arches, production of scaled models of wood-framed structures, and the development of comprehensive site safety plans.	The program provides hands-on and management skills towards building construction projects.	None specified at this time.	Graduates from the program are in high demand in the construction and building sectors.
Confederation	Architectural Technology – This program teaches students how to develop design presentation drawings and technical working drawings for various building types. Students learn about the administration of building contracts, the management of construction projects and building inspections.	A 3-year Ontario College Advanced diploma with the first year focusing on Civil Engineering, and then becoming more specialized in architectural design techniques.	Students acquire skills in building materials and science, methods of construction, structural and environmental systems and building code regulations.	None specified at this time.	Opportunities in the market place include working as a project coordinator or estimator, building inspector or planning examiner for a municipality or a contracting firm.
	Civil Engineering Technology – The program focuses on the design, construction and operation of water distribution, wastewater collection and treatment	A 3-year Ontario College Advanced diploma with courses being offered in Construction, Surveying, Drafting, CAD, Structural Design, Environmental	Skills are acquired in the engineering and construction field.	None specified at this time.	The program fills the demand for skilled people in civil engineering technology.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	systems, road and railway systems, and buildings for residential, commercial and industrial uses.	Technology, and Municipal Design.			
Fanshaw	Architectural Technology – Students are introduced to the principles of design and planning, contemporary building methods, and structural and environmental engineering in relation to architectural construction.	A 3-year Ontario College Advanced diploma, 3 years with a co-op option. Courses are offered in Architectural Design and Drafting, AutoCAD, Ontario Building Code, Environmental Engineering, Surveying, and Urban Environmental Studies.	Students acquire knowledge and skills through individual and team projects involving residential, industrial, commercial, and institutional buildings.	This co-operative education program consists of 6 academic semesters and 4 work terms over a 3 - year period.	Graduates from the program seek employment opportunities in professional architectural and engineering firms, industrial and commercial corporations, and government agencies
	Civil Engineering Technology – The program provides training in the design, construction, supervision and operation of all types of civil engineering projects.	A 3-year Ontario College Advanced diploma, plus a co-op program.	Students receive training in materials testing and computer-aided drafting. Courses are offered in the design and construction of water distribution systems, storm and sanitary sewerage networks, storm water management and highways. Theories for the treatment of water, sewage and solid wastes are also analyzed.	The School partners with Lakehead University and Athabasca University. Students may transfer 60 credits to the Bachelor of Science Post-Diploma program at Athabasca University. Graduates with a 70% or more average in the final year may be eligible for credit towards the first 2-years of the Bachelor of Engineering degree program at Lakehead University. Graduates may also be eligible for advanced standing credit to the Bachelor of Engineering in Civil Engineering at Griffith University, Queensland, Australia.	None specified at this time.
	Construction Engineering Technician – The program prepares students for a career	A 2-year Ontario College Advanced diploma program.	Students acquire the technical knowledge required to perform the	None specified at this time.	Graduates may enter an apprenticeship in carpentry or join working

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	in the residential construction industry. The program is also devoted to the acquisition of "hands on" skills pertaining to the field.		construction, estimating and scheduling associated with residential buildings.		crews in framing, concrete formwork, or exterior or interior finishing of houses.
	Construction Engineering Technology – The program provides the technical knowledge and skills required to construct Industrial Commercial Institutional (I.C.I.) sector buildings from planning through to completion.	A 3-year Ontario College Advanced diploma program with one year of coop work experience. Courses offered include construction methods, construction equipment, surveying, project management, scheduling, estimating, building economics, construction contracts.	Skills are acquired in heavy construction surveying, environmental engineering, estimating, and Structural design.	Students can transfer 60 credits to the Bachelor of Science Post Diploma program at Athabasca University or in the final year of the program graduates may be eligible for credit towards the first two years of the Bachelor of Engineering degree program at Lakehead University.	Graduates of the program will be eligible for management positions in contracting and construction or start their own construction company.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
La Cite Collegiate	Technologie de l'architecture – The program provides the technical knowledge and skills required to construct Industrial, Commercial and Institutional sector buildings from planning through to completion.	A 3-year Ontario College Advanced diploma program. Courses offered include construction methods, construction equipment, surveying, project management, scheduling, estimating, building economics, and construction contracts. Twelve months of co-op work experience is an integral part of the program.	Skills are acquired in architectural design and construction. This includes architectural skills such as drafting, analysis, estimates, and construction, as well as the process of recycling /restoration of existing buildings.	None specified at this time.	None specified at this time.
Lambton	Alternative Energy Engineering Technology – The program focuses on the theory and application of current and emerging new (alternative) energy solutions.	A 3-year Ontario College diploma. Courses offered include energy resources, CAD, Math, energy production and the environment, chemistry, wind/ocean energy and small hydro power, Introduction to solar thermal, heat transfer, building energy efficiency, environmental impact assessment and life cycle assessment, applications of renewable energy technology, operation of wind turbines, Energy conservation, and Fuel cell operational principles.	Students acquire the technical and applied knowledge in renewable energy concepts combined with energy efficient design principles.	None specified at this time.	Graduates may find employment in the energy services field.
Loyalist	Residential Design and Drafting – The program places great emphasis on drafting and understanding building materials and construction building codes.	A one-year Ontario College Certificate program.	The program encourages graduates to pursue architectural technologies.	None specified at this time.	Graduates may seek potential careers in the residential industry. For example house designer, draftsperson, assistant project manager, render/concept artist, CAD operator etc.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Northern	Civil Engineering Technology – The program focuses on the building process, drawing, design and inspection of structures in buildings and highways.	A 2-year Ontario College diploma. Courses offered includes AutoCAD, surveying, municipal design, GIS, Ontario building code, commercial estimating, and structural design.	Skills are acquired in the inspection and surveying of buildings and highways.	Upon program completion students have the option of upgrading their credentials and transferring to Lakehead University.	Opportunities in the market place include supervisory positions in construction, mining or private industry as well as land surveyor with municipalities, government agencies and engineering firms.
St. Clair	School of Building Design and Construction Technology / Architectural Technology – The program introduces students to the principles of design and planning, contemporary building methods, and structural and environmental engineering in relation to architectural construction.	A 3-year Ontario College Advanced diploma. Courses offered include Drafting, Design, Construction, CAD, Surveying, Estimation, and Architectural detailing.	Skills are acquired in building design and construction technology.	The School has a transfer agreement with Lawrence Technological University and Athabasca University.	The program prepares graduates for market place opportunities as site supervisor or surveyor with architectural and engineering firms, building product manufacturing firms, contractors and government agencies
	Civil Engineering Technology – The program is based on applied mathematics and scientific and applied engineering theory.	A 3-year Ontario College Advanced diploma. Courses offered include drafting, design, construction, CAD, surveying, civil estimation, detailing, municipal technology.	Skills are acquired in applied engineering technology.	The College has affiliation with the Ontario Association of Certified Technicians and Technologists (OACETT) and Articulation agreements with University of Windsor and Lakehead University.	Typical entry-level positions include civil engineering technician, draftsperson, estimator, inspector technician and field supervisor with architects, consulting engineers general or subcontractors, public utilities, real estate developers and government agencies.
	Construction Engineering Technician (Civil) – The program prepares students for a career in the civil construction industry. The program is also devoted to the acquisition of "hands	A 2-year Ontario College diploma. Courses offered include drafting, design, construction, Civil CAD, surveying, and estimating. The program is recognized by the OACETT.	Graduates obtain skills that apply to estimating quantities, inspecting materials and operations, performing construction surveys, interpreting and applying specifications and	Graduates can obtain a Civil Engineering degree in two to three years from Queen's University or Lakehead University.	The program is unique in that it enables career flexibility and mobility in the construction field.

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	on" skills pertaining to the field.		executing sketches from contract drawings or shop drawings, and CAD.		

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
St. Lawrence	Civil Engineering Technology – This program has a strong focus on municipal engineering, structural design, water resources and environmental engineering. Emphasis is placed on computer applications, with proficiency in general and specialized civil software.	A 3-year Ontario College Advanced diploma. Courses offered include Land use planning, Environmental site investigations, Environmental legislation, Structural analysis, GIS, drawing, CAD, Surveying, Construction methods, Work placement. The program is recognized by the OACETT.	Skills are acquired in structural design and water resources in municipal and environmental engineering.	Formal agreements are in place with Queen's University and Lakehead University. Upon completion of the program, students can obtain a Civil Engineering degree in two to three years from both universities.	Opportunities in the market place include working with consulting engineers, construction firms, industries, and municipalities.
	Architectural Technician – The program focuses on building construction, systems and design.	A 2-years Ontario College Advanced diploma. Courses offered include Drafting, Design, Construction, CAD, Surveying, Estimation, and Detailing.	Students develop solid computer-aided drafting and design (CAD) techniques as well as skills and knowledge in 3D modeling and rendering, building assemblies, specifications, construction detailing, building codes and practices, and construction materials and processes.	The program offers co-op placement in the Spring and Summer.	The program is unique for its close ties with op-op employers; keeping students and faculty members connected with the demands of the industry.
Alberta					
Southern Alberta Institute of Technology (SAIT), Polytechnic Construction Trades	Works with the local home builders association to deliver programs for trades.	Leading provider of skilled workers in the energy sector and construction industries	Develops individual learning modules for all trades and are integrated into course outlines and include information on new technology or high performance building concepts	Curriculum development is supported by partnerships with business and industry to ensure graduates have the skills and knowledge required in the workplace.	In 1998, SAIT partnered with the Carma Centre for Excellence in Home Building and Land Development, a developer funded initiative to help education institutions facilitate the training requirements of residential construction and land development.
	Architectural Technologies - The program focuses on building construction, systems and architectural	A 2-year Advanced College Architectural diploma with an option to work as a member of a design team	Students develop skills in architectural drafting, AutoCAD, sketching, design and rendering.	Currently there are no formal transfer arrangements or affiliations with a	The program provides the option of e-learning (long distance learning). Opportunities in the

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	design.	in an architectural office. Each of the program's two years is divided into two 16-week semesters. Course work is supported by studies in mechanical/electrical systems, building codes, structural design, and building science and construction. Second year students can choose either the Architectural or Building Development options.		Canadian university.	market place include construction site project supervisor, estimator, specification writer, subcontractor, contract draftsperson, illustrator, and as a mortgage assessor.

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College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	Civil Engineering Technology – The program provides general knowledge and adaptability to work in various fields relating to civil engineering.	A 2-year Advanced College diploma. The program has a common first year, by the end of which students choose a second-year option in either Construction Management or Municipal. This program is nationally accredited, at the technologist level, by the Canadian Council of Technicians and Technologists. Graduates are eligible for membership in the Association of Science and Engineering Technology Professionals in Alberta (ASET). The Canadian Institute of Quantity Surveyors recognizes the program as training for a qualified estimator and quantity surveyor.	Skills are emphasized in drafting, surveying, structural design, urban services design, site planning, environmental engineering, and GIS technology.	Graduates can continue their studies with SAIT's Bachelor of Applied Geographic Information Systems or SAIT's Bachelor of Applied Petroleum Engineering Technology degree program.	The program provides the option of e-learning. Opportunities in the market place include engineer's assistant, construction supervisor, and project cost estimator with the municipal and/or provincial government.
Mount Royal College	Environmental Technology – The program focuses on the theory and techniques of environmental control.	A 1-year certificate Advanced College program. Courses include Life Cycle Assessment, Watershed Management, Air Quality, Management of Residuals, Groundwater Contamination Design for the Environment, and Site System Remediation Design.	The program provides students with an expanded knowledge base on environmental issues. Students may progress at their own rate, however, certificate requirements must be completed within three years.	None specified at this time.	The program is intended for individuals possessing on the job experience of an environmental nature and/or diploma in a related area.
Red River College of Applied Arts	Environmental Protection Technology – The program is geared for students who have successfully completed the first year of a Civil/CAD Technology program.	A 32-month cooperative College diploma.	Students develop skills in project analysis and management, and GIS technology.	None specified at this time.	Graduates find work with consulting engineering firms, resource-based industries, construction and development companies, inspection and

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College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
					testing agencies, material manufacturers, material suppliers, governments and crown corporations.
British Columbia					
British Columbia Institute of Technology (BCIT)	School of Construction and Environment - In 2007, BCIT launched a new sustainable teaching and instruction framework. Faculty will align program courses and research activities to the framework. Six themes provide the operating structure: strengthen and protect assets; balance use and renewal of resources; account for all costs and benefits; reduce waste and eliminate toxics; ensure safety and access to services; support opportunities for improvement and enjoyment.	Students are provided with sustainable training in all programs including trades training and apprenticeships, certificates, diplomas, and degrees. In the fall of 2006, a new sustainable design program was added to the Architectural Science steam. The course focuses on developing a sound understanding of environmentally responsible design through review of relevant case studies and green building rating systems.	The College emphasizes skills on sustainable development, alternative energy sources, building science, construction occupations training, new materials, new methods of construction preservation, housing and habitat technologies, environmental reclamation, and water and land stewardship.	The College currently partners with local industry associates including the CAGBC and has developed strong ties through its research initiatives.	Only College geared to preparing students for working on LEED buildings. Also, only College in BC to have initiated a Green Roof Research Program.
Douglas College, Faculty of Science and Technology	Building Environmental Systems (BES) - The program provides a comprehensive energy efficiency training program for building managers, operators and technicians – available to individuals or institutional partnering. Program structured to provide a whole building design perspective.	Students will receive a BES Class I and II certificate. All students receive training in heating, air-condition and refrigeration, air handling, electricity, controls, water treatment and energy management. Specialization available for pipe system design *(district energy) air systems design and hospital systems with emphasis on working with outside contractors and engineers.	The program provides skill building courses in Heating, Air Conditioning, Air Handling Systems, Controls Systems, Electricity and Water Treatment.	The program is provided in partnership with local building owners and operators; Ministry of Energy, Mines and Petroleum Resources, as well as BC Hydro and Tearsen: and, Association of Energy Engineers. BES program is aligned with institutions in Norway, United States, Czech Republic, Poland, Ukraine, England and Russia.	Only college with a dedicated program serving building owners, operators and managers. Partnerships forming with large building owners to provide customized and tailored training programs. Program receiving primary funding from the development industry.

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College Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Camosun College	Civil Engineering Technology – The program stresses the use of microcomputers in the solution of civil engineering problems.	A one-year, 9 months or co-op optional 2-years and 6 months College Advanced Program diploma. Students are introduced to CAD, drafting techniques and computer-based design systems for urban planning, structures, highways, water and water waste management, and all aspects of project management.	Skills are emphasized in surveying, environmental engineering, structural design, and urban planning.	This program allows students to enter the third year of engineering at the University of British Columbia.	Co-op is offered as an option and links the program with industry practitioners allowing the school to meet the skill demands
Okanagan College	Civil Engineering Technology – This program allows for a great breadth of knowledge and adaptability to work in various fields relating to civil engineering.	A 2-year Advanced College diploma. The program is Accredited by the CTAB and students may register with the Applied Science Technologists and Technicians of British Columbia (ASTTBC).	Skills developed include knowledge of mathematics, applied science, surveying principles, graphical language and oral and written communication techniques, drafting, detailing, computing, surveying, construction inspection, basic structural design in steel, reinforced concrete, design of water distribution and sewage collection systems.	None specified at this time.	Professions in the market place include engineering assistant, draftsperson; estimators, detailers and assistant designers; construction inspectors in municipal water development and structural projects; technologists in hydrographic surveys, waste resources studies; building inspectors; project chiefs and instrument field surveys related to construction, drainage, irrigation, and roads.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

University Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Dalhousie University	Master of Architecture (MArch) – This program consists of four academic terms and an eight-month co-op work term. Core courses are themed into three main areas of study. Design – focusing on building design and study; Technology – focusing on construction, structure and environmental systems; and Humanities – focusing on history, theory, research and criticism.	The two-year MArch program is preceded by two years of general (non-architecture) studies at any university and two years of architecture in Dalhousie's pre-professional Bachelor of Environmental Design Studies program. The program is accredited through the Canadian Architectural Certification Board (CACB).	The program includes seven courses in architectural design, humanities, technology, and professional practice, plus six electives and a design thesis.	Not specified	The program studies building energy codes and rating systems in the Atlantic region – specifically LEED. It also examines international strategies for low-energy building; passive systems in ventilation, heating and cooling; renewable energy systems; and the integration of engineering systems into architectural design.
Carlton University	Environmental Engineering – The program includes a modified common engineering core program, a group of courses specific to environmental engineering, and additional courses in biology and chemistry. Complementary courses from other faculties such as Arts and Social Sciences are also available.	A 4-year Bachelor of Engineering degree. Courses are offered in general sciences and math, environmental engineering and analysis, planning, impact assessment, and project design and mechanics. The program is fully accredited by the Canadian Engineering Accreditation Board.	Skills are emphasized in air pollution control, groundwater flow and contaminant transport, solid and hazardous waste management, and water and wastewater management.	Not specified	This is a full-time Baccalaureate program. Graduates meet the educational requirements for registration as a professional engineer.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

University Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Guelph University	Environmental Engineering – The program provides in-depth knowledge in physical, chemical and biological systems with a strong emphasis on engineering design.	A 4-year Bachelor of Engineering degree.	Skills emphasized include remediation, consulting, and EIA, policy development.	Not specified	This is a full-time Baccalaureate program. Graduates meet the educational requirements for registration as a professional engineer.
University of Toronto, Institute of Technology	Energy and the Environment – The program provides fundamental scientific principles regarding energy conservation and environmental science.	A 4-year Bachelor of Science/Engineering degree with co-op placement. In the second year students begin to specialize in either chemistry or physics stream. Courses offered include advanced physical chemistry, economics and environmental politics, fossil fuels and biomass, hydrogen-based energy systems and fuel cells, and nuclear energy.	Students develop skills in energy conservation and environmental impacts.	Co-op work term in the field	Opportunities in the market place include teaching technical aspects of energy and environmental science, and field work in the industry/public sector.
	Energy Systems and Engineering – The program provides an overview on alternative energy sources available and its economic and environmental impact.	A4-year Bachelor of Science/ Engineering degree with co-op placement. Courses offered include energy systems, fuel cell technology, hydrogen power systems, nuclear power systems, risk analysis methods, safety and quality management, solar technologies, strength of materials, sustainable energy systems, and wind power.	Students develop skills to work with systems involving the generation, transmission or utilization of energy.	Co-op work term in the field.	Not specified
	Master of Architecture (MArch) – This program is a rigorous and	Students gain a thorough knowledge in history, theory, technology,	The program aims to develop critical, creative, and independent thinking	Not specified	The program is unique in that it uses the Greater Toronto Region as an

University Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	comprehensive program that prepares graduate students for the full range of activities in architecture.	ecology, society, and professional practice in sustainable buildings. They also develop skills in building design through design studio courses.	and research that responds to current design issues and societal changes.		urban laboratory for the development of new knowledge and forms of practice in architectural design.

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

University Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
Ryerson University	Urban and Regional Planning –The program provides a comprehensive approach to planning with studio and theory applications.	A 4-year Bachelor of Urban and Regional Planning with co-op placement. Courses offered include ecology, studio projects, planning theory, research design, law, and statistics.	Students develop skills in urban and regional planning for sustainable development.	Co-op work term in the field.	Graduates seek employment opportunities in urban and regional planning.
	Bachelor of Architectural Science (BArchSC) –A 4-year program that emphasizes sustainable approaches to the design and development of the built environment. The Architectural Science program promotes an integrated approach to architectural science through lectures and studio work.	Upon graduation students receive a Bachelor of Architectural Science degree, with options in Architecture, Building Science, and Project Management in the last year of study. The program offers specific courses in design theory and technology, and the studio lab incorporates planning, social and physical context, scale, massing and all other elements contributing to architectural design.	Students develop skills in the principles of architectural design, including the documentation and management of projects in architectural, engineering, and environmental management and planning.	Not specified	This program is unique in that it examines how environmental forces act on building envelope components, and explores how building systems guide decision-making in the design and planning of buildings.
	Master of Architecture (MArch), Dept. of Architectural Science - A 2-year, studio-based program designed for students with a strong technical background in architecture and/or an undergraduate degree in architectural science or its equivalent. The program is professionally-oriented with a strong focus on research and critical practice.	This program presents students with three new options of study at the graduate level: Master of Architecture (2007), Building Science (2008), or Project Management (to be launched in 2009). In March 2007, the university applied to the Canadian Architectural Certification Board (CACB) for Candidacy Status for the MArch.	By focusing on a critical study of architectural practice, both in its contemporary form and future potential, the program provides students with the opportunity for intellectual growth and leadership skills.	Not specified	This is a first-of-a-kind graduate program that offers a course on Sustainable Ratings Systems/Designing with LEED.

University Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
York University	Master of Building Science (Dept. of Architectural Science) – An interdisciplinary graduate program that offers students in building related programs an opportunity to explore the building science principles necessary to deliver sustainable buildings.	The Building Science option offers students a more detailed study of the principles, methods and applications for building design.	An introduction to design, environmental, technological and management principles in the building science. Skills emphasized include sound decision-making for building design, design and selection of building construction assemblies, structure and services, and the evaluation of a buildings suitability and performance.	Not specified	The program offers four of five core courses related to energy design and efficiency, including building envelope system; energy efficient building services and renewable energy systems; ecological and resource efficient design; and building design seminar/studio with a focus on energy design.

University Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	Urban Sustainability - The program prepares students to work in the planning, design, and construction of major infrastructures and services in urban settings such as roads, tunnels, bridges, water supplies, buildings and new communities.	A 4-year Bachelor in Urban Sustainability Studies. The program is offered conjointly with Seneca College (Civil Engineering Technology diploma), and York University (Bachelor of Environmental Studies). Courses offered include applied paradigms and methods in Environmental Studies, global development, environmental assessment, and environmental politics.	Skills emphasized include planning, design and the construction of major urban infrastructures.	The university is affiliated with Seneca College. Students can apply to the Joint Program after completing three years in the Bachelor in Environmental Studies Honours program at York University, or while in their final year of the Civil Engineering Technologist diploma in Ecosystem Management at Seneca College.	Students pursue work in urban and regional planning with the city at municipal level.
University of Waterloo	Environmental Engineering – The program provides appropriate field methods for public and private enterprise in environmental engineering, responsible risk management, and environmental impact assessment.	A 4-year Bachelor in Environmental Studies with co-op work terms. Courses offered include Hydrology, Process Engineering, Waste Management, Water, Design and Construction, Earth and Geotechnical, Hydraulics, Sustainability and Planning, and Environmental Resource Management.	Skills are acquired in the principles of water management and treatment, remediation of surface water and groundwater, biotechnology, and contaminant transport.	Coop work term in the field.	Students seek work as environmental engineers.
	Urban Planning – The program focuses on the social, environmental and economic elements of urban planning, design and policy.	A 4-year Bachelor in Geography with co-op work terms. Courses include Planning Design and Environment, Intro to GIS, Community Design, Conservation and Resource Management for the Built Environment,	Students acquire skills and knowledge in GIS, urban design and policy.	Coop work term in the field.	Opportunities in the market place include Assistant Planners, Resource Planners, and Government workers,

University Programs

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
		Research Methods, Urban Design Studio, Health Environment and Planning.			
McMaster University	Department of Geography –The program provides a comprehensive understanding of all aspects of the Geographical, Anthropological and Environmental elements in regards to human settlement and the impact on the environment.	A 4-year Bachelor in Geography. Students have the option to specialize in Urban/Social Geography, Environment and Health, or Spatial Analysis and GIS. Courses offered include the living environment, Geography of Human Environment, Soils and the Environment, Physical Hydrology, GIS, Environmental Geophysics, EIA, and Land Use.	Skills are acquired in GIS, hydrology and EIA.	Not specified	Not specified

Institution	Program Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
University of Calgary	Master of Architecture (MArch) – A 4-year professional Masters degree where students acquire an understanding of the conceptual issues and operational skills required to participate in the design of the built environment. The program includes a wide variety of enrichment opportunities with the Faculty's program in Barcelona and the	A 4-year professional MArch degree where students complete three years of course and studio work prior to undertaking a Master's Degree Project (MDP). Those admitted to the Master of Architecture program and hold a pre-professional degree in Architecture, including a University of Calgary degree with a Minor in Architectural Studies, will	The Architecture program stresses an understanding of the conceptual issues and operational skills required to participate in the design of the built environment.	Not specified	The program prepares students for career opportunities in urban design, construction and management of the built environment.

University Programs

	William Lyon Somerville Visiting Lectureship. Students are also engaged in interdisciplinary design research.	be admitted into the second year.			
Simon Fraser University	Department of Geography – The program provides students with an understanding of geographic elements, spatial distribution, and technical training in GIS.	A 4-year Bachelor of Science and GIS with co-op opportunities. Courses offered include Regional Development, Urban Geography, Spatial Analysis and Transportation.	Skills are acquired in GIS methods.	Co-op work term in the field.	Graduates seek employment as GIS technicians.
University of British Columbia	Faculty of Applied Science, Environmental Design – The program is a preparatory introduction to a Master's Degree in Architecture, Landscape Architecture or Planning. The program examines the role in planning, management, design and construction of the natural and built environment.	A 2-year Bachelor Program in Science/Engineering. Courses offered include Environmental Design, Media and Representation, Themes in Architecture and Design, Site Analysis and Planning, Urban and Architectural Design, and Ecology.	Skills are acquired in digital design and presentation and the integration of environmental elements.	Not specified	Not specified
	Environmental Engineering - The program allows students to focus their studies in one of three specialty areas: Pollution Control and Waste Management, Environmental Fluid Mechanics, or Geo-environmental Engineering.	A 4-year Bachelor followed by a Masters Program in Science/ Engineering. Courses offered include methods in environmental fluid mechanics, sanitary engineering design, water pollution control engineering, and environmental geotechnique.	Students receive hands-on training in wastewater analysis and treatment, and geo-environmental and mining.	Not specified	Graduates will be eligible for registration as Professional Engineers.
	Civil Engineering – The program provides students with the ability to design,	A Bachelor & Masters Program in Science/Engineering.	Students acquire the techniques, skills, and the modern engineering tools	Not specified	Not specified

University Programs

	develop and manage projects for the construction or repair of various structures and infrastructures of the built environment.	Courses offered include Engineering and Sustainable Development, Fluid Mechanics I, Solid Mechanics I, Structural Mechanics and Design, Plane Survey, Optimizing and Decision Analysis in Civil Engineering, Project Base Learning in Civil Engineering Materials, Environmental Impact Study, and Geo-Environmental Engineering.	necessary for engineering practice.		
	M. Eng / M.A.Sc – A 3 year program in Environmental or Civil Engineering that allows students to focus their studies in one of three specialty areas: Pollution Control and Waste Management, Environmental Fluid Mechanics, and Geo-environmental Engineering.	The program specializes in civil/general engineering for students entering into their 2nd year of an undergrad degree. Courses are offered include methods in Environmental Fluid Mechanics, Sanitary Engineering Design, Water Pollution Control Engineering, Water Pollution Engineering, and Environmental Geotechnique.	Students acquire hands-on training in waste-water analysis and treatment.	Not specified.	Graduates will be eligible for registration as Professional Engineers

APPENDIX C: NATIONAL LIST OF COLLEGE, UNIVERSITY AND CONTINUOUS EDUCATION AND TRAINING PROGRAMS

Industry Programs

Program	Program /Course Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
BOMI (Building Owners and Managers Institute) Canada	BOMI Canada is a certified educational institute and a registered charity that develops and provides education programs for commercial property professionals in Canada.	BOMI Canada provides specialized courses, examinations and four designation programs: the Real Property Administrator (RPA) for property managers; the Facilities Management Administrator (FMA) for facilities professionals; the System Maintenance Technician (SMT) for systems personnel; and the Systems Maintenance Administrator (SMA) for systems supervisors. Certification is centered on the completion of all course requirements and a final examination in one or more of the designation programs.	Offers specialized courses to building owners and managers across Canada in energy management, environmental health, and safety issues.	BOMI Canada works closely with BOMI Institute (USA) and Canadian authors and reviewers to ensure that course materials in their four programs are appropriate to Canadian content.	The RPA, FMA, SMT, and SMA are recognized marks of excellence throughout the industry, and those who earn a designation (or more than one) are knowledgeable, sought-after employees.
CanSIA (Canada Solar Industries Association)	PV Technician's Certificate Seneca College in partnership CanSIA, offers an eleven-part training program for people who want to become professionally trained in the design and installation of solar photovoltaic (PV) systems. The program	Certification is centered on the installation of solar photovoltaic (PV) systems and solar hot water systems and solar hot water installations. Workshops focus on solar hot water, system installer, PV and electrical code and Installer Fall Safety.	Solar energy training and working knowledge for industry members, establishments and organizations.	CanSIA partners with Seneca College to provide training to people who want to be professionally trained in the design and installation of solar photovoltaic systems. Other workshops are offered via the Kortwright Conservation Centre,	The CanSIA's certification and workshops provide a holistic sense of the solar energy practice in Canada.

Industry Programs

Program	Program /Course Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	provides a comprehensive understanding of related electric theory and the fundamentals of PV systems. By a combination of individualized distance learning and in-class study, students learn the theory and practice required to use and install a solar electric system. CanSIA offers the Canadian Solar Hot Water System Installer Certification Program. Becoming certified is a voluntary process. The applicant must demonstrate sufficient experience installing Solar Hot Water Systems or have a combination of experience and adequate training in the proper methods of installing solar water heating systems and components. The certificate grants recognition to an individual who has met predetermined			and other affiliates.	

Industry Programs

Program	Program /Course Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	qualifications as set out by CanSIA.				
Canadian Institute of Energy Training (CIET)	CEIT Workshops are designed to build capacity for energy management and to develop the skills required for assessment, opportunities identification, and implementation of more energy efficient practices. They are practical, interactive learning experiences, designed to maximize learning and transfer of key energy management principles to the workplace. They involve hands-on demonstrations, software applications and problem solving exercises.	The workshop program addresses three key functions for successful energy management in industrial, commercial and institutional facilities: Awareness - building energy efficiency awareness, organizational commitment, and "buy-in" by all personnel; Technical Assessment – system specific knowledge for identification, selection and implementation of energy and cost saving measures, Management tools – for effectively addressing the non-technical issues and sustaining energy efficiency in the long term.	CIET energy management workshops are based on key sections dealing with: The Seven Steps to Energy Efficiency; Energy Monitoring; Targeting and Reporting: Implementing and Sustaining Energy Management; The Management Side; and Water Efficiency.	The CIET partners with the Engineering Institute of Canada and awards Continuing Education Units (CEUEIC) to those who successfully complete their respective workshops.	CIET customizes their workshops to meet specific needs and requirements of specific energy service providers organizations, sectors, and/or stakeholders. They are delivered as value-added services to the customers and clients of energy service providers, utilities, government organizations, and sector associations.
Canada Green Building Council (CaGBC)	The CaGBC provides workshops and LEED accreditation Examinations. Both of these provides an overview of the LEED program and the monitoring and paperwork that	None identified at this time.	Skills vary based on the stakeholder. For individuals it is possible to earn a marketable credential to an employer. For the client it provides a plan for continued professional development and	The Canada Green Building Council has recently partnered with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) to advance buildings that are healthy, productive,	Accreditation satisfies conditions requiring LEED knowledge – and this opens up eligibility to participate in LEED projects.

Industry Programs

Program	Program /Course Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	contractors have to encounter when working with and for projects seeking to achieve LEED certification. The CaGBC was established in December 2002 to promote and accelerate the design and construction of high performance buildings for livable communities. The Council advances market transformation through advocacy, education, application and development of tools, and celebration of demonstrably superior performance. The CaGBC membership represents a reach of more than 500,000 public and private sector professionals across Canada.		career advancement, the earning of one point toward LEED Certification by servicing as a LEED Accredited Professional on a project team. For employers, it provides the eligibility for projects where owners mandate the involvement of a LEED Accredited Professional, it enhances credibility, provides an independent assessment of employee knowledge and serves in the identification of training needs and measurement of training comprehension.	environmentally responsible and economically viable.	
EnerVision	EnerVision is a not-for-profit organization owned by the Canadian Home Builders' Association-Alberta (CHBA - Alberta). The organization is licensed to deliver training in Natural Resources	Certification is awarded upon completion of training courses.	EnerVision assists homebuilders and homeowners to make healthy and efficient housing choices by offering training in building science and practical techniques needed to design and	A strategic partnership exists between Built Green Society of Canada, EnerVision and SAIT Polytechnic.	As the organization moves from the energy efficiency sector to include all aspects of green buildings and sustainable communities, their portfolio has expanded to include waste

Industry Programs

Program	Program /Course Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	Canada's R-2000 and EnerGuide Rating Service in Alberta.		construct environmental homes.		management, water conservation, materials and site planning.
Greater Toronto Home Builders Association	There is no program or specific course in place at the Greater Toronto Home Builders' Association. Instead, the GTHBA holds seminars for builders which include information on the building code amendments and EnerQuality.	None identified at this time.	Seminars incorporate green-building skills.	None identified at this time.	None identified at this time.
Heating, Refrigeration and Air Conditioning Institute	Under the SkillTech Academy organized by the Heating, Refrigeration and Air Conditioning Institute, the training materials and certification programs allow industry members to acquire the technical competence required to design and install quality HVAC systems that meet the appropriate code requirements. The course is based on Environment Canada's Code of Practice for Reducing CFC Emissions in Refrigeration and Air	A variety of certification options are available. These Certification Codes include: VENTI Residential Mechanical Ventilation Installation; VENTD Residential Mechanical Ventilation Design; RHLG Residential Heat Loss & Heat Gain Calculations; RASD Residential Air System Design; COMBO Residential Integrated Combo Systems; RCOM Residential Commissioning; RRHD Residential Radiant Hydronics Design; SCHL Small Commercial Heat	Environmentally correct equipment design and proper handling of CFC/HCFC/HFC's.	None identified at the time.	While based in Canada, the HRACI provides certification programs for other jurisdictions, including the United States and the United Kingdom.

Industry Programs

Program	Program /Course Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	Conditioning Systems. The course prepares participants for complying with provincial regulations covering refrigeration and air conditioning systems. Participants who attend the one day course and successfully achieve a mark of 75% or better on the exam receive certification in the form on an Ozone Depletion Prevention (ODP) card (Ontario only) or an Ozone Depleting Substances (ODS) card (all other provinces).	Gain & Heat Loss Calculations; SCDD Small Commercial Air System Design. One day on-site training environmental awareness training dealing with environmentally correct equipment design and proper handling of CFC/HCFC/HFC's.			
International Brotherhood of Electrical Workers – Local 353	Renewable energy upgrade courses (30-42 hours per course). These provide a fundamental understanding of wind, solar and fuel cell technology as it relates to the electrical work sector.	None identified at this time.	Upgrade courses increase opportunities for job mobility within union and general trade.	None identified at this time.	None identified at this time.
Plumbers and Steamfitters Union – Local 46	There is no program in place but there are various renewable energy courses (30-hour courses made available to union members.	None identified at this time.	Upgrade courses increase opportunities	None identified at this time.	None identified at this time.

Industry Programs

Program	Program /Course Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	These are courses on solar and hydronic heating, ground source heat demonstration on site is also provided as part of the upgrade package.				
SolSmart	No specific program beyond providing on-the-job training.	None identified at this time	Solar water, heating and electric installers with specific training to the installation of a given product.	None identified at this time	None identified at this time
Toronto and Region Conservation	No program in place. However, courses are made available at the Living City Campus + Archetype House @ Kortright Centre (1-and 2-day weekend workshops) at $65 – $105 per person for groups of a maximum size of 25. Not fully built yet. Will be largest renewable energy training centre in Canada. Will hold charrettes and workshops with builders (content to be developed). Energy stations where one can learn about installation solar shingles, solar hot water showers, solar water pumps, solar-	None identified at this time	General familiarity with green building skills; shows home-owners how to make their properties more green-friendly & sustainable; makes aware participants of the functions of renewable energy.	None identified at this time	Once completed, the TRCA's Kortright Centre will be the largest renewable energy training centre in all of Canada

Industry Programs

Program	Program /Course Description	Specialization Options	Skills Emphasized	Collaboration	Unique Market Position
	assisted ground source heat pumps, and high efficiency wood burning appliances.				
Green Roofs for Healthy Cities	Green Roofs fro Healthy Cities Accreditation program was introduced in 2006. The program has two courses available – Green roofs Design 101 and Green Roof Infrastructure Design and Installation 201. The programs are offered on a semi-annual basis across North America and are facilitated from Toronto. The program provides attendees with a general overview of the benefits, products, design principles and special design team members required to successfully complete a project.	The workshop program is designed for two phases – a general familiarization through the 101 and a more advanced certificate based program 201 on the implementation issues of green roofs.	Workshops are focused on different levels of skill familiarization. The 101 course offers attendees with the ability to assess major functions and components of a green roof, describe characteristics and assess various advantages of different green roof systems, utilize an integrated design process and assess strategies to maximize points by integrating a green roof into the US Green Building council LEED Accreditation point system. 201 courses concentrate on critical questions to ask of design team members, regulatory requirements, administration of the project, liability issues and design specifications.	Programs delivered in partnership with ALA, RCI and ASLA. The workshops are applicable for professional learning credits.	There are no institutions or other agencies providing this training course in the market place.

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