



Toronto Community Housing: Green Plan for a Sustainable Future

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Who are we?

- Largest social housing provider in Canada, second largest in North America
- 58,000 units, 2,000 buildings, high rise, mid & low rise, town houses and single family houses
- Average age of buildings 41 years
- 89% of tenant pay 30% of their income to rent
- 11% are market rent
- 95% tenants do not pay utility charges
- 35% are seniors



Let's start here....

Environmental Policy Statement

“Toronto Community Housing will be an environmental leader and will encourage leadership from tenants and staff at all levels. The approach will be pro-active, systematic and comprehensive in seeking to prevent pollution wherever possible, and committed to ensuring that all sectors of the company are involved and engaged.”



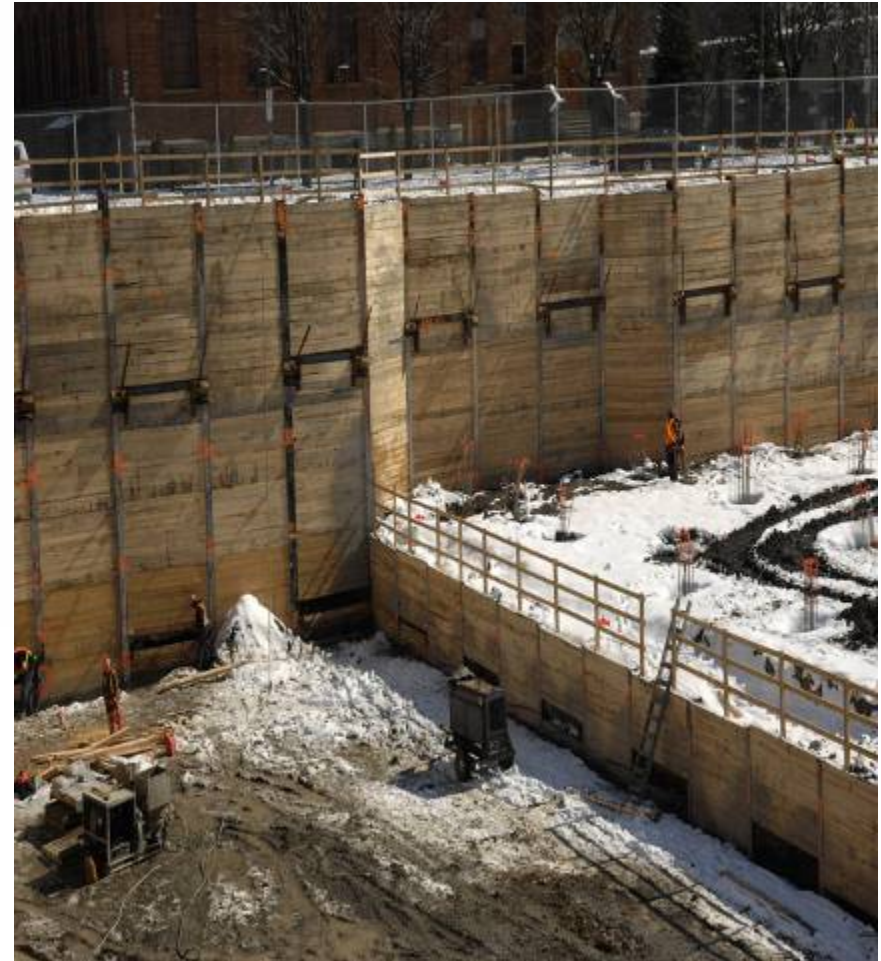
Green Plan

- 2004 Initial Green Plan - based on Kyoto targets
- Green Plan goals:
 - Energy conservation
 - Water conservation
 - Recycling & waste management
 - Education & training
 - Green space stewardship
 - Procurement
- 2006 - adopted a 40% emissions reduction target by 2020 to support the City of Toronto's green initiative and to meet the needs of global warming mitigation



The Foundation

1. Sustainability
2. Engagement
3. Procurement





Sustainability = E3



Taking environment, equity and economy into account in the decision making process



E3

Environment = A place to live

Equity = A Healthy and safe place to live

Economy = A structure to support a place to live

Engagement

- **Key Elements : Create a Partnership**
- the need for the program
- the program – Landlord’s Action
- the outcomes – Economy, Environment, Equity = **E3**
- how to participate – Behaviour change

Toronto Community Housing





Green Procurement

Internalizing a Green culture requires asking the following questions when making procurement decisions:

- Is it harmful to health and/or the environment?
- Does it conserve or waste energy and/or water?
- Is it durable and sustainable?
- Does it create or manage waste?
- Is it a wasteful allocation of resources?





Portfolio Retrofit

Building Renewal

19 high rise developments
7,500 occupied units

Delivered by 2 multinational
ESCO's

Financing leveraged through
energy savings

Over \$100M in 4 years,
\$32M in energy upgrades,
estimated annual energy
savings of \$3.36 million



Portfolio Retrofit

Toronto Community Housing



Single Houses Program

Completed 800 Energuide energy audits, 20% lowest ratings retrofit for average savings of 40% reduction in space heating requirement

Delivered by a not-for-profit Community Agency supported by the Toronto Atmospheric Fund
Insulation, air seal and HVAC system upgrades



Portfolio Retrofit

Unit Refurbishment

\$75 million 3 year upgrade program

7000 to 8000 units

Focus on Kitchens and Bathrooms

Energy efficient appliances and lighting

Low Flow water

No added VOC's

Recycling facilitation

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Appliance Program

Over 80,000 refrigerators and stoves replaced with energy-efficient, Energy Star rated appliances

Incentive support from Toronto Hydro CDM program (\$160 per kW)

Over 13,000 tonnes annual emission reductions saving \$2.5M annually



Light Bulb Program

Replacement of incandescent light bulbs with energy efficient compact fluorescent lamps

160,000 distributed

1,800 tonnes emission reduction annually

\$850,000 savings annually

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The new bulbs are here.



They last up to **5 years:**
They rarely need replacing so that over time, they are actually cheaper.

Each bulb **saves \$40** in energy cost - the money saved goes right back into fixing up buildings.

green works



Low Flow Program

Over 23,000 toilets replaced with low flow models with incentive support from the City of Toronto Water Department (\$60 to \$75 per unit)

Shower heads and faucet aerators replaced with low flow models

1 million m³ water usage reduction

\$1.25 million savings annually





Renewables

Solar Thermal pilot installations in low rise, single family and town house



Solar Roof pilot

Wind study for roof top units along waterfront

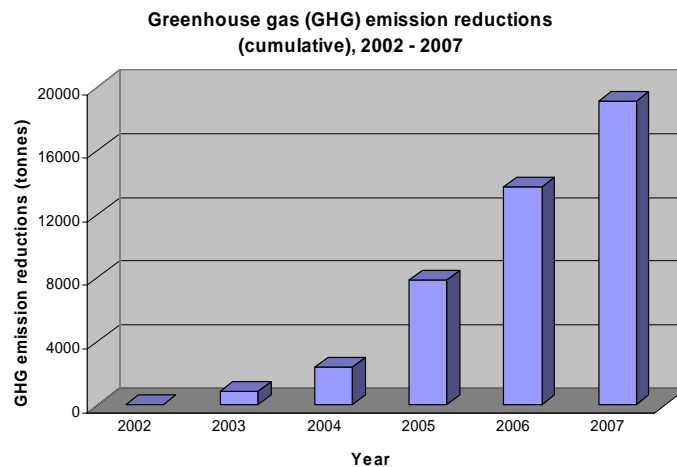




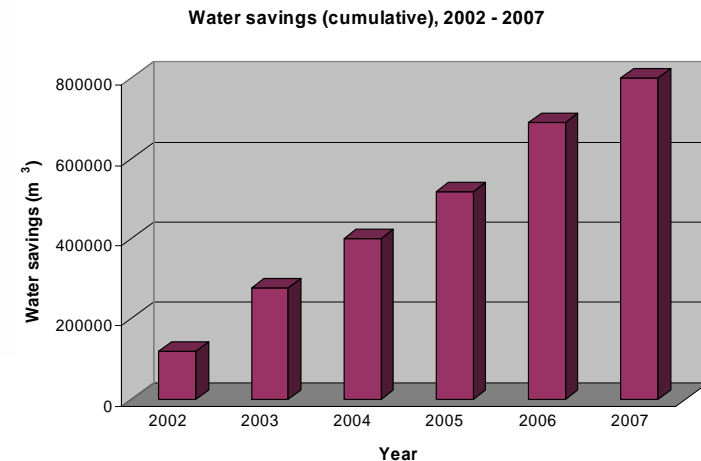
and the Outcomes are...

Reduced emissions & healthier living conditions

Utility cost containment & improved water/energy management



Savings: Over 19,000 tonnes of ghg emissions per year, equal to removing 10,000 cars from the road.



Savings: Over 1 million cubic metres of water, equivalent to the water that would fit into the Rogers Centre with its roof closed.



Waste Management

Toronto Community Housing 

My community recycles 

**With your help,
yesterday's newspaper
can become today's.**



Have you recycled today?

green works

Toronto Community Housing 

My community recycles 

**With your help,
that pop can could
become your next CD.**



Have you recycled today?

green works



What we are doing...

“My Community Recycles”

A recycling strategy based on extensive research of best practices with tenants and staff.





Program design

Blue bag is the key symbol and tool

Staged communication
(focus first on interested tenants and gradually expand)

Balance the need for local creativity, priorities, and time





Community Animation





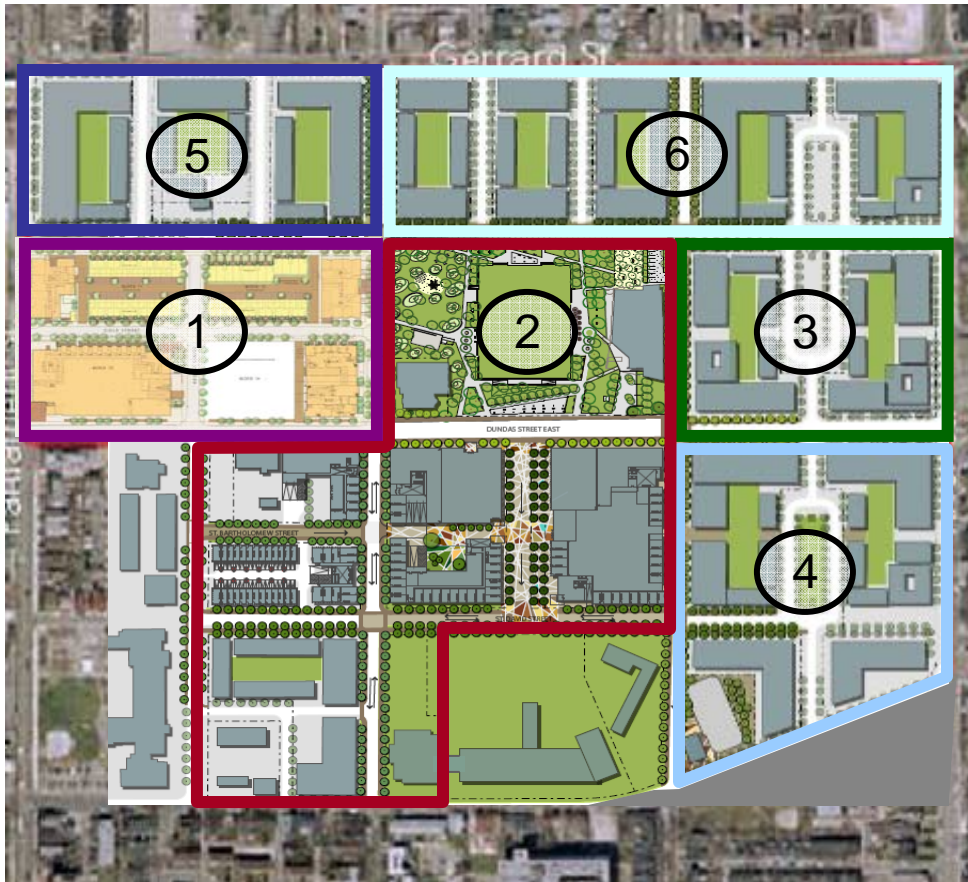
The Future: Asset Regeneration



Building New Homes
Revitalizing Communities
City Building



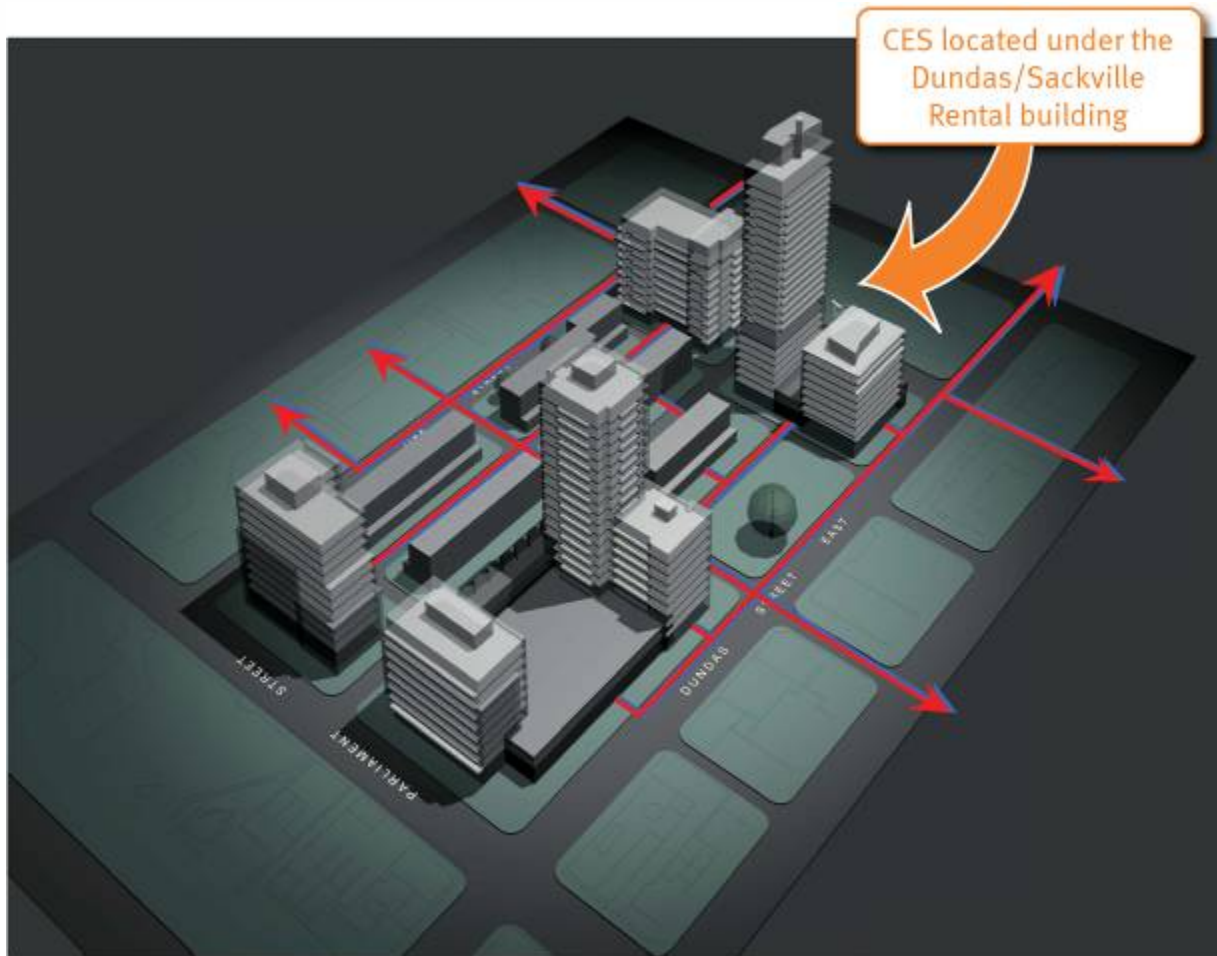
Regent Park Revitalization



- One of the largest and oldest social housing communities in Canada
- 69 acres in east downtown
- 7,500 people living in 2,083 units.
- 5,500 units, 12,500 people through increased density
- Rebuilding neighbourhood -new mixed-income, mixed-use community
- market for sales units to offset costs
- 6 phases, 15 years to complete redevelopment
- Phase 1 in progress, Phase 2 in planning stage

Regent Park District Energy System

Toronto Community Housing

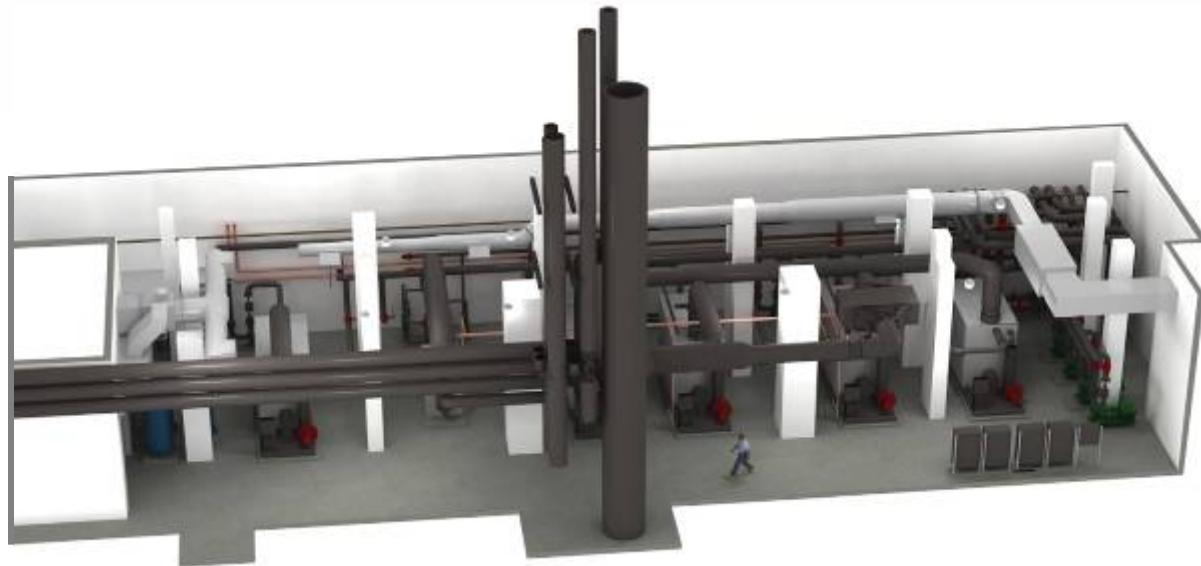


central heating and cooling for 69 acres & beyond



District energy heating and cooling “Community Energy System”

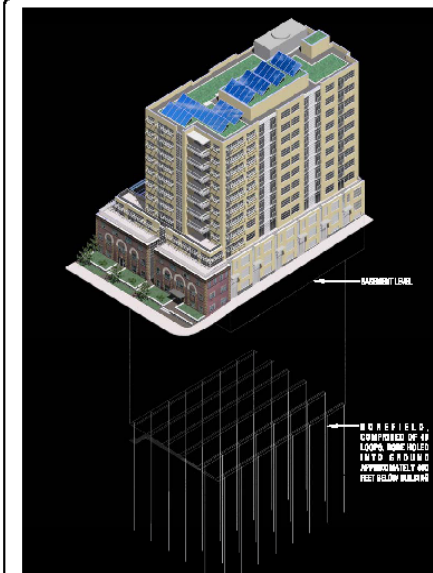
- For all of Regent Park: 30 MW heating, 3,700 tons of cooling
- Phase One: 11 MW heating, up to 2,350 tons of chilled water
- Efficient way to heat and cool – up to 50% less greenhouse gas emissions than typical heating and cooling
- Greenhouse gas emission reductions of 8,000 tonnes a year during Phase One, and 400,000 tonnes over 30 years - like taking 66,000 cars off the road for one year





Renewable Energy 92 Carlton

- Geo Thermal: 48 boreholes (400ft)
- Solar Thermal
- Sun Shades
- Green Roof



GROUND SOURCE HEAT PUMP

Green Roof

A green roof is a roof that is covered in vegetation. It helps keep the building cool by reducing convective heat gain from the sun and storing water and nutrients. The plants and soil absorb heat and cool the building by evaporation and transpiration. Green roofs also reduce stormwater runoff, improve air quality, and provide habitat for birds and insects. The soil and plants also provide insulation for the building, reducing energy consumption. The green roof at 92 Carlton is a green roof with a 4-inch depth, which is a shallow green roof. The soil depth is 4 inches, which is a shallow green roof. The plants are 4 inches tall, which is a shallow green roof. The green roof at 92 Carlton is a green roof with a 4-inch depth, which is a shallow green roof. The soil depth is 4 inches, which is a shallow green roof. The plants are 4 inches tall, which is a shallow green roof.

The green roof at 92 Carlton provides building owners and tenants with many benefits and features:

- Reduces building energy consumption
- Improves air quality and reduces noise
- Reduces stormwater runoff and improves water quality
- Provides habitat for birds and insects
- Improves building aesthetics
- Provides shade and reduces heat gain
- Provides insulation and reduces energy consumption
- Provides a natural and sustainable environment

Reverberant Heat Pump

A geothermal heat pump system uses the earth's ability to store heat in the ground to heat and cool buildings. The pump pulls heat into the ground to be stored, and then to be pulled back to the surface.

Geothermal heat pump technology is one of the latest geothermal heating, ventilation and air conditioning (HVAC) systems on the market today. There is a small amount of heat stored in the ground, but geothermal heat pumps are able to extract it and use it to heat and cool buildings. These systems are widely used in both residential and commercial projects. In particular, schools, hotels and office buildings.

Other Details

In addition to the energy and cooling cost savings, geothermal systems offer many other advantages. Because there is no burning fossil fuel, there is no need for large chimneys, heat exchangers and noise abatement.

Operational Heat Design

Geothermal systems that pump in heat from the earth to heat and cool. This means the large heat exchanger is located in the ground, so there is no need for large chimneys, heat exchangers and noise abatement.

Easy to Service

Geothermal heat pumps are easy to service and do not require specialized training.

Small Mechanical Rooms

Geothermal heat pump systems generally require smaller mechanical rooms than other HVAC systems. This means they require less space for heating and cooling.

Flexible Equipment

Geothermal heat pumps can be used in a variety of applications. They range from half a ton to three tons.

Indoor Air Quality (IAQ)

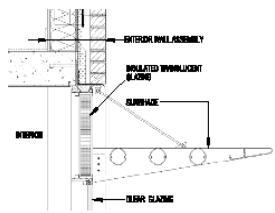

Geothermal heat pump systems with properly designed ventilation systems can be a great way to improve indoor air quality (IAQ).

Geothermal Wellhead

The geothermal systems have been designed to use an earth-to-air heat exchanger during cooling and heating seasons. For cooling, the earth-to-air heat exchanger is located in the wellhead or just below it. In the summer, the earth-to-air heat exchanger is located in the wellhead or just below it. In the winter, the earth-to-air heat exchanger is located in the wellhead or just below it. The earth-to-air heat exchanger is located in the wellhead or just below it. The earth-to-air heat exchanger is located in the wellhead or just below it.

Wellhead - Insulated Wellhead

The wellhead at 92 Carlton increases the overall energy efficiency of the building by providing a wellhead that is insulated. This wellhead, with the use of geothermal, will further reduce energy consumption and create space with wellhead. In addition, the geothermal system has a higher building value compared to conventional geothermal systems.



Developments: Green Performance

- 25% - 52% below modal energy consumption;
- Renewables solar thermal, Ground Source Heat Pumps
- 35% less water consumption; 20% less storm water
- Waste diversion, construction & operation
- Parking – minimal, auto share, bicycle friendly
- Green roofs, green building products, housekeeping
- Tenants – Staff: green education / re-training





E³ at Work

‘Thinking green’ is not just good for future generations, it also leads to healthier, more comfortable homes today.

- Reduce waste
- Reduce energy use
- Reduce water use
- Improve green spaces
- Eliminate hazardous products
- Create education and training programs

It is easier than you may think. Simple day-to-day changes will make a big difference.

When our community works together, **green works**

What is being done.		Toronto Community Housing		What my community can do.	
<p>We are saving energy.</p> <ul style="list-style-type: none"> By replacing old fridges, stoves, dryers and washing machines. By replacing incandescent light bulbs with energy efficient ones. <p>We are using the savings gained through energy efficiency from building retrofits to finance other building upgrades.</p>	<p>We have saved over 19,000 tonnes of greenhouse gas emissions per year, equal to removing 10,000 cars from the road!</p> <p>Green works!</p>	<p>Conserving energy saves money, helps the environment and increases comfort of our homes.</p> <ul style="list-style-type: none"> Replace regular light bulbs with compact fluorescent bulbs. Wash clothes in cold water. Turn lights off when leaving a room, use natural light. Reduce the temperature of your home by a few degrees. 			
<p>We are reducing water use.</p> <ul style="list-style-type: none"> By replacing inefficient toilets with low flow ones. By replacing shower heads and kitchen and washroom faucets with water efficient aerators. 	<p>We have reduced water use by over 1 million cubic metres since 2006. That is enough water to fill the Rogers Centre with its roof closed!</p> <p>Green works!</p>	<p>By reducing water use, we save money which goes back into fixing our buildings.</p> <ul style="list-style-type: none"> Turn taps off tightly. Do not run water continuously when washing dishes or brushing your teeth. Take showers rather than baths. 			
<p>We are reducing waste.</p> <ul style="list-style-type: none"> By creating the recycling program to divert 26% of your waste. The blue bag program will help make it easy to recycle. 	<p>We are ensuring green products (the paint) are being used by contractors in unit reunits and new developments to create safer and healthier homes.</p>	<p>We are distributing 80,000 blue bags to tenants</p> <p>Green works!</p>	<p>Every product we buy requires energy to produce, so remember to Reduce – Reuse – Recycle.</p> <ul style="list-style-type: none"> Take your own bags to the grocery store. Reuse glass bottles, jars, yogurt containers and plastic bags. Use reusable products (cups, containers, plates, pens, razors). Recycle paper, cardboard, glass and metal cans. 		
<p>We are improving our green spaces.</p> <p>The Community Garden Manual will help guide existing and new community garden projects.</p>	<p>With Toronto Community Housing, thousands of 100 community gardens providing many benefits to the community and the environment.</p> <p>Green works!</p>	<p>Trees, shrubs, flowers and grasses help by creating oxygen and cleaning our air.</p> <ul style="list-style-type: none"> Help create green space: get involved in a community garden project. Organize a community clean-up day. 			



green works



Global Warming,
Climate Change
and Toronto
Community
Housing



Thank You

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