



# TORONTO GREEN STANDARD & ENERGY EFFICIENCY

GREEN BUILDING FESTIVAL, October 12, 2012

Lisa King, MA Sr. Planner  
Zoning Bylaw and Environmental Planning  
City Planning Division

# Development Trends

- Over 107,000 residential units approved past 5 years
- Over 5 million square metres of ICI space approved past 5 years
- The Official Plan has been quite successful in directing this growth to the most appropriate locations – Downtown, Centres, Avenues and Employment Districts



# Downtown Toronto is Booming



**Tall buildings under construction, March 2011**

# TORONTO GREEN STANDARD



Voluntary  
Green Development Standard:  
- *Council Approved July 2006*

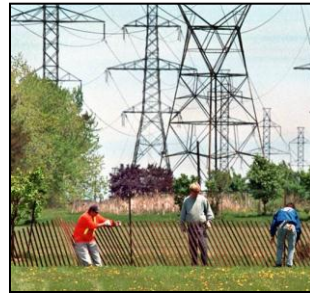
New Toronto Green Standard:  
- *Council Approved December 2008*  
- *Revised October 2009*  
- *Required January 31, 2010*

2-Year Review  
- *Council January 2013*

# ENVIRONMENTAL PRESSURES

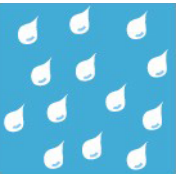
1. Air Quality
2. Green House Gas Emissions, Energy Efficiency and Climate Change
3. Water Quality and Efficiency
4. Urban Ecology
5. Solid Waste

How can new development address these pressures?

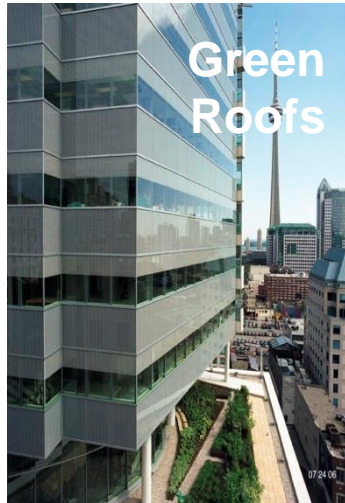


# 1

# TIER 1: MINIMUM REQUIRED STANDARD



+ 25%  
Energy  
Efficiency  
above  
MNECB



2

# TIER 2, Development Charge Refund 20%

+35% Energy Efficiency above MNECB



+30% Water Efficiency



25mm Stormwater Retention



+75% UHI treatment at-grade



Building Commissioning



Green Walls



Enhanced Bike Parking



Building Materials



Lighting/Shielding

# Role of Municipal Government

Provincial Policy, Municipal Official Plan



*Raising the Bar*

Sustainable (GREEN)  
Development Standards



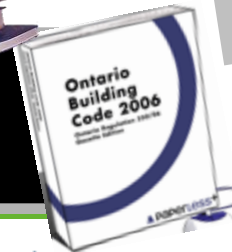
Policies

Zoning Bylaws



*The Bare Minimum*

Ontario Building Code



Regulations



# Site Plan Control - Implemented with Exterior Design Control

“Through the site plan control process, municipalities can now consider the external design of buildings. This means that the quality and characteristics of a proposed development can be taken into consideration to ensure positive contributions are made to the physical appearance of neighbourhoods.” (MMAH)



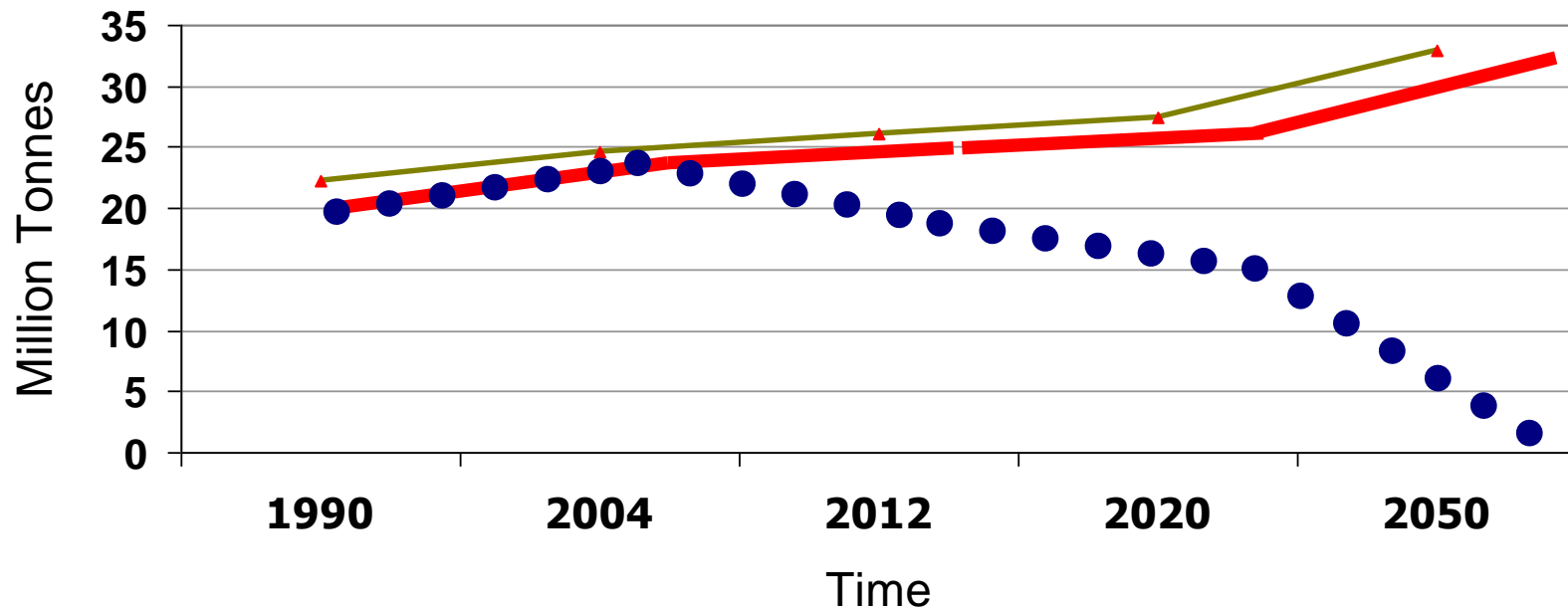
# Toronto's GHG Reduction Targets



TORONTO GREEN STANDARD

- 6% below 1990 levels by 2012
- 30% below 1990 levels by 2020
- 80% below 1990 levels by 2050

### Projected vs. "Business As Usual" Greenhouse Gas Emissions for the Toronto Urban Area



# MINIMUM ENERGY PERFORMANCE



TIER

1

TORONTO GREEN STANDARD

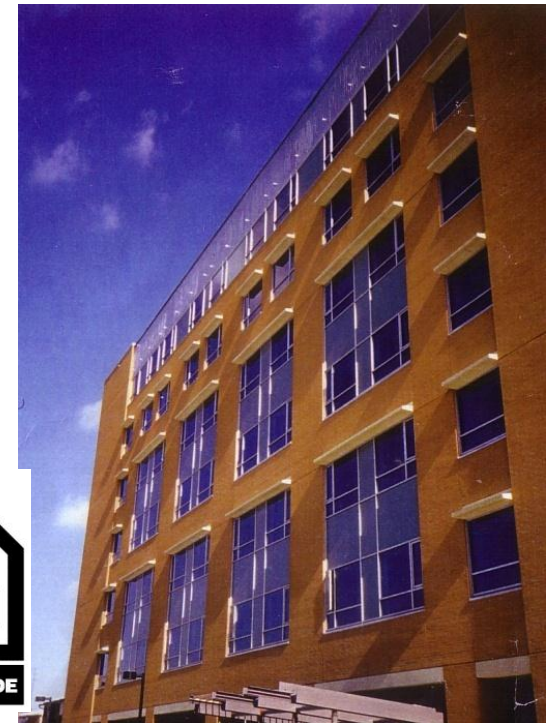
**Minimize Demand for Energy Through Efficient Building Design and Encourage Renewable Energy Production.**

## TIER 1

- ▶ Design building (s) to achieve at least 25% efficiency improvement over the Model National Energy Code for Buildings (MNECB) or ~ 13% over the Ontario Building Code (2006).

## TIER 1 Low Rise Residential

- ▶ Design building (s) to achieve at least **EnerGuide 80** energy efficiency rating



# MINIMUM ENERGY PERFORMANCE



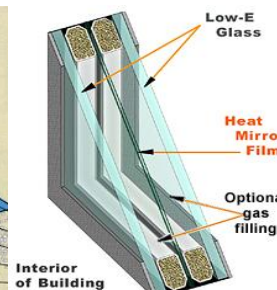
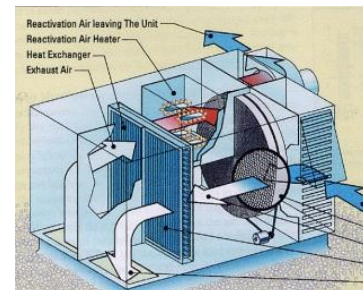
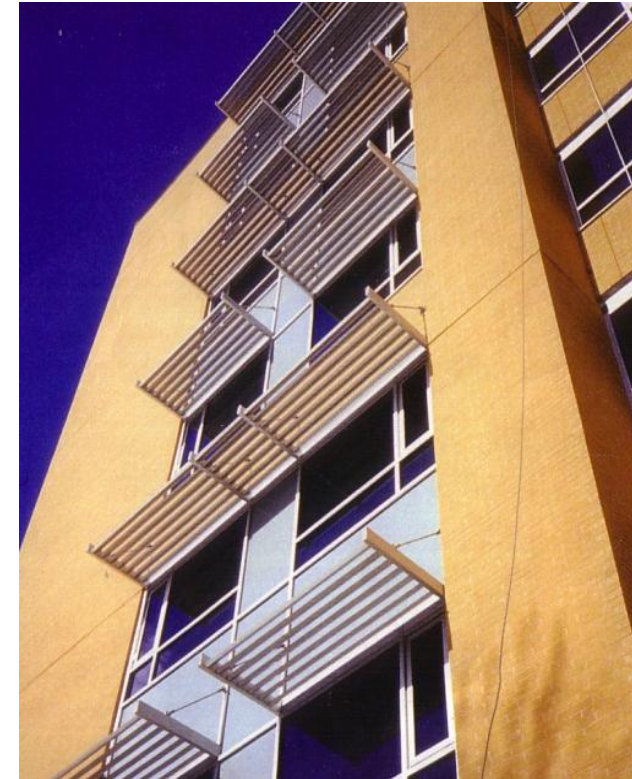
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## TIER 2

- ▶ Design and construct building (s) to achieve at least 35% efficiency improvement over the MNECB.
- Install certified in-suite smart meters in all residential units

## TIER 2 Low Rise Residential

- Design and construct building(s) to achieve at least **EnerGuide 85** energy efficiency rating
- Where supplied, for each unit provide ENERGY STAR compliant refrigerators and dishwashers



# TORONTO GREEN STANDARD

## Energy Reports

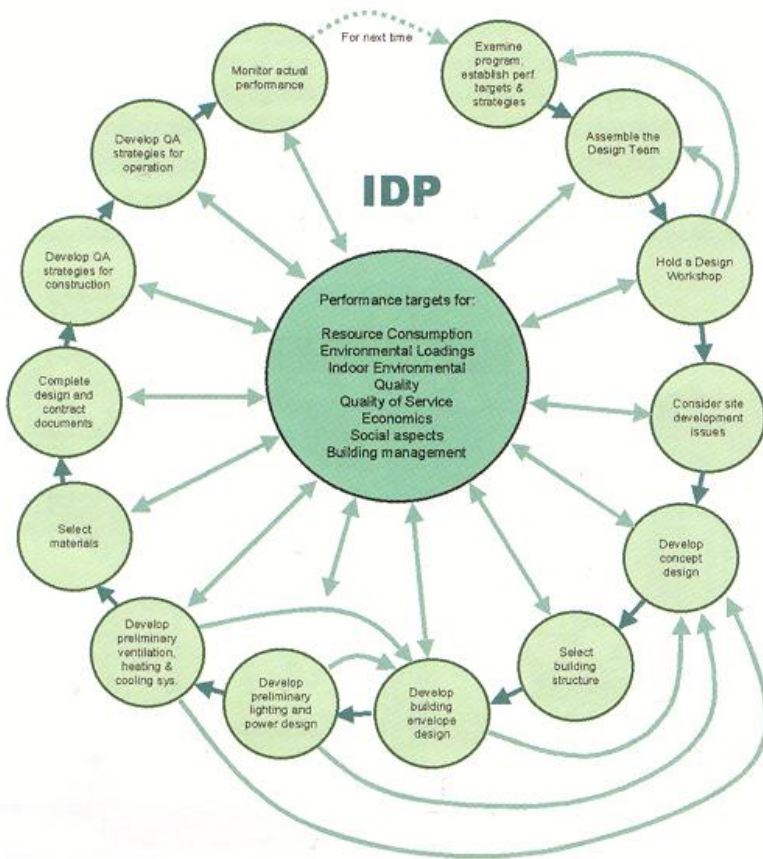


### Part 3 buildings and Pt 9 non residential buildings

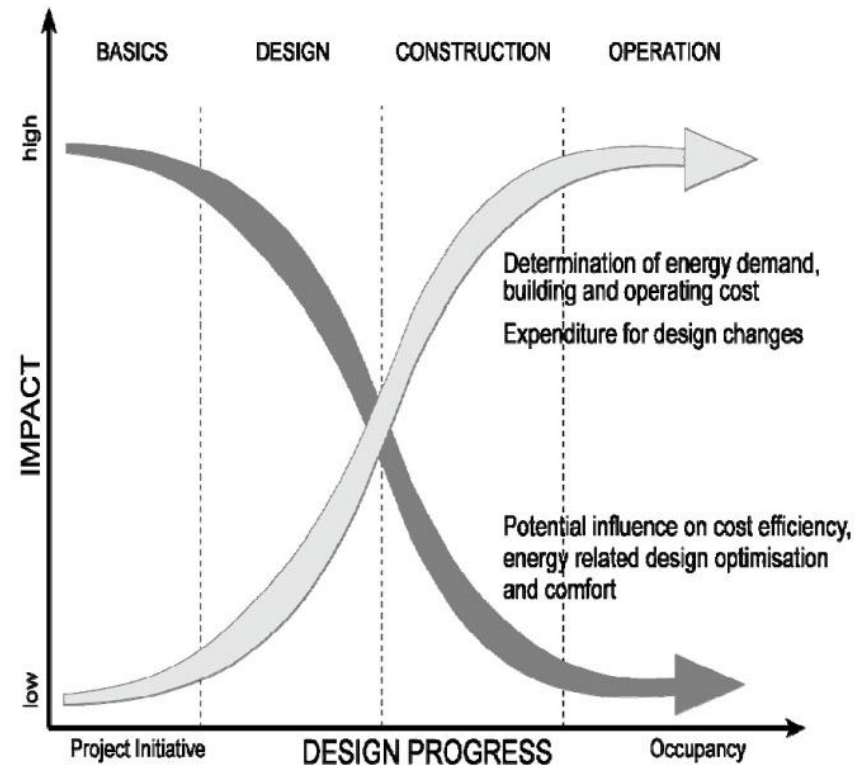
- Design Stage Energy Modelling Report required prior to site plan approvals (25% or better than MNECB) for Tier 1
- Small buildings Checklist (NRCan Screening Tool) is used for buildings <math><2000\text{m}^2</math>
- As-constructed Energy Modelling report required for Tier 2
- Energy Efficiency Office reviews reports and provides standard conditions and sign-off
- Eligibility for High Performance New Construction Program incentives



# INTEGRATED DESIGN PROCESS (IDP)



HISBE / NILS LARSSON



# ENERGY MODELLING REPORTS

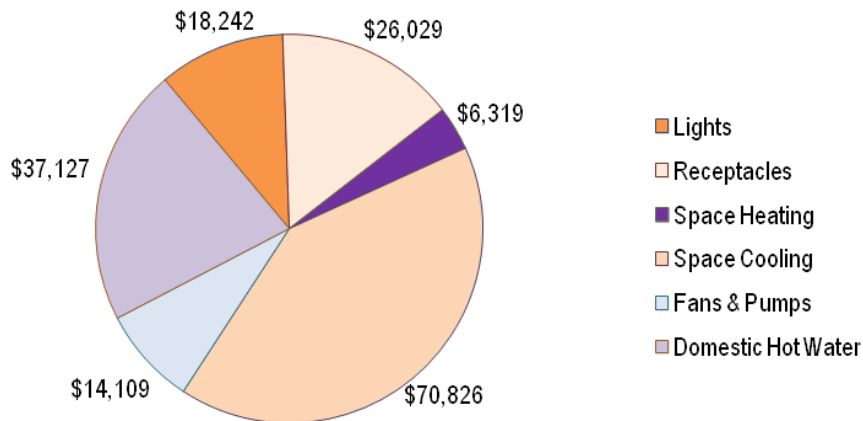


TORONTO GREEN STANDARD

## Canadian Memorial Chiropractic College

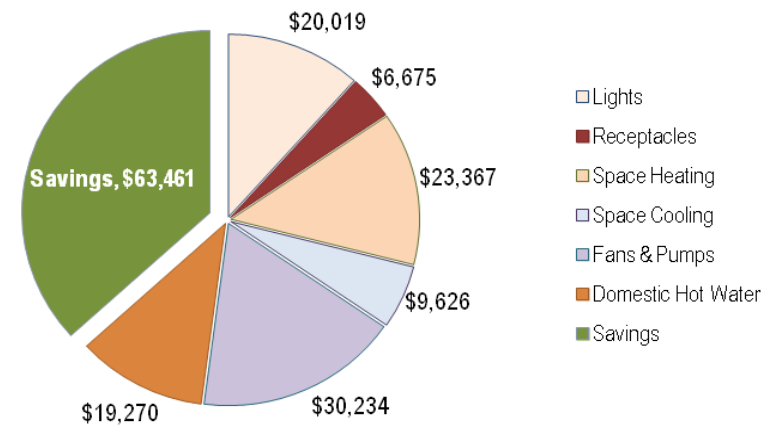


MNECB Reference



Total Energy Costs: \$172,651

Revised Design



Total Energy Costs: \$109,190

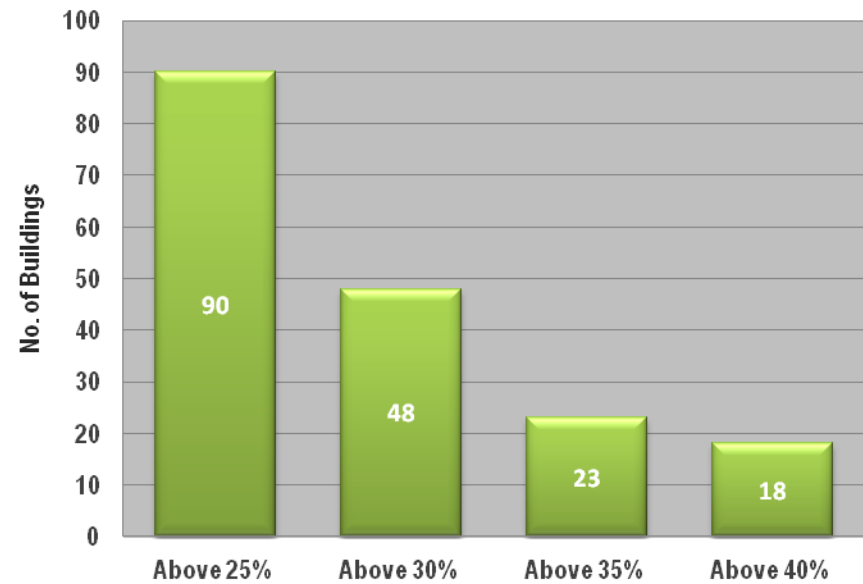
# TGS ENERGY MODELLING RESULTS



TORONTO GREEN STANDARD

Energy Efficiency Improvement	Number of buildings	%
Above 25%	90	100
25 to 30%	42	47
30 to 35%	25	28
35 to 40 %	5	5
Above 40%	18	20

%Energy Efficiency Improvement

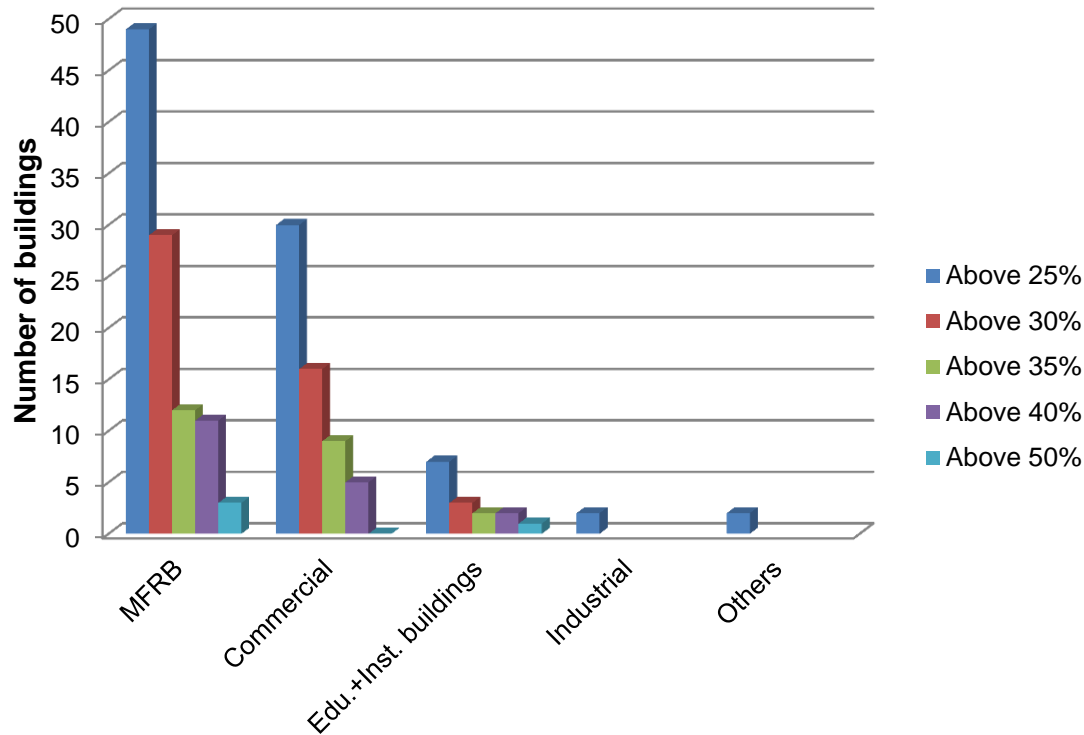




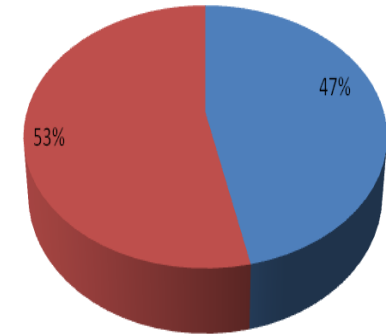
# TGS ENERGY MODELLING RESULTS



% Energy efficiency improvement by building type



■ between 25-30% ■ Above 30%



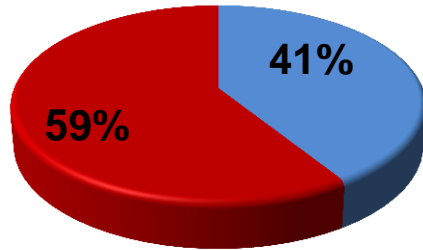
- Above 25%
- Above 30%
- Above 35%
- Above 40%
- Above 50%

# TGS ENERGY MODELLING RESULTS



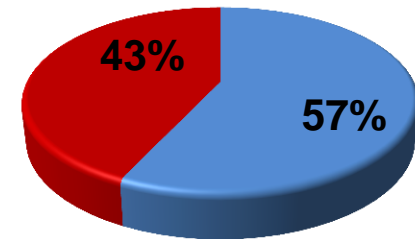
## MFRB

■ Between 25%-30 ■ Above 30%



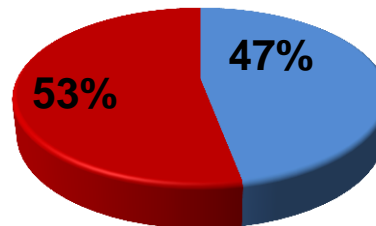
## Edu.-Inst. Buildings

■ Between 25%-30 ■ Above 30%



## Commercial Buildings

■ Between 25%-30 ■ Above 30%



# TORONTO GREEN STANDARD CONSIDERATIONS:

- Better information tracking
- Increase performance targets to set up for 2017 code changes
- Design stage energy reports prior to building permits
- As-constructed energy reports post construction
- **CONSULTATION** with industry



**THOUGHTS**

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**[www.toronto.ca/greendevelopment](http://www.toronto.ca/greendevelopment)**