



# City of Vancouver Corporate Green Building Policy For NEW CONSTRUCTION on City-owned and City-managed Properties Executive Summary

Eric Douglas, Greenest City Scholar, University of British Columbia

August 2016

## *Background*

This project resulted from a mandate to set sustainability standards for city-owned and operated buildings higher than the standards listed in the applicable building code, the Vancouver Building By-Law (VBBL). The intent was for the city to lead by example in matters of ecological sustainability in the built environment. By creating a corporate (city-related) green building policy, the city would be able to test, on a smaller scale, the effectiveness and viability of various requirements that might later be incorporated on a larger scale in the private sector as part of the VBBL. To create this policy document, the City reached out to the University of British Columbia as part of an established relationship, namely the Greenest City Scholars Program. I was selected under this program to create a draft of this corporate green building policy. I am a PhD student in the School of Community and Regional Planning, a licensed architect, and a LEED Accredited Professional.

## *Process*

The mandate for this assignment involved using three primary sources to inform the policy. The first source of information would be stakeholders who worked at the city, the second would be policy requirements of comparable cities and regions, and the third would be my own experience in the field of green building.

I began by assembling (in coordination with my mentor, Manager of Environmental Services, Jennifer Mayberry) a list of stakeholders and then scheduled interviews with them. This list included over twenty professionals with a range of specialties in sustainability issues. The city departments they represented included *Real Estate & Facilities Management*, *Sustainability Group*, *Engineering Services*, *Planning and Development Services*, and the *Board of Parks and Recreation*. I conducted seventeen interviews during the month of May, 2016 with these stakeholders. The primary question that structured the discussions was what they thought we should do to improve green building standards for city-owned buildings. Stakeholders generally spoke to this issue within the realm of their expertise, but also often had more general suggestions.

Stakeholders also replied by email to the following questions sent to the group: "*What are your top three priorities for the Corporate Green Building Policy?*" and "*What green building policies of other cities should we consider?*" Additionally, I corresponded less formally with stakeholders via email or in-person to seek clarification or elaboration of their positions.

From these interviews and communication, I made a table of notes and reviewed them for themes and key ideas. I then reviewed the green building policies of several other regions and municipalities, including California, San Francisco, San Jose, Los Angeles, Santa Monica, San Diego, Seattle, Portland, and New York City. I also reviewed several green building guidelines. From these interviews and this research, I created the following outline of topics (topics with asterisks were not mentioned by stakeholders):

#### ❖ General Requirements

- Building Operation and Maintenance
  - Provide an operation and maintenance manual\*

#### ❖ Energy Use & Greenhouse Gas Emissions

- Building Envelope
  - Increase thermal performance
  - Provide a passive solar shading strategy\*
- Energy Type
  - Use low-carbon energy sources
- Energy Use
  - Optimize efficiency in design of mechanical systems
  - Collect building energy performance data
  - Commission buildings, balance HVAC
  - Use high-efficiency appliances\*

#### ❖ Indoor Environmental Quality

- Indoor Air Quality
  - Provide enhanced ventilation
  - Provide high indoor air quality
  - Provide air quality monitoring

#### ❖ Indoor Water Use

- Indoor water efficiency
  - Provide water metering for all separate tenant spaces in a building
  - Do not use 'one-pass cooling' systems
  - Provide high-efficiency fixtures\*
  - Provide plumbing system to use recycled water\*

#### ❖ Material Use

- Construction
  - Improve construction waste management
  - Document material sourcing\*
  - Avoid materials with high embodied GHG emissions
  - Avoid materials that degrade indoor air quality\*
  - Do not use restricted materials in construction\*
- Operation
  - Provide adequate waste sorting receptacles and space throughout the building
  - Provide a life cycle assessment for all furnishings and equipment\*

#### ➤ Deconstruction

- Provide plan for sustainable building deconstruction and material recycling
- Improve municipal building material reuse
- Purchase and warehouse deconstructed materials from private sector houses
- Provide plan for proper disposal of hazardous materials\*

#### ❖ Site Development

- Biodiversity
  - Provide habitats that enhance biodiversity
  - Accommodate birds and pollinators
  - Protect waterways and marine life from toxic run off
  - Protect native topsoil
  - Provide linked 'nodes' of natural habitat
- Urban Forest
  - Improve the urban forest
  - Increase tree canopy, especially with robust trees
  - Do not use artificial turf
  - Discourage use of turf grass
- Roofs & Hardscape
  - Require green roof capacity on large buildings
  - Require high-albedo roofing and site materials for non-planted areas
- Water
  - Capture and use rainwater
  - Manage storm water quality
  - Do not use decorative outdoor water features
  - Require high site permeability for storm water infiltration and/or capture
  - Require sensors and controllers for outdoor irrigation systems
  - Avoid water-intensive landscaping
- Open Space
  - Provide open space for recreation, social activity, and physical activity, wherever possible\*
  - Provide opportunities for food production, wherever possible\*
- Transportation
  - Provide parking and amenities for cyclists\*
  - Accommodate access to transit\*
  - Minimize parking for private, standard-fuel automobiles\*

Having established a working set of topics, I turned my attention to the content and format that each topic should take. I believed the following questions should be addressed for each topic:

- What aspect of the building process does it address?
- How does it relate to other topics?
- Generally, what does it require?
- What existing City plans does it advance?
- What is the related baseline requirement already in place that it is intended to surpass?
- What is the objective?
- Why is this objective important?
- Specifically, what must be done and by whom?
- Ideally, what else could be done that is beneficial but not required?
- How will compliance be measured?
- What is the standard of compliance?
- How might this topic be improved in the future?

I sought to structure these questions with the following outline, which would be applied to each topic:

Category:	<i>(What aspect of the building process does it address?)</i>
Subcategory:	<i>(How does it relate to other topics?)</i>
Topic:	<i>(Generally, what does it require?)</i>
Related Plans:	<i>(What existing City plans does it advance?)</i>
Existing Code:	<i>(What is the related baseline requirement already in place that it is intended to surpass?)</i>
Goal:	<i>(What is the objective?)</i>
Rationale:	<i>(Why is this objective important?)</i>
Requirements:	<i>(Specifically, what must be done and by whom?)</i>
Recommendations:	<i>(Ideally, what else could be done that is beneficial but not required?)</i>
Metrics:	<i>(How will compliance be measured?)</i>
Benchmark:	<i>(What is the standard of compliance?)</i>
Future Goal:	<i>(How might this topic be improved in the future?)</i>

The initial draft was the result of answering each of these questions for each of the above topics.

## **Status**

The current draft of the Corporate Green Building Policy includes revisions based upon comments from stakeholders and managers who reviewed the initial draft. Next steps include a managerial-level meeting to resolve outstanding issues, a review by the General Manager of Real Estate and Facilities Management, and a review by the City legal team. The Environmental Services Manager expects adoption by the end of 2016. After this, the policy will be pilot tested for viability and amended as needed. Finally, this (new construction) policy will serve as the basis for a related document, the Corporate Green Building Policy for Renovations and Remodels, which is now underway.

This report was produced as part of the Greenest City Scholars (GCS) Program, a partnership between the City of Vancouver and The University of British Columbia, in support of the Greenest City Action Plan.

This GCS project was conducted under the mentorship of City staff. The opinions and recommendations in this report, and any errors, are those of the author, and do not necessarily reflect the views of the City of Vancouver or The University of British Columbia.

The following are the official partners and sponsors of the Greenest City Scholars Program:



a place of mind  
THE UNIVERSITY OF BRITISH COLUMBIA

**sustainability**