



Best Practice: Green Homes Program

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CITY: VANCOUVER

POLICY AREAS: BUILDINGS ADMINISTRATION; ENVIRONMENT

BEST PRACTICE

The **Green Homes Program**, created by the City of Vancouver, necessitates that new building permit applications for one-family and two-family homes must meet specific requirements to improve energy and water efficiency.

ISSUE

Since the majority of greenhouse gas (GHG) emissions, totaling 54%, in Vancouver come from buildings, the City has adopted a target goal that all new construction in Vancouver be greenhouse gas neutral by 2020. The city staff estimates that new homes built to comply with the Green Homes Program will consume up to 33% less energy than a house built prior to the new building Vancouver Building By-law (VBBL) standards.

GOALS AND OBJECTIVES

The Green Homes Program requirements address energy efficiency by mandating insulation performance, window performance, efficient lighting, and the installation of in-home energy display meters to make occupants aware of their energy use patterns. This program also addresses water efficiency by requiring high-efficiency or dual flush toilets. It is also a requirement for new home builders to accommodate solar hot water systems and electric vehicle charging.

IMPLEMENTATION

The development of this program was led by the city's Sustainable Development Program Staff in collaboration with the Community Services (Planning and Development) Group and the chief building official. Each department was responsible for a certain deliverable such as revising the building code and interfacing with building permit applicants. The local building industry also offered their feedback and educated all stakeholders on the value of the "green homes" approach to homebuilding.

The nature of the program is to integrate itself into the existing administration of building permits.

COST

The City spent a total of approximately \$70,000 USD to set up the program, which includes staff time. There are no ongoing expenditures or additional resources required at this time.

RESULTS AND EVALUATION

Every new home built since the launch of the Green Homes Program has been monitored; energy use data is recorded and analyzed. According to this data, most of the homes are performing close to the desired targets overall energy efficiency and GHG reduction. The program has reduced energy consumption by 33% in new homes.

Another critical outcome that we observed is that since the program was introduced there was an initial spike in performance improvement followed by a steady rise since that time. This indicates that the program has a learning curve and that if the trend holds true, improvements to the program could result through 2010 as builders go through the process for a second or third time.

Currently in development for 2011, areas where there is a need for improvement will be analyzed and likely modified during the second iteration of the Green Homes Program.

TIMELINE

The program underwent 8 months to develop and 4 months to implement. It began in September 2009 and is currently the standard for all new homes in Vancouver. Once the effectiveness of this first iteration of the program is properly analyzed and understood, the city staff will revise the program to more effectively meet the program's targets.



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LEGISLATION

As mentioned, the City of Vancouver has its own building code, the Vancouver Building By-law (VBBL). Each of the requirements stated by the Green Homes Program was written into the most recent version of the VBBL pertaining to one-family and two-family homes.

LESSONS LEARNED

The addition of new requirements into the building code involves some measure of industry support. The city staff worked to keep any additional costs to a minimum by doing extensive financial modeling and verification in order to ensure that the measure did not add more than 5% to the total cost of construction.

The staff looked for the interventions that could also provide the most greenhouse gas reductions per dollar invested.

There was a need to do significant outreach work and capacity building internally within the City bureaucracy to achieve support from other building policy and inspection staff. This was because many of the recommendations put forth for adoption in the program were new to the City and not well understood. The City used the help of national experts to ensure what was being presented was truly the eco-friendly way to get results, reduce greenhouse gas emissions, and reduce water use.

The city staff learned that when drafting energy codes some of the most powerful elements of the code were to establish feedback protocols and reporting requirements. The requirement for a comprehensive energy audit in the Green Homes Program has been critical to help the staff develop an improved version of the program in 2011 and has substantially increased our understanding of residential building energy use.

TRANSFERABILITY

The city of Vancouver has an ambitious greenhouse gas reduction target. Since buildings account for producing the majority of local greenhouse gas emissions, there is an opportunity to impact the overall greenhouse gas emissions by addressing the energy performance of buildings. New buildings are easier to address since building and development permits are issued by the city.

Consumers are becoming more aware of the environmental and economic benefits of an energy efficient home and developers are more conscious that many consumers prefer a 'green home' greater than a home that is inefficient.

This program would be best replicated in jurisdictions that control their own building code.

CONTACTS

David Ramsle
Sustainable Development Program Manager
David.ramsle@vancouver.ca

Sustainability Group
City of Vancouver
453 West 12th Avenue
Vancouver, BC
Tel: 604-873-7946

<http://vancouver.ca/commsvcs/CBOFFICIAL/greenbuildings/greenhomes/>

Facts and figures in this report were provided by the highlighted city agency to New York City Global Partners.