## CITY COUNCIL AGENDA ITEM

CITY OF SHORELINE, WASHINGTON

AGENDA TITLE: Discussion of the International Green Construction Code

**DEPARTMENT:** Planning & Community Development PRESENTED BY: Ray Allshouse, Building Official

Kim Lehmberg, Associate Planner

Joseph Tovar, Director

**ACTION:** Ordinance Resolution Motion

> Discussion **Public Hearing**

PROBLEM/ISSUE STATEMENT: The construction, operation, and demolition of buildings impacts the environment, the economy, our health and productivity. Green building reduces the impacts associated with conventional building techniques. Green building is one of many recommended strategies and adopted policies in the City of Shoreline's Environmental Sustainability Strategy, Comprehensive Plan, and Ridgecrest Commercial Planned Area Mixed-Use (MUZ) Zones. Many tools are available to achieve an expanded green building presence including grant programs, incentivized zoning, and direct requirement through development and building codes.

The International Code Council developed one such regulatory tool – the International Green Construction Code (IgCC).

#### RESOURCE/FINANCIAL IMPACT:

If the Council wishes to proceed with consideration to locally adopt the IgCC in 2012, it will be added to the Planning and Community Development work program. No budget implications are anticipated. Training of staff is included in the budget and is required for staff to maintain their certifications.

#### RECOMMENDATION

No action is required. This evening's presentation is intended to introduce Council to the International Green Construction Code and to address how it can be customized to achieve the City's adopted goals while providing project specific flexibility.

Approved By:

#### INTRODUCTION

This report and presentation will introduce Council to the International Green Construction Code (IgCC); its intent, applicability, and local jurisdictional options. Staff is considering bringing the IgCC before Council in 2012 for local adoption and seeks direction in pursuing further analysis and discussion. If adopted, the IgCC would constitute a mandatory regulatory overlay to the City's Development Code, International Building Code (IBC) and associated construction codes by which the City currently regulates commercial and multi-family development. To date the City has implemented incentives to encourage green building. The IgCC would add a mandatory requirement. Making the presentation to Council will be Kraig Stevenson, Government Relations Regional Manager of the International Code Council (ICC). Kraig has been with the ICC since its inception, having served as part of the International Conference of Building Officials (ICBO), publishers of the Uniform Building Code (UBC), for a number of years as well.

#### **BACKGROUND**

Shoreline's adopted Environmental Sustainability Strategy recommends development of a clear green building policy and revision of codes to provide guidance and incentives for sustainable development and green building. Green development is a central element in the adopted 20-year vision for the City of Shoreline, which states:

"Shoreline is a regional and national leader for living sustainably.

Everywhere you look there are examples of sustainable, low impact, climate-friendly practices come to life — cutting edge energy-efficient homes and businesses, vegetated roofs, rain gardens, bioswales along neighborhood streets, green buildings, solar-powered utilities, rainwater harvesting systems, and local food production to name only a few."

Similarly, the new Town Center Subarea Plan envisions "buildings that are state-of-theart energy efficient and sustainable structures with zero carbon impacts."

To these ends, staff is working to develop a green building program for the City. One logical tool for implementing these strategies and visions is adoption of a mandatory green building code.

The International Code Council (ICC) started developing this code in 2009 and the first version was released in March of 2010. The final action hearing on the 2012 code will occur in the first week of November, 2011. The plan is to use this updated version as the platform for local adoption.

#### **DISCUSSION**

#### Intent

According to the introductory notes contained in this version of the IgCC, the intent of this code is as follows:

101.3 Intent. The purpose of this code is to safeguard the environment, public health, safety and general welfare through the establishment of requirements to reduce the negative potential impacts and increase the positive potential impacts of the built environment on the natural environment and building occupants, by means of minimum requirements related to: conservation of natural resources, materials and energy; the employment of renewable energy technologies, indoor and outdoor air quality; and building operations and maintenance.

The IgCC is not intended to replace ratings systems like LEED or "Built Green" that would typically go beyond the base requirements. According to the U.S. Green Building Council (USGBC), the genesis of the IgCC is based upon the recognition that not all hazards related to the built environment are tied to acute building failures or cataclysmic events. This recognition focuses attention to preserving the natural environment, conserving resources, and addressing the toxicity of materials and processes and the effects of greenhouse gas emissions. In this way, the greening of the building code furthers the intent to safeguard the public health, safety and general welfare from hazards attributed to the built environment.

## **Green Construction Code: Points For Council Discussion**

- The governing body of the city is not prohibited from adopting codes in addition to codes named in the State Building Code statutes RCW 19.27 and RCW 19.27A.
   State law does not require pre-approval or concurrence from the State legislature or by any state agency.
- The legislative body of the City is free to consider additional construction and development requirements, using their processes which enhance and implement the Comprehensive Plan, environmental sustainability strategies, and development goals as defined by the City.
- Adopting a green sustainable code like the IgCC presents the City with an opportunity to approach traditional land use, development, zoning and building construction regulations holistically. The IgCC has a focus on the importance of the whole and interdependence of these functions that must work together as a system of integrated regulations so the impact on the environment is reduced and conservation of resources and energy are achieved while creating safe and healthy interior environments. This is the essence for creating the IgCC as an "overlay" code. Some existing City development and building regulations may require revisions so they all work in an integrated system.
- The City will need to thoughtfully evaluate the base provisions of the IgCC and decide to what extent it will adopt the "Jurisdictional Requirements" as mandatory requirements. Some jurisdictions have taken the approach to phase-in some Jurisdictional Requirements on a schedule which they believe encourages voluntary compliance and allows for market transformation and builds infrastructure and the programs necessary to achieve robust compliance. Building site waste management and construction waste management are two examples where waste management providers must have the capability and capacity to receive and divert these materials from landfills.
- The City will also need to decide how many Project Electives (1-14) will be required.
   The selection of which Project Electives to incorporate into a project is flexible and rests with the design-development team.

- Regulatory staff will need to collaborate with industry and stakeholders in setting up administrative compliance programs that are the least burdensome on the development and construction industry so innovation is encouraged while compliance with green and sustainable regulations is demonstrated.
- The IgCC base entry point to energy efficiency, requires 15% greater efficiency than the 2009 energy code. The IgCC's format allows jurisdictions options to require even greater efficiency for buildings by requiring higher efficiency or by allowing higher efficiencies to be used as *Project Electives*. Each five percent increment above the IgCC entry point equates to an elective. Ten percent higher efficiency equals two electives and so on.
- Water resource conservation requirements of the IgCC require consumption to 20% less than current national conservation requirements. The IgCC allows the jurisdiction to require 30% or 40% reduced consumption above current national standards and facilitates this by allowing flexible design choices. The jurisdiction can also choose to allow the 30% and 40% efficiencies to be selected as project elective thus encouraging flexible design and water conservation.

## **Applicability**

This code is meant to apply to commercial and large multi-family construction. It does not apply to:

- 1. Detached one-and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress.
- 2. Equipment or systems that are used primarily for industrial or manufacturing processes.

### **Layout of Code**

- Chapter 3: Jurisdictional Requirements and Project Electives
- Chapter 4: Site Development and Land Use
- Chapter 5: Material Resource Conservation and Efficiency
- Chapter 6: Energy Conservation, Efficiency and Atmospheric Quality
- Chapter 7: Water Resource Conservation and Efficiency
- Chapter 8: Indoor Environmental Quality and Comfort
- Chapter 9: Commissioning, Operation and Maintenance
- Chapter 10: Existing Buildings
- Chapter 11: Existing Building Site Development
- Appendix B: Greenhouse Gas Reductions in Existing Buildings
- Appendix C: Sustainability Measures

#### **Local Jurisdictional Options**

Chapter 3 is where a jurisdiction has the ability to customize the code to suit its particular needs. The City can set which options will be required in Table 302.1 Requirements Determined by the Jurisdiction, and sets which electives are available for selection by the applicant in Table 303.1 Project Electives Checklist.

The Requirements Determined by Jurisdiction section is designed to allow the local jurisdiction to meet regional goals and priorities by determining whether certain provisions are to be mandatory and to set the levels of compliance for a number of the standards to be required for project approval. Examples include whether high occupancy vehicle parking or light pollution control will be required; minimum percentage of waste material to be diverted from landfill; and enhanced pluming or electrical efficiency standards.

Table 302.1 also requires that the local jurisdiction indicate the minimum number of project electives (1 to 14) that must be satisfied in order to comply with this code. Project electives are the vehicles by which this code encourages the consideration and implementation of environmentally beneficial practices that might not be appropriate as strict mandatory requirements in some scenarios. They are also used to encourage construction and performance which exceeds the minimum requirements of this code. Electives can include hardscape reduction, design of the building for a longer service life, higher energy or water efficiency than minimum required, or demonstrating a higher environmental performance of the building through whole building life cycle assessment.

See Attachment A for a copy of the tables.

#### **New Requirements**

The IgCC not only sets higher standards of construction and building performance than the current construction code requirements, it also adds requirements not previously addressed by the Shoreline Municipal Code.

New requirements or electives worth noting include:

- Predesign site inventory and assessment an inventory and assessment of the natural resources to help identify protection areas, invasive vegetation for removal and existing native vegetation on site.
- Irrigation of outdoor landscaping by non-potable water where feasible and appropriate.
- Removal of invasive species and prohibition on planting any new invasive species.
- Construction waste management plan and requirement for diversion of minimum percentage from the landfill for recycling or reuse.
- Additional multi-modal transportation infrastructure requirements such as parking designated for high occupancy and low emissions vehicles.
- Mitigation requirements for heat island effect of hard surfaces.
- Lighting design standards to reduce light pollution impacts to neighboring properties and the night sky generally as well as site safety.
- Standards for greywater systems and vegetated roofs.
- Materials selection standards regarding recycled content, recyclability at the end
  of the building life, renewable materials, and locally sourced materials.
- Standards for designing buildings with a longer than conventional service life.

#### **Advantages**

- Requires green building practices set to City standards
- Enforceable

- Covers a broad gamut of topics
- May increase uniformity across jurisdictions
- · Encourages adoption through flexibility
- The City sets timeline for adoption, implementation and reevaluation schedule to meet City values and goals

#### **Challenges**

- Possible increased costs and resources for the City
- Increased initial developer costs
- Requires more reports and inspections to be completed, resulting in additional impacts to current staffing levels.
- Requires additional parties involvement in design and review of a project (which
  in turn requires more training, greater technical expertise needed)
- · Review times could increase
- May conflict with existing codes and requirements.

#### **Other Jurisdictions**

A number of jurisdictions in the region, Seattle and Tacoma among them, are pursuing green building programs, including policy and code changes to promote green building practices. Examples are incentives such as height and density bonuses, expedited permit review or technical assistance. Within Washington State only the City of Richland has adopted the IgCC to date. Currently, it is being administered as a voluntary (not mandatory) option to the IBC. So far, one project has chosen to follow the IgCC compliance path in Richland.

Outside of the region, the state of California has adopted the nation's first statewide mandatory green building code (<u>CALGreen</u> became effective January 1 of this year). The state of Oregon has adopted the IgCC as the base model document comprising the Oregon Reach Code, a voluntary code which became effective July 1, 2011 with the goal to test innovative approaches in the construction of high performance buildings. New York City has adopted a customized green construction code. Keene, New Hampshire, Fort Collins, Colorado, Boyton Beach, Florida, Keyenta Township, Arizona and the State of Rhode Island have adopted the IgCC.

#### STAKEHOLDER OUTREACH

The stakeholders in this case are identified as those in the building and construction industries and citizens who are committed to achieving a sustainable community. With the assistance of the King County Sustainable Cities program, staff has promoted the development of a builder/applicant survey to gather feedback from the developer community regarding the usage of and perceived barriers to green building, and how much interest there is in green building practices. The survey is also designed to gauge the reaction in the building community to the idea of adopting a mandatory green building code. At the time of this staff report, the survey had not yet been sent out to stakeholders. If results are available at the time of this Council meeting, they will be included in the presentation.

### **COUNCIL GOAL(S) ADDRESSED**

#### Council Goal #1 is to

"...Implement the adopted Community Vision by updating the Comprehensive Plan and key development regulations in partnership with residents, neighborhoods and businesses."

#### Comprehensive Plan Framework Goal #8 to

"...Apply innovative and environmentally sensitive development practices."

Focus Area 3 of the adopted Sustainability Strategy is Sustainable Development and Green Infrastructure. One of the recommendations in this focus area is to:

Promote green building and LID (Low Impact Development) by training select staff, providing outreach information and revising building and development codes...

Recommendation 23 from the Environmental Sustainability Strategy:

"Revise zoning and engineering standards to provide guidance and incentives for Low Impact Development (LID) and Green Building."

Town Center Plan Policy TC-18:

"....promote a green built environment."

#### RESOURCE/FINANCIAL IMPACT

At this time the financial impact of adopting the IgCC is unknown. Resource impact will be more clear as further research is completed. Staff time would have to be devoted to the following steps:

- 1. Review IgCC 3 to 4 months
  - Applicability/Conflicts e.g. state energy code
  - L I D review for conflicts with adopted stormwater code.
  - Comparison to Washington State Energy Code
  - Development Code review for conflicts
  - Optional Provisions what requirements and electives to recommend for adoption and why.
- 2. Impact of Adopting Public outreach
  - Builders
  - Community
  - Economy

#### 3. Staff

- Training Plans Examiners, Inspectors, Planners and Development
  Review Engineers training for site development & land use elements of
  the code. Note that training is already in the budget and is required for the
  certified members of the staff to maintain their certifications.
- Areas of responsibility who will enforce/review which sections.
- 4. Public Outreach
  - Information & Education
- 5. Adoption
  - State Building Code Council
  - City Council
- 6. Permit Review and Process handouts, checklists revisions, etc.

#### RECOMMENDATION

No action is required. This evening's presentation is intended to introduce Council to the International Green Construction Code for Council consideration and to address how it can be customized to achieve the City's adopted goals while providing project specific flexibility.

#### **ATTACHMENTS**

Attachment A: Tables 302.1 and 303.1

## **ATTACHMENT A**

# TABLE 302.1 REQUIREMENTS DETERMINED BY THE JURISDICTION

Section	Section Title or Description and Directives	Jurisdictional Requirements		
<b>→</b>				
	CH 3. JURISDICTIONAL REQUIREMENTS AND PROJECT ELECT	IVES		
302.1 (2)	Optional compliance path – ASHRAE 189.1	☐ Yes	□ No	
302.1 (3)	Project Electives – The jurisdiction shall indicate a number between 1 and 14 to establish the minimum total number of project electives that must be satisfied:			
	CH 4. SITE DEVELOPMENT AND LAND USE			
<b>→</b>				
402.2.3	Conservation area	☐ Yes	□ No	
402.2.5	Agricultural land	☐ Yes	□ No	
402.2.6	Greenfields	☐ Yes	□ No	
402.3.2	Stormwater management	☐ Yes	□ No	
403.4.1	High occupancy vehicle parking	☐ Yes	□ No	
403.4.2	Low emission, hybrid and electric vehicle parking	☐ Yes	□No	
405.1	Light pollution control	□ Yes	□ No	
	CH 5. MATERIAL RESOURCE CONSERVATION AND EFFICIEN	CV		
<b>→</b>	OHO. MATERIAE REGOGRAP CONDERVATION AND EFFICIENT	<u> </u>		
_		<u> </u>	ე0∕2	
502.1	Minimum percentage of waste material diverted from landfills.	□ 6 □ 7	5%	
	CH 6. ENERGY CONSERVATION AND EARTH ATMOSPHERIC QUA	ALITY		
<b>→</b>				
Table 602.1, 302.1, 302.1.1	zEPI of Jurisdictional Choice – The jurisdiction shall indicate a zEPI of 46 or less in Table 602.1 for each occupancy for which it intends to require enhanced energy performance.	See Table 602.1 and Section 302.1		
602.3.2.3	Total annual CO2e emissions limits and reporting	☐ Yes	□ No	
613.2	Post Certificate of Occupancy zEPI, energy demand, and CO2e emissions reporting	☐ Yes	□ No	
	CUT WATER RECOURSE CONSERVATION AND ESSISIENCE			
CH 7. WATER RESOURCE CONSERVATION AND EFFICIENCY  →				
702.1.2	Enhanced plumbing fixture and fitting flow rate tier.	☐ Tier 1		
702.7	Municipal reclaimed water.	☐ Tier 2		
102.1	mumorpar recialitieu water.	☐ Yes	<u> 1NO</u>	
CH 9. COMMISSIONING, OPERATION AND MAINTENANCE				
904.1.1.1	Periodic reporting	☐ Yes	□ No	
			-	

Section	Section Title or Description and Directives	Jurisdictional Requirements				
	CH 10. EXISTING BUILDINGS					
<b>→</b>						
1006.4	Evaluation of existing buildings	☐ Yes	□No			
	APPENDICES					
Appendix B	Greenhouse gas reduction in existing buildings	☐ Yes	□ No			
B103.1	Compliance level – The jurisdiction to select phases only where "Yes" is selected in the previous row.	□ Pha □ Pha □ Pha □ Pha	ase 2 ase 3			
B103.2	Where "Phase 1" is selected under Section B103.1 – jurisdiction to indicate the number of months to be used in association with Section B103.2.	!	months			
B103.3	Where "Phase 2" is selected under Section B103.1 — jurisdiction to indicate the number of years and the percentage to be used in association with Section B103.3.		years %			
B103.4	Where "Phase 3" is selected under Section B103.1 – jurisdiction to indicate the number of years to be used in association with Section B103.4.	years				
B103.5	Where "Phase 4" is selected above – jurisdiction to indicate the number of years and the percentage to be used in association with Section B103.5.	years%				
Appendix C	Sustainability measures	☐ Yes	□ No			
Appendix D	Enforcement procedures	□ Yes	□ No			

# TABLE 303.1 PROJECT ELECTIVES CHECKLIST

Section	Description	Check the corresponding box to indicate each project elective selected.	Jurisdictional determination of non-availability
CH 3.	JURISDICTIONAL REQUIREMENTS AND PR	OJECT ELECTIVES	
304.1	Whole Building Life Cycle Assessment (LCA)	☐ (5 Electives <sup>a</sup> )	
	CH 4. SITE DEVELOPMENT AND LAN	D USE	
407.2.1	Flood hazard avoidance		<b>a</b>
407.2.2	Agricultural land		
407;2.3	Wildlife corridor		
407.2.4	Infill site	C STATE OF THE STA	
407.2.5	Brownfield site		
407.2.6	Existing building reuse		
407.2.7	Greenfield development		
407.2.8	Greenfield proximity to development		
407.2.9	Greenfield proximity to diverse uses		
407.2.10	Native plant landscaping		<b>a</b>
407.2,11	Site restoration		
407.3.1	Changing and shower facilities	. 🗖	
407.3.2	Long term bicycle parking and storage		
407.3.3	Preferred parking		
407.4.1	Site hardscape 1		
407.4.2	Site hardscape 2		
407.4.3	Site hardscape 3		
407.4.4	Roof covering		
407.5	Light pollution		
CH	5. MATERIAL RESOURCE CONSERVATION A	AND EFFICIENCY	
508.2	Waste management (502.1 + 20%)		
508.3(1)	Reused, recycled content, recyclable, bio- based and indigenous materials (70%)		
.508.3(2) →	Reused, recycled content, recyclable, bio- based and indigenous materials (85%)	☐ (2 Electives <sup>a</sup> )	
508.4.1	Service life – 100 year design life category	<b>.</b>	
508.4.1	Service life- 200 year design life category	☐ (2 Electives <sup>a</sup> )	
508.4.2 →	Interior adaptability		
	6. ENERGY CONSERVATION, EFFICIENCY A	AND EARTH ATMOSPH	ERIC QUALITY
613.3	zEPI reduction project electives		

Section	Description	Check the corresponding box to indicate each project elective selected.	Jurisdictional determination of non-availability
613.3	Project zEPI is at least 5 points lower than required by Table 302.1		
613.3	Project zEPI is at least 10 points lower than required by Table 302.1	☐ (2 electives)	
613.3	Project zEPI is at least 15 points lower than required by Table 302.1	☐ (3 electives)	
613.3	Project zEPI is at least 20 points lower than required by Table 302.1	☐ (2 electives)	
613.3	Project zEPI is at least 25 points lower than required by Table 302.1	☐ (4 electives)	
613.3	Project zEPI is at least 30 points lower than required by Table 302.1	☐ (5 electives)	
613.3	Project zEPI is at least 35 points lower than required by Table 302.1	☐ (6 electives)	
613.3	Project zEPI is at least 40 points lower than required by Table 302.1	□ (8 electives)	
613.3	Project zEPI is at least 45 points lower than required by Table 302.1	□ (9 electives)	
613.3	Project zEPI is at least 51 points lower than required by Table 302.1	□ (10 electives)	
<b>→</b> 613.4	Mechanical systems		
613.5	Service Water Heating		, О
613.6	Lighting Systems		
613.7	Passive design		
C	H 7. WATER RESOURCE CONSERVATION A	ND EFFICIENCY	
710.2.1	Fixture flow rates are one tier above that required by Table 302.1		
710.2.1	Fixture flow rates are two tiers above that required by Table 302.1.	(2 Electives <sup>a</sup> )	
710.3	On-site wastewater treatment		
710.4	Non-potable outdoor water supply		
710.5	Non-potable water for plumbing fixture flushing		
710.6	Automatic fire sprinkler system		
710.7	Non-potable water supply to fire pumps		
710.8	Non-potable water for industrial process makeup water		(3)
710.9	Efficient hot water distribution system		
710.10	Non-potable water for cooling tower makeup water		African Control
710.11	Graywater collection		
	CH 8 INDOOR ENVIRONMENTAL QUALITY A	ND COMFORT	

Section	Description	Check the corresponding box to indicate each project elective selected.	Jurisdictional determination of non-availability
809.2.1	VOC emissions - flooring		
809.2.2	<ul> <li>VOC emissions – ceiling systems</li> </ul>		
809.2.3	VOC emissions- wall systems		
809.2.4	Total VOC limit		
809.3	Views to building exterior		<u>a</u>
809:4	Interior plant density		

a. Where multiple electives are shown in the table in the form "(x electives)", "x" indicates the number of credits to be applied for that elective to the total number of *project electives* required by the jurisdiction as shown in Section 302.1(3) of Table 302.1.

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