

# GG 320-14

## Appendix A (New)

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Add new text as follows:

### **APPENDIX A** **ALTERNATIVE IgCC**

*The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance. This appendix is intended to be a standalone green code to be used as an overlay to the International Codes as an alternative to the requirements of Chapters 1 through 12 of this code.*

### **SECTION A100** **SCOPE AND ADMINISTRATION**

#### **PART 1—SCOPE AND APPLICATION**

#### **SECTION A101** **GENERAL**

**A101.1 Title.** These regulations shall be known as the Green Construction Code of [NAME OF JURISDICTION] hereinafter referred to as “this code.”

**A101.2 General.** This code is an overlay document to be used in conjunction with the other codes and standards adopted by the jurisdiction. This code is not intended to be used as a standalone construction regulation document and permits are not to be issued under this code.

**A101.3 Scope.** The provisions of this code shall apply to the design, construction, addition, alteration, change of occupancy, relocation, replacement, repair, equipment, building site, maintenance, removal and demolition of buildings or structures or appurtenances connected or attached to such buildings or structures. Occupancy classifications shall be determined in accordance with the International Building Code<sup>®</sup> (IBC<sup>®</sup>).

#### **Exceptions:**

1. Equipment or systems used primarily for industrial processes or manufacturing.
2. Temporary structures approved under Section 3103 of the *International Building Code*.
3. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane.

**A101.3.1 Alternate compliance.** Compliance with ASHRAE 189.1 shall be an alternative to compliance with the provisions of this code.

**A101.4 Other provisions of this code.** Chapters and provisions of this code other than this appendix shall not apply unless specifically adopted.

**A101.5 Intent.** This code is intended to safeguard the environment, public health, safety and general welfare through the establishment of requirements to reduce the negative impacts and increase the positive impacts of the built environment on the natural environment and building occupants. This code is not intended to abridge or supersede safety, health or environmental requirements under other codes or ordinances.

## **SECTION A102** **APPLICABILITY**

**A102.1 Code conflicts.** Where there is a conflict between a general requirement and a specific requirement of this code, the specific requirement shall be applicable. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

**A102.2 Other laws.** The provisions of this code shall not nullify the provisions of local, state or federal law.

**A102.3 Application of references.** References to section numbers, or to provisions not specifically identified by number, shall be construed to refer to such sections or provisions of this code.

**A102.4 Referenced codes and standards.** The following codes shall be considered part of the requirements of this code: *the International Building Code® (IBC®), the International Code Council Performance Code® (ICCPC®), the International Energy Conservation Code® (IECC®), the International Existing Building Code® (IEBC®), the International Fire Code® (IFC®), the International Fuel Gas Code® (IFGC®), the International Mechanical Code® (IMC®), the International Plumbing Code® (IPC®), International Property Maintenance Code® (IPMC®), and the International Residential Code® (IRC®).*

**A102.4.1 Conflicting provisions.** Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code or the International Codes listed in Section A102.4, the provisions of this code or the International Codes listed in Section A102.4 shall take precedence over the provisions in the referenced code or standard.

**A102.5 Partial invalidity.** In the event that a part or provision of this code is held to be illegal or void, this shall not have the effect of making other parts or provisions of this code void or illegal.

**A102.6 Existing structures.** The legal occupancy of a structure existing on the date of adoption of this code shall continue without change, except as is specifically covered in this code, the *International Building Code*, the *International Existing Building Code*, the *International Property Maintenance Code* or the *International Fire Code*, or as is deemed necessary by the code official for the general safety and welfare of building occupants and the public.

**A102.7 Mixed occupancy buildings.** In mixed occupancy buildings, each portion of a building shall comply with the specific requirements of this code applicable to each specific occupancy.

## **PART 2 – ADMINISTRATION AND ENFORCEMENT**

### **SECTION A103** **DUTIES AND POWERS OF THE CODE OFFICIAL**

**A103.1 General.** The code official established in the *International Building Code* is hereby authorized and directed to enforce the provisions of this code. The code official shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions and how this code relates to other applicable codes and ordinances. Such interpretations, policies and procedures shall be in compliance with the intent and purpose of this code and other applicable codes and ordinances. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code or other applicable codes and ordinances.

**A103.2 Applications and permits.** The code official shall enforce compliance with the provisions of this code as part of the enforcement of other applicable codes and regulations, including the referenced codes listed in Section A102.4.

**A103.3 Notices and orders.** The code official shall issue all necessary notices or orders to ensure compliance with this code.

**A103.4 Inspections.** The code official shall make inspections, as required, to determine code compliance, or the code official shall have the authority to accept reports of inspection by approved agencies or individuals. The code official is authorized to engage such expert opinion as deemed necessary to report on unusual technical issues that arise, subject to the approval of the appointing authority.

## **SECTION A104** **CONSTRUCTION DOCUMENTS**

**A104.1 Information on construction documents.** The content and format of construction documents shall comply with the International *Building Code*.

## **SECTION A105** **APPROVAL**

**A105.1 General.** This code is not intended to prevent the use of any material, method of construction, design, system, or innovative approach not specifically prescribed herein, provided that such construction, design, system or innovative approach has been approved by the code official as meeting the intent of this code and all other applicable laws, codes and ordinances.

**A105.2 Approved materials and equipment.** Materials, equipment, devices and innovative approaches approved by the code official shall be constructed, installed and maintained in accordance with such approval.

**A105.2.1 Used materials, products and equipment.** Used materials, products and equipment shall meet the requirements of this code for new materials. The reuse of used equipment and devices shall be subject to the approval of the code official.

**A105.3 Modifications.** Wherever there are practical difficulties involved in carrying out the provisions of this code, the code official shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided the code official shall first find that special individual reason makes the strict letter of this code impractical and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen the minimum requirements of this code. The details of granting modifications shall be recorded and entered in the files of the department.

**A105.4 Alternative materials and methods.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design, innovative approach, or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design, innovative approach or method of construction shall be reviewed and approved where the code official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, design, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code. The details of granting the use of alternative materials, designs, innovative approach and methods of construction shall be recorded and entered in the files of the department.

**A105.4.1 Research reports.** Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.

**A105.4.2 Tests.** Wherever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the code official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the code official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the code official for the period required for retention of public records.

**A105.5 Compliance materials.** The code official shall have the authority to approve specific

computer software, worksheets, compliance manuals and other similar materials that meet the intent of this code.

**A105.6 Approved programs.** The code official or other authority having jurisdiction shall have the authority to deem a national, state or local program to meet or exceed this code. Buildings approved in writing by such a program shall be considered to be in compliance with this code.

**A105.6.1 Specific approval.** The code official shall have the authority to approve programs or compliance tools for a specified application, limited scope or specific locale. For example, a specific approval shall be permitted to apply to a specific section or chapter of this code.

## **SECTION A106** **PERMITS**

**A106.1 Required.** An owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any energy, electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the code official and obtain the required permit under the applicable code or regulation relevant to the intended work. Separate permits shall not be issued under this code. Exemptions from permit requirements shall not be deemed to grant authorization for work to be done in any manner in violation of the provisions of this code or other laws, codes or ordinances of this jurisdiction.

## **SECTION A107** **FEES**

**A107.1 Fees.** Fees for permits shall be paid as required, in accordance with the schedule as established by the applicable governing authority for the intended work prescribed in an application.

## **SECTION A108** **BOARD OF APPEALS**

**A108.1 General.** Appeals of orders, decisions or determinations made by the code official relative to the application and interpretation of this code shall be made to the Board of Appeals created under the applicable International Code®.

**A108.2 Limitations on authority.** An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted there under have been incorrectly interpreted, the provisions of this code do not fully apply or an equivalent or better form of construction is proposed. The board shall have no authority to waive requirements of this code.

**A108.3 Qualifications.** The members of the board of appeals related to interpretation of this code shall be qualified by experience and training in the matters covered by this code and shall not be employees of the jurisdiction.

## **SECTION A109** **CERTIFICATE OF OCCUPANCY**

**A109.1 Violations.** Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction.

## **SECTION A200** **DEFINITIONS**

### **SECTION A201 GENERAL**

**A201.1 Scope.** Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this section.

**A201.2 Interchangeability.** Words used in the present tense shall include the future; words stated in the masculine gender shall include the feminine and neuter; the singular number shall include the plural and the plural, the singular.

**A201.3 Terms defined in other codes.** *International Energy Conservation Code. (IECC.), International Fire Code. (IFC.), International Fuel Gas Code. (IFGC.), International Mechanical Code. (IMC.), International Plumbing Code. (IPC.) or International Residential Code. (IRC.),* such terms shall have the meanings ascribed to them as in those codes.

**A201.4 Terms not defined.** Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

## **SECTION A202** **DEFINITIONS**

**ENVIRONMENTAL PRODUCT DECLARATION.** A report for a product or material based on a product's life cycle and other information relevant to its environmental impact.

**RENEWABLE ENERGY CREDIT.** The property rights to the environmental, social, and other nonpower qualities of renewable electricity generation. A renewable energy credit is sold separately from the electricity associated with a renewable energy source.

**PREFERRED PLANT SPECIES.** Species of trees, grasses, shrubs and other plants that are recognized by the jurisdiction as being preferred for use, or a specific use, within the jurisdiction based on considerations such as water use, drought tolerance, fire, shade, cooling effect and usefulness in specific applications. The species shall be native species, adapted species, or species that are otherwise judged beneficial by a jurisdiction.

## **SECTION A300** **SITE DEVELOPMENT AND LAND USE**

### **SECTION A301** **GENERAL**

**A301.1 Scope and intent.** This section provides requirements for the development and maintenance of buildings and building sites to minimize negative environmental impacts and to protect, restore and enhance the natural features and environmental quality of the site.

### **SECTION A302** **PRESERVATION OF NATURAL RESOURCES**

**A302.1 Protected areas.** Agricultural lands, flood hazard areas, conservation areas, greenfields, brownfields, sites adjacent to surface water bodies and wetlands. Construction documents shall show the location of the protected areas on, or adjacent to the building site. Construction documents shall show the required buffer zones around protected areas.

**A302.2 Vegetation and soil protection.** *Construction documents* shall identify existing vegetation and soils located on a *building site that* are to be preserved and protected. Protected areas and plants with undisturbed soils shall be provided with a physical barrier, such as temporary fencing or other physical barrier. Perimeters around trees shall be identified as a circle with a radius of not less than 1 foot (305 mm) for every inch (25.4 mm) of tree diameter, with a minimum radius of 5 feet (1524 mm). Perimeters around shrubs shall be not less than twice the radius of the shrub.

**Exception:** *Approved* alternative perimeters appropriate to the location and the species of the trees and shrubs shall not be prohibited.

**A302.3 Topsoil protection.** *Topsoil* that potentially could be damaged by construction activities or equipment shall be removed from areas to be disturbed and stockpiled for future reuse on the *building site* or other *approved* location. *Topsoil stockpiles* shall be protected throughout the project with soil stabilization measures to prevent erosion or compaction.

**A302.4 Soil reuse and restoration.** Soils that are being placed or replaced on a *building site shall be prepared, amended and placed in a manner that establishes or restores the ability of the soil to support the vegetation that has been protected and that will be planted.*

**A302.5 Pervious and permeable pavement.** Pervious and permeable pavements including open grid paving systems and open-graded aggregate systems shall not be prohibited where these *hardscapes do not interfere with fire and emergency apparatus or vehicle or personnel access and egress, utilities, or telecommunications lines. Aggregate used in the base shall be of uniform size. The percolation rate of the pavement and the base shall not be less than 1.25 gallons per hour per square foot (100 L/min x m<sup>2</sup>).*

**A302.6 Stormwater.** Stormwater management for the *building site or complex of building sites within the development* shall address the potential increase in runoff that would occur resulting from construction and shall either:

1. Manage rainfall on-site to retain, use or infiltrate at a minimum, the volume of a single storm which is equal to the 95th percentile rainfall event, or
2. Improve, maintain or restore the pre-development stable, runoff hydrology of the site in an approved manner. Runoff rate and volume shall not exceed predevelopment rates.

**A302.6.1 Rainwater catchment.** Where allowed by the jurisdiction, rainwater catchment shall be permitted to be used as part of stormwater management.

**A302.6.2 Site infiltration.** Infiltration into the site or development shall not be required to be used as part of stormwater management. Site infiltration shall include drainage of impermeable surfaces onto vegetated areas or permeable hardscapes.

**A302.6.3 Adjoining lots.** The stormwater management system shall not cause increased erosion or other drainage related damage to adjoining lots or public property.

**A302.7 Plant selection.** Plants selected for use on the building site shall comply with the following:

1. To the extent defined by the jurisdiction, preferred plant species shall be used in accordance with the guidelines established by the jurisdiction.
2. Invasive plant species, as defined by the jurisdiction, shall not be permitted. Existing invasive plant species on the site shall be contained or removed based on either the jurisdiction's recommendations or guidance by a qualified professional.

### **SECTION A303** **BUILDING SITE WASTE MANAGEMENT.**

**A303.1 Building site waste management.** Land-clearing debris shall be reused or otherwise diverted from landfills and other forms of disposal. Land-clearing debris includes rock, trees, stumps and associated vegetation. Storage of site waste shall be in compliance with the combustible waste material requirements of Section 304 of the *International Fire Code.*

**Exception:** Compliance with Section 303 shall not be required where it is in conflict with jurisdictional, state or Federal regulation; or where deemed impractical by the code official.

### **SECTION A304** **BICYCLES**

**A304.1 Walkways and bicycle paths.** Walkways and bicycle paths shall connect to existing paths or sidewalks, and shall be designed to connect to planned future paths. Walkways and bicycle paths shall be designed to support stormwater management. Walkways and bicycle paths shall not interfere with fire and emergency apparatus, vehicle or personnel access.

**A304.2 Bicycle parking.** Bicycle parking shall comply with Sections A304.2.1 through A304.2.3.  
**A304.2.1 Number of spaces.** The minimum number of bicycle parking spaces shall be one per hundred occupant load, and not less than four bicycle parking spaces shall be provided. Occupant load shall be determined based upon Section 1004 of the International Building Code. Accessory occupancy areas shall be included in the calculation of primary occupancy area.

**Exceptions:**

1. Bicycle parking shall not be required where the conditioned space is less than 2,000 square feet (232 m2).
2. Subject to the approval of the code official, the number of bicycle parking spaces shall be permitted to be reduced due to building site characteristics including, but not limited to, isolation from other development.
3. Bicycle parking shall not be required for Group R occupancies.

Combining bicycle parking spaces for multiple buildings shall not be prohibited, provided that the spaces are sufficient for the combined occupant load of the buildings.

**A304.2.2 Description of spaces.** Bicycle parking spaces shall comply with the following:

1. Shall have an area of not less than 18 inches (457 mm) by 60 inches (1524 mm) per bicycle;
2. Shall be provided with a rack or other facility for locking or securing each bicycle.

**A304.2.3 Location of spaces.** The location of bicycle parking shall be designated on the site plan. Bicycle parking shall comply with the following:

1. Bicycle parking spaces shall be located indoors or outdoors within 100 feet of the main entrance to the building.
2. Bicycle parking spaces shall be located at the same grade as the sidewalk, or at a location accessed by a ramp or an accessible route.
3. Bicycle parking spaces shall be visible from the main entrance to the building or directional signage shall be provided at the main entrance indicating the location of such parking spaces.
4. Bicycle parking spaces shall not occupy vehicle parking spaces required by local zoning ordinances and those accessible parking spaces required by the International Building Code.

**SECTION A400**  
**MATERIAL RESOURCE CONSERVATION AND EFFICIENCY**

**SECTION A401**  
**GENERAL**

**A401.1 Scope.** The provisions of this section shall govern matters related to building material conservation, resource efficiency and environmental performance.

**SECTION A402**  
**CONSTRUCTION WASTE MANAGEMENT**

**A402.1 Waste amount.** Construction waste shall meet one of the following criteria for non-hazardous waste:

1. Construction waste sent to disposal shall not exceed 3 lb/square foot of gross floor area. The materials sent to disposal shall be documented.
2. Not less than fifty percent of the waste shall be diverted from disposal by reuse, recycle, salvage or sale. The fifty percent shall be determined by weight or volume, but not both. Both the materials diverted from disposal and the materials sent to disposal shall be documented.

**A402.1.1 Waste management plan.** A plan for reuse, recycle, salvage, donation or sale by type of

materials shall be included with construction documents. The *approved* plan shall include the intended disposition of construction waste materials. Waste materials shall be sorted on site or stored on site for sorting at another location.

**A402.1.2 Waste not covered.** For the purpose of this section, construction and waste materials shall not include land clearing debris, excavated soils and fill and base materials such as, but not limited to, *topsoil*, sand and gravel. Hazardous waste shall be handled in accordance with laws, rules and ordinances applicable in the jurisdiction.

**A402.1.3 Waste storage.** Storage of construction waste shall be in compliance with the combustible waste material requirements of Section 304 of the International *Fire Code*.

**A402.1.4 Hazardous waste.** Hazardous waste shall be handled in accordance with laws, rules and ordinances applicable in the *jurisdiction*.

### **SECTION A403** **BUILDING MATERIAL AND PRODUCT ENVIRONMENTAL DECLARATION**

**A403.1 Building material and product environmental declaration.** Not less than 10 different permanently installed materials or products shall include an *Environmental Product Declaration*. The *Environmental Product Declaration* shall be based on externally verified data. The *Environmental Product Declaration* shall be certified by an *approved agency* or third party in accordance with CAN/CSA-ISO 14025 and ISO 21930.

**Exception:** Buildings with an area of less than 10,000 square feet.

### **SECTION A500** **ENERGY EFFICIENCY**

#### **SECTION A501** **GENERAL**

**A501.1 Scope.** The provisions of this section regulate the design, construction, commissioning, and operation of buildings and their associated building sites for the effective use of energy.

**A501.2 Intent.** This section is intended to provide flexibility to allow the use of innovative approaches and techniques to achieve the effective use of energy.

**A501.3 Application.** Buildings shall be designed and constructed in accordance with the International *Energy Conservation Code*.

### **SECTION A600** **WATER CONSERVATION AND EFFICIENCY**

#### **SECTION A601** **GENERAL**

**A601.1 Scope.** The provisions of this section shall govern the means of conserving water, protecting water quality, and providing for safe water consumption.

### **SECTION A602** **FIXTURES, FITTINGS, EQUIPMENT AND APPLIANCES**

**A602.1 Fitting and fixture consumption.** Plumbing fixtures and fixture fittings shall comply with the maximum flow rates specified in Table A602.1.

**Exceptions:** The following fixtures and devices shall not be required to comply with the reduced flow rates in Table A602.1:

1. Service sinks, bath valves, pot fillers, laboratory faucets, utility faucets, and



- other fittings designated primarily for filling operations.
2. Fixtures, fittings, and devices whose primary purpose is safety.

**TABLE A602.1  
MAXIMUM FLOW RATES AND FLUSH VOLUMES**

<b>FIXTURE OR FIXTURE FITTING TYPE</b>	<b>MAXIMUM FLOW RATE OR FLUSH VOLUME</b>
Showerhead <sup>a</sup>	2.0 gpm
Lavatory faucet and bar sink-private	1.6 gpm
Lavatory faucet-public (metering)	0.25 gpc <sup>b</sup>
Lavatory faucet-public (non-metering)	0.5 gpm
Kitchen faucet-private	2.2 gpm
Kitchen and bar sink faucets in other than dwelling units and guest rooms	2.2 gpm
Urinal	0.5 gpf or nonwater urinal
Water closet	1.28 gpf <sup>c,d</sup>
Prerinse Spray Valves	1.3 gpm
Drinking Fountains (manual)	0.7 gpm
Drinking Fountains (metered)	0.25 gpc <sup>b</sup>

a. Includes hand showers, body sprays, rainfall panels and jets.

b. Gallons per cycle.

c. Dual flush water closets in public bathrooms shall have a maximum full flush of 1.28.

d. The flush volume for water closets that are located at least 30 feet upstream of other drain line connections or fixtures and having less than 1.5 fixture units upstream of the water closet's connection to the drain line shall be not more than 1.6 gpf.

**A602.1.1 Showerhead compensating valves.** Showerhead(s) shall be supplied by automatic compensating valves that comply with ASSE 1016 or ASME A112.18.1/CSA B125.1 and are designed to function at the flow rate of the showerheads being used.

**A602.2 Multiple water outlet showers.** For showers with multiple water outlets, the maximum shower flow rate shall apply to the combined flow of all water outlets that are capable of being operated simultaneously. The combined flow rate shall include, but shall not be limited to, hand showers, rain systems, waterfalls, body sprays, and jets. Multiple water outlet showers shall comply with at least one of the following flow rate limits:

1. Shower compartment - 2.0 gpm, or 2.0 gpm per 2600 in<sup>2</sup> of shower compartment floor area.
2. Gang shower - 2.0 gpm per shower position
3. Shower compartment complying with Chapter 11 of the International Building Code - 4.0 gpm or 4.0 gpm / 2600 in<sup>2</sup> of shower compartment floor area.

**A602.3 Combination tub and shower valves.** Tub spout leakage from combination tub and shower valves that occurs where the outlet flow is diverted to the shower shall be not more than 0.1 gpm, measured in accordance with ASME A112.18.1/CSA B125.1.

**A602.4 Nonwater urinal connection.** The fixture drain for nonwater urinals shall connect to a branch drain that serves one or more lavatories, water closets or water-using urinals that discharge upstream of nonwater urinals.

**A602.5 Trap priming water.** Trap primers that allow continuous water flow shall be prohibited. Trap primers shall use not more than 30 gallons per year per trap.

**A602.5.1 Trap primer filtration.** Non-potable water utilized by pressurized trap primer devices shall be filtered by a 100 micron or finer filter.

**A602.6 Appliances and other equipment.** Appliances and equipment specified and present at the time of final inspection shall be in compliance with the requirements of Section A602.6.1 through A602.6.

**A602.6.1 Once-through cooling for appliances and equipment.** Once-through or single-pass cooling shall be prohibited.

**A602.6.2 Clothes washers.** Clothes washers rated with a water factor shall have a water factor of not

more than 6.0. Clothes washers rated with a modified energy factor shall have a modified energy factor of not less than 2.0.

**A602.6.3.1 Dipper Wells.** The water supply to a dipper well shall have a shutoff valve and flow control valve. The flow shall not exceed 1 gpm (3.78 lpm) at a supply pressure of 60 psi (413.7 kPa).

**A602.6.3.2 Food waste disposal.** The disposal of food wastes that are collected as part of preparing ware for washing shall be accomplished by one or more of the following:

1. A food strainer (scraper) basket that is emptied into a trash or compost.
2. A garbage grinder where the water flow into the food waste disposer is controlled by a load sensing device such that the water flow does not exceed 1 gpm under no-load operating conditions and 8 gpm under full-load operating conditions.
3. A pulper or mechanical strainer that uses not more than 2 gpm.

**A602.6.3.3 Pre-rinse spray heads.** Food service pre-rinse spray heads shall have a maximum flow rate in accordance with Table A602.1 and shall shut off automatically when released.

**A602.6.3.4 Hand washing faucets.** Faucets for hand washing sinks in food service preparation and serving areas shall be of the self-closing type.

## **SECTION A700** **INDOOR ENVIRONMENTAL QUALITY**

### **SECTION A701** **GENERAL**

**A701.1 Scope.** The provisions of this chapter shall govern the impact of the interior environment on human health and well-being.

### **A702** **AIR CIRCULATION SYSTEM**

**A702.1 Air circulation requirements.** Air circulation systems shall meet the requirements of Sections A702.2 through A702.5.

**A702.2 Duct protection during construction.** Duct and other air distribution component openings shall be covered with tape, plastic, sheet metal or other approved method from the time of rough-in installation until startup of the heating and cooling equipment. Dust and debris shall be cleaned from duct openings prior to building occupancy.

**A702.3 Sealed air handler.** Air handlers with a flow rate of less than 3000 cfm shall have a manufacturer's designation of air leakage. The air handler air leakage shall be not more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.

**A702.4 Air handling system access.** Air handlers, air filters, fans, coils and condensate pans shall be provided with access for purposes of cleaning, repair, and replacement.

**A702.5 Filters.** Filters for air-conditioning systems that serve occupied spaces shall be rated at MERV 11 or higher, in accordance with ASHRAE Standard 52.2, and system equipment shall be designed to be compatible. The air-handling system design shall account for pressure drop across the filter. The pressure drop across clean MERV 11 filters shall be not greater than 0.45 in. w.c. at 500 FPM (412 Pa at 2.54 m/s) filter face velocity. Filter performance shall be shown on the filter manufacturer's data sheet.

### **SECTION A703** **SPECIFIC INDOOR AIR QUALITY MEASURES**

**A703.1 Fireplaces and appliances.** Where located within buildings, fireplaces, solid fuel-burning appliances, vented decorative gas appliances, vented gas fireplace heaters and decorative gas

appliances for installation in fireplaces shall comply with Sections A703.1.1 through A703.1.3. Unvented room heaters and unvented decorative appliances, including alcohol burning appliances, shall be prohibited.

**A703.1.1 Venting and combustion air.** Fireplaces and fuel-burning appliances shall be vented to the outdoors and shall be provided with combustion air from the outdoors in accordance with the *International Mechanical Code and the International Fuel Gas Code*. Solid-fuel-burning fireplaces shall be provided with combustion air directly from the outdoors and shall be provided with a means to tightly close off the chimney flue and combustion air outlets when the fireplace is not in use.

**A703.3 Wood-fired appliances.** Wood stoves and wood-burning fireplace inserts shall be listed.

**A703.4 Biomass appliances.** Biomass fireplaces, stoves and inserts shall be listed and labeled in accordance with ASTM E1509 or UL 1482. Biomass furnaces shall be listed and labeled in accordance with CSA B366.1 or UL391. Biomass boilers shall be listed and labeled in accordance with CSA B366.1 or UL 2523.

## **SECTION A800** **REFERENCED STANDARDS**

### **ASHRAE**

193-2010 Method of Test for Determining the Air Tightness of HVAC Equipment

### **CSA**

CAN/CSA-ISO 14025:07(R2012) Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures (Adopted ISO 14025:2006, first edition, 2006-07-01)

### **ISO**

21930:2007 – Sustainability in building construction – Environmental declaration of building products

### **UL**

391-2006 Solid-fuel and Combination-fuel Central and Supplementary Furnaces-with Revisions through March 2010

*All other standards referenced by this Appendix are identified in the Referenced Standards chapter of the 2012 IgCC.*

**Reason:** This "Alternative IgCC" is intended to be a standalone, usable green code. It provides an option that some will find more practical.

The addition of the full IgCC, or even trying to decide what part of the existing IgCC to start with, is daunting. The Alternative IgCC can answer requests from top elected and appointed officials for "green", where the city councils and elected officials want to become green, preferably now. These may be jurisdictions that have adopted a stringent energy code, but perhaps are not really enforcing it. The price of complexity and ambiguity in the code is a lack of compliance. If there is no compliance, there is no impact. Simple works.

Most Building Departments are understaffed and underfunded and don't have the resources to enforce a complicated green code. The Alternative IgCC is a place to start for some, and an end point for others. It is intended to be achievable in a typical jurisdiction without a major training and staffing effort. The Alternative IgCC is intended to be usable for all the buildings, including small buildings in small jurisdictions. Green experts may understand the IgCC, but most building officials don't have time to study and understand the entire IGCC as it currently exists.

Ratings, complexity, and new and initially untested requirements belong in rating systems, not codes. LEED is a leading edge program. The IgCC is not LEED. The IgCC and LEED have different roles and are not mutually exclusive.

Let's be honest...the IGCC is seeing very little adoption and, therefore, use. When adopted by a jurisdiction, it is often limited in what it applies to, perhaps to a list of options, is made "voluntary", or is applied only to the jurisdiction's buildings. For a specific example, Dallas adopted the IgCC as a code and deleted five entire chapters, including the entire energy chapter. Dallas deleted Chapters 2 (definitions), 6 (energy), 9 (commissioning), 10 (existing buildings) and 11 (existing sites). Dallas also deleted parts of Chapters 4 (site), 5 (materials), and 8 (indoor environment). This Alternative IgCC is very similar to what Dallas did. (An overview of what Dallas did is at [http://www.dallascityhall.com/building\\_inspection/pdf/Overview.pdf](http://www.dallascityhall.com/building_inspection/pdf/Overview.pdf).) To have a chance of broad use we need a much more usable green code.

The order of this Alternative IgCC follows roughly that of the IgCC. Parts are deleted, clarified and/or condensed. An overview follows. Note that section numbers starting with "A" are the new Alternative IgCC. Section numbers without the "A" are the existing IgCC.

**Section A100 – Scope and Administration** (existing Chapter 1).

Much of what is in the existing Chapter 1 is retained in the new Section 100. The changes clarify and simplify the code.

- Choice of IgCC or ASHRAE 189.1 (new A101.3.1). The choice between the IgCC and ASHRAE 189.1 is fundamental to the IgCC. However the existing IgCC makes it hard to even find that choice. The existing ASHRAE 189.1 reference is spread over two chapters; as item #4 of section 101.3's exceptions and in section 301.1.1. The proposed section (new A101.3.1) places it in one sentence on the first page.
- Residential text is removed. The IgCC is fundamentally a commercial code. The existing IgCC spreads the residential option into Section 101.3 in exception #1's three subparts, Section 302.1 item #1 and Table 302.1's first three rows. The confusing residential option is removed. Jurisdictions can still adopt the ICC 700 National Green Building Standard or another program for residential construction as a separate action. The exception for residential buildings uses the IECC definition of residential buildings (new A101.3 item #3).
- IgCC provisions outside the Alternative IgCC must be specifically adopted (new A101.4). This allows a jurisdiction to add back provisions, if desired. "Provisions shall not apply unless specifically adopted" is handled like the existing section 101.4 that states that IgCC appendices apply only if specifically adopted.
- Remove redundant sentence. The last sentences in existing sections 101.2 and 101.5 are identical. This proposal leaves the sentence only in section A101.5.
- Most restrictive governs (new A102.1, existing 102.1). Where code sections have different requirements the existing Section 102.1 says "the most practical requirement" shall govern. Who decides the practicality and how? Is that term used in any other code? The new section specifies "the most restrictive" shall govern, matching the language of Section 102.1 of the IBC. The term "most restrictive" is easier to enforce than "most practical requirement".

## Part 2 – Administration and Enforcement.

--The existing Sections 103 to 109 are retained as in the new A103 to A109. A few editorial changes improve readability.

**Section A200, definitions**, are mentioned below where they apply. Most IgCC terms are not used in the Alternative IgCC or are covered in other I-codes. An overlay code requires that the main I-codes have been adopted, so definitions in other I-codes do not need to be repeated.

The **existing Chapter 3** (jurisdictional requirements, building lifecycle analysis) is not included in the Alternative IgCC. The variety of combinations of jurisdictional requirements encourages differences between jurisdictions, moving away from the I-code principal of "one code".

- Existing Table 302.1 is removed. Reasons for not including parts of the table, in order of the items in the existing table:
- Residential items are out of scope. The Alternative IgCC is commercial only. Also, the existing requirements are confusing and spread over two chapters in the IgCC.
- Zoning requirements are not helpful. The first six options under "Chapter 4" in the existing table are zoning-related, usually handled by a different department, will often conflict with the jurisdiction's existing zoning regulations, and are often set by state or Federal law.
- High occupancy vehicle parking is unenforceable. Will there be parking lot police to check incoming vehicles, funded by the building department?
- Parking for "Low-emission, hybrid and electric vehicle" is out of date or undefined. The definition says "EPA Tier 2, California LEV-II, or a minimum of EPA LEV standards". EPA Tier II and California LEV-II have been requirements since 2010. If the IgCC targeted the next levels, it should have referenced EPA and California Tier III, which will also probably be required in the near future. "EPA LEV standards" does not describe a specific standard, nor is such a standard in the IgCC references.
- (See "Implementation Schedule" at <http://www.epa.gov/otaq/standards/light-duty/tier2stds.htm> and <http://www.arb.ca.gov/msprog/levprog/levii/factsht.pdf>. Also <http://www.epa.gov/otaq/documents/tier3/420f13018a.pdf>).
- zEPI is not the calculation used by the IECC or ASHRAE 189.1 and is inappropriate for an overlay code. Any IgCC energy calculations should be based on the IECC energy calculation.
- Post construction IAQ and acoustical requirements are excessive and are well beyond what jurisdictions can or will enforce.
- Existing buildings section/requirement is too complicated. We need to get a code that works for new buildings before taking on existing buildings.
- Anything post occupancy is removed. It is beyond the scope of the code. If post occupancy requirements are adopted, they should use a separate document.
- Whole Building Life Cycle Assessment (LCS) is removed (existing section 303). It is complex, vaguely defined, and lacks a minimum or base case. The LCA requires a complex report, but has nothing to compare the report to, no "baseline". How is the code user going to demonstrate that the project has a "20% improvement in environmental performance" without a minimum or base case? The LCA referenced standard, ISO 14044 states in its Section 1 (Scope) "This International Standard is not intended for contractual or regulatory purposes or registration and certification." Section 303 is mentioned only once in the IgCC, as an alternative in 505.1.

## Section A300 - Site Development And Land Use (was Chapter 4)

The Alternative IgCC simplifies most site and land development requirements, and makes them more enforceable. Zoning is not included. Inventories and plans in the Alternative IgCC are eliminated in favor of just stating the requirement(s).

As contrasted to the existing IgCC:

- Zoning is not in the Alternative IgCC (eliminated most of existing 402.2 through 402.8). Most jurisdictions already have their own zoning requirements. Zoning is not usually handled by the departments that would enforce a green code.
- Stormwater management is simplified, but retains many of the existing requirements (new A302.6, existing 403). Storm water management is a key aspect of green site design, limits construction damage, and potentially enhances the environmental quality of the site. Existing rules on storm water run off to adjacent lots are retained (new A302.6.3, existing 403.1.2).
- Management of soil and vegetation simplifies 3 pages of IgCC (existing 405) into new A302.2 to A302.4.
- Practical rules for protection of soil, vegetation, and reuse of soil are proposed (new A302.2, A302.3 and A302.4), replacing three pages of IgCC requirements on the same subjects in Section 405.

- The list of "invasive plant species" and "preferred plant species" is to be provided by the jurisdiction (new A302.7, existing 202, 401.2, 405.2.2, 408.3.2). The existing definitions are not clear enough to define specific plants. The list of preferred plants will usually be more inclusive than just "native" and will likely include plants that are not "native" but are well adapted to the climate. Preferred plants need to be more than just native plants; for example, plants that have adapted well and grasses that don't require extensive watering. A new definition of "preferred plant species" is given.
- Landscape irrigation and outdoor fountains are not included in the Alternative IgCC (existing 404). Some of this topic is now in the IPC. The existing requirement in the IgCC is also overly complicated; for example, requiring calculation of a "mid summer baseline (existing 404.1.2).
- Building waste management is simplified (new A303, existing 406). There is no percentage calculation, but exceptions for jurisdictional, state, or Federal regulations; or those deemed impractical by the code official.
- Shading hardscape is complex and not specific to cooling climates (existing 408.2.1, 408.2.2, 408.2.3) where it is beneficial.
- Cool roofs are now in the IECC and are not in the Alternative IgCC (existing 408.3). Heat island mitigation (existing Section 404) is best handled in the IECC, where cool roof requirements reside.
- Pervious and permeable pavement is retained (new A302.5, existing 408.2.4)
- Bicycle parking requirements are simplified (new A303, existing 407.2, 407.3)  
This removes the distinction between long-term and short-term parking, as the bike parking equipment will be the same. The number of required spaces is based on occupant load, as defined in the IBC, rather than the existing table (existing Table 407.3). The cost of showers and changing facilities required in the existing IgCC is excessive and is removed (existing 407.2).
- Parking for High Occupancy Vehicles is not enforceable (existing 407.4.1).
- Parking for "Low-emission, hybrid and electric vehicle" is out of date or undefined.
- High Occupancy Vehicle parking is not enforceable (existing 407.4.1).
- Parking for "Low-emission, hybrid and electric vehicle" is out of date or undefined (existing 407.4.1, 407.4.2). See discussion above under Chapter 3.
- Light pollution control doesn't belong in IgCC (existing 409.1). Examples of inappropriate content includes uplighting, backlighting, and lighting in national parks.

#### **Section A400 - Material Resource Conservation and Efficiency (was Chapter 5).**

The Alternative IgCC has two main material elements, limiting construction waste and providing information on the impacts of products used in the building.

- Waste management and recycling is somewhat simpler, but retains most content (new A402, existing 503). A plan is specified with simpler code language. Hazardous waste should count as waste. Hazardous waste is counted as waste rather than being exempted by the existing IgCC (existing 503, first sentence). Off-site sorting is specifically recognized, as is often a cost-effective option to manage construction waste. The existing IgCC does not preclude it, but doesn't specifically recognize it.
- Waste not exceeding 3 lb/ft<sup>2</sup> of floor area is a new option (new A402.1 item #1). This option is lower than the average building, but within the range of what is currently seen in the field. The overall goal is to limit waste to a low level. Good design can eliminate much of the waste without having to divert it.
- Reference to IFC's combustible waste material requirements is added (new A402.2).
- Requirements for post occupancy recycling storage are vague or unenforceable (existing 504). Storage areas for "recycled materials", post occupancy, lack specific enforceable requirements. In other words, would any storage do, regardless of size or composition? Should one find a bin or shelf and hang a sign that says "put recyclables here"?
- Provision for used materials is kept but redundant section is removed (new A105.2.1, existing 105.2.1, 505.2.1). Existing section 505.2.1 roughly duplicates existing 105.2.1.
- Single attribute materials characteristic requirements are eliminated (existing section 505) The requirement to meet one of the product attributes is unnecessary, as the attributes are so common that buildings usually comply without any change, making this section "busy work". The single-attribute requirements are: used, recycled, recyclable, bio-based, and/or indigenous. For example, consider concrete and steel, two common heavy materials. Steel averaged 88% recycled content in 2012 (<http://www.recycle-steel.org/Recycling%20Resources/~media/Files/SRI/Releases/003%20Steel%20Recycling%20Rates%20Graphs.pdf>). Common steel products, such as rebar, include more than 95% recycled content. Concrete is typically 60% to 75% aggregate. (<http://www.cement.org/cement-concrete-basics/how-concrete-is-made>) The concrete aggregate, stone and sand, will always be local, certainly well within the 500 mile radius allowed for "indigenous" materials. Many buildings would get to 55% by weight based on the use of steel and concrete alone.
- Replaced single-attribute options with a requirement for statements on the environmental impacts of products in the building (new A402).  
Environmental Product Declarations (EPDs) are emerging as a way to compare the environmental performance of competing products, including a product's impact from its manufacture to ultimate disposal. EPDs encourage manufacturers to reduce their environmental impacts by making it more likely that product buyers will compare competing products based on a broad set of environmental attributes.  
Enforcing the new section is simple for the building official. No calculations are required. If there are 10 EPDs for products in the building, the criteria would be met.
- Redundant section on used materials is eliminated. (existing 505.2.1 roughly duplicates existing 105.2.1, new section is A105.2.1.)
- Lamp section is not included (existing 506). Some IgCC requirements are exceeded by industry voluntary standards <http://www.nema.org/Policy/Environmental-Stewardship/Lamps/Pages/CFL-Mercury.aspx> Because industry does not mark mercury content of lamps, this is also hard to enforce.
- Moisture sections are not included in the Alternative IgCC (existing 507 and 502.1.2). The existing sections are not specific enough to enforce this. Moisture is covered better elsewhere in the I-codes.

#### **Section A500 – Energy (was Chapter 6)**

The Alternative IgCC is simply a reference to the IECC. Enforceability of the existing IgCC energy chapter is the largest complaint for those looking at the IgCC. Many code officials and builders want to just use the IECC. Few could read

through the chapter and understand it. Even catching up with all the accumulated changes in the 2015 IECC will be a challenge to some.

--The main calculations in the energy chapter, the zEPI and CO2 emission calculations, are not the same as the IECC or ASHRAE 90.1 (existing 602). This is not an overlay to the IECC. The IECC and ASHRAE 90.1 compare options based on energy cost, but the IgCC does not. The IgCC energy chapter does not have the same scope as the IECC. The IGCC says "The annual energy use shall include all energy used for building functions and its anticipated occupancy" (existing 602.1.2) which includes energy use outside the scope of the IECC. The zEPI is not defined in a usable way, as the zEPI definition says the zEPI is compared to the "average energy performance of buildings relative to a benchmark year".

Average of which buildings? Why not compare it to the IECC requirements for the building under consideration? For what benchmark year?

--IgCC calculations are not even in the same units as the IECC or ASHRAE 90.1. The IECC energy calculation is based on limiting energy costs, a concept close to the heart of building owners and operators. Likewise, ASHRAE 90.1 and ASHRAE 189.1 are also based on energy costs. None of the calculations in the IgCC are based on energy costs.

--If jurisdictions want energy savings beyond the IECC, then that level of efficiency should be based on the existing calculation in the IECC. For example, require an additional 5% in energy savings beyond the IECC based on the calculation and scope of the existing IECC. This would take only one sentence and would be understandable by all.

--Many parts of the IGCC energy chapter are already in the IECC. For example, much of the building envelope (existing 605), building mechanical (existing 606), water heating (existing 607) and commissioning (existing 611) sections are in the IECC.

### **Section 600 – Water** (was Chapter 7)

Large parts of IgCC's water-related requirements were moved into the IPC this code cycle as part of the Group A changes and therefore do not appear in the Alternative IGCC (existing 706 through 710). These included requirements for graywater, reclaimed water, rainwater and other onsite nonpotable. Those same requirements will likely be removed from Chapter 7 in the IGCC as well.

Comparing the Alternative IgCC to the existing IgCC:

--Fitting and fixture maximum flow rates and flush volumes are retained (new A602.1, existing 702.1). Table footnotes were rewritten to be more understandable. The showerhead compensating value requirement was moved from a footnote to part of the code body (new A602.1.1, existing Table 702.1 footnote "a"). Flow rate exceptions were added for fixtures where the purpose is safety or filling operations (new A602.1).

--Text for showers with multiple water outlets was simplified to be more readable and given its own section (new A602.2, existing 702.1 items #1, #2, #3).

--Some sections were unchanged: combination tube and shower valves (new A602.3, existing 702.2); non-water urinal connection (new A602.4, existing 702.5); dipper wells (new A602.6.3.1, existing 702.12); food service hand washing faucets (new A602.6.3.4, existing 702.11.)

--References to Energy Star, a non-consensus standard, were replaced with specific technical requirements (new A602.6.2, existing 702.6.1)

--Options were added for the food waste disposers (new A602.6.3.2, existing 702.16). This added compost, trash, pulper, or mechanical strainer options.

--Efficient hot and tempered water distribution now exists in the IECC and was removed (existing 702.8).

--Trap primer requirements were simplified (new A602.5, existing 702.9). A requirement for a trap primer filter was added for non-potable water.

--Some of the more complicated items were not included in the Alternative IgCC (cooling towers, condensate related requirements, vehicle wash facilities, some equipment in the existing 702 and 703 (xxx), water powered pumps (existing 702.10), exhaust scrubbers (existing 703.8) evaporative cooling (existing 703.9), water treatment devices (existing 704), and water sub metering (existing 705).

### **Section 700 – Indoor Environmental Quality** (existing Chapter 8)

The Alternative IgCC includes requirements for air movement systems and combustion devices.

--Ducts are to be protected and cleaned prior to occupancy (new A702.2). This is similar to the IgCC (existing 803.1.1).

--Adds a requirement that air handlers be sealed (new 702.3) which is the same requirement as in the residential IECC (2012 IECC section R403.2.2.1). This provides a specification for the existing commercial IECC requirement that air handlers be sealed (2012 IECC section C403.2.7). The referenced ASHRAE standard for air handler air tightness is in common use in the industry for air handlers less than 3000 cfm.

--Retains the requirement that parts of the air moving system be provided with access for cleaning, repair and replacement (new 702.4, existing 802.2).

--Retains the requirement for a high quality air filter (new A702.5, existing 803.5).

--Retains the same requirements for fireplace and appliance venting and combustion air (new 703.1, existing 804.1). The only change is the elimination of the non-consensus EPA woodstove standard (existing 804.1.2).

--Alternative IgCC does not include the extensive VOC requirements (existing 806), energy wasting construction phase air quality requirements (803.1.2, 803.1.3), or acoustics requirements (existing 807).

--Daylighting requirements reside in the IECC (existing 808). Duplication in the Alternative IGCC would be confusing.

**Existing Chapters 9, 10 and 11 (commissioning, existing buildings, existing sites)** are not included in the Alternative IGCC.

--Commissioning. Much of the commissioning for energy is now in the IECC. Post occupancy commissioning elements are outside the scope of the IgCC. Many of the commissioning requirements deal with topics that are not in the Alternative IgCC. Enforcement of other I-codes will effectively provide some of the commissioning elements in the existing Chapter 9.

--Existing buildings and existing sites are not included in the Alternative IgCC (existing Chapters 10 and 11). The IgCC needs to get new buildings working prior to adding existing buildings or existing sites.

**Please help us create a usable Alternative IgCC within the IgCC.**

**Cost Impact:** Will not increase the cost of construction.

**Analysis:** This code change proposal addresses the scope and application of the International Green Construction Code. Therefore, the final action taken on this code change proposal will be limited to an advisory recommendation to the ICC Board of Directors who will determine the final disposition of this code change proposal in accordance with Section 1.3 of CP28, which stipulates that the ICC Board of Directors determines the scope of the I-Codes.

**GG 320-14: APPENDIX A (NEW)-CONNER1196**

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