City of Scottsdale 2015 International Green Construction Code (IgCC)

Building Plan Review Checklist

rev. 6-30-20

Use this checklist for tracking compliance requirements with Scottsdale's amended International Green Construction Code (IgCC). Online resources are available including amendments and helpful worksheets for Heat Island Mitigation (Sec. 408) and Material Properties (Sec. 505) at <u>https://www.scottsdaleaz.gov/green-building-program/green-codes</u> The full text of the unamended IgCC code book is available for viewing and/or purchase at <u>https://codes.iccsafe.org/public/document/IgCC2015</u>

Project Name:	Date:	Plan Review #

Chapter 4 – Site Development and Land Use		Verification	
\checkmark	Section 404: Landscape Irrigation	Plan Review	Inspections
	404.1.1 Water for outdoor landscape irrigation. Where provided, o utdoor landscape irrigation systems shall be designed and installed to <u>reduce potable water use by 50 percent</u> from a calculated mid-summer baseline in accordance with Section 404.1.2 or the system shall be supplied with alternate onsite nonpotable water complying with Chapter 7 of the IgCC. <u>Exceptions</u> : Potable water is permitted to be used as follows: 1) During the establishment phase of newly planted landscaping; 2) To irrigate food production; 3) To supplement nonpotable water irrigation of shade trees for heat island mitigation; 4) When approved in the development review and planning process.	City Review (landscape plans and specs)	Commissioning/ compliance certificate
	 404.1.2 Irrigation system design and installation. Where in-ground irrigation systems are provided, the systems shall comply with all of the following: The design and installation of outdoor irrigation systems shall be under the supervision of an irrigation professional accredited or certified by an appropriate local or national body. Landscape irrigation systems shall not direct water onto building exterior surfaces, foundations, exterior paved surfaces or adjoining lots. Systems shall not generate runoff. The irrigation control system shall be one that regulates irrigation based on weather, climatological or soil moisture status data. The controller shall have integrated or separate sensors to suspend irrigation events during rainfall. Irrigation zones shall be based on plant water needs with plants of similar need grouped together. Turfgrass shall not be grouped with other plantings on the same zone. 	City Review (landscape plans and specs)	Commissioning/ compliance certificate



	is not greater than 40 psi, filters, and flush end assemblies.		
	Section 407: Transportation Impact		
	407.2 Changing and shower facilities. Buildings with a total building <u>floor area greater than</u> <u>10,000 sq. ft.</u> and that are required to be provided with bicycle parking and storage in accordance with the <u>city Zoning Ordinance and city design standards</u> for bicycle parking and storage facilities shall be provided with on-site changing room and shower facilities. Not less than <u>one shower shall be provided for each 20 long-term bicycle parking spaces</u> , or fraction thereof, that are required by city ordinance. Where more than one changing room and shower facility is required, separate facilities shall be provided for each sex.	City Review (building)	City Inspection
	 407.4 Preferred vehicle parking. 407.4.2 Low-emission, hybrid, and electric vehicle parking. Where parking is provided for a building that has a total building floor area greater than 10,000 sq. ft. and that has a building occupant load greater than 100, at least 5 percent, but not less than two, of the parking spaces provided shall be designated as preferred parking for low emission, hybrid, or <u>dedicated electric vehicle charging stations</u>. Preferred parking spaces shall be those in the parking facility that are located on the shortest route of travel from the parking facility to a building entrance, but shall not take precedence over parking spaces that are required to be accessible. 	City Review (planning and building)	Commissioning/ compliance certificate
\checkmark	Section 408: Heat Island Mitigation		
	408.2 Site Hardscape. Not less than <u>50 percent of site hardscape</u> shall be provided with one or any combination of the following options: 1) hardscape materials with an initial solar reflectance value of not less than 0.30; 2) shading structures; 3) shading by trees; 4) pervious paving, open-grid pavers, and/or open-graded aggregate (stabilized decomposed granite).	City Review (planning and building)	City Inspection
	408.3 Roof coverings. Not less than <u>75 percent of roof surfaces</u> of buildings and covered parking shall be provided with one or any combination of the following options: 1) roof surfaces with minimum solar reflectance/thermal emittance or SRI value per IgCC Table 408.3.1; and/or 2) installation of a vegetative roof per IgCC 408.3.2.	City Review (planning and building)	Commissioning/ compliance certificate
Chap	ter 5 – Material Resource Conservation and Efficiency		
	Section 503: Construction Waste Management	Plan Review	Inspections
	 503.1 Construction material and waste management plan. Not less than 35 percent of non-hazardous construction waste shall be diverted from landfills. A construction material and waste management plan shall be developed and implemented to recycle or salvage construction materials and waste. The Construction Material and Waste Management Plan shall comply with all of the following: The location for collection, separation and storage of recyclable construction waste shall be indicated. 	City Review (building plan notes and specs)	Commissioning/ compliance certificate

 Materials to be diverted from disposal by efficient usage, recycling, reuse, manufacturer's reclamation, or salvage for future use, donation or sale shall be specified. The percentage of materials to be diverted shall be specified and shall be calculated by weight or volume, but not both. Receipts or other documentation related to diversion shall be maintained through the course of construction. Where requested by the <i>code official</i>, evidence of diversion shall be provided. For the purposes of this section, construction materials and waste shall include, but are not limited to (1) all materials delivered to the site and intended for installation prior to the issuance of the certificate of occupancy, including related packaging and (2) construction materials and waste removal during demolition or razing. Construction and waste materials shall not include land-clearing debris, excavated soils and fill and base materials. 		
 Section 504: Waste Management and Recycling		
504.1 Recycling areas for waste generated post certificate of occupancy. Waste recycling areas for use by building occupants shall be designed and constructed to recycle materials, meet the needs of the occupancy, facilitate efficient pick-up, and be available to occupants and haulers. In multi-family projects, provide not less than two 7-gallon minimum pull-out bins for recycling and trash as part of <u>kitchen base cabinets</u> . Also, provide built-in or pull-out recycling containers in <u>mailrooms, breakrooms and common kitchen/kitchenette areas</u> . Allocate common area locations for collection and storage of materials via <u>trash/recycling chutes</u> , trash/recycling rooms and site refuse/recycling pick up.	City Review (building)	Commissioning/ compliance certificate
 Section 505: Material Selection and Properties		
505.1 Material selection and properties . Building materials shall conform to section <u>505.2</u> , <u>505.3 or 505.4</u> .		
 Option1 505.2 Material selection. Not less than 55 percent of the total building materials (not including electrical, mechanical, plumbing, security, fire protection and elevator equipment) used in the project, based on mass, volume or cost, shall comply with Sections 505.2.1, 505.2.2, 505.2.3, 505.2.4 or 505.2.5. Where a material complies with more than one section, the material value shall be multiplied by the number of sections that it complies with. The value of total building material mass, volume or cost shall remain constant regardless of whether materials are tabulated in more than one section. 505.2.1 Used materials and components. 505.2.2 Recycled content building materials. Recycled content building materials shall comply with one of the following: Contain not less than 25 percent combined post-consumer and pre-consumer recovered material, and shall comply with Section 505.2.3. 	City Review (building)	Commissioning/ compliance certificate

2. Contain not less than 50 percent combined post-consumer and pre-consumer recovered		
material.		
505.2.3 Recyclable building materials and components. Recyclable building materials and building components shall comply with one of the following:		
1. Building materials or components that can be recycled into the same material or another		
material with a minimum recovery rate of not less than 30 percent through recycling and		
reprocessing or reuse, or		
Building materials that are recyclable through an established closed loop manufacturer's take-back program.		
505.2.4 Bio-based materials. Bio-based materials shall be those materials that comply with		
one or more of the following:		
1. The bio-based content is not less than 75 percent.		
Wood and wood products used to comply with this section, other than salvaged or reused wood products, shall be labeled in accordance with Sustainable Forest Initiative (SFI),		
Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification		
(PEFC) Council or equivalent fiber procurement system.		
3. The requirements of USDA 7CFR Part 2902.		
505.2.5 Local/regional materials. Materials or components shall be composed of resources that are <u>recovered</u> , <u>harvested</u> , <u>extracted</u> or <u>manufactured</u> within a 500 mile radius of the building		
site. Where only a portion of a material or product is recovered, harvested, extracted and		
manufactured within 500 miles, only that portion shall be included.		
Option 2		Commissioning/
505.3 Whole building life cycle assessment. Life cycle assessment shall conform to the	City Review	compliance
requirements of ASTM E2921. The requirements for the execution of a whole building life cycle assessment shall comply with specified requirements in the IgCC.	(building)	certificate
Option 3		
505.4 Multi-attribute material declaration and certification. Not less than 55 percent of the		
total building materials used in the project, based on mass, volume or cost, shall comply with		
Section 505.4.1 or 505.4.2. Where a material complies with both Sections 505.4.1 and 505.4.2		
the material value shall be multiplied by two. 505.4.1 Environmental Product Declaration. A building material with a Type III		
environmental product declaration that is verified by a program operator. The environmental	City Review	Commissioning/
product declaration shall comply with the provisions of ISO 14025 and ISO 21930.	(building)	compliance certificate
505.4.2 Multi-attribute Standard. A material specific assessment that is verified by an		
approved agency shall be submitted for each product. The assessment shall be verified as meeting the minimum performance level specified in each standard, which focuses on the life-		
cycle stages from development to end of life. These stages shall include material selection,		
energy and water use during development, performance, human and environmental impact,		
and end of life.		

 Section 601: General	Plan Review	Inspections
601.3 Application. Buildings and their associated building sites shall comply with Section 601.3.1, Section 601.3.2 or 602.3.3 (outcome-based).		
 601.3.1 Performance-based compliance path. Buildings designed on a performance basis shall comply with Sections C402.5, C403.2, C404, C405.2, C405.3, C405.5 and C405.6 and C405.7 of the IECC and with Sections 601.4, 602, 608, 609 and 610 of this code. Exception: Buildings that comply with the performance-based requirements of Section C401.2 (3) of the IECC and Sections 609 and 610 of this code. 	N/A	N/A
601.3.2 Prescriptive-based compliance path. Buildings designed on a prescriptive basis shall comply with Sections C402, C403, C404 and C405 of the IECC, and with the requirements of Sections 601.4, 605, 606, 607, 608, 609, and 610 of this code		
 Section 602: Performance-Based Path		
 602.1 Performance-based compliance. Compliance for buildings and their sites to be designed on a performance basis shall be determined by predictive modeling of both energy performance and CO₂e emissions. Predictive modeling shall use <u>source energy kBtu unit</u> measure based on compliance with Section 602.2. Predictive CO₂e emissions_modeling shall be in accordance with Section 602.3. 602.2 Energy performance modeling. Performance-based designs shall demonstrate a <u>zEPI of not more than 50</u> as determined in accordance with Equation 6-1. See IgCC for equation. 602.3 CO₂e emissions modeling. The CO₂e emissions for the proposed and baseline building and building site shall be based on the proposed and baseline building performance calculated in accordance with Sections 602.3.1 and 602.3.2. The emissions associated with the proposed design shall be less than the CO₂e emissions associated with the standard reference design in accordance with Equation 6-2. See IgCC for equation. 	City Review (building/ energy) Perform prelim. energy analysis at time of DR submittal	N/A
 Section 603: Energy Metering (Mandatory for Performance and Prescriptive Paths)		
603.2 Energy distribution design requirements and load type isolation in buildings. Energy distribution systems within, on or adjacent to and serving a building shall be designed such that each primary circuit, panel, feeder, piping system or supply mechanism supplies only one energy use category as specified in Table 603.2. The <u>energy use category served by each distribution system shall be clearly designated on the energy distribution system with the use category served</u> , and adequate space shall be provided for installation of metering equipment or other data collection devices, temporary or permanent, to measure their energy use. The energy distribution system shall be designed to facilitate the collection of data for each of the building energy types in Section 603.3 and for each of the energy use categories specified in Table 603.2. See IgCC for Table 603.2 and further details.	City Review (MPE)	Commissioning compliance certificate

\checkmark	Section 605: Building Envelope Systems (Prescriptive Path)		
	 605.1 Prescriptive compliance. Where buildings are designed using the prescriptive-based compliance path, building thermal envelope systems shall comply with the provisions of Section C402 of the <i>International Energy Conservation Code</i> and the provisions of this section. 605.1.1 Insulation and fenestration criteria. The building thermal envelope shall exceed the requirements of Tables C402.1.4 and C402.4 of the IECC by not less than 5 percent. For purposes of compliance with this code, each U-factor, C-factor, F-factor and SHGC in the specified tables shall be reduced by 5 percent to determine the prescriptive criteria. 605.1.1.1 Shading devices for fenestration. Vertical fenestration within 135 degrees of the nearest south cardinal ordinate in buildings located in the northern hemisphere shall be shaded by one or a combination of the following methods: 1. Permanent horizontal exterior projections with a projection factor greater than or equal to 0.25. Where different windows and glass doors. Horizontal projections shall be calculated and used for all windows and glass doors. Horizontal projections shall extend laterally beyond the edge of the glazing not less than one-half of the height of the glazing, except at building corners. 2. Automatically controlled shading devices capable of modulating in multiple steps the amount of solar gain and light transmitted into the space in response to daylight levels or solar intensity, that comply with all of the following: 2.1. Exterior shading devices in the closed position shall cover not less than 90 percent of the fenestration. 2.2. Interior shading devices in the closed position shall cover not less than 90 percent of the fenestration. 2.3. A manual override, where provided, shall override operation of automatic controls no longer than 4 hours. 	City Review (building/ energy)	Commissioning/ compliance certificate
\checkmark	Section 606: Building Mechanical Systems (Prescriptive Path)		
	606.1 Prescriptive compliance. Where buildings are designed using the prescriptive-based compliance path, building mechanical systems shall comply with the provisions of the IECC and the provisions of this section (see IECC and IgCC for details).	City Review (MPE)	Commissioning/ compliance certificate
\checkmark	Section 607: Building Service Water Heating Systems (Prescriptive Path)		
	607.1 Prescriptive compliance. Where buildings are designed using the prescriptive-based compliance path, service water heating systems shall comply with the provisions of the IECC and the provisions of this section (see IECC and IgCC for details).	City Review (MPE)	Commissioning/ compliance certificate
	Section 608: Building Electrical Power and Lighting Systems (Prescriptive Path)		

	608.1 General. Where buildings are designed using the prescriptive-based compliance path, building electrical power and lighting systems shall comply with the IECC and the provisions of this section (see IECC and IgCC for details).	City Review (MPE)	Commissioning/ compliance certificate
\checkmark	Section 609: Specific Appliances and Equipment (<u>Mandatory for Performance and</u> <u>Prescriptive Paths</u>)		
	609.2 Permanent appliances and equipment. Equipment that is permanently connected to the building energy supply systems (<u>elevators, escalators, moving walkways, commercial food</u> <u>service equipment</u>) shall comply with the IECC and the provisions of this IgCC section.	City Review (MPE)	Commissioning/ compliance certificate
\checkmark	Section 610: Building Renewable Energy Systems (<u>Mandatory for Performance and</u> <u>Prescriptive Paths</u>))		
	 610.1 Renewable energy systems requirements. Each building or its associated building site shall be equipped with any combination of onsite renewable energy systems in accordance with one of the following: Provide not less than 0.50 watts per square foot of conditioned floor area of the building. Provide not less than 3 percent of the total estimated annual electric energy consumption for the building mechanical, service water heating and lighting as regulated in Chapter 4 of the International Energy Conservation Code. For multifamily projects (R-2), provide not less than 10 percent of the total estimated annual electric energy consumption of the common area mechanical, service water heating and lighting as regulated in Chapter 4 of annual electric energy consumption of the common area mechanical, service water heating and lighting as regulated in Chapter 4 of the laternational as regulated in Chapter 4 of the IECC. 	City Review (MPE)	Commissioning/ compliance certificate
Chap	oter 7 – Water Resource Conservation and Efficiency		
\checkmark	Section 701: General		
	 701.2 Water usage metering required. Water consumed from any source associated with the building or building site shall be metered. Each potable and reclaimed source of water, and each onsite nonpotable water source, shall be metered separately. Each meter identified in IgCC Table 701.2.1 shall be capable of communicating water consumption data remotely and at a minimum, be capable of providing daily data with electronic data storage and reporting capability that can produce reports that show daily, monthly, and annual water consumption. 701.2.1 Individual metering required. All potable and nonpotable water supplied to the applications listed in IgCC Table 701.2.1 shall be individually metered. Similar appliances and equipment shall be permitted to be grouped & supplied from piping connected to a single meter. 	City Review (MPE)	Commissioning/ compliance certificate
	Section 702: Fixtures, Fittings, Equipment and Appliances	Plan Review	Inspections
	702.1 thru 702.19 <u>Fixtures, fittings, hot water distribution, appliances, and equipment</u> shall meet the <u>requirements</u> specified in the respective sections of the IgCC.	City Review (MPE)	Commissioning/ compliance certificate

	Section 703: HVAC Systems and Equipment		
	703.1 thru 703.9 <u>HVAC systems and equipment shall meet the requirements</u> specified in the specified in the respective sections of the IgCC.	City Review (MPE)	Commissioning/ compliance certificate
\checkmark	Section 704: Water Treatment Devices and Equipment		
	 704.1 Water softeners. 704.1.1 Demand initiated regeneration. Where provided, water softeners shall be equipped with demand-initiated regeneration control systems. Such control systems shall automatically initiate the regeneration cycle after determining the depletion, or impending depletion of softening capacity. 704.1.2 Water consumption. Water softeners shall have a maximum water consumption during regeneration of 4 gallons per 1000 grains of hardness removed as measured in accordance with NSF 44. 704.1.3 Waste connections. Waste water from water softeners regeneration shall not discharge to reclaimed water collection systems and shall discharge in accordance with the <i>International Plumbing Code</i>. 704.1.4 Efficiency and listing. Based on pipe service size, the water softener shall have a rated salt efficiency of not less than 4,000 or 3,500 grains of total hardness exchange per pound of salt based on sodium chloride equivalency and shall be listed and labeled in accordance with NSF 44 (see IgCC for details). 	City Review (MPE)	Commissioning/ compliance certificate
	704.2 Reverse osmosis water treatment systems. Where provided, point-of use reverse osmosis treatment systems shall be listed and labeled in accordance with NSF 58. Point-of-use reverse osmosis systems shall be equipped with an automatic shutoff valve that prevents the production of reject water when there is no demand for treated water.	City Review (MPE)	Commissioning/ compliance certificate
Chap	ter 8 – Indoor Environmental Quality and Comfort		
\checkmark	Section 802: Building Construction, Operations and Maintenance Facilitation	Plan Review	Inspections
	802.2 Air-handling system access. The arrangement and location of air-handling system components including, but not limited to, ducts, air handler units, fans, coils and condensate pans, shall allow access for cleaning and repair of the air-handling surfaces of such components. Access ports shall be installed in the air-handling system to permit such cleaning and repairs. Piping, conduits, and other building components shall not be located so as to obstruct the required access ports.	City Review (MPE	Commissioning/ compliance certificate
	802.3 Air handling filtration and bypass pathways . Air handling equipment and HVAC equipment shall be designed and installed to limit the amount of airflow that bypasses the air filters.	City Review (MPE)	Commissioning/ compliance certificate

\checkmark	Section 803: HVAC Systems		
	803.1 Construction phase requirements. The ventilation of buildings during the construction phase shall be in accordance with Sections 803.1.1 through 803.1.3 of the IgCC.	City Review (building plan notes & specs)	Commissioning/ compliance certificate
	 803.2 Thermal environmental conditions for human occupancy. Buildings shall be designed in compliance with ASHRAE 55, Section 6.1 "Design," 6.2, "Documentation," and ASHRAE 62.1. Intermittently operated exhaust fans in bathrooms, toilet rooms and shower rooms shall be provided with a delay-timer switch that operates the fan for at least 20 minutes after manual activation. In lieu of a delay-timer switch, a humidity/condensation control sensor may be used to automatically activate/deactivate fans in shower rooms and bathrooms with a shower or bathtub. In multi-family projects, ensure every enclosed habitable room with a door (excluding bathrooms, kitchens, closets, pantries, and laundry rooms) have a return air path through the use of return air inlets, transfer grills and/or jumper ducts unless room to room pressure differences are measured to be 3.0 Pascals or less. 	City Review (MPE)	Commissioning/ compliance certificate
	803.3 Isolation of pollutant sources. 803.3.1 Print, copy and janitorial rooms and garages. Enclosed rooms or spaces that are greater than 100 square feet in area and that are used as a print or copy facility containing five or more printers, copy machines, scanners, facsimile machines or similar machines in any combination, and rooms used primarily as janitorial rooms or closets where the use or storage of chemicals occurs, shall comply with requirements specified in the IgCC.	City Review (MPE)	Commissioning/ compliance certificate
	803.4 Filters. Filters for air conditioning systems shall be rated at <u>MERV 11 or higher</u> and system equipment shall be designed to be compatible. The air handling system design shall account for pressure drop across the filter.	City Review (MPE)	Commissioning/ compliance certificate
\checkmark	Section 805: Prohibited Materials		
	 805.1 Scope. The use of the following materials shall be prohibited: 1. Asbestos-containing materials. 2. Urea-formaldehyde foam insulation. 	City Review (building plan notes & specs)	Commissioning/ compliance certificate
\checkmark	Section 806: Material Emissions and Pollutant Control		
	806.1 Emissions from composite wood products. Composite wood products used interior to the approved weather covering of the building shall comply with the emission limits in Table 806.1 of the IgCC.	City Review (building plan notes & specs)	Commissioning/ compliance certificate
	806.2 Adhesives and sealants. A minimum of <u>85 percent by weight or volume</u> , of site applied adhesives and sealants used on the interior side of the building envelope shall comply with the VOC content limits in Table 806.2(1) or alternative VOC emissions limits in Table 806.2(2) of the	City Review (building plan notes & specs)	Commissioning/ compliance certificate

	IgCC.		
	806.3 Architectural paints and coatings. A minimum of <u>85 percent by weight or volume</u> , of site-applied interior architectural coatings shall comply with VOC content limits in Table 806.3(1) or the alternate emissions limits in Table 806.3(2) of the IgCC.	City Review (building plan notes & specs)	Commissioning/ compliance certificate
	806.4 Flooring A minimum of <u>85 percent of the total area of flooring</u> installed within the interior of the building shall comply with the requirements of Table 806.4(1) without post-manufacture coatings or 806.4(2) of the IgCC.	City Review (building plan notes & specs)	Commissioning/ compliance certificate
	806.5 Acoustical ceiling tiles and wall systems. A minimum of <u>85 percent of acoustical</u> <u>ceiling tiles and wall systems</u> , by square feet, shall comply with the requirements of Table 806.5(1) without post-manufacture coatings or 806.5(2) of the IgCC.	City Review (building plan notes & specs)	Commissioning/ compliance certificate
	806.6 Insulation. A minimum of <u>85 percent of insulation</u> shall comply with the requirements of Table 806.6(1) or Table 806.6(2).	City Review (building plan notes & specs)	Commissioning/ compliance certificate
	Section 808: Daylighting		
	 808.2 Applicability. Daylighting of building spaces in accordance with Section 808.3 shall be required for buildings containing Group A-3, B, E, F, S and M occupancies. See IgCC for further details and exceptions. 808.3 Daylit area of building spaces. In buildings not greater than two stories above grade, not less than 50 percent of the net floor area shall be located within a daylit area. In buildings required to have more than 25,000 square feet of daylit area shall comply with Section 808.3.2 (performance). All other buildings shall comply with either Section 808.3.2 (performance). 	City Review (building)	Commissioning/ compliance certificate
Chap	ter 9 - Commissioning, Inspections, Operation and Maintenance		
	Section 902: Special Inspection and Commissioning		
	Section 902.3 Commissioning Plan. A commissioning plan shall be developed by a registered design professional or approved agency for all systems. See Section 902.3 for content details of the required plan. Complete Scottsdale's IgCC Building Commissioning Certificate.	City Review (building)	
	Section 902.4 Pre-Certificate of Occupancy Report. See Section 902.4 for further details.	Final Inspection Pre C of O	Commissioning/ compliance certificate
	Section 904.5 Final Commissioning Report . A final commissioning report shall be submitted to the owner or owners authorized agency within 12 months after the C of O is issued. See Sections 904.5, 902.6 (systems manual) and 902.7 (records documents) for content details.	After Final Inspection Post C of O	