City of Scottsdale
2021 International Green Construction Code (IgCC)
Building Plan Review Checklist – Commercial Building Projects
rev. 4/20/23

Use this checklist for tracking compliance requirements with Scottsdale's amended International Green Construction Code (IgCC). On-line resources are available including amendments and helpful worksheets for Heat Island Mitigation (Sec. 501.3.5) at https://www.scottsdaleaz.gov/green-building-program/green-codes The full text of the unamended IgCC code book is available for viewing and/or purchase at 2021 International Green Construction Code (IgCC) | ICC Digital Codes (iccsafe.org)

Project Name: _____ Date: _____ Plan Review # _____

CHAPTER 5 – SITE SUSTAINABILITY		Verification	
√	**501.3.5 Mitigation of Heat Island Effect**	**Plan Review**	**Inspections**
☐	**501.3.5.1 Site Hardscape.** At least 50% of the *site hardscape* of new commercial building projects shall comply with one or any combination of the following: a. Trees and vegetation planted to provide full shade no later than ten years after project completion. The effective shade coverage on the *hardscape* shall be the arithmetic mean of the shade coverage calculated at 10 a.m., noon, and 3 p.m. on the summer solstice. b. Paving materials with a minimum initial *solar reflectance index* (*SRI*) of 29. A default *SRI* value of 35 for new concrete without added color pigment is allowed to be used instead of measurements. c. *Open-graded (uniform-sized) aggregate*, *permeable pavement*, *permeable pavers*, and *porous pavers (open-grid pavers)*. *Permeable pavement* and *permeable pavers* shall have a percolation rate of not less than 2 gal/min • ft^2. d. Shading through the use of structures, provided that the top surface of the shading structure complies with the provisions of Section 501.3.5.3. e. Parking under a building, provided that the *roof* of the building complies with the provisions of Section 501.3.5.3. f. Adjacent buildings or structures that provide shade to the *site hardscape*. The effective shade coverage on the *hardscape* shall be the arithmetic mean of the shade coverage calculated at 10 a.m., noon, and 3 p.m. on the summer solstice.	Planning and Green/Energy Review	Planning and Green/Energy Inspection

<table>
<tr><td>☐</td><td>501.3.5.3 Roofs. Roof surface areas shall comply with the following:
a. Roofs with a slope less than 2:12, provide a three-year-aged SRI of at least 64.</td><td>Green/Energy Review</td><td>Green/Energy Inspection</td></tr>
<tr><td>√</td><td>501.3.7 Mitigation of Transportation Impacts</td><td></td><td></td></tr>
<tr><td>☐</td><td>501.3.7.3 Electric vehicle charging facilities. EV installed spaces and EV capable spaces shall be provided in accordance with Table 501.3.7.3. The required number of EV installed spaces or EV capable spaces shall be rounded up to the next highest whole number. Where a branch circuit serves a single charging space, it shall have a capacity not less than of 8.3 kVA (40A, 2081240V). Where a branch circuit serves multiple charging spaces, an Automatic Load Management System (ALMS) may be used to reduce the total electrical capacity provided that all charging spaces are capable of simultaneously charging at a minimum rate of 4.1 kV A (20A, 2081240V).
For EV capable spaces, the electrical service panel shall have reserved circuit breaker space(s) labeled "Future EV Charging". Raceway(s) shall be installed from the electrical service panel to outlet box(es) within the planned EV charging parking area(s). Outlet box(es) shall be labeled "Future EV charging".
Table 501.3.7.3
ELECTRIC VEHICLE CHARGING INFRASTRUCTURE REQUIREMENTS
<table>
<tr><th>Occupancy Group</th><th>Minimum number of EV Installed Spaces[a]</th><th>Minimum number of EV Capable Spaces[a]</th></tr>
<tr><td>Group R-1 (hotels, motels) and Group R-2 (apartments, condominiums)</td><td>4% of total required parking spaces</td><td>20% of total required parking spaces</td></tr>
<tr><td>Group A, B, E, F, I, M, and S</td><td>4% of total required parking spaces or not less than 8% of designated employee only parking spaces</td><td>10% of total required parking spaces</td></tr>
</table>
[a] Parking spaces designated for other than passenger vehicles may be excluded from the number of parking spaces used to calculate the minimum number of EV spaces.</td><td>Green/Energy Review</td><td>Green/Energy Inspection</td></tr>
<tr><td colspan="4">CHAPTER 6 – WATER EFFICIENCY</td></tr>
<tr><td>√</td><td>601.3.1 Site Water Use Reduction</td><td>Plan Review</td><td>Inspections</td></tr>
<tr><td>☐</td><td>601.3.1.1 Landscape Design. Landscape design shall comply with the Scottsdale Revised Code, Appendix B, Article X.</td><td>Planning Review</td><td>Planning Inspection</td></tr>
</table>

☐	**601.3.1.2.1 Irrigation system design.** The design of the irrigation system shall be performed by an accredited or certified irrigation professional and shall be in accordance with the following: a. Irrigation systems: 1. Shall be based on *hydrozones*. *Turfgrass* areas shall be on their own *irrigation stations*. Trees in turfgrass shall have a separate drip irrigation zone. 2. Shall have backflow prevention in accordance with the city plumbing code (IPC) 3. Shall have a master valve on municipally supplied water sources that allows pressurization of the irrigation mainline only when irrigation is scheduled. The master valve shall be installed immediately downstream of the back flow prevention device. 4. Shall have an isolation valve installed immediately upstream of each irrigation control valve. b. Irrigation turfgrass sprinklers: 1. Shall not spray water directly on buildings or *hardscape* area. 2. Shall be prohibited on landscape areas having any dimension less than 8 ft. 3. Shall be limited to use with *turfgrass*. 4. Sprinkler heads including rotors, heads with rotating and fixed spray nozzles shall contain pressure regulating sprinkler bodies. c. Landscape emitters: 1. The drip irrigation control valve shall be equipped with a pressure regulator and a cleanable wye strainer filter. 2. At the end of each lateral, a flush cap shall be installed in a six (6) inch round pit box. 3. Drip emitters shall be of pressure compensating type.	Scottsdale Water and Green Review	Scottsdale Water and Compliance Certificate
☐	**601.3.1.2.2 Irrigation Controllers.** All irrigation systems shall use a weather based smart irrigation controller that is WaterSense labeled or equivalent and capable of frequency adjustment and day exclusion. **601.3.1.2.2.1.** The following settings and schedule for the irrigation control system shall be documented on the Compliance Certificate a. Precipitation rate of each *irrigation station*. b. *Plant* factors for each *hydrozone*. c. Soil type. d. Rain sensor settings. e. Peak demand schedule, including run times, cycle starts, and soak times. f. Maximum runtimes to prevent water runoff and standing water. g. Gallons per minute for each irrigation station.	Scottsdale Water and Green Review	Scottsdale Water and Compliance Certificate
	601.3.2 Building Water Use Reduction	**Plan Review**	**Inspections**
☐	**601.3.2.1 Plumbing Fixtures and Fittings.** Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the flush and flow rates of the city amended	Plumbing Review	Building and Green

	plumbing code (IPC) and shall be certified to the performance requirements of the USEPA WaterSense specifications. All drinking fountains shall be provided with a water-bottle filling dispenser (integral or adjacent to water fountain).		Inspection
☐	**601.3.2.2 Appliances.** a. Clothes washers and dishwashers installed within *dwelling units* shall comply with the ENERGY STAR Program Requirements for Clothes Washers and ENERGY STAR Program Requirements for Dishwashers. Maximum water use shall be as follows: 1. Clothes washers (multifamily dwelling units) - Maximum *water factor* (*WF*) of 5.4 gal/ft^3 of drum capacity. 2. Dishwashers - Standard-size dishwashers shall have a maximum *WF* of 3.8 gal/full operating cycle. Compact sizes shall have a maximum *WF* of 3.5 gal/full operating cycle. Standard and compact size shall be defined by ENERGY STAR criteria. b. Clothes washers in publicly accessible *spaces* (e.g., multifamily and hotel common areas), and coin- and card-operated clothes washers of any size used in laundromats, shall have a maximum *WF* of 4.0 gal/ft^3 of drum capacity normal cycle. c. Commercial dishwashers in commercial foodservice facilities shall meet all ENERGY STAR requirements as listed in the ENERGY STAR Program Requirements for Commercial Dishwashers, Version 2.0.	Green/Energy Review	Compliance Certificate
☐	**601.3.2.3 HVAC Systems and Equipment.** a. *Once-through cooling* with *potable water* is prohibited. b. The design of open-circuit cooling towers for air-conditioning systems, including the materials used to construct them and their water treatment systems, shall not allow water exchange (blowdown) until one or more of the parameters in Table 601.3.2.3 reaches 90% or more of the maximum value specified in Table 601.3.2.3. The system shall be tolerant of pH levels between 7.0 and 9.2. c. The materials of construction for the water cooling system that comes in contact with cooling tower water shall be of the type that can operate and be maintained within the limits set in Table 601.3.2.3. d. Open-circuit cooling towers, closed-circuit cooling towers, and evaporative condensers shall be equipped with makeup and water meters, conductivity controllers, and overflow alarms in accordance with the thresholds listed in Table 601.3.4.1B. Cooling towers shall be equipped with drift eliminators that reduce drift to 0.002% or less of the recirculated water flow for counterflow towers and 0.005% or less of the recirculated water flow for cross-flow towers.	Green/Energy Review	Energy System Commissioning
☐	**601.3.2.5 Commercial Food Service Operations.** a. Shall use high-efficiency pre-rinse spray valves (i.e., valves that function at 1.3 gpm or less	Green/Energy Review	Compliance Certificate

	and comply with a 26 second performance requirement when tested in accordance with ASTM F2324), b. Shall use dishwashers that comply with the requirements of the ENERGY STAR Program for Commercial Dishwashers, c. Shall use boilerless/connectionless food steamers that consume no more than 2.0 gal/h in the full operational mode, d. Shall use combination ovens that consume not more than 10 gal/h in the full operational mode, e. Shall use air-cooled ice machines that comply with the requirements of the ENERGY STAR Program for Commercial Ice Machines.		
☐	**601.3.3 Hot-Water Distribution.** Hot-water distribution systems shall comply with the City Energy Code (2021 IECC).	Green/Energy Review	Green/Energy Inspection
☐	**601.3.4 Special Water Features.** Special water features including ornamental fountains and pools shall comply with the Scottsdale Revised Code, Chapter 49, Article VII.	Planning and Water Conservation Review	Scottsdale Water
☐	**601.3.6 Water softeners.** Water softeners shall comply with following. **601.3.6.1 Demand-initiated regeneration.** Water softeners shall be equipped with demand-initiated regeneration control systems. Timer-based control systems shall be prohibited. **601.3.6.2 Water consumption.** During regeneration, water softeners shall have a maximum water consumption of 4 gal per 1000 grams of hardness removed, as measured in accordance with NSF 44. **601.3.6.3 Waste connections.** Wastewater from water softener regeneration shall not discharge to *reclaimed water* collection systems and shall discharge in accordance with the *International Plumbing Code*. **601.3.6.4 Efficiency and listing.** Water softeners that regenerate in place, that are connected to the water system they serve by piping not exceeding 1-1/4 in. in diameter, or that have a volume of 3 ft^3 or more of cation exchange media shall have a rated salt efficiency of not less than 4000 gr of total hardness exchange per pound of salt, based on sodium chloride equivalency, and shall be *listed* and *labeled* in accordance with NSF 44. All other water softeners shall have a rated salt efficiency of not less than 3500 gr of total hardness exchange per pound of salt, based on sodium chloride equivalency.	Green Review	Compliance Certificate
☐	**601.3.7 Reverse osmosis water treatment systems.** 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. Point-of-use reverse osmosis treatment systems for drinking water shall be *listed* and *labeled* in accordance with NSF 58.	Green Review	Compliance Certificate

CHAPTER 7 – ENERGY EFFICIENCY			
☐	**701.2 Compliance.** Energy systems shall comply with the amended Section 701.3 of this code and the City Energy Code (IECC). The exception for air barriers in Sections C402.5.1 and C402.5.1.2 of the IECC shall not apply.	Green/Energy Review	Energy System Commissioning
☐	**701.3 On-site renewable energy systems.** *Building projects* shall contain on-site photovoltaic systems with a total rated capacity in accordance with one of the following: 1. Not less than 3 percent of the annual estimated energy used within the building for building mechanical, service water-heating and lighting. 2. Not less than 2 watts per square foot multiplied by the horizontal projection of the gross roof area over *conditioned spaces* and *semiheated spaces.* **Exceptions:** 1. A building with gross conditioned floor area less than 5,000 square feet. 2. On-site renewable energy systems, other than photovoltaic systems, that result in an equal or greater annual energy production. **3.** All or part of the required renewable energy generation is permitted to be replaced by equivalent annual energy savings, as calculated using the total building performance compliance path in Section C407 of the City Energy Code (IECC).	Green/Energy Review	Energy System Commissioning
CHAPTER 8 – INDOOR ENVIRONMENTAL QUALITY			
√	**801.4 Prescriptive Path**	**Plan Review**	**Inspections**
	801.4.2 Materials. Reported emissions or volatile organic compound (VOC) contents specified in the following subsections shall be from a representative product sample. Products certified under third-party certification programs as meeting the specific emission requirements listed in the following subsections shall be deemed to comply.	Green Review	Compliance Certificate

☐	**801.4.2.1 Adhesives and sealants.** Not less than 85% by weight or volume of site-applied adhesives and sealants used on the interior of the building envelope shall comply with the VOC content limits in Table 801.4.2.1. **Table 801.4.2.1 – Adhesives and Sealants VOC Content Limits** **ADHESIVES** / **VOC Limits grams/liter** Building envelope membrane adhesive: 250 Carpet and carpet pad adhesives: 50 Ceramic Tile Adhesives: 65 Cove base adhesives: 50 Drywall and panel adhesives: 50 Multipurpose construction adhesives: 70 Rubber floor adhesives: 60 Structural Glazing Adhesives: 100 Subfloor adhesive: 50 VCT and asphalt tile adhesives: 50 Wood flooring adhesives: 100 **SEALANTS** Architectural sealants including foam and grout: 250	Green Review	Compliance Certificate
☐	**801.4.2.2 Paints and coatings.** Not less than 85% by weight or volume of site-applied paints and coatings used on the interior of the building envelope shall comply with the VOC content limits of Table 801.4.2.2. **Table 801.4.2.2 – Paints and Coatings VOC Limits** **PAINTS AND COATINGS** / **VOC Limits grams/liter** Flat paints: 50 Nonflat paints: 50 Nonflat high-gloss paints: 150 **SPECIALTY COATINGS** Concrete and masonry sealers: 100 Floor coatings: 50 Primers, sealants and undercoats: 100 Stains: 250 Wood coatings: 275	Green Review	Compliance Certificate

☐	**801.4.2.3 Floor covering materials.** Not less than 85% of total area of flooring installed within the interior the building envelope shall comply with the VOC emission limits of Table 801.4.2.3 or Table 801.4.2.3.1. **Table 801.4.2.3 – Floor Covering VOC Emission Limits** VOC: Individual — Limit: ≤½ CA chronic REL[a] VOC: Formaldehyde — Limit: ≤16.5 µg/m^3 or ≤13.5 ppb [a] CA Chronic Reference Exposure Level (CREL). **Table 801.4.2.3.1 – Floor Covering Materials Deemed to Comply with VOC Emission Limits** Ceramic and concrete tile; Concrete masonry Natural stone; Concrete Gypsum plaster; Metal Clay masonry	Green Review	Compliance Certificate
☐	**801.4.2.4 Composite woods, agrifiber products and laminated products.** Composite wood and laminated products applied on the interior of the building shall comply with the VOC emission limits of Section 801.4.2.4. See IgCC.	Green Review	Compliance Certificate
☐	**801.4.2.6 Acoustical ceiling tiles and wall systems.** Not less than 85% of total area of acoustical ceiling tiles and wall systems applied on the interior of the building envelope shall comply with the VOC emission limits of Table 801.4.2.6 or Table 801.4.2.6.1. **Table 801.4.2.6 – Acoustical Ceiling Tiles and Wall Products VOC Emission Limits** VOC: Individual — Limit: ≤½ CA chronic REL[a] VOC: Formaldehyde — Limit: ≤16.5 µg/m^3 or ≤13.5 ppb [a] CA Chronic Reference Exposure Level (CREL). **Table 801.4.2.6.1 – Ceiling and Wall Products Deemed to Comply with VOC Emission Limits** Ceramic and concrete tile; Concrete masonry Natural stone; Concrete	Green Review	Compliance Certificate

		Gypsum plaster / Metal Clay masonry		
CHAPTER 9 – MATERIALS AND RESOURCES				
√	**Section 901.3.1 Construction and Demolition Waste Management**		**Plan Review**	**Inspections**
☐	**901.3.1.1 Diversion.** A minimum of 50% of nonhazardous construction, demolition, or deconstruction waste material shall be diverted from disposal in landfills and incinerators through reuse, recycling, repurposing, and/or composting. Excavated soil and land-clearing debris shall not be included in the calculation. *Alternative daily cover* and waste-to-energy incineration shall not be included as diverted material. All diversion calculations shall be based on weight throughout the construction process. **Exception:** Building projects less than 5,000 sq. ft. of new, added or remodeled floor area.		Green Review	Green Building Inspection
√	**Section 901.3.4: Areas for Storage and Collection of Recyclables**		**Plan Review**	**Inspections**
☐ ☐	**901.3.4.1 Recyclables.** There shall be areas dedicated to the collection and storage of nonhazardous materials for recycling, including paper, corrugated cardboard, glass, plastics, and metals. Provide built-in or pull-out recycling containers in mailrooms, breakrooms and kitchen/kitchenette areas. Identify site location for refuse/recycling pick up. **901.3.4.3 Residential Recycling.** Dwelling units shall be provided with not less than two 7-gallon minimum pull-out bins for recycling and trash as part of kitchen base cabinets. Multifamily buildings with 3 or more stories shall be provided with trash and recycling chutes. Multifamily mailrooms and common kitchen/kitchenette areas shall be provided with built-in or pull-out recycling containers. Space shall be allocated for central collection and storage of materials.		Green Review	Green Building Inspection
√	**901.4.1 Reduced Impact Materials**		**Plan Review**	**Inspections**
	901.4.1 Reduced impact materials. The *building project* shall comply with any two of the following options. Calculations shall only include materials *permanently installed* in the project. A value of 45% of the total construction cost shall be permitted to be used in lieu of the actual total cost of materials.			
☐	**Option 1** **901.4.1.1 Recycled content and salvaged material content.** The sum of the *recycled content* and *salvaged material* content shall constitute a minimum of 10% (based on cost), of the total materials in the *building project*. **901.4.1.1.1 Recycled content.** The *recycled content* of a material shall be the *postconsumer recycled content* plus one-half of the *pre-consumer recycled content*, determined by weight (mass). The recycled fraction of the material in a product or an assembly shall then be multiplied by the cost of the product or assembly to determine its		Green Review	Compliance Certificate

	contribution to the 10% requirement. The annual average industry values, by country of production, for the *recycled content* of steel products manufactured in basic oxygen furnaces and electric arc furnaces shall be permitted to be used as the *recycled content* of the steel. For the purpose of calculating the *recycled content* contribution of concrete, the constituent materials in concrete e.g., the cementitious materials, aggregates, and water) shall be permitted to be treated as separate components and calculated separately. **901.4.1.1.2 Salvaged material content.** The *salvaged material* content shall be determined based on the actual cost of the *salvaged material* or the cost of a comparable alternative component material.		
☐	**Option 2** **901.4.1.2 Regional materials.** A minimum of 15% (based on cost) of the total materials or products used shall be regionally extracted/harvested/recovered or manufactured within a radius of 500 miles of the project *site.* If only a fraction of a product or material is extracted/harvested/recovered or manufactured locally, then only that percentage (by weight) shall contribute to the regional value. **Exception:** For building materials or products shipped in part by rail or water, the total distance to the project shall be determined by weighted average, whereby that portion of the distance shipped by rail or water shall be multiplied by 0.25 and added to that portion not shipped by rail or water, provided that the total does not exceed 500 miles.	Green Review	Compliance Certificate
☐	**Option 3** **901.4.1.3 Biobased products.** A minimum of 5% (based on cost) of building materials used, shall be *biobased product*s. *Biobased products* shall: a. Comply with the minimum biobased contents of the USDA's Bio-Preferred Program; b. Contain the "USDA Certified *Biobased Product*" label; or c. Be composed of solid wood, engineered wood, bamboo, wool, cotton, cork, agricultural fibers, or other biobased materials with at least 50% biobased content. **901.4.1.3.1 Wood building components.** Wood building components, including but not limited to structural framing, sheathing, flooring, subflooring, wood window sash and frames, doors, and architectural millwork, used to comply with this requirement shall contain not less than 60% certified wood content tracked through a chain of custody process, either by physical separation or percentage-based approaches, or wood that qualifies as a *salvaged material*. Certified wood content documentation shall be provided by sources certified through a forest certification system with principles, criteria, and standards developed using ISO/IEC Guide 59 or the WTO Technical Barriers to Trade. Wood building components from a *vendor* shall be permitted to comply when the annual average amount of certified wood products purchased by the *vendor*, for which they have chain of custody *verification* not older than two years, is 60% or greater of their total annual wood products purchased.	Green Review	Compliance Certificate

☐	**Option 4** **901.4.1.4 Multiple-attribute product declaration or certification.** A minimum of ten different products installed in the *building project* at the time of issuance of certificate of occupancy shall comply with one of the following subsections. **901.4.1.4.1 Industry-wide declaration.** A Type III industry-wide environmental product declaration (EPD) shall be submitted for each product. Where the program operator explicitly recognizes the EPD as fully representative of the product group on a national level, it is considered industry-wide. **901.4.1.4.2 Product-specific declaration.** A product-specific Type III EPD shall be submitted for each product. The product-specific declaration shall be manufacturer-specific for a product family. Each product complying with this section shall be counted as two products for compliance with Section 901.4.1.4. **901.4.1.4.3 (9.4.1.4.3) Third-party multi-attribute certification.** A material-specific assessment shall be submitted for each product in accordance with one of the listed standards (see IgCC for listing). Each product complying with this section shall be counted as two products for compliance with Section 901.4.1.4. **901.4.1.4.4 (9.4.1.4.4) Product life cycle.** A report by a third-party that has critically reviewed the *lifecycle assessment* (*LCA*) of a product, based on ISO Standards 14040 and 14044, shall be submitted. Each product complying with this section shall be counted as two products for compliance with Section 901.4.1.4.	Green Review	Compliance Certificate
CHAPTER 10 – CONSTRUCTION AND PLANS FOR OPERATION			
	1001.1 Scope	**Plan Review**	**Inspections**
☐	**1001.2 Compliance.** Construction and plans for operation shall comply the City amended Energy Code (IECC) Section C408, Maintenance Information and System Commissioning.	Green/Energy Review	Energy System Commissioning and Compliance Certificate