CITY COUNCIL REPORT

Meeting Date:	December 6, 2022
General Plan Elements:	***Safety, Housing, Energy and Environmental Elements***
General Plan Goals:	***Prevent hazards and reduce physical risks;*** ***Support diverse, safe, resource-efficient, and high-quality housing options;*** ***Work toward becoming a net-zero energy community;*** ***Expand green building construction standards***

ACTION

Residential, Energy and Green Construction Code Updates.

1. Adopt Ordinance No. 4575, adopting the 2021 editions of the International Residential Code, and the International Energy Conservation Code, and the 2022 City of Scottsdale amendments to the International Codes, repealing and replacing Articles II and VII of Chapter 31 of the Scottsdale Revised Code (S.R.C.) with new Articles II and VII of Chapter 31 of the S.R.C., and establishing an effective date.
2. Adopt Resolution No. 12499, declaring as public records those certain documents filed with the City Clerk of the City of Scottsdale and entitled the "*International Residential Code for One and Two-Family Dwellings*, 2021 Edition," including appendices AA, AB, AC, AH, AJ, AK, AR, AS, AT and AU, as published by the International Code Council, Inc., and as amended by the "2022 City of Scottsdale Amendments to the International Residential Code, 2021 Edition."
3. Adopt Resolution No. 12503, declaring as public records those certain documents filed with the City Clerk of the City of Scottsdale and entitled the "*International Energy Conservation Code*, 2021 Edition," including appendices CB and RB, as published by the International Code Council, Inc., and as amended by the "2022 City of Scottsdale Amendments to International Energy Conservation Code, 2021 Edition."
4. Adopt Ordinance No. 4576, adopting the 2021 edition of the International Green Construction Code as mandatory, and the 2022 City of Scottsdale amendments to the International Code; repealing and replacing Article X of Chapter 31 of the Scottsdale Revised Code (S.R.C.) with a new Article X of Chapter 31 of the S.R.C., and establishing an effective date.
5. Adopt Resolution No. 12505, declaring as public records those certain documents filed with the City Clerk of the City of Scottsdale and entitled the "*International Green Construction Code*, 2021 Edition," as published by the International Code Council, Inc., and as amended by the "2022 City of Scottsdale Amendments to the International Green Construction Code, 2021 Edition."

Action Taken _____

Potential Additions to IRC and IECC Code Updates

Add Option A – EV capable charging infrastructure requirement for new single-family homes (attachment 4); and/or

Add Option B – Retain minimum ceiling insulation value of R-38 instead of R-49 for new single-family homes (attachment 5)

BACKGROUND

The family of building codes are developed through the US-based International Code Council (ICC) and supported by the American Institute of Architects (AIA), the National Association of Home Builders (NAHB), Building Owners and Managers Association (BOMA), professional trade associations and building product and material manufacturers including structural, fire safety, electrical, energy, mechanical and plumbing systems. The energy codes are supported by Southwest Energy Efficiency Project (SWEEP), Northeast Energy Efficiency Partnership (NEEP), Residential Energy Services Network (RESNET), American Council for an Energy Efficient Economy (ACEEE), Energy-Efficient Codes Coalition (EECC), Energy and Environmental Building Association (EEBA), local electric utility companies and the US Department of Energy. The adoption of the 2021 codes includes elements that are consistent with the General Plan 2035 (Safety, Housing, Water Resources, Energy and Environmental elements).

On September 20, 2022, the City Council adopted the 2021 editions of the amended International Building Code, International Fire Code, International Mechanical Code, International Plumbing Code, International Fuel Gas Code, International Existing Building Code, International Swimming Pool and Spa Code, and 2020 edition of the National Electrical Code. The effective date is January 1, 2023. The city is currently operating under the 2015 edition of the construction codes.

On August 23, 2022, the City Council held a study session to discuss the proposed updates to the residential, energy, and green construction codes with amendments to the 2021 edition of the International Residential Code (IRC), International Energy Conservation Code (IECC) and the International Green Construction Code (IgCC). City council advised staff to seek further public input on certain provisions of the proposed energy code amendments and the adoption of the green construction code as mandatory.

1. 2021 International Residential Code (IRC) Updates

The residential code contains all the necessary code requirements for single-family homes. The 2021 edition of the residential code (IRC) has new provisions regulating habitable attics; energy storage systems; fuel cell power systems; solar roof single requirements; residential use of commercial cooking equipment; and shower/tub valves rating for lower flow rates. The 2021 IECC and IRC increases the ceiling insulation in single family homes from R-38 to R-49.

OPTION A: Additional Proposed Amendment for single-family homes

- Add EV capable charging infrastructure (this would also be replicated in the residential provisions of the IECC amendments if included)

Benefits	Disadvantages
• Residents can easily install EV charging stations • Supports a net zero emissions goal	• Technology may change and electrical circuit breaker size may not be used • Added minimal expense

OPTION B: Additional Proposed Amendment

- Retain minimum ceiling insulation value of R-38 instead of R-49 (this would also be replicated in the residential provisions of the IECC amendments if included)

R-38 Benefits	R-49 Benefits
• Continue annual energy cost savings • R-38 will not increase upfront building cost that could result from higher exterior walls and roof heights (may conflict with zoning height restrictions) • R-38 avoids additional complexity and construction constraints	• R-49 will result in net savings over the life of home (30 years).

2. 2021 International Energy Conservation Code (IECC) Updates

The energy code contains requirements for the efficient use of energy including thermal envelope insulation, air leakage, heating/cooling systems, service water heating and lighting. It provides flexibility to permit the use of innovative materials and technologies. The 2021 edition of the energy code (IECC) clarifies energy conservation measures related to insulation, air infiltration, solar heat gain, mechanical systems, water heating and lighting. Lighting efficiency requirements have been updated to reflect newer lighting technologies in the market.

One- and two-family residential IECC changes include:

- All supply and return ducts must to be tested for air leakage,
- All permanently installed lighting fixtures must be high efficiency (e.g. – LED)
- Interior lighting required to be controlled by either a dimmer, occupant sensor or built-in lighting control excluding bathrooms, hallways, exterior light fixtures and lighting designed for safety or security.
- Exterior lighting greater than 30 watts is required to be controlled by automatic shut-off device.
- New efficiency package section requires selection of additional energy efficiency option related to building envelope improvements, heating/cooling equipment

efficiency, water heating, air duct distribution or improved air sealing/ventilation. Scottsdale amendment adds an additional option for PV solar energy system.
- Solar-ready roof zone required for future installation of solar energy system on new single-family roof tops that is not less than 10 percent of the roof area.

Commercial and multi-family IECC changes include:
- Parking garage 50% lighting reduction when no motion is detected by zone.
- Reduced power allowance for interior lighting.
- Plant growth lighting must meet photon efficiency standards.
- Automatic receptacle control for 50 percent of receptacles in enclosed offices, conference rooms, break rooms and classrooms.
- Solar-ready roof zone required for future installation of solar energy system on new multifamily and commercial roof tops that is not less than 40 percent of roof area.
- EV capable charging infrastructure for future EV charging of at least 20% of multifamily and hotel parking spaces. In addition, 4% of parking spaces are required to be installed with EV supply equipment (EVSE) for charging.

Benefits	Disadvantages
• Residents can access EV charging stations • Supports a net zero emissions goal	• Technology and electrical requirements may change • Added expense

3. 2021 International Green Construction Code (IgCC) Updates

The 2021 IgCC is being proposed as mandatory for all new multi-family and commercial construction. The green building code provides requirements for sustainable commercial and multifamily buildings including renewable energy, water efficiency, indoor environmental quality and reduced impact materials. The 2021 edition of the green building code (IgCC) has been updated for better usability and flexibility. Green measures with Scottsdale amendments have been clarified as related to heat island mitigation, EV charging infrastructure for commercial building, irrigation efficiency, indoor/outdoor water conservation, on-site renewable energy, low VOC material finishes, construction waste management and low impact building materials. Many components of the 2021 code are already required in Scottsdale. Since 2012, more than 30 building projects encompassing multifamily dwellings units, hotels and non-residential projects, have been approved under the voluntary green code (IgCC). It is estimated that energy and green codes for residential and commercial buildings will be able to save $138 billion energy cost savings and 900 million metric tons of avoided CO^2 emissions (cumulative 2010-2040).

In 2016, Scottsdale City Council amended the 2015 edition of the plumbing code (IPC) for high efficiency plumbing fixtures; amended the2015 energy code (IECC) for single-family

roof top solar-ready zones; and the 2015 green code (IgCC) as a public benefit for zoning bonus consideration (voluntary).

Benefits for Mandatory IgCC	Disadvantages for Mandatory IgCC
• Reduction in waste to landfill, less energy and water use over life of building and improved indoor air quality • Provides consistency and certainty • Demonstrated continued regional and national leadership in green buildings	• Increased construction costs • New requirements may be burdensome and unfamiliar to development community • Increased enforcement expense to city • Some requirements may be difficult to achieve immediately (e.g., construction waste diversion)

COMMUNITY INPUT

Throughout the public process, feedback was received from the Home Builders Association of Central Arizona, AZ American Institute of Architects AZ, Southwest Energy Efficiency Project (SWEEP), AZ Multihousing Association, American Lung Association, Nelsen Partners Architects and Planners, Scottsdale Area Association of Realtors, Experience Scottsdale, Environment Arizona, Arizona PIRG (Public Interest Research Group), SW Gas, Vote Solar and electric utilities.

A community open house was conducted on September 27th at the Scottsdale Community Design Studio. More than 80 individuals participated. The open house was an opportunity for the public to provide input on the proposed amendments to the energy and green construction codes. A portion of the participants provided extensive comments with an overwhelming number in support of the adoption of the codes with the proposed amendments. A small number of individuals wanted the codes to go further in terms of energy efficiency, solar energy, heat island mitigation and water conservation. See attached summary report of public comments.

BOARD & COMMISSION RECOMMENDATIONS

The Scottsdale Building Advisory Board of Appeals (BABA) held ten public meetings to discuss and accept public comments on the adoption of the 2021 ICC codes. Over the course of these meetings the board recommended City Council adoption of the codes as follows:

1. International Residential Code (IRC) with staff recommended amendments including R-38 ceiling insulation for single family homes but not including EV charging capability for single family homes.
2. International Energy Conservation Code (IECC) with staff recommended amendments including R-38 ceiling insulation for single family homes but not including EV charging capability for single family homes.

3. International Green Construction Code (IgCC) to be mandatory for zoning and planning bonuses and remain voluntary for all other multi-family residential and commercial buildings/projects.

The Scottsdale Environmental Advisory Commission (SEAC) held eight public meetings to discuss and accept public comments on the International Residential Code, International Energy Conservation Code, and the International Green Construction Code. Over the course of these meetings, the board unanimously recommended City Council adoption of the following codes with amendments:

1. International Residential Code (IRC) with amendments in alignment with the IECC for energy efficiency.
2. International Energy Conservation Code (IECC) including R-49 ceiling insulation for single family homes and amendments for EV charging capability for new single-family, multifamily and hotels; cool roofs for low-slope roofs of new residential and commercial buildings; solar PV compliance option for new single-family homes, and updated commissioning exceptions for commercial heating/cooling and ventilation systems.
3. International Green Construction Code (IgCC) as a mandatory code for new commercial and multifamily buildings.

IMPACT ANALYSIS

Additional staff positions will be needed for plan review and inspections enforcement if the green construction code (IgCC) becomes mandatory. Current plan review staff is responsible for review of residential and commercial projects for compliance with the building, structural, accessibility, fire, plumbing, mechanical, electrical, and fuel gas codes. A total number of 38 commercial and multifamily building permits for new construction have been issued since January of this year. During this time, one green hotel permit was issued, and three green commercial projects (hotel, apartments, and office facility) are pending permit approval – this level of green review is completed by one staff member at present date. Based on existing plan review workload and staffing levels, there is insufficient staff for plan review and inspections if all commercial buildings are required to comply with the green building and updated energy code requirements.

As the zoning ordinance is written, with the adoption of Ordinance No. 4576 and Resolution No. 12505 making the green construction code (IgCC) mandatory, developers will receive zoning bonuses for complying with a mandatory IgCC code. A text amendment will be proposed to remove the IgCC as a voluntary option associated with zoning bonuses. It will take approximately six months to update the zoning ordinance to reflect such a change.

If the City Council wishes to keep the IgCC voluntary, the following motion should be made: "Adopt Ordinance No. 4576 and Resolution No. 12505 with amendments to make the 2021 International Green Construction Code (IgCC) and City amendments to the IgCC voluntary, with a January 7, 2023 effective date."

ACTIONS

Action 1: Adopt Ordinance No. 4575, Resolution Nos. 12499, 12503, adopting the 2021 International Residential Code (IRC) and 2021 International Energy Conservation Code (IECC) including all amendments in attachment 2 and 3 with an effective date of January 7, 2023.

Potential Additions

Option A – EV capable charging infrastructure requirement for new single-family homes (attachment 4) and/or

Option B – Retain minimum ceiling insulation value of R-38 instead of R-49 for new single-family homes (attachment 5)

Action 2: Adopt Ordinance No. 4576 and Resolution No. 12505, adopting the 2021 International Green Construction Code (IgCC) including all amendments in attachment 7 as a mandatory code for all new commercial building projects with an effective date of the later of July 1, 2023, or the date the City zoning ordinance is amended in response to Ordinance No. 4576.

Proposed Next Steps

Once adopted, staff will identify key resources and provide in-house training, education and outreach to the planning and development community in line with the effective date of July 1, 2023, or later for the green construction code (IgCC) and January 7, 2023 for the residential (IRC) and energy (IECC) codes.

RESPONSIBLE DEPARTMENTS

Planning and Development Services

STAFF CONTACTS

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APPROVED BY

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11/16/2022
Date

11/16/2022
Date

Erin Perreault, AICP, Executive Director
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11/16/2022
Date

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Date

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ATTACHMENTS

1. Ordinance No. 4575, Adopting International Residential Code (IRC) and the International Energy Conservation Code (IECC).
2. Resolution No. 12499, Declaring the IRC as a public record
3. Resolution No. 12503, Declaring the IECC as a public record
4. Option A for Ordinance No. 4575 and Resolutions Nos. 12499 and 12503 – IRC and IECC with EV Charging for Single-Family
5. Option B for Ordinance 4575 and Resolutions Nos. 12499 and 12503 – IRC and IECC with reduction of ceiling insulation
6. Ordinance No. 4576, Adopting International Green Construction Code (IgCC) as mandatory
7. Resolution No. 12505, Declaring the IgCC as a public record
8. Community Open House Summary Report held September 27, 2022
9. Industry Stakeholder Feedback

ORDINANCE NO. 4575

AN ORDINANCE OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, ADOPTING PART OF THE BUILDING CODE OF THE CITY OF SCOTTSDALE, INCLUDING THE 2021 EDITIONS OF THE *INTERNATIONAL RESIDENTIAL CODE* AND *INTERNATIONAL ENERGY CONSERVATION CODE*, AND THE 2022 CITY OF SCOTTSDALE AMENDMENTS TO THE INTERNATIONAL CODES; REPEALING AND REPLACING ARTICLES II AND VII OF SCOTTSDALE REVISED CODE (S.R.C.) CHAPTER 31, BUILDING AND CONSTRUCTION REGULATIONS, WITH NEW ARTICLES II AND VII OF S.R.C. CHAPTER 31, BUILDING AND CONSTRUCTION REGULATIONS; AND ESTABLISHING AN EFFECTIVE DATE.

BE IT ORDAINED by the Council of the City of Scottsdale, Arizona, as follows:

Section 1. The following documents, declared public records by the Resolutions of the City of Scottsdale specified below, one paper copy and one electronic copy of which are on file in the Office of the City Clerk of the City of Scottsdale, are adopted by these references and made a part hereof as if fully set out in this Ordinance, and shall be part of the Building Code of the City in conjunction with the other articles in Chapter 31 of the Scottsdale Revised Code:

(1) The *International Residential Code for One- and Two-Family Dwellings*, 2021 Edition, including appendices AA, AB, AC, AH, AJ, AK, AR, AS, AT, and AU, as published by the International Code Council, Inc., and as amended by the "2022 City of Scottsdale Amendments to the International Residential Code, 2021 Edition," declared public records by Resolution No. 12499 of the City of Scottsdale, are hereby referred to, adopted, and made a part hereof as if fully set out in this Ordinance.

(2) The *International Energy Conservation Code*, 2021 Edition, including Appendices CB and RB, as published by the International Code Council, Inc., and as amended by the "2022 City of Scottsdale Amendments to the International Energy Conservation Code, 2021 Edition," declared public records by Resolution No. 12503 of the City of Scottsdale, are hereby referred to, adopted, and made a part hereof as if fully set out in this Ordinance.

Section 2. Article II, Sections 31-50 through 31-69, and Article VII, Sections 31-110 through 31-119 of Chapter 31, Building and Construction Regulations, of the Scottsdale Revised Code are hereby repealed and replaced by a new Article II, Sections 31-50 through 31-69, and Article VII, Sections 31-110 through 31-119 of Chapter 31, Building and Construction Regulations, of the Scottsdale Revised Code, which shall read as specified in those certain documents entitled, "2022 City of Scottsdale Amendments to the International Residential Code, 2021 Edition" and "2022 City of Scottsdale Amendments to the International Energy

Conservation Code, 2021 Edition," declared to be a public record by Resolution Nos. 12499 and 12503, respectively, of the City of Scottsdale, and hereby referred to, adopted, and made a part hereof as if fully set out in this Ordinance.

Section 3. If any section, subsection, sentence, clause, or phrase of this Ordinance is, for any reason, held to be invalid or unconstitutional, such decision shall not affect the validity of the remaining portions of this Ordinance. The Scottsdale City Council hereby declares that it would have passed this law, and each section, subsection, clause, or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, and phrases be declared invalid or unconstitutional.

Section 4. The existing provisions of Chapter 31 that are being repealed and replaced by this Ordinance will remain in effect until the effective date of this Ordinance. The repeal of any provision of the Scottsdale Revised Code effectuated by this Ordinance does not affect the rights and duties that matured or penalties that were incurred and proceedings that were begun before the effective date of this Ordinance.

Section 5. If there is any conflict or inconsistency between the provisions of this Ordinance, the more restrictive provisions apply.

Section 6. The effective date of this Ordinance shall be January 7, 2023.

PASSED AND ADOPTED BY THE Council of the City of Scottsdale, Maricopa County, Arizona this _____ day of _____, 2022.

ATTEST:

CITY OF SCOTTSDALE,
a municipal corporation

_____
Ben Lane, City Clerk

_____
David D. Ortega, Mayor

APPROVED AS TO FORM:
OFFICE OF THE CITY ATTORNEY

_____
Sherry R. Scott, City Attorney
By: Kimberly Campbell, Senior Assistant City Attorney

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RESOLUTION NO. 12499

A RESOLUTION OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, DECLARING AS PUBLIC RECORDS THOSE CERTAIN DOCUMENTS FILED WITH THE CITY CLERK OF THE CITY OF SCOTTSDALE AND ENTITLED THE *"INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO-FAMILY DWELLINGS*, 2021 EDITION" INCLUDING APPENDICES, AND THE "2022 CITY OF SCOTTSDALE AMENDMENTS TO THE INTERNATIONAL RESIDENTIAL CODE, 2021 EDITION."

WHEREAS, the Building Department of the City of Scottsdale wishes to replace the existing building and construction codes with updated versions of the codes, and to amend the International and National Codes and the Scottsdale Revised Code to better address the needs of the City of Scottsdale;

WHEREAS, State law permits cities to declare documents a public record; and

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Scottsdale, Maricopa County, Arizona, as follows:

Section 1. The following documents are hereby declared to be public records, and one paper copy and one electronic copy are hereby ordered to remain on file in the office of the City Clerk and kept available for public use and inspection:

(1) The *International Residential Code for One- and Two-Family Dwellings*, 2021 Edition, including appendices AA, AB, AC, AH, AJ, AK, AR, AS, AT, and AU as published by the International Code Council, Inc., and

(2) That certain document entitled "2022 City of Scottsdale Amendments to the International Residential Code, 2021 Edition," attached hereto as Exhibit "A."

PASSED AND ADOPTED by the Council of the City of Scottsdale, Maricopa County, Arizona this _____ day of _____, 2022.

CITY OF SCOTTSDALE, an Arizona municipal corporation

ATTEST:

_____
David D. Ortega, Mayor

_____
Ben Lane, City Clerk

APPROVED AS TO FORM:

_____
Sherry R. Scott, City Attorney
By: Kimberly Campbell, Senior Assistant City Attorney

Exhibit "A"

CITY OF SCOTTSDALE

2022 CITY OF SCOTTSDALE AMENDMENTS TO THE INTERNATIONAL RESIDENTIAL CODE, 2021 EDITION

Ordinance No. 4575, Resolution No. 12499

2022 City of Scottsdale Amendments

to the International Residential Code, 2021 Edition

SCOTTSDALE REVISED CODE

CHAPTER 31 – BUILDING AND CONSTRUCTION REGULATIONS

ARTICLE II. INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO-FAMILY DWELLINGS

DIVISION 1. ADOPTED CODE

Sec. 31-50. International Residential Code for One- and Two-Family Dwellings adopted and amended.

The International Residential Code for One- and Two-Family Dwellings (IRC), 2021 Edition, including appendices AA, AB, AC, AH, AJ, AK, AR, AS, AT and AU, as published by the International Code Council, Inc., declared a public record by city Resolution No. 12499, are adopted as part of the city Building Code.

DIVISION. 2. AMENDMENTS TO IRC

Sec. 31-51. IRC CHAPTER 1 – amendments.

(a) Section 101.1, Title, is amended to read as follows:

101.1 Title. These regulations shall be known as the *Residential Code for One- and Two-Family Dwellings* of the City of Scottsdale and shall be cited as such and will be referred to herein as "this code."

(b) To the extent that Chapter 1 of the International Residential Code for One- and Two-Family Dwellings, 2021 Edition, conflicts with the city amendments to Chapter 1 of the International Building Code, 2021 Edition, the amendments to the International Building Code prevail.

Sec. 31-52. IRC CHAPTER 3 BUILDING PLANNING - amendments.

Only the following portions of CHAPTER 3 BUILDING PLANNING, are amended:

(a) Table R301.2, CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA, is amended to read as follows:

TABLE R301.2 CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA	
Ground snow load	0
Wind speed	105 mph
Topographic effects	No
Special wind region	No

Windborne debris zone	No
Seismic design category:	B
Weathering	Negligible
Frost line depth	Final grade
Termite	Moderate
Ice barrier underlayment required	No
Flood hazard	See Scottsdale Revised Code, Chapter 37
Air freezing index	0
Mean annual temperature	71.2°F
MANUAL J DESIGN CRITERIA	
Elevation:	1,473 feet
Latitude:	33.62 N
Altitude correction factor	0.97
Daily range	High (H)
Mean coincident wet bulb	70°F
Indoor summer design relative humidity	45%
Indoor summer design dry-bulb temperature:	Minimum of 75°F
Indoor winter design dry-bulb temperature:	Maximum of 72°F
Outdoor summer design dry-bulb temperature:	107°F
Outdoor winter design dry-bulb temperature:	37°F
Heating temperature difference	20.6 °F
Cooling temperature difference	20.1°F

(b) Section R303.3, Bathrooms, is amended to read as follows:

R303.3 Bathrooms. Bathrooms, water closet compartments and other similar rooms shall be provided with a permanently installed lighting fixture and local exhaust fan. The minimum local exhaust rates shall be determined in accordance with Section M1505. Exhaust air from the space shall be exhausted directly to the outdoors.

Exception: A local exhaust fan system shall not be required for bathrooms and water closet compartments located in an unconditioned space with an openable window area of not less than 1.5 square feet (0.15 m^2).

R303.3.1 Exhaust fan controls. Exhaust fans shall be switched separately from lighting systems. Except where functioning as a component of a whole house ventilation system, exhaust fans in bathrooms with a shower or tub shall be provided with a delay timer or humidity/condensation control switch.

(c) Section R303.10, Required heating, is retitled, and amended to read as follows:

R303.10 Required heating and cooling. Dwellings shall be provided with heating per Section R303.10.1 and cooling per Section R303.10.2.

R303.10.1 Heating. Heating facilities shall be provided, capable of maintaining a room temperature of not less than 68°F (20°C) in all habitable rooms, bathrooms, and toilet rooms, based on the winter design temperature of 34°F (01°C) for Phoenix, per Appendix D of the International Plumbing Code. Cooking appliances and portable space heaters shall not be used to achieve compliance with this section.

Exception: Heating systems are not required for interior spaces where the primary purpose of the space is not associated with human comfort.

R303.10.2 Cooling. Cooling facilities shall be provided, capable of maintaining room temperature of not more than 85°F (29°C) in all habitable rooms, bathrooms and toilet rooms, based on the summer design temperature of 107°F (42°C) for Phoenix, per Appendix D of the International Plumbing Code.

Exception: Cooling systems are not required for interior spaces where the primary purpose of the space is not associated with human comfort.

(d) Section R313, Automatic Fire Sprinkler Systems, is amended to read as follows:

R313 Automatic Fire Sprinkler Systems. See Scottsdale Revised Code, Chapter 36, for automatic fire sprinkler system requirements.

Sec. 31-53. IRC CHAPTER 4 FOUNDATIONS - amendments.

Only the following portions of CHAPTER 4 FOUNDATIONS, are amended:

(a) Section R403.1.1, Minimum size, is amended to read as follows:

R403.1.1 Minimum size. The minimum width, W, and thickness, T, for concrete footings shall be in accordance with Tables R403.1(1) through R403.1(3) and Figure R403.1(1) or R403.1.3, as applicable, but not less than 12 inches in width and 6 inches in depth.

All footings in these tables shown as 12 to 16 inches wide shall be at least 16 inches wide.
All footings in these tables shown as 17 to 24 inches wide shall be at least 24 inches wide.
All footings in these tables shown as 25 to 32 inches wide shall be at least 32 inches wide.
All footings in these tables shown as greater than 32 inches wide shall be as stated or larger.

Maximum bearing pressure from service loads shall not exceed 1500 psf. Footing projections, P. shall be not less than 2 inches and shall not exceed the thickness of the footing. Footing thickness and projection for fireplaces shall be in accordance with Section R1001.2.

The size of footings supporting piers and columns shall be based on the tributary load and allowable soil pressure. An isolated column carrying a load greater than 750 lbs. shall be supported on a minimum 4 square feet of footing, with minimum width of 24 inches.

A certified soils report from a registered design professional may be used in lieu of these requirements.

(b) Section R403.1.4, Minimum depth, is amended to read as follows, with the subsections remaining the same:

R403.1.4 Minimum depth. All footings shall be placed at least 18 inches (457 mm) below the undisturbed ground surface or engineered fill. Where applicable, the depth of footings shall also conform to Section R403.1.4.1. Deck footings shall be in accordance with Section R507.3.

Sec. 31-54. IRC CHAPTER 5 FLOORS - amendments.
Only the following portion of CHAPTER 5 FLOORS, is amended:

(a) A new Section R502.11.4.1, Deferred submittals, is added to read as follows:

R502.11.4.1 Deferred submittals. Floor truss design drawings may be submitted in compliance with Section 107.3.4.1 of the International Building Code (IBC).

Sec. 31-55. IRC CHAPTER 7 WALL COVERING – amendments.
Only the following portion of CHAPTER 7, WALL COVERING, is amended:

(a) Section R703.7.2.1, Weep Screeds, is amended by adding the following:

Exception: Weep screeds are not required to maintain a 2-inch (51 mm) clearance above paved areas, where located at doors provided with an overhang that projects at least 36 inches (914 mm) from the wall to the outer edge of the overhang. They shall be installed per manufacturer's instructions.

Sec. 31-56. IRC CHAPTER 8 ROOF-CEILING CONSTRUCTION - amendments.
Only the following portions of CHAPTER 8 ROOF-CEILING CONSTRUCTION, are amended:

(a) A new Section R802.10.1.1, Deferred submittals, is added to read as follows:

R802.10.1.1 Deferred submittals. Roof truss design drawings may be submitted in compliance with Section 107.3.4.1 of the IBC.

(b) Section R806.1, Ventilation, is amended by adding the following exception:

Exception: Enclosed attic and rafter spaces are not required to be ventilated where there is 24 inches or less between the bottom of roof sheathing and the ceiling.

Sec. 31-57. IRC CHAPTER 9 ROOF ASSEMBLIES - amendments.
Only the following portion of CHAPTER 9 ROOF ASSEMBLIES, is amended:

(a) Section R905.5, Mineral-surfaced roll roofing, is revised by adding the following:

R905.5.6 Drip edge. A drip edge shall be provided at eaves and rake edges. Adjacent segments of drip edge shall overlap not less than 2 inches (51 mm). Drip edges shall extend not less than 1/4 inch (6.4 mm) below the roof sheathing and extend onto the roof deck not less than 2 inches (51 mm). Drip edges shall be fastened to the roof deck at not more than 12 inches (305 mm) on center with fasteners as specified in Section R905.2.5. Underlayment shall be installed over the drip edge along eaves, and under the drip edge along rake edges.

Sec. 31-58. IRC CHAPTER 10 CHIMNEYS AND FIREPLACES - amendments.

Only the following portions of CHAPTER 10 CHIMNEYS AND FIREPLACES, are amended:

(a) A new Section R1007, Clean Burning Fireplaces, Woodstoves and Solid Fuel Burning Devices, is added to read as follows:

SECTION R1007

CLEAN BURNING FIREPLACES, WOODSTOVES AND SOLID FUEL BURNING DEVICES

R1007.1 Purpose. This Section regulates fireplaces, woodstoves, and other solid fuel burning devices to reduce air pollution caused by particulate matter and carbon monoxide.

R1007.2 Installation restrictions.

1. Only the following fireplaces, woodstoves and solid fuel burning devices are permitted:
   - 1.1 A fireplace with a permanently-installed gas or electric log insert.
   - 1.2 A fireplace, woodstove, or solid fuel burning device certified by the United States Environmental Protection Agency as conforming to 40 Code of Federal Regulations Part 60, Subpart AAA, as amended.
   - 1.3 A fireplace, woodstove or solid fuel burning device listed by a nationally-recognized testing agency as meeting performance standards equivalent to 40 Code of Federal Regulations Part 60, Subpart AAA, as amended.
   - 1.4 A fireplace, woodstove or other solid fuel burning device determined by the Maricopa County Air Quality Department as meeting performance standards equivalent to 40 Code of Federal Regulations Part 60, Subpart AAA, as amended.
   - 1.5 A fireplace with a permanently-installed woodstove insert which complies with paragraph 1.2, 1.3, or 1.4 above.
2. The following are not regulated by these requirements:
   - 2.1 Furnaces, boilers, incinerators, kilns, and similar space-heating equipment.
   - 2.2 Industrial process equipment.
   - 2.3 Cook-stoves, barbecue grills, and similar appliances designed primarily for cooking.

R1007.3 Alterations prohibited.

1. No permanently-installed gas or electric log insert, or woodstove insert, in a fireplace, shall be altered or removed to convert the fireplace to burn wood or other solid fuel.
2. No alteration shall be made to a fireplace, woodstove or solid fuel burning device to void its certification or remove its compliance with this section.

R1007.4 Permits required. Construction, installation and alteration of all fireplaces; woodstoves; and gas, electric and solid fuel burning devices and equipment, are subject to the requirements, permits and inspections of this code.

(b) A new Section R1008, Chimneys and Fireplaces, is added to read as follows:

R1008 CHIMNEYS AND FIREPLACES

R1008.1 Outdoor wood-burning devices. Outdoor fireplaces, woodstoves, fire pits and other devices capable of burning wood shall be installed:

1. At least 8 feet from any property line that abuts another property; or

2. At least 10 feet from any property line in a zero lot line subdivision.

Exceptions:

1. When a property line abuts a street or alley, the setback for these devices shall comply with the Zoning Ordinance.
2. The building official may allow a smaller setback if safety standards are met.

R1008.2 Outdoor gas devices. Outdoor fireplaces, fire pits and other devices that burn gas only shall be vented as required by IRC Chapter 24 - Fuel Gas.

R1008.3 Chimneys and flues. Fireplaces, woodstoves, fire pits and other devices with a chimney or flue shall comply with Section R1003.9 Termination.

R1008.4 Code compliance.

1. Construction, installation and alteration of all outdoor fireplaces; woodstoves; fire pits and similar gas, electric and solid fuel burning devices and equipment, are subject to the requirements, permits and inspections of this code.

   Exception: No permit is required for the masonry surround for outdoor fireplaces; woodstoves; fire pits and similar gas, electric, and solid fuel burning devices.
2. With the permit application, a site plan shall be submitted indicating the location of the device and its proximity to the property line, alley, public right-of-way and all structures on the property.

Sec. 31-59. IRC CHAPTER 11 ENERGY EFFICIENCY - amendments.

Only the following portions of CHAPTER 11, ENERGY EFFICIENCY, are amended:

(a) Section N1101.6 (R202), Defined terms, is amended by adding the following:

LOW-SLOPED ROOF. A roof having a slope less than 2 units vertical in 12 units horizontal.

(b) Reserved.

(c) Reserved.

(d) Table 1102.4.1.1 (R402.4.1.1), Air Barrier, Air Sealing and Insulation Installation – Rim Joists and footnote b are revised to read as follows, with the rest of the table remaining unchanged.

COMPONENT	AIR BARRIER CRITERIA INSULATION	INSTALLATION CRITERIA
Rim joists	Rim joists shall include an air barrier. The junctions of the rim board to the sill plate and the rim board to the subfloor shall be air sealed.	Rim joists shall be insulated so that the insulation maintains permanent contact with the exterior rim board.[b]

b. Insulation full enclosure is not required in unconditioned/ventilated attic spaces and at rim joists.

(e) Section N1102.4.6 (R402.4.6), Electrical and communication outlet boxes (air-sealed boxes), is amended to read as follows:

N1102.4.6 (R402.4.6) Electrical and communication outlet boxes (air-sealed boxes). Where air-sealed boxes are required by Table N1102.4.1.1 (R402.4.1.1), electrical and communication boxes shall comply with all of the following:

1. be tested in accordance with NEMA OS 4, Requirements for Air-Sealed Boxes for Electrical and Communication Applications;
2. have an air leakage rate of not greater than 2.0 cubic feet per minute (0.944 L/s) at a pressure differential of 1.57 psf (75 Pa);
3. be marked "NEMA OS 4" or "OS 4" in accordance with NEMA OS 4; and
4. be installed per the manufacturer's instructions and with any supplied components required to achieve compliance with NEMA OS 4.

(f) A new Section N1102.6 (R402.6), Roof solar reflectance and thermal emittance, is added to read as follows:

N1102.6 (R402.6) Roof solar reflectance and thermal emittance. Where not prohibited by the city environmentally sensitive lands ordinance (ESLO), low-sloped roof surfaces over conditioned and unconditioned spaces in *Climate Zones* 0 through 3 shall comply with one or more of the options in Table N1102.6 (R402.6).

Exception: Portions of the roof that are covered by roof decks, vegetation, walkways, skylights, and solar energy systems are exempt from the requirements of Table N1102.6 (R402.6).

TABLE N1102.6 (R402.6)
MINIMUM ROOF REFLECTANCE AND EMITTANCE OPTIONS

Three-year-aged solar reflectance index (SRI) of 64
Three-year-aged solar reflectance of 0.55 and a three-year aged thermal emittance of 0.75

(g) Section N1103.5.1.1.1 (R403.5.1.1.1), Demand recirculation water systems, is amended to read as follows:

N1103.5.1.1.1 (R403.5.1.1.1) Demand recirculation water systems. Demand recirculation water systems are required when the length of hot water supply piping from the source of hot water to the furthest fixture fitting exceeds the specified length in Table N1103.5.1.1.1 (R403.5.1.1.1). Where the piping contains more than one size of pipe, the largest size of pipe within the piping shall be used for determining the maximum allowable length of piping before a recirculating hot water system is required. For the purpose of this section, the source of hot water shall be a water heater, boiler, circulation loop piping, distribution manifold, or heat-traced piping.

Demand recirculation water systems shall have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance or sensing the flow of hot or tempered water to a fixture fitting or appliance.

Table N1103.5.1.1.1 (R403.5.1.1.1) DEMAND RECIRCULATION WATER SYSTEM REQUIREMENT BASED ON PIPE SIZE AND LENGTH	
Nominal Pipe Size (inches)	**Piping Length (feet)**
3/8 inch line or less	> 50 feet
1/2 inch line	> 43 feet
5/8 inch line	> 32 feet
3/4 inch line	> 21 feet

(h) Reserved.

(i) Table N1105.2 (R405.2), Requirements for Total Building Performance – Building Thermal Envelope, is revised by adding a new line for Section N1102.6 (R402.6) as follows:

TABLE N1105.2 (R405.2)
REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

Building Thermal Envelope	
N1102.6 (R402.6)	Roof solar reflectance and thermal emittance.

(j) Table N1106.2 (R406.2), Requirements for Energy Rating Index - Building Thermal Envelope, is revised by adding a new line for Section N1102.6 (R402.6) as follows:

TABLE N1106.2 (R406.2)
REQUIREMENTS FOR ENERGY RATING INDEX

Building Thermal Envelope	
N1102.6 (R402.6)	Roof solar reflectance and thermal emittance.

(k) Section N1108.2 (R408.2), Additional efficiency package options, is amended to read as follows:

N1108.2 (R408.2) Additional efficiency package options. Additional efficiency package options for compliance with Section N1101.13.5 are set forth in Sections N1108.2.1 through N1108.2.6.

(l) A new *Section N1108.2.6 (R408.2.6), On-site renewable energy option, is added as follows:*

N1108.2.6 (R408.2.6) On-site renewable energy option. Provide an on-site renewable energy generation system that meets one of the following:

1. Provides a total rated capacity of not less than 2 watts per square foot (22 W/m^2) of the total *conditioned floor area.*

2. Provides not less than 50 percent of the estimated annual energy use within the building for mechanical, service water-heating, lighting and electric vehicle charging.

Sec. 31-60. IRC CHAPTER 15 EXHAUST SYSTEMS - amendments.

Only the following portions of CHAPTER 15, EXHAUST SYSTEMS, are amended:

(a) Section M1503.3, Exhaust discharge, is amended by deleting the exception.

(b) Section M1505.2, Recirculation of air, is amended to read as follows:

M1505.2 Recirculation of air. Exhaust air from bathrooms, toilet rooms and kitchens shall be exhausted directly to the outdoors and not recirculated indoors. Exhaust air from bathrooms, toilet rooms and kitchens shall not discharge into an attic, crawl space or other areas inside the building.

Sec. 31-61. IRC CHAPTER 29 WATER SUPPLY AND DISTRIBUTION – amendments.

Only the following portion of CHAPTER 29 WATER SUPPLY AND DISTRIBUTION, is amended:

(a) Table P2903.2, MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS, is amended to read as follows:

TABLE P2903.2
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS[b]

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATES AND OR QUANTITY
Lavatory faucet	1.5 gpm at 60 psi
Shower head[a]	2.0 gpm at 80 psi
Kitchen faucet[c]	1.8 gpm at 60 psi
Sink faucet	2.2 gpm at 60 psi
Water closet	1.28 gallons per flushing cycle[d,e]

For SI: 1 gallon per minute = 3.785 L/m,
1 pound per square inch = 6.895 kPa.

a. The total flow rate from all shower fixtures controlled by one valve shall not exceed 2.0 gpm. This includes hand-held sprays, body sprays, jets, waterfalls, and rain systems.

b. Consumption tolerances shall be determined from referenced standards.
c. Kitchen faucets shall be permitted to temporarily increase the flow greater than 1.8 gpm but shall not exceed 2.2 gpm and must automatically revert to the established maximum flow rate of 1.8 gpm upon physical release of the activation mechanism or closure of the faucet valve.
d. For dual flush, the full-flush volume shall not exceed 1.28 gallons.
e. 1.6 gallons per flushing cycle is permitted in existing buildings where a water closet is connected to a building's existing sanitary drainage piping.

Sec. 31-62. IRC CHAPTER 30 SANITARY DRAINAGE - amendments.

Only the following portion of CHAPTER 30 SANITARY DRAINAGE, is amended:

(a) A new exception to Section P3009.8, Percolation tests, is added to read as follows:

Exception: A percolation test is not required where a graywater system is installed with a maximum discharge rate of 160 gallons per day as determined by this code based on the number of occupants and connected fixtures. Graywater systems shall comply with Arizona Department of Environmental Quality rules and guidelines.

Sec. 31-63. IRC CHAPTER 39 POWER AND LIGHTING DISTRIBUTION - amendments.

Only the following portion of CHAPTER 39 POWER AND LIGHTING DISTRIBUTION, is amended:

(a) Section E3908.9, Types of equipment grounding conductors, is deleted in its entirety and replaced with the following:

E3908.9 Types of equipment grounding conductors. Equipment grounding conductors shall comply with the National Electric Code as adopted and amended in Article III of this Chapter.

[Section 31-64. Reserved]

DIVISION. 3. ADOPTION AND AMENDMENTS TO IRC: APPENDICES

Sec. 31-65. Appendices to IRC.

The following appendices are adopted:

APPENDIX AA - SIZING AND CAPACITIES OF GAS PIPING
APPENDIX AB - SIZING OF VENTING SYSTEMS SERVING APPLIANCES EQUIPPED WITH DRAFT HOODS, CATEGORY I APPLIANCES, AND APPLIANCES LISTED FOR USE WITH TYPE B VENTS
APPENDIX AC - EXIT TERMINALS OF MECHANICAL DRAFT AND DIRECT-VENT VENTING SYSTEMS
APPENDIX AH - PATIO COVERS
APPENDIX AJ - EXISTING BUILDINGS AND STRUCTURES
APPENDIX AK - SOUND TRANSMISSION
APPENDIX AR - LIGHT STRAW-CLAY CONSTRUCTION

APPENDIX AS - STRAWBALE CONSTRUCTION
APPENDIX AT - SOLAR-READY PROVISIONS - DETACHED ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES
APPENDIX AU - COB CONSTRUCTION (MONOLITHIC ADOBE)

Sec. 31-66. APPENDIX AH – PATIO COVERS – amendments.

(a) A new Section AH103.3, Fire rating, is added to read as follows:

AH103.3 Fire rating. All patio covers shall be protected with a one-hour fire-resistive wall and parapet where:

1. Combustible patio covers are less than 3 feet from the property line.
2. Non-combustible patio covers are less than 1 foot 6 inches from the property line.
   Exception: Where the one-hour fire-resistive wall and parapet are required, a one-hour roof-ceiling assembly may be substituted for the parapet if:
   a. The roof-ceiling framing members are parallel to the one-hour wall, and the one-hour roof-ceiling assembly extends at least 5 feet from wall.
   b. The roof-ceiling framing members are perpendicular to the one-hour wall, and the entire span of the framing is at least one-hour fire-resistive construction.
   c. Openings in the roof are at least 5 feet from the property line.

Sec. 31-67. APPENDIX J of IBC applicable to IRC.

APPENDIX J Grading, of the IBC, and the city amendments to APPENDIX J, are applicable to the IRC.

Sec. 31-68. APPENDIX AT – SOLAR-READY PROVISIONS – DETACHED ONE AND TWO FAMILY DWELLINGS AND TOWNHOUSES – amendments.

(a) Section AT103.3, Solar-ready zone area, is amended to read as follows:

AT103.3 Solar-ready zone area. The total solar-ready zone area shall be not less than 10 percent of the total roof area over *conditioned space* but not less than 300 sq. ft. (27.87 m^2), exclusive of areas covered by skylights, occupied roof decks, vegetative roof areas and mandatory access or setback areas as required by the *International Fire Code*. New townhouses three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (185.8 m^2) per dwelling shall have a solar-ready zone area of not less than 150 square feet (13.94 m^2). The solar-ready zone shall be composed of areas not less than 5 feet (1524 mm) in width and not less than 80 square feet (7.44 m^2) exclusive of access or setback areas as required by the *International Fire Code*.

[Section 31-69. Reserved.]

RESOLUTION NO. 12503

A RESOLUTION OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, DECLARING AS PUBLIC RECORDS THOSE CERTAIN DOCUMENTS FILED WITH THE CITY CLERK OF THE CITY OF SCOTTSDALE AND ENTITLED THE *"INTERNATIONAL ENERGY CONSERVATION CODE*, 2021 EDITION" INCLUDING APPENDICES, AND THE "2022 CITY OF SCOTTSDALE AMENDMENTS TO THE INTERNATIONAL ENERGY CONSERVATION CODE, 2021 EDITION."

WHEREAS, the Building Department of the City of Scottsdale wishes to replace the existing building and construction codes with updated versions of the codes, and to amend the International and National Codes and the Scottsdale Revised Code to better address the needs of the City of Scottsdale;

WHEREAS, State law permits cities to declare documents a public record; and

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Scottsdale, Maricopa County, Arizona, as follows:

Section 1. The following documents are hereby declared to be public records, and one paper copy and one electronic copy are hereby ordered to remain on file in the office of the City Clerk and kept available for public use and inspection:

(1) The *International Energy Conservation Code*, 2021 Edition, including Appendices CB and RB, as published by the International Code Council, Inc., and

(2) That certain document entitled "2022 City of Scottsdale Amendments to the International Energy Conservation Code, 2021 Edition," attached hereto as Exhibit "A."

PASSED AND ADOPTED by the Council of the City of Scottsdale, Maricopa County, Arizona this _____ day of _____, 2022.

CITY OF SCOTTSDALE, an Arizona municipal corporation

ATTEST:

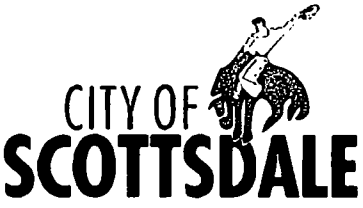
_____
David D. Ortega, Mayor

_____
Ben Lane, City Clerk

APPROVED AS TO FORM:

_____
Sherry R. Scott, City Attorney
By: Kimberly Campbell, Senior Assistant City Attorney

Exhibit "A"



2022 CITY OF SCOTTSDALE AMENDMENTS TO THE INTERNATIONAL ENERGY CONSERVATION CODE, 2021 EDITION

Ordinance No. 4575, Resolution No. 12503

2022 City of Scottsdale Amendments

to the International Energy Conservation Code, 2021 Edition

SCOTTSDALE REVISED CODE

CHAPTER 31 – BUILDING AND CONSTRUCTION REGULATIONS

ARTICLE VII. INTERNATIONAL ENERGY CONSERVATION CODE

DIVISION 1. ADOPTED CODE

Sec. 31-110. International Energy Conservation Code adopted and amended.

The International Energy Conservation Code (IECC), 2021 Edition, including appendices CB and RB, as published by the International Code Council, Inc., declared a public record by city Resolution No. 12503, are adopted by reference as part of the city Building Code.

DIVISION 2. AMENDMENTS TO IECC

Sec. 31-111. IECC Amendments – Chapter 1 (Commercial).
Only the following portion of CHAPTER 1, SCOPE AND ADMINISTRATION, is amended:

(a) Section C*101.1, Title, is amended to read as follows:*

C101.1 Title. This code shall be known as the "*Energy Code*" of the City of Scottsdale and shall be cited as such. It is referred to herein as "this code."

Sec. 31-112. IECC Amendments – Chapter 2 (Commercial).
Only the following portion of CHAPTER 2, DEFINITIONS, is amended:

(a) *Section C202, General Definitions, is amended by adding the following:*

AUTOMATIC LOAD MANAGEMENT SYSTEMS (ALMS). A control system that allows multiple connected *EVSE* to share a circuit or panel and automatically reduce power at each charger, reducing the total connected electrical capacity of all *EVSE*.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

EV CAPABLE SPACE. A designated parking space provided with electrical raceway and capacity to support future EV charging.

EV INSTALLED SPACE. A designated parking space with dedicated electric vehicle supply equipment.

Sec. 31-113. IECC Amendments – Chapter 4 (Commercial).

Only the following portions of CHAPTER 4, COMMERCIAL ENERGY EFFICIENCY, are amended:

(a) *Section C402.3, Roof solar reflectance and thermal emittance, is amended to read as follows, with the exceptions and table remaining unchanged.*

C402.3 Roof solar reflectance and thermal emittance. Low-sloped roof surfaces over conditioned and unconditioned spaces in *Climate Zones* 0 through 3 shall comply with one or more of the options in Table C402.3.

(b) *Section C405.12, Energy Monitoring, is deleted in its entirety.*

(c) *A new Section C405.13, Electric Vehicle (EV) charging infrastructure, is added as follows:*

C405.13 Electric Vehicle (EV) charging infrastructure. New construction shall accommodate future installation and use of *Electric Vehicle Supply Equipment (EVSE)* in accordance with the *National Electrical Code (NFPA 70).*

C405.13.1 Required *EV installed spaces* and *EV capable* spaces. Parking shall be provided with *EV installed spaces* and *EV capable spaces* in accordance with Table C405.13.1. 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, 208/240V). 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 kVA (20A, 208/240V).

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 C405.13.1
ELECTRIC VEHICLE CHARGING INFRASTRUCTURE REQUIREMENTS

Occupancy Group	Minimum number of *EV Installed* Spaces[a]	Minimum number of *EV Capable* Spaces[a]
Group R-1 (hotels, motels) and Group R-2 (apartments, condominiums)	4% of total required parking spaces	20% of total required parking spaces

[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.

C405.13.2 Documentation. Construction documents shall indicate location(s) for *EV installed spaces* and *EV capable spaces*. Information shall be provided on raceway methods, wiring schematics and electrical load calculations to verify the electrical panel

service capacity, including any on-site distribution transformers, to ensure sufficient capacity to simultaneously charge all required EV spaces at the rated amperage of the *EVSE*.

(d) *Table C406.10.2, Energy Use Categories, is revised by adding the following:*

TABLE C406.10.2
ENERGY USE CATEGORIES

LOAD CATEGORY	DESCRIPTION OF ENERGY USE
Electric vehicle charging	Energy used for electric vehicle charging

(e) *Table C407.2, Requirements for Total Building Performance, is revised by adding the following:*

TABLE C407.2
REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

Envelope	
C402.3	Roof solar reflectance and thermal emittance

(f) *Exceptions to Section C408.2 Mechanical systems and service water-heating systems commissioning and completion requirements, are amended to read as follows:*

Exceptions: The following systems are exempt:

1. Mechanical systems in buildings where the total mechanical equipment capacity is less than 180,000 Btu/h (52.8 kW or 15 tons) for cooling, 300,000 Btu/h (87.9 kW) for space-heating and 10,000 cfm for ventilation.
2. Service water-heating systems rated under 50,000 Btu/h (14.7 kW).
3. Water pumping and mixing systems under 5 hp (4kW).
4. Systems included in Section C403.5 that serve individual *dwelling units* and *sleeping units*.

Sec. 31-114. IECC Amendments – Chapter 1 (Residential).
Only the following portion of CHAPTER 1, SCOPE AND ADMINISTRATION, is amended:

(a) *Section R101.1, Title, is amended to read as follows:*

R101.1 Title. These regulations shall be known as the "Energy Code" of the City of Scottsdale, hereinafter referred to in this Article as "this code".

Sec. 31-115. IECC Amendments – Chapter 2 (Residential).
Only the following portion of CHAPTER 2, DEFINITIONS, is amended:

(a) *Section R202, Definitions, is amended by adding the following:*

LOW-SLOPED ROOF. A roof having a slope less than 2 units vertical in 12 units horizontal.

Sec. 31-116. IECC Amendments – Chapter 4 (Residential).
Only the following portions of CHAPTER 4, RESIDENTIAL ENERGY EFFICIENCY, are amended:

(a) *Reserved.*

(b) *Reserved.*

(c) *Table R402.4.1.1, Air Barrier, Air Sealing and Insulation Installation, Rim Joists and footnote b are revised to read as follows:*

COMPONENT	AIR BARRIER CRITERIA INSULATION	INSTALLATION CRITERIA
Rim joists	Rim joists shall include an air barrier. The junctions of the rim board to the sill plate and the rim board to the subfloor shall be air sealed.	Rim joists shall be insulated so that the insulation maintains permanent contact with the exterior rim board.[b]

b. Insulation full enclosure is not required in unconditioned/ventilated attic spaces and at rim joists.

(d) *Section R402.4.6, Electrical and communication outlet boxes (air-sealed boxes), is amended to read as follows:*

R402.4.6 Electrical and communication outlet boxes (air-sealed boxes). Where air-sealed boxes are required by Table R402.4.1.1, electrical and communication outlet boxes shall comply with all of the following:

1. be tested in accordance with NEMA OS 4, Requirements for Air-Sealed Boxes for Electrical and Communication Applications;
2. have an air leakage rate of not greater than 2.0 cubic feet per minute (0.944 L/s) at a pressure differential of 1.57 psf (75 Pa);
3. be marked "NEMA OS 4" or "OS 4" in accordance with NEMA OS 4; and
4. be installed per the manufacturer's instructions and with any supplied components required to achieve compliance with NEMA OS 4.

(e) *A new Section R402.6, Roof solar reflectance and thermal emittance, is added to read as follows:*

R402.6 Roof solar reflectance and thermal emittance. Where not prohibited by the city environmentally sensitive lands ordinance (ESLO), low-sloped roof surfaces over conditioned and unconditioned spaces in *Climate Zones* 0 through 3 shall comply with one or more of the options in Table R402.6.

Exception: Portions of the roof that are covered by roof decks, vegetation, walkways, skylights, and solar energy systems are exempt from the requirements of Table R402.6.

TABLE R402.6
MINIMUM ROOF REFLECTANCE AND EMITTANCE OPTIONS

Three-year-aged solar reflectance index (SRI) of 64
Three-year-aged solar reflectance of 0.55 and a three-year aged thermal emittance of 0.75

(f) *Section R403.5.1.1.1, Demand recirculation water systems, is amended to read as follows:*

R403.5.1.1.1 Demand recirculation water systems. *Demand recirculation water systems* are required when the length of hot water supply piping from the source of hot water to the furthest fixture fitting exceeds the specified length in Table R403.5.1.1.1. Where the piping contains more than one size of pipe, the largest size of pipe within the piping shall be used for determining the maximum allowable length of piping before a recirculating hot water system is required. For the purpose of this section, the source of hot water shall be a water heater, boiler, circulation loop piping, distribution manifold, or heat-traced piping.

Demand recirculation water systems shall have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance or sensing the flow of hot or tempered water to a fixture fitting or appliance.

Table R403.5.1.1.1 DEMAND RECIRCULATION WATER SYSTEM REQUIREMENT BASED ON PIPE SIZE AND LENGTH	
Nominal Pipe Size (inches)	**Piping Length (feet)**
3/8 inch line or less	> 50 feet
1/2 inch line	> 43 feet
5/8 inch line	> 32 feet
3/4 inch line	> 21 feet

(g) *Reserved.*

(h) *Table R405.2, Requirements for Total Building Performance – Building Thermal Envelope, is revised by adding a new line for Section R402.6 as follows:*

TABLE R405.2
REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

Building Thermal Envelope	
R402.6	Roof solar reflectance and thermal emittance

(i) *Table R406.2, Requirements for Energy Rating Index – Building Thermal Envelope, is revised by adding a new line for Section R402.6 as follows:*

TABLE R406.2
REQUIREMENTS FOR ENERGY RATING INDEX

Building Thermal Envelope	
R402.6	Roof solar reflectance and thermal emittance

(j) *Section R408.2, Additional efficiency package options, is amended to read as follows:*

R408.2 Additional efficiency package options. Additional efficiency package options for compliance with Section R401.2.1 are set forth in Sections R408.2.1 through R408.2.6.

(k) A new *Section R408.2.6, On-site renewable energy option, is added as follows:*

R408.2.6 On-site renewable energy option. Provide an on-site renewable energy generation system that meets one of the following:

1. Provides a total rated capacity of not less than 2 watts per square foot (22 W/m^2) of the total *conditioned floor area.*
2. Provides not less than 50 percent of the estimated annual energy use within the building for mechanical, service water-heating, lighting and electric vehicle charging.

DIVISION. 3. ADOPTION AND AMENDMENTS TO IECC: APPENDICES

Sec. 31-117. Appendices to IECC.

The following appendices are adopted:

APPENDIX CB – SOLAR-READY ZONE - COMMERCIAL
APPENDIX RB – SOLAR-READY PROVISIONS – DETACHED ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES

Sec. 31-118. IECC Amendments – Appendix CB (Commercial).

Only the following portion of APPENDIX CB SOLAR-READY ZONE of the IECC is amended.

(a) *Section CB103.1, General, is amended to read as follows:*

CB103.1 General. A solar-ready zone shall be located on the roof of buildings that are oriented between 110 degrees and 270 degrees of true north or have low-slope roofs. Solar-ready zones shall comply with Sections CB103.2 through CB103.9.

Exceptions:

1. A building with a permanently installed, on-site renewable energy system.
2. A building with a solar-ready zone that is shaded for more than 70 percent of daylight hours annually.
3. A building where the licensed design professional certifies that the solar zone area required by Section CB103.3 cannot be met because of extensive rooftop equipment, skylights, vegetative roof areas or other obstructions.

Sec. 31-119. IECC Amendments – Appendix RB (Residential)

Only the following portion of APPENDIX RB SOLAR-READY PROVISIONS of the IECC is amended.

(a) *Section RB103.3, Solar-ready zone area, is amended to read as follows:*

RB103.3 Solar-ready zone area. The total solar-ready zone area shall be not less than 10 percent of the total roof area over *conditioned space* but not less than 300 sq. ft. (27.87 m^2), exclusive of areas covered by skylights, occupied roof decks, vegetative roof areas and mandatory access or setback areas as required by the *International Fire Code*. New townhouses three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (185.8 m^2) per dwelling shall have a solar-ready zone area of not less than 150 square feet (13.94 m^2). The solar-ready zone shall be composed of areas not less than 5 feet (1524 mm) in width and not less than 80 square feet (7.44 m^2) exclusive of access or setback areas as required by the *International Fire Code*.

Option A

Amendments to Resolution Nos. 12499 and 12503, Ordinance No. 4575

IRC and IECC <u>with</u> EV Charging for Single-Family

To include EV charging for single-family homes in the *International Residential Code for One- and Two-Family Dwellings* (IRC), 2021 Edition, the 2022 City of Scottsdale Amendments to the International Residential Code, 2021 Edition, and the *International Energy Conservation Code* (IECC), 2021 Edition, and the 2022 City of Scottsdale Amendments to the International Energy Conservation Code, 2021 Edition, the following changes would be made:

<u>IRC</u>

1. **<u>Resolution No. 12499, Exhibit "A" – Add definition of Electric Vehicle Supply Equipment to Section 31-59(a) of the Scottsdale Revised Code (S.R.C.) as follows (with additions in shading):</u>**

   (a) Section N1101.6 (R202), Defined terms, is amended by adding the following:

   ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

   LOW-SLOPED ROOF. A roof having a slope less than 2 units vertical in 12 units horizontal.

2. **<u>Resolution No. 12499, Exhibit "A" – Replace S.R.C. Section 31-59(h) as follows (with additions in shading, deleted text in ~~strikethrough~~):</u>**

   (h) ~~*Reserved.*~~ A new *Section N1104.4 (R404.4), Electric Vehicle (EV) charging infrastructure, is added as follows:*

   N1104.4 (R404.4) Electric Vehicle (EV) charging infrastructure. New construction shall accommodate future installation and use of *Electric Vehicle Supply Equipment (EVSE)* in accordance with the *National Electrical Code (NFPA 70).*

   N1104.4.1 (R404.4.1) EV-capable charging. The main electrical service panel shall have a reserved space to allow installation of a full size 2-pole circuit breaker for future EV charging and shall be labeled "Future EV Charging". Where the electrical service panel is located beyond the perimeter of the garage wall, a raceway shall be installed from the electrical service panel to a location within the garage, where it shall terminate in a junction box or outlet and be labeled "Future EV Charging".

   Where resident parking is provided in a common parking area in lieu of individual *dwelling unit* garages or carports, EV charging infrastructure shall comply with Section C405.13 of the City Energy Code (IECC).

3. Resolution No. 12499, Exhibit "A" – Amend S.R.C. Section 31-59(i) as follows (with additions in shading, deleted text in ~~strikethrough~~):

(i) Table N1105.2 (R405.2), Requirements for Total Building Performance – Building Thermal Envelope and Electrical Power and Lighting Systems, ~~is~~ are revised by adding a new line for Sections N1102.6 (R402.6) and N1104.4 (R404.4) as follows:

TABLE N1105.2 (R405.2)
REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

Building Thermal Envelope	
N1102.6 (R402.6)	Roof solar reflectance and thermal emittance.
Electrical Power and Lighting Systems	
N1104.4 (R404.4)	Electric vehicle charging infrastructure

4. Resolution No. 12499, Exhibit "A" – Amend S.R.C. Section 31-59(j) as follows (with additions in shading, deleted text in ~~strikethrough~~):

(j) Table N1106.2 (R406.2), Requirements for Energy Rating Index - Building Thermal Envelope and Electrical Power and Lighting Systems, ~~is~~ are revised by adding a new line for Sections N1102.6 (R402.6) and N1104.4 (R404.4) as follows:

TABLE N1106.2 (R406.2)
REQUIREMENTS FOR ENERGY RATING INDEX

Building Thermal Envelope	
N1102.6 (R402.6)	Roof solar reflectance and thermal emittance.
Electrical Power and Lighting Systems	
N1104.4 (R404.4)	Electric vehicle charging infrastructure

IECC

5. Resolution No. 12503, Exhibit "A" – Add definition of Electric Vehicle Supply Equipment to S.R.C. Section 31-115(a) as follows (with additions in shading):

(a) *Section R202, Definitions, is amended by adding the following:*

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

LOW-SLOPED ROOF. A roof having a slope less than 2 units vertical in 12 units horizontal.

6. Resolution No. 12503, Exhibit "A" – Replace S.R.C. Section 31-116(g) as follows (with additions in shading, deleted text in ~~strikethrough~~):

(g) ~~*Reserved.*~~ *A new Section R404.4, Electric Vehicle (EV) charging infrastructure, is added as follows:*

R404.4 Electric Vehicle (EV) charging infrastructure. New construction shall accommodate future installation and use of *Electric Vehicle Supply Equipment (EVSE)* in accordance with the *National Electrical Code (NFPA 70).*

R404.4.1 EV capable charging. The main electrical service panel shall have a reserved space to allow installation of a full size 2-pole circuit breaker for future EV charging and shall be labeled "Future EV Charging". Where the electrical service panel is located beyond the perimeter of the garage wall, a raceway shall be installed from the electrical service panel to a location within the garage, where it shall terminate in a junction box or outlet and be labeled "Future EV Charging".

Where resident parking is provided in a common parking area in lieu of individual *dwelling unit* garages or carports, EV charging infrastructure shall comply with Section C405.13.

7. Resolution No. 12503, Exhibit "A" – Amend S.R.C. Section 31-116(h) as follows (with additions in shading, deleted text in ~~strikethrough~~):

(h) *Table R405.2, Requirements for Total Building Performance – Building Thermal Envelope and Electrical Power and Lighting Systems, ~~is~~ are revised by adding a new line for Sections R402.6 and R404.4 as follows:*

TABLE R405.2
REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

Building Thermal Envelope	
R402.6	Roof solar reflectance and thermal emittance
Electrical Power and Lighting Systems	
R404.4	Electric vehicle charging infrastructure

8. Resolution No. 12503, Exhibit "A" – Amend S.R.C. Section 31-116(i) as follows (with additions in shading, deleted text in ~~strikethrough~~):

(i) *Table R406.2, Requirements for Energy Rating Index – Building Thermal Envelope and Electrical Power and Lighting Systems, ~~is~~ are revised by adding a new line for Sections R402.6 and R404.4 as follows:*

TABLE R406.2
REQUIREMENTS FOR ENERGY RATING INDEX

Building Thermal Envelope	
R402.6	Roof solar reflectance and thermal emittance
Electrical Power and Lighting Systems	
R404.4	Electric vehicle charging infrastructure

Option B

Amendments to Resolution Nos. 12499 and 12503, Ordinance No. 4575

IRC and IECC Reducing the Ceiling Insulation Requirements

To reduce the ceiling insulation requirements for single-family homes to R-38 in the *International Residential Code for One- and Two-Family Dwellings* (IRC), 2021 Edition, the 2022 City of Scottsdale Amendments to the International Residential Code, 2021 Edition, and the *International Energy Conservation Code* (IECC), 2021 Edition, and the 2022 City of Scottsdale Amendments to the International Energy Conservation Code, 2021 Edition, the following changes would be made:

IRC

1. **Resolution No. 12499, Exhibit "A" – Replace subsections (b) and (c) of Scottsdale Revised Code (S.R.C.) Section 31-59 as follows (with additions in shading, deleted text in ~~strikethrough~~):**

   (b) ~~*Reserved.*~~ *Table N1102.1.3 (R402.1.3), Insulation Minimum* R-*Values and Fenestration Requirements by Component, Ceiling* R-*Value for Climate Zone 2, is amended to read as follows:*

CLIMATE ZONE	CEILING *R*-VALUE
2	38

   (c) ~~*Reserved.*~~ *Section N1102.2.1 (R402.2.1), Ceilings with attic spaces, is amended to read as follows:*

   N1102.2.1 (R402.2.1) Ceilings with attic spaces. Where Section N1102.1.3 (R402.1.3) requires R-38 insulation in the ceiling or attic, installing R-30 over 100 percent of the ceiling or attic area requiring insulation shall satisfy the requirement for R-38 insulation wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. This reduction shall not apply to the insulation and fenestration criteria in Section N1102.1.2 (R402.1.2) and the Total UA alternative in Section N1102.1.5 (R402.1.5).

IECC

2. **Resolution No. 12503, Exhibit "A" – Replace subsections (a) and (b) of S.R.C. Section 31-116 as follows (with additions in shading, deleted text in ~~strikethrough~~):**

   (a) ~~*Reserved.*~~ *Table R402.1.3, Insulation Minimum* R-*Values and Fenestration Requirements by Component, Ceiling* R-*Value for Climate Zone 2, is amended to read as follows:*

CLIMATE ZONE	CEILING *R*-VALUE
2	38

(b) ~~*Reserved.*~~ *Section R402.2.1, Ceilings with attic spaces, is amended to read as follows:*

R402.2.1 Ceilings with attic spaces. Where Section R402.1.3 requires R-38 insulation in the ceiling or attic, installing R-30 over 100 percent of the ceiling or attic area requiring insulation shall satisfy the requirement for R-38 insulation wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. This reduction shall not apply to the insulation and fenestration criteria in Section R402.1.2 and the Total UA alternative in Section R402.1.5.

Where Section R402.1.3 requires R-38 insulation in the ceiling or attic, the full height of uncompressed insulation shall extend to the outer edge of the wall top plate at the eaves.

ORDINANCE NO. 4576

AN ORDINANCE OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, ADOPTING PART OF THE BUILDING CODE OF THE CITY OF SCOTTSDALE, INCLUDING THE 2021 EDITION OF THE *INTERNATIONAL GREEN CONSTRUCTION CODE* AND THE 2022 CITY OF SCOTTSDALE AMENDMENTS TO THE INTERNATIONAL CODE; REPEALING AND REPLACING ARTICLE X OF SCOTTSDALE REVISED CODE (S.R.C.) CHAPTER 31, BUILDING AND CONSTRUCTION REGULATIONS, WITH A NEW ARTICLE X OF S.R.C. CHAPTER 31, BUILDING AND CONSTRUCTION REGULATIONS; AND ESTABLISHING AN EFFECTIVE DATE.

BE IT ORDAINED by the Council of the City of Scottsdale, Arizona, as follows:

Section 1. The following documents, declared public record by Resolution No. 12505 of the City of Scottsdale, one paper copy and one electronic copy of which are on file in the Office of the City Clerk of the City of Scottsdale, are adopted by this reference and made a part hereof as if fully set out in this Ordinance, and shall be part of the Building Code of the City in conjunction with the other articles in Chapter 31 of the Scottsdale Revised Code:

(1) The *International Green Construction Code*, 2021 Edition, as published by the International Code Council, Inc., and as amended by the "2022 City of Scottsdale Amendments to the International Green Construction Code, 2021 Edition," declared public records by Resolution No. 12505 of the City of Scottsdale, are hereby referred to, adopted, and made a part hereof as if fully set out in this Ordinance.

Section 2. Article X, Sections 31-140 through 31-164 of Chapter 31, Building and Construction Regulations, of the Scottsdale Revised Code is hereby repealed and replaced by a new Article X, Sections 31-140 through 31-164 of Chapter 31, Building and Construction Regulations, of the Scottsdale Revised Code, which shall read as specified in the certain document entitled, "2022 City of Scottsdale Amendments to the International Green Construction Code, 2021 Edition," declared to be a public record by Resolution No. 12505 of the City of Scottsdale, and hereby referred to, adopted, and made a part hereof as if fully set out in this Ordinance.

Section 3. If any section, subsection, sentence, clause, or phrase of this Ordinance is, for any reason, held to be invalid or unconstitutional, such decision shall not affect the validity of the remaining portions of this Ordinance. The Scottsdale City Council hereby declares that it would have passed this law, and each section, subsection, clause, or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, and phrases be declared invalid or unconstitutional.

Section 4. The existing provisions of Chapter 31 that are being repealed and replaced by this Ordinance will remain in effect until the effective date of this Ordinance. The repeal of

any provision of the Scottsdale Revised Code effectuated by this Ordinance does not affect the rights and duties that matured or penalties that were incurred and proceedings that were begun before the effective date of this Ordinance.

Section 5. If there is any conflict or inconsistency between the provisions of this Ordinance, the more restrictive provisions apply.

Section 6. The effective date of this Ordinance shall be the later of: July 1, 2023 or the date the City of Scottsdale zoning ordinance is amended in response to this Ordinance.

PASSED AND ADOPTED BY THE Council of the City of Scottsdale, Maricopa County, Arizona this _____ day of _____, 2022.

ATTEST:

CITY OF SCOTTSDALE,
a municipal corporation

_____
Ben Lane, City Clerk

_____
David D. Ortega, Mayor

APPROVED AS TO FORM:
OFFICE OF THE CITY ATTORNEY

_____
Sherry R. Scott, City Attorney
By: Kimberly Campbell, Senior Assistant City Attorney

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RESOLUTION NO. 12505

A RESOLUTION OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, DECLARING AS PUBLIC RECORDS THOSE CERTAIN DOCUMENTS FILED WITH THE CITY CLERK OF THE CITY OF SCOTTSDALE AND ENTITLED THE *"INTERNATIONAL GREEN CONSTRUCTION CODE*, 2021 EDITION" AND THE "2022 CITY OF SCOTTSDALE AMENDMENTS TO THE INTERNATIONAL GREEN CONSTRUCTION CODE, 2021 EDITION."

WHEREAS, the Building Department of the City of Scottsdale wishes to replace the existing building and construction codes with updated versions of the codes, and to amend the International and National Codes and the Scottsdale Revised Code to better address the needs of the City of Scottsdale;

WHEREAS, State law permits cities to declare documents a public record; and

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Scottsdale, Maricopa County, Arizona, as follows:

Section 1. The following documents are hereby declared to be public records, and one paper copy and one electronic copy are hereby ordered to remain on file in the office of the City Clerk and kept available for public use and inspection:

(1) The *International Green Construction Code*, 2021 Edition, as published by the International Code Council, Inc., and

(2) That certain document entitled "2022 City of Scottsdale Amendments to the International Green Construction Code, 2021 Edition," attached hereto as Exhibit "A."

PASSED AND ADOPTED by the Council of the City of Scottsdale, Maricopa County, Arizona this _____ day of _____, 2022.

CITY OF SCOTTSDALE, an Arizona municipal corporation

ATTEST:

_____
David D. Ortega, Mayor

_____
Ben Lane, City Clerk

APPROVED AS TO FORM:

_____
Sherry R. Scott, City Attorney
By: Kimberly Campbell, Senior Assistant City Attorney

Exhibit "A"

2022 CITY OF SCOTTSDALE AMENDMENTS TO THE INTERNATIONAL GREEN CONSTRUCTION CODE, 2021 EDITION

Ordinance No. 4576, Resolution No. 12505

2022 City of Scottsdale Amendments

to the International Green Construction Code, 2021 Edition

SCOTTSDALE REVISED CODE

CHAPTER 31 – BUILDING AND CONSTRUCTION REGULATIONS

ARTICLE X. GREEN CONSTRUCTION CODE

Section 31-140. Adoption of International Green Construction Code.

The International Green Construction Code (IgCC), 2021 Edition, by the International Code Council, Inc., declared a public record by city Resolution No. 12505, is adopted by reference as part of the city Building Code.

Section 31-141. IgCC CHAPTER 1, SCOPE AND ADMINISTRATION – amendments.

Only the following portions of CHAPTER 1, SCOPE AND ADMINISTRATION, are amended:

(a) Section 101.1, Title, is amended to read as follows:

101.1 Title. These regulations shall be known as the *Green Construction Code* of the City of Scottsdale, hereinafter referred to as "this code."

(b) Section 101.3, Scope, is amended to read as follows, including adding a new Section 101.3.2:

101.3 Scope. The provisions of this code shall apply to the design, construction, addition, alteration, equipment, change of occupancy, relocation, replacement, demolition and removal of every commercial and multifamily building or structure or appurtenances connected or attached to such buildings or structures and to the building site on which the building is located except where otherwise noted. Occupancy classifications shall be determined in accordance with the *International Building Code*.

101.3.1 Applicability. The provisions of this code do not apply to the following:

1. One- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories in height above grade with a separate means of egress, their accessory structures, and the site or lot upon which these buildings are located.
2. Manufactured houses (mobile homes).
3. Manufactured houses (modular).
4. Building projects that use none of the following:
    a. Electricity.
    b. Fossil fuels.
    c. Water.

101.3.2 Above code programs. Buildings registered for certification or designation under the following national or regionally recognized green building programs shall be deemed to comply with this code:

1. LEED green building rating system certification.
2. Green Globes green building rating system certification.
3. Living Building Challenge certification.

(c) Section 101.5, Compliance, is amended to read as follows:

101.5 (4.1 & 4.2) Compliance. *Building projects* shall comply with this code. Within each of Chapters 5 through 9, *building projects* shall comply with all mandatory provisions (x.3) and, where offered, either the:

1. Prescriptive Option (x.4) or
2. Performance Option (x.5).

(d) Section 101.5.1, Jurisdictional options, including Table 101.5.1, is deleted in its entirety.

(e) References to the "authority having jurisdiction" in this code shall mean the "building official" unless otherwise noted.

(f) Section *102.4, Referenced codes and standards, is amended to read as follows:*

102.4 Referenced codes and standards. The building codes of the City of Scottsdale, adopted and amended in Chapters 31 and 36 of the Scottsdale Revised Code, shall be considered part of the requirements of this code.

(g) Section 103, Code Compliance Agency, is deleted in its entirety.

(h) Section 107.1, Information on construction documents, is amended to read as follows:

107.1 Information on construction documents. The content and format of construction documents shall comply with the *International Building Code* as adopted and amended in the Scottsdale Revised Code, Chapter 31, Article I.

(i) Section 108, Fees, is deleted in its entirety.

(j) Section 111.1, General, is amended to read as follows:

111.1 General. Appeals of orders, decisions or determinations made by the building official relative to the application and interpretation of this code shall be made to the Building Advisory Board of Appeals as set forth in the Scottsdale Revised Code, Chapter 31, Article I.

Section 31-142. IgCC CHAPTER 3, DEFINITIONS, ABBREVIATIONS AND ACRONYMS – amendments.

Only the following portions of CHAPTER 3 DEFINITIONS, ABBREVIATIONS AND ACRONYMS, are amended:

(a) Section 301.2, Definitions, is amended by adding the following:

automatic load management systems (ALMS): A control system that allows multiple connected *EVSE* to share a circuit or panel and automatically reduce power at each charger, reducing the total connected electrical capacity of all *EVSE.*

EV capable space: A designated parking space provided with electrical raceway and capacity to support future EV charging.

EV installed space: A designated parking space with dedicated electric vehicle supply equipment.

Section 31-143. IgCC CHAPTER 5, SITE SUSTAINABILITY – amendments.

Only the following portions of CHAPTER 5 SITE SUSTAINABILITY, are amended:

(a) Section 501.3.1, Site selection, including 501.3.1.1 and 501.3.1.2, is retitled and amended to read as follows:

Section 501.3.1 Land use and site development. Land use and site development shall comply with Scottsdale Revised Code Appendix B.

(b) Section 501.3.2, Predesign site inventory and assessment, is retitled and amended to read as follows:

501.3.2 Site inventory and assessment. A plant inventory and assessment including natural features of the site shall comply with Scottsdale Revised Code Appendix B, Article VII, Section 7.504 and Article X.

(c) Section 501.3.3, Plants, is amended to read as follows:

501.3.3 Plants. Plants and landscaping shall comply with Scottsdale Revised Code Appendix B, Article VII, Section 7.503 and Article X.

(d) Section 501.3.4, Stormwater management, is amended to read as follows:

501.3.4 Stormwater management. Stormwater management systems, including, but not limited to infiltration, evapotranspiration; rainwater harvesting, collection and use shall comply with Scottsdale Revised Code, Chapter 37.

(e) Section 501.3.5.2, Walls, is deleted in its entirety.

(f) Section 501.3.5.3, Roofs, is amended to read as follows:

501.3.5.3 Roofs. Building and covered parking *roof* surfaces for *building projects* in Climate Zones 0 through 3 shall comply with Section C402.3 of the City Energy Code (IECC).

(g) Section 501.3.6, Reduction of light pollution, is amended to read as follows:

501.3.6 Reduction of light pollution. Reduction of light pollution shall comply with Scottsdale Revised Code Appendix B, Article VII, Section 7.600 to 7.603.

(h) Section 501.3.7.1, Pedestrian and bicycle connectivity, and Section 501.3.7.2, Bicycle parking, are deleted in their entity and replaced with the following:

501.3.7.1 Pedestrian mobility, bicycle connectivity and bicycle parking. Pedestrian mobility, bicycle connectivity, and bicycle parking shall comply with Scottsdale Revised Code Appendix B, Article IX, Sections 9.103, 9.104 and 9.106; and the Design Standards and Policies Manual (DSPM).

(i) A new Section 501.3.7.2 is added to read as follows:

501.3.7.2 Changing and shower facilities. Buildings with a total building floor area greater than 10,000 square feet (929 m^2) and that are required to be provided with bicycle parking and storage in accordance with the city Zoning Ordinance and city design standards shall be provided with onsite changing room and shower facilities. Not less than one shower shall be provided for each 20 bicycle parking spaces, 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.

Exception: Group R-2 buildings.

(j) Section 501.3.7.3, Electric vehicle charging facilities, is amended to read as follows:

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, 208/240V). 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 kVA (20A, 208/240V).

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

Occupancy Group	Minimum number of *EV Installed* Spaces[a]	Minimum number of *EV Capable* Spaces[a]
Group R-1 (hotels, motels) and Group R-2 (apartments, condominiums)	4% of total required parking spaces	20% of total required parking spaces
Group A, B, E, F, I, M, and S	4% of total required parking spaces or not less than 8% of designated employee only parking spaces	10% of total required parking spaces

[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.

(k) Section 501.3.8, Building site waste management, is deleted in its entirety.

Section 31-144. IgCC CHAPTER 6, WATER USE EFFICIENCY – amendments.

Only the following portions of CHAPTER 6 WATER USE EFFICIENCY, are amended:

(a) Section 601.3.1.1, Landscape Design, is amended to read as follows:

601.3.1.1 Landscape Design. Landscape design shall comply with Scottsdale Revised Code Appendix B, Article VII, Section 7.500 to 7.506 and Article X.

(b) Section 601.3.1.2, Irrigation, including Sections 601.3.1.2.1, 601.3.1.2.2, and 601.3.1.2.2.1 is amended to read as follows:

601.3.1.2 Irrigation. Irrigation systems shall comply with Sections 601.3.1.2.1 and 601.3.1.2.2.

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 feet.
   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.

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.

(c) Section 601.3.1.2.3, Irrigation of Rainfall-ET_C Compatible Plants, is deleted.

(d) The title of Section 601.3.2.1h, Residential showerheads, is amended to read as follows:

h. Showerheads.

(e) Section 601.3.2.1i, Residential shower compartment (stall) in dwelling units and guest rooms, is amended to read as follows:

i. Residential shower compartment (stall) in dwelling units and guest rooms. The total flow rate from all shower outlets controlled by one valve shall not_exceed 2.0 gpm (7.6 L/min). This includes hand-held sprays, body sprays, jets, waterfalls and rain systems.

(f) Section 601.3.2.1j, Water-bottle Filling Stations, is amended to read as follows:

j. Water-bottle filling stations. *Water dispensers* shall be an integral part of or shall be installed adjacent to all drinking fountains as required by Section 410.1.1 of the City Plumbing Code (IPC).

(g) Section 601.3.2.3e relating to HVAC Condensate, is deleted.

(h) Section 601.3.2.5, Commercial food service operations, is amended to read as follows:

601.3.2.5 (6.3.2.5) Commercial food service operations. (e.g., restaurants, cafeterias, food preparation kitchens, caterers, etc.). Commercial food service operations:

a. Shall use high-efficiency prerinse spray valves (i.e., valves that function at 1.3 gpm [4.9 L/min] or less 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 (7.5 L/h) in the full operational mode.
d. Shall use combination ovens that consume not more than 10 gal/h (38 L/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.

(i) Section 601.3.2.6, Medical and laboratory facilities, is deleted.

(j) Section 601.3.3, Hot-Water Distribution, including Sections 601.3.3.1 and 601.3.3.2, is amended to read as follows:

601.3.3 Hot-Water Distribution. Hot-water distribution systems shall comply with Sections C404.5 and C404.6 of the City Energy Code (IECC).

(k) Section 601.3.4, Special Water Features, is amended to read as follows:

601.3.4 Special Water Features. Special water features including ornamental fountains shall comply with Scottsdale Revised Code Chapter 49, Article VII, Division 1, Section 49-242.

(l) Section 601.3.5, Water consumption measurement, including 601.3.5.1, 601.3.5.2 and 601.3.5.3, is amended to read as follows:

601.3.5 Water consumption measurement. Metering shall comply with Scottsdale Revised Code Chapter 49, Article II, Division 1, Section 49-32.

(m) Section 601.3.8, On-site reclaimed water treatment systems, is deleted in its entirety.

(n) Section 601.3.9, Dual water supply plumbing, is deleted in its entirety.

Section 31-145. IgCC CHAPTER 7, ENERGY EFFICIENCY – amendments.

(a) CHAPTER 7, ENERGY EFFICIENCY, is deleted in its entirety except for the following sections, which are amended to read as follows:

701.1 Scope. This section specifies requirements for energy efficiency for buildings and appliances and for *on-site renewable energy systems.*

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.

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 (22 W/m^2) 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 (465 m^2)
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).

Onsite renewable energy systems shall be tested after installation to verify that the installed performance meets design specifications. A report of the tested performance shall be provided to the building owner, and to the building official, if requested by the city. Onsite renewable energy systems shall be individually metered.

Section 31-146. IgCC CHAPTER 8, INDOOR ENVIRONMENTAL QUALITY (IEQ) – amendments.

Only the following portions of CHAPTER 8, INDOOR ENVIRONMENTAL QUALITY (IEQ), are amended:

(a) Section 801.3.1, Indoor air quality, is deleted in its entirety and amended to read as follows:

801.3.1 Indoor air quality. Buildings shall comply with the ventilation requirements of Chapter 4 of the City Mechanical Code (IMC).

(b) Section 801.3.2, Thermal environmental conditions for human occupancy, is deleted in its entirety.

(c) *Section 801.3.3, Acoustical control, is amended to read as follows:*

801.3.3 Acoustical control. Buildings shall comply with Section 1206, Sound Transmission and Section 1207, Enhanced Classroom Acoustics, of the City Building Code (IBC).

(d) Section 801.3.4, Soil-gas control, is deleted.

(e) Section 801.3.5, Lighting quality, is deleted.

(f) Section 801.3.6, Moisture control, is deleted.

(g) Section 801.3.7, Glare control, is deleted.

(h) Section 801.3.8, Occupant override, is deleted.

(i) Section 801.3.9, Exterior views, is deleted.

(j) Section 801.4.1, Daylighting, is amended to read as follows:

801.4.1 Daylighting. Buildings shall comply with Section C402.4.2, Minimum skylight fenestration area, of the City Energy Code (IECC).

(k) Section 801.4.2, Materials, including the exception is amended to read as follows:

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.

(l) Section 801.4.2.1, Adhesives and sealants, is amended to read as follows, including adding a new table:

801.4.2.1 Adhesives and sealants. At least 85 percent by weight or volume, of specific categories of site-applied adhesives and sealants used on the interior side of building envelope, shall comply with the VOC content limits in Table 801.4.2.1 or alternative VOC emission limits in Table 801.4.2.1.1.

TABLE 801.4.2.1
VOC CONTENT LIMITS FOR ADHESIVES AND SEALANTS

ADHESIVES	VOC LIMIT grams per liter (g/L) [a,b]
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 adhesive	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

a. Values in this table are derived from those specified by SCAQMD Rule 1168, October 2017.
b. For low-solid adhesives and sealants, the VOC limit is expressed in grams per liter of material as specified in SCAQMD Rule 1168. For all other adhesives and sealants, the VOC limits are expressed in grams of VOC per liter of adhesive or sealant less water and less exempt compounds as specified in SCAQMD Rule 1168.

Table 801.4.2.1.1
ADHESIVES AND SEALANTS VOC EMISSION LIMITS

VOC	LIMIT
Individual	≤ ½ CA chronic REL[a]
Formaldehyde	≤ 16.5 µg/m^3 or ≤ 13.5 ppb[b]

a. CDPH/EHLB/Standard Method V.1.1 Chronic Reference Exposure Level (CREL).
b. Formaldehyde emission levels need not be reported for materials where formaldehyde is not added by the manufacturer of the material,

(m) Section 801.4.2.2, Paints and coatings, is amended to read as follows, including adding a new table:

801.4.2.2 Paints and coatings. At least 85 percent by weight or volume, of site-applied interior architectural coatings shall comply with the VOC content limits in Table 801.4.2.2 or alternative VOC emission limits in Table 801.4.2.2.1.

TABLE 801.4.2.2
VOC CONTENT LIMITS FOR PAINTS AND COATINGS

CATEGORY	VOC LIMIT grams per liter (g/L) [a,b]
Flat paints	50
Nonflat paints	50
Nonflat High-gloss paints	150

Specialty coatings:	
Concrete/masonry sealers	100
Floor coatings	50
Primers, sealers and undercoats	100
Stains	250
Wood coatings	275

a. Limits are expressed as VOC Regulatory, thinned to the manufacturer's maximum thinning recommendation, excluding any colorant added to tint bases.
b. Values in this table are derived from those specified by the California Air Resources Board *Suggested Control Measure for Architectural Coatings* dated May 2020.

Table 801.4.2.2.1
PAINTS AND COATINGS VOC EMISSION LIMITS

VOC	LIMIT
Individual	≤ ½ CA chronic REL[a]
Formaldehyde	≤ 16.5 µg/m^3 or ≤ 13.5 ppb[b]

a. CA Chronic Reference Exposure Level (CREL).
b. Formaldehyde emission levels need not be reported for materials where formaldehyde is not added by the manufacturer of the material.

(n) Section 801.4.2.3, Floor covering materials, is amended to read as follows, including adding a new table:

801.4.2.3 Floor covering materials. At least 85 percent of the total area of flooring installed within the interior of the building shall comply with the requirements in Table 801.4.2.3. Where flooring with more than one distinct product layer is installed, the emissions from each layer shall comply with these requirements. The test methodology used to determine compliance shall be from CDPH/EHLB/Standard Method V1.2 (commonly known as California Section 01350). The emissions testing shall be performed by a laboratory that has the CDPH/EHLB/ Standard Method V1.2 test methodology in the scope of its ISO 17025 Accreditation. Products certified under third-party certification programs as meeting the specific emission limits in Table 801.4.2.3 shall be an acceptable means for compliance.

801.4.2.3.1 Deemed to comply.

1. Floor covering products certified under nationally recognized third-party certification programs as meeting the emission requirements of Table 801.4.2.3.
2. Floor covering materials listed in Table 801.4.2.3.1, where post-manufacture coatings or surface applications have not been applied.

Table 801.4.2.3
FLOOR COVERING VOC EMISSION LIMITS

VOC	LIMIT
Individual	≤ ½ CA chronic REL[a]
Formaldehyde	≤ 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
Natural stone
Gypsum plaster
Clay masonry
Concrete masonry
Concrete
Metal

(o) Section 801.4.2.5, Office furniture systems and seating, is deleted.

(p) Section 801.4.2.6, Ceiling and wall assemblies and systems, is retitled and amended to read as follows, including adding a new table:

801.4.2.6 Acoustical ceiling tiles and wall systems. At least 85 percent of the total area of acoustical ceiling tiles and wall systems, shall comply with the requirements in Table 801.4.2.6. Where ceiling and wall systems with more than one distinct product layer are installed, the emissions from each layer shall comply with these requirements. The test methodology used to determine compliance shall be from CDPH/EHLB/Standard Method V1.2 (commonly known as California Section 01350). The emissions testing shall be performed by a laboratory that has the CDPH/EHLB/ Standard Method V1.2 test methodology in the scope of its ISO 17025 Accreditation.

801.4.2.6.1 Deemed to comply.

1. Ceiling and wall products certified under nationally recognized third-party certification programs as meeting the emission requirements of Table 801.4.2.6.
2. Ceiling and wall materials listed in Table 801.4.2.6.1 where post-manufacture coatings or surface applications have not been applied.

TABLE 801.4.2.6
ACOUSTICAL CEILING AND WALL PRODUCTS VOC EMISSION LIMITS

VOC	LIMIT
Individual	≤ ½ CA chronic REL[a]
Formaldehyde	≤ 16.5 µg/m^3 or ≤ 13.5 ppb

a. CA Chronic Reference Exposure Level (CREL).

TABLE 801.4.2.6.1
ACOUSTICAL CEILING AND WALL MATERIALS DEEMED TO COMPLY WITH VOC EMISSION LIMITS

Ceramic and concrete tile
Natural Stone
Gypsum plaster
Clay masonry
Concrete masonry
Concrete
Metal

(q) Section 801.4.2.7, Insulation, is deleted.

(r) Section 801.4.3, Lighting for presentations, is deleted.

Section 31-147. IgCC CHAPTER 9, MATERIALS AND RESOURCES – amendments.

Only the following portions of CHAPTER 9, MATERIALS AND RESOURCES, are amended.

(a) Section 901.3.1.1, Diversion, is amended to read as follows:

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.

(b) Section 901.3.1.2, Total waste, is deleted.

(c) Section 901.3.4.1, Recyclables, is amended to read as follows:

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. Mailrooms, breakrooms, and kitchen/kitchenette areas shall be provided with built-in or pull-out recycling containers. Site location for refuse/recycling pick up shall be identified.

(d) Section 901.3.4.3, Fluorescent and high-intensity discharge (HID) lamps and ballasts, is retitled and amended to read as follows:

901.3.4.3 Trash disposal and recycling facilities. Every *dwelling unit* shall be provided with a kitchen cabinet pull-out compartment containing no fewer than two bins, each with a capacity of at least 7-gallons, for the separation and collection of trash and recyclable materials.

Multifamily buildings 4 or more stories shall be provided with separate trash and recycling chutes or recycling collection area on each floor. 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 refuse and recyclable materials until pick up.

(e) Section 901.3.4.4, Electronics and batteries, is deleted.

(f) Section 901.3.5, Mercury content levels of lamps, is deleted.

Section 31-148. IgCC CHAPTER 10, CONSTRUCTION AND PLANS FOR OPERATION – amendments.

(a) Chapter 10, CONSTRUCTION AND PLANS FOR OPERATION, is deleted in its entirety and replaced with the following:

CHAPTER 10 – CONSTRUCTION AND PLANS FOR OPERATION

1001.1 Scope. This section specifies requirements for construction and plans for operation, including commissioning, functional performance testing, metering, and reporting.

1001.2 Compliance. Construction and plans for operation of commercial buildings shall comply with Section C408 of the City Energy Code (IECC), Maintenance Information and System Commissioning.

City of Scottsdale

Proposed Updates for Scottsdale's Energy and Green Construction Codes

Summary of September 27, 2022
Open House Meeting

Open House Summary

On September 27, 2022, a community open house was conducted at the Scottsdale Community Design Studio with the goal of reviewing proposed provisions of the latest energy and green construction code adoptions. With more than 80 community participants. the open house was an opportunity for the public to hear, discuss and provide input on the 2021 editions of the International Energy Conservation Code (IECC), International Residential Code (IRC) and International Green Construction Code (IgCC). Many of the participants provided extensive comments with an overwhelming number in support of the adoption of the codes with recommended amendments. Some of the participants would like to see the provisions go further in the areas of energy efficiency, solar energy, heat island mitigation and water conservation. Most participants were supportive of the proposed provisions energy (IECC), residential (IRC) and green (IgCC) construction codes.

Comments and Input Categories

After a presentation on the codes being considered by Anthony Floyd (Senior Building Consultant), participants were asked ten questions to solicit their comments with respect to energy efficiency, cool roofs, electric vehicle charging infrastructure, on-site solar PV, heat island mitigation, water efficient irrigation systems, low VOC material emissions, construction waste management and low environmental impact building materials. Responses to these questions fall into three categories:

1. Positive comments in support of the purposed change. Examples include comments like "yes!", "great idea", "good addition" or "potential to amend in the future."
2. Neutral comments that neither support nor oppose the proposed provisions. Some of these comments were characterized by questions, suggestions, lack of context, or lack of opinion. Examples include "no opinion", "use white coatings on asphalt streets", or "need more info on this."
3. Negative comments generally disagree with a particular provision or state that it goes too far or not far enough. This is shown in comments such as, "it does not make sense to force EV capable or ready charging infrastructure" and "codes should be mandatory particularly when 'minimum' standard."

Summaries of the feedback for each of the ten questions is provided below. Overall, attendees had an overwhelmingly positive outlook on all ten questions.

Q1: COOL ROOFS FOR RESIDENTIAL AND COMMERCIAL BUILDINGS

A cool roof uses solar reflectance and thermal emittance to help mitigate urban heat island sinks. Comments were predominantly positive with 58% of participants in favor of the provision. Negative comments (11%) stated that this did not go far enough and wanted to have all roofs changed to this technology. Neutral comments addressed the energy savings to cost ratio.

Q2: ELECTRIC VEHICLE CHARGING INFRASTRUCTURE FOR SINGLE- AND MULTI-FAMILY BUILDINGS

Electric vehicle (EV) capable charging infrastructure would accommodate future charging equipment for plug-in hybrid/electric vehicles. 63% of participants were in support, while 16% had questions on the practical implementation of this infrastructure (neutral). Negative comments included those who suggested the requirement was too burdensome and questioned the benefits of electric vehicles.

Q3: EFFICIENCY PACKAGE OPTIONS FOR RESIDENTIAL SOLAR PV INSTALLATION

Adding on-site renewable energy as an additional efficiency option was widely viewed as an effective change. 63% of individuals were in favor of the change, with most of the neutral suggestions being to increase the emphasis and enforcement of performance. There were no negative comments regarding this change.

Q4: EV CAPABLE CHARGING INFRASTRUCTURE FOR COMMERCIAL BUILDINGS

58% of participants were in favor of adding EV infrastructure for non-residential buildings. A small minority (5%) was opposed, and the remainder did not share any comments.

Q5: HEAT ISLAND MITIGATION FOR 50% OF ASPHALT PARKING AREAS

The proposed amendment would mitigate the heat island effect by requiring 50% of the site hardscape be shaded or light color surfaces. 47% of participants agree with this provision, while 11% participants had questions on its implementation. Some commenters wanted to know if streets or highways would fall under this mitigation effort. There were no negative comments for this question.

Q6: WATER EFFICIENT SITE LANDSCAPE IRRIGATION SYSTEMS FOR COMMERCIAL PROJECTS

45% of participants were in favor of this provision for commercial projects. Interestingly, neutral comments (16%) asked for more information on how this would be accomplished and how much water would be saved. There were no negative comments for this question.

Q7: SOLAR PV SYSTEM INSTALLATION REQUIREMENT FOR COMMERCIAL BUILDINGS

Most commenters were in favor of this code with 47% of participants supportive. 5% were negative, raising concerns about continued operation and performance of on-site solar systems. Neutral comments were received from 11% of participants.

Q8: LOW VOC PAINTS, SEALANTS, ADHESIVES, FLOORING, AND ACOUSTICAL CEILING TILES FOR COMMERCIAL BUILDING

This question received more positive comments than any other one, with all individuals who commented (53%) being in support of the measure. There were no negative responses.

Q9: CONSTRUCTION WASTE MANAGEMENT FOR COMMERCIAL BUILDINGS

This measure was well supported with 42% of participants in favor of this code provision. 11% of participants were neutral, although some had questions on enforcement. There were no negative comments for this measure.

Q10: REDUCED IMPACT MATERIAL OPTIONS FOR COMMERCIAL BUILDINGS

This question had 47% of participants in support and 11% neutral. There were no negative comments for this measure.

Scottsdale Environmental Advisory Commission
Office of Environmental Initiatives
City of Scottsdale
7447 E Indian School Rd STE 125
Scottsdale, AZ 85251

Staff Contact: Lisa McNeilly
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August 2, 2022

Dear Mayor and City Council:

The Scottsdale Environmental Advisory Commission (SEAC) has reviewed and recommends adoption of the 2021 International Energy Conservation Code (IECC), International Plumbing Code (IPC), International Residential Code (IRC), and International Green Construction Code (lgCC) with associated amendments for implementing energy efficiency, water conservation, indoor environmental quality and material resource measures in Scottsdale. We understand the amended IECC, IPC, and IRC are intended to be mandatory codes as part of the overall building code update. However, the IgCC is currently proposed by building code staff to remain as a voluntary code applicable to the Green Building Program and where required as a planning tool for zoning bonuses or other stipulation requirements. SEAC recommends that the amended IgCC be adopted as a mandatory code applicable to new commercial buildings with additional building code staff resources for enforcement.

Since the buildings we live and work in constitute the fourth largest source of carbon emissions in the United States; surpassed only by vehicle, power plant, and industrial emissions, keeping pace with code updates from highly vetted code authorities is one of the most forward-looking and impactful actions that Scottsdale can take to keep our city resilient and protect our collective future from climate change.

Recommendation

SEAC recommends adoption of the IECC, IPC and IRC as modified by the Scottsdale-specific SEAC-recommended amendments currently under consideration. These amendments clarify discrepancies between various code provisions, cross-reference existing Scottsdale ordinance requirements and make modifications to tailor code requirements to our city. Notable amendment provisions supported by SEAC include:

- Solar-ready zones for new residential and commercial buildings (IECC) – expansion of the extent of the threshold area to ten percent of the single-family home roof area; also includes an electrical pathway allocation to accommodate future solar electric photovoltaic (PV) systems in both residential and commercial buildings.
- Solar power generation compliance option (IECC) – an option to install on-site solar power generation in lieu of other efficiency requirements.
- Electric Vehicle (EV) Capable and Installed Infrastructure (IECC/IRC) – reserved circuit breaker spaces and raceways for future EV charging in single-family dwellings and both EV capable (20% of parking spaces) and EV installed (4% of parking spaces) infrastructure in multifamily buildings and hotels.
- Recycling Accommodations (IBC/IRC):
  - Dedicated recycling/trash pull-out bins in residential kitchen cabinets
  - Recycling and trash chutes in multifamily buildings of 4 or more stories or provide recycling collection areas on each floor

  - Recycling accommodations in mailrooms, breakrooms and common kitchen areas of multifamily and commercial buildings.

- High efficiency plumbing fixtures for residential and commercial buildings (IPC/IRC):
  - Maximum flow rates for lavatory faucets, showerheads, kitchen faucets, water closets and urinals that are consistent with EPA WaterSense and ASHRAE 189.1 standards
  - Water-bottle filling stations (dispensers) for 100% of all drinking fountains

SEAC enthusiastically supports all of these provisions while rejecting the IECC amendments proposed by the Home Builders Association of Central Arizona.

We understand that building code staff recommend adoption of the updated IgCC to remain as the code for voluntary participation in Scottsdale's Green Building Program and for mandatory use where required as a planning tool for zoning bonuses or stipulation requirements. As noted in our introduction, SEAC wholeheartedly believes that the time has come for the IgCC to be adopted for all new commercial development. This action will align our building codes with many of the goals and policies in the 2035 General Plan, build on the success of Scottsdale's Green Building Program, and propel Scottsdale once again to an environmental leadership position in Arizona. With the understanding that the IgCC must be amended, we support these and other key provisions as mandatory code:

- On-Site Solar PV Power Generating System – a minimum total rated capacity of either (1) not less than 3% of the estimated annual energy used within the building for heating, cooling, water-heating, and lighting, or (2) not less than 2 watts per square foot of gross roof area over conditioned spaces; exceptions for buildings with 80% or more of the roof area covered by a permanent obstruction (i.e., mechanical equipment, skylights, occupied roof decks and mandatory access or setbacks required by the International Fire Code) or for buildings with less than 5,000 square feet are acceptable.

- Construction Waste Management – diversion of not less than 50% of construction and demolition waste from the landfill for recycling and reuse including metal, wood, cardboard, concrete, and masonry; exceptions for building projects less than 5,000 square feet of new, added or remodeled floor area or for building permit applications submitted prior to July 1, 2023, that divert at least 35% of construction waste from the landfill are acceptable.

- Material Resources – any two reduced impact materials requirements including (1) not less than 10% of building materials must have recycled content or salvaged material; (2) not less than 15% of building materials or products must be regionally sourced or manufactured within a radius of 500 miles of the project site; (3) not less than 5% of building materials must be biobased and contain certified wood content; and (4) not less than 10 building products must have environmental product declarations or certifications.

- Heat Island Mitigation – light color surfaces on 100% of roofs (based on solar reflectance and roof slope) and shaded or light color surfaces on at least 50% of site hardscape.

- Site Water Use Efficiency – efficient irrigation systems with WaterSense-labeled controllers.

- Indoor Environmental Quality – at least 85% of interior finishes to be low-volatile organic compound emitting materials.

SEAC understands that some of the building code staff's hesitancy in supporting the mandatory adoption of the IgCC may be based on current code compliance resources within the city. Therefore, SEAC recommends adjusting staffing budgets to accommodate the additional resources required for the adoption of a mandatory IgCC and to support its enforcement.

Another proposal that SEAC supports is to require electric ready receptacles for major appliances (e.g., dryers, heaters, and stoves) at new residential structures when natural gas is plumbed to the home. This provision is not overly burdensome from a cost perspective as electricity is already provided at sufficient loads to new residential structures. Providing electric receptacles for major appliances provides residents the flexibility for conversion to an all-electric home, if they so choose, which will lower greenhouse gas emissions from residential structures when the source of our electrical generation transitions from fossil fuels.

Leadership for the Future

Buildings and the building construction sector are responsible for over one-third of global energy consumption and contribute to nearly 40 percent of total direct and indirect CO_2 emissions. Building energy and green codes contribute to the health, safety and welfare of citizens and communities, reduce energy bills, improve occupant and community health, enhance resilience, and reduce greenhouse gas emissions.

Scottsdale's adoption of standardized national model codes promoted by reputable national organizations committed to green infrastructure is a robust step in the right direction. While SEAC supports adoption of the 2021 IECC, IgCC, IPC and IRC codes in the near term, we challenge the City to adopt a more pro-active leadership position by researching and exploring new ways to improve our built environment, such as adopting building code standards that exceed minimum code requirements, by implementing energy efficiency requirements that not only apply to new but existing commercial and residential buildings as well, and by promoting and investing in solar energy transition technologies. Championing such cutting-edge energy efficiency standards will confirm and enhance Scottsdale's reputation as a leader in green and energy efficiency, and it will contribute to a more resilient and cleaner energy future for our businesses and community.

If you have any questions regarding the adoption of the 2021 edition of the IECC, IgCC, IPC and IRC, please contact Anthony Floyd in Scottsdale's Office of Environmental Initiatives.

Respectfully,

Natalie Chrisman Lazarr, Chair
(602) 316-1324
Natalie.ChrismanLazarr@aps.com

Anthony Coletta, Vice Chair
(480) 650-4751
Tony.Coletta@novagroupgbc.com

Attachment 9

SCOTTSDALE
AREA ASSOCIATION OF REALTORS®

August 8, 2022

To: City of Scottsdale | Mayor - David Ortega
Vice Mayor - Tom Durham
Councilmembers - Tammy Caputi, Betty Janik, Kathy Littlefield, Linda Milhaven, Solange Whitehead

RE: Scottsdale Building Code Update - Electric Vehicle (EV) Charging Capability Requirements

The Scottsdale Area Association of REALTORS® (SAAR) looked extensively into the proposed building code changes to require EV Charging Station infrastructure for new single-family residential homes, multifamily project, and hotels.

Regarding single-family residential homes, SAAR supports the proposed changes outlined in **R404.4** and **R404.4.1**. The minimum requirement to install a single raceway, receptacle, and reserve a breaker space for 'Future EV Charging' is not unreasonable.

> **R404.4 Electric Vehicle (EV) charging infrastructure.** New construction shall accommodate future installation and use of *Electric Vehicle Supply Equipment (EVSE)* in accordance with the *National Electrical Code (NFPA 70).*
>
> **R404.4.1 EV capable charging.** The main electrical service panel shall have a reserved space to allow installation of a full size 2-pole circuit breaker for future EV charging and shall be labeled "Future EV Charging". Where the electrical service panel is located beyond the perimeter of the garage wall, a raceway shall be installed from the electrical service panel to a location within the garage, where it shall terminate in a junction box or outlet and be labeled "Future EV Charging".

Regarding the new proposed requirements for **Groups R-1** and **R-2** (hotels, motels, apartments, condominiums) which are outlined in **C405.13**, we are still reviewing the full impact on the multi-family sector as there are multiple complex variables to take into account

Concerning the new EV requirements for single-family homes however, the Scottsdale Area Association of REALTORS® is in full support of the proposed changes presented as **R404.4** and **R404.4.1** of the new update for the Scottsdale Building Code.

Respectfully,

Rebecca Grossman
Chief Executive Officer

Suzanne Brown
Director of Community & Government Affairs

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SWEEP

SOUTHWEST ENERGY EFFICIENCY PROJECT

Saving Money and Protecting the Environment Through More Efficient Energy Use

February 17th, 2022

Marcy Kostewa, Chair
Julian Anderson, Vice-Chair
Brian Brose, Board Member
Randall Lukas, Board Member
Michael Kravit, Board Member

Dear Building Advisory Board Members,

Re: Item 3, "(2021 I-Codes Adoption)"

The Southwest Energy Efficiency Project (SWEEP) appreciates the opportunity to provide these comments to support the City of Scottsdale's efforts to develop an Electric Vehicle-Ready building code and electric readiness in the 2021 code adoption cycle. SWEEP believes this action will enable the growth of electric vehicles (EVs) while ensuring the charging process is safe in all building types.

Increased use of EVs will spur economic development and improve air quality—benefits that all Scottsdale residents gain. To realize these benefits, the City of Scottsdale must invest in EV infrastructure to make EV charging readily available for everyone, including those who live in historically disadvantaged communities. Approving EV readiness in this building code cycle is critical for ensuring accessibility and deployment of EV charging equipment.

Furthermore, including electric vehicle supply equipment (EVSE) in this building code cycle is critical to cost-effectively preventing the use of extension cords to inappropriate outlets for vehicle charging. Suppose the City of Scottsdale fails to prepare for the onslaught of EVs that global automakers have committed to producing. In that case, the cost of EVSE could skyrocket in the future while not addressing critical safety matters. Now is the time to prepare

For all of these reasons, SWEEP encourages the City of Scottsdale Building Advisory Board to approve Staff's recommendation for the 2021 International Energy Conservation Code with the inclusion of EV-Capable provisions to ensure equal access to charging equipment is done safely, reliably, and affordably.

Thank you for your time and the opportunity to submit these comments.

Caryn Potter
Manager, Utility Program
Southwest Energy Efficiency Project (SWEEP)

SWEEP is a public-interest organization promoting greater energy efficiency and clean transportation in Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming in order to save consumers money, protect the environment, and build a more resilient, robust economy.

Attachment 9

Capitol Consulting, LLC

January 19, 2022

Dear Chair Jostewa and Members of the Building Advisory Board of Appeals:

I write you today on behalf of the Arizona Multihousing Association (AMA) regarding the proposed Electric Vehicle (EV) parking requirements to be presented to the Board on January 20, 2022.

Under the proposed ordinance, all new multi-family developments would be required to, at a minimum, install EV "capable" parking spaces in twenty percent of the proposed development's total parking spaces and, at a minimum, install EV charging stations in four percent of the proposed development's parking spaces.

The AMA is concerned that such a prescriptive requirement imposes an undue regulatory burden that does not consider or reflect current, or even future, market conditions. In a survey to multi-family operators in Scottsdale and throughout the Valley, responses indicated that market penetration for EV, and more specifically renters requesting EV charging capabilities, remains low. According to the Arizona Department of Transportation, of the 7.4 million total vehicles registered in the state of Arizona, only 40,964 vehicles are EVs.[1]

While the AMA supports EVs and the move towards this emerging technology, the AMA would request that the city refrain from adopting mandatory and prescriptive requirements that will force builders to install costly infrastructure components at a time when the technology continues to rapidly evolve. Improvements to batteries, rapid charging capabilities, solar charging stations and even solar charging cells imbedded into the vehicles themselves, could very well make these costly parking infrastructure requirements moot.

Moreover, multi-family operators are well positioned and highly incentivized to respond to market conditions. For example, if EV penetration in Scottsdale were to somehow double, triple, or quadruple overnight - and most importantly the demand for EV charging stations from renters emerged - owners would respond swiftly. This is no different than any other market change or demand which operators routinely address.

On the other hand, housing affordability has become an immediate concern for Scottsdale citizens. *See:*

- As Scottsdale's rental prices soar, experts call for more apartments (azcentral.com)
- Affordable housing vanishing in Scottsdale | City News | scottsdale.org
- Most workers in Scottsdale can't afford living here | City News | scottsdale.org

Adding new construction requirements, such as the proposed EV parking requirements, will only add to the overall cost of housing in Scottsdale and continue to exacerbate housing affordability concerns.

It is for these reasons that we request the Board oppose the proposed EV multi-family parking requirements.

Should you have any questions, please do not hesitate to reach out at any time at bastien@azcapitolconsulting.com.

Respectfully,

Bastien Y. Andruet
Capitol Consulting, LLC

Cc: Courtney Gilstrap LeVinus
Jake Hinman

[1] https://azdot.gov/fast-facts

PO Box 13116 • Phoenix, AZ 85002-3116
602-712-1121
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March 2, 2022

Chairwoman Marcy Kostewa
Vice Chair Julian Anderson
Board member Brian Brose
Board member Michael Kravit
Board member Randall Lukas

Building Advisory Board of Appeals
One Civic Center Building
7447 E Indian School Rd. Suite 105
Scottsdale, AZ 85251

Chairwoman Kostewa and Members of the Building Advisory Board of Appeals,

I write today to express Southwest Gas Corporation's (Southwest Gas or Company) respectful opposition to the proposed inclusion of the "Electric Readiness" amendment to the 2021 International Energy Conversation Code (IECC) currently being considered for inclusion in Scottsdale's 2022 building code update. Though we appreciate the city's desire to explore various policy ideas, this proposal strays from Scottsdale's stated purpose for adopting building codes which is to "provide a reasonable level of safety, and protection of public health, general welfare and property[1]."

Adoption of the "Electric Readiness" provision would lead to higher costs and could potentially restrict fuel choice for current home buyers. Further, while the proposal has been positioned as a policy that will improve the environment, the underlying facts prove that assumption to be incorrect. Lastly, adoption of the this "Electric Readiness" provision would not only put Scottsdale at odds with the carefully crafted 2021 IECC code, but it will also place the city in conflict with Arizona law.

Energy Cost and Choice

As you know, the "Electric Readiness" provision will require homebuilders and multifamily developers to plumb homes for electric clothes dryers, water heaters, household ranges and cooking equipment even if the builder plans to equip a project with natural gas appliances. Adopting this amendment will force builders to choose between complying with the new code and incurring higher costs or avoiding those higher costs by building homes all electric.

Cost increases associated with the "Electric Readiness" requirement would not simply be contained to the labor and materials used to install the outlet wiring in each home. Homebuilders would also incur costs related to meeting increased electric load requirements to serve a subdivision, even if the wiring or outlets were to go unused by most homebuyers.

Scottsdale already has an affordability problem. This requirement will exacerbate it. According to a 2021 study by the National Association of Homebuilders, for every $1,000 increase to the median home price in Arizona, 3,260 people are priced out of the market[2]. As you know, purchasing a home in Scottsdale is

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[1] City of Scottsdale. *Building Code Information.* https://www.scottsdaleaz.gov/codes/building-code

[2] Zhao, Na. (February, 2021) *NAHB Priced-Out Estimates for 2021. https://www.nahb.org/-/media/NAHB/news-and-economics/docs/housing-economics-plus/special-studies/2021/special-study-nahb-priced-out-estimates-for-2021-february-2021.pdf*

already unattainable for many. We should not make the problem worse by adopting policies that increase costs with no public benefit.

Under this policy, the only way for a builder to avoid the added costs associated with the "Electric Readiness" mandate is to build all electric homes and subdivisions. But even in the desert Southwest, natural gas appliances are overwhelmingly popular because of their efficiency, performance, and the low-cost energy source used to fuel them. This policy will increase energy costs for homeowners and ultimately make Scottsdale a less desirable place to buy a home.

In 2020, 91% of single-family homes built in Southwest Gas' Arizona service territory were built with gas due to strong customer demand. If builders are encouraged to build all-electric, consumers will likely consider other communities where fuel choice exists and their home appliance preferences can be accommodated. Furthermore, if consumers are forced to buy an all-electric home, the outcome will be higher household utility bills. According to the United States Energy Information Administration (EIA), natural gas is 67% less expensive on an energy equivalent basis compared to electricity, which leads to real savings for consumers[3]. Nationally, homeowners who use natural gas in their home for heating and cooking save nearly $900 a year on their utility bills[4].

Environmental Impact

According to staff, the rationale behind including the "Electric Readiness" amendment in Scottsdale's 2022 code update is that doing so will be better for the environment. The assumption that electric appliances are cleaner than natural gas appliances is incorrect. When examining an appliance's emissions performance, a full life cycle analysis of the energy source must be considered.

Using natural gas directly in appliances is the most efficient way to use our product, as only 9% of its energy content is lost when transporting it from the wellhead to the appliance. Conversely, when burning fossil fuels to create electricity, 64% of usable energy is lost in the generation and distribution process[5].

Unless a home has solar panels installed onsite, appliances like stoves, water heaters and clothes dryers are powered by the electric grid. SRP[6] and APS[7] overwhelmingly generate their electricity from natural gas and coal, with nuclear and renewables only making up approximately 17% and 18% of the companies' 2021 Resource Peak Capacity, respectively. Due to the current electricity resource diversity in Scottsdale and the efficiency dynamics explained above, adopting policies that promote greater electric appliance use will actually lead to more natural gas and coal being used in Arizona.

According to the EIA's most recent available data, carbon emissions from natural gas use in the residential sector makes up 2.02% of Arizona's overall emissions[8]. Even with a very clean product, Southwest Gas is already taking steps to reduce our minimal emissions with the incorporation of clean fuels like renewable natural gas (RNG) and green hydrogen onto our system. Adopting this electric ready provision would be akin to a solution in search of a problem, as the Company's service contributes a de

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[3] American Gas Association. *Building the Value of Natural Gas, A Fact Base.* (2020, May). Pg. 34.
[4] American Gas Association. *Every-day affordability.* https://www.aga.org/natural-gas/affordable/. (2020).
[5] American Gas Association. *Building the Value of Natural Gas, A Fact Base.* (2020, May). Pg. 25.
[6] Salt River Project. *2021 Summer Preparedness* (2021, March). Pg 6.
https://docket.images.azcc.gov/E000012564.pdf?i=1644959474465
[7] Arizona Public Service Company. *2021 Summer Preparedness* (2021, March) Pg 6.
https://docket.images.azcc.gov/E000012598.pdf?i=1644959474465
[8] U.S. Energy Information Administration. *State Carbon Emissions from Fossil Fuels Tables.* (2021, March).
https://www.eia.gov/environment/emissions/state/excel/states/arizona.xlsx

minimis amount of carbon emissions to Arizona's environment and we are committed to getting even cleaner.

Inconsistent with the International Energy Conservation Code and Arizona Revised Statutes

Every three years, the International Code Council (ICC) adopts several new construction codes through carefully considered input from code officials, design professionals, trade associations, builders, contractors, manufacturers and suppliers, and government agencies. During the development of the 2021 IECC, an "Electric Readiness" proposal was considered a total of 4 times during two formal hearings, an online vote, and an appeal process. In 3 of the 4 aforementioned instances, the "Electric Readiness" proposal was struck down. Ultimately, the ICC Board of Directors found that the "Electric Readiness" proposal did not meet the scope and intent of the IECC. The ICC's rejection of this policy after a thorough stakeholder process should further illustrate that the "Electric Readiness" provision is not sound policy for Scottsdale.

Lastly, adoption of an "Electric Readiness" provision in Scottsdale's Code would put the city in conflict with A.R.S. §9-467.D. That statute stipulates, in part, that a municipality issuing a building permit shall ensure that all applicable permits contain requirements that do not exceed the requirements for use of other utility providers. Under the "Electric Readiness" proposal, a homebuilder who wishes to build with all gas appliances would be saddled with the additional requirement of plumbing that home for future electric appliance use. Conversely, that same standard would not be extended to a builder who intends to build an all-electric home.

On behalf of Southwest Gas, I would like to thank you for your public service and your desire to create sound policy for the City of Scottsdale. For all the reasons mentioned above, I humbly ask for your opposition to the inclusion of the "Electric Readiness" provision in the code recommendation that you will make to the Scottsdale City Council.

Sincerely,

Matthew R Ligouri

Matthew Ligouri
Manager, Public Affairs
Southwest Gas Corporation

c: Jim Thompson, City Manager, City of Scottsdale
Michael Klack, Director of Development Services, City of Scottsdale
Anthony Floyd, Green Building Program Manager and Energy Code Specialist, City of Scottsdale

American Lung Association.
Arizona

February 16th, 2022

Marcy Kostewa, Chair
Julian Anderson, Vice-Chair
Brian Brose, Board Member
Randall Lukas, Board Member
Michael Kravit, Board Member

Dear Chair Marcy Kostewa and Members of the Building Advisory Board,

Re: Agenda Item # 3, "2021 I-Codes Adoption"

On behalf of the American Lung Association, we are pleased to offer support for the City of Scottsdale's proposal to adopt the 2021 International Energy Conservation Code.[1] We are grateful that the City is exploring ways to advance codes that help to reduce air pollution, while helping residents to conserve energy and save money on their utility bills.

Arizona has some of the most dangerous levels of unhealthy air in the United States. The American Lung Association 2021 "State of the Air" report[2] shows 86% of Arizona residents live in counties impacted by poor air quality. Air pollution contributes to respiratory and cardiovascular impacts including increased asthma attacks, worsened COPD, heart attacks and strokes, and premature death. Vulnerable populations such as children, the elderly, people of color, and low-income individuals are most at risk from these health harms. To learn more about Arizona's air quality please see our fact sheet here.

The American Lung Association supports widespread transportation electrification (TE) as a first step to reduce greenhouse gas emissions, improve air quality, and protect Arizonans' health. Our 2020 "Road to Clean Air" report found the transportation sector is the leading contributor to our air pollution challenges, especially in at-risk communities. Adopting building energy codes that enable the growth of the zero-emission transportation sector by 2050 could yield $1.5 billion in health benefits annually. Arizona's air quality crisis requires bold investments in electric cars, buses and medium/heavy-duty trucks coupled with increasing levels of non-combustion, renewable energy sources - these policies are widely supported among Arizona constituents and City of Scottsdale residents. To make these health savings a reality, we urge the City of Scottsdale Building Advisory Board to adopt the electric vehicle language in the code in order to ensure higher EV adoption can be done cost-effectively and safely.

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1 https://eservices.scottsdaleaz.gov/planning/projectsummary/unrelated_documents/2021%20IECC%20Amendments.pdf

2 https://www.lung.org/research/sota/city-rankings/states/arizona

A 2021 poll[3] conducted by the American Lung Association in Arizona released in December 2021 showed nearly 75% of Arizona voters support a transition away from fossil fuels with investments towards non-combustion energy and zero-emission vehicles.

- 67% support switching all public vehicle fleets including transit buses, school buses, maintenance trucks, and government-owned cars to all electric vehicles.
- 66% support investments in publicly available charging infrastructure for electric vehicles as well as consumer incentives to encourage EV purchases.

As a leading public health organization, we urge the City of Scottsdale Building Advisory Board to consider the will of Arizona voters and support electric vehicle growth by greenlighting the International Energy Conservation Code with EV provisions proposed before you today.

Thank you for your consideration of our comments.

Sincerely,

JoAnna Strother
Senior Advocacy Director American Lung Association

Melissa Ramos
Manager, Clean Air Advocacy American Lung Association

[3] https://www.lung.org/media/press-releases/az-climate-action-survey-21

Attachment 9

February 16th, 2022

Marcy Kostewa, Chair
Julian Anderson, Vice-Chair
Brian Brose, Board Member
Randall Lukas, Board Member
Michael Kravit, Board Member

Dear Members of the City of Scottsdale Building Advisory Board of Appeals,

Re: Agenda Item No. 3 — " 2021 I-CODES ADOPTION,"

Environment Arizona is a citizen-based environmental advocacy organization dedicated to protecting our air, water, and open spaces.[1] We were thrilled to learn that the City of Scottsdale Building Advisory Board is considering the adoption of the 2021 IECC with amendments for solar and EV-readiness. Both provisions will make it easier for these technologies to be easily installed in the future. ***We encourage the Board to vote in favor of this proposal.***

Every year enough sunlight shines on America to provide 100-times more power than we need. But we're only capturing a tiny percentage of it. Harnessing more of this power would mean cleaner air and a more stable climate; less strain on natural resources and more resilient communities; and an energy source we can depend on to be virtually pollution-free for as long as we can imagine.

Adoption of the CB Solar-Ready Zone of the IECC as well as the EV-Readiness sections would help to ensure buildings are "ready" for the proper, easy installation of solar and EV technologies and will bring their many benefits to the residents and businesses in the City of Scottsdale including:

- Avoided energy costs,
- Avoided capital and capacity investment,
- Reduced Financial risks and electricity prices,
- Avoided greenhouse gas emissions, and
- Reduced air pollution that harms public health.

We urge you to approve the 2021 IECC with the CB Solar-Ready Zone and EV-Readiness sections so that we can position Arizona to be a leader of our future, more efficient economy. Thank you for the opportunity to provide these comments.

Sincerely,
Emma Searson
Director, 100% Renewable Campaign
Environment Arizona

---

[1] https://environmentarizona.org/

Attachment 9

VOTE SOLAR

February 16th, 2022

Dear Members of the City of Scottsdale Building Advisory Board of Appeals,

Re: Vote Solar supports the adoption of the 2021 International Energy Conservation Code with the inclusion of Appendix CB Solar-Ready Zone and Electric Vehicle(EV) Charging Infrastructure

Building Advisory Board Item No. 3 — "2021 I-CODES ADOPTION"

Since 2002 Vote Solar has been working to make solar affordable and accessible to more Americans. We have a successful history of working in Arizona to support policies and programs to build a cleaner electricity grid and enable more Arizonans to adopt solar.

Vote Solar strongly supports the adoption of the 2021 International Energy Conservation (2021 IECC) Code with the inclusion of Appendix CB Solar-Ready Zone and Electric Vehicle(EV) Charging Infrastructure.[1]

Appendix CB's solar-ready provisions will ensure that new homes in the City of Scottsdale have simple, inexpensive electrical features, like a slot open on the electric panel and wiring from the electrical panel to the roof, so that homeowners have the option to install solar PV systems in the future. Adoption of the EV capable provisions will also lower the cost of future solar and electric vehicle supply equipment installations and make them faster and easier to implement. After all, running conduit when a home is being built is much easier and less expensive than undertaking a major renovation effort later on. Additionally, upgrading the electrical panel upfront saves the homeowner money down the road. For these reasons, the adoption of Appendix CB and the EV capable provisions are critical for eliminating barriers to solar and EV adoption and helping Pima County build a cleaner, more affordable electricity grid.

Clean energy is the future, and we need building energy codes that reflect that future. Vote Solar urges the City of Scottsdale to follow suit and include Appendix CB Solar-Ready zone and Electric Vehicle(EV) Charging Infrastructure when it enacts the 2021 IECC.

Sincerely,

Yara Marin
Interior West Regional Director
Vote Solar
yaraneth@votesolar.org

[1] "City of Scottsdale Amendments to the International Energy Conservation Code, 2021 Edition," https://eservices.scottsdaleaz.gov/planning/projectsummary/unrelated_documents/2021%20IECC%20Amendments.pdf

HOMESMART
Real Estate Made Easy.

Attachment 9

May 19, 2022

I have been a Scottsdale Realtor since 2003, specializing in energy efficiency since 2008. As an instructor and former Director at Scottsdale Area Association of REALTORS (SAAR) and former Residential Committee Chair for the U.S. Green Building Council (USGBC), I educate others to lead energy efficiency in Maricopa County.

Based on this experience, I highly recommend every aspect of the 2021 IECC. Moreover, I do not recommend amendments that weaken the 2021 IECC. Scottsdale homebuyers expect the best of construction for these higher-priced homes. Scottsdale leads the way in Arizona for the best of energy efficiency and must continue to meet that demand. Scottsdale must also meet the demand for EV charging and electrification.

A 2017 Consumer Survey by the National Association of Realtors reflected that 84% of consumers were either highly concerned or concerned about their energy bills. Since COVID, these numbers have most likely risen as Americans have spent more time in their homes and working from home.

Kelley Blue Book reports that electrified vehicle sales accounted for 9.7% of all sales in 2021 and 11.8% of sales in the fourth quarter – adding that electrified vehicle sales might have increased even more last year if inventory and supply issues had not been as problematic.

In fact, I own a 2021 Tesla. Picking up my Tesla in Scottsdale on December 29, 2020, I was pleasantly surprised to see 20 other couples picking up cars at the same time.

My car came with a Tesla charger, but I needed a 220 outlet. My electric panel is not located on a garage wall. I paid $660 to install a 220 outlet in my garage. An outlet installed at the time of construction would have been a fraction of that cost. I highly recommend making Scottsdale single and multi-family residences EV ready.

Scottsdale wants to be known as a place where people can come – whether it's to spend the winter season or for an afternoon of shopping – without having to worry about where or if they can charge their electric vehicle.

As a Realtor in Scottsdale since 2003, specializing in high performance homes, I highly recommend adoption of the 2021 IECC without weakening amendments. Homebuyers in Scottsdale care about energy efficiency and expect quality construction. The number of electric vehicles in Scottsdale will only continue to increase. To maintain its place as a progressive, clean and well-planned city, Scottsdale's homes, apartments and other buildings must be built for the future.

Jan Green
REALTOR, EcoBroker, SFR, GREEN
602-620-2699, jan@gotgreen.info

Floyd, Anthony

From: Rachel Pearson <rpearson@experiencescottsdale.com>
Sent: Wednesday, April 27, 2022 4:05 PM
To: Floyd, Anthony
Cc: Wiebusch, Dale; Laura Magnus
Subject: RE: Scottsdale Proposed EV Charging Infrastructure Requirements

Hi Anthony,

Our public policy committee met today and there were no major concerns since this is related to new construction. The group agreed that having this infrastructure as part of a new build is much more cost effective and efficient than attempting to install following construction.

Dale Wiebusch was part of today's conversation so I'm copying him in as well.

Thank you again for helping to keep us updated on future conversations around policy/code changes that impact the tourism industry.
~Rachel

SCOTTSDALE

RACHEL PEARSON, ABC (she/her)
Vice President of Community & Government Affairs
480.429.2259 | 800.782.1117 | ExperienceScottsdale.com
4250 N. Drinkwater Blvd, Ste. 300, Scottsdale, AZ 85251
Follow us on LinkedIn
Celebrate Diversity in Scottsdale

From: Floyd, Anthony <ANTF@SCOTTSDALEAZ.GOV>
Sent: Wednesday, April 27, 2022 9:35 AM
To: Rachel Pearson <rpearson@experiencescottsdale.com>
Subject: RE: Scottsdale Proposed EV Charging Infrastructure Requirements

Rachel,

Do you have any comments on the proposed EV charging infrastructure requirements for hotels?

Anthony

Anthony Floyd, FAIA, CSP, NOMA, LEED AP
Green Building/Energy Codes
Office of Environmental Initiatives
Planning and Development
City of Scottsdale
480-312-4202

From: Rachel Pearson <rpearson@experiencescottsdale.com>
Sent: Tuesday, April 26, 2022 12:59 PM

To: Floyd, Anthony <ANTF@SCOTTSDALEAZ.GOV>
Subject: RE: Scottsdale Proposed EV Charging Infrastructure Requirements

Hi Anthony,

Thanks for your time on the phone today. As I noted, we would like to be included on future communications related to potential policy and code changes that could impact the tourism industry, including for new construction. We can gather feedback and insights from the Scottsdale-area hospitality community that would provide valuable insight for the city.

Thank you for adding me to your distribution list for when these proposed changes are brought forward.

SCOTTSDALE

RACHEL PEARSON, ABC (she/her)
Vice President of Community & Government Affairs
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4250 N. Drinkwater Blvd, Ste. 300, Scottsdale, AZ 85251
Follow us on LinkedIn
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Hello Nicole,

I'm the green building/energy code specialist for the City of Scottsdale, Office of Environmental Initiatives. Scottsdale is preparing to update its building codes, including the adoption of the 2021 edition of the international Energy Conservation Code (IECC). We're proposing an amendment that would require all new multifamily and hotel developments to provide EV charging infrastructure.

As you're aware, electric vehicles are on the rise. By 2030, US automakers are expecting 50% of automobile sales to be electric. By 2035, GMC and other automobile manufactures have stated they will only be selling EVs. The biggest challenge in Arizona and Scottsdale in particular, is the lack of readily available charging stations. For level 2 charging, the most efficient location is at homes, apartments, condominiums and hotels where cars are parked overnight for a full charge.

The following proposed energy code provisions are proposed and will be presented to city council for approval sometime between June and September. The requirements will apply to new construction of apartments, condominiums and hotels. Below is the proposed code amendment.

C405.13 Electric Vehicle (EV) charging infrastructure. New construction shall accommodate future installation and use of *Electric Vehicle Supply Equipment (EVSE)* in accordance with the *National Electrical Code (NFPA 70).*

C405.13.1 Required *EVSE-installed* and *EVSE-capable* charging spaces. Parking shall be provided with *EVSE-installed* and *EVSE-capable* charging spaces in accordance with Table C405.13.1 based on the total number of parking spaces rounded up to the nearest whole number. Where a branch circuit serves a single charging space, it shall have a capacity not less than of 8.3 kVA (40A, 208/240V). 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 kVA (20A, 208/240V).

For *EVSE-capable* spaces, the electrical service panel shall have reserved circuit breaker space(s) that is labeled "Future EV Charging". Raceway(s) shall be installed from the electrical service panel to an outlet box within the planned EV-charging parking area(s). Outlet box(es) shall be labeled "Future EV charging".

TABLE C405.13.1
ELECTRIC VEHICLE CHARGING INFRASTRUCTURE REQUIREMENTS

Occupancy Group	**Minimum number of *EVSE-Installed* Spaces[a, b]**	**Minimum number of *EVSE-Capable* Spaces[a, b]**
Group R-1 (hotels, motels) and Group R-2 (apartments, condominiums)	4% of total parking spaces	20% of total parking spaces

[a] Where more than 4% of *EVSE-installed* parking spaces are provided, each charging port may count towards meeting 2 of the required number of *EV-capable* spaces.
[b] Parking spaces designated for other than passenger vehicles may be excluded from the total number of parking spaces.

We consider the above thresholds for EV-installed and EV-capable parking facilities to be on the conservative side, considering the projected rise of EV ownership over the next 5 to10 years. The provisions serve as a minimum baseline and does not limit a developer from exceeding code minimum.

We would appreciate your input and welcome feedback.

Thank you.

Anthony Floyd, FAIA, CSP, NOMA, LEED AP
Green Building/Energy Codes
Office of Environmental Initiatives
Planning and Development
City of Scottsdale
480-312-4202

Attachment 9

Floyd, Anthony

From: Diane Brown <dbrown@arizonapirg.org>
Sent: Wednesday, February 16, 2022 5:45 PM
To: Building Advisory Board of Appeals; Floyd, Anthony
Cc: Diane Brown
Subject: Arizona PIRG Supports IECC including EV Charging Infrastructure

Please share with members of the Building Advisory Board. Thank you.

February 16th, 2022
Dear Chair Kostewa and members of the Building Advisory Board,
Re: Support for Scottsdale's Adoption of the 2021 International Energy Conservation Code *including* Electric Vehicle (EV) Charging Infrastructure
Since our inception, the Arizona Public Interest Research Group (Arizona PIRG) has supported strong state, federal, and local energy efficiency policies because of the important consumer benefits these investments deliver. We have been very encouraged by Scottsdale's efforts to advance energy efficiency, including efforts to achieve ENERGY STAR® certification for City buildings.
Today, I write to offer Arizona PIRG's strong support for Scottsdale's adoption of the 2021 International Energy Conservation Code as recommended by the City's Staff. The Committee's recommendation was developed as a result of continuous conversations with interested stakeholders for months.

The adoption of the 2021 International Energy Conservation Code is important for Scottsdale residents and businesses for many reasons including:

- The least expensive source of electricity is the electricity we don't have to use. When we reduce waste, the savings compound, in bill after bill, month after month, year after year. But when we fail to limit waste, the costs compound in the same way.

- Energy efficiency can help stabilize homeowner energy costs, improve homeowner comfort, and allow homeowners additional space in their budget to prioritize other projects and expenditures.

- Efficient homes ensure economic resilience, making it easier for people to buy, sell and own a home; decreasing the likelihood that a home will default; and preventing surprise expenses like the need for new insulation.

In closing, we need robust building energy codes that ensure long-lasting, durable construction that have fewer surprises to consumers, less maintenance, and fewer repairs.
Please adopt the Committee's recommendation without additional changes.

Thank you for your consideration of our comments.
Sincerely,
Diane

Diane E. Brown, Executive Director
Arizona PIRG (Arizona Public Interest Research Group)
835 W. Warner Rd., Suite 101-464 -- *Please note new address*
Gilbert, AZ 85233
(602)252-9227 (o)
(602)318-2779 (c)

Memorandum

To: Honorable Mayor and City Council
From: Michael Clack, Chief Development Officer
Through: Erin Perreault, Planning, Economic Development & Tourism Executive Director
Date: November 29, 2022

RE: December 6, 2022, Council Meeting, Energy, Residential and Green Code Adoptions

Honorable Mayor and City Council,

Please find attached support letters received for the proposed adoption of the energy, residential and green construction codes for the December 6, 2022, City Council meeting.

Attachment 1 – American Institute of Architects – Arizona letter
Attachment 2 – Energy-Efficient Codes Coalition letter
Attachment 3 – Southwest Energy Efficiency Project letter
Attachment 4 – American Lung Association – Arizona
Attachment 5 – EV Industry letter
Attachment 6 – Arizona PIRG letter
Attachment 7 – Vote Solar letter

AIA Phoenix Metro

November 29, 2022

City of Scottsdale
3939 N Drinkwater Blvd
Scottsdale, AZ 85251

Dear Mayor Ortega, Vice Mayor Durham, and council members Caputi, Janik, Littlefield, Milhaven, and Whitehead,

The American Institute of Architects Arizona (AIA Arizona) and the local chapter AIA Phoenix Metro support the City of Scottsdale proposed adoption of the 2021 suite of building codes, in particular the International Energy Conservation Code (IECC) and International Green Construction Code (IgCC) as mandatory codes.

According to the latest Intergovernmental Panel on Climate Change (IPCC) report, the time for climate action is now. Energy efficiency and renewable energy, materials transparency, the protection of water resources, and other sustainability strategies support mitigation by conserving resources and reducing carbon emissions. Resilient design helps communities adapt to evolving conditions, reduce harm and property damage, and more readily, effectively, and efficiently recover from adverse events. Architects draw upon both sustainability and resilience to become a force of valuable change by transforming the day-to-day practice of architecture to achieve a zero-carbon, equitable, resilient, and healthy built environment.

Scottsdale amendments to the 2021 IECC include the following:

1. EV capable charging for new single-family, multifamily buildings, and hotels
2. Non-tradable cool roof requirement for low-slope roofs of new residential and commercial buildings
3. Commissioning provisions for heating, cooling, and ventilation systems
4. Solar-ready zones for 10% of single-family homes and 40% for commercial buildings (excluding areas covered by skylights, equipment, or decks)

Major provisions of the 2021 IgCC includes the following for commercial buildings:

1. EV charging capability for new commercial buildings (Group A, B, E, F, I, and M) in addition to the residential requirements under the IECC.
2. Efficient irrigation design including smart irrigation controllers (new commercial developments).
3. On-site solar PV system requirement for new commercial buildings. Exceptions includes (1) buildings less than 5,000 sq. ft. in gross conditioned floor area; (2) on-site renewable energy systems, other than photovoltaic systems, that result in an equal or greater annual energy production; and (3) improved energy efficiency measures equivalent to annual energy that would be produced by the solar PV system.

4. Low-VOC paints, adhesives, sealants, floor coverings, composite wood products, and acoustical ceiling tiles.
5. Construction waste management with minimum 50% diversion of waste from landfill.
6. Reduced impact materials that meet any two of the following options: 1) minimum 10% of materials to be recycled content material (e.g. – steel, metal, insulation, flooring, composite wood products, acoustical tile); 2) minimum 15% of materials to be regional (masonry, stone, tile, concrete); 3) minimum 5% of materials to be sustainable certified lumber (SFI, FSC); or 4) minimum of 10 building products have Environmental Product Declarations.

Regulation of the building industry shapes the built environment. As industry leaders and major stakeholders, architects rely on the application of codes and standards to protect the health, safety, and public welfare while ensuring energy efficient, sustainable, and resilient design.

AIA Arizona and AIA Phoenix Metro support the City of Scottsdale's proposed adoption of the 2021 suite of building codes and associated amendments related to a sustainable, resilient, carbon-free, and net-zero energy future.

Best Regards,

John Czarnecki, Associate AIA
Executive Director
AIA Arizona (state component)
AIA Phoenix Metro (local chapter)
Scottsdale resident

Dan Clevenger, AIA
Architect
Principal, DLR Group
AIA Phoenix Metro 2022 Chapter President

Letter of Support: Scottsdale Environmental Advisory Commission Recommendations for the 2021 International Energy Conservation Code

The Energy Efficient Codes Coalition (EECC) commends the City of Scottsdale for its consideration of the 2021 IECC and other codes that promote the efficient and responsible use of energy resources. Updating the energy code regularly is essential to protecting health and quality of life of building owners and occupants. The benefits of energy efficiency reaped through code updates are well-documented and include lower and more stable monthly energy bills, improved indoor comfort and air quality, and lower peak utility loads.

EECC is in support of Scottsdale Environmental Advisory Commission (SEAC) Recommendations as follows:

- International Energy Conservation Code (IECC) with amendments for EV charging capability for new single-family, multifamily and hotels; cool roofs for low-slope roofs of new residential and commercial buildings; solar PV compliance option for new single-family homes, and updated commissioning exceptions for commercial heating/cooling and ventilation systems.
- International Residential Code (IRC) with associated amendments related to energy and indoor water efficiency.
- International Green Construction Code (IgCC) as a mandatory code for new commercial and multifamily buildings.

The incorporation of these amendments will result in energy savings and construction of buildings that are resilient and prepared to meet the needs of the electric grid of the future.

EECC is concerned, however, about the deletion of IECC C405.12 Energy Monitoring and the electrification amendment that would provide for the installation of electric-ready receptacles where gas water heaters, dryers or cooking equipment is installed in new single-family homes. Energy monitoring enables building owners, managers, and tenants to have greater awareness and control of their energy use, which is vital to energy conservation. Implementing electric-ready technologies at time of construction is the easiest and cheapest means of future-proofing buildings, negating the need to perform costly updates down the road. Preemption statutes that disallow the use of energy monitoring and installation of electric-ready receptacles put consumers at a disadvantage and create unnecessary barriers to cost and energy savings over the life of the building.

Overall, EECC strongly supports the City of Scottsdale in their continued leadership in the efficient building space and urges the City Council to follow the recommendations of the Scottsdale Environmental Advisory Commission.

Sincerely,

SWEEP

SOUTHWEST ENERGY EFFICIENCY PROJECT

Saving Money and Protecting the Environment Through More Efficient Energy Use

August 22nd, 2022

David D. Ortega, MAYOR
Tom Durham, COUNCILOR
Tammy Caputi, COUNCILOR
Betty Janik, COUNCILOR
Kathy Littlefield, COUNCILOR
Linda Milhaven, COUNCILOR
Solange Whitehead, COUNCILOR

Dear Mayor Ortega and Members of the Scottsdale City Council

The Southwest Energy Efficiency Project[1] (SWEEP) appreciates the opportunity to provide these comments to support the adoption of the 2021 International Energy Conservation Code (IECC) including the electric vehicle (EV) charging infrastructure requirements.

By approving the 2021 IECC with EV charging infrastructure requirements, the City of Scottsdale will be able to unlock significant consumer savings. According to a recent study by the Pacific Northwest National Laboratory (PNNL)[2], one of the U.S. Department of Energy's national laboratories, Scottsdale homeowners can gain more than $101,000 in economic benefits annually with the energy savings attributed to the 2021 code cycle.[3] Given the significant savings and economic potential that the 2021 IECC can offer, SWEEP believes the City of Scottsdale should move forward with the 2021 IECC as proposed, *with the exception of* the Energy Monitoring section, C405.12. Currently, the proposed code language has removed this section, which we believe should be reversed. Today's HVAC, lighting systems, building management systems, and other electronics support measurement recording and communications.

[1] SWEEP is a public-interest organization promoting greater energy efficiency and clean transportation in Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming in order to save consumers money, protect the environment, and build a more resilient, robust economy.

[2]"Cost-Effectiveness of the 2021 IECC for Residential Buildings in Arizona," https://www.energycodes.gov/sites/default/files/2021-07/ArizonaResidentialCostEffectiveness_2021_0.pdf

[3] SWEEP utilized PNNL's 2021 IECC for Residential Buildings in Arizona analysis in order to calculate savings and economic benefits for the City of Scottsdale residents.

Furthermore, the City of Scottsdale should invest in EV infrastructure to make EV charging readily available for everyone, including those who live in historically disadvantaged communities. Approving EV readiness in this building code cycle is critical for ensuring the accessibility and deployment of EV charging equipment.

Including electric vehicle supply equipment (EVSE) in this building code cycle is critical to cost-effectively preventing the use of extension cords to inappropriate outlets for vehicle charging. Suppose the City of Scottsdale fails to prepare for the onslaught of EVs that global automakers have committed to producing. In that case, the cost of EVSE could skyrocket in the future while not addressing critical safety matters. Now is the time to prepare for the incoming surge of electric vehicles so that all Scottsdale residents have equal access to charging in all building types.

For all of these reasons, SWEEP encourages the City of Scottsdale to approve the 2021 International Energy Conservation Code with the inclusion of the Energy Monitoring section (C405.12) as well as the inclusion of EV charging infrastructure requirements for residential and nonresidential buildings to ensure equal access to charging equipment is done safely, reliably, and affordably.

Thank you for your time and the opportunity to submit these comments.

Caryn Potter
Arizona Representative
Southwest Energy Efficiency Project

Jim Meyers
Director, Buildings Program
Southwest Energy Efficiency Project

August 22, 2022

David D. Ortega, MAYOR
Tom Durham, VICE MAYOR
Tammy Caputi, COUNCILOR
Betty Janik, COUNCILOR
Kathy Littlefield, COUNCILOR
Linda Milhaven, COUNCILOR
Solange Whitehead, COUNCILOR

Dear City of Scottsdale Mayor and Council,

Re: "2021 I-Codes Adoption"

On behalf of the American Lung Association, we are pleased to offer support for the City of Scottsdale's proposal to adopt the **2021 International Energy Conservation Code (IECC) with the EV-Ready provisions and the mandatory International Green Construction Code (IgCC)**.[1] We are grateful that the City is exploring ways to advance codes that help to reduce air pollution, while helping residents to conserve energy and save money on their utility bills.

Arizona has some of the most dangerous levels of unhealthy air in the United States. The American Lung Association 2022 "State of the Air" report[2] shows 84% of Arizona residents live in counties impacted by poor air quality. Phoenix Metro, including Scottsdale, ranks among the most polluted metropolitan areas in the United States for ozone and particulate pollution. Air pollution contributes to respiratory and cardiovascular impacts including increased asthma attacks, worsened COPD, heart attacks and strokes, and premature death. Vulnerable populations such as children, the elderly, people of color, and low-income individuals are most at risk from these health harms. To learn more about Arizona's air quality please see our fact sheet attached.

The American Lung Association supports widespread transportation electrification (TE) as a first step to reduce greenhouse gas emissions, improve air quality, and protect Arizonans' health. Our electric vehicle report, "Zeroing in on Healthy Air" found that the transportation sector is the leading contributor to our air pollution challenges, especially in at-risk communities. Adopting building energy codes that enable the growth of the zero-emission transportation sector could yield $15.1 billion in public health benefits just here in Arizona between now and 2050.

[1] https://www.scottsdaleaz.gov/Asset89432.aspx
[2] https://www.lung.org/research/sota/city-rankings/states/arizona

Arizona's air quality crisis requires bold investments in electric cars, buses and medium/heavy-duty trucks coupled with increasing levels of non-combustion, renewable energy sources - these policies are widely supported among Arizona constituents and City of Scottsdale residents. To make these health savings a reality, we urge the Scottsdale City Council to adopt the electric vehicle charging infrastructure provisions in the IECC and IgCC in order to ensure higher EV adoption can be done cost-effectively and safely.

A 2021 poll[3] conducted by the American Lung Association in Arizona in December 2021 showed nearly 70% of Arizona voters support a transition towards electrification:

- 67% support switching all public vehicle fleets including transit buses, school buses, maintenance trucks, and government-owned cars to all electric vehicles.
- 66% support investments in publicly available charging infrastructure for electric vehicles as well as consumer incentives to encourage EV purchases.

As a leading public health organization, we urge the Scottsdale City Council to consider the will of Arizona voters and support electric vehicle growth by greenlighting the 2021 IECC with the proposed EV provisions and the mandatory IgCC proposed before you today.

Thank you for your consideration of our comments.

Sincerely,

JoAnna Strother
Senior Advocacy Director American Lung Association

Melissa Ramos
Manager, Clean Air Advocacy American Lung Association

[3] https://www.lung.org/media/press-releases/lung-association-az-supports-renewable-energy

August 22nd, 2022

David D. Ortega, MAYOR
Tom Durham, COUNCILOR
Tammy Caputi, COUNCILOR
Betty Janik, COUNCILOR
Kathy Littlefield, COUNCILOR
Linda Milhaven, COUNCILOR
Solange Whitehead, COUNCILOR

Dear Mayor Ortega and Members of the Scottsdale City Council,

Re: Industry Support for IECC EV-Readiness Provisions

The following comments are provided on behalf of EVgo, Tesla, and Siemens, which strongly support the adoption of EV-Ready provisions for new residential and commercial buildings as part of the City of Scottsdale's 2021 IECC adoption cycle.[1]

This proposal is highly critical because auto industry-standard projections expect significant growth of electric vehicles in the next decade. The US electric vehicles market is expected to reach 6.9 million individual sales by 2025,[2] with Arizona being one of the major economic hubs of the industry. Currently, Arizona ranks 7th in the nation for most registered electric vehicles. With federal targets calling for 50% of vehicle sales to be electric in 2030,[3] as well as the Arizona Department of Transportation (ADOT) plan to utilize $76.5 million in federal dollars to deploy an EV fast charger network,[4] Arizona's market share will only continue to grow.

It is clear that Arizona stands to reap significant economic benefits from more electric vehicles on its roads. Supportive policies like EV-Ready building codes can reduce the cost of installing EV charging stations due to the lack of pre-existing infrastructure in single-family, multi-family, and commercial buildings. Approving an EV-Ready building code ensures reliable and accessible deployment of EV charging equipment now and into the future.

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[1] https://www.scottsdaleaz.gov/Asset89432.aspx

[2] "US EV market sales to rise to 6.9 million units by 2025," S&P Global, https://www.spglobal.com/platts/en/market-insights/latest-news/electric-power/111920-us-ev-market-sales-to-rise-to-69-million-units-by-2025-frost-amp-sullivan

[3] "FACT SHEET: President Biden Announces Steps to Drive American Leadership Forward on Clean Cars and Trucks," https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/05/fact-sheet-president-biden-announces-steps-to-drive-american-leadership-forward-on-clean-cars-and-trucks/

[4] "ADOT Electric Vehicle Infrastructure Deployment Plan," https://azdot.gov/planning/transportation-studies/arizona-electric-vehicle-program

For all of these reasons, the signatories of this letter encourage the City of Scottsdale's Mayor and Council to adopt the proposed EV-Readiness provisions in the 2021 IECC. We look forward to continued work with the City of Scottsdale on its transportation electrification efforts. Thank you for the opportunity to submit these comments.

Respectfully submitted this 22nd day of August 2022 by:

Francesca Wahl
Senior Charging Policy Manager
Tesla

Chris King
Senior Vice President, eMobility
Siemens

Romic Aevaz
Associate, Market Development and Public Policy
EVgo

Arizona PIRG

Arizona Public Interest Research Group

September 27, 2022

Dear Mayor and Council Members,

Re: Support for Scottsdale to Adopt the 2021 IECC, IgCC, and IRC Codes

On behalf of the Arizona Public Interest Research Group (Arizona PIRG), I am writing to follow-up on our letters dated February 16, 2022 and August 22, 2022. Previously, we encouraged the City of Scottsdale to adopt the 2021 International Energy Conservation Code including Electric Vehicle (EV) Charging Infrastructure. Today, I write to also encourage you to adopt the IgCC and IRC Codes.

Arizona PIRG is pleased that Scottsdale continues on the path towards adoption of the codes as well as measures you have taken towards water conservation. Reducing energy and water waste and supporting EV charging infrastructure can save Scottsdale citizens money while helping to improve air quality and public health.

We strongly support Scottsdale moving forward and urge you to adopt the following codes and amendments:

1. International Energy Conservation Code (IECC). Arizona PIRG continues to support amendments to the IECC related to expanding EV charging. More specifically, we support amendments related to EV charging for single-family and multi-family homes. In addition, we support a solar option for new single-family homes and cool roofs for low-slope roofs of residential and commercial buildings.

2. International Green Construction Code (IgCC). By *requiring* the IgCC for commercial and multifamily buildings, Scottsdale will continue down the path of water conservation and will be positioning the City and its citizens to reap benefits associated with onsite renewable energy, reduction of solid waste, and EVs and EV charging infrastructure.

3. International Residential Code (IRC). We support amendments to strengthen energy, water conservation, and recycling accommodations for single-family homes.

Through adopting the above codes and amendments, Scottsdale has an opportunity to help lead the way as our state continues to build. Arizona PIRG appreciates municipalities advancing policies that benefit the pocketbooks of its citizens, while also protecting our air, water, and health.

Please let me know if you have any questions. I can best be reached at dbrown@arizonapirg.org or (602)252-9227.

Thank you for your service.

Sincerely,

Diane E. Brown
Executive Director

VOTE SOLAR

August 20, 2022

Re: "2021 I-CODES ADOPTION"

Dear Mayor Ortega and Council Members,

Since 2002, Vote Solar has been working to make solar affordable and accessible. We have a successful history of working in Arizona to support policies and programs to build a cleaner electricity grid and enable more Arizonans to adopt solar. We appreciate the City Council's efforts to implement smart building codes that will help Scottsdale residents and businesses save money on their energy bills and benefit from the growth of clean technologies.

Vote Solar strongly supports the adoption of the 2021 International Green Construction Code (2021 IgCC) including On-site Renewable Energy Systems and Electric Vehicle (EV) Charging Infrastructure as a mandatory code for all new commercial and multifamily buildings.

Additionally, Vote Solar strongly supports the adoption of the 2021 International Energy Conservation Code (2021 IECC) with the inclusion of amendments for:

a. Solar PV compliance option for single-family homes (R408.2.6)
b. Electric Vehicle (EV) Charging Infrastructure
c. Appendix CB Solar-Ready Zone
d. Appendix RB Solar-Ready Provisions

Finally, Vote Solar strongly supports adoption of the 2021 International Residential Code (2021 IRC) with the inclusion of amendments for

a. Solar PV compliance option for single-family homes (N1108.2.6)
b. Electric Vehicle (EV) Charging Infrastructure
c. Appendix AT Solar-Ready Provisions

Adoption of these building codes will ensure that more homes and businesses in Scottsdale benefit from local, clean solar energy resources. Additionally, the solar-ready provisions include simple and inexpensive features that enable building owners to install solar at lower costs in the future (for example, an available slot on the electric panel and unobstructed space on the roof). Similarly, adoption of the EV-capable provisions lowers the cost and hassle of installing EV charging equipment in the future. This is particularly important for residents of multifamily buildings, who have limited options for home charging if accommodations for chargers are not made upfront. After all, running conduit during construction is much easier and less expensive than undertaking a major renovation effort later on. In sum, implementing smart building energy codes today protects homes and businesses from expensive upgrades in the future and positions them to take advantage of the benefits of clean energy.

Vote Solar urges the City of Scottsdale to adopt, as mandatory, the 2021 IgCC, IECC, and IRC, with the amendments listed above.

Sincerely,

Kate Bowman
Interior West Regulatory Director
Vote Solar
kbowman@votesolar.org

CITY OF SCOTTSDALE

2021 Residential, Energy & Green Construction Codes Updates

Scottsdale City Council Meeting

December 6, 2022

Background: Building Codes

Developed by US-based International Code Council (ICC)

Supported by:

- American Institute of Architects (AIA)
- National Association of Home Builders (NAHB)
- Building Owners and Managers Association (BOMA)
- Professional Trade Associations
- Building product and material manufacturers

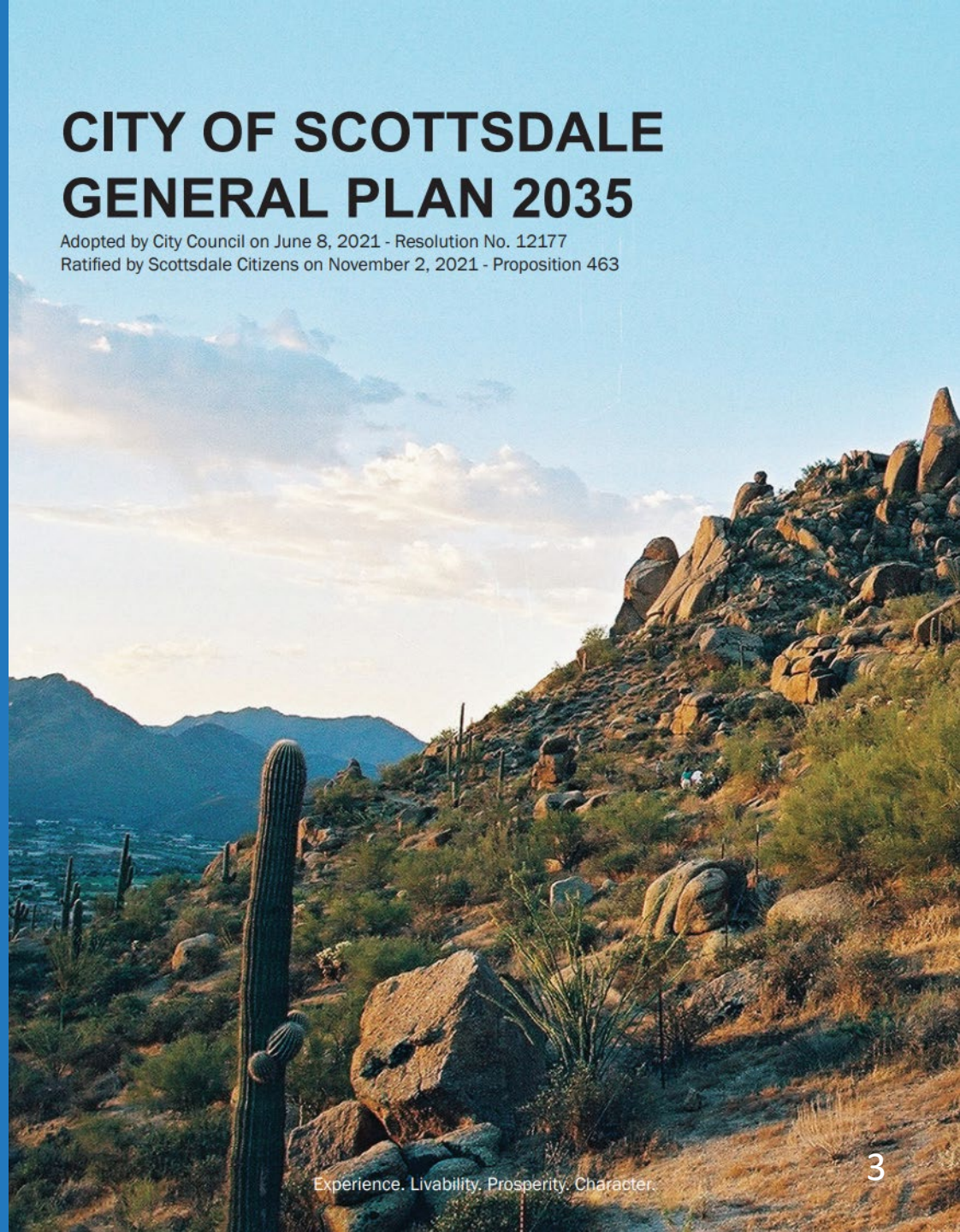
Community Impacts and Benefits

- Clarify code provisions while enhancing life-safety
- Improve community value and quality of life
- Protect natural resources
- Accounts for new technologies

2021 Code Updates

Consistent with General Plan

- Safety Element
- Housing Element
- Water Resources Element
- Energy Element
- Environmental Element



2021 Residential, Energy & Green Construction Codes Updates

Aug 23, 2022: City Council Work Study Session Consensus

- Advance building & fire code amendments in September
- Conduct additional public outreach
- Advance IgCC for council consideration as **mandatory** before year-end

Sept 20, 2022: City Council Adopted 8 Building & Fire Codes

Sept 27, 2022: Community Open House (IRC, IECC, IgCC)

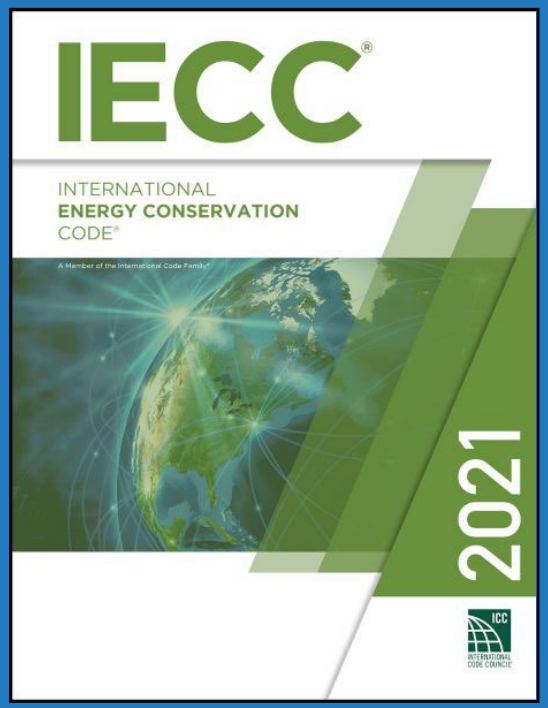
- More than 80 attendees (in person & virtual)
- Received majority comments in support

2021 International Energy Conservation Code (IECC)

Single Family, Multifamily and Commercial Buildings

Energy Components

- Thermal envelope
- Heating and cooling systems
- Service water heating
- Electrical power and lighting systems
- Solar-ready zones



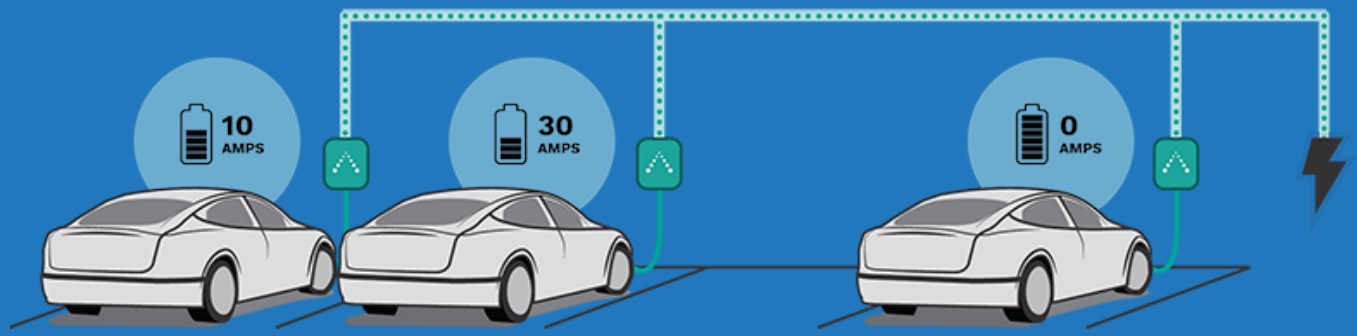
IRC /IECC Amendment: Electric Vehicle Charging Capacity

New single-family homes

- EV-capable
- Install raceway for future wiring
- Reserve electrical service panel space

New multi-family and hotels

- 20% EV-capable
- 4% installed

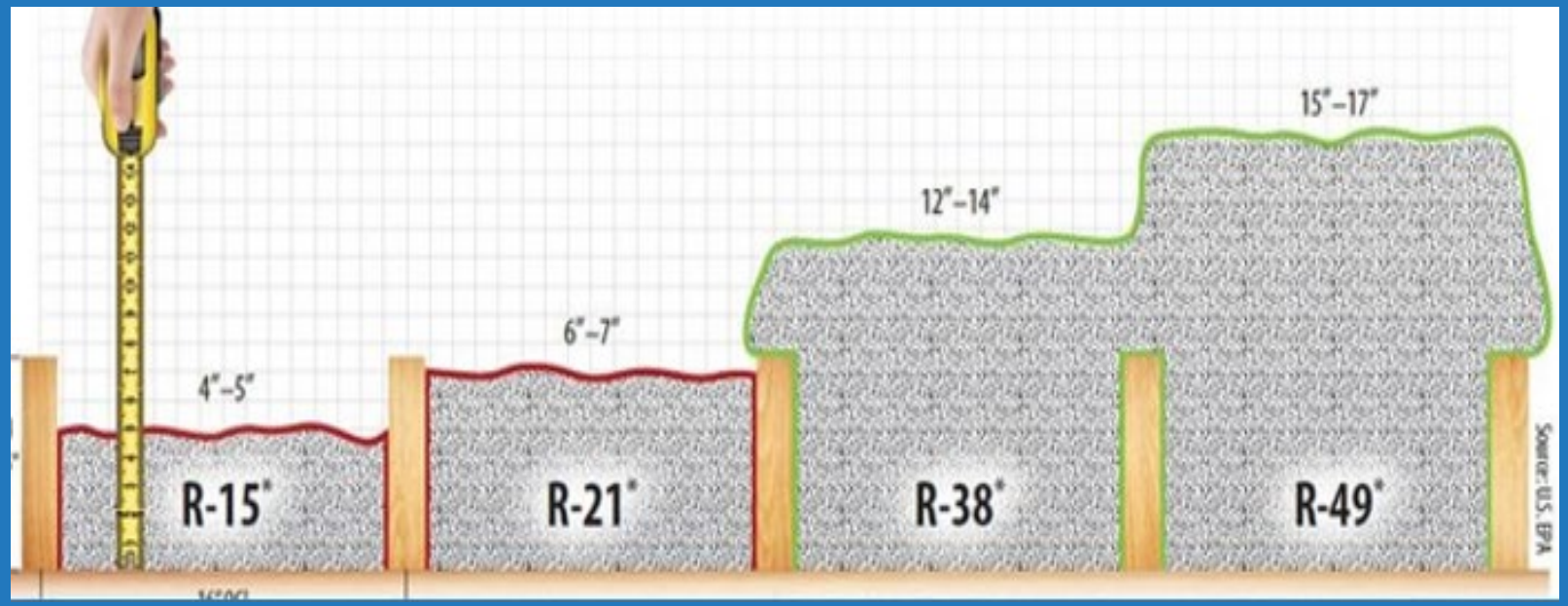


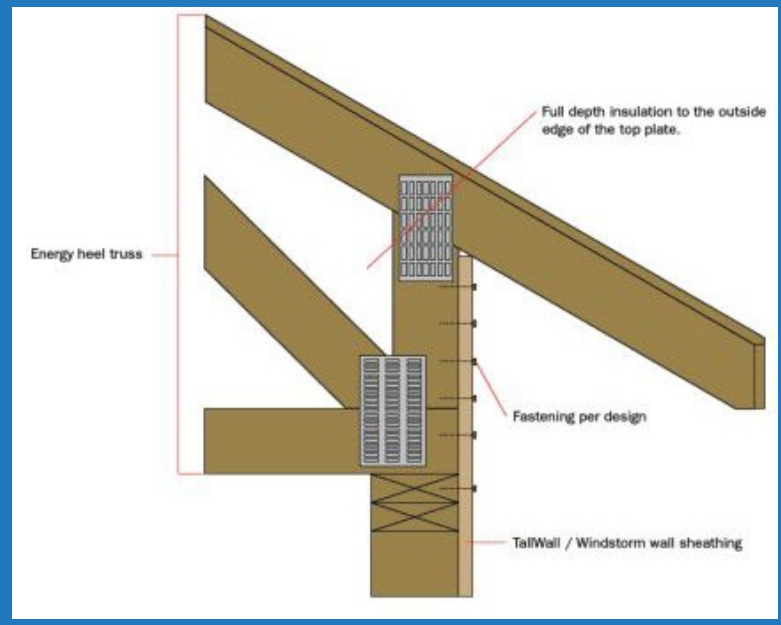
Source: EverCharge SmartPower

Option A: Add EV-Capable Charging (IRC/IECC)

Benefits	Disadvantages
• Residents can easily install EV charging stations • Supports a net zero emissions goal	• Technology may change and electrical circuit breaker size may not be used • Added minimal expense

IRC/IECC Amendment:
Ceiling Insulation R-38 (2015) vs R-49 (2021)





Option B: Retain R-38 vs R-49

R-38 Benefits	R-49 Benefits
• Continue annual energy cost savings • R-38 will not increase upfront building cost that could result from higher exterior walls and roof heights (May conflict with zoning height restrictions) • R-38 avoids additional complexity and construction constraints	• R-49 will result in net savings over the life of home (30 years) • Improved occupant comfort

Major 2021 IgCC Provisions

- **Site** (existing in Planning & Stormwater SRC)
- **Water** (existing in IPC/SRC)
- **Energy** (existing in IECC/SRC)
- **Indoor Environmental Quality**
  - Low VOC interiors
  - Acoustics and Daylighting (IBC, IECC)
- **Material Resources**
  - Recycling infrastructure (IBC)
  - Reduced impact materials

IgCC Significant Changes

- Low VOC interior materials and finishes
- Heat island mitigation
- EV ready charging infrastructure
- Construction waste management
- Low impact building materials
- Water efficiency (indoor/outdoor)
- On-site PV solar

Mandatory IgCC for Commercial Buildings

Benefits if Mandatory	Impacts if Mandatory
• Reduces energy, water use and waste over life of building • Improved indoor air quality • Consistency and certainty • Demonstrated continued regional and national leadership in green buildings	• Increased construction costs • Increased review and enforcement expenses to city • New requirements may be considered burdensome due to unfamiliarity to IgCC requirements • Some requirements may be difficult to achieve immediately

Community Input

- Home Builders Association of Central AZ
- Southwest Energy Efficiency Project
- American Institute of Architects
- Nelsen Partners Architects & Planners
- Scottsdale Area Association of Realtors
- AZ PIRG (Public Interest Research Group)
- AZ Multihousing Association
- American Lung Association
- Experience Scottsdale
- Environment Arizona
- Southwest Gas
- Vote Solar
- Energy Raters
- BABA
- SEAC

Building Advisory Board of Appeals (BABA) Recommendations

Adoption of IRC/IECC with all amendments:

- Oppose EV capable charging for single-family homes
- Support EV charging infrastructure for multi-family and hotels
- R-38 ceiling insulation for single-family homes

Adoption of IgCC with all amendments:

- Mandatory for zoning & planning bonuses
- Voluntary for all other commercial projects

Scottsdale Environmental Advisory Commission (SEAC) Recommendations

Adoption of IRC/IECC with all amendments:

- EV charging capabilities (new single-family, multi-family & hotels)
- R-49 ceiling insulation for new single-family homes

Adoption of IgCC as a mandatory code for new commercial and multi-family buildings

CITY OF SCOTTSDALE

Residential, Energy & Green Construction Codes Updates

Questions?

Action 1: IRC & IECC

"Adopt Ordinance No. 4575, Resolution Nos. 12499, 12503, adopting the 2021 International Residential Code (IRC) and 2021 International Energy Conservation Code (IECC) including all amendments in attachment 2 and 3 with an effective date of January 7, 2023."

Potential Additions:

Option A: Add EV capable charging infrastructure requirement for new single-family homes (attachment 4) and/or

Option B: Retain minimum ceiling insulation value of R-38 instead of R-49 for new single-family homes (attachment 5)

Action 2: IgCC as Mandatory

"Adopt Ordinance No. 4576 and Resolution No. 12505, adopting the 2021 International Green Construction Code (IgCC) including all amendments in attachment 7 as a mandatory code for all new commercial building projects with an effective date of the later of July 1, 2023, or the date the City zoning ordinance is amended in response to Ordinance No. 4576."

Alternate Action 2: IgCC as Voluntary

"Adopt Ordinance No. 4576 and Resolution No. 12505 with amendments to make the 2021 International Green Construction Code (IgCC) and City amendments to the IgCC voluntary, with a January 7, 2023 effective date."