



INTERNATIONAL
CODE
COUNCIL®

LEADING THE WAY TO ENERGY EFFICIENCY

A Path Forward on
Energy and Sustainability to
Confront a Changing Climate



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INTRODUCTION

Concern is growing in communities around the world about the impacts of a changing climate. Communities are looking for strategies to support increased energy efficiency and reduced greenhouse gas (GHG) emissions to meet their policy goals. At the same time, consumers are seeking more energy efficient and sustainable homes. According to a [survey of home buyers](#) by the National Association of Home Builders, energy efficiency tops the list of consumer preferences.

Over the past year, the International Code Council has collected and assessed feedback from members and the public to inform a framework for promoting energy efficiency. Given its strong foundation in the development of practical and respected solutions for the building industry and communities, the Code Council is ideally situated to provide leadership and policy and programmatic tools to help meet energy efficiency and GHG emission goals. This leadership will build on the technical solutions provided by the International Energy Conservation Code (IECC), International Residential Code (IRC), and International Green Construction Code (IgCC), which will become part of a new portfolio of advanced mitigation solutions to battle the impacts of our changing climate. This portfolio will provide a coordinated, comprehensive strategy that supports communities no matter where they are in implementing solutions in these areas.



ENERGY EFFICIENCY AND GREENHOUSE GAS REDUCTION OBJECTIVE

The Code Council will be an international leader in the development and dissemination of coordinated, comprehensive strategies that help communities address their energy efficiency and climate mitigation goals.

To support achievement of this objective, the Code Council will establish an **Energy and Carbon Advisory Council** of governmental and built environment leaders to provide insight on needs and goals and to inform the Code Council's work in support of its energy efficiency and greenhouse gas reduction objective.

IECC DEVELOPMENT

The IECC is central to the Code Council’s objective. It establishes a minimum set of requirements and serves as the basis for the formulation of additional tools that meet the policy needs of all levels of governments and the private sector entities that have set energy, GHG emissions and cost saving targets. To meet this objective, the development process for the IECC will use the Code Council’s standards development procedures in order to allow for more in-depth scientific and economic deliberations, quicker progress to meeting public and private sector goals, and the development of a broader consensus that will support wider application and adoption.

The successful transition to development under a standards process will rely on two key fundamental aspects – its intent/scope and the expertise and charge of its development committees. The Code Council Board of Directors will set the intent/scope of the IECC and procedures for the IECC development committees based on the relevant content outlined in this document.

SCOPE AND INTENT

The Code Council Board of Directors under [Council Policy 28](#) and the [Consensus Procedures](#) has sole authority to establish and revise the title, scope and intent of codes and standards developed by the Code Council. Beginning with the 2024 editions, future development of the IECC Commercial and Residential will adhere to the following scopes and intents, respectively. The remaining content of the 2024 IECC will start from the 2021 edition with changes made through the development process outlined in this document. As the IECC reaches the goals outlined in the revised intent, the Board would review and revise appropriately.

COMMERCIAL ENERGY PROVISIONS

C101.2 Scope

This code applies to the design and construction of commercial buildings.

C101.3 Intent

The International Energy Conservation Code-Commercial provides market-driven, enforceable requirements for the design and construction of commercial buildings, providing minimum efficiency requirements for buildings that result in the maximum level of energy efficiency that is safe, technologically feasible, and life cycle cost effective, considering economic feasibility, including potential costs and savings for consumers and building owners, and return on investment. Additionally, the code provides jurisdictions with supplemental requirements, including ASHRAE 90.1, and optional requirements that lead to achievement of zero energy buildings, presently, and through glidepaths that achieve zero energy buildings by 2030 and on additional timelines sought by governments, and achievement of additional policy goals as identified by the Energy and Carbon Advisory Council and approved by the Board of Directors. Requirements contained in the code will include, but not be limited to, prescriptive- and performance-based pathways. The code may include non-mandatory appendices incorporating additional energy efficiency and greenhouse gas reduction resources developed by the Code Council and others. The code will aim to simplify code requirements to facilitate the

code's use and compliance rate. The code is updated on a three-year cycle with each subsequent edition providing increased energy savings over the prior edition. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve this intent. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

RESIDENTIAL ENERGY PROVISIONS

R101.2 Scope

This code applies to the design and construction of residential buildings.

R101.3 Intent

The International Energy Conservation Code-Residential provides market-driven, enforceable requirements for the design and construction of residential buildings, providing minimum efficiency requirements for buildings that result in the maximum level of energy efficiency that is safe, technologically feasible, and life cycle cost effective, considering economic feasibility, including potential costs and savings for consumers and building owners, and return on investment. Additionally, the code provides jurisdictions with optional supplemental requirements, including requirements that lead to achievement of zero energy buildings, presently, and, through glidepaths that achieve zero energy buildings by 2030 and on additional timelines sought by governments, and achievement of additional policy goals as identified by the Energy and Carbon Advisory Council and approved by the Board of Directors. The code may include non-mandatory appendices incorporating additional energy efficiency and greenhouse gas reduction resources developed by the Code Council and others. Requirements contained in the code will include, but not be limited to, prescriptive- and performance-based pathways. The code will aim to simplify code requirements to facilitate the code's use and compliance rate. The code is updated on a three-year cycle with each subsequent edition providing increased energy savings over the prior edition. The IECC residential provisions shall include an update to Chapter 11 of the International Residential Code. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve this intent. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

IECC DEVELOPMENT COMMITTEES

Meeting the purpose of the code as outlined in its revised intent and ensuring that it is adoptable, cost effective, consensus driven, and helps communities meet their energy efficiency and greenhouse gas emission reduction goals requires highly technical and effective development committees. The IECC shall be developed by the combined efforts of a Residential Energy Code Consensus Committee and a Commercial Energy Code Consensus Committee that shall be appointed consistent with Code Council Policies [CP-12](#) and [CP-7](#) and the Code Council's [Consensus Procedures](#). Flowing from these requirements, appointments of individuals to the Consensus Committees and the determination of the number of representatives from a given interest category shall be under the sole authority of the Code Council Board of Directors. The Board of Directors shall seek input on nominees from relevant Code Council Committees and Councils including the Energy and Carbon Advisory Council. The Code Council Board understands the time commitment required of committee members (particularly governmental representatives) and will develop strategies to help mitigate challenges in participation.

The IECC Development Committee shall represent a diversity of perspectives and building science expertise and meet the following criteria:

- Representation from across the interest categories as outlined in CP-7 and the Consensus Procedures (see below);

- One-third of the consensus committee shall be from the Government Regulator Interest Category including representatives of federal, state and local governments;
- Consistent with CP-7, applicants to the committee shall provide:
 - » Evidence of knowledge and competence in the work of the committee, including a demonstration of a commitment to its scope, intent, and principles;
 - » What organization, company, etc. the nominee would represent;
 - » Whether the applicant would have an instructed vote and, if so, by and on behalf of whom, and;
 - » What person or organization would fund their participation.
- Collectively, committee membership shall represent a diversity of climate zones, organization sizes, businesses, and jurisdictions, and a range of experience in building types and energy efficiency strategies;
- Committee appointments will strive to achieve an equitable and diverse committee membership that represents racial, gender and socio-economic diversity; and
- The Committee Chair shall be from the Government Regulator interest category.

Additionally, the following principles shall govern the work of the development committee:

- The committee will afford opportunity for anyone to provide public input (e.g., recommend changes to the IECC, comment on changes);
- Changes shall include a statement on cost impacts in accordance with Code Council guidance and proponents are encouraged to include a cost effectiveness analysis consistent with the principle on cost effectiveness analysis below;
- Public input will be publicly available and the committee will review and evaluate the public input in accordance with the requirements of the Consensus Procedures;
- All public input and public comments would continue to be submitted online, comments posted online, committee documents posted online, and committee actions posted online;
- Meetings of the committee shall be scheduled with sufficient notice per the procedures and open to all members and interested parties;
- The Code will be developed under a continuous maintenance process to allow ongoing deliberation and the incorporation of provisions responsive to changes in technology or needs of adopting jurisdictions;
- The committee will consider the market-readiness of technologies to be incorporated into the code;
- To the extent that other codes or standards are consistent with the IECC's scope and intent, the committee shall consider them for inclusion in the IECC;
- When offered by the code change proponent or requested by the committee, a cost effectiveness analysis shall be provided by the U.S. Department of Energy (DOE) national laboratories, if DOE provides such an analysis, and otherwise be conducted by an independent technical consultant in a transparent manner. Such an analysis shall consider the change's cost effectiveness for the building owner, occupants and the energy system as a whole. To the extent possible, the committee shall develop a consistent set of parameters to be used in a cost effectiveness analysis, subject to approval of the Code Council Board.

- The committee should develop supplemental requirements reflecting the diversity of energy efficiency goals made by adopting jurisdictions and the federal government. These shall include minimum requirements and optional requirements aimed at achieving zero energy buildings over multiple timeframes (e.g., through use of the current edition of the code, by 2030 and by 2050).

The Development Committee shall be responsible for evaluating public input and comments but may rely on working groups to develop changes and/or deliberate on specified topics, providing recommendations to the committee. Working groups may consist of representatives from outside the development committee and to the extent practical should follow the diversity of perspectives criteria outlined in this document. The formation of working groups shall be approved by a majority of the committee upon recommendation of the chair, following appropriate public notice. All final decisions to revise the IECC are made by the Consensus Committees, subject to appeals consistent with the Consensus Procedures and American National Standards Institute (ANSI) requirements.

INTEREST CATEGORIES

The ICC Consensus Procedures outline the requirements for committee make up and the nine interest categories to be represented. These Procedures provide that “[t]he membership shall be sufficiently diverse to ensure reasonable balance without dominance or imbalance by a single interest category, individual or organization. No single interest category should constitute more than 1/3 of the membership of any committee.” The nine interest categories outlined in the Consensus Procedures are:

- | | | |
|--|------------|------------------------|
| ▪ Manufacturer | ▪ User | ▪ Public Segment |
| ▪ Builder | ▪ Utility | ▪ Government Regulator |
| ▪ Standards Promulgator/
Testing Laboratory | ▪ Consumer | ▪ Insurance |

Within each of these interest categories, committee members should represent a diversity of experience and geography. Examples provided below are illustrative and should not be considered as reflecting the exact makeup of the committees.

As indicated above, one-third of the committee members will represent the Government Regulator interest group and include federal, state or local governments. These representatives can include federal agencies like the Department of Energy or Environmental Protection Agency, state agencies including state energy offices and building departments, and local entities including building departments.

Users include designers (architects and engineers) and building owners which are subject to the provisions of the code. Users provide valuable insight into what is practical and what is not. Collectively, users should represent a diversity of experience with different levels of energy efficiency from minimum requirements to zero energy buildings and a variety of building types.

Like users, builders should also collectively represent a diversity of experience with different levels of energy efficiency – from minimum requirements to zero energy buildings – and a variety of building types. For residential builders, participants should include both production and custom builders including builders successfully implementing highly efficient strategies.

The consumer interest category includes the purchasers of buildings designed and constructed under the IECC. This includes organizations representing homeowners and building owners.

The public segment interest category are those who benefit from the provisions of the code. Examples include consumer advocacy groups, energy efficiency advocates, and affordable housing groups. Governmental representatives filling the public segment include state and local sustainability and resilience offices.

ENHANCED ENERGY EFFICIENCY AND GREENHOUSE GAS REDUCTION RESOURCES

Building off the success of the IECC and IgCC, the Code Council will develop a layered approach that provides communities with a menu of technical and policy resources, which integrate with the I-Codes, to address their energy efficiency and GHG reduction goals, including those goals identified by the Energy and Carbon Advisory Council. The IECC will remain the minimum requirement.

The resources will be developed by a committee of subject matter experts and representatives of interested communities in parallel with the relevant codes and standards development processes. The resources could take the form of standards, guidelines, recommended practices, or other guidance based on recommendations of the Energy and Carbon Advisory Council and as approved by the Code Council Board of Directors. This will give this effort the opportunity to address the urgent needs of the challenges faced by changing climate activity.

These resources can be published as stand-alone documents, incorporated into, or bundled with the underlying reference codes and standards and offered as part of the Code Council's [Digital Codes](#). Supporting materials and training resources will also need to be created to support the effective use of these resources. Given the nature of these activities, the associated materials must be equally innovative. These innovative offerings can also be leveraged to attract new entrants into our industry and into the Code Council.

The resources are intended to be useable independently and adopted alongside the baseline code to support the policies of a community in specific areas. For example, a community could adopt the 2021 IECC with provisions from the Code Council resources developed for electric vehicles or electrification.

The portfolio of resources could include a variety of energy efficiency and GHG reduction solutions. Many of these solutions would require the use of on-site renewable generation and energy storage. Specific solutions could address:

- International Energy Conservation Code (minimum requirements)
- International Green Construction Code, powered by ASHRAE 189.1 (green code, stretch code)
- Electric vehicle resource for all building types
- Electrification and decarbonization resource for all construction elements
- Zero energy and zero carbon resource for all construction elements
- Embodied carbon resource for all construction elements
- Grid interactivity/efficiency resource
- Performance standards for existing buildings
- Enhancing energy savings through water efficiency and reuse resource
- Integration of on-site renewable energy generation and energy storage to realize greenhouse gas reduction and resilience goals

ENERGY AND CARBON ADVISORY COUNCIL

In conjunction with the Code Council's Energy Efficiency and Greenhouse Gas Reduction Objective, the Code Council will establish an Energy and Carbon Advisory Council to help inform the Code Council's efforts, including policy goals. The Advisory Council will be made up of leaders from across the public and private sector representing users of Code Council guidance, public interest stakeholders, government leaders and the business community interested in strategies for enhanced energy and GHG reductions. The Advisory Council shall provide input on nominations for the IECC Development Committees and the Development Committee Chairs upon the request of the Board.

The Energy and Carbon Advisory Council will meet to provide input on the Code Council's codes, standards and other guidance, identify new guidance needs and gaps that should be filled. Advisory Council membership could include:

- Mayors, county executives, or other local government sustainability/resilience leaders
- State government sustainability/resilience leaders
- Federal agency representatives
- Leaders from public interest and private industry organizations, including, but be not limited to, finance, academia, research, manufacturing, building, affordable housing, energy and climate policy, and insurance stakeholders

BUILDING AWARENESS AND PARTICIPATION IN STANDARDS ACTIVITIES

The International Code Council has a long and respected history in administering a standards development process. The Code Council is accredited by the American National Standards Institute (ANSI) as a standards developing organization (SDO) that adheres to ANSI's Essential Requirements for openness, balance, consensus and due process. Participation of the various stakeholders in an equitable, accessible and responsive environment is key in developing a consensus standard. The Code Council's Consensus Procedures used to develop Code Council standards were updated and accepted by ANSI in April 2020. As an SDO, these procedures provide the Code Council with a streamlined method to develop standards in the most time efficient manner.

The Code Council currently develops [fourteen standards](#) under the Consensus Procedures including standards on storm shelters (ICC 500), off-site construction (ICC 1200 and 1205), and residential construction in high-wind regions (ICC 600). Additional standards development activities are conducted in cooperation with ASHRAE, ACCA and RESNET.

To build greater awareness and participation in standards activities, the Code Council will initiate:

- A communication campaign on all Code Council ongoing standards activities
- Development of web-based tutorials on how the standards process works, how to get involved and instructions on how to register for notifications of activities
- Featured space on the Code Council website about standards activities
- Featured communications in the *Building Safety Journal* about standards activities
- Outreach to chapters to offer awareness communications and education for chapter hosted events

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APPENDIX: RELATED RESILIENCY RESOURCES

GLOBAL RESILIENCY DIALOGUE

Launched by the International Code Council, the Global Resiliency Dialogue brings together building code developers and researchers from Australia, Canada, New Zealand and the United States to inform the development of building codes that draw on both building science and climate science. This group works to improve the resilience of buildings and communities to intensifying risks from weather-related natural hazards. Read the new report, “The Use of Climate Data and Assessment of Extreme Weather Event Risks in Building Codes Around the World,” and learn more about the initiative at www.globalresiliency.org.

Building Code Development/Research Organization Signatories



National Research
Council Canada

Conseil national de
recherches Canada



MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI



Scottish Government
Riaghaltas na h-Alba
gov.scot

Endorsing Organizations



Australian
Institute of
Architects

RESILIENCY TOOLKIT

The Code Council has a Resiliency Toolkit available for free at www.iccsafe.org/advocacy/resilience-toolkit. This toolkit includes information, graphics and resources for anyone looking to learn more about resiliency and buildings.



BUILDING CODES: DRIVING GROWTH THROUGH INNOVATION, RESILIENCE AND SAFETY

RESILIENCE IN THE BUILDING CODES

Creating a resilient nation requires diligent planning and innovative thinking. Incorporating new technologies in current building practices to achieve higher resiliency is exciting but can be expensive. Thankfully, effectively utilizing current codes and standards throughout all phases of the building's lifecycle increases the efficacy of new building technologies and offers a cost effective path toward community stability during times of disaster. Resilience starts with strong, regularly updated, and properly implemented building codes.



PLANNING

Creating a Sustainable Community

- Provisions in the I-Codes include sustainability measures for the entire construction project and its site making buildings more efficient and less economically and environmentally wasteful.
- Building sustainably has effects that go beyond the walls and into the community – for example, car charging stations make it easier to own eco-friendly vehicles and smart grid demand response systems lower energy prices for the consumer and increase grid stability for the surrounding area.



RESPONSE

Ensuring Mental & Physical Health and Wellbeing

- Provisions in the I-Codes address mental and physical health and well-being from dealing with sanitation and pest control to designing buildings that respond to the latest science on mood and mental health.



RECOVERY

Efficient Disaster Mitigation & Recovery

- Provisions in the I-Codes address disaster preparedness and recovery – from how and where to build in flood plains to constructing buildings that can better withstand natural and manmade disasters.
- A study done by the Congressionally established National Institute of Building Sciences showed that adopting up-to-date codes saves \$11 for every \$1 invested. FEMA analysis also found that if all new U.S. buildings were built to modern editions of the I-Codes, the country would save more than \$600 billion by 2060.



RESILIENCE

Improving Building Life Cycles

- Provisions in the I-Codes enable changes to the systems inside the building or even the structure itself at some point after its initial construction and occupation including repair, alteration, change of occupancy, addition to and relocation of existing buildings.
- As communities change, so do the buildings they use. Updated codes allow buildings to adapt, keeping a sense of continuity while also reducing blight from outdated, unused buildings.

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ALLIANCE FOR NATIONAL & COMMUNITY RESILIENCE®

The Alliance for National & Community Resilience is an International Code Council co-founded 501(c)3 national coalition aimed at improving resilience and implementing good community practices

in towns and cities across the United States and helping cities prevent infrastructure failure caused by natural and other hazards, thereby avoiding negative social, economic and welfare repercussions caused by such damages. ANCR's primary objective is the development of Community Resilience Benchmarks® – the first system of its kind in the United States – that will allow local leaders to easily assess and improve their resilience across all functions of a community. When adverse events occur, all gears in the local system must continue to function. ANCR intends to give communities a voluntary, transparent, usable, and easily understandable accredited self-assessment that helps to showcase their whole-community resilience and provides a simple gauge of how their resilience continues to strengthen. [Learn more.](#)



Alliance for
National & Community
Resilience®

INDUSTRY STATEMENT ON RESILIENCE

The Code Council is a founding signatory of the Industry Statement on Resilience. In May 2014, CEOs of almost two-dozen leading associations representing a half-million members of the design and construction sector used the occasion of Building Safety Month to issue a joint statement on resilience. The Industry Statement now has over 50 signatory organizations who meet regularly to collaborate on resilience initiatives. The press release and joint statement can be found [here](#).

THE IMPORTANT ROLE OF ENERGY CODES IN ACHIEVING RESILIENCE

The Code Council published a free report on “The Important Role of Energy Codes in Achieving Resilience.” This paper examines the intersection of energy and resilience and the important role of energy codes in supporting community resilience. [Download here.](#)



The Important Role of Energy Codes
in Achieving Resilience