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ICC Model Code Development

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The International Code Council (ICC) develops model building codes and referenced standards. The model codes developed by ICC are commonly referred to as the I-codes. Regarding the impact to concrete design and construction, the I-codes most commonly serve as the basis of building codes adopted and enforced by state and local governments, referred to as "authorities having jurisdiction" (AHJ).

ICC uses a hearing process for the development of the I-codes, which are intended to serve as the basis for the development of legally binding, government administrated and enforced rules and regulations governing building design and construction. This more closely emulates a legislative process than the committee process employed by ACI.

The I-codes and the development process are described in the following:

I-codes with an indication of relevance to ACI committee activities
Timeline typically used for the development of the technical content of the I-codes with a description of the activities
Grouping of the technical content addressed in the model code development process.
Engagement opportunities for ACI members and staff

I-codes: ICC develops and maintains 15 model building codes. Portions of codes most relevant to current ACI committee activities are indicated in Table 1.

Table 1 - ICC Model Codes Showing Relevance to ACI Committee Activities

ICC Model Code		Most Relevance to ACI	ACI Committees
IBC	International Building Code	Chapter 7, Fire and Smoke Protection Features Chapter 16, Structural Design Chapter 17, Special Inspections and Tests Chapter 18, Soils and Foundations Chapter 19, Concrete	216 318 318, 311 318 318
IECC	International Energy Conservation Code	Chapter 4, Commercial Energy Efficiency	122
IEBC	International Existing Building Code	Chapter 3, Provisions for All Compliance Methods	562
IFC	International Fire Code	*Limited or no relevance*	*None*
IFGC	International Fuel Gas Code	*Limited or no relevance*	*None*
IgCC	International Green Construction Code	*Administrative chapter only**	*N/A*

Table 1 - ICC Model Codes Showing Relevance to ACI Committee Activities (continued)

ICC Model Code		Most Relevance to ACI	ACI Committees
IMC	International Mechanical Code	*Limited or no relevance*	*None*
IPC	International Plumbing Code	*Limited or no relevance*	*None*
IPMC	International Property Maintenance Code	*Limited or no relevance*	*None*
IPSDC	International Private Sewage Disposal Code	*Limited or no relevance*	*N/A*
IRC	International Residential Code	Chapter 4, Foundations Chapter 5, Floors Chapter 6, Wall Construction Chapter 11, Energy Conservation	332 332 332 122
ISPSC	International Swimming Pool and Spa Code	*Limited relevance at this time*	*N/A*
IWUIC	International Wildland Urban Interface Code	*Limited relevance at this time*	*N/A*
IZC	International Zoning Code	*Limited relevance at this time*	*N/A*
ICCPC	ICC Performance Code	*Limited relevance at this time*	*N/A*

*Technical content of the IgCC is American Society of Heating Refrigerating and Air Conditioning Engineers, US Green Building Council, and Illuminating Engineering Society: *Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings* (ASHRAE 189.1)

There are opportunities for increased relevance of ACI committee activities regarding the content of the ICC model codes. Interest has been expressed for mandatory design and construction requirements regarding:

- Concrete and shotcrete swimming pools for reference in the ISPSC;
- Slabs-on-ground for commercial and residential buildings for reference in the IBC and IRC;
- Slabs-on-ground for parking areas, driveways, and sidewalks for reference in the IZC†;
- Sustainable concrete sitework for reference in the IgCC (ASHRAE 189.1);
- Sustainable concrete for reference in the IgCC (ASHRAE 189.1);
- Concrete private sewerage disposal systems for reference in the IPSDC;
- Concrete systems to provide protection from external fires for reference in the IWUIC; and
- Concrete systems to provide acoustical comfort for reference in the IBC and IRC.

†There has also been interest expressed as a standard to be referenced in local ordinances where driveways, parking areas, and sidewalks are not within the purview of the building code.

ICC Standards - ICC also develops standards intended to be referenced in the model codes. ICC consensus standards are shown in Table 2.

Table 2 - ICC Standards and Relevance to ACI Committee Activities

ICC Standards		Most Relevance to ACI	ACI Committees
A117.1	Standard for Accessible and Usable Buildings and Facilities	*Limited or no relevance*	None
ICC 300	Standard for Bleachers, Folding and Telescopic Seating, and Grandstands	*Limited or no relevance*	None
ICC 301	Standard for the Calculation and Labeling of the Energy Performance of Low-Rise Residential Buildings Using an Energy Rating Index	Chapter 4, Home Energy Rating Calculation Procedures	122
ICC 380	Standard for Testing Airtightness of Building Enclosures, Airtightness of Heating and Cooling Air Distribution Systems, and Airflow of Mechanical Ventilation Systems	Chapter 3, Procedure for Measuring Airtightness of Building Enclosure	122
ICC 400	Standard on the Design and Construction of Log Structures	*Limited or no relevance*	None
ICC 500	ICC/NSSA‡ Standard for the Design and Construction of Storm Shelters	Chapter 3, Structural Design Criteria Chapter 6, Fire Safety Test Methods for Impact and Pressure Testing	318, 332 216 318, 332
ICC 600	Standard for Residential Construction in High-Wind Regions	Chapter 3, Structural Design Chapter 4, Buildings with Concrete or Masonry Exterior Walls	318, 332 318, 332
ICC 802	Landscape Irrigation Sprinkler and Emitter Standard	*Limited or no relevance*	None
ICC 900	Solar Thermal System Standard	*Limited or no relevance*	None
ICC 901	Solar Thermal Collector Standard	*Limited or no relevance*	None
ICC 902	Solar Pool and Spa Heating System Standard	*Limited or no relevance*	None
Code Proposals	Foam Plastic Insulation	Code change proposals for I-codes	122, 560
Under Development	Rainwater Collection System Design and Installation	*Limited or no relevance*	None

‡National Storm Shelter Association

ICC-ES Acceptance Criteria – Further, ICC, through the ICC Evaluation Service, develops and maintains numerous acceptance criteria for product, component, and system evaluations used to determine whether the the requirements of the building code are satisfied.

***Timeline*:** ICC code development is on a 3-year cycle. Code development is broken into two groups, A and B. The code provisions assigned to Group A are addressed in year one, and those assigned to Group B in year two. There are no hearings in year three, which is dedicated to integrating approved code changes and publishing the next edition of the model codes. The typical timeline for each year of code development, Groups A and B, are shown in Table 3.

Table 3 - Typical ICC Code Development Cycle Timeline

Early January	**Submittal deadline** for code change proposals by anyone interested in modifying the model codes.
Late February/ Early March	**Posting of code change proposals** on the ICC website
Mid-April/ Early May	**Committee Action Hearings** (CAH) where the proponents and opponents to proposed code change testify to the appropriate code development consensus committee (CDCC). The committee votes on recommendations for each code change proposal after each proponent and opponent is provided with 2 minutes to testify and 1 minute for rebuttal.
Two weeks Following CAH	**Online voting by all qualified ICC members** on floor motions
Late May/ Early June	**Posting of the CAH Report** on the ICC website
Mid July/ Late July	**Submittal of public comments** in opposition of committee and floor actions or to modify original code change proposal to address comments and testimony at the CAH.
Late August/ Early September	**Posting of public comments** as the PCH agenda on the ICC website. Results of the committee action hearings not receiving public comments are placed on the consent agenda.
Late October	**Public Comment Hearing** (PCH), where proponents and opponents to public comments testify to the audience (physically present and via webcast). Each proponent and opponent is provided with 2 minutes to testify and 1 minute for rebuttal. No binding action occurs during the PCH.
Two weeks following PCH	**Online voting by qualified government officials** determines the final disposition of code change proposals.
Late November	**Posting of final action** on ICC website.

Between hearings, ICC Code Action Committees (CAC) meet to prepare code change proposals; review code change proposals and develop testimony as needed; and review public comments and develop testimony as needed. There are four Code Action Committees (CAC): Building Code Action Committee (BCAC); Fire Code Action Committee (FCAC); Plumbing Mechanical and Gas Code Action Committee (PMGCAC); and Sustainability, Energy and High-Performance Building Code Action Committee (SEHPCAC). The BCAC and SEHPCAC tend to be the only committees with agenda items of relevance to current ACI committee activities.

***Grouping*:** ICC groups the code hearing process to align technical content with the Code Development Consensus Committees that are present at the hearings. There are 17 CDCCs. While the groups may

change from cycle to cycle, generally the committees are assigned to Groups A (year one) and B (year two) as shown in Table 4. Some proposals impact the responsibility of multiple committees and are assigned to a committee deemed to be most appropriate.

Table 4 - CDCC and Hearing Groups

Group	Acronym	Code Development Consensus Committee	Committee Responsibility
B	CECDC	Commercial Energy Code Committee	*International Energy Conservation Code* - commercial provisions
B	IADMIN	ICC Administrative Code Committee	Administrative provisions of all codes and updates of reference documents
A	IBC-E	International Building Code - Egress Code Committee	*International Building Code* - means of egress provisions
A	IBC-FS	International Building Code - Fire Safety Code Committee	*International Building Code* - fire safety provisions
A	IBC-G	International Building Code - General Code Committee	*International Building Code* - general provisions except administrative
B	IBC-S	International Building Code - Structural Code Committee	*International Building Code* - structural provisions
B	IEBC	International Existing Building Code Committee	*International Existing Building Code*, except administrative
A	IFC	International Fire/Wildland-Urban Interface Code Committee	*International Fire Code* and *International Wildland Urban Interface Code*, except administrative
A	IFGC	International Fuel Gas Code Committee	*International Fuel Gas Code*, except administrative
B	IgCC-G	International Green Construction Code – General Code Committee	*International green Construction Code* - Chapter 1 only (IgCC is essentially ASHRAE[§] 189.1)
A	IMC	International Mechanical Code Committee	*International Mechanical Code*, except administrative
A	IPC-IPSDC	International Plumbing/Private Sewage Code Committee	*International Plumbing Code* and *International Private Sewage Disposal Code*, except administrative
A	IPMC-ZC	International Property Maintenance Code/Zoning Code Committee	*International Property Maintenance Code* and *International Zoning Code*, except administrative
B	IRC-B	International Residential Code – Building Code Committee	*International Residential Code* except administrative, energy conservation, mechanical and plumbing
A	IRC-PM	International Residential Code – Plumbing and Mechanical Code Committee	*International Residential Code* – mechanical and plumbing provisions
A	ISPSC	International Swimming Pool and Spa Code Committee	*International Swimming Pool and Spa Code*, except administrative

Table 4 - CDCC and Hearing Groups (continued)

Group	Acronym	Code Development Consensus Committee	Committee Responsibility
B	RECDC	Residential Energy Code Committee	*International Energy Conservation Code* – residential provisions and *International Residential Code* – energy provisions.
B	ICCPC	Performance Code provisions assigned to most relevant committee	*Performance Based Code*, except administrative

[§]ASHRAE = American Society of Heating Refrigerating and Air Conditioning Engineers

***Engagement*:** ACI member and staff engagement in the development of relevant ICC codes and standards is important to assure that ICC codes and standards appropriately address the recommendations and requirements developed via the ACI committee processes. The ICC codes currently relevant to ACI committee work are shown in Table 1. The determination of member engagement and the development of ACI documents appropriate for reference in ICC codes and standards resides with the individual committees. In addition to the currently relevant ICC codes, there may be opportunities for other committee work to be incorporated by reference in ICC documents—for example, committee work by ACI 318 on Building Code Requirements for Structural Concrete and ACI 332 on Residential Concrete might be applicable to ICC-500 *ICC/NSSA Standard for the Design and Construction of Storm Shelters* and ICC 600 *Standard for Residential Construction in High-Wind Regions.*

There are multiple opportunities for ACI members to facilitate the coordination between ICC and ACI committee work: adoption by reference of ACI requirements in ICC model codes and standards and identifying new work items for ACI committees to address needs or voids in ICC documents. ACI provides member only access to resources on the ACI Standards Adoption page. The resources include a LinkedIn group, ACI Model Code Development, which serves as a conduit for expressing interest, communicating actions, and reporting potential opportunities.
(https://www.concrete.org/publications/standards/standardsadoption.aspx)

- Where relevance to ACI committee work already exists, ACI members participating or willing to participate in the ICC codes and standards development process should make that known to the appropriate committee and consider posting that information on the LinkedIn group.
- Where relevance to ACI committee work has yet to be established, ACI members recognizing a potential role for ACI committee work to be coordinated or referenced in ICC documents should express that role to the appropriate ACI committee Chair and post the opportunity on the LinkedIn group.