Significant Changes to the 2018 International Residential Code

May 25, 2017

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Learning Objectives

Participants in this webinar will be able to:

- Discuss significant changes to the 2018 edition of the International Residential Code®, including changes to the energy provisions of Chapter 11.
- Examine which code changes may significant affect construction in your region and the reasons behind those changes.
- Gain insight into the basic code development process and how code changes are proposed and adopted for the IRC.
- Review how codes are adopted and can be amended at the state or local level.

Speaker – Gary Ehrlich

- Director, Codes & Standards for NAHB
- Licensed Professional Engineer in MD

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Speaker – Dan Buuck

- Senior Program Manager, Codes & Standards for NAHB
- ICC Certified Building Official

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Polling Question 1

Which best describes your profession?

- Builder
- Supplier
- Designer
- Code official
- Other

Polling Question 2

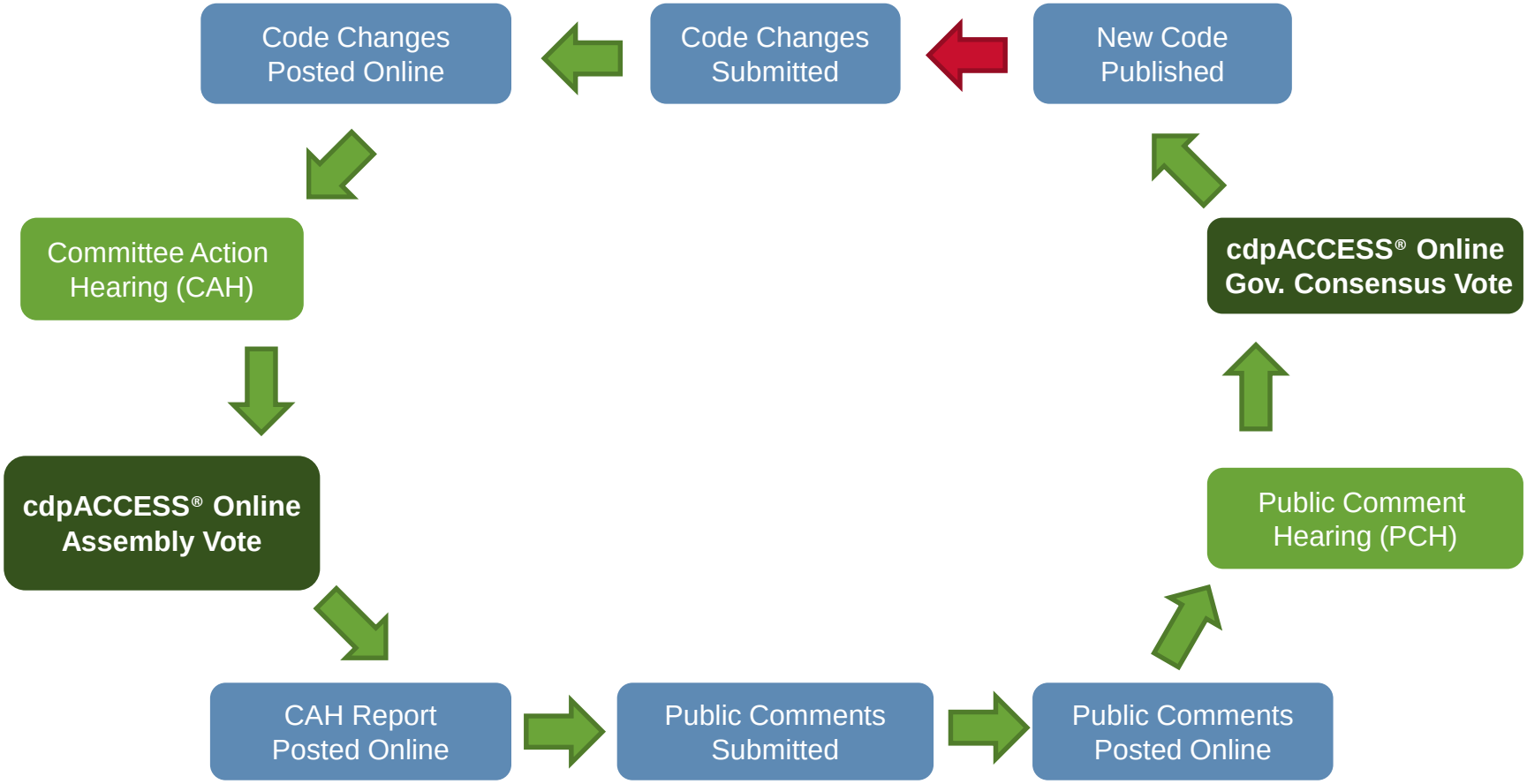
Which edition of the IRC is your state currently using?

- 2015 IRC
- 2012 IRC
- 2009 IRC
- Earlier IRC edition or other code

ICC Code Development Process

- The International Code Council (ICC) mission is to provide the highest quality codes, standards, products and services for all concerned with the safety and performance of the built environment.
- Developed by ICC, the International Codes® are the most widely adopted model code throughout the United States.
- ICC publishes a new edition of the codes every 3 years.

ICC Code Development Cycle



Committee Action Hearings

- Committees are made up of builders, manufacturers, design professionals, advocates and code officials.
- To maintain balance, no interest category should hold more than 1/3 of the seats on a committee.
- During the 2016/2017 cycles 18 committees reviewed 3300+ proposals.

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Participants

- Code Officials
- Design Professionals
- Trade Associations
- Manufacturers/Suppliers
- Government Agencies
- Consultants
- Builders/Contractors
- Others with a vested interest

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Public Comment Hearings

- Only the designated voting representative from Governmental and Honorary Members are permitted to vote at the PCH.
- During the 2016/2017 cycles 1600+ public comments were reviewed by the assembly.

cdpACCESS®

- All code changes must be submitted using the cdpACCESS® portal.
- All Governmental Members must register before the Committee Action Hearings, to vote on the Governmental Consensus Ballot.
- The Governmental Consensus Ballot will be based on the outcome of the Public Comment Hearing.
- www.cdpaccess.com

Significant Changes

- IRC Chapters 3 - 8
- IRC Energy & Mechanical

Photo by Herbie Roopai

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High-Wind Areas

R301.2.1.1

- Increased roof component & cladding loads in ASCE 7-16.
- Adopted as reference standard, though prescriptive IRC wind provisions not modified.
- ASCE 7-16 one of the 5 options in high-wind regions where alternative standards are required.
- AWC WFCM expected to update.

Photo by Dominick Biocchi/FEMA

Seismic Design

R301.2

- Updates default Seismic Design Category (SDC) map based on new USGS data.
- Higher SDC's for southeastern New Hampshire, eastern Tennessee, and Charleston, SC.
- Alternate map provided for use where allowed by the building official or where the builder obtains a soils report.

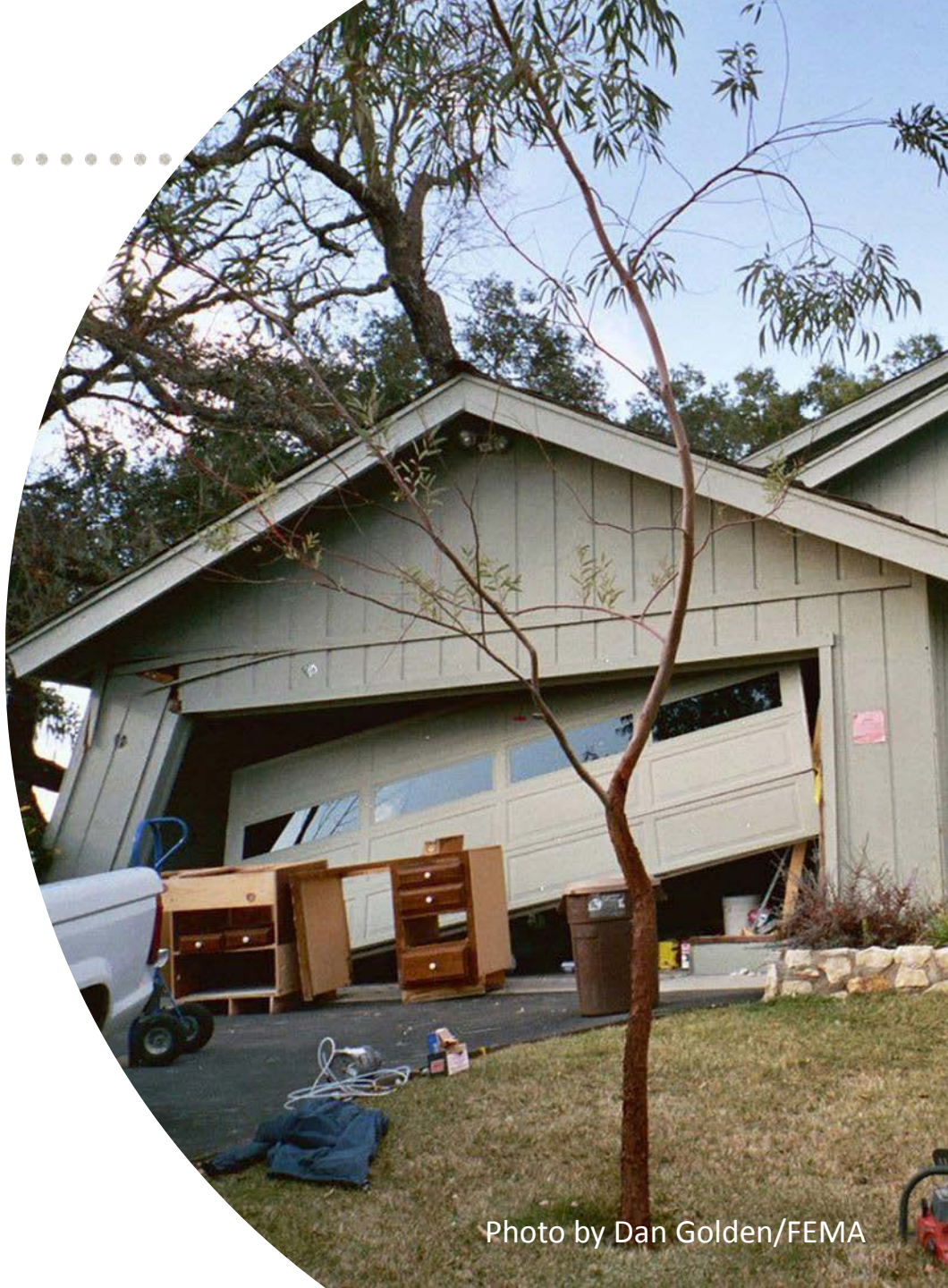


Photo by Dan Golden/FEMA

Projections

Table R302.1

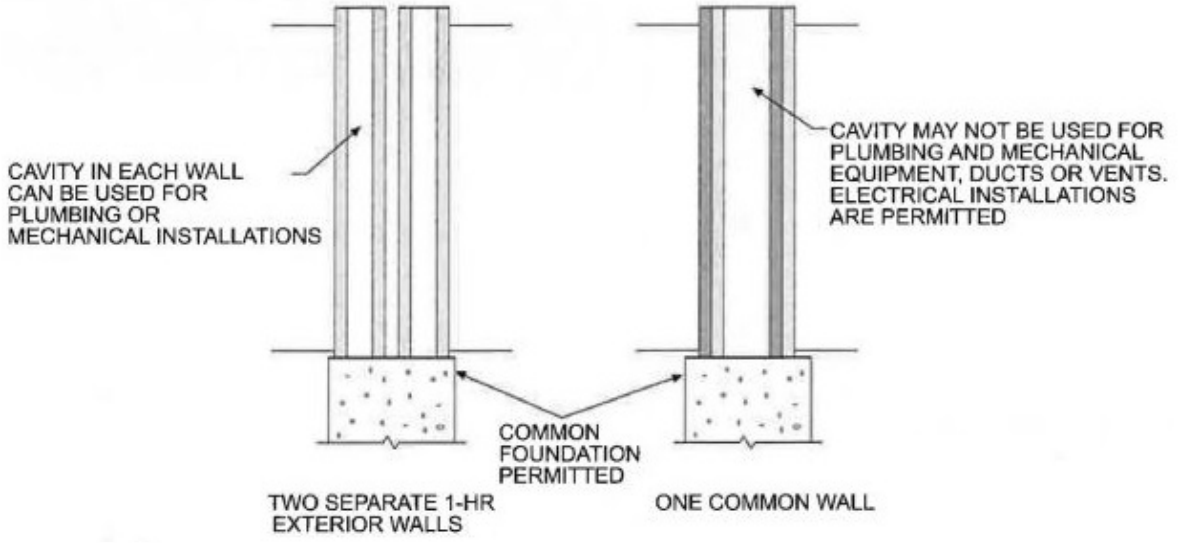
- Allows heavy timber and fire-retardant-treated wood as options to meet the fire-resistance rating.

Photo by Gabriel Benzur Photographer

Townhouses

R302.2

- Brings back the option of using two 1-hour fire-resistance rated wall assemblies to separate townhouses.



Flood Resistance

R322.3.6

- Affects exterior slabs adjacent to Zone V dwellings and likely to cause damage if washed away.
- Can be “frangible” 4 inch unreinforced slab with no turn-downs and joints at 4 feet spacing.
- Can be reinforced slab of any thickness designed per ASCE 24 and resistant to erosion and scour.

Photo by FEMA

Flood Resistance

R322.3.3, R322.3.4

- Stairs and ramps in Zone V must be flood-resistant, breakaway or able to be raised.
- Stair with open risers and guards, no enclosure below stringers and landings preferred.
- Breakaway stair or ramp not allowed if primary means of egress.
- Enclosures below stair must be breakaway walls.

Photo by Cynthia Hunter/FEMA

Wood Decks

R507

- Allowable spans for single-ply beams added to beam table.
- New table of minimum footing sizes and typical concrete pier and footing details.
- 8x8 posts added to deck post allowable height table.

Photo by Don Surrena

Stud Size/Height

R602.3.1

- New engineering-based table added for 11 and 12 foot tall load-bearing studs.
- Applies to studs supporting a 12 foot or 24 foot span of floor or roof framing.
- Table easier to enforce than current exception in text for studs up to 20 feet in height.

Header Support

R602.7.5

- Revises table for minimum number of king studs.
- Separates low-wind urban & suburban conditions from high-wind and open exposures.
- Only 1 or 2 king studs will be required for typical houses in low-wind, urban or suburban areas.

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Soffit Installation

R703.3.1

- Wood soffits shall have the same thickness and attachment as wood siding.
- Manufactured soffits shall be installed per the soffit manufacturer's instructions.
- Intended to address soffit failures in high-wind areas.
- Preserves current attachment methods in low-wind areas.

Photo by Johnson Pictures, Inc.

Photo by Christopher Marsdorf/FEMA

Masonry Veneer

R703.8.4

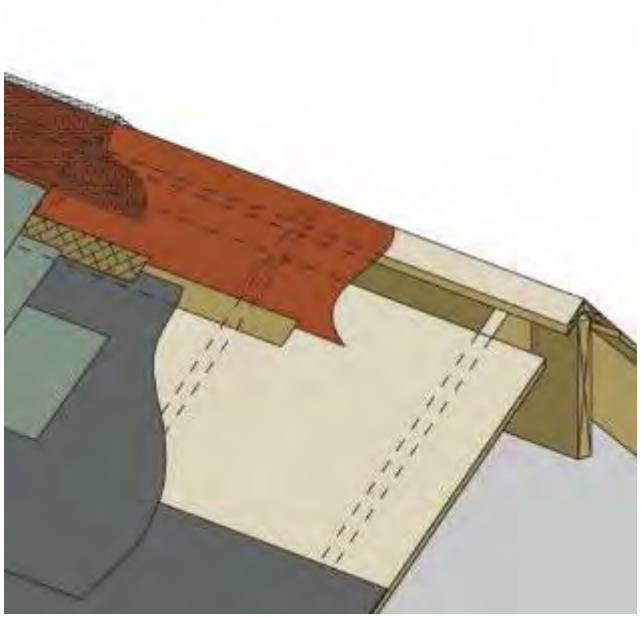
- New provisions added for brick tie attachment over foam sheathing up to 2” thick.
- Minimum 7/16” plywood or OSB sheathing required behind foam sheathing.
- Ring-shank nails or screws required for attaching the ties.
- Spacing ranges from standard 24” vertical/16” horizontal down to 12” vertical and horizontal.

Unvented Attics

R806.5

Air-permeable attic insulation (e.g. fiberglass, cellulose) may be used for unvented attics in Climate Zones 1, 2 and 3 provided:

- Vapor diffusion ports are installed along roofline (vapor passes through port not air)
- Port area ≥ 1:600 of the ceiling area
- Steep slope roof: ≥ 3:12 pitch
- Air-permeable insulation shall fill the space directly below the roof sheathing.
- Conditioned air shall be supplied at ≥ 50 CFM per 1000 sq ft of ceiling.

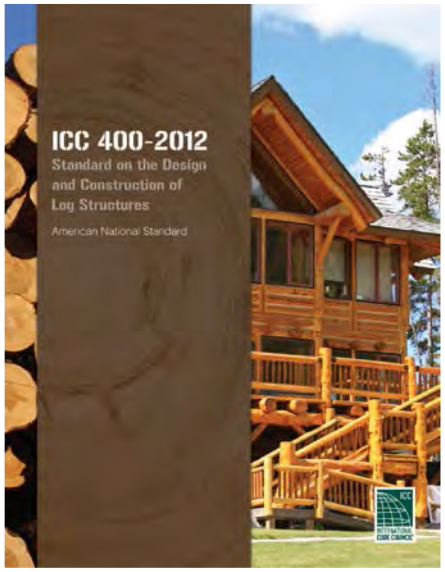


Images © Building Science Corporation

Log Homes

N1102.1

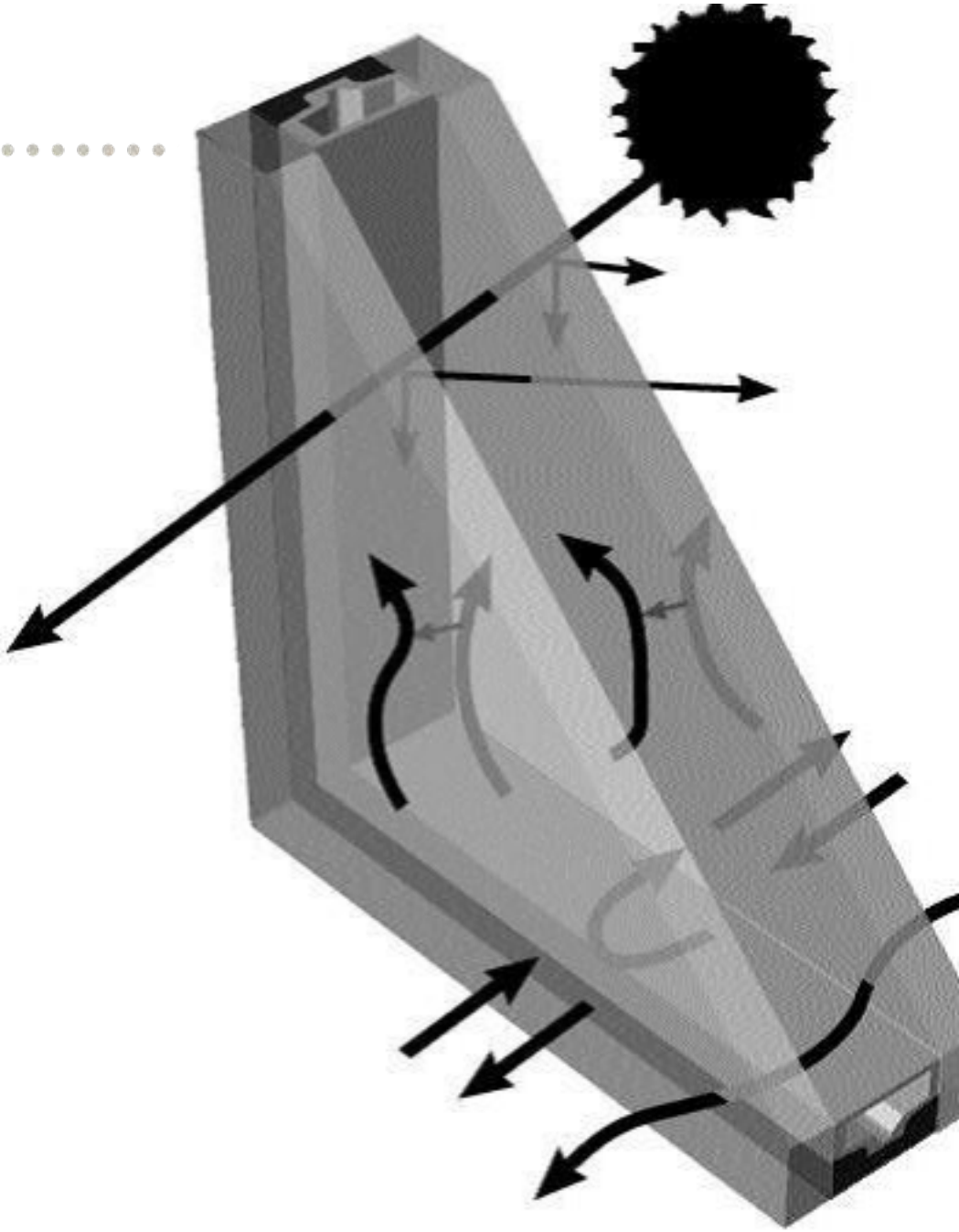
- Allows log homes to meet the requirements for the building thermal envelope by complying with ICC 400 *Standard on the Design and Construction of Log Structures*.



Window Efficiency

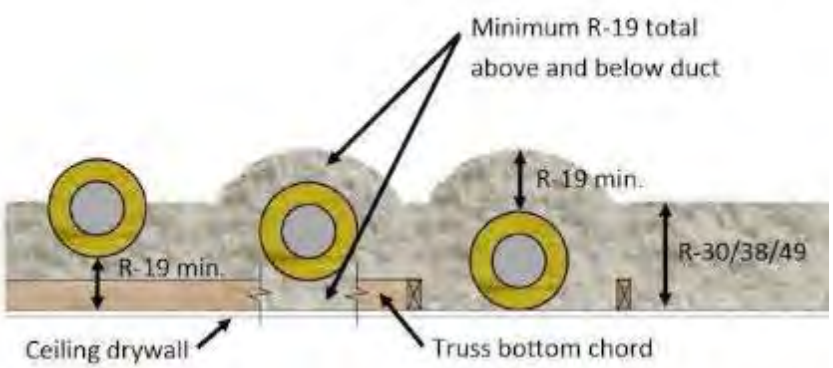
N1102.1

- Climate Zone 3 and 4
  Max. U-Factor decreased from .35 to .32
- Climate Zones 5 - 8
  Max. U-Factor decreased from .32 to .30



Buried Attic Ducts

N1103.3.6 (New)



- Clearly allows supply and return ducts to be installed in the attic buried within ceiling insulation.
- Duct insulation: Min. R-13 in Climate Zones 1A, 2A and 3A; Min. R-8 in all other Climate Zones.
- Duct must be inside a vapor retarder exterior jacket.
- Minimum ceiling insulation of R-19 excluding the duct insulation.

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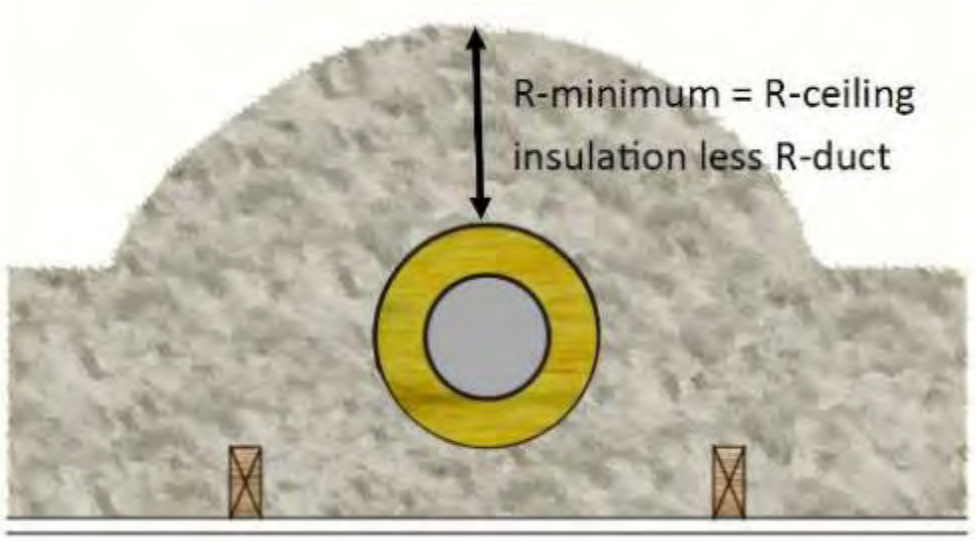
Ducts in Conditioned Space

N1103.3.7 (New)

Ducts can be considered located inside conditioned space when:

- Ducts buried per Section N1103.3.6.
- The air handler is inside the air barrier and thermal envelope.
- Max. duct leakage is 1.5 cu ft per minute per 100 sq ft of conditioned space or less.
- Duct is buried under required amount of ceiling insulation.



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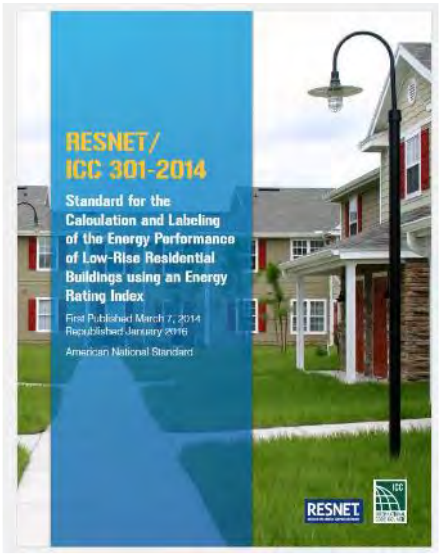
Energy Rating Index
N1106.3

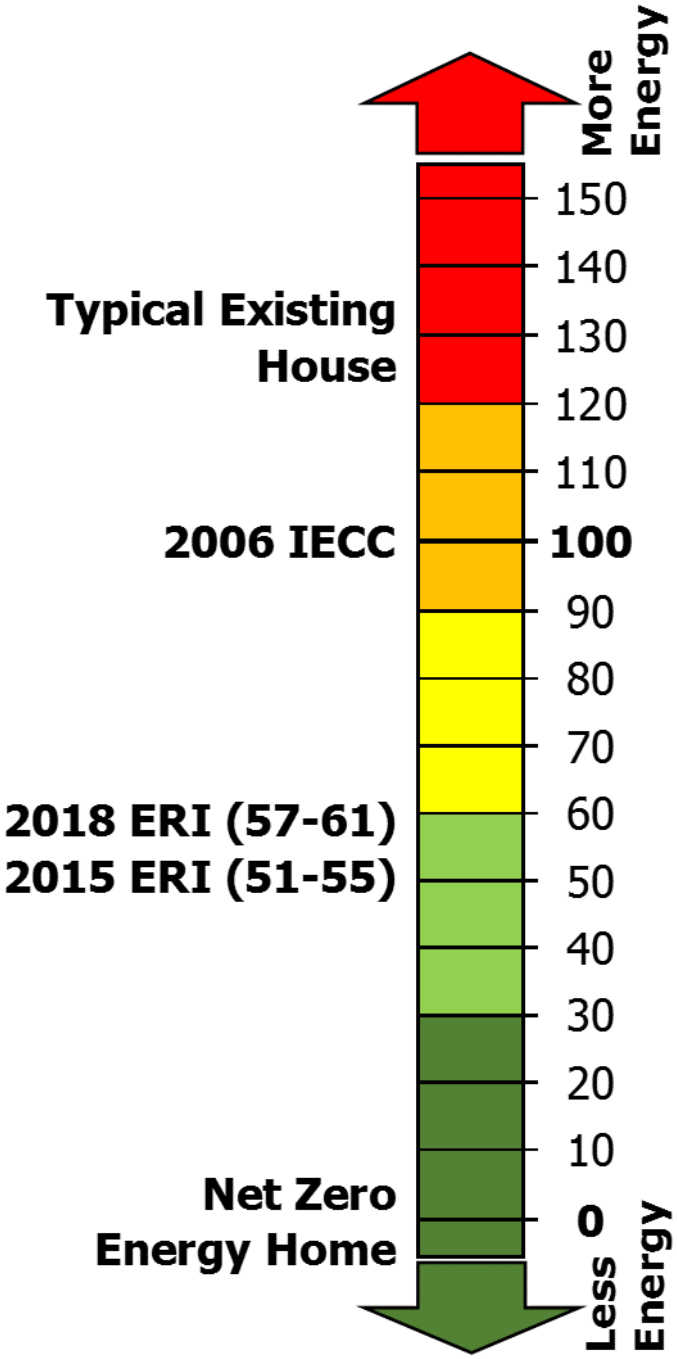
- Adds ANSI/RESNET/ICC 301 *Standard for the Calculation and Labeling of the Energy Performance of Low-Rise Residential Buildings using an Energy Rating Index* as a new referenced standard.



ERI Values

Table N1106.4

- Increased the ERI values for every Climate Zone.
- 2015 values ranged from 51 – 55.
- 2018 values range from 57 – 61.
- 2018 ERI values about 10% easier to comply with than the 2015 values.
- ERI still more stringent than the prescriptive path.



Duct Sealing

M1601.4.1

- The exception to seal longitudinal and transverse joints, seams and connections in ducts now includes only those <u>located outside of conditioned spaces</u>.
- Previously, snap-lock and button-lock duct types were required to be sealed even in systems with pressures under 2 inches water column.

Code Adoption

Photo by Ashley Avila Photography

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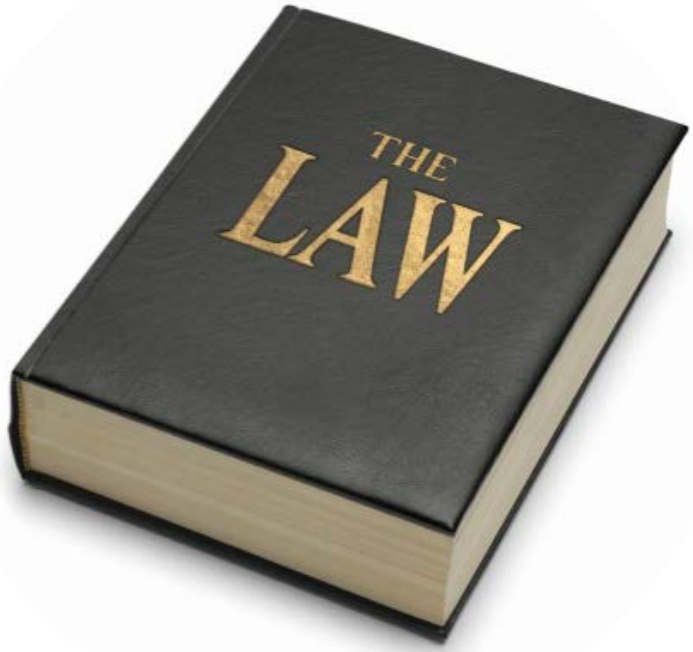
How Building Codes are Adopted

- Legislative adoption
- Direct regulatory adoption (no building code council)
- Periodic review and adoption by a state or county building code council
  - Typically every 3 years
  - Some states every 6 years.

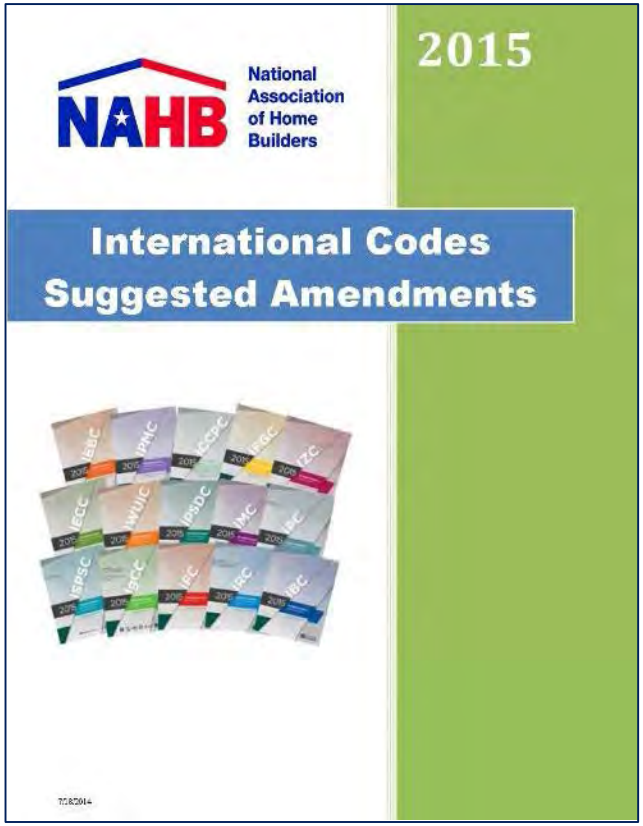


How Building Codes are Amended

- Most states and jurisdictions permit amendments to adopted building codes.
- Some allow amendments to either add, remove or modify provisions of the model code.
- Some only allow amendments that strengthen the code.
- Some states limit the ability of counties or cities to make amendments

NAHB Code Adoption Resources

- NAHB offers Code Adoption Toolkits with recommended amendments.
- NAHB CC&S staff can assist HBA's in drafting amendments.
- NAHB CC&S staff can provide HBA's with talking points on amendments submitted by others.
- www.nahb.org/codes



Questions and Answers

Speaker Contact Information

- Gary Ehrlich
  Director, Codes & Standards
  NAHB
  E-mail: gehrlich@nahb.org

- Dan Buuck
  Senior Program Manager, Codes & Standards
  NAHB
  E-mail: dbuuck@nahb.org

Thank You