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Tony Evers, Governor
Dan Hereth, Secretary

TELECONFERENCE/VIRTUAL
UNIFORM DWELLING CODE COUNCIL
Virtual, 4822 Madison Yards Way, Madison
Contact: Brad Wojciechowski (608) 266-2112
June 27, 2025

The following agenda describes the issues that the Council plans to consider at the meeting. At the time of the meeting, items may be removed from the agenda. Please consult the meeting minutes for a record of the actions of the Council.

AGENDA

9:00 A.M.

OPEN SESSION – CALL TO ORDER – ROLL CALL

A. **Adoption of Agenda (1-3)**

B. **Approval of Minutes of May 23, 2025 (4-5)**

C. Reminders: Conflicts of Interest, Scheduling Concerns

D. Introductions, Announcements and Recognition

E. **Administrative Matters – Discussion and Consideration**
1) Department, Staff and Council Updates
2) Council Members
   a. Brunner, Donald
   b. Degnan, Abe
   c. Etrheim, Mark A.
   d. Hawkins, Meghan M.
   e. Juarez, Brian
   f. Kobb, Scott
   g. McIntosh, Dawn
   h. Ruetten, Kirk
   i. Satula, W. Scott
   j. Wald, Daniel
   k. Weber, Christina L.
   l. Wert, Brian E.
3) Advisory Council Role and Overview

F. **Administrative Rules Matters – Discussion and Consideration**
1) Discussion of Rule Drafting for SPS 320 to 325, Update to the Uniform Dwelling Code **(6-9)**
2) Presentation: Tim Schmitz and Kevin McOsker, ICC – Comparison of the Current Uniform Dwelling Code vs. 2021 and 2024 IRC **(10-30)**
3) Presentation: Darren Port, Slipstream – Technical Provisions of 2021 and 2024 IECC vs. Uniform Dwelling Code **(31-68)**

4) Pending or Possible Rulemaking Projects

G. Legislative and Policy Matters – Discussion and Consideration

H. Discussion and Consideration of Items Added After Preparation of Agenda:
1) Introductions, Announcements and Recognition
2) Administrative Matters
3) Election of Officers
4) Appointment of Liaisons and Alternates
5) Delegation of Authorities
6) Education and Examination Matters
7) Credentialing Matters
8) Legislative and Policy Matters
9) Administrative Rule Matters
10) Council Liaison Training and Appointment of Mentors
11) Informational Items
12) Division of Legal Services and Compliance (DLSC) Matters
13) Motions
14) Petitions
15) Appearances from Requests Received or Renewed

I. **Public Comments**

CONVENE TO CLOSED SESSION to consider licensure or certification of individuals (s. 19.85(1)(b), Stats.); to consider individual histories or disciplinary data (s. 19.85(1)(f), Stats.); and to confer with legal counsel (s. 19.85(1)(g), Stats.).

J. Deliberation of Items Added After Preparation of the Agenda
1) Education and Examination Matters
2) Credentialing Matters
3) DLSC Matters
4) Council Liaison Training
5) Motions
6) Appearances from Requests Received or Renewed

K. Consulting with Legal Counsel

RECONVENE TO OPEN SESSION IMMEDIATELY FOLLOWING CLOSED SESSION

L. Vote on Items Considered or Deliberated Upon in Closed Session if Voting is Appropriate

M. Open Session Items Noticed Above Not Completed in the Initial Open Session

ADJOURNMENT

NEXT MEETING: JULY 25, 2025

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MEETINGS AND HEARINGS ARE OPEN TO THE PUBLIC, AND MAY BE CANCELLED WITHOUT NOTICE.

Times listed for meeting items are approximate and depend on the length of discussion and voting. All meetings are held virtually unless otherwise indicated. In-person meetings are typically conducted at 4822 Madison Yards Way, Madison, Wisconsin, unless an alternative location is

listed on the meeting notice. In order to confirm a meeting or to request a complete copy of the board's agenda, please visit the Department website at https:\\dsps.wi.gov. The board may also consider materials or items filed after the transmission of this notice. Times listed for the commencement of any agenda item may be changed by the board for the convenience of the parties. The person credentialed by the board has the right to demand that meeting at which final action may be taken against the credential be held in open session. Requests for interpreters for the hard of hearing, or other accommodations, are considered upon request by contacting the Affirmative Action Officer or reach the Meeting Staff by calling 608-267-7213.

TELECONFERENCE/VIRTUAL
UNIFORM DWELLING CODE COUNCIL
MEETING MINUTES
MAY 23, 2025

PRESENT: Donald Brunner, Abe Degnan, Mark Etrheim *(arrived at 9:06 a.m.)*, Meghan Hawkins, Brian Juarez, Dawn McIntosh, Kirk Ruetten, W. Scott Satula, Daniel Wald, Christina Weber, Brian Wert

ABSENT: Scott Kobb

STAFF: Brad Wojciechowski, Executive Director; Joseph Ricker, Legal Counsel; Jake Pelegrin, Administrative Rules Coordinator; Ashley Sarnosky, Board Administration Specialist; and other Department Staff

CALL TO ORDER

Brian Wert, Chairperson, called the meeting to order at 9:06 a.m. A quorum was confirmed with eleven (11) members present.

ADOPTION OF AGENDA

MOTION: Christine Weber moved, seconded by Brian Juarez, to adopt the Agenda as published. Motion carried unanimously.

APPROVAL OF MINUTES OF APRIL 25, 2025

MOTION: Scott Satula moved, seconded by Donald Brunner, to adopt the Minutes of April 25, 2025 as published. Motion carried unanimously.

ADMINISTRATIVE RULES MATTERS

Presentation: Dan Wald – UDC-IRC Comparison

MOTION: Brian Wert moved, seconded by Brian Juarez, to acknowledge and thank Dan Wald for their appearance and presentation to the Council. Motion carried unanimously.

Presentation: Darren Port, Slipstream – 2024 IRC Analysis

MOTION: Dawn McIntosh moved, seconded by Donald Brunner, to acknowledge and thank Darren Port for their appearance and presentation to the Council. Motion carried unanimously.

Presentation: Tim O'Brien, O'Brien Homes – IRC

MOTION: Abe Degnan moved, seconded by Mark Etrheim, to acknowledge and thank Tim O'Brien for their appearance and presentation to the council. Motion carried unanimously.

Presentation: Kirk Ruetten, DSPS DIS – 2022 UDC vs. IRC Analysis

MOTION: Christine Weber moved, seconded by Daniel Wald, to acknowledge and thank Kirk Ruetten for their appearance and presentation to the Council. Motion carried unanimously.

ADJOURNMENT

MOTION: Abe Degnan moved, seconded by Daniel Wald, to adjourn the meeting. Motion carried unanimously.

The meeting adjourned at 11:24 a.m.

State of Wisconsin
Department of Safety & Professional Services

AGENDA REQUEST FORM

1) Name and title of person submitting the request: Brad Wojciechowski, Executive Director		**2) Date when request submitted:** 6/17/2025 **Items will be considered late if submitted after 12:00 p.m. on the deadline date which is 8 business days before the meeting**
3) Name of Board, Committee, Council, Sections: Uniform Dwelling Code Council		
4) Meeting Date: 6/27/2025	**5) Attachments:** ☒ Yes ☐ No	**6) How should the item be titled on the agenda page?** Administrative Rules Matters – Discussion and Consideration 1) Discussion of Rule Drafting for SPS 320-325, Update to the Uniform Dwelling Code 2) Presentation: Tim Schmitz, ICC – Comparison of the Current Uniform Dwelling Code vs. 2021 and 2024 IRC 3) Presentation: Darren Port, Slipstream – Technical Provisions of 2021 and 2024 IECC vs. Uniform Dwelling Code 4) Pending or Possible Rulemaking Projects
7) Place Item in: ☒ Open Session ☐ Closed Session	**8) Is an appearance before the Board being scheduled?** *(If yes, please complete Appearance Request for Non-DSPS Staff)* ☐ Yes <Appearance Name(s)> ☐ No	**9) Name of Case Advisor(s), if applicable:** <Click Here to Add Case Advisor Name or N/A>
10) Describe the issue and action that should be addressed: <Click Here to Add Description>		
11) Authorization Signature of person making this request		Date: 6/17/2025
Supervisor (Only required for post agenda deadline items)		Date
Executive Director signature (Indicates approval for post agenda deadline items)		Date

Directions for including supporting documents:
1. This form should be saved with any other documents submitted to the Agenda Items folders.
2. Post Agenda Deadline items must be authorized by a Supervisor and the Policy Development Executive Director.
3. If necessary, provide original documents needing Board Chairperson signature to the Bureau Assistant prior to the start of a meeting.

International Codes-Adoption by State (January 2024)

ICC makes every effort to provide current, accurate code adoption information. Not all jurisdictions notify ICC of code adoptions.
To obtain more detailed information on amendments and changes to adopted codes, please contact the jurisdiction. To submit code adoption information: www.iccsafe.org/adoptions

X = One or more state or local agencies/jurisdictions have adopted an edition of the specific code. However, the particular code is not used as a standard for all buildings. **Blank** = The specific code has not been adopted by any state or local jurisdiction in the state. Within parentheses () = adopted as a stretch code.

21 = 2021 18 = 2018 15 = 2015 12 = 2012 09 = 2009 06 = 2006 04 = 2004 03 = 2003 00 = 2000

State	IBC	IRC	IFC	IMC	IPC	IPSDC	IFGC	IgCC	IECC-R	IECC-C	IPMC	IEBC	ISPSC	ICCPC	IWUIC	IZC	ICC 700
Alabama	21	15	21	21	21	X	21		15	15	X	21	X	X	X	X	
Alaska	21	X	21	21			21		X	X		21					
Arizona	X	X	18	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Arkansas	21	21	21	21	18		18		09	09	X	X					
California	21	21	21						State specific	State specific	X	21	X		X		
Colorado	X	X	X	X	21	X	21	X	X	X	X	X	X	X	X	X	X
Connecticut	21	21	21	21	21				21	21		21	21				
Delaware	X	X		21	21	X	21		18	90.1-2016	X	X	X				X
District of Columbia	15	15	15	15	15		15	12	15	15	15	15	15				
Florida	21	21		21	21	X	21	X	21	21	X	21					
Georgia	18	18	18	18	18		18		15	15	18	18	18		X		X
Hawaii	18	18			X*				21	21		18					
Idaho	18	18	18	18			18	X	18	18	X	18	*15		X		X
Illinois	X	X	X	X	X	X	X	X	21	21	X	X	X	X	X	X	X
Indiana	12	18	12	12	06		12		18	90.1-2007 min.							
Iowa	15	15	15	21	X	X	X		12	12	X	15	X			X	
Kansas	X	X	X	X	X	X	X		X	X	X	X	X				
Kentucky	15	15	12	15					09	12	X	15					
Louisiana	21	21	X	21	21		21		21	21	X	21	21				
Maine	15	15		15					15 (21)	15 (21)	X	15					
Maryland	21	21		21	21	X	21	X	21	21	X	21	21				
Massachusetts	15	15	X	15					(21)	(21)		15	15				
Michigan	15	15	X	15	15	X	15		15	15	X	15	15	X			12
Minnesota	18	18	18	18			18	X	12	X	X	18			X		
Mississippi	18	18	18	18	18	X	18		18	18 & 90.1-2010	X	18	X	X			
Missouri	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Montana	21	21	21	21			21	21	21	21		21	21		21		
Nebraska	18	18	X	X	X	X	X		18	18	X	18			X	X	
Nevada	X	X	X	X	X	X	X		21	21	X	X	X	X	X		
New Hampshire	18	18		18	18			X	18	18	X	18	18				
New Jersey	21	21	15 (IBC)	21			21		21	90.1-2019	X		21				
New Mexico	15	15	15	X	X		X		18	18	X	15		X	X		
New York	18	18	18	18	18		18		18	18	18	18					
North Carolina	21	21	21	21	21		21		21	21		21					
North Dakota	21	21	21	21			21		21	X	X	X					
Ohio	15	18	15	15	15		15		18	12	X		X			X	
Oklahoma	18	18	18	18	18	X	18		09	06	X	18	.	X	X	X	
Oregon	21	21	21	21			21		21	90.1-2010					X*		
Pennsylvania	18	18	18	18	18		18		18	18	X	18	18	18	18		
Rhode Island	18	18		18	18		18	12	18	18	18		18				
South Carolina	21	21	21	21	21		21		09	09	X	X	X	X			
South Dakota	21	21	15	15			X			X	21	X		X	X		
Tennessee	12	18	12	12	12		12	X	09	12	12	12	X	X		X	
Texas	12	12	X	X	X	X	X	X	15	15	X	X	18	X	X	X	
Utah	21	21	21	21	21		21		15	21		21	21		X		
Vermont	15	X			21				18	18		15					
Virginia	21	21	21	21	21		21		21	21	21	21	21				
Washington	18	18	18	18	X		18	X	18	18	X	18	18	X	18		
West Virginia	18	18		18	18		18		15	90.1-2013	18	18	18				
Wisconsin	15		X	15			15		09	15		15					
Wyoming	21	X	21	21	X	X	21		X	X	X	21	X	X	X	X	
Territory	**IBC**	**IRC**	**IFC**	**IMC**	**IPC**	**IPSDC**	**IFGC**	**IgCC**	**IECC-R**	**IECC-C**	**IPMC**	**IEBC**	**ISPSC**	**ICCPC**	**IWUIC**	**IZC**	**ICC 700**
American Samoa	1964 UBC																
Guam	09	09	09	09	09	09	09					09					
Northern Mariana Islands	18	18															
Puerto Rico	18	18	18	18	18	18	18					18	18				
U.S. Virgin Islands	18	18	18	18								18					

In the above chart, “International Codes-Adoption by State (January 2024)”, states with an “X” have state or local jurisdictions which adopt an edition of the IRC. However, the IRC is not used as a standard for all buildings in the state.

Below are a sampling of most of the states with an “X”, those that don’t have statewide adoption of the IRC. A trend for these states is that building codes can only be adopted at the county or municipal level, and that the capital city and/or most populous cities or counties do adopt a version of the IRC.

Alaska - Minimum Construction Standards

By Alaska Statute, to be eligible for Alaska Housing financing, residential housing constructed on or after July 1, 1992, must meet the Alaska Minimum Construction Standards. The home must be inspected and meet appropriate building codes and construction techniques as defined in Alaska Housing Construction Inspection Guidelines. These are based on the 2018 IRC with Alaska-specific amendments.

- Alaska Housing new construction inspection guidelines
- PUR-102 summary of building inspections
- 2018 IRC Alaska specific amendments
- 2012 IRC Alaska specific amendments
- Application to become an Authorized Inspector

Arizona – Codes can only be adopted at the local level. The city of Phoenix adopts the 2018 IRC.

Colorado – No statewide building code. The city of Denver adopts the 2024 IRC. State law requires local jurisdictions to adopt and enforce the 2021 International Energy Conservation Code (IECC) and the Colorado Model Electric Ready and Solar Ready Code upon updating any other building code.

Illinois - Illinois does not currently have a single statewide residential building code. Units of local government such as cities and counties can adopt codes of their choice. Recently passed legislation (Public Act 103-0510) [20 ILCS 3105] does set some statewide requirements as of 1/1/2025.

New construction of residential buildings in jurisdictions that have not adopted a building code, where agreed to by the home purchaser and home builder, must meet the IRC current edition or most recent preceding edition or a municipal/county residential code within 100 miles of the home [815 ILCS 670/15].

New construction of residential buildings in jurisdictions that have not adopted a building code, where not agreed to by the home purchaser and home builder, must meet the IRC current edition [815 ILCS 670/15].

For residential buildings in jurisdictions that have adopted a building code, the building must meet local codes and amendments, and starting 1/1/25, local codes must regulate the structural design in a manner that is at least as stringent as the IRC [20 ILCS 3105/10.18].

Kansas - No statewide residential code; local jurisdictions adopt codes as needed.

- **Wichita**: 2018 International Residential Code (IRC), adapted with local amendments.
- **Overland Park**: 2018 International Residential Code (IRC), with local modifications.
- **Kansas City, KS**: 2018 International Residential Code (IRC), incorporating specific local amendments

Missouri – Building codes are adopted at the county and municipal level.

Nevada - Boulder City - 2018 IRC, Carson City – No version of the IRC, Churchill County – 2024 IRC, City Of Henderson - 2018 IRC, City of Las Vegas - Currently 2018 moving to 2024, City Of Mesquite - 2018 IRC, City of Reno – 2024 IRC, Douglas County – 2018 IRC, Elko County – 2003 IRC, Esmeralda County - No version of the IRC, Eureka County - No version of the IRC, State-owned buildings – 2012 IRC

Vermont – They have their own statewide residential code that is based on the residential provisions of the 2018 IECC.

Wyoming - Building codes are adopted at the county and municipal level; Cheyenne, Wyoming adopts the 2018 IRC.

ICC INTERNATIONAL CODE COUNCIL®

High Level Concerns regarding the International Residential Code for Wisconsin

- **Timothy Schmitz, Lead Senior Regional Manager - ICC Government Relations**
- **Kevin T. McOsker, P.E., CBO, Vice President of Technical Service ICC Government Relations.**

Wisconsin Presentation - IRC

Tim Schmitz
Regional Director, Government Relation
International Code Council

Kevin T. McOsker, P.E. CBO
Vice President of Technical Services - GR
International Code Council
Nevada Professional Engineer, & Certified Building Official
Former Building Official/Director – City of Las Vegas
Adopted I – Codes - 2000, 2006, 2009, 2012, 2018, 2021
IRC Building (IRC-B) Code Development Committee 2019, 2022.

Wisconsin Presentation - IRC

Goal: Address concerns the construction industry, and the code officials may have regarding the International Residential Code.

- Wisconsin Meeting Packet (5/23/25) – Included titled "*Uniform Dwelling Code (UDC) vs. International Residential Code (IRC) Analysis*" dated: November 25, 2022.
  - "High Level Concerns with Adoption of the IRC"
    - Give a "building official's" perspective on the IRC.
    - Not going to address any IECC or energy code applications.

Wisconsin Presentation - IRC

- Flexibility of the International Residential Code
  - Can be adopted in modular format:
    - Administration (1)
    - Definitions (2)
    - Building (3-10)
    - Energy (11)
    - Mechanical (12-23)
    - Fuel Gas (24)
    - Plumbing (25-33)
    - Electrical (34-43)
    - Appendices
  - Many adopt with some chapters deleted.
  - Most adoption happens with some local amendments.

Wisconsin Presentation - IRC

- Scope R101.2 and R102.7.1
  - UDC does not cover repairs, location, removal or demolition of 1 and 2 family dwelling
    - IRC does cover these element, Wisconsin Admin Code or others.
    - Those areas already covered - amend or delete.
  - UDC doesn't apply to detached dwellings or townhomes.
    - IRC was developed from a legacy 1 and 2 family dwelling unit code.
    - What is townhome?
    - IRC also includes:
      - Owner-occupied lodging house w/ 5 or fewer guestroom (bed and breakfast).
      - Certain care facilities w/ 5 or fewer persons receiving care.
    - These covered by other adopted codes (IBC).

Wisconsin Presentation - IRC

- R102.7 Existing Structures
  - The building official has the authority to update an existing structure to the IRC.
    - The building official doesn't have the authority to require updates:
      - The I-code concept is an existing does not require compliance to newly adopted code.
      - The caveat in the code is that change would have to be deemed necessary for safety and welfare of the occupant and the public.
  - Existing structures adopts the IPMC and IFC
    - This section uses the IPMC and the IFC to allow existing building to remain unless:
      - Something is retroactive in the IPMC or IFC, or
      - Dangerous/unsafe conditions or overt fire hazards.

R102.7 Existing structures.

The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the *International Property Maintenance Code* or the *International Fire Code*, or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public.

Wisconsin Presentation - IRC

- R104, R105, and R108
  - These code sections..
    - General code provisions that may existing in the UDC (i.e. repairs, permit exemptions, removal/demo, expiration of permits, etc…)
      - If the existing, keep state/local regulation
      - Could use as a sounding board for consideration of expansion/contractions of regulations.
    - Agree: Permit Fee, collection refunds should be at the local level.
    - IRC does not dictate fees to be charged.
      - R108.1 Permit is not valid until fee paid.
      - R108.2 Requires the AHJ to have a permit fee schedule.
      - R108.3 Valuation
      - R108.4 Related fees
      - R108.5 Allow a refund policy
      - R108.6 Fees for work before permit issuance.
      - Appendix has a fee schedule, if needed – ICC resources .

Wisconsin Presentation - IRC

- R106 Submittal of Construction Document
  - The IRC requires Construction Documents to be prepared by an RDP. State of WI doesn't require RDP for UDC plans.
    - Actual language in R106:
      - …. Prepared by an RDP **where** required by the statues of the jurisdiction…
      - Intent of this section is to allow state/local authority to govern when/where/how/who should stamp plans.
      - The IRC is intended to be a prescriptive code… no "design" is required, just as UDC intends.

R106.1 Submittal documents.

Submittal documents consisting of *construction documents*, and other data shall be submitted in two or more sets, or in a digital format where allowed by the *building official*, with each application for a *permit*. The *construction documents* shall be prepared by a *registered design professional* where required by the statutes of the *jurisdiction* in which the project is to be constructed. Where special conditions exist, the *building official* is authorized to require additional *construction documents* to be prepared by a *registered design professional*.

Exception: The *building official* is authorized to waive the submission of *construction documents* and other data not required to be prepared by a *registered design professional* if it is found that the nature of the work applied for is such that reviewing of *construction documents* is not necessary to obtain compliance with this code.

Wisconsin Presentation - IRC

- R107 Temporary structures and uses:
  - UDC does not have provisions for temporary dwellings.
    - IRC gives the BO authority to issue temp permit or use, when needed.
    - Conformance to structural strength, fire safety, MOE… required by the code.
    - Seems like a rare situation, but it might be useful for someone/someday.
  - This IRC section may need to be excluded.
    - Because it doesn't exist in UDC, doesn't mean it should be excluded.
    - Consider and amended as needed.

Wisconsin Presentation - IRC

- R110 – Certificate of Occupancy
  - This provision may be excluded since the UDC does not address C of O.
    - Some jurisdictions don't issue a C of O for certain uses.
      - R3, U occupancy.
      - Legacy UBC exempted.
    - The issuance of the C of O only occurs at the local municipal level.
      - The agency that issues the permit should issue C of O.
      - Could be left to locals to decided.
    - IRC advantages:
      - Temporary certificate of occupancy is discussed and gives the BO the option.
      - It talks about revocation, if ever need.

Wisconsin Presentation - IRC

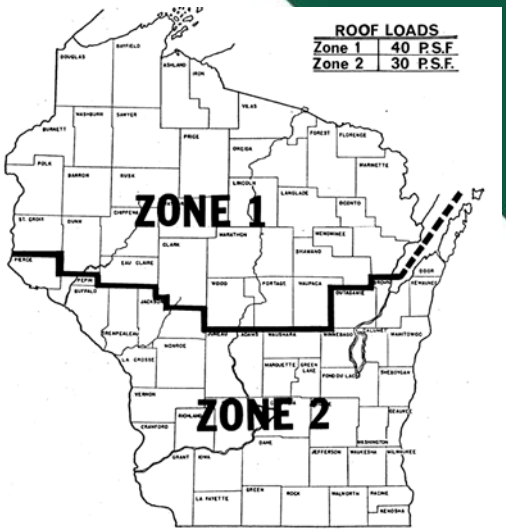
- R202 Definitions
  - Most definition could be encompassed into SPS 320;
  - Some definition may need to be excluded – i.e : local amendments:
    - Strike out definition in the IRC and copy/paste definition with Wisconsin language:
    - Strike out definition in the IRC and Reference the SPS 320.
    - Make amendment that definition apply only to the code, where specific language is used in local/state laws, for other purposes, those shall apply.

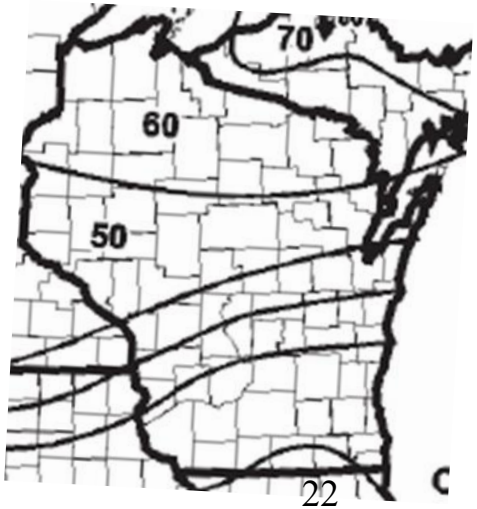
Wisconsin Presentation - IRC

- R301.2 Wind Loading:
  - UDC requires a 20 psf horizontal and a uniform uplift pressure of 20 psf.
    - IRC uses wind load specific based on aerodynamic effect on building.
      - Going to see both Positive and Negative pressures.
      - Edge effects – Wind speeds up around edges.
  - Significant Increase in Wind Load
    - Most cases wind pressure will be reduced from the 20/20 rule.
    - See component and cladding loads @ 110 mph ultimate wind load design.
  - Or the wind loads designed per ASCE 7-05
    - IRC allows the use of the IBC and uses update standards.
    - ASCE, SEI, NCSEA, NAHB, ICC, etc.. coordinate the technical changes to ensure consistent application.

Wisconsin Presentation - IRC

- R301.2 Snow Loads
  - The current UDC has two snow zones (30 psf to 40 psf), the IRC has 6 areas - 25 psf to 60 psf.
    - 2000 IRC has Wisconsin with similar 6 snow load zones (25 to 60 psf).
      - Risk of under designing for snow load in the UDC in the northern ½ of the state.
      - Agree, adopting IRC increase roof designs in northern WI.
    - Consider neighboring states:
      - Minnesota: 40 psf to 70 psf
      - LP Michigan 25 psf to 60 psf
      - UP Michigan 60 psf to 100 psf.
    - 24 I-Code reference ASCE 7-22
      - New snow loads w/ 1990 – 2020 snow data.





Wisconsin Presentation - IRC

- 301.2.2 Seismic Provisions.
  - The UDC does not adopt seismic loading.
    - IRC has WI is SDC A, lowest Seismic Design Category.
    - IBC exempts Earthquake Loads for one-and two-family dwellings in low SDC.

Wisconsin Presentation - IRC

- R320 Accessibility
  - The IRC references R-3 occupancies for accessibility requirements meeting Chapter 11.
    - R320 of the IRC state where there are more than 4 dwelling or sleeping units, they need to meet the accessibility requirement, as R-3 occupancies.
    - This is to address townhomes with more than 4 dwelling units and other uses that the IRC allows.
    - This does not require single family (and duplexes) to meet accessibility requirements.
  - The reference to R-3 occupancies needs to be deleted.
    - This would be dependent on provision when adopting the IRC
      - Townhomes, Live/Work and Care Facilities, then it should stay as the R-3 requirement.

Wisconsin Presentation - IRC

- R321 Elevators
  - IRC reference the ASME standard, should reference SPS 318.
    - Where local issues govern, address as amendment.

Wisconsin Presentation - IRC

- R322 Flood Zone Construction;
  - SPS 321.33 and 321.34, much more involved/more extensive requirements than UDC.
    - SPS 321.33 notes that DNR and FEMA have regulation that apply.
    - IRC is developed in consensus process, the FEMA, floodplain mangers, ASCE, NAHB, etc.. They assist in providing developing the regulations.
    - This could improve resiliency in flood area to the citizens of Wisconsin.

Wisconsin Presentation - IRC

- R327 Swimming Pool, Spas, and Hot Tubs.
  - IRC references the ISPSC, Wisconsin does not have a swimming pool or spa code associated w/ one- and two-family dwellings.
    - IRC points to the code as needed.
    - Local amendment to a Wisconsin specific regulation or other codes.

Wisconsin Presentation - IRC

- R401.4 Soil Tests
  - Soil tests are not explicitly required in the UDC. The consideration of expansive/compressive soils implied in the UDC. IRC language makes specific requirements to address various soil conditions.
    - IRC states the where "… questionable soil characteristics are likely to be present, the building official shall determine whether to require a soil test…"
      - If know questionable condition, exist the code provides pathway for compliance.
      - IRC gives the building official, with the known local knowledge of community, if the hazard is relevant.
      - Reference a possible soil report as an option.
      - Code allows for removal and mitigation.

Wisconsin Presentation - IRC

- Chapter 24 – Fuel Gas
  - IRC adopts the IFGC, does not adopt NFPA 54, which is adopted by the UDC.
    - IRC extracts the requirements from the IFGC into the Chapter 24.
    - NFPA 54 is the National Fuel Gas Code is the fuel gas code for the state.
      - IFGC and other I-codes are coordinate, so there is some advantage to adopt.
      - Otherwise, amend or delete chapter, as needed.

Thank you!

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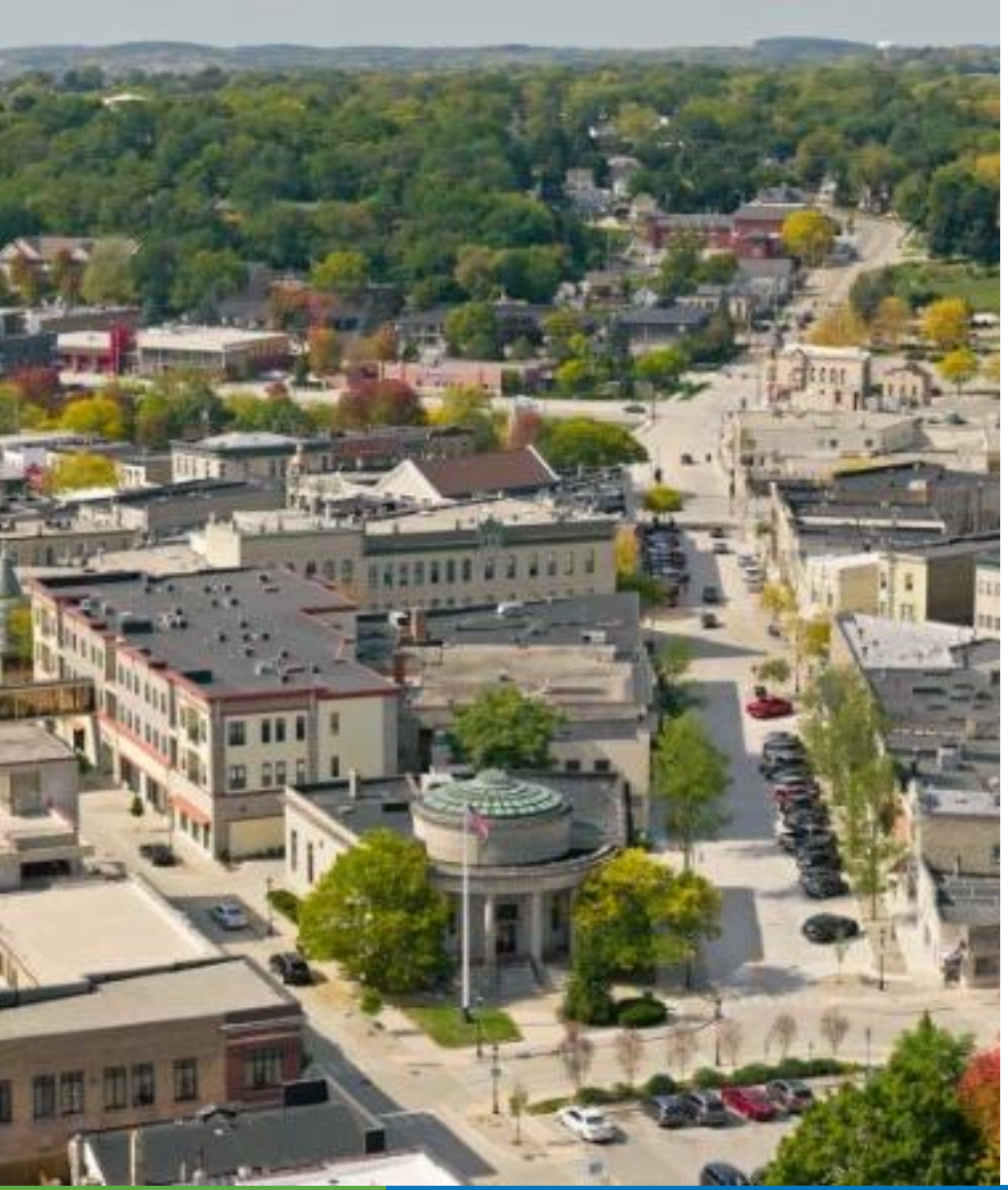
PROJECT PARTNERS

2021 and 2024 International Energy Conservation Code (IECC) Overview

Presentation to the Wisconsin Uniform Dwelling Code Committee (UDCC)

June 27, 2025

THIS PROJECT is supported by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) under the Building Technologies Office—DE-FOA-0002813—Bipartisan Infrastructure Law Resilient and Efficient Codes Implementation.



Disclaimer:

The following presentation is intended for informational purposes only.

The information contained herein does not constitute a policy or program recommendation by the State of Wisconsin, the Department of Safety and Professional Services (DSPS), the Wisconsin Advisory Council on Building Sustainability (CBS), or any other Wisconsin State Department, Agency, or Authority.

Any opinions expressed are those of the author and Slipstream Inc.

Agenda

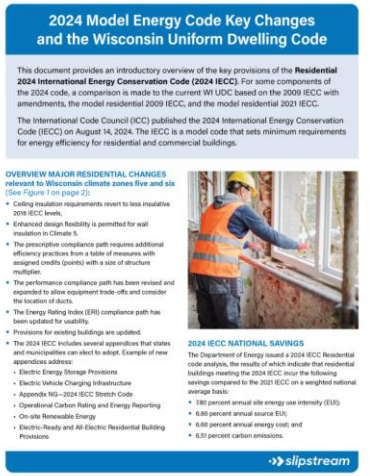
- WI RECI Projects
- May 2025 UDCC Meeting Utility Cost Clarification
- UDC/2021/2024

Wisconsin RECI Projects

Wisconsin RECI Projects and Resources

- **New Construction Baseline Study (Residential, Commercial, and Multifamily)**
- **Wisconsin Energy Codes Collaborative**
- **Wisconsin Energy Code Technical Advisor Program**

- **Resources**
  - **WI Code Adoption**
  - **Guides to 2021 and 2024 IECC Changes**
  - **Municipal Toolkit**



2024 Model Energy Code Key Changes and the Wisconsin Uniform Dwelling Code

This document provides an introductory overview of the key provisions of the **Residential 2024 International Energy Conservation Code (2024 IECC)**. For some components of the 2024 code, a comparison is made to the current WI UDC based on the 2009 IECC with amendments, the model residential 2009 IECC, and the model residential 2021 IECC.

The International Code Council (ICC) published the 2024 International Energy Conservation Code (IECC) on August 14, 2024. The IECC is a model code that sets minimum requirements for energy efficiency for residential and commercial buildings.

OVERVIEW MAJOR RESIDENTIAL CHANGES relevant to Wisconsin climate zones five and six (See Figure 1 on page 2):

- Ceiling insulation requirements revert to less insulative 2018 IECC levels.
- Enhanced design flexibility is permitted for wall insulation in Climate 5.
- The prescriptive compliance path requires additional efficiency practices from a table of measures with assigned credits (points) with a size of structure multiplier.
- The performance compliance path has been revised and expanded to allow equipment trade-offs and consider the location of ducts.
- The Energy Rating Index (ERI) compliance path has been updated for usability.
- Provisions for existing buildings are updated.
- The 2024 IECC includes several appendices that states and municipalities can elect to adopt. Example of new appendices address:
  - Electric Energy Storage Provisions
  - Electric Vehicle Charging Infrastructure
  - Appendix NG—2024 IECC Stretch Code
  - Operational Carbon Rating and Energy Reporting
  - On-site Renewable Energy
  - Electric-Ready and All-Electric Residential Building Provisions

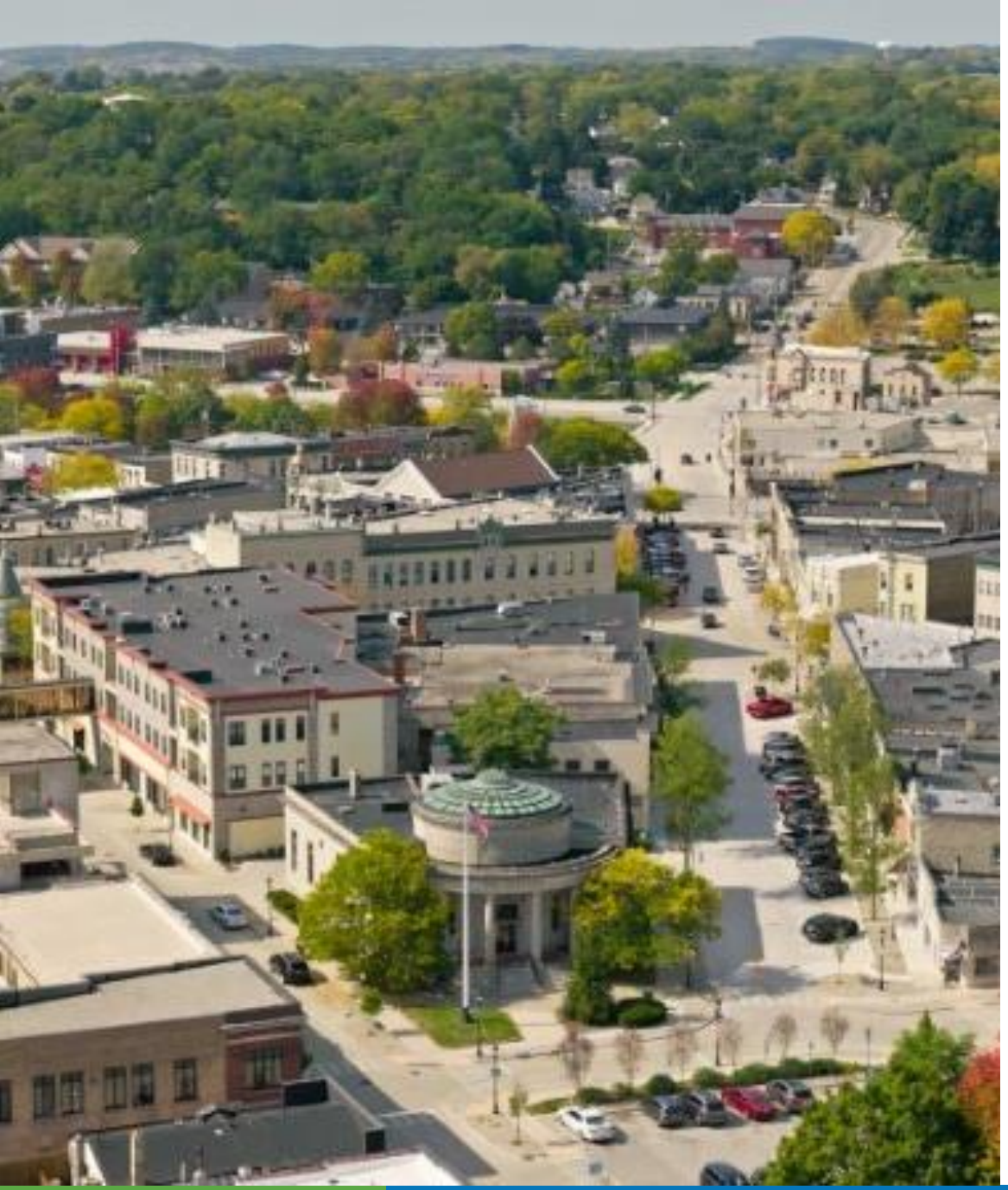
2024 IECC NATIONAL SAVINGS

The Department of Energy issued a 2024 IECC Residential code analysis, the results of which indicate that residential buildings meeting the 2024 IECC incur the following savings compared to the 2021 IECC on a weighted national average basis:

- 7.80 percent annual site energy use intensity (EUI);
- 6.80 percent annual source EUI;
- 6.66 percent annual energy cost; and
- 6.51 percent carbon emissions.

slipstream

www.wienergycodes.org



Wisconsin Utility Costs and 2021/2024 IECC Energy Code Savings

Wisconsin Energy Code Analysis

In July 2021, PNNL published a cost-effectiveness analysis of the 2021 IECC for residential buildings in Wisconsin.

In September 2024, Slipstream requested an updated cost-effectiveness analysis that considers:

- Comparison to current UDC,
- Current parameters,
- First-time and average homebuyer data,
- Additional comparison to the 2024 IECC

MEMORANDUM

Pacific Northwest NATIONAL LABORATORY

Date:	**December 3, 2024**		
To:	**Darren Port, Slipstream, Inc.**		
From:	**Turns, Michael A, Rob Salcido, Claire McKenna, PNNL**	Information Release #:	PNNL-37079
Subject:	**Cost-Effectiveness Analysis of the 2021 and 2024 IECC-Residential for the State of Wisconsin**		

The State of Wisconsin is in the process of updating its current state residential energy code, which is an amended version of the 2009 International Energy Conservation Code (IECC), to either the 2021 or 2024 IECC. In July 2021, PNNL published a cost-effectiveness analysis of the 2021 IECC for residential buildings in Wisconsin.[1] In September 2024, the Wisconsin Council on Building Sustainably (CBS) requested an updated cost-effectiveness analysis that considers more recent mortgage interest rates, different downpayment amounts for first-time and average homebuyers, and an additional comparison to the 2024 IECC.

Summary of Cost-Effectiveness of Adopting the 2021 IECC
The resulting analysis shows that a home designed to comply with the residential provisions of the 2021 IECC would yield short-term and long-term consumer benefits compared to a home built to the Wisconsin-amended 2009 IECC. When building to the 2021 IECC, Wisconsin first-time homebuyers (8% down payment) and average homebuyers (15% down payment) can expect to save 21% in energy costs, equating to $817 of annual utility bill savings. When amortizing over a typical 30-year mortgage, first-time homebuyers will see a positive cumulative cash flow in the first four years and average homebuyers will see a positive cumulative cash flow in the first six years. Over the course of 30 years, both a first-time homebuyer and an average-income homebuyer will net approximately $10,600 in life-cycle cost savings. During the first year alone, collectively, Wisconsin residents could expect to save over $12,210,000 in energy costs and 56,100 metric tons in avoided CO2 emissions.

Summary of Cost-Effectiveness of Adopting the 2024 IECC
A home designed to comply with the residential provisions of the 2024 IECC would also yield short-term and long-term consumer benefits compared to a home built to the Wisconsin-amended 2009 IECC. When building to the 2024 IECC, Wisconsin first-time homebuyers and average homebuyers can expect to save 24% in energy costs, equating to $993 of annual utility bill savings. When amortizing costs over a typical 30-year mortgage, first-time homebuyers will see a positive cumulative cash flow in the first three years, and average homebuyers will see a positive cumulative cash flow in the first five years. Over the course of 30 years, both a first-time homebuyer and an average-income homebuyer will net approximately $11,800 in life-cycle cost

Year 2024 Fuel Prices adjusted for WI

Fuel Prices for Wisconsin		
Electricity ($/kWh)	**Gas (S/Therm)**	**Fuel Oil ($/gal)**
0.1688	1.047	3.882

Fuel cost data from U.S. Energy Information Administration (EIA)

Table 11. Annual (First Year) Energy Costs for the 2009 IECC with amendments

Climate Zone	2009 IECC with amendments						
	Heating	Cooling	Water Heating	Lighting	Fans	Vents	Total
5A	$1,019	$181	$210	$247	$153	$51	$2,912
6A	$1,073	$187	$214	$247	$155	$51	$2,977
State Average	**$1,036**	**$183**	**$212**	**$247**	**$154**	**$51**	**$2,933**

Table 12. Annual (First Year) Energy Costs for the 2021 IECC

Climate Zone	2021 IECC						
	Heating	Cooling	Water Heating	Lighting	Fans	Vents	Total
5A	$650	$151	$94	$193	$120	$26	$2,279
6A	$711	$154	$97	$193	$122	$26	$2,347
State Average	**$669**	**$152**	**$95**	**$193**	**$121**	**$26**	**$2,300**

Energy Cost Savings

Table 13. Total Energy Cost Savings (First Year) for the 2021 IECC Compared to the 2009 IECC with amendments

Climate Zone	First Year Energy Cost Savings	First Year Energy Cost Savings (percent)
5A	$633	21.7%
6A	$630	21.2%
State Average	**$632**	**21.6%**

Annual (year zero) average savings of $632 based on the 2021 PNNL analysis of the 2021 IECC. Life cycle savings $12,411

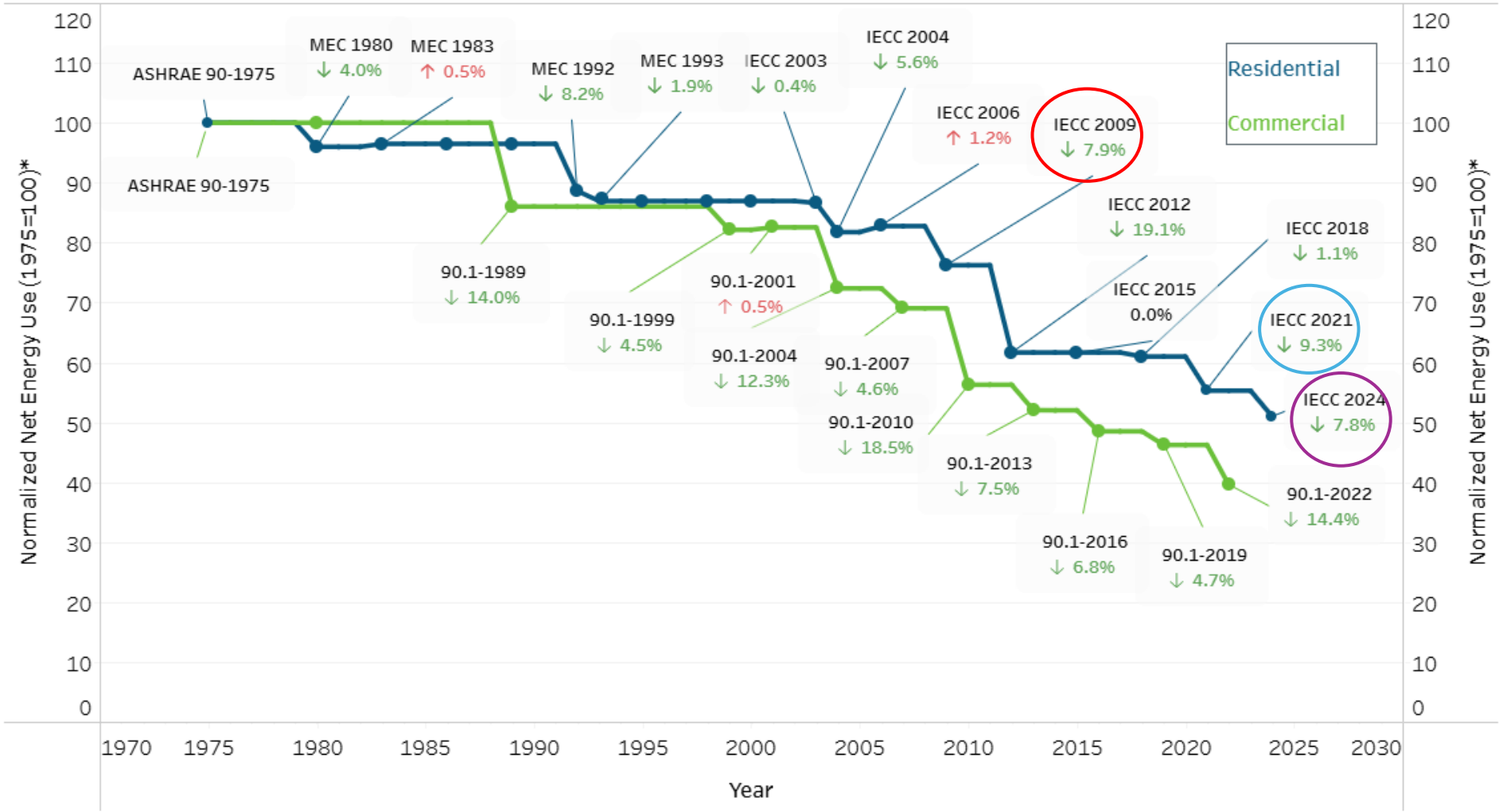
Using updated parameters and fuel costs in the 2024 PNNL analysis, the 2021 IECC annual savings are $817 annual (year zero)

2024 IECC Annual (year 0) energy cost savings $933 or 24% compared to UDC

2021/2024 IECC Residential Overview

ENERGY Estimated Improvement in Residential & Commercial Energy Codes (1975 - 2024)

Pacific Northwest NATIONAL LABORATORY



*Net energy use includes the contribution of renewable energy generation

IECC NATIONAL SAVINGS

The **2021 IECC** is 34.3% more efficient than the 2009 IECC.

The Department of Energy **2024 IECC** Residential code analysis, 2024 IECC incurs the following savings compared to the 2021 IECC on a weighted national average basis:

- 7.80 percent annual reduction in site energy use intensity (EUI);
- 6.80 percent annual reduction source EUI;
- 6.60 percent annual savings in energy cost; and
- 6.51 percent carbon emissions reduction.

From DOE Determination published December 30, 2024 https://www.energycodes.gov/determinations

Wisconsin Energy Savings

2021 IECC Residential Savings for Homeowners Compared to Wisconsin UDC

- Average annual savings of **21%** compared to the Wisconsin UDC
- Equating to **$817** of annual utility bill savings

Cash Flow Year One	Cash Flow 30 Year
• Amortized costs and benefits over a typical 30-year mortgage • First-time homebuyers positive cumulative cash flow in the ***first four*** years • Average homebuyers positive cumulative cash flow in the ***first six*** years	Over the course of 30 years, both a first-time homebuyer and an average-income homebuyer will net approximately **$10,600** in life-cycle cost savings

Wisconsin

Year One	Over 30 Years
Wisconsin residents could expect to save over **$12,210,000** in energy costs and **56,100 metric tons** in avoided CO_2 emissions	Wisconsin homeowners would save **3.26 billion dollars** in energy savings and reduce CO_2 emissions by **25.8 MMT**

2024 IECC Residential Savings for Homeowners Compared to Wisconsin UDC

- Average annual savings of **24%** compared to the Wisconsin UDC
- Equating to **$993** of annual utility bill savings

Cash Flow Year One	Cash Flow 30 Year
• Amortized costs and benefits over a typical 30-year mortgage • First-time homebuyers positive cumulative cash flow in the ***first three*** years • Average homebuyers positive cumulative cash flow in the ***first five*** years	Over the course of 30 years, both a first-time homebuyer and an average-income homebuyer will net approximately **$11,800** in life-cycle cost savings

Wisconsin

Year One	Over 30 Years
Wisconsin residents could expect to save over **$13,650,000** in energy costs and **62,700 metric tons** in avoided CO_2 emissions	Wisconsin homeowners would save **3.62 billion dollars** in energy savings and reduce CO_2 emissions by **28.8 MMT**

Key 2021 IECC Changes

- Aligns DOE, ASHRAE, and ICC commitment to 2030 ZE code
- Begins path to electrification, net-zero, and decarbonization
- Increased resiliency and passive survivability
- Consumer savings, health & safety
- 2021 or equivalent to receive IRA funds

- Reformatting
- Increased Prescriptive: Attic insulation, Above-grade walls, Slab insulation
- Duct test in conditioned space
- Additional Efficiency (AOE)
- Increased ERI stringency
- ZE Appendix

Key 2024 IECC Changes

- 2024 IECC Format Changes
- 2024 IECC Climate Zones
- Compliance Paths
- U-Factors and Fenestration Requirements
- 2024 IECC R-Values
- Air Leakage
- Residential Ducts
- Simulated Building Performance

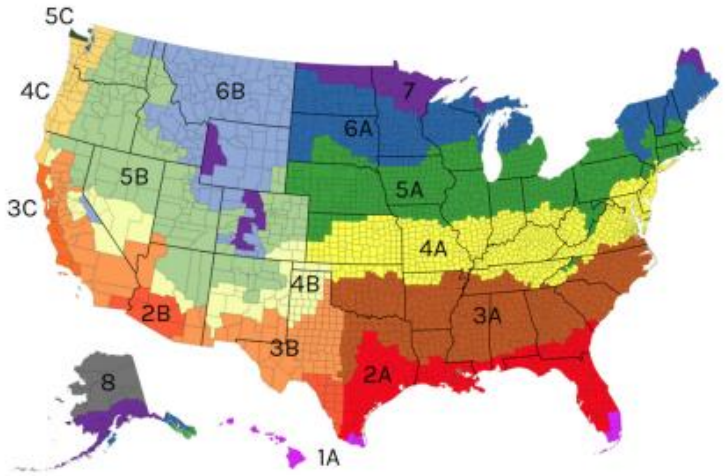
- Energy Rating Index
- Additional Efficiency Requirements
- Residential System Changes
- Lighting and Controls
- Existing Buildings
- Alterations/Substantial Improvements
- Residential Appendices

2021/2024 IECC Climate Zones

The 2021 IECC Climate zone (CZ) changes are the first change in nearly 20 years.

82.68 percent of Wisconsin's floor area was reclassified, the highest percentage in the country, and Milwaukee and Dane Counties are among the top ten counties nationally reclassified.

The 2024 IECC climate zones remain unchanged from the 2021 IECC; Wisconsin is CZ 5A/6A. However, these climate zones differ from the current Wisconsin UDC climate zones of CZ 6/7.



Code	Climate Zone	
2009	6A	7
WI UDC*	6A	7
2021	5A	6A
2024	5A	6A

2021/2024 IECC Compliance Paths

Prescriptive Compliance Option—Required for compliance with various efficiency practices. The prescriptive compliance path will require additional efficiency practices from dozens of measures with assigned credits.

Simulated Performance Option—Uses energy modeling to compare the proposed dwelling's energy costs to a reference home.

Energy Rating Index Option—Uses energy modeling to calculate an ERI for the proposed dwelling, which must be less than the maximum allowed for the climate zone.

Total UA Alternative - was renamed *Component Performance Alternative* to accompany the F-factor change.

CODE	Prescriptive	Performance	UA	ERI	WI Efficient Equipment
2009	X	X	X		
WI UDC*	X	X	X		X
2021	X	X	X	X	
2024	X	X	X	X	

*Based on 2009 IECC with amendments

** Simulated

Residential U-Factor

Residential U-Factor					
CODE	**Climate Zone**	**Fenestration**	**Basement Wall**	**Crawl Space Wall**	**Slab**
2009	6A	0.35	0.050	0.065	0.033
	7	0.35	0.050	0.065	0.028
WI UDC*	6A	0.30	0.045	0.045	0.033
	7	0.30	0.045	0.045	0.033
2021	5A	0.30	0.050	0.055	0.033
	6A	0.30	0.050	0.055	0.033
2024	5A	0.28	0.050	0.055	
	6A	0.28	0.050	0.055	

*Based on 2009 IECC with amendments

Several numerical values have changed compared to the 2021 IECC. In most cases, the values have become more stringent or energy efficient.

2024 Slab		
	Climate Zone	**F-Factor***
Unheated Slab	5A	0.51
	6A	0.48
Heated Slab	5A	0.66
	6A	0.66

F-factor is a calculation that estimates the amount of heat lost through a slab-on-grade floor

Residential R-Value

The 2021 IECC R-Values more stringent or equivalent to the UDC and model 2009 IECC, w/ exceptions.

2024 IECC

- 2024 IECC ceiling R-value has been lowered to 49 from 60.
- Expanded cavity and Continuous Insulation (CI) options
- Separate skylight SHGC values.

Residential R-Values and Fenestration

CODE	Climate Zone	Glazed Fenestration SHGC	Ceiling	Wood Frame Wall	Floor	Basement Wall	Slab R-Value and Depth	Crawl Space
2009	6A	NR	49	20 or 13+5	30	15/19	10, 4ft	10/13
	7		49	21	38	15/19	10, 4ft	10/13
WI UDC*	6A	NR	49	21	30	15/19	10/20	15/19
	7		49	19+5	38	15/19	10/20	15/19
2021	5A	0.4	60	30 or 20+5 or 0+20	30	15 or 19 or 13+5	10, 4ft	15/19 or 13&5
	6A	NR	60		30		10, 4ft	
2024	5A	NR	49	30 or 20+5 or 0+20	30 or 19+7.5 or 20	15 or 19 or 13+5	*See 2024 Slab*	15 or 19 or 13&5
	6A		49					

2024 Slab		
	Climate Zone	R-Value & Depth
Unheated Slab	5A	10, 3ft
	6A	10, 4ft
Heated Slab	5A	10, 3ft & R-5 full slab
	6A	10, 4ft & R-5 full slab

Envelope Air Leakage

Air Leakage Rates

2009 IECC maximum air leakage under any compliance path is 7 ACH50

2021 IECC all climate zones 3 ACH - maximum air leakage under any compliance path is 5 ACH50

- **All new homes are required to be blower door tested.**

2024 IECC Prescriptive compliance

- **Climate Zone 5: 3.0 ACH50**
- **Climate Zone 6: 2.5 ACH50**
- **Maximum 4ACH50 any path**

Envelope Air Leakage

2021 IECC Performance

Performance path and ERI, envelope leakage traded up to **5.0 ACH50** as long as losses are accounted for. (Backstop)

No sampling allowed.

Small units (<1500 sq. ft.) may be tested to ≤0.30 cfm/sq. ft.

2024 IECC Performance

5ACH50 drops to 4.0 ACH50

2024 added a sampling protocol for buildings with eight or more units:

- Seven units or 20%, whichever is greater
- If unit fails, corrective action retest the unit until it passes
- For each fail, test three more units, including the corrected unit

2024 IECC Multifamily:
Increased stringency 0.30 cfm/ft2 to 0.27

2024 IECC Exceptions:
Buildings ≤1500ft otherwise 0.03cfm/sq drops to 0.27

2021 IECC Building Envelope

https://solidsteelbuildings.com/what-is-a-building-envelope/

Duct testing requirements

- **All new homes are required to have ducts tested.**
  - No exception for homes with ducts/air handler inside conditioned space.
- Maximum leakage allowable for systems located inside conditioned space AND maximum trade-off for duct leakage is ≤8.0 cfm/100 sq.ft.
- Prescriptive requirement and baseline for performance path trade-offs is ≤4.0 cfm/100 sq.ft. or ≤3.0 cfm/100 sq.ft. if air handler is not installed.
- Additional Efficiency Options (AOE) 100% of ducts and air handlers inside the envelope/inside conditioned space.
- No sampling allowed.

2024 IECC RESIDENTIAL DUCTS

The 2024 International Energy Conservation Code (IECC) requires that duct leakage be limited to specific levels during rough-in and post-construction testing.

The 2024 IECC contains technical, editorial, and organizational changes.

- Revised and added definitions
- Added duct system design requirements
- Ducts serving one or two dwelling units: ACCA Manual D required
- More than two units: ASHRAE Handbook of Fundamentals, ACCA Man D, or equivalent
- Added test exemption for ductless systems (< 10 ft of ductwork)
- Sampling protocol added

Specific measures, leakage rates, and location credits based on the compliance path and if ducts are in conditioned or unconditioned spaces.

2024 IECC Maximum Total Duct Leakage

TABLE R403.3.8 MAXIMUM TOTAL DUCT SYSTEM LEAKAGE

EQUIPMENT AND DUCT CONFIGURATION	DUCT SYSTEMS SERVING MORE THAN 1,000 FT^2 OF CONDITIONED FLOOR AREA		DUCT SYSTEMS SERVING 1,000 FT^2 OR LESS OF CONDITIONED FLOOR AREA
	cfm/100 ft^2		cfm
	Number of ducted returns[a]		
	< 3	≥ 3	Any
Space conditioning equipment is not installed[b, c]	3	4	30
All components of the duct system are installed[c]	4	6	40
Space conditioning equipment is not installed, but the ductwork is located entirely in conditioned space[c, d]	6	8	60
All components of the duct system are installed and entirely located in conditioned space[c]	8	12	80

2021 IECC Performance Compliance Path

New Table of Mandatory Measures

Includes improved prescriptive tables, lighting efficiency, etc.

Requires compliance with Additional Efficiency Options or 5% improvement over the Standard Reference

Trade-offs and Backstops

- Flexibility in air tightness (up to 5.0 ACH50) –
- New backstop on duct tightness (8.0 cfm/100sq.ft.)
- New thermal envelope backstop (2009 IECC) – No equipment trade-offs
- No onsite power trade-offs

Simulated (Performance) Path

Key Changes:

- Envelope Backstop
- Energy Cost Compliance
- Equipment In Reference Home
- Ductwork in Reference Home
- Requirements in Table R405.2
- Annual energy cost requirements (80% of the reference design for mixed-fuel buildings and 85% for all-electric buildings

The Simulated Performance Path allows for demonstrating code compliance by using energy modeling to compare a proposed dwelling's energy costs with those of a reference home.

The Simulated Performance Path in the 2024 IECC provides a flexible framework for achieving energy efficiency through simulation, allowing for trade-offs between design elements while still requiring adherence to mandatory requirements and additional efficiency measures.

Does not require additional efficiency options

2021 IECC: Energy Rating Index (ERI)

Climate Zone	2009 / 2021 Baseline	Baseline + 5% Efficiency
5	82 / 55	52
6	83 / 54	51

Trade-Off	2021 IECC
Envelope Air leakage	Mandatory trade-off maximum: ≥5.0 ACH50 for all CZ
Duct Tightness	Max leakage limit for all systems: ≥8.0 cfm/sq. ft.
	Max leakage limit for duct leakage: ≥8.0 cfm/sq. ft.
Envelope Efficiency (No onsite power production)	Total UA of 2021 IECC X 1.15
Envelope Efficiency (w/onsite power production)	2018 IECC Prescriptive table
Onsite power production	Limited to 5% credit for onsite power production

Energy Rating Index

The 2024 IECC Energy Rating Index (ERI) requirements have been adjusted to lower the maximum ERI value compared to the 2021 IECC.

On-site solar PV - no limit on how much PV can contribute to code compliance. However, with Onsite Power Production (OPP), the ERI is lower.

ERI Air Leakage - air leakage to be as high as 4ACH50 for buildings or dwelling units in any climate zone utilizing the ERI path.

ERI Average for Larger Multifamily Buildings—This change allows the code official to allow the average ERI for buildings with 20 dwelling units or larger.

The 2024 IECC also includes provisions for alternative ERI path options, like Section R406, which includes a thermal backstop.

Maximum Energy Rating Index (ERI)			
Climate Zone	2021 IECC	2024 IECC	
	ERI	ERI without Onsite Power Production	ERI with Onsite Power Production
5	55	54	43
6	54	53	43

2024 ERI does not require additional efficiency options

2021 Additional Efficiency Package Options

5% improved envelope UA and SHGC

Ducts inside conditioned space

- 100% ducts/air handler entirely within the thermal envelope
- 100% ductless system or hydronic system entirely within thermal envelope
- 100% thermal distribution system inside conditioned space (per R403.3.7)

Improved heating and cooling equipment

- ≥ 95 AFUE nat. gas + 16 SEER air conditioner
- ≥ 10 HSPF/16 SEER air source heat pump
- ≥ 3.5 COP ground source heat pump

Improved water heating equipment

- ≥ .82 EF fossil fuel water heater
- ≥ 2.0 EF electric water heater
- ≥ 0.4 SF solar water heater

Air leakage ≤3 ACH50 + ERV/HRV

2024 Additional Efficiency Requirements

In the 2024 IECC, "additional efficiency requirements" requires builders to achieve a certain number of points by selecting from a list of energy efficiency measures, when using the prescriptive compliance path.

Unlike the 2021 IECC, the Additional Efficiency Requirements do not apply to Simulated Performance or ERI Pathways.

In the 2021 IECC, users pick one option from five.

Additional Efficiency Requirements

- Use for the prescriptive compliance only
- New 2024 format using a system of measures/credits.
- A minimum of two measures must be implemented.
- A minimum of 10 credits must be achieved in addition to meeting all mandatory requirements.
- Each credit equals approximately a one percent improvement in the home's efficiency.
- Performance and ERI compliance values were adjusted accordingly to allow maximum flexibility.
- Credit value based on climate zone.
- Larger Homes - Five additional credits must be earned for dwelling units more than 5000 sq ft

2024 Additional Efficiency Requirements

Over 50 measures are available in these categories:

Heating Equipment
Cooling Equipment
Water Heating Equipment
Ducts in Conditioned Space
Reduced Air Leakage
ERV/HRV
Appliances
On-Site Renewable
Insulation
Fenestration

2024 IECC ADDITIONAL MEASURES (PARTIAL TABLE)

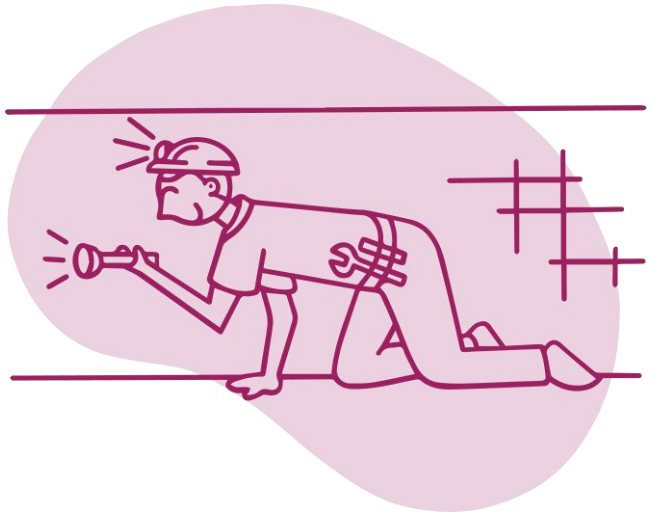
Measure Number	Measure Description	Credit Value	
		Climate Zone 5	Climate Zone 6
R408.2.1.1(1)	≥ 2.5% Reduction in total TC	1	1
R408.2.1.1(2)	≥ 5% Reduction in total TC	2	2
R408.2.1.1(3)	≥ 7.5% Reduction in total TC	2	3
R408.2.1.1(4)	≥ 10% Reduction in total TC	4	4
R408.2.1.1(5)	≥ 15% Reduction in total TC	5	6
R408.2.1.1(6)	≥ 20% Reduction in total TC	7	8
R408.2.1.1(7)	≥ 30% Reduction in total T	11	12

2024 Lighting and Controls

- The lighting sections were revised editorially and provisionally for both interior and exterior.

- A new lighting power allowance table was added to match the equivalent requirements in IECC-C.

- Additional exceptions were added that may apply to Group R occupancies.



100% of permanently installed lighting must be high-efficacy

- Luminaires > 45 lumens per watts
- Lamps > 65 lumens per watt

Lighting control requirements expanded:

- Habitable spaces require manual dimmer or occupancy control {20 minutes) and manual control
- Specific locations such as garages, unfinished basements, laundry rooms, utility rooms require occupancy control (20 minutes) and manual control

2024 Residential System Changes

Heat or Energy Recovery Ventilation

•Required in CZ 6

Electric Resistance Space Heating

•Limits CZ 4-8 to 2kW maximum unless at least one heat pump is installed

Controls

Additional controls required for exhaust fans in bathrooms:

•Timer

•Occupant Sensor Control

•Humidity Control

•Contaminant Control

Gas Fireplaces

•No continuous pilot

•On-demand pilot, intermittent ignition, or interrupted ignition,

•Efficiency requirements

Systems Outside Building Thermal Envelope

(Applicable to Wisconsin Climate)

- Heating outside a building must be radiant and have occupant sensors or a time switch.
- Snow melt and ice systems require automatic controls.
- Roof and gutter deicing systems are required to have automatic controls.
- Freeze protection system controls must include:
- Heat tracing of outdoor piping, heat exchanger, and automatic controls.

Existing Buildings Alterations/Substantial Improvements

EXISTING BUILDINGS

2024 IECC, existing building provisions focus on implementing efficiency upgrades when significant renovations or alterations occur to the building envelope, HVAC, and other building systems. In most renovation new equipment must meet current energy standards when replaced.

Five credits or points as outlined may be required contingent on the project scope.

When significant HVAC work is performed, testing and sealing of **existing** duct systems will be required.

Depending on the project scale, energy modeling may be used to demonstrate compliance with the code.

ALTERATIONS/SUBSTANTIAL IMPROVEMENTS

Alterations may require a minimum of three credits contingent on the project scope.

The 2024 IECC contains a new definition and trigger for Substantial Improvement**:**

Any *repair*, reconstruction, rehabilitation, *alteration*, *addition,* or other improvement of a *building* or structure, the cost of which equals or is more than 50 percent of the market value of the structure before the improvement.

Residential Appendices

The 2024 IECC retains and updates the Solar Ready (Appendix NB) and Zero Net Energy Provisions (Appendix NC) appendices.

Ten new appendices and a resource chapter for All-Electric Residential Buildings.

Appendix RA – Reserved

Appendix RB - Solar-Ready Provisions

Appendix RC - Zero Net Energy Residential Building Provisions

Appendix RD - Electric Energy Storage Provisions

Appendix RE - Electric Vehicle Charging Infrastructure

Appendix RF - Alternate Building Thermal Envelope Insulation R-values

Appendix RG - 2024 IECC Stretch Code

Appendix RH - Operational Carbon Rating And Energy Reporting

Appendix RI - On-site Renewable Energy

Appendix RJ - Demand Responsive Controls

Appendix RK - Electric-Ready Residential Building Provisions

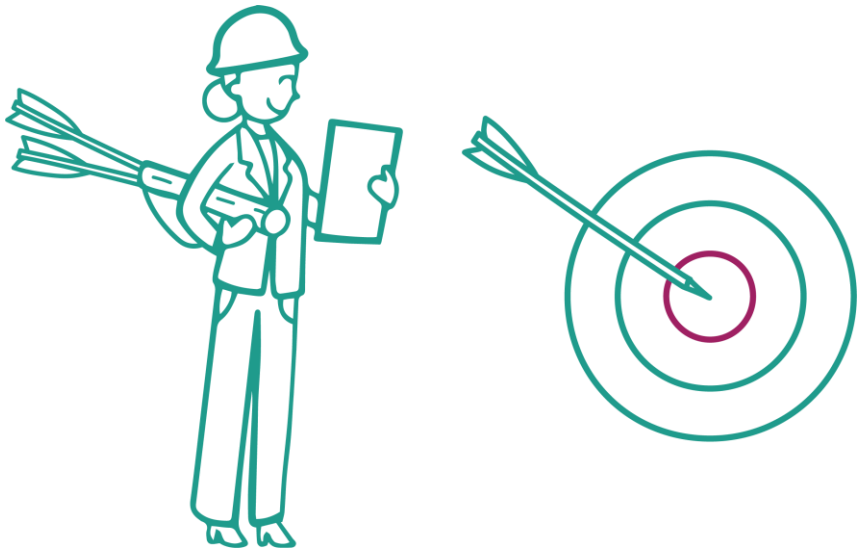
Appendix RL - Renewable Energy Infrastructure

Resource A - All-Electric Residential Buildings

2021 or 2024 IECC for Wisconsin?

Rationale for 2024 IECC Adoption

- It's the latest code, 2027 IECC may be available by the time WI adopts 2024
- Increased Energy Efficiency Savings(24% from current UDC)
- Updated Technical Provisions (20% tighter, HRV, controls, etc.)
- More Flexible Compliance Paths
- Updated Requirements and Provisions
- Improved Existing Building/Alteration Provisions
- Expanded Appendix Options
    - Potential to Address Emissions, Electrification, ZE
- Federal IRA Funding (2021 Unamended)
- Homebuilder/Homebuyer Tax Credits (Minimum 2021 IECC)
- Wisconsin Leads
- Option to enact voluntary stretch code



Diagnostic Testing (workforce development initiative)

Loopholes (Equipment Tradeoffs, Duct Location, Ceiling Insulation Reduction, Wall Insulation Tradeoff)

Thank You!

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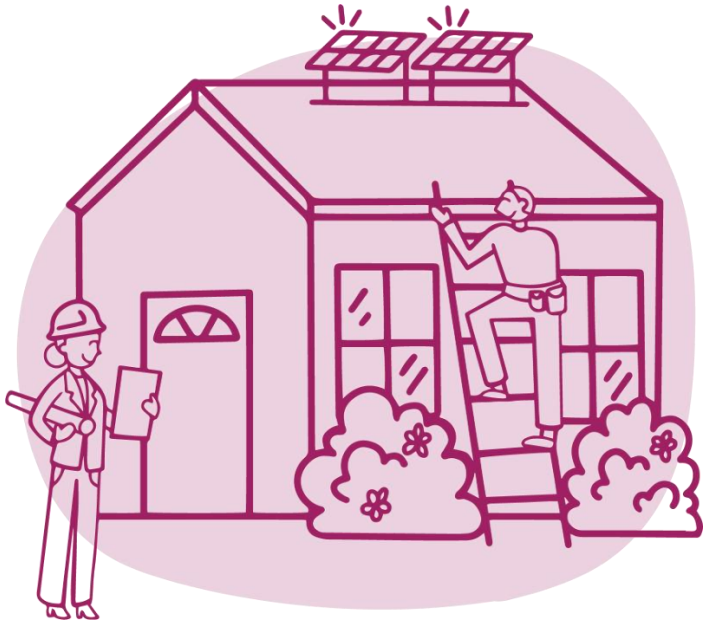

PROJECT PARTNERS Clean Wisconsin • Wisconsin Local Government Climate Coalition • Midwest Energy Efficiency Alliance • New Buildings Institute • Slipstream