International Energy Conservation Code
Consensus Committee-Commercial

Meeting Agenda (Draft 4/17/23)

April 19, 2023
2:00 PM Eastern to 5:00 PM Eastern (3 hours)
Webex Link

Committee Chair: Duane Jonlin
Committee Vice Chair: Emily Hoffman

1. Call to order.

2. Meeting Conduct. Staff
   a. Identification of Representation/Conflict of Interest
   b. ICC Council Policy 7 Committees: Section 5.1.10 Representation of Interests
   c. ICC Code of Ethics: ICC advocates commitment to a standard of professional behavior that exemplifies the highest ideals and principles of ethical conduct which include integrity, honesty, and fairness. As part of this commitment it is expected that participants shall act with courtesy, competence and respect for others.
   d. ICC Antitrust Compliance Guideline

3. Roll Call – Hoffman

4. Approval of Agenda

5. Approval of Minutes from April 12, 2023

6. Administrative issues.-Balloting and Public Comment period process/timeline

7. Action Items.
   a. Public Comment Draft 1 Proposals
   CED1-203-22(Additional energy efficiency credits) Modeling as modified 11-0-1/EPLR approve 5-5-4
   CED1-178-22(Deletion of TSPR section) HVACR disapprove 8-1-1
   CED1-156-22(Update efficiency table to match ASHRAE90.1)HVACR as modified 10-0
   CED1-14-22(Electric Ready) HVACR disapprove 6-5-2/Electrical approve 9-3-1
   CED1-15-22(All-electric comm. Bldg. provisions) HVACR disapprove 8-4/Electrical approve 10-0-3
   CEPC1-9-22(Renewable energy systems)
   CED1-49-22(Renewable energy exception) Electrical disapprove 9-6-1
   CED1-63-22(ESS ready spacing requirements) Electrical disapprove 12-0
   CED1-54-22(Off-site renewable energy update) Electrical disapprove 10-0-2
   CED1-31-22(Energy monitoring exception) Electrical as modified 9-4-4
   CED1-32-22(Energy metering w/ASHRAE 90.1) Electrical disapprove 11-4-1

CECD1-26-22(Stairwell controls)	Electrical approve 8-5-1
CED1-71-22(Demand responsive lighting control)	Electrical
CED1-106-22(Thermal resist. of mech. equip. penetrations)	Envelope as modified 11-0-1
CED1-119-22(Radiant heating systems)	Envelope as modified 15-0-2
CED1-198-22(TSPR SEHPCAC edits)	Modeling approve 14-0-2
CED1-201-22(Add. Energy efficiency credit during alt)	Modeling
CEPC1-12-22(TSPR comment)	HVACR
CEPC1-2-22(Demand responsive controls)	
CEPC1-8-22(Rejection of electrification)	
CEPC1-17-22(All electric comm. Building provisions)	
CEPC1-18-22(Demand responsive controls)	
CECD1-19-22(Water heater footnote)	HVACR approve 10-0-2
CED1-157-22(Boiler table)	HVACR as modified 9-0-3
CECD1-25-22(C403.7.4.1 committee proposal)	HVACR as modified 12-0
CED1-175-22(Load management and renewable intro)	HVACR/Modeling

8. Subcommittee Reports

9. Other business.

a. Public comment on any matters discussed at the meeting (Please limit comments to 2 minutes. Further comments can be directed to the Secretariat following the meeting to be considered at a future meeting.)

10. Next meeting TBD

11. Adjourn.

FOR FURTHER INFORMATION BE SURE TO VISIT THE ICC WEBSITE:
IECC Commercial Consensus Committee Webpage
https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/iecc-commercial-consensus-committee/
ICC Energy webpage
https://www.iccsafe.org/products-and-services/codes-standards/energy/
Code Change Proposal Submittals
https://energy.cdpaccess.com/login/

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

Kristopher Stenger, AIA, Director of Energy Programs
International Code Council
kstenger@iccsafe.org

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-203-22 Additional energy efficiency credits
CDP ID #	933
Code	IECC CE
Code Section(s)	C503.6
Location	base
Proponent	Jack Bailey jbailey@oneluxstudio.com
Proposal Status	SC review
Subcommittee	CE Model, Metrics
Subcommittee Notes	This proposal clarifies the scope threshold where alteration projects are subject to obtaining C406 credits.
Recommendation	Approve as modified (See attached)
Vote	Approve as modified – 11, Disapprove – 0, Abstain - 1
Recommendation Date	3/27/23
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____x_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____

CED1-203-22

IECC: C406.1.3, C503.6, 503.6 (New)

2024 International Energy Conservation Code [CE Project]

Add new definition as follows:

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. Where the structure has sustained *substantial damage*, as defined in the International Building Code, any repairs are considered substantial improvement regardless of the actual *repair* work performed. Substantial improvement does not include the following:

1. Improvement of a *building* required to correct health, sanitary or safety code violations by the *building official.*
2. *Alteration* of a *historic building* where the *alteration* will not affect the designation as a *historic building*.

Revise as follows:

~~C406.1.3 Substantial Alterations to Existing Buildings.~~

~~The *building envelope*, *equipment*, and *systems* in *alterations* to *buildings* exceeding 5000 square feet (46.5 m²) of *gross conditioned floor area* shall comply with the requirements of Section C406.1.1 and C406.1.2 where the alteration includes replacementof two or more of the following:~~

~~1.~~

~~HVAC unitary systems or HVAC central heating or cooling equipment serving the alteration area, not including ductwork or *piping*.~~

~~2.~~

~~80% or more of the lighting fixtures in the *alteration* area.~~

~~3.~~

~~Building envelope components in the *alteration* area including new exterior cladding, fenestration, or insulation.~~

C503.6 Additional credit requirements for *Alterations* ~~energy efficiency credits~~. ~~*Alterations* shall comply with measures from Sections C406.2 and C406.3 to achieve not less than 10 percent the number of required efficiency credits from Table C406.1.1 based on building occupancy group and *climate zone*. Where a project contains multiple occupancies, credits in Table C406.1.1 from each building occupancy shall be weighted by the gross floor area to determine the weighted average project energy credits required. Accessory occupancies shall be included with the primary occupancy group for purposes of this section.~~

~~Where an *alteration* includes the substantial modification of two or more of the systems identified in Table 503.6, the alteration shall comply with measures from Sections C406.2 and C406.3 to achieve not less than 10 percent the number of required efficiency credits from Table C406.1.1 based on building occupancy group and climate zone. Credits are permitted to be achieved from energy credits listed in Table 503.6 for the systems undergoing substantial modification. Where a project contains multiple occupancies, credits in Table C406.1.1 from each building occupancy shall be weighted by the *conditioned floor area* to determine the weighted average project~~

~~energy credits required. Accessory occupancies shall be included with the primary occupancy group for purposes of this section. Credits shall be achieved based on the scope of the alteration only (i.e. existing systems which are not altered are not considered).~~

Alterations that are s*ubstantial improvements* shall comply with measures from Sections C406.2, Section C406.3, or both to earn the number of required credits specified in Table C406.1.1 based on *building* occupancy group and climate zone. Where a project contains multiple occupancies, credits specified in Table C406.1.1 for each *building* occupancy shall be weighted by the *gross conditioned floor area* to determine the weighted average credits required. Accessory occupancies, other than Groups F or H, shall be included with the primary occupancy group for the purposes of this section.

Exceptions:

1. ~~*Alterations* that include replacement of no more than one of the following:~~

1.1. ~~HVAC unitary systems or HVAC central heating or cooling equipment serving the *work area* of the *alteration*.~~

1.2. ~~Water heating equipment serving the *work area* of the alteration.~~

1.3. ~~50 percent or more of the lighting fixtures in the *work area* of the alteration.~~

1.4. ~~50 percent or more of the area of interior surfaces of the thermal envelope in the *work area* of the alteration.~~

1.5. ~~50 percent or more of the building's *exterior wall envelope*, including fenestration.~~

~~1. *Alterations* to *buildings* in Utility and Miscellaneous Group U, Storage Group S, Factory Group F, High Hazard Group H.~~

1~~2~~. A*lterations* that do not contain conditioned space.

2~~3~~. Portions of *buildings* devoted to manufacturing or industrial use.

3. *Alterations* to *buildings* where the building after the *alteration* complies with Section C407.

~~*4. Buildings* in Climate Zone 0A.~~

4~~5~~. *Alterations* that are permitted with an addition complying with Section C502.3.7.

~~*6. Alterations* that comply with Section C407.~~

~~**Add new text as follows:**~~

~~503.6~~ ENERGY CREDITS FOR ALTERATION OF BUILDING SYSTEMS

~~Substantial Modification Consists Of~~	~~Energy Credit Measures Which Are Permitted To Be Achieved~~
~~Replacement of 50% or more of the area of interior wall covering material of the building thermal envelope~~	~~E01, E02, and E05, subject to compliance with C406.2.1~~

~~Replacement of 50% or more of the area of the exterior wall covering material of the building thermal envelope or fenestration~~	~~E01, E02, E05, and E06, subject to compliance with C406.2.1~~
~~Replacement of space-conditioning equipment constituting 50% or more of the total input capacity of the space heating equipment serving the building~~	~~H01, H02, and H04, subject to compliance with C406.2.2~~
~~Replacement of space-conditioning equipment constituting 50% or more of the total input capacity of the space cooling equipment serving the building~~	~~H01, H03, H04, and H05, subject to compliance with C406.2.2~~
~~Replacement of water-heating equipment constituting 50% of more of the total input capacity of all the water heating equipment serving the building~~	~~W01, W02, W03, W04, W05, W06, W07, W08, W09, and W10, subject to compliance with C406.2.3~~
~~Replacement of 50% or more of the lights in the building~~	~~L02, L03, L05, and L06, subject to compliance with C406.2.5~~

Reason:
This proposed modification pivots on the original concept to address these issues.

1. It is reasonable to assume that most of the projects that will be subject to these requirements will be projects that qualify as substantial improvements. Smaller projects can more easily be divided so that each major alteration to an energy system is on a separate permit. Therefore, it makes sense to simplify the trigger by making only alterations that qualify as substantial alterations subject to the requirements. Substantial Improvement is a defined term in the IBC and IEBC, so already is an established term and threshold in the I-Codes.

2. Substantial improvements have significant scope. It is therefore reasonable to require them to achieve more than the minimal number of credits required in the current draft. The requirement has been set at the credit requirement from Table C406.1.1, while still allowing credits from both C406.2 and C406.3. This means that projects will be required to achieve fewer credits than new buildings (since they are only subject to one of the credit tables), but will be able to achieve them in a more flexible way (since they will be able to choose from both the efficiency credits in C406.2 and the other credits in C406.3).

3. The result is a much simpler and straightforward requirement, with fewer opportunities for unintended consequences, that will also likely save more energy.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-178-22 Remove Total System Performance Compliance Path
CDP ID #	902
Code	IECC CE
Code Section(s)	409
Location	base
Proponent	Ted Williams <NGDLLC@outlook.com>
Proposal Status	SC review
Subcommittee	CE HVACR and Water Heating Subcommittee
Subcommittee Notes	**Reason Statement**: TSPR is an optional path to comply, and not necessarily more efficient than federal minimums
Recommendation	**Disapprove**
Vote	**Disapprove** 8-1-1
Recommendation Date	01/12/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-156-22 Update efficiency tables to match ASHRAE 90.1
CDP ID #	854
Code	IECC CE
Code Section(s)	C403.3.2
Location	base
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC review
Subcommittee	CE HVACR & WH
Subcommittee Notes	
Recommendation	
Vote	Approved as modified 10-0
Recommendation Date	3/23/23
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-14-22 Add Electric-Ready Infrastructure to Buildings with Combustion Equipment.
CDP ID #	810
Code	IECC CE
Code Section(s)	New Appendix
Location	base
Proponent	Diana Burk <diana@newbuildings.org>
Proposal Status	SC review
Subcommittee	IECC HVACR and Water Heating Subcommittee
Subcommittee Notes	**Reason Statement**: Requiring additional infrastructure that may never be used is not cost effective.
Recommendation	**Disapprove**
Vote	**Disapprove** 6-5-2
Recommendation Date	04/06/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-15-22 Add an All-electric Appendix
CDP ID #	810
Code	IECC CE
Code Section(s)	New Appendix
Location	base
Proponent	Diana Burk <diana@newbuildings.org>
Proposal Status	SC review
Subcommittee	CE HVACR and Water Heating Subcommittee
Subcommittee Notes	**Reason Statement**: Electrification is not cost effective in all areas of the country and will add significant additional expense.
Recommendation	**Disapprove**
Vote	**Disapprove** 8-4
Recommendation Date	04/06/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-049-22 Renewable energy exception
CDP ID #	790
Code	IECC CE
Code Section(s)	C405.15
Location	base
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: This proposal would create a situation where statewide or local policy could override the IECC, causing inconsistent application of the code. The proposal would negate some benefits of on-site renewable energy, such as resilience. This is counter-productive to local zero net energy or decarbonization goals.
Recommendation	DISAPPROVE
Vote	9 - 6 - 2
Recommendation Date	March 20, 2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-063-22 ESS Ready Spacing Requirements
CDP ID #	859
Code	IECC CE
Code Section(s)	C405.16.1
Location	base
Proponent	Maureen Guttman mguttpgh@aol.com
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason Statement: The subcommittee disapproves as the equations were corrected in CED1-57 and 62, and felt it was important to keep in the reference to UL9540A to be consistent with the IFC.
Recommendation	DISAPPROVE
Vote	12 - 0 - 1
Recommendation Date	March 6, 2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-054-22 Off-site renewable energy udpate
CDP ID #	927
Code	IECC CE
Code Section(s)	C405.15.2
Location	base
Proponent	Bruce Swiecicki bswiecicki@npga.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: This section of the code is dedicated to electrical renewable energy sources.
Recommendation	DISAPPROVE
Vote	10 - 0 - 2
Recommendation Date	March 20, 2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-031-22 Energy monitoring exception
CDP ID #	737
Code	IECC CE
Code Section(s)	C405.13
Location	base
Proponent	Greg Johnson gjohnsonconsulting@gmail.com
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: The addition of the exception for dwelling units in R-2 buildings addresses the unique situation of actual living units in how they work in practice.
Recommendation	APPROVED AS MODIFIED **C405.13 Energy monitoring** **Exceptions:** 3. *Dwelling units* in R-2 occupancies ~~and sleeping units~~
Vote	6-4-5
Recommendation Date	January 9, 2023
Next Step	To Subcommittee CE HVACR & WH To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-032-22 Energy metering with ASHRAE 90.1-2022
CDP ID #	781
Code	IECC CE
Code Section(s)	C405.13
Location	base
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason Statement: Approval would result in a reduction in stringency compared to the 1st Public Comment Draft, resulting in a reduction potential energy efficiency (knowledge of usage results in savings) of small buildings.
Recommendation	DISAPPROVE
Vote	11-4-1
Recommendation Date	January 9, 2023
Next Step	To Subcommittee CE HVACR & WH To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CECD1-26-22 Stairway controls
CDP ID #	
Code	IECC CE
Code Section(s)	R405.2
Location	base
Proponent	CE Electrical power, lighting, renewables subcommittee
Proposal Status	SC review
Subcommittee	CE Electrical power, Lighting, Renewables
Subcommittee Notes	
Recommendation	Reason: This proposal requires that extra lighting in exit access stairways, exit stairways and their landings exempted from the calculation of connected power are controlled as intended by the proponents of the IBC requirements.
Vote	Approve 8-5-1
Recommendation Date	3/31/23
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-106-22 Thermal resistance of Mech Equip Penetrations
CDP ID #	650
Code	IECC CE
Code Section(s)	C402.1.2.1.5
Location	base
Proponent	Michael Tillou michael.tillou@pnnl.gov
Proposal Status	SC review
Subcommittee	CE Envelope
Subcommittee Notes	**Reason**: This proposal is editorial. Without this language it is unclear whether a building meeting the threshold required to account for mechanical equipment penetrations can use the prescriptive U-factor method for demonstrating above grade wall U-factor compliance.
Recommendation	**Approve as modified** **Modification**: WALL, ABOVE-GRADE. A wall associated with the *building thermal envelope* that is more than 15 percent above grade and is on the exterior of the building or any wall that is associated with the *building thermal envelope* that is not on the exterior of the building. This includes, but is not limited to, between-floor spandrels, peripheral edges of floors, roof knee walls, dormer walls, gable end walls, walls enclosing a mansard roof , mechanical equipment penetrations and skylight shafts. Add new text as follows: ~~C402.1.2.1.5 Area-weighted Averaging of Above-Grade Wall U-factors. For *above-grade walls* which include more than one assembly component type, the area weighted U-factor of the entire *above-grade wall* may be determined by accepted engineering practice.~~ <ANY TEXT IN ORIGINAL PROPOSAL THAT IS NOT SHOWN REMAINS UNCHANGED>
Vote	**Approve as modified** 11-0-1 (CNV)
Recommendation Date	2/16/23

Next Step	To Subcommittee CE HVACR & WH To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-119-22 Radiant heating systems
CDP ID #	727
Code	IECC CE
Code Section(s)	C402.2.6
Location	base
Proponent	Jay Crandell jcrandell@aresconsulting.biz
Proposal Status	SC review
Subcommittee	CE Envelope
Subcommittee Notes	**Reason**: Clarify that the provisions are intended to apply to only to radiant heat system panels, not other type of radiant heating systems. The exception for heated slabs is deleted because they are not radiant heating system panels and the thermal requirements are addressed elsewhere
Recommendation	**Approve as modified** Modification: Delete exception entirely as such: ~~Exception: Heated slabs on grade shall be insulated in accordance with Section C402.2.4 and Section C402.1.~~
Vote	**Approve as modified** 15-0-2
Recommendation Date	12/1/22
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-198-22 TSPR SEHPCAC edits
CDP ID #	839
Code	IECC CE
Code Section(s)	C409.1
Location	base
Proponent	Reid Hart reid.hart.pe@gmail.com
Proposal Status	SC review
Subcommittee	CE Model, Metrics
Subcommittee Notes	This proposal is based on several SEHPCAC meetings with CEPI-76 to clarify the section. There are no changes to the section requirements. The modeling SC unanimously approved the proposal with no comment.
Recommendation	Approve
Vote	Approve- 14, Dissapprove-0, Abstain-2
Recommendation Date	12/19/22
Next Step	To Subcommittee CE HVACR & WH To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-19-22 Water heater footnote
CDP ID #	810
Code	IECC CE
Code Section(s)	New Appendix
Location	base
Proponent	HVACR SC
Proposal Status	SC review
Subcommittee	IECC HVACR and Water Heating Subcommittee
Subcommittee Notes	**Reason Statement**:
Recommendation	
Vote	**Approve** 10-0-2
Recommendation Date	04/06/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-157-22 Update Residential Boiler Efficiency Tables
CDP ID #	666
Code	IECC CE
Code Section(s)	TABLE C403.3.2(6)
Location	Base
Proponent	Nicholas O'Neil (noneil@energy350.com)
Proposal Status	SC review
Subcommittee	CE HVACR and Water Heating Subcommittee
Subcommittee Notes	**Reason Statement**: The residential boiler standards have been updated by DOE. However, even though DOE updated the commercial boiler energy conservation standards, there is a lawsuit to reverse the action that is still under contest. If the standards are reversed, jurisdictions that adopt the updated standards would be in violation of federal preemption, so those changes were struck from the proposal.
Recommendation	**Approve as Modified** **See the full proposal below**
Vote	**Approve as Modified** 9-0-3
Recommendation Date	03/23/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

CED1-157-22

Proponents: Nicholas O'Neil, representing NEEA (noneil@energy350.com)

2024 International Energy Conservation Code [CE Project]

Revise as follows:

TABLE C403.3.2(6) GAS- AND OIL-FIRED BOILERS—MINIMUM EFFICIENCY REQUIREMENTS[i]

Portions of table not shown remain unchanged.

EQUIPMENT TYPE[b]	SUBCATEGORY OR RATING CONDITION	SIZE CATEGORY (INPUT)	~~MINIMUM EFFICIENCY~~	MINIMUM EFFICIENCY ~~AS OF 3/2/2022~~	TEST PROCEDURE[a]
Boilers, hot water	Gas fired	< 300,000 Btu/h[g, h] for applications outside US	~~82% AFUE~~	842% AFUE	DOE 10 CFR 430 Appendix N
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[e]	~~80% E_t~~[d]	840% E_t[d]	DOE 10 CFR 431.86
		> 2,500,000 Btu/h and ≤ 10,000,000 Btu/h[b]	~~82% E_c~~[c]	852% E_c[c]	
		> 10,000,000 Btu/h[b]		82% E_c[c]	
	Oil fired[f]	< 300,000 Btu/h[g,h] for applications outside US	~~84% AFUE~~	864% AFUE	DOE 10 CFR 430 Appendix N
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[e]	~~82% E_t~~[d]	872% E_t[d]	DOE 10 CFR 431.86
		> 2,500,000 Btu/h and ≤ 10,000,000 Btu/h[b]	~~84% E_c~~[c]	884% E_c[c]	
		> 10,000,000 Btu/h[b]		84% E_c[c]	
Boilers, steam	Gas fired	< 300,000 Btu/h[g] for applications outside US	~~80% AFUE~~	820% AFUE	DOE 10 CFR 430 Appendix N
	Gas fired—all, except natural draft	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[e]	~~79% E_t~~[d]	8179% E_t[d]	DOE 10 CFR 431.86
		> 2,500,000 Btu/h and ≤ 10,000,000 Btu/h[b]	~~79% E_t~~[d]	8279% E_t[d]	
		> 10,000,000 Btu/h[b]		79% E_t[d,j]	
	Gas fired-natural draft	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[e]	77% E_t[d]	79% E_t[d]	
		> 2,500,000 Btu/h[b]	77% E_t[d]	79% E_t[d]	
	Oil fired[f]	< 300,000 Btu/h[g] for applications outside US	~~82% AFUE~~	852% AFUE	DOE 10 CFR 430 Appendix N
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[e]	~~81% E_t~~[d]	841% E_t[d]	

		> 2,500,000 Btu/h and :s 10,000,000 Btu/h [b]	~~81% E_t~~ [d]	851% E_t [d]	DOE 10 CFR 431.86
		> 10,000,000 Btu/h [b]		81% E_t [d]	

For sI: 1 British thermal unit per hour = 0.2931 W.

a. Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.

b. These requirements apply to boilers with rated input of 8,000,000 Btu/h or less that are not packaged boilers and to all packaged boilers. Minimum efficiency requirements for boilers cover all capacities of packaged boilers.

c. E_e = Combustion efficiency (100 percent less flue losses).

d. E_t = Thermal efficiency.

e. Maximum capacity—minimum and maximum ratings as provided for and allowed by the unit's controls.

f. Includes oil-fired (residual).

g. Boilers shall not be equipped with a constant burning pilot light.

h. A boiler not equipped with a tankless domestic water-heating coil shall be equipped with an automatic means for adjusting the temperature of the water such that an incremental change in inferred heat load produces a corresponding incremental change in the temperature of the water supplied.

i. ~~This table is a replica of AsHRAE 90.1 Table 6.8.1 6 Gas- and Oil Fired Boilers—Minimum Efficiency Requirements.~~

i. Prior to March 2, 2022, for natural draft very large gas-fired steam commercial packaged boilers, a minimum thermal efficiency level of 77 percent is permitted and meets Federal commercial packaged boiler energy conservation standards

Reason: On January 10, 2020 DOE published new boiler efficiency requirements for boilers manufacturer after 1/20/2023. This proposal updates the table for the 2024 IECC, with updates based on Us DOE final rulemakings and removing values in effect for equipment installed before 3/2/2022. It also removes the reference to AsHRAE table under footnote i which may no longer apply until AsHRAE updates tables to reflect the proposed DOE rulemaking.
Finally, it removes the separate natural draft and non-natural draft commercial boiler categories as the new DOE rule does not differentiate efficiency requirements based on this technology. The one exception is for very large gas-fired boilers manufacturer prior to March 2022 which can have a 77% Et instead of 79% Et. Hence, a footnote is added to mark this single adjustment and shortens the table to avoid confusion.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.
This update simply aligns federal requirements with the efficiency tables listed in the IECC so they are up to date. These are DOE minimum efficiency standards and therefore no increase or decrease in cost is expected.

Bibliography: Energy Conservation standards for Residential Boilers - Final Rule, Us Department of Energy, Washington DC, January 10, 2020

https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-E/subject-group-ECFRe1ae92ed608f22e/section-431.87
Energy Conservation standards for Residential Boilers - Final Rule, Us Department of Energy, Washington DC, January 15, 2016 (as published in the Us Federal Register, 81 Fed. Reg. 2320)

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-25-22 Add CSA 439 to ERV
CDP ID #	1527
Code	IECC CE
Code Section(s)	C403.7.4.1
Location	base
Proponent	Mike Moore <mmoore@statorllc.com>
Proposal Status	SC review
Subcommittee	CE HVACR and Water Heating Subcommittee
Subcommittee Notes	**Reason Statement**: Adding the test method provides a path for smaller H/ERVs to comply
Recommendation	**Approve as modified** **See full proposal below**
Vote	**Approve as modified** Need Vote Tally
Recommendation Date	04/06/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

Revise as follows:

C403.7.4.1 Nontransient dwelling units. Nontransient dwelling units shall be provided with outdoor air energy recovery ventilation systems complying with not less than one of the following:

1. The system shall Hhaveing an *enthalpy recovery ratio* of not less than 50 percent at cooling design condition and not less than 60 percent at heating design condition.
2. The system shall Hhaveing a sensible recovery efficiency (SRE) that is not less than 65 percent at 32 °F (0°C) and, in climate zones 0A, 1A, 2A, and 3A, having a net moisture transfer (NMT) that is not less than 40 percent at 95 °F (35°C). SRE and NMT shall be determined from a listed value or from interpolation of listed values, at an airflow not less than the design airflow, based on testing in accordance with CAN/CSA C439.

Exceptions:

1. Nontransient dwelling units in Climate Zone 3C.
2. Nontransient dwelling units with not more than 500 square feet (46 m^2) of *conditioned floor area* in Climate Zones 0, 1, 2, 3, 4C and 5C ~~and either adjoin an open-ended corridor or do not adjoin a corridor~~.
3. ~~Nontransient dwelling units with not more than 500 square feet (46 m^2) of conditioned floor area that are located in Climate Zones 1A, 2B, 3B, and 3C.~~
4. 3. *Enthalpy recovery ratio* requirements at heating design condition in Climate Zones 0, 1 and 2.
5. 4. *Enthalpy recovery ratio* requirements at cooling design condition in Climate Zones 4, 5, 6, 7 and 8.

Reason: Large, central H/ERVs serving multiple dwelling units are typically certified for performance based on testing conducted in accordance with AHRI 1060, "Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment." The “enthalpy recovery ratio” of AHRI 1060 encompasses both sensible and latent performance and this proposal retains it as the first of two optional compliance paths for this section.
Smaller (and often in-suite) H/ERVs typically serving individual dwelling units are generally certified for performance (e.g., SRE for sensible energy transfer, NMT for latent energy transfer, etc.) based on testing conducted in accordance with test standard CAN/CSA C439. In practice, the test results are listed in a publicly accessible directory by a certification body (e.g., The Home Ventilating Institute). This proposal adds a second compliance option, C403.7.4.1.2, to recognize H/ERVs that are tested in accordance with CAN/CSA C439, that are expected to achieve comparable in-situ performance to units tested in accordance with AHRI 1060. The target SRE aligns with that currently required in IECC-R Section N1103.6.1 (R403.6.1) for certain dwelling units. The target net moisture transfer would only be required for hot/humid climate zones to support IAQ, where moderation of outdoor moisture levels is especially important for managing indoor humidity. The value of 40% is achievable by most models while providing a significant reduction in latent loads associated with introducing outdoor air.

Cost Impact: The code change proposal will decrease the cost of construction.
The code change proposal could potentially decrease the cost of construction by facilitating the permitting of smaller, in-suite H/ERVs. This will provide builders and specifiers with more options for specifying compliant systems.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-175-22 Renewable and Load Management Credits
CDP ID #	672
Code	IECC CE
Code Section(s)	C406.3
Location	base
Proponent	Reid Hart and Michael Tillou
Proposal Status	SC review
Subcommittee	CE Model, Metrics
Subcommittee Notes	This proposal was not heard by the Modeling SC. However, since this proposal provides clarification for achieving renewable and load management credits, but doesn't change any of the requirements, I believe the Modeling SC would be supportive.
Recommendation	Approve
Vote	N/A
Recommendation Date	N/A
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____x_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____