International Energy Conservation Code
Consensus Committee-Commercial

Meeting Agenda (Draft 3/28/23)

April 5, 2023
3:30 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 March 22, 2023

6. Administrative issues.

7. Action Items.
   a. Public Comment Draft 1 Proposals

CECD1-3-22(L03 Occupant sensor)	Electrical approve 13-0-0
CECD1-4-22(L02 High-end trim lighting controls)	Electrical approve 11-0-2
CECD1-5-22(G01 Demand response lighting controls)	Electrical approve 13-0-0
CECD1-7-22(L06 PLR proposal)	Electrical approve 10-0-1
CECD1-16-22(L05 Residential light control)	Electrical approve 15-0-1
CED1-61-22(Electric storage ready)	Electrical disapprove 6-5-1
CED1-62-22(Battery storage equation)	Electrical as modified 9-1-0
CED1-17-22(Electric energy system)	Electrical disapprove 10-0-2
CED1-58-22(Energy storage system exception)	Electrical disapprove 6-4-1
CED1-59-22(Energy storage system to appendix)	Electrical disapprove 6-5-2
CED1-60-22(Battery storage updated)	Electrical disapprove 7-5
CED1-63-22(ESS Ready spacing requirements)	Electrical disapprove 12-0
CED1-64-22(Additional electric infrastructure)	Electrical disapprove 12-0
CEPC1-9-22(Renewable energy systems)	

CED1-50-22(Renewables proposal)	Electrical as modified 14-0-2
CED1-49-22(Renewable energy exception)	Electrical disapprove 9-6-1
CED1-183-22(On-site renewable energy systems)	Electrical disapprove 10-4-1
CED1-52-22(On-site renewables modifications)	Electrical disapprove 10-3
CED1-85-22(Modify definitions in CC102)	Electrical disapprove 13-0
CED1-53-22(On-site renewable energy systems)	Electrical approve 6-5-3
CED1-51-22(Renewable energy in small buildings)	Electrical approve 9-4-1
CED1-208-22(Green retail tariffs in glide path)	Electrical disapprove 6-0-6
CED1-55-22(Green retail tariffs)	Electrical disapprove 6-1-7
CED1-56-22(Renewable energy investment fund)	Electrical as modified 7-1-3
CED1-57-22(Energy storage ready cleanup)	Electrical as modified 10-1-2
CED1-170-22(Demand response water heater exception)	HVACR disapproved 5-1-4
CECD1-14-22(On-site renewables modification)	HVACR approve 10-0-1

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 Wednesday, April 12, 2023 at 2:00 pm Eastern

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:

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International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CECD1-3-22 L03 Occupant sensor
CDP ID #	
Code	IECC CE
Code Section(s)	
Location	base
Proponent	CE Electrical power, lighting, renewables subcommittee
Proposal Status	SC review
Subcommittee	CE Electrical power, Lighting, Renewables
Subcommittee Notes	
Recommendation	Reason: "Improves efficiency of the base code and aligns the additional efficiency credit requirements. See expanded reason statement for more detailed explanation."
Vote	Approve 13-0-0
Recommendation Date	12/19/22
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

Occupant Sensor Controls

Revise as follows:

C405.2.1 Occupant sensor controls. Occupant *sensor controls* shall be installed to control lights in the following space types:
1. Classrooms/lecture/training rooms.
2. Conference/meeting/multipurpose rooms.
3. Copy/print rooms.
4. Lounges/breakrooms.
5. Enclosed offices.
6. Open plan office areas.
7. Restrooms.
8. Storage rooms.
9. Locker rooms.
10. Corridors.
11. Warehouse storage areas.
12. Computer room, data center.
13. Laundry/washing area.
14. Medical supply room in a healthcare facility.
15. Telemedicine room in a healthcare facility.
16. Laboratory.
17. Other spaces 300 square feet (28 m^2) or less that are enclosed by floor-to-ceiling height partitions.

Exception: Luminaires that are required to have specific application controls in accordance with Section C405.2.5.

C405.2.1.1 Occupant sensor control function. Occupant sensor controls in laboratories and warehouses storage areas shall comply with Section C405.2.1.2. Occupant sensor controls in open plan office areas shall comply with Section C405.2.1.3. Occupant sensor controls in corridors shall comply with Section C405.2.1.4. Occupant sensor controls for all other spaces specified in Section C405.2.1 shall comply with the following:
1. They shall automatically turn off lights within 20 minutes after all occupants have left the space.
2. They shall be manual on or controlled to automatically turn on the lighting to not more than 50-percent power.
3. They shall incorporate a manual control to allow occupants to turn off lights.

Exception: Full automatic-on controls with no manual control shall be permitted in corridors, interior parking areas, stairways, restrooms, locker rooms, lobbies, library stacks and areas where manual operation would endanger occupant safety or security.

C405.2.1.2 Occupant sensor control function in laboratories and warehouse storage areas. Lighting in laboratories and warehouse storage areas shall be controlled as follows:

1. Lighting in each aisleway shall be controlled independently of lighting in all other aisleways and open areas.
2. Occupant sensors shall automatically reduce lighting power within each controlled area to an unoccupied setpoint of not more than 50 percent of full power within 20 minutes after all occupants have left the controlled area.
3. Lights that are not turned off by occupant sensors shall be turned off by time-switch control complying with Section C405.2.2.1.
4. A manual control shall be provided to allow occupants to turn off lights in the space.

C406.2.5.3.1 Occupant sensor controls. Occupant sensor controls shall be installed to control lights in the following space types:
~~1. Courtroom~~
~~2. Electrical/mechanical room~~
1. Food preparation area
~~4. Laboratory~~
2. Elevator lobby
3. Pharmacy area
4. Vehicular maintenance area
5. Workshop
~~9. Chapel in a facility for the visually impaired~~
6. Recreation room in a facility for the visually impaired
7. Exercise area in a fitness center
8. Playing area in a fitness center
9. Exam/treatment room in a healthcare facility
10. Imaging room in a healthcare facility
11. Physical therapy room in a healthcare facility
12. Library reading area
13. Library stacks
14. Detailed manufacturing area
15. Equipment room in a manufacturing facility
16. Low-bay area in a manufacturing facility
17. Post office sorting area
18. Religious fellowship hall
~~23. Religious worship/pulpit/choir area~~
19. Hair salon
20. Nail salon
21. Banking activity area
~~27. Computer room, data center~~
~~28. Laundry/washing area~~
~~29. Medical supply room in a healthcare facility~~
~~30. Telemedicine room in a healthcare facility~~
~~31~~22. Museum restoration room

C406.2.5.3.2 Occupant sensor control function. Occupant sensors in library stacks shall comply with C405.2.1.2. Occupant sensors in elevator lobbies shall comply with C405.2.1.4. All other

occupant sensors required by C406.2.5.3.1 shall comply with C405.2.1.1. ~~Occupant sensor controls shall automatically turn lights off within 10 minutes after all occupants have left the space. A manual control complying with C405.2.6 shall allow occupants to turn off lights. Time-switch controls are not required.~~

Exception: In spaces where an automatic shutoff could endanger occupant safety or security occupant sensor controls shall uniformly reduce lighting power to not more than 20 percent of full power within 10 minutes after all occupants have left the space. Time-switch controls complying with C405.2.2.1 shall automatically turn lights off.

C406.2.5.3.3 Occupant sensor time delay and setpoint ~~function~~. Occupant sensor controls installed in accordance with Sections C405.2.1.1, C405.2.1.2, C405.2.1.3, and C405.2.1.4 shall automatically turn lights off or reduce lighting power within 10 minutes after all occupants have left the space. Occupant sensor controls installed in accordance with Section C405.2.1.2 shall have an unoccupied setpoint of 20 percent of full power. ~~Where lighting power is reduced, the unoccupied setpoint shall be 20 percent of full power or in egress areas to the power level required to meet egress light levels.~~

Reason:

Several space types that were originally proposed to be included in the Additional Efficiency Requirements of L03 are moved into “base code” so that they will be required on all projects. Several other space types are removed from L03 (Courtroom, Chapel, and Religious Worship) due to concerns about functional problems. Electrical / mechanical rooms are removed from L03 because this may prevent too many projects from selecting this credit (not many people put occupant sensors in switchgear rooms for safety reasons).

Occupant sensor function for laboratories and library stacks is grouped with warehouses in C405.2.1.2. This section best describes the function required of the occupant sensors in spaces which are continuously occupied but have aisles with shelving that extends close to the ceiling.

Occupant sensor function for elevator lobbies is grouped with corridors in C405.2.1.4 because they have essentially the same functional and life safety requirements.

The unoccupied setpoint is reduced to 20% in C405.2.1.2 (laboratories, library stacks, and warehouses) in L03.

The unoccupied setpoint in C405.2.1.3 (open office) is already 20% and does not need to be mentioned in L03.

The unoccupied setpoint in C405.2.1.4 needs to remain at 50% in L03 to allow for code-minimum egress illuminance levels to be maintained. Recall that occupant sensors may not work in smoke, so cannot be relied on to sense motion and turn lights on in corridors during a fire. Language about meeting egress lighting levels was removed assuming that occupants egress from aisles in warehouses not through them.

Cost Impact: For projects pursuing L03 this proposal would result in a reduction in construction costs

because occupant sensors would be required in fewer space types. For projects not pursuing L03, this code change proposal will increase the cost of construction because occupant sensors will be required in more space types for base code compliance.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CECD1-4-22 L02 High-end trim lighting controls
CDP ID #	
Code	IECC CE
Code Section(s)	
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 reduces the cost of the measure while not reducing energy savings.
Vote	approve 11-0-2
Recommendation Date	12/19/22
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

Demand Response Lighting Controls

Revise as follows:

C405.2.3.1 Dimming control function. Spaces required to have dimming control shall be provided with manual controls that allow lights to be dimmed from full output to 10 percent of full power or lower with continuous dimming, as well as turning lights off. Manual control shall be provided within each room to dim lights.

Exception: Manual dimming control is not required in spaces where *high-end trim* lighting controls are provided which comply with the following: ~~lighting controls have a high-end trim setting and have undergone functional testing in accordance with Section C408.3.1.4~~.

1. The calibration adjustment equipment is located for *ready access* only by authorized personnel.
2. Lighting controls with *ready access* for users cannot increase the lighting power above the maximum level established by the *high-end trim* controls.

C406.2.5.2 L02 ~~Enhanced digital lighting controls~~ *High-end trim* lighting controls. Measure credits shall be achieved where qualifying spaces account for no less than 50 percent of the ~~gross~~ project floor area exclusive of *dwelling and sleeping units* ~~within the project shall comply with the requirements of this section~~ Qualifying spaces are those where *general lighting* is controlled by *high-end trim* lighting controls complying with the following:

1. The calibration adjustment equipment is located for *ready access* only by authorized personnel.
2. Lighting controls with *ready access* for users cannot increase the lighting power above the maximum level established by the *high-end trim* controls.
3. Construction documents shall state that maximum light output or power of *general lighting* in spaces contributing to the qualifying floor area shall be initially reduced by at least 15 percent from full output.
4. *High-end trim* lighting controls shall undergo functional testing in accordance with Section C408.3.1.5.

~~1. Lighting controls function. Interior general lighting shall be located, scheduled and operated in accordance with Section C405.2 and shall be configured with the following enhanced control functions:~~

~~1.1. Luminaires shall be configured for continuous dimming.~~

~~1.2. Each luminaire shall be individually addressed.~~

~~**Exceptions:**~~

~~1. Multiple luminaires mounted on no more than 12 linear feet (3.66 m) of a single lighting track and addressed as a single luminaire.~~

~~2. Multiple linear luminaires that are ganged together to create the appearance of a single longer fixture and addressed as a single luminaire, where the total length of the combined luminaires is not more than 12 feet (3.66 m).~~

~~1.3. No more than eight luminaires within a daylight zone are permitted to be controlled by a single daylight responsive control.~~

~~2. Luminaires shall be controlled by a digital control system configured with the following capabilities:~~

~~2.1. Sheduling and illumination levels of individual luminaires and groups of luminaires are capable of being reconfigured through the system.~~

~~2.2. Load shedding.~~

~~2.3. Occupancy sensors and daylight responsive controls are capable of being reconfigured through the system.~~

~~3. Construction documents shall include submittal of a Sequence of Operations, including a specification outlining each of the functions required by this section.~~

~~4. High-end trim. Luminaires shall be initially configured with the following:~~

~~4.1. High-end trim, setting the maximum light output of individual luminaires or groups of luminaires to support visual needs of a space or area, shall be implemented and construction documents shall state that maximum light output or power of controlled lighting shall be initially reduced by at least 15 percent from full output. The average maximum light output or power of the controlled lighting shall be documented without high-end trim and with high-end trim to verify reduction of light output or power by at least 15 percent when tuned.~~

~~4.2. Where lumen maintenance control is used, controls shall be configured to limit the initial maximum lumen output or maximum lighting power to 85 percent or less of full light output or full power draw and lumen maintenance controls shall be limited to increasing lighting power by 1 percent per year.~~

~~4.3. High-end trim and lumen maintenance controls shall be accessible only to authorized personnel.~~

~~Where general lighting in more than 50 percent of the gross lighted floor area receives high-end trim~~, The base credits from Tables C406.1.2(1) throughC406.1.2(9) shall be prorated as follows:

~~[Tuned lighted floor area,%]~~ HET × [Base energy credits for C406.2.5.2] / 50%

HET = Floor area of qualifying spaces where *general lighting* is provided with *high-end trim* lighting controls complying with the requirements of this section, expressed as a percentage of total interior floor area excluding *dwelling and sleeping units*.

C408.3.1.4 *High-end trim* controls. Where lighting controls are configured for *high-end trim* ~~trims~~, verify the following:

1. ~~That~~ *High-end trim* maximum level has been set.

2. ~~That~~ The calibration adjustment equipment is located for *ready access* only by authorized personnel.

3. ~~That~~ Lighting controls with *ready access* for users cannot increase the lighting power above the maximum level established by the *high-end trim* controls.

C408.3.1.5 *High end trim* lighting control verification for Additional Efficiency Credit L02. For the qualifying spaces associated with the project receiving additional efficiency credits in Section C406.2.5.2, document the following while daylight responsive controls are not reducing lighting power:

1. The maximum setting for power or light output for each control group of *general lighting* luminaires.

2. The *high-end trim* setting for power or light output for each control group of *general lighting* luminaires.

3. Sampled Testing. For projects with seven or fewer claimed qualifying spaces, the reduction in light level or reduction in power due to *high-end trim* shall be tested in all spaces and shown to reduce the general lighting power or light level by at least 15 percent. For projects with more than seven claimed qualifying spaces, the reduction in light level or reduction in power due to *high-end trim* shall be tested in at least 10 percent of spaces, and no less than seven spaces, and shown to reduce general lighting power or light level by at least 15 percent. If more than 30% of the tested spaces fail, all the remaining qualifying spaces shall be tested.

4. Summarize the reduction in general lighting power resulting from the *high-end trim* setting for each qualifying space and the floor area of each qualifying space.

5. Summarize the fraction of total floor area for spaces where *high-end trim* reduces general lighting power by at least 15 percent.

Reason:

Additional efficiency credit L02 in Public Comment Draft #1 combines two different lighting control strategies: high-end trim, and digitally addressable luminaires.

High-end trim can be accomplished at a reasonable cost and is already recognized in C405.2.3.1 as an alternate for dimming controls. It also has clear and demonstrated energy savings.

Digitally addressable luminaires are extremely expensive, and do not have any demonstrated energy savings.

This proposal dramatically simplifies L02 by eliminating the requirement for digitally addressable luminaires and focusing the credit entirely on high-end trim.

This proposal also clarifies base code requirements for high-end trim lighting controls and adds new functional testing and documentation requirements for projects pursuing energy credit L02.

Cost Impact: This code change proposal will neither increase nor decrease the cost of construction for projects which do not pursue L02. For projects which do pursue L02, the cost of construction will be dramatically reduced.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CECD1-5-22 G01 Demand response lighting controls
CDP ID #	
Code	IECC CE
Code Section(s)	
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 makes a number of important improvements to the code requirements for demand responsive lighting controls.
Vote	approve 13-0
Recommendation Date	12/19/22
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

Demand Response Lighting Controls

Revise as follows:

C405.2.9 Demand responsive lighting controls. Interior *general lighting* in group B, E, M, and S occupancies shall have *demand responsive controls* complying with C405.2.9.1 in not less than 75 percent of the interior floor area. ~~*Buildings* shall have controls that are capable of automatically reducing general lighting power not less than 15 percent in response to a demand response signal.~~

Exceptions:

1. Where the combined interior floor area of group B, E, M, and S occupancies is less than 10,000 square feet.
2. Buildings where a *demand response signal* is not available from a controlling entity other than the owner.
3. Parking garages.

~~1. Buildings with less than 4,000 watts of combined installed general lighting power in spaces that have more than 0.5 W/ft2 (5.38 W/m2) of general lighting power.~~

~~2. Buildings where demand response programs are not available.~~

~~3. I-2 and I-3 occupancies.~~

Add new text as follows:

C405.2.9.1 Demand responsive lighting controls function. Demand responsive lighting controls shall be capable of the following:

1. Automatically reducing the output of demand responsive controlled lighting to 80 percent or less of full power or light output upon receipt of a *demand response signal*.
2. Where high end trim has been set, automatically reducing the output of controlled lighting to 80 percent or less of the high-end trim set point upon receipt of a *demand response signal*.
3. Dimming controlled lights gradually and continuously over a period of not longer than 15 minutes to get to their demand response setpoint.
4. Returning lights to their normal operational settings at the end of the demand response event.

Exception: Warehouse and retail storage building areas shall be permitted to switch off 25 percent or

more of *general lighting* power rather than dimming.

Revise as follows:

C406.3.2 G01 Lighting Load Management. ~~Luminaires shall have dimming capability and automatic load management controls that shall gradually reduce general lighting power during peak periods. The load management controls shall reduce lighting power in 75 percent of the building area by at least 20 percent with continuous dimming over a period no longer than 15 minutes. Where less than 75 percent, but at least 50 percent of the project general lighting is controlled, the credits from Tables C406.3 shall be prorated as follows:~~ A project not required to comply with C405.2.9 can achieve energy credits for installing demand responsive lighting controls for interior *general lighting* that comply with C405.2.9.1. The demand responsive lighting controls shall automatically reduce the light output or power of controlled lighting to no more than 80 percent of full output, or 80 percent of the high-end trim set point, whichever is less. ~~The demand responsive controlled lighting shall be configured to shed 15% or greater lighting load~~. Energy credits can be earned where demand responsive lighting controls are installed for ~~not less than 50 percent of the interior floor area of~~ the following:

1. Not less than 10 percent of the interior floor area in Group R or I occupancies; or
2. Not less than 50 percent of the interior floor area in all other occupancies.

~~Where no less than 50 percent, but not more than 75 percent of the interior floor area on occupancy or project is controlled, the~~ G01 credits shall be prorated using Equation 4-29 with no more than 75 percent of the interior floor area being counted.

Revise Equation 4-29 as follows:

[~~building~~ interior floor area with lighting load management, %] x [table credits for C406.3.2] / 75%

~~Exception: Warehouse or retail storage building areas shall be permitted to achieve this credit by switching off at least 25 percent of lighting power in 75 percent of the building area without dimming, or as adjusted by Equation 4-29~~.

Add new sections as follows:

C408.3.1.6 Demand responsive lighting controls G01. For spaces associated with the project receiving

Renewable and Load Management Credits in Section C406.3.2, the following procedures shall be performed:

1. Confirm the maximum set point upon receipt of the *demand response signal* has been established for each space.

2. For projects with seven or fewer rooms with controls, each room shall be tested.

3. For projects with more than seven rooms with controls, testing shall be done for each unique space type. Where multiple rooms of each space type exist, not less than 10 percent and in no case fewer than one room, of each space type shall be tested unless the code official requires a higher percentage to be tested. Where 30 percent or more of the tested controls fail in a space type, all remaining identical space types shall be tested.

4. For demand responsive controls to be tested, verify the following:

    1 Where high-end trim controls are used, the high-end trim shall be set before testing.

    2 Turn off all non-general lighting in the room.

    3 Set general lighting to its maximum illumination level. Where high-end trim is set, this will be the maximum illumination level at the high-end trim setpoint.

    4 An illumination measurement shall be taken in an area of the room not controlled by daylight responsive controlled lighting. If there is not an area without daylight responsive controls the daylight responsive controls shall be overridden from reducing the lighting level during the test.

    5 Measure and document the room maximum illumination level.

4. Simulate a demand response signal and measure the illumination level at the same location as for the measurement in C408.3.1.5.(4.5). Verify the illumination level has been reduced to no greater than 80 percent of the maximum illumination level documented in C408.3.1.5.(4.5).

5. Simulate the end of a demand event by turning off the demand response signal, confirm controls automatically return to their normal operational settings at the end of the demand response event.

Reason:

This proposal makes a number of important improvements to the code requirements for demand responsive lighting controls:

1. It limits the scope in base code to those occupancies (B, E, M, and S) where this can reasonably be achieved without excessive complexity and/or negative impact on building operations.
2. Changes the 4,000W exception to 10,000 square feet to significantly simplify compliance

determination.

3. Specifies the capabilities of the required controls, so that it is clear to designers and building code officials what control systems would comply.
4. Modifies C406.3.2 to refer to the technical requirements in C405.2.9.1 so that the code can have one clear and consistent standard for how these controls operate.
5. Revises language to be clear that compliance with both base code and energy credits is determined occupancy by occupancy for mixed-use buildings.
6. Adds functional testing requirements for demand responsive lighting controls

To coordinate with C405.2.9 requirements, where a demand response signal is available and the building is not exempt, the credits are reduced by half.

Cost Impact: This code change proposal will decrease the cost of construction by limiting the requirement for demand responsive lighting controls in C405.2.9 to occupancy groups B, E, M, and S.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CECD1-7-22 L06 PLR Proposal
CDP ID #	
Code	IECC CE
Code Section(s)	
Location	base
Proponent	CE Electrical power, lighting, renewables subcommittee
Proposal Status	SC review
Subcommittee	CE Electrical power, Lighting, Renewables
Subcommittee Notes	
Recommendation	Mostly editorial changes to better align with base code, and increase in stringency in terms of luminaire efficacy
Vote	approve 10-0-1
Recommendation Date	11-21-22
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 #	CECD1-16-22 L05 Residential light control
CDP ID #	
Code	IECC CE
Code Section(s)	
Location	base
Proponent	CE Electrical power, lighting, renewables subcommittee
Proposal Status	SC review
Subcommittee	CE Electrical power, Lighting, Renewables
Subcommittee Notes	
Recommendation	reason: Adds space types for occupant sensor control and removes spaces that already would have been required to install occupant sensors. Also, provide clarifications and makes the language more enforceable.
Vote	approve 15-0-1
Recommendation Date	
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

C406.2.5.5 L05 Residential light control. In buildings with Group R-2 occupancy spaces, interior lighting systems shall comply with the following:

1. In common areas, the following space types ~~restrooms, laundry rooms, storage rooms, and utility rooms~~ shall have ~~automatic full OFF~~ ~~occupancy~~ occupant sensor controls that comply with the requirements of C405.2.1.1: Laundry/washing areas, dining areas, food preparation areas, seating areas, exercise areas, playing areas, and massage spaces. ~~Each additional control device shall control no more than 5,000 sq.ft (464 m2).~~

2. In dwelling units, not less than one receptacle in each living room and each sleeping room shall be controlled by a switch in that room.

3. Each dwelling unit shall have a switch ~~main control~~ by the main entrance that turns off all the lighting and all switched receptacles in the dwelling unit. The switch shall be clearly labeled. ~~Two switched receptacles shall be provided in living and sleeping rooms or areas and clearly identified. All switched receptacles shall be located within 12 inches (30 cm) of an unswitched receptacle. The main control shall be permitted to have two controls, one for permanently wired lighting and one for switched receptacles. The main controls should be clearly identified as "lights master off" and "switched outlets master off."~~

Reason:

This is primarily, but not entirely, an editorial cleanup. The following issues are addressed by this proposal:

1. Some of the listed common area space types are already required to have occupant sensor controls in base code (restrooms, storage rooms).
2. Space types are revised to conform to the list of spaces in C405.3.2(2) for consistency with other sections of the code, and to improve enforceability.
3. *Occupant sensor* is a defined term in the code, but occupancy sensor is not.
4. No common areas in residential building would have individual rooms greater than 5,000 sf.
5. The proposal was not clear on the quantity of switched receptacles required – two per apartment unit, or two per living and sleeping room. We revised to one per living and sleeping room.
6. Usually in residential construction switched receptacles are counted as meeting NEC receptacle requirements. We were not clear on why these are required to be in addition to NEC receptacle requirements (which is the effect of requiring a non-dim receptacle within 12 inches).
7. Having two controls at the main entry makes it more likely that the receptacle switch control will just be left "on".

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-061-22 Electric storage ready
CDP ID #	706
Code	IECC CE
Code Section(s)	C405.16.1
Location	base
Proponent	Diana Burk diana@newbuildings.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason: Per actions taken with CED1-62.
Recommendation	DISAPPROVE
Vote	February 24, 2023
Recommendation Date	6 - 5 - 1
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 #	CED1-062-22 Battery storage equation
CDP ID #	808
Code	IECC CE
Code Section(s)	C405.16.1
Location	base
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason: This proposal makes necessary technical corrections and allows the use of other on-site renewable electric energy production systems.
Recommendation	AS MODIFIED **C405.16.1 Electrical energy storage energy capacity.** Each *building* shall have one or more ESS with a total rated energy capacity and rated power capacity as follows: 1. ESS rated energy capacity (kWh)≥1.0 x Installed ~~PV~~ On-site Renewable Electric Energy System Rated Power (kW_{DC}) 2. ESS rated power capacity (kW)≥0.25 x Installed ~~PV~~ On-site Renewable Electric Energy System Rated Power (kW_{DC}). Where installed, DC coupled battery systems shall meet the requirements for rated energy capacity alone. **C405.16.2 Electrical energy storage system ready**. Each *building* shall have one or more reserved ESS-ready areas to accommodate future electrical storage complying with the following: 1. Energy storage system rated energy capacity (~~kWH~~ kWh) ≥ Gross c~~C~~onditioned floor area of the three largest ~~stories~~ floors (ft^2) x 0.0008 kWh/ft^2 2. Energy storage system rated power capacity (kW) ≥ Gross c~~C~~onditioned floor area of three largest ~~stories~~ floors (ft^2) x 0.0002 ~~kWh~~ kW/ft^2
Vote	9 - 1 - 1
Recommendation Date	February 24, 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 #	CED1-017-22 Electric energy system
CDP ID #	919
Code	IECC CE
Code Section(s)	C103.2
Location	base
Proponent	Bruce Swiecicki bswiecicki@npga.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: Language change is not needed. Sections to be modified by this proposal already include references to electrical systems.
Recommendation	DISAPPROVE
Vote	10 - 0 - 2
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 #	CED1-058-22 Energy storage system exception
CDP ID #	659
Code	IECC CE
Code Section(s)	C405.16
Location	base
Proponent	Alex Smith asmith@nahb.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason Statement: Electrical Energy Storage Systems are not dependent on being paired with on-site renewable energy systems. Stand-alone EESS can operate independently to provide some level of back-up power.
Recommendation	DISAPPROVE
Vote	6 - 4 - 2
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 #	CED1-059-22 Energy storage system to appendix
CDP ID #	747
Code	IECC CE
Code Section(s)	C405.16
Location	appendix
Proponent	Greg Johnson gjohnsonconsulting@gmail.com
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason Statement: The subcommittee believes the requirement is more appropriate in the body of the code.
Recommendation	DISAPPROVE
Vote	6 - 5 - 3
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 #	CED1-060-22 Battery storage update
CDP ID #	807
Code	IECC CE
Code Section(s)	C405.16
Location	base
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: The ESS or ESS-ready requirement is not dependent on Renewable Portfolio Standards or percentage of renewables in a particular jurisdiction.
Recommendation	DISAPPROVE
Vote	7 - 5 - 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 #	CED1-063-22 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 #	CED1-064-22 Additional electric infrastructure
CDP ID #	889
Code	IECC CE
Code Section(s)	C405.17
Location	base
Proponent	Jenny Hernandez jehernandez@las-cruces.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: The proposal does not belong in C405, and is incomplete as there are no subsections below the charging language.
Recommendation	DISAPPROVE
Vote	13 - 0 - 2
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 #	CED1-050-22 Renewables proposal
CDP ID #	647
Code	IECC CE
Code Section(s)	C405.15.1
Location	base
Proponent	Diana Burk diana@newbuildings.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason: CED1-50-22 Adds clarity to renewable electricity generation requirements, and removes redundant definitions.
Recommendation	AS MODIFIED Michael Jouaneh emailed the modification to Kris Thu 3/23/2023 3:07 PM
Vote	14 - 0 - 3
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	

CED1-50-22
(Modifications by PLR highlighted in yellow)

Proponents: Diana Burk, representing New Buildings Institute (diana@newbuildings.org); Rachael Dorothy, representing self (dorothy.2@osu.edu); Melissa Kops, representing CT Green Building Council (melissa@ctgbc.org); Andy Woommavovah, representing Healthcare (andy.woommavovah@trinity-health.org); Khaled Mansy, representing self (khaled.mansy@okstate.edu); Brad Smith, representing City of Fort Collins (brsmith@fcgov.com); Brad Hill, representing Honeywell International Inc. (brad.hill@honeywell.com); Emma Gonzalez-Laders, representing Dept. of State/DBSC (emma.gonzalez-laders@dos.ny.gov); David Goldstein, representing Natural Resources Defense Council (dgoldstein.nrdc@gmail.com)

2024 International Energy Conservation Code [CE Project]

Revise as follows:

C405.15.1 On-site renewable energy systems. Buildings shall be provided with ~~install equipment for o~~ ~~O~~on-site renewable electricity generation systems ~~shall be provided~~ with a direct current (DC) nameplate power rating of not less than 0.75 W/ft (8.1 W/m^2) multiplied by the sum of the gross conditioned floor area of all floors not to exceed the combined gross conditioned floor area of the three largest floors.

Exceptions: The following buildings or building sites shall comply with Section C405.15.2:

1. A building site located where an unshaded flat plate collector oriented toward the equator and tilted at an angle from horizontal equal to the latitude receives an annual daily average incident solar radiation less than 1.1 kBtu/ft - day (3.5 kWh/m - day).
2. A building where more than 80 percent of the roof area is covered by any combination of permanent obstructions such as, but not limited to, mechanical equipment, vegetated space, access, pathways, or occupied roof terrace.
3. Any building where more than 50 percent of the roof area is shaded from direct-beam sunlight by natural objects or by structures that are not part of the building for more than 2500 annual hours between 8:00 a.m. and 4:00 p.m.
4. A building with gross conditioned floor area less than 5,000 square feet (465 m^2).

C405.15.2 Off-site renewable energy. *Buildings* that qualify for one or more of the exceptions to Section 405.15.1 and do not meet the requirements of Section 405.15.1 ~~either in part or in full,~~ with an on-site renewable energy system, shall procure off-site renewable electrical energy, in accordance with C405.15.2.1 and C405.15.2.2, that shall not be less than the total off-site renewable electrical energy determined in accordance with Equation 4-14.

$$TREoff = (RENoff \times 0.75\ W/ft^2 \times FLRA - IREon) \times 15$$

(Equation 4-14)

TREoff = Total off-site renewable electrical energy in kilowatt-hours (kWh) to be procured in accordance with Table C405.15.2
RENoff = Annual off-site renewable electrical energy from Table C405.15.2, in units of kilowatt-hours per watt of array capacity
FLRA = the sum of the gross conditioned floor area of all floors not to exceed the combined floor area of the three largest floors
IREon = Annual on-site renewable electrical energy generation of a new on-site renewable energy system, to be installed as part of the building project, whose rated capacity is less than the rated capacity required in Section C405.15.1

C405.15.2.1 Off-site procurement. The building owner as defined in the International Building Code shall procure and be credited for the total amount of off-site renewable electrical energy, not less than required in accordance with Equation 4-14, with one or more of the following:

1. A physical renewable energy power purchase agreement
2. A financial renewable energy power purchase agreement
3. A community renewable energy facility
4. Off-site renewable energy system owned by the building property owner

The generation source shall be located where the energy can be delivered to the building site by any of the following:
1. Direct connection to the off-site renewable energy facility
2. The local utility or distribution entity
3. An interconnected electrical network where energy delivery capacity between the generator and the building site is available

C405.15.2.2 Off-site contract. The renewable energy shall be delivered or credited to the building site under an energy contract with a duration of not less than 10 years. The contract shall be structured to survive a partial or full transfer of ownership of the building

property. ~~The total required off-site renewable electrical energy shall be procured in equal installments over the duration of the off-site contract.~~

C405.15.3 Renewable energy certificate documentation. The property owner or owner's authorized agent shall demonstrate that where RECs or EACs are associated with on-site and off-site renewable energy production required by Sections C405.15.1 and C405.15.2 all of the following criteria for RECs and EACs shall be met:
1. The RECS and EACS ~~Are~~ are retained and retired by or on behalf of the property owner or tenant for a period of not less than 15 years or the duration of the contract in C405.15.2.2 whichever is less;
2. The RECS and EACS ~~Are~~ are created within a 12-month period of the use of the REC; and
3. The RECS and EACS ~~Are~~ are from a generating asset ~~constructed~~ placed in service no more than 5 years before the issuance of the certificate of occupancy.

C405.15.4 Renewable energy certificate purchase. A building that qualifies for one or more of the exceptions to Section C405.15.1 and where it can be demonstrated to the code official that the requirements of Section C405.15.2 cannot be met, the building owner shall contract for the purchase of renewable electricity products before the certificate of occupancy complying with the Green-e Energy National Standard for Renewable Electricity products equivalent to five times the amount of total off-site renewable energy calculated in accordance with Equation 4-14.

RENEWABLE ENERGY INVESTMENT FUND (REIF). A fund established by a jurisdiction ~~the local government or other entity~~ to accept payment from ~~building~~ *building project* owners to construct or acquire interests in qualifying renewable energy systems, together with their associated RECS, ~~(along with RECs)~~ on ~~their~~ the *building project* owners' behalf.

Delete from Appendix CC (redundant with definitions in Chap. 2)

~~**COMMUNITY RENEWABLE ENERGY FACILITY.** A facility that produces energy from renewable energy systems and is qualified as a community energy facility under applicable jurisdictional statutes and rules.~~
~~**FINANCIAL RENEWABLE ENERGY POWER PURCHASE AGREEMENT (FPPA).** A financial arrangement between a renewable electricity generator and a purchaser wherein the purchaser pays or guarantees a price to the generator for the project's renewable generation. Also known as a "financial power purchase agreement" and "virtual power purchase agreement."~~
~~**PHYSICAL RENEWABLE ENERGY POWER PURCHASE AGREEMENT (PPPA).** A contract for the purchase of renewable electricity from a specific renewable electricity generator to a purchaser of renewable electricity.~~
~~**RENEWABLE ENERGY CERTIFICATE (REC).** A market-based instrument that represents and conveys the environmental, social, and other non-power attributes of one megawatt hour of renewable electricity generation and could be sold separately from the underlying physical electricity associated with renewable energy systems; also known as an energy attribute and energy attribute certificate (EAC).~~

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 #	CED1-183-22 On-site renewable energy systems
CDP ID #	749
Code	IECC CE
Code Section(s)	C405.15.1
Location	base
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC review
Subcommittee	CE Electrical power, Lighting, Renewables
Subcommittee Notes	Reason statement: Proposal would reduce amount of cost-effective renewables required. ASHRAE 90.1 has a goals of zero energy buildings by 2031 so renewables in 90.1 are on a path of increasing and not staying static. Removing requirement to retire RECs would reduce the environmental benefits of on-site renewable energy.
Recommendation	DISAPPROVE
Vote	10 - 4 - 2
Recommendation Date	March 20, 2023
Next Step	To Subcommittee CE Elec, Light 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 #	CED1-052-22 On-site renewables modifications
CDP ID #	739
Code	IECC CE
Code Section(s)	C405.15.1
Location	base
Proponent	Alex Smith asmith@nahb.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: Proposal would reduce amount of cost-effective on-site renewables required.
Recommendation	DISAPPROVE
Vote	10 - 3 - 1
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 #	CED1-085-22 Modify definitions in CC102
CDP ID #	774
Code	IECC CE
Code Section(s)	CC102
Location	appendix
Proponent	Alex Smith asmith@nahb.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: The current definitions in the first draft correctly refer to electricity generation and not intended for other types or sources of energy generation.
Recommendation	DISAPPROVE
Vote	13 - 0 - 1
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 #	CED1-053-22 On-site renewable energy systems
CDP ID #	799
Code	IECC CE
Code Section(s)	C405.15.1
Location	base
Proponent	Bryan Holland bryan.holland@nema.org
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: This code change proposal will permit all on-site renewable electricity generation with an output nameplate power rating not less .75 W/ft^2 and not just direct current generating systems.
Recommendation	AS SUBMITTED
Vote	6 - 5 - 3
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 #	CED1-051-22 Renewable energy in small buildings
CDP ID #	705
Code	IECC CE
Code Section(s)	C405.15.1
Location	base
Proponent	Charles Eley charles@eley.com
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: Proposal would increase the scope of cost-effective on-site renewables requirements.
Recommendation	AS SUBMITTED
Vote	9 - 4 - 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 #	CED1-208-22 Green retail tariffs in glide path
CDP ID #	702
Code	IECC CE
Code Section(s)	CD101.4.1
Location	appendix
Proponent	Charles Eley charles@eley.com
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason Statement: Subcommittee was concerned about the uncertainty and durability of green retail tariff programs. Noted there were many abstentions in the vote. Some subcommittee members felt they did not have enough information.
Recommendation	DISAPPROVE
Vote	6 - 0 - 7
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 #	CED1-055-22 Green retail tariffs
CDP ID #	686
Code	IECC CE
Code Section(s)	C405.15.2.1
Location	base
Proponent	Charles Eley charles@eley.com
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: Subcommittee was concerned about the uncertainty and durability of green retail tariff programs. Noted there were many abstentions in the vote.
Recommendation	DISAPPROVE
Vote	6 - 1 - 8
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 #	CED1-056-22 Renewable energy investment fund
CDP ID #	768
Code	IECC CE
Code Section(s)	C405.15.2.1
Location	base
Proponent	Charles Eley charles@eley.com
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: When on-site renewables is not feasible as defined by the exceptions, this proposal would offer an additional path for purchasing off-site renewables from the jurisdiction. This would offer more flexibility and lower cost.
Recommendation	AS MODIFIED Michael Jouaneh emailed the modification to Kris Thu 3/23/2023 3:07 PM
Vote	7 - 1 - 5
Recommendation Date	March 25, 2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

CED1-56-22
(Modifications by PLR highlighted in yellow)

Proponents: Charles Eley, representing Architecture 2030 (charles@eley.com)

2024 International Energy Conservation Code [CE Project]

Revise as follows:

C405.15.2.1 Off-site procurement. The building owner as defined in the *International Building Code* shall procure and be credited for the total amount of off-site renewable electrical energy, not less than required in accordance with Equation 4-14, with one or more of the following:

1. ~~A~~ P*hysical renewable energy power purchase agreement*
2. ~~A~~*Financial renewable energy power purchase agreement*
3. ~~A~~ *Community renewable energy facility*
4. Off-site renewable energy system owned by the building property owner
5. *Renewable energy investment fund*

Add new definition as follows:

~~**RENEWABLE ENERGY INVESTMENT FUND.** A fund established by the local government or other entity to accept payment from building owners to construct or acquire qualifying renewable energy (along with RECs) on their behalf.~~

RENEWABLE ENERGY INVESTMENT FUND (REIF). A fund established by a jurisdiction to accept payment from *building project* owners to construct or acquire interests in qualifying renewable energy systems, together with their associated RECS, on the *building project* owners' behalf.

Reason: A renewable energy investment fund is recognized in Appendix CC and Appendix CD. For consistency, it should be included in C405.15.2.1.

Cost Impact: The code change proposal will decrease the cost of construction. Providing more options for acquiring off-site renewable energy will not increase the cost of compliance and could result in a reduction.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-057-22 Energy Storage Ready cleanup
CDP ID #	649
Code	IECC CE
Code Section(s)	C405.16
Location	base
Proponent	Michael Tillou michael.tillou@pnnl.gov
Proposal Status	SC review
Subcommittee	CE Elec, Light
Subcommittee Notes	Reason statement: This proposal adds clarity to the requirements by relocating system capacity requirements to a more-appropriate subsection. The modification includes editorial improvements.
Recommendation	APPROVED AS MODIFIED
Vote	11 - 1 - 1
Recommendation Date	March 6, 2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

CED1-57-22
(Modifications by PLR highlighted in yellow)

Proponents: Michael Tillou, representing Pacific Northwest National Laboratory (michael.tillou@pnnl.gov); Michael Rosenberg, representing Pacific Northwest National Laboratory (michael.rosenberg@pnnl.gov)

2024 International Energy Conservation Code [CE Project]

Revise as follows:

C405.16 Electrical energy storage system. *Buildings* shall comply with ~~either~~ ~~the one of~~ section C405.16.1 or section C405.16.2.

C405.16.1 Electrical energy storage energy capacity. Each *building* shall have one or more ESS with a total rated energy capacity and rated power capacity as follows:

1. ESS rated energy capacity (kWh)≥1.0 x Installed PV System Rated Power (kWDC)
2. ESS rated power capacity (kW)≥0.25 x Installed PV System Rated Power (kWDC).

Where installed, DC coupled battery systems shall meet the requirements for rated energy capacity alone.

Revise as follows:

C405.16.2 Electrical energy storage system ready. Each *building* shall have one or more reserved ESS-ready areas to accommodate future electrical storage in accordance ~~complying~~ with sections C405.16.2.1 through C405.16.2.4.~~the following:~~

5. Energy storage system rated energy capacity (kWH) ≥ Conditioned floor area of the three largest stories (ft^2) x 0.0008 kWh/ft^2
6. Energy storage system rated power capacity (kW) ≥ Conditioned floor area of three largest stories (ft^2) x 0.0002 kWh/ft^2

C405.16.2.1 ESS-ready location. Each ESS-ready area shall be located in accordance with Section 1207 of the *International Fire Code.*

Revise as follows:

C405.16.2.2 ESS-ready minimum area requirements. Each ESS-ready area shall be sized in accordance with the spacing requirements of Section 1207 of the *International Fire Code* and the UL9540 or UL9540A designated rating of the planned system. Where rated to UL9540A, the area shall be sized in accordance with the manufacturer's instructions.

C405.16.2.3 Electrical distribution equipment. The onsite electrical distribution equipment shall have sufficient capacity, rating, and space to allow installation of overcurrent devices and circuit wiring in accordance with NFPA 70 for future electrical ESS installation complying with the capacity criteria of Section C405.16.2 .4.

Add new text as follows:

C405.16.2.4 ESS-ready minimum system capacity. Compliance with ESS-ready requirements in sections C405.16.2.1 through C405.16.2.3 shall be based on a minimum total energy capacity and minimum rated power capacity as follows:

1. ESS rated energy capacity (kWh) ≥ gross ~~C~~conditioned floor area of the three largest ~~stories~~ floors (ft^2) x 0.0008 kWh/ft^2
2. ESS rated power capacity (kW~~h~~) ≥ gross ~~C~~conditioned Conditioned floor area of the three largest ~~stories~~ floors (ft^2) x 0.0002 kWh/ft^2

Reason: This proposal is editorial and recommends language to reduce ambiguity.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction. This proposal is editorial and does not impact cost effectiveness of this requirement.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CED1-170-22 Provide Exception for R-2 Occupancies for DR Water Heater Controls
CDP ID #	665
Code	IECC CE
Code Section(s)	C404.10
Location	base
Proponent	Greg Johnson gjohnsonconsulting@gmail.com
Proposal Status	SC review
Subcommittee	CE Envelope
Subcommittee Notes	**Reason Statement**: The IECC HVACR and Water Heating Subcommittee does not agree that R-2 occupancies are different enough from other occupancies to warrant an exception. Further, the proposed text would create a conflict with other requirements in C406.
Recommendation	**Disapprove as modified** **See the full proposal below.** The modifications were made by the proponent. The proposal has changed from the version considered at the March 9, 2023 meeting
Vote	**Disapprove as modified** 5-1-4
Recommendation Date	03/09/23
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

2024 International Energy Conservation Code [CE Project]

Revise as follows:

C404.10 Demand responsive water heating. Electric storage water heaters with a rated water storage volume of 40 gallons (150L) to 120 gallons (450L) and a nameplate input rating equal to or less than 12kW shall be provided with demand responsive controls in accordance with Table C404.10 or another equivalent approved standard.

Exceptions:

1. Water heaters that provide a hot water delivery temperature of 180°F (82°C) or greater.
2. Water heaters that comply with Section IV, Part HLW or Section X of the ASME Boiler and Pressure Vessel Code.
3. Water heaters that use 3-phase electric power.
4. Water heaters in R-2 occupancies.

TABLE C406.2(1) BASE ENERGY CREDITS FOR GROUP R-2, R-4, AND I-1 OCCUPANCIES[a]

ID	Energy Credit Measure	Section	Climate Zone																		
			0A	0B	1A	1B	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	7	8
E01	Envelope Performance	C406.2.1.1	Determined in accordance with Section C406.2.1.1																		
E02	GA reduction (15E)	C406.2.1.2	8	13	7	11	6	8	9	6	1	24	8	9	30	15	5	32	28	31	36
E03	Envelope leak reduction	C406.2.1.3	15	10	12	8	6	16	13	5	1	7	7	9	65	16	1	73	43	52	26
E04	Add Roof Insulation	C406.2.1.4	1	1	1	1	1	1	4	3	1	5	3	4	6	5	1	7	7	6	8
E05	Add Wall Insulation	C406.2.1.5	10	10	6	8	5	6	8	4	1	8	3	4	11	7	1	14	12	13	13
E06	Improve Fenestration	C406.2.1.6	7	7	4	6	9	11	13	3	1	22	5	10	27	18	7	41	33	22	21
H01	HVAC Performance	C406.2.2.1	20	19	16	17	14	13	11	11	5	13	10	8	15	12	7	18	14	17	19
H02	Heating efficiency	C406.2.2.2	x	x	x	x	x	x	3	1	1	6	2	3	10	5	2	14	10	13	16
H03	Cooling efficiency	C406.2.2.3	7	6	4	4	3	3	1	1	1	1	1	1	1	1	x	x	x	x	x
H04	Residential HVAC control	C406.2.2.4	9	10	8	22	20	25	16	17	32	21	24	17	23	27	16	21	24	18	18
H05	D❮ASIfan control	C406.2.2.5	32	31	27	28	23	23	28	21	12	42	24	24	56	36	19	73	54	70	79
W01	SHW preheat recovery	C406.2.3.1 a	61	63	74	74	85	88	101	100	121	103	109	122	102	111	130	93	106	99	96
W02	Heat pump water heater	C406.2.3.1 b	50	52	62	61	72	74	86	85	104	88	94	106	88	96	112	81	92	87	84
W03	Efficient gas water heater	C406.2.3.1 c	38	39	46	46	53	55	63	62	76	64	68	76	64	69	81	58	66	62	60
W04	SHW pipe insulation	C406.2.3.2	7	7	8	7	8	8	8	9	10	8	9	9	7	8	9	6	7	6	6
W05	Point of use water heaters	C406.2.3.3 a	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

ID	Energy Credit Measure	Section	Climate Zone																		
			0A	0B	1A	1B	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	7	8
W06	Thermostatic bal. valves	C406.2.3.3 b	3	3	3	3	3	3	3	3	4	3	3	4	3	3	4	3	3	3	2
W07	SHW heat trace system	C406.2.3.3 c	12	12	13	13	14	15	15	15	18	14	15	16	13	14	16	11	13	11	10
W08	SHW submeters	C406.2.3.4	11	11	13	13	15	16	18	18	22	19	20	22	19	20	24	17	20	18	18
W09	SHW distribution sizing	C406.2.3.5	45	46	55	54	63	65	74	73	89	75	80	89	74	81	95	68	77	72	70
W10	Shower heat recovery	C406.2.3.6	15	16	19	19	22	23	26	26	32	27	29	32	27	29	34	25	28	27	26
P01	Energy monitoring	C406.2.4	3	3	2	3	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3
X01	Demand Response Water Heater (R-2)	C406.2.X	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~	1 ~~TBD~~
L01	Lighting Performance	C406.2.5.1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
L02	Lighting dimming H tuning	C406.2.5.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
L03	Increase occp. sensor	C406.2.5.3	3	3	4	4	4	4	3	4	3	2	3	2	1	1	2	1	1	1	1
L04	Increase daylight area	C406.2.5.4	5	5	5	5	5	5	4	4	4	4	4	3	3	4	3	2	3	3	2
L05	Residential light control	C406.2.5.5	8	8	9	9	9	9	8	8	10	6	8	7	4	6	8	3	5	4	3
L06	Light power reduction	C406.2.5.7	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	1	1	1
001	Efficient elevator	C406.2.7.1	4	4	4	4	5	5	5	5	5	4	5	5	4	4	5	4	4	4	3
002	Commercial kitchen equip.	C406.2.7.2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
003	Residential kitchen equip.	C406.2.7.3	15	15	17	16	17	18	17	18	20	16	17	18	15	16	18	13	15	13	12
004	Fault detection	C406.2.7.4	3	3	2	3	2	2	2	2	1	2	2	1	1	2	1	3	2	3	3

a. "x" indicates credit is not available for that measure.

Add new text as follows:

C406.2.X Demand Response Water Heating for R-2 Occupancies. For R-2 occupancies, electric storage water heaters with a rated water storage volume of 40 gallons (150L) to 120 gallons (450L) and a nameplate input rating equal to or less than 12kW shall be provided with demand responsive controls in accordance with Table C404.10 or an~~other~~ equivalent *approved* standard.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	CECD1-14-22 On-site renewables modifications
CDP ID #	
Code	IECC CE
Code Section(s)	
Location	base
Proponent	IECC CE HVACR subcommittee
Proposal Status	SC review
Subcommittee	CE HVACR & WH
Subcommittee Notes	
Recommendation	Approve
Vote	10-0-1
Recommendation Date	2/23/23
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	