DOCKETED	
Docket Number:	22-BSTD-01
Project Title:	2025 Energy Code Pre-Rulemaking
TN #:	253156
Document Title:	Gabel Energy Comments - 2025 Energy Code Update Rulemaking
Description:	N/A
Filer:	System
Organization:	Gabel Energy
Submitter Role:	Public
Submission Date:	11/16/2023 1:07:43 PM
Docketed Date:	11/16/2023

Comment Received From: Gabel Energy
Submitted On: 11/16/2023
Docket Number: 22-BSTD-01

2025 Energy Code Update Rulemaking

Additional submitted attachment is included below.

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November 16, 2023

CEC Docket: 22-BSTD-01

Re: 2025 Energy Code DRAFT Express Terms

Hello:
There are a few items included in the DRAFT Express Terms about which we have concerns and questions.

1. **Title 24 Part 1:**
    a. **Renamed HERS to ECC:** We feel this new term, "Energy Code Compliance", will cause confusion about who is responsible for enforcing Energy Code compliance, which is the Authority Having Jurisdiction. We suggest renaming HERS to ECV "Energy Code Verification".
    b. **10-114 Outdoor lighting zones:** Since it is very difficult to get the 2010 US Census information, should we move to the 2020 census? How are we to determine "urban cluster" versus "urban" since that is no longer supported by the US Census tools?
    c. **Typos in the title and footers for 10-116:** Change "COMPLAINCE SOFTWARE" to "COMPLIANCE SOFTWARE".
2. **All Occupancies:**
    a. **Occupancy L:** We feel more should be done to support which areas of the Energy Code would apply to "L". There can be confusion that only the covered process lab requirements would apply, but we feel the intent is that all of the Energy Code (envelope, mechanical, electrical and renewables) would apply. In the 2022 Energy Code, when Controlled Environment Horticulture (CEH) was added, there were references to all the required code sections added to the covered process chapter supporting CEH, maybe something similar should be done for laboratory occupancy.
    b. **Definitions:**
        i. **Cathedral Ceiling:** Why wasn't "Rafter" ceiling used as is supported in the JA4 tables, versus coming up with a new term not supported in the JA4 chapters? This will cause confusion when trying to apply these new prescriptive "Rafter" roof requirements for single-family.
        ii. **Dual-Fuel Heat Pump:** Why wasn't this used when trying to support the new heat pump requirements for nonresidential and single-family HVAC alterations?
        iii. **Nonresidential Building Occupancy Types:** Please include "Laboratories", "Warehouse", and "Medical Office/Clinic" buildings.
        iv. **Laboratory versus Laboratory, Scientific Area:** How are these different? Please only include one definition to support these laboratory areas.
    c. **110.2(e) Open and Closed-Circuit Cooling Towers:** The new language requires that the calculations for this system be embedded in the NRCC-MCH-E compliance form. This would have to be an automated process, so the NRCC-

MCH-E used to show compliance for this system could not be a paper form that could be filled out manually. That should be considered when supporting compliance documentation procedures for the 2025 code cycle.

d. **110.2 Efficiency Tables:** How will people know where to find the undefined "Federal Minimum" efficiencies all these tables reference? Please provide guidance on where this information can easily be found.
e. **Table 110.2-L, M and N:** These tables were new for the 2022 Energy Code, and I do not understand why they are being removed one code cycle later. Are these now regulated by DOE?
f. **110.3(c)7B2ii:** What does "NFA" mean? Net-free area? Please don't use an acronym that might not be understood by all.
g. **110.4(c)3:** If the onsite energy is solar PV, does the PV used to meet this requirement have to be dedicated to the pool system or can it also be used to satisfy the PV and battery requirements of the building type? If the building PV and pool/spa PV cannot be the same system, what happens when using all viable roof surfaces to provide PV for the building, how will PV needed for pools and spas be supported? Does one take precedence? Does it mean the methods that require a percent of surface area as PV or solar thermal cannot be used if no viable SARA is left over? Additionally, please consider using the same procedure we use for building PV which includes consideration of the Solar Access Roof Area (SARA) using a CEC approved solar assessment tool for PV viability.

3. **Nonresidential and Hotel/Motel Chapters:**
   a. **120.1 Ventilation and IAQ:** Suggest it be made clear at the top of this subchapter that these requirements only apply to areas that are conditioned, as is supported in Table 100.0-A. This means that the new exception 1 to 120.1(c)2D is not needed.
   b. **120.3 Pipe Insulation:** The revised Table 120.3-A2 references "residential". Is this to support hotel/motel? If this is to apply to multifamily, that should be included in the 160 subchapters.
   c. **120.6(k) Commercial Kitchen Electric Readiness:** Please provide clarification as to when this is required. Is it when the entire kitchen uses natural gas? How about propane? What if only one appliance uses propane or natural gas? We assume an all-electric kitchen does not need to meet these requirements, so that should be indicated as an exception.
   d. **120.7(e): Nonresidential Vestibules:** We are going to state the same thing we did in our last docketed comment. PLEASE reconsider this mandatory requirement!

      When we work on projects in our impacted cities, such as San Francisco, Oakland and Los Angeles, there are always concerns when we take away from the rentable floor area of the building. This is already difficult due to the Battery Storage additional electric equipment room sizing needed to support the Energy Code.

      Planning typically dictates the look of a project and is approved many months or even years before a project goes in for a building permit. This means projects that will be subject to this mandatory requirement might already be going

through planning approval now, before the code is enforced or even adopted. Redesigning to include a vestibule may add many months and substantial cost to a project that has already been approved by planning. What happens if planning does not agree with the look associated with a vestibule? How can that be mitigated?

Additionally, there is also no code language guidance on how this is to be considered for additions and alterations to existing buildings, or even first time buildouts of tenant improvement buildings. What is the trigger for this requirement? Replacing storefront? Changing lighting at the entry?

Having this as a mandatory requirement, with no ability to use the performance approach for flexibility, seems short sighted because not all project scopes can be considered when adopting these requirements.

e. **Exception to 120.7:** This is getting lost here at the very end. Can it be moved to the top of this subchapter as is done in other parts of the Energy Code?
f. **140.4(a)3 Office and School Heat Pumps:**
    i. Why are schools not allowed to consider VRF prescriptively like is allowed for "office"? It is a very common system type with the work we do with schools.
    ii. 140.4(a)3D: Suggest adding "and the requirements of 140.4(c)" otherwise people may think they only need to meet these requirements and NOT the requirements of 140.4(c) (unless that is what is meant, in which case that should be clear also).
g. **ASHRAE Guidelines 36 – Comment applies to all ASHRAE Guideline 36 references in 2025 Energy Code:** By not including the requirements within the Energy Code, you are forcing people to buy this guideline which will reduce the enforceability of these new requirements.
h. **140.4(s) Mechanical Heat Recovery:**
    i. Can you please provide guidance on when these requirements apply and not just use a formula? This entire code section is difficult to understand in terms of when required, when not required, and how the exceptions apply.
    ii. Does 140.4(s)2 require thermal energy storage? This might need to be rewritten so that this is clear of what the intent is of these requirements *"If the building is required to have simultaneous mechanical heat recovery by Section 140.4(s)1 or thermal energy storage by Section 140.4(s)2, …"*
    iii. Note that in the 2025 Draft Express Terms submitted 11/3/2023, the section number has been changed from 140.4(r) to 140.4(s) in the initial section heading (i.e., (s) Mechanical Heat Recovery), but the Exceptions to Sections 140.4(s)1 and 2 have not been updated from the previous section number 140.4(r), and there is another old reference to 140.4(r) in the text of 140.4(s)2.
i. **140.9 Covered Process**
    i. **140.9(a) Computer Rooms:** There are some exceptions associated with computer rooms 140.4(s), and it is not clear that computer rooms have to meet the requirements of 140.9(a) AND any other parts of the Energy Code. Similar to our comments about laboratories, it should be clear that

computer rooms have to meet these requirements in 140.9(a) AND all other parts of the Energy Code.

ii. **Exception to 140.9(c):** This is getting lost here at the very end. Can it be moved to the top of this subchapter as is done in other parts of the Energy Code?

j. **140.10 PV and Battery Storage:** 140.10(a)1C is confusing. We feel the intent is to support state building code requirements and allow for a SARA exception, but local building code requirements must be confirmed by the CEC. If so, please separate these two (here is a suggestion):
   i. *Roof area that is otherwise not available due to compliance with either of the below:*
      1. *Other state building code requirements*
      2. *Local building code requirements if confirmed by the Executive Director*

k. **141.0(b)1E Exterior Windows**:
   i. Please support these as **weighted** U-factor values.
   ii. Added vertical fenestration: The 2nd sentence is not needed. If to remain, please add a similar 2nd sentence to the alteration requirements right above this.

l. **141.0(b)2Cii New/Replacement HVAC:**
   i. This section is hard to understand, and have provided the following suggestion as an alternative:

New or replacement of single zone packaged rooftop systems with a direct expansion cooling with rated cooling capacity less than 65,000 Btu/hr shall meet the applicable requirements Table 141.0-E1 below or shall meet the performance compliance requirements of Section 141.0(b)3.

Table 141.0-E1

Mechanical Equipment	Retail and Grocery	School	Office and Financial Institution	Library
Heat Pump ≤65,000 Btu/hr	CZ 3-13, 15	CZ 1-15	CZ 1, 3-13, 15	CZ 1, 3-15
Heat Pump with Economizer ≤65,000 Btu/hr	CZ 2 and 14		CZ 2, 14	CZ 2
Air Conditioner with Furnace ≤65,000 Btu/hr	or CZ2 and 14	CZ 16	or CZ 1-2, 14, 16	or CZ 2, 16
1. Air Conditioner with Furnace and Economizer when <54,000 Btu/hr	or CZ 3-9, 10-13	or CZ 5-6, 8	or CZ 3-10, 12-13	or CZ 1, 3-7
2. Air Conditioner with Furnace and Economizer and Demand-Controlled Ventilation when <54,000 Btu/hr	N/A	or CZ 1, 2-4, 7, 9-15	or CZ 11-15	or CZ 8-15
3. Air Conditioner with		N/A	N/A	N/A

Furnace and Economizer and Variable Speed Fan and Cotnrols when <54,000 Btu/hr	or CZ 15			

Air conditioners with a furnace complying with Table 141.0-E1 using variable speed fan and controls shall be designed to vary the indoor fan air flow rate as a function of the load and shall have a minimum of two stages of fan control. The minimum speed at stage 1 is set for ventilation only mode and shall be the greater of 50% or the minimum fan speed required to meet the minimum ventilation airflow rate. The indoor fan shall draw no more than 30% of the fan power at full fan speed when operating at 50% speed.

Exception 1 to Section 141.0(b)2Cii: Section 141.0(b)2Cii shall not apply if the alteration requires utility service upgrade that involves a new utility transformer.

Exception 1 to Section 141.0(b)2C: Section 140.4(a)2 shall not apply to new or replacement space conditioning systems or components.
….

m. **Exception 6 to Section 141.0(b)2C**: This is difficult to understand clearly. Suggest the following:
   i. Requirements for the use of ASHRAE Guideline 36 in Sections 140.4(c)2C, 140.4(d)2Av, 140.4(e)2D, and 140.4(f)3, and 140.4(r) shall not apply to new or replacement components ~~unless the space conditioning systems are also new or replacements.~~

n. **141.1(a) Lab and Process:** Why are “repairs” included as required scope to 140.9(c)? This is the opposite of the rest of the Energy Code in terms of alteration triggers.

4. Single-Family Chapters

a. **150.0(h)5A-C System Selection:**
   i. We are happy to see that we are finally addressing system sizing but are confused on how to apply B and C AND 150.0(h)1 and 2. What takes precedence? Suggest making changes to 150.0(h)1 and 2 to support the intent of these requirements in 150.0(h)5.
   ii. 150.0(h)5B says to use this for heating only systems, but then 150.0(h)5C says to use this for heat pumps. What is used for heating only heat pump systems?
   iii. 150.0(h)5Cia: What about the CRC requirements for space heating? When you say “supplementary heating” do you mean heat pump supplement strip heat? Or do you also mean decoupled supplemental heating systems (as is supported with Exception to Section 150.1(c)6)? Please make sure this is clear in terms of your intent.

b. **150.0(h)6 Defrost**: Is this applicable to heat pump equipment only? If so, please make sure that is clear.

c. **150.0(h)7 Supplementary heating:**
   i. When you say “supplementary heating” do you mean heat pump supplement strip heat? Or do you also mean decoupled supplemental

heating systems (as is supported with Exception to Section 150.1(c)6)? Please make sure this is clear in terms of your intent.

ii. Is “gas furnace supplementary heating” the same as “dual fuel”? If not, will “dual fuel” be equal to this requirement?

d. **150.0(h)8 Sizing:** Suggest you are clear this applies to heat pump supplemental strip heat, NOT decoupled systems.
e. **150.0(h)9 Thermostats:** Is this not required if thermostat provided by HVAC system manufacturer? What do you mean by "third party"?
f. **150.0(h)10Bi through iv Crankcase:** Adding “or: to the end of each option would make this clearer.
g. **150.0(i)2 Thermostats:** Please use a different word from “applied” since we install, not apply. Again, please make sure it is clear the supplemental heating you are talking about is integrated to heat pump features.
h. **150.0(o)1Civ Balances/Supply only:** *“Requirements FOR balanced and supply only ventilation systems”* reads like you HAVE to install these system types. Suggest *“Requirements **associated with** balanced and supply only ventilation systems.”*
i. **150.0(q) Fenestration:** Please consider adding a “fire-rated” fenestration exception to this very aggressive U-factor. See our comments provided previously below:
New Mandatory U-factor of 0.40 for Single-Family Fenestration and Nonresidential U-factor of 0.47*: This will cause issues when trying to build homes and nonresidential buildings that have fire-rated window requirements because it will limit the ability to consider alternate window products in fire areas. In our experience, it is just not possible to meet these new mandatory U-factors with fire-rated windows (which also leads to the weighted U-factor issue we address next). We have found that in many locations for many designs in California, NFRC-rated or certified vinyl windows are not always a solution to meet the health and safety considerations for specific projects.*
j. **150.1(c)1Aiii Cathedral Roof:** Please use “rafter” to align with JA4 tables.
k. **Equation 150.1-C Annual PV**: Please don’t introduce AC efficiency to the PV table. When PV is deferred, or when PV contractors are trying to determine a prescriptive PV size for pricing, this will cause confusion and lead to misapplication of the intent of this PV table. AC is not always installed for new buildings, and if an EER2 is used, will that AC system have to be installed? We see this as another enforcement issue.
l. **Footnote 13 to Table 150.1-A:** What is this supposed to say?
m. **Exceptions with verbiage “New dwelling units with a conditioned floor area of 500 square feet or less….**” Is this exception only applicable to newly constructed dwelling units or any newly constructed residential building (i.e. pool house, detached office, art studio, multipurpose room, etc.)? This exception is used in many sections within Section 150.1 including 150.1(c)3A, 150.1(c)8, and 150.1(c)12B.
n. **150.2(b)1A Added Fenestration**: CRC requires egress openings meet height and area requirements when opening the wall completely and replacing fenestration. By limiting added area down to 16 sf and having to show compliance to area/west facing restrictions when greater than this, it can be very difficult to show compliance to the CRC egress requirements and the Energy Code.
o. **150.2(b)1FiiA Altered AC:** Suggest you are clear this applies to heat pump supplemental strip heat, NOT decoupled systems (if that was really the intent).

p. **150.2(b)1FiiBb Duct Testing:** Will the smoke test be allowed like it is for all other altered systems?
q. **Exception 2 of 150.**2(b)1Fii: Not understanding the direction being provided with the last sentence. Are they required or NOT required? *"Documentation of heating load calculations in accordance with 150.0(h)."*

5. Multifamily Chapters

a. **160.1(g) Slab Edge:** We feel this language does not need to be repeated that is already supported in 110.8(g), it will cause confusion.
b. **160.2(b)2Avie Airflow Measurement:** 2022 does not support an installation for the contractor to document this test, there are only NRCA and LMCV/NRCV forms. How does the contractor support the testing required of them?
c. **160.2(c)2D Ventilation:** Suggest it be made clear at the top of this subchapter that these requirements only apply to areas that are conditioned, as is supported in Table 100.0-A in which then the new exception 1 to 120.1(c)2D is not needed.
d. **160.2(c)5Eiia Occupancy Sensors:** Why is this missing? "In 20 minutes or less...." like is supported in 120.1(d)5Bi. Does it not apply to multifamily?
e. **160.3(a)2J:** Why are the requirements of 120.2(l) not included?
f. **160.3(b)1 Loads:** Why are the requirements of 150.0(h) not included?
g. **160.3(b)7 Defrost**: Is this applicable to heat pump equipment only? If so, please make sure that is clear.
h. **160.3(b)8 Thermostats:** Is this not required if thermostat provided by HVAC system manufacturer? What do you mean by "third party"?
i. **Table 160.3-D Pipe Insulation:** Why is it different from NR Table 120.3-A1 and A2?
j. **160.7(b) Pool/Spa:** Why is there no reference to the nonresidential pool and spa code section?
k. **160.7 Covered Process:** What about new commercial kitchen requirements of 120.6(k)? Commercial kitchens are common in senior living or dormitories.
l. **160.9(f) Central Heat Pump Ready:** We have concerns that the required space reserved may not support all types of central heat pump systems and limit the building to consider all configurations of central heat pumps systems. Additionally, we have concerns about how this is enforceable. Will the reserved area be allowed as an exception to SARA?
m. **Footnote 7 to Table 170.2-A:** Can we have this added to nonresidential also?
n. **ASHRAE Guidelines 36 –** Will none of these new requirements apply to multifamily mechanical systems?
o. **170.2(f)Biii and 170.2(g)1C PV and Battery Storage:** We think the intent is to support state building code requirements allow for a SARA exception, but local building code requirements must be confirmed by the CEC. If so, please separate these two (here is a suggestion):
    i. *Roof area that is otherwise not available due to compliance with either of the below:*
        1. *Other state building code requirements*
        2. *Local building code requirements if confirmed by the Executive Director*
p. **Exception to 180.1(a)2 and 180.2(b)5A IAQ Additions/Alterations:** This reads as a requirement not an exception. What is the intent?
q. **180.2(c)2 3rd party verification:** Will it no longer be a HERS/ECC rater?

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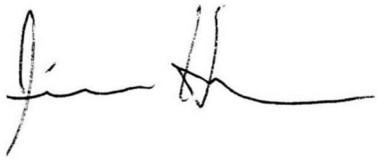

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