**Energy Technical Advisory Committee (TAC) / Electrical TAC – Comments**

**7th Edition (2020) Florida Building Code, Energy Conservation**

**EN-ER-Ch. 4/6 - Comment #1**

**Jeff Sonne - FSEC**

 **ANSI/RESNET/ICC 301 Comments for April 2020 Rule Development Workshop** [Same as comments for February 2020 Workshop, except new ERI compliance guest suite exception language added; additions to February Workshop comments shown in red.]

1. **Revisit mod 7597:** alt language mod A3 referencing ANSI/RESNET/ICC 301 Addendum A- 2015 was approved; we would like to have alt language A4 reconsidered. A4 makes the same service water heating calculation change as A3 but would:
* Change the chapter 6 [RE] reference listing for ANSI/RESNET/ICC 301 from the 2014 to 2019 version
* Since Addendum A-2015 is included in ANSI/RESNET/ICC 301-2019, remove "Addendum A-2015" language a) from the service water heating section of Table R405.5.2(1), b) from Section R406.4, and c) from chapter 6 [RE].
1. **Reference** ANSI/RESNET/ICC 301-2019 **Addendum A-2019** in chapter 6 [RE] and in ERI Section R406.4 as follows:

**R406.4 ERI-based compliance.**

The ERI for the *rated design* shall be determined in accordance with ANSI/RESNET/ICC 301, including Addendum A-201~~5~~9, and be shown to have an ERI less than or equal to the appropriate value listed in Table R406.4.

**Exception:** ERI-based compliance shall not be used for *guest suites* without kitchens. [No other changes to section.]

1. **Add definition for guest suite** to Florida Building Code, Energy Conservation Section R202 General Definitions as follows:

**Guest Suite.** A bedroom or sleeping area without kitchen designated as an amenity area for use of residents within a residential structure.

**Rationale for all changes:** ANSI/RESNET/ICC 301-2019 brings Florida code up to the latest standard, and also allows Addendum A-2019 to be referenced. Addendum A-2019 better defines current appliance characteristics which will allow currently used appliance label data to be entered into code software without requiring conversion, and will also help reduce ERI calculation discrepancies among code software vendors. Guest suite exception included to address Florida Home Builders Association concerns.

**TAC Recommendation:**

**Commission Action:**

**EN-EC-Ch. 4 - Comment #2**

**Jeff Sonne - FSEC**

**[ Table C404.2 comments for April 2020 Rule Workshop are highlighted in yellow below.]**

[**Rationale:** Commas “,” are added after standby loss equations so “SL” is not mistakenly seen as being part of the equation. Other changes made to clarify table and accurately show various size categories, subcategory/rating conditions and footnotes, as needed.]

**COMMERCIAL ENERGY EFFICIENCY**

**TABLE C404.2**

**MINIMUM PERFORMANCE OF WATER-HEATING EQUIPMENT**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **EQUIPMENT TYPE** | **SIZE CATEGORY****(input)** | **SUBCATEGORY OR RATING CONDITION** | **DRAW PATTERN** | **PERFORMANCE REQUIREDa, b, c** | **TEST PROCEDURE** |
| Storage |  |  | Tabletope, 20 gallons and 120 gallons | Very small Low Medium HighVery small Low Medium HighVery small Low Medium HighVery small Low Medium High | 0.6323 - (0.0058 × V), UEF0.9188 - (0.0031 × V), UEF0.9577 - (0.0023 × V), UEF0.9884 - (0.0016 × V), UEF0.8808 - (0.0008 × V), UEF0.9254 - (0.0003 × V), UEF0.9307 - (0.0002 × V), UEF0.9349 - (0.0001 × V), UEF1.9236 - (0.0011 × V), UEF2.0440 - (0.0011 × V), UEF2.1171 - (0.0011 × V), UEF2.2418 - (0.0011 × V), UEF1.0136 - (0.0028 × V), UEF0.9984 - (0.0014 × V), UEF0.9853 - (0.0010 × V), UEF0.9720 - (0.0007 × V), UEF |  |
|  |  |  20 gallons and 55 gallons |  |
|  Wwater heaterselectric |  12 kWd, |  | DOE 10 CFR Part 430 |
|  |
|  |  | > 55 gallons and 120 gallons |  |
|  |  | Grid-enabledf > 75 gallons |  |
|  | > 12 kW | All |  | (0.3 + 27/Vm),\_SL, %/h | DOE 10 CFR Part 431 |
|  |  |  20 gallons and 55 gallons | Very small Low | 0.3456 - (0.0020 × V), UEF0.5982 - (0.0019 × V), UEF |  |
|  |  |  | Medium | 0.6483 - (0.0017 × V), UEF |  |
|  |  |  | High | 0.6920 - (0.0013 × V), UEF |  |
|  |  75,000 Btu/h |  |  |  | DOE 10 CFR Part 430 |
| Storage water heaters, gas |  | > 55 gallons and 100 gallons | Very small Low Medium High | 0.6470 - (0.0006 × V), UEF0.7689 - (0.0005 × V), UEF0.7897 - (0.0004 × V), UEF0.8072 - (0.0003 × V), UEF |  |
|  | > 75,000 Btu/h | < 4,000 Btu/h/gal |  | 80% *Et* |  |
|  | Q/800 + 110 V),\_SL, Btu/h |  |
|  | > 75,000k\_Btu/h\_r and 105,000k\_Btu/h | Residential-duty commercial  120 gal | Very small Low Medium High | 0.2674 - (0.0009 × V), UEF0.5362 - (0.0012 × V), UEF0.6002 - (0.0011 × V), UEF0.6597 - (0.0009 × V), UEF | DOE 10 CFR Part 431 |
| Instantaneous water heaters, electric**[Move this section/ row up, to right below "Storage water****heaters, electric".]** |  | ~~ 2 ga~~l< 2 gal | Very small Low Medium High | 0.91, UEF0.91, UEF0.91, UEF0.91, UEF | DOE 10 CFR Part 430 |
| > 12 kW and 58.6 kW | Residential-duty commercial  2 gal | Very small Low Medium High | 0.80, UEF0.80, UEF0.80, UEF0.80, UEF | DOE 10 CFR Part 431 |
| Instantaneous water heaters, gas | ~~ 2 gallons and~~> 50,000 Btu/hand ≤ 200,000 Btu/hc |  4,000 \_(Btu/h\_)/galand < 2 gal | Very small Low Medium High | 0.80 , UEF0.81 , UEF0.81, UEF0.81, UEF | DOE 10 CFR Part 430 |
|  > 200,000 Btu/h |  4,000 Btu/h/gal |  | 80% *E* |  |
|  | and < 10 gal |  | *t* | DOE 10 CFR Part 431 |
|  |  > 200,000 Btu/h |  4,000 Btu/h/gal |  | 80% *Et* |
|  | and  10 gal |  | Q/800 + 110 V)\_, SL, Btu/h |  |

*(continued)*

**C-66 FLORIDA BUILDING CODE — ENERGY CONSERVATION, 7th EDITION (2020)**

**TABLE C404.2—continued**

**MINIMUM PERFORMANCE OF WATER-HEATING EQUIPMENT**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **EQUIPMENT TYPE** | **SIZE CATEGORY****(input)** | **SUBCATEGORY OR RATING CONDITION** | **DRAW PATTERN** | **PERFORMANCE REQUIREDa, b, c** | **TEST PROCEDURE** |
| Storage water heaters, oil |  105,000 Btu/h |  20 gal \_< \_ 50 gallons | Very small Low Medium High | 0.2509 - (0.0012 × V), UEF0.5330 - (0.0016 × V), UEF0.6078 - (0.0016 × V), UEF0.6815 - (0.0014 × V), UEF | DOE 10 CFR Part 430 |
| \_~~ 105,000 Btu/h~~> 105,000 Btu/h | < 4,000 Btu/h/gal |  | 80% EtQ/800 + 110 V),**\_**SL, Btu/h |  ~~DOE 10 CFR Part 431~~ ANSI Z21.10.3 |
| 105 kBtu/hr and  |  | Very small | 0.2932 - (0.0015 × V), UEF |  |
|  ~~140 kBTU/hr~~> 105,000 Btu/h and | Residential-duty commercial  120 gal | Low Medium High | 0.5596 - (0.0018 × V), UEF0.6194 - (0.0016 × V), UEF0.6740 - (0.0013 × V), UEF | DOE 10 CFR Part 431 |
| ≤ 140,000 Btu/h |
| Instantaneous water heaters, oil |  210,000 Btu/h |  4,000 Btu/h/gal and < 2 gal |  | 0.59 - 0.0019V*,* EF | DOE 10 CFR Part 430 |
| > 210,000 Btu/h |  4,000 Btu/h/gal and < 10 gal |  | 80% *Et* | DOE 10 CFR Part 431 |
| > 210,000 Btu/h |  4,000 Btu/h/gal and  10 gal |  | 78% *Et*Q/800 + 110 V)**\_**, SL, Btu/h |
| Hot water supply boil- ers,gas and oil |  300,000 Btu/h and< 12,500,000 Btu/h |  4,000 Btu/h/gal and < 10 gal |  | 80% *Et* | DOE 10 CFR Part 431 |
| Hot water supply boil- ers, gas |  300,000 Btu/h and< 12,500,000 Btu/h |  4,000 Btu/h/gal and  10 gal |  | 80% *Et*Q/800 + 110 V),**\_**SL, Btu/h |
| Hot water supply boil- ers, oil | > 300,000 Btu/h and< 12,500,000 Btu/h | > 4,000 Btu/h/gal and ~~>~~ ≥ 10 gal |  | 78% *Et*Q/800 + 110 V),**\_**SL, Btu/h |
| Pool heaters, gas and oil | All | — |  | 82% Et | ASHRAE 146 |
| Heat pump pool heat- ers | All | — |  | 4.0 COPAt low air temperature | AHRI 1160 e, f **\_**h,**\_**i |
| Unfired storage tanks | All | — |  | Minimum insulation requirement R-12.5 (h **·** ft2 **·** °F)/Btu | DOE 10 CFR Part 431 |

For SI: °C = [(°F) - 32]/1.8, 1 British thermal unit per hour = 0.2931 W, 1 gallon = 3.785 L, 1 British thermal unit per hour per gallon = 0.078 W/L.

a. Energy factor (EF), uniform energy factor (UEF) and thermal efficiency (*Et*) are minimum requirements. In the EF equation, *V* is the rated volume in gallons.

b. Standby loss (SL) is the maximum Btu/h based on a nominal 70°F temperature difference between stored water and ambient requirements. In the SL equation,

*Q* is the nameplate input rate in Btu/h. In the equations for electric water heaters, V is the rated volume in gallons and *Vm* is the measured volume in gallons. In the SL equation for oil and gas water heaters and boilers, *V* is the rated volume in gallons.

c. Instantaneous water heaters with input rates below 200,000 Btu/h shall comply with these requirements where the water heater is designed to heat water to temperatures 180°F or higher.

d. Electric water heaters with an input rating of 12 kW (40,950 Btu/h\_r) or less that are designed to heat water to temperatures of 180°F or greater shall comply

with the requirements for electric water heaters that have an input rating greater than 12 kW (40,950 Btu/h).

e. A tabletop water heater is a water heater that is enclosed in a rectangular cabinet with a flat top surface not more than 3 feet (0.91 m) in height.

f. A grid-enabled water heater is an electric resistance water heater that meets all of the following:

(1) Has a rated storage tank volume of more than 75 gallons.

(2) Is manufactured on or after April 16, 2015.

(3) Is equipped at the point of manufacture with an activation lock.

(4) Bears a permanent label applied by the manufacturer that complies with all of the following:

(4.1) Is made of material not adversely affected by water. (4.2) Is attached by means of non-water-soluble adhesive.

(4.3) Advises purchasers and end-users of the intended and appropriate use of the product with the following notice printed in 16.5 point Arial Narrow Bold font: “IMPORTANT INFORMATION: This water heater is intended only for use as part of an electric thermal storage or demand response program. It will not provide adequate hot water unless enrolled in such a program and activated by your utility company or another program operator. Confirm the availability of a program in your local area before purchasing or installing this product.”

g. Water heaters and hot water supply boilers having more than 140 gallons of storage capacity need not meet the standby loss requirement if: (1) The tank surface area is thermally insulated to R-12.5 or more; (2) a standing pilot light is not used; and (3) for gas or oil-fired storage water heaters, they have a fire damper or fan-assisted combustion. (EN7984-R1/CE171-16).

h. Test report from independent laboratory is required to verify procedure compliance.

i. Geothermal swimming pool heat pumps are not required to meet this standard.

**TAC Recommendation:**

**Commission Action:**

**EN-EC-Ch. 4 -Comment #3**

**Jeff Sonne - FSEC**

**Table C405.4.2(1) and (2) Comments for April 2020 Rule Development Workshop**

TABLE C405.4.2(1) INTERIOR LIGHTING POWER ALLOWANCES: BUILDING AREA METHOD

[No changes to table or footnotes except footnotes “a” and “b” as highlighted (starting from 2020 Energy Conservation Supplement):]

1. Where sleeping units are excluded from lighting power calculations by application of Section R404~~5~~.1, neither the area of the sleeping units nor the wattage of lighting in the sleeping units is counted.
2. Where dwelling units are excluded from lighting power calculations by application of Section R404~~5~~.1, neither the area of the dwelling units nor the wattage of lighting in the dwelling units is counted.

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TABLE C405.4.2(2) INTERIOR LIGHTING POWER ALLOWANCES: SPACE-BY- SPACE METHOD

[No changes to table or footnotes except footnotes “c” and “d” as highlighted (starting from 2020 Energy Conservation Supplement):]

1. Where sleeping units are excluded from lighting power calculations by application of Section R404~~5~~.1, neither the area of the sleeping units nor the wattage of lighting in the sleeping units is counted.
2. Where dwelling units are excluded from lighting power calculations by application of Section R404~~5~~.1, neither the area of the dwelling units nor the wattage of lighting in the dwelling units is counted.

**Rationale for both table changes:**

The 2018 IECC mod CE205-16 by Jack Bailey shows that "R404.1" should be used in place of "R405.1" for Table C405.4.2(1) footnotes "a" and "b" and for Table C405.4.2(2) footnotes “c” and “d”. Although section "R405.1" is referenced in these footnotes in the 2018 IECC, Mr.

Bailey confirmed via email that "R404.1" is the correct section to reference.

**TAC Recommendation:**

**Commission Action:**

**EN/E-EC-Ch. 4 - Comment #4**

**Proposed Modification to the Florida Building Code**

**Modification #: Section 553.73, Fla Stat**

**Name: Joseph D. Belcher**

**Representing: FHBA**

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**Code: Florida Building Code-Energy Conservation**

**Section #: C401.2**

***Modification to the Florida Building Code.]:***

**C401.2 Application.** Commercial buildings shall comply with one of the following:

**1. The requirements of ANSI/ASHRAE/IESNA 90.1, excluding section 9.4.1.1(g), ~~and~~ section 8.4.2, and section 8.4.3 of the standard.**

**2. The requirements of Sections C402 through C405 and Section C408. In addition, commercial buildings shall comply with Section C406 and tenant spaces shall comply with SectionC406.1.1.**

**3. 3. The requirements of Sections C402.5, C403.2, C404, C405.2, C405.3, C405.5, C405.6, C407, and ~~C407~~ Section C408. The building energy cost shall be equal to or less than 85 percent of the standard reference design building.**

**Rationale:** The only new changes requested are shown in red text. The other changes have been approved by the Florida Building Commission in the previous action on the FBC-EC 7th Edition (2020). The requested action is to prohibit the mandate for the design and installation of energy monitoring systems contained in ASHRAE 90.1. These systems will increase the cost of construction tens of thousands of dollars for no benefit in energy conservation. A member of the Electrical TAC reported the **equipment** for one such system exceeded $40,000.00, and the systems monitor the use of energy but do not save energy. In addition to the cost of the equipment, there is the cost of installation and the software to run the system. Another electrical engineer reported a cost of $35,00.00 for the software to run the system in one of his client’s buildings. (See cited email below.) In buildings with separate tenants of 10,000 sq. ft. or greater individual tenants are required to be monitored separately, further increasing the costs.

While the ASHRAE standard specifies what the system must do, there is no guidance regarding who is to monitor the system, what is to be done with the reports, what type of calibration or maintenance may be necessary, or any operational information or guidance. An energy monitoring system is a very expensive system providing no discernible benefit for the saving of energy.

From an email dated February 25, 2020, from Jerry Solar, P.E., Vice-President, Peninsula Engineering:

“Regarding the energy monitoring requirement (Article 8.4.3):

I have talked to many engineers and electrical industry professionals regarding this article and no one seems to have found a valid reason for this requirement.

One large client told us that just the software to run the program cost him $35,000 and he wasn’t happy. The cost of the hardware is also up there. Some manufacturers have not been able to integrate the monitoring current transformers into their breakers and they use a separate cabinet which doubles the required wall space.

When designing according to the article, we have to have dedicated separate panels for interior lighting, exterior lighting, HVAC and receptacles. So we have more panelboards increasing the cost of the switchgear and increasing the size of the electrical room. We also need to run separate feeders to each of these panelboards.

The client needs to acquire the hardware to record and store the information and he needs to retain the services of a trained individual to manage the system.

Like any other component of the electrical system, the monitoring equipment will require trouble shooting, maintenance and replacement, burdening the users with additional expenses where they don’t see a return for their investment.

The next question is: What can the user do with this information? How can he know he is within the parameters for energy usage? Who will monitor the information and what will they do with it? We already design with the most efficient lighting, HVAC and systems. He cannot turn off lights or HVAC during working hours.

Again, this article does not makes a lot of sense and I don’t think the author(s) thoroughly went over all the implications and consequences when they wrote it.

Regards,

**Jerry Solar, P.E.**

**Vice President**

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**Fiscal Impact Statement [Provide documentation of the costs and benefits of the proposed modifications to the code for each of the following entities. Cost data should be accompanied by a list of assumptions and supporting documentation. Explain expected benefits.]:**

**A. Impact to local entity relative to enforcement of code: Approval of the proposal will reduce plan review and inspection costs as jurisdictions will not be required to mandate the design and installation of energy monitoring systems, review plans for such systems, and inspect the installation and operation of such systems.**

**B. Impact to building and property owners relative to cost of compliance with code: Approval of this proposal will save building and property owners tens of thousands of dollars for systems that provide no return. The proposal will not prevent building and property owners from installing such systems if so desired. Approval will remove the mandate to install such systems.**

**C. Impact to industry relative to cost of compliance with code:** **Approval of this proposal will save the industry tens of thousands of dollars for systems that provide no return. The proposal will not prevent building and property owners from installing such systems if so desired. Approval will remove the mandate to install such systems.**

**D. Impact to small business: Approval of this proposal will save small businesses tens of thousands of dollars for systems that provide no return. The proposal will not prevent building and property owners from installing such systems if so desired. Approval will remove the mandate to install such systems.**

**Please explain how the proposed modification meets the following requirements:**

1. **Has a reasonable and substantial connection with the health, safety, and welfare of the general public: The proposed modification has a substantial connection to the health, safety, and welfare of the general public by prohibiting the requirement to install an expensive system that has no connection to the health, safety, and welfare of the general public.** **The equipment alone for one such system was reported to cost more than $40,000.00. The software to operate another system was reported to cost $35,000.00.**

2. **Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction: The proposed modification improves the code by prohibiting the mandate to install an expensive system that has no connection to the health, safety, and welfare of the general public. One such system was reported to cost more than $40,000.00. The software to operate another system was reported to cost $35,000.00.**

3. **Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities: The change does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.**

4. **Does not degrade the effectiveness of the code: The proposed change does not degrade the effectiveness of the code and improves the effectiveness of the code.**

**TAC/EN Recommendation:**

**TAC/E Recommendation:**

**Commission Action:**

**EN-EC-Ch. 4 -Comment #5**

**Commenter:** Joseph Eysie, Representing the Florida Natural Gas Association (FNGA)

7th edition Supplement (CE246-16)

**C406.7.1 Load fraction.** The building service water-heating system shall have one or more of the following that are sized to provide not less than 60 percent of the building's annual hot water requirements, or sized to provide 100 percent of the building's annual hot water requirements if the building shall otherwise comply with Section C403.4.5.

1. Waste heat recovery from service hot water, heat- recovery chillers, building equipment, or process equipment~~, or a combined heat and power system~~.

 2. ~~Solar~~ *On site renewable energy* water-heating systems

Proposed Change:

**C406.7.1 Load fraction.** The building service water-heating system shall have one or more of the following that are sized to provide not less than 60 percent of the building's annual hot water requirements, or sized to provide 100 percent of the building's annual hot water requirements if the building shall otherwise comply with Section C403.4.5.

1. Waste heat recovery from service hot water, heat- recovery chillers, building equipment, or process equipment, or a combined heat and power system.

2. Solar *On site renewable energy* water-heating systems

Rationale:

Combined Heat-Power is a good thing, we shouldn’t be discouraging it in the code, which is what (CE246-16) does. This mod was approved in Step 1, and was brought up again in Step 2 by BOAF, as Mod (EN 8154). During Step 2, Mod EN 8154 was opposed vehemently, and a compelling argument to keep the CHP language in the C 406.7.1 was made before the TAC. But, before the TAC could vote, and after Hearing the opposition argument, the proponent with, drew Mod EN 8154. So we have a Mod that passed and Step 1 and was Withdrawn in Step 2, but would have likely received an NAR in Step 2 if a vote was taken. Please include this comment in the next Energy TAC agenda.

**TAC Recommendation:**

**Commission Action:**

**EN-EC- General -Comment #6**

On Feb 11, 2020, at 2:14 PM, Mital Hall <mital@ecoPreserve.net> wrote:

Dear Mr. Campbell,

It was a pleasure meeting you today. I was not able to stay for the full duration of the Florida Building Commission meeting today. However, per our discussion I would like to provide my public comment/statement for item 15 on the Agenda related to EN/E-CE-Ch.4- Comment #6. (February Workshop)

Please see below for my statement.

Good Morning Everyone,

My name is Mital Hall.  I am here representing several organizations today. This includes US Green Building Council as Central Florida Chair, East Central Florida Regional Planning Council, Resiliency Committee and UCF Global Economic and Environmental Opportunities Fellow and finally Vice President of ecoPeserve a small woman owned sustainability consulting company in Florida that works with governments.

We are supportive of incorporating EV ready infrastructure into commercial properties for new construction. The benefits of Electric Vehicles (EV) include:

 They are less costly to operate than traditional vehicles that use gasoline

 They reduce harmful emissions released which is not only good for our environmental or human health associated with air pollution.

 On a larger scale they help with our energy security by reducing our dependence petroleum.

The greater Orlando area is expecting exponential growth in EV with 34% of passenger vehicles being EV by 2030, 59% by 2040 and 67% by 2050. Surrounding cities and communities are looking to pass EV ready ordinances to ensure that their communities are prepared for this growth and providing the best quality customer service and quality of life, such as the City of Orlando and Orange County. There is also lots of funding opportunities throughout the state that are funding EV charging stations along major roadways and evacuation routes.

 As some of my colleagues will have/will discuss, the cost of being EV ready is much less when incorporated during new construction with cost difference of up to 75% compared to incorporating into existing locations.  What is also important to note is that there are multiple infrastructure levels that should be considered:

For example having infrastructure for a 110 does not require a large amount of infrastructure changes for new or existing buildings and requires an 8 hrs to fully charge.  Most cars are underutilized during the day so this could be good solution in some areas. The 220 takes about 4 hrs to charge, while the 440 takes 2 hours to charge but requires heavy infrastructure changes.

From a City standpoint in 10 -15 years there will be many more EV’s on the road, so we need to plan ahead. On behalf of all the organizations mentioned, I am supportive of adding EV ready requirements for new construction.

Thank you,

Mital

**Mital Hall, MSc, PMP, LEED AP O+M**

**Vice President**

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**TAC Recommendation:**

**Commission Action:**

**EN/E-EC-Ch. 4 - Comment #7**

**From:** ttrewyn@comcast.net [mailto:ttrewyn@comcast.net]
**Sent:** Tuesday, February 18, 2020 11:03 AM
**To:** Madani, Mo
**Cc:** 'Tim Wile'; 'Jerry Schmitz'; 'Brian A. Meneses'; Mike Scott; 'Ryan Huff'; 'Tony Colello'; 'edbarch'; 'Michael Menard'; 'Brent Wood'; socrateshill@gmail.com
**Subject:** 2020 FBC Draft Comment, Remove Receptacle Control

Sir:

C405.6.1 adopts design conditions of ASHRAE 90.1  Section 8.4.2, Receptacle Control, requiring a minimum of 50% of electrical receptacles to be controlled.  In practice, the average person is not aware of the feature, and numerous receptacles are wired with the feature but never used.  This is a waste of copper and other valuable materials, as well as the building owner’s capital.  I think it is more appropriate to regulate high energy utilization equipment by requiring it to have a sleep mode.  Perhaps exception language could be added to C405.6.1 to remove the receptacle control requirement.  Thanks for listening.

Timothy C. Trewyn, PE

Electrical Engineer

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**TAC/EN Recommendation:**

**TAC/E Recommendation:**

**Commission Action:**