

Date Submitted	11/28/2018	Section	402.4.1.2	Proponent	Bereket Nigusse
Chapter	4	Affects HVHZ	No	Attachments	Yes
TAC Recommendation	Approved as Submitted				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	No
-------------------------	----	---------------------------	----

Related Modifications**Summary of Modification**

Increases the Skylights area percentage allowed with daylight response control from 5% to 6%.

Rationale

This proposal changes the maximum skylight area when daylighting controls are used from 5% to 6% of the roof area. Research study has demonstrated energy savings for skylight areas greater than 6% in all climate zones. See the changes are reflected in CE97-16 and an excerpt is attached.

Fiscal Impact Statement**Impact to local entity relative to enforcement of code**

The proposed modification will not impact the local entity relative to code enforcement.

Impact to building and property owners relative to cost of compliance with code

The proposed modification will not change the cost of compliance to building and property owners.

Impact to industry relative to the cost of compliance with code

The proposed modification will not change the cost of compliance or impact industry.

Impact to small business relative to the cost of compliance with code

The proposed modification will not change the cost of compliance or impact small business.

Requirements**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

The proposed modification is directly connected to the health, safety, and welfare of the general public by harmonizing the FBC-Energy with the 2018 IECC rules for the maximum skylight area allowed with daylight responsive controls.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The proposed modification reduces building energy use and provides design flexibility.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

The proposed modification does not discriminate against materials, products, methods, or systems of construction.

Does not degrade the effectiveness of the code

The proposed modification enhances the effectiveness of the code.

C402.4.1.2 Increased skylight area with daylight responsive controls.

The skylight area shall be permitted to be not more than 56 percent of the roof area provided that daylight responsive controls complying with Section C405.2.3.1 are installed in ~~daylight toplit zones~~ under skylights.

Code Change No: **CE97-16**

Original Proposal

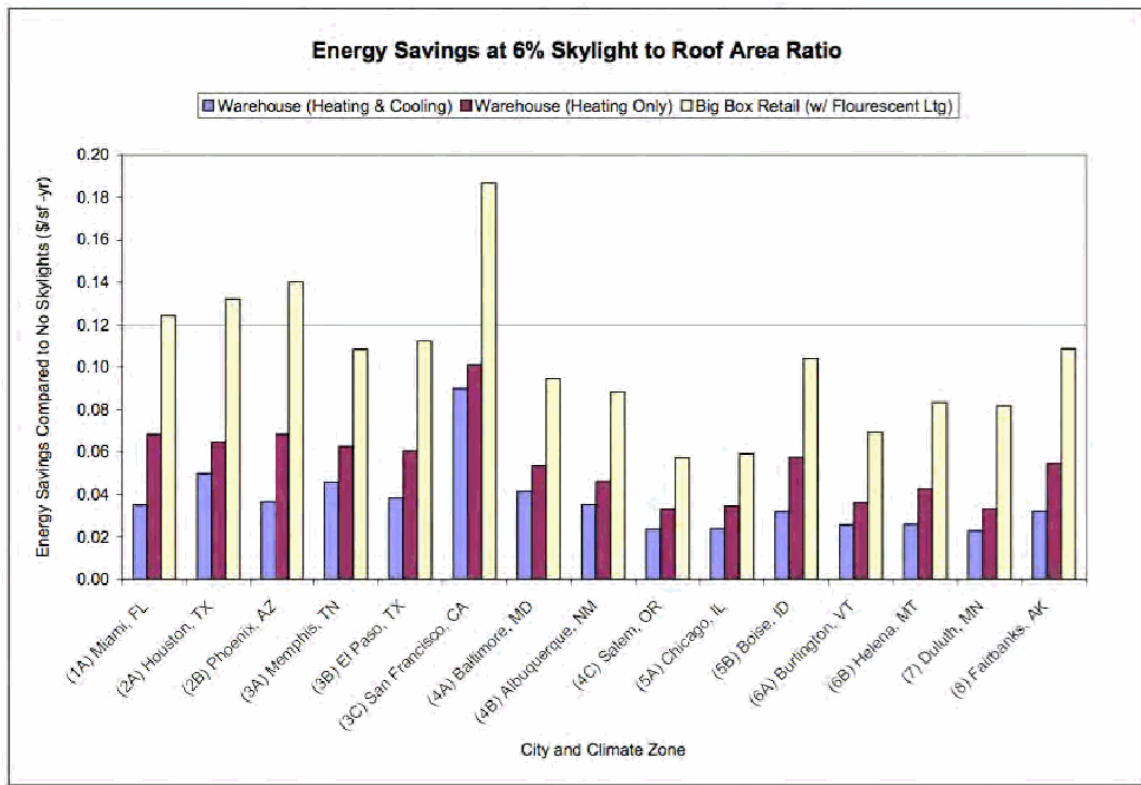
Section: C402.4.1.2

Proponent: Thomas Culp, Birch Point Consulting LLC, representing the Glazing Industry Code Committee and Aluminum Extruders Council (culp@birchpointconsulting.com)

Revise as follows:

C402.4.1.2 Increased skylight area with daylight responsive controls. The skylight area shall be permitted to be not more than 5-6 percent of the roof area provided that daylight responsive controls complying with Section C405.2.3.1 are installed in daylight zones under skylights.

Reason: This proposal changes the maximum skylight area when daylighting controls are used from 5% to 6% of the roof area. When the toplighting requirements were first added to ASHRAE 90.1-2010 and the 2012 IECC, the research studies they were based on showed positive energy savings for skylight areas > 6% in all climate zones (for example, see figure below). ASHRAE 90.1 has the same cap on skylight area as the IECC of 3% when no daylight controls are provided, but allows 6% with proper toplighting instead of 5%. This proposal updates the percentage allowed with daylight controls to the same 6%. This will also help reduce potential conflicts where the minimum toplighting requirement of C402.3.2 would require more skylight area than allowed by this section.



Heschong Mahone Group / AAMA, page 20.

Date Submitted	11/28/2018	Section	403.2.4.1.4	Proponent	Bereket Nigusse
Chapter	4	Affects HVHZ	No	Attachments	Yes
TAC Recommendation	No Affirmative Recommendation				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	No
-------------------------	----	---------------------------	----

Related Modifications**Summary of Modification**

Heated or cooled vestibules require controls based on a thermostat located in the vestibule

Rationale

This proposed modification adds a new rules how heating and cooling source of vestibules and air curtains are controlled using a thermostat installed in vestibule and makes the 2020 FBC in harmony with the 2018 IECC and ASHRAE 90.1-2016. This new code addition is based on CE136 and is expected reduce the heating and cooling energy use in vestibules.

Fiscal Impact Statement**Impact to local entity relative to enforcement of code**

The proposed new section will not impact the local entity relative to code enforcement.

Impact to building and property owners relative to cost of compliance with code

The proposed new section may incur none or up to \$75 increase in the cost of compliance to building and property owners depending on the thermostat type.

Impact to industry relative to the cost of compliance with code

This proposed modification will not change the cost of compliance or impact industry.

Impact to small business relative to the cost of compliance with code

The proposed new section will not change the cost of compliance or impact small business.

Requirements**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

The proposed new section is directly connected to the health, safety, and welfare of the general public by updating the rules for heated or cooled vestibules in the 2020 FBC-Energy to those found in the 2018 IECC and ASHRAE 90.1-2016.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This proposed modification improves and strengthens the code by harmonizing the control rules in heated or cooled vestibules by adding thermostat limits based on outside air temperature to minimize energy use in vestibules.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

The proposed new section does not discriminate against materials, products, methods, or systems of construction

Does not degrade the effectiveness of the code

The proposed new section enhances the effectiveness of the code.

C403.2.4.1.4 Heated or cooled vestibules

The heating system for heated vestibules and air curtains with integral heating shall be provided with controls configured to shut off the source of heating when the outdoor air temperature is greater than 45°F (7°C). Vestibule heating and cooling systems shall be controlled by a thermostat located in the vestibule configured to limit heating to a temperature not greater than 60°F (16°C) and cooling to a temperature not less than 85°F (29°C).

Exception: Control of heating or cooling provided by site-recovered energy or transfer air that would otherwise be exhausted.

Code Change No: CE136-16

Original Proposal

Section: C403.2.4.1.4 (New)

Proponent: Steven Ferguson, representing American Society of Heating, Refrigerating and Air-Conditioning Engineers (sterguson@ashrae.org)

Add new text as follows:

403.2.4.1.4 Heated or cooled vestibules The heating system for heated vestibules and air curtains with integral heating shall be provided with controls configured to shut off the source of heating when the outdoor air temperature is greater than 45°F (7°C). Vestibule heating and cooling systems shall be controlled by a thermostat located in the vestibule configured to limit heating to a temperature not greater than 60°F (16°C) and cooling to a temperature not less than 85°F (29°C).

Exception: Control of heating or cooling provided by site-recovered energy or transfer air that would otherwise be exhausted.

Reason: Vestibules or air curtains are required to be installed per C402.5.7 to reduce infiltration into the building. The benefit of a vestibule is negated if the vestibule is heated or cooled to the setpoint of the adjacent space. The proposed change limits heating and cooling energy use associated with vestibules. An exception for temperature limits is allowed when the vestibule is tempered with transfer air or heated with recovered energy. Transfer air tempering is beneficial because that conditioned air is destined to be exhausted anyway, and pressurizing the vestibule can reduce infiltration further.

Approval of this code change proposal will ensure consistency with ASHRAE Standard 90.1-16, which will be adopted by reference as an alternative path to the 2018 IECC Commercial Provisions. This change was made via addendum ca to ASHRAE Standard 90.1-2010 and addendum ag to ASHRAE Standard 90.1-2013.

Cost Impact: Will increase the cost of construction

If there is a heating or cooling system serving a vestibule, it will already have a thermostat based on requirements in section C403.2.4.1. The upgrade to a thermostat with setpoint limits or a locking cover is a modest cost (\$20 to \$45). In a DDC system, there would be no additional cost for the outside air lockout, and in an electromechanical control system the cost for an outside air lockout thermostat is modest (\$40 to \$70). These modest costs will be more than offset by reduced loss of heated or cooled air. If a transfer air fan into the vestibule were selected to condition the vestibule as allowed in the exception, that cost is likely to be less than the cost of providing a separate heating or cooling system for the vestibule.

Report of Committee Action Hearings

Committee Action:

Approved as Submitted

Committee Reason: Approval is based on the proponent's published reason statements.

Assembly Action

None

Final Action Results

CE136-16

AS

Date Submitted	11/29/2018	Section	403.2.4.2.5	Proponent	Bereket Nigusse
Chapter	4	Affects HVHZ	No	Attachments	Yes
TAC Recommendation	No Affirmative Recommendation				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	No
-------------------------	----	---------------------------	----

Related Modifications**Summary of Modification**

Automatic control of HVAC systems serving guest rooms

Rationale

The proposed code allows the 2020 FBC to reduce hotels and motels guest rooms HVAC energy use through enhanced thermostat setups and setbacks and ventilation control in unrented and unoccupied guestrooms without affecting occupant comfort. The proposed code is applicable to hotel and motel buildings containing more than 50 guest rooms. This code addition will bring the 2020 FBC in parity with the 2018 IECC and ASHRAE 90.1-2016. While this proposed code addition increases construction cost, it is cost effective and is based on CE136.

Fiscal Impact Statement**Impact to local entity relative to enforcement of code**

The proposed modification will not impact the local entity relative to code enforcement.

Impact to building and property owners relative to cost of compliance with code

The proposed modification will impact building and property owners where the increased cost of compliance is passed-on to them from the builder/contractor.

Impact to industry relative to the cost of compliance with code

For a 77 rooms hotel will have estimated construction cost increase of \$21,000 to \$38,000 depending on control type with energy cost savings of \$3,263 to \$12,432 depending on climate zone.

Impact to small business relative to the cost of compliance with code

The proposed modification will impact small business owners where the increased cost of compliance is passed-on to them from the builder/contractor.

Requirements**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

The proposed modification is directly connected to the health, safety, and welfare of the general public by reducing the energy use of hotels/motels during un-occupied hours using efficient HVAC operation controls.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The proposed modification improves and strengthens the code by allowing enhanced HVAC operation control strategies for hotels/motels guest rooms during un-occupied and un-rented hours.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

The proposed modification does not discriminate against materials, products, methods, or systems of construction.

Does not degrade the effectiveness of the code

The proposed modification enhances effectiveness of the code for automatic control of HVAC systems serving guest rooms.

Add new definition as follows:

ISOLATION DEVICES Devices that isolate HVAC zones so that they can be operated independently of one another. *Isolation devices* include separate systems, isolation dampers, and controls providing shutoff at terminal boxes.

-

NETWORKED GUEST ROOM CONTROL SYSTEM A control system, accessible from the front desk or other central location associated with a *Group R-1* building, that is capable of identifying the occupancy status of each guest room according to a timed schedule, and is capable of controlling HVAC in each hotel and motel guest room separately.

Add new text as follows:

C403.2.4.2.5 Automatic control of HVAC systems serving guest rooms. In Group R-1 buildings containing over 50 guest rooms, each guest room shall be provided with controls complying with the provisions of Sections C403.2.4.2.5.1 and C403.2.4.2.5.2. Card key controls comply with these requirements.

-

C403.2.4.2.5.1 Temperature setpoint controls. Controls shall be provided on each HVAC system that are capable of and configured to automatically raise the cooling setpoint and lower the heating setpoint by not less than 4°F (2°C) from the occupant set-point within 30 minutes after the occupants have left the guest room. The controls shall also be capable of and configured to automatically raise the cooling setpoint to not lower than 80°F (27°C) and lower the heating set point to not higher than 60°F (16°C) when the guest room is unrented or has not been continuously occupied for over 16 hours or a networked guest room control system indicates that the guest room is unrented and the guest room is unoccupied for more than 30 minutes. A networked guest room control system that is capable of returning the thermostat set-points to default occupied set-points 60 minutes prior to the time a guest room is scheduled to be occupied is not precluded by this section. Cooling that is capable of limiting relative humidity with a setpoint not lower than 65 percent Relative Humidity during unoccupied periods is not precluded by this section.

-

C403.2.4.2.5.2 Ventilation controls. Controls shall be provided on each HVAC system that are capable of and configured to automatically turn off the ventilation and exhaust fans within 30 minutes of the occupants leaving the guest room or isolation devices shall be provided to each guest room that are capable of automatically shutting off the supply of outdoor air to and exhaust air from the guest room.

-

Exception: Guest room ventilation systems are not precluded from having an automatic daily pre-occupancy purge cycle that provides daily outdoor air ventilation during unrented periods at the design ventilation rate for 60 minutes, or at a rate and duration equivalent to one air change.

vided it does not exceed 25,000 ft² of *conditioned floor area* nor include more than one *floor*. Each isolation area shall be equipped with *isolation devices* capable of and configured to automatically shut off the supply of conditioned air and *outdoor air* to and exhaust air from the area. Each isolation area shall be controlled independently by a device meeting the requirements of Section 6.4.3.3.1. For central *systems* and plants, *controls* and devices shall be provided to allow stable *system* and *equipment* operation for any length of time while serving only the smallest isolation area served by the *system* or plant.

Exceptions to 6.4.3.3.4

Isolation devices and *controls* are not required for

1. exhaust air and *outdoor air* connections to isolation zones when the fan *system* to which they connect is 5000 cfm and smaller;
 2. exhaust airflow from a single isolation zone of less than 10% of the design airflow of the exhaust *system* to which it connects; or
 3. zones intended to operate continuously or intended to be inoperative only when all other zones are inoperative.
-

6.4.3.3.5 Automatic Control of HVAC in Hotel/Motel Guest Rooms

Hotels and motels with greater than 50 guest rooms shall be provided with *automatic controls* for the HVAC *equipment* serving each guest room capable of and configured according to the requirements in the following subsection.

6.4.3.3.5.1 Guest Room HVAC Set-Point Control

Within 30 minutes of all occupants leaving the guest room, HVAC *set points* shall be automatically raised by at least 4°F from the occupant *set point* in the cooling mode and automatically lowered by at least 4°F from the occupant *set point* in the heating mode. When the guest room is unrented and unoccupied, HVAC *set points* shall be automatically *reset* to 80°F or higher in the cooling mode and to 60°F or lower in the heating mode. Unrented and unoccupied guest rooms shall be determined by either of the following:

- a. The guest room has been continuously unoccupied for up to 16 hours.
 - b. A *networked guest room control system* indicates the guest room is unrented and the guest room is unoccupied for no more than 30 minutes.
-

Exceptions to 6.4.3.3.5.1

1. A *networked guest room control system* shall be permitted to return the *thermostat set points* to their default occupied *set points* 60 minutes prior to the time the room is scheduled to be occupied.
 2. Cooling for humidity *control* shall be permitted during unoccupied periods.
-

6.4.3.3.5.2 Guest Room Ventilation Control

Within 30 minutes of all occupants leaving the guest room, *ventilation* and exhaust fans shall automatically be turned off, or *isolation devices* serving each guest room shall automatically shut off the supply of *outdoor air* to the guest room and shut off exhaust air from the guest room.

Exception to 6.4.3.3.5.2

Guest room *ventilation systems* shall be permitted to have an *automatic* daily preoccupancy purge cycle that provides daily *outdoor air ventilation* during unrented periods at the design *ventilation* rate for 60 minutes or at a rate and duration equivalent to one air change.

6.4.3.3.5.3 Automatic Control

Captive key card *systems* shall be permitted to be used to comply with Section 6.4.3.3.5.

Code Change No: CE138-16

Original Proposal

Section(s): C202 (New), C403.2.4.3 (New), C403.2.4.3.1 (New), C403.2.4.3.2 (New)

Proponent: Steven Ferguson, representing American Society of Heating, Refrigerating and Air-Conditioning Engineers (stferguson@ashrae.org)

Add new definition as follows:

ISOLATION DEVICES Devices that isolate HVAC zones so that they can be operated independently of one another. Isolation devices include separate systems, isolation dampers, and controls providing shutoff at terminal boxes.

NETWORKED GUEST ROOM CONTROL SYSTEM A control system, accessible from the front desk or other central location associated with a Group R-1 building, that is capable of identifying the occupancy status of each guest room according to a timed schedule, and is capable of controlling HVAC in each hotel and motel guest room separately.

Add new text as follows:

C403.2.4.3 Automatic control of HVAC systems serving guest rooms. In Group R-1 buildings containing over 50 guest rooms, each guest room shall be provided with controls complying with the provisions of Sections C403.2.4.3.1 and C403.2.4.3.2. Captive key card systems comply with these requirements.

C403.2.4.3.1 Temperature setpoint controls. Controls shall be provided on each HVAC system that are capable of and configured to automatically raise the cooling setpoint and lower the heating setpoint by not less than 4°F (2°C) from the occupant set-point within 30 minutes after the occupants have left the guest room. The controls shall also be capable of and configured to automatically raise the cooling setpoint to not lower than 80°F (27°C) and lower the heating set point to not higher than 60°F (16°C) when the guest room is unrented or has not been continuously unoccupied for over 16 hours or a networked guest room control system indicates that the guest room is unrented and the guest room is unoccupied for more than 30 minutes. A networked guest room control system that is capable of returning the thermostat set-points to default occupied set-points 60 minutes prior to the time a guest room is scheduled to be occupied is not precluded by this section. Cooling that is capable of limiting relative humidity with a setpoint not lower than 65 percent Relative Humidity during unoccupied periods is not precluded by this section.

C403.2.4.3.2 Ventilation controls. Controls shall be provided on each HVAC system that are capable of and configured to automatically turn off the ventilation and exhaust fans within 30 minutes of the occupants leaving the guest room or isolation devices shall be provided to each guest room that are capable of automatically shutting off the supply of outdoor air to and exhaust air from the guest room.

Exception: Guest room ventilation systems are not precluded from having an automatic daily pre-occupancy purge cycle that provides daily outdoor air ventilation during unrented periods at the design ventilation rate for 60 minutes, or at a rate and duration equivalent to one air change.

Reason: The proposed additional criteria to the IECC provides the ability to reduce building energy use through deeper thermostat setups and setbacks and ventilation control in unrented guestrooms without affecting occupant comfort or creating a conflict with the International Mechanical Code. The technology exists from multiple manufacturers to support the implementation of these provisions. For standalone controls, guest rooms are considered unrented if they are unoccupied for longer than 16 hours. For systems connected to a networked guest room control, the control can be configured to indicate whether the room is scheduled to

be occupied and thus setbacks and ventilation can be turned off earlier when the guest room is scheduled to be unoccupied and the networked control can return setpoints to their default levels 60 minutes in advance of scheduled check-in.

This proposal also requires that ventilation air to the guest room be shut off during unoccupied periods. This proposal includes an exception for a "purge cycle" that would provide ventilation air to the guest room one hour before scheduled check-in as indicated by a networked guest room control or through a timed outdoor air ventilation "purge cycle" one hour per day. The purge cycle exception allowed by this proposal allows for enhanced indoor air quality beyond the requirements of the International Mechanical Code, while still capturing the majority of the energy savings of the ventilation shut-off for the rest of the day. The controls would operate from an occupancy sensor, so that cleaning crews in unrented rooms would receive ventilation necessary during cleaning.

Cost Impact: Will increase the cost of construction

An analysis of the small hotel prototypes associated with the ASHRAE SSPC 90.1 activities indicates this change (which will be included in ASHRAE 90.1-2016 because this change was made via addendum j to ASHRAE 90.1-2013) results in savings and paybacks that meet ASHRAE SSPC 90.1 scalar thresholds for cost effectiveness for all climate zones for systems where the ventilation fan is simply switched off such as PTACs. For central ventilation and exhaust systems typically provided with fan coil units there is some additional cost for ventilation and exhaust dampers and pressure regulation devices. Even with these added costs the proposed measure meets the SSPC 90.1 cost effectiveness criteria. The situation where an energy recovery ventilation device is required was investigated, and it was also found that the measure meets the cost effective criteria even with reduced savings accounting for this measure. In the cost effectiveness analysis, added costs for a 77 room hotel or motel were estimated at \$21,000 (single unit control) to \$38,000 (central exhaust fan system control) with energy cost savings net of maintenance ranging from \$3263 to \$12,432, depending on climate zone and to average \$5,887 annually across all U.S. climate zones

Report of Committee Action Hearings

Committee Action:

As Modified

Modify as follows:

C403.2.4.3.1 Temperature setpoint controls. Controls shall be provided on each HVAC system that are capable of and configured to automatically raise the cooling setpoint and lower the heating setpoint by not less than 4°F (2°C) from the occupant setpoint within 30 minutes after the occupants have left the guest room. The controls shall also be capable of and configured to automatically raise the cooling setpoint to not lower than 80°F (27°C) and lower the heating set point to not higher than 60°F (16°C) when the guest room is unrented or has not been continuously ~~unoccupied~~occupied for over 16 hours or a networked guest room control system indicates that the guest room is unrented and the guest room is unoccupied for more than 30 minutes. A networked guest room control system that is capable of returning the thermostat set-points to default occupied set-points 60 minutes prior to the time a guest room is scheduled to be occupied is not precluded by this section. Cooling that is capable of limiting relative humidity with a setpoint not lower than 65 percent Relative Humidity during unoccupied periods is not precluded by this section.

C403.2.4.3 Automatic control of HVAC systems serving guest rooms. In Group R-1 buildings containing over 50 guest rooms, each guest room shall be provided with controls complying with the provisions of Sections C403.2.4.3.1 and C403.2.4.3.2. ~~Captive Card~~ key card systems comply with these requirements.

Committee Reason: Approval is based on the proponent's published reason statements. The Modifications revise the text to use the correct terminology and fix an error in intent.

Assembly Action:

None

Public Comments

Public Comment 1:

Steven Ferguson, representing American Society of Heating, Refrigerating, and Air-Conditioning Engineers (sferguson@ashrae.org) requests Approve as Modified by this Public Comment.

Modify as follows:

C403.2.4.3.1 Temperature setpoint controls. Controls shall be provided on each HVAC system that are capable of and configured to automatically raise the cooling setpoint and lower the heating setpoint by not less than 4°F (2°C) from the occupant setpoint within 30 minutes after the occupants have left the guest room. The controls shall also be capable of and configured to automatically raise the cooling setpoint to not lower than 80°F (27°C) and lower the heating set point to not higher than 60°F (16°C) when the guest room is unrented or has ~~not~~ been continuously ~~occupied~~unoccupied for over 16 hours or a networked guest room control system indicates that the guest room is unrented and the guest room is unoccupied for more than 30 minutes. A networked guest room control system that is capable of returning the thermostat set-points to default occupied set-points 60 minutes prior to the time a guest room is scheduled to be occupied is not precluded by this section. Cooling that is capable of limiting relative humidity with a setpoint not lower than 65 percent Relative Humidity during unoccupied periods is not precluded by this section.

Committer's Reason: All this public comment is doing is changing has not been continuously for over 16 hours to has been continuously unoccupied for over 16 hours
This matches the original intent of the proposal. Rarely is a hotel room continuously occupied for 16 straight hours. The point is for the controls to change the set points if no one has been in the room for a long time (16 hours).

Final Action Results

CE138-16

AMPC1

Date Submitted	12/14/2018	Section	403	Proponent	George Wiggins (BOAF)
Chapter	4	Affects HVHZ	No	Attachments	No
TAC Recommendation	Approved as Submitted				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	No
-------------------------	----	---------------------------	----

Related Modifications

None

Summary of Modification

The proposed additional criteria to the FBC, Energy provides the ability to reduce building energy use through deeper thermostat setups and setbacks and ventilation control in unrented guestrooms without affecting occupant comfort or creating a conflict with the FBC, Mechanical Code

Rationale

The proposed additional criteria to the FBC, Energy provides the ability to reduce building energy use through deeper thermostat setups and setbacks and ventilation control in unrented guestrooms without affecting occupant comfort or creating a conflict with the International Mechanical Code. The technology exists from multiple manufacturers to support the implementation of these provisions. For standalone controls, guest rooms are considered unrented if they are unoccupied for longer than 16 hours. For systems connected to a networked guest room control, the control can be configured to indicate whether the room is scheduled to be occupied and thus setbacks and ventilation can be turned off earlier when the guest room is scheduled to be unoccupied and the networked control can return setpoints to their default levels 60 minutes in advance of scheduled check-in. This proposal also requires that ventilation air to the guest room be shut off during unoccupied periods. This proposal includes an exception for a "purge cycle" that would provide ventilation air to the guest room one hour before scheduled check-in as indicated by a networked guest room control or through a timed outdoor air ventilation "purge cycle" one hour per day. The purge cycle exception allowed by this proposal allows for enhanced indoor air quality beyond the requirements of the International Mechanical Code, while still capturing the majority of the energy savings of the ventilation shut-off for the rest of the day. The controls would operate from an occupancy sensor, so that cleaning crews in unrented rooms would receive ventilation necessary during cleaning

Fiscal Impact Statement**Impact to local entity relative to enforcement of code**

May require verification of compliance by a licensed mechanical engineer.

Impact to building and property owners relative to cost of compliance with code

An analysis of the small hotel prototypes with the ASHRAE SSPC 90.1 activities indicates this change results in savings and paybacks that meet ASHRAE SSPC 90.1 thresholds for cost effectiveness for all climate zones for systems where the ventilation fan is simply switched off such as PTACs.

Impact to industry relative to the cost of compliance with code

For central ventilation and exhaust systems typically provided with fan coil units there is some additional cost for ventilation and exhaust dampers and pressure regulation devices

Impact to small business relative to the cost of compliance with code

Even with these added costs the proposed measure meets the SSPC 90.1 cost effectiveness criteria.

Requirements**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Results in energy usage savings which is the goal of the energy conservation code.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Improves the code with a better system of energy conservation in lodging establishments.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

No one product or system is discriminated against with this proposal.

Does not degrade the effectiveness of the code

Adds to the effectiveness of the code.

Add new definition in Section 202 as follows:

ISOLATION DEVICES Devices that isolate HVAC zones so that they can be operated independently of one another. Isolation devices include separate systems, isolation dampers, and controls providing shutoff at terminal boxes.

NETWORKED GUEST ROOM CONTROL SYSTEM A control system, accessible from the front desk or

other central location associated with a Group R-1 building, that is capable of identifying the occupancy status of each guest room according to a timed schedule, and is capable of controlling HVAC in each hotel and motel guest room separately.

Add new text as follows:

C403.2.4.8 Automatic control of HVAC systems serving guest rooms. In Group R-1 buildings containing over 50 guest rooms, each guest room shall be provided with controls complying with the provisions of Sections C403.2.4.3.1 and C403.2.4.3.2. Card key controls comply with these requirements.

C403.2.4.8.1 Temperature setpoint controls. Controls shall be provided on each HVAC system that are capable of and configured to automatically raise the cooling setpoint and lower the heating setpoint by not less than 4°F (2°C) from the occupant set-point within 30 minutes after the occupants have left the guest room. The controls shall also be capable of and configured to automatically raise the cooling setpoint to not lower than 80°F (27°C) and lower the heating set point to not higher than 60°F (16°C) when the guest room is unrented or has been continuously unoccupied for over 16 hours or a networked guest room control system indicates that the guest room is unrented and the guest room is unoccupied for more than 30 minutes. A networked guest room control system that is capable of returning the thermostat set-points to default occupied set-points 60 minutes prior to the time a guest room is scheduled to be occupied is not precluded by this section. Cooling that is capable of limiting relative humidity with a setpoint not lower than 65 percent Relative Humidity during unoccupied periods is not precluded by this section.

C403.2.4.8.2 Ventilation controls. Controls shall be provided on each HVAC system that are capable of and configured to automatically turn off the ventilation and exhaust fans within 30 minutes of the occupants leaving the guest room or isolation devices shall be provided to each guest room that are capable of automatically shutting off the supply of outdoor air to and exhaust air from the guest room.

Exception: Guest room ventilation systems are not precluded from having an automatic daily pre- occupancy purge cycle that provides daily outdoor air ventilation during unrented periods at the design ventilation rate for 60 minutes, or at a rate and duration equivalent to one air change.el and motel guest room separately