- **Proposal Number 11-4-2018** – Consider revising Sections C401.2, C403.7 and C403.8.
  Proponent: Brenden Giza-Sisson, *Mass Save*

- **Proposal Number 11-5-2018** – Consider revising Sections C401.2 and C405.2.3.
  Proponent: Brenden Giza-Sisson, *Mass Save*

- **Proposal Number 11-6-2018** – Consider revising Sections C401.2, C405.4 and C406.3.
  Proponent: Brenden Giza-Sisson, *Mass Save*

- **Proposal Number 11-7-2018** – Consider revising Section C405.
- **Proponent:** Brenden Giza-Sisson, *Mass Save*

- **Proposal Number 11-8-2018** – Consider revising Section C405.3.2.
  Proponent: Brenden Giza-Sisson, *Mass Save*

- **Proposal Number 11-9-2018** – Consider revising Section C405.2.2.1.
  Proponent: Glenn Heinmiller, *International Association of Lighting Designers*

- **Proposal Number 11-10-2018** – Consider revising Section C406.4.
  Proponent: Glenn Heinmiller, *International Association of Lighting Designers*

- **Proposal Number 11-11-2018** – Consider revising Section C503.1.
  Proponent: Glenn Heinmiller, *International Association of Lighting Designers*

Change Proposals Relating to Swimming Pool Code Requirements

- **Proposal Number 11-12-2018** – Consider revising Section 305 of the *International Swimming Pool & Spa Code* (ISPSC).
  Proponent: Tom Moberg, Town of Acton

Change Proposals Relating to Residential Code Requirements Large Additions

- **Proposal Number 11-13-2018** – Consider Sections R313.2, AJ102.3 and add AJ102.3.2.
  Proponent: Fire Prevention\Fire Protection (FPFP) Committee

Editorial Change Proposals Relating to Varied Code Sections

These changes have identified by code users as requiring correction.

- **Proposal Number 11-14-2018** – Consider correcting Sections 305.2 and 308.6.1 having to do with day care age requirements.
  Proponent: OPSI Building Inspectors Gordon Bailey & David Holmes

- **Proposal Number 11-15-2018** – Consider correcting Sections AF103.4.2 and 103.4.3 having to do with radon control requirements.
  Proponent: Mike Grover, City of Cambridge

- **Proposal Number 11-16-2018** – Discuss meaning of Section 501.1 Note 3 pertaining to construction requirements for hospitals and nursing homes.
  Proponent: Mark Hughes, Town of Framingham

Regular Meeting

1. **Review\Vote** approval of October 9, 2018 BBRS draft meeting minutes.
2. **Review\Vote** approval of September 19, 2018 BOCC draft meeting minutes.
3. **Discuss** locking arrangements and associated hardware installed to protect against active shooter or other threatening situations in a building\structure.
4. **Discuss** progress relating to the next edition of 780 CMR.
5. **Discuss Code Change Proposal Number 5-7-2018** – Regarding developing a swimming pool installers license\certification based on the ***Association of Pool & Spa Professionals*** (APSP) standards.
6. **Discuss** Advisory Committee make-up.
   a.) Cannabis
   b.) Geotechnical
   c.) Fire Prevention\Fire Protection (FPFP)
   d.) Others
7. **Discuss** progress of Manufactured Buildings Study Group.
8. **Discuss** approval of 135 new CSLs issued in the month of September, 2018.
9. **Discuss\Vote**
   CSL Average Passing Score\Medical\Military\Age or Continuing Education Requirements.
10. **Discuss** 2019 meeting dates.
11. **Discuss** BCAB and full Board Training.
12. **Discuss** other matters not reasonably anticipated 48 hours in advance of meeting.

11-4-2018

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Daniel Bennett
Secretary

The Commonwealth of Massachusetts
Department of Public Safety
Board of Building Regulations and Standards
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Matthew Moran
Commissioner

Richard Crowley
Chairman

Robert Anderson
Administrator

MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☒ 10th Edition Base Code ☐ 10th Edition Residential Code	State Use Only	
Date Submitted:	**10/12/18**	Date Received:	
Code Section:	**C401.2, C403.7, C403.8**	Code Change Number:	11.4.2018
Name of proponent:	**Brendan Giza-Sisson**		
Company / Organization represented, if any:	**Mass Save** Check ☐ if representing self		
Address (number, street, city, state, ZIP:	**Mass Save is a collaborative of Massachusetts' natural gas and electric utilities and energy efficiency service providers, including Berkshire Gas, Blackstone Gas Company, Cape Light Compact, Columbia Gas of Massachusetts, Eversource, Liberty Utilities, National Grid and Unitil.**		
Telephone number:	**781-441-3781**		
Email address:	**david.giza-sisson@eversource.com**		

PLEASE CHECK OFF THE TYPE OF AMENDMENT PROPOSED

☐ Change existing section language ☒ Add new section ☐ Delete existing section and substitute
☐ Delete existing section, no substitute ☐ Other, Explain: _____

PLEASE TYPE THE PROPOSED AMENDMENT BELOW. If you propose to change a section, please copy the original text from either the relevant model code and/or MA amendment. Indicate, with a strikethrough, the text that you propose to delete. Please also indicate any new text in both *italic* and red font. Finally, for each proposal submitted, please provide the justification items requested below. Completed code amendment forms may be emailed to Felix Zemel, Director of Code Development and Manufactured Buildings at felix.zemel@state.ma.us. Please attach additional pages as necessary.

Existing language and Proposed changes:

1) Revise Section C401.2 as follows:

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

1. The requirements of ANSI/ASHRAE/IESNA 90.1-2013, as modified by C401.2.2 if following APPENDIX G and ~~otherwise~~ by C403.7.8, C403.8.6 and C406.1.

2) Revise Section C403.7 as follows:

C403.7 Ventilation and exhaust systems. In addition to other requirements of Section C403 applicable to the provision of ventilation air or the exhaust of air, ventilation and exhaust systems shall be in accordance with Sections C403.7.1 through C403.7.~~7~~8.

3) Add new section as follows:

C403.7.8 Laboratory and Process Facility Exhaust Systems (Mandatory).

C403.7.8.1 Airflow Reduction Requirements. *For buildings with laboratory exhaust systems where the occupied circulation rate to comply with code, accreditation standards, or facility Environmental Health & Safety department is 6 ACH or greater, the design exhaust airflow shall be capable of reducing zone exhaust and makeup airflow rates to the regulated minimum circulation rate, or the minimum required to maintain pressurization requirements, whichever is larger. Variable exhaust and makeup airflow shall be coordinated to achieve the required space pressurization at varied levels of demand and fan system capacity.*

Exceptions:

1. *Laboratory exhaust systems serving zones where constant volume is required by the Authority Having Jurisdiction, facility Environmental Health & Safety department or other applicable code.*
2. *New zones on an existing constant volume exhaust system.*

4) *Add* ***Exception 3*** *to Section C403.8.1 as follows:*

3. Facilities for which C403.8.6 applies.

5) *Add new section C403.8.6 as follows:*

C403.8.6 Allowable Fan Power for Laboratory and Process Facility Exhaust Systems. *All newly installed fan systems for a laboratory or process facility exhaust system greater than 10,000 CFM shall meet the following requirements:*

1. *System shall meet all discharge requirements in ANSI Z9.5-2012.*
2. *The allowable exhaust fan system power demand shall not exceed 0.85 watts per cfm of exhaust air. Exhaust fan system power demand equals the sum of the power demand of all fans in the exhaust system that are required to operate at normal occupied design conditions in order to exhaust air from the conditioned space to the outdoors. Exhaust air does not include entrained air, but does include all exhaust air from fume hoods, hazardous exhaust flows, or other manifolded exhaust streams. The exhaust fan system, including fan, nozzle, stack and wind band*

shall be licensed to bear the AMCA ratings seal for air performance (AMCA 210) or AMCA ratings seal for induced flow fan high plume dilution blowers (AMCA 260).

Exceptions

1. *The volume flow rate at the stack shall vary based on the measured 5 minute averaged wind speed and wind direction obtained from at least two calibrated local anemometer installed in a location and at a height that is outside the wake region of nearby structures and experiences similar wind conditions to the free stream environment above the exhaust stacks. Look-up tables will be used to define the required volume flow rate as a function of at least eight wind speeds and eight wind directions, to maintain downwind concentrations below health and odor limits for all detectable chemicals. Wind speed/direction sensors shall be certified by the manufacturer to be accurate within plus or minus 40 fpm (0.2 m/s) and 5.0 degrees when measured at sea level and 25°C, factory calibrated, and certified by the manufacturer to require calibration no more frequently than once every 5 years. Upon detection of sensor and/or signal failure, the system shall provide a signal which resets to exhaust the quantity of air needed to achieve the aforementioned criteria at the worst-case wind conditions.*
2. *The volume flow rate at the stack shall vary based on the measured contaminant concentration in the exhaust plenum from a calibrated contaminant sensor installed within each exhaust plenum. A contaminant-event threshold shall be established based on maintaining downwind concentrations below health and odor limits for all detectable chemicals at the worst-case wind conditions. Contaminant concentration sensors shall be Photo Ionization Detectors (PID) certified by the manufacturer to be accurate within plus or minus 5% when measured at sea level and 25°C, factory calibrated, and certified by the manufacturer to require calibration no more frequently than once every 6 months. Upon detection of sensor and/or signal failure, the system shall provide a signal which resets to exhaust the quantity of air needed to achieve the aforementioned criteria at the worst-case release of any contaminant at the worst-case wind conditions.*
3. *The exhaust fan shall be designed to modulate the exit area to maintain the required discharge velocities as the system's required airflow changes.*

Background and rationale:

It is well documented that exhaust energy is a signifant part of a lab's overall energy consumption. What is less well documented in that currently laboratory exhaust design is often based on rules of thumb that may not adequately prevent reentrainment of contaminated air during certain above design events like periods of high winds. Recent advancements in technology allow exhaust airflow rates to vary based on real-time conditions rather than using conservative but uniform rules of thumb. The proposed code amendent aims both reduce lab exhaust energy usage while also improve the environmental health and safety in and around the building. California's Energy code recently adopted similar language for laboratory and Process exhaust. During the adoption process this measure was shown to achieve both of the stated goals while maintaining cost effectiveness. Some of the compliance paths are climate dependent, so the MA PA's hired a third party consultant familiar with lab construction in both CA and MA to access how the energy impacts may differ between the two states, **see the attached memo entitled "VAV Lab Exhaust Controls"**. One key difference between the two states is that MA labs are more often found in urban areas than labs in CA, which actually increases the energy savings of the proposed language because of the type of exhaust that is used in an urban setting. For this reason, among others, we believe it is conservative to assume the proposed measure would save approximately 3kwh/sf of lab area per year in MA. To put that in some perspective this is roughly equivalent to a reducing the lab's EUI by 10 kbtu/sf, or about 5% of the lab's total energy usage. Given the relatively high ratio of labs in MA's building stock this is an important proposal for MA as it continues to work towards its emissions targets.

Pros of the proposed change: Improves health and safety and reduces energy usage. Aligns IECC and ASHRAE's fan power requirements for certain projects.

Cons of the proposed change: Designers may have to adjust their design practice based on the compliance they choose, which may increase consulting fees. Maintenance costs including training required to operate these systems may increase.

Estimated impact on life safety: Currently labs utilitizing induction exhaust fans are typically designed for exhaust velocities 3000fpm, which maintains required plume heights at winds up 22 miles/hr. Above this wind speed, however, it is possible that recommended plume heights are not met making reentraiment of contaminated air possible. This code proposal will help reduce this occurace, and therefore, improve life safety.

Estimated impact on cost: The California CASE study upon which this code proposal is fundamentally based preparaed incremental first cost information.

11-5-2018

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MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☒ 10th Edition Base Code ☐ 10th Edition Residential Code	State Use Only	
Date Submitted:	**10/12/18**	Date Received:	
Code Section:	**C401.2, C405.2.3**	Code Change Number:	11-5-2018
Name of proponent:	**Kevin Rose**		
Company / Organization represented, if any:	**Mass Save** Check ☐ if representing self		
Address (number, street, city, state, ZIP:	**Mass Save is a collaborative of Massachusetts' natural gas and electric utilities and energy efficiency service providers, including Berkshire Gas, Blackstone Gas Company, Cape Light Compact, Columbia Gas of Massachusetts, Eversource, Liberty Utilities, National Grid and Unitil.**		
Telephone number:	**781.907.3595**		
Email address:	**Kevin.Rose@nationalgrid.com**		

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Existing language and Proposed changes:

1) Revise Section C401.2 (as previously amended for the Mass. 9th edition) as follows:

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

1. The requirements of ANSI/ASHRAE/IESNA 90.1-2013, as modified by C401.2.2 if following APPENDIX G and ~~otherwise~~ by C405.2.3 and C406.1.

2) Amend Section C405.2.3 as follows

C405.2.3 Daylight-responsive controls. *Daylight-responsive controls* complying with Section C405.2.3.1 shall be provided to control the electric lights within *daylight zones* in the following spaces:

1. Spaces with a total of more than *100*~~150~~ watts of gen*eral lighting* within sidelit zones complying with Section C405.2.3.2. *General lighting* does not include lighting that is required to have specific application control in accordance with Section C405.2.4.
2. Spaces with a total of more than *100*~~150~~ watts of *general lighting* within toplit zones complying with Section C405.2.3.3.

Background and rationale: In 2017, New Buildings Institute (NBI) developed a set of 21 measures that, if adopted as a set, would decrease design energy use of new commercial buildings by 20% compared to ASHRAE 90.1-2013 (and approximately similar savings over the IECC 2015 baseline). This NBI 20% Stretch Code was validated by rigorous modeling work performed by Pacific Northwest National Laboratory (PNNL) -- the same group that calculates the relative efficiency increase for each new version of the national model codes.

Mass Save screened these 21 measures for appropriateness in the Massachusetts new construction market. Specifically. Andelman and Lelek Engineering, a long-time vendor of our C&I New Construction program, considered each of these measures relative to the 90.1-2016/2018 IECC. Daylight responsive controls were one of six measures identified by Andelaman and Lelek in August 2018 as being both impactful in saving energy, provided full compliance is achieved, and feasible for inclusion into the Massachusetts energy code:

Code Category	Daylight Responsive Control Function
Amendment	Daylighting could be expanded by reducing the the lighting wattage that exempts a space from the requirement for daylighting (currently at 150 W)
Applicable Sectors	Mostly enclosed offices
Size of Market	Med.
How technically / practically feasible?	Practical
Typical Payback	short

Pros of the proposed change: Reduced electricity cost to building occupant/owner by leveraging daylight in more spaces.

Cons of the proposed change: Increased first cost to developer due to increased controls.

Estimated impact on life safety: Academic research has found a strong relationship between workplace access to natural light and improved health and well-being for office workers, such as improved sleep quality (example). Such positive outcomes could contribute to a reduction of life safety issues.

Estimated impact on cost: As indidcated by Andelman and Lelek, this is a short payback measure that is mostly standard practice.

11-6-2018

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MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☒ 10th Edition Base Code ☐ 10th Edition Residential Code	State Use Only	
Date Submitted:	**10/12/18**	Date Received:	
Code Section:	**C401.2, C405.4, C406.3**	Code Change Number:	11-6-2018
Name of proponent:	**Brendan Giza-Sisson**		
Company / Organization represented, if any:	**Mass Save** Check ☐ if representing self		
Address (number, street, city, state, ZIP):	**Mass Save is a collaborative of Massachusetts' natural gas and electric utilities and energy efficiency service providers, including Berkshire Gas, Blackstone Gas Company, Cape Light Compact, Columbia Gas of Massachusetts, Eversource, Liberty Utilities, National Grid and Unitil.**		
Telephone number:	**781-441-3781**		
Email address:	**david.giza-sisson@eversource.com**		

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Existing language and Proposed changes:

1) Revise Section C401.2 as follows:

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

1. The requirements of ANSI/ASHRAE/IESNA 90.1-2013, as modified by C401.2.2 if following APPENDIX G and ~~otherwise~~ by C405.4 and C406.1.

2) Revise Section C405.4 as follows:

C405.4 Exterior lighting power requirements (Mandatory). The total connected exterior lighting power calculated in accordance with Section C405.4.1 shall be ~~not greater~~ less than 90 percent of the total exterior lighting power allowance calculated in accordance with Section C405.4.2.

3) Amend Table C405.4.2(1) as follows:

TABLE C405.4.2(1)
EXTERIOR LIGHTING ZONES

LIGHTING ZONE	DESCRIPTION
1	Developed areas of national parks, state parks, forest land, and rural areas
2	Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use and residential mixed-use areas
3	All other areas not classified as lighting zone 1, 2 or 4
4	High-activity commercial districts in major metropolitan areas as designated by the local land use planning authority *and approved by the* code official

4) Revise Section C406.1 (as previously amended for the Mass. 9th edition) as follows:

Delete **Exception 2** without replacement

5) Revise Section C406.3 as follows:

C406.3 Reduced lighting power. The total connected interior lighting power calculated in accordance with Section C405.3.1 shall be less than 90 percent of the total lighting power allowance calculated in accordance with Section C405.3.2. *The total connected exterior lighting power calculated in accordance with Section C405.4.1 shall be less than 80 percent of the total lighting power allowance calculated in accordance with Section C405.4.2.*

NOTE: We are proposing a separate amendment which also affects section C406.3. If both proposals are adopted the final language would read:

C406.3 Reduced lighting power. The total connected interior lighting power calculated in accordance with Section C405.3.1 shall be less than ~~90 percent of~~ the total lighting power allowance calculated in accordance with Section C405.3.2 *The total connected exterior lighting power calculated in accordance with Section C405.4.1 shall be less than 80 percent of the total lighting power allowance calculated in accordance with Section C405.4.2.*

Background and rationale:
The first part of this proposed code change is to close a "loophole" in exterior lighting power design for both ASHRAE and IECC. It is the experience of the Massachusetts Commercial New Construction program that current code language is not as clear as it should be regarding the use of Lighting Zones 3 and 4 which results in more projects being designed for LZ4 than is appropriate. For example, there is not a single district granted LZ4 status in California. California achieved this result by redefining the Lighting Zones to avoid having projects that would be suitable for design to Zone 3 standards be designed to Zone 4 by default. The first part of this code change seeks to close this loophole.

TABLE 10-114-A LIGHTING ZONE CHARACTERISTICS AND RULES FOR AMENDMENTS BY LOCAL JURISDICTIONS

Zone	Ambient Illumination	State wide Default Location	Moving Up to Higher Zones	Moving Down to Lower Zones
LZ0	Very Low	Undeveloped areas of government designated parks, recreation areas, and wildlife preserves.	Undeveloped areas of government designated parks, recreation areas, and wildlife preserves can be designated as LZ1 or LZ2 if they are contained within such a zone.	Not applicable
LZ1	Low	Developed portion of government designated parks, recreation areas, and wildlife preserves. Those that are wholly contained within a higher lighting zone may be considered by the local government as part of that lighting zone.	Developed portion of a government designated park, recreation area, or wildlife preserve, can be designated as LZ2 or LZ3 if they are contained within such a zone.	Not applicable.
LZ2	Moderate	Rural areas, as defined by the 2010 U.S. Census.	Special districts within a default LZ2 zone may be designated as LZ3 or LZ4 by a local jurisdiction. Examples include special commercial districts or areas with special security considerations located within a rural area.	Special districts and government designated parks within a default LZ2 zone maybe designated as LZ1 by the local jurisdiction for lower illumination standards, without any size limits.
LZ3	Moderately High	Urban areas, as defined by the 2010 U.S. Census.	Special districts within a default LZ3 may be designated as a LZ4 by local jurisdiction for high intensity nighttime use, such as entertainment or commercial districts or areas with special security considerations requiring very high light levels.	Special districts and government designated parks within a default LZ3 zone may be designated as LZ1 or LZ2 by the local jurisdiction, without any size limits.
LZ4	High	None.	Not applicable.	Not applicable.

The second part of this proposed code change seeks to decrease overall exterior lighting allowances by 10 percent for projects following the base code and 20 percent for projects following the reduced lighting path of C406 (C406.3). While the 2018 IECC/2016 ASHRAE values were finalized in 2016 and based on nationwide building practices, the values proposed here are more up-to-date and derived from Massachusetts-specific construction practice data. A rigorous third-party evaluation conducted on behalf of Mass Save indicate that the efficacy of exterior lighting installed in Massachusetts commercial new construction projects is significantly better than minimum code levels. Specificially, the 2018 study of industry standard practice (ISP) in Massachusetts new construction projects found that the designed exterior lighting power consumption for the average building built in Massachusetts between 2014-2016 was 24 percent lower than code based on a smaple of 33 buildings; in other words, the average building designed five years ago was using roughly 75 percent of its allocated exterior lighting power. Due to tremendous shifts in the lighting industry over the last five years, it is appropriate to assume that buildings built today are even further outperforming code. Recognizing that 90.1-2016 and 2018 IECC reduces the exterior lighting power allowances by an average of 30% beyond 90.1-2010/2013 and 2012/2015 IECC levels, the PAs proposed reducing these exterior lighting power allowances by an additional 10%

(yielding a total average reduction of 37% from current code levels) to more accurately reflect the pace of adoption of lighting industry innovation in Massachusetts.

Pros of the proposed change: Sets more appropriate exterior lighting efficiency levels. Also, setting the lighting efficiency requirements as a percentage beyond the 2018 IECC / 90.1-2016 levels allows for ease of use for code users and easy enforcement for code officials because this can be read of the COMcheck lighting report already required for submission at plan review.

Cons of the proposed change: Reduces consistency with 2018 IECC. Potentially increases enforcement time for city jurisidictions which make frequent use of Lighting Zone 4.

Estimated impact on life safety: No impact.

Estimated impact on cost: From tables 14 and 15 of the California Title 24 Case Report for exterior lighting, there is expected to be a negative incremental cost for most instances of exterior lighting for California's 2019 energy code in comparison to its 2016 version. For the few instances that have a positive incremental cost associated with them, ATM machines represent the maximum cost at $70.86. However, this would be outweighed by the more common and impactful negative incremental cost associated with building facades and all site hardscapes. The difference in exterior lighting efficiency levels between the 2016 and 2019 California energy codes is similar to the difference between the 2018 IECC / 90.1-2016 values and the levels specified in this amendment proposal.

11-7-2018

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MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☒ 10th Edition Base Code ☐ 10th Edition Residential Code	State Use Only	
Date Submitted:	**10/12/18**	Date Received:	
Code Section:	**C405**	Code Change Number:	11-7-2018
Name of proponent:	**Kevin Rose**		
Company / Organization represented, if any:	**Mass Save** Check ☐ if representing self		
Address (number, street, city, state, ZIP:	**Mass Save is a collaborative of Massachusetts' natural gas and electric utilities and energy efficiency service providers, including Berkshire Gas, Blackstone Gas Company, Cape Light Compact, Columbia Gas of Massachusetts, Eversource, Liberty Utilities, National Grid and Unitil.**		
Telephone number:	**781.907.3595**		
Email address:	**Kevin.Rose@nationalgrid.com**		

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Existing language and Proposed changes:

Add new section to as follows:

C405.10 Automatic receptacle control. *At least 50% of all 125-volt 15 and 20 amp receptacles in all private offices, conference rooms, rooms used primarily for printing and/or copying functions, break rooms, classrooms, and individual workstations shall be controlled by one of the following:*

1. *a* time switch control, *with an independent program schedule shall be provided for controlled areas of no more than 5000 square feet and not more than one floor (the occupant shall be able to manually override the control device for up to two hours);*
2. *an* occupant sensor control *that shall turn receptacles off within 20 minutes of all occupants leaving a space; or*
3. *an* automatic *signal from another control or alarm system that shall turn receptacles off within 20 minutes after determining that the area is unoccupied.*

All controlled receptacles shall be permanently marked to visually differentiate them from uncontrolled receptacles and are to be uniformly distributed throughout the space.

Exeption*: Receptacles for the following shall not require an automatic control device:*

1. *Receptacles specifically designated for equipment requiring continuous operation (24/day, 365 days/year).*
2. *Spaces where an automatic control would endanger the safety or security of the room or building occupants.*

Background and rationale:

As improvements in the building envelope reduces HVAC loads, miscellaneous "plug loads" have emerged as a primary energy end use in new buildings. However, ASHRAE 90.1 offers just a few requirements regarding these loads and IECC does not address them at all. It is logical, then, to consider measures that reduce plug load use provided such provisions would be within the scope of these codes. Section C101.2 identifies the scope of the commercial IECC: "This code applies to *commercial buildings* and the buildings' sites and associated systems and equipment." As "systems" and "equipment" are not defined terms within IECC—Commercial Provisions, plug loads can be deemed to be within the scope of the IECC.

This code change introduces to the IECC compliance path the core provisions of the mandatory plug load control requirement for computers and monitors that has existed in ASHRAE 90.1 since the 2010 version (8.4.2).

In 2017, New Buildings Institute (NBI) developed a set of 21 measures that, if adopted as a set, would decrease design energy use of new commercial buildings by 20% compared to ASHRAE 90.1-2013 (and approximately similar savings over the IECC 2015 baseline). This NBI 20% Stretch Code was validated by rigorous modeling work performed by Pacific Northwest National Laboratory (PNNL) – the same group that calculates the relative efficiency increase for each new version of the national model codes.

Mass Save screened these 21 measures for appropriateness in the Massachusetts new construction market. Specifically. Andelman and Lelek Engineering, a long-time vendor of our C&I New Construction program, considered each of these measures relative to the 90.1-2016/2018 IECC. Plug load control, specifically incorporation of the 90.1 requirement into IECC, was one of six measures identified by Andelaman and Lelek in August 2018 as being both impactful in saving energy, provided full compliance is achieved, and feasible for inclusion into the Massachusetts energy code:

Code Category	Plug Load Control and power management
Amendment	Requires that 50% of receptacles be controlled
Applicable Sectors	Only IECC projects
Size of Market	Med.
How technically / practically feasible?	Feasible, but there are known issues surrounding the persistence
Standard Practice?	common

Pros of the proposed change: Increases alignment between Aligns IECC and ASHRAE 90.1, simplifying enforcement. Also decreases electricity cost for building owners/occupants of projects following IECC compliance paths for increasingly significant portion of total building energy use.

Cons of the proposed change: Increased first cost to building developer of projects following IECC compliance paths to install controls.

Estimated impact on life safety: No impact.

Estimated impact on cost: Incremental cost for projects following IECC compliance paths is reduced due to existing market capacity to meet ASHRAE 90.1 requirement.

11-8-2018

The Commonwealth of Massachusetts
Department of Public Safety
Board of Building Regulations and Standards
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MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☒ 10th Edition Base Code ☐ 10th Edition Residential Code	State Use Only	
Date Submitted:	**10/12/18**	Date Received:	
Code Section:	**C405.3.2**	Code Change Number:	11-8-2018
Name of proponent:	**Brendan Giza-Sisson**		
Company / Organization represented, if any:	**Mass Save** Check ☐ if representing self		
Address (number, street, city, state, ZIP):	**Mass Save is a collaborative of Massachusetts' natural gas and electric utilities and energy efficiency service providers, including Berkshire Gas, Blackstone Gas Company, Cape Light Compact, Columbia Gas of Massachusetts, Eversource, Liberty Utilities, National Grid and Unitil.**		
Telephone number:	**781-441-3781**		
Email address:	**david.giza-sisson@eversource.com**		

PLEASE CHECK OFF THE TYPE OF AMENDMENT PROPOSED

☒ Change existing section language ☐ Add new section ☐ Delete existing section and substitute
☐ Delete existing section, no substitute ☐ Other, Explain: _____

PLEASE TYPE THE PROPOSED AMENDMENT BELOW. If you propose to change a section, please copy the original text from either the relevant model code and/or MA amendment. Indicate, with a strikethrough, the text that you propose to delete. Please also indicate any new text in both *italic* and red font. Finally, for each proposal submitted, please provide the justification items requested below. Completed code amendment forms may be emailed to Felix Zemel, Director of Code Development and Manufactured Buildings at felix.zemel@state.ma.us. Please attach additional pages as necessary.

Existing language and Proposed changes:

1) Revise Section C401.2 (as previously amended for the Mass. 9th edition) as follows:

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

1. The requirements of ANSI/ASHRAE/IESNA 90.1-2013, as modified by C401.2.2 if following APPENDIX G and ~~otherwise~~ by C405.3.2(1), C405.3.2(2), and C406.1.

(rest of section unchanged)

2) Amend Table C405.3.2(1) as follows (retaining all footnotes unamended):

TABLE C405.3.2(1)
INTERIOR LIGHTING POWER ALLOWANCES
BUILDING AREA METHOD

BUILDING AREA TYPE	LPD (w/ft^2) *for compliance with C405.3.2*	*LPD (w/ft^2) for compliance with C406.3*
Automotive Facility	~~0.71~~ *0.64*	*0.60*
Convention Center	~~0.76~~ *0.7*	*0.68*
Courthouse	~~0.90~~ *0.81*	*0.70*
Dining: bar lounge/leisure	~~0.90~~ *0.81*	*0.70*
Dining: cafeteria/fast food	~~0.79~~ *0.71*	*0.70*
Dining: family	~~0.78~~ *0.70*	*0.70*
Dormitory	~~0.61~~ *0.55*	*0.40*
Exercise center	0.65	*0.59*
Fire station	0.53	*0.48*
Gymnasium	0.68	*0.61*
Health care clinic	~~0.82~~ *0.74*	*0.67*
Hospital	~~1.05~~ *0.95*	*0.80*
Hotel/Motel	~~0.75~~ *0.68*	*0.60*
Library	~~0.78~~ *0.70*	*0.70*
Manufacturing facility	~~0.90~~ *0.81*	*0.60*
Motion picture theater	~~0.83~~ *0.75*	*0.70*
Multifamily	~~0.68~~ *0.61*	*0.40*
Museum	~~1.06~~ *0.95*	*0.70*
Office	~~0.79~~ *0.71*	*0.60*
Parking garage	~~0.15~~ *0.14*	*0.13*
Penitentiary	~~0.75~~ *0.68*	*0.67*
Performing arts theater	~~1.18~~ *1.06*	*0.80*
Police station	~~0.80~~ *0.72*	*0.67*
Post office	~~0.67~~ *0.60*	*0.60*
Religious building	~~0.94~~ *0.85*	*0.70*
Retail	~~1.06~~ *0.95*	*0.90*
School/university	~~0.81~~ *0.73*	*0.65*
Sports arena	~~0.87~~ *0.78*	*0.74*

Town hall	~~0.80~~ *0.72*	*0.70*
Transportation	~~0.61~~ *0.55*	*0.40*
Warehouse	~~0.48~~ *0.43*	*0.40*
Workshop	~~0.90~~ *0.81*	*0.60*

3) Amend Table C405.3.2(2) as follows (retaining all footnotes unamended)

TABLE C405.3.3(2)
INTERIOR LIGHTING POWER ALLOWANCES:
SPACE-BY-SPACE METHOD

COMMON SPACE TYPES	LPD (watts/ sq.ft) *for compliance with C405.3.2*	LPD (w/ft^2) *for compliance with C406.3*
Atrium		
Less than 40 feet in height	~~0.03~~ .027 per foot in total height	*0.90*
Greater than 40 feet in height	~~0.40~~ .36 + ~~0.02~~ .018 per foot in total height	*0.90*
Audience Seating Area		
In an auditorium	~~0.63~~ *0.57*	*0.57*
In a convention center	~~0.82~~ *0.74*	*0.60*
In a gymnasium	~~0.65~~ *0.59*	*0.59*
In a motion picture theater	~~1.14~~ *1.03*	*0.60*
In a penitentiary	~~0.28~~ *0.25*	*0.25*
In a performing arts theater	~~2.03~~ *1.83*	*0.6*
In a religious building	~~1.53~~ *1.38*	*0.6*
In a sports arena	~~0.43~~ *0.39*	*0.39*
Otherwise	~~0.43~~ *0.39*	*0.39*
Banking activity area	~~0.86~~ *0.77*	*0.77*
Breakroom (see Lounge/breakroom)		
Classroom/lecture hall/training room		
In a penitentiary	~~1.34~~ *1.21*	*0.7*
Otherwise	~~0.96~~ *0.86*	*0.7*
Computer room	~~1.33~~ *1.20*	*0.7*
Conference/meeting/multipurpose room	~~1.07~~ *0.96*	*0.85*
Copy/print room	~~0.56~~ *0.50*	*0.5*
Corridor		
In a facility for the visually impaired (and not used primarily by the staff)	~~0.92~~ *0.83*	*0.8*
In a hospital	~~0.92~~ *0.83*	*0.6*
In a manufacturing facility	~~0.29~~ *0.26*	*0.26*
Otherwise	~~0.66~~ *0.59*	*0.59*
Courtroom	~~1.39~~ *1.25*	*1.25*
Dining area		
In bar/lounge or leisure dining	~~0.93~~ *0.84*	*0.55*
In cafeteria or fast food dining	~~0.63~~ *0.57*	*0.4*
In a facility for the visually impaired (and not used primarily by the staff)	~~2.00~~ *1.80*	*0.8*
In family dining	~~0.71~~ *0.64*	*0.5*

In a penitentiary	~~0.96~~ *0.86*	*0.86*
Otherwise	~~0.63~~ *0.57*	*0.4*
Electrical/mechanical room	~~0.43~~ *0.39*	*0.39*
Emergency vehicle garage	~~0.41~~ *0.37*	*0.37*
Food preparation area	~~1.06~~ *0.95*	*0.95*
Guestroom	~~0.77~~ *0.69*	*0.69*
Laboratory		
In or as a classroom	~~1.20~~ *1.08*	*0.78*
Otherwise	~~1.45~~ *1.31*	*0.95*
Laundry/washing area	~~0.43~~ *0.39*	*0.39*
Loading dock, interior	~~0.58~~ *0.52*	*0.52*
Lobby		
For an elevator	~~0.68~~ *0.61*	*0.61*
In a facility for the visually impaired (and not used primarily by the staff)	~~2.03~~ *1.83*	*0.85*
In a hotel	~~1.06~~ *0.95*	*0.85*
In a motion picture theater	~~0.45~~ *0.41*	*0.41*
In a performing arts theater	~~1.70~~ *1.53*	*0.85*
Otherwise	~~1.00~~ *0.90*	*0.85*
Locker room	~~0.48~~ *0.43*	*0.43*
Lounge/breakroom		
In a healthcare facility	~~0.78~~ *0.70*	*0.65*
Otherwise	~~0.62~~ *0.56*	*0.55*
Office		
Enclosed	~~0.93~~ *0.84*	*0.65*
Open plan	~~0.81~~ *0.73*	*0.6*
Parking area, interior	~~0.14~~ *0.13*	*0.1*
Pharmacy area	~~1.34~~ *1.21*	*1.1*
Restroom		
In a facility for the visually impaired (and not used primarily by the staff)	~~0.96~~ *0.86*	*0.8*
Otherwise	~~0.85~~ *0.77*	*0.65*
Sales area	~~1.22~~ *1.10*	*1.05*
Seating area, general	~~0.42~~ *0.38*	*0.38*
Stairway (see Space containing stairway)		
Stairwell	~~0.58~~ *0.52*	*0.5*
Storage room	~~0.46~~ *0.41*	*0.41*
Vehicular maintenance area	~~0.56~~ *0.50*	*0.4*
Workshop	~~1.14~~ *1.03*	*1.03*
BUILDING TYPE SPECIFIC SPACE TYPES		
Automotive (see Vehicular maintenance area)		
Convention Center—exhibit space	~~0.88~~ *0.79*	*0.79*
Dormitory—living quarters	~~0.54~~ *0.49*	*0.49*
Facility for the visually impaired		
In a chapel (and not used primarily by the staff)	~~1.06~~ *0.95*	*0.95*
In a recreation room (and not used primarily by the staff)	~~1.80~~ *1.62*	*0.95*
Fire Station—sleeping quarters	~~0.20~~ *0.18*	*0.18*
Gymnasium/fitness center		
In an exercise area	~~0.50~~ *0.45*	*0.45*
In a playing area	~~0.82~~ *0.74*	*0.5*
Healthcare Facility		

In an exam/treatment room	~~1.68~~ *1.51*	*1.15*
In an imaging room	~~1.06~~ *0.95*	*0.95*
In a medical supply room	~~0.54~~ *0.49*	*0.49*
In a nursery	~~1.00~~ *0.90*	*0.9*
In a nurse's station	~~0.81~~ *0.73*	*0.73*
In an operating room	~~2.17~~ *1.95*	*1.9*
In a patient room	~~0.62~~ *0.56*	*0.55*
In a physical therapy room	~~0.84~~ *0.76*	*0.76*
In a recovery room	~~1.03~~ *0.93*	*0.9*
Library		
In a reading area	~~0.82~~ *0.74*	*0.74*
In the stacks	~~1.20~~ *1.08*	*1.08*
Manufacturing facility		
In a detailed manufacturing area	~~0.93~~ *0.84*	*0.84*
In an equipment room	~~0.65~~ *0.59*	*0.4*
In an extra-high-bay area (greater than 50' floor-to-ceiling height)	~~1.05~~ *0.95*	*0.85*
In a high-bay area (25-50' floor-to-ceiling height)	~~0.75~~ *0.68*	*0.65*
In a low-bay area (less than 25' floor-to-ceiling height)	~~0.96~~ *0.86*	*0.6*
Museum		
In a general exhibition area	~~1.05~~ *0.95*	*0.6*
In a restoration room	~~0.85~~ *0.77*	*0.75*
Performing arts theater—dressing room	~~0.36~~ *0.32*	*0.32*
Post office—sorting area	~~0.68~~ *0.61*	*0.61*
Religious buildings		
In a fellowship hall	~~0.55~~ *0.50*	*0.5*
In a worship/pulpit/choir area	~~1.53~~ *1.38*	*0.95*
Retail facilities		
In a dressing/fitting room	~~0.50~~ *0.45*	*0.45*
In a mall concourse	~~0.90~~ *0.81*	*0.81*
Sports arena—playing area		
For a Class I facility	~~2.47~~ *2.22*	*2.22*
For a Class II facility	~~1.96~~ *1.76*	*1.45*
For a Class III facility	~~1.70~~ *1.53*	*1.1*
For a Class IV facility	~~1.13~~ *1.02*	*0.75*
Transportation facility		
In a baggage/carousel area	~~0.45~~ *0.41*	*0.4*
In an airport concourse	~~0.31~~ *0.28*	*0.28*
At a terminal ticket counter	~~0.62~~ *0.56*	*0.45*
Warehouse—storage area		
For medium to bulky, palletized items	~~0.35~~ *0.32*	*0.32*
For smaller, hand-carried items	~~0.69~~ *0.62*	*0.6*

4) Revise Section C406.1 (as previously amended for the Mass. 9th edition) as follows:

Delete **Exception 2** without replacement

5) Revise Section C406.3 as follows:

C406.3 Reduced lighting power. The total connected interior lighting power calculated in accordance with Section C405.3.1 shall be less than ~~90 percent of~~ the total lighting power allowance calculated in accordance with Section C405.3.2.

Background and rationale: The values proposed here are based on two sources - 1. Proposed California Title 24 code values and 2. A 2018 study to determine industry standard practice (ISP) in Massachusetts new construction projects, which sampled built projects permitted under IECC 2012. Regardnig the latter, rigorous third-party evaluations conducted by Mass Save indicate that the efficacy of interior lighting installed in Massachusetts commercial new construction projects is significantly better than the ligting power density performance prescribed by 2018 IECC and ASHRAE 90.1-2016 (which are equivalent). These 2018 IECC/2016 ASHRAE values were finalized in 2016 and based on nationwide building practices. Given the pace of change in the lighting industry, these figures are already out of date. For these reasons, this proposed amendment is more up-to-date and more applicable to local construction practices.

Pros of the proposed change: Reduces electricity cost for building owner/tenant.

Cons of the proposed change: Increases first cost for building developer. Decreased ease of use for code users and ease of enforcement for code officials unless a Massachusetts-specific version of COMcheck can be made available.

Estimated impact on life safety: No impact.

Estimated impact on cost: California performed a study of LPD values in its 2017 report on indoor lighting power densities in support of its transition from the state's 2016 energy code to its 2019 version. The differential between those two codes is similar to the difference between the 2018 IECC / 90.1-2016 values and the ones proposed in this amendment. Section 5.3 of this report, Incremental First Cost, also notes that "negative maintenance costs resulted in no additional cost (or subtraction of cost) to the total incremental cost".

11-9-2018

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MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☐ 9th Edition Base Code ☐ 9th Edition Residential Code	State Use Only	
Date Submitted:		Date Received:	
Code Section:	**IECC 2018 C405.2.2.1**	Code Change Number:	11·9·2018
Name of proponent:	**Glenn Heinmiller**		
Company / Organization represented, if any:		International Association of Lighting Designers Check ☐ if representing self	
Address (number, street, city, state, ZIP:		**% Lam Partners, 84 Sherman St. Cambridge 02140**	
Telephone number:	**617 851 4502**		
Email address:	**glenn@lampartners.com**		

PLEASE CHECK OFF THE TYPE OF AMENDMENT PROPOSED

X Change existing section language ☐ Add new section ☐ Delete existing section and substitute
☐ Delete existing section, no substitute ☐ Other, Explain: _____

PLEASE TYPE THE PROPOSED AMENDMENT BELOW. If you propose to change a section, please copy the original text from either the relevant model code and/or MA amendment. Indicate, with a strikethrough, the text that you propose to delete. Please also indicate any new text in both *italic* and red font. Finally, for each proposal submitted, please provide the justification items requested below. Completed code amendment forms may be emailed to Felix Zemel, Director of Code Development and Manufactured Buildings at felix.zemel@state.ma.us. Please attach additional pages as necessary.

Existing language:

(IECC-2018)

C405.2.2.1 Time-switch control function. Each space provided with *time-switch controls* shall be provided with a *manual control* for light-reduction in accordance with Section C405.2.2.2. *Time-switch controls* shall include an override switching device that complies with the following:

Proposed changes:

(IECC-2018)

> **C405.2.2.1 Time-switch control function.** Each space provided with time-switch controls shall be provided with a ~~manual control for~~ light-reduction *control* in accordance with Section C405.2.2.2. Time-switch controls shall *comply* ~~include an override switching device that complies~~ with the following:

Background and rationale:

This proposal clarifies of the intent of the code by replacing confusing phrases and removing redundant language.

1. The phrase "manual control for lighting reduction" is confusing. It should be replaced with "light-reduction control" which is what this paragraph is referring to. Light-reduction controls are described in C405.2.2.2
2. Time-switch control is a defined term. It is not necessary to further define the device here. Furthermore, using the term "override switching device" for the time-switch causes confusion because the same term is used in sub-paragraph 5 of this section as one of the function features of the device.

Pros of the proposed change:
Will make the code easier to understand and thus improve its usability. Codes that are usable are more likely to be complied with and enforced.

Cons of the proposed change:
No cons. Editorial clarifications only. No changes in code intent or stringency.

Estimated impact on life safety:
No impact on life safety. Editorial clarifications only.

Estimated impact on cost:
No impact on cost. Editorial clarifications only.

11-10-2018

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MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☐ 9th Edition Base Code ☐ 9th Edition Residential Code	State Use Only	
Date Submitted:		Date Received:	
Code Section:	**IECC 2018 C406.4**	Code Change Number:	11·10·2018
Name of proponent:	**Glenn Heinmiller**		
Company / Organization represented, if any:		International Association of Lighting Designers Check ☐ if representing self	
Address (number, street, city, state, ZIP:		**% Lam Partners, 84 Sherman St. Cambridge 02140**	
Telephone number:	**617 851 4502**		
Email address:	**glenn@lampartners.com**		

PLEASE CHECK OFF THE TYPE OF AMENDMENT PROPOSED

X Change existing section language ☐ Add new section ☐ Delete existing section and substitute
☐ Delete existing section, no substitute ☐ Other, Explain: _____

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Existing language:

(IECC-2018)

C406.4 Enhanced digital lighting controls. Interior lighting in the building shall have the following enhanced lighting controls that shall be located, scheduled and operated in accordance with Section C405.2.2.

1. Luminaires shall be configured for continuous dimming.

2. Luminaires shall be addressed individually. Where individual addressability is not available for the luminaire class type, a controlled group of not more than four luminaries shall be allowed.
3. Not more than eight luminaires shall be controlled together in a *daylight zone.*
4. Fixtures shall be controlled through a digital control system that includes the following function:
    4.1. Control reconfiguration based on digital addressability.
    4.2. Load shedding.
    4.3. Individual user control of overhead general illumination in open offices.
    4.4. Occupancy sensors shall be capable of being reconfigured through the digital control system.
5. Construction documents shall include submittal of a Sequence of Operations, including a specification outlining each of the functions in Item 4.
6. Functional testing of lighting controls shall comply with Section C408.

Proposed changes:

(IECC-2018)

C406.4 Enhanced digital lighting controls. Interior lighting in the building shall have the following enhanced lighting controls that shall be located, scheduled and operated in accordance with Section C405.2.2.

1. Luminaires shall be configured for continuous dimming.
2. Luminaires shall be addressed individually. Where individual addressability is not available for the luminaire class type, a controlled group of not more than four luminaries shall be allowed.
3. Not more than eight luminaires shall be controlled together in a *daylight zone.*
4. Fixtures shall be controlled through a digital control system that includes the following function:
    4.1. Control reconfiguration based on digital addressability.
    4.2. Load shedding.
    ~~4.3. Individual user control of overhead general illumination in open offices.~~
    4.~~4~~3. Occupancy sensors shall be capable of being reconfigured through the digital control system.
5. Construction documents shall include submittal of a Sequence of Operations, including a specification outlining each of the functions in Item 4.
6. Functional testing of lighting controls shall comply with Section C408.

Background and rationale:

Individual user control of general illumination in open offices might lead to less energy use, but it adds a high level of complexity to the design, construction, and operation of the lighting system that is unlikely to be cost effective.

Requiring individual user control does not align with the Design Light Consortium technical requirements, which qualifies and provides acceptability guidance for enhanced digital lighting controls. Many in the design and energy program communities will not specify an enhanced digital lighting control system without the controls being listed on the Design Light Consortium's Qualified Product List (QLP) for networked lighting controls.

An application requirement for individual user control is out of context, as this provision is a list of functional enhanced digital lighting controls requirements, which includes luminaire reconfigurability, load shedding and occupancy sensor zoning. Removing individual user control will retain proper functional requirements for the provision.

For all these reasons, this requirement means that C406.4 is highly unlikely to ever be chosen as an additional efficiency option for offices. Removing individual user control from the provision will greatly increase its usability as an additional efficiency option.

Pros of the proposed change:
Currently C406.4 is not really a viable option because it is so impractical.
This change will make this option much easier to implement and therefore a truly viable option.
This will add more flexibility to the code by effectively providing a compliance option.

Cons of the proposed change:
No cons.

Estimated impact on life safety:
No impact on life safety.

Estimated impact on cost:
Could reduce the cost of construction because it makes this option less expensive to implement

11-11-2018

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MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☐ 9th Edition Base Code ☐ 9th Edition Residential Code	State Use Only	
Date Submitted:		Date Received:	
Code Section:	**IECC 2018 C503.1**	Code Change Number:	11-11-2018
Name of proponent:	**Glenn Heinmiller**		
Company / Organization represented, if any:		International Association of Lighting Designers Check ☐ if representing self	
Address (number, street, city, state, ZIP:		**% Lam Partners, 84 Sherman St. Cambridge 02140**	
Telephone number:	**617 851 4502**		
Email address:	**glenn@lampartners.com**		

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☐ Delete existing section, no substitute ☐ Other, Explain: _____

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Existing language:

(IECC-2018)

C503.1 General. Alterations to any building or structure shall comply with the requirements of Section C503 and the code for new construction. Alterations shall be such that the existing building or structure is not less conforming to the provisions of this code than the existing building or structure was prior to the alteration. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to

new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall not create an unsafe or hazardous condition or overload existing building systems

Proposed changes:

(IECC-2018)

C503.1 General. Alterations to any building or structure shall comply with ~~the requirements of Section C503 and the code for new construction~~ *C402, C403, C404, C405 and C503*. Alterations shall be such that the existing building or structure is not less conforming to the provisions of this code than the existing building or structure was prior to the alteration. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall not create an unsafe or hazardous condition or overload existing building systems

Background and rationale:

This revision makes it clear what portions of "the code for new construction" apply to *Alterations,* (which are covered by Chapter 5), and specifically, that C406 does **not** apply to *Alterations.* This change follows the same approach already used in C502.1 for *Additions.*

Pros of the proposed change:

Will make the code easier to understand and thus improve its usability. Codes that are usable are more likely to be complied with and enforced.

Cons of the proposed change:

No cons. Editorial clarifications only. No changes in code intent or stringency.

Estimated impact on life safety:

No impact on life safety. Editorial clarifications only.

Estimated impact on cost:

No impact on cost. Editorial clarifications only.

11-12-2018

The Commonwealth of Massachusetts
Department of Public Safety
Board of Building Regulations and Standards
One Ashburton Place, Room 1301
Boston, Massachusetts 02108-1618

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Karyn E. Polito
Lieutenant Governor

Daniel Bennett
Secretary

Matthew Moran
Commissioner

Richard Crowley
Chairman

Robert Anderson
Administrator

MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☒ 9th Edition Base Code ☒ 9th Edition Residential Code	State Use Only	
Date Submitted:		Date Received:	
Code Section:	ISPSC 305	Code Change Number:	11-12-2018
Name of proponent:	Tom Moberg		
Company / Organization represented, if any:	Town of Acton	Check ☐ if representing self	
Address (number, street, city, state, ZIP:	472 Main St Acton MA 01720		
Telephone number:	978-929-6633		
Email address:	tmoberg@acton-ma.gov		

PLEASE CHECK OFF THE TYPE OF AMENDMENT PROPOSED

☐ Change existing section language ☐ Add new section ☐ Delete existing section and substitute
☐ Delete existing section, no substitute ☒ Other, Explain: Delete Exceptions

PLEASE TYPE THE PROPOSED AMENDMENT BELOW. If you propose to change a section, please copy the original text from either the relevant model code and/or MA amendment. Indicate, with a strikethrough, the text that you propose to delete. Please also indicate any new text in both *italic* and red font. Finally, for each proposal submitted, please provide the justification items requested below. Completed code amendment forms may be emailed to Felix Zemel, Director of Code Development and Manufactured Buildings at felix.zemel@state.ma.us. Please attach additional pages as necessary.

Existing language: SEE ATTACHED

Proposed changes:

Background and rationale:

Pros of the proposed change:

Cons of the proposed change:

Estimated impact on life safety:

Estimated impact on cost:

EXISTING LANGUAGE: Exceptions:

1. Spas and hot tubs with a lockable safety cover that complies with ASTM F 1346.
2. Swimming pools with a powered safety cover that complies with ASTM F 1346.

Proposed language:

Exceptions:

1. Spas and hot tubs with a lockable safety cover that complies with ASTM F 1346.
2. Delete exception.

Back ground and rationale: As the section is written there is no requirement for a pool to have a passive barrier system (a fence), as long as this cover is in place. This cover is an active barrier, which requires the owners of the pool to open and close the cover every time they enter or leave the pool area. Unfortunately there is no requirement to cover the pool cover once it is installed and no way to enforce if that was a requirement.

Pros of proposed change: Removing the exception will then require a fence type passive barrier system which will save lives, and be more in line with our general laws.

Cons of proposed change: Barrier fences cost money. The view might be obstructed.

Estimated impact on life safety: Lives will be saved.

Estimated impact on cost: Historically people know about the fence requirement. No big change from the past, most people know that the cost is a necessity to have a pool. The absence of a fence will increase the owner's liability which will increase the cost of insurance. The price of a fence varies depending on length, type, height, etc.

11-13-2018

11-13-2018

CHARLES D. BAKER
GOVERNOR

KARYN E. POLITO
LIEUTENANT GOVERNOR

JAY ASH
SECRETARY OF HOUSING AND ECONOMIC DEVELOPMENT

Commonwealth of Massachusetts
Division of Professional Licensure
Office of Public Safety and Inspections
Board of Building Regulations and Standards

1000 Washington Street • Suite 710 • Boston • Ma • 02118

JOHN C. CHAPMAN
UNDERSECRETARY OF CONSUMER AFFAIRS AND BUSINESS REGULATION

CHARLES BORSTEL
COMMISSIONER, DIVISION OF PROFESSIONAL LICENSURE

Robert Anderson
ADMINSTRATOR

DRAFT
MEETING MINUTES

The Fire Prevention and Fire Protection Advisory Committee (FPFP) for the Board of Building Regulations and Standards held a meeting on August 9, 2018, at 9:00 a.m., at 50 Maple Street Milford, MA 01757.

Call to Order: The chair called the meeting to order at 9:05 am

1. Roll Call – 9:10 am

Robert Carasitti Chair (RC)	☒ present	☐ absent	
Dave LeBlanc V-Chair (DL)	☒ present	☐ absent	
Walter Adams (WA)	☒ present	☐ absent	
Don Contois (DC)	☒ present	☐ absent	
Harold Cutler (HL)	☐ present	☒ absent	
Rob Anderson (or designee)	☒ present	☐ absent	Designee: John Wojciechowicz (JW)
Chief Gary McCarraher (GM)	☐ present	☒ absent	
Boston Fire Commissioner (or Designee)	☐ present	☒ absent	
State Fire Marshal (or designee)	☒ present	☐ absent	Designee: Jen Hoyt (JH)
Kurt Ruchala (KR)	☒ present	☐ absent	9:13 am
Louise Vera (LV)	☒ present	☐ absent	

- A quorum of 7 out of 11 was achieved at 9:10 am. The quorum rose to 8 of 11 at 9:13 am.
- The meeting was being jointly held with the Existing Buildings Chapter 34 Committee.

2. Review committee make-up.

Mr. Anderson reviewed committee make up for both committees. Chairs provided recommendations at Mr. Anderson's request. The FPFP Chair recommended keeping the existing FPFP members with the one exception being Mr. Cutler. Mr. Cutler had previously indicated he would like to retire from the committee. Therefore, the FPFP Chair identified that a suitable fire protection engineer replacement should be appointed by the BBRS Chair. Mr. Adams also suggested that another architect on the committee would be beneficial. The FPFP Chair agreed provided the Architect had expertise in the fire protection code requirements as would be expected of a fire protection engineer.

Item 6 Discussion on Next Code Adoption was taken out of Order. See 6.

3. Review and approval of Draft minutes for the January 30, 2018 FPFP Meeting

- **Fire protection for existing single family homes over 14,400 gross sf that are renovated and existing single family homes which are increased by addition to an area in excess of 14,400 gross sf.**

Chairman Carasitti reviewed this matter indicating that the question was first raised by an OPSI building inspector. FPFP members had previously reviewed the matter and made some recommendations, but Board members wanted the FPFP to review a bit further. Based on this instruction, FPFP members proposed code change language for Appendix J of 1&2 Family Code. Again, Chairman Carasitti read recommended changes directly from the August 9, 2018 FPFP meeting minutes, which read:

The FPFP recommends that the BBRS revise R313.2 Exception to read as follows:

EXCEPTION: ~~An automatic residential fire sprinkler system shall not be required for additions or alterations to existing buildings having an aggregate area greater than 14,400 ft2 that are not already provided with an automatic residential sprinkler system.~~
Existing buildings see section AJ102.3.2.

Change AJ102.3 to Fire Protection Systems and renumber AJ102.3 to AJ102.3.1 and renumber subsections accordingly. The proposed changes are as follows:

AJ102.3 Revise the section as follows:

AJ102.3 ~~**Smoke, Carbon Monoxide and Heat Protection.** Smoke, carbon monoxide and heat protection shall be provided when required by this section and designed, located and installed in accordance with the provisions for new construction. See sections R314, R314.5, and R315.~~
Fire Protection Systems. Regardless of the category of work, fire protection systems shall be provided as required in AJ102.3.1 through AJ102.3.2.

AJ102.3.1 Smoke, Carbon Monoxide and Heat Protection. Smoke, carbon monoxide and heat protection shall be provided when required by this section and designed, located and installed in accordance with the provisions for new construction. See sections R314, R314.5, and R315.

AJ102.3.1.1 through AJ102.3.1.3 Add the subsections as follows:

AJ102.3.1.1 Adding or Creating One or More Sleeping Rooms.

1. Single-family Dwelling. When one or more sleeping rooms are added or created to an existing dwelling, the entire dwelling shall be provided with smoke, heat and carbon monoxide protection.
2. Two-family Dwelling. When one or more sleeping rooms are added or created to one dwelling unit that unit shall be provided with smoke, heat and carbon monoxide protection detectors. When sleeping rooms are added or created to both units the entire building shall be provided with smoke, heat and carbon monoxide protection.
3. Townhouses Dwelling Unit. When one or more sleeping rooms are added or created to an existing dwelling unit, the entire unit shall be provided with smoke, heat, and carbon monoxide protection.

AJ102.3.1.2 Complete Reconstruction. If a dwelling or townhouse building undergoes reconstruction such that more than 50% of walls and ceilings are open to framing, then the entire existing building shall be provided with smoke, heat and carbon monoxide protection.

AJ102.3.1.3 Adding an Attached Garage. If a garage is created under or attached to an existing dwelling unit, a heat detector shall be provided in the garage in accordance with R314.8.

Add AJ102.3.2 as follows:

AJ102.3.2 Automatic Fire Sprinkler System. Existing buildings shall be provided with residential automatic sprinklers under the following conditions:

a. Existing 1&2 Family Buildings changing is use to Lodging House.
b. Existing 1&2 Family buildings over 14,400gsf where more than 50% of the building floor area is being altered.
c. An addition is being added that would result in the aggregate area of the building being 14,400 gsf or more.
d. Existing 1&2 Family buildings where previously uninhabitable space is being converted to habitable space resulting in an aggregate habitable area of 14,400 gsf or more.
e. An existing commercial building being converted to a 1&2 Family building where the aggregate habitable area is 14,400 gsf or more.
f. Changes in use that require the application of the commercial code: See 780 CMR Commercial.

11-14-2018

11-14-2018

Anderson, Robert (DPL)

To: Bailey, Gordon (DPL)
Cc: Walsh, Dan P (DPL); Sullivan, David (DPL); Lastra, Cesar (DPL); DPL-DL - Building Inspectors
Subject: RE: BBRS November Hearing

Okay, thank you!

Got David's message of support as well.

Robert Anderson
Division of Professional Licensure
Office of Public Safety and Inspections
Chief of Inspections – Building & Engineering
1000 Washington Street, Suite 710
Boston, MA 02118
Office (617) 826-5268
Cell (617) 593-0086

From: Bailey, Gordon (DPL)
Sent: Thursday, November 01, 2018 11:57 AM
To: Anderson, Robert (DPL); DPL-DL - Building Inspectors
Cc: Walsh, Dan P (DPL); Sullivan, David (DPL); Lastra, Cesar (DPL)
Subject: RE: BBRS November Hearing

Chief Anderson: I did not submit code changes, however, I would bring two sections that should be adjusted in order to coordinate with sections of the General Laws.
Base code issues - Mass Amendment section 308.6.1 change "2.9 years" to read "2years 9 months". Also, change IBC base section 305.2 from "2-1/2 years" to read "2 years 9 months".

The 2 year 9 month issue is from the General Law concerning child care facilities.

Gordon D. Bailey
State Building Inspector,
Office of Public Safety
and Inspection
STCC Campus
1 Armory Square
Building 15, Suite 1
Springfield, Ma. 01102
gordon.bailey@mass.gov
413-822-9469

From: Anderson, Robert (DPL)
Sent: Wednesday, October 31, 2018 3:15 PM
To: DPL-DL - Building Inspectors
Cc: Walsh, Dan P (DPL); Sullivan, David (DPL); Lastra, Cesar (DPL)
Subject: BBRS November Hearing

11-15-2018

Anderson, Robert (DPL)

From: Grover, Mike <mgrover@cambridgema.gov>
Sent: Friday, October 19, 2018 5:31 PM
To: Anderson, Robert (DPL)
Subject: Re: Some more Questions about MA amendments to 2015 IRC (same section)

Have you had a chance to look into these possible errors?

Thanks

Mike grover

From: Grover, Mike
Sent: Monday, October 8, 2018 1:49 PM
To: Rob Anderson
Subject: Some more Questions about MA amendments to 2015 IRC (same section)

Page 251 MA amendments Sec AF103.2.2. Should this be a revision to IRC Sec 103.4.4? The code language and subject match up.

Re: the previous questions - if one goes by the amendments, those are complete replacement sections, as opposed to revisions, of completely unrelated subjects.

Thanks!

MG

Sent from my iPad

Begin forwarded message:

> **From:** mgrover@cambridgema.gov
> **Date:** October 8, 2018 at 12:04:28 PM EDT
> **To:** Rob Anderson <Robert.Anderson@state.ma.us>
> **Subject: Question about MA amendments to 2015 IRC**
>
> Good morning, Rob.
>
> As your the only one I still know at the BBRS, I'm tossing this question your way.
>
> Page 252, MA amendments to sections AF 103.4.2 and AF103.4.3.
>
> Should those actually be amendments to IRC sections AF103.5.2 and 103.5.3?

51.00: continued

Appendix F: PASSIVE RADON GAS CONTROLS (Adopted as revised)

AF101.1 Revise the section as follows:

AF101.1 General. This appendix contains minimum requirements for new construction in the high radon potential counties as listed in Table AF101(1) regardless of the radon levels at the site. These requirements are intended to provide a passive means of resisting radon gas entry and prepare the dwelling for post-construction radon mitigation, if necessary. *See* Figure AF102. Active construction techniques, rather than passive techniques, shall be permitted to be used where approved.

Alternatively, the passive system requirements of ANSI/AARST Standard Designation #CCAH: *Reducing Radon in New Construction of One & Two Family Dwellings and Townhouses*, 2013 may be used for new construction in Zone 1, or approved equal system.

Irrespective of which approach is used, no testing is required as follows:

1. for the radon levels at the site prior to construction;
2. for the radon control system when completed; or
3. in the building after completion of the project.

Therefore, such testing shall not be a condition of issuing a certificate of occupancy.

AF102.1 Revise the definition of "GAS-PERMEABLE LAYER" as follows:

GAS-PERMEABLE LAYER. A gas-permeable layer shall consist of one of the following:

1. A uniform layer of clean aggregate that is not less than four inches (102 mm) thick. The aggregate shall consist of material that will pass through a two inch (51 mm) sieve and be retained by a ¼-inch (6.4-mm) sieve.
2. A uniform layer of sand (native or fill) that is not less than four inches (102 mm) thick and that is overlain by a soil gas collection mat or soil gas matting installed in accordance with the manufacturer's instructions. The soil gas mat or matting shall be designed for this purpose and condition, and have the capacity to freely transport soil gases to the collection point from the most remote area.

AF103.2.2 Revise the subsection as follows:

AF103.2.2 Sumps. Sumps open to soil or serving as the termination point for subslab drain tile loops shall be covered with a gasketed or sealed lid. Sumps used as the suction point in a sub slab depressurization system shall have a lid designed to accommodate the vent pipe. Sumps used as a floor drain shall have a lid equipped with a trapped inlet. Drainage systems that lead outside the foundation walls shall be isolated or trapped so as not to short-circuit the depressurization system.

AF103.3.1 Revise the subsection as follows:

AF103.3.1 Soil-gas-retarder. The soil in basements and enclosed crawl spaces shall be covered with a soil-gas-retarder. The soil-gas-retarder shall be lapped not less than 12 inches (305 mm) at joints and shall extend to foundation walls enclosing the basement or crawl space. The soil gas-retarder shall fit closely around any pipe, wire or other penetrations of the material. Punctures or tears in the material shall be sealed or covered with additional sheeting. The membrane shall extend upward six inches and shall be sealed to the perimeter footing or wall with an ASTM C290 class 25 or higher sealant or equal.

AF103.3.2 Revise the subsection as follows:

AF103.3.2 "T" Fitting and Vent Pipe. A "T" fitting shall be inserted beneath the soil-gas-retarder and be connected to a three-inch minimum vertical vent pipe. The vent pipe shall extend through the conditioned space of the dwelling and terminate not less than 12 inches (305 mm) above the roof in a location not less than ten feet (3,048 mm) away from any window or other opening into the conditioned spaces of the building that is less than two feet (610 mm) below the exhaust point. The horizontal legs of the "T" fitting shall connect to two five-foot long pieces of four-inch diameter perforated pipe laid horizontally in a 50 in^2 bed of gravel, filled with the same gravel as used in the gas-permeable layer.

51.00: continued

AF103.4.2 Revise the subsection as follows:

AF103.4.2 Soil-gas-retarder. A soil-gas-retarder shall be placed on top of the gas-permeable layer prior to casting the slab or placing the floor assembly. The soil-gas retarder shall cover the entire floor area with separate sections lapped not less than 12 inches (305 mm) and shall extend upward six inches and be sealed to the wall with an ASTM C290 class 25 or higher sealant or equal. The soil-gas-retarder shall fit closely around any pipe, wire, or other penetrations of the material. Punctures or tears in the material shall be sealed or covered. Under-slab insulation, if used, shall be placed on top of the sheeting.

AF103.4.3 Revise the subsection as follows:

AF103.4.3 "T" Fitting and Vent Pipe. Before a slab is cast or other floor system is installed, a "T" fitting shall be inserted below the slab or other floor system and the soil-gas-retarder. The "T" fitting shall be connected to a three-inch minimum vertical vent pipe. The vent pipe shall extend through the conditioned space of the dwelling and terminate not less than 12 inches (305 mm) above the roof in a location not less than ten feet (3,048 mm) away from any window or other opening into the conditioned spaces of the building that is less than two feet (610 mm) below the exhaust point. The horizontal legs of the "T" fitting shall connect to two five-foot long pieces of four-inch diameter perforated pipe laid horizontally in a 50 in^2 bed of gravel, filled with the same gravel as used in the gas-permeable layer.

Appendix G: PIPING STANDARDS FOR VARIOUS APPLICATIONS (Reserved)

Appendix H: PATIO COVERS (Adopted in full)

Appendix I: PRIVATE SEWAGE DISPOSAL (Adopted as amended)

AI101.1 Revise the section as follows:

AI101.1 Scope. Private sewage disposal systems shall conform to the requirements of 310 CMR 15.000: *The State Environmental Code, Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage*, and any additional legal restrictions imposed by the municipal health department.

Appendix J: EXISTING BUILDINGS AND STRUCTURES (Adopted as amended)

AJ101.1 Revise the section as follows:

AJ101.1 General. The purpose of *Appendix J* is to encourage the continued use or reuse of legally existing buildings and structures. The provisions of *Appendix J* are intended to permit work in existing buildings that is consistent with the purpose of 780 CMR 51.00. Compliance with these provisions shall be deemed to meet the requirements of 780 CMR 51.00.

Features of existing construction which do not meet the requirements of 780 CMR 51.00 for new construction shall be presumed to have met the regulations, codes or laws in effect at the time of construction or alteration and, if so, shall be deemed to be existing nonconforming. Unless stated otherwise, nothing in *Appendix J* shall require the upgrading or replacement of any existing nonconforming feature or component of an existing building, provided the feature, component or system is in serviceable condition. Components or features of an existing building which, in the opinion of the building official, are dangerous, unsafe, damaged, significantly deteriorated or which otherwise present a threat to occupants or to public safety shall be remediated in accordance with 780 CMR 51.00.

Any new building system or portion thereof shall conform to 780 CMR 51.00 for new construction to the fullest extent practicable. However, individual components of an existing building system may be repaired or replaced without requiring that system to comply fully with 780 CMR 51.00 unless specifically required by *Appendix J*.

For compliance of work governed by other codes, including the specialized codes, *see* section R101.4.

11-16-2018

11-16-2018

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2015*

CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS

501.1 Add two notes as follows:

Note 1: Site plans may be required to contain fires lanes in accordance with 527 CMR: *Board of Fire Protection Regulations*. Any building fire protection system is governed by 780 CMR with the exception of M.G.L. c. 148, §§ 26 through 26I.
Note 2: In 780 CMR 5.00: *General Building Heights and Areas*, requirements for unsprinklered buildings may be overridden by the sprinkler requirements of M.G.L. c. 148.
Note 3: M.G.L. c. 111, § 51 requires hospitals and nursing homes of at least Type IB construction.

8-15-18

To: Robert Anderson; Mass. DPS

From: Mark Hughes, Framingham Bldg. Dept.

RE: 780 CMR MASS. AMENDMENTS; 9TH EDITION

SECTION 501.1 NOTE: #3 MGL C 111 S 51

Rob: The language in note 3, as written, requiring type 1B construction for hospitals and nursing homes appears to be misleading.... The chapter references primarily institutions for unwed mothers. The language conflicts with Height & Area tables 504.4 and 506.2; 9th Edition. Please clarify....

Mark Hughes

Tele: 508-532-6172

mhughes@framinghamma.gov

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