Public Review Draft

Proposed Addendum ak to Standard 189.1-2023

Standard for the Design of High-Performance Green Buildings

Except Low-Rise Residential Buildings

First Public Review (March 2026)
(Draft Shows Proposed Changes to Current Standard)

ASHRAE, 180 Technology Pkwy NW, Peachtree Corners, GA 30092

BSR/ASHRAE/ICC/USGBC/IES Addendum ak to ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2023, *Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings* First Publication Public Review Draft

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(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

Foreword

The energy credits section of 189.1 references standard 90.1 for the requirements and awarded points for compliance. This proposed addendum updates the energy credits section of this standard to align with Standard 90.1-2025 and the updates to energy credit requirements therein. In the case of low-temp dishwasher efficiency, credits are not awarded because the base levels of efficiency in 189.1 exceed those of Standard 90.1. Credits for ozone laundry systems are not awarded because the committee is further reviewing the potential for ozone laundry systems to conflict with indoor air quality requirements present in 189.1. Credits for E02 are adjusted downwards, reflecting the improved envelope air leakage baseline of 189.1. The E02 credits are calculated based on the credits awarded in 90.1, with an adjusted baseline.

This addendum also reflects pending updates to the energy credits section as proposed in addendum m are treated as approced. Below the line the cumulative changes of both addendum m and this addendum are reflected in strikethrough and underline.

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and strikethrough (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]

Addendum ak to 189.1-2023

Modify Section 7.5 as follows:

7.5 Modified Additional Efficiency Requirements *Building projects* shall be designed to comply with ANSI/ASHRAE/IES Standard 90.1, Section 11, with the modifications required by this section.

7.5.1 Energy Credits Required. Projects shall achieve energy credits from Section 7.5.2 not less than 105% of the total credits required by ANSI/ASHRAE/IES Standard 90.1, Section 11.5.1.

7.5.1.1 [JO] Higher Energy Credits Required. Projects shall achieve energy credits from Section 7.5.2 not less than 110% of the total of credits required by ANSI/ASHRAE/IES Standard 90.1, Section 11.5.1.

7.5.2 Energy Credits Achieved. Energy credits shall be achieved in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2, except where superseded by the requirements of this section. The (R01) *on-site renewable energy* credits achieved shall be limited to meeting 60% of the total required *energy* credits. The energy credits associated with load management in ASNI/ASHRAE/IES Standard 90.1, Section 11.5.2.8, shall not be used for compliance with this section.

7.5.2.1 ~~E01:~~ Improved __Building__ Envelope Performance. To achieve these credits ~~this credit~~, *building* envelope measures shall be installed to improve the *energy* performance of the project in accordance with Section 7.5.2.1.1 or Section 7.5.2.1.2.

7.5.2.1.1 E01: Improved Envelope Performance. Energy credits for improved *building envelope energy* performance shall be determined as follows:

$$EC_{ENV} = 1000 \times \frac{EPF_B - EPF_P}{EPF_B}$$

where

EC_{ENV} = energy credits for improved *building envelope energy* performance.

EPF_B = base *envelope performance factor* calculated in accordance with ANSI/ASHRAE/IES Standard 90.1, Appendix C but with opaque envelope and *fenestration* U-factors reduced by 5%, *fenestration SHGC* reduced by 5%, and air leakage rate of the *building envelope* (I_{75Pa}) at a fixed building pressure differential of 75 Pa (0.30 in. of water) shall be ~~0.25~~ 0.20 cfm/ft^2 (~~1.25~~ 1.00 L/s·m^2).

EPF_P = proposed *envelope performance factor* calculated in accordance with ANSI/ASHRAE/IES Standard 90.1, Normative Appendix C

7.5.2.1.1.2 E02: Reduced Air Leakage. The energy credits for reduced air leakage shall be in accordance with ANSI/ASHRAE/IECC 90.1 Section 11.5.2.1.2 except that Tables 7.5.2.2-1 and 7.5.2.2-2 shall supersede ANSI/ASHRAE/IES Standard 90.1 Tables 11.5.2.1.2-1 and 11.5.2.1.2-2.

Table 7.5.2.2-1 E02 Reduced Air Leakage Credits for Multifamily Buildings

Building Use Type	Maximum Measured Air Leakage (cfm/sf @75 Pa)	Climate Zone																		
		0A	0B	1A	1B	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	7	8
Multifamily (credit/floor)[a]	0.15	0.2	0.3	0.1	0.1	0.1	0	0.1	0.1	0	0.2	0	0.1	0.4	0	0	0.6	0.2	0.4	0.2
	0.10	0.2	0.2	0	0.1`	0	0	0.1	0	0	0.2	0	0	0.4	0	0	0.5	0.2	0.4	0.2
[a] E02 = Number of floors x tabular credits rounded to the nearest whole number																				

Table 7.5.2.2-1 E02 Reduced Air Leakage Credits for Buildings other than Multifamily

Building Use Type	Maximum Measured Air Leakage (cfm/sf @75 Pa)	Climate Zone																		
		0A	0B	1A	1B	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	7	8

Healthcare	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hotel/motel	0.15	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	2	0	1	1
	0.10	0	0	1	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1	1
Office	0.15	0	1	0	0	0	1	0	0	0	1	0	1	1	0	0	2	1	1	1
	0.10	1	0	1	0	1	0	1	0	0	1	1	0	1	0	0	2	1	2	0
Restaurant	0.15	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retail	0.15	1	0	0	0	0	0	0	0	0	1	1	1	2	1	1	1	1	1	1
	0.10	0	1	0	0	0	0	1	1	0	1	0	1	1	0	0	2	1	1	1
Education	0.15	1	0	0	0	1	1	0	1	0	1	0	0	2	0	0	1	1	1	1
	0.10	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0
Warehouse	0.15	1	2	0	1	1	0	2	1	0	6	1	3	9	4	2	10	7	9	5
	0.10	2	3	1	1	1	1	3	1	0	6	3	3	8	5	2	10	7	8	5
Other	0.15	0	0	0	0	0	0	0	0	0	1	1	1	2	0	0	2	1	1	1
	0.10	1	1	1	0	1	0	1	0	0	1	0	0	1	0	0	1	1	2	0

7.5.2.2–Improved HVAC Performance. Measures H01 through ~~H07~~H08 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.2.

7.5.2.3 Reduced Energy Use in Service Water Heating Measures W01 through W09 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.3.

~~W10: Ozone Laundry Sanitation.~~ Measure W10 ~~The~~ the energy credits for ozone laundry sanitation in ASNI/ASHRAE/IES Standard 90.1 Section 11.5.2.3.7 shall not be used for compliance with Section 7.5.

~~W11: Low-Temperature Commercial Dishwashers. The~~ Measure W11, the energy credits for low-temperature commercial dishwashers in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.3.8 shall not be used for compliance with Section 7.5.

7.5.2.4 P01: Energy Monitoring. The credits for energy monitoring in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.4 shall be limited to buildings with an electrical service no greater than 200 kVA.

7.5.2.5 Lighting Efficiency Measures

7.5.2.5.1 L01: Lighting System Performance Improvement (Reserved)

7.5.2.5.2 L02: Continuous Dimming and High-End Trim Tuning. Measure L02 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.2.

7.5.2.5.3 L03: Occupancy Sensor Control Areas. Measure L03 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.3.

7.5.2.5.4 L04: Increased Daylighting Control Area. For office buildings and education buildings, ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.4, shall not apply. For all other building use types, measure L04 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.4.

7.5.2.5.5 L05: Lighting Control for Multifamily Buildings. ANSI/ASHRAE/IES Standard 90., Section 11.5.2.5.5, shall not apply.

7.5.2.5.6 L06: Reduce Interior Lighting Power. To achieve this credit, the *installed interior lighting power*, less the installed additional lighting power shall be 95% or less than the *interior lighting power allowance,* less any additional lighting allowed. In multifamily, dormitory, hotel, and motel buildings, the credit is calculated for areas other than *dwelling units,* dormitory living quarters and guest rooms. Energy credits shall not be greater than three times the L06 base credit from ANSI/ASHRAE/IES Standard 90.1, Section 11.5.3 where calculated as follows:

$$EC_{LPA} = EC_5 \times 20 \times \frac{LPA_n - LP_n}{LPA_n}$$

Where:

EC_{LPA} = additional energy credit for lighting power reduction

LP_n = net *installed interior lighting power* calculated in accordance with ANSI/ASHRAE/IES Standard 90.1, Sections 9.1.3 and 9.1.4, in watts, less any additional lighting in ANSI/ASHRAE/IES Standard 90.1, Section 9.5.2.2

LPA_n = net *interior lighting power allowance* calculated in accordance with the method used to meet the requirements of Section 7.4.6.1, in watts, less any additional interior lighting allowance in Section 7.4.6.1.1 or Section 7.4.6.1.2.

EC_5 = L06 base credit from ANSI/ASHRAE/IES Standard 90.1, Section 11.5.3

7.5.2.6 R01: On-Site Renewable Energy. To achieve this credit, the total minimum ratings of *on-site renewable energy* systems in *addition* to the requirements of Section 7.3.2 shall be not less than 0.1 W/ft² (1.1 W/m²) of *gross floor area*. Additional energy credits shall be determined as follows:

$$AEC_{RRa} = AEC_{0.1} \times \frac{RR_t - RR_r}{0.1 \times BGFA}$$

where,

AEC_{RRa} = achieved energy credits for this project

RR_t = actual total minimum rating of *on-site renewable energy* systems, W

RR_r = minimum rating of *on-site renewable energy* systems required by Section 7.3.2, in watts, without exception

$BGFA$ = project *gross floor area*

$AEC_{0.1}$ = ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.6, base credits from ANSI/ASHRAE/IES Standard 90.1, Section 11.5.3

Informative Note: Onsite renewable energy may include thermal *service water heating* or *pool* water heating, in which case ratings in Btu/h can be converted to W, where W = Btu/h/3.41.

7.5.2.7 Equipment Efficiency Measures

7.5.2.7.1 Q01: Efficient Elevator Equipment. Measure Q01 for efficient elevator equipment shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.7.1. Energy credits shall only be achieved for buildings where the vertical rise of each elevator is less than 75 ft (23 m).

7.5.2.7.2 Q02: Efficient Kitchen Equipment. ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.7.2, shall not apply.

7.5.2.7.3 Q03: Fault Detection and Diagnostics System. The energy credits for fault detection and diagnostics in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.7.3 shall be limited to buildings with a gross floor area less than 25,000 ft² (2500 m²) or *residential* buildings with less than 10,000 ft² (1000 m²) of common area.

7.5.3 Load Management Credits Required. Where a demand response program is available to the building project from the project's electricity provider or a third party associated with that provider, projects with electrical service greater than 200 kVa shall achieve load management credits from Section 7.5.4 in a quantity not less than 10% of the total energy credits required by ANSI/ASHRAE/IES Standard 90.1, Section 11.5.1. Where a demand response program is available to the building project from the project's electricity provider or a third party associated with that provider, projects with electrical service not greater than 200kVa shall achieve load management credits from Section 7.5.4 in a quantity not less than 5 % of the total energy credits required by ANSI/ASHRAE/IES Standard 90.1, Section 11.5.1

7.5.4 Load Management Credits Achieved. Load management credits achieved for the project shall be calculated in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2, with the modifications required by this section. Only the energy credits associated with load management in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8, as modified by this section shall be used for compliance.

7.5.4.1 G01: Lighting Load Management. *Building projects* with a *gross floor area* not greater than 5000 ft² (500 m²) shall comply with Section 7.3.4.3 without use of exceptions to achieve the energy credits associated with lighting load management in ASNI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.1.

7.5.4.2 G02: HVAC Load Management. The energy credits associated with HVAC load management in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.2, shall be prorated by the fraction of HVAC cooling capacity out of total building project cooling capacity used for compliance with this section and shall be limited to HVAC systems with a capacity greater than 240,000 Btu/hr (70 kW).

7.5.4.3 G03: Automated Shading Load Management. Measure G03 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.3.

7.5.4.4 G04: Electric Energy Storage. Measure G04 Shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.4.

7.5.4.5 G05: HVAC Cooling Energy Storage. Measure G05 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.5.

7.5.4.6 G06 Service Hot-Water Thermal Storage. Measure G06 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.6

7.5.4.7 G07: Building Thermal Mass. Measure G07 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.7.

7.5.4.8 G08: Electric Vehicle Charging Load Management. -Measure G08 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.8.

7.5.4.9 G09: Electric Vehicle Power Export. Measure G09 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.9.

7.5.4.10 G10: HVAC Heating Energy Storage.. Measure G10 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.10.

Note to Reviewers: The proposal above is an overlay that is in addition to language being reviewed under Addendum m. Relevant changes in both addendum m and this addendum are shown below.

7.5 Modified Additional Efficiency Requirements *Building projects* shall be designed to comply with ANSI/ASHRAE/IES Standard 90.1, Section 11, with the modifications ~~contained in~~ required by this section.
7.5.1 Energy Credits Required. Projects shall achieve energy credits from Section 7.5.2 not less than 105% of the total of credits required by ANSI/ASHRAE/IES Standard 90.1, Section 11.5.1.
7.5.1.1   [JO] Higher Energy Credits Required. Projects shall achieve energy credits from Section 7.5.2 not less than 110% of the total of credits required by ~~of~~ ANSI/ASHRAE/IES Standard 90.1, Section 11.5.1.
7.5.2 Energy Credits Achieved. Energy credits ~~achieved for the project~~ shall be ~~calculated~~ achieved in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2, except where superseded by the requirements of this section. The (R01) *on-site renewable energy* credits achieved shall be limited to meeting 60% of the total required *energy* credits. The energy credits associated with load management in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8, shall not be used for compliance with this section.

7.5.2.1 E01: Improved Envelope Performance. To achieve this credit, *building* envelope measures shall be installed to improve the *energy* performance of the project. ~~Measure energy~~ Energy credits for ~~improvement~~ improved ~~of the~~ *building envelope energy* performance shall be determined ~~based on the following~~ as follows:

$$EC_{ENV} = 1000 \times \frac{EPF_B - EPF_P}{EPF_B}$$

where

EC_{ENV} = ~~measure~~ energy credits for improved *building envelope energy* performance.

EPF_B = base *envelope performance factor* calculated in accordance with ANSI/ASHRAE/IES Standard 90.1, Appendix C but with opaque envelope and *fenestration* U-factors reduced by 5%,
fenestration SHGC reduced by 5%, and air leakage rate of the *building envelope* (I_{75Pa}) at a fixed building pressure differential of 75 Pa (0.30 in. of water) shall be ~~0.25~~ 0.20 cfm/ft^2 (~~1.25~~

___L/s·m²).

EPF$_P$ = proposed *envelope performance factor* calculated in accordance with ANSI/ASHRAE/IES Standard 90.1, Normative Appendix C

7.5.2.2 E02: Reduced Air Leakage. The energy credits for reduced air leakage shall be in accordance with ANSI/ASHRAE/IECC 90.1 Section 11.5.2.1.2 except that Tables 7.5.2.2-1 and 7.5.2.2-2 shall supersede ANSI/ASHRAE/IES Standard 90.1 Tables 11.5.2.1.2-1 and 11.5.2.1.2-2.

Table 7.5.2.2-1 E02 Reduced Air Leakage Credits for Multifamily Buildings

Building Use Type	Maximum Measured Air Leakage (cfm/sf @75 Pa)	Climate Zone																		
		0A	0B	1A	1B	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	7	8
Multifamily (credit/floor)[a]	0.15	0.2	0.3	0.1	0.1	0.1	0	0.1	0.1	0	0.2	0	0.1	0.4	0	0	0.6	0.2	0.4	0.2
	0.1	0.2	0.2	0	0.1	0	0	0.1	0	0	0.2	0	0	0.4	0	0	0.5	0.2	0.4	0.2
[a] E02 = Number of floors x tabular credits rounded to the nearest whole number																				

Table 7.5.2.2-1 E02 Reduced Air Leakage Credits for Buildings other than Multifamily

Building Use Type	Maximum Measured Air Leakage (cfm/sf @75 Pa)	Climate Zone																		
		0A	0B	1A	1B	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	7	8
Healthcare	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hotel/motel	0.15	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	2	0	1	1
	0.1	0	0	1	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1	1
Office	0.15	0	1	0	0	0	1	0	0	0	1	0	1	1	0	0	2	1	1	1
	0.1	1	0	1	0	1	0	1	0	0	1	1	0	1	0	0	2	1	2	0
Restaurant	0.15	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retail	0.15	1	0	0	0	0	0	0	0	0	1	1	1	2	1	1	1	1	1	1
	0.1	0	1	0	0	0	0	1	1	0	1	0	1	1	0	0	2	1	1	1
Education	0.15	1	0	0	0	1	1	0	1	0	1	0	0	2	0	0	1	1	1	1
	0.10	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0
Warehouse	0.15	1	2	0	1	1	0	2	1	0	6	1	3	9	4	2	10	7	9	5
	0.10	2	3	1	1	1	1	3	1	0	6	3	3	8	5	2	10	7	8	5
Other	0.15	0	0	0	0	0	0	0	0	0	1	1	1	2	0	0	2	1	1	1
	0.10	1	1	1	0	1	0	1	0	0	1	0	0	1	0	0	1	1	2	0

~~7.5.2.2~~ **7.5.2.3 Improved HVAC Performance.** ~~Same as ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.2, for all measures H01 through H06.~~ Measures H01 through H08 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.2.

~~7.5.2.3~~ **7.5.2.4 Reduced Energy Use in Service Water Heating.** ~~Same as ANSI/ASHRAE/IES Standard 90.1 Section 11.5.2.3 for all measures W01 through W09.~~ Measures W01 through W09 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.3.

7.5.2.5 W10 Ozone Laundry Sanitation. The energy credits for ozone laundry sanitation in ASNI/ASHRAE/IES Standard 90.1 Section 11.5.2.3.7 shall not be used for compliance with Section 7.5.

7.5.2.6 W11 Low-Temperature Commercial Dishwashers. The energy credits for low-temperature commercial dishwashers in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.3.8 shall not be used for compliance with Section 7.5.

7.5.2.4 7.5.2.7 P01: Energy Monitoring. The ~~energy~~ credits for energy monitoring in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.4, ~~used for compliance with Section 7.5~~ shall be limited to buildings with an electrical service no greater than 200 kVA.

7.5.2.5 7.5.2.8 Lighting Efficiency Measures

7.5.2.5.1 7.5.2.8.1 L01: Lighting System Performance Improvement (Reserved)

7.5.2.5.2 7.5.2.8.2 L02: Continuous Dimming and High-End Trim Tuning. ~~Same as ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.2.~~ Measure L02 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.2.

7.5.2.5.3 7.5.2.8.3 L03: Occupancy Sensor Control Areas. ~~Same as ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.3.~~ Measure L03 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.3.

7.5.2.5.4 7.5.2.8.4 L04: Increased Daylighting Control Area. For office buildings and education buildings, ~~the energy credits in~~ ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.4, shall not apply ~~be used for compliance with Section 7.5~~. For all other building use types, ~~the energy credit is same as in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.4.~~ measure L04 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.4.

7.5.2.5.5 7.5.2.8.5 L05: Lighting Control for Multifamily Buildings. ~~The energy credits associated with lighting control for multifamily buildings in~~ ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.5.5, shall not apply ~~be used for compliance with Section 7.5~~.

7.5.2.5.6 7.5.2.8.6 L06: Reduce Interior Lighting Power. To achieve this credit, the *installed interior lighting power*, less ~~any~~ the installed additional lighting ~~allowance~~ power shall be 95% or less than the *interior lighting power allowance,* less any additional lighting allowed. In multifamily, dormitory, hotel, and motel buildings, the credit is calculated for ~~common~~ areas other than *dwelling units,* dormitory living quarters and guest rooms. Energy credits shall not be greater than three times the L06 base credit from ANSI/ASHRAE/IES Standard 90.1, Section 11.5.3 where calculated as follows:

$$EC_{LPA} = EC_5 \times 20 \times \frac{LPA_n - LP_n}{LPA_n}$$

EC_{LPA} = additional energy credit for lighting power reduction

LP_n = net *installed interior lighting power* calculated in accordance with ANSI/ASHRAE/IES Standard 90.1, Sections 9.1.3 and 9.1.4, in watts, less any additional lighting in ANSI/ASHRAE/IES Standard 90.1, Section 9.5.2.2

LPA_n = net *interior lighting power allowance* calculated in accordance with the method used to meet the requirements of Section 7.4.6.1, in watts, less any additional interior lighting allowance in Section 7.4.6.1.1 or Section 7.4.6.1.2.

EC_5 = L06 base credit from ANSI/ASHRAE/IES Standard 90.1, Section 11.5.3

7.5.2.6 7.5.2.9 R01: On-Site Renewable Energy. To achieve this credit, the total minimum ratings of *on-site renewable energy* systems in *addition* to the requirements of Section 7.3.2 shall be not less than 0.1 W/ft² (1.1 W/m²) of *gross floor area*. Additional energy credits shall be determined as follows:

$$AEC_{RRa} = AEC_{0.1} \times \frac{RR_t - RR_r}{0.1 \times BGFA}$$

where,

AEC_{RRa} = achieved energy credits for this project

RR_t = actual total minimum rating of *on-site renewable energy* systems, W

RR_r = minimum rating of *on-site renewable energy* systems required by Section 7.3.2, in watts, without exception

$BGFA$ = project *gross floor area*

$AEC_{0.1}$ = ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.6, base credits from ANSI/ASHRAE/IES

Standard 90.1, Section 11.5.3

Informative Note: Onsite renewable energy may include thermal *service water heating* or *pool* water heating, in which case ratings in Btu/h can be converted to W, where W = Btu/h/3.41

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~~7.5.2.7~~7.5.2.10 Equipment Efficiency Measures

~~7.5.2.7.1~~7.5.2.10.1 Q01: Efficient Elevator Equipment. Measure Q01 for efficient elevator equipment shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.7.1. Energy credits shall only be achieved for buildings where the vertical rise of each elevator is less than 75 ft (23 m). ~~The energy credits for efficient elevator equipment available for compliance with Section 7.5 shall be limited to buildings where all elevators have a rise of less than 75 ft (23 m). Equipment qualifications and energy credits shall be the same as in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.7.1.~~

~~7.5.2.7.2~~7.5.2.10.2 Q02: Efficient Kitchen Equipment. ~~The energy credits for energy monitoring in~~ ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.7.2, shall not apply ~~be used for compliance with Section 7.5~~.

~~7.5.2.7.3~~7.5.2.10.3 Q03: Fault Detection and Diagnostics System. The energy credits for fault detection and diagnostics in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.7.3~~, used for compliance with Section 7.5~~ shall be limited to buildings with a gross floor area less than 25,000 ft^2 (2500 m^2) or *residential* buildings with less than 10,000 ft^2 (1000 m^2) of common area.

7.5.3 Load Management Credits Required. Where a demand response program is available to the *building project* from the project's electricity provider or a third party associated with that provider, projects with electrical service greater than 200 kVa shall achieve load management credits from Section 7.5.4 in a quantity not less than 10% of the total energy credits required by ANSI/ASHRAE/IES Standard 90.1, Section 11.5.1. Where a demand response program is available to the building project from the project's electricity provider or a third party associated with that provider, projects with electrical service not greater than 200kVa shall achieve load management credits from Section 7.5.4 in a quantity not less than 5 % of the total energy credits required by ANSI/ASHRAE/IES Standard 90.1, Section 11.5.1.

7.5.4 Load Management Credits Achieved. Load management credits achieved for the project shall be calculated in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2, with the modifications required by this section. Only the energy credits associated with load management in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8, as modified by this section shall be used for compliance.

~~7.5.2.8 Load Management Systems~~

~~7.5.8.2.1~~ 7.5.4.1 G01: Lighting Load Management. *Building projects* with a *gross floor area* not greater than 5000 ft^2 (500 m^2) shall comply with Section 7.3.4.3 without use of exceptions to achieve the energy credits associated with lighting load management in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.1. ~~The energy credits associated with lighting load management in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.1, used for compliance with Section 7.5 shall be limited to buildings with a gross conditioned floor area less than 5000 ft² (500 m²).~~

~~7.5.8.2.2~~ 7.5.4.2 G02: HVAC Load Management. The energy credits associated with HVAC load management in ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.2, shall be prorated by the fraction of HVAC cooling capacity out of total building project cooling capacity used for compliance with ~~Section 7.5~~ this section and shall be limited to HVAC systems with a capacity greater than 240,000 Btu/hr (70kW). ~~buildings with a gross conditioned floor area less than 5000 ft2 (500 m2).~~

~~7.5.8.2.3~~ 7.5.4.3 G03: Automated Shading Load Management. ~~Same as~~ Measure G03 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.3.

~~7.5.8.2.4~~ 7.5.4.4 G04: Electric Energy Storage. ~~Same as~~ Measure G04 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.4.

~~7.5.8.2.5~~ 7.5.4.5 G05: HVAC Cooling Energy Storage. ~~Same as~~ Measure G05 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.5.

~~7.5.8.2.6~~ 7.5.4.6 G06 Service Hot-Water Thermal Storage. ~~Same as~~ Measure G06 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.6.

~~7.5.8.2.7~~ 7.5.4.7 G07: Building Thermal Mass. ~~Same as~~ Measure G07 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.

7.5.4.8 G08: Electric Vehicle Charging Load Management. Measure G08 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.8.

7.5.4.9 G09: Electric Vehicle Power Export. Measure G09 shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.9.

7.5.4.10 G10: HVAC Heating Energy Storage. Measure G10 shall be in accordance with

ANSI/ASHRAE/IES Standard 90.1, Section 11.5.2.8.10.