ERRATA SHEET FOR
ANSI/ASHRAE/IES STANDARD 90.1-2022 (SI Edition)
Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings

April 9, 2025

The corrections listed in this errata sheet apply to ANSI/ASHRAE/IES Standard 90.1-2022, SI Edition. The first printing is identified on the outside back cover of the standard as "Product code: 86329 12/22". Shaded items have been added since the previously published errata sheet dated March 25, 2025 was distributed.

NOTICE: ASHRAE now has a list server for Standing Standards Project Committee 90.1 (SSPC 90.1). Interested parties can now subscribe and unsubscribe to the list server and be automatically notified via e-mail when activities and information related to the Standard and the User's Manual is available. To sign up for the list server please visit **Project Committee List Servers for Standard** on the Technology / Standards section of the ASHRAE website at https://www.ashrae.org/technical-resources/standards-and-guidelines/project-committee-list-servers.

Page(s)	Erratum
2	**Foreword.** Make the following change to Building Envelope. *(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)* ***Building Envelope*** • *A requirement was added to perform whole-building air-leakage testing and measurement on buildings less than ~~2300~~ 930 m^2.*
45	**5.4.3.4 Vestibules and Revolving Doors.** *(Note: Deletions are shown in ~~strikethrough~~.)* **5.4.3.4 Vestibules and Revolving Doors.** Vestibules and revolving *doors* shall be installed in accordance with this section. […] **5.4.3.4.3 Vestibule Envelope.** The exterior surfaces of both conditioned vestibules and unconditioned vestibules shall comply with the *continuous air barrier* requirements. **Exceptions to 5.4.3.4~~.~~3:** […]
71	**6.1.4 Alterations to Heating, Ventilating, Air Conditioning, and Refrigeration in Existing Buildings.** *(Note: Deletions are shown in ~~strikethrough~~.)* **6.1.4 Alterations to Heating, Ventilation, Air Conditioning, and Refrigeration in Existing Buildings** **6.1.4.1** New HVACR *equipment* as a direct replacement of existing HVACR *equipment* shall comply with the following sections as applicable for the *equipment* being replaced:

[…]

6.1.4.5 New and replacement *piping* shall comply with Section 6.4.4.1.

Exceptions to 6.1.4.5: Compliance shall not be required
[…]

78 **6.4.3.4.3 Damper Leakage.** Revise Section 6.4.3.4.3 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

6.4.3.4.3 Damper Leakage. Where *outdoor air* supply and exhaust/relief dampers are required by Section 6.4.3.4~~6.4.3.4.1~~, they shall have a maximum leakage rate as indicated in Table 6.4.3.4.3.

86 **Table 6.5.1.1.3 High-Limit Shutoff Control Settings for Air Economizers.** Revise Table 6.5.1.1.3 as shown in the attached.

100 **Table 6.5.6.1.2-2 Exhaust Air Energy Recovery Requirements for Ventilation Systems Operating Greater than or Equal to 8000 Hours per Year.** Change "≥35" to "≥66" in Table 6.5.6.1.2-2 as shown below.
(Note: Additions are shown in underline and deletions are shown in strikethrough.)

Table 6.5.6.1.2-2 Exhaust Air Energy Recovery Requirements for Ventilation Systems Operating Greater than or Equal to 8000 Hours per Year

	% Outdoor Air at Full Design Airflow Rate							
	≥10% and <20%	≥20% and <30%	≥30% and <40%	≥40% and <50%	≥50% and <60%	≥60% and <70%	≥70% and <80%	≥80%
Climate Zone	Design Supply Fan Airflow Rate, L/s							
3C	NR	NR	NR	NR	NR	NR	NR	NR
0B, 1B, 2B, 3B, 4C, 5C	NR	≥9203	≥4248	≥2360	≥1888	≥1416	≥708	≥60
0A, 1A, 2A, 3A, 4B, 5B	≥1180	≥944	≥472	≥236	≥66~~35~~	≥60	≥50	≥40
4A, 5A, 6A, 6B, 7, 8	≥100	≥65	≥50	≥40	≥35	≥30	≥25	≥20

NR—Not required

131/132 **Table 6.8.1-16 Heat Pump and Heat Recovery Water-Chilling Packages—Minimum Efficiency Requirements.** Add the following footnotes to the title and heading in Table 6.8.1-16 as shown below.
(Note: Additions are shown in underline.)

Table 6.8.1-16 Heat Pump and Heat Recovery Water-Chilling Packages—Minimum Efficiency Requirements[k]

Heat Recovery Heating Full-Load Efficiency (COP*HR*)[c,j,o], W/W										

146 **Table 8.4.4 Minimum Nominal Efficiency Levels for Low-Voltage Dry-Type Distribution Transformers.** Re-letter footnotes in Table 8.4.4 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

…

c~~b~~. *Kilovolt-ampere* rating.

d~~e~~**.** Nominal efficiencies shall be established in accordance with the 10 CFR 431.193 test procedure for low-voltage dry-type distribution *transformers*.

172 **10.1.1 Scope.** Revise Section 10.1.1 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

10. OTHER EQUIPMENT

10.1 General

10.1.1 Scope. This section applies to other *equipment* as described ~~in Section 10.4~~below.

174 **10.4.6.1 Part-Load Controls and Efficiency.** Revise Section 10.4.6.1 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

10.4.6.1 Part-Load Controls and Efficiency. Compressed air *systems* where the total motor power is 18 *kW* or more shall be equipped with appropriately sized *trim compressor(s)* and primary storage. The compressed air *system* shall comply with either of the following:

a. The compressed air *system* shall include one or more variable-speed-drive (VSD) compressors. For *systems* with more than one compressor, the total combined capacity of the VSD compressor(s) acting as *trim compressors* must be at least 1.25 times the largest net capacity increment between combinations of compressors. The compressed air *system* shall include primary storage of at least ~~8~~24 litres per L/s of the largest *trim compressor*.

b. The total effective trim capacity of a compressor *system* is the size of the continuous operational range where the specific power of the compressor(s) (*kW*/50 L/s) is within 15% of the specific power at their most efficient operating point. The total effective trim capacity of the *system* is the sum of the effective trim capacity of the *trim compressors*.

Systems shall include primary storage of at least ~~8~~32 litres per L/s of the largest *trim compressor* and meet (1) or (2) as follows:

1. S*ystems* with more than one compressor, not including backup compressors, shall include a compressor or set of compressors with total effective trim capacity at least the size of the largest net capacity increment between combinations of compressors, or the size of the smallest compressor, whichever is larger.
2. For s*ystems* with one compressor, not including backup compressors, the total effective trim capacity shall include the range from 70% to 100% of rated capacity.

211 **12.5.2 HVAC Systems.** Revise Section 12.5.2 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

12.5.2 HVAC Systems

…

d. Minimum Outdoor Air Ventilation Rate

…

Exceptions to 12.5.2(d):

…

2. Where the minimum outdoor air intake flow in the proposed design is provided in excess of the amount required by Section 6.5.3.8, the ~~*baseline building design*~~ *budget building design* shall be modeled to reflect the minimum amount required by Section 6.5.3.8.

…

i. *Equipment* Capacities.

…

Unmet load hours for the *proposed design* or ~~*baseline building designs*~~ *budget building design* shall not exceed 300 hours (of the 8760 hours simulated). The *unmet load hours* for the *proposed design* shall not exceed the *unmet load hours* for the *budget building design*. Alternatively, *unmet load hours* exceeding these limits may be approved by the *building official*, provided that sufficient justification is given indicating that the accuracy of the simulation is not significantly compromised by these unmet loads.

…

k. Kitchen Exhaust. For kitchens with a total exhaust hood airflow rate greater than 2400 L/s, use a *demand ventilation system* on 75% of the exhaust air. The *system* shall reduce exhaust and *replacement air system* airflow rates by 50% for one half of the kitchen occupied hours in the ~~*baseline building design*~~ *budget building design*. If the *proposed design* uses *demand ventilation*, the same airflow rate schedule shall be used. The maximum exhaust flow rate allowed for the hood or hood section shall meet the requirements of Section 6.5.7.2.2 for the numbers and types of hoods and appliances provided in the *proposed design*.

215 **Table 12.5.1 Modeling Requirements for Calculating Design Energy Cost and Energy Cost Budget.** Revise Table 12.5.1 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

Table 12.5.1 Modeling Requirements for Calculating Design Energy Cost and Energy Cost Budget

Proposed Design (Column A) Design Energy Cost (DEC)

1. Design Model

…

b. All *conditioned spaces* in the *proposed design* shall be simulated as being both heated and cooled, even if no cooling or heating system is being installed. Temperature and humidity control *set points* and schedules, as well as *temperature control throttling range*, shall be the same for proposed design and ~~*baseline building design*~~ *budget building design*.

…

4. Schedules

…

Temperature and Humidity Schedules. Temperature and humidity control set points and schedules, as well as *temperature control throttling range*, shall be the same for proposed design and ~~*baseline building design*~~ *budget building design*.

…

6. Lighting

…d. *Lighting system* power shall include all *lighting system* components shown or provided for on plans (including *lamps*, *ballasts*, task *fixtures*, and furniture-mounted *fixtures*). For *dwelling units*, hotel/motel guest rooms, and other *spaces* in which *lighting systems* consist of plug-in light *fixtures* that are not shown or provided for on *design documents*,

assume identical lighting power for the *proposed design* and ~~*baseline building design*~~ *budget building design* in the simulations.

…

Table 12.5.1 Modeling Requirements for Calculating Design Energy Cost and Energy Cost Budget

Budget Building Design (Column B) Energy Cost Budget (ECB)

11. Service Water Heating

…

Exceptions:

…

3. For 24-hour facilities that meet the prescriptive criteria for use of condenser heat recovery systems described in Section 6.5.6.2, a system meeting the requirements of that section shall be included in the ~~*baseline building design*~~ *budget building design*, regardless of the exceptions to Section 6.5.6.2.2. If a condenser heat recovery system meeting the requirements described in Section 6.5.6.2 cannot be modeled, the requirement for including such a system in the actual building shall be met as a prescriptive requirement in accordance with Section 6.5.6.2 and no heat recovery system shall be included in the proposed design or budget building design.

Service water-heating energy consumption shall be calculated explicitly based on the volume of service water heating required, the entering makeup water, and the leaving service water heating temperatures. Entering water temperatures shall be estimated based on the location. Leaving temperatures shall be based on the end-use requirements.

Service water loads and use shall be the same for both the proposed design and ~~*baseline building design*~~ *budget building design* and typical of the proposed building type. Piping losses shall not be modeled.

217 **Table 11.5.1 Modeling Requirements for Calculating Design Energy Cost and Energy Cost Budget.** Revise item 6.g.1 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

6. Lighting

…

g. *Automatic* lighting controls included in the *proposed design* but not required by Section 9.4.1 shall be modeled using the following methods for each luminaire under control:

1. *Manual*-ON or partial-auto-ON *occupancy sensors* shall be modeled by reducing the lighting schedule each hour by the *occupancy sensor* reduction factors in Table G3.7-1 and G3.7-2for the applicable *space* type multiplied by 1.25~~0.25~~.

302 **G1.3.2 Application Documentation.** Revise Section G1.3.2 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

G1.3.2 Application Documentation. The following documentation shall be submitted to the *rating authority:*

…

m. Reports from the *simulation program* showing

…3. a description of *energy*-related features of the ~~*budget building design*~~ *baseline building design*

and the *proposed design* to support requirements of Section G1.3.2(c).

…

s. Simulation input files for the ~~*budget building design*~~ *baseline building design* and the *proposed design* shall be made available if requested by the *building official.*

307 **Table G3.1 Modeling Requirements for Calculating Proposed Building Performance and Baseline Building Performance.** Revise Table G3.1 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

Table G3.1 Modeling Requirements for Calculating Proposed Building Performance and Baseline Building Performance
Baseline Building Performance

5. Building Envelope

…c. Linear and Point Thermal Bridges. Where *linear thermal bridges* and *point thermal bridges*, as identified in Section 5.5.5 are modeled in the *proposed design*, they shall not be modeled in the ~~*budget building design*~~ *baseline building design*.

310 **Table G-1 Modeling Requirements for Calculating Proposed Building Performance and Baseline Building Performance (Continued).** Revise Exception to (a) and (b) under 10. HVAC Systems as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

Exception to (a) and (b): Where part-load performance of chillers in the *proposed design* is not available, and design temperature across the condenser is 5.56°C, the performance curves in Normative Appendix J ~~Appendix L~~, as referenced in Table J-1, shall be modeled for the specified chiller. When using performance curves from Normative Appendix J ~~Appendix L~~, chiller minimum part-load ratio (ratio of load to available capacity at a given simulation time step) and minimum compressor unloading ratio (part-load ratio below which the chiller capacity cannot be reduced by unloading and chiller is false loaded) shall be equal to 0.25. *Simulation programs* that do not use performance curves are permitted to use an alternative simulation method that results in the same performance as the curves described in Normative Appendix J ~~Appendix L~~.

320 **G3.3.2.3 Opaque Assemblies.** Revise Section G3.3.2.3 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

G3.3.2.3 Opaque Assemblies. *Opaque* assemblies shall be modeled with *U-factors* meeting the requirements in Section ~~5.1.3~~5.1.4.

320 **G3.3.2.4 Fenestration.** Revise Section G3.3.2.4 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

G3.3.2.4 Fenestration. *Fenestration U-factor*, *SHGC*, and *VT* shall be modeled as meeting the requirements in Section ~~5.1.3~~5.1.4.

The *fenestration area* for an *existing building* shall equal the existing *fenestration area* prior to the proposed work and shall be distributed on each face of the *building* in the same proportions as the *existing building.*

320 **G3.3.2.1 General Approach.** Revise Section G3.3.2.1 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

G3.3.2.1 General Approach. *System* and *equipment* included in the scope of retrofit shall be modeled at

~~*efficiency*~~ efficiency levels meeting the mandatory and prescriptive requirements in Sections 5 through 10 and as described in this section. All other baseline *systems* and *equipment* shall be modeled the same as in the *proposed design.*

320 **G3.3.2.8 HVAC Systems.** Revise Section G3.3.2.8 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

G3.3.2.8 HVAC Systems

a. Baseline *HVAC system* types shall be the same as the *proposed design*.
Exception to G3.3.2.8(a): If the *proposed design* includes variable refrigerant flow heat pumps or *single-zone systems* with *electric resistance* heat, then air source heat pumps shall be used in the *baseline design*.
b. *Baseline systems* shall meet the requirements in Section ~~6.1.3~~6.1.4. Chillers shall meet the *efficiency* requirements in Table 6.8.1-3 using Path A or Path B, the same as the *proposed design*. If the *proposed design*
meets both Path A and Path B requirements, Path A shall be used.

[…]

320 **G3.3.2.8 HVAC Systems.** Revise Section G3.3.2.8 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

G3.3.2.8 HVAC Systems

…e. The *equipment* capacities for the *baseline design* shall be sized proportionally to the capacities in the *proposed design* based on sizing runs—i.e., the ratio between the capacities used in the annual simulations and the capacities determined by the sizing runs shall be the same for both the *proposed design* and ~~*budget building design*~~ *baseline building design*.

333 **Table G3.7-1 Performance Rating Method Lighting Power Density Allowances and Occupancy Sensor Reductions Using the Space-by-Space Method.** Revise Table G3.7-1 as shown below (portions of table not shown have not changed).

Table G3.7-1 Performance Rating Method Lighting Power Density Allowances and Occupancy Sensor Reductions Using the Space-by-Space Method

Common Space Types [a]	Lighting Power Density, W/m²	Occupancy Sensor Reduction [b]
…	…	…
Guest Room		
Dwelling Unit	11.5	None
…	…	…

343 **Table G3.9.2 Performance Rating Method Baseline Elevator Motor.** Revise Table G3.9.2 as shown below.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

Number of Stories (Including Basement)	Motor Type	Counterweight	Mechanical Efficiency	Motor Efficiency[a]
≤4	Hydraulic	None	58%	Table G3.9.3
>4	Traction	*Proposed design* counterweight, if not specified use weight of the car plus 40% of the rated load	64%	Table G3.9.1 ~~G3.9.3~~

375 **L2.1.5 Calculating TSPR.** Revise Equation L-1 as shown below.

L2.1.5 Calculating TSPR. $TSPR_p$ shall be calculated according to Equation L-1:

$$TSPR_p = \frac{\text{Loads}_r}{\text{HVACinput}_p} \quad \text{(L-1)}$$

386 **L5. TSPR METRIC FOR SITE HVAC ENERGY INPUT.** Revise Informative Note 2 in Section L5 as shown below.

Informative Notes:

…

• For ~~source~~ *site energy*, replace Table 6.6.2.2 MPF values with those in Informative Table L4-4.

• For ~~*site*~~ source *energy*, replace Table 6.6.2.2 MPF values with those in Informative Table L4-5.

387 **Table L4.3.2-1 TSPR Reference Building Design HVAC Complex Systems**. Update Table L4.3.2-1 as shown in the attached. Change highlighted in yellow.

394 **Table M-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2019.** Update the Description of Changes for Addendum t as shown in the attached. Change highlighted in yellow.

395 **Table M-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2019.** Revise Table M-1 as shown in the attached, for Addenda ac and ar.
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

400-414 **Table Annex1-1 ASHRAE Standard 169-2013, Table B-1: U.S. Climate Zones by State and County.** Replace Table Annex1-1 with the attached.

Table 6.5.1.1.3 High-Limit Shutoff Control Settings for Air Economizers [a]

Control Type	Allowed Only in Climate Zone at Listed Set Point	Required High-Limit Set Points (Economizer Off when):	
		Equation	Description
Fixed dry-bulb temperature	0B, 1B, 2B, 3B, 3C, 4B, 4C, 5B, 5C, 6B, 7, 8	T_{OA} > 24°C	*Outdoor air* temperature exceeds 24°C
	5A, 6A	T_{OA} > 21°C	*Outdoor air* temperature exceeds 21°C
	0A, 1A, 2A, 3A, 4A,	T_{OA} > 18°C	*Outdoor air* temperature exceeds 18°C
Differential dry-bulb temperature	0B, 1B, 2B, 3B, 3C, 4B, 4C, 5A, 5B, 5C, 6A, 6B, 7, 8	$T_{OA} > T_{RA}$	*Outdoor air* temperature exceeds return air temperature
Fixed enthalpy with fixed dry-bulb temperature	All	h_{OA} > 65.1 ~~47~~ kJ/kg [b] or T_{OA} > 24°C	*Outdoor air* enthalpy exceeds 65.1 ~~47~~ kJ/kg [b] of dry air [b] or *outdoor air* temperature exceeds 24°C
Differential enthalpy with fixed dry-bulb temperature	All	$h_{OA} > h_{RA}$ or T_{OA} > 24°C	*Outdoor air* enthalpy exceeds return air enthalpy or *outdoor air* temperature exceeds 24°C

a. Devices with selectable rather than adjustable *set points* shall be capable of being set to within 1.1°C and 3.4kJ/kg of the *set point* listed.

b. At altitudes substantially different than sea level, the fixed enthalpy limit shall be set to the enthalpy value at 24°C and 50% rh. As an example, at approximately 1830 m elevation, the fixed enthalpy limit is approximately 71.4 ~~53.5~~ kJ/kg.

Table L4.3.2-1 TSPR Reference Building Design HVAC Complex Systems

Building Type Parameter	Large Office (warm) [a]	Large Office (cold) [b]	School (warm) [a]	School (cold) [b]
System type	*VAV/reheat* water-cooled chiller/ electric *reheat* with parallel fan powered boxes	*VAV/reheat* water-cooled chiller/ gas *boiler*	*VAV/reheat* water-cooled chiller/ electric *reheat* with parallel fan powered boxes	*VAV/reheat* water-cooled chiller/ gas *boiler*
Fan control	VSD, no static pressure *reset*	VSD, no static pressure *reset*	VSD, no static pressure *reset*	VSD, no static pressure *reset*
Main fan power (W·s/L) proposed ≥MERV13	2.485	2.485	2.485	2.485
Main fan power (W·s/L) proposed <MERV13	2.274	2.274	2.274	2.274
Zonal fan power, W·s/L	0.75	NA	0.75	NA
Minimum zone airflow fraction	1.5 × V_{oz}	1.5 × V_{oz}	1.2 × V_{oz}	1.2 × V_{oz}
Heat/cool sizing factor	1.25/1.15	1.25/1.15	1.25/1.15	1.25/1.15
Outdoor air economizer	No	Yes except 4A	No	Yes except 4A
Occupied *outdoor air* (= proposed)	Sum(V_{oz})/0.75	Sum(V_{oz})/0.75	Sum(V_{oz})/0.65	Sum(V_{oz})/0.65
Energy recovery ventilator *enthalpy recovery ratio* bypass; SAT *set point*	NA	NA	50%; no bypass	50%; 60°F except 4A
Demand control ventilation	No	No	No	No
Cooling source	2 water-cooled centrif chillers	2 water-cooled centrif chillers	2 water-cooled screw chillers	2 water-cooled screw chillers
Cooling *efficiency*	Table G3.5.3	Table G3.5.3	Table G3.5.3	Table G3.5.3
Heating source (*reheat*)	*Electric resistance*	Gas *boiler*	*Electric resistance*	Gas *boiler*
Furnace or *boiler efficiency*	1.0	75% E_t	1.0	80% E_t
Condenser heat rejection	Axial-fan open-circuit cooling tower			
Cooling-tower *efficiency*, L/s·*kW* (See Section G3.2.3.11)	3.23	3.23	3.23	3.23
Open-circuit cooling-tower turndown (>1060 *kW*)	50%	50%	50%	50%
Pump (constant flow/variable flow)/range	Constant flow; 5.6°C range	Constant flow; 5.6°C range	Constant flow; 5.6°C range	Constant flow; 5.6°C range

Open-circuit cooling-tower approach	~~G3.1.3.11~~G3.2.3.11	~~G3.1.3.11~~G3.2.3.11	~~G3.1.3.11~~G3.2.3.11	~~G3.1.3.11~~G3.2.3.11
Cooling condenser *pump* power, W·s/L	300	300	300	300

Table M-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2019

Addendum	Sections	Description of Changes[a]	ASHRAE Standard Committee Approval	Co-sponsor Approval (IES)	ASHRAE BOD/Tech Council Approval	ANSI Approval
ba	9.4.1, Table 9.5.2.1, Appendix E, Table G3.7-1, Table G3.7-2	Updates the space-by-space LPD values based on efficacy improvements consistent with manufacturer data sheets. Makes various changes to lighting control requirements, including the addition of several new space types and a new requirement for multilevel control with continuous dimming in place of bilevel lighting control.	7/20/2022	9/8/2022	8/15/2022	9/9/2022
cc	10.5.1.1	Increases the prescriptive on-site renewable energy requirement added by Addendum by from 0.25 W/ft^2 to 0.5 W/ft^2.	7/20/2022	9/8/2022	8/15/2022	9/9/2022

Table M-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2019

Addendum	Sections	Description of Changes[a]	ASHRAE Standard Committee Approval	Cosponsor Approval (IES)	ASHRAE BOD/Tech Council Approval	ANSI Approval
t	3.2, 4.2.5, 5.1.3, 5.4.3, 5.7.2, 5.7.3.1, 5.8, 5.9.1.2, 6.4.4.2.1, 6.4.5, 6.5.1, Table 12.5.1 (5), 12.5.3, 13, C1.5, C3.5.5.3, C3.6, C3.1.1.4, Table G3.1 (5), Table H-3	Adds requirement to perform whole-building air leakage testing and measurement on buildings less than ~~2300~~930 m^2, specifies performance requirements for compliance, references the applicable ASTM standard, and modifies relevant Section 3 terminology.	6/25/2022	6/17/2022	6/29/2022	7/29/2022

Table M-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2019

Addendum	Sections	Description of Changes[a]	ASHRAE Standard Committee Approval	Co-sponsor Approval (IES)	ASHRAE BOD/Tech Council Approval	ANSI Approval
ac	3.2, 9.4.1.2, Table ~~9.2.3.1~~9.2.2.1, Table 9.6.1, Appendix E	Updates interior lighting power and minimum control requirements: adds a power exception for the germicidal function in luminaires and sources, removes exceptions for casinos and parking garage daylight transition zone lighting, and provides a definition for the latter item.	6/25/2022	6/17/2022	6/29/2022	7/29/2022
ar	3.2, Table ~~9.2.3.1~~9.2.2.1, 9.4.4, Appendix E	Adds requirements for indoor horticultural lighting based on a new metric, photosynthetic photon efficacy (PPE), developed in ANSI/ASABE S640.	7/20/2022	9/8/2022	8/15/2022	9/9/2022

See PDF version for Table Annex1-1.