**This appendix 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.**

# Informative Appendix H

## Addenda Description Information

ANSI/ASHRAE/IES Standard 90.1-2016 incorporates all addenda to ANSI/ASHRAE/IES Standard 90.1-2013. Table H-1 lists each addendum and describes the way in which the standard is affected by the change. It also lists the ASHRAE, IES, and ANSI approval dates for each addendum.

**Table H-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2013**

| Addendum | Sections | Description of Changes[a] | ASHRAE Standard Committee Approval | ASHRAE BOD/ Tech Council Approval | IES BOD Approval | ANSI Approval |
|---|---|---|---|---|---|---|
| ab (formerly addendum ab to 90.1-2010) | Table A2.3 | Adds a filled cavity metal building roof assembly (R-19+R-11) to Appendix A. | 9/16/2014 | 10/3/2014 | 7/1/2014 | 3/2/2015 |
| ac (formerly addendum ac to 90.1-2010) | A9.4 | Allows the use of the R-value of an airspace in enclosed cavities with or without insulation (Appendix A). Expands the R-value table in Appendix A (based on 2009 *ASHRAE Handbook—Fundamentals*, Chapter 26). | 9/16/2014 | 10/3/2014 | 7/1/2014 | 10/6/2014 |
| ak (formerly addendum ak to 90.1-2010) | 6.5.4.1, 6.5.4.3 | Addresses number of issues with hydronic section (6.5.4.1), including removal of the pump power threshold, limiting section 6.5.4.1 to heating and cooling hydronic systems only, lowering and rephrasing the flow limit exception, and other changes. | 1/18/2014 | 1/22/2014 | 1/15/2014 | 1/23/2014 |
| bm (formerly addendum bm to 90.1-2010) | Appendix G | Allows the use of Appendix G as compliance path. Formulates methodology for showing compliance with Standard 90.1. | 5/27/2015 | 6/4/2015 | 6/1/2015 | 6/26/2015 |
| du (formerly addendum du to 90.1-2010) | 6.5.1 | Requires water-side economizers for chilled-water systems, including nonfan systems such as radiant cooling or passive chilled-beam systems. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| dx (formerly addendum dx to 90.1-2010) | Tables G3.7, G3.8 | Adds changes from pending addenda to 90.1-2010 (addenda co, cr, dl). | 7/26/2013 | 7/30/2013 | 7/29/2013 | 7/31/2013 |
| a | 3.2, 5.1.2.1 | Updates the definition of “conditioned space” and modifies the heated space criteria table. | 9/16/2014 | 10/3/2014 | 7/1/2014 | 10/29/2014 |

a. *These descriptions may not be complete and are provided for information only.

**Table H-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2013 *(Continued)***

| Addendum | Sections | Description of Changes[a] | ASHRAE Standard Committee Approval | ASHRAE BOD/ Tech Council Approval | IES BOD Approval | ANSI Approval |
|---|---|---|---|---|---|---|
| c | 8.4 | Specifies combined maximum voltage drop (5%) for branch (3%) and feeder (2%) circuits, instead of specifying separate voltage drops for each. | 9/16/2014 | 10/3/2014 | 7/1/2014 | 10/6/2014 |
| d | 6.3.2, 6.4.3.3 | Requires deeper thermostat setback for networked guestrooms or those unoccupied for more than 16 hours. Also requires ventilation to be turned off when guest rooms are unoccupied. | 9/16/2014 | 10/3/2014 | 7/1/2014 | 10/6/2014 |
| e | 9.1.2 | Increases requirements for alterations to existing building lighting systems. | 5/27/2015 | 6/4/2015 | 6/1/2015 | 6/26/2015 |
| f | 9.4.1.1 | Changes an exception to the automatic daylight control requirements for daylight areas under skylights from VT to effective aperture. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| g | Table 6.5.3.1-2 | Clarifies interpretation of the equation used for pressure drop adjustment calculation for energy recovery devices. | 9/16/2014 | 10/3/2014 | 7/1/2014 | 10/6/2014 |
| h | C3.5.8 | Modifies the language in Appendix C to separate fan power from the cooling and heating efficiency calculation. | 9/16/2014 | 10/3/2014 | 7/1/2014 | 10/6/2014 |
| i | 6.5.1 | Eliminates separate cooling capacity thresholds for requiring economizer in computer rooms. Computer rooms will be required to follow the same thresholds as comfort cooling applications. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| j | 6.5.3.3 | Requires VAV system ventilation optimization even when ERV is installed. | 1/28/2015 | 1/28/2015 | 1/19/2015 | 1/29/2015 |
| k | Table G3.1 | Requires opaque assemblies in the baseline building to match the descriptions in Appendix A. | 1/28/2015 | 1/28/2015 | 1/19/2015 | 1/29/2015 |
| l | 4.2.4, 4.2.5, 5.2.1, 5.2.9 (new section) | Adds verification requirements for envelope components, including insulation, fenestration, doors, and air leakage. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 9/16/2016 |
| m | 10.4.1 | Adds text in Section 10.4.1 on electric motors to state the tables that must be followed based on size and type (Tables 10.8-4 and 10.8-5). | 1/28/2015 | 1/28/2015 | 1/19/2015 | 1/29/2015 |
| n | Tables 6.8.1-9, 6.8.1-10 | Updates IEER values for air-cooled VRF air conditioners and heat pumps above 65,000 Btu/h. The new IEERs are between 15% and 20% more stringent and become effective on January 1, 2017. | 5/27/2015 | 6/4/2015 | 6/1/2015 | 6/26/2015 |
| o | 6.4.4.2.1 | Clarifies the wording regarding duct seal class by removing text to avoid any possible misinterpretation. | 1/28/2015 | 1/28/2015 | 1/19/2015 | 1/29/2015 |
| p | Table 6.8.1-7 | Adds reference to Cooling Tower Institute Standard CTI STD-201 RS for testing certain equipment types in Table 6.8.1-7. | 1/28/2015 | 1/28/2015 | 1/19/2015 | 1/29/2015 |
| q | Table 6.5.3.1-2 | Only allows the following systems to use the fan power allowance for fully ducted return and/or exhaust systems: systems required to be fully ducted by code or accredited standards, and systems required to maintain air pressure differentials between adjacent rooms. | 5/27/2015 | 6/4/2015 | 6/1/2015 | 6/26/2015 |

a. *These descriptions may not be complete and are provided for information only.

**Table H-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2013 *(Continued)***

| Addendum | Sections | Description of Changes[a] | ASHRAE Standard Committee Approval | ASHRAE BOD/ Tech Council Approval | IES BOD Approval | ANSI Approval |
|---|---|---|---|---|---|---|
| r | G3.1.1; Table G3.1.1-3 | Clarifies the hierarchy for selecting baseline HVAC systems, including what floors to count, and specifies what building type to use when no one use is predominant. | 1/28/2015 | 1/28/2015 | 1/29/2015 | 1/29/2015 |
| s | 6.5.2.1 | Relieves parallel fan-powered box and DOAS with DDC from Section 6.5.2.1, Exception 2, requirements (c) and (d). | 1/28/2015 | 1/28/2015 | 1/19/2015 | 1/29/2015 |
| u | 6.5.7 | Improves wording of transfer air by applying it more broadly than to just kitchen exhaust systems and also by clarifying the sources of transfer air. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/26/2016 |
| v | 5.5.4.5 | Deletes Exception 2 of the fenestration orientation requirement for obstructions to south-facing glazing. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| w | 3, 4, 5, 6, 9, 12; Appendices A, B, D, E, G; Reference Standard Reproduction Annex 1 (new) | Refers Standard 90.1 to new climatic data based on Standard 169-2013, resulting in changes to climate zone assignments for some locations, the creation of a new Climate Zone 0, and the addition of criteria for Climate Zone 0. ISC: Adds method for rating the SRI of walls with glass spandrel area and adjusts criteria for minimum skylight area in Climate Zone 0. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| z | G3.1.3.1 | Modifies modeling of electric auxiliary heat in air-source heat pumps such that they are controlled by an outdoor air thermostat and the heat pump continues to operate while the auxiliary heat is energized. | 5/27/2015 | 6/4/2015 | 6/1/2015 | 6/26/2015 |
| aa | Table G3.1 | Clarifies which spaces in the proposed design can be modeled without mechanical cooling (Appendix G). | 5/27/2015 | 6/4/2015 | 6/1/2015 | 6/26/2015 |
| ad | G3.1.2.4, G3.1.3.19 | Specifies baseline systems 5 through 8 to be modeled with a preheat coil. | 5/27/2015 | 6/4/2015 | 6/1/2015 | 6/26/2015 |
| ae | 3.2, 10.4.1 | Updates definition of nameplate horsepower and relates power ratings of smaller electric motors to their output power. Changes are editorial in nature. | 5/27/2015 | 6/4/2015 | 6/1/2015 | 6/26/2015 |
| af | Table 7.8 | Specifies the rating conditions for measuring the efficiency of heat pump pool heaters. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| ag | 6.4.3.9 | Limits mechanical cooling to 85°F for vestibules, except when the vestibule is tempered with transfer air or heated with recovered energy. | 5/27/2015 | 6/4/2015 | 6/1/2015 | 6/26/2015 |
| ah | 9.4.1.1 | Clarifies that all lighting, including egress lighting on emergency circuits, shall be turned off when the space is unoccupied with 0.02 W/ft$^2$. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| ai | 5.5.4.1; Tables 5.5-0 through 5.5-8 | Prescribes lower SHGC for vertical fenestration in Climate Zone 0 and lower U-factors for vertical fenestration in Climate Zones 4 through 8. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/26/2016 |
| aj | 6.5.3.2.1, 6.5.3.2.4 | Requires return and relief fans larger than 0.5 hp to have VFD control, to maintain building pressure, and to avoid disabling of economizer operation. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |

a. *These descriptions may not be complete and are provided for information only.

**Table H-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2013 *(Continued)***

| Addendum | Sections | Description of Changes[a] | ASHRAE Standard Committee Approval | ASHRAE BOD/ Tech Council Approval | IES BOD Approval | ANSI Approval |
|---|---|---|---|---|---|---|
| al | 5.4.3.2 | Prescribes air leakage criteria for metal coiling doors in semiheated spaces. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 2/24/2016 |
| am | 9.4.1.2 | Increases the parking garage lighting reduction from 30% to 50% in response to no occupancy, specifies a 50% reduction in lighting power in response to the presence of daylighting, and removes a duplicate exemption. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| an | Table 9.6.1 | Removes mandatory local control from restrooms and stairwells. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| ao | Table G3.1 | Requires humidification systems in the baseline building model to be nonadiabatic in buildings where humidification is required. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| ap | 6.5.3 | Moves the minimum 5 hp threshold for fan power to individual requirements under Section 6.5.3, as applicable. Clarifies that fan motors smaller than 1 hp have separate requirements. Clarifies that fan power allowance does not apply to relief fans that operate only during economizer mode. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| aq | Tables 6.8.1-1, 6.8.1-2, 6.8.1-5 | Updates footnotes in Tables 6.8.1-1, 6.8.1-2, and 6.8.1-5 to state that residential air conditioners, heat pumps, and furnaces are now regulated by the U.S. Department of Energy and not by NAECA. Clarifies that certain efficiencies in the tables only apply to three-phase equipment. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 2/24/2016 |
| ar | 3.2; Table 6.5.3.1-2, 6.5.6.1, 6.5.7.1.4, 6.5.7.2 | Replaces “energy recovery effectiveness” with “energy recovery ratio,” which clarifies the intent of the standard with regard to the performance requirements of air-to-air heat exchangers. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| as | 9.4.1.4 | Requires luminaires in parking areas with input power greater than 78 W and mounting height less than 24 ft to reduce power by 50% in response to occupancy. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| at | 9.4.1.1 | Clarifies that the calibration of daylighting controls be performed such that the sensor field of view is not blocked by objects or persons conducting the calibration. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| au | G3.1.3.5, G3.1.3.10, G3.1.3.11 | Specifies in greater detail the modeling of hot-water pumps, chilled-water pumps, and heat rejection equipment in the baseline model. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| av | 3, 6 | Adds the phrase “and be configured to” after the phrase “capable of” throughout the standard. The word “capable” does not guarantee that savings will be achieved, especially in the context of control requirements. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| aw | 6.5.6.1 | Clarifies and limits the exceptions to exhaust air energy recovery requirements (Section 6.5.6.1). | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| ay | 5.4.3.1.3 | Allows nonadhered single-ply roof membranes to qualify as an air barrier material. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |

a. *These descriptions may not be complete and are provided for information only.

**Table H-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2013 *(Continued)***

| Addendum | Sections | Description of Changes[a] | ASHRAE Standard Committee Approval | ASHRAE BOD/ Tech Council Approval | IES BOD Approval | ANSI Approval |
|---|---|---|---|---|---|---|
| az | Appendix G | Appendix G fenestration and skylight glazing fraction set in Appendix G instead of referencing prescriptive requirements. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| ba | Appendix G | Changes G1.2.2 end-use load note from informative to mandatory. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 2/24/2016 |
| bb | G3.1.2.5 | Modifies fan modeling for packaged HVAC. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| bc | Tables 5.5.0 through 5.5.8 | Revises U-factor criteria for doors. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| bd | 6.4.3.1.1 | Requires large (>1500 ton) chiller plant metering. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| bh | 8.4.3.2 | Requires DDC metering GUI display. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| bi | 6.5.2.6 | Limits ventilation air heating (DOAS systems). | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| bj | 6.5.4.7 | Establishes minimum CHW coil selection $\Delta T$. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/26/2016 |
| bk | 6.5.3.4 | Specifies control of fans in fan powered parallel VAV boxes. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| bl | 6.5.1.2.1 | Clarifies that water economizers may use dry coolers. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| bn | 6.3.2, 6.5.3.6 | Sets maximum outdoor air ventilation design requirements or heat recovery. | 8/24/2016 | 9/6/2016 | 9/26/2016 | 9/28/2016 |
| bo | 5.5.4.4.1; Table 5.5.4.4.1 | Modifies the exceptions related to the SHGC credit for shading by permanent projections. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| bp | Table G3.1.2.8 | Modifies Appendix G economizer high-limit shutoff. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| bq | G3.1.2.5, G3.1.3.14 | Sets baseline control requirements for Systems 6 and 8 (FPTU) in Appendix G. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| br | 6.4.3.4.2, 6.5.3.4, 6.5.5.2.1, 6.5.6.1, C3.5.8, G3.1.2.11; Tables6.4.3.4.3, 6.5.1.1, 6.5.1.2, 6.5.1.1.3, 6.5.1.2.1, 6.5.6.1.1, 6.5.6.1.2, 6.6.1, 6.8.2.1, 6.8.2.2, G3.1.1.3, G3.1.1.7, G3.4.1 | Adds requirements for new Climate Zone 0. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| bs | | Water-cooled VRF efficiencies. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |

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**Table H-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2013 *(Continued)***

| Addendum | Sections | Description of Changes[a] | ASHRAE Standard Committee Approval | ASHRAE BOD/ Tech Council Approval | IES BOD Approval | ANSI Approval |
|---|---|---|---|---|---|---|
| bt | Table 8.4.4 | Updates transformer efficiency requirements. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| bv | G3.1.4.4, G3.1.4.9 | ECB hydronic reset exceptions for purchased heating and cooling. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| bw | G3.1.6 | Appendix G lighting controls modeling rules. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/26/2016 |
| bx | G3.1.2.9.1 | Appendix G design airflow rate modeling rules. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| by | | Requires insulation of the first 8 ft of branch piping from recirculating SWH systems. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| bz | | CRAC unit efficiencies. | 8/24/2016 | 9/6/2016 | 9/26/2016 | 9/28/2016 |
| ca | | Reduces the threshold for variable-flow heat rejection device fans from 7.5 to 5 hp. Eliminates the exception for Climate Zones 1 and 2. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| cb | | Modifies ductwork insulation requirements. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| cc | 3.2 | Adds definition for sidelight affective aperture. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| cd | | Establishes a product class and efficiency requirements for DX-DOAS. | 8/24/2016 | 9/6/2016 | 9/26/2016 | 10/7/2016 |
| ce | | Raises minimum threshold for energy recovery. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 2/24/2016 |
| cf | | Requires replacement HVACR equipment to meet most Section 6 requirements. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| cg | 9.4.2 | Exterior lighting requirements made more stringent. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/26/2016 |
| ch | | Reduces LPD allowances. | 8/24/2016 | 9/6/2016 | 9/26/2016 | 9/28/2016 |
| ci | | Fenestration orientation. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| cj | G3.1.1.2 | Appendix G, Table G3.1.1.2, System 11 footnote. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| ck | G3.1.4.11; Table G3.1.4.11 | Appendix G heat rejection leaving water temperature control modeling requirements. | 1/23/2016 | 1/27/2016 | 12/31/2015 | 1/28/2016 |
| cl | Appendix H; Tables 6.8.1.1, G.8.1.2, 6.8.1.5, 7.8 | Moves water heating efficiency requirements to informative Appendix H. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/26/2016 |
| cm | Table A9.4.3.1 | Clarifies and simplifies the default U-factors within Appendix A for wood panels and wood subfloors, corrects the dimensional lumber sizes in the tables, and reorganizes the material list by putting similar materials together. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |

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**Table H-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2013 *(Continued)***

| Addendum | Sections | Description of Changes[a] | ASHRAE Standard Committee Approval | ASHRAE BOD/ Tech Council Approval | IES BOD Approval | ANSI Approval |
|---|---|---|---|---|---|---|
| cn | Table 4.2.1.1 | Adds Climate Zone 0 in Table 4.2.1.1 for compliance with Appendix G. | 6/25/2016 | 6/29/2016/ | 6/27/2016 | 6/30/2016 |
| co | 12 | Normative reference updates. | 6/25/2016 | 6/29/2016/ | 6/27/2016 | 6/30/2016 |
| cp | A3.2, A9.2, A9.4.5; Table A3.2.3 | Provides a U-factor calculation procedure for metal building wall assemblies with filled cavity insulation systems and to add U-factor values to Table A3.2.3, calculated using this procedure. Does not change the criteria of the standard. | 6/25/2016 | 6/29/2016/ | 6/27/2016 | 6/30/2016 |
| cq | | Bases variable-speed thresholds for heat rejection fans on motor power, including service factor. | 6/25/2016 | 6/29/2016/ | 6/27/2016 | 6/30/2016 |
| ct | 3.2, 6.5.1, 6.5.4.5.1, 11.5.2; Tables6.5.1.2.1, 6.5.1.3 | Changes “water economizer” to “fluid economizer” to account for refrigerant-based economizers. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| cv | | Updates motor efficiencies. | 6/25/2016 | 6/29/2016/ | 6/27/2016 | 6/30/2016 |
| cy | | Adds definition for indoor pool dehumidifier and moisture removal efficiency (MRE). Adds new table with efficiency requirements and rating conditions. | 8/24/2016 | 9/6/2016 | 9/26/2016 | 10/7/2016 |
| da | 4.2, Table G3.1.2 | Establishes modeling rules for existing buildings in Appendix G. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| db | 3.2, 6.5.3.1.2, 11.5.2 G1.1, G1.3, G2.5, G3.1.2.4, G3.1.2.3, G3.1.2.6; Table 11.5.1.6, Table G.3.1 | Building official definition and other language clarifications. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| dc | Table G3.1.4 | Updates reference to Standard 55 in Appendix G. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| dd | 6.5.4.2, Table 6.5.4.2 | Reduces the threshold for variable-flow pumping requirements for chilled-water pumps and add requirement for heating water pumps. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| de | 10.4.3.4 | Requires specification of ISO use category and energy efficiency class for elevators. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| dg | 5.4.3.2 | Establishes leakage requirements for glazed power-operated sliding and folding doors. Provides default U-factors for unlabled metal coiling and other metal nonswinging doors. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |

a. *These descriptions may not be complete and are provided for information only.

**Table H-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2013 *(Continued)***

| Addendum | Sections | Description of Changes[a] | ASHRAE Standard Committee Approval | ASHRAE BOD/ Tech Council Approval | IES BOD Approval | ANSI Approval |
|---|---|---|---|---|---|---|
| dh | 9.6.2 | Clarifies that display lighting adder cannot be taken if display lighting exception is taken. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| di | Table G3.1; G3.9 | Adds new table for motor efficiency for Appendix G baseline. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| dk | Table 6.8.1-7 | Increases the minimum efficiency for axial-fan closed-circuit cooling towers. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| dl | 6.4.1.2.1; Table 6.8.1.3 | Changes rating conditions for centrifugal chillers at nonstandard conditions using $K_{adj}$ formula. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| dm | 6.5.4.2 | Clarifies which hydronic heating and cooling pumps need variable-flow controls. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| do | 9.4.1 | Adds efficacy requirements for lighting installed in dwelling units. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| dp | 9.4.1.1 | Adds exception to restriction on automatic energizing of lighting for open office spaces. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| dq | 9.6.2 | Reduces retail display lighting adder. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| dr | 3.2, 9.6.2 | Reduces decorative lighting adder. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| ds | 9.4.1.1 | Specifies daylighting controls adjustment location. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| dt | 3.2, 9.1.2, 9.4.1.1, 9.5.1, 9.6.1, 9.6.4, C3.5.7; Tables 9.4.2.2, 9.5.1, 9.6.1, 11.5.1, | Modifies the definition of lighting power density (LPD) and clarifies language related to LPD. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| dv | 11.4.1.4, C3.1.4 | Updates the reference to Standard 140. | 6/25/2016 | 6/29/2016 | 6/27/2016 | 6/30/2016 |
| dw | Appendix F; Tables G3.1, G3.9, G3.9.2, G3.9.3 | Establishes baseline elevator efficiency requirements for Appendix G. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| dz | A.3.2.1, A9.2, A9.4.5 | Clarifies metal building wall insulation descriptions. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| ea | 3.2, 5, 6, 9, 11; Appendix A | Clarifies the definition and application of wall and exterior wall in various locations in the standard. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |

a. *These descriptions may not be complete and are provided for information only.

**Table H-1 Addenda to ANSI/ASHRAE/IES Standard 90.1-2013 *(Continued)***

| Addendum | Sections | Description of Changes[a] | ASHRAE Standard Committee Approval | ASHRAE BOD/ Tech Council Approval | IES BOD Approval | ANSI Approval |
|---|---|---|---|---|---|---|
| eb | 3.2,; Appendices C and G | Clarifies the definition and application of wall and exterior wall in Appendices C and G. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| ec | Table 4.2.1.1 | Corrects an error in Table 4.2.1.1. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| ed | G3.1.3.18 | Adds three baseline system types to the rules governing dehumidification in Appendix G. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| ef | Tables G3.1, G3.1.1.2 | In Appendix G, clarifies that one baseline SWH system is modeled per building area type, adds two new building area types to SWH type table, and changes the SWH fuel source for two building area types. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| eg | G3.1.2.6.1 | Removes a caveat in Appendix G that air-side economizers can be modeled if the simulation software does not model waterside economizers. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| ej | 3.2, 3.3, 6.4.5, 9.1.2, 9.1.3, 9.1.4 | Adds a definition for “driver” as it relates to LED fixtures and makes several changes to ensure lighting requirements apply to LED fixtures. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| ek | Tables G3.1, G3.10.1, G3.10.2 | Sets baseline efficiency requirements for refrigeration system modeling in Appendix G. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |
| el | 6.3.2, 6.4,3. 6.4.3.12 | Adds fault detection requirements for DX equipment with economizers. | 8/24/2016 | 8/29/2016 | 9/26/2016 | 8/30/2016 |

a. *These descriptions may not be complete and are provided for information only.

**NOTE**

**Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE Web site at www.ashrae.org/technology.**