

ADDENDA

**ANSI/ASHRAE/IES Addendum cj to
ANSI/ASHRAE/IES Standard 90.1-2019**

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by ASHRAE and the American National Standards Institute on April 29, 2022, and by the Illuminating Engineering Society on April 27, 2022.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. Instructions for how to submit a change can be found on the ASHRAE® website (<https://www.ashrae.org/continuous-maintenance>).

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FOREWORD

Addendum cj corrects the following errors in Table 6.8.1-16:

- There are five capacity ranges for the centrifugal category in Table 6.8.1-16, but they are different than for positive displacement chillers, and the positive displacement capacity ranges were incorrectly copied over. The SI table is also missing the >35.57 kW limit for exclusion of heat-ing chillers covered by WSHPs in Table 6.8.1-15.
- For the I-P cooling performance requirements for centrifugal chillers, the cooling efficiency requirements should all be 5% lower than the requirements for cooling-only centrifugal chillers to account for the added use of four-way valves, accumulators, and compressors optimized for a combination of heating and cooling. For the I-P capacity category 3 (≥ 150 ton to <300 ton), the full-load efficiencies and IPLV.IP were not correctly derated, and for I-P category 4 (≥ 300 ton to <400 ton), the IPLV.IP was not correctly derated.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strike through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum cj to Standard 90.1-2019

Modify Table 6.8.1-16 as shown for centrifugal chillers (I-P). (Note: This addendum reflects changes previously made by published Addendum y to Standard 90.1-2019, which can be down-loaded from the ASHRAE website at <https://www.ashrae.org/technical-resources/standards-and-guidelines/standards-addenda/addenda-to-standard-90-1-2019>.

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

Equipment Type	Size Category Refrigerating Capacity ⁿ , ton _R	Cooling Operation Efficiency ^{a,d,e,j} Air Source EER (FL/IPLV), Btu/W·h Liquid-Source Power Input per Capacity (FL/IPLV), kW/ton _R		[...]
		Path A	Path B	
Liquid source electrically operated centrifugal	$\geq 11.25^q$ and <75.00 150.0	≤ 0.6421 FL ≤ 0.5789 IPLV.IP	≤ 0.7316 FL 0.4632 IPLV.IP	[...]
	≥ 75.00 150.0 and <150.0 300.0	≤ 0.5895 0.6190 FL ≤ 0.5474 0.5748 IPLV.IP	≤ 0.6684 FL 0.4211 IPLV.IP	[...]
	≥ 150.0 300.0 and <300.0 400.0	≤ 0.5895 FL ≤ 0.5263 0.5526 IPLV.IP	≤ 0.6263 FL ≤ 0.4105 IPLV.IP	[...]
	≥ 300.0 400.0 and <600.0	≤ 0.5895 FL ≤ 0.5263 IPLV.IP	≤ 0.6158 FL ≤ 0.4000 IPLV.IP	[...]
	≥ 600.0	≤ 0.5895 FL ≤ 0.5263 IPLV.IP	≤ 0.6158 FL ≤ 0.4000 IPLV.IP	[...]

Modify Table 6.8.1-16 for centrifugal chillers as shown (SI). (Note: This addendum reflects changes previously made by published Addendum y to Standard 90.1-2019, which can be downloaded from the ASHRAE website at <https://www.ashrae.org/technical-resources/standards-and-guidelines/standards-addenda/addenda-to-standard-90-1-2019>.

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

Equipment Type	Size Category Refrigerating Capacity ⁿ kW	[. . .]
Liquid source electrically operated centrifugal	≥39.57⁴ and <264.0 <u>528.0</u>	[. . .]
	≥264.0 <u>528.0</u> and <528 <u>1055</u>	[. . .]
	≥528.0 <u>1055</u> and <1055 <u>1407</u>	[. . .]
	≥1055 <u>1407</u> and <2110	[. . .]
	≥2110	[. . .]

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