

## U.S. Fan Efficiency Codes and Standards: Where Are We Now?

The following are tables that summarize the status of U.S. fan efficiency codes, standards and regulations. Given the amount of work that has already been done and the amount of work in progress, and with codes and standards under regular

change cycles, it is easier to present and track this body of work using summary tables. For continual updates on the U.S. Department of Energy (DOE) regulatory developments and pending codes and standards actions, visit AMCA’s website<sup>1</sup>.

Table 1. U.S. Fan Efficiency Provisions in Codes, Standards and Regulations

Publication/Regulation	Type	Fan Efficiency Status
ASHRAE, ANSI/ASHRAE/IES 90.1, <i>Energy Standard for Buildings Except Low-Rise Residential Buildings</i>	Baseline energy standard	Exists in 2013 version <sup>2</sup>
ICC IECC-2015, <i>International Energy Conservation Code (IECC)</i>	Baseline energy code	Exists in 2015 version <sup>3</sup>
ANSI/ASHRAE/USGBC/IES 189.1, <i>Standard for Construction of High Performance Buildings Except Low-Rise Residential Buildings</i>	Green/high-performance construction standard	Addendum bk has passed all 189.1 committees; awaiting vote from ASHRAE Board of Directors
ICC IGCC-2012, <i>International Green Construction Code (IgCC)</i>	Green/high-performance construction code	Exists in 2012 version <sup>4</sup> . Changes being proposed for 2015 version to harmonize with ASHRAE 189.1 and IECC
California Title 24-2016	State energy code	Considering adopting a provision identical to AHRAE 90.1-2013 or a modified version to meet state objectives. May opt to wait until 2019 version to accommodate DOE regulation.
U.S. Department of Energy Regulation for Commercial and Industrial Fans	Federal appliance/equipment regulation	AMCA is negotiating a joint recommendation with other stakeholders to provide DOE with a regulatory approach that would satisfy industry and environmental/energy advocacy organizations.

Table 2: Timeline of Fan Efficiency Code, Standard and Regulatory Actions

Code/Standard/Regulation	First Generation (Year Finalized)	Second Generation (Year Finalized)	Third Generation (Year Finalized)	Notes
IgCC	2012 (2011) 2015 (2014)	2018 (2017)	2021 (2020)	Basis is ASHRAE 189.1
ASHRAE 90.1	2013 (2013)	2016 (2016)	2019 (2019)	
ASHRAE 189.1	2014 (2014)	2017 (2017)	2020 (2020)	Basis is ASHRAE 90.1
IECC	2015 (2013)	2018 (2016)	2021 (2019)	Basis is ASHRAE 90.1
DOE Requirement	Final rule 2015/2016	Effective 2020 or later	Unknown	Easier to delay than accelerate
California Title 24	2016 (2015) Effective 2017	2019 (2018) Effective 2020	2022 (2020) Effective 2023	California may opt to not have a provision in 2016

### REFERENCES

- 1 AMCA International. “Codes and Standards.” Accessed June 19, 2014. [www.amca.org/feg/codes-and-standards.aspx](http://www.amca.org/feg/codes-and-standards.aspx)
- 2 American Society of Heating, Refrigerating, and Air-Conditioning Engineers. ANSI/ASHRAE/IES Standard 90.1-2013, *Energy Standard for Buildings Except Low-Rise Residential Buildings*. Atlanta: ASHRAE, 2013. Available as of June 19, 2014, at <http://www.techstreet.com/products/1865966>
- 3 International Code Council. ICC IECC-2015, *2015 International Energy Conservation Code*. Washington, D.C.: ICC, 2015. Available as of June 19, 2014, at <http://www.techstreet.com/products/1874934>
- 4 International Code Council. ICC IECC-2012, *International Green Construction Code (IGCC)*. Washington, D.C.: ICC, 2015. Available as of June 19, 2014, at <http://www.techstreet.com/products/1843531>

Table 3. Fan Efficiency Provisions in U.S. Model Codes and Standards

Model Code/ Standard	Basis	Scope of Coverage	Fan Size <sup>A</sup>	Minimum Fan Efficiency Grade (FEG)	Sizing/ Selection Window <sup>B</sup>	Certified FEG and Energy Label Required	Exemptions
2012 IgCC	AMCA 205-10	For buildings <25,000 sq ft, stand-alone supply, return and exhaust fans	> 1 hp	FEG 71	10 percentage points	No	None
2013 ASHRAE 90.1	ANSI/AMCA 205-12	Buildings other than low-rise residential buildings	> 5 hp	FEG 67	15 percentage points	No	Yes <sup>C</sup>
2014 ASHRAE 189.1 (proposed)	ANSI/AMCA 205-12	Buildings other than low-rise residential buildings	> 5 hp	FEG 67	10 percentage points	No	Yes <sup>C</sup>
2015 IECC	ANSI/AMCA 205-12	Buildings other than low-rise residential buildings	> 5 hp	FEG 67	15 percentage points	Yes	Yes <sup>C</sup>
2015 IgCC (proposed)	ANSI/AMCA 205-12	Buildings <25,000 sq ft	> 5 hp	FEG 67	10 percentage points	Yes	Yes <sup>C</sup>

**Table 3 Notes:**

A. Applies to fan arrays with aggregated motor nameplate ratings

B. Expressed as fan operating point selected to be within a certain number of percentage points of the fan's maximum total pressure (this is a rated value provided by the manufacturer)

C. The list of exemptions below is in ASHRAE 90.1-2013 and IECC-2015. The list is adopted by reference in proposals for 189.1-2014 and IgCC-2015.

1. Single fans with a motor nameplate horsepower of five or less
2. Multiple fans in series or parallel (e.g., fan arrays) that have a combined motor nameplate horsepower of five or less and are operated as the functional equivalent of a single fan
3. Fans that are part of equipment listed under Section 6.4.1.1 (in IECC, it is under Section C403.2.3)
4. Fans included in equipment bearing a third party-certified seal for air or energy performance of the equipment package
5. Powered wall/roof ventilators (PRV)
6. Fans outside the scope of AMCA Standard 205
7. Fans that are intended to only operate during emergency conditions

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