

Energy Codes: Changes Coming for Air Leakage Requirements

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Over the last few update cycles the energy codes have been focused on the Opaque Thermal Envelope Insulation Component Requirements. This focus and the resulting changes have yielded improvements in the thermal performance of the envelope of the building, but also created some challenges in figuring out how to comply in the most effective ways possible. Kirby Building Systems has published eNews articles and State Energy Code Update Summaries in an effort to keep builders informed and make energy code compliance easier.

As we have settled into a new normal for how metal buildings are insulated, the energy codes have turned their focus to air leakage reduction in efforts to continue improving the energy efficiency of buildings. Previously one could satisfy the air leakage requirements of the energy codes by utilizing one of several different options. Those options were prescriptive requirements for materials or assemblies, or optional Whole Building Testing.

Once states begin to adopt IECC 2021 and ASHRAE 90.1-2019, Whole Building Testing for air leakage will no longer be optional, but instead will become a requirement. There are some instances such as the state of Washington and the U.S. Army Corps of Engineers where Whole Building Testing has been in place for the last several years. For the remainder of the country this will present new challenges in making sure the building is compliant with the new air leakage requirements.

Below is a table from a recent MBMA Bulletin (No. 129-20 (E)) which summarizes the key test requirements for the preceding energy codes and the newly impacted codes.

	IECC			ASHRAE 90.1			WA		CA		COE
	2015	2018	2021	2013	2016	2019	2015	2018 ¹	2016	2019 ²	2012
Whole Building Test Required?	Opt.	Opt.	Req. ³	No ⁴	Opt.	Req. ³	Req.	Req.	Opt.	Opt.	Req.
ASTM Test(s)	E779	E779	E779 E1827 ⁵	NA	E779 E1827	E779 E1827	E779 ⁶	E779 ⁶	E779 ⁶	E779 ⁶	COE ⁷
Pass Limit (cfm/ft ²) ⁸	0.40	0.40	0.40	0.40 ⁴	0.40	0.40	0.40	0.25	0.40	0.40	0.25
Grace Range (cfm/ft ²) ⁹	None	None	0.60	NA	0.60	0.60	Seal/No Test ¹⁰	0.40 ¹¹	None	None	None
Fenestration	Yes ¹²	Yes ¹²	Yes ¹³	Yes ⁴	Yes ¹²	Yes ¹²	No	No	Yes ¹⁴	Yes ¹⁴	No
Loading Dock Vehicle Seals	Yes	Yes	Yes	Yes ¹⁵	Yes ¹⁵	Yes	Yes	Yes	No	No	No
Vestibules	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes ¹⁶

¹Effective Nov. 1, 2020 (Note, original effective date was July 1, but this was delayed due to COVID-19).

²Effective Jan. 1, 2020.

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Many of the codes are similar in what requirements are being adopted, however there are differences as well as potential exceptions to the requirements that will be important to understand. If you would like more detailed information on these new changes coming to air leakage requirements in the energy codes please visit <https://www.kirbybuildingsystems.com/air-leak-testing-requirements/> for the full summary from MBMA Bulletin (No. 129-20 (E)) referenced above.

MBMA is currently conducting air leakage testing on a variety of metal buildings and insulation systems to get out ahead of these new requirements. If you would like to participate please contact Vince Sagan at the MBMA office, vsagan@mbma.com or 216.241.7333.