BSR/ASHRAE/IES Addendum a
to ANSI/ASHRAE/IES Standard 100-2024

Public Review Draft

Proposed Addendum a to Standard 100-2024, Energy Efficiency in Existing Buildings

Second Public Review (June, 2026)
(Draft shows Proposed Independent Substantive Changes to Previous Public Review Draft)

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed standard, go to the ASHRAE website at www.ashrae.org/standards-research--technology/public-review-drafts and access the online comment database. The draft is subject to modification until it is approved for publication by the Board of Directors and ANSI. Until this time, the current edition of the standard (as modified by any published addenda on the ASHRAE website) remains in effect. The current edition of any standard may be purchased from the ASHRAE Online Store at www.ashrae.org/bookstore or by calling 404-636-8400 or 1-800-727-4723 (for orders in the U.S. or Canada).

This standard is under continuous maintenance. To propose a change to the current standard, use the change submittal form available on the ASHRAE website, www.ashrae.org.

The appearance of any technical data or editorial material in this public review document does not constitute endorsement, warranty, or guaranty by ASHARE of any product, service, process, procedure, or design, and ASHRAE expressly disclaims such.
© 2026 ASHRAE. This draft is covered under ASHRAE copyright. Permission to reproduce or redistribute all or any part of this document must be obtained from the ASHRAE Manager of Standards, 180 Technology Parkway NW, Peachtree Corners, GA 30092. Phone: 404-636-8400, Ext. 1125. Fax: 404-321-5478. E-mail: standards.section@ashrae.org.

ASHRAE; 180 Technology Parkway; Peachtree Corners, GA 30092

© 2026 ASHRAE

This draft is covered under ASHRAE copyright. The appearance of any technical data or editorial material in this publication document does not constitute endorsement, warranty, or guaranty by ASHRAE of any product, service, process, procedure, design or the like and ASHRAE expressly disclaims such. Permission to republish or redistribute must be obtained from the MOS.

(This foreword 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.)

FOREWORD

This addendum adds several new definitions. Two of them address the meaning of imported energy. The others address lower carbon energy forms in order to clarify the characteristics that permit an energy form to be classified as "lower carbon". In addition, a definition for imported (contrasted with on-site generated) lower-carbon electricity has been added.

The addendum also revises the list of energy forms in Form C-1. It clarifies wording for energy forms with on-site energy production, and removes three energy forms that are possible duplicates of other energy forms, and thus deemed unnecessary.

The energy forms listed in Forms C-2 and C-3 are revised to match the energy forms in Table C-1. This will improve the usability of the standard as Forms C-2 and C-3 depend on the energy data calculated in Form C-1.

Finally, Table 5-2 is deleted and is replaced with a new Table 5-2 that lists all the energy forms listed in Forms C-1, C-2 and C-3.

Note to Reviewers: This public review makes proposed independent substantiative changes to the previous public review draft. These substantive changes to the previous public review draft are indicated by underlining (for additions) strikethrough (for deletions), except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the previous public review are open for review and comment at this time. Additional material is provided for context only and is not open for comment, except as related to the proposed substantive changes.

Addendum a to Std. 100-2024

Modify definitions as follows.

biofuel: a fuel that is derived from biomass.

biomass: nonfossilized and biodegradable organic material originating from plants, animals, and/or micro-organisms, including products, byproducts, residues, and waste from agriculture, forestry, and related industries, as well as the nonfossilized and biodegradable organic fractions of industrial and

municipal wastes, including gases and liquids recovered from the decomposition of nonfossilized and biodegradable organic material.

imported: when applied to energy, it is energy that is transported from outside the *site* and delivered for use within the *building* including *imported electricity*. Imported energy does not include naturally occurring *renewable* energy, such as wind, solar or geothermal, that is harvested and converted within the *site* for use in the *building* or for export from the *building*.

imported electricity: electricity that is generated outside the ~~building~~ *site* and is delivered for use within the building.

imported lower-carbon electricity: electricity that is (1) transported from outside the *site* and is delivered for use within the *building* and (2) has lower greenhouse gas emissions factors than the grid electricity values shown in Tables 5-2 and 5-4.

Imported zero-carbon electricity: electricity that is (1) transported from outside the *site* and is delivered for use within the *building* and (2) is generated solely from *renewable,* nuclear and/or other *renewable* resources approved by the *authority having jurisdiction*.

lower-carbon fuel: a gaseous or liquid fuel that has lower life-cycle greenhouse gas emissions on a per-unit energy basis than the equivalent conventional fossil fuel.

~~***renewable***~~ ***lower carbon fuel oil***: fuel oil derived from *biomass* or from other *renewable* resources.

~~***Renewable***~~ ***lower carbon hydrogen:*** hydrogen produced using *renewable* resources ~~both~~ as the source for the hydrogen and ~~the source~~ using either renewable or conventional resources for the energy input to the production process.

~~***renewable***~~ ***lower carbon natural gas:*** pipeline compatible gaseous fuel derived from *biomass* or from ~~renewable~~ *lower carbon hydrogen*.

~~***renewable***~~ ***lower carbon propane***: a gaseous fuel derived from *biomass* or from other *renewable* resources.

***renewable*:** energy forms derived from resources that do not deplete or that can be replenished using sustainable processes that avoid the depletion of natural resources that are not replenished within a human lifetime.

on-site renewable electricity: electricity produced at the building *site* using one or more *renewable* resources.

renewable thermal energy: energy produced using *renewable* resources as the source for the energy input to the production process.

Modify Forms C-1, C-2 and C-3 as follows:

Form C-1—Site Energy Use Intensity Calculation

	Energy Form [a]	**Source of Energy Data** [b]	**Energy Use Numerical Value**	**Units**	**Conversion Factor** [c] **to kBtu (MJ)**	**Annual Site Energy, kBtu/yr (MJ/yr)**
1a.	*Imported* grid electricity					
1b.	*Imported* specific ~~*renewable*~~ *lower carbon electricity* [c,d]					
1c.	*Imported* specific *zero-carbon electricity* [c,d]					
2a.	*Imported* grid natural gas					
2b.	*Imported* specific ~~*renewable*~~ *lower carbon natural gas*[d]					
3.	*Imported* steam					
4.	*Imported* hot water					
5.	*Imported* chilled water					
6a.	*Imported* grid fuel oil [e]					
6b.	*Imported* specific ~~*renewable*~~ *lower carbon fuel oil* [d, e]					
7a.	*Imported* grid propane [e]					
7b.	*Imported* specific ~~*renewable*~~ *lower carbon propane* [d, f]					
8.	*Imported* coal or other [d, e]					
9.	*Imported biofuels* [d, e]					
10.	Imported transportation vehicle energy					
11.	On-site *renewable thermal energy* production					
12.	*On-site renewable electricity* production					
13.	On-site other energy production [d, e]					
14.	Exported electricity					
15.	Exported steam					
16.	Exported hot water					
17	Exported chilled water					
18	Exported other [d]					
19	Exported transportation vehicle energy					
	Annual Gross Energy [f](Sum of rows 1a to 13 minus Sum of rows 14 to 19), kBtu (MJ)					
	Site Energy Use Intensity (*gross energy* / gross floor area [from Form B]), kBtu/ft^2 (MJ/ft^2)					

Notes:

a. Grid energy forms are from the electric grid, fuel utility, or distribution system. ~~Specific renewable~~ Data for lower carbon energy forms ~~are~~ shall be from a specific provider ~~meeting~~ that meets the requirements of the adopting authority as set out in Note c.

b. See Table 5-1. Data for lower carbon energy forms shall be from a specific provider that meets the requirements of the adopting authority as set out in Note c.

c. Documentation of specific off-site ~~renewable~~ lower carbon or zero-carbon energy ownership or procurement, and accompanying energy and GHG emission conversion factors, shall be submitted and approved by to the authority having jurisdiction. GHG factors for *lower-carbon fuels* shall be calculated in accordance with the carbon intensity methodology in the California Air Resources Board Low Carbon Fuel Standard, not inclusive of credits for avoided emissions, or with the net greenhouse gas emission methodology in the U.S. Environmental Protection Agency Renewable Fuel Standard. For locations outside the United States, GHG factors for lower carbon fuels shall be calculated in accordance with a methodology acceptable to the adopting authority. If any aspect of this energy source changes, the building owner shall provide updated data to the AHJ. If conversion factors change such that the building no longer meets its performance targets, the building shall begin a new compliance process with the updated conversion factors. For procurement, the purchase contract shall have a duration of not less than 15 years, or until the next compliance cycle, whichever is shorter.

d. If there is more than one "~~specific~~ lower carbon" or "other" energy form, the entry shall be split, or additional notations made to so indicate.

e. If using energy forms stored in bulk, calculate in accordance with Section 5.2.2.1.

f. When the imported energy meter records the imported energy minus the exported energy under a net metering agreement, exported energy shall not be double counted.

Form C-2—Source Energy Use Intensity Calculation Table

	Energy Form[a]	**Annual Site Energy (Form C-1, Column 6), kBtu/yr (MJ/yr)**	**Source Energy Conversion Factor** [b]	**Annual Source Energy, kBtu/yr (MJ/yr)**
1a.	*Imported* grid electricity			
1b.	*Imported* specific ~~***renewable***~~ ***lower carbon*** *electricity* [c d]			
1c.	*Imported* specific *zero-carbon electricity* [c,d]			
2a.	*Imported* grid natural gas			
2b.	*Imported* specific ~~***renewable***~~ ***lower carbon*** *natural gas* [c d]			
3.	*Imported* steam			
4.	*Imported* hot water			
5.	*Imported* chilled water			
6a.	*Imported* grid fuel oil			
6b.	*Imported* specific ~~***renewable***~~ ***lower carbon*** *fuel oil* [c d]			
7a.	*Imported* grid propane			
7b.	*Imported* specific ~~***renewable***~~ ***lower carbon*** *propane* [c d]			
8.	*Imported* coal or other [d]			
9.	*Imported biofuels* [d]			
10.	*Imported* transportation vehicle energy			
11.	On-site *renewable thermal energy* production [c]			
12.	***On-site renewable electricity*** production [c]			
13.	On-site other energy production [d]			
14.	Exported electricity			
15.	Exported steam			
16.	Exported hot water			
17.	Exported chilled water			
18.	Exported other [d]			
19	Exported transportation vehicle energy			
	Annual Source Energy [e] (Sum of rows 1 to 13 minus Sum of rows 14 to 19), kBtu (MJ)			
	Source Energy Use Intensity (*gross energy* / gross floor area [from Form B]), kBtu/ft^2 (MJ/ft^2)			

Notes:

a. Grid energy forms are from the electric grid, fuel utility, or distribution system. ~~Specific renewable~~ Data for lower carbon energy forms ~~are~~ shall be from a specific provider ~~meeting~~ that meets the requirements of the adopting authority as set out in Note c.

b. See Section 5.2.3.2 and Table 5-2.

c. Documentation of specific off-site renewable or zero-carbon energy ownership or procurement, and accompanying energy and GHG emission conversion factors, shall be submitted and approved by the authority having jurisdiction. GHG factors for *lower-carbon fuels* shall be calculated in accordance with the carbon intensity methodology in the California Air Resources Board Low Carbon Fuel Standard, not inclusive of credits for avoided emissions, or with the net greenhouse gas emission methodology in the U.S. Environmental Protection Agency Renewable Fuel Standard. For locations outside the United States, energy and GHG factors for lower carbon fuels shall be calculated in accordance with a methodology acceptable to the adopting authority. If any aspect of this energy source changes, the building owner shall provide updated data to the AHJ. If conversion factors change such that the building no longer meets its performance targets, the building shall begin a new compliance process with the updated conversion factors. For procurement, the purchase contract shall have a duration of not less than 15 years, or until the next compliance cycle, whichever is shorter.

d. If there is more than one "specific" or "other" energy form, the entry shall be split, or additional notations made to so indicate.

Form C-3—Greenhouse Gas Intensity Calculation

	Energy Form[a]	**Annual Site Energy (Form C-1 Column 6) kBtu/yr (MJ/yr)**	**Greenhouse Gas Emission Factor**[b] **lb CO_2e/kBtu (kg CO_2e/MJ)**	**Annual Greenhouse Gas Emissions, lb CO_2e/yr (kg CO_2e/yr)**
1a.	*Imported* grid electricity			
1b.	*Imported* specific ~~***renewable***~~ ***lower carbon*** *electricity* [d]			
1c.	*Imported* specific *zero-carbon electricity* [c,d]			
2a.	*Imported* grid natural gas			
2b.	*Imported* specific ~~***renewable***~~ ***lower carbon*** *natural gas* [d]			
3.	*Imported* steam			
4.	*Imported* hot water			
5.	*Imported* chilled water			
6a.	*Imported* grid fuel oil			
6b.	*Imported* specific ~~***renewable***~~ ***lower carbon*** *fuel oil* [d, c]			
7a.	*Imported* grid propane			
7b.	*Imported* specific ~~***renewable***~~ ***lower carbon*** *propane* [d, c]			
8.	*Imported* coal or other [d]			
9.	*Imported biofuels* [d, c]			
10.	*Imported* transportation vehicle energy			
11.	On-site *renewable thermal energy* production			
12.	***On-site renewable electricity*** production			
13.	On-site other energy production [d, c]			
14.	Exported electricity			
15.	Exported steam			
16.	Exported hot water			
17.	Exported chilled water			
18.	Exported other [d]			
19.	Exported transportation vehicle energy			
	Greenhouse Gas Emissions[e] (Sum of Rows 1 to 13 minus Sum of Rows 14 to 19), lb CO_2e (kg CO_2e)			
	Greenhouse Gas Intensity (*greenhouse gas emissions* / gross floor area), lb CO_2e/ft^2 (kg CO_2e/m^2)			

Notes:

a. Grid energy forms are from the electric grid, fuel utility, or distribution system. Specific renewable Data for lower carbon energy forms ~~are~~ shall be from a specific provider ~~meeting~~ that meets the requirements of the adopting authority as set out in Note c.

b. See Section 5.2.3.3

c. Documentation of specific off-site renewable energy ownership or procurement, and accompanying energy and GHG emission conversion factors, shall be submitted and approved by the-authority having jurisdiction. GHG factors for *lower-carbon fuels* shall be calculated in accordance with the carbon intensity methodology in the California Air Resources Board Low Carbon Fuel Standard, not inclusive of credits for avoided emissions, or with the net greenhouse gas emission methodology in the U.S. Environmental Protection Agency Renewable Fuel Standard. For locations outside the United States, GHG factors for lower carbon fuels shall be calculated in accordance with a methodology acceptable to the adopting authority. If any aspect of this energy source changes, the building owner shall provide updated data to AHJ. If conversion factors change such that the building no longer meets its performance targets, the building shall begin a new compliance process with the updated conversion factors. For procurement, the purchase contract shall have a duration of not less than 15 years, or until the next compliance cycle, whichever is shorter.

d. If there is more than one "specific" or "other" energy form, the entry shall be split, or additional notations made to so indicate.

Delete the existing Table 5-2, and replace it with the following Table 5-2

Table 5-2 U.S. Source Energy and Greenhouse Gas (GHG) Emissions Conversion Factors

A	B	C	D	E
	Energy Form (The energy forms below match the lists of energy forms in Tables C-1, C-2 and C-3)	Source Energy Conversion Factor[a]	GHG Emissions Factor, GWP_{100} (lb CO_2e/kBtu)	GHG Emissions Factor, GWP_{100} (kg CO_2e/MJ)
1a	Grid electricity	2.74	0.326	0.140
1b	Lower carbon electricity	Note d	Note d	Note d
1c	Zero-carbon electricity [d]	1.00	0.00	0.00
2a	Grid natural gas	1.09	0.147	0.063
2b	Lower carbon natural gas	Note d	Note d	Note d
3	Purchased district energy – Steam	1.45	0.247	0.106
4	Purchased district energy – Hot water	1.35	0.234	0.101
5	Purchased district energy – Chilled water	1.04	0.083	0.036
6a	Grid fuel oil[~~b~~,c]	1.19	0.196	0.084
6b	Lower carbon fuel oil[~~b~~]	Note d	Note d	Note d
7a	Grid propane or LPG[~~b~~]	1.15	0.169	0.073
7b	Lower carbon propane or LPG[~~b~~]	Note d	Note d	Note d
8	Coal	1.10	0.242	0.104
9	Biofuels	Note d	Note d	Note d
10	Transportation vehicle energy[e,f]	1.00	0.00	0.00
11	On-site renewable thermal energy production[f]	1.00	0.00	0.00
12	On-site renewable electricity production[f]	1.00	0.00	0.00
13	Other on-site energy production	Note d	Note d	Note d

Notes:

~~a. Refer to Table 5-1, except as noted.~~

~~b. If using energy forms that are delivered and stored in bulk, calculate in accordance with Section 5.2.2.1.~~

c. Conversion factors are for #2 fuel oil. For other grades of fuel oil, obtain conversion factors from Table 5-1

d. Documentation of lower carbon or zero-carbon energy forms shall include: (1) ownership source of the energy form purchase, and (2) the source energy conversion factor and the GHG emissions factors, shall be submitted to, and approved by, the AHJ. GHG factors for *lower-carbon fuels* shall be calculated in accordance with the carbon intensity methodology in the California Air Resources Board Low Carbon Fuel Standard, not inclusive of credits for avoided emissions, or with the net greenhouse gas emission methodology in the U.S. Environmental Protection Agency Renewable Fuel Standard. For locations outside the United States, GHG factors for lower carbon fuels shall be calculated in accordance with a methodology acceptable to the adopting authority. If any aspect of the energy form changes, the building owner shall obtain updated data and submit it to the AHJ. If any conversion factor changes such that the building no longer meets its performance targets, the building shall begin a new compliance process using the updated conversion factor(s). For procurement, the purchase contract shall have a duration of not less than 15 years, or until the next compliance cycle, whichever is shorter.

e. Factors apply to both imported and/or exported electricity. For other energy forms use the appropriate factors.

f. Factors to be approved by the AHJ.

Modify Section 5.2.3.3 as follows:

5.2.3.3 Greenhouse Gas Emissions. GHG emissions shall be calculated using Equation 5-4:

$$GHG\ emissions = Site\ energy_1 \times GEF_1 + \ldots + Site\ energy_i \times GEF_i + \ldots + Site\ energy_n \times GEF_n \quad (5\text{-}4)$$

Where

Site $energy_i$ = site energy associated with energy form *i* where *i* equals 1 to *n*

GEF_i = GHG emissions conversion factor associated with energy form *i,* where *i* equals 1 to *n*, as listed in table 5-2

The *AHJ* shall be permitted to

a. Substitute the national grid electricity *GHG emission* conversion factor in Table 5-2 with the appropriate regional factor in Table 5-4 appliable to the *building* location
b. Substitute other *GHG emission* conversion factors for electricity and other energy forms following the processes and procedures incorporated in ANSI/ASHRAE Standard 105
c. Specify *GHG emissions* conversion factors for energy sources not listed in Table 5-4
d. ~~Allow *buildings* to use~~ Evaluate *GHG emissions* conversion factors provided by building owners for energy forms procured from specific energy providers, and approve them if the GHG emissions conversion factors are accurate.

Add the following references to Section 11:

Reference		**Section**
California Air Resource Board 4001 Iowa Avenue, Riverside, CA 92507		
LCFS 22-02	Low Carbon Fuel Standard	Tables C-1, C-2, C-3 and Table 5-2
US Environmental Protection Agency 1200 Pennsylvania Avenue, N.W., Washington, DC 2046t0, United States		
40 CFR Part 80-2023	Renewable Fuel Standard	Tables C-1, C-2, C-3 and Table 5-2