



**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

**First Public Review (August 2024)
(Draft Shows Proposed Changes to Current Standard)**

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FOREWORD

This addendum adds several new definitions. Two of them address the meaning of imported energy. The others address renewable energy in order to clarify the characteristics that permit an energy form to be classified as “renewable”.

The addendum also revises the list of energy forms in Table 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 Tables 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 Tables C-2 and C-3 depend on the energy data calculated in Table C-1.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes. Only these changes are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed substantive changes.

Addendum a to Std. 100-2024

Add the following definitions:

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* and is delivered for use within the *building*.

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.

renewable electricity: electricity produced using one or more *renewable* resources.

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

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

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

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

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

Revise 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 electricity ^d					
2a.	Imported grid natural gas					
2b.	Imported specific renewable natural gas ^d					
3.	Imported steam					
4.	Imported hot water					
5.	Imported chilled water					
6a.	Imported grid fuel oil ^e					
6b.	Imported specific renewable fuel oil ^{d,e}					
7a.	Imported grid propane ^e					
7b.	Imported specific renewable propane ^{d,f}					
8.	Imported coal or other ^{d,e}					
9.	Imported biofuels ^{d,e}					
10.	On-site nonrenewable energy					
10 4.	Imported transportation vehicle energy					
11 2.	Thermal On-site renewable thermal energy production					
12 3.	Electricity On-site renewable electricity production					
13 4.	Renewable on-site production On-site other energy production ^{d,e}					
15.	Imported energy for on-site production					
16.	Net change in energy stored on-site					
17 20.	Exported electricity					
15 8.	Exported steam					
16 9.	Exported hot water					
17 20.	Exported chilled water					
18 24.	Exported other ^d					
19 22.	Exported transportation vehicle energy					
	Annual Gross Energy ^f (Sum of 1 to 13 4 minus Sum of 14 5 to 19 22), kBtu (MJ)					
	Site Energy Use Intensity (<i>gross energy</i> / 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 energy forms are from a specific provider meeting the requirements of the adopting authority.
- b. See Table 5-1.
- 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 to the authority having jurisdiction. 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.
- 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 electricity ^{c d}			
2a.	Imported grid natural gas			
2b.	Imported specific renewable natural gas ^{c d}			
3.	Imported steam			
4.	Imported hot water			
5.	Imported chilled water			
6a.	Imported grid fuel oil. ^e			
6b.	Imported specific renewable fuel oil ^{c d}			
7a.	Imported grid propane			
7b.	Imported specific renewable propane ^{c d}			
8.	Imported coal or other ^d			
9.	Imported biofuels ^d			
10.	On-site nonrenewable energy			
10 _{1.}	Imported transportation vehicle energy			
11.	On-site renewable thermal energy production^e			
12.	On-site renewable electricity production^e			
13.	On-site other energy production^{d, e}			
14 _{2.}	Exported electricity			
15 _{3.}	Exported steam			
16 _{4.}	Exported hot water			
17 _{5.}	Exported chilled water			
18 _{6.}	Exported other ^{e d}			
19 _{7.}	Exported transportation vehicle energy			
	Annual Source Energy^e (Sum of 1 to 13 ₄ minus Sum of 14 ₂ to 19 ₇), kBtu (MJ)			
	Source Energy Use Intensity (<i>gross energy</i> / 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 energy forms are from a specific provider meeting the requirements of the adopting authority. b. See Section 5.2.3.2. c. Documentation of specific off-site renewable energy ownership or procurement, <u>and accompanying energy and GHG emission conversion factors</u> , shall be submitted and approved by to the adopting authority having jurisdiction. <u>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.</u> For procurement, the purchase contract shall have a duration of not less than 15 years, <u>or until the next compliance cycle, whichever is shorter.</u> d. If there is more than one “specific” or “other” energy form, the entry shall be split, or additional notations made to so indicate. e. 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.				

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 ₂ e/kBtu (kg CO ₂ e/MJ)	Annual Greenhouse Gas Emissions, lb CO ₂ e/yr (kg CO ₂ e/yr)
1a.	Imported grid electricity			
1b.	Imported specific renewable electricity ^d			
2a.	Imported grid natural gas			
2b.	Imported specific renewable natural gas ^d			
3.	Imported steam			
4.	Imported hot water			
5.	Imported chilled water			
6a.	Imported grid fuel oil			
6b.	Imported specific renewable fuel oil ^{d,c}			
7a.	Imported grid propane			
7b.	Imported specific <u>renewable</u> propane ^{d,c}			
8.	Imported coal or other ^d			
9.	Imported biofuels ^{d,c}			
10.	On-site nonrenewable energy			
10 1 .	Imported transportation vehicle energy			
11.	On-site <u>renewable thermal energy production</u>			
12.	On-site <u>renewable electricity production</u>			
13.	On-site <u>other energy production</u> ^{d,c}			
14 2 .	Exported electricity			
15 3 .	Exported steam			
16 4 .	Exported hot water			
17 5 .	Exported chilled water			
18 6 .	Exported other ^d			
19 7 .	Exported transportation vehicle energy			
	Greenhouse Gas Emissions^e (Sum of 1 to 13 1 minus Sum of 14 2 to 19 7), lb CO ₂ e (kg CO ₂ e)			
	Greenhouse Gas Intensity (<i>greenhouse gas emissions</i> / gross floor area), lb CO ₂ e/ft ² (kg CO ₂ e/m ²)			

Notes:

- a. Grid energy forms are from the electric grid, fuel utility, or distribution system. Specific renewable energy forms are from a specific provider meeting the requirements of the adopting authority.
- 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 adopting authority having jurisdiction. 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.
- e. 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.