

Public Review Draft

Proposed Addendum j to Standard 189.1-2017

Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings

Second Public Review Draft (July 2019)
(Draft Shows Proposed Independent Substantive
Changes to Previous Public Review Draft)

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Foreword

This ISC addresses comments made during the first public review of addendum j. The proposed changes from the 1st public review draft are summarized as follows:

- a. Defines REC and associates it with other commonly used terms like energy attribute and energy attribute certificate*
- b. The first public review draft kept REC ownership with building owner and didn't acknowledge chain of custody, how it can be transferred to single or multiple tenants, retired on behalf of tenants, get split among building etc. We added language to cover those instances and added new language to Section 10 as reference*
- c. Uses the phrase 'purchase contract' in lieu of power purchase agreement*
- d. Changed purchase contract term from 20 to 15 years.*
- e. Added provision for small Hydro certified by an accredited organization*

[Note to Reviewers: This public review draft makes proposed independent substantive changes to the previous public review draft. These changes are indicated in the text by underlining (for additions) and ~~striketrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard 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 changes.]

Addendum j to 189.1-2017

Revise Section 3.2 Definitions as shown. Definitions not shown have not changed. The definitions not underlined are provided for context and are not proposed to be changed.

3.2 Definitions

building project: a building, or group of buildings, and site that utilize a single submittal for a construction permit or that are within the boundary of contiguous properties under single ownership or effective control. (See *owner*.)

community renewable energy facility: a facility that generates electricity energy with photovoltaic, solar thermal, geothermal energy, or wind systems and is qualified as a community energy facility under applicable state and local utility statutes and rules

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on-site renewable energy system: photovoltaic, solar thermal, *geothermal energy*, and wind systems used to generate energy and located on the *building project*.

owner: the party in responsible control of development, construction, or operation of a project at any given time.

renewable energy certificate (REC): a tradable instrument that represents the environmental attributes of one megawatt hour of renewable electricity generation and is transacted separately from the electricity generated by the renewable energy source. Also known as energy attribute and energy attribute certificate.

site: a contiguous area of land that is under the ownership or control of one entity.

Revise Section 7 as follows:

7.3.2 On-Site Renewable Energy Systems. *Building projects* shall contain on-site photovoltaic systems with a rated capacity of not less than 2 W/ft² (22 W/m²) multiplied by the horizontal projection of the *gross roof area* over *conditioned spaces* and *semi-heated spaces*. Documentation shall be provided to the *AHJ* that indicates an exclusive chain of custody and ownership of the RECs from the on-site renewable energy system to the building owner. RECs supplied from the on-site renewable energy system shall be conveyed to and retired on behalf of the entity(s) who has financial or operational control over the building's electricity consumption. RECs shall be tracked per Section 10.3.2.1.6. ~~that the RECs associated with the on-site renewable energy system(s) will be retained and retired by the owner.~~

~~Where the building owner does not have ownership of the RECs associated with the on-site renewable energy system, the owner shall obtain and retire an equal or greater quantity of RECs. cannot provide documentation on the chain of custody or ownership of the RECs from the on-site renewable energy system, the building owner may provide documentation to the~~ *AHJ* of an alternate supply contract for an equal or greater quantity of replacement RECs from an alternate renewable energy source.

The building *gross roof area* used for calculation in 7.3.2 excludes:

- a. Shaded areas which are defined as roof area where direct-beam sunlight is blocked by structures or natural objects for more than 1,500 annual hours between 8 a.m. and 4 p.m.
- b. Areas of vegetated terrace and roofing systems compliant with Section 5.3.5.5.
- c. Areas designated for public occupancy. Parking areas shall not qualify for this exclusion.
- d. Areas designated for helipads.

Exceptions to 7.3.2:

1. Building projects that have an annual daily average incident solar radiation available to a flat plate collector oriented due south at an angle from horizontal equal to the latitude of the collector location less than 1.2 kBtu/ft²·day (4.0 kWh/m²·day).

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2. Renewable energy systems other than photovoltaic systems that result in an equal or greater annual energy production.
3. Capacity shall be permitted to be reduced to that required to provide at least 50% of the simulated annual site energy consumption of the proposed building project in accordance with Normative Appendix C.

7.4.1.1 Renewable Energy Systems. The adjusted renewable energy provided to the project shall be equal to or greater than the gross conditioned and semi-heated floor areas of the *building project* in feet squared (meters squared) multiplied by the renewable energy requirement from Table 7.4.1.1. For allocations to multiple tenants within a building project, the requirements shall be assigned to each tenant based on the total square footage (square meters) of gross conditioned and semi-heated floor area of each tenant space.

Building projects complying with the Alternate Renewables Approach shall comply with the applicable equipment efficiency requirements in Normative Appendix B, the water-heating efficiency requirements in Section 7.4.4.1, equipment efficiency requirements in Section 7.4.7.1, and the applicable ENERGY STAR® requirements in Section 7.4.7.3.2. For equipment listed in Section 7.4.7.3.2 that are also contained in Normative Appendix B, the installed equipment shall comply by meeting or exceeding both requirements.

Documentation shall be provided to the AHJ that substantiates procurement of renewable energy systems, of renewable energy contracts, or of a quantity of RECs required to meet the Exception to 7.4.1.1. RECs shall be tracked in accordance with Section 10.3.2.1.6.

Qualifying renewable energy systems are as follows:

a. On-Site Renewable Energy System

b. Off-Site Renewable Energy System

1. Self-generation (an off-site renewable energy system owned by the *building project owner*.) The system shall comply with Section 7.4.1.3
2. Community Renewable Energy Facility – The system shall comply with Section 7.4.1.3.
3. Purchase contract – The system shall comply with Section 7.4.1.3.

Exception to 7.4.1.1: *Building projects* that demonstrate to the AHJ that they cannot comply with Section 7.4.1.1 shall contract for renewable electricity products complying with the Green-e Energy National Standard for Renewable Electricity products of not less than 1.2 MWh/ft² (12.6 MWh/m²) of *gross floor area of conditioned spaces and semi-heated spaces*, or an amount equal to 100% of the modeled annual energy usage multiplied by 20 years, whichever is less. A combination of renewable electricity products and renewable energy systems shall be permitted to demonstrate compliance. RECs shall be tracked per Section 10.3.2.1.6.

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Table 7.4.1.1 Renewable Energy Requirement

Building Type	Standard Renewables Approach		Alternate Renewables Approach	
	kBtu/ft ² -y	kWh/m ² -y	kBtu/ft ² -y	kWh/m ² -y
Office	14	44	13	40
Retail	24	74	21	67
School	19	61	17	55
Healthcare	40	126	36	113
Restaurant	40	126	36	113
Hotel	34	108	31	98
Apartment	22	68	20	62
Warehouse	8	26	7	23
All Others	25	80	23	72

7.4.1.2 Adjusted Renewable Energy. Each source of renewable energy delivered to or credited to the *building project* shall be multiplied by the factors in Table 7.4.1.2 when determining compliance with Section 7.4.1.1.

~~Where multiple buildings in a *building project* are served by the same *on-site renewable energy system*, the *owner* shall allocate for not less than 20 years the energy production of the system to the buildings served by the system. On-site renewable energy production that is not allocated, but that is reserved for future use, shall be documented as part of the *building project*. Documentation of allocation shall be retained by the building *owner* and made available for inspection by the *AHJ* upon request.~~

Qualifying renewable energy sources are as follows:

~~a. *On-Site Renewable Energy System*~~

~~b. *Directly Owned Off-Site Renewable Energy System*—an offsite renewable energy system compliant with Section 7.4.1.3, owned by the *building project owner*.~~

~~c. *Community Renewable Energy Facility*—The system shall comply with Section 7.4.1.3.~~

~~d. *Virtual PPA*—a power purchase agreement for offsite renewable energy compliant with Section 7.4.1.3, where the *owner* agrees to purchase renewable energy output at a fixed price schedule.~~

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Table 7.4.1.2 Multipliers for Renewable Energy Procurement Methods

Location	Renewable Energy Source	Renewable Energy Factor
On-Site	<i>On-Site Renewable Energy System</i>	1.00
Off-Site	Directly Owned Off-Site Renewable Energy System	0.75
	Community Renewable Energy System-Facility	0.75
	Virtual-PPA Purchase contract	0.75

7.4.1.3 Off-Site Renewable Energy Requirements. Off-site renewable energy delivered or credited to the *building project* to comply with 7.4.1.1 shall be subject to a legally binding contract to procure qualifying off-site renewable energy. ~~Where the renewable energy producer ceases operation, the building owner shall procure alternative qualifying renewable energy.~~ Qualifying off-site renewable energy shall meet the following requirements:

- a. Documentation of off-site renewable energy procurement shall be submitted to the *AHJ*.
- b. The ~~procurement purchase~~ contract shall have a duration of not less than ~~20~~15 years. The contract shall be structured to survive a partial or full transfer of ownership of the building property.
- c. ~~RECs and other environmental attributes~~ associated with the ~~procured~~ purchase contract from an off-site renewable energy system shall be assigned to the building project exclusively to the building owner for a period of not less than ~~20 years~~15 years and tracked in accordance with Section 10.3.2.1.6.
- d. The energy source shall produce electricity from solar, wind, or geothermal energy.

Exception to 7.4.1.3 Part d:

- 1. Captured methane from feed-lots and landfills are permitted to be used to generate electricity for the purposes of this section.
- 2. Hydropower from new generation capacity on a non-impoundment or new generation capacity on an existing impoundment that meets one or more of the following conditions:
 - a. the hydropower facility complies with the Low Impact Hydropower Certification Handbook and is certified by a nationally recognized accreditation organization;
 - b. the hydropower facility complies with UL 2854 and is certified by an organization that has the standard in its ISO 17065 scope of accreditation.
 - c. the hydropower facility consists of a turbine in a pipeline or a turbine in an irrigation canal.

For facilities falling under 2a or 2b, only output generated during the period of certification is eligible for RECs sale in accordance with the provisions of this section. Renewables from new impoundments of water are not eligible.

- e. The generation source shall be located where the energy can be delivered to the building site by any of the following:

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1. By direct connection to the off-site renewable energy facility
 2. By the local utility or distribution entity
 3. By an interconnected electrical network where energy delivery capacity between the generator and the building site is available (***Informative Note:*** Examples of interconnected electrical networks include regional power pools and regions served by Independent System Operators or Regional Transmission Organizations.)
- f. ~~Records on power sent to or purchased by the building project from the off-site renewable energy producer that specifically assign power production to the building project shall be retained by the building owner and made available for inspection by the AHJ upon request.~~ renewable power purchased by the building owner from the off-site renewable energy generator that specifically assign the RECs to the building owner shall be retained or retired by the building owner on behalf of the entity demonstrating financial or operational control over the building seeking compliance to this standard and made available for inspection by the AHJ upon request. ***Informative Note:*** Refer to Sections 10.3.2.1.6 and 10.3.2.1.7 for tracking and allocation requirements.
- g. Where multiple buildings in a *building project* are allocated the renewable energy procured by a contract subject to this Section, the owner shall allocate for not less than 2015 years the energy procured by the contract to the buildings in the building project. ~~Procured energy not allocated before issuance of the certificate of occupancy is permitted to be reserved for allocation to new or existing buildings included in the building project. This documentation shall be retained by the building owner and made available for inspection by the AHJ upon request.~~ ***Informative Note:*** Refer to Section 10.3.2.1.7 for allocation requirements.

Add these new sections to Section 10 as follows:

10.3.2.1.6 Renewable Energy Certificate Tracking. For multi-tenant buildings where RECs are transferred to tenants, the plan for operation shall include procedures for tracking the quantity and vintage of RECs that are required to be retained and retired in compliance with Sections 7.3.2 and 7.4.1.1 of this standard. The plan shall include provisions to transfer the RECs to building tenants or to retire RECs on their behalf in proportion to the gross conditioned and semi-heated floor area leased or rented. The plan shall include provisions to use a RECs tracking system that meets the requirements of Section V.B of the Green-e Framework for Renewable Energy Certification. Where the renewable energy producer ceases operation, the plan shall describe how the building owner will procure alternative qualifying renewable energy.

10.3.2.1.7 Renewable Energy Allocation to Multiple Buildings. Where renewable energy is allocated to multiple buildings in compliance with Section 7.4.1.3 (7), the plan shall indicate how renewable energy produced from on-site or off-site systems that is not allocated before issuance of the certificate of occupancy will be allocated to new or existing buildings included in the building project. The plan shall indicate who will be responsible for retaining the documentation for allocations, and where it will be stored so that it can be made available for inspection by the AHJ upon request.

Where multiple buildings in a building project share a common utility interconnection and are served by the same on-site renewable energy system, the building owner shall allocate for not less than 15 years the annual REC generation of the onsite renewable energy system to the buildings served by the system. The annual generation vintage date of delivered RECs shall be allocated to the same 12 month reporting year, up to 6 months prior, or up to 3 months after the calendar year in which the electricity is used in the building. The annual allocation of RECs shall be documented as part of the plan. The

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plan shall indicate who will be responsible for retaining the documentation, and where it will be stored so that it can be made available for inspection by the AHJ upon request.

Add to Section 11, Normative References as follows:

Green-e

c/o Center for Resource Solutions

1012 Torney Ave., Second Floor

San Francisco, CA 94129, United States

1- 415-561-2100; www.green-e.org

Version 1.0, July 7, 2017 Green-e Framework for Renewable Energy Certification

Low Impact Hydropower Institute (LIHI)

329 Massachusetts Avenue, Suite 6

Lexington, Massachusetts 02420

603-664-5097 <https://lowimpacthydro.org>

Version 2.03, December 20, 2018 Low Impact Hydropower Certification Handbook

Underwriters Laboratories, Inc. (UL)

333 Pfingsten Rd., Northbrook, IL 60062

847-272-8800; www.ul.com; cec.us@us.ul.com

First edition, January 25, 2018 UL 2854 Standard for Sustainability for Renewable Low-Impact Electricity Products

FOR REFERENCE ONLY

[Note to reviewers: Section 7.4.1.1 is also modified by addendum b, 1st public review draft and ISC, as follows, which is not yet published.]

Section 7.4.1.1 as it appears in addendum b:

7.4.1.1 On-Site Renewable Energy Systems. *Building projects shall comply with either the Standard Renewables Approach in Section 7.4.1.1.1 or the Alternate Renewables Approach in Section 7.4.1.1.2. Section 7.4.1.1.2 shall apply only to building projects where the sum of the gross conditioned and semi-heated floor areas of the building project are less than 25,000 ft² (2300 m².)*

Modifications that reflect the combined impact of addendum b and this addendum, but which do not appear explicitly in either, is shown below in strikethrough/underline.

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7.4.1.1 Renewable Energy Systems. The adjusted renewable energy provided to the project shall be equal to or greater than the *gross conditioned* and *semi-heated floor areas* of the *building project* in feet squared (meters squared) multiplied by the renewable energy requirement from Table 7.4.1.1. For allocations to multiple tenants within a *building project*, the requirements shall be assigned to each tenant based on the total square footage (square meters) of *gross conditioned* and *semi-heated floor area* of each tenant space.

Building projects complying with the Alternate Renewables Approach shall comply with the applicable equipment efficiency requirements in Normative Appendix B, the water-heating efficiency requirements in Section 7.4.4.1, equipment efficiency requirements in Section 7.4.7.1, and the applicable ENERGY STAR® requirements in Section 7.4.7.3.2. For equipment listed in Section 7.4.7.3.2 that are also contained in Normative Appendix B, the installed equipment shall comply by meeting or exceeding both requirements. ~~Section 7.4.1.1.2~~ The Alternate Renewables Approach shall apply only to *building projects* where the sum of the *gross conditioned* and *semi-heated floor areas* of the *building project* are less than 25,000 ft² (2300 m²).