

# OP 3: Building Design and Construction

3 points available

## Rationale

This credit recognizes institutions that have incorporated environmental features into their design and construction projects. Decisions made during the design phase, such as where to locate the building and how it is oriented, can yield significant energy savings and reduce impacts on the site. By designing and building for enhanced indoor environmental quality, institutions can ensure their buildings provide safe, healthy, and productive spaces for the campus community. While other credits also capture many of the impacts of green buildings (e.g., on campus energy consumption and water use), this credit recognizes institutions that have comprehensive green construction and renovation programs and that pursue third party certification for new campus buildings.

## Applicability

This credit applies to institutions that have new construction and/or major renovation projects completed within the previous five years that are *eligible for certification* under a green building rating system for design and construction.

## Criteria

Institution-owned buildings that were constructed or underwent *major renovations* in the previous five years were designed and built in accordance with a published *green building code*, policy/guideline, and/or *rating system*.

Green building codes, policies/guidelines, and rating systems may be:

- Multi-attribute: addressing location and transportation, sustainable sites, water efficiency, energy and atmosphere, material and resources, and indoor environmental quality (e.g., BREEAM, LEED BD+C, and similar programs); OR
- Single-attribute: focusing predominantly on one aspect of sustainability such as energy/water efficiency, human health and wellbeing, or sustainable sites.

Building space that is third party certified under a multi-attribute green building rating system developed/administered by a WorldGBC member Green Building Council (GBC) is weighted more heavily for scoring purposes than space designed and built under other standards and policies/programs. For more information, see [Examples of Multi-attribute and Single-attribute Building Frameworks](#).

Floor area designed and built in accordance with multiple green building codes, policies/guidelines, and/or rating systems should not be double-counted.

## Scoring

An institution earns the maximum of 3 points for this credit when all eligible building space completed during the previous five years is certified at the highest achievable level under a multi-attribute GBC rating

system for new construction and major renovations. Incremental points are awarded based on the percentage of eligible building space designed and built in accordance with a published green building code, policy, or rating system and/or certified at various levels, as outlined in the table below.

Points for this credit are calculated automatically in the STARS Reporting Tool as follows:

Design and construction level	Factor		Floor area certified or designed and built at each level		Total floor area of new or renovated building space		Points earned
Certified at the highest achievable level under a multi-attribute GBC rating system (e.g., LEED BD+C Platinum or Certified Living Building)	3.0		_____				
Certified or at the 2nd highest level under a 4- or 5-tier, multi-attribute GBC rating system (e.g., LEED BD+C Gold)	2.5		_____				
Certified at mid-level under a 3- or 5-tier, multi-attribute GBC rating system (e.g., BREEAM Very Good)	2.25		_____				
Certified at a step above minimum level under a 4- or 5-tier, multi-attribute GBC rating system (e.g., LEED BD+C Silver)	2.0	×	_____	÷	_____	=	
Certified at minimum level under a multi-attribute GBC rating system (e.g., LEED BD+C Certified)	1.5		_____				
Certified/verified at any level under a multi-attribute, non-GBC rating system, a green building code, or a single-attribute rating system	1.5		_____				
Designed and built in accordance with a multi-attribute green building code, policy/guideline, or rating system, but not certified	1.25		_____				
Designed and built in accordance with a single-attribute green building code, policy/guideline, or rating system, but not certified	0.625		_____				
<b>Total points earned →</b>							<b>Up to 3</b>

## Reporting Fields

### Required

- ☐ Total floor area of newly constructed or renovated building space (square metres or feet)
- ☐ Floor area of newly constructed or renovated building space (square metres or feet):
  - ☐ Certified at the highest achievable level under a multi-attribute GBC rating system for design and construction (e.g., LEED BD+C Platinum or Certified Living Building)
  - ☐ Certified at the 2nd highest level under a 4- or 5-tier, multi-attribute GBC rating system for design and construction (e.g., LEED BD+C Gold)
  - ☐ Certified at mid-level under a 3- or 5-tier, multi-attribute GBC rating system for design and construction (e.g., BREEAM Very Good)
  - ☐ Certified at a step above minimum level under a 4- or 5-tier, multi-attribute GBC rating system for design and construction (e.g., LEED BD+C Silver)
  - ☐ Certified at minimum level under a multi-attribute GBC rating system for design and construction (e.g., LEED BD+C Certified)
  - ☐ Certified/verified at any level under a multi-attribute, non-GBC rating system for design and construction, a green building code, or a single-attribute rating system for design and construction
  - ☐ Designed and built in accordance with a multi-attribute green building code, policy, guideline, or rating system, but not certified/verified
  - ☐ Designed and built in accordance with a single-attribute green building code, policy, guideline, or rating system, but not certified/verified
- ☐ A list or inventory of new construction and major renovation projects that indicates the green building code, policy/guideline, or rating system that applies to each building (text or upload)

### Optional

- ☐ Website URL where information about the institution's green building design and construction program is available
- ☐ Additional documentation to support the submission (upload)
- ☐ Data source(s) and notes about the submission
- ☐ Contact information for a responsible party (an employee who can respond to questions regarding the data once it is submitted and available to the public)

## Measurement

### Timeframe

Report on the current certification status of buildings at the time of submission. Buildings for which certification is pending should not be counted as certified space, and these buildings may be excluded from the institution's profile for up to 2 years following registration with a rating system.

This credit focuses on buildings for which construction was completed within the five years prior to the anticipated date of submission.

### Sampling and Data Standards

Include all buildings that meet the criteria for *eligible building space (design and construction)*. Reporting on a sample or subset of buildings is not allowed.

An institution may use any standard definition of floor area (e.g., ASHRAE, ANSI/BOMA, IECC), as long as it uses the same definition for both the total floor area of eligible building space and the floor area of building space that is certified and/or sustainably designed and constructed.

## **Standards and Terms**

### **Eligible building space (design and construction)**

“Eligible building space (design and construction)” includes the total floor area of all building space that is eligible for certification under a green building rating system focused on design and construction and for which construction or major renovations were completed during the previous five years. To be included, building space must meet the minimum program requirements of a rating system for new construction and major renovations. See, for example [LEED BD+C Minimum Program Requirements](#).

Projects that do not meet minimum program requirements and are therefore ineligible for certification under a green building rating system for design and construction - for example, impermanent structures and projects with less than 93 square metres (100 square feet) of gross floor area - and minor renovations that allow the primary function space to be used for its intended purpose while the work is in progress may be excluded.

### **Green building code**

Consistent with the U.S. Department of Energy, green building codes:

...go beyond minimum code requirements, raising the bar for energy efficiency. They can serve as a proving ground for future standards, and incorporate elements beyond the scope of the model energy codes, such as water and resource efficiency. As regional and national green building codes and programs become more available, they provide jurisdictions with another tool for guiding construction and development in an overall less impactful, more sustainable manner.

Examples include the International Green Construction Code (IgCC), ASHRAE Standard 189.1 for the Design of High-Performance Green Buildings, and regional codes such as the California Green Building Standards Code (CALGreen Code).

### **Green building rating system**

The World Green Building Council (WorldGBC) defines green building rating systems as tools and certifications “used to assess and recognize buildings which meet certain green requirements or standards”. Rating systems vary in their approach and can be applied to the design and construction of new buildings and major renovations or to the operations and maintenance of existing buildings. Rating systems may also be categorized as multi-attribute (e.g., addressing location and transportation, sustainable sites, water efficiency, energy and atmosphere, material and resources, and indoor environmental quality) or single-attribute (e.g., focusing predominantly on energy/water efficiency or human health and wellbeing).

Consistent with WorldGBC, STARS takes a neutral approach to individual rating systems, however comprehensive, multi-attribute certifications developed/administered by a WorldGBC member Green Building Council (GBC) are weighted more heavily for scoring purposes than single-attribute certifications

and multi-attribute certifications that are not developed/administered by a GBC. Examples include, but are not limited to:

#### Building Design and Construction (OP-3)

Multi-attribute GBC rating systems	BREEAM, CASBEE, DGNB, Green Star, LEED BD+C, LEED ID+C, Living Building Certification, Parksmart
Multi-attribute non-GBC rating systems	Green Globes NC
Single-attribute rating systems	EDGE, Fitwell, Living Building Petal Certification, Net Zero Energy, Passive House / Passivhaus, WELL, ZCB-Design

#### Building Operations and Maintenance (OP-4)

Multi-attribute GBC rating systems	BREEAM-In Use, CASBEE for Existing Buildings, DGNB, Green Star Performance, LEED O+M, Parksmart Pioneer
Multi-attribute non-GBC rating systems	BOMA BEST, Green Globes EB
Single-attribute rating systems	EDGE, ENERGY STAR, Fitwell, TRUE, WELL, ZCB-Performance

Additional examples of GBC-administered rating systems are available at <http://www.worldgbc.org/rating-tools>.

#### Major renovation

Consistent with LEED, major renovation is defined as extensive alteration work, the extent and nature of which is such that “the primary function space cannot be used for its intended purpose while the work is in progress and where a new certificate of occupancy is required before the work area can be reoccupied.”

#### Credit Example: Multi- and single-attribute green building codes, policies/guidelines, and rating systems

Multi-attribute frameworks address water efficiency, energy and atmosphere, material and resources, AND indoor environmental quality, whereas single-attribute frameworks focus predominantly on one aspect of sustainability such as energy/water efficiency, human health and wellbeing, or sustainable sites.

Institution A has designed and built 4 buildings in the previous 5 years:

- 1 building certified under LEED BD+C. It is counted as “certified under a **multi-attribute** GBC rating system.”
- 2 uncertified buildings designed under an internal green building policy that is based on LEED BD+C. They are counted as “designed and built in accordance with a **multi-attribute** green building code, policy, guideline, or rating system, but not certified/verified.”

- 1 uncertified building designed to meet to Passive House standards. It is counted as “designed and built in accordance with a **single-attribute** green building code, policy, guideline, or rating system, but not certified/verified.”