

# 10 GREEN BUILDING STANDARDS

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## 10.1 POLICY OVERVIEW

The US Department of Housing and Urban Development (HUD) requires that all residential housing assisted with Community Development Block Grant Disaster Recovery (CDBG-DR) funding comply with certain green building requirements. There are two tiers of requirements laid out in Federal Register notices from February 9, 2018 (83 FR 5844) and February 19, 2019 (83 FR 4836). The first is applicable to any project involving new construction (including replacement or reconstruction) and substantial rehabilitation (i.e., where the cost of rehabilitation exceeds 75% of the replacement cost) of residential buildings. For all other housing projects, that is those involving rehabilitation that is less than “substantial,” a different standard is applied.

Green buildings are designed, constructed (or retrofitted), and operated with a goal of minimizing their environmental footprint. In both new construction and renovation, the building and its site are designed in an integrated manner using environmentally preferable practices and materials from start to finish. Many green features also carry direct consumer benefits, such as lower monthly utility bills, increased occupant comfort, reduced maintenance (labor and costs), greater resilience, and increased value.<sup>1</sup> A holistic practice, green building recognizes the effect of the built environment (e.g., homes, buildings, open space, sidewalks, roads, water and sewer, power lines, etc.) on the health and welfare of its communities.

In the case of **housing projects involving new construction, replacement, or substantial rehabilitation**, HUD requires compliance with one of the green building standards listed below.<sup>2</sup> Rather than selecting a single technical standard, to provide flexibility DED has elected to permit the use of any of the following comprehensive standards:

- **ENERGY STAR** (Certified Homes or Multifamily High-Rise);
- **Indoor airPLUS**;<sup>3</sup>
- **Enterprise Green Communities (EGC)**;

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<sup>1</sup> Adapted from the National Association of Home Builders' (NAHB) Preface to the *ICC 700-2020 National Green Building Standard*.

<sup>2</sup> The Federal Register notices also allow for the use of “any other green building program approved by HUD.” HUD has not specifically identified additional acceptable standards, and DED does not anticipate proposing an alternative standard for HUD’s consideration. However, if HUD subsequently approves additional green building standards, DED will update this guidance.

<sup>3</sup> Applicants pursuing the Indoor airPLUS qualification must first design and build their project to achieve the ENERGY STAR rating.

- **International Council Code (ICC)-700 National Green Building Standard (NGBS)**; and
- **Leadership in Energy and Environmental Design (LEED)** (New Construction, Homes, Existing Buildings Operations and Maintenance, and Neighborhood Development).

Given the magnitude of the green building industry and the plethora of methodologies potentially employed to achieve certification, this overview is not intended to be comprehensive. Rather, DED has developed this guide with the intent of providing a measure of additional clarity on each of HUD's five approved Green Building Standards with the expectation that Applicants will take a "deeper dive" based on the standard most appropriate for their respective project.

The overview includes a basic description of:

- How each comprehensive standard works (i.e., "what" it was meant to achieve);
- Identifies the entity or agency responsible for developing and monitoring the standard(s); and
- Summarizes any professional licensures or accreditations that may assist a project team in meeting or exceeding the requirements of each standard (i.e., "who" is needed to help do the work).

In addition, this overview provides links to useful online resources associated with each of the five methodologies (as well as the Green Building Retrofit Checklist) as potential starting points for additional research.

Providing confidence that the performance of the project will exceed "standard" development practices, Subrecipients and Successful Applicants should understand that meeting these Green Building Standards or adherence to the Green Building Retrofit Checklist will require:

- Inclusion of various design features at the time of application to the program; and
- Third-party verification and testing at project completion.

Projects involving residential rehabilitation that is not "substantial" (i.e., less than 75% of replacement cost) must adhere to **HUD CPD's Green Building Retrofit Checklist** in its entirety and apply all measures within the checklist to the extent applicable to the project's building type (i.e., single-family, multifamily, low-rise, mid-rise, etc.).

## 10.2 NEW CONSTRUCTION, RECONSTRUCTION & SUBSTANTIAL REHAB STANDARDS

All new construction, replacement, and substantially rehabilitated housing assisted with CDBG-DR funding from DED must comply with one of the comprehensive standards described in this section. This requirement is triggered by any level of CDBG-DR funding.

### 10.2.1 ENERGY STAR

ENERGY STAR is a US government-backed symbol for energy efficiency. To earn the ENERGY STAR rating, certified homes and apartments (i.e., multifamily rental) must be designed to be at least 15% more energy efficient than those built to standard building code requirements. Subrecipients and Successful Applicants of participating projects must provide program-specific submittals that a licensed professional validates and demonstrate the program's requirements (including prerequisites) have been met and that each energy conservation measure is installed to specification. Following certification, owners must commit to benchmarking the building's performance metrics for a period of at least two years using Portfolio Manager®, a secure, online, interactive resource management tool used for benchmarking a building's energy use.

The US Environmental Protection Agency (EPA) established ENERGY STAR in 1992, under the authority of Section 103(g) of the Clean Air Act. EPA administers and monitors the ENERGY STAR® program in partnership with thousands of private and public sector partners nationwide. Licensed professionals, including professional engineers, registered architects, and Certified Home Energy Raters ("HERS" or "RESNET" Raters), work closely with Subrecipients and Successful Applicants to ensure that all program requirements are met including design and verification submittals.

Useful links for additional information regarding ENERGY STAR certification:

- [ENERGY STAR® Program Requirements](#)
  - [New Construction Multifamily](#)
  - [New Construction Single-Family](#)
- [Energy Benchmarking with Portfolio Manager](#)

### 10.2.2 INDOOR AIRPLUS

Indoor airPLUS is a voluntary partnership and labeling program designed to help homebuilders improve indoor air quality through the implementation of construction practices and specification of products that reduce exposure to airborne pollutants and contaminants. To receive the Indoor airPLUS label, a project must first earn an ENERGY STAR certification. Thereafter, additional

home design and construction specifications are made to require the installation of moisture control systems, HVAC systems, combustion venting systems, radon-resistant construction, and low-emitting building materials (e.g., VOCs).

The EPA created the Indoor airPLUS label to build on the foundation established by ENERGY STAR requirements for new homes. Prior to designation as an Indoor airPLUS labeled home, an independent third party must inspect the home to ensure compliance with EPA standards. Both the project builder (i.e., contractor) and a third-party HERS/RESNET Rater must agree to, and execute, a partnership agreement and complete a series of ENERGY STAR trainings. After the project is built, the third-party rater inspects and verifies compliance with EPA specifications. An Accredited Provider then reports these results to the EPA quarterly.

Useful links for additional information regarding Indoor airPLUS qualification:

- [Indoor airPLUS Program Overview](#)
- [Indoor airPLUS Construction Specifications](#)
- [Indoor airPLUS Resource Library for Builders, Raters, & Providers](#)
- [Indoor airPLUS Rater & Partner Locator Tool](#)

### 10.2.3 ENTERPRISE GREEN COMMUNITIES

EGC is a comprehensive, national green building program created with and for the affordable housing development community to address the impacts of climate change while focusing on resident health and well-being. To achieve EGC certification, Subrecipients and Successful Applicants of affordable housing must meet or exceed Green Communities Criteria standards in eight categories:

- Integrative design;
- Location and neighborhood fabric;
- Site improvement;
- Water;
- Operating energy;
- Materials;
- Healthy living environments; and
- Operations, maintenance, and resident engagement.

EGC certification involves a two-step online submission and review process. All projects must achieve compliance with mandatory measures applicable to a project's construction type. The number of optional points earned (in addition to mandatory measures) determines the level of certification—EGC Standard (35 points) or EGC Plus (40+ points).

EGC was developed in 2004 by Enterprise Community Partners (Enterprise), a national nonprofit focused on housing and community development initiatives including technical assistance, capital investment, and policy. Enterprise EGC staff administers the program and works in concert with project teams—developers, professional engineers, and registered architects—to ensure requirements are met while providing recommendations and resources for achieving certification during both “Prebuild” and “Postbuild” submission and review processes.

Useful links for additional information regarding Enterprise Green Communities certification:

- [2020 Enterprise Green Communities Criteria Resources](#)
  - [2020 Enterprise Green Communities Criteria Manual](#)
  - [Enterprise Green Communities Certification Templates](#)
- [Enterprise e360 Green Certification Community Registration Portal](#)

## 10.2.4 ICC-700 NATIONAL GREEN BUILDING STANDARD

The NGBS was developed to provide a uniform national platform for recognizing and advancing green construction and development for residential (or primarily residential) buildings. The NGBS uses a point-based system designed to accommodate varying climates, market conditions, construction types, and owner preferences. All projects must meet NGBS's mandatory provisions as well as incorporating a minimum number of features from each of six categories:

- Lot development;
- Resource efficiency;
- Energy efficiency;
- Water efficiency;
- Indoor environmental quality; and
- Homeowner education.

Depending on the amount of points a project chooses to pursue, homes or buildings can attain a rating of Bronze, Silver, Gold, or Emerald. Alternatively, any new single-family homes, townhome, or duplex can earn a rating of “Certified” by completing a mandatory checklist of green practices.

The NAHB and the ICC jointly developed the NGBS in 2007 and received approval from the American National Standards Institute (ANSI) in 2008. Over the past decade, NGBS has evolved to incorporate advances in building science and monitoring, model code improvements, and to accommodate more choices for compliance. NGBS certification is monitored and administered by Home Innovation Research Labs (HIRL), an independent, third-party product testing laboratory and market research facility for the housing industry. HIRL provides training and accreditation for individuals as NGBS Green Verifiers who inspect and verify compliance with a given NGBS version (e.g., NGBS 2020).

Useful links for additional information regarding NGBS certification:

- [ICC-700 National Green Building Standard](#)
- [NAHB Overview of NGBS and Supplemental Resources](#)
- [HIRL Certification Resources](#)
- [HIRL “Find a Verifier” Tool](#)

## 10.2.5 LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN

LEED is a series of green building project and performance management systems used worldwide to deliver a comprehensive framework for design, construction, operations, and performance. To receive LEED certification, Subrecipients and Successful Applicants must meet or exceed a rigorous set of criteria based on project type and certification path selected (new construction multifamily, single-family, neighborhood development, etc.). All projects must comply with prerequisite measures applicable to a project’s construction type in addition to earning points for optional criteria across nine basic categories that address key aspects of green building:

- Integrative Process;
- Location and Transportation;
- Sustainable Sites;
- Water Efficiency;
- Energy and Atmosphere;
- Materials and Resources;
- Indoor Environmental Quality;
- Innovation; and

- Regional Priority.

The number of optional points earned determines the rating level: Certified (40-49 points), Silver (50-59 points), Gold (60-79 points), or Platinum (80+ points).

LEED certification for new construction was initially developed in 1993 as a joint venture of the Natural Resources Defense Council (NRDC) and the U.S. Green Building Council (USGBC). The certification process, rigor, and scope of LEED has since evolved—with consensus-based input from nonprofits, government agencies, registered architects, professional engineers, developers, builders, and product manufacturers—into the comprehensive standard it is today, providing ratings for both residential and commercial buildings. LEED certification is now administered by Green Business Certification Inc. (GBCI), a subsidiary of USGBC that monitors registration, submittals, review, and certification while providing independent verification of a building or neighborhood’s green features. In addition, GBCI offers professional accreditations to people who demonstrate knowledge of the LEED rating system(s) including the LEED AP, LEED GA, and LEED Fellow. While not compulsory, projects seeking LEED certification often include professionals with LEED accreditations as members of their project teams to help guide the process.

Useful links for additional information regarding LEED certification:

- [Overview of LEED and LEED Rating Systems](#)
- [USGBC LEED Resources Guide](#)
- [LEED Reference Guide: Building Design and Construction](#)
- [LEED Reference Guide: Homes](#)
- [LEED Reference Guide: Operations + Maintenance](#)
- [LEED Reference Guide: Neighborhood Development](#)

## 10.3 STANDARDS FOR OTHER REHAB

For other residential projects involving rehabilitation that does not rise to the level of “substantial,” the use of **HUD CPD’s Green Building Retrofit Checklist** is required. This requirement is triggered by any level of CDBG-DR funding.

The goal of the Green Building Retrofit Checklist is to promote and encourage the use of energy efficiency and green building practices by helping program participants seamlessly incorporate these practices into their residential rehabilitation programs. It identifies certain items that must always be included in the scope of work (e.g., retrofitting of plumbing fixtures) and minimum specifications for such items. It also provides minimum specifications for other elements of the

scope of work that may not be included in every project (e.g., replacement of domestic hot water heaters) that must be used when applicable.