LEED BD+C: Multifamily Midrise | v4

# Minimum energy performance

Required

Glossary

## Intent

To improve the building's overall energy performance and reduce its greenhouse gas emissions.

## Requirements

Meet both the whole-building energy simulation and commissioning requirements:

**Whole-Building Energy Simulation**

Demonstrate a 5% improvement over the baseline building performance rating. Calculate the baseline according to the building performance rating method of USGBC's residential midrise simulation guidelines, which is based on ANSI/ASHRAE/IESNA Standard 90.1–2010, Appendix G (with errata), or USGBC-approved equivalent standard for projects outside the United States, using a computer simulation model for the whole-building project.

Comply with the mandatory provisions of ANSI/ASHRAE/IESNA Standard 90.1–2010 (with errata).

Comply with USGBC's residential midrise simulation guidelines.

Include all energy consumption and energy costs associated with the building project.

Compare the design case with a baseline building that complies with Standard 90.1–2010, Appendix G (with errata but without addenda).

**AND**

**Commissioning**

**Option 1. Commissioning using ENERGY STAR protocols.** Meet the ENERGY STAR Qualified Multifamily High Rise Buildings Testing and Verification (T&V) Protocols.

**OR**

**Option 2. Commissioning using Prescriptive Path.**

Meet all of the following:

1. **Reduced Heating and Cooling Distribution System Losses for In-unit HVAC**
   Limit the duct air leakage rate, testing for leakage to outside the unit or conducting a total duct leakage test. The tested leakage-to-outside rate must be less than 4.0 cfm25 per 100 square feet (1.2 cmm at 25 Pascals per 100 square meters) of conditioned floor area for each installed system, verified by a qualified energy rater. For units smaller than 1,200 square feet (110 square meters) tested leakage must be less than 6.0 cfm25 per 100 square feet (1.7 cmm at 25 Pascals per 100 square meters). Total duct leakage for in-unit systems must not exceed 8 cfm25 per 100 square feet (2.4 cmm at 25 Pascals per 100 square meters) of conditioned floor area. Testing is waived if the air-handler unit and all ductwork are visibly within the unit's envelope (i.e., no ducts are hidden in walls, chases, floors, or ceilings).
2. **Fundamental Commissioning of Central HVAC Systems**
   Meet the performance testing and ongoing maintenance requirements of EA Prerequisite Fundamental Commissioning and Verification of LEED v4 for New Construction for central commercial heating, cooling, water heating and ventilation systems. The requirements include the following:
   - Develop a system test procedure.
   - Verify system test execution.
   - Maintain an issues and benefits log throughout the commissioning process.
   - Document all findings and recommendations and report directly to the owner throughout the process.
   - Prepare and maintain a current facilities requirements and operations and maintenance plan documenting information necessary for efficient building operations.
3. **Construction Document Specifications**
   Include the following details in construction and bid documents:
   - Elements to be sealed (construction and bid documents). List all elements identified in ASHRAE 90.1–2010, Section 5.4.3.1, or applicable state or local codes, in addition to any site-specific elements identified during plan review, and include the items in the LEED for Homes multifamily midrise thermal enclosure inspection checklist (see below). Show locations to be sealed as well as acceptable methods and materials.
   - Air barrier sheet (bid documents). Show the air barrier continuity through the various conditions of the exterior enclosure; this information can serve as an index to details.
   - Compartmentalization sheet (bid documents). Show the continuity of fire and smoke barriers around each apartment and between corridors, stairs, and common areas; this information can serve as an index to details.
4. **LEED for Homes Multifamily Midrise Thermal Enclosure Inspection Checklist**
   Have a third party–qualified energy rater verify each item on the checklist. The LEED checklist is based on the ENERGY STAR for Homes, version 3 (Rev. 02) thermal enclosure rater checklist, Sections 2, 3, and 5.

Certified Passive House projects automatically meet the thermal enclosure inspection

checklist requirement.