



## Energy and Atmosphere Prerequisite 1 LEED for Homes Multifamily Mid-rise Update to the EPA Testing and Verification Protocols Prerequisite

**April 25, 2011**

**Option 1.** Meet the EPA Multifamily High-Rise Testing and Verification protocols.

OR

**Option 2.** Meet all of the following:

- A. Reduced Heating and Cooling Distribution System Losses for in-unit HVAC. Limit duct air leakage rate to outside the envelope of the unit. The tested duct leakage rate must be  $\leq 6.0$  cfm 25 Pascals per 100 square feet of conditioned floor area served by each system, verified by a qualified energy rater. Testing is waived if the air-handler unit and all ductwork are visibly within the unit's envelope (i.e., no ductwork hidden in walls, chases, floors, or ceilings).
- B. Fundamental Commissioning of Central HVAC Systems. Meet the performance testing requirements of EA Prerequisite 1 of 2009 LEED for New Construction for central commercial heating, cooling, water heating and ventilation systems.
- C. The following commissioning process activities must be completed by the project team:
  1. Designate an individual as the commissioning authority (CxA) to lead, review and oversee the completion of the commissioning process activities for any central commercial heating, cooling, water heating and ventilation systems.
    - The CxA must have documented commissioning authority experience in at least 2 building projects.
    - The individual serving as the CxA must be independent of the project design and construction management, though the CxA may be an employee of any firm providing those services. The CxA may be a qualified employee or consultant of the owner.
    - The CxA must report results, findings and recommendations directly to the owner.
    - For projects smaller than 50,000 gross square feet, the CxA may be a qualified person on the design or construction team who has the required experience.
  2. The owner must document the owner's project requirements. The design team must develop the basis of design. The CxA must review these documents for clarity and completeness. The owner and design team must be responsible for updates to their respective documents.
  3. Develop and incorporate commissioning requirements into the construction documents.
  4. Develop and implement a commissioning plan.
  5. Verify the installation and performance of the systems to be commissioned.
  6. Complete a summary commissioning report.
- D. Construction Document Specifications. Include the following details in construction and bid documents:



1. Include a list of elements to be sealed in construction documents. This list should include all elements identified in ASHRAE 90.1-2007, Section 5.4.3.1, or applicable state codes, in addition to any site-specific elements identified during plan review, and must include the items in the LEED for Homes Multifamily Mid-Rise Thermal Enclosure Inspection checklist. Bid documents must include locations to be sealed as well as acceptable methods and materials.
  2. Include an air barrier sheet in the bid documents that shows the air barrier continuity through the various conditions of the exterior enclosure, and can serve as an index to relevant details.
  3. Include a "compartmentalization" sheet in the bid documents that shows the continuity of fire and smoke barriers around each apartment and between various areas (corridors, stairs, common areas), and can serve as an index to relevant details.
- E. LEED for Home Multifamily Mid-Rise Thermal Enclosure Inspection Checklist. Have a third party qualified energy rater verify each item is met from the checklist, which is taken from the ENERGY STAR Qualified Homes, Version 3 (Rev. 02) Thermal Enclosure Rater Checklist, sections 2, 3 and 5.