

New York State Energy Research and Development Authority

Responses to Public Comments

Proposed Regulations for New York State Green Residential Building Program

**Comments Received**

**1. Section 508.5 (b) (2) (ii)** of the proposed regulations states that air leakage from ducts and air handling equipment in conditioned space must be 3 air changes per hour (ACH) or less, but new homes constructed by builders can often have less than half an ACH, and the building airflow standard (BAS) as stated by the Building Performance Institute (BPI) is 0.35 ACH. In the Home Performance with ENERGY STAR® residential program few buildings have more than 3 ACH, and ACH is often reduced post-project to less than 1 ACH. A more aggressive target for air leakage reduction at least for new buildings of less than 4 units is recommended.

**Response:** The 0.35 ACH Building Airflow Standard referenced from the Building Performance Institute (BPI) is the minimum building air leakage rate at natural (atmospheric) air pressure for existing residential buildings undergoing energy-efficiency retrofits; this measurement is not applicable to new construction, or substantially renovated existing buildings, such as those participating in the Green Residential Building Program (Program).

The three air changes per hour (3 ACH50) maximum leakage requirement is applicable to residential buildings with three or fewer stories and 1-4 dwelling units. It applies only when the ducts and air handling equipment are located within the building's conditioned space, and is measured while the building is depressurized to 50 Pascals with respect to outside air pressure using a blower door. Depressurizing produces higher air changes per hour than what is produced at natural air pressure. The Authority agrees that that building envelopes may be constructed to achieve less than 3 ACH50, and the proposed regulations allow this. However, the requirement in the proposed regulations is consistent with other energy efficient construction standards such as the requirements for both the Federal ENERGY STAR® Homes Program, and the New York ENERGY STAR® Homes (NYESH) Program.

In addition, the proposed regulations provide a menu of options that can be used to meet the energy efficiency requirements. This allows an Owner to tailor construction techniques to some extent based on individual needs, as long as the techniques fall within the allowable ranges set forth in the proposed regulations. Using practices that minimize air change rates is one of the options.

**2. Section 508.5 (b)(1)** The proposed regulations prescribe 5 Air Changes Per Hour (ACH) at 50 Pascals of pressure (5 ACH 50) as a requirement for building envelope air leakage. This allows too much air leakage, and some buildings are tighter. Basements in existing homes are typically unconditioned or partially conditioned, generally not well insulated, and poorly air-sealed from

the rest of the building. A basement cannot be separated from the house and should be considered conditioned, which increases the total air volume in the house, typically by 1/2 to 1/3. This makes the current standard for tightness measured in ACH inaccurate. A more accurate measurement would be cubic feet per minute (cfm) at 50 Pascals per square foot (sf) of living space, where an unfinished basement is not “living space,” even though it may be “conditioned space.” A tight building could then be defined as less than or equal to 0.8 cfm50/sf, an average building as less than or equal to 1 cfm50/sf, and a leaky building as anything over 1 cfm50/sf.

**Response:** The Program applies to the construction of new and substantially renovated residential buildings. The Authority disagrees that new buildings built to meet the requirements of the Leadership in Energy and Environmental Design (LEED) Rating System and National Green Building Standard (NGBS) have basements that are generally not well insulated, and poorly air-sealed from the rest of the building. However, the Authority assumes that this comment primarily relates to substantially renovated residential buildings, but these buildings must also meet LEED or NGBS certification requirements as well as the energy efficiency requirements of newly constructed structures, so that the residential building will be well insulated and air-sealed at completion of the renovation work. Further, neither the New York State Residential Building Code, nor the guidelines for Residential Energy Services Network’s (RESNET’s) Home Energy Rating System (HERS) allow the use of “living space” for energy use evaluations of a residential building (both refer to “conditioned space” for this purpose). In addition, the 5 ACH50 requirement is consistent with the Federal ENERGY STAR® Homes Program and the NYESH Program. The Authority agrees that it is possible to achieve air leakage reductions below the 5 ACH50 minimum. However, this selection of specific air changes per hour is in the discretion of the Owner.

**Section 508.4(b)(1)(4):** Heating, ventilation, and air-conditioning (HVAC) equipment should not be installed in garages or in attics unless the space is conditioned space.

The Authority agrees that this is one technique that may increase the energy-efficiency of residential buildings. However, this is not required by the New York State Residential Building Code, the NYESH Program, LEED, or NGBS. Therefore, the Authority is not requiring placement of such equipment in a specific location, but it is a construction technique available to the Owner.

**3. General.** Commenter operates a home performance contracting company that participates in the Home Performance with ENERGY STAR® Program, and is concerned that the proposed regulations take market-based Comprehensive Home Assessment work away from small contractors. The commenter also states that Davis-Bacon wage regulations would not serve the home performance contracting industry in the New York City metropolitan area.

**Response:** These comments appear to apply to the Green Jobs - Green New York Act of 2009. That legislation applies to energy efficiency retrofits in existing residential and small commercial buildings. Comprehensive Home Assessments are only conducted with respect to existing homes, while the proposed regulations apply only to new and substantially renovated residential buildings. In addition, the Program does not refer to Davis-Bacon. Accordingly, the Authority

does not believe that the comments pertain to these proposed regulations and no changes are being made as a result of the comments.

**4. Section 508.4** Change this section to read:

“For purposes of the Program, green residential building standards shall mean the use of design and building techniques leading to award certification from an approved third party rating system including sufficient:

- (a) (1) ~~to receive~~ a second level or higher LEED certification using the LEED for Homes Rating System, or using the LEED for New Construction Rating System; or
- (2) ~~to receive~~ a second level or higher level certification using the NGBS; and

(b) meets all requirements of and attains ENERGY STAR® Certification; and

**Response:** The Authority has revised Section 508.4 to make clear that a certification must be received. This clarification is consistent with Section 508.9 which requires that a copy of the certification be attached to the request for an incentive.

The suggested language “...from an approved third party rating system including” is unnecessary since the process for receiving a certification is prescribed by LEED and NGBS, they both include a third-party rating system, and the proposed regulations incorporate those organizations’ procedures.

With respect to the suggestion that ENERGY STAR® certification be required, the energy efficiency performance requirements for residential buildings of 3 or fewer floors with 1-4 dwelling units requires such buildings to exceed the NYESH Program minimum requirements. In addition, the specific efficiency requirements for appliances and lighting established by the Federal ENERGY STAR® program are included in the proposed regulations. However, the Program is to be offered Statewide, and the NYESH Program, which provides ENERGY STAR® certification, is available only in utility service territories where the System Benefits Charge is assessed. Therefore, to the extent practical, ENERY STAR® requirements are incorporated into this Program, but participation is not required, since it is not available Statewide.

**Section 508.7** Change this section to read:

An Owner of a residential building being newly constructed or a residential building undergoing substantial renovation shall have such residential building inspected by a Technician, of appropriate background for each inspection, and a written record of such inspections obtained by such Owner from such Technician, during and after such construction or renovation.

**Response:** Since LEED and NGBS certifications must be obtained, and LEED and NGBS determine who is qualified to perform their required inspections as a Technician, this change is not needed. In addition, the Technician is not required to conduct all inspections, but may verify compliance from tests performed by other professionals. Therefore, this change was not made.

**5. Section 508.5 (a)(2):** Clarify that ceiling fan requirements are applicable at the time of the inspection/rating/closing so that if the Owner modifies the residential building after completion, this does not affect eligibility retroactively.

**Response:** The Authority agrees that, under the proposed regulations, compliance with ceiling fan requirements is determined at the time of inspection by the Technician and a subsequent Owner is not precluded from replacing a ceiling fan after inspection, nor would such action retroactively affect eligibility. The Authority believes that the proposed regulations are clear on this point and no changes are required.

**Section 508.5 (a)(3)** It is not reasonable to purchase water heaters that meet the calculated peak hour demand within one-to-two gallons. First, water heaters are available only in select sizes/performances. Second, more efficient equipment is available in even fewer sizes and the greater efficiency should more than offset the sizing benefits. Third, client needs may dictate varied capacity. Fourth, typical boiler packages would use a high-efficiency indirect water heater and the price for larger or smaller units will vary significantly based on what the distributors stock, with minimal benefit.

**Response:** The Authority agrees that water heaters are only available in select sizes and has added language to the proposed regulations stating that, if it is not feasible to size the domestic hot water heating system within one to two hours of calculated peak hour demand, based on the Owner's needs, then the next larger capacity may be used. The Authority disagrees with the statement that more efficient domestic hot water heating equipment has limited availability -- the Authority's research indicates that a wide range of energy-efficient systems are available in stores throughout New York State, but that the proposed additional language should mitigate this concern as well. Although prices may be somewhat higher for more efficient equipment, incentives are available through this Program to help offset the higher costs in addition to the homeowner receiving energy cost savings from installation of the more efficient equipment. The Authority believes that the changes made sufficiently address the concerns.

**Section 508.5 (4)** Have a requirement that the temperature of the water heater be set to the minimum temperature possible to provide the necessary capacity.

**Response:** The minimum efficiency factors provided in the proposed regulations are consistent with the requirements of the NYESH Program. While the Authority agrees that lowering the water temperature can be an energy saving measure, due to the variations in the size and behaviors of households, the Authority does not think it appropriate to regulate water heater temperatures and has not implemented this suggestion.

**Section 508.5 (4)** Clarify between tank, direct vent tank, power vent tank, super-high efficiency tank, tankless, and indirect units.

**Response:** Section 508.5(4) is consistent with the requirements of the Federal ENERGY STAR® Homes Program and the NYESH Program and establishes minimum energy factors for

all types of domestic water heaters. The Authority believes that further clarification is unnecessary.

**Section 508.5 (5)** Provide additional credit for sealed combustion appliances and for condensing and/or modulating gas boilers, not just based on AFUE.

**Response:** This section of the proposed regulations merely establishes the minimum efficiency requirements. Additional points for this type of equipment are available through LEED and NGBS. Therefore, no changes to the proposed regulations have been made.

**Section 508.5 (6)** Mechanical vent fans that are always on (remote switch) should be an approved "automatic control." If a fan runs continuously, the circuit breaker should be acceptable.

**Response:** Under ASHRAE Standard 62.2-2007, the designated compliance standard, when a mechanical vent fan is always on, it can qualify as having an "automatic control", if there is a variable speed control, a multi-speed fan, or a timer to vary the run-time; a circuit breaker is not an acceptable control. The Authority believes that installation of these controls should follow the nationally developed ASHRAE standard and has not amended the proposed regulations to include this suggestion.

**Section 508.5 (6)(b)(3)** The "readily available and accessible override control" should be clarified as to purpose.

**Response:** The Authority agrees, and has revised the regulation to state that the purpose of the "readily available and accessible override control" is to "allow the unit to be easily shut off for servicing or replacement."

**Section 508.7:** A statement from the manufacturer of a manufactured home, with photos, should be sufficient evidence of items that will not be possible to visually inspect on site by the third-party reviewer.

For inspections done in a modular factory, inspections done by an individual qualified to perform inspections under the New York Department of State approved Quality Control procedures should also be qualified for Program inspections. Where a practice is a standard practice as part of the DOS approved procedures, such as sealing penetrations in the plates, a written statement from the manufacturer should qualify as an inspection.

**Response:** A goal of the Program is to provide third-party review of installed measures. Manufacturer statements, in and of themselves, would not be consistent with this goal and inspections of each residential building at the manufacturing facility is therefore required. For example, the proposed regulations do prescribe that on-site inspections are required to ensure that air sealing measures are complete, insulation is aligned properly with the air barrier, and that the air barrier and thermal envelope are continuous in each residential building. However, the intent is to ensure that the Program's inspection requirements are consistent with LEED and

NGBS requirements so that certification is possible and the Authority will work with LEED and NGBS program administrators to ensure consistency of Technician review. In addition, recognizing that the inspection procedures will be different for modular and manufactured structures, the proposed regulations have also been clarified to delineate the type of inspections that need to occur at the manufacturing facility and those inspections that can occur when the residential building is permanently sited.

If the Department of State quality control individual meets the qualification of a Technician, the proposed regulations do not prohibit such as individual from serving in both capacities.

**Section 508.8:** The NAHB Certified Green Professional should be considered a qualification under the Builder and Technician training section.

Provide a central registration or certificate issued to applicable Technicians to simplify documentation and provide the Owner confidence that the relevant individual is qualified under the Program.

**Response:** Other than trainings, certifications, or professional designations mandated by professional standards incorporated into the proposed regulations, the Authority is not referencing specific courses or certifications required of builders and Technicians in order to accommodate new educational and apprenticeship opportunities that may be developed over the term of the Program. A list of educational and training courses that meet the subject matter and training requirements will be provided in the Program Guidelines and updated as appropriate.

The Authority will also be maintaining a list of Technicians that meet Program requirements and this list will be made available to the public. The Authority expects that NAHB Certified Green Professional designation will be included on both lists.

**Section 508.9:** If the application is incomplete, allow additional time to provide the necessary documentation.

**Response:** Program funding is limited and incentives are available on a first-come, first-served basis. The Authority is restricted under the PAL Section 1872 to pay incentives only when an Owner has complied with the final regulations. While the Authority will inform the Owner within 45 days of receipt of the original application what is missing and needed to complete the Application, it is the Owner's responsibility to provide all required documentation. If funds are available to pay an incentive once the Application is complete, an incentive will be paid.

Comments on the proposed regulations for the Green Residential Building Program were provided by:

1. Kalex Energy Company, Inc.
2. Dundon Insulation, Inc.
3. Highland Builders Corporation
4. Peter Caradonna Architects
5. Cayuga Country Homes

Dated: February 22, 2010