



New York Green Residential Building Program

2012 Program Guidelines

December, 2011

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Program Guidelines:

New York Green Residential Building Program

SECTION 1: OVERVIEW

Section 1872 of New York State’s Public Authorities Law established a Green Residential Building Program (Program). The statute authorizes the New York State Energy Research and Development Authority (NYSERDA) to develop regulations (21 NYCCC Section 508) and administer this Program and to offer incentives for newly constructed and substantially renovated residential buildings with less than 12 dwelling units.

NYSERDA will offer incentives through the Program to residential building Owners meeting all applicable Program requirements, who have received a Certificate of Occupancy or a Certificate of Completion on or after January 1, 2010, and before October 31, 2013, subject to the availability of funds. A building “Owner” is the person or legal entity that owns a residential building on the date that a Certificate of Occupancy, or comparable document, is issued to the building for a newly constructed building, or the date a Certificate of Completion, or comparable document, is issued for substantially renovated existing building. The Certificate of Occupancy (or Certificate of Completion) must be issued to the residential building Owner on or after January 1, 2010, but before October 31, 2013 for the Owner to be eligible for Program incentives. Incentive payments will be issued on a first-come, first served basis¹.

Beginning January 1, 2012, obtaining Program incentives is a two-stage process:

- 1) A residential building Owner must provide a completed current [Green Residential Building Program Incentive Reservation Form](#) for buildings with a construction start date on or after November 10, 2011. This form must be signed by the building Owner, and should be completed as early as possible in building planning/design process. NYSEDA will review the form; if approved, a letter contract will then be generated for the Owner reserving the incentive amount requested.
- 2) The Green Residential Building Program Incentive Application form and all other required supporting documents must be submitted to NYSEDA *on or before October 31, 2013*. The Incentive Application package is submitted after completion of construction and green building certification. This must include one of the following:

¹ Please note that NYSEDA reports Program incentives to the Internal Revenue Service, and will issue a 1099 Form to building Owners at the end of each calendar year indicating the amount of incentives paid to the Owner. Building Owners should consult with a tax professional regarding reporting of Program incentives for tax purposes.

- Silver level certification (or higher) using either the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED®) for Homes (LEED-H) or LEED® for New Construction (LEED-NC) Rating System; OR
- Silver Performance Level certification (or higher) using the International Code Council ICC 700-2008 National Green Building Standard™

The Program Incentive Reservation and Application process is described in detail starting on page 10, and Technical Specifications are provided starting on page 13. Questions regarding program eligibility may be directed to the Project Manager at (518) 862-1090, extension 3490. **Application forms and all other program materials are available on the GRBP Participation webpage at: <http://nyscrda.ny.gov/Page-Sections/Workforce-Development-and-Training-Programs/Builder-Contractor/Green-Homes/Participation.aspx>**

Program incentive levels are based primarily on the number of dwelling units in the residential building, as shown in Table 1 below, however a maximum of \$3.75 per qualified occupied square foot (QOSF) is available; this is described in more detail in the footnote to Table 1. A residential building Owner may not receive more than \$120,000 in incentives through this Program during any calendar year. Exceeding the certification level required by this Program through either LEED-H, LEED-NC or the National Green Building Standard (for example, achieving the Gold certification level) is encouraged, but no additional incentives are available through the GRBP for higher levels of certification.

TABLE 1 – NEW YORK GREEN RESIDENTIAL BUILDING PROGRAM INCENTIVES

Number of Dwelling Units in Building	Calculated Minimum Building Size (in QOSF)	Maximum Program Incentive Award for Building*
1	1367	\$5,125
2	1633	\$6,125
3	1900	\$7,125
4	2167	\$8,125
5	2367	\$8,875
6	2567	\$9,625
7	2767	\$10,375
8	2967	\$11,125
9	3167	\$11,875
10	3367	\$12,625
11	3567	\$13,375

* Note: If a building’s qualified occupied square footage (QOSF) is below the Calculated Minimum Building Size shown in Table 1, the incentive for that building shall not exceed \$3.75

per qualified occupied square foot. *For more information on determining qualified occupied square footage for purposes of this Program, please see item #5 on page 12.*

SECTION 2: PROGRAM GUIDELINES

2.1 Eligibility and Building Ownership

The Program offers incentives to encourage residential building Owners to build or substantially renovate residential buildings containing one (1) to eleven (11) dwelling units in New York State to green building standards as explained on page 3-4.

The Program is available Statewide for qualified buildings built or permanently sited anywhere in New York State. For purposes of this Program, only the residential building Owner is eligible to apply for and receive Program incentives. While ownership scenarios vary, NYSERDA has determined the following:

- ✓ When a builder or developer holds the title on the date that a Certificate of Occupancy is issued for the residential building by the local building department or other authority having jurisdiction, the builder or developer is the Owner and eligible to apply for a Program incentive
- ✓ When a homeowner holds title on the date that the Certificate of Occupancy is issued, the homeowner is the Owner and eligible to apply for the Program incentive
- ✓ For substantially renovated existing buildings, the Owner is the holder of the title at the time the renovations are complete and a Certificate of Completion or comparable document is issued

Substantial renovations must involve a comprehensive, whole building approach, which includes sufficient work on the building's envelope to ensure that the air and thermal barriers are aligned and continuous. In addition, substantial renovations must include replacement of two of the three major building systems: plumbing; electrical; or heating, ventilating, and air-conditioning (HVAC). More detail on Program requirements for substantial renovations is provided on pages 13-14.

2.2 Eligible Building Configurations

Detached single-family homes, attached townhouses, multi-family buildings, modular and manufactured homes, and mixed-use buildings are eligible. Attached townhouses are considered separate buildings for purposes of the Program only if attached units are separated by a fully insulated party wall, extending from basement or slab floor to roof, which has no service chase penetrations. Residential building Owners seeking to certify a mixed-use building using the LEED-H or LEED-NC Rating Systems, or the National Green Building Standard, should be familiar with requirements or restrictions for residential and commercial spaces in the building associated with these programs.

2.3 Buildings Not Eligible for Program

Non-comprehensive renovations or remodels of existing residential buildings, that do not meet the Program requirements for substantial renovations and other Program requirements, are not eligible for the program. For example, a remodel of only a bath or kitchen does not qualify. Please see Section 4, item #2 on page 11 for detailed information on qualifying substantial renovations.

Projects that have used the National Association of Home Builders (NAHB) Model Green Building Guidelines for certification are not eligible for incentives through the Program. Projects using LEED Rating Systems other than LEED for Homes or LEED for New Construction are also not eligible. Incentives are not available through the Program for National Green Building Standard Land Development Certification.

2.4 Participating Technicians

An Owner may utilize only Technicians participating in the Program to verify the building meets all Program requirements. Technicians are those individuals that have read the 2012 GRBP Technician Partnership Agreement, and have provided a Signature Page and appropriate documentation (Appendix B of this document) which shows they meet Program requirements. Owners may find a participating Technician and their contact information using NYSERDA's Resource Locator Map, available at: <http://nyserda.ny.gov/Contractors/Find-a-Contractor/Residential-Green-Building-Technician.aspx>

Technicians have received at least 12 hours of appropriate training and are expected to provide or oversee the site inspections, testing, and verification services required for Program compliance. Technicians must be either one (or both) of the following:

- Accredited Green Verifier by the NAHB Research Center
- Green Rater by the U.S. Green Building Council

Responsibilities may vary by project, but in general Technicians must be able to perform, or oversee, the following:

- ✓ Inspect the building to verify that green building measures are installed and ensure the points claimed by the Owner or Builder are legitimate for purposes of either a LEED or National Green Building Standard project certification. This must include at least two on-site inspections, generally performed at rough (pre-drywall) and final stages of construction. Factory-built (manufactured or modular buildings) may be inspected at the manufacturing facility to verify factory-installed measures, but must be inspected again at the site of permanent installation for the final inspection.

- ✓ Perform combustion appliance safety testing if needed, including measurement of ambient and steady-state flue gas carbon monoxide levels for vented appliances
- ✓ Verify appliance, HVAC equipment and electric motor efficiency ratings and document that the required 500 kWh annual electric savings is obtained
- ✓ For low-rise buildings with four or fewer dwelling units, develop a HERS Rating (in either HERS Index or an Expanded HERS Score) for the Owner. This must include all performance tests and diagnostics, such as blower door and duct pressure testing; determining R-values of insulated building components, including evaluating the quality of insulation installation; and inspecting/verifying that thermal bypasses are minimized by proper air barrier installation and air sealing measures.

Technicians are not required to be Home Energy Raters (Raters), but if not Technicians must have a formal agreement in place with a certified Rater at the time they return a 2012 GRBP Technician Signature Form to NYSERDA.

Technicians generally charge a fee for their services, which may vary based on the size and nature of the project, and from Technician to Technician. Owners are encouraged to request information about fees prior to entering an agreement for services.

2.5 Green Building Certification Process

The Program references the two most common existing national green building rating systems and standards, which provide a well-recognized and understood basis for measuring green residential building performance. Both the LEED-H and LEED-NC Rating Systems and the National Green Building Standard utilize checklist-based evaluation tools to document green building achievement in five primary categories: Site Selection and Development, Water Efficiency, Materials, Energy Efficiency, and Indoor Environmental Quality. Projects must meet all pre-requisites and/or mandatory measures, and obtain the number of points required to obtain Silver-level (or higher) certification.

Building Owners should consider the many green building resources available and set green building goals as early as possible in the planning and pre-design phase of the project. Building Owners are required to work with a builder meeting Program training requirements (see Builder Training Requirements below) and a participating Technician, and are encouraged to work with builders, design and engineering professionals with expertise and previous experience in green building.

More information is available at the following internet sites:

- ENERGY STAR program, www.energystar.gov
- National Association of Home Builders Green Building Program, www.nahbgreen.org
- New York State Builders Association, www.nysba.com
- New York Upstate Chapter of U.S. Green Building Council, <http://www.greenupstateny.org/>

- Urban Green Council, <http://www.urbangreencouncil.org/>
- U.S. EPA green building site, <http://www.epa.gov/greenbuilding/>
- U.S. Green Building Council, www.usgbc.org

To qualify for Program incentives, Owners must engage with the appropriate green building certifying organization to certify the building:

- For those buildings certifying using the National Green Building Standard, as administered by the NAHB Research Center's National Green Building Program, the building owner must utilize an NAHB-accredited Green Verifier; visit www.nahbgreen.org, and click on the "Find a Verifier" tab in the Quick Links box.
- For projects pursuing LEED-H certification, Owners and builders must work with a U.S. Green Building Council (USGBC)-approved LEED for Homes Provider; contact information for LEED-H Providers may be found at www.usgbc.org.
- For projects seeking LEED-NC certification, a member of the design team is generally responsible for initiating the online registration process through the USGBC's affiliate, the Green Building Certification Institute (www.gbci.org).

For low-rise (three or fewer stories) buildings with one to four dwelling units, a Technician must ensure that a Home Energy Rating is developed for the building by a Residential Energy Services Network (RESNET)-certified Home Energy Rater; if the Technician is also a Rater, the Technician may perform the rating. NYSERDA prefers that this be reported as a HERS Index, but may be reported as an Expanded HERS Score, using Architectural Energy Corporation's REM/Rate™ software platform to generate a Home Energy Rating Certificate (HERC). Buildings with five or more dwelling units and three or fewer stories, may use a HERS rating to document projected energy savings. Buildings with four or more stories generally use energy modeling software products compliant with the whole-building approach detailed in *ASHRAE Standard 90.1-2007, Appendix G*, to show that a building meets the minimum energy efficiency requirements for Silver-level certification for either LEED-NC or the National Green Building Standard.

2.6 Builder Training or Experience Requirements

Builders or contractors constructing buildings seeking Program incentives must have prior green building experience, hold professional certification in green building, or have completed a green building professional training course approved by NYSERDA (please see list below). Builders must supply the Owner with a copy of documentation (such as a Certificate of Completion from an approved training course) showing the Builder meets the training or qualification requirements, and the Owner must include this with the Program application. If

the Builder is the residential building Owner, the Builder must ensure this documentation is submitted with the application.

- ✓ **Builder Training**— Provide a copy of documentation (such as a Certificate of Completion), showing that the Builder or General Contractor of record has any of the following designations and/or has completed applicable training. *This must be an individual in supervisory capacity for the project, such as the owner, site supervisor, or foreman; not all personnel on the site need to meet this requirement:*
 - Building Performance Institute (BPI) certified Building Analyst or Professional
 - Certified Green Professional designation from the NAHB
 - Green Verifier, accredited by NAHB
 - Green Certified Professional certification from National Association of the Remodeling Industry (NARI)
 - LEED Accredited Professional from USGBC
 - Certified HERS Rater from Residential Energy Services Network (RESNET)
 - Certificate of completion verifying that the Builder has 15 hours or more of green building training by an accredited education institution or professional builders association or affiliate, or other comparable training approved by NYSERDA

- ✓ **Builder Prior Experience**—Provide a document such as a letter, resume or work history showing at least 2 years experience as a lead capacity builder or general contractor on a residential building(s) that has achieved either LEED-H, LEED-NC, or NGBS Silver certification or above; OR, provide a document showing prior experience as lead builder or contractor on at least 2 buildings that have met either LEED, or NGBS Silver level certification. Please provide building address, certification received, and date certification was received, on the document. Owner/builders may utilize this pathway to show that they have 2 years experience in design and construction of their home or building.

Please see Appendix A, for a current list of green building training and certification courses that meet this requirement.

2.7 Exceptions to Program Eligibility Requirements

NYSERDA may make exceptions to specific Program requirements on a limited or case-by-case basis where Program compliance:

- Would be inconsistent with public health or safety;
- Would not be in compliance with Federal, State, or local law, rule or regulation, administrative or judicial order;

- With respect to an historic building eligible for or listed on the State or National Register of Historic Places, would be incompatible or significantly inconsistent with the historic, cultural, or archeological character of the building.

For questions or more information, please contact the Project Manager at (518) 862-1090, extension 3490.

SECTION 3: INCENTIVE RESERVATION AND APPLICATION PROCESS

As noted on page 3, the Program incentive application process is now a two-stage process. The Incentive Reservation Form must be submitted (to NYSERDA the address in section 3.1 below), and reviewed and approved by NYSERDA for the Owner to receive incentives through the Program. The Incentive Reservation Form must be submitted prior to construction start date for any building with construction start date of November 10, 2011 or after. Following approval, NYSERDA will generate a letter contract, signed by NYSERDA's Treasurer, and send this to the Owner. The letter will include a Contract Identification and Purchase Order number specific to the building, or buildings if there are multiple buildings on the project site.

After construction is substantially complete, a Certificate of Occupancy or Certificate of Completion has been issued, and the residential building has received its green building certification, the owner or owner's representative (GRBP Technician) may submit a Green Residential Building Program Incentive Application Form for the project.

Please see Section 4: Technical Specifications for detailed information on the performance and efficiency requirements for the Program.

3.1 Incentive Reservation and Application -- Required Documents

The Incentive Reservation Form must be complete, signed by the building owner, and mailed to the address below. After completion of construction or substantial renovation, and successful green building certification, Owners or their representatives must submit a complete Green Residential Building Program Incentive Application Form with the Owner's original signature to NYSERDA at the address below:

**NYSERDA
Attention: Green Residential Building Program
17 Columbia Circle
Albany, NY 12203-6399**

A separate Incentive Application Form, and application package must be completed and provided to NYSERDA for each building seeking incentives through the Program. Each application package must include Incentive Application form signed by the Owner, and the following supporting documents (*the documents below may be scanned and e-mailed to grbp@nyserda.org*):

1. **Green building certification** – Provide a copy of official notification (preferably a certification e-mail or letter, or copy of the certificate) from the certifying organization showing the building has successfully achieved LEED-H Silver, or LEED-NC Silver certification, or higher; or National Green Building Standard Silver Performance Level, or higher certification.
2. **Legal Building Ownership** – Provide a copy of Certificate of Occupancy, or Certificate of Completion for substantially renovated buildings, from the local building permitting agency or department, or other authority having jurisdiction (e.g. state or federal agency) showing the name and address of the Owner. If such jurisdiction does not provide Certificates of Occupancy/Completion, provide an equivalent document (such as a final inspection notice) indicating that the building has met all applicable local requirements and is habitable.
3. **Required Tests and Inspections** – The Owner or Technician must provide copies of the following inspection reports produced by the Technician or contractor associated with the project.

For all buildings in the Program:

- ✓ National Green Building Standard Verifier’s Report; OR, LEED for Homes Verification Checklist, signed by a Technician qualified to verify buildings seeking certification to the National Green Building Standard or LEED for Homes
- ✓ ENERGY STAR Thermal Bypass Inspection Checklist
- ✓ New York ENERGY STAR Homes, LIPA ENERGY STAR Homes, or Green Residential Building Program Combustion Safety Testing Form
- ✓ New York ENERGY STAR Homes, LIPA ENERGY STAR Homes, or Green Residential Building Program Qualification Form

For low-rise buildings with 1-4 dwelling units:

- ✓ HERS Rating Report (this must be a Home Energy Rating Certificate)
- ✓ For buildings with Central Air Conditioner or heat pump installed and a ducted distribution system, a spreadsheet showing that supply air flow rates have been tested and show that the system delivers within +/- 15 percent of the design airflows (calculated according to ACCA Manuals J and D) for each room being conditioned, as specified in Section 5.2.2 of *ACCA Standard 5 QI-2007: HVAC*

Quality Installation Specification; furnace-only systems do not need to have supply airflow rates tested for purposes of the Program.

All required forms and other Program materials are available on the Program

participation webpage at: <http://nyserderda.ny.gov/Page-Sections/Workforce-Development-and-Training-Programs/Builder-Contractor/Green-Homes/Participation.aspx>

4. Builder Training or Experience – Provide copies of documents which show that the Builder (Individual in supervisory role on the project for the Builder or Owner) meets Program training or prior experience requirements as detailed on page 9. A table is also provided in Appendix A (page 20), showing NYSERDA-approved trainings for builders. Building owners are encouraged to obtain such documentation prior to entering an agreement with a builder.
5. Determine “Qualified Occupied Square Footage” in the building(s) – For purposes of the Program, Qualified Occupied Square Footage (QOSF) means the habitable spaces of a residential building. NYSERDA has further established in the Program regulations that QOSF *does not include common areas (such as shared interior entryways and hallways not within a dwelling unit), storage areas, mechanical rooms, utility rooms, attics and crawlspaces, attached and detached garages, other unoccupied spaces, or the portion of a mixed use building that does not constitute a dwelling unit.*

The incentive awarded cannot exceed the maximum of \$3.75 per qualified occupied square foot allowed by the Program regulations. NYSERDA has calculated the maximum incentive award as displayed in Table 1 on page 2 of these Program Guidelines. The building Owner will qualify for the maximum award if the building’s QOSF is greater than or equal to NYSERDA’s Calculated Minimum Building Size. If a building does not meet the minimum building size (for example a 4-unit building with less than 2167 QOSF) the building owner will not receive the maximum incentive award, and will be awarded \$3.75 per qualified occupied square foot (in the case of a 4-unit building with 2166 QOSF, the incentive would be $\$3.75 \times 2166 = \8122.50 .)

The Owner is required to provide QOSF on the application form. This should be calculated by using the conditioned floor area and subtracting the square footage of any non-habitable spaces within the building’s conditioned envelope, as defined above.

3.2 Application Review and Payment

NYSERDA will review application materials and notify the applicant within 45 days if the application is incomplete, and what further documentation or information must be provided by the building Owner to complete the application package. Once the application is reviewed, determined to be complete, and approved, NYSERDA will issue incentive payments to the Owner on a first-come, first-served basis.

Please note: NYSERDA will not process incomplete applications. Payment of incentives by NYSERDA to residential building Owners will be initiated based on the date of receipt of a complete application. Payments will be issued subject to the availability of funds.

3.3 NYSERDA Quality Assurance Process

Owners and/or builders that have applied for an incentive through the Program may be contacted by NYSERDA's Quality Assurance (QA) contractor. By submitting an application for a Program incentive, Owners and Technicians agree to maintain on file the LEED or National Green Building Standard checklists and any Technician reports developed for the building, and provide copies to the QA field inspector if requested. The QA contractor will perform QA inspections on approximately 15 percent of buildings intending to participate in the Program. Residential buildings are randomly selected for QA inspections, but NYSERDA reserves the right to require higher rates of QA auditing as needed. As with NYSERDA's other residential energy-efficiency programs, the QA component is in place to ensure that Program funds are spent cost-effectively and with accountability to the public.

SECTION 4: TECHNICAL SPECIFICATIONS

To qualify for a Program incentive, the building must meet all of the Program performance requirements detailed below. Copies of documents establishing that the requirements have been met must be provided with the Application Form, as noted in **Section 3: Application Process**.

4.1 Requirements For All Buildings in the Program:

- 1. Building Location** -- The building must be newly constructed or permanently sited in New York State, so that a Certificate of Occupancy is issued to the building Owner on or after January 1, 2010 but before October 31, 2013. For substantially renovated existing buildings located in New York State, a Certificate of Completion, or comparable document, is issued on or after January 1, 2010, but before October 31, 2013.

- 2. Substantial Renovations** --Existing buildings must be substantially renovated, with a scope of work that included:
- ✓ Any removal, replacement, repair or installation of drywall, siding, roof assemblies, and insulation or air-sealing measures needed to ensure that the building's air and thermal barriers are continuous and complete. To verify this, a Technician shall inspect the building prior to re-enclosure of insulated building cavities, and prepare an ENERGY STAR Thermal Bypass Inspection checklist for the building, which must be included with the Application.
 - ✓ Replacement/upgrade of at least two of the three major building systems:
 - Electrical - including lighting fixtures and controls, wiring, outlets and service panel
 - HVAC - including any applicable equipment and system components and controls, including the furnace or boiler, air conditioner or heat pump, ductwork, and thermostats
 - Plumbing - including but not limited to the domestic hot water heater, toilets, and fixtures.
 - ✓ A brief description of the renovation scope of work must be provided in the project narrative in *Section 5: Green Building Strategies* of the Program Incentive Application Form.
 - ✓ All mechanical equipment, appliances, lighting, and fixtures must meet or exceed Program efficiency requirements, as verified by a Technician.
 - ✓ For low-rise buildings with one to four dwelling units, including substantially renovated buildings, all additional Program requirements detailed in Section 4.2 below must be met and documented.
- 3. Certification** -- Obtain certification at the LEED-H Silver or LEED-NC Silver level (or higher); or obtain the National Green Building Standard Silver Performance Level (or higher) certification.
- 4. Electric Savings** -- Demonstrate an annual 500 kilowatt hour (kWh) annual electric savings relative to conventional lighting and appliances by installing more efficient lighting and appliances for each dwelling unit in the building. This includes ENERGY STAR-qualified lighting (lamps and fixtures), refrigerators and dishwashers, and ENERGY STAR-qualified central air conditioners rated at 15 Seasonal Energy Efficiency Ratio (SEER) or higher. High-efficiency variable speed or electronically-commutated motors (ECMs) in the air-handling equipment also qualify towards kWh savings, as shown in the table below. If there are not a sufficient number of appliances or lighting fixtures installed in a dwelling unit to achieve 500 kWh savings, then the Owner may show that all lighting and appliances installed are ENERGY STAR-qualified, and that motors are high-efficiency or ECM, to meet the Program electric savings requirement.

Use the table for calculating annual electric savings on the Green Residential Building Program Qualification Form. The credited kWh savings for eligible installed measures are shown in Table 2 below.

TABLE 2 – PROGRAM CREDITED ANNUAL ELECTRIC SAVINGS	
ENERGY STAR Qualified Lighting (including lighting in ceiling fans)	35 kWh each -- ENERGY STAR Lamps (screw-based CFLs)
	50 kWh each – ENERGY STAR (Pin or fixture-based CFLs)
ENERGY STAR Qualified Appliances	100 kWh each – ENERGY STAR refrigerator
	50 kWh each – ENERGY STAR dishwasher
	50 kWh each – ENERGY STAR freezer
Mechanical Equipment	400 kWh per air handler – High-efficiency variable speed or ECM motors
	175 kWh – Central Air Conditioner rated at 15 SEER or higher

5. **Combustion Safety Testing** -- All combustion appliances installed in the building must be inspected, and tested for safety by a Technician. A copy of a Program Combustion Safety Testing Form must be submitted with the application showing that testing has been completed for each Combustion Appliance Zone, if applicable: CAZ testing is not required for power-vented or sealed combustion units. Combustion safety testing must be completed in accordance with *ANSI Standard Z223.1-2002, Annex H: Recommended Procedure for Safety Inspection of an Existing Appliance Installation, which aligns with the Building Performance Institute’s (BPI) combustion safety testing procedures for Building Analysts.*

6. **Reduce Air Leakage** -- An ENERGY STAR Thermal Bypass Checklist inspection must be completed by the Technician or HERS Rater, and submitted with the application for every building participating in the Program to ensure that insulation is properly installed and that air-sealing measures are completed.

4.2 Additional Performance Requirements for Low-Rise, 1-4 Unit Buildings

For low-rise (three stories or fewer) buildings with four or fewer dwelling units, including detached single-family building, manufactured or modular homes, and townhouses, the Owner must demonstrate that the building meets the following additional Program performance requirements for energy efficiency and ventilation. The Owner must utilize a Technician to provide the analysis and performance testing needed and to verify the following measures are installed as designed:

1. HERS Rating -- A Technician must provide a rating report (HERC), showing the date the rating was prepared, to the Owner that shows:

- ✓ The building has achieved a minimum Expanded HERS Score of 86.0 or higher (or HERS Index of 70 or lower) using energy modeling software approved by NYSERDA. NYSERDA has currently approved Architectural Energy Corporation’s REM/Rate software for use in developing HERS ratings for buildings participating in NYSERDA’s Green Residential Building Program.
- ✓ Efficiency ratings for mechanical system components such as heating and cooling equipment and appliances.
- ✓ Duct leakage to the outside has been tested (by a duct pressure test) and shown to be less than or equal to six cubic feet per minute (6 cfm) to the outdoors per 100 square feet of conditioned floor area. Duct leakage testing may be waived if all ducts and air handling equipment are located in the conditioned space and envelope leakage is tested and shown to be less than or equal to 3 air changes per hour (3ACH₅₀)
- ✓ R-values for components of the building shell, including the ceiling, above grade walls, basement walls, slab, slab edge, and U-values for fenestration
- ✓ Building envelope air infiltration is less than or equal to 5ACH₅₀ as shown by a blower door test
- ✓ Estimated annual energy costs for heating, cooling, domestic hot water, lighting and appliances
- ✓ The building meets or exceeds the requirements of the EPA’s ENERGY STAR Homes program (Version 2.0), and the 2010 Energy Conservation Construction Code of New York State (ECCCNYS)

2. Ventilation – The building shall be designed and constructed so that automatically controlled mechanical ventilation is installed to meet or exceed *ASHRAE Standard 62.2-2007* requirements for minimum airflow rates, as shown in Table 3 below. A Technician shall verify that the mechanical ventilation system operates automatically, without occupant intervention, exhausts to the exterior of the building, and has a readily available and accessible override control to allow the unit to be readily shut off for purposes of servicing and/or replacement.

Square Footage		Number of Bedrooms						
		1	2	3	4	5	6	7
	1000	25	33	40	48	55	63	70
1001	1500	30	38	45	53	60	68	75
1501	2000	35	43	50	58	65	73	80
2001	2500	40	48	55	63	70	78	85

2501	3000	45	53	60	68	75	83	90
3001	3500	50	58	65	73	80	88	95
3501	4000	55	63	70	78	85	93	100
4001	4500	60	68	75	83	90	98	105
4501	5000	65	73	80	88	95	103	110
5001	5500	70	78	85	93	100	108	115
5501	6000	75	83	90	98	105	113	120

3. Energy efficiency requirements for Heating, Ventilation, and Air Conditioning equipment (including ceiling fans)

A Technician is responsible for verifying that qualified heating, ventilation and air conditioning equipment meeting or exceeding the Program minimum energy efficiency standards is installed. The equipment efficiency ratings in the Tables 4-7 in most cases represent ENERGY STAR minimum efficiency levels for the respective systems at the time the Program regulations were finalized (September, 2010), with the exception of the 92 percent AFUE requirement for natural gas furnaces.

If a Central Air Conditioner (CAC) or heat pump is installed, and a ducted distribution system is installed, a Technician shall also verify that supply air flow rates have been tested (either by the Technician, Home Energy Rater, or HVAC contractor) and show that the system delivers within +/- 15 percent of the design airflows (calculated per ACCA Manuals J and D) for each room being conditioned, as specified in Section 5.2.2 of *ACCA Standard 5 QI-2007: HVAC Quality Installation Specification*; furnace-only systems do not need to have supply airflow rates tested for purposes of the GRBP.

Primary heating system -- The system shall be sized and installed so that (i) the heating system(s) uses less than 300,000 Btus per hour, and meets or exceeds the minimum efficiency requirements as shown in Table 4 below; and (ii) if a heat pump is installed, a Technician shall verify that the supply air flow rates have been tested and meet program requirements as noted in item #3 above.

TABLE 4 – PROGRAM MINIMUM EFFICIENCY REQUIREMENTS FOR PRIMARY RESIDENTIAL HEATING SYSTEMS	
Type	Minimum Efficiency
Furnace--Natural Gas	AFUE 92%
Furnace-- Fuel Oil	AFUE 85%
Boiler--Hot Water or Steam	AFUE 85%
Air-Source Heat Pump--Split System	14.5 SEER/12 EER/8.2 HSPF

Air-Source Heat Pump--Single Package	14 SEER/ 11 EER/8.0 HSPF
Ground Source Heat Pump-- Closed Loop	14.1 EER/ 3.3 COP
Ground Source Heat Pump--Open Loop	16.2 EER/ 3.6 COP
Ground Source Heat Pump--Direct Expansion	15 EER/ 3.5 COP
Combination Water/Space Heater	0.73 CAE

Central air conditioner -- If a central air conditioner has been installed, install only a central air conditioner that meets the energy efficiency requirements shown in Table 5 on the following page. a Technician shall verify that the supply air flow rates have been tested and meet program requirements as noted in item #3 above.

TABLE 5: MINIMUM EFFICIENCY REQUIREMENTS FOR CENTRAL AIR CONDITIONERS	
Type	Minimum Efficiency
Central Air Conditioner (split system)	14.5 SEER/ 12 EER
Central Air Conditioner (single package system)	14 SEER /11 EER

Ceiling Fans -- if a ceiling fan(s) has been installed, install only a ceiling fan(s) that meets the minimum energy efficiency levels shown in Table 6; if a ceiling fan/light kit is installed, only an ENERGY STAR qualified unit may be installed.

TABLE 6: MINIMUM EFFICIENCY REQUIREMENTS FOR CEILING FANS		
Fan Speed	Minimum Airflow	Efficiency Requirement
Low	1,250 cubic feet per minute	155 cubic feet per minute/watt
Medium	3,000 cubic feet per minute	100 cubic feet per minute/watt
High	5,000 cubic feet per minute	75 cubic feet per minute/watt

Ventilation Fans – if a ventilation fan(s) has been installed, install only a ventilation fan(s) that meets the minimum energy efficiency levels shown in Table 7 and Table 8 as applicable.

Table 7: Minimum Efficiency Requirements for Ventilation Fans Using Home Ventilating Institute Standards 915, 916, and 920 Test Criteria for Ventilation Fans		
Product	Airflow	Efficiency Requirement
Range Hoods	Up to 500 cubic feet per minute (max)	2.8 cubic feet per minute/watt
Bathroom & Utility Room Fans	10 -80 cubic feet per minute	1.4 cubic feet per minute/watt
Bathroom & Utility Room Fans	90 -130 cubic feet per minute	2.8 cubic feet per minute/watt

Bathroom & Utility Room Fans	140 -500 cubic feet per minute (max)	2.8 cubic feet per minute/watt
In-Line Ventilating Fans		2.8 cubic feet per minute/watt

Table 8: Light Source Criteria for Combination Ventilation Fans	
Performance Characteristic	Specification
System Efficiency per lamp ballast combination, Lumens per Watt (LPW)	≥46 LPW for all lamp types below 30 total listed lamp watts ≥ 60 LPW for all lamp types that are ≤ 24 inches and ≥30 listed lamp Watts ≥ 70 LPW for all lamp types that are ≥24 inches and ≥30 listed lamp Watts
Maximum Total Lamp Wattage (excluding night lights)	≤ 50 Watts
Maximum Night Light Wattage	≤ 4 Watts

4. Energy Efficiency Requirement for Domestic Hot Water Heaters – Install only a domestic water heater(s) that meet the minimum energy efficiency requirements shown in Table 9. The Efficiency Factors (EF) for the equipment below may or may not exceed current (as of December, 2011) ENERGY STAR minimum efficiency levels; Technicians should check the efficiency ratings carefully. The system must: (i) be sized with a first-hour rating that meets the capacity for the calculated peak hour demand within one to two gallons, or that is the next higher capacity; and (ii) if an oil-fired domestic water heater is installed, install only an oil-fired domestic water heater(s) that has a flame retention burner.

TABLE 9: MINIMUM ENERGY FACTORS FOR DOMESTIC WATER HEATERS		
Rated Storage Capacity (in gallons)	Minimum EF for Natural Gas or Propane Water Heaters	Minimum EF for Electric Water Heaters
30	0.62	0.94
40	0.62	0.93
50	0.62	0.92
75	0.54	0.90
100	0.49	0.87
Tankless Water Heater	0.82	N/A

Appendix A: Eligible Builder Trainings and Certifications

Training/Designation	Organization
Certified Green Professional	National Association of Home Builders (NAHB)
Accredited Green Verifier	NAHB
Certified Building Analyst, Multi-family Building Analyst, Heating Professional, Air-Conditioning or Heat Pump Professional, or Envelope Professional	Building Performance Institute (BPI)
Certified HERS Rater	Residential Energy Services Network (RESNET)
LEED Green Rater	US Green Building Council
LEED Accredited Professional	US Green Building Council
LEED Green Associate	US Green Building Council