



Checklist Guide

Build Your Business. Build ecoSelect.

Introducing the ecoSelect® Program: a residential energy efficiency certification program designed by home energy raters for home builders.

ecoSelect® provides builders with a highly marketable, easy-to-implement home building standard that enables them to affordably construct high-efficiency homes, ecoSelect® homes meet the demands of today's homebuyer: lower cost of ownership, improved indoor air quality, and reduced impact on the environment.

Combining the HERS Index with common sense energy efficiency, indoor air quality, and water efficiency standards, ecoSelect® is a simple, affordable, and impactful home certification program that resonates with today's homebuyers.

Most importantly, the ecoSelect® Program was created with simplicity in mind: straightforward standards designed to measurably improve energy efficiency supported by clear consumer marketing to maximize builder value. Our builder portal provides online access to all your projects and certifications when you need it, while third-party verification ensures quality and consumer confidence.

The ecoSelect® Program is designed to meet the market demand for a practical, performance-based platform with powerful marketing tools that clearly communicate the value and benefits of a high-performance home to homebuyers. With ecoSelect®, builders can build high-performance AND sell more homes. It's a classic win-win.

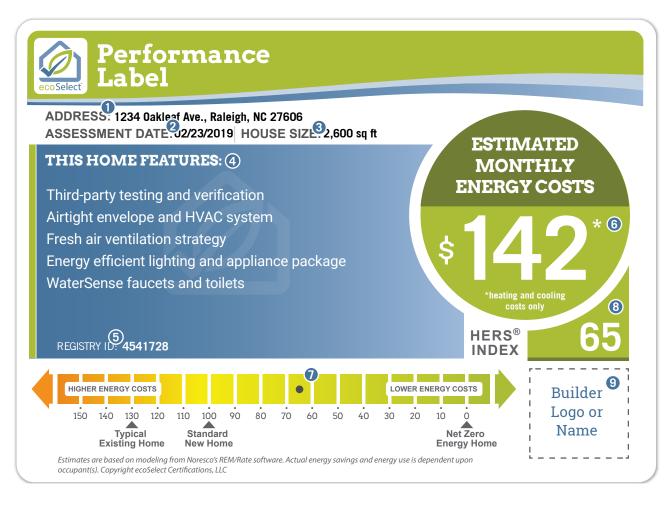
Join us today, and start building your business with ecoSelect®!



Checklist Requirements

Section	1: ENERGY	PASS	FAIL	N/A
1.1	Advanced Framing: min. insulated headers, corners, and interior/exterior wall intersections (i.e. Ladder-T's) OR continuous insulation on exterior walls			
1.2	Insulation rated to RESNET-defined Grade II or better			
1.3	Air barrier encloses insulation on all six sides when installed in vertical exterior walls			
1.4	Blocking and air sealing at edge of horizontally installed insulation to separate conditioned space from unconditioned space (includes garage band)			
1.5	Penetrations, chases, and openings to unconditioned space fully sealed with solid blocking or sealant			
1.6	Insulation extends over top plates and wind baffles installed at all eaves			
1.7	Air seal bottom plate / sill to subfloor, slab or masonry wall			
1.8	All doors adjacent to unconditioned space have weatherstrip and rough openings around windows and doors are air sealed to framing			
1.9	Vertical drywall air sealed to top plate where adjacent to unconditioned space (using caulk, gasket, or foamed from above)			
1.10	Air seal all HVAC boots, bath exhaust fan housings, can lights and penetrations to the drywall and/or subfloor			
1.11	All attic access panels/drop-down stairs are gasketed and equipped with a durable insulation			
1.12	Duct Leakage: measured at max 5% Total Leakage or 4% Leakage to Outside (LTO)			
1.13	Whole House Leakage: measured at 5 ACH50 or less			
1.14	Appliances: minimum 1 ENERGY STAR® appliance installed			
1.15	90% efficient lighting: CFLs, LEDs, or ENERGY STAR® Fixtures			
1.16	Programmable Thermostat(s)			
1.17	Low-E Window Requirements			
	1.17a Climate Zones 1 - 4: U-Factor 0.35 / SHGC 0.30			
	1.17b Climate Zones 5+: U-Factor 0.35 / SHGC Any			
1.18	Ducts insulated to R-8 in unconditioned space			
1.19	Manual J Load Calculation completed			
1.20	Solar potential evaluated for each home			
Section	2: INDOOR AIR QUALITY	PASS	FAIL	N/A
2.1	Foundations			
	2.1a Grade around foundation has 6 inches of fall over 10 feet or properly installed perimeter drain			
	2.1b Crawl Spaces: 100% ground coverage with 6 mil poly secured to ground and lapped 6 to 12 inches			
	2.1c Slabs/Basements: Rock/sand and a minimum 6 mil poly vapor barrier with 100% coverage installed			
2.2	Whole house fresh air ventilation with filter			
2.3	MERV 6 filters installed for all HVAC systems			
2.4	For bathrooms with a tub and/or shower, install a minimum 80 cfm rated exhaust fan			
2.5	All solid fuel burning appliances must have gasketed doors. Non-vented or vent-free fireplaces are not allowed			
2.6	Carbon monoxide detector installed on every floor with sleeping areas OR combustion appliances			<u> </u>
2.7	OPTIONAL: Kitchen ventilation exhausts to outside and meets a minimum measure flow rate of 100 CFM			
Section	3: WATER EFFICIENCY	PASS	FAIL	N/A
3.1	EPA WaterSense labeled lavatory faucets installed (for 100% installed)			
3.2	EPA WaterSense labeled toilets installed (for 100% installed)			
3.3	Moisture or rain sensor installed with any on-site irrigation system(s)			

ecoSelect Performance Label



After completing the certification process, every home receives an ecoSelect® Performance Label and rating report, with information on energy costs, efficiency features and HERS rating.

- 1 Home Address
- 2 Date of the final inspection and assessment
- 3 The conditioned square footage of the house
- 4 Highlighted energy performance features of the house
- 5 The home's unique Rating ID number
- 6 The estimated monthly energy costs of the home*
- THERS (Home Energy Rating System) Index (for more information visit: resnet.us/hers-index)
- 8 The home's calculated HERS score
- 9 Builder or general contractor's name or logo

Checklist Reference Guide

Section 1: ENERGY

1.1 Advanced Framing: min insulated headers, corners, and interior/exterior wall intersections (i.e. Ladder-T's) OR continuous R3 insulation on exterior walls

Header insulation can be achieved using ½" insulated sheathing in lieu of normal plywood or OSB filler. Corner framing can include insulated 3 Stud Corners (California corners) or two-stud corners with drywall clips or other means of supporting finish materials. Interior to exterior wall connections are required to provide a thermal break between the framing and exterior sheathing, using "Ladder-T" construction or equivalent. Alternatively, continuous insulated sheathing (minimum R3) can be installed in lieu of Advanced Framing.

1.2 Insulation rated to RESNET-defined Grade II or better

All ceiling, wall, floor and slab insulation shall receive a minimum RESNET-defined Grade II insulation installation. Where paper-faced insulation is used, it must be installed per manufacturer instructions and be stapled to the stud or ceiling truss with no voids. Where a floor is being insulated, the insulation shall be in 100% contact with subfloor above or conditioned space. Contractors shall avoid compression, voids, and misalignment.

1.3 Air barrier encloses insulation on all six sides when installed in vertical exterior walls

Materials must be rigid, defined as an air barrier and installed at the top, bottom, sides, front, and back of all insulation in vertical exterior walls. Air barrier is required in garage, kneewalls, under stairs, behind tubs, behind fireplace, on back of walls adjacent to attic areas, and in chases. Kneewalls are required to have a top and bottom plate that air-seals completely the top and bottom of each kneewall cavity.

1.4 Blocking and air sealing at edge of horizontally installed insulation to separate conditioned space from unconditioned space (includes garage band)

Where insulation is installed horizontally, it must contact with an air barrier at any exposed edge of the insulation. Blocking and air-sealing is required under walls above conditioned space to separate unconditioned space from conditioned space. Blocking and air sealing is required at the garage band when conditioned space is present above the garage height level.

1.5 Penetrations and openings to unconditioned space fully sealed with solid blocking and air sealant

Separate conditioned space from unconditioned space with sold blocking and air sealant. This includes duct/flue shaft, plumbing/ piping, electrical wiring, bathroom and kitchen exhaust fans, dropped ceiling/soffit, and light tubes. At each insulated location a complete air barrier shall be provided that is fully aligned with the insulation.

1.6 Insulation extends over top plates and wind baffles are installed at all eaves

Ceiling insulation must be installed to fully insulate the conditioned space and extend over the top plate of exterior walls. All eaves must also include a wind baffle to prevent wind washing of the insulation that extends from the bottomplate to the full vertical edge of the insulation and allowing for the full depth of the insulation. Baffles also must also be installed where ceiling heights change (i.e. dropped or tray ceilings), at porch ceilings, and attic access to maintain full depth of ceiling insulation over all top plates including raised-heel truss system.

1.7 Air seal bottom plate / sill plate to subfloor, slab or masonry wall

All sill and bottom plates adjacent to unconditioned space(s) must be sealed to foundation, subfloor, or masonry wall with caulk, foam, sill seal or equivalent. This detail is as important for air leakage as it is for pest deterrence.

1.8 All doors adjacent to unconditioned space have weatherstrip and rough openings around windows and doors

All exterior doors must include factory installed gasketing and all doors to attic must be gasketed. Rough openings around doors and windows must be air sealed with minimal expansive foam, caulk or backer-rod to stop air flow between windows/ doors and rough openings.

1.9 Vertical drywall air sealed to top plate when wall is adjacent to unconditioned space

Wall drywall must be air sealed to top plates at walls adjacent to unconditioned space. Approved air sealing methods are as follows: 1.) Air seal drywall to top plate with caulk, silicone, or sealant

- 2.) Use spray foam sealant to air seal drywall to top plate (i.e. seal from above after drywall is installed)
- 3.) Secure sill seal material to top plate prior to drywall installation

Checklist Reference Guide (cont.)

Section 1: ENERGY (cont.)

1.10 Air seal HVAC boots, bath exhaust fan housings, can lights and penetrations to the drywall and/or subfloor

All penetrations in the conditioned envelope must be air sealed with bucket mastic, mastic tape, caulk, foam or equivalent to prevent air leakage detected in the whole house infiltration test. This is not only a critical detail for the whole house tightness but for the tightness of duct systems.

1.11 All attic access panels/drop-down stairs are gasketed and equipped with a durable insulation

A durable covering does not include fiberglass insulation woven under drop-down stairs or glued to the scuttle hatch. This item requires a drop down stair or access panel which incorporates continuous insulation board or a covering that is designed to insulate and air seal the opening with the drop-down stairway in the closed position. All attic accesses must be air tight with gasket or weatherstrip.

1.12 Duct Leakage measured at 5% Total Leakage or 4% Leakage to Outside (LTO) or less

This item is determined by duct leakage testing completed by an ecoSelect® Inspector either at the rough inspection or at the final inspection. Duct leakage must be tested at 5% total or 4% LTO. Local codes supercede ecoSelect® requirements and the more stringent of the two must be met. The target CFM number is determined by the square foot of conditioned space served by the HVAC system.

1.13 Whole House Leakage measured at 5 ACH50 or less

A whole house infiltration test (blower door) performed by the ecoSelect® Inspector at the final inspection is used to determine total building infiltration. Whole house leakage must be tested at 5 ACH50 (air changes per hour) or less.

1.14 Appliances: Minimum 1 ENERGY STAR® appliance installed

At minimum, at least 1 major appliance installed in the home at the time of final inspection must carry the ENERGY STAR® label. Applicable appliances include dishwashers, refrigerators, freezers, clothes washers and clothes dryers. Products can earn the ENERGY STAR® label by meeting the energy efficiency requirements set forth in the ENERGY STAR® product specifications. www.energystar.gov/index.cfm?c=products.pr find es products.

1.15 90% Efficient Lighting: CFLs, LEDs, or ENERGY STAR® Fixtures

Percent is determined by the total number of fixtures installed and includes porch and garage lighting but excludes non-habitable space like closets and pantry, 90% of the total fixtures installed must carry the ENERGY STAR® label or have high efficiency bulbs installed such as CFLs, LEDs, etc.

1.16 Programmable Thermostat(s)

Programmable thermostat(s) are required for all forced air HVAC system(s).

1.17 Low-E Window Requirements:

- 1.17a In Climate Zones 1 4, installed windows must be rated to the following: U-Factor 0.35 / SHGC 0.30. 15 sq. ft. of glazed fenestration per dwelling unit shall be exempt from U-Factor and SHGC requirements
- 1.17b In Climate Zones 5+, installed windows must be rated to the following: U-Factor 0.35 / SHGC Any. 15 sq. ft. of glazed fenestration per dwelling unit shall be exempt from U-Factor and SHGC requirements

1.18 Ducts insulated to R-8 in unconditioned space

Any duct(s) outside of conditioned space(s) are to be insulated to R-8 min.

1.19 Manual J Load Calculation completed

A Manual J load calculation must be completed for the rated home and utilized by the builder for proper equipment sizing. Manual J Load Calculation must be produced by the builder upon request of the ecoSelect® Program or ecoSelect® Inspector.

1.20 Solar potential evaluated for each home

Every ecoSelect® rated home shall be evaluated for solar electricity production potential, with information provided to the homebuyer before and/or no later than conveyance of the ecoSelect® Certificate.

Section 2: INDOOR AIR QUALITY

2.1 Foundations

- 2.1a Grade around foundation has 6" of fall over 10' or properly installed perimeter drain. Perimeter drain pipe should be installed with a trench, slope to ensure drainage away from the foundation include a minimum of 4-inches of permeable backfill and the drain must exit to daylight.
- 2.1b Crawl: Crawl spaces must have 100% ground coverage with a minimum 6 mil poly secured to the ground and lapped 6 to 12 inches at seams.
- 2.1c Slab/Basement: Slabs are to be installed with rock/sand aggregate for a capillary break and a minimum 6 mil poly vapor retarder. Projects that can provide a certified letter showing the site has free-draining soils are exempt from the rock/sand aggregate capillary break. Poly is not required in climates defined as Dry (B) by the IECC, Figure 301.1.

2.2 Mechanical Whole House Ventilation Strategy

The installed ventilation strategy must be designed to provide a controlled exchange of air for the home. Exhaust only, supply only and balanced ventilation strategies can be used with care to select a strategy sensitive to climate specific conditions. Low sone fans are recommended for exhaust only ventilation strategies. Strategies directly connected to ducted heating/cooling must include a mechanical damper and easily accessible filter for maintenance.

2.3 MERV 6 filters installed for all HVAC systems

All HVAC systems shall have a Minimum Efficiency Reporting Value of MERV 6 or better to trap airborne particles. The installed filters need to be verified by the HVAC contractor with consideration of proper air flow through the HVAC system. Filters shall be easily accessible for maintenance.

2.4 For bathrooms with a tub or shower, the exhaust fan must meet a minimum measured 50 CFM flow rate (install a 80 CFM rated fan or better)

In each bathroom with a tub and/or shower, a system shall be installed that exhausts directly to the outdoors and passes a performance test by an ecoSelect® Inspector at final stage of construction of at least 50 CFM intermittent exhaust. For continuous bath fans 20 CFM is required for the performance test.

2.5 All solid fuel burning appliances must have gasketed doors. Non-vented or vent-free fireplaces are not allowed

All solid fuel-burning appliances must have gasketed doors. Site-built wood-burning fireplaces must additionally be equipped with outside combustion air. Factory-built wood burning stoves/fireplaces/inserts must be EPA certified. Gas fireplaces must be direct vent with fixed or gasketed doors. Non-vented fireplaces or vent-free fireplaces qualify as any that operate without a flue, chimney or traditional type of ventilation system. These are not permitted under the ecoSelect® Program.

2.6 Carbon monoxide detector installed on each floor

All homes equipped with combustion appliance(s) or an attached garage shall have a carbon monoxide (CO) alarm installed in a central location on each floor and in rooms that share a door to the garage. The alarm(s) shall be hardwired with a battery back-up function. Homes without combustion appliances shall have a CO Alarm installed near all sleeping areas.

2.7 Optional: Kitchen ventilation exhausts to outside and meets a minimum measured flow of 100 CFM

Cooking can be one of the major sources of indoor air contaminants and moisture generation in the home. Where feasible, install kitchen ventilation systems that exhaust directly to the outdoors and pull a min of 100cfm when performance tested (may require a fan rated above 100cfm to pass, especially in microwave combo units). Unvented Recirculating range hoods do not meet this requirement, but can be used in conjunction with another fan that is vented to achieve compliance.

Checklist Reference Guide (cont.)

Section 3: WATER EFFICIENCY

3.1 EPA WaterSense labeled lavatory faucets installed (for 100% installed)

All lavatory faucets must be WaterSense labeled. Faucets bearing the WaterSense label complete a third-party certification process to ensure they meet EPA criteria. Faucets and faucet accessories have demonstrated both water efficiency and the ability to provide adequate flow. For a complete list of WaterSense labeled products, please visit: epa.gov/watersense/product_search.html

3.2 EPA WaterSense labeled toilets installed (for 100% installed)

All toilets must be WaterSense labeled. The WaterSense label is used on toilets that are certified by independent laboratory testing to meet rigorous criteria for both performance and efficiency. Only high-efficiency toilets that complete the third-party certification process can earn the WaterSense label. For a complete list of WaterSense labeled products, please visit: epa.gov/watersense/product_search.html

3.3 Moisture or rain sensor installed with any irrigation system

A switch or device connected to the irrigation system that is activated by rainfall or moisture in soil which causes the system to shut down in the event of rainfall or sufficient moisture in the soil is required to be installed for all irrigation system(s) present.

Glossary of Terms

ACH50

Air Changes per Hour of airflow at a pressure difference of 50 pascals.

Material used to stop the transfer of air (i.e. Oriented strand board (OSB), Thermo-ply, Drywall, etc.).

Air Sealant

Spray foam, backer rod, caulk, silicone, mastic or sealant products, which are used to stop flow of air.

Blower Door

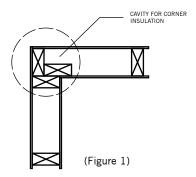
A pressure testing device for testing the air barrier of a home. Consists of a frame, which mounts in an exterior door frame and pulls air out of the house lowering the pressure inside; higher outside pressure then causes air to flow through all unsealed cracks and openings, allowing an energy rater to measure whole-house leakage.

CFM50

Cubic Feet per Minute of airflow at a pressure difference of 50 pascals.

Double-Stud (California) Corner

Wall corners use 2 studs (instead of 3) in the shape of an 'L' with drywall clips or nailer block in order to hang drywall at the corner. Allows for insulation of wall corner and prevention of "cold corners". (Figure 1)

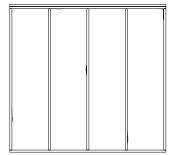


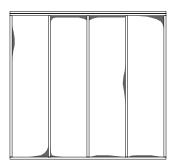
Duct Blaster

A pressure testing device used to test HVAC duct system(s) for air leaks.

Grade I Insulation

Insulation material uniformly fills each cavity side-to-side and top-to-bottom, without substantial gaps or voids around obstructions (such as blocking or bridging), and is split, installed, and/or fitted tightly around wiring and other services in the cavity. Insulation should be enclosed on all six sides, and shall be in substantial contact with the sheathing material on at least one side (interior or exterior) of the cavity.



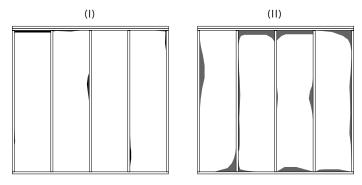


(I) Very small gaps and (II) <2% compressions @ 70% installed R-Value

Glossary of Terms (cont.)

Grade II Insulation

Moderate to frequent defects: gaps around wiring, electrical outlets, plumbing, other intrusions; rounded edges or "shoulders", larger gaps, or more significant compression. No more than 2% of the surface area of insulation is missing; no more than 10% of the surface area of insulation is compressed or incompletely filled by 30% or less of the intended thickness.



(I) 2% or fewer gaps and (II) <10% compressions @ 70% installed R-Value

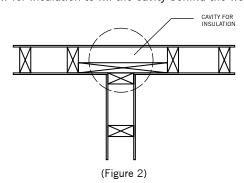
HERS Index

Home Energy Rating System Index (www.resnet.us/understanding-the-hers-index). Developed by RESNET, the HERS Index is the industry standard by which a home's energy efficiency is measured and the nationally recognized system for inspecting and calculating a home's energy performance.

Insulated Header

A header with a layer of rigid foam laminated between the header boards.

Connection between interior and exterior wall using short lumber pieces (the ladder) and attaching them between studs of the exterior wall in order to provide a nailing surface to support the interior wall. Allows for insulators to insulate between interior and exterior wall connection. The short lumber pieces forming the ladder should be flipped sideways (like a header over a window) to allow for insulation to fill the cavity behind the wood members.



Light Emitting Diodes are the source of illumination in high efficiency LED bulbs.

A Minimum Efficiency Reporting Value is a rating assigned to HVAC air filters. The higher the MERV rating, the smaller size particles an air filter will catch and hold.

Pressure Boundary

A continuous, uninterrupted air barrier that prevents convective heat transfer from conditioned to unconditioned spaces.

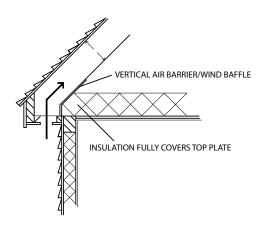
R-Value

Inverse of the U-factor. A value used to measure thermal resistance of walls, floors, and ceilings; measured in h-ft2 - F/Btu.

Residential Energy Services Network (www.resnet.us). Founded in 1995 as an independent, non-profit organization committed to helping homeowners reduce the cost of their utility bills by making their homes more energy efficiency. Today, RESNET is responsible for creating the national training and certification standards for HERS Raters and Home Energy Survey Professionals, both of which are recognized by federal government agencies such as the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the U.S. mortgage industry.



Soffit Venting Profile



Thermal Boundary

Limits conductive heat transfer between the inside and outside of a building; easy to identify by presence of insulation; factors involved in defining the thermal boundary include the shell's insulation and effective air barriers.

Inverse of the R-value. A measure of thermal conductance of walls, floors, and ceilings, indicating how much heat transmits (conducts) through a one sq. ft. area in one hour when there is a one degree difference in temperature on either side of the surface.

WaterSense*

WaterSense is a U.S. Environmental Protection Agency program designed to encourage water efficiency in the United States through the use of a special label on consumer products. Products with the WaterSense label are tested and certified to meet the criteria in the WaterSense specification for water efficiency and performance. For more information on the EPA WaterSense label, please visit: epa.gov/watersense/about_us/what_is_ws.html



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