

2015 NGBS MANDATORY ITEMS

This document is not intended to serve as a substitute for the 2015 NGBS, but rather as a quick guide to the mandatory items required for compliance.

GREEN BUILDING PRACTICES		M=Mandatory
SECTION 4: SITE DESIGN AND DEVELOPMENT		POINTS
402	PROJECT TEAM, MISSION STATEMENT, AND GOALS	
	402.3 Project checklist. A checklist of green development practices to be used on the project is created, followed, and completed by the project team regarding the site.	M 4
403	SITE DESIGN	
	403.1 Natural resources. Natural resources are conserved by one or more of the following:	
	(1) A natural resources inventory is used to create the site plan.	M 5
	(2) A plan to protect and maintain priority natural resources/areas during construction is created. (Also see Section 404 for guidance in forming the plan.)	M 5
SECTION 6 RESOURCE EFFICIENCY		
602	ENHANCED DURABILITY AND REDUCED MAINTENANCE	
	602.1 Moisture management – building envelope	
	602.1.1.1 A capillary break and vapor retarder are installed at concrete slabs in accordance with ICC IRC Sections R506.2.2 and R506.2.3 or ICC IBC Sections 1907 and 1805.4.1.	M
	602.1.3.1 Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed.	M
	602.1.4.1 Vapor retarder in unconditioned vented crawlspace is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.	
	(2) Walls. Dampproof walls are provided below finished grade.	M
	602.1.4.2 Crawlspace that is built as a conditioned area is sealed to prevent outside air infiltration and provided with conditioned air at a rate not less than 0.02 cfm (.009 L/s) per square foot of horizontal area and one of the following is implemented:	
	(2) 6-mil polyethylene sheeting, or other Class I vapor retarder installed in accordance with Section 408.3 or Section 506 of the International Residential Code.	M
	602.1.7.1 Moisture control measures are in accordance with the following:	
	(2) Insulation in cavities is dry in accordance with manufacturer’s instructions when enclosed (e.g., with drywall).	M 2

GREEN BUILDING PRACTICES	POINTS
602.1.8 Water-resistive barrier. Where required by the ICC, IRC, or IBC, a water-resistive barrier and/or drainage plane system is installed behind exterior veneer and/or siding.	M
602.1.9 Flashing. Flashing is provided as follows to minimize water entry into wall and roof assemblies and to direct water to exterior surfaces or exterior water-resistive barriers for drainage. Flashing details are provided in the construction documents and are in accordance with the fenestration manufacturer’s instructions, the flashing manufacturer’s instructions, or as detailed by a registered design professional.	
(1) Flashing is installed at all of the following locations, as applicable:.....	M
(a) around exterior fenestrations, skylights, and doors	
(b) at roof valleys	
(c) at all building-to-deck, -balcony, -porch, and -stair intersections	
(d) at roof-to-wall intersections, at roof-to-chimney intersections, at wall-to-chimney intersections, and at parapets	
(e) at ends of and under masonry, wood, or metal copings and sills	
(f) above projecting wood trim	
(g) at built-in roof gutters, and	
(h) drip edge is installed at eave and rake edges.	
602.1.11 Tile backing materials. Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.....	M
602.1.13 Ice barrier. In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves of pitched roofs and extends a minimum of 24 inches (610 mm) inside the exterior wall line of the building.	M
602.1.14 Architectural features. Architectural features that increase the potential for water intrusion are avoided:	
(1) All horizontal ledgers are sloped away to provide gravity drainage as appropriate for the application.	M 1
602.4.1 Finished grade at all sides of a building is sloped to provide a minimum of 6 inches (150 mm) of fall within 10 feet (3048 mm) of the edge of the building. Where lot lines, walls, slopes, or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), the final grade is sloped away from the edge of the building at a minimum slope of 2 percent.	M

SECTION 7: ENERGY EFFICIENCY

701 MINIMUM ENERGY EFFICIENCY REQUIREMENTS

701.4 Mandatory practices

701.4.1.1 HVAC system sizing. Space heating and cooling system is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent. Equipment is selected using ACCA Manual S or equivalent.	M
701.4.1.2 Radiant and hydronic space heating. Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed, installed, and documented, using industry-approved guidelines and standards (e.g., ACCA Manual J, AHRI I=B=R, ACCA 5 QI-2010, or an accredited design professional’s and manufacturer’s recommendations).	M
701.4.2.1 Duct air sealing. Ducts are air sealed. All duct sealing materials are in conformance with UL 181A or UL 181B specifications and are installed in accordance with manufacturer’s instructions.	M

GREEN BUILDING PRACTICES	POINTS
701.4.2.2 Ducts and Plenums. Building framing cavities are not used as ducts or plenums.	M
701.4.2.3 Duct system sizing. Duct system is sized and designed in accordance with ACCA Manual D or equivalent.....	M
701.4.3.1 Building Thermal Envelope Air Sealing. The building thermal envelope is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film, or solid material:	M
<ul style="list-style-type: none"> (a) All joints, seams and penetrations. (b) Site-built windows, doors, and skylights. (c) Openings between window and door assemblies and their respective jambs and framing. (d) Utility penetrations. (e) Dropped ceilings or chases adjacent to the thermal envelope. (f) Knee walls. (g) Walls and ceilings separating a garage from conditioned spaces. (h) Behind tubs and showers on exterior walls. (i) Common walls between dwelling units. (j) Attic access openings. (k) Rim joist junction. (l) Other sources of infiltration. 	
701.4.3.2 Air sealing and insulation. Grade II and III insulation installation is not permitted. Building envelope air tightness and insulation installation is verified to be in accordance with Section 701.4.3.2(1) and 701.4.3.2(2).	M
<p>(1) Testing. Building envelope tightness is tested. Testing is conducted in accordance with ASTM E-779 using a blower door at a test pressure of 1.04 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing is conducted under the following conditions:</p> <ul style="list-style-type: none"> (a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed; (b) Dampers are closed, but not sealed, including exhaust, intake, make-up air, backdraft and flue dampers; (c) Interior doors are open; (d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed; (e) Heating and cooling systems are turned off; (f) HVAC duct terminations are not sealed; and (g) Supply and return registers are not sealed. 	
<p>Multifamily Building Note: Testing by dwelling units, groups of dwelling units, or the building as a whole is acceptable.</p>	
<p>(2) Visual inspection. The air barrier and insulation items listed in <u>Table 701.4.3.2(2)</u> are field verified by visual inspection. (Table not provided here; please see 2015 NGBS)</p>	

GREEN BUILDING PRACTICES	POINTS
<p>701.4.3.2.1 Grade I insulation installations are in accordance with the following:</p> <ol style="list-style-type: none"> (1) Grading applies to field-installed insulation products. (2) Grading applies to ceilings, walls, floors, band joists, rim joists, conditioned attics basements and crawlspaces, except as specifically noted. (3) Inspection is conducted before insulation is covered. (4) Air-permeable insulation is enclosed on all six sides and is in substantial contact with the sheathing material on one or more sides (interior or exterior) of the cavity. Air permeable insulation in ceilings is not required to be enclosed when the insulation is installed in substantial contact with the surfaces it is intended to insulate. (5) Cavity insulation uniformly fills each cavity side-to-side and top-to-bottom, without substantial gaps or voids around obstructions (such as blocking or bridging). (6) Cavity insulation compression or incomplete fill amounts to 2 percent or less, presuming the compressed or incomplete areas are a minimum of 70 percent of the intended fill thickness; occasional small gaps are acceptable. (7) Exterior rigid insulation has substantial contact with the structural framing members or sheathing materials and is tightly fitted at joints. (8) Cavity insulation is split, installed, and/or fitted tightly around wiring and other services. (9) Exterior sheathing is not visible from the interior through gaps in the cavity insulation. (10) Faced batt insulation is permitted to have side-stapled tabs, provided the tabs are stapled neatly with no buckling, and provided the batt is compressed only at the edges of each cavity, to the depth of the tab itself. (11) Where properly installed, ICFs, SIPs, and other wall systems that provide integral insulation are deemed in compliance with the Grade 1 insulation installation requirements. 	M
<p>701.4.3.3 Multifamily air leakage alternative. Multifamily buildings four or more stories in height and in compliance with IECC section C402.5 (Air leakage-thermal envelope) are deemed to comply with Sections 701.4.3.1 and 701.4.3.2.</p>	
<p>701.4.3.4 Fenestration air leakage. Windows, skylights and sliding glass doors have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m²), when tested in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled. This practice does not apply to site-built windows, skylights, and doors.....</p>	M
<p>701.4.3.5 Recessed lighting. Recessed luminaires installed in the building thermal envelope are sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires are IC-rated and labeled as meeting ASTM E283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All recessed luminaires are sealed with a gasket or caulk between the housing and the interior of the wall or ceiling covering.</p>	M
<p>701.4.4 High-efficacy lighting. Lighting efficacy in dwelling units is in accordance with one of the following :</p> <ol style="list-style-type: none"> (1) A minimum of 75 percent of the total hard-wired lighting fixtures or the bulbs in those fixtures qualify as high efficacy or equivalent (2) Lighting power density, measured in watts/square foot, is 1.1 or less. 	M
<p>701.4.5 Boiler supply piping. Boiler supply piping in unconditioned space is insulated.</p>	M

GREEN BUILDING PRACTICES		POINTS
702	PERFORMANCE PATH	
<p>702.1 Point allocation. Points from Section 702 (Performance Path) shall not be combined with points from Section 703 (Prescriptive Path) or Section 704 (HERS Index Target Path).</p>		M
<p>702.2.1 ICC IECC analysis. Energy efficiency features are implemented to achieve energy cost or source energy performance that meets the ICC IECC. A documented analysis using software in accordance with ICC IECC, Section R405, or ICC IECC Section C407.2 through C407.5, applied as defined in the ICC IECC, is required.</p>		M
703	PRESCRIPTIVE PATH	
<p>703.1 Mandatory practices.....</p>		30
<p>703.1.1 UA Compliance. The building thermal envelope is in compliance with Section 703.1.1.1 or 703.1.1.2.</p>		M
<p>Exception: Section 703.1.1 is not required for Tropical Climate Zone.</p>		
<p>703.1.1.1 Maximum UA. For IECC residential, the total building UA is less than or equal to the total maximum UA as computed by 2015 IECC Section R402.1.5. For IECC commercial, the total UA is less than or equal to the sum of the UA for 2015 IECC Tables C402.1.4 and C402.4, including the U-factor times the area and C-factor or F-factor times the perimeter. The total UA proposed and baseline calculations are documented. REScheck or COMcheck is deemed to provide UA calculation documentation.</p>		
<p>703.1.1.2 Prescriptive R-values and fenestration requirements. The building thermal envelope is in accordance with the insulation and fenestration requirements of 2015 IECC Table R402.1.1 or Tables C402.1.3 and C402.4. The SHGC is in accordance with the 2015 IECC requirements.</p>		
<p>703.1.2 Building Envelope Leakage. The building thermal envelope is in accordance with 2015 IECC R402.4.1.2 or C402.5 as applicable.</p>		M
<p>Exception: Section 703.1.2 is not required for Tropical Climate Zone.</p>		
<p>703.1.3 Duct Testing. The duct system is in accordance with 2015 IECC R403.3.2 through R403.3.5 as applicable.</p>		M
<p>703.2.5.1 NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in Table 703.2.5.1. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.....</p>		M

GREEN BUILDING PRACTICES

POINTS

SECTION 8: WATER EFFICIENCY

801 INDOOR AND OUTDOOR WATER USE

801.5 Water closets and urinals. Water closets and urinals are in accordance with the following:
[Points awarded for 801.5(2) or 801.5(3), not both.]

(1) Gold and emerald levels: All water closets and urinals are in accordance with Section 801.5. **M**

801.6.3 Where an irrigation system is installed, an irrigation plan and implementation are executed by a qualified professional certified by a WaterSense labeled program or equivalent program as approved by Adopting Entity. **M**

SECTION 9: INDOOR ENVIRONMENTAL QUALITY

901 POLLUTANT SOURCE CONTROL

901.1.4 Gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the NFPA 54, ICC IFGC, or the applicable local gas appliance installation code. Gas-fired fireplaces within dwelling units and direct heating equipment are vented to the outdoors. **M**

901.2.1 Solid fuel-burning fireplaces, inserts, stoves and heaters are code compliant and are in accordance with the following requirements: **M**

(1) Site-built masonry wood-burning fireplaces use outside combustion air and include a means of sealing the flue and the combustion air outlets to minimize interior air (heat) loss when not in operation. **4**

(2) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified or Phase 2 Qualified. **6**

(3) Wood stove and fireplace inserts, as defined in UL 1482 Section 3.8, are in accordance with the certification requirements of UL 1482 and are in accordance with the emission requirements of the EPA Certification and the State of Washington WAC 173-433-100(3). **6**

(4) Pellet (biomass) stoves and furnaces are in accordance with ASTM E1509 or are EPA certified. **6**

(5) Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC Section 2112.1. **6**

901.3 Garages. Garages are in accordance with the following:

(1) Attached garage

(a) Doors installed in the common wall between the attached garage and conditioned space are tightly sealed and gasketed. **M 2**

(b) A continuous air barrier is provided separating the garage space from the conditioned living spaces. **M 2**

GREEN BUILDING PRACTICES		POINTS
<p>901.4 Wood materials. A minimum of 85 percent of material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following:</p> <p>(1) Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.....</p>		<p>10 Max</p> <p>M</p>
<p>901.12 Carbon monoxide (CO) alarms. A carbon monoxide (CO) alarm is provided in accordance with the IRC Section R315.</p>		<p>M</p>
902	POLLUTANT CONTROL	
<p>902.1.1 Spot ventilation is in accordance with the following:</p> <p>(1) Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms. <i>[Points are awarded only if a window complying with IRC Section R303.3 is provided in addition to mechanical ventilation.]</i>.....</p> <p>(2) Clothes dryers (except listed and labeled condensing ductless dryers) are vented to the outdoors.</p>		<p>M 1</p> <p>M</p>
<p>902.2 Building ventilation systems</p> <p>902.2.1 One of the following whole building ventilation systems is implemented and is in accordance with the specifications of Appendix B and an explanation of the operation and importance of the ventilation system is included in either 1001.1 or 1002.2. <i>[* Mandatory where the maximum air infiltration rate is less than 5.0 ACH50]</i></p> <p>(1) exhaust or supply fan(s) ready for continuous operation and with appropriately labeled controls</p> <p>(2) balanced exhaust and supply fans with supply intakes located in accordance with the manufacturer’s guidelines so as to not introduce polluted air back into the building.....</p> <p>(3) heat-recovery ventilator</p> <p>(4) energy-recovery ventilator</p>		<p>M *</p> <p>3</p> <p>6</p> <p>7</p> <p>8</p>
<p>902.3 Radon control. Radon control measures are in accordance with ICC IRC Appendix F. Zones as defined in Figure 9(1).</p> <p>(1) Buildings located in Zone 1</p> <p style="padding-left: 20px;">(a) a passive radon system is installed</p> <p style="padding-left: 20px;">(b) an active radon system is installed</p>		<p>M</p> <p>7</p> <p>10</p>
<p>902.6 Living space contaminants. The living space is sealed in accordance with Section 701.4.3.1 to prevent unwanted contaminants.....</p>		<p>M</p>

GREEN BUILDING PRACTICES

POINTS

SECTION 10: OPERATION, MAINTENANCE, AND BUILDING OWNER EDUCATION

1001 HOMEOWNER’S MANUAL AND TRAINING GUIDELINES FOR ONE- AND TWO-FAMILY DWELLINGS

1001.0 Intent. Information on the building’s use, maintenance, and green components is provided.

1001.1 Homeowner’s manual. A homeowner’s manual is provided and stored in a permanent location in the dwelling that includes the following, as available and applicable. *[Points awarded per two items. Points awarded for non-mandatory items.]*.....

- (1) A National Green Building Standard certificate with a web link and completion document..... **M**
- (2) List of green building features (can include the national green building checklist). **M**
- (3) Product manufacturer’s manuals or product data sheet for installed major equipment, fixtures, and appliances. If product data sheet is in the building owners’ manual, manufacturer’s manual may be attached to the appliance in lieu of inclusion in the building owners’ manual..... **M**

1001.2 Training of initial homeowners. Initial homeowners are familiarized with the role of occupants in achieving green goals. Training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include:

- (1) HVAC filters.
- (2) Thermostat operation and programming.
- (3) Lighting controls.
- (4) Appliances operation.
- (5) Water heater settings and hot water use.
- (6) Fan controls.
- (7) Recycling and composting practices.

1002 CONSTRUCTION, OPERATION, AND MAINTENANCE MANUALS AND TRAINING FOR MULTIFAMILY BUILDINGS

1002.0 Intent. Manuals are provided to the responsible parties (owner, management, tenant, and/or maintenance team) regarding the construction, operation, and maintenance of the building. Paper or digital format manuals are to include information regarding those aspects of the building’s construction, maintenance, and operation that are within the area of responsibilities of the respective recipient. One or more responsible parties are to receive a copy of all documentation for archival purposes.

1002.1 Building construction manual. A building construction manual, including five or more of the listed items (see 2015 NGBS), is compiled and distributed in accordance with Section 1002.0. *[Points awarded per two items. Points awarded for non-mandatory items.]*

- (1) A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties’ manuals..... **M**
- (2) A local green building program certificate as well as a copy of the *National Green Building Standard™*, as adopted by the Adopting Entity, and the individual measures achieved by the building. **M**
- (3) Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, and finishes. **M**

GREEN BUILDING PRACTICES	POINTS
<p>1002.2 Operations manual. Operations manuals are created and distributed to the responsible parties in accordance with Section 1002.0. Between all of the operation manuals, five or more of the <i>listed items</i> (see 2015 NGBS) are included. <i>[Points awarded per two items. Points awarded for non-mandatory items.]</i></p>	
<p>(1) A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties' manuals.</p>	M
<p>(2) A list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics).</p>	M
<p>1002.3 Maintenance manual. Maintenance manuals are created and distributed to the responsible parties in accordance with Section 1002.0. Between all of the maintenance manuals, five or more of <i>listed items</i> (see 2015 NGBS) are included. <i>[Points awarded per two items. Points awarded for non-mandatory items.] ...</i></p>	
<p>(1) A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties' manuals.</p>	M
<p>1002.4 Training of building owners. Building owners are familiarized with the role of occupants in achieving green goals. On-site training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include:</p>	M
<p>(1) HVAC filters (2) thermostat operation and programming (3) lighting controls (4) appliances operation (5) water heater settings and hot water use (6) fan controls (7) recycling and composting practices</p>	