

# NAHB Model Green Home Building Guidelines Checklist

---



NAHB NATIONAL  
GREEN BUILDING  
PROGRAM™

[WWW.NAHBGREEN.ORG/CONTENT/PDF/POCKET\\_CHECKLIST.PDF](http://WWW.NAHBGREEN.ORG/CONTENT/PDF/POCKET_CHECKLIST.PDF)

Section	Bronze	Silver	Gold
1 Lot Design, Preparation, and Development	8	10	12
2 Resource Efficiency	44	60	77
3 Energy Efficiency	37	62	100
4 Water Efficiency	6	13	19
5 Indoor Environmental Quality	32	54	72
6 Operation, Maintenance, and Homeowner Education	7	7	9
7 Global Impact	3	5	6
Additional points from sections of your choice	100	100	100
<b>TOTALS</b>	<b>237</b>	<b>311</b>	<b>395</b>

## Section 1: Lot Design, Preparation, and Development

### 1.1 Select the site to minimize environmental impact

	YOUR SCORE	AVAILABLE POINTS	
1.1.1	___	7	Avoid environmentally sensitive areas identified through site footprinting process
1.1.2	___	9	Choose an infill site
1.1.3	___	7	Choose a greyfield site
1.1.4	___	7	Choose an EPA-recognized brownfield site

### 1.2 Identify goals with your team

1.2.1	___	6	Establish a knowledgeable team by identifying team member roles and writing a mission statement that includes project goals and objectives
-------	-----	---	--

### 1.3 Design the site to minimize environmental impact and protect, restore, and enhance the natural features and environmental qualities of the site

1.3.1	___	6	Conserve natural resources
1.3.2	___	6	Site the home and other built features to optimize solar resource
1.3.3	___	5	Minimize slope disturbance
1.3.4	___	6	Minimize soil disturbance and erosion
1.3.5	___	8	Manage storm water using low impact development
1.3.6	___	8	Devise landscape plans to limit water and energy demand
1.3.7	___	5	Maintain wildlife habitat

### 1.4 Develop the site to minimize environmental intrusion during onsite construction

1.4.1	___	5	Provide onsite supervision and coordination during clearing, grading, trenching, paving, to ensure targeted green development practices are implemented
1.4.2	___	5	Conserve existing onsite vegetation
1.4.3	___	6	Minimize onsite soil disturbance and erosion

Section Total \_\_\_\_\_

## Section 2: Resource Efficiency

### 2.1 Reduce the quantity of materials used and waste generated

	YOUR SCORE	AVAILABLE POINTS	
2.1.1	___	1-9	Create an efficient floor plan that maintain home's functionality
2.1.2	___	4-8	Employ advanced framing techniques
2.1.3	___	6	Use building layouts that maximize resources and minimize material cuts
2.1.4	___	7	Create a detailed framing plan and material takeoffs
2.1.5	___	4	Use materials requiring no additional finish resources to complete application onsite
2.1.6			Use pre-cut or pre-assembled building systems or methods as outlined below:
	___	3-9	Provide pre-cut joist or pre-manufactured floor truss
	___	6	Provide panelized wall framing system
	___	6	Provide panelized roof framing system
	___	7	Provide modular construction for entire house
2.1.7	___	4	Use a frost-protected shallow foundation

### 2.2 Enhance durability and reduce maintenance

2.2.1	___	6	Provide covered entry (awning, covered porch) at exterior doors
2.2.2	___	7	Use recommended-sized roof overhangs for the climate
2.2.3	___	7	Install perimeter drain for all basement footings sloped to discharge to daylight, sump pit
2.2.4	___	6	Install drip edge at eave and gable roof edges
2.2.5	___	6	Install gutter and downspout system to divert water 5 feet away from foundation
2.2.6	___	7	Divert surface water from all sides of building
2.2.7	___	7	Install continuous and physical foundation termite barrier where necessary
2.2.8	___	7	Use termite-resistant materials for walls, floor joists, trusses, exterior decks, etc.
2.2.9	___	8	Provide a water-resistant barrier behind the exterior veneer or siding
2.2.10	___	5	Install ice flashing at roof edge
2.2.11	___	7	Install enhanced foundation waterproofing
2.2.12	___	9	Employ and show on plans all flashing details

### 2.3 Reuse materials

2.3.1	___	6	Disassemble existing buildings instead of demolishing
2.3.2	___	5	Reuse salvaged materials
2.3.3	___	6	Provide onsite bins or space to sort, store scrap materials

### 2.4 Recycled content materials

2.4.1	___	3-6	Use recycled-content building materials. List components used
-------	-----	-----	---

## 2.5 Recycle waste materials during construction

- |       |     |      |   |
|-------|-----|------|---|
| 2.5.1 | ___ | 7    | Develop and implement a construction and demolition waste management plan |
| 2.5.2 | ___ | 5    | Conduct onsite recycling efforts  |
| 2.5.3 | ___ | 6-12 | Recycle construction waste offsite  |

## 2.6 Use renewable materials

- |       |     |       |  |
|-------|-----|-------|--|
| 2.6.1 | ___ | 3-5   | Use materials manufactured from renewable resources                    |
| 2.6.2 | ___ | 4/per | Use certified wood and use wood-based materials from certified sources |

## 2.7 Use resource-efficient materials

- |       |     |   |   |
|-------|-----|---|---|
| 2.7.1 | ___ | 3 | Use products that are composed of fewer resources |
|-------|-----|---|---|

Section Total \_\_\_\_\_

# Section 3: Energy Efficiency

## 3.1 Minimum Energy Efficiency Requirements

	YOUR SCORE	AVAILABLE POINTS	
3.1.1	Mandatory		Home is equivalent to the IECC 2003 or local energy code, whichever is more stringent
3.1.2	Mandatory		Size space heating and cooling system and equipment according to building heating and cooling loads calculated using ANSI/ACCA Manual J 8th edition or equivalent
3.1.3	Mandatory		Conduct third party plan review to verify design/compliance with Energy Efficiency section

## 3.2 Performance Path

3.2.1	Home is X% above IECC 2003		
___	37	15% (Bronze)	
___	62	30% (Silver)	
___	100	40% (Gold)	

## 3.3 Prescriptive Path

An energy-efficiency practice identified with a "(PP)" in Section 3.3 is a Performance Path practice likely to be used to calculate X% above ICC IECC in Section 3.2. If Section 3.3 is used to obtain points in addition to points from 3.2, those practices from Section 3.3 used to comply with Section 3.2 shall not be awarded any additional points.

### 3.3.1 Building Envelope

Increase effective R-value of building envelope using advanced framing techniques, continuous insulation, and/or integrated structural insulating system. Measures may include but are not limited to:

- |         |     |   |  |
|---------|-----|---|--|
| A. (PP) | ___ | 8 | SIPS   |
|         | ___ | 8 | ICFS   |
|         | ___ | 6 | Advanced framing or insulated corners, intersections and headers |

- \_\_\_ 2 Raised heel trusses
- \_\_\_ 4 Continuous insulation on exterior wall
- \_\_\_ 4 Continuous insulation on cathedral ceiling
- B. (PP) \_\_\_ 10 Air sealing package is implemented to reduce infiltration
- C. (PP) \_\_\_ 8 ENERGY STAR®-rated windows appropriate for local climate

### 3.3.2 HVAC design, equipment, and installation

- A. \_\_\_ 8 Size, design, and install duct system using ANSI/ACCA Manual D® or equivalent
- B. \_\_\_ 8 Design radiant/hydronic space heating systems using industry-approved guidelines
- C. \_\_\_ 8 Use ANSI/ACCA Manual S® or equivalent to select heating and cooling equipment
- D. \_\_\_ 8 Verify performance of the heating and cooling system
- E. \_\_\_ 6 Use HVAC installer or technician certified by national or regionally recognized program
- F. (PP) Fuel-fired space heating equipment efficiency (AFUE)
  - \_\_\_ 4 Gas furnace greater than or equal to 81%
  - \_\_\_ 6 Gas furnace greater than or equal to 88% (ENERGY STAR)
  - \_\_\_ 8 Gas furnace greater than or equal to 94%
  - \_\_\_ 2 Oil furnace greater than or equal to 83%
  - \_\_\_ 2 Gas or oil boiler greater than or equal to 85% (ENERGY STAR)
  - \_\_\_ 6 Gas or oil boiler greater than or equal to 90%
- G. (PP) Heat pump efficiency (cooling mode)
  - \_\_\_ 6 SEER 13-14
  - \_\_\_ 6 SEER 15-18
  - \_\_\_ 7 SEER 19+
  - \_\_\_ 9 Staged air conditioning equipment
- H. (PP) Heat pump efficiency (heating mode)
  - \_\_\_ 6 7.2 - 7.9 HSPF
  - \_\_\_ 7 8.0 - 8.9 HSPF
  - \_\_\_ 9 9.0 - 10.5 HSPF
  - \_\_\_ 10 > 10.5 HSPF
- I. (PP) Ground source heat pump installed by a certified geothermal service contractor (cooling mode)
  - \_\_\_ 5 EER = 13-14
  - \_\_\_ 6 EER = 15-18
  - \_\_\_ 8 EER = 19-24
  - \_\_\_ 10' EER = >25
- J. (PP) Ground source heat pump installed by a certified geothermal service contractor (heating mode)
  - \_\_\_ 6 COP 2.4 - 2.6
  - \_\_\_ 8 COP 2.7 - 2.9
  - \_\_\_ 10 COP = 3.0
- K. \_\_\_ 6 Seal ducts, plenums, equipment to reduce leakage. Use UL 181 foil tapes and/or mastic.

- L.    \_\_\_    8    When installing ductwork:
  1. Do not use building cavities used as ductwork, e.g., panning joist or stud cavities
  2. Install all heating and cooling ducts and mechanical equipment within conditioned envelope
  3. Do not install ductwork in exterior walls
- M.    \_\_\_    6    Install return ducts/transfer grilles in rooms with doors (except baths, kitchen, closets, laundry)
- N.    \_\_\_    1/per    Install ENERGY STAR-rated ceiling fans
- O.    \_\_\_    4    Install whole-house fan with insulated louvers
- P.    \_\_\_    8    Install ENERGY STAR-labeled mechanical exhaust for every bathroom ducted to outside

### 3.3.3 Water heating design, equipment, and installation

- A.    \_\_\_    4    Water heater Energy Factor equal to or greater than those listed
 

Natural Gas:	Size (gallons)	Energy Factor
	30	0.64
	40	0.62
	50	0.60
	65	0.58
	75	0.56
Electric:	Size (gallons)	Energy Factor
	30	0.95
	40	0.94
	50	0.92
	65	0.90
	80	0.88
	100	0.86
- B.    \_\_\_    4    Install whole house instantaneous (tankless) water heater
- C.    \_\_\_    4    Insulate all hot water lines with a minimum of 1" insulation
- D.    \_\_\_    3    Install heat trap on cold and hot water lines to and from the water heater
- E.    \_\_\_    5    Install manifold plumbing system (parallel piping configuration, stacking plumbing)

### 3.3.4 Lighting and appliances

- A.    \_\_\_    7    Use an ENERGY STAR Advanced Lighting Package
- B.    \_\_\_    7    Install all recessed fixtures within the conditioned envelope
- C.    \_\_\_    7    Install motion sensors on outdoor lighting
- D.    \_\_\_    2    Install tubular skylights in rooms without windows.
- E. Install ENERGY STAR-labeled appliance:
  - \_\_\_    3    Refrigerator
  - \_\_\_    3    Dishwasher
  - \_\_\_    5    Washing machine

### 3.3.5 Renewable energy/solar heating and cooling

#### 3.3.5.1 Solar space heating and cooling

- A.    \_\_\_    10    Use sun-tempered design: building orientation, sizing of glazing, design of overhangs to provide shading

- B.     \_\_\_     10    Use passive solar design: sun-tempered design as above plus additional southfacing glazing, appropriately designed thermal mass to prevent overheating
- C.     \_\_\_     8     Use passive cooling, including. shading, overhangs, window cross ventilation

**3.3.5.2 Solar water heating**

A. Install SRCC-rated solar water heating system

- \_\_\_     8     Solar fraction: 0.3
- \_\_\_     10    Solar fraction: 0.5

**3.3.5.3 Additional renewable energy options**

A. Supply electricity needs by onsite renewable energy source whereby the system is estimated to produces the following kWh per year:

- \_\_\_     8     2,000 – 3,999
- \_\_\_     10    4,000 – 5,999
- \_\_\_     12    6,000 +

B. Provide clear and unshaded roof area (+/- 30 degrees of south or flat) for future solar collector or photovoltaics. Provide rough-in piping from the roof to the utility area

- \_\_\_     3     Conduit
- \_\_\_     5     Insulated piping

**3.3.6 Verification**

- 3.3.6.1 \_\_\_     8     Conduct onsite third-party inspection to verify installation of energy-related features
- 3.3.6.2 \_\_\_     8/per    Conduct third-party testing to verify performance: blower door, duct leakage, flow rates

**Section Total** \_\_\_\_\_

**Section 4: Water Efficiency**

**4.1 Water Use**

	YOUR SCORE	AVAILABLE POINTS	
4.1.1	___	6/per	Hot water delivery to remote locations aided by installation of: A. On-demand water heater at point of use served by cold water only B. Control-activated recirculation system
4.1.2	___	9	Water heater located within 30 feet pipe run of all bathrooms and kitchen
4.1.3	___	7/per	ENERGY STAR water-conserving dishwasher, washing machine, etc. (7 points per appliance)
4.1.4	___	2/per	Water-efficient showerhead using aerator/venturi with flow rate < 2.5 gpm
4.1.5	___	2/per	Water-efficient sink faucets/aerators < 2.2 gpm
4.1.6	___	4-6	Ultra low flow (< 1.6 gpm/flush) toilets: (power-assist: 4 pts; dual flush: 6 pts)



4.1.7	___	7	Low-volume, non-spray irrigation system installed such as drip irrigation, bubblers
4.1.8	___	6	Irrigation system zoned separately for turf and bedding areas
4.1.9	___	7	Weather-based irrigation controllers such as computer-based weather record
4.1.10	___	9	Collect and use rainwater, as permitted by local code
4.1.11	___	7	Innovative wastewater technology as permitted by local code

**Section Total** \_\_\_\_\_

## Section 5: Indoor Environmental Quality

### 5.1 Minimize potential sources of pollutants

	YOUR SCORE	AVAILABLE POINTS	
5.1.1	___	8	For vented space heating and water heating equipment: A. Install direct vent equipment B. Install induced/mechanical draft combustion equipment
5.1.2	___	6	Install space heating and water heating equipment in isolated mechanical room or closet with an outdoor source of combustion and ventilation air
5.1.3	___	6	Install direct-vent, sealed-combustion gas fireplace, sealed wood fireplace, or sealed woodstove or install no fireplace or woodstove
5.1.4	___	9	Ensure a tightly-sealed door between the garage and living area and provide continuous air barrier between garage and living areas including air sealing penetrations
5.1.5	___	6	Ensure particleboard, medium density fiberboard (MDF) and hardwood plywood substrates are certified to low formaldehyde emission standards
5.1.6	___	6	Install carpet, carpet pad, and floor covering adhesives that hold "Green Label" from Carpet and Rug Institute's indoor air quality testing program or equivalent
5.1.7	___	5	Mask HVAC outlets during construction and vacuum all ducts, boots, and grills
5.1.8	___	3	Use low-VOC emitting wallpaper

### 5.2 Manage potential pollutants generated in the home

5.1.2	___	7	Vent kitchen range exhaust to the outside
5.2.2	___		Provide mechanical ventilation at a rate of 7.5 cfm per bedroom + 7.5 cfm and controlled automatically or continuous with manual override. Choose:
	___	7	Exhaust or supply fan(s)
	___	9	Balanced exhaust and supply fans
	___	10	Heat-recovery ventilator
	___	10	Energy-recovery ventilator
5.2.3	___	3	Install MERV 9 filters on central air or ventilation systems
5.2.4	___	4	Install humidistat to control whole-house humidification system



- |       |     |   |  |
|-------|-----|---|--|
| 5.2.5 | ___ | 6 | Install sub-slab de-pressurization system to facilitate future radon mitigation system |
| 5.2.6 | ___ | 9 | Verify all exhaust flows meet design specifications                                    |

### 5.3 Manage moisture (vapor, rainwater, plumbing, HVAC)

- |       |     |   |  |
|-------|-----|---|--|
| 5.3.1 | ___ | 6 | Control bathroom exhaust fan with a timer or humidistat  |
| 5.3.2 | ___ | 6 | Install moisture-resistant backerboard under tiled surfaces in wet areas   |
| 5.3.3 | ___ | 9 | Install vapor retarder directly under slab (6-mil) or on crawl space floor (8-mil)   |
| 5.3.4 | ___ | 6 | Protect unused moisture-sensitive materials by just-in-time delivery, storing in dry area, or tenting and storing on raised platform |
| 5.3.5 | ___ | 5 | Keep plumbing supply lines out of exterior walls   |
| 5.3.6 | ___ | 4 | Insulate cold water pipes in unconditioned spaces  |
| 5.3.7 | ___ | 4 | Insulate HVAC ducts, plenums, and trunks in unconditioned basements and crawl spaces   |
| 5.3.8 | ___ | 4 | Check moisture content of wood before it is enclosed on both sides   |

**Section Total** \_\_\_\_\_

## Section 6: Operation, Maintenance, and Homeowner Education

- |     |     |   |   |
|-----|-----|---|---|
| 6.1 | ___ | 9 | Provide Home Manual to owners/occupants on the use and care of the home   |
| 6.2 | ___ | 2 | Optional information to include in the Home Manual (see User Guide)   |
| 6.3 | ___ | 7 | Provide education to owners/occupants in the use and care of their dwellings: Instruct homeowner/occupants about the building's goals and strategies and occupant's impact on costs of operating the building. Provide training to owners/occupants for all control systems in the house. |
| 6.4 | ___ | 1 | Solid waste: Encourage homeowners/occupants to recycle by providing built-in space in the home's design (kitchen, garage, covered outdoor space) for recycling containers   |

**Section Total** \_\_\_\_\_

## Section 7: Global Impact

### 7.1 Products

	YOUR SCORE	AVAILABLE POINTS	
7.1.1	___	3	Note product manufacturer's operations and practices (environmental management system)
7.1.2	___	6	Choose low- or no-VOC indoor paints
7.1.3	___	5	Use low-VOC sealants

### 7.2 Innovative options

- |       |     |   |  |
|-------|-----|---|--|
| 7.2.1 | ___ | 4 | Demonstrate that builder's operations and business practices include environmental management concepts |
|-------|-----|---|--|

Full descriptions of these items and supporting information can be found in the NAHB Model Green Home Building Guidelines.

Download them on the web at

[www.nahb.org/gbg](http://www.nahb.org/gbg)

Score your green home online at

[www.nahbgreen.org](http://www.nahbgreen.org)



**NAHB**  
NATIONAL ASSOCIATION  
OF HOME BUILDERS

1201 15th Street, NW, Washington, DC 20005

800.368.5242 • [www.nahbgreen.org](http://www.nahbgreen.org)