



MULTI-FAMILY Self-Certification Checklist

A Program of the Master Builders Association in Partnership with King and Snohomish Counties

Check items you will be including in this project to qualify for a BUILT GREEN™ star rating. Version 2003

Requirements to Qualify at 1-Star Level (All ★ items plus orientation)

- Program Orientation (one time only)
- Section 1: Build to “Green” Codes & Regulations
- Earn 40 points from Sections 2 through 6, any items
- Prepare/post a jobsite recycling plan (Action Item 5-17)
- Provide an Operations & Maintenance Kit (Action Item 6-1)

Requirements to Qualify at 2-Star Level (150 points minimum)

- Meet 1-Star requirements
- Earn 110 additional points from Sections 2 through 6 with at least 10 points from each Section
- Attend a BUILT GREEN™ approved workshop within past 12 months prior to certification

Requirements to Qualify at 3-Star Level (300 points minimum for addition; 100 points for remodel)

- Meet 2-Star requirements plus 150 additional points

SECTION ONE: BUILT TO GREEN CODES/REGULATIONS

- (★) 1-1. Meet Washington State Water Use Efficiency Standards
- (★) 1-2. Meet Stormwater/Site Development Standards
- (★) 1-3. Meet Washington State Energy Code
- (★) 1-4. Meet Washington State Mechanical Ventilation/IAQ Code

SECTION TWO: SITE AND WATER

SITE PROTECTION

Overall

- (3) 2-1. Build on an infill lot to take advantage of existing infrastructure and reduce development of virgin sites
- (10) 2-2. Build in a planned BUILT GREEN™ development

Protect Site’s Natural Features

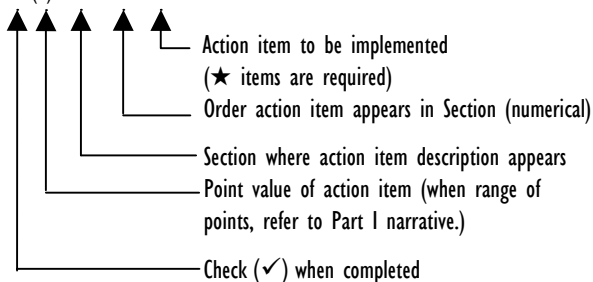
- (3) 2-3. Limit heavy equipment use zone to limit soil compaction
- (3) 2-4. Preserve existing native vegetation as landscaping
- (3) 2-5. Take extra precautions to protect trees during construction
- (3) 2-6. Preserve and protect wetlands, shorelines, bluffs, and other critical areas during construction
- (5-10) 2-7. Set aside percentage of site to be left undisturbed

Protect Natural Processes On-Site

- (2) 2-8. Install temporary erosion control devices and optimally maintain them
- (3) 2-9. Use compost to stabilize disturbed slopes
- (3) 2-10. Retain all native topsoil, and protect stockpiles from erosion
- (3) 2-11. Balance cut and fill, while maintaining original topography
- (4) 2-12. Amend disturbed soil to a depth of 8 to 10 inches to restore soil environmental functions
- (3) 2-13. Replant or donate removed vegetation for immediate reuse
- (3) 2-14. Grind landclearing wood and stumps for reuse
- (5) 2-15. Use a water management system that allows groundwater to recharge
- (5) 2-16. Design to achieve effective impervious surface equivalent to 0% for 5 acres and above; <10% for less than 5 acres
- (5) 2-17. Use pervious materials for at least one-third of total area for driveways, walkways, patios

HOW TO USE THE CHECKLIST

- (2) 2—32. Construct tire wash



- (10) 2-18. Install vegetated roof system (e.g. eco-roof) to reduce impervious surface
- (10) 2-19. Construct no impervious surfaces outside building footprint
- (10) 2-20. On-site wastewater treatment

Eliminate Water Pollutants

- (1) 2-21. Take extra care to establish and maintain a single stabilized construction entrance (quarry spall or crushed rock)
- (1) 2-22. Take extra precautions to install and maintain sediment traps
- (1) 2-23. Establish and post clean up protocol for tire wash
- (1) 2-24. Take extra precautions to not dispose of topsoil in lowlands or wetlands
- (1) 2-25. Wash out concrete trucks in slab or pavement subbase areas
- (1) 2-26. Prohibit burying construction waste
- (1) 2-27. When construction is complete, leave no part of the disturbed site uncovered or unstabilized
- (1) 2-28. Recycle antifreeze, oil, and oil filters at appropriate outlets
- (1) 2-29. Dispose of non-recyclable hazardous waste at legally permitted facilities
- (1) 2-30. Establish and post clean up procedures for spills to prevent illegal discharges
- (1) 2-31. Reduce hazardous waste through good jobsite housekeeping
- (2) 2-32. Construct tire wash
- (2) 2-33. Use slow-release organic fertilizers to establish vegetation
- (2) 2-34. Use less toxic form releasers
- (2) 2-35. Provide an infiltration system for rooftop runoff
- (2) 2-36. Install low-mercury T-8 lamps
- (3) 2-37. Use non-toxic or low-toxic outdoor lumber for landscaping (e.g. plastic, least-toxic treated wood)
- (5) 2-38. No clearing or grading during winter months
- (2) 2-39. No zinc galvanized ridge caps, copper flashing or copper wires for moss prevention

DESIGN ALTERNATIVES

- (1) 2-40. Integrate landscaping with parking area beyond compliance
- (1-3) 2-41. Foster the appreciation of/connection to the natural world through land use and building design
- (3) 2-42. Build north area of the lot first, retaining south area for outdoor activities
- (3) 2-43. Cluster buildings and design site roadways and parking to preserve open space
- (3) 2-44. Choose location to reduce the dependence on automobiles
- (3) 2-45. Promote community and security through site and building design
- (5-26) 2-46. Create a “mixed use” development

Subtotal for Section Two

SECTION THREE: ENERGY EFFICIENCY

ENVELOPE

Thermal Performance

- (10-40) 3-1. Document envelope improvements beyond code (component performance approach)
- (1-55) 3-2. Document envelope improvements beyond code (prescriptive approach)
- (5) 3-3. Participate in a program that provides third-party plan review and inspection (e.g., ENERGY STAR®, Built Smart)

Air Sealing

- (1) 3-4. Building wrapped with an exterior air infiltration barrier to manufacturer’s specifications
- (3) 3-5. Airtight Drywall Approach for framed structures
- (3) 3-6. Use airtight building method, such as SIP or ICF
- (3) 3-7. Compartmentalization strategy for air leakage reduction
- (5) 3-8. Blower door test on each unit

Reduce Thermal Bridging

- (2) 3-9. Use insulated headers
- (2) 3-10. Fully insulate corners (requires 2-stud instead of 3-stud corners)
- (2) 3-11. Fully insulate at interior/exterior wall intersection
- (2) 3-12. Use energy heels of 6 in. or more on trusses to allow added insulation over top plate
- (2) 3-13. Use insulated exterior sheathing
- (2) 3-14. Use blown-in insulation
- (3) 3-15. Use advanced wall framing—24-in OC, w/double top plate

Solar Design Features

- (2) 3-16. Provide south shading—install properly sized overhangs on south facing glazing
- (2) 3-17. Orient windows to make the best use of passive solar
- (2) 3-18. Provide east and west shading—use glazing with solar heat gain coefficient less than 0.40 or provide natural shading with landscaping
- (1-4) 3-19. Demonstrate a reduction in space conditioning energy, using approved energy modeling software

HEATING/COOLING

Distribution

- (1) 3-20. Centrally locate heating / cooling system to reduce the size of the distribution system
- (1) 3-21. Two properly supported ceiling fan pre-wires
- (1) 3-22. Install ceiling fans
- (1) 3-23. Use advanced sealing of ducts using low toxic mastic
- (5) 3-24. Performance test duct for air leakage meets third-party review and certification
- (5) 3-25. Locate heating / cooling equipment and the distribution system inside the heated space

Controls

- (1) 3-26. Install thermostat with on-switch for furnace fan to circulate air
- (1) 3-27. Install thermostat for non-ducted electric heat
- (2) 3-28. Install 60-minute timers or humidistat for bathroom and laundry room fans
- (2) 3-29. Install programmable thermostats

Heat Recovery

- (3) 3-30. Install a heat recovery ventilator

WATER HEATING**Distribution**

- (2) 3-31. Locate water heater within 20 pipe feet of highest use
- (1) 3-32. Insulate hot and cold water pipes within 3 feet of the hot water heater

Drainwater Heat Recovery

- (3) 3-33. Drainwater heat recovery system (DHR)

LIGHTING**Natural Light**

- (1) 3-34. Light-colored interior finishes
- (2) 3-35. Use clerestory for natural lighting
- (2) 3-36. Use light tubes for natural lighting and to reduce electric lighting

Efficient Lighting

- (1) 3-37. Halogen lighting substituted for incandescent downlights
- (1) 3-38. Use Energy-Star compliant lighting fixtures
- (1) 3-39. Install lighting dimmer, timers, and/or motion detectors
- (1-3) 3-40. Use compact fluorescent bulbs, ballast, or fixtures in hallways
- (2) 3-41. Avoid excessive outdoor light levels while maintaining adequate light for security and safe access
- (3) 3-42. Use a comprehensive approach to high-quality lighting design

Solar Powered Lighting

- (1) 3-43. Solar-powered walkway or outdoor area lighting

EFFICIENT DESIGN

- (2) 3-44. Use building and landscaping plans that reduce heating/cooling loads naturally

ALTERNATIVE SYSTEMS/METHODS

- (3) 3-45. Ultra high efficiency central water heating
- (5) 3-46. Solar water heating system for laundry facilities
- (5-10) 3-47. Building systems commissioning
- (10) 3-48. More than 2% of building powered by photovoltaic

_____ Subtotal for Section Three

SECTION 4: HEALTH AND INDOOR AIR QUALITY
OVERALL

- (5) 4-1. Builder certified to have taken American Lung Association (ALA) of Washington "Healthy House Professional Training" course

JOB-SITE OPERATIONS

- (1) 4-2. Use less-toxic cleaners
- (1) 4-3. Require workers to use VOC-safe masks
- (2) 4-4. Take measures during construction operations to avoid moisture problems later
- (2) 4-5. Take measures to avoid problems due to construction dust
- (3) 4-6. Ventilate with fans after each new finish is applied
- (2) 4-7. No use of unvented heaters during construction
- (2) 4-8. Clean duct and furnace thoroughly at job completion
- (4) 4-9. Involve subs in implementing a healthy building job-site plan for the project

LAYOUT AND MATERIAL SELECTION

- (2) 4-10. If using carpet, specify CRI IAQ label
- (2) 4-11. Install low pile or less allergen-attracting carpet and pad
- (2) 4-12. Avoid carpet in environments where it can get wet
- (3) 4-13. Limit use of carpet to one-third of unit's square footage
- (3) 4-14. Optimize air quality in family bedrooms
- (3) 4-15. If using carpet, install by tacking (no glue)
- (3) 4-16. Use formaldehyde-free fiberglass insulation
- (3) 4-17. Use low-VOC, low-toxic, water-based, solvent-free sealers, grouts, mortars, caulks and adhesives inside the building
- (3) 4-18. Use plywood and composites of exterior grade or formaldehyde-free (for interior use)
- (3) 4-19. Install cabinets made with formaldehyde-free board and low-toxic finish
- (3) 4-20. Use ceramic tile for flooring
- (3) 4-21. Use polyethylene piping for plumbing
- (3) 4-22. Install natural fiber carpet (e.g. jute, sisal, wool)
- (3) 4-23. Use low-VOC /low-toxic interior paints and finishes for large surface areas
- (10) 4-24. No carpet

MOISTURE CONTROL

- (1) 4-25. Grade to drain away from buildings
- (1) 4-26. Seal at doors, windows, plumbing and electrical penetrations against moisture and air leaks
- (1) 4-27. If slab is used, install poly barrier properly; if no slab, bottom of floor is sufficient height above backfilled, poly covered dirt
- (1) 4-28. Use roof gutters to drain out onto splash blocks or approved system to drain water away from building
- (1) 4-29. Roofs are pitched and flashed properly
- (1) 4-30. Design wall system to allow water to dry out when water penetrates

- (2) 4-31. Install “radon” type vent system to eliminate potential moisture problems

AIR DISTRIBUTION AND FILTRATION

- (1) 4-32. Provide ideal relative humidity and air circulation to prevent IAQ problems
- (1) 4-33. Ensure ceiling plenums contain no hazardous/unhealthy materials
- (1) 4-34. No stud or joist cavities used as plenums
- (1) 4-35. Prohibit use of electronic filter
- (2) 4-36. Install return-air ducts in every bedroom
- (1) 4-37. Install ducting/damper for fresh air intake
- (1) 4-38. Make sure air intakes are placed to avoid intake from air pollutant sources
- (1) 4-39. No parking within 40 feet of building air intakes
- (3) 4-40. Use medium-efficiency pleated filter or better
- (2) 4-41. No fiberglass or fibrous materials in airstream
- (3) 4-42. Install furnace and/or duct-mounted air cleaner or high efficiency air filter (non-electronic)
- (2) 4-43. Provide for cross ventilation using operable windows
- (3) 4-44. Install CO detectors in units with combustion appliances
- (2) 4-45. Install CO₂ detectors in community rooms

HVAC EQUIPMENT

- (1) 4-46. Design to ensure accessibility of all system components
- (1) 4-47. Design to prevent standing water in HVAC system
- (1) 4-48. Install and test bath, laundry, pool, hot tub, and kitchen exhaust fans (if range top and/or oven are gas fired), vented to outside
- (1) 4-49. Install crank timer switches for bath exhaust fans
- (2) 4-50. Install bath fan with smooth ducting, minimum 4 in. diameter
- (1) 4-51. Reduced or zero use of ozone-depleting compounds in refrigeration and fire suppression systems
- (3) 4-52. Install sealed combustion heating and hot water equipment
- (10) 4-53. Install a ductless heating system

_____ Subtotal for Section Four

SECTION FIVE: MATERIALS EFFICIENCY

OVERALL

- (5) 5-1. OMITTED per 2002 Revisions
- (10) 5-2. Enroll project in King County *ConstructionWorks* Program OR in Snohomish County, meet equivalent criteria
- (5-25) 5-3. Construct buildings that optimize the use of interior space

JOBSITE OPERATIONS

Reduce

- (1) 5-4. Use suppliers who offer reusable or recyclable packaging
- (1) 5-5. Provide weather protection for stored materials
- (2) 5-6. Create detailed take-off and provide as cut list to framer
- (2) 5-7. Use central cutting area or cut packs
- (3) 5-8. Require subcontractors to participate in waste reduction efforts

Reuse

- (1) 5-9. Reuse building materials
- (1) 5-10. Reuse dimensional lumber
- (1) 5-11. Use reusable supplies for operations, such as construction fences, tarps, refillable propane tanks
- (1) 5-12. Move leftover materials to next job or provide to owner
- (1) 5-13. Reuse spent solvent for cleaning
- (1) 5-14. Sell or give away wood scraps
- (1) 5-15. Sell or donate reusable items
- (1) 5-16. Use reusable forms
- (1) 5-17. Use used building materials

Recycle

- (★) 5-18. Prepare jobsite recycling plan and post on site
- (1) 5-19. Recycle cardboard
- (2) 5-20. Recycle metal scraps
- (3) 5-21. Recycle wood scrap and broken pallets
- (3) 5-22. Recycle packaging
- (3) 5-23. Recycle concrete/asphalt rubble, rock, and brick
- (2) 5-24. Require subcontractors to participate in recycling efforts
- (3) 5-25. Recycle drywall
- (3) 5-26. Recycle paint
- (5) 5-27. Recycle landclearing and yard waste, soil and sod
- (4) 5-28. Recycle asphalt roofing
- (5) 5-29. Recycle carpet/carpet padding and upholstery foam
- (5) 5-30. Recycle fluorescent lights and ballasts

DESIGN AND MATERIAL SELECTION

Overall

- (1) 5-31. Use standard dimensions in design of structure
- (1) 5-32. Install materials with longer life cycles
- (2) 5-33. Install locally produced materials
- (3) 5-34. Use re-milled salvaged lumber
- (3) 5-35. Use wood products certified by FSC or other recognized agency as “sustainable”

Framing

- (1) 5-36. Use stacked floor plans
- (1) 5-37. Use engineered structural products
- (1) 5-38. For interior walls, use steel studs with minimum 50% recycled content
- (2) 5-39. Use structural insulated panels
- (2) 5-40. Use wood frame panelized construction
- (2) 5-41. Use cementitious foam-formed walls with flyash concrete
- (3) 5-42. Use finger-jointed framing material (e.g. plates and studs)
- (3) 5-43. Use (R-19) 2x6 intermediate framing
- (6) 5-44. At least 50% of dimensional lumber is certified sustainable wood (FSC or equal)
- (10) 5-45. At least 90% of dimensional lumber and 50% of sheathing is certified sustainable wood (FSC or equal)

Foundation

- (1) 5-46. Use regionally produced block
- (1) 5-47. Use flyash in concrete
- (2) 5-48. Use recycled concrete, asphalt, or glass cullet for base or fill

Sub-Floor

- (1) 5-49. Use recycled-content underlayment

Doors

- (1) 5-50. Use reconstituted or recycled-content doors
- (1) 5-51. No luan doors
- (2) 5-52. Use domestically-grown wood interior doors

Finish Floor

- (1-2) 5-53. If using vinyl flooring, use product with recycled content
- (1) 5-54. Use recycled-content carpet pad
- (3) 5-55. Use recycled-content or renewed carpet
- (5) 5-56. Use recycled-content ceramic tile
- (5) 5-57. Use linoleum, cork, or bamboo flooring

Interior Walls

- (1) 5-58. Use drywall with recycled-content gypsum
- (1) 5-59. Use recycled or “reworked” paint and finishes
- (2) 5-60. Install toilet/shower partitions with recycled content

Ceilings

- (1) 5-61. If installing acoustical ceiling tiles, select a recycled-content product

Exterior Walls

- (1) 5-62. Use recycled-content sheathing
- (1) 5-63. Use siding with reclaimed or recycled material
- (2) 5-64. Use salvaged masonry brick or block
- (2) 5-65. Use locally-produced stone or brick
- (2) 5-66. Use 50-year siding product

Windows

- (1) 5-67. Use wood/composite windows
- (1) 5-68. Use finger-jointed wood windows

Cabinetry and Trim

- (2) 5-69. If using hardwood trim, use domestic products
- (2) 5-70. Use finger-jointed trim
- (5) 5-71. Use tropical hardwood trim or cabinets only if FSC certified or equal as “sustainable”
- (3) 5-72. Use domestic hardwood trim that is FSC certified or equal
- (3) 5-73. Use resource-efficient countertop material in lobby/reception areas

Roof

- (2) 5-74. Use recycled-content roofing material
- (2) 5-75. Use 30-year roofing material
- (3) 5-76. Use 40-year roof material

Insulation

- (2) 5-77. Use recycled-content insulation
- (3) 5-78. Use environmentally friendly foam building products (formaldehyde-free, CFC-free, HCFC-free)

Other Exterior

- (2) 5-79. Use reclaimed or salvaged material for landscaping walls
- (3) 5-80. Use recycled-content plastic or wood polymer lumber for decks and porches
- (5) 5-81. Use least toxic pressure treatment for pressure-treated wood (no CCA)

Subtotal for Section Five

SECTION SIX: PROMOTE ENVIRONMENTALLY FRIENDLY O&M

O&M PLANS, TRAINING, & EDUCATION

- (★) 6-1. Provide an operations & maintenance kit for each unit
- (2) 6-2. Prepare an operations and maintenance plan for common area facilities
- (2) 6-3. Prepare a landscape operations and maintenance plan
- (3) 6-4. Conduct training sessions for maintenance staff and/or occupants
- (3) 6-5. Prepare education plan for occupants

WATER PROTECTION

Outdoor Conservation

- (2) 6-6. Mulch landscape beds with 2 in. organic mulch

- (1) 6-7. Use grass type requiring less irrigation and minimal maintenance
- (3) 6-8. Use compost soil amendments to establish turf and other vegetation with less irrigation
- (3) 6-9. Limit use of turf grass to 25% of landscaped area
- (3) 6-10. Landscape with plants appropriate for site topography and soil types, emphasizing use of plants with low watering requirements
- (3) 6-11. Install high-efficiency irrigation system
- (4) 6-12. Plumb for greywater irrigation
- (5) 6-13. Install rainwater collection system (cistern) for reuse
- (10) 6-14. No turf grass
- (10) 6-15. Install irrigation system using recycled water

Indoor Conservation

- (1) 6-16. Select bathroom faucets with GPM less than code
- (1) 6-17. Select kitchen faucets with GPM less than code
- (1) 6-18. Select toilets that meet code, work with the first flush
- (4) 6-19. Install (tankless) instant hot water systems (where appropriate)
- (5) 6-20. Stub-in plumbing to use greywater water for toilet flushing
- (3) 6-21. Provide water and sewer sub-metering for each unit
- (10) 6-22. Use greywater water for toilet flushing
- (10) 6-23. Install composting toilets

Eliminate Water Pollutants

- (1) 6-24. Educate owners/tenants about fish-friendly moss control
- (4) 6-25. Provide food waste chutes and compost or worm bins instead of a food garbage disposal

ENERGY

Transportation

- (2-4) 6-26. Provide subsidized bus passes
- (2) 6-27. Provide bicycle lockers
- (2) 6-28. Provide bus shelters
- (var) 6-29. Provide community common areas

Heating/Cooling

- (1) 6-30. Provide separate switching for bathrooms fan/heat lamp and fan/light combination fixtures
- (3) 6-31. Select ENERGY STAR® heating / cooling equipment
- (2) 6-32. No gas fireplaces, use direct vent gas or propane hearth product (AFUE rating)
- (2) 6-33. No fireplaces or only high efficiency units (Rumsford or Russian fireplace, masonry heater)
- (2) 6-34. No air conditioner
- (3) 6-35. Provide electricity and/or natural gas direct metering for each unit

Water Heating

- (2) 6-36. Passive or on-demand hot water delivery system installed at farthest location from water heater
- (3) 6-37. Upgrade electric water heater efficiency from EF of .88 to .93

- (3) 6-38. Upgrade gas or propane water heater efficiency from EF of .55 to .60
- (4) 6-39. Install the water heater inside the heated space (electric, direct vent, or sealed venting only)
- (4) 6-40. Upgrade electric water heater to exhaust air heat pump water heater or de-superheater: EF 1.9
- (4) 6-41. Upgrade gas or propane water heater from EF of .55 to .83

Appliances

- (1) 6-42. Install gas clothes dryer
- (2) 6-43. Install a horizontal-axis or ENERGY STAR® washing machine
- (3) 6-44. Install an extra-efficient dishwasher (ENERGY STAR®)
- (3) 6-45. Install ENERGY STAR® refrigerator

HEALTH AND INDOOR AIR QUALITY

- (1) 6-46. Provide isolated storage for hazardous cleaning & maintenance products, separate from occupied space
- (1) 6-47. If installing water filter at sink, select one with biodegradable carbon filter
- (1) 6-48. Install showerhead filter
- (1) 6-49. Provide track-off mats and/or shoe grates at entryways

RECYCLING

- (2) 6-50. Provide recycling bins
- (4) 6-51. Provide built-in kitchen or utility room recycling center

Subtotal for Section Six

EXTRA CREDIT

- (1-10) A-1. Extra credit for innovation

Total Points for Project

Program Level Obtained:

- 1-Star ★
- 2-Star ★★
- 3-Star ★★★

By my signature, I certify that I have performed all Action Items checked above:

(Multi-Family Builder Signature and Date)

2002 Revision Note. The point values on this checklist have been revised effective January 1, 2002. Because Parts I and II have *not* yet been revised, the point values as they appear in the narrative of Parts I and II may differ from the checklist. *Use this checklist for the correct point assignments.*



Appendix A

2002 Revisions

A-1 Extra Credit for Innovation

1-10 Points

This Action Item recognizes builders for using innovation and emerging technologies, practices, and products that fulfill the intentions of the program, but are not called out in the checklist.

Builders can earn up to 10 points by submitting a short written justification for the extra credit points to the Built Green™ Executive Committee for review, approval, and award of points. Builders are encouraged to recommend point values (up to 10) for their submittals in line with the Multi-Family Program. The Executive Committee will evaluate the submittal and recommended points and will determine final point awards. For instance, an innovative educational poster for a Common Area may be valued at 2 points, while creating a full-scale low-watering, low-maintenance demonstration landscape may be valued at ten points. Other ideas include a program to donate usable building materials, establishing a food waste composting program for residents, and incorporating emerging energy efficiency technologies.

A-1 Extra Credit for Innovation (Resources)

- See Built Green™ Resource Library.