Green Business Program Supplemental Checklist for Contractors/ Remodelers

The Green Business program will be certifying those builders who have one of these credentials:

- **Certified Green Building Professional** or **Green Points Rater**: Build It Green, www.builditgreen.org
- **Green Building Professional Certificate Program**: Sonoma State Univ, www.sonoma.edu/ensp/etc
- **LEED Accredited Professional**: U.S. Green Building Council, www.leedbuilding.org
- **HERS (Home Energy Rating Services) Certification** from either: California Building Contractors Association (CBPCA), www.cbpca.org; CalCERTS, www.calcerts.com; or California Home Energy Efficiency Rating Services (CHEERS), www.cheers.org

To find out more about certification classes, contact the Waste Reduction Program Coordinator at 831-454-2160.

Title 24 may be applicable to certain remodeling projects. If this is the case, all projects must meet the requirements stated in Title 24 in addition to the Green Business requirements.

The following measures are intended to supplement those in the Office/Retail Checklist. As a good faith effort to become certified as a Green Business, we would expect many of your measures to come from this list and feel free to add your own!

Solid Waste Reduction, Recycling and Resource Conservation

Certification:

1. ☐ Achieve certification or accreditation through one of the agencies listed above in addition to any extra credentials below.

Other Resources and Certification Courses for Green Builders:

- Solar Living Institute series in Renewable Energy, Sustainability, Building or Ecological Gardening
- California Building Performance Contractors Association course

2. ☐ For worksite, prepare waste management plans identifying materials recycled and/or reused that meet at least a 50% construction and demolition (C&D) waste diversion rate. Consult with staff from the County of Santa Cruz Solid Waste Division at 831-454-2160. There is a C&D waste diversion operation operated at the Buena Vista Landfill. County staff can assist with diversion tactics.

Design Considerations:
Incorporate as many of the considerations below into your designs as is reasonably possible:

1. ☐ Smaller projects use less material, reducing both solid waste and operating costs.
2. ☐ Design assemblies to match the standard dimensions of the materials to be used (e.g., 8-foot sections).
3. ☐ Use clops and stops to support drywall or wood paneling at top plates, end walls, and corners. Clips can provide the potential for two-stud corners, reducing wood use, easing electrical and plumbing rough-in, and improving thermal performance.
4. ☐ Materials attached with removable fasteners are generally quicker, cheaper, and more feasible to deconstruct than materials installed with adhesives.
5. ☐ Design for flexibility and changing use of spaces.
6. ☐ Specify materials such as structural insulated panels, panelized wood framing, and precast concrete that can be delivered pre-cut for rapid, nearly waste-free installation.
7. ☐ For wood construction, consider 24" on center framing with insulated headers (i.e., "advanced framing"), trusses for roofs and floors, finger-jointed studs, and engineered wood framing and sheathing materials.
8. ☐ Specify durable materials with high recycled-content.
9. ☐ Install 40-years composition roof.

Reduce waste and conserve materials in 5 ways with at least one from each section:

Alternatives to Wood and Paper

1. ☐ Use FSC (Forest Stewardship Council) certified lumber for framing, flooring and trimming.
2. ☐ Use wood I-joists for floor and ceilings.
3. ☐ Use finger-jointed studs and trim.
4. ☐ Replace conventional wood siding or stucco finishes with durable fiber-cement siding.
5. ☐ Use rapidly renewable flooring materials such as bamboo and cork.
6. ☐ Use exposed concrete as finished floor. This technique eliminates the need for additional flooring materials. It's easy to maintain and very durable.
7. ☐ Use reusable aluminum scaffolding instead of site-built wooden scaffolding.
8. ☐ Use reusable aluminum forms to replace wood forms in concrete work.

Purchasing Considerations

1. ☐ Select materials that are durable, locally made, non-toxic, and/or have low embodied energy help reduce solid waste, minimize air and pollution, and support the local economy.
2. ☐ Choose products with little or no packaging, or seek suppliers who will reuse or recycle the packaging.
3. ☐ Confirm that estimating methods result in the delivery of the correct quantity of material to the job site.
4. ☐ Seek high-quality, used building materials early in the purchasing process to ensure availability, reduced materials cost and waste.
5. ☐ Rent infrequently used tools.

6. ☐ Encourage your client to leave in place as many building components and fixtures as possible (i.e. high quality surfaces and bath fixtures).

Reuse Building Materials

1. ☐ Reuse existing building materials when appropriate. Allow time in the construction schedule for deconstruction and recycling.
2. ☐ Avoid reuse of inefficient fixtures, components, and appliances.
3. ☐ Products containing hazardous materials such asbestos, lead or arsenic must either be disposed of properly or remediated prior to reuse.
4. ☐ Use building materials composed of one substance (e.g. steel, concrete, wood, etc.) or that are readily disassembled for easy reuse or recycling. Minimize use of materials composed of many ingredients, such as vinyl siding, OSB, or particle board, because they are typically not recyclable or biodegradable.
5. ☐ Store and use for other jobs surplus materials, such as clean wood scraps.
6. ☐ Use recycled paint obtained from Household Hazardous Waste depots.

Green Tips for Reducing and Reusing Building Materials:

- Evaluate materials carefully. Are they the best choice for the application? Are they durable? Can they be readily disassembled for reuse, recycling, or biodegrading at the end of the useful life of the building?
- Note that salvaged materials can vary in availability, quality and uniformity. Be sure that you can get materials to satisfy your project needs before specifying them.
- Measure twice and cut once.

Construction Practices (all are required for certification)

1. ☐ Consider deconstructing and salvaging existing materials.
2. ☐ Develop a waste reduction plan, including waste prevention, then assign responsibility for implementing the plan to a motivated individual on the construction team. Post the plan and set up on-site locations for recycling with detailed signage for separation. Be sure to include time in the schedule for salvage and recycling. Require participation of all team members, including subcontractors.
3. ☐ Delineate and limit the construction footprint (building, hardscape, and staging), and coordinate construction with a landscape professional to minimize grading and retain native soils and vegetation.
4. ☐ Use drywall clips to fasten drywall. Recycled-content polyethylene clips are available as an alternative to metal.
5. ☐ Cardboard or masonite are used instead of paper for protection of finished floors and are reused or recycled.
6. ☐ Donate surplus materials to Capitola Freight & Salvage, Habitat for Humanity and the Grey Bears at Buena Vista landfill.

Reuse, salvage or recycle the following materials:

1. ☐ Concrete
1. ☐ Dirt
2. ☐ Lumber

3. ☐ Salvaged clean wood scraps
4. ☐ Finished wood
5. ☐ Metal
6. ☐ Cardboard
7. ☐ Formboards
8. ☐ Drywall
9. ☐ Appliances
10. ☐ Windows
11. ☐ Interior finishes such as flooring, doors, cabinets and windows.
12. ☐ Fixtures, such as sinks, tubs, light fixtures, cabinet and door hardware.
13. ☐ Source out materials for reuse through CalMAX, the Green Building Center, and/or Habitat for Humanity.
14. ☐ Landscaping (plant material and unpainted/untreated wood)
15. ☐ Take excess paint to the Household Hazardous Waste drop off center.

Recycled-content building materials include, but are not limited to:

- Plastic and wood-plastic composite lumber from plastic and wood chips, ideal for outdoor decking and railing.
- Insulation, such as cotton made from denim, newspaper processed into cellulose, or fiberglass with some recycled glass content.
- Carpet made of plastic bottles or from used carpet.
- Tile containing recycled glass.
- Concrete containing ground up concrete as aggregate, and fly ash.
- Countertops made with everything from recycled glass to sunflower seed shells.
- Drywall made with recycled gypsum, and Homasote wall board made from recycled paper.

Purchase/Use 3 recycled-content or used products:

1. ☐ Use Capitola Freight and Salvage to purchase surplus materials from others.
2. ☐ Use salvaged fixtures.
3. ☐ Use reclaimed lumber
4. ☐ Use up to 50% fly ash in concrete to replace Portland cement.
5. ☐ Use crushed concrete and rubble for backfill and drainage at the base of foundations.
6. ☐ Use tempered glass panes from old single-glazed patio doors for awning covers.
7. ☐ Use salvaged hardwood flooring.
8. ☐ Install recycled-content carpet and padding.
9. ☐ Use recycled-content ceramic tile.
10. ☐ Use recycled-content decking.
11. ☐ Use rubberized asphalt.
12. ☐ Use recycled-content countertops.

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Other Solid Waste reduction and resource conservation measures:

1. ☐ _____
2. ☐ _____

3. ☐ ______________________________
4. ☐ ______________________________

Deconstruction

Deconstruction is the dismantling of a building to preserve the useful value of its component materials. Always request that your client consider bids to deconstruct rather than demolish. There are two basic types of deconstruction: non-structural and structural deconstruction.

Non-structural deconstruction is the removal for salvage/reuse of any building components or contents that are not part of whose removal is not dependent on the structural integrity of the building. Types of materials salvaged: Finish flooring, appliances, cabinetry and windows.

Structural deconstruction is the removal for salvage/reuse of building components that are a part of the building or contribute to the structural integrity of the building. Types of materials salvaged: Framing, structural sheathing, exterior siding, roof truss system, floor truss system.

Deconstruction reduces or eliminates unnecessary waste –extending the life of our landfill and reducing material costs. Older structures may contain hardwoods and dimensional lumber that are superior in size or quality to virgin materials. The tax deduction from donating deconstructed materials to a non-profit organization can be more valuable than the labor cost.

Energy Conservation

Implement at least 7 measures.

1. ☐ Install CFLs (compact, fluorescent lightbulbs). Screw-in as a retro-fit only. New lighting circuits should utilize pin-based CFLs with separate ballasts.
2. ☐ Install T-8s and T-5 lamps with latest technology electronic ballasts. If possible, re-wire existing circuits to permit more effective daylight harvesting.
3. ☐ Install lighting controls.
4. ☐ Install skylights, solar tubes and clerestory windows.
5. ☐ Install double-paned, low E-windows.
6. ☐ Install reflective film on west windows.
7. ☐ Use superior wall insulation that exceeds Title 24 requirements.
8. ☐ Use duct mastic on all duct joints.
9. ☐ Install gas forced air furnaces or heat pumps with 90% or great efficiency.
10. ☐ Install zoned, hydronic, radiant heating.
11. ☐ Use SIPs (Structural Insulated Panels) for exterior walls and roof.
12. ☐ Install energy efficient reversible ceiling fans.
13. ☐ Design remodels so that windows and doors provide optimal air circulation for cooling.
14. ☐ Design remodels to incorporate passive heating and cooling.
15. ☐ Teach and promote proper execution of sealing doors, windows and framing the building envelop.
16. ☐ Insulate foundations before backfilling.
17. ☐ Insulate all pipes and hot water heaters.
18. ☐ Promote tank-less water and radiant heat boilers.
19. ☐ Install solar compatible water heaters or preheaters.
20. ☐ Shade sun-exposed windows and walls, using awnings, sunscreens, shade trees or shrubbery.
21. ☐ Choose Energy Star appliances.
22. ☐ Install thermostat controlled attic fans.
23. ☐ Implement heat recovery systems: air-to-air and/or waste water heat exchangers.
24. ☐ Increase roof over-hang on South and West aspects.
25. ☐ Utilize different design approaches to lighting systems (e.g. not all light emitters at ceiling level).
26. ☐ Employ solar energy to supply a supplemental source of energy to the building.

Water Conservation

Implement 3 water conservation measures

1. ☐ Install quality dual-flush or 1.2 gpf toilets and waterless urinals.
2. ☐ Retrofit all faucets and showerheads with flow restrictors.
3. ☐ Install <2.0 gpm showerheads and faucets
4. ☐ Install on-demand hot water circulation pump.
5. ☐ Install a water catchment basin to collect water for landscape irrigation.
6. ☐ Pre-plumb for graywater conversion.

7. ☐ Install drought-tolerant, native landscaping
8. ☐ Install permeable/pervious driveways and walkways
9. ☐ Install permeable surfaces where appropriate.
10. ☐ Install green roofs whenever possible.
11. ☐ Install mulch with all landscaping.
12. ☐ Use compost with landscape plantings to improve the water holding capacity of soil.
13. ☐ Other:_____
14. ☐ Other:_____

Pollution Prevention

Prevent Pollution in 10 ways:

Alternatives to chemicals:

1. ☐ Assess your chemical inventory at your facility at least once a year. Review Material Safety Data Sheets for each chemical product. Identify harmful products and research safer alternatives. Record your findings. Centralize chemical purchases to avoid purchasing unwanted products. [Required measure]
2. ☐ Use environmentally preferable alternatives to vinyl flooring such as cork, bamboo, natural linoleum and exposed concrete.
3. ☐ Use low-VOC, water based sealants and solvent-free adhesives when installing flooring.
4. ☐ Buy products with low or no VOCs and with no formaldehyde when available (i.e., caulks, mastic, paints and wood finishes, paint removal products, etc.)
5. ☐ Install recycled-content, formaldehyde-free fiberglass, cotton or cellulous insulation.
6. ☐ Use formaldehyde-free materials instead of particleboard and formaldehyde-based MDF. This reduces formaldehyde exposure to occupants.
7. ☐ Use treated wood without chromium or arsenic for applications specifying treated wood.
8. ☐ Use no PVC in projects unless the client insists on it (fiberglass windows are an alternative to vinyl windows).
9. ☐ Pesticides and herbicides are not used at office or worksites. Integrated pest management is used instead.
10. ☐ Serve environmentally sensitive individuals with specialized service to avoid even the most innocuous chemicals
11. ☐ Use recycled-content composite decking that requires no surface treatment.
12. ☐ Vent cooking range hood to the outdoors.
13. ☐ Use exterior grade plywood for interior used to reduce formaldehyde exposure.
14. ☐ Install carpeting that is low/no-VOC, including natural fibers.
15. ☐ Install a separate garage exhaust fan.
16. ☐ Use durable fiber-cement siding in place of conventional wood, stucco or vinyl.
17. ☐ Use engineered lumber in place of solid sawn lumber.
18. ☐ Use OSB (Oriented Strand Board) as an alternative to plywood for subfloor and sheathing.

Other:

1. ☐ Give or show clients a written mission statement regarding your commitment to “green building”. [Required measure]
2. ☐ Use PV (photovoltaic) panels.
3. ☐ Use biodiesel in trucks.
4. ☐ Use a bicycle for local job sites visits.
5. ☐ Cover all HVAC vents to confine dust/debris. Clean all ducts prior to occupancy.
6. ☐ Sweep/collect all sawdust/debris to keep indoors and outdoors clean.
7. ☐ Do not allow loud noises at the worksite.
8. ☐ Other:_____
9. ☐ Other:_____
10. ☐ Other:_____

Stormwater Pollution Prevention and Best Management Practices

All the following items are required.

1. ☐ All activities must be in compliance with the Regional Water Quality Control Boards and the local municipalities' National Pollutant Discharge Elimination System (NPDES) Stormwater Permit regulations.
2. ☐ Commercial wash facilities are used to clean vehicles and equipment (with the exception of equipment used for concrete/masonry purposes). No washing of construction vehicles or other equipment is allowed on site.
3. ☐ Wash out concrete mixers and related equipment only in designated washout areas away from storm water drainage at the construction site. Dig a pit or create a berm to ensure wash waters do not leave the site. Never dispose of wash-out into the street, storm drains, drainage ditches or waterways.
4. ☐ Use as little water as possible when making saw cuts. Contain the slurry and vacuum or allow slurry to dry and shovel up for disposal.
5. ☐ Erosion control measures (such as straw wattles, silt fencing, sand bags) are used to reduce soil loss via storm water runoff.
6. ☐ Mounds of dirt and debris are covered with plastic sheeting before storm events.
7. ☐ Pavement, sidewalks, and driveway areas are swept not hosed down or pressure washed.
8. ☐ Identify and protect all storm drain inlets and streams located on or near the site from sediment-laden water or other debris.
9. ☐ Inspect trash receptacles and refuse storage areas on a weekly basis for garbage and liquid waste residue. Promptly clean up all problems to prevent introduction into the storm drain system.
10. ☐ Swimming pool back flushing, draining, and overflows are plumbed or directed to the sanitary sewer and not to a storm drain.
11. ☐ Dumpsters are kept tightly covered and impermeable to rain water. If there are no covers on the dumpster, overhead coverage is provided.
12. ☐ Dumpsters are not cleaned or hosed down. If this is necessary, the leasing company is contacted to take the dumpster away and replace it with a clean one.
13. ☐ When possible, schedule grading and excavation projects for the dry weather season.
14. ☐ Collect and properly dispose (either to the sanitary sewer, infiltration, or potentially as hazardous waste) of water from high pressure water blasting operations.
15. ☐ Use only as much water is necessary for dust control, never to the point of runoff.
16. ☐ Keep materials that could contaminate storm water such as treated lumber or bagged concrete protected from rainfall and runoff.
17. ☐ Brushes or paint containers for any type of paint are not cleaned or rinsed onto the ground or into a street, gutter, storm drain, or creek.

COMPLIANCE NOTES

Only rain down the drain! The storm drain system is separate from the sanitary sewer system, and pollutants that enter these drains flow directly in creeks, gulches, rivers, and the Bay without treatment. Educate personnel about this difference and the importance of not letting contaminants enter storm drains. All businesses are required to prevent anything except rainwater from entering storm drains.