



GREEN BUILDING - PRESCRIPTIVE CHECKLIST

Following is a standardized checklist of Build It Green requirements that may be used for new single family homes to comply with the green building requirements. Use of the specific points achieved in this checklist is not required; a homeowner/architect can develop a project specific checklist to submit with a development permit application.

A. Site

<input checked="" type="checkbox"/>	Item 3a Required	Recycle Job Site Construction Waste - Minimum 50% by Weight	The City of Sunnyvale has a franchise agreement with Specialty Solid Waste and Recycling. All solid waste materials are required to be disposed of by Specialty Solid Waste and Recycling, which takes all debris to the SMaRT Station. The SMaRT Station recycles a minimum of 50% of construction debris which qualifies for this credit.
<input type="checkbox"/>	Item 4a 1 Point	Use Recycled Content Aggregate (Minimum 25%) - Walkway and Driveways	Mining of virgin aggregate may disturb riverbeds and quarries. Recycled aggregate consists mainly of crushed concrete and crushed asphalt pavement. Aggregate installed in walkways and driveways shall contain a minimum of 25% recycled material.

B. Foundation

<input type="checkbox"/>	Item 1a 1 point	Replace Portland Cement in Concrete with Recycling Flyash or Slag - Minimum 20% Flyash or Slag	Flyash is a byproduct of coal-burning power plants and slag is a byproduct of the steel industry. Both are typically sent to a landfill for disposal; however, they can be used as a replacement for a portion of the Portland cement in concrete. Many local concrete suppliers use a mix that includes 20% of flyash or slag.
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C. Landscaping

<input type="checkbox"/>	Item 3a 2 points	Minimize Turf Areas in Landscape Installed - All Turf Shall Have a Water Requirement Less than or Equal to Tall Fescue (≤ 0.8 plant factor)	Lawn areas require frequent watering to stay green during California's long dry season. Specify on the project plans, that all lawn area will be plant material with a water requirement less than or equal to tall fescue.
<input type="checkbox"/>	Item 3b 2 points	Minimize Turf Areas in Landscape Installed - Turf Shall Not Be Installed on Slopes Exceeding 10% or in Areas Less than 8 Feet Wide	In order to reduce the run-off and over-spraying that occurs in lawn irrigation, do not install lawn on slopes exceeding 10% or in isolated areas (driveway strips, medians) less than 8 feet wide on the shortest side. However, lawn may be installed in areas less than 8 feet wide when irrigated with subsurface irrigation or micro spray heads.
<input type="checkbox"/>	Item 6a 2 points	Install High-Efficiency Irrigation Systems - System Uses Only Low-Flow Drip, Bubblers, or Low-Flow Sprinklers	Efficient irrigation systems apply only the amount of water that the plants need, with little or no waste through runoff, over watering or misting. Irrigate shrub areas with drip, bubblers, or low-flow sprinklers (micro spray) with a maximum flow rate of 1 gallon per minute. Irrigation in lawn areas shall use efficiency spray heads with a maximum flow rate of 1 inch per hour.

<input type="checkbox"/>	Item 6b 3 points	Install High-Efficiency Irrigation Systems - System has Smart (Weather-Based) Controllers	<p>Install a smart irrigation system which automatically adjusts the irrigation system frequency and/or duration based on changing weather. The smart irrigation system shall include the following features:</p> <ul style="list-style-type: none"> • Automatic adjustments to the irrigation program based on external sensors • Multiple start times • Multiple runs times for each zone • Intervals for days of the week or same-day intervals • More than one operating program <p>The system shall include a rain sensing device that prohibits irrigation during rainy weather. Product specifications and product listing information is available on-line at www.BeWaterWise.com.</p>
<input type="checkbox"/>	Item 8 2 Points	Mulch All Planting Beds a Minimum of 2 Inches	All soil surfaces in landscaped areas, excluding lawn area, shall contain a minimum of 2 inches of mulch. In order to maintain a minimum of 2 inches after settlement, initial mulch installation shall be 3 inches in depth. Do not place mulch directly against the plant stem or tree.

D. Structural Frame and Building Envelope

<input type="checkbox"/>	Item 2f 1 point	Use Engineered Lumber - Oriented Strand Board for Subfloor	Solid-sawn lumber is typically harvested from old-growth forests or large diameter trees. Alternatively, engineered lumber products come from small-diameter, fast-growing plantation trees. Engineered lumber products include glued laminated timber (glulam), laminated veneer lumber (LVL), laminated strand lumber (LSL), parallel strand lumber (PSL), wood I-joists, wood floor trusses, finger-jointed studs and oriented strand board (OSB). Use OSB as an alternative to plywood for subfloors.
<input type="checkbox"/>	Item 2g 1 point	Use Engineered Lumber - Oriented Strand Board for Wall and Roof Sheathing	Use OSB or other sheathing as an alternative to plywood for wall and roof sheathing.

E. Exterior Finish

<input type="checkbox"/>	Item 3 1 point	Use Durable and Non-Combustible Siding Materials	In order to promote durability and reduce material consumption with long-lasting products, use metal, stone, brick, stucco, or fiber-cement for exterior building siding (excluding window/door trim).
<input type="checkbox"/>	Item 4 2 points	Use Durable and Non-Combustible Roofing Materials	Use 40-year or 50-year asphalt shingles, tile, slate, fiber-cement, or metal for roof material.

F. Insulation

<input type="checkbox"/>	Item 2a 1 point	Install Insulation that is Low-Emitting (Certified Section 01350) - Walls and Floors	Many insulation products emit formaldehyde and other volatile organic compounds (VOCs). Install insulation in walls and floors that tested for low emissions. As of 2007, all insulation meets this requirement and qualifies for this credit.
<input type="checkbox"/>	Item 2b 1 point	Install Insulation that is Low-Emitting (Certified Section 01350) - Ceilings	Install insulation in ceiling that tested for low emissions. As of 2007, all insulation meets this requirement and qualifies for this credit.

G. Plumbing

<input type="checkbox"/>	Item 1a 2 points	Distribute Domestic Hot Water Efficiently - Insulate Hot Water Pipes from Water Heater to Kitchen	Insulating hot water pipes keeps the water in the pipe warm longer, which reduces the amount of water wasted while waiting for hot water to arrive. Insulate the hot water pipe from the water heater to the kitchen. Insulation shall be a minimum of 1-inch wall pipe insulation.
<input type="checkbox"/>	Item 1b 2 points	Distribute Domestic Hot Water Efficiently - Insulate All Hot Water Pipes	Insulate all hot water pipes from the water heater to the fixture. Insulation shall be a minimum of 1-inch wall pipe insulation.

H. Heating, Ventilation, and Air Conditioning

<input type="checkbox"/>	Item 2a 2 points	Install Sealed Combustion Units - Furnaces	Sealed combustion furnaces vent outdoor air directly outdoors, eliminating the use of house air for combustion and reducing the potential for back-drafting. They tend to be high efficiency, condensing units with PVC piping or metal bi-directional (concentric) piping. Furnaces must comply with one of the following criteria: <ul style="list-style-type: none"> • True sealed combustion units with ducting from the outside for fresh combustion air and ducted vents, • Power vented units in attached garages, in attics, in exterior recessed boxes, or in exterior closets with manufacturer specified outside air vents, • Passive atmospherically vented units outside the building (i.e. carport).
<input type="checkbox"/>	Item 5b 1 Point	Design and Install Effective Ductwork - Use Duct Mastic on All Duct Joints and Seams	Leaks in the joints between ductwork have been shown to allow, on average, 20 to 30% of conditioned air to leak out. To maintain a tight seal for decades, use a water-based mastic at every duct joint and seam or have professionally installed aerosol sealant sprayed into the ducts.
<input type="checkbox"/>	Item 6 1 Point	Install High Efficiency HVAC Filter (MERV 6+)	HVAC filters remove particulates from the air. Install HVAC filters that have a minimum rating of MERV 6. These are typically the filters with corrugated material. These filters are recommended for cleaner air without compromising the performance of standard mechanical systems.
<input type="checkbox"/>	Item 8a 1 Point	Install Effective Exhaust Systems in Bathrooms and Kitchens - Install Energy Star Bathroom Fans Vented to the Outside	Excessive moisture resulting from poor ventilation is one of the main causes of mold issues and building failures. Install Energy Star fans in all bathrooms and vent them to the outside.
<input type="checkbox"/>	Item 8c 1 Point	Install Effective Exhaust Systems in Bathrooms and Kitchens - Install Kitchen Range Hood Vented to the Outside	Gas ovens and cook tops produce carbon monoxide, nitrogen dioxide and other pollutants. Use quiet (less than 4 sones) range-hood exhaust systems and vent them to the outside.
<input type="checkbox"/>	Item 10a 3 Points	Install Mechanical Fresh Air Ventilation System - Any Whole House Ventilation System That Meets ASHRAE 62.2	Mechanical ventilation systems are used to deliver fresh air in tightly sealed homes. Install a whole house mechanical ventilation system that meets ASHRAE 62.2. This is also a requirement of the 2008 California Energy Regulations, but also qualifies for this credit.

J. Building Performance

<input type="checkbox"/>	Item 2 30 Points	Design and Build High Performance Homes - 15% above Title 24	Design and build the home to exceed the minimum Title-24 Energy Efficiency Regulations by at least 15%.
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K. Finishes

<input type="checkbox"/>	Item 2a 1 Point	Use Low-VOC or Zero-VOC Paint - Low-VOC Interior Wall/Ceiling Paints (<50gpl VOCs (Flat) & <150gpl VOCs (Non-Flat))	Most interior paints contain volatile organic compounds (VOCs), a major class of indoor and outdoor air pollutants. Solvents contained in the product are released into the air, impacting indoor air quality and be may harmful to children and chemically sensitive individuals. Use low VOC primer and paint on all interior walls and veiling (the trim is exempt).
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M. Appliances and Lighting

<input type="checkbox"/>	Item 1a 1 Point	Install Water and Energy Efficient Dishwasher - Energy Star	High efficiency dishwashers use less water and energy than conventional dishwashers. They reduce energy use by at least 25% compared to the federal minimum standards. Install a dishwasher that is Energy Star rated.
<input type="checkbox"/>	Item 3a 1 Point	Install Energy Star Refrigerator - Energy Star Qualified & < 25 Cubic Feet Capacity	Refrigerators and freezers are among the largest users of electricity in most homes. They can account for up to 25% of household energy use. Install a refrigerator that is Energy Star rated and less than 25 cubic feet (including the freezer).
<input type="checkbox"/>	Item 4a 2 Points	Install Built-In Recycling Center and Composting Center - Built-In Recycling Center	Co-locate trash & recycling into a two bin minimum (1 trash, 1 recycling) assembly built into kitchen cabinets. Separately located bins or bins in the garage utility room do not qualify.

N. Other

<input checked="" type="checkbox"/>	Item 1 Required	Incorporate GreenPoint Rated Checklist in Blueprints	Incorporating the GreenPoint checklist into the blueprints makes it easier for everyone involved—including the builder, homebuyer and municipality—to see which green features are included in the home. Include a copy of the GreenPoint checklist on a plan sheet as part of the plans submitted for the building permit review and issuance.
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O. Community Design and Planning

<input type="checkbox"/>	Item 1a 2 Points	Develop Infill Sites - Project is Located in a Built Urban Setting with Utilities in Place for Fifteen Years	Infill development reduces pressure to develop greenfields such as open space and farmland by redeveloping abandoned and underutilized sites and buildings. The majority of single family homes in Sunnyvale will meet this requirement.
<input type="checkbox"/>	Item 5a 1 Point	Design for Safety & Social Gathering - All Home Front Entrances Have Views from the Inside to Outside Callers	Design buildings and landscapes to deter crime and promote safety through casual observation and community interaction. At the front entrance install sidelights, doors with integral windows, double-height peepholes or equivalent features that allow occupants of all heights (minimum of 32" from finished floor) and capacities to recognize callers. Windows near the door in the same plane do not qualify. Windows on adjacent or opposite walls do qualify.

<input type="checkbox"/>	Item 5b 1 Point	Design for Safety & Social Gathering - All Home Front Entrances Can be Seen from the Street and/or from Other Front Doors	All home front entrances can be seen from the street or from other front doors.
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ALTERNATIVE POINTS

Following are alternative items that may be used in place of the standard items listed above. When substituting items, ensure that the total points substituted are equal to or greater than the standard point items removed.

C. Landscaping

<input type="checkbox"/>	Item 10 1 point	Reduce Light Pollution by Shielding Fixtures and Directing Light Downward	All exterior light fixtures (including landscape lighting and fixtures attached to the building) shall be shielded to direct light downward. The shield should prevent light from shining above the horizontal plane (dark sky). Additionally, exterior lights shall not spill significantly onto neighboring properties (light trespass). Bare lamp bulbs shall not be visible at the property line when viewed at a maximum elevation of five feet OR more than fourteen feet (14') into adjacent property when viewed at ground level. Landscape lighting that points upward shall not be allowed.
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D. Structural Frame and Building Envelope

<input type="checkbox"/>	Item 9 1 point	Thermal Mass Walls: 5/8-Inch Drywall on All Interior Walls	Reduce heating and cooling demands by using stored thermal mass energy. Use 5/8-inch drywall on all interior walls.
<input type="checkbox"/>	Item 10a 1 point	Install Overhangs and Gutters - Minimum 16-Inch Overhangs and Gutters	Overhangs protect a home from the elements and rain which increase a home's durability and also provides shading for windows. Gutters provide a pathway for water to leave the roof without entering walls and splashing onto the foundation and siding. Design and install at least a 16-inch overhang around the building's entire roof (including eaves and gable ends) and include gutters on all eaves.

H. Heating, Ventilation, and Air Conditioning

<input type="checkbox"/>	Item 2b 2 points	Install Sealed Combustion Units Water Heaters	Sealed combustion water heaters vent outdoor air directly outdoors, eliminating the use of house air for combustion. They tend to be high efficiency, condensing units with PVC piping or metal bi-directional (concentric) piping. water heaters must comply with one of the following criteria: <ul style="list-style-type: none"> • True sealed combustion units with ducting from the outside for fresh combustion air and ducted vents, • Power vented units in attached garages, in attics, in exterior recessed boxes, or in exterior closets with manufacturer specified outside air vents, • Passive atmospherically vented units outside the building (i.e. carport).
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K. Finishes

<input type="checkbox"/>	Item 3 2 points	Use Low VOC, Water-Based Wood Finishes (<250 gpl VOCs)	Most wood finish products contain volatile organic compounds (VOCs), a major class of indoor and outdoor air pollutants. Solvents contained in the product are released into the air, impacting indoor air quality and may be harmful to children and chemically sensitive individuals. Use wood finishes or coatings with VOC concentrations of 250 g/L or less.
<input type="checkbox"/>	Item 4 2 points	Use Low-VOC Caulk and Construction Adhesives (<70 gpl VOCs) for All Adhesives	Most caulks and construction adhesives contain volatile organic compounds (VOCs), a major class of indoor and outdoor air pollutants. Solvents contained in the product are released into the air, impacting indoor air quality and may be harmful to children and chemically sensitive individuals. Use caulks and adhesives with VOC concentrations of 70 g/L or less in place of standard caulks and adhesives for all interior applications such as installation of framing, subfloors, finish flooring, countertops, trim, wall coverings, paneling and tub/shower enclosures.