

CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

Introduction

In January 2010, California adopted the first statewide mandatory green building code in the country. In January 2011, the California Green Building Standards Code (or CALGreen) will go into effect. The new code establishes minimum green building standards for most new construction projects.

Purpose

The purpose of this document is to provide users a quick reference between CALGreen and the rating systems used in GreenPoint Rated (GPR) and LEED for Homes. This document does not provide extensive analysis of the similarities or differences between the rating systems or CALGreen. For full information on CALGreen see: www.hcd.ca.gov (search for CALGreen), for GreenPoint Rated see: www.builditgreen.org, for LEED for Homes see: www.usgbc.org.

Verification

CALGreen is part of the California Building Standards Code and is enforced by local jurisdictions and building officials (see CALGreen Chapter 1). GreenPoint Rated and LEED for Homes are voluntary rating systems that are interpreted by their authors, Build it Green and the U.S. Green Building Council respectively, and documentation is reviewed by Build It Green and a LEED for Homes Provider, respectively. Some California local jurisdictions have local ordinances that require use of GPR for residential buildings.

Legend & Notes

	CALGreen	Note
Black	Mandatory Measure	This will be required in all jurisdictions.
Blue	Tier 1 & 2 Prerequisite	If a Tier is adopted, this will be a mandatory measure in that jurisdiction. Tier requirements and the full text of CALGreen measures can be found on the HCD website.
Green	Elective Measure	If a Tier is adopted, a set number of elective measures must be met, but the choice of measures is up to the applicant. Separately, local jurisdictions may make specific elective measures mandatory at their discretion. Tier requirements and the full text of CALGreen measures can be found on the HCD website. Elective measures require interpretation by local officials to be compared to GPR or LEED for Homes.
"Earns Credit or Points in GPR / LEED"		These columns indicate if meeting the required CALGreen measure also meets a prerequisite or earns point(s) for the related measure in either GreenPoint Rated or LEED for Homes. "Maybe" indicates that the CALGreen measure meets part but not all of the comparable GPR or LEED prerequisite or credit. key: n/a = not applicable, Yes Maybe No

	GPR	Note
	Prerequisite	A project must meet all GPR prerequisites to qualify for any level of GPR certification. n/a
	Point	Different measures are worth different numbers of green points, with a higher total rating indicating a "greener" home. A minimum number of points overall and within specific categories is required. GPR credits are described in the GreenPoint Rated Manuals.
	"Meets CALGreen"	Indicates whether completing the GPR prerequisite or measure meets the requirements of the related CALGreen measure. key: n/a = not applicable, Yes Maybe No

	LEED	Note
	Prerequisite	A project must meet all LEED prerequisites to qualify for any level of LEED certification. n/a
	Credit	Different measures are worth different numbers of LEED credits. Higher point totals are required to meet Certified, Silver, Gold and Platinum levels of certification. LEED credits are described in the LEED reference guide.
	"Meets CALGreen"	Indicates whether completing the LEED prerequisite or credit meets the requirements of the related CALGreen measure. key: n/a = not applicable, Yes Maybe No

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CALGreen Residential Building Code			Earns GPR Cred/Pts	Earns LEED Cred/Pts	GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System			Meets CALGreen	LEED for Homes California (non-Midrise) Rating System			Meets CALGreen
CALGreen Section	CALGreen Requirements Summary				Measure	Requirements Summary			Credit	Requirements Summary		
Mandatory measures					Comparable GPR credits & prerequisites				Comparable LEED credits & prerequisites			
4.1	Planning and Design				Site, Community Design & Planning				Location & Linkages, Sustainable Sites			
4.106.2	Storm water drainage and retention during construction	Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction, including one or more of retention basins, filtration, or compliance with a storm water management ordinance.	Y	M	Q.1	Mirrors CALGreen 4.106.2 Storm water management during construction.		Y	SS 1.1	Prerequisite: Erosion Control During Construction: do all of the following: stockpile soil for reuse, control runoff, protect sewer inlets, surface waters and hillsides, provide swales.		Y
4.106.3	Surface drainage	The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how the site grading or drainage system will manage surface water flows.	Y	M	Q.2	Mirrors CALGreen 4.106.3 Design for surface water drainage away from buildings.		Y	ID 2.1	Prerequisite: Part of durability plan.		Y
4.2	Energy Efficiency				HVAC, Building Performance, Renewables				Energy & Atmosphere			
4.201	Energy efficiency (minimum standard)	Meet California Energy Code (Title 24, Part 6).	N	N	J.2	Required: Minimum 15% better than Title 24.		Y	EA 1.1	Prerequisite: Minimum 15% better than Title 24.		Y
4.3	Water Efficiency and Conservation				Landscape, Plumbing				Water Efficiency			
4.303.1	Indoor Water Use Savings	20% savings: either each fixture meets reduced flow rates per Table 4.303.2 or calculation demonstrating building water use reduction per Table 4.303.1. Met fixtures standards in Table 4.303.3. <i>note: this measure effective July 1, 2011</i>	Y	Y	G.2-3	Showerheads ≤2.0 Gallons Per Minute (gpm) at 80 psi, Bathroom Faucets ≤ 1.5 gpm at 60psi, Kitchen and Utility Faucets ≤1.8 gpm, Toilets Dual-Flush or ≤1.28 Gallons Per Flush (gpf).		Y	WE 3.1	Showerheads ≤2.0 Gallons Per Minute (gpm), Bathroom Faucets ≤ 2.0 gpm, Toilets Dual-Flush or ≤1.3 Gallons Per Flush (gpf).		N
4.303.2	Multiple showerheads serving one shower	When a single shower is served by more than one showerhead, the combined flow rate shall not exceed the maximum flow rate specified or the shower shall be designed to only allow one shower to operate at a time.	Y	Y	G.2	Showerheads ≤2.0 Gallons Per Minute (gpm) at 80 psi, including requirement for multiple shower heads.		Y	WE 3.1	Showerheads rated per stall, more than 2.0 gpm per stall not allowed.		Y
4.304.1	Irrigation Controllers	Provide weather or soil moisture based controllers that automatically adjust in response to plants' needs as weather conditions change.	Y	Y	C.6.b	System Has Smart (Weather-Based) Controller.		Y	WE 2.1.k	Install a moisture sensor or rain delay controller.		M

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4.4 Material Conservation and Resource Efficiency				Foundation, Exterior, Frame & Envelope		Materials & Resources	
4.406.1 Joints and Openings	Openings in the building envelope separating conditioned space from unconditioned space needed to accommodate gas, plumbing, electrical lines and other necessary penetrations shall be protected against rodents.	Y	n/a	Q.4	Mirrors CALGreen 4.406.1 Joints and openings. Annular spaces around pipes, electric cables, conduits, or other opening in plates at exterior walls shall be protected against rodents.	none	n/a
4.408.1 Construction waste reduction of at least 50%	Recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent. (Excavated soil and land-clearing debris excluded).	Y	Y	A.2.a	Required: Divert 50% (by weight) of all Construction and Demolition Waste (Including Green Waste and Existing Structures).	MR 3.2	Construction Waste Reduction: divert 25-88% of waste (excluding land clearing and demolition waste), or generate less than 2.5 lbs per sq. ft. of built space.
4.408.2 Construction waste management plan	Where a local jurisdiction does not have a construction and demolition waste management ordinance, a construction waste management plan shall be submitted for approval to the enforcing agency.	Y	Y	A.2.a	Required: Pre Construction Debris Recovery Plan.	MR 3.1	Prerequisite: Construction waste management plan and documentation of the diversion rate for construction waste.
4.410.1 Operation and maintenance manual.	An operation and maintenance manual shall be provided to the building occupant or owner, describing: 1. Keeping manual with property 2. O&M instructions for equipment and appliances, drainage, irrigation, etc. 3. Local utility conservation resources 4. Public transportation / carpool options 5. Health benefits of 30-60% relative humidity 6. Landscape water conservation 7. Gutter and downspout maintenance 8. Routine maintenance 9. State solar energy and incentive programs 10. Special inspection records	N	N	N.4.a	Develop a Homeowner Manual of Green Features/Benefits including: 1. Description of green features 2. O&M for green maintenance 3. Instructions for equipment & appliances 4. Recycling opportunities 5. Water & energy use optimization 6. Safety and controls labeling 7. Pest inspection procedure 8. Green pest control, fertilizer, cleaning information 9. Indoor air quality information 10. Gutter and downspout maintenance 11. Landscape maintenance 12. Handling of hazardous chemicals 13. Requirements of CALGreen O&M manual	AE 1.1.a	Prerequisite: Provide a minimum one-hour walkthrough of the home plus an operations and training manual including: 1. Project LEED checklist 2. Project LEED accountability forms 3. Project durability inspection checklist 4. Product manuals for equipment & appliances 5. General energy, water, resource efficiency information 6. O&M guidance for equipment, including irrigation 7. Guidance on cleaning, landscaping, irrigation, etc. 8. Information on "green power"
4.5 Environmental Quality				Finishes, Flooring, HVAC		Indoor Environmental Quality	
4.503.1 Fireplaces	Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with US EPA Phase II emission limits where applicable. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.	Y	N	Q.5	Mirrors CALGreen 4.503.1 - Gas fireplace shall be a direct-vent sealed combustion type. Woodstove or pellet stove shall comply with US EPA Phase II emission limits.	EQ 2.1	Prerequisite: Basic Combustion Venting Measures: sealed combustion or power-vented exhaust. CO detectors required.
4.504.1 Covering of duct openings and protection of mechanical equipment during construction	At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of dust or debris which may collect in the system.	Y	Y	A.5.a	Construction Environmental Quality Management Plan - Duct openings and other related air distribution component openings shall be covered during construction.	EQ 2.2	Credit: Wood and pellet stoves are EPA certified.
4.504.2.1 Adhesives, sealants, and caulks	Adhesives, sealants, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits and Rule 1168 prohibition on the use of certain toxic compounds. Aerosol adhesives shall meet CCR Title 17 section 94507 et seq.	Y	Y	K.4	Use Low-VOC Caulks & Construction Adhesives that meet SCAQMD Rule 1168. Sealants meet SCAQMD Rule 1168. Aerosol adhesives shall meet CCR section 94507.	EQ 8.1	Upon installation, seal all permanent ducts and vents to minimize contamination during construction.
4.504.2.2 Paints and coatings	Paints, stains, and coatings shall comply with VOC limits the ARB Architectural Coatings Suggested Control Measure, unless more stringent local limits apply. (See 4.504.2.4 for verification process.)	Y	Y	K.2-3	Use Low-VOC Interior Wall/Ceiling Paints (<50 Grams Per Liter (gpl) VOCs Regardless of Sheen) and Low-VOC Coatings that meet SCAQMD Rule 1113	MR 2.2	Environmentally preferable products: adhesives & sealants meet SCAQMD Rule 1168.
4.504.2.3 Aerosol Paints and Coatings	Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC, other toxic compounds, and ozone depleting substances, in CCR Title 17 section 94520 and 94522 et seq.	n/a	n/a		none	MR 2.2	Environmentally preferable products: paints meet Green Seal GS-11, GC-03, or SCAQMD Rule 1113 as applicable.
						none	n/a

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4.504.3 Carpet systems	All carpet installed in the building interior shall meet the testing and product requirements of one of the following: 1. Carpet and Rug Institute's Green Label Plus Program 2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350) 3. NSF/ANSI 140 at the Gold level 4. Scientific Certifications Systems Indoor Advantage Gold	M	M	L.3	Low Emitting Flooring: 50% of total floor area meets relevant criteria (carpet: CRI Green Label Plus, resilient flooring: FloorScore Certified).	MR 2.2	Environmentally preferable products: Carpet and pad meets CRI Green Label Plus for 45% or 90% of total floor area.
4.504.3.1 Carpet cushion	All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.	Y	M	L.4	Mirrors CALGreen 4.504.3-4 All carpet and 50% of resilient flooring is low emitting.		
4.504.3.2 Carpet adhesive	All carpet adhesive shall meet the requirements of Table 5.504.1. (VOC limit of 50 g/L)	M	M	L.3	Low Emitting Flooring: 50% of total floor area meets relevant criteria.	MR 2.2	See above.
4.504.4 Resilient flooring systems	At least 50% of floor area receiving resilient flooring shall comply with the VOC-emission limits defined in the Collaborative for High Performance Schools (CHPS) Low-emitting Materials List or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.	Y	M	L.4	Mirrors CALGreen 4.504.3-4 All carpet and 50% of resilient flooring is low emitting.		
4.504.5 Composite wood products	Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.). See 4.504.5.1 for documentation requirements.	M	M	L.3	Low Emitting Flooring: 50% of total floor area meets relevant criteria.	MR 2.2	Environmentally preferable products: adhesives & sealants meet SCAQMD Rule
4.505.2.1 Concrete slab foundations	Concrete slab foundations required to have a vapor retarder by California Building Code shall also have a capillary break.	Y	M	L.4	Mirrors CALGreen 4.504.3-4 All carpet and 50% of resilient flooring is low emitting.		
4.505.3 Moisture content of building materials	Building materials with visible signs of water damage shall not be installed. Moisture content of building materials used in wall and floor framing is checked before enclosure.	Y	M	L.3	Low Emitting Flooring: 50% of total floor area meets relevant criteria.	MR 2.2	Environmentally preferable products: flooring is FloorScore certified for 45% or
4.506.1 Bathroom exhaust fans	ENERGY STAR compliant exhaust fans which terminate outside the building are provided in every bathroom, and have humidistat control capable of adjustment between a relative humidity range of 50-80%.	Y	M	L.4	Mirrors CALGreen 4.504.3-4 All carpet and 50% of resilient flooring is low emitting.		
4.507.1 Openings	Whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2.	Y	n/a	K.7	Required: Meet Current CARB Airborne Toxic Control Measure (ATCM) for Composite Wood Formaldehyde Limits by Mandatory Compliance Dates	MR 2.2	Environmentally preferable products: cabinet, counter, and trim composite materials contain no added urea-formaldehyde resins.
4.507.2 Environmental Comfort: Heating and air conditioning system design	Heating and air conditioning systems shall be sized, designed, and equipment is selected using the following methods: 1. The heat loss and heat gain is established according to ACCA Manual J, ASHRAE handbooks or equivalent. 2. Duct systems are sized according to ACCA 29-D Manual D, ASHRAE handbooks or equivalent. 3. Select heating and cooling equipment according to ACCA 36-S Manual S or equivalent.	Y	Y	Q.6	Mirrors CALGreen 4.505.2 Vapor retarder and capillary break is installed at slab on grade.	ID 2.1	Prerequisite: Part of durability plan.
702.1 Qualifications	HVAC systems installers are trained and certified in the proper installation of HVAC systems.	N	n/a	Q.7	Mirrors CALGreen 4.505.3 19% moisture content of building framing materials.	ID 2.1	Prerequisite: Part of durability plan.
				H.8	Install ENERGY STAR Bathroom Fans on Timer or Humidistat.	EQ 5.1.d	Prerequisite: exhaust fans in all bathrooms and kitchen are Energy STAR, meet ASHRAE standards, exhaust outdoors.
				H.9.b	Install Whole House Fan.	EQ 5.2.b/c	Credit: occupancy sensor, humidistat, timer control, or continuous operation.
				H.1.a	Design and Install HVAC System to ACCA Manual J, D, and S Recommendations.		none
				Q.8	Mirrors CALGreen 702.1 HVAC systems installers are trained and certified in the proper installation of HVAC systems.	EQ 6.1	Prerequisite: Design Calcs and install ducts or system according to ACCA Manual J and D, and ASHRAE Handbook of Fundamental Procedures.
							none

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CALGreen Section	CALGreen Requirements Summary			Measure	Requirements Summary	Credit	Requirements Summary
Tier 1 additional prerequisites				Comparable GPR credits & prerequisites		Comparable LEED credits & prerequisites	
4.1 Planning and Design - all measures below plus 2 electives				Site, Community Design & Planning		Location & Linkages, Sustainable Sites	
A4.106.2.3	Soil Analysis and Protection Tier 1: Displaced topsoil shall be stockpiled for reuse in a designated area and covered or protected from erosion.	N	M	A.1.a	Protect Topsoil and Reuse after Construction.	Y	SS 1.1.a Prerequisite: Stockpile and protect disturbed topsoil from erosion.
A4.106.4	Water permeable surfaces Tier 1: Not less than 20% of the total parking, walking, or patio surfaces shall be permeable (excluding primary driveway, walkway and porch areas).	N	N	P.A.1.a	Permeable Paving for 25% of Driveways, Patios and Walkways (no excepted areas).	Y	SS 4.1 At least 70% of the built environment, excluding roof area, is permeable or designed to capture water runoff.
A4.106.5	Cool Roof Tier 1: Roofing materials shall have a minimum 3- year aged solar reflectance and thermal emittance or a minimum Reflectance Index (SRI) equal to or greater than the values specified in Tables A4.106.5(1) and A4.106.5(2). Steep slope >64, low slope >10 or 16 (depending on climate zone)	n/a	n/a		none	n/a	none
4.2 Energy Efficiency - all measures below plus 4 electives				HVAC, Building Performance, Renewables		Energy & Atmosphere	
A4.203.1	Energy performance Tier 1: 15% reduction compared to Title 24.	Y	Y	J.2	Required: Minimum 15% better than Title 24.	Y	EA 1.1 Prerequisite: Minimum 15% better than Title 24.
4.3 Water Efficiency and Conservation - all measures below plus 1 elective				Landscape, Plumbing		Water Efficiency	
A4.303.1	Kitchen faucets Tier 1: Max. flow rate of 1.5 gpm.	Y	n/a	G.2.c	Kitchen faucets 2.0 gpm max.	N	Kitchen faucets not included as used for filling lasses or pots.
A4.304.4	Potable water reduction When landscaping is provided by the builder, a water efficient landscape irrigation system shall be installed that reduces potable water use. Tier 1: Reduce the use of potable water to a quantity that does not exceed 65% of ETo times landscape area.	Y	Y	C.11.a	Design Landscape to meet Water Budget: Install Irrigation System That Will Be Operated at ≤70% Reference ET.	N	SS 2.5 Reduce Overall Irrigation Demand by at Least 20% (to 80% of ET).
4.4 Material Conservation - all measures below plus 1 elective				Foundation, Exterior, Frame & Envelope		Materials & Resources	
A4.408.1	Enhanced construction waste reduction Recycle and/or salvage for reuse non-hazardous construction and demolition debris (excavated soil and land-clearing debris excluded). Tier 1: 65% Reduction.	Y	Y	A.2.b	Divert 100% of Asphalt and Concrete and 65% (by weight) of Remaining Materials.	N	MR 3.2 Construction Waste Reduction: divert 25-88% of waste (excluding land clearing and demolition waste), or generate less than 2.5 lbs per sq. ft. of built space.
A4.403.2	Reduction in cement use As allowed by the enforcing agency, reduce cement used in foundation mix design. Products commonly used to replace cement in concrete mix designs include, but are not limited to fly ash, slag, silica fume, rice hull ash. Tier 1: Not less than a 20% reduction in cement use.	Y	N	B.1	Replace Portland Cement in Foundation Concrete with Recycled Fly Ash and/or Slag (Minimum 20%).	Y	MR 2.2 Environmentally Preferable Products: Foundation and concrete wall cement contains at least 30% fly ash.
A4.405.3	Recycled content Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value (RCV) for a percent of the total materials cost. (RCV equals percent post-consumer + 1/2 percent pre-consumer times material cost.) Tier 1: minimum 10%.	M	M	A.3.a	Use Recycled Content Aggregate	N	MR 2.2 Environmentally Preferable Products: Points earned for each of 21 building components (framing, siding, flooring, trim, cabinets, etc.) that contains a minimum of 25% postconsumer (or 50% postindustrial) recycled content, as long as recycled content is reached in 90% of the material used in that component.
5.5 Environmental Quality - all measures below plus 1 elective				C.12	Use Environmentally Preferable Materials for 70% of Non-Plant Landscape Elements and Fencing	N	
A4.504.2	Resilient flooring systems Tier 1: At least 80% of resilient flooring installed shall comply with the criteria listed above.	M	M	E.1	Use Environmentally Preferable Decking	N	
A4.504.3	Thermal Insulation Tier 1: Install thermal insulation in compliance with the VOC-emission limits defined in Collaborative for High Performance Schools (CHPS) Low-emitting Materials List.	n/a	Y	F.1	Insulation has 75% Recycled Content	N	
				K.5	Use Recycled-Content Paint	N	
				K.6	Use Environmentally Preferable Materials for Interior Finishes	N	
				L.1	Use Environmentally Preferable Flooring	N	
				Finishes, Flooring, HVAC		Indoor Environmental Quality	
				L.3	Low Emitting Flooring: 50% of total floor area is certified (resilient flooring: FloorScore).	N	MR 2.2 Environmentally preferable products: flooring is FloorScore certified for 45% or 90% of total floor area.
					none	n/a	MR 2.2 Environmentally preferable products: insulation complies with CA Practice for Testing of VOCs from Building Materials.

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Tier 2 additional prerequisites (Tier 1 prerequisites also apply)				Comparable GPR credits & prerequisites		Comparable LEED credits & prerequisites	
4.1 Planning and Design - all measures below plus 4 electives				Site, Community Design & Planning		Location & Linkages, Sustainable Sites	
A4.106.2.3	Soil Analysis and Protection Tier 2: Tier 1, plus the construction area shall be identified and delineated by fencing or flagging to limit construction activity to the construction area.	N	N	A.1.b	Limit and Delineate Construction Footprint for Maximum Protection .	SS 1.2	Minimize disturbed area of site around trees, leave undeveloped area, undo soil compaction.
A4.106.4	Water permeable surfaces Tier 2: Not less than 30% of the total parking, walking, or patio surfaces shall be permeable (excluding primary driveway, walkway and porch areas).	N	N	P.A.1.a	Permeable Paving for 25% of Driveways, Patios and Walkways (no excepted areas).	SS 4.1	At least 70% of the built environment, excluding roof area, is permeable or designed to capture water runoff.
A4.106.5	Cool Roof Tier 2: Steep slope > 78, low slope >20.	n/a	n/a		none		none
4.2 Energy Efficiency - all measures below plus 6 electives				HVAC, Building Performance, Renewables		Energy & Atmosphere	
A4.203.1	Energy performance Tier 2 - 30% reduction compared to Title 24.	Y	Y	J.3	Design and Build Near Zero Energy Homes.	EA 1.2	Exceptional Energy Performance (16-60% better than Title 24).
4.3 Water Efficiency and Conservation - all measures below plus 2 electives				Landscape, Plumbing		Water Efficiency	
A4.303.1	Kitchen dishwashers Dishwashers shall be EnergySTAR qualified and 5.8 gal/cycle max.	n/a	n/a		none		none
A4.304.4	Potable water reduction Tier 2: Reduce the use of potable water to a quantity that does not exceed 60% of ETo times landscape area.	N	N	C.11.b	Install Irrigation System That Will Be Operated at ≤50% Reference ET.	WE 2.3	Reduce Overall Irrigation Demand by at Least 45% (to 55% of ET).
4.4 Material Conservation - all measures below plus 4 electives				Foundation, Exterior, Frame & Envelope		Materials & Resources	
A4.408.1	Enhanced construction waste reduction Recycle and/or salvage for reuse non-hazardous construction and demolition debris (excavated soil and land-clearing debris excluded). Tier 2: 75% reduction.	N	Y	A.2.c	Divert 100% of Asphalt and Concrete and 80% (by weight) of Remaining Materials.	MR 3.2	Construction Waste Reduction: divert 25-88% of waste (excluding land clearing and demolition waste), or generate less than 2.5 lbs per sq. ft. of built space.
A4.403.2	Reduction in cement use Reduce cement used in foundation mix design. Tier 2: 25% reduction.	Y	N	B.1	Replace Portland Cement in Foundation Concrete with Recycled Fly Ash and/or Slag (Minimum 20%).	MR 2.2	Environmentally Preferable Products: Foundation and concrete wall cement contains at least 30% fly ash.
A4.405.3	Recycled content Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value (RCV) for a percent of the total materials cost. (RCV equals percent post-consumer + 1/2 percent pre-consumer times material cost.) Tier 2: minimum 15%.	M	M	A.3.a	Use Recycled Content Aggregate	MR 2.2	Environmentally Preferable Products: Points earned for each of 21 building components (framing, siding, flooring, trim, cabinets, etc.) that contains a minimum of 25% postconsumer (or 50% postindustrial) recycled content, as long as recycled content is reached in 90% of the material used in that component.
				C.12	Use Environmentally Preferable Materials for 70% of Non-Plant Landscape Elements and Fencing		
				E.1	Use Environmentally Preferable Decking		
				F.1	Insulation has 75% Recycled Content		
				K.5	Use Recycled-Content Paint		
				K.6	Use Environmentally Preferable Materials for Interior Finishes		
				L.1	Use Environmentally Preferable Flooring		
5.5 Environmental Quality - all measures below plus 1 elective				Finishes, Flooring, HVAC		Indoor Environmental Quality	
A4.504.2	Resilient flooring systems Tier 2: At least 90% of resilient flooring installed shall comply with the criteria listed above.	M	Y	L.3	Low Emitting Flooring: 50% of total floor area is certified (resilient flooring: FloorScore).	MR 2.2	Environmentally preferable products: flooring is FloorScore certified for 45% or 90% of total floor area.
A4.504.3	Thermal Insulation Tier 2: Tier 1 plus Install insulation which contains No-Added Formaldehyde (NAF) and is in compliance with the VOC-emission limits defined in Collaborative for High Performance Schools (CHPS) Low-emitting Materials List.	n/a	Y		none	MR 2.2	Environmentally preferable products: insulation complies with CA Practice for Testing of VOCs from Building Materials.

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CALGreen Section	CALGreen Requirements Summary			Measure	Requirements Summary	Credit	Requirements Summary
Elective measures				Comparable GPR credits & prerequisites		Comparable LEED credits & prerequisites	
4.1 Planning and Design (choose two for Tier 1 or four for Tier 2)				Site, Community Design & Planning		Location & Linkages, Sustainable Sites	
A4.103.1	Site Selection: Infill, Greyfield, or Brownfield.	Y	M	O.1-2	Develop Infill Sites, Build on Designated Brownfield Site.	LL 3.1-3.3	Preferred Locations: Edge, Infill, Previously Developed.
A4.104.1	Site Preservation: Staff Trained in Environmentally Friendly Development.	M	N	N.2	Pre-Construction Kick-Off Meeting with Rater Subs, Management Staff are Certified Green Building Professionals.	ID 1.2-1.4	Integrated project planning, Professional credentialed with respect to LEED for Homes, Design charrette.
A4.105.1	Deconstruction and Reuse of Existing Materials.	M	M	A.2.b,c	Divert 100% of Asphalt and Concrete and 65% (and 75%) (by weight) of Remaining Materials.		would contribute to MR 2.2a (reused materials) and MR 3.2 (deconstruction).
A4.106.1	Solar Orientation within 30 degrees of South.	N	N	J.3	Design and Build Near Zero Energy Homes.	ID 1.5	Building orientation within 15 degrees of South, meets glazing ratios.
A4.106.2.1	Soil Analysis used in structural design of building.	n/a	n/a		none		none
A4.106.2.2	Soil Protection minimizes erosion, cut and fill, and trenching.	n/a	N		none		none
A4.106.3	Landscape Design Do one or more of: 1. Restore areas disrupted by construction with native species 2. Turf Reduction: - Tier 1: Turf limited to 50% of total landscaped area - Tier 2: Turf limited to 25% of total landscaped area 3. Use 75% native Californian or drought tolerant species 4. Use hydrozoning irrigation techniques	M	n/a	C.3c	75% of Plants are Drought Tolerant, California Natives or Mediterranean Species	SS 1.2	Minimize disturbed area of site around trees, leave undeveloped area, undo soil compaction.
		N	Y	C.4	Minimize Turf in Landscape Installed by Builder: less than 25% or 10% of total area	SS 2.3	Limit conventional turf to 60%-0% of softscape area
		Y	Y	C.3c	75% of Plants are Drought Tolerant, California Natives or Mediterranean Species	SS 2.4	Drought-tolerant plants are 40%-90% of installed plants
		Y	Y	C.1	Group Plants by Water Needs (Hydrozoning)	WE 2.1.f	Create separate zones for each type of bedding area based on watering needs
4.2 Energy Efficiency (choose four for Tier 1 or six for Tier 2)				HVAC, Building Performance, Renewables		Energy & Atmosphere	
* energy note	Indicates prescriptive energy measures in CALGreen without a prescriptive counterpart in GPR or LEED, but which would contribute to energy performance prerequisites and points/credits in GPR (J.2) and LEED (EA 1).	*	*	* Indicates prescriptive energy measures in GPR without a prescriptive counterpart in CALGreen, but which would contribute to energy performance prerequisites in Tier 1 or Tier 2.		* Indicates prescriptive energy measures in LEED without a prescriptive counterpart in CALGreen, but which would contribute to energy performance prerequisites in Tier 1 or Tier 2.	
A4.205.1	Radiant Barrier*	*	*		* see energy note		* see energy note
A4.205.2	Exterior Shading on South & West Windows	*	*		* see energy note		* see energy note
A4.206.1	Blower Door Testing	Y	N	J.1.b-c	Blower Door Test	EA 1.1	Prerequisite: envelope leakage testing
A4.207.1	Innovative Radiant, Hydronic, or Ground Source Heating & Cooling System	M	*	H.3	High Performing Zoned Hydronic Radiant Heating		* see energy notes at top
A4.207.2	HVAC Commissioning	n/a	n/a		none		none
A4.207.4	Furnace AFUE .90 or higher	Y	*	H.2.a	Sealed Combustion Units (Furnace).		* see energy note
A4.207.5	Electric Heat Pump HSPF 8.0 or higher*	Y	*	H.4	High Efficiency Air Conditioning, HSPF >8		* see energy note
A4.207.6	Cooling Equipment SEER higher than 13.0 and EER 11.5 or higher	N	*	H.4	High Efficiency Air Conditioning, SEER >14, EER>11 or 12		* see energy note
A4.207.7	Interior and/or Insulated Ductwork	Y	*	H.5.a	Install HVAC Unit and Ductwork within Conditioned Space		* see energy note
A4.207.8	Duct Leakage Testing Shows <6% Leakage*	M	n/a		* see energy note	EA 1.1	Prerequisite: envelope leakage testing
A4.207.9	Whole House Fan	Y	*	H.9.b	Whole House Fan		* see energy note
A4.207.10	Energy STAR Ceiling Fans	Y	Y	H.9.a	Energy STAR Ceiling Fans	EA 9.1.b	Energy STAR Ceiling Fans
A4.208.1	Gas Water Heater EF higher than .6	M	Y	H.2.b	Sealed Combustion Units (Water Heater)		none for LEED-H in California
A4.208.2	Gas Water Heater EF higher than .8	Y	Y	H.2.b	Sealed Combustion Units (Water Heater)		none for LEED-H in California
A4.208.3	Minimize Hot Water Wait Time	N	M	G.1	Distribute Domestic Hot Water Efficiently	EA 7.1	Efficient Hot Water Distribution System
A4.209.1	Hard-wired Lighting Fixtures at least 90% Energy STAR	Y	Y	M.5	High-Efficacy Lighting and Design Lighting System	EA 8.3	Lighting - up to 80% Energy STAR
A4.210.1	All Applicable Appliances Energy STAR	Y	Y	M.1-3	Energy STAR Dishwasher, Clothes Washer, Refrigerator	EA 9.1.a,c,d	Energy STAR Refrigerator, Dishwasher, Clothes Washer
A4.211.1	Solar PV System meeting CEC NSHP program	M	N	I.3	Onsite Renewable Generation	EA 10	Renewable Energy System
A4.211.2	Solar Water Heating System with Solar Fraction > 0.5.	M	Y	I.3	Onsite Renewable Generation		none for LEED-H in California
A4.211.3	Roof Space for Future Solar Installation - 300 sq ft. min.	Y	n/a	I.2	Install Wiring Conduit for Future Photovoltaic Installation & Provide 200 ft2 of South-Facing Roof.		none
A4.211.4	Conduit for Future Solar Installation - 1" min.	Y	n/a	I.2	Install Wiring Conduit for Future Photovoltaic Installation & Provide 200 sq ft of South-Facing Roof.		none



CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

version 1.0, September 1, 2010

CALGreen Residential Building Code		Earns GPR Cred/Pts	Earns LEED Cred/Pts	GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System	Meets CALGreen	LEED for Homes California (non-Midrise) Rating System	Meets CALGreen
CALGreen Section	CALGreen Requirements Summary			Measure	Requirements Summary	Credit	Requirements Summary
4.3	Water Efficiency and Conservation (choose one for Tier 1 or two for Tier 2)			Landscaping, Plumbing		Water Efficiency	
A4.303.2	Non-water urinals or toilets	Y	Y	P.G.4	Composting or Waterless Toilet.		Non-water fixtures would contribute to WE 3.1.
A4.304.1	Minimize spray heads in irrigation system (all areas except turf).	N	M	C.6.a	Install High-Efficiency Irrigation System with Low-Flow, Drip, Bubblers or low-flow Sprinklers for all areas.	WE 2.1.e,i	Drip irrigation for 50% of landscape planting beds, High-efficiency nozzles with distribution uniformity at least 0.70.
A4.304.2	Rainwater capture, storage, and re-use for 65% of roof area.	M	M	C.8	Rain Water Harvesting System .	WE 1.1	Rainwater Harvesting System.
A4.304.3	Water budget for irrigation.	N	M	C.11.a	Design Landscape to Meet Water Budget.	WE 2.1.a	Irrigation System Design by Certified Professional.
A4.304.5	Landscape design uses no potable water.	n/a	n/a		none		none
A4.305.1	Piping for future graywater system.	Y	N	P.G.1	Graywater Pre-Plumbing.	WE 1.2	Graywater Reuse System.
A4.305.2	Recycled water piping for future toilet flushing.	N	N		none		none
A4.305.3	Recycled water used for irrigation.	Y	Y	C.9	Irrigation System Uses Recycled Wastewater, or is pre-plumbed.	WE 1.3	Municipal Recycled Water System.
4.4	Material Conservation (choose one for Tier 1 or four for Tier 2)			Foundation, Exterior, Frame & Envelope		Materials & Resources	
A4.403.1	Frost-Protected Shallow Foundation.	Y	n/a	B.2	Use Frost-Protected Shallow Foundation in Cold Areas (CEC Climate Zone 16).		none
A4.404.1	Efficient Framing Lumber Size: Beams and Headers.	M	M	D.1.b	Apply Optimal Value Engineering - Door and Window Headers Sized for Load.	MR 1.4	Framing Efficiencies.
A4.404.2	Efficient Framing Building Dimensions and Layouts.	N	Y	D.1.a	Apply Optimal Value Engineering - Place Joists, Rafters and Studs at 24-Inch on Center.	MR 1.2, MR 1.4	Detailed Framing Documents, Framing Efficiencies.
A4.404.3	Pre-manufactured Building Systems.	M	Y	D.2-3,6	Construction Material Efficiencies, Engineered Lumber, Solid Wall Systems.	MR 1.4, MR 1.5	Framing Efficiencies, Off-site Fabrication.
A4.404.4	Pre-cut Materials and Details.	M	N	D.2-3,6	Construction Material Efficiencies, Engineered Lumber, Solid Wall Systems.	MR 1.3	Detailed Framing Documents, Cut List and Lumber Order.
A4.405.1	Windows, Trim, and/or Siding Do Not Require Paint or Stain.	M	n/a	E.4	Durable non-Combustible Siding Material.		none
A4.405.2	Flooring Without Additional Coverings, e.g. Concrete.	Y	M	L.1, L.2	Environmentally Preferable Flooring Thermal Mass Floors.	MR 2.2	1/2 point for 90% hard surface flooring; sealed concrete counts towards flooring component.
A4.405.4	Renewable Materials, e.g. Bamboo, Cork, Wood, Agricultural Sources.	N	N	K.6, L.1	Use Environmentally Preferable Materials for Interior Finish, Flooring: A) FSC-Certified Wood, B) Reclaimed, C) Rapidly Renewable, D) Recycled-Content or E) Finger-Jointed F) Local.	MR 2.2	Environmentally Preferable Products: Linoleum, cork, or bamboo count towards flooring component - 90% of total flooring must be renewably sourced to count.
A4.407.1	Install Foundation and Landscape Drains.	N	M	B.4	Install a Foundation Drainage System .	ID 2.1	Prerequisite: Part of durability plan.
A4.407.2	Roof Drains Connected to Landscape Features.	N	Y	P.A.1.c	Route Downspout Through Permeable Landscape.	SS 4.3	Permanent stormwater controls designed to manage roof runoff.
A4.407.3	Flashing Details Provided.	N	Y	E.2	Flashing Installation Techniques Specified and Third-Party Verified.	ID 2.1	Prerequisite: Part of durability plan.
A4.407.4	Construction Materials Protected from Moisture Damage.	N	Y	A.5.b	Construction Environmental Quality Management Plan - Full environmental plan with flush out.	ID 2.1	Prerequisite: Part of durability plan.
A4.407.5	Ice/Water Barrier on Roof (Climate Zone 16 only).	n/a	Y		none	ID 2.1	Prerequisite: Part of durability plan.
A4.407.6	Exterior Doors Protected from Water Intrusion.	n/a	n/a		none		none
A4.407.7	Permanent Overhang or Awning on Exterior Walls.	Y	n/a	D.8.b	Overhangs and Gutters.		none
5.5	Environmental Quality (choose one for Tier 1 or one for Tier 2)			Finishes, Flooring, HVAC		Indoor Environmental Quality	
A4.504.1	Early Compliance with CARB Particleboard Formaldehyde Standards.	Y	M	K.8	Exceed Current CARB ATCM for Composite Wood Formaldehyde Limits Prior to Mandatory Compliance Dates.	MR 2.2	Environmentally preferable products: cabinet, counter, and trim composite materials contain no added urea-formaldehyde resins.
A4.506.1	Filters on Air and Ventilation Systems higher than MERV 6.	Y	N	H.6	High Efficiency HVAC Filter (MERV 6+).	EQ 7.1	Prerequisite: Filters >= MERV 8.
A4.506.2	Direct Vent or Isolated Equipment.	Y	N	H.2	Sealed Combustion Units.	EQ 2.1	Prerequisite: Basic Combustion Venting Measures: sealed combustion or power-vented exhaust. CO detectors required.

CALGreen Residential Building Code		Earns GPR Cred/Pts	Earns LEED Cred/Pts
CALGreen Section	CALGreen Requirements Summary		

Note: this column is intentionally left blank as there are no CALGreen measures comparable to the remaining GPR and LEED for Homes measures listed here.

GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System		Meets CALGreen
Measure	Requirements Summary	
Additional GPR credits & prerequisites		
Site, Community Design & Planning		
A.4	Reduce Heat Island Effect on Site.	
C.13	Reduce Light Pollution by Shielding Fixtures and Directing Light Downward.	
N.1	Required: Incorporate GreenPoint Rated Checklist in Blueprints.	
O.3	Cluster Homes & Keep Size in Check.	
O.4	Design for Walking & Bicycling.	
O.5	Design for Safety & Social Gathering.	
O.6	Design for Diverse Households.	
P.A.1.b-e	Stormwater Control: Landscape and Site Features.	
PA.2	Capture and Treat 85% of Total Annual Stormwater Runoff.	

HVAC, Building Performance, Renewables	
C.3	Construct Resource-Efficient Landscapes.
C.5	Plant Shade Trees.
C.7	Incorporate Two Inches of Compost in the Top 6 to 12 Inches of Soil.
D.7	Energy Heels on Roof Trusses.*
H.9.c	Automatically Controlled Integrated HVAC System with Variable Speed.*
I.1	Pre-Plumb for Solar Water Heating.
J.1.a	Verify Quality of Insulation Installation & Thermal Bypass Checklist.*
J.5-6	Third Party Energy Plan Review.*
L.2	Thermal Mass Floors.*
N.5	Install a Home System Monitor OR Do Time-of-Use Pricing Program.
P.H.1	Humidity Control Systems.
P.H.2	Design HVAC System to Manual T for Register Design.

Landscape, Plumbing	
C.2	Mulch All Planting Beds to the Greater of 3 Inches or Local Water Ordinance Requirement.
C.10	Submetering for Landscape Irrigation.
C.12	Use Environmentally Preferable Materials for 70% of Non-Plant Landscape Elements and Fencing.
P.G.2	Greywater System Operational.
P.G.3	Innovative Wastewater Technology (Constructed Wetland, Sand Filter, Aerobic System).
P.G.5	Install Drain Water Heat-Recovery System.
P.G.6	Install a Hot Water Desuperheater.

LEED for Homes California (non-Midrise) Rating System		Meets CALGreen
Credit	Requirements Summary	
Additional LEED credits & prerequisites		
Location & Linkages, Sustainable Sites		
SS 3	Reduce local heat island effect.	
	none	
	none	
SS 6	Compact Development, Home Size Adjuster.	
LL 5	Basic Community Resources / Transit.	
	none	
	none	
SS 4.1	See above.	
SS 4.3	Management of roof runoff: manage 50% or 100% on site.	
ID 1.1	Prerequisite: Integrated Project Planning.	
LL 2	Site Selection (Avoid Sensitive Sites).	
LL 4	Existing Infrastructure.	
LL 6	Access to Open Space.	
SS 2.1	Prerequisite: No Invasive Plants.	
SS 4.2	Permanent Erosion Controls.	
Energy & Atmosphere		
	none	
SS 3	Reduce Local Heat Island Effects: trees or high-albedo hardscape.	
SS 2.2.e	All compacted soil must be tilled to at least 6 inches.	
	* see energy notes at top	
	* see energy notes at top	
	none	
	* see energy notes at top	
	none	
	* see energy notes at top	
	none	
EQ 3	Moisture Control: mechanical dehumidification system.	
	none	
EA 8.1	Prerequisite: Meet California Title-24 lighting requirements.	
EA 11.1	Prerequisite: Refrigerant Charge Test.	
EA 11.2	Appropriate HVAC Refrigerants.	
Water Efficiency		
SS 2.2.d	Add mulch or soil amendments as appropriate.	
WE 2.1.d	Submeter for irrigation system.	
MR 2.2	Environmentally Preferable Products: Decking and Patio material.	
WE 1.2	Graywater Reuse System.	
	none	
	none	
	none	
WE 2.1	Additional irrigation efficiency measures.	
WE 2.2	Third-party inspection of irrigation system.	
WE 3.2	Very high efficiency fixtures and fitting.	

CALGreen Residential Building Code		Earns GPR Cred/Pts	Earns LEED Cred/Pts
CALGreen Section	CALGreen Requirements Summary		

Note: this column is intentionally left blank as there are no CALGreen measures comparable to the remaining GPR and LEED for Homes measures listed here.

GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System		Meets CALGreen
Measure	Requirements Summary	
Foundation, Exterior, Frame & Envelope		
A.4	Cool Site: Reduce Heat Island Effect On Site.	
B.5	Moisture Controlled Crawlspace.	
B.6	Design and Build Structural Pest Controls.	
D.4	Insulated Headers.	
D.5	FSC-Certified Wood.	
E.1	Environmentally Preferable Decking.	
E.3	Rain Screen Wall System.	
E.4	Durable and Non-Combustible Siding.	
E.5	Durable and Fire Resistant Roofing Materials or Assembly.	
M.4	Install Built-In Recycling Center or Composting Center .	
N.4.b	Conduct Educational Walkthroughs (Prerequisite is N4a).	
P.N.2	Educational Signage of Project's Green Features.	
P.D.1	Design, Build and Maintain Structural Pest and Rot Controls.	
P.D.2	Use Moisture Resistant Materials in Wet Areas.	
P.E.1	Vegetated Roof.	
P.K.1	Materials Meet SMaRT Criteria.	
P.N.1	Detailed Durability Plan & Verification.	

Finishes, Flooring, HVAC	
A.5.b	Full environmental quality management plan and pre-occupancy flush out is conducted (Prerequisite is A5a).
B.3	Use Radon Resistant Construction.
D.9	Reduce Pollution Entering the Home from the Garage.
H.1.b-c	HVAC System Diagnostic Testing.
H.7	No Fireplace OR Sealed Gas Fireplace(s) with Efficiency Rating >60%.
H.10	Advanced Mechanical Ventilation for IAQ.
H.11	Install Carbon Monoxide Alarm(s).
J.1.d	Combustion Safety Backdraft Test.
J.4	EPA Indoor airPlus Certification.
K.1	Design Entryways to Reduce Tracked-In Contaminants.
K.9	After Installation of Finishes, Test of Indoor Air Shows Formaldehyde Level <27 ppb.

note: 2010 California Building Code and California Residential Code require CO alarms

LEED for Homes California (non-Midrise) Rating System		Meets CALGreen
Credit	Requirements Summary	
Materials & Resources		
SS 3	Reduce Local Heat Island Effects: trees or high-albedo hardscape.	
SS 5	Pest Control Alternatives: structural measures.	
WE 2.1	Prerequisite: FSC Certified / Tropical Wood.	
MR 2.2	EPP Materials: decking.	
ID 2.1	Prerequisite: Part of durability plan.	
ID 2.1	Prerequisite: Part of durability plan.	
ID 2.1	Prerequisite: Part of durability plan.	
	none	
AE 1.1.b	One-hour walkthrough with occupant(s).	
AE 1.2-1.3	Enhanced Training, Public Awareness.	
SS 5	See above.	
	none	
SS 4.3	Manage Roof Runoff (see above).	
	none	
ID 2.1-2.3	Prerequisite: Durability Planning, Management & Verification.	
MR 1.1	Prerequisite: Framing Order Waste Factor <10%.	
Indoor Environmental Quality		
EQ 8.3	Preoccupancy Flush.	
EQ 9	Prerequisite: Radon Protection in High-Risk Areas, additional credit in moderate-risk areas.	
EQ 10	Prerequisite: No HVAC in Garage, additional credit for garage pollutant protection.	
	none	
EQ 2.2	No fireplace, or do back-draft potential test.	
	none	
EQ 2.1.b	CO monitors on each floor.	
EQ 2.2	Enhanced Combustion Venting Measures.	
EQ 1	Energy STAR with Indoor Air Package.	
EQ 8.2.a,b	Indoor Contaminant Control: walk-off mats or shoe removal area.	
	none	
EQ 4.1	Prerequisite: Basic Outdoor Air Ventilation (ASHRAE 62.2).	
EQ 4.2	Enhanced Outdoor Air Ventilation.	
EQ 4.3, 5.3, 6.3	Third-Party Performance Testing of Outdoor Air Supply/ Exhaust / Room-by-Room.	
EQ 5.1	Prerequisite: Basic Local Exhaust: Bathroom & kitchen fans and ducts meet ASHRAE 62.2 and exhaust outdoors.	
EQ 6.1	Prerequisite: Room-by-Room Heating and Cooling Load Calculations.	
EQ 6.2	Return Air Flow / Room Controls.	
EQ 7.2-7.3	Filters > MERV 10 or 13.	
EQ 8.2.c	Central Vacuum System	