

# Analysis Report

# Sustainability Strategy

Main and Maple Mixed Use, 22330 Main Street, Hayward, CA

June 13, 2016



Photo credit: Humphreys & Partners Architects

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June 13, 2016

Mr. Blake Peters  
Bay Area Property Developers LLC  
1013 McKeever Avenue  
Hayward, CA 94541

**RE: Sustainability Advisory Services  
Main and Maple Mixed Use, 22330 Main Street, Hayward, CA**

Dear Mr. Peters:

Attached please find the results of our assessment of your proposed project against green building and sustainability benchmarks for design and construction. After meeting with you at the site and learning about your goals, we have compiled a detailed list of features demonstrating that this project will exceed code minimums and meet industry best practices for high-performance, green buildings.

The Sustainable Buildings and Communities Group at DNV GL has extensive experience providing consulting services to clients similar to yourself who are striving to make their buildings energy and water efficient, healthy for occupants, enriching to the local community, minimizing the environmental footprint, and economically sustainable. With offices in Oakland and throughout California, we are a team of experts in sustainability in the built environment.

Should you have any further questions, please let me know.

With kind regards,  
for DNV GL Energy Services USA, Inc.



Jordan Daniels  
Senior Consultant  
DNV GL – Energy

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# 1 OVERVIEW

Main and Maple Mixed Use is a development project planned in Hayward, California, comprising residential and commercial building elements. See Figure 1, below. The project is in the early stages of conceptual design.

This report provides a summary of the design and construction strategies that will be employed to meet and exceed the minimum required by code. The GreenPoint Rated system was used as a framework for this review – the reader will notice references to GreenPoint Rated credits (letter and number in parenthesis, such as "A13").

Many sustainability strategies beyond those in GreenPoint rated will be used, as well.

The most recent version of the GreenPoint Rated checklist is provided in Appendix A. The CalGreen standards are provided in Appendix B. Lastly, the Bay Friendly Landscapes standard is described in Appendix C.



**Figure 1 Aerial View of 22330 Main Street, Hayward**

## **2 COMMUNITY**

### **2.1 Infill Site (N1.1)**

The site for this project has already been developed, thus avoiding construction on greenfields (undeveloped land). The current property is covered in part by black asphalt, which negatively impacts the heat island effect (raises ambient temperatures requiring more electric cooling and negatively impacting local species). The new development will substantially reduce the heat island effect (see below)

### **2.2 Existing Building**

The project includes the rehabilitation of an existing 50,000 square foot building. Rather than demolish this building, the useful life of the structural materials used in its original construction will be extended for decades. The interior will be improved to create vibrant and healthy work spaces for future occupants.

### **2.3 Conserve Resources by Increasing Density (N1.3)**

This project will be adding housing units in the downtown core of Hayward, which is preferable to developing further away on greenfields. In other words, this project uses land that was previously developed, thus reducing urban sprawl. In addition to the benefits of close proximity to businesses, transportation infrastructure, and other services in the urban core, green space and natural resources on the periphery of the city is not impacted by the project.

### **2.4 Open Space**

Nearly 40% of the site will serve as open space, well above the code minimum of 20%. So with increased density, there is still ample space outdoors for tenants to enjoy.

### **2.5 Park Space**

Additional park space is being developed with the cooperation of local neighborhood committees.

### **2.6 Outdoor Gathering Spaces (N4)**

There will be a rooftop terrace with excellent views, allowing tenants and visitors to socialize in a peaceful setting. The development will include 3 courtyards, a large pool area, a foyer, and sitting areas. Together these features will allow tenants to capitalize on the many benefits of the outdoors and social interaction without having to travel to do so.



## 2.7 Transportation

### 2.7.1 ½ Mile from a Major Transit Stop (N2)

In cooperation with the City of Hayward, the development will be served by a dedicated shuttle operating on a loop through the city that includes a stop at the BART station. For tenants who work in the South Bay, the BART line to San Jose will be finished in 5 years.

### 2.7.2 Electric Vehicle Charging Stations

Tenants will have access to 24 shared EV charging stations and use an app to reserve time for charging. As the smart grid develops, EVs may play an important role in managing electricity loads. Additional EV charging stations will be added as the demand increases over time, eventually incorporating charging stations on every level of the parking garage.

## 2.8 Pedestrian & Bicycle Access (N3)

### 2.8.1 Within ½ Mile of Community Services

The project is directly adjacent to the downtown core with vendors and businesses providing an extensive array of goods and services. There are numerous restaurants along B Street two blocks away, as well as a movie theater and entertainment venues. Basic goods and services, such as pharmacies, banks, schools, and places of worship are all within easy walking distance.

### 2.8.2 Bicycle Feasibility

There will be 52 spaces for tenants to safely park and lock their bikes.

## 2.9 Senior/Disabled Access

A creative approach to placing the units around the perimeter of a parking structure allows residents to drive to the level where they live, thus avoiding the need to climb stairs or use elevators. Not only is this helpful for seniors and disabled individuals, but also for families with small children in strollers, as well as residents carrying groceries and other belongings.

## 2.10 Central Laundry (M6)

Tenants will have the option of using a central laundry facility, rather than buying their own laundry machines for their units. Larger laundry machines tend to be more efficient and fewer are needed, since they will be used communally.

## 2.11 Reduced Light Pollution (C13)

Site lighting will have light diffusers and shielding installed, as well as photocells to ensure lights come at dusk, but not before.

### **3 ENERGY**

#### **3.1 Building Performance Exceeds Title 24 Part 6 (J5)**

#### **3.2 High-Efficiency Lighting (M5.1)**

#### **3.3 Enhanced Commissioning (P3)**

A commissioning agent will ensure that the building's energy systems are designed, installed, and operated correctly at the highest efficiency possible.

#### **3.4 Reduced Heat Island Effect**

Roofing materials will be light in color with high solar reflectance, thus allowing them to reflect heat rather than absorb it. This keeps the ambient environment closer to natural conditions, while also reducing the energy needed to cool interior spaces.

#### **3.5 Trees**

- 3.5.1 There is a majestic redwood that will be preserved and relocated to a nearby park.
- 3.5.2 Trees to Moderate Building Temperature (C5): new and existing shade trees will help reduce the need for cooling during the summer.
- 3.5.3 An exterior wall of the building will be vegetated. Not only does this provide a visually appealing surface, but serves to reduce solar heat gain into the building.

#### **3.6 Photovoltaic System (I6)**

The project will include a solar/photovoltaic array to generate clean, renewable energy on site.

### **4 INDOOR AIR QUALITY/HEALTH**

#### **4.1 Zero Volatile Organic Compound (VOC) Interior Wall and Ceiling Paints (K2)**

#### **4.2 Low-VOC Caulks and Adhesives (K3)**

#### **4.3 Operable Windows**

The windows and doors accessing tenant balconies will be equipped with screens to allow for natural ventilation.

## **5 RESOURCES**

### **5.1 Reclaimed Materials**

Some of the existing buildings on the site will be deconstructed rather than demolished. This will produce a large quantity of building materials that can be repurposed for other uses. The development team has identified an artisan who will craft the salvaged wood into furniture and decor that will accent the lobby and common areas, thus tying the past with the present.

### **5.2 Local Materials**

During construction, there will be an effort to source materials from local suppliers in Oakland, Hollister, Watsonville, Concord, Pittsburgh, Sacramento, Benicia, Auburn, and the Central Valley, among other locations. By reducing the distance materials need to be shipped, embodied energy/carbon footprint is reduced.

### **5.3 Stormwater Control (A6)**

Rain from the roofs will drain to planter boxes, which will act as filters before the residual water enters the stormdrain system. Pervious paving will also be used extensively throughout the property, thus allowing the ground to absorb stormwater more quickly and recharge the underlying aquifer.

### **5.4 Construction Activity Pollution Prevention**

During construction, the project will incorporate measures to reduce dirt and other debris from entering waterways during rain events.

### **5.5 Fly Ash and/or Slag in Concrete (B1)**

### **5.6 Recycled Content Base Material (A3)**

The asphalt and concrete in the existing parking lot will be crushed and reused on site as base material. This avoids the use of raw materials and emissions associated with transporting them from elsewhere.

### **5.7 Construction Waste Diversion (A2)**

### **5.8 Built-In Recycling Center (M4.1)**

There will be three recycling centers in the completed project, each with a compactor to reduce the number of truck trips, which, in turn, reduces the associated emissions.

## 6 WATER

### 6.1 Fixture and Fitting Efficiency

Units will be equipped with toilets, faucets, and other fixtures that perform approximately 30% better than the Universal Plumbing Code requirement and incorporate WaterSense certified technologies.

### 6.2 Resource Efficient Landscapes (C3)

The project will follow the Bay Friendly Landscape standards, which incorporate the use of native species and reduced use of toxic herbicides that contaminate local waterways. Please see Appendix C for more information on Bay Friendly Landscape standards.

# 7 APPENDIX A – GREENPOINT RATED CHECKLIST

## NEW HOME RATING SYSTEM, VERSION 6.0 MULTIFAMILY CHECKLIST



The GreenPoint Rated checklist tracks green features incorporated into the home. GreenPoint Rated is administered by Build It Green, a non-profit whose mission is to promote healthy, energy and resource efficient buildings in California. The minimum requirements of GreenPoint Rated are: verification of 50 or more points; Earn the following minimum points per category: Community (2) Energy (25), Indoor Air Quality/Health (6), Resources (6), and Water (6); and meet the prerequisites CALGreen Mandatory, E5.2, H6.1, J6.1, O1, O7.

The criteria for the green building practices listed below are described in the GreenPoint Rated Single Family Rating Manual. For more information please visit [www.builditgreen.org/greenpointrated](http://www.builditgreen.org/greenpointrated). Build It Green is not a code enforcement agency.

A home is only GreenPoint Rated if all features are verified by a Certified GreenPoint Rater through Build It Green. This is the public version of the Checklist and cannot be used for certification.

New Home Multifamily Version 6.0.2

### 22330 Main Street, Hayward, CA

#### Measures



Total Points Targeted: 55

Certification Level: Certified

■ Minimum Points  
■ Targeted Points

#### POINTS REQUIRED

Measures	Points Achieved	Possible Points					Notes
		Community	Energy	IAQ/Health	Resources	Water	
<b>CALGreen</b>	TBD						
<b>A. SITE</b>							
CALGreen Res (REQUIRED)		1	1	1	1	1	
A1. Construction Footprint	TBD				1		
A2. Job Site Construction Waste Diversion							
A2.1 65% C&D Waste Diversion (Including Alternative Daily Cover)	Yes	2			2		
A2.2 65% C&D Waste Diversion (Excluding Alternative Daily Cover)	TBD				2		
A2.3 Recycling Rates from Third-Party Verified Mixed-Use Waste Facility	Yes	1			1		
A3. Recycled Content Base Material	TBD	1			1		
A4. Heat Island Effect Reduction (Non-Roof)	TBD		1				
A5. Construction Environmental Quality Management Plan Including Flush-Out	TBD		1				
A6. Stormwater Control: Prescriptive Path							
A6.1 Permeable Paving Material	Yes	1				1	
A6.2 Filtration and/or Bio-Retention Features	Yes	1				1	
A6.3 Non-Leaching Roofing Materials	TBD					1	
A6.4 Smart Stormwater Street Design	TBD	1					
A7. Stormwater Control: Performance Path	TBD					3	
<b>B. FOUNDATION</b>							
B1. Fly Ash and/or Slag in Concrete	Yes	1			1		
B2. Radon-Resistant Construction	TBD		2				
B3. Foundation Drainage System	TBD			1			
B4. Moisture Controlled Crawlspace	TBD						
B5. Structural Pest Controls	TBD						
B6.1 Termiticide Shields and Separated Exterior Wood-to-Concrete Connections	TBD					1	
B6.2 Plant Trunks, Bases, or Stems at Least 36 Inches from the Foundation	TBD					1	
<b>C. LANDSCAPE</b>							
5.0.0%	5.00%						
C1. Plants Grouped by Water Needs (Hydrozoning)	Yes	1				1	
C2. Three Inches of Mulch in Planting Beds	Yes	1				1	
C3. Resource Efficient Landscapes							
C3.1 No Invasive Species Listed by Cal-IPC	Yes	1				1	

22330 Main Street, Hayward, CA		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
Yes	C3.2 Plants Chosen and Located to Grow to Natural Size	0				1	
Yes	C3.3 Drought Tolerant, California Native, Mediterranean Species, or Other Appropriate Species	0					3
Yes	C4. Minimal Turf in Landscape	0					
TBD	C4.1 No Turf on Slopes Exceeding 10% and No Overhead Sprinklers Installed in Areas Less Than Eight Feet Wide						2
Yes	C4.2 Turf on a Small Percentage of Landscaped Area						2
Yes	C5. Trees to Moderate Building Temperature	0	1	1			1
Yes	C6. High-Efficiency Irrigation System	0					2
TBD	C7. One Inch of Compost in the Top Six to Twelve Inches of Soil	0					2
TBD	C8. Rainwater Harvesting System						3
TBD	C9. Recycled Wastewater Irrigation System						1
TBD	C10. Submeter or Dedicated Meter for Landscape Irrigation						2
TBD	C11. Landscape Meets Water Budget						2
TBD	C12. Environmentally Preferable Materials for Site						
TBD	C12.1 Environmentally Preferable Materials for 70% of Non-Plant Landscape Elements and Fencing					1	
TBD	C12.2 Play Structures and Surfaces Have an Average Recycled Content ≥20%					1	
Yes	C13. Reduced Light Pollution	1	1				
Yes	C14. Large Stature Tree(s)	1	1				
TBD	C15. Third Party Landscape Program Certification						1
TBD	C16. Maintenance Contract with Certified Professional						1
TBD	C17. Community Garden		2				
<b>D. STRUCTURAL FRAME AND BUILDING ENVELOPE</b>							
TBD	D1. Optimal Value Engineering			1		2	
TBD	D1.1 Joists, Rafters, and Studs at 24 Inches on Center					1	
TBD	D1.2 Non-Load Bearing Door and Window Headers Sized for Load					2	
TBD	D1.3 Advanced Framing Measures					1	
TBD	D2. Construction Material Efficiencies						
TBD	D3. Engineered Lumber					1	
TBD	D3.1 Engineered Beams and Headers					1	
TBD	D3.2 Wood Joists or Web Trusses for Floors					1	
TBD	D3.3 Engineered Lumber for Roof Rafters					1	
TBD	D3.4 Engineered or Finger-Jointed Studs for Vertical Applications					0.5	
TBD	D3.5 OSB for Subfloor					0.5	
TBD	D3.6 OSB for Wall and Roof Sheathing			1			
TBD	D4. Insulated Headers						
TBD	D5. FSC-Certified Wood						
TBD	D5.1 Dimensional Lumber, Studs, and Timber					6	
TBD	D5.2 Panel Products					3	
TBD	D6. Solid Wall Systems						
TBD	D6.1 At Least 90% of Floors					1	
TBD	D6.2 At Least 90% of Exterior Walls			1			
TBD	D6.3 At Least 90% of Roofs			1			
TBD	D7. Energy Heels on Roof Trusses			1			
TBD	D8. Overhangs and Gutters			1			
TBD	D8. Reduced Pollution Entering the Home from the Garage						
TBD	D8.1 Detached Garage			2			
TBD	D8.2 Mitigation Strategies for Attached Garage			1			

22330 Main Street, Hayward, CA		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
TBD	D10. Structural Pest and Rot Controls					1	
TBD	D10.1 All Wood Located At Least 12 Inches Above the Soil						
TBD	D10.2 Wood Framing Treated With Borates or Factory-Impregnated, or Wall Materials Other Than Wood					1	
TBD	D11. Moisture-Resistant Materials in Wet Areas (such as Kitchen, Bathrooms, Utility Rooms, and Basements)				1	1	
<b>E. EXTERIOR</b>							
TBD	E1. Environmentally Preferable Decking					1	
TBD	E2. Flashing Installation Third-Party Verified					2	
TBD	E3. Rain Screen Wall System					2	
TBD	E4. Durable and Non-Combustible Cladding Materials					1	
TBD	E5. Durable Roofing Materials						
TBD	E5.1 Durable and Fire Resistant Roofing Materials or Assembly	Y	R	R	R	R	R
Yes	E5.2 Roofing Warranty for Shingle Roofing						
TBD	E6. Vegetated Roof			2			
<b>F. INSULATION</b>							
TBD	F1. Insulation with 30% Post-Consumer or 60% Post-Industrial Recycled Content						
TBD	F1.1 Walls and Floors					1	
TBD	F1.2 Ceilings					1	
TBD	F2. Insulation that Meets the CDPH Standard Method—Residential for Low Emissions						
TBD	F2.1 Walls and Floors				1		
TBD	F2.2 Ceilings				1		
TBD	F3. Insulation That Does Not Contain Fire Retardants						
TBD	F3.1 Cavity Walls and Floors				1		
TBD	F3.2 Ceilings				1		
TBD	F3.3 Interior and Exterior Insulation				1		
<b>G. PLUMBING</b>							
Yes	G1. Efficient Distribution of Domestic Hot Water	1		1			
TBD	G1.1 Insulated Hot Water Pipes						1
TBD	G1.2 WaterSense Volume Limit for Hot Water Distribution						2
TBD	G1.3 Increased Efficiency in Hot Water Distribution						
TBD	G2. Install Water-Efficient Fixtures						2
Yes	G2.1 WaterSense Showersheads with Matching Compensation Valve	1					1
Yes	G2.2 WaterSense Bathroom Faucets						1
TBD	G2.3 WaterSense Toilets with a Maximum Performance (MaP) Threshold of No Less Than 500 Grams						1
TBD	G2.4 Urinals with Flush Rate of ≤ 0.1 Gallons/Flush						1
TBD	G3. Pre-Plumbing for Graywater System						1
TBD	G4. Operational Graywater System						3
TBD	G5. Submeter Water for Tenants						2
<b>H. HEATING, VENTILATION, AND AIR CONDITIONING</b>							
TBD	H1. Sealed Combustion Units						
TBD	H1.1 Sealed Combustion Furnace				1		
TBD	H1.2 Sealed Combustion Water Heater				2		
TBD	H2. High Performing Zoned Hydronic Radiant Heating System				1		
TBD	H3. Effective Ductwork						
TBD	H3.1 Duct Mastic on Duct Joints and Seams				1		
TBD	H3.2 Pressure Balance the Ductwork System				1		
TBD	H4. ENERGY STAR® Bathroom Fans Per HVI Standards with Air Flow Verified						
TBD	H5. Advanced Practices for Cooling				1		
TBD	H5.1 ENERGY STAR Ceiling Fans in Living Areas and Bedrooms						
TBD	H5.2 Operable Windows and Skylights Located to Induce Cross Ventilation in At Least One Room in 80% of Units				1		
TBD	H6. Whole House Mechanical Ventilation Practices to Improve Indoor Air Quality						

22330 Main Street, Hayward, CA		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
Yes	H6.1 Meet ASHRAE Standard 62.2-2010 Ventilation Residential Standards	Y					
TBD	H6.2 Advanced Ventilation Standards			1			
TBD	H6.3 Outdoor Air Ducted to Bedroom and Living Areas			2			
TBD	H7. Effective Range Design and Installation						
TBD	H7.1 Effective Range Hood Ducting and Design			1			
TBD	H7.2 Automatic Range Hood Control			1			
<b>I. RENEWABLE ENERGY</b>							
TBD	I1. Pre-Plumbing for Solar Water Heating			1			
TBD	I2. Preparation for Future Photovoltaic Installation			1			
TBD	I3. Onsite Renewable Generation (Solar PV, Solar Thermal, and Wind)			25			
TBD	I4. Net Zero Energy Home						
TBD	I4.1 Near Zero Energy Home			2			
TBD	I4.2 Net Zero Electric			4			
TBD	I5. Solar Hot Water Systems to Preheat Domestic Hot Water			4			
TBD	I6. Photovoltaic System for Multifamily Projects	4		12			
<b>J. BUILDING PERFORMANCE AND TESTING</b>							
TBD	J1. Third-Party Verification of Quality of Insulation Installation			1			
TBD	J2. Supply and Return Air Flow Testing			1			
TBD	J3. Mechanical Ventilation Testing and Low Leakage			1			
TBD	J4. Combustion Appliance Safety Testing			1			
2013	J5. Building Performance Exceeds Title 24 Part 6						
3.0%	J5.1 Home Outperforms Title 24	11		30			
3.0%	J5.2 Non-Residential Spaces Outperform Title 24	3		15			
TBD	J6. Title 24 Prepared and Signed by a CABEC Certified Energy Analyst			1			
TBD	J7. Participation in Utility Program with Third-Party Plan Review			1			
TBD	J8. ENERGY STAR for Homes			1			
No	J9. EPA Indoor airPlus Certification			1			
<b>K. FINISHES</b>							
TBD	K1. Entryways Designed to Reduce Tracked-In Contaminants						
TBD	K1.1 Entryways to Individual Units				1		
TBD	K1.2 Entryways to Buildings				1		
Yes	K2. Zero-VOC Interior Wall and Ceiling Paints	2			2		
Yes	K3. Low-VOC Caulks and Adhesives	1			1		
TBD	K4. Environmentally Preferable Materials for Interior Finish						
TBD	K4.1 Cabinets					2	
TBD	K4.2 Interior Trim					2	
TBD	K4.3 Shelving					2	
TBD	K4.4 Doors					2	
TBD	K4.5 Countertops					1	
TBD	K5. Formaldehyde Emissions in Interior Finish Exceed CARB						
TBD	K5.1 Doors						1
TBD	K5.2 Cabinets and Countertops						2
TBD	K5.3 Interior Trim and Shelving						2
TBD	K6. Products That Comply With the Health Product Declaration Open Standard						2
TBD	K7. Indoor Air Formaldehyde Level Less Than 27 Parts Per Billion						2
No	K8. Comprehensive Inclusion of Low Emitting Finishes						1
TBD	K9. Durable Cabinets						2
TBD	K10. At Least 25% of Interior Furniture Has Environmentally Preferable Attributes						1



22330 Main Street, Hayward, CA		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
<b>L. FLOORING</b>							
TBD	L1. Environmentally Preferable Flooring					3	
TBD	L2. Low-Emitting Flooring Meets CDPH 2010 Standard Method—Residential				3		
TBD	L3. Durable Flooring					1	
TBD	L4. Thermal Mass Flooring			1			
<b>M. APPLIANCES AND LIGHTING</b>							
TBD	M1. ENERGY STAR® Dishwasher						1
TBD	M2. CEE-Rated Clothes Washer			1			
TBD	M3. Size-Efficient ENERGY STAR Refrigerator			2			2
Yes	M4. Permanent Centers for Waste Reduction Strategies						
TBD	M4.1 Built-In Recycling Center	1				1	
TBD	M4.2 Built-In Composting Center					1	
Yes	M5. Lighting Efficiency						
TBD	M5.1 High-Efficacy Lighting	2		2			
TBD	M5.2 Lighting System Designed to IESNA Footcandle Standards or Designed by Lighting Consultant			2			
Yes	M6. Central Laundry	1					1
TBD	M7. Gearless Elevator			1			
<b>N. COMMUNITY</b>							
Yes	N1. Smart Development						
TBD	N1.1 Infill Site	2	1			1	
TBD	N1.2 Designated Brownfield Site	1			1		
>35	N1.3 Conserve Resources by Increasing Density	4		2		2	
TBD	N1.4 Cluster Homes for Land Preservation	1	1			1	
TBD	N1.5 Home Size Efficiency					9	
TBD	N2. Home(s) Development Located Within 1/2 Mile of a Major Transit Stop						
TBD	N3. Pedestrian and Bicycle Access		2				
7	N3.1 Pedestrian Access to Services Within 1/2 Mile of Community Services	1	2				
4	N3.2 Connection to Pedestrian Pathways						
TBD	N3.3 Traffic Calming Strategies						
TBD	N3.4 Sidewalks Buffered from Roadways and 5-8 Feet Wide						
TBD	N3.5 Bicycle Storage for Residents						
TBD	N3.6 Bicycle Storage for Non-Residents						
TBD	N3.7 Reduced Parking Capacity						
Yes	N4. Outdoor Gathering Places	1	1				
Yes	N4.1 Public or Semi-Public Outdoor Gathering Places for Residents	1	1				
TBD	N4.2 Public Outdoor Gathering Places with Direct Access to Tier 1 Community Services						
TBD	N5. Social Interaction						
TBD	N5.1 Residence Entries with Views to Callers		1				
TBD	N5.2 Entrances Visible from Street and/or Other Front Doors		1				
TBD	N5.3 Porches Oriented to Street and Public Space		1				
TBD	N5.4 Social Gathering Space		1				
TBD	N6. Passive Solar Design						
TBD	N6.1 Heating Load			2			
TBD	N6.2 Cooling Load			2			
TBD	N7. Adaptable Building						
							Drug store(2), restaurant (2+), public park (1), farmers market (1), library (1), community center (1), Bank (1.5), post office (0.5), theater (0.5), medical/dental (1), full scale super market (1)

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22330 Main Street, Hayward, CA		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
TBD	N7.1 Universal Design Principles in Units		1		1		
TBD	N7.2 Full-Function Independent Rental Unit		1				
TBD	<b>N8. Affordability</b>						
TBD	N8.1 Dedicated Units for Households Making 80% of AMI or Less		2				
TBD	N8.2 Units with Multiple Bedrooms for Households Making 80% of AMI or Less		1				
TBD	N8.3 At Least 20% of Units at 120% AMI or Less are For Sale		1				
TBD	<b>N9. Mixed-Use Developments</b>						
TBD	N9.1 Live/Work Units Include a Dedicated Commercial Entrance		1				
TBD	N9.2 At Least 2% of Development Floor Space Supports Mixed Use		1				
TBD	N9.3 Half of the Non-Residential Floor Space is Dedicated to Community Service		1				
<b>O. OTHER</b>							
Yes	<b>O1. GreenPoint Rated Checklist in Blueprints</b>	Y	R	R	R	R	R
TBD	O2. Pre-Construction Kickoff Meeting with Rater and Subcontractors			0.5		1	0.5
TBD	O3. Orientation and Training to Occupants—Conduct Educational Walkthroughs			0.5	0.5	0.5	0.5
TBD	O4. Builder's or Developer's Management Staff are Certified Green Building Professionals			0.5	0.5	0.5	0.5
TBD	O5. Home System Monitors			2			1
TBD	O6. Green Building Education						
TBD	O6.1 Marketing Green Building		2				
TBD	O6.2 Green Building Signage			0.5			0.5
Yes	O7. Green Appraisal Addendum	Y	R	R	R	R	R
TBD	O8. Detailed Durability Plan and Third-Party Verification of Plan Implementation					1	
TBD	O9. Residents Are Offered Free or Discounted Transit Passes		2				
TBD	O10. Vandalism Deterrence Practices and Vandalism Management Plan					1	
<b>P. DESIGN CONSIDERATIONS</b>							
	<b>P1. Acoustics: Noise and Vibration Control</b>		1	1	1		
	Enter the number of Tier 1 practices						
	Enter the number of Tier 2 practices						
	<b>P2. Mixed-Use Design Strategies</b>						
TBD	P2.1 Tenant Improvement Requirements for Build-Outs				1		1
TBD	P2.2 Commercial Loading Area Separated for Residential Area						
TBD	P2.3 Separate Mechanical and Plumbing Systems				1		
	<b>P3. Commissioning</b>						
Yes	P3.1 Design Phase	2		1	1		
Yes	P3.2 Construction Phase	2		1	1		
Yes	P3.3 Post-Construction Phase	2		1	1		
TBD	P4. Building Enclosure Testing			1	1	1	
<b>Summary</b>							
Total Available Points in Specific Categories		381	43	138	61	86	53
Minimum Points Required in Specific Categories		50	2	25	6	6	6
<b>Total Points Achieved</b>		<b>55.0</b>	<b>6.0</b>	<b>26.0</b>	<b>6.0</b>	<b>10.0</b>	<b>7.0</b>

## APPENDIX B – CALGREEN MANDATORY MEASURES



### 2013 CALGREEN RESIDENTIAL MANDATORY MEASURES (Includes significant changes from 2010 CALGREEN)



2013 CALGREEN CODE Effective January 1, 2014		
SECTION	MEASURES	2013 CALGREEN REQUIREMENTS AND CHANGES FROM 2010 CALGREEN
<b>Chapter 1 ADMINISTRATION</b>		
101.3.1	State-regulated buildings	REVISED: Expands the scope of CALGreen to include ALL low-rise, high-rise, and hotel/motel buildings of Group R occupancy.
<b>Chapter 2 DEFINITIONS</b>		
202	Definitions	<p>NEW: Relocates all definitions to Chapter 2. Other chapters include only defined terms and a reference to Chapter 2.</p> <p>REVISED: Modifies "residential building" to include "low-rise residential buildings" and "high-rise residential buildings."</p> <p>REVISED: Clarifies "low-rise residential building" as a Group R occupancy that is 3 stories or less and deletes reference to one- or two-family dwellings or townhouses.</p> <p>NEW: Defines "high-rise residential building" as a Group R occupancy that is 4 stories or greater in height.</p>
<b>Chapter 3 GREEN BUILDING</b>		
301.1.1	Additions and alterations	<p>NEW: Clarifies that mandatory measures in Chapter 4 apply to additions or alterations of residential buildings and specifies that requirements only apply to the specific area of the addition or alteration.</p> <p>NEW: Adds a note directing code users to review Civil Code, Section 1101.1 et seq., regarding mandatory replacement of non-compliant plumbing fixtures.</p>
301.2	Low-Rise and High-Rise Residential Buildings	<p>NEW: Clarifies that CALGreen may apply to either low-rise or high-rise residential buildings or both.</p> <p>NEW: New "banners" [LR] and [HR+] as identifying provisions applying only to low-rise or high-rise residential structures, respectively.</p>
<b>Division 4.1 - PLANNING AND DESIGN (SITE DEVELOPMENT)</b>		
4.106.2	Storm Water Drainage and Retention During Construction	<p><b>NO CHANGE FROM 2010 CALGREEN</b></p> <p>Projects which disturb less than one acre of soil and are not part of a larger common plan of development shall manage storm water drainage during construction.</p>
4.106.3	Grading and Paving	<p><b>NO CHANGE FROM 2010 CALGREEN</b></p> <p>Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings.</p> <p>NEW EXCEPTION: Revision provides an exception for additions and alterations not altering the drainage path.</p>
<b>Division 4.2 - ENERGY EFFICIENCY</b>		
4.201.1/ 5.201.1	Scope	<p>REVISED: Energy efficiency requirements for low-rise residential (Section 4.201.1) and high-rise residential/hotel/motel (Section 5.201.1) are now in both residential and nonresidential chapters of CALGreen.</p> <p>REVISED: Standards for residential buildings do not require compliance with levels of minimum energy efficiency beyond those required by the 2013 California Energy Code [code reference date updated from 2010 to 2013].</p>
<b>Division 4.3 - WATER EFFICIENCY AND CONSERVATION (INDOOR WATER USE)</b>		
4.303.1	Water Conserving Plumbing Fixtures and Fittings	<p>REVISED: 20% reduction of water use are now prescriptively designated within CALGREEN text.</p> <p>REPEALED: Prescriptive and performance methodology, Tables 4.303.1 and 4.303.2.</p> <p>NEW: Plumbing fixtures and fittings shall comply with the following:</p> <p>4.303.1.1 Waters Closets: ≤ 1.28 gal/flush</p> <p>4.303.1.2 Urinals: ≤ 0.5 gal/flush</p> <p>4.303.1.3.1 Single Showerheads: ≤ 2.0 gpm @ 80 psi</p> <p>4.303.1.3.2 Multiple Showerheads: combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gpm @ 80 psi or only one shower outlet is to be in operation at a time</p> <p>4.303.1.4.1 Residential Lavatory Faucets: ≤ 1.5 gpm @ 60 psi</p> <p>4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas of Residential Buildings: ≤ 0.5 gpm @ 60 psi</p> <p>4.303.1.4.3 Metering Faucets: ≤ 0.25 gallons per cycle</p> <p>4.303.1.4.4 Kitchen Faucets: ≤ 1.8 gpm @ 60 psi; temporary increase to 2.2 gpm allowed but shall default to 1.8 gpm</p>
4.303.2	Standards for Plumbing Fixtures and Fittings	<p>REVISED: Specifies that plumbing fixtures and fittings shall be installed in accordance with the California Plumbing Code.</p> <p>REVISED: Relocates provisions for multiple showerheads to Section 4.303.1.3.2.</p> <p>REPEALED: Table 4.303 "Standards for Plumbing Fixtures and Fixture Fittings." Code users are directed, in Section 4.303.2, to the California Plumbing Code for applicable reference standards.</p>
<b>Division 4.3 - WATER EFFICIENCY AND CONSERVATION (OUTDOOR WATER USE)</b>		
4.304.1	Irrigation Controllers	<p><b>NO CHANGE FROM 2010 CALGREEN</b></p> <p>Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:</p> <ol style="list-style-type: none"> <li>1 - Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plant watering needs as weather or soil conditions change.</li> <li>2 - Weather-based controllers without integral rain sensors or communication systems that account for rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s).</li> </ol>



**2013 CALGREEN RESIDENTIAL MANDATORY MEASURES**  
(Includes significant changes from 2010 CALGREEN)



2013 CALGREEN CODE Effective January 1, 2014		
SECTION	MEASURES	2013 CALGREEN REQUIREMENTS AND CHANGES FROM 2010 CALGREEN
<b>Division 4.4 - MATERIAL CONSERVATION &amp; RESOURCE EFFICIENCY (ENHANCED DURABILITY &amp; REDUCED MAINTENANCE)</b>		
4.408.1	<b>Rodent Proofing</b>	<b>REVISED:</b> Specifies the areas needing rodent proofing are sole/bottom plates. Annular spaces around pipes, electric cables, conduits, or other openings in sole/bottom plates at exterior walls shall be closed with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency to prevent passage of rodents.
<b>Division 4.4 - MATERIAL CONSERVATION &amp; RESOURCE EFFICIENCY (CONSTRUCTION WASTE REDUCTION, DISPOSAL &amp; RECYCLING)</b>		
4.408.1	<b>Construction Waste Reduction of at least 50%</b>	<b>NO CHANGE FROM 2010 CALGREEN</b> Recycle and/or salvage for reuse a minimum of 50% of the nonhazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, OR meet a more stringent local construction and demolition waste management ordinance. Documentation is required per Section 4.408.5. Exceptions: 1 - Excavated soil and land-clearing debris. 2 - Alternate waste reduction methods developed by working with local enforcing agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite. 3 - The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.
4.408.2	<b>Construction Waste Management Plan</b>	<b>NO CHANGE FROM 2010 CALGREEN</b> Submit a construction waste management plan meeting Items 1 through 5 in Section 4.408.2. Plans shall be updated as necessary and shall be available for examination during construction.
4.408.3	<b>Waste Management Company</b>	<b>NO CHANGE FROM 2010 CALGREEN</b> Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that diverted construction and demolition waste materials meet the requirements in Section 4.408.1.
4.408.4 4.408.4.1	<b>Waste Stream Reduction Alternative</b>	4.408.4 Generate a total combined weight of construction and demolition waste disposed in landfills that is equal to or less than 4 pounds per square-foot of the building area. <b>NEW:</b> 4.408.4.1 [HR+] Generate a total combined weight of construction and demolition waste disposed in landfills that is equal to or less than 2 pounds per square-foot of the building area.
<b>Division 4.4 - MATERIAL CONSERVATION &amp; RESOURCE EFFICIENCY (BUILDING MAINTENANCE &amp; OPERATION)</b>		
4.410.1	<b>Operation and Maintenance Manual</b>	<b>NO CHANGE FROM 2010 CALGREEN</b> At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which covers 10 specific subject areas shall be placed in the building.
<b>Division 4.5 - ENVIRONMENTAL QUALITY (FIREPLACES)</b>		
4.503.1	<b>General</b>	<b>NO CHANGE FROM 2010 CALGREEN</b> Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA Phase II emission limits where applicable. Woodstoves, pellet stoves and fireplaces shall also comply with all applicable local ordinances.
<b>Division 4.5 - ENVIRONMENTAL QUALITY (POLLUTANT CONTROL)</b>		
4.504.1	<b>Covering of Duct Openings and Protection of Mechanical Equipment During Construction</b>	<b>NO CHANGE FROM 2010 CALGREEN</b> At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air intake and distribution component openings shall be covered. Tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of water, dust and debris entering the system may be used.
4.504.2.1	<b>Adhesives, Sealants and Caulks</b>	<b>NO CHANGE FROM 2010 CALGREEN</b> Adhesives, sealants and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply: 1 - Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, 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, as shown in Tables 4.504.1 or 4.504.2, as applicable. Such products shall also comply with Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products as specified in Subsection 2 below. 2 - Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of the California Code of Regulations, Title 17, commencing with Section 94507.



**2013 CALGREEN RESIDENTIAL MANDATORY MEASURES**  
(Includes significant changes from 2010 CALGREEN)



2013 CALGREEN CODE		
Effective January 1, 2014		
SECTION	MEASURES	2013 CALGREEN REQUIREMENTS AND CHANGES FROM 2010 CALGREEN
<b>Division 4.5 - ENVIRONMENTAL QUALITY (POLLUTANT CONTROL Continued)</b>		
4.504.2.2	Paints and Coatings	<b>NO CHANGE FROM 2010 CALGREEN</b> Architectural paints and coatings shall comply with VOC limits in Table 1 of the Air Resources Board Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37, of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat, or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.
4.504.2.3	Aerosol Paints and Coatings	<b>NO CHANGE FROM 2010 CALGREEN</b> Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Section 94522(c)(2) and (d)(2) of the California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District shall additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.
4.504.3	Carpet Systems	<b>NO CHANGE FROM 2010 CALGREEN</b> 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 Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350.) 3 - NSF/ANSI 140 at the Gold level 4 - Scientific Certifications Systems Indoor Advantage™ Gold
4.504.3.1	Carpet Cushion	<b>NO CHANGE FROM 2010 CALGREEN</b> All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label Program.
4.504.3.2	Carpet Adhesive	<b>NO CHANGE FROM 2010 CALGREEN</b> All carpet adhesives shall meet the requirements of Table 4.504.1.
4.504.4	Resilient Flooring Systems	<b>REVISED:</b> Compliance rate of resilient flooring is increased from 50% to 80%. Related changes are made for Tier 1 and Tier 2 resilient flooring measures. Where resilient flooring is installed, at least 80% of floor area receiving resilient flooring shall comply with one or more of the following: 1 - VOC emission limits defined in the Collaborative for High Performance Schools (CHPS) High Performance Products Database. 2 - Products compliant with CHPS criteria certified under the Greenguard Children & Schools program. 3 - Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program. 4 - Meet the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350.)
4.504.5	Composite Wood Products	<b>NO CHANGE FROM 2010 CALGREEN FOR 4.504.5. Referenced Table 4.504.5 has been revised</b> to delete obsolete compliance dates. 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 the Air Resources Board's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et. seq.), on or before the dates specified in those sections as shown in Table 4.504.5. Documentation is required per Section 4.504.5.1.  Definition of Composite Wood Products: Composite wood products include hardwood plywood, particleboard, and medium density fiberboard. "Composite wood products" do not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists, or finger-jointed lumber, all as specified in CCR, Title 17, Section 93120.1(a).
<b>Division 4.5 - ENVIRONMENTAL QUALITY (INTERIOR MOISTURE CONTROL)</b>		
4.505.2	Concrete Slab Foundations	<b>NO CHANGE FROM 2010 CALGREEN</b> Concrete slab foundations or concrete slab-on-ground floors required to have a vapor retarder by the California Building Code, Chapter 19, or the California Residential Code, Chapter 5, respectively, shall also comply with this section.
4.505.2.1	Capillary Break	<b>NO CHANGE FROM 2010 CALGREEN</b> A capillary break shall be installed in compliance with at least one of the following: 1 - A 4-inch (101.6 mm) thick base of 1/2-inch (12.7 mm) or larger clean aggregate shall be provided with a vapor retarder in direct contact with concrete and a concrete mix design which will address bleeding, shrinkage and curling shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06. 2 - Other equivalent methods approved by the enforcing agency. 3 - A slab design specified by a licensed design professional.



**2013 CALGREEN RESIDENTIAL MANDATORY MEASURES**  
(Includes significant changes from 2010 CALGREEN)



2013 CALGREEN CODE Effective January 1, 2014		
SECTION	MEASURES	2013 CALGREEN REQUIREMENTS AND CHANGES FROM 2010 CALGREEN
<b>Division 4.5 - ENVIRONMENTAL QUALITY (INTERIOR MOISTURE CONTROL Continued)</b>		
4.505.3	<b>Moisture Content of Building Materials</b>	<p><b>NO CHANGE FROM 2010 CALGREEN</b> Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19% moisture content. Moisture content shall be verified in compliance with the following:</p> <ol style="list-style-type: none"> <li>1 - Moisture content shall be determined with either a probe-type or a contact-type moisture meter. Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements in Section 101.8.</li> <li>2 - Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade-stamped end of each piece to be verified.</li> <li>3 - At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.</li> </ol> <p>Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Manufacturers' drying recommendations shall be followed for wet-applied insulation products prior to enclosure.</p>
<b>Division 4.5 - ENVIRONMENTAL QUALITY (INDOOR AIR QUALITY &amp; EXHAUST)</b>		
4.506.1	<b>Bathroom Exhaust Fans</b>	<p><b>NO CHANGE FROM 2010 CALGREEN</b> Each bathroom shall be mechanically ventilated and shall comply with the following:</p> <ol style="list-style-type: none"> <li>1 - Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.</li> <li>2 - Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.               <ol style="list-style-type: none"> <li>a) Humidity controls shall be capable of manual or automatic adjustment between a relative humidity range of less than 50% to a maximum of 80%.</li> <li>b) A humidity control may be a separate component to the exhaust fan and is not required to be integral or built-in.</li> </ol> </li> </ol> <p>Note: For CALGreen a "bathroom" is a room which contains a bathtub, shower, or tub/shower combination. Fans are required in each bathroom.</p>
<b>Division 4.5 - ENVIRONMENTAL QUALITY (ENVIRONMENTAL COMFORT)</b>		
4.507.1	<b>Reserved</b>	<b>REPEALED:</b> Section 4.507.1 Openings (for whole house fans) has been repealed. There is no substitute language.
4.507.2	<b>Heating and Air Conditioning System Design</b>	<p><b>NO CHANGE FROM 2010 CALGREEN</b> Heating and air conditioning systems shall be sized, designed, and equipment selected using the following methods:</p> <ol style="list-style-type: none"> <li>1 - The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2004 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods.</li> <li>2 - Duct systems are sized according to ANSI/ACCA 1 Manual D - 2009 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.</li> <li>3 - Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2004 (Residential Equipment Selection) or other equivalent design software or methods.</li> </ol> <p>Exception: Use of alternate design temperatures necessary to ensure the system functions are acceptable.</p>
<b>CHAPTER 7 - INSTALLER &amp; SPECIAL INSPECTOR QUALIFICATIONS (QUALIFICATIONS, VERIFICATIONS)</b>		
702.1	<b>Installer Training</b>	<p><b>NO CHANGE FROM 2010 CALGREEN</b> HVAC system installers shall be trained and certified in the proper installation of HVAC systems and equipment by a recognized training or certification program. Examples of acceptable HVAC training and certification programs include but are not limited to the following:</p> <ol style="list-style-type: none"> <li>1 - State certified apprenticeship programs.</li> <li>2 - Public utility training programs.</li> <li>3 - Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.</li> <li>4 - Programs sponsored by manufacturing organizations.</li> <li>5 - Other programs acceptable to the enforcing agency.</li> </ol>
702.2	<b>Special Inspection</b>	<p><b>NO CHANGE FROM 2010 CALGREEN</b> Special inspectors must be qualified and able to demonstrate competence to the enforcing agency in the discipline in which they are inspecting.</p>
703.1	<b>Documentation</b>	<p><b>NO CHANGE FROM 2010 CALGREEN</b> Documentation of compliance shall include, but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the local enforcing agency. Other specific documentation or special inspections necessary to verify compliance are specified in appropriate sections of CALGreen.</p>

**Acknowledgement:** This document is an updated version of an original checklist prepared by the California Building Industry Association for summarizing the 2010 CALGreen's mandatory measures for low-rise residential structures. This checklist includes CALGreen provisions effective January 1, 2014, covering all residential buildings and notations for sections revised or updated for the 2013 CALGreen.

**Note:** This document is only a summary of the mandatory measures in the 2013 CALGreen. Users should refer to the most recent version of the 2013 CALGreen code for additional details and complete requirements.

## 8 APPENDIX C – BAY FRIENDLY LANDSCAPES

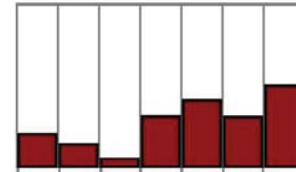
### Bay-Friendly Scorecard for Commercial & Civic Landscapes



This scorecard tracks Bay-Friendly features incorporated into the design and construction of new landscapes. The recommended minimum requirements for a Bay-Friendly Landscape are: earn a total of 60 points or more and complete the 9 required practices indicated by the red "R" in the columns labeled "Possible Points".

Date: 6/12/2016

Current Point Total: 60



#### Main and Maple Mixed Use, 22330 Main Street, Hayward, CA

	Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Quality	Create Wildlife Habitat
<b>A. SITE PLANNING</b>		Possible Points						
<b>1. Select and evaluate the site carefully</b>								
<input type="checkbox"/>	a. Submit the completed Bay-Friendly Site Analysis form before 100% design development documents	0	5					
<input checked="" type="checkbox"/>	b. The site is located within an urban growth boundary and avoids environmentally sensitive sites	3	3					
<input type="checkbox"/>	c. The site development results in the clean up of a contaminated site (i.e. Brownfield) or is in a designated redevelopment area	0					3	
<b>2. Consider the potential for fire</b>								
<input type="checkbox"/>	a. For sites adjacent to fire sensitive open space or wild lands only: Submit a Fire Mitigation Plan	0	5					
<b>3. Keep plant debris on site</b>								
a. Produce mulch from plant debris								
<input type="checkbox"/>	i. Design documents specify areas under tree & shrub canopies and at least 10 feet away from hard surfaces and storm drains, to be used as a leaf repository for mulch	0	1					
<input checked="" type="checkbox"/>	ii. Construction documents specify that of the trees identified for removal, some are chipped for use as mulch onsite	1	1					
b. Produce compost from plant debris								
<input type="checkbox"/>	i. A site for composting is included in landscape plans. Systems for composting up to and including 3 cubic yards at one time	0	1					
<input type="checkbox"/>	ii. Systems for composting more than 3 and up to 10 yards at one time (total 2 points)	0	1					
<input type="checkbox"/>	iii. Systems 10 cubic yards or larger (total 3 points)	0	1					
<b>4. Reduce and recycle waste</b>								
<input checked="" type="checkbox"/>	a. An easily accessible area is dedicated to the collection and storage of materials for recycling	2	2					
<b>5. Minimize site disturbance</b>								
<input type="checkbox"/>	a. On Greenfield sites, limit site disturbance to protect topography, vegetation and hydrology (total 3 points)	0	1				1	1
<input checked="" type="checkbox"/>	b. On previously developed sites, restore vegetation and hydrology (total 3 points)	3	1				1	1
<input checked="" type="checkbox"/>	<b>6. Provide water and/or shelter for wildlife such as birdhouse, bathhouses, boulders, logs, wood piles, large native shrubs or trees</b>	1						1
<b>7. Conserve or restore natural areas &amp; wildlife corridors</b>								
<input checked="" type="checkbox"/>	a. The landscape is designed to preserve 80% of existing mature healthy trees and penalties for destruction of protected trees are included in construction contract	2						2
<input checked="" type="checkbox"/>	b. The landscape is designed to increase open space compared to its previous use and/or to connect it to other open space or wildlife corridors	2						2
<input type="checkbox"/>	c. Create or protect a diverse plant buffer of low maintenance vegetation along creeks, shorelines or monocultured landscaped areas	0						2
Site Planning Subtotal, out of possible 33 points:		<b>14</b>						
<b>B. STORMWATER AND SITE DRAINAGE</b>		Possible Points						
<b>1. Minimize impervious surfaces</b>								
<input type="checkbox"/>	a. Permeable paving, gravel or other porous surfaces are installed for							

Main and Maple Mixed Use, 22330 Main Street, Hayward, CA		Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Quality	Create Wildlife Habitat
<input checked="" type="checkbox"/>	i. 25% OR	1						1	
<input checked="" type="checkbox"/>	ii. 33% (total 3 points) OR	2						2	
<input checked="" type="checkbox"/>	iii. 50% of the paved area (total 5 points)	2						2	
<input type="checkbox"/>	b. No impervious surfaces directly connect to the storm drain	0						2	
<b>2. Design a system to capture and filter storm water</b>									
<input checked="" type="checkbox"/>	a. Capture and filter runoff from parking lots into landscape beds, vegetated swales or other landscape stormwater BMPs	2						2	
b. Incorporate landscape measures, including vegetated swales, infiltration planters, detention basins and/or stormwater wetlands, that are designed to capture and filter:									
<input type="checkbox"/>	i. 85% of average annual stormwater runoff OR	0						2	
<input type="checkbox"/>	ii. 100% of average annual runoff (total 4 points)	0						2	
<input checked="" type="checkbox"/>	c. Bioswales specify flat bottoms of at least 18 inches across and/or rock cobble at points of concentrated flow	1						1	
<input checked="" type="checkbox"/>	d. Turf is not specified in bioswales	1						1	
<input type="checkbox"/>	e. Direct rain water from all down spouts to planters, swales or landscaped areas	0						1	
Stormwater and Site Drainage Subtotal, out of possible 16 points:		<b>9</b>							
<b>C. EARTHWORK AND SOIL HEALTH</b>			Possible Points						
<b>1. Assess the soil and test drainage</b>									
<input type="checkbox"/>	a. Submit laboratory soil analysis results and recommendations for compost and natural fertilizers (total 3 points)	0	2		1				
<b>2. Remove and store topsoil before grading</b>									
<input type="checkbox"/>	a. The removal, temporary storage, and re-spreading of topsoil is specified in the landscape design documents AND specifications include a maximum topsoil pile height of 6 feet, as well as measures to protect the stored topsoil from erosion	0			2				
<b>3. Protect soil from compaction</b>									
<input type="checkbox"/>	a. Grading specifications and construction plans call for the installation and maintenance of fencing to prohibit parking or materials staging in areas identified for protection	0			2				
<input type="checkbox"/>	b. Design documents specify that soil is not worked when wet	0			1				
<b>4. Aerate compacted soils</b>									
<input type="checkbox"/>	a. Design documents include specification to alleviate compacted soils to a depth of at least 8 inches, before planting, for all landscaped areas that can not be protected during construction	0			1				
<input type="checkbox"/>	b. Design documents include specification to alleviate compacted soils to a depth of at least 12 inches, before planting, for all landscaped areas that can not be protected during construction (total 2 points)	0			1				
<b>5. Feed soils naturally &amp; avoid synthetic fertilizers</b>									
<input type="checkbox"/>	a. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are not allowed in the construction of the project	0			1				
<b>6. Mulch</b>									
<input checked="" type="checkbox"/>	a. <b>Required:</b> Planting specifications and plans indicate that after construction, all soil on site is protected with a minimum of 3 inches of mulch				R				
<b>7. Amend the soil with compost before planting</b>									
a. Quality compost is specified as the soil amendment, at the rates indicated by a soil analysis, to bring the soil organic matter content to a minimum of:									
<input checked="" type="checkbox"/>	i. <b>Required:</b> 3.5% by dry weight OR 1 inch of quality compost OR					R			
<input type="checkbox"/>	ii. 5% by dry weight OR (total 2 points)	0				1	1		
<input type="checkbox"/>	iii. Specify the use of compost from processors that participate in the US Composting Council's Standard Testing Assurance program	0				1			



Main and Maple Mixed Use, 22330 Main Street, Hayward, CA		Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Quality	Create Wildlife Habitat
<b>8. Use IPM design and construction practices to prevent pest problems</b>									
<input type="checkbox"/>	a. Sheet mulch is specified for weed control (total 3 points)	0			1			2	
<input type="checkbox"/>	b. Synthetic chemical pre-emergents are prohibited	0						2	
<b>9. Keep soil &amp; organic matter where it belongs</b>									
<input type="checkbox"/>	a. Compost berms or blankets or socks are specified for controlling erosion (total 2 points)	0			1			1	
Earthwork and Soil Health Subtotal, out of possible 21 points:		0							
<b>D. MATERIALS</b>			Possible Points						
<b>1. Use salvaged items &amp; recycled content materials</b>									
a. Non-plant landscape materials are salvaged or made from recycled content materials or FSC certified wood:									
<input type="checkbox"/>	i. Decking (100% of non structural materials)	0		1					
<input type="checkbox"/>	ii. Fencing (100% of non structural materials)	0		2					
<input type="checkbox"/>	iii. Outdoor furniture such as bike racks, benches, tables and chairs (50% minimum)	0		2					
<input type="checkbox"/>	iv. Planters or retaining walls (100% of either or both)	0		1					
<input type="checkbox"/>	v. Parking stops or lighting/sign posts (100% of either or both)	0		1					
<input type="checkbox"/>	vi. Play structures or surfaces (100% of either or both)	0		2					
<input type="checkbox"/>	vii. Edging or decorative glass mulch (100% of either or both)	0		1					
<input checked="" type="checkbox"/>	b. A minimum 25% of recycled aggregate (crushed concrete) is specified for walkway, driveway, roadway base and other uses	2		2					
c. Replace Portland cement in concrete with flyash or slag									
<input type="checkbox"/>	i. 20%	0		1					
<input type="checkbox"/>	ii. 25% (total 2 points)	0		1					
d. Purchased compost and/or mulch is recycled from local, organic materials such as plant or wood waste									
<input type="checkbox"/>	i. 100% of compost OR 100% of mulch	0		1					
<input type="checkbox"/>	ii. 100% of both (total 2 points)	0		1					
<b>2. Reduce and recycle landscape construction waste</b>									
<input checked="" type="checkbox"/>	a. <b>Required:</b> Divert 50% of landscape construction and demolition waste.			R					
<input type="checkbox"/>	b. Divert 100% of asphalt and concrete and 65% of remaining materials OR	0		2					
<input type="checkbox"/>	c. Divert 100% of asphalt and concrete and 80% of remaining materials (total 4 points)	0		2					
<input type="checkbox"/>	d. Donate unused materials	0		1					
<b>3. Reduce the heat island effect with cool site techniques</b>									
<input type="checkbox"/>	a. at least 50% of the paved site area includes cool site techniques	0						2	
<b>4. Design lighting carefully</b>									
<input checked="" type="checkbox"/>	a. Low energy fixtures are specified for all site lighting	2						2	
b. Photovoltaic is specified for site lighting									
<input type="checkbox"/>	i. all path lighting is solar powered	0						1	
<input type="checkbox"/>	ii. 50% of all other site lighting is solar powered	0						2	
<input type="checkbox"/>	iii. 100% of all other site lighting is solar powered (total 4 points)	0						2	
<input checked="" type="checkbox"/>	c. Reduce light pollution and trespass: exterior luminaries emit no light above horizontal or are Dark Sky certified	1						1	
<input type="checkbox"/>	d. The site and exterior building lighting does not cast direct beam illumination onto adjacent properties or right of ways	0						1	
<b>5. Choose and maintain equipment for fuel conservation</b>									
<input type="checkbox"/>	a. Specify solar powered pump(s) for water features	0						1	
<b>6. Specify low embodied energy products</b>									

Main and Maple Mixed Use, 22330 Main Street, Hayward, CA		Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Quality	Create Wildlife Habitat
<input type="checkbox"/>	a. 100% of any stone and non-concrete hardscapes materials are produced within 500 miles of the project site	0					2		
<b>7. Use integrated pest management</b>									
<input type="checkbox"/>	a. Design documents include construction specifications that require integrated pest management	0						2	
<b>8. Use organic pest management</b>									
<input type="checkbox"/>	a. Design documents include construction specifications that prohibit the use of pesticides that are prohibited by Organic Materials Research Institute in its generic materials list (total 4 points)	0							2
Materials Subtotal, out of possible 39 points:		5							
<b>E. PLANTING</b>			Possible Points						
<b>1. Select appropriate plants: choose &amp; locate plants to grow to natural size and avoid shearing</b>									
<input checked="" type="checkbox"/>	a. <b>Required:</b> No species will require shearing			R					
<input type="checkbox"/>	b. Plants specified can grow to mature size within space allotted them	0	1						
<b>2. Select appropriate plants: do not plant invasive species</b>									
<input checked="" type="checkbox"/>	a. <b>Required:</b> None of the species listed by Cal-IPC as invasive in the San Francisco Bay Area are included in the planting plan			R					
<b>3. Grow drought tolerant CA native, Mediterranean or climate adapted plants</b>									
a. Specify California native, Mediterranean or other climate adapted plants that require occasional, little or no summer water for:									
<input checked="" type="checkbox"/>	i. <b>Required:</b> 75% of all non-turf plants					R			
<input type="checkbox"/>	ii. 100% of all non-turf plants	0				2			
<input type="checkbox"/>	b. 100% of the non-turf plant palette needs no irrigation once established (total 5 points)	0				3			
<b>4. Minimize the lawn</b>									
<input checked="" type="checkbox"/>	a. Turf is not specified in areas less than 8 feet wide or in medians, unless irrigated with subsurface or low volume irrigation	2				2			
<input checked="" type="checkbox"/>	b. Turf shall not be installed on slopes exceeding 10%	2				2			
c. Total irrigated area specified as turf is limited to:									
<input checked="" type="checkbox"/>	i. <b>Required:</b> A maximum of 25%, with sports or multiple use fields exempted.					R			
<input checked="" type="checkbox"/>	ii. A maximum of 15%, with sports or multiple use fields exempted	2				2			
<input checked="" type="checkbox"/>	iii. No turf is specified (total 5 points)	3				3			
<b>5. Implement hydrozoning</b>									
<input checked="" type="checkbox"/>	a. Group plants by water requirements and sun exposure and select plant species that are appropriate for the water use within each zone and identify hydrozones on the irrigation plan (with separate irrigation valves for differing water needs, if irrigation is required)	2				2			
<b>6. Provide shade to moderate building temperatures</b>									
<input checked="" type="checkbox"/>	a. Protect existing trees and/or specify new trees such that 50% or more of west facing glazing and walls will be shaded (at 4 pm in September) by the trees at their mature size AND trees must be deciduous	2					2		
<b>7. Plant trees</b>									
<input checked="" type="checkbox"/>	a. At least 50% of the paved site area is shaded by trees or other vegetation	2					2		
<input checked="" type="checkbox"/>	b. At least one tree species is a large stature species (total 2 points)	2					1	1	
<b>8. Diversify</b>									
a. Landscapes less than 20,000 square feet shall have a minimum of:									
<input checked="" type="checkbox"/>	i. 20 distinct species OR	1							1
<input checked="" type="checkbox"/>	ii. 30 distinct plant species (total 3 points)	2							2
b. Landscapes with 20,000 to 43,560 square feet (1 acre) shall include a minimum of:									
<input checked="" type="checkbox"/>	i. 30 distinct plant species OR	1							1

Main and Maple Mixed Use, 22330 Main Street, Hayward, CA		Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Quality	Create Wildlife Habit
<input type="checkbox"/>	ii. 40 distinct species OR (total 2 points)	0							1
<input type="checkbox"/>	iii. 50 distinct plant species (total 4 points)	0							2
c. Landscapes of greater than 1 acre shall include a minimum of 40 distinct plant species AND									
<input type="checkbox"/>	i. one additional species per acre over 1 acre OR	0							2
<input type="checkbox"/>	ii. two additional species per acre over 1 acre (total 4 points)	0							2
<b>9. Choose California natives first</b>									
<input checked="" type="checkbox"/>	a. CA natives are specified for 50% of non-turf plants	2							2
Planting Subtotal, out of possible 36 points:		<b>23</b>							
<b>F. IRRIGATION</b>			<b>Possible Points</b>						
<b>1. Design for on-site rainwater collection, recycled water and/or graywater use</b>									
<input type="checkbox"/>	a. Irrigation systems and/or all ornamental uses of water (ponds, fountains, etc) are plumbed for recycled water where it is available from a municipal source	0				3			
<input type="checkbox"/>	b. Design a system that can store and use rainwater and/or graywater to satisfy a percentage of the landscape irrigation requirements:								
<input type="checkbox"/>	i. 10% OR	0				3			
<input type="checkbox"/>	ii. 50% OR (total 4 points)	0				1			
<input type="checkbox"/>	iii. 100% of dry season landscape water requirements satisfied with harvested rainwater (total 5 points)	0				1			
<b>2. Design and install high efficiency irrigation systems</b>									
<input checked="" type="checkbox"/>	a. <b>Required:</b> Specify weather based (automatic, self adjusting) irrigation controller(s) that includes a moisture and/or rain sensor shutoff						R		
<input checked="" type="checkbox"/>	b. <b>Required:</b> Sprinkler and spray heads are not specified for areas less than 8 feet wide						R		
<input type="checkbox"/>	c. Specify and install irrigation equipment with an operational distribution uniformity of 80% of greater, such as drip or bubblers for:								
<input type="checkbox"/>	i. 75% of non-turf irrigated areas	0							2
<input type="checkbox"/>	ii. 100% of non-turf irrigated areas ( total 5 points)	0							3
<input type="checkbox"/>	d. For all turf areas: Specify and install equipment with a precipitation rate of 1 inch or less per hour and an operational distribution uniformity of 70% or greater	0							2
<input type="checkbox"/>	e. Design and install irrigation system that will be operated at 70% of reference ET	0							3
<b>3. Install a dedicated meter for landscape water use or install a submeter</b>									
<input checked="" type="checkbox"/>	a. A dedicated irrigation meter or submeter is specified to track irrigation water	2							2
Irrigation Subtotal, out of possible 20 points:		<b>2</b>							
<b>G. MAINTENANCE</b>			<b>Possible Points</b>						
<b>1. Keep plant debris on site</b>									
a. Grasscycle									
<input type="checkbox"/>	i. Ongoing maintenance includes grasscycling (grass clippings left on the lawn after mowing) for all lawns from April through October, or longer. Sports turf may be excluded "in season" when clippings will interfere with play	0		2					
b. Produce mulch from plant debris									
<input type="checkbox"/>	i. Ongoing maintenance requires that leaves and/or plant debris less than 4 inches (including cut or chipped woody prunings) be re-incorporated into the mulch layer of landscaped areas away from storm drain	0		2					
c. Produce compost from plant debris									
<input type="checkbox"/>	i. Ongoing maintenance includes composting plant debris on site	0		3					
<b>2. Separate plant debris for clean green discounts</b>									
<input type="checkbox"/>	a. Ongoing maintenance requires all exported plant debris be separated from other refuse and taken to a facility where it will be used to produce compost or mulch	0		3					

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<b>3. Protect soil from compaction</b>									
<input type="checkbox"/>	a. Ongoing maintenance requires that soil is not worked when wet, generally between October and April	0			1				
<b>4. Feed soils naturally &amp; avoid synthetic fertilizers</b>									
<input type="checkbox"/>	a. Ongoing maintenance includes topdressing turf with finely screened quality compost after aeration 1-4 times per year	0			1				
<input type="checkbox"/>	b. Ongoing maintenance uses compost, compost tea or other naturally occurring, non-synthetic fertilizers as the plant and soil amendment for all landscape areas	0			1				
<input type="checkbox"/>	c. Ongoing maintenance prohibits fertilizers that are prohibited by Organic Materials Research Institute	0			1				
<b>5. Mulch Regularly</b>									
<input type="checkbox"/>	a. Ongoing maintenance requires regular reapplication of organic mulch, to a minimum depth of 3 inches (total 2 points)	0			1	1			
<b>6. Manage and maintain irrigation system so every drop counts</b>									
<input type="checkbox"/>	a. Ongoing maintenance includes a schedule for reading the dedicated meter or submeter and reporting water use	0				1			
<input type="checkbox"/>	b. At completion of the installation, the contractor shall provide the property owner with 1. precipitation rate for each valve zone, 2. area calculations for each irrigation zone and the irrigation plans which include the location of irrigation supply shut off, 3. internet address for watering index information	0				2			
<input type="checkbox"/>	c. Ongoing maintenance includes regular checking of irrigation equipment, and/or checking soil moisture content before watering AND/OR immediate replacement of broken equipment with equal or superior materials	0				1			
<b>7. Use IPM as part of maintenance practices</b>									
<input type="checkbox"/>	a. Ongoing maintenance includes integrated pest management specifications	0						2	
<input type="checkbox"/>	b. At least one landscaping staff member or contractor is trained in the use of IPM or is a Bay-Friendly Qualified Professional	0						2	
<b>8. Choose and maintain your materials, equipment &amp; vehicles carefully</b>									
<input type="checkbox"/>	a. Ongoing maintenance requires that all oil leaks are repaired immediately and that repairs are not done at the landscape site	0						1	
<input type="checkbox"/>	b. Landscape maintenance equipment uses bio-based lubricants and/or alternative fuels.	0						2	
<b>9. Use organic pest management</b>									
<input type="checkbox"/>	a. Ongoing maintenance does not allow the use of pesticides that are prohibited by Organic Materials Research Institute in its generic materials list	0							2
Maintenance Subtotal, out of possible 29 points:		0							
<b>H. INNOVATION</b>			Possible Points						
<input type="checkbox"/>	<b>1. Bay-Friendly Landscape Guidelines and Principles are defined and referenced in the construction bid documents</b>	0	3						
<b>2. Design &amp; install educational signage</b>									
<input type="checkbox"/>	a. Provide instructional signs and other educational materials to describe the Bay-Friendly design, construction and maintenance practices	0	4						
<b>3. Create a Bay-Friendly Maintenance task list</b>									
<input checked="" type="checkbox"/>	a. Provide a detailed Bay-Friendly maintenance task list and/or use the BF Model Maintenance Specifications as an official reference document in the landscape maintenance contract and/or with on site landscape staff (total 7 points)	7	1	1	1	1	1	1	1
<b>4. Employ a holistic approach</b>									
<input type="checkbox"/>	a. Site analysis is submitted AND 65% of landscape construction waste is diverted AND planting plan includes a diverse palette AND 50% of non-turf plants are California native species AND none of the landscape area is in turf AND compost is specified for amending the soil during installation AND natural fertilizers are specified as the exclusive source of nutrients AND integrated OR organic pest management is specified (total 7 points)	0	1	1	1	1	1	1	1

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<b>5. Innovation: Design your own Bay-Friendly Innovation</b>										
a. Enter description of innovation below, and enter up to 4 points at the right. Points will be evaluated by a Bay-Friendly rater.										
<input type="checkbox"/>	i. Innovation description:	0	0	2	2	0	0	0	0	
Innovation Subtotal, out of possible 25 points:		<b>7</b>								
<b>Summary</b>										
		Total Possible Points:	<b>219</b>	25	43	20	45	22	36	28
		Total Points Achieved:	<b>60</b>	5	6	1	14	9	11	14

**Project has met all recommended minimum requirements**

- Total Project Score of At Least 60 Points
- Required Measures:
  - C6a: Mulch
  - C7a1: Amend the soil with compost before planting
  - D2a: Reduce and recycle landscape construction waste
  - E1a: No Species Will Require Shearing
  - E2a: Do Not Plant Invasive Species
  - E3a: Grow Drought Tolerant, CA Native, Mediterranean or Climate Adapted Plants
  - E4c: Minimize the Lawn
  - F2a&b: Specify Weather-Based Irrigation Controllers
  - F2b: Spray Heads Are Not Specified For Areas Less Than 8 Feet Wide

## About DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers make the world safer, smarter and greener.