### Welcome, Residents The Martha Apartments!



### Learn about your LEED<sup>®</sup> green home



### Agenda



- Why Build Green?
- Let's Talk about LEED
- How to Live Green



### **Contents of Your LEED Manual**

- Intro and Table of Contents
- Section 1 Overview
- Section 2 LEED Documents
- Section 3 Manufacturers' Manuals
- Section 4 Info on Efficient Use of Energy, ...
- Section 5 Operations and Maintenance G...
- Section 6 Guidance on Activities and Cho...
- Section 7 Info on Local Green Power Opti...
- Section 8 Info on Sharing Utility Data



# How Do YOU Define a Green Home?

# How Does LEED Define a Green Home?





# Why Build Green?



# Global CO<sub>2</sub> Emissions by Sector #**1. Buildings** #**2. Transportation** #3. Industry

Source: Energy Information Administration (2006). Emissions of Greenhouse Gases in the United States.



### The U.S. uses 124 Trillion Gallons/Year





### 170 million tons of construction waste per year



### **Benefits of a Green Home**

- Healthier (better indoor air quality)
- Increased comfort
- Conserve water and energy
- Lower operating costs (average 18% reduction in water and energy bills\*)
- Increased durability (lower maintenance cost)
- Increased occupant safety
- Reduced construction and demolition waste
- Environmentally responsible

Why build green? Health Benefits
Improve indoor air quality for workers and occupants
Reverse Asthma rates
Lower health care costs

### Volatile Organic Compounds (VOCs)

- Long-term exposure to VOCs in the indoor environment can contribute to sick building syndrome.
- Many building materials such as paints, adhesives, wall boards, and ceiling tiles emit formaldehyde, which irritates the mucous membranes and can make a person irritated and uncomfortable.
- Other sources of VOCs in buildings include new furnishings, wall coverings, and office equipment such as photocopy machines which can off-gas VOCs into the air.



# **Carbon Monoxide**

- Carbon monoxide, or CO, is an odorless, colorless gas that can cause sudden illness and death.
- Each year, more than 400 Americans die from unintentional CO poisoning, more than 20,000 visit the emergency room and more than 4,000 are hospitalized due to CO poisoning.
   Fatality is highest among Americans 65 and older.





### **Lower Health Care Costs**

### <u>90% + of our time is spent indoors, according to</u> <u>the US EPA.</u>

Better indoor air quality = reduced asthma rates

Radon mitigation = reduced risk of lung cancer

Reducing VOCs and PMs = less respiratory illness

CO monitors = lower risk of death or poisoning





## Let's Talk about LEED



## **Overview of LEED**

- What is LEED?
- Who created LEED?
- What are the types of LEED?
- What are the levels of certification?
- LEED trends
- The value of third-party certification



### What is LEED?

### Leadership in Energy and Environmental Design



LEED is a third-party certification program and the nationally accepted benchmark for the design, construction and operation of high performance green buildings.

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### Who created LEED?



The USGBC Mission is to transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life.



### What are the types of LEED?

HOMES		
	DEVELOPMENT	
COMMERCIAL INTE	RIORS	
CORE AND SHELL		
NEW CONSTRUCT	ON & MAJOR RENOVATIONS	EXISTING
SCHOOLS		BUILDINGS
RETAIL		MAINTENANCE
HEALTHCARE		
BUILDING LIFE CY	C L E	
DESIGN	CONSTRUCTION	OPERATIONS



### What are the levels of certification?





### **LEED Trends**

Commercial LEED Projects Certified: Q3 2019 projects earning LEED certification between Jul 2019 - Sep 2019 Does not include projects certified through Arc platform.

Number of certified projects by country/region



There are LEED projects in 160 countries and in all 50 states.





# **LEED** for Homes

### **The LEED Checklist**

LEED <sup>®</sup> Fac Sample Builders City, State	ts
LEED for Homes v4 Certified: Gold	
Gold	70.5
Innovation & Design	8
Locations & Linkages	10
Sustainable Sites	16
Water Efficiency	6
Energy & Atmosphere	10.5
Materials & Resources	2
Indoor Environmental	
Quality	6
Awareness & Education	3

• 110 Possible Points

# LEED is like a nutrition label for homes.



### **LEED Scorecard**

Note: The information on this tab is READ-ONLY. To edit this information, see the Credit Category tabs.

$\bigcirc$	Integrative P	rocess	Preliminary	Y	2 of 2	Μ	1	Verified	0
	IPc	Integrative Process			2 of 2		1		
A	Location and	Transportation	Preliminary	Y	14.5 of 15	Μ	4	Verified	0
	LTp	Floodplain Avoidance			Required				Not Verified
	Performance Path								
	LTC	LEED for Neighborhood Development			0 of 15		0		
	Prescriptive Path								
	LTC	Site Selection			8 of 8		4		
	LTC	Compact Development			3 of 3		0		
	LTC	Community Resources			2 of 2		0		
	LTC	Access to Transit			1.5 of 2		0		



# **Categories of LEED**

- Integrated Project Team
- Location & Transportation
- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation
- Regional Priority



### **Integrated Process (IP)**

Integrated Project Team Design Charrette Trades Training



# Location and Transportation (LT)



Floodplain Avoidance Site Selection Compact Development Community Resources Access to Transit



# Sustainable Sites (SS)

- **Construction Activity Pollution Prevention**
- **No Invasive Plants**
- **Rainwater Management**
- **Nontoxic Pest Control**





# Water Efficiency (WE)



### **Water Metering**

### Total Water Use OR

### **Indoor Water Use**

Lavatory Faucet Showerhead Toilet

### **Outdoor Water Use**

Turf % Drought-tolerant Plants Efficient Irrigation



# **Energy and Atmosphere (EA)**

**Envelope Insulation Minimum Energy Performance/Annual Energy Use** Windows **Energy Metering** Space Heating and Cooling Equipment **Education of the Homeowner, Tenant Heating and Cooling Distribution** or Building Manager System **Efficient Hot Water Distribution Efficient Domestic Hot Water** System Equipment **Advanced Utility Tracking** Lighting **Active Solar-Ready Design High-Efficiency Appliances HVAC Start-Up Credentialing Renewable Energy Home Size Building Orientation for Passive Solar Air Infiltration** 



### **Thermal Enclosure Checklist**



### ENERGY STAR Certified Homes, Version 3 (Rev. 07) Thermal Enclosure System Rater Checklist

Home Address: City:	State:	Zip Cod		:			
1. High-Performance Fenestration		Must Correct	Builder Verified <sup>1</sup>	Rater Verified	N/A		
1.1 Prescriptive Path: Fenestration shall meet or exceed ENERGY STAR requireme	nts <sup>2</sup>						
1.2 Performance Path: Fenestration shall meet or exceed 2009 IECC requirements	2						
2. Quality-Installed Insulation							
2.1 Ceiling, wall, floor, and slab insulation levels shall comply with one of the follow	ng options:						
2.1.1 Meet or exceed 2009 IECC levels <sup>3,4,5</sup> OR;							
2.1.2 Achieve ≤ 133% of the total UA resulting from the U-factors in 2009 IEC0 excluding fenestration and per guidance in Footnote 3d, AND home shall infiltration rate in Exhibit 1 of the National Program Requirements <sup>4,5</sup>	C Table 402.1.3, achieve ≤ 50% of the						
2.2 All ceiling, wall, floor, and slab insulation shall achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces that contain a layer of continuous, air impermeable insulation ≥ R-3 in Climate Zones 1 to 4, ≥ R-5 in Climate Zones 5 to 8							
3. Fully-Aligned Air Barriers <sup>6</sup>							
<ul> <li>At each insulated location noted below, a complete air barrier shall be provided that is fully aligned with the insulation as follows:</li> <li>At interior or exterior surface of ceilings in Climate Zones 1-3; at interior surface of ceilings in Climate Zones 4-8. Also, include barrier at interior edge of attic eave in all climate zones using a wind baffle that extends to the full height of the insulation. Include a baffle in every bay or a tabbed baffle in each bay with a soffit vent that will also prevent wind washing of insulation in adjacent bays</li> <li>At exterior surface of walls in all climate zones; and also at interior surface of walls for Climate Zones 4-8<sup>7</sup></li> <li>At interior surface of floors in all climate zones, including supports to ensure permanent contact and blocking at exposed edge<sup>8,9</sup></li> </ul>							
3.1 Walls <sup>10</sup>							
3.1.1 Walls behind showers and tubs							
3.1.2 Walls behind fireplaces							
					F F		

FOR HOM

### **HERS Score**

#### Home Energy Rating Certificate Final Report

HERS® Index Score: Your home's HERS score is a relative performance score. The lower the number, the more energy efficient the home. To

learn more, visit www.hersindex.com

#### Your Home's Estimated Energy Use:

	Use [MBtu]	Annual Cost
Heating	6.7	\$170
Cooling	1.2	\$30
Hot Water	5.1	\$129
Lights/Appliances	11.4	\$284
Service Charges		\$60
Generation (e.g. Solar)	0.0	\$0
Total:	24.5	\$673

Framed Floor:

N/A

#### HERS' Index Nove Every Existing Homes Homes Home Home Home Home Home Home Homes Home

24.5 \$673 Home Feature Summary: Home Type: Apartment, end unit Model: N/A Community: N/A Conditioned Floor Area: 855 ft<sup>2</sup> Number of Bedrooms: 2 Primary Heating System: Air Source Heat Pump • Electric • 10 HSPF Primary Cooling System: Air Source Heat Pump • Electric • 16 SEER Primary Water Heating: Residential Water Heater • Electric • 0.93 UEF 615 CFM50 (4.80 ACH50) (Adjusted Infiltration: 2.71 House Tightness: ACH50) Ventilation: 53 CFM • 37.1 Watts (Default) • Balanced Forced Air Ductless Duct Leakage to Outside: Above Grade Walls: R-21 Ceiling: Adiabatic, R-21 Window Type: U-Value: 0.28, SHGC: 0.33 Foundation Walls: R-10

Rating Date:

Registry ID: 178244537

Ekotrope ID: MvDI3znv

**Annual Savings** 

#### 👍 ekotrope

Ekotrope RATER - Version:4.0.0.3187 The Energy Rating Disclosure for this home is available from the Approved Rating Provider. This report does not constitute any warranty or guarantee.

#### Home: 1715 WEST IDAHO STREET UNIT 100 BOISE, ID 83702 Builder:

Vital

SPEC

\*Relative to an average U.S. home Visser

#### This home meets or exceeds the criteria of the following:

ENERGY STAR MF v1.1 ENERGY STAR MF v1.0

#### **Rating Completed by:**

Energy Rater: Jolyon Sawrey RESNET ID: 6689514

Rating Company: Vital SPEC inc. 30 Wyatt Drive (208) 720-6315

Rating Provider: Washington State University



Jolyon Sawrey, Certified Energy Rater Digitally signed: 6/27/23 at 8:35 AM

# LEED FOR HOMES

# How do you measure energy efficiency?

- Insulation value
- Type of heating, cooling and ventilation equipment
- Utility bills
- Home performance testing



### **Home Performance Testing**



Blowerdoor Testing for Envelope Air Sealing

Less leakage means less drafts, less pests, less smoke or smell migration and lower energy bills.

OM

### **Operating Manuals**

▼ Receive ONE MONTH FREE and \$1000 at MOVE-in! Tour and Apply TODAY!



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Got It!

FOR HOMES

Login -

The Martha | Apartments in Boise, ID | Now Leasing - Tour Today! (livemartha.com)

### **Recommended Maintenance**

- Residents are responsible for inspecting the filters in the air handler and air conditioner ("split system") every month—contact management if filters need to be changed. Replacing filters as needs means the equipment will operate more efficiently, last longer and continue to effectively clean your indoor air. See Section 3 for details.
- Residents are responsible for cleaning the bathroom exhaust fan by removing the grille and vacuuming the interior of the unit with a dusting brush attachment. This will keep your indoor air cleaner and help the fan to operate more efficiently and last longer. See Section 3 for instructions.
- Check batteries in carbon monoxide alarms notify management if these need to be replaced.
- Vacuum all carpets at least weekly note that carpets will be deep cleaned by management upon move out.
- If replacing lighting, use only LED bulbs.
- Use power strips to reduce phantom loads from chargers, TV, etc.
- Set your thermostat as high as comfortably possible in the summer. The smaller the difference between the indoor and outdoor temperatures, the lower your overall cooling bill will be. Keep your house warmer than normal when you are away and lower the thermostat setting to 78°F only when you are at home and need cooling.
- Check that air intakes and exhaust fans are unobstructed notify management if these need to be cleaned.

FOR HOMES

• Report leaks immediately to management.

# Materials and Resources (MR)



### **Certified Tropical Wood**

### **Durability Management & Verification**

### **Environmentally Preferable Products**

Recycled, Reclaimed, Reused, FSC-Certified Low Emissions

Local

### **Materials-Efficient Framing**



### **Durability Checklist**



### ENERGY STAR Certified Homes, Version 3 (Rev. 07) Water Management System Builder Checklist <sup>1,2</sup>

Home Address:	City:	State	:	Zip Code:			
1. Water-Managed Site and Foundation			Must Correct	Builder Verified	Rater Verified	N/A	
1.1 Patio slabs, porch slabs, walks, and driveway surface or 10 ft., whichever is less. <sup>3</sup>	is sloped $\ge 0.25$ in. per ft. away from home to edge of						
1.2 Back-fill has been tamped and final grade slo Footnote for alternatives. <sup>3</sup>	ped $\ge 0.5$ in. per ft. away from home for $\ge 10$ ft. See						
1.3 Capillary break beneath all slabs (e.g., slab o either: ≥ 6 mil polyethylene sheeting, lapped 6 joints. <sup>4, 5, 6</sup>	n grade, basement slab) except crawlspace slabs using 5-12 in., or $\ge 1$ in. extruded polystyrene insulation with tap	ped					
1.4 Capillary break at all crawlspace floors using	≥ 6 mil polyethylene sheeting, lapped 6-12 in., & installed	d usin	g one of	the followi	ng opt's:	4, 5, 6	
1.4.1 Placed beneath a concrete slab; OR,							
1.4.2 Lapped up each wall or pier and fastene	ed with furring strips or equivalent; OR,						
1.4.3 Secured in the ground at the perimeter	using stakes.						
<ul><li>1.5 Exterior surface of below-grade walls of base</li><li>a) For poured concrete, masonry, &amp; insulate</li><li>b) For wood framed walls, finish with polyeth</li></ul>	ments & unvented crawlspaces finished as follows: d concrete forms, finish with damp-proofing coating. <sup>7</sup> ylene and adhesive or other equivalent waterproofing.						
1.6 Class 1 vapor retarder not installed on interio	r side of air permeable insulation in ext. below-grade wall	ls. <sup>8</sup>					
1.7 Sump pump covers mechanically attached wi	th full gasket seal or equivalent.						
1.8 Drain tile installed at the exterior side of footin drain tile pipe below the bottom of the concret of ½ to ¾ in. washed or clean gravel and with	ngs of basement and crawlspace walls, with the top of the se slab or crawlspace floor. Drain tile surrounded with $\ge 6$ gravel layer fully wrapped with fabric cloth. Drain tile level	e ò in. el					
							E

FOR HOMES

# Indoor Environmental Quality (EQ)

Ventilation **Combustion Venting Garage Pollution Protection Radon Resistant Construction Air Filtering Environmental Tobacco Smoke** Compartmentalization **Contaminant Control** Balancing of Heating and Cooling Distribution Systems **Low-Emitting Products** 





### **Environmentally Preferable Products**

### **Low Emissions Flooring**

- Carpet & Rug Institute Green Label Plus
- SCS FloorScore Certified







# **Innovation and Regional Priority**

### Get Creative and Think Local!

- To maximize opportunities for integrative, cost effective adoption of green design and construction strategies.
- To address geographically specific environmental, social equity, and public health priorities.







### How to Live Green

# **Lower Your Energy Bills**

- ✓ Run full loads in your dishwasher and clothes washer.
- ✓ Use cold water. Almost 90% of the energy used to wash clothes is from heating the water.
- ✓ Hang clothes to dry.
- ✓ Clean your dryer lint screen with every use.
- ✓ Program your thermostat. Lowering by one degree can save you 3-5% on heating bills.
- ✓ Use LED light bulbs.
- ✓ Eliminate phantom loads.
- ✓ Use black-out curtains.



### **Thermostat Setting**







### Typical home uses 146,000 gallons/yr



### **Lower Your Water Bills**

- ✓ Run full loads in your dishwasher and clothes washer.
- $\checkmark$  Turn off the faucet while brushing teeth & shaving.
- ✓ Repair all leaks. A leaky toilet can waste 200 gallons per day.
- $\checkmark$  Water the garden during the coolest part of the day.
- ✓ Mulch around shrubs and plants to reduce evaporation.



Conserve Natural Resources1. Reduce, reuse, recycle2. Share, rent, borrow3. Maintain

# U.S. = Only 5% of World Population We Use 27% of the Aluminum

# **Protect Your Indoor Air Quality**

- ✓ Run your exhaust fans in the bathroom and over the stove.
- ✓ Check your CO monitors.
- $\checkmark$  Choose healthy materials.
- ✓ Use non-toxic cleaning products.
- $\checkmark$  Take your shoes off at the entrance.
- Choose house plants like garden mum, snake plant, spider plant, ficus, mother-in-law plant.

### Resources

- www.usgbc.org
- www.epa.gov
- www.energystar.gov







# Enjoy your green home!