

Leavitt Residence - Outline Specification for LEED Requirements & Proposed Credits

PERFORMANCE STANDARDS/TESTING

Predrywall Thermal Bypass Inspection: (EA 2)

- Meet the Grade I Specifications set by the National Home Energy Rating Standards
- Installation to be verified by Energy Rater following ENERGY STAR Thermal Bypass Inspection Checklist.

Envelope Leakage Rate: (EA 3)

- Mandatory Standard ≤ 6.00 AC/H @ 50 Pascals
- For Additional Points ≤ 4.25 AC/H @ 50 Pascals
- Must be verified by Energy Rater

Duct Leakage Rate: (EA 5)

- Mandatory Standard ≤ 4.0 cfm @ 25 Pascals per 100 sf of conditioned floor area
- For Additional Points ≤ 3.0 cfm @ 25 Pascals per 100 sf of conditioned floor area
- Must be verified by Energy Rater

HVAC Refrigerant Charge: (if mechanical cooling system is provided) (EA 11.1)

DIVISION 3 CONCRETE

Foundation:

- A. 30% fly ash content (MR 2.2 – 0.5 point)
- B. Use aggregate that is extracted, processed, and manufactured within 500 miles (MR 2.2 – 0.5 point)

DIVISION 6 WOOD, PLASTICS, AND COMPOSITES

Rough Carpentry:

- A. Use materials that are extracted, processed, and manufactured within 500 miles (MR 2.2 – 0.5 point per component below that meets this requirement)
- B. Provide wood from a sustainable forest certified by the Forest Stewardship Council (FSC). (MR 2.2 - 0.5 point for each of the following components that are constructed from FSC materials)
 - a. exterior wall framing
 - b. interior wall framing
 - c. roof/floor/wall sheathing
 - d. roof framing
 - e. floor framing
 - f. window framing
- C. Framing Order Waste Factor – limit the overall estimated waste factor to 10% or less. (MR 1.1 - Prerequisite)
- D. Create detailed framing plans and accompanying architectural details prior to construction. Indicate specific locations, spacing and sizes of all framing members in the floors, walls, roof and ceiling. (MR 1.2 – 1 point)
- E. No tropical woods unless they are FSC-certified. (MR 2.1 - Prerequisite)
- F. Keep all wood at least 12 inches above the soil. (SS 5 - 0.5 point)

Finish Carpentry:

- A. No tropical woods unless they are FSC-certified. (MR 2.1 - Prerequisite)

DIVISION 7 THERMAL AND MOISTURE PROTECTION

Batt Insulation:

- A. 20% minimum recycled content (post-consumer plus ½ post-industrial content) *(MR 2.2 - 0.5 point)*
- B. Meet the R-value requirements listed in Chapter 4 of the 2004 International Energy Conservation Code AND install to meet the Grade II specifications set by the National Home Energy Rating Standards. Installation to be verified by Energy Rater (Predrywall Thermal Bypass Inspection) *(EA 2.1 – Prerequisite)*
- C. Exceed the R-value requirements listed in Ch. 4 of the 2004 International Energy Conservation Code by at least 5% AND install to meet the Grade I specifications set by the National Home Energy Rating Standards. Installation to be verified by Energy Rater (Predrywall Thermal Bypass Inspection) *(EA 2.2 – 2 points)*

Adhesives and Sealants: *(MR 2.2 - 0.5 point)*

- A. Use products that do not emit high levels of toxins and meet the VOC limits of the South Coast Air Quality Management District Rule #1168. See Attached.

Roofing: *(MR 2.2 - 0.5 point)*

- A. 25% minimum recycled content (post-consumer plus ½ post-industrial content)

DIVISION 8 OPENINGS

Windows:

- A. U-factor ≤ 0.35 as rated by the NFRC (National Fenestration Rating Council) *(EA 4.1 - Prerequisite)*
- B. U-factor ≤ 0.31 as rated by the NFRC (National Fenestration Rating Council) *(EA 4.2 - 2 points)*

Interior Doors: *(MR 2.2 - 0.5 point)*

- A. 25% minimum recycled content **OR** FSC certified

DIVISION 9 FINISHES

Hard Surface Flooring: *(MR 2.2)*

- A. Preferred over carpet.
- B. Use linoleum, bamboo, FSC, recycled content, or Floor Score Certified products where possible.

Carpet: *(MR 2.2)*

- A. Must comply with the Carpet and Rug Institute's Green Label Plus program.

Acoustic Batt Insulation: *(MR 2.2 - 0.5 point)*

- A. 20% minimum recycled content (post-consumer plus ½ post-industrial content)

Paints and Coatings: *(MR 2.2 - 0.5 point)*

- A. VOC content must not exceed the following standards:

Interior paints, coatings, & primers:

Flats: 50 g/L

Non-Flats: 150 g/L

Clear wood finishes:

Varnish: 350 g/L

Lacquer: 550 g/L

Floor coatings: 100 g/L

Sealers:

Waterproofing: 250 g/L

Sanding: 275 g/L

All others: 200 g/L

Shellacs:

Clear: 730 g/L

Pigmented: 550 g/L

Stains: 250 g/L

DIVISION 10 SPECIALTIES

Factory-built Fireplace:

- A. Must have doors. (EQ 2.1 - Prerequisite)
- B. Must be listed by approved safety testing facility that either is EPA certified or meets the following: equipment with catalytic combustor must emit less than 4.1 g/hr of particulate matter, and equipment without catalytic combustor must emit less than 7.5 g/hr of particulate matter. (EQ 2.2 – 1 point)

DIVISION 11 EQUIPMENT

Appliances: (EA 9.1)

- A. Refrigerator: ENERGY STAR labeled (1 point)
- B. Dishwasher: ENERGY STAR labeled and uses 6.0 gallons or less per cycle (0.5 point)
- C. Clothes Washer: ENERGY STAR labeled (0.5 point)

DIVISION 22 PLUMBING

Fixtures: (WE 3.1 & EA 7.3)

- A. Lavatory Faucets - high efficiency with an average flow rate ≤ 2.0 gpm. (1 point)
- B. Showers - high-efficiency with an average flow rate of ≤ 2.0 gpm. (1 point)
- C. Toilets - high-efficiency with an average flow rate of ≤ 1.3 gpf. (1 point)
- D. Water Heater - high-efficiency storage water heater to meet the following Energy Factor (EF) ratings (1 point):

Gas Water Heaters

EF ≥ 0.53 (80 gallon)

EF ≥ 0.57 (60 gallon)

EF ≥ 0.61 (40 gallon)

Electric Water Heaters

EF ≥ 0.89 (80 gallon)

EF ≥ 0.92 (50 gallon)

EF ≥ 0.93 (40 gallon)

Hot Water Distribution: (EA 7.1 - 2 points)

- A. Efficient hot water distribution system to meet one of the following designs:
 - Structured plumbing system
 - Central manifold distribution system
 - Compact design of conventional systemSee attached LEED Energy and Atmosphere Credit 7 for details of each system.

DIVISION 23 HVAC

Outside Air Ventilation: (EQ 4.1 - Prerequisite)

- A. Whole-building ventilation system to comply with ASHRAE Standard 62.2-2007. Can be continuous or intermittent, but must demonstrate adequate ventilation air flow.

Exhaust: (EQ5.1 - Prerequisite)

- A. Provide exhaust systems in all bathrooms and the kitchen to meet the requirements of Section 5 of ASHRAE Standard 62.2-2007. (Kitchens – 100 cfm with vented range hood; Bathrooms – 50 cfm)
- B. Fans and ducts shall meet the requirements of Section 7 of ASHRAE Standard 62.2-2007.
- C. Exhaust air to the outdoors.
- D. ENERGY STAR labeled bathroom exhaust fans.

Heating and Cooling Distribution:

- A. Install ducts based on room-by-room load calculations (using ASHRAE Handbook of Fundamentals or equivalent) (EQ 6.1 - Prerequisite)
- B. Size return air openings for every room (except baths, kitchens, closets, and laundry rooms) to 1 square inch per cfm of supply (including free area undercut below door) (EQ 6.2 - 2 points)

Air Filters:

- A. Minimum efficiency reporting value (MERV) ≥ 8 . Air handlers must be capable of maintaining adequate pressure and air flow. (EQ 7.1 – Prerequisite)
- B. Minimum efficiency reporting value (MERV) ≥ 10 . Air handlers must be capable of maintaining adequate pressure and air flow. (EQ 7.2 – 1 point)
- C. Place all air-handling equipment and ductwork outside the fire-rated envelope of the garage. (EQ 10.1 - Prerequisite)

HVAC Equipment:

- A. Furnace – High-efficiency to exceed the requirements of the ENERGY STAR for Homes National Builder Option Package. ≥ 92 AFUE (EA 6.1 & 6.2 – 2 points)
- B. Thermostat: ENERGY STAR labeled, programmable (EA 6.1 - Prerequisite)
- C. Carbon Monoxide Monitor: install one per floor. (EQ 2.1 - Prerequisite)

DIVISION 26 ELECTRICAL

Interior Lighting Fixtures/Lamps:

- A. Install at least (4) ENERGY STAR labeled light fixtures or (4) ENERGY STAR labeled compact fluorescent light bulbs (CFLs) in high-use rooms (kitchen, dining/living room, hallways). (EA 8.1 - Prerequisite)
- B. Install ENERGY STAR lamps in 80% of the fixtures throughout the home. ENERGY STAR labeled compact fluorescent light bulbs (CFL's) are acceptable. (EA 8.3 – 3 points)

DIVISION 32 EXTERIOR IMPROVEMENTS

Plants:

- Drought-tolerant turf (contributes to SS 2.2 – 2 points)
- Drought-tolerant plants (SS 2.4 – 1-2 points)
- 25% recycled content (

ATTACHMENTS:

Preliminary LEED for Homes Project Checklist based on largest proposed 2-bedroom unit.

Standards for Low-Emissions Adhesives and Sealants from the South Coast Air Quality Management District Rule #1168

“Energy and Atmosphere” reference material from the LEED for Homes Rating System

“Indoor Environmental Quality” reference material from the LEED for Homes Rating System

LEED Credit Categories:

SS = Sustainable Sites

WE = Water Efficiency

EA = Energy and Atmosphere

MR = Materials and Resources

EQ = Indoor Environmental Quality