

## SECTION 01 81 13 - SUSTAINABLE DESIGN REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section includes the sustainability requirements necessary to achieve Certification under the Living Building Challenge version 3.1.

#### 1.2 RELATED SECTIONS

- A. The following sections are related:
  - 1. 01 25 00 Substitution Procedures
  - 2. 01 33 00 Submittal Procedures
  - 3. 01 74 19 Construction Waste Management
  - 4. 01 81 14 Indoor Air Quality Requirements
- B. Additional Living Building Challenge requirements are included in individual sections.

#### 1.3 REFERENCES

- A. Additional information on the Living Building Challenge and Certification requirements can be found:
  - 1. The International Living Future Institute webpage at [www.living-future.org/lbc](http://www.living-future.org/lbc)
  - 2. The Living Building Challenge version 3.1 standard
  - 3. The Living Building Challenge Dialogue
  - 4. The Living Building Challenge Petal Handbooks: Place, Water, Energy, Health and Happiness, Materials, Equity, and Beauty

#### 1.4 CONTRACTOR COORDINATION REQUIREMENTS

- A. Coordinate submittal and construction efforts.
- B. Designate a Living Building Challenge representative responsible for:
  - 1. Attending Living Building Challenge project meetings,
  - 2. Coordinating submittals and contractor related Living Building Challenge documentation,
  - 3. Site inspections to ensure construction related Living Building Challenge measures are implemented and documented.
- C. Subcontractor training and coordination, specifically for the Living Building Challenge.

#### 1.5 SUBMITTALS

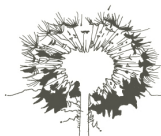
- A. All submittals are to be submitted in accordance with section 01 33 00 Submittal Procedures.
- B. Sustainability Documentation Submittals: Product data, invoices, receipts, certification letters, Declare labels and other documentation demonstrating compliance with specified requirements. Sustainability

submittal requirements are in addition to all other submittal requirements specified in the construction documents.

- C. Sustainability Submittal Requirements:
1. For each product in the submittal include, as required, the following items, as applicable:
    - a. Product Material Cost
    - b. Published product ingredient list or manufacturer letter confirming the product is Red List compliant
    - c. Manufacturer's published product data
    - d. Product emissions testing results
    - e. Material Safety Data Sheets (MSDS)
  2. For all new wood based products: also provide a copy of manufacturer's Chain-of-Custody certificate(s)
    - a. A copy of the product invoice with fabricator FSC Chain of Custody number and line-item product pricing must be provided when the product arrives onsite
  3. For all purchased salvaged products, provide the salvage location

## 1.6 DEFINITIONS

- A. Authority Having Jurisdiction (AHJ): a federal, state, local or other regional authority having statutory authority over the project.
- B. Declare: a transparency platform and healthy materials advocacy tool. Declare includes a database of manufacturer reported materials with full ingredients disclosure. Products in Declare have been vetted against the LBC Red List and assigned a status noting their level of compliance.
- C. Dialogue: An online communication platform that serves as a direct line for members of registered Living Building Challenge project teams looking to consult with the Institute's technical staff. Responses are accessible by all registered project teams and are often precedent setting.
- D. Embodied Carbon Footprint: carbon dioxide emissions created as a by-product of manufacturing, transporting, or disposing of a consumer product; a tool for calculating ecological footprint and environmental impact.
- E. LBC: Living Building Challenge
- F. Material Construction Budget: Total cost of all materials. Excludes labor, soft costs, and land.
- G. Material Cost: The total cost, not unit cost, of a material that has been manufactured and delivered for installation by a tradesman. Excludes labor, soft costs, and land.
- H. Office Systems Furniture: modular furniture with component parts. Systems allow for some degree of flexibility in arrangement and require installation by a tradesman.



- I. Petal Handbooks: Compiled technical information, including definitions, clarifications and exceptions contained with the Dialogue into concise, printable documents.
- J. Red List Chemicals and Compounds: The list of prohibited and restricted chemicals and compounds published by the International Living Future Institute.
- K. Volatile Organic Compounds (VOCs): Carbon compounds that participate in atmospheric photochemical reactions.

## PART 2 - PRODUCTS

### 2.1 IMPERATIVE 08- HEALTHY INTERIOR ENVIRONMENT

- A. Interior building products that have the potential to emit Volatile Organic Compounds are required to comply with the California Department of Public Health (CDPH) Standard Method v1.1-2010, or international equivalent.
  - 1. All products regulated by CDPH are required to comply.
- B. Refer to the Dialogue and the Health and Happiness Petal Handbook for specific guidance, including exceptions, on the Healthy Interior Environment Imperative requirements.

### 2.2 IMPERATIVE 10- RED LIST

- A. Projects cannot contain any of the following Red List materials or chemicals, unless appropriate Due Diligence documentation is provided.
  - 1. Alkyphenols
  - 2. Asbestos
  - 3. Bisphenol A (BPA)
  - 4. Cadmium
  - 5. Chlorinated Polyethylene and Chlorosulfonated Polyethylene
  - 6. Chlorobenzenes
  - 7. Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)
  - 8. Choroprene (Neoprene)
  - 9. Chromium VI
  - 10. Chlorinated Polyvinyl Chloride (CPVC)
  - 11. Formaldehyde (added)
  - 12. Halogenated Flame Retardants (HFRs)
  - 13. Hydrochlorofluorocarbons (HCFCs)
  - 14. Lead (Added)
  - 15. Mercury
  - 16. Polychlorinated Biphenyls (PCBs)
  - 17. Perfluorinated Compounds (PFCs)
  - 18. Phthalates
  - 19. Polyvinyl Chloride (PVC)
  - 20. Short Chain Chlorinated Paraffins
  - 21. Wood treatments containing Creosote, Arsenic, or Pentachlorophenol
  - 22. Volatile Organic Compounds (VOCs) in wet applied products

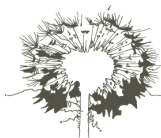
- a. Wet applied products must have VOC levels below the South Coast Air Quality Management District (SCAQMD) Rule 1168 for Adhesives and Sealants and Rule 1113 Architectural Coatings or CARB 2007 Suggested Control Measure (SCM) for Architectural Coatings, as applicable.
  - b. Containers of sealants and adhesives with capacity of 16 ounces or less must comply with applicable category limits in the California Air Resources Board (CARB) Regulation for Reducing Emissions from Consumer Products.
- B. Refer to the Dialogue and the Materials Petal Handbook for specific guidance, including exceptions, on the Red List Imperative requirements.
  - C. Refer to the Materials Petal Handbook for a link to the list of CAS Registry Numbers that correspond with each Red List chemical family.

### 2.3 IMPERATIVE 12- RESPONSIBLE INDUSTRY

- A. All timber products must meet one of the following:
  1. Certified to Forest Stewardship Council (FSC) 100% labeling standards
    - a. Chain of Custody must be maintained from harvest through final product manufacturing, including millwork shop, if applicable.
  2. From Salvaged Sources.
  3. From the intentional harvest of timber onsite for the purpose of clearing the area for construction or restoring/maintaining the continued ecological function of the onsite bionetwork.
- B. One Declare product must be installed for every 500 square meters (5,381 square feet) of building area.
- C. Refer to the Dialogue and the Materials Petal Handbook for specific guidance, including exceptions, on the Responsible Industry Imperative requirements.

### 2.4 IMPERATIVE 13- LIVING ECONOMY SOURCING

- A. The project must incorporate place-based solutions and contribute to the expansion of a regional economy rooted in sustainable practices, products, and services. Manufacturer location for materials and services must adhere to the following:
  1. A minimum of 20% of the materials construction budget must come from within 500 km (310 miles) of the project site.
  2. An additional 30% of the materials construction budget must come from within 1,000 km (621 miles) of the project site
  3. An additional 25% of the materials construction budget must come from within 5,000 km (3,106 miles) of the project site
  4. 25% of the materials construction budget may be sourced from any location.
- B. Primary consultants must come from within 2,500 km (1,553 miles) of the project location.



- C. Specialty Consultants or Subcontractors and Consults with Living Future Accreditation must come from within 5,000 km (3,106 miles) of the project location.
- D. Refer to the Dialogue and the Materials Petal Handbook for specific guidance, including exceptions, on the Living Economy Sourcing Imperative requirements.

## PART 3 - EXECUTION

### 3.1 LBC COMPLIANCE CONFIRMATION

- A. Prior to the commencement of construction, verify construction conditions are acceptable to achieve all attempted Living Building Challenge Imperative requirements.
- B. All non-confirming conditions are to be documented and corrected prior to the commencement of work.

### 3.2 SITE OPERATION

- A. The construction site is to be 100% smoke free.
- B. Living Building Challenge resources, including but not limited to all relevant specification sections, a copy of the Living Building Challenge v3.1 standard, and copies of all Petal Handbooks are to be available for reference onsite.

### 3.3 MEETINGS AND PROGRESS REPORTING

- A. The General Contractor is required to attend all construction Living Building Challenge progress meetings.
  - 1. Meeting schedule, time, and dates will be agreed upon at the commencement of construction.
- B. Prior to each meeting, the General Contractor is to provide the following items to the owner or owner's representative:
  - 1. Up-to-date submittal log and submittal schedule.
  - 2. Up-to-date Material Construction Budget with line item cost of each approved product.
  - 3. Invoices with line item cost and Chain of Custody number highlighted for all FSC products delivered onsite.
  - 4. Construction Waste Management progress reports.
- C. At the conclusion of the project, the General Contractor is to provide the following:
  - 1. A letter confirming that all LBC responsibilities have been addressed.
  - 2. Photo documentation clearly showing all building systems that are not visible at the time of construction completion. A minimum of one photo is to be submitted per system type.
    - a. This includes all underground building systems included in the LBC scope of work.
    - b. This includes all internal systems that will be inaccessible at the



time of audit

- D. The General Contractor is to provide photo documentation of all systems that contribute to LBC performance but that are not visible for audit at the conclusion of construction (underground systems, for instance).

#### 3.4 CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT

- A. All Contractors are to comply with the Construction Indoor Air Quality Management requirements and practices outlined in Section 01 81 14, "Indoor Air Quality Requirements."

#### 3.5 CONSTRUCTION WASTE MANAGEMENT

- A. All Contractors are to comply with the Construction Waste Management practices and requirements outlined in Section 01 74 19, "Construction Waste Management and Disposal."

END OF SECTION