

## A GUIDE FOR BUILDING PRODUCT SELECTION FOR TEAMS PURSUING LBC MATERIALS PETAL and HEALTH AND HAPPINESS PETAL

Use this guide to help steer your work evaluating building products for [Living Building Challenge \(LBC\) 4.0 Materials Petal](#) compliance, specifically [I13 \(Red List\)](#), [I14 \(Responsible Industry\)](#), [I15 \(Living Economy Sourcing\)](#) and [LBC's Health and Happiness Petal \(I10, CDPH\)](#)<sup>1</sup>. While Core Green Building Project teams don't need to go into this level of detail, there are still strategies that can help all teams optimize the materials selected, and you'll be participating in the transformation of the materials marketplace..

While researching the diversity of materials for your project may seem daunting at first, there are some key strategies:

- Have a good process for considering material attributes. Who will lead the effort? What parties are responsible for what building material choices? What tracking and reporting tools will you use to catalog your work and share it among team members? As part of your materials research toolkit, have introductory emails or presentations (for meetings with contractors and other team members), forms that manufacturers can fill out if they don't have a label, and have advocacy templates ready to send that ask the manufacturer to address any shortcomings.
- Start early in design, when you have flexibility to change material selections based on your results. When you find good materials, make sure these are listed throughout relevant sections in your specifications.
- Use labeled building material repositories, like [Declare](#), [MindfulMaterials](#), [Ecomedes](#), [UL Spot](#), and the [Health Product Declaration Collaborative](#) to speed your work. Safety Data Sheets (SDS) may list ingredients, but they typically aren't sufficient in the majority of cases because they don't require manufacturers to list all ingredients. The repositories have labels that will provide you with most, if not all, of the information you need, or will get you much closer than an SDS.
- Always keep the "Why?" in mind! Have a pitch (whether verbal or in writing) ready for project partners (design, construction, manufacturer's representatives, consultants) that includes the information they'll need to be effective partners in the materials research. The best approach is to help them understand the impact that the project has on them specifically and immediately. There's a lot of rationale for the work that you can find on [our website](#), [Trim Tab](#), (make sure to check out archived posts), and even other manufacturer's sites.

*For instance, trade workers are often surprised to hear that one outcome of the work is to eliminate chemicals that can harm them during the installation process because these are not adequately regulated in building materials. Building owners might need to be reminded that the short term cost of an optimized building material can result to increased productivity and better health of occupants, while addressing supply chain impacts that might be a focus of an owner's ESG work.*

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<sup>1</sup> These are Imperatives tracked in the Materials Tracking Table if teams are pursuing these credits for certification. The table is accessible to project teams through [the member dashboard](#).

Your process will be iterative, improving based on your unique circumstances and what you learn through your engagement with the multitude of actors who “touch” a material in its journey to your project. If you have ideas to share, or questions, please get in touch with [lbc.support@living-future.org](mailto:lbc.support@living-future.org).

## GETTING STARTED ON YOUR LBC MATERIALS JOURNEY

### Determine what is in scope:

Not all building materials need to be reviewed for I13 Red List consideration, so you first should [determine if the building material is in scope](#). Once you read the standard, you can build on the following list to determine if you need to research the material:

- Is it permanently installed? FFE is generally out of scope (see systems furniture below).
- Is it hard wired, and/or hard plumbed? Small pieces hardwired to the project’s low voltage (typically less than 50v) electrical system may be excluded.
- Is it stand-alone equipment and appliances that require a dedicated power circuit of 220v or higher? If so, you will need to review it.
- Is it systems furniture? Only those elements (but all of their components) that are designed for repetitive use are considered systems furniture. So task chairs, desks, conference tables, office storage cabinets for example. But all projects are encouraged to ask manufacturers about what is in furniture as it can be a major conduit for introducing chemicals into interior spaces.
- Is it pre-existing? In situ materials do not need to be removed or vetted for Red List chemical classes.

Project teams must vet a minimum of 90% of materials by cost against the Red List. This allows teams to prioritize their vetting and research efforts and recognizes the limited documentation and availability of Red List compliant products across different building product categories. Teams have used this buffer in different ways. For instance, when materials are accidentally installed and aren’t Red List compliant or lack sufficient disclosure they can fall in the 10%. Additionally, teams might strategize to identify low cost items that might be time consuming to verify, or would otherwise require due diligence, to put in the 10% non compliance category. Remember that FSC, CDPH and sourcing (as applicable to your project goals) must be accounted for on all materials that fall in vetting scope even if you decide not to count them toward your Red List compliance strategy..

*Tip: Work with members of the design team during Design Development to determine the materials scope and rough costs for products they specify (e.g. specialty contractors). Identify items that may be challenging early to identify problems or alternates. Understand that you must account for total materials cost to demonstrate you’ve achieved 90% compliance under Materials Petal Requirements.*

### For products in Red List Review scope:

- Keep it easy. Use what is on [Declare!](#)
- Beyond Declare, Ask for Transparency:
  - What percentage of overall ingredients are disclosed? Don’t forget to review component ingredients such as a coating used on a product that might not be included in simple material breakdowns.
  - Verify threshold of ingredients inventoried. LBC requires full transparency, by chemical abstract registration number (CASRN) to 100 PPM. If the level of disclosure does not meet this requirement, exceptions *may apply*. Make sure you meet the transparency requirements for the exception (see Materials Petal Handbook)?

*Tip: Share examples of Declare labels and Health Product Declarations (to 100 ppm) with members of the design and construction team, as well as manufacturers new to LBC, to show them what good transparency looks like. Add a link to Declare in your “ask” template.*

*Tip: [Review Special CASRN Reporting Requirements](#) to understand how to appropriately categorize ingredients/components that may not have a CASRN (e.g. float glass, metal alloys, recycled content etc.)*

AND

- Confirm Red List Compliance
  - Does the product contain Red List ingredients? CASRNs are necessary via publicly available labels, Safety Data Sheets, Health Product Declarations, or via manufacturer's disclosure.
  - Additional disclosure may be necessary based on disclosure thresholds on label. If the product has a Declare label, Red List ingredient information is quickly confirmed on the label. Note: Labels that Declare Red List will still require due diligence.
  - Do you have the documentation you need to show the auditor how you made the decision?
  - Is there a [Temporary Exception](#)<sup>2</sup> for any Red List that is present? Document as required.

If Red List ingredients are present, and teams use a [General Exception](#) or [Specific Exception by chemical class](#), due diligence is required. At least two other manufacturer's products need to be researched. The certification audit will require evidence of this work.

- When exceptions are used, advocacy letters must be sent to manufacturers to address the existing impediment (e.g. lack of transparency, presence of a Red List ingredient, etc).

*Tip: Project teams need to adhere to the Red List version that is in place at the time of their project's registration. While teams might want to avoid chemicals that are on the “Priority” or “Watch” lists, teams are not required to do so.*

*Tip: Develop advocacy templates for exceptions that can be easily modified and sent when research is complete. Project teams will often create a unique project email to collect advocacy (outside of a team member's personal email box!).*

AND

- Confirm VOC Content Compliance—this is part of the Red List scope!
  - Is the product an adhesive, coating, or sealant that is wet-applied on site?
  - VOCs *must be compliant* or else the product is non-compliant by red list review.
  - What is the reported amount of VOCs present in the product? Does it meet the category limit?

### FOR ALL WOOD USED ON THE PROJECT

- If wood is the material type, or If there is wood in a building product assembly, you will need:
  - To prioritize [Forest Stewardship Council](#) wood, or salvaged, or from the intentional harvest of on-site timber for the purpose of clearing the area for construction, or restoring/maintaining the ecological function of the bionetwork. The latter categories

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<sup>2</sup> Projects may employ exceptions in existence at the time of project registration, new exceptions and clarifications that are created at the release of Materials Petal updates, and guidance given in subsequent standard releases (e.g. 3.1 to 4).

do not require FSC COC so are a great strategy for streamlining the wood procurement documentation.

- Confirm that all parties who handle the wood carry an FSC Chain of Custody Certification for the wood in the product (alternately, the project may hold FSC COC license)?
  - Document by invoice and COC.
  - Track value of FSC 100%, FSC Mix XX% toward FSC requirement (remainder of FSC mix may be considered "low-risk" wood)
- For Low-Risk wood remainder: Document source, sustainable harvesting methods, invasive or diseased (by third party regulatory agency), or low risk (sourcing and other verifying information). See reference guide for specific documentation requirements.

Note: Declare products are not necessarily FSC wood, ask for FSC wood substitution.

*Tip: Think expansively about salvaged wood, not just for floors and doors, but for as many applications as possible (e.g. blocking, electrical panel backer boards). It doesn't need to be reviewed for ingredients, it can help mitigate costs associated with new wood, and benefit the environment by reducing embodied carbon.*

AND

For Projects Pursuing the Health and Happiness Petal: [Document VOC Emissions Compliance](#)

Core projects do not need to document CDPH compliance, but are encouraged to ask for emissions verification as a best practice. LBC project pursuing I-10 Healthy Interior Performance must ask for this for all interior materials that may emit.

The following are approved CDPH Conformant Certifications:

- Berkeley Analytical ClearChem
- SCS Indoor Advantage Gold, EC 10.2 Standard Addendum
- FloorScore, EC 10.2 Standard Addendum
- Collaborative for High Performance Schools (CHPS)
- NSF 332
- UL GREENGUARD Gold, UL 2818 and UL 2821
- Intertek Sustainability, Clean Air

- Determine if the building product can emit VOCs and impact indoor air quality. At a minimum, flooring, ceilings, walls, thermal and acoustic insulation, furniture, and adhesives, sealants, paints, coatings, grout, and other assembly materials should be tracked.
- Does the building product meet the emissions requirements for the California Department of Public Health (CDPH) Standard, or other listed standard via valid emissions testing certificate?
- Salvaged and reused building products (that are at least a year old) are excluded from testing requirements.
- Assembled items (e.g. furniture) require either full chamber testing, or that all relevant components are compliant.
- If a building product does not have emissions testing, project teams may research and advocate for compliant building products and install a small number of untested or non-compliant building products using Exception HH-003.
- Perform advocacy and due diligence (this can be done in tandem with Red List exception due diligence).

*Tip: List applicable emissions testing requirements within different specification sections and work with manufacturers early on to identify gaps in emissions criteria to understand if testing can be conducted within project timeline.*

#### Salvaged Items (for I16-Net Positive Waste):

- Determine number of salvaged items needed by project
- Avoid “obvious” red list in salvaged materials (e.g. PVC pipe, potential lead in painted wood)
- Track material from origin (via bill of sale, donation letter)
- Document any improvements and if refurbished with other materials (such as paints), include these in Material Petal review.
- Material cost is the cost of new material, or actual salvaged material cost.
- Note high volume materials and apply exception calculations if necessary

Other information related to materials that needs to be tracked for your project:

- Declare building products per [project requirements](#)
- Living building product Challenge building products per project requirements
- Building product life (in years) for embodied carbon calculations
- Potential for circularity (recycling, re-store/reuse, take back programs) for waste reduction
- Projects should collect the final assembly/manufacturing location during the research phase. If possible, name the closest location in bid documents to assure optimized sourcing for attainment of [I15-Living Economy Sourcing requirements](#).
  - Material cost (excluding labor—unless natural materials need to be formed on site--and transport)
  - Number or volume of each building product type (as a multiplier for material cost)

Help other members of the healthy materials movement by providing your feedback on what has worked for you, your latest building product finds and materials lists, and best practices with [lbc.support@living-future.org](mailto:lbc.support@living-future.org) or by posting to the Member Dashboard!