
Meg Calkins, LEED AP, ASLA
Professor, Ball State University, Department of Landscape Architecture, Muncie, IN
Dean Hill, ASLA, CGP
greenscreen®, Los Angeles, CA
Brad Smith, RLA, LEED-AP
Mithun, Seattle, WA

SESSION LEARNING OBJECTIVES

• Understand the issues of transparency, performance, and advocacy of information about environmental and health impacts of products.
• Understand basic criteria, product certifications, translation tools, and techniques for LCAs, EPDs, HPDs and chemical assessments.
• Learn how to request and interpret information from manufacturers and advocate for safer chemistry and life-cycle impacts.
• Learn how to achieve LEED and SITES credits related to specifying optimized products.

DEFINITIONS

Life Cycle Assessment (LCA)
LCA addresses the environmental aspects and potential environmental impacts (e.g. use of resources and the environmental consequences of releases) throughout a product's life cycle from raw material acquisition through production, use, end-of-life treatment, recycling and final disposal (i.e. cradle-to-grave) (ISO 14040, 2006).
There are four phases in an LCA study:
  a) the goal and scope definition phase,
  b) the inventory analysis phase,
  c) the impact assessment phase, and
  d) the interpretation phase.

Product Category Rules (PCR)
Product category rules (PCR) are defined in ISO 14025 as a set of specific rules, requirements, and guidelines, for developing environmental declarations for one or more products that can fulfill equivalent functions. PCR determine what information should be gathered and how that information should be evaluated for an environmental product declaration (ASTM.org).
Environmental Product Declaration (EPD)
EPD provide quantifiable environmental data to compare products that fulfill the same function. In order to create comparable EPD, they must follow the same rules and guidelines called product category rules (PCR) (astm.org)
The EPD Development Process includes four steps (astm.org):

- **Step 1: Development of a PCR**
  PCR are developed through the consultation of interested parties. In order to promote harmonization, existing PCR should be used and adapted prior to the development of a new PCR.

- **Step 2: Conduct an LCA**
  An LCA must be conducted to gather the necessary data in order to compile the environmental impact of the product across its life span from cradle to grave.

- **Step 3: Development of the EPD**
  The manufacturer uses the PCR to compile the life cycle assessment data and other relevant environmental information to create the declaration.

- **Step 4: Verification of the EPD**
  The EPD must be verified by ASTM, a program operator, to ensure that the contents of the declaration conform to the requirements of the PCR, including the life cycle assessment.

Health Product Declaration (HPD)
HPDs provide a full disclosure of the potential chemicals of concern in products by comparing product ingredients to a wide variety of “hazard” lists published by government authorities and scientific associations. (scsglobalservices.com)

Corporate Social Responsibility  A corporation’s initiatives to assess and take responsibility for the company’s effects on environmental and social wellbeing. The term generally applies to efforts that go beyond what may be required by regulators or environmental protection groups (Investopedia.com).

Corporate Sustainability Report (CSR) A CSR is a report published by a company or organization about the economic, environmental and social impacts caused by its everyday activities. A sustainability report also presents the organization’s values and governance model, and demonstrates the link between its strategy and its commitment to a sustainable global economy (Global Reporting Initiative).

Life Cycle Cost Analysis (LCCA) LCCA is a method for assessing the total cost of facility ownership. It takes into account all costs of acquiring, owning, and disposing of a building or building system. LCCA is especially useful when project alternatives that fulfill the same performance requirements, but differ with respect to initial costs and operating costs, have to be compared in order to select the one that maximizes net savings (Whole Building Design Guide 2010).

Safety Data Sheet (SDS) The US Occupational Safety & Health Administration’s Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products (osha.gov).
STANDARDS
ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework
ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines
ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 21930:2007 Sustainability in building construction — Environmental declaration of building products

RESOURCES

Rating Systems
Sustainable Sites Initiative (SITES) http://www.sustainablesites.org/rating-system
LEED V4 http://www.usgbc.org/v4
Living Building Challenge http://living-future.org/lbc

Third Party Certifiers
UL Environment, Environmental Product Declarations
SMaRT Certified, Institute for Market Transformation to Sustainability
ASTM International Environmental Product Declarations
http://www.astm.org/CERTIFICATION/filtrexx40.cgi?-P+PROG+7+cert_detail.frm#Frequently-Asked-Questions
Living Product Challenge http://living-future.org/lpc
Cradle to Cradle Products Innovation Institute http://www.c2ccertified.org/drive-change
Declare, International Living Future Institute http://declareproducts.com
Global Reporting Initiative https://www.globalreporting.org/Pages/default.aspx

Other Resources
Health Product Declaration Collaborative http://www.hpd-collaborative.org
Pharos Project https://www.pharosproject.net/
Greenscreen http://www.greenscreenchemicals.org
Perkins +Will Transparency http://transparency.perkinswill.com
greenscreen® Health Product Declaration (HPD) http://greenscreen.com/company/sustainability/
greenscreen® LEED v4 Response http://greenscreen.com/company/sustainability/
greenscreen® SITES Credit Contribution http://greenscreen.com/company/sustainability/
greenscreen® Recycled Content Declaration http://greenscreen.com/company/sustainability/