SESSION TITLE
Evaluating Construction Products with Reduced Environmental and Health Impacts

SESSION DESCRIPTION
This presentation will clarify the standards, certifications, and techniques that manufacturers use to disclose environmental and health impacts of their construction products. It will teach ways to advocate with manufacturers, interpret their information disclosures, and understand LEED and SITES credits related to construction products.

SESSION LEARNING OBJECTIVES
• Understand the issues of transparency, performance, verity, and advocacy of information about the life-cycle and health impacts of construction materials.
• 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.

DETAILED OUTLINE
Meg Calkins, LEED AP BD&C, Ball State University
I. Introduction: Why should we care about impacts of our construction product choices?
   a. Environmental and human health impacts from: sourcing raw materials, manufacturing, transport, construction, use, disposal
   b. We need info for the entire life-cycle of the product
   c. We need to be able to compare info for multiple products
      i. Just like you would compare costs or performance, we need to compare env and health performance

II. Rating systems and optimization of construction products: Understanding the credits
   a. Common themes:
      i. Advocacy focus – more letters, more action
      ii. Not enough reports/info out there to easily achieve higher point levels
   b. LEED v4 credits –
      i. MRC2 Building Product Disclosure and Optimization – Environmental Product Declarations
      ii. MRC3 Building Product Disclosure and Optimization – Sourcing of Raw Materials
      iii. MRC4 Building Product Disclosure and Optimization – Material Ingredients
   c. Sustainable Sites Initiative (SITES)
i. Materials C5.7 Support responsible extraction of raw materials
ii. Materials C5.8 Support transparency and safer chemistry
iii. Materials C5.9 Support sustainability in materials manufacturing
iv. Materials C5.10 Support sustainability in plant production
d. Living Building Challenge petals – focused on transparency of product ingredients and hazards
   i. Petal 11 Materials Red List
   ii. Petal 12 Embodied Carbon Footprint
   iii. Petal 13 Responsible Industry

III. **Issues and challenges of gathering product transparency info**

a. LA Product Manufacturer website content analysis study
   i. Frequency of claims
   ii. Type of claims
   iii. Type of substantiation

b. Availability of information
   i. Information is not widely provided
   ii. High cost for companies to do LCA or EPD
   iii. Trade associations may do PCRs and EPDs

c. Transparency of information
   i. Lack of transparency
   ii. Proprietary info
   iii. Don’t want to admit to toxic constituents
   iv. If they have to be transparent, they may change practices

d. Quality and Consistency of information
   i. Inconsistent data gathering techniques
   ii. Single vs. multi attribute consideration
   iii. Inconsistent formats for presenting info

e. Verity of information
   i. Qualitative vs. quantitative info
   ii. Third party verification vs. second party vs. self reporting

IV. **Processes and standards for information disclosure**

a. Product Category Rules (PCR)
   i. Describes how data are collected and presented
   ii. Establishes categories for LCAs
   iii. Trade associations may do these for their members

b. Life-cycle Assessments (LCA)
   i. Standards: ISO 14044 or ASTM E1991-05
   ii. “Cradle” to “gate” or “grave”
   iii. Technique to assess the environmental impacts associated with a product, process, or service
   iv. Inventory, evaluation, interpretation

c. Environmental Product Declarations (EPD)
   i. Standards ISO 14025 or ISO 21930
ii. Manufacturer declarations providing quantified environmental data
iii. Pre-defined parameters
iv. Standard format
v. Summarizes results of LCA
vi. Components of an EPD (20 pages)

vii. Where to find EPDs
   1. UL Database
   2. NSF International
   3. SCS
   4. manufacturers websites

viii. Verification of EPDs
      1. Third party vs self reporting

  d. Chemical Assessments
     i. Identifying product constituents
     ii. Evaluating data on health impacts
     iii. Identifying potential hazards
     iv. carcinogenicity, reproductive toxicity, neurotoxicity, aquatic toxicity and persistence

     v. Chemical Abstract Service (CAS) name and number

     vi. Issues:
         1. They don’t reveal small amounts of constituents – look for chemical inventory of the product to at least 0.1% (1000 ppm)
         2. LEED - document at least 99% (by weight) of the ingredients used

    vii. Screening level hazard assessment tools
        1. BizNGO’s Chemical Alternatives Assessment Protocol
        2. GreenScreen for Safer Chemicals
        3. EPA’s DfE Alternatives Assessment Criteria for Hazard Evaluation
        4. EPA’s Sustainable Futures tool suite (to be used only when measured data is not available)

     viii. Red Lists
            1. Red list
            2. Cradle to Cradle
            3. Perkins+Will
            4. REACH Authorization or Candidate list

  e. Health Product Declarations (HPD)
     i. HPD Open Standard by HPD Collaborative
     ii. Declare from International Living Future Institute (ILFI)

     iii. Drawbacks
          1. HPDs don’t cover toxicity and hazards in manufacturing or in the supply chain
2. Don’t cover downstream impacts

f. Corporate sustainability reports (CSR)
   i. Company outlines its progress toward meeting its financial, environmental, and social sustainability goals
   ii. Third-party standards
      1. UN Global Compact
      2. Global Reporting Initiative
   iii. What to look for in a CSR
      1. Quantification of:
         a. Emissions, energy and water consumption, renewable energy, materials extraction, labor practices
      2. Goals for future reductions
      3. Third party standards
      4. Social sustainability

V. Certification and Transparency Tools
   i. Third party certification can wade thru complex info for you
   ii. Trend toward “nutrition labels” – simplicity
      1. Hard to have simplicity without losing deeper information
   iii. Certification does not guarantee good performance in ALL areas – just in those that are important to the certifying body

b. Single attribute certifications
   i. Forest Stewardship Council
   ii. Energy Star
   iii. Water Sense

c. Eco Labels
   i. Green Seal (ISO 14024 Type I)
   ii. Greenguard
   iii. EcoLogo/Environmental Choice (ISO 14024 Type I)
   iv. EU Ecolabel

d. Multi attribute certifications
   i. Cradle to Cradle, 300 products
   ii. SMaRT, 30 products
   iii. Scientific Certification Systems (SCS) Environmentally Preferable Product (EPP) 12 products

e. Product databases
   i. Building Green, Green Spec
   ii. Pharos Project

VI. Translating and Interpreting Info
   a. Full vs partial disclosure
      i. 95% of ingredients disclosed vs 100%
   b. Third party vs. self reporting
   c. Transparency does not guarantee performance
   d. Comparability is key
VII. Communicating and Advocating with manufacturers
   a. Advocating for transparency
   b. Requesting Information through RFI’s
   c. Reading their materials

VIII. Future Directions
   a. International trends
      i. Global Reporting Initiative standards
      ii. Mandatory reporting in France
   b. Standardization of methods and reporting
   c. Government Mandates for transparency and safer products

Dean Hill, ASLA, CGP, greenscreen®

I. greenscreen® and sustainability from the product manufacturer’s perspective
   a. Corporate sustainability
      i. Environmental Statement
      ii. Measure
      iii. Feedback
      iv. Implementation/Strategic Plan
      v. Reporting
   b. Product Sustainability
      i. LCA
         1. Method
         2. Parameters/Scope
         3. Compile Information/Measure
         4. Analyze
         5. Report
         6. Third party verification (Report and Model)
         7. ISO Compliance
         8. Implement/Strategic Plan
      ii. PCR
      iii. EPD

SPEAKER BIOS
Meg Calkins, LEED AP BD&C, ASLA
Associate Professor, Ball State University Department of Landscape Architecture, Muncie, IN

Meg Calkins is the author of the book Materials for Sustainable Sites and editor of the Sustainable Sites Handbook. She has served on Technical Advisory Groups for both LEED and the Sustainable Sites Initiative developing credits on materials and sustainable site strategies. She is a frequent speaker and writer on issues related to environmental and human health life cycle impacts of construction materials and products; and she won
the Bradford Williams Prize for journalistic excellence in 2003. Meg is an Associate Professor in the Department of Landscape Architecture at Ball State University.

Dean Hill, ASLA, CGP
greenscreen®, Oviedo, FL

Dean Hill, ASLA, CGP is the Director of Sustainability at greenscreen®, the leader in green facade technology since 1993. As Director of Sustainability, Dean is formulating the corporate environmental agenda and forwarding sustainability initiatives relative to Corporate Social Responsibility directives. Accountabilities also include increasing the presence of greenscreen® to existing and new audiences through social media, Internet video and additional technologies. Dean holds a Master of Landscape Architecture degree and a Bachelor of Arts in Telecommunications from Ball State University. He has 20 years of experience in the landscape architecture, landscape contracting and landscape construction sectors. He is also very active with the national and local levels of the American Society of Landscape Architects (ASLA) and has been a Full Member for over 10 years.