Transparency: A Smart Business Decision

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Transparency is defined as providing visibility or accessibility of information, especially concerning business practices.

With the advent of USGBC LEED® v4, more industry attention is being placed on transparency of building material ingredients and how those materials affect the environment and human health. This new program rewards project teams for selecting building products that are verified to minimize the use and generation of harmful substances and that inventory the chemical ingredients using an accepted methodology.[1]

But transparency is about more than just product ingredients. It involves changing the way you look at a product and engaging in a Life Cycle Thinking approach to product evaluation.
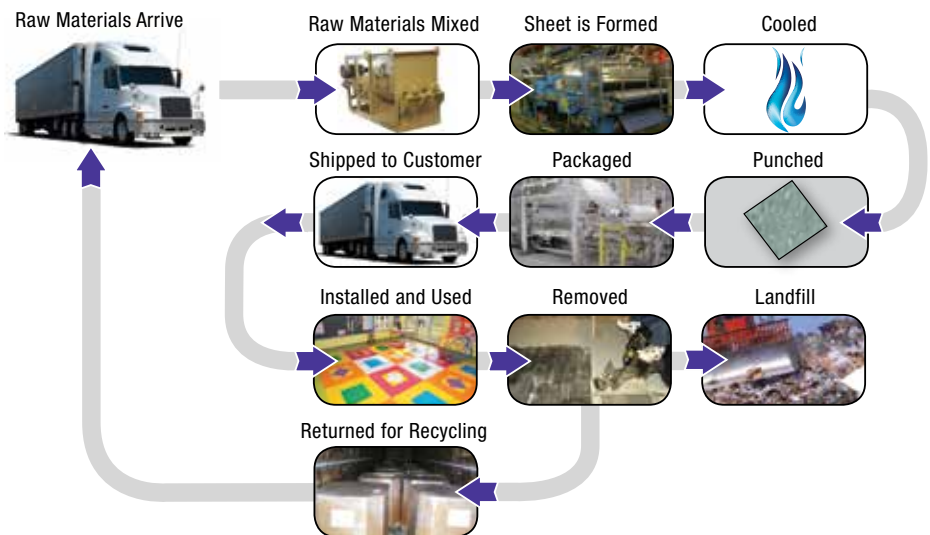
Life Cycle Thinking

Life Cycle Thinking (LCT) goes beyond production site and manufacturing processes to include environmental, social and economic impacts of a product over its entire life cycle.[2]

In the industrial sector, a product life cycle can begin with the extraction of raw materials from natural resources in the ground and the energy generation.[2] Materials and energy are then part of production, packaging, distribution, use, maintenance, and eventually recycling, reuse, recovery or final disposal.[2] (See Figure 1.) Through transparency, companies openly disclose where their ingredients and energy come from. They talk about how the products impact society and the environment and what happens to them at the end of their useful life. Do the products emit any VOCs during their life? Do they go to a landfill or can they be recycled? Product information should be transparent enough to allow individuals to make a value-based decision on the use of a product.

In support of a Life Cycle Thinking approach, LEED v4 also encourages the use of products and materials for which life-cycle information is available, that have environmentally, economically, and socially preferable life-cycle impacts.[1] It additionally rewards raw material manufacturers who produce products verified to have improved life-cycle impacts.[1]

Figure 1: Impacts Included in a Life Cycle Assessment for Vinyl Composition Tile Flooring

Raw Materials Arrive

Raw Materials Mixed

Sheet is Formed

Cooled

Shipped to Customer

Packaged

Punched

Installed and Used

Removed

Landfill

Returned for Recycling

The Various Aspects of Transparency

Let's take a look at the various elements of transparency, which can be identified as supply chain disclosure, product ingredients, the manufacturing process, environmental impacts and end-of-life practices.

Material Ingredients: LEED v4 introduces a Materials and Resources credit entitled Building Disclosure and Optimization — Material Ingredients. The intent of this credit is to encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. The Material Ingredient credit rewards project teams for selecting products for which the chemical ingredients in the product are inventoried and for selecting products verified to minimize the use and generation of harmful substances. This credit also encourages manufacturers to better understand and optimize their upstream supply chains.

Transparency goes beyond how much of a product material is used and looks at what is in the materials being specified, the safety of the ingredients, sustainability and the effects those components have on human health and the environment. (See Figure 2.) Transparency is about a more holistic approach to looking at the chemical, compound or organic material name and looking for healthier alternatives.

Figure 2: Example of a Product Material Disclosure

Consumers globally believe they have the right to know what is in the products they are buying and want companies to ensure their products are safe.

Manufacturing Process: Transparency extends into the manufacturing process itself. Manufacturers are collecting and communicating information to their customers to help customers better understand the environmental impacts associated with products. This information is being conveyed through Environmental Product Declaration and Corporate Sustainability Reporting.

LEED v4 is encouraging manufacturer leadership practices through the LEED v4 Materials and Resources credit — Building Product Disclosure and Optimization — Sourcing of Raw Materials. The Raw Material Sourcing and Extraction option, encourages manufacturers to document through corporate sustainability reporting their commitments to long-term ecologically responsible land use, their commitments reducing environmental harms from extraction and/or manufacturing processes, and their commitments to responsible sourcing criteria.

Manufacturers must understand the impact in their operations and well as their supply chains, in order to communicate complete transparency across global production facilities as well as throughout the supply chain and distribution pipelines.[3]

Environment Impacts: Consumers want to know how the products they purchase and use impact the environment.

Life cycle assessment is a tool that will provide quantitative understanding of the environmental impacts associated with a product, system or building.

End-of-Life Practices: End-of-Life can be defined as the point when the product no longer performs the intended function or no longer satisfies the first user. In these situations what happens to the product? Can it be recycled or repurposed? Can it be fixed or serviced or must it be disposed of? Companies need to understand how they can improve their products in order to reduce the environmental impact at the end-of-life and reduce hazardous materials remaining in the environment.

Transparency & Disclosure Tools

Manufacturers often choose a transparency or disclosure tool to share details on each of these areas with prospective buyers. The tools can be focused on disclosure for individual products, construction of entire buildings and corporate procedures. (See Figure 3.) The information can range from documents created specifically for an organization, based solely on manufacturer provided data, to product certifications developed from independent third-party product evaluations.

Figure 3: Types of Transparency & Disclosure Tools

Product	Building	Corporate
• EPDs	• Life Cycle Assessment	• Reporting
• Certifications (i.e., FloorScore®)	• Life Cycle Cost Analysis	• Disclosures
• Material Disclosures	• Rating Systems (i.e., LEED®, Green Globes, National Green Building Standard)	
	• BIM	

EPD – Environmental Product Declarations: An Environmental Product Declaration (EPD) is an excellent example of a third-party product certification. It is a transparent, internationally recognized report for communicating the environmental impacts of a product or material through its entire life cycle. This comprehensive disclosure report provides the results of a product's Life Cycle Assessment (LCA) and is verified by a third party, to ensure the results are valid. When dealing with a manufacturer who provides EPDs, you can be confident they are credible and environmentally responsible, because manufacturers use these documents as a roadmap to improve their products and reduce their carbon footprints.

LCCA – Life Cycle Cost Analysis: Life Cycle Cost Analysis (LCCA) is used to assess the total cost of ownership for a project. It provides a standardized assessment approach that takes into account all of the economic impacts of products for consideration. The end result is a robust economic comparison of product alternatives over time, and an improved understanding of how periodic costs impact the total cost of ownership.

LCCA is most effective when used early in the design phase of a project, as it enables decision-makers to select products based on the long-term economic analysis of each, and not simply the first cost. By comparing product LCCA results, trade-off can be made between high initial cost items and long-term operating costs/savings.

LCA – Life Cycle Assessment: Life Cycle Assessment (LCA) determines the environmental impact of a product over its lifespan, and is determined using the ISO 14040 standard. LCA is similar to LCCA as it accounts for environmental impacts a product has over its normal life cycle. The major difference between the two assessment tools is that LCA is focused solely on a product's environmental impacts, while LCCA is concerned only with the costs of ownership.

Rating Systems: Rating systems, such as LEED®, Green Globes, and the National Green Building Standard, broaden the focus beyond product and consider building projects as a whole. These systems provide a transparency framework for improving the environmental performance of buildings. This is achieved by identifying and rewarding compliance with specific goals and requirements that reduce the overall impact of a building on human health and the environment. (See Figure 4.)

Figure 4: Example of LEED v4 Transparency Credits

Credit Category	Credit	Type of Disclosure
MR	Building Product Disclosure and Optimization – Environmental Product Declarations	Product
MR	Whole Building Life Cycle Assessment	Building
EQ	Low Emitting Materials	Product
MR	Building Product Disclosure and Optimization – Sourcing of Raw Materials (Sustainability Reporting)	Corporate

BIM – Building Information Modeling: Building Information Modeling (BIM) is a system used to manage data from building product EPDs to deliver a more sustainable structure. Through BIM, sustainability data such as embodied energy or global warming potential can be integrated into design files such as REVIT® and analyzed to better understand the impacts of a building and to calculate the entire building's LCA. This enables construction teams to make more educated product selection decisions.

Certifications: Another effective tool for transparency is certifications. A certification confirms that a product meets relevant requirements and specific criteria of a standard. More specifically, green product certifications verify that a product not only meets a particular standard, but also benefits the environment.

Many product certification programs certify products based on life-cycle parameters, making them multi-attribute programs. These parameters include energy use, recycled content, and air and water emissions from manufacturing, disposal, and use. Others focus on a single attribute, such as water, energy, or chemical emissions that directly impact IEQ.[4]

Reporting: Independent organizations such as GRI or the EPA, provide standards that help businesses, governments and other organizations communicate the impact of their business on critical sustainability issues. Through the disclosure these organizations help to facilitate, employees, customers, investors and other relevant individuals who have a stake in the company or who are in some way affected by the company's actions, are empowered to make better decisions based on relevant information that is easily accessible, comparable and available in real time.

Reporting is an important way for companies to clearly demonstrate not only their economic value, but their commitment to corporate responsibility and environmental sustainability as well.

The Rewards of Transparency

The benefits of transparency transcends LEED v4 and encourages communication practices of openness and collaboration amongst manufacturers and the architectural and design community.

Openness about the company's products will inspire customer trust when they see the company is not trying to hide anything, and will most likely result in them having respect for the organization. Consumers aren't looking for companies to be perfect. They just want them to be honest. Transparency provides the clarity manufacturers and suppliers need in order to make informed decisions and help advance material health in their products.[1] In the building industry, it allows for a clearer understanding of the impacts building materials have on the environment and on human health, and transforms the way we think about how buildings and communities are designed and constructed.

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