

# For Maximum Impact: Introduction of Environmental Information about Building Materials in the Design Process

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Environmental information regarding building materials have a growing importance in the design process, as demands by clients, green building certifications, and the number of types of sources are growing. Environmental Product Declarations (EPDs) are an emerging source of building material product information used by the LEED v4 Green Building Rating System, and Green Globes. EPDs report life cycle assessment information, in a standardized format, intended to allow for the comparison of products' environmental impacts. This information is being incorporated into designs through several different techniques, with varying levels of success, leaving us to wonder what the most effective method will be for maximum impact.

This research examines the impact of client driven sustainability goals or required certifications on the use of environmental information sources and the related project outcomes. Additionally, project outcomes are further explored when a design team uses the environmental information source early, when the team has a sustainability subject matter expert or consultant. This research uses 19 owner-occupied commercial building projects from a variety of design and construction teams as case studies to examine the outcomes of different design process influences. These influences include the owner's early buy-in, certification level, the project team's previous training and education in green building projects, and having a sustainability consultant, or other subject matter expert, engaged early in the design process.

Owner buy-in early in the design is a critical component of building material selection for successful implementation in a green building. Projects with higher levels of certification, and client goals without an underlying project certification mandate (such as state, federal, or organizational requirement for certification), have a propensity to have design teams that have a majority of members with training specific to green buildings. The conferred project outcomes will determine the building project client's impact on the sustainability of materials selected. Additionally, it will be made explicit the impact of reviewing environmental product early in the design process for the project outcomes.

**Keywords:** Sustainable Construction, Early Design Decisions, Environmental Product Declarations