EPD 是什麼？讓我們了解材料的碳足跡

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今天的主題是，在永續設計和材料選擇中，越來越常聽到的 EPD（Environmental Product Declaration），也就是環境產品宣言。

EPD 是一個經過第三方驗證、公開透明的關於產品對環境的影響的資訊文件。它不是憑廠商說這個材料比較環保，而是透過標準化的方式，用實際數據呈現一個林料在全生命週期裡，對環境會造成哪些影響。正因為它的可量化與透明性，EPD 現在已經成為包括碳足跡資料庫或 LEED 綠建築認證系統裡，非常重要的基礎依據。

EPD 的內容其實是建立在產品生命週期分析（LCA）的基礎上，也就是從產品的原料來源、生產過程、運輸、使用到最終廢棄回收，整體過程中每一階段對環境的影響，EPD 都會具體揭露。不過在材料的應用上，我們最常參考的是材料生命週期的前段，也就是所謂的 A1 到 A3 階段。這三個階段包含了從原料開採、原料運輸到製造生產的過程，也就是這個材料還沒被送到工地之前，它已經為地球帶來了多少碳排放，也可以稱之為隱含碳排放（EC，Embodied Carbon），也是現在大家最關注的「產品碳足跡」，通常會以「每平方公尺產生多少公斤二氧化碳當量」這樣的單位呈現，讓你可以清楚比較不同材料之間的環境影響差異。

在 EPD 的報告架構裡，會依照不同國際系統去呈現環境衝擊數據，目前最常見的有兩個：美國常用的 TRACI 系統，以及歐洲常見的 CML 方法。它們會分析出產品對全球暖化、酸化、營養化等指標的影響程度。這些項目聽起來專業，但實際上對 LEED、ESG 報告、甚至建築碳盤查的準備都有直接幫助。

那 EPD 有什麼實際應用的地方呢？以 LEED v4 為例，它在建材與資源（MR）類別裡就有明確要求，使用具有 EPD 的產品不僅能夠加分，還可以進一步分為「產業平均型 EPD」與「產品指定型 EPD」兩個等級，各自對應不同的得分門檻。對設計師與業主而言，這代表說只要挑對材料，就能讓案場更容易取分，在報告與認證中呈現出有邏輯的選材策略。

那哪些產品可以擁有 EPD 呢？其實範圍很廣，從地板、塗料、牆面系統到隔音材料、家具產品，凡是製程穩定、資料透明的建材幾乎都可以進行 LCA 分析、申請發表 EPD。

我們太格公司目前已經有多項產品有 EPD，都是我們實際幫助客戶在 LEED 認證、ESG 報告、碳足跡評估中應用的案例。我們也非常樂意協助你了解這些資訊怎麼轉換為設計加分項目或作為永續報告書的亮點。

What is an EPD?
Understanding the Carbon Footprint of Building Materials

Semiflor AI News | AI Transcript

Today, this topic is about something we're hearing more and more in sustainable design and material selection, EPD, or Environmental Product Declaration.

An EPD is a third-party verified, publicly available document that transparently discloses a product's environmental impact. It's not just a company claiming their product is more eco-friendly. It follows a standardized process and presents actual data about how a material affects the environment across its entire life cycle. Because of its measurable and transparency, EPDs have become an important reference in carbon footprint databases and certification systems like LEED.

EPDs are based on a Life Cycle Assessment (LCA), which covers the environmental impact of a product from raw material sourcing, manufacturing, and transportation, all the way through usage and disposal. In building material applications, we most often focus on what's known as the A1–A3 stages. This includes raw material extraction, transport, and manufacturing. In other words, even before the material arrives at the project site, it has already generated carbon emissions. This is what we call Embodied Carbon (EC), and it's the basis of what people often refer to as a material's carbon footprint. It's usually measured in "kilograms of carbon dioxide equivalent per square meter," which makes it easier to compare environmental impacts across different materials.

EPD reports also organize this data using different international systems. Two commonly used are the TRACI method from the United States, and the CML method from Europe. These frameworks assess impacts such as global warming potential, ozone depletion, acidification, and eutrophication. While these may sound technical, they're directly useful when preparing for LEED credits, ESG reporting, or even a building's carbon inventory.

So, where are EPDs actually used? In LEED v4, under the Materials and Resources (MR) category, using products with EPDs can directly earn points. LEED further distinguishes between two types of EPDs. industry-wide EPD and product-specific EPD, each with its own scoring value. For designers and developers, this means choosing the right material can lead to a clear, strategic path for earning points and presenting a well-documented material strategy.

Now, what kinds of products can have an EPD? The range is actually quite broad, from flooring and coatings to wall systems, acoustic panels, and even furniture. As long as the manufacturing process is stable and the data is transparent, almost any building product can go through an LCA and publish an EPD.

At Semiflor, most of our products already carry verified EPDs. We've used these EPDs in various projects to help clients with LEED certification, ESG disclosures, and carbon footprint evaluations. And we're always happy to help you understand how these documents can be turned into design advantages and sustainability milestones in your project.