

An EPD primer

EPDs are front and center in the sustainability discussion

by Kurt Fester

Roofing contractors often are go-betweens for roofing manufacturers and designers and building owners. This puts roofing contractors in an important position regarding sustainability because of how much potential impact roofing projects can have on the environment.

Doing business in a market increasingly focused on environmental issues means not only being aware of and documenting what is being done internally but also understanding and facilitating transparency among all stakeholders.

Tracking embodied carbon, or the total amount of greenhouse gas emissions that occur during the life cycle of a building or infrastructure project, requires careful documentation through each stage of a roof system's life cycle.

EPDs

The standard document manufacturers provide is called an Environmental Product Declaration. Although the creation of EPDs for construction materials used in roofing is not a



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roofing contractor's responsibility, understanding EPDs is useful information that can be explained and shared with clients.

EPDs provide standardized, transparent, comparable information about a product's impacts through its life cycle. Each EPD is unique, and creating it starts with identifying the product category rule.

ASTM International, for example, has developed a number of EPDs for roofing manufacturers. Some are industrywide for generic products such as "EPD for Glass Mat Gypsum Boards" and "EPD for SPRI TPO Single Ply Roofing Membrane" while others are tailored to individual products from specific manufacturers. ASTM International is one of many groups that develop these declarations for the roofing industry.

Product category rules are standardized and independently reviewed; they place products in specific baskets that lay out the appropriate frameworks for what needs to be considered in life cycles. They determine the functional units, system boundaries, data requirements and impact categories to consider.

ASTM International also develops and publishes 17 product category rules that are available for free online.

Specific building products may use a unit weight, length or volume as the standard metric, and a product category rule's functional unit helps make comparisons between similar products possible without conversions.

Different products also may need to consider different stages in their life cycles or different ways in which they affect the environment. These are outlined by a product category rule's system boundary and impact categories, respectively.

Life-cycle assessment

Within this framework, a life-cycle assessment can be created. A life-cycle assessment is the meat of what makes up an EPD and often involves product manufacturers collecting information regarding the extraction of raw materials used to make their products, the raw materials' transportation and what goes into the manufacturing process.

EPDs, consisting mostly of life-cycle assessments based on their related product category rules, contain comparable information about environmental footprints left by products. These environmental factors include not only global warming potential but also things like manufacturing energy used and water consumption.

What's ahead

NRCA's Sustainability Committee was formed with the objective to consider and determine roofing contractors' roles in sustainability. The committee is developing a plan for how NRCA will communicate sustainability-related information to members, the roofing industry at large and consumers. More information will be available as this group continues to work to that end. 🌱🌿

To read more about EPDs, see "Don't miss out," page 36.



KURT FESTER is NRCA's project engineer.



AI can help standardize construction industry data

The construction industry generates more data than ever, but much of it is disorganized and not standardized, according to panelists at this year's New York Build Conference held March 12-13 at the Javits Center in New York City.

Standardization of data is a challenge, leading to inefficiencies and lost time, says Charlie Portelli, digital innovation strategist at Perkins & Will, a Chicago-based global design firm.

Construction firms can start using artificial intelligence to validate data, automate workflows and improve overall decision making.

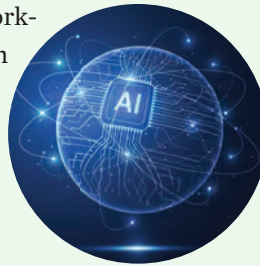
Boston Dynamics' Spot, a robotic dog used for site capture and safety monitoring, is making construction jobs safer by taking on high-risk tasks, says

Sheena Shook, director of business development at Modulus Consulting, a San Francisco-based construction consulting firm. The robodog automates progress tracking and inspects hazardous areas.

Over time, tools like these will allow for easier data collection and provide AI the framework to spot patterns, says Salvatore Cali Jr., deputy commissioner of public buildings at the New York Department of Design and Construction.

But mass adoption remains a work in progress, according to Benjamin Friedman, lead data scientist with DLR Group, an Omaha, Neb.-based design firm. Stakeholders, from general contractors to field workers, need to not only introduce these tools but stick with them over time.

“Build it; don’t buy it,” Friedman says. “Clean data is required and is hard work. None of this is a ‘pull it off the shelf and it’s going to solve all your problems.’ AI does not work that way.”



Contractor demonstrates robotic solar panel installers

San Jose, Calif.-based electrical contractor Rosendin has demonstrated a new autonomous robotic solution for photovoltaic panel installation, according to Construction Dive.

Rosendin claims the robots will triple installation speeds, enhance worker safety and address the industry’s persistent labor shortage, particularly as commercial solar panels can measure 4 feet by 8 feet and weigh 80-100 pounds,

according to a Rosendin information packet detailing the robots.

“We created a solution that will revolutionize the installation of renewable energy facilities worldwide by

providing a safer, faster, repeatable and more cost-effective means of deploying solar installations in remote locations,” says David Lincoln, Rosendin’s senior vice president.

On a solar project in Danevang, Texas, the robots worked collaboratively and alongside a two-man crew and achieved an installation rate equaling 350-400 modules per eight-hour shift. This installation rate was three times the rate of a standard three- to four-person crew installing modules manually.

AI agents can be targets for cyberattacks

Digital entities such as bots and artificial intelligence agents are emerging as targets for cyberattacks as organizations increase their reliance on them, according to cybersecurity firm Delinea.

For every human identity, there are about 46 “nonhuman identities” with the number of nonhuman identities projected to exceed 45 billion by the end of 2025, “illustrating their pervasive presence in modern infrastructures,” according to the research.

“While human identities remain a primary attack target, nonhuman identities have quietly become an equally critical—and often overlooked—security risk,” the report says.

The findings come as leading U.S. enterprise software providers such as Microsoft and SAP have begun rolling out AI agents designed to perform tasks in corporate finance and other business functions.

Despite their importance, nonhuman identities often are neglected in security practices. More than 70% of nonhuman identities are not rotated or replaced within recommended timeframes, leaving them vulnerable to exploitation, according to the Delinea report, which cited data from Entro Labs, a research arm of cybersecurity startup Entro Security. Additionally, 97% of organizations expose their nonhuman identities to third-party vendors, increasing the risk of unauthorized access.

“As attackers refine their techniques to target identity systems, the combination of unrotated credentials and widespread third-party access creates a growing and dangerous vulnerability,” the report says.