

STRENGTH THROUGH TRANSPARENCY

READY MIXED CONCRETE INDUSTRY INITIATIVES TO
DISCLOSE THE ENVIRONMENTAL IMPACTS OF PRODUCTS



A COALITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

www.BuildWithStrength.com



About NRMCA

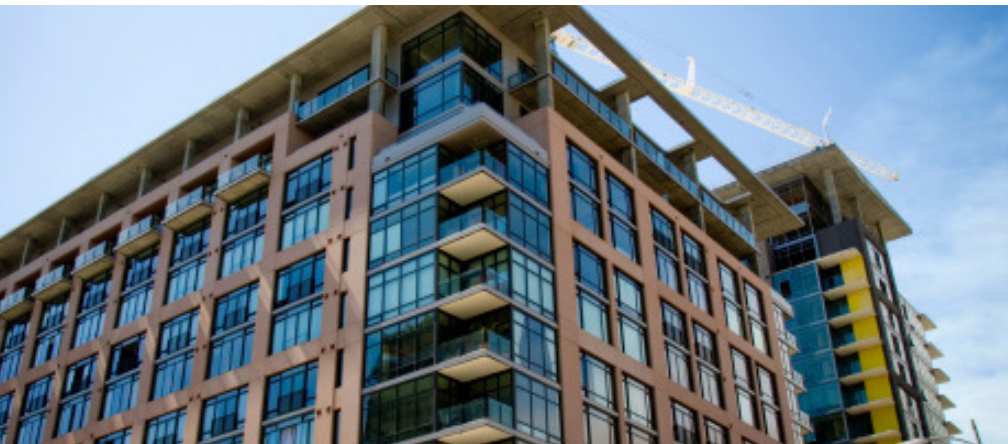
Founded in 1930, the National Ready Mixed Concrete Association is the leading industry advocate. Our mission is to provide exceptional value for our members by responsibly representing and serving the entire ready mixed concrete industry through leadership, promotion, education and partnering to ensure ready mixed concrete is the building material of choice.

www.NRMCA.org

Why We Build with Strength

Backed by the National Ready Mixed Concrete Association, Build with Strength is a coalition of architects, builders, engineers, emergency services personnel and policymakers. Our mission is to educate the building and design communities and policymakers on the benefits of ready mixed concrete, and encourage its use as the building material of choice for low- to mid-rise structures. No other material can replicate concrete's advantages in terms of strength, durability, safety and ease of use.

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Trends of transparency

Responsible. Sustainable. Leadership.

All market sectors are disclosing sustainability-related product or enterprise information in response to market demand. This is mostly due to stakeholders wanting to make more informed and responsible decisions when selecting materials. Similarly, the construction industry is driving product transparency through Material & Resources credits of the LEED rating system. While it places new burdens on product manufacturers, it simultaneously develops opportunities for software tools and service providers that specialize in disclosing product environmental impact. As the industry moves towards a more holistic perspective, this document describes NRMCA initiatives that assist concrete producers for responding to product disclosure inquiries, specifically environmental product declarations (EPD).

Assessing life-cycle impacts through EPD

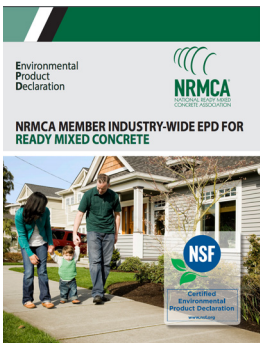
An Environmental Product Declaration (EPD) is an independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products. EPDs educate consumers about the product's environmental impact. It is for disclosure purposes only, and does not mean that products are environmentally superior to alternatives. It is simply a transparent declaration of life-cycle impacts.

Why Concrete—and how it plays a role.

Because of its unmatched versatility, concrete can be used for nearly every component in a building. From foundations to floors, columns to curbs, beams to parking lots, concrete typically provides dozens of products on a project. That's why each concrete mix on a project has a distinct function and therefore is considered a unique product in LEED v4.

NRMCA: Leading the Way

To help the design community pursue LEED v4 Materials & Resources credits, NRMCA, its members, and upstream suppliers have engaged in initiatives to become more transparent. By conducting life-cycle analysis (LCA), the concrete industry has a robust directory of environmental product declarations (EPDs). Collectively, the concrete industry is the building materials product leader regarding disclosing cradle-to-cradle environmental impacts. These efforts provide national coverage when the industry is responding to growing architectural, engineering and construction (AEC) inquiries for disclosure.



NRMCA members came together to publish an Industry Wide EPD that covers concrete products manufactured at nearly 90 companies with over 2,700 concrete plants across the country.

[View Document >](#)

Laying the groundwork through industry-wide efforts.

To prepare its members to respond to product disclosure trends, NRMCA has developed many resources through significant collaboration and engagement efforts, such as:

- industry-wide environmental product declaration (IW-EPD),
- regional environmental impact benchmarks,
- became an EPD program operator to facilitate product specific EPDs, and
- developed a network of EPD developers and verifiers possessing leading software tools to expediently deliver EPDs to the construction market.
- facilitated engagement and collaboration with concrete member producers to meet the product disclosure criteria in LEED v4.
- worked with Athena Sustainable Materials Institute to gather process data to conduct a comprehensive life cycle inventory (LCI) of concrete plants, a life cycle assessment (LCA) and develop an Industry Wide EPD that was verified by NSF International.
- represented concrete through the IW-EPD that's typically used on residential, commercial and public construction projects in different climate zones and in different markets. The EPD encompasses concrete for a variety of applications, strengths, durability classes and slumps (or slump flows), and regions. The EPD also provides environmental impacts for 72 concrete mix designs ranging from 2,500 psi to 8,000 psi with a wide variety of alternative cement replacement scenarios.

Concrete's Industry-Wide EPD

Regional Environmental Benchmarks

NRMCA discloses regional environmental benchmarks as well. Working with the Athena Sustainable Materials Institute, we are able to calculate the average environmental impacts for eight different regions in the U.S. This offers national coverage of concrete producers capable to support LEED v4 projects. These benchmarks represent the environmental impacts of products with varying strengths for different applications and exposure conditions, which can then be used to compare their environmental impacts to those of the industry baselines to determine if theirs are lower.

Product Specific EPDs

NRMCA established itself as an EPD Program Operator to serve our members in developing EPDs. Utilizing NRMCA, or other program operators, member companies developed their own product specific EPDs. Such efforts have built a growing library of EPDs, and positioned the concrete industry as a leader in environmental impact disclosure.

3

Things you should know before you build

1

EPDs from concrete producers continue to grow as more companies publish EPDs primarily due to growing requests from AEC.

2

Concrete material suppliers have developed EPDs for raw materials such as cement, aggregate, and supplementary cementitious materials (SCM).

3

Using benchmark reports, concrete producers can compare their product environmental impacts from those of NRMCA average mixes in order to reduce environmental impacts and offer greater contribution to LEED v4 projects.



NRMCA EPD Tools

EPD Program Resources and Tools

Proactively supporting the various disclosure initiatives in our industry, NRMCA has developed an infrastructure to efficiently deliver EPDs to the construction market. As an EPD Program Operator, NRMCA can:

- Help concrete producers and concrete product suppliers meet new product disclosure requirements.
- Develop an LCA report, EPD, and have each verified for publication.
- Align concrete producers with third-party expert LCA consultants and EPD verifiers.
- Promote the expedient delivery of EPDs through tools and software that our partner network provides.
- Engage industry peers when Product Category Rules (PCR) requires developing or updating.

5 Things you should know about EPD standards

1 Building standards, initiatives and codes are driving transparency beyond self-declared or single attribute certification.

2 Whole building environmental impact disclosure can be found within the International Green Construction Code, ASHREA 189.1, and Green Globes standards.

3 Specific product disclosure criteria can be found within LEED v4 and Architecture 2030 Challenge for Products where Environmental Product Declarations (EPDs) can demonstrate environmental performance of products.

4 The construction industry is influencing similar information exchange, mostly driven by the United States Green Building Council and the LEED v4 rating system.

5 LEED v4 integrates credits in the Materials & Resources category that are advancing product and enterprise transparency.

LEED v4 EPD Credit Criteria

EPD Credits

LEED v4 MR Credit:

- Project teams are awarded for selecting products from manufacturers that have environmental, economic and socially preferable life-cycle impacts. These attributes must be verified to have improved environmental life-cycle impacts that are communicated through Environmental Product Declarations (EPDs).

EPD Disclosure

IW-EPD Contribution to LEED:

- Collaborating with industry members, there is national coverage of producers who can use the industry wide EPD when required for a LEED or other green building project. A listing of participating producers is included in the IW-EPD. This resource allows participants partial contribution to MR EPD credit Option 1.

Product specific EPD contribution to LEED v4:

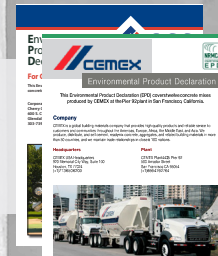
- Collaborating with the industry, there is a growing directory of companies with product specific EPDs. This resource allows member companies full contribution to MR EPD credit Option 1.

EPD Optimization

Product specific EPD versus Benchmark LCA report and contribution to LEED v4:

- When concrete producers reference their product specific EPD to the regional benchmark report and determine a reduction in environmental impact, the concrete producers can contribute to MR EPD credit Option 2.

To view all concrete product EPDs verified under NRMCA's EPD Program, visit: www.nrmca.org/sustainability/epdprogram/



Whole Building Life Cycle Assessment (WBLCA)

Many construction projects have the objective of quantifying and demonstrating a reduction in the environmental footprint of a building throughout its life span.

Many of NRMCA efforts regarding IW-EPD and benchmark reporting are important when considering WBLCA. The raw data, called Life Cycle Inventory (LCI), which our members have provided to support LCA, EPD, and benchmark initiatives, also drive WBLCA calculations. WBLCA helps identify the best way to specify materials without compromising the performance objectives of the project. This is very important when considering the most holistic approach to understanding true life cycle impacts.



Ready to learn more?

Find out how to leverage concrete's life cycle benefits for LEED v4 projects at: www.nrmca.org/sustainability

Get more information about concrete sustainability and EPDs at: www.nrmca.org/sustainability/EPDProgram

Discover a wide range of tools for your next concrete project at: www.buildwithstrength.com



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