Agenda

- Environmental Product Declarations (EPDs) – What are they?
- EPDs - Why should you care?
  - The importance of EPDs in Green Building Programs
  - Impact of Concrete EPDs in LEED v4.1
    - Mix Specific EPDs
    - NRMCA Industry Wide EPD Program
- How can you participate in the NRMCA IW-EPD
- Q&A
Show of Hands:

• How many of you have participated in the NRMCA Industry Wide EPD program?
• How many have your own mix specific EPDs?
• How many of you have encountered projects here in the Midwest that required EPDs to document the environmental impacts of concrete mix designs?
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Environmental Product Declarations

- Environmental Product Declarations (EPDs) – What are they?
  - An independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products in a credible way
Environmental Product Declarations

• Environmental Product Declarations (EPDs) – What are they?
  – Tells the life cycle story of a product in a single, written report, focusing on information about a product’s environmental impacts

Global Warming  Eutrophication  Ozone Depletion  Smog Formation  Acidification  Depletion of Nonrenewable Energy Sources
Environmental Product Declarations

- Environmental Product Declarations (EPDs) – What are they?
  - Based on International Standards and specific rules for the specific product category (PCR)
  - Contain verified environmental information
  - Based on robust, transparent and open framework
  - Based on a full Life Cycle Assessment of goods and services
  - Provides comparable information within the same product group – Comparison of similar concrete mixes for example
Environmental Product Declarations (EPDs) – What are they are NOT…
– The published EPD document does not include sensitive commercial details of manufacturing processes, and up and down-stream supply chain partners and activities
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Environmental Impacts – Increasing Importance
LEED v4.1 Goals

- Integrative design
- Higher-than-market quality
- Performance-oriented strategies/outcomes
- Consume fewer resources
- Building stakeholder benefits
- Sustainable building practices
- Realize benefits for decades
- Reduce building carbon footprint
- Cleaner indoor air
- Sustainable building materials
LEED v4.1 Goals

- Integrative design
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- Realize benefits for decades
- Sustainable building practices
- Building stakeholder benefits
EPDs in LEED BD+C v4

• Material and Resources Credit Category
  – Earlier LEED versions awarded credits based on specific environmental attributes like **recycled content**
  – LEED v4 introduced credit contributions based on more holistic project LCA impacts
  – LEED v4.1 attempts to make it easier to achieve credits
EPDs in LEED BD+C v4.1

• Material and Resources Credit Category
  – Products with publicly available, critically reviewed Industry Wide EPDs (Type III)
    • Third-party Certification
    • External verification
  – Qualify as 1.0 products for purposes of credit achievement calculation
  – No change from LEED v4
EPDs in LEED BD+C v4.1

- Material and Resources Credit Category
  - Products with publicly available, critically reviewed Product Specific EPDs (Type III)
    - Third-party Certification
    - External verification
  - Qualify as **1.5 products** for purposes of credit achievement calculation (LEED v4 qualify for 1.0 products)
EPDs in LEED BD+C v4.1

- Multiple concrete mixes each qualify individually for product credits
  - They are the same type of product but
    - Different mixes provide different functions

- A total of 20 products are required to earn a LEED point under Material and Resources
# Influence Legislation, Codes, etc.

## Buy Clean Bills and Regulations Affecting Concrete

| California | Buy Clean Law AB 262  
Steel, Rebar, Glass, Insulation  
(not concrete yet)  
Department of General Services  
Public Works Projects  
(passed into law)  
1/2019 – Request submission of EPDs  
1/2020 – Require submission of EPDs  
1/2021 – DGs publish the maximum acceptable GWP for eligible materials.  
7/2021 – Awarding authorities will gauge GWP compliance of eligible materials with EPDs. |
| City of Portland, OR | Buy Clean AB 2412  
(2018)  
(Mandated use of low carbon concrete on public and commercial projects over 50 yd3.  
1/2020 – City’s (Pre)Approved Concrete Mix Design List and over 50 yd3 on all projects require EPDs.  
4/2021 – Publish maximum acceptable GWP (use data and NRMCA benchmark).  
1/2022 – All projects must have GWP below the City’s established GWP maximum value within its strength class.  
Washington | Buy Clean HF 2203  
(2019)  
(Not Passed)  
All Materials  
Prequalification for successful bidder for a public works contract 5,000 sf or greater.  
1/2019 – Authorities publish the maximum acceptable GWP for eligible materials.  
7/2019 – Authorities will implement compliance of eligible materials with EPDs.  
1/2020 – Commissioner shall submit a report to the legislature that describes the method used to develop the maximum GWP.  
1/2022 – Commissioner will review and adjust maximum acceptable GWPs.  
Minnesota | Buy America and Build Maine Act  
SP0400, LD 1280  
(not passed)  
Use of American-made materials on Public Works Projects  
Iron, cement and steel, used or supplied in the performance of the contract or any subcontract to the contract must be manufactured in the United States.  
1/2020 – Commissioner publish the maximum acceptable GWP for eligible materials.  
Iron, cement and steel, used or supplied in the performance of the contract or any subcontract to the contract must be manufactured in the United States.  
1/2020 – Commissioner shall submit a report to the legislature that describes the method used to develop the maximum GWP.  
Maine | Buy Clean Law AB 262  
Steel, Rebar, Glass, Insulation  
(not concrete yet)  
Department of General Services  
Public Works Projects  
(passed into law)  
1/2019 – Request submission of EPDs  
1/2020 – Require submission of EPDs  
1/2021 – DGs publish the maximum acceptable GWP for eligible materials.  
7/2021 – Awarding authorities will gauge GWP compliance of eligible materials with EPDs. |
| Hawaii HB 1282 - 2019  
(not passed)  
All state funded bldgs  
Shall Use Post-Industrial Carbon Dioxide Mineralized Concrete.  
Exceptions:  
☐ Cost more  
☐ Delay completion  
1/2020 – Commissioner shall submit a report to the legislature that describes the method used to develop the maximum GWP.  
1/2022 – Commissioner will review and adjust maximum acceptable GWPs.  
Marin County, CA | Low Carbon Concrete Codes  
(Intend to pass in Fall)  
Mandates use of low carbon concrete on all public and commercial projects.  
1/2020 – Commissioner publish the maximum acceptable GWP for eligible materials.  
Iron, cement and steel, used or supplied in the performance of the contract or any subcontract to the contract must be manufactured in the United States.  
1/2020 – Commissioner shall submit a report to the legislature that describes the method used to develop the maximum GWP.  
1/2022 – Commissioner will review and adjust maximum acceptable GWPs.  |

“Manufactured in the United States” means:  
In the case of an iron, cement or steel product, all manufacturing takes place in the United States, except metallurgical processes involving the refinement of steel additives.  
1. Cement limits (Maximum ordinary Portland cement content, lbs/yd3)  
for use with prescriptive compliance  
2. GWP limits (Maximum Global Warming Potential, GWP, kg CO2 e /m3)  
for use with performance compliance (use of EPDs)
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NRMCA Industry-Wide Average EPD

- Provides average industry-wide or “generic” environmental impacts
  - 6 compression strengths
  - w/ various SCMs % and LW aggregate
  - 72 mix designs that represents >90% of production
- Contribution by smaller companies with limited resources
  - 153 companies / 1,954 plants
- Plants provide significant project coverage across the U.S.
- Only listed participants can utilize document for LEED evidence
- Registered with NSF Certification, LLC
Environmental Product Declarations

- Costs for participating in NRMCA IW EPD Program -
  - For NRMCA Members costs are less than $500 per plant (Non-member costs higher)
- Requires collection of 12-months of operations data
  - Energy Consumption
  - Air/Water/Waste Outputs
  - Truck fleet data
  - Materials used for total production
  - Supplier locations
Environmental Product Declarations

• Costs for participating in NRMCA IW EPD Program
  – NRMCA consultant integrates any new data into existing IW-EPD
  – Includes new participant/plants in public directory
  – Participant can then reference the IW-EPD for any projects requiring EPDs
  – Next 5-year renewal for program in 2024
Environmental Product Declarations

- Costs for Developing an mix specific EPD
  - Costs of at least $12,000 per mix
Industry Wide Environmental Product Declarations (EPDs)

Questions?

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