



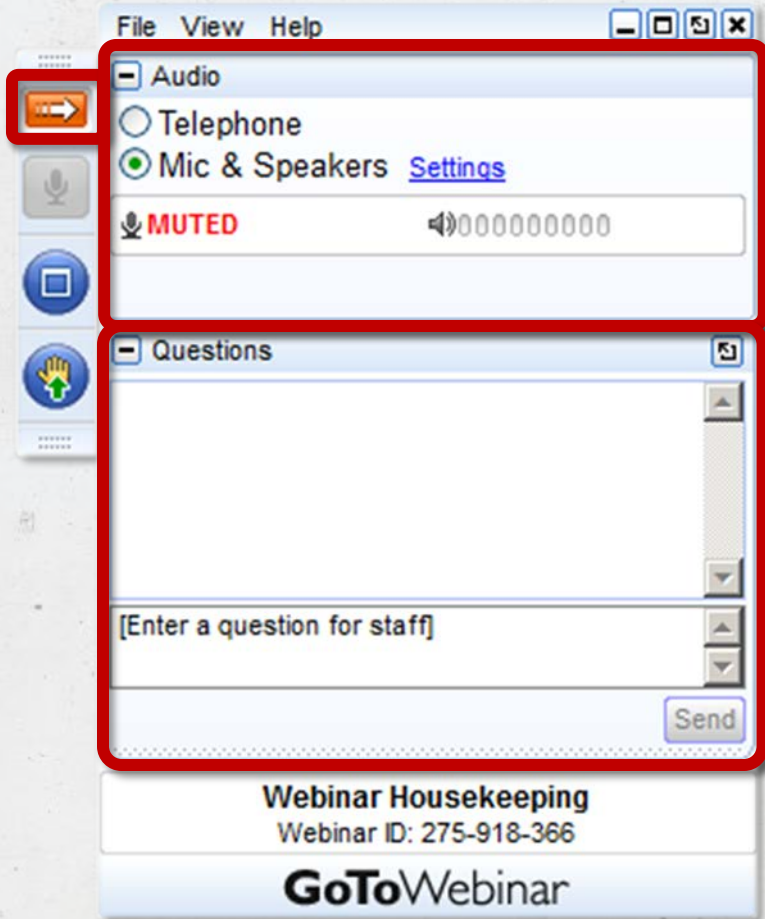
**BUILD WITH STRENGTH**

A COALITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

# Meeting New LEED v4 Product Transparency Requirements with System Verified EPDs

December 15, 2016 | 1:00 – 2:00 pm ET

# Housekeeping



## Your Participation

Open and close your control panel

Join audio:

- Choose **Mic & Speakers** to use VoIP
- Choose **Telephone** and dial using the information provided

Submit questions and comments via the Questions panel

**Note: Technical Issues:**

Our end, we will reschedule

On your end, presentation is being recorded and will be provided within 48 hours.







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# Meeting New LEED v4 Product Transparency Requirements with System Verified EPDs

December 15, 2016 | 1:00 – 2:00 pm ET

# Panelist



Oliver Brooks  
General Manager  
Martin Marietta



Chris Erickson  
CEO, Co-Founder  
Climate Earth



James Bogdan  
Sustainability Initiatives  
NRMCA



# Agenda

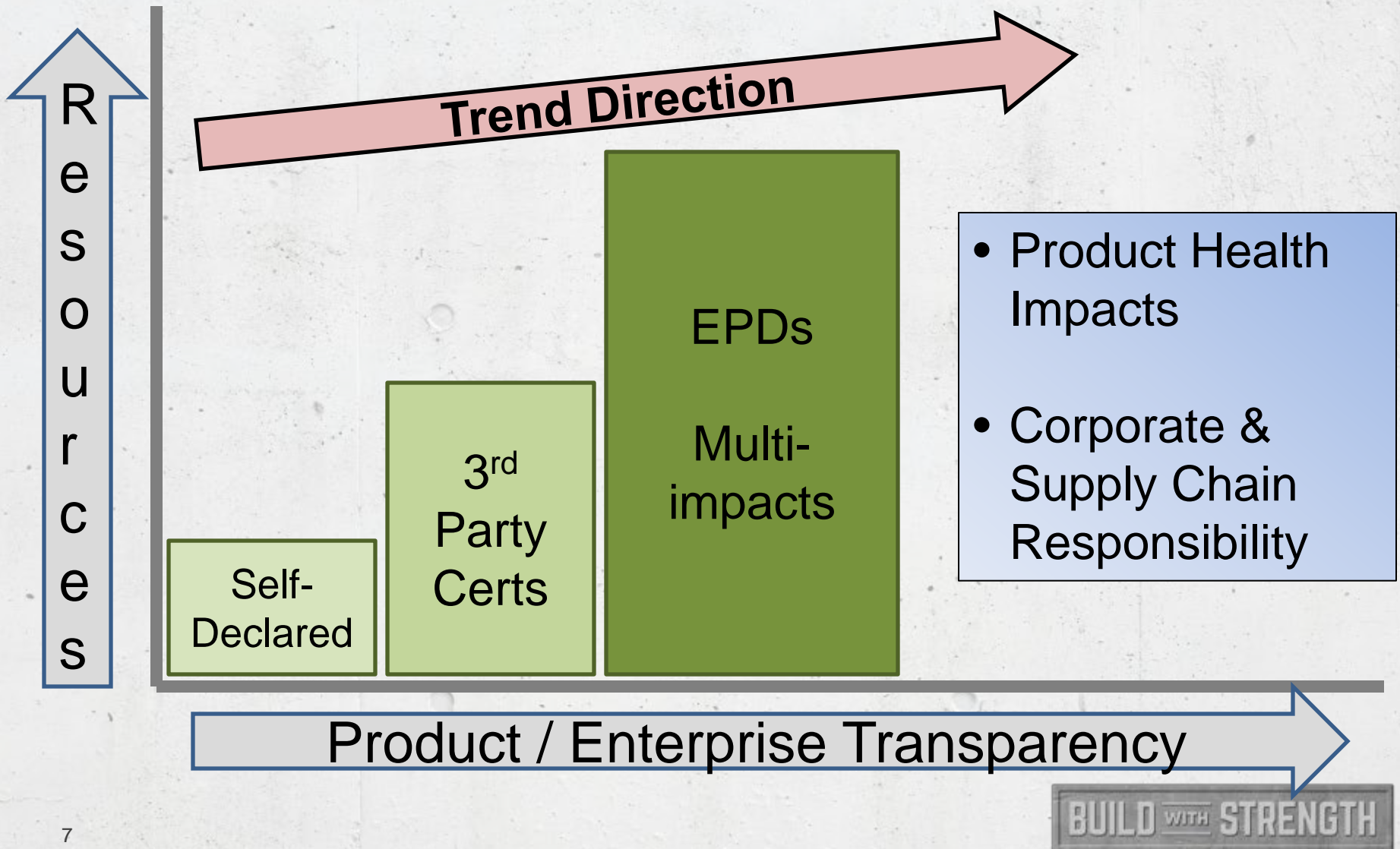
- Generalize transparency trends
- Product transparency credits in LEED v4
  - Material Ingredient Disclosure
  - Responsible Sourcing
  - **Environmental Product Declarations**
- Green building market landscape
- EPD experience summary by Martin Marietta
- Climate Earth enterprise EPD tool
- Q&A

# Transparency

- Marketing in the age of transparency
- Customers are investigating the risks from the products or companies
- Effort of making more informed and responsible decisions



# Product Trends – Env Marketing





# LEED v4

## MATERIALS & RESOURCES

POSSIBLE 13

MRp1	Storage and collection of recyclables	REQ
MRp2	Construction and demolition waste management planning	REQ
MRC1	Building life-cycle impact reduction	5
MRc2	Building product disclosure and optimization – environmental product declarations	2
MRc3	Building product disclosure and optimization – sourcing of raw materials	2
MRc4	Building product disclosure and optimization – material ingredients	2
MRc5	Construction and demolition waste management	2



# Responsible Sourcing

## Sustainable Concrete Toolbox [Home](#)



**Quickscan**  
rough estimate ambition



**Ambition**  
compare ambitions



**Pre assessment**  
self-assessment



**Assessment**  
validated by assessor

### Welcome to the Sustainable Concrete Toolbox

Welcome on the responsible sourcing toolbox for concrete. How responsibly sourced is your concrete? What are your responsible sourcing ambitions? This Toolbox enables you to analyse the environmental and social performance of your concrete and determine your ambition. Use the Quickscan for a quick impression, the AmbitionTool to determine your ambition, the Pre AssessmentTool to prepare you for a qualification and a certificate that you can get with the AssessmentTool.

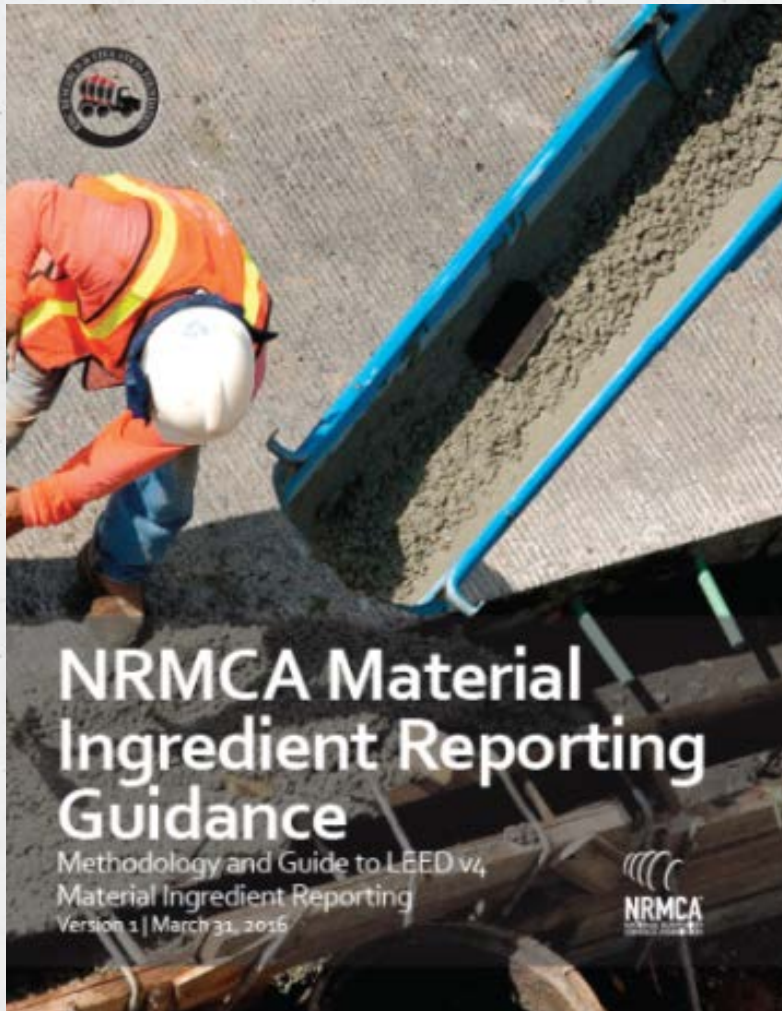


	<b>Quickscan</b> rough estimate ambition	<b>Ambition</b> compare ambitions	<b>Pre assessment</b> self-assessment	<b>Assessment</b> validated by assessor
<b>Description:</b>	Make an estimation of your Concrete's Performance on Responsible Sourcing, for free and easily with the Quickscan Tool.	Set up and compare three different scenarios and determine your ambition for Responsible Sourcing.	Calculate the responsible sourcing performance and ambition of your concrete by yourself accurately.	Prepare the certification and submit this assessment to be validated by a Sustainable Concrete Scheme Assessor.
<b>Required knowledge:</b>	None	Sustainable Concrete Scheme Expert	Sustainable Concrete Scheme Expert	Sustainable Concrete Scheme Expert/Assessor
<b>Detail level:</b>	Credits	Criteria	Criteria requirements	Evidence
<b>Accuracy:</b>	Deviation 0-10%	Deviation 0-5%	Deviation 0%	Deviation 0%
<b>Reporting type:</b>	None	Ambitions matrix	PDF report	Final report and Sustainable Concrete Scheme certificate
	<a href="#">Start now</a>	<a href="#">Start now</a>	<a href="#">Start now</a>	<a href="#">Start now</a>

<http://www.concretesustainabilitycouncil.com>



# NRMCA Material Ingredient Reporting Guidance



- Released April 2016
- 2 year research by Arup funded by RMCREF
- Reviewed all pathways to meet credit criteria
- Input from over 30 stakeholders
- Recommended that concrete producers **start with the Health Product Declaration v2.0 pathway**
- Economical, efficient, and effective method
  - For engaging supply chain for the information necessary to contribute
- <http://www.nrmca.org/sustainability/>

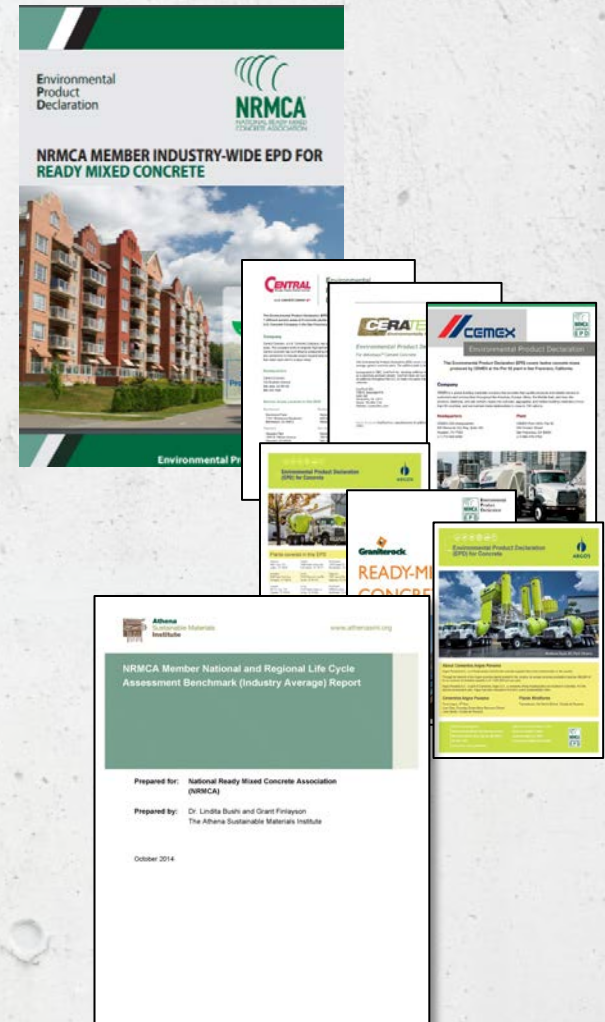


# ENVIRONMENTAL PRODUCT DECLARATIONS



# PRODUCT DISCLOSURE & OPTIMIZATION

- Option 1: **Disclose** environmental impacts
  - Product specific self-declaration
    - publicly available (1/4 product)
  - **Industry average EPD**
    - third party certified Type III (1/2 product)
  - **Product specific EPD**
    - third party certified Type III (Full product)
- Option 2: **Optimizing**
  - Demonstrate impact reduction from Option 1



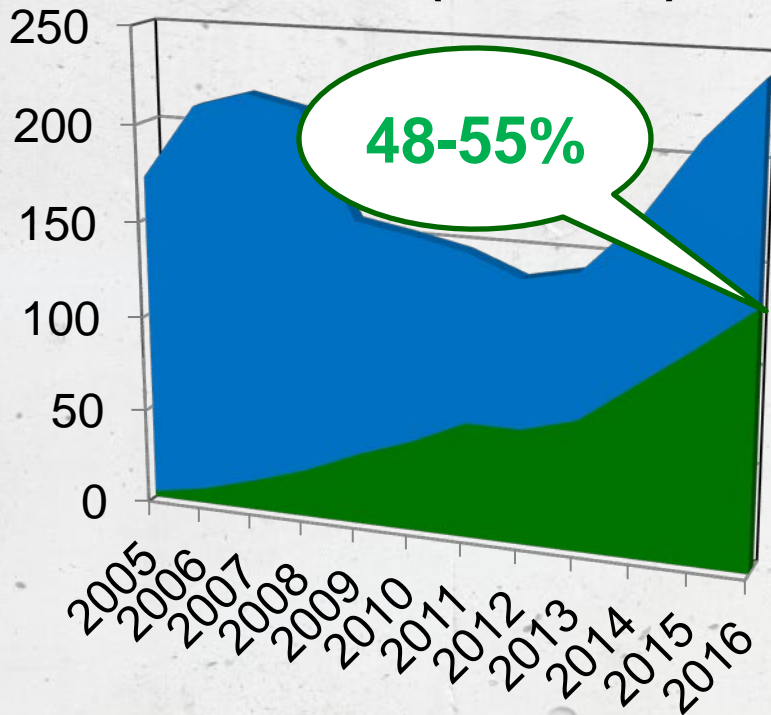


# Green Building Market Landscape

Why Prepare for Transparency

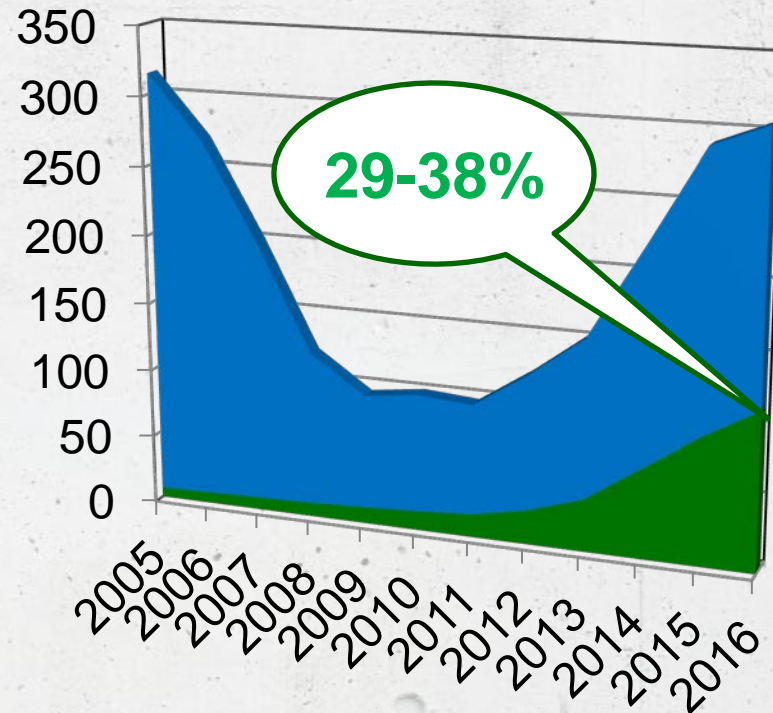
# Green Building Growth

**U.S. NON-residential  
Green Building Market  
2005-2016 (\$Billions)**



■ Green ■ Conventional

**U.S. Residential  
Green Building Market  
2005-2016 (\$Billions)**

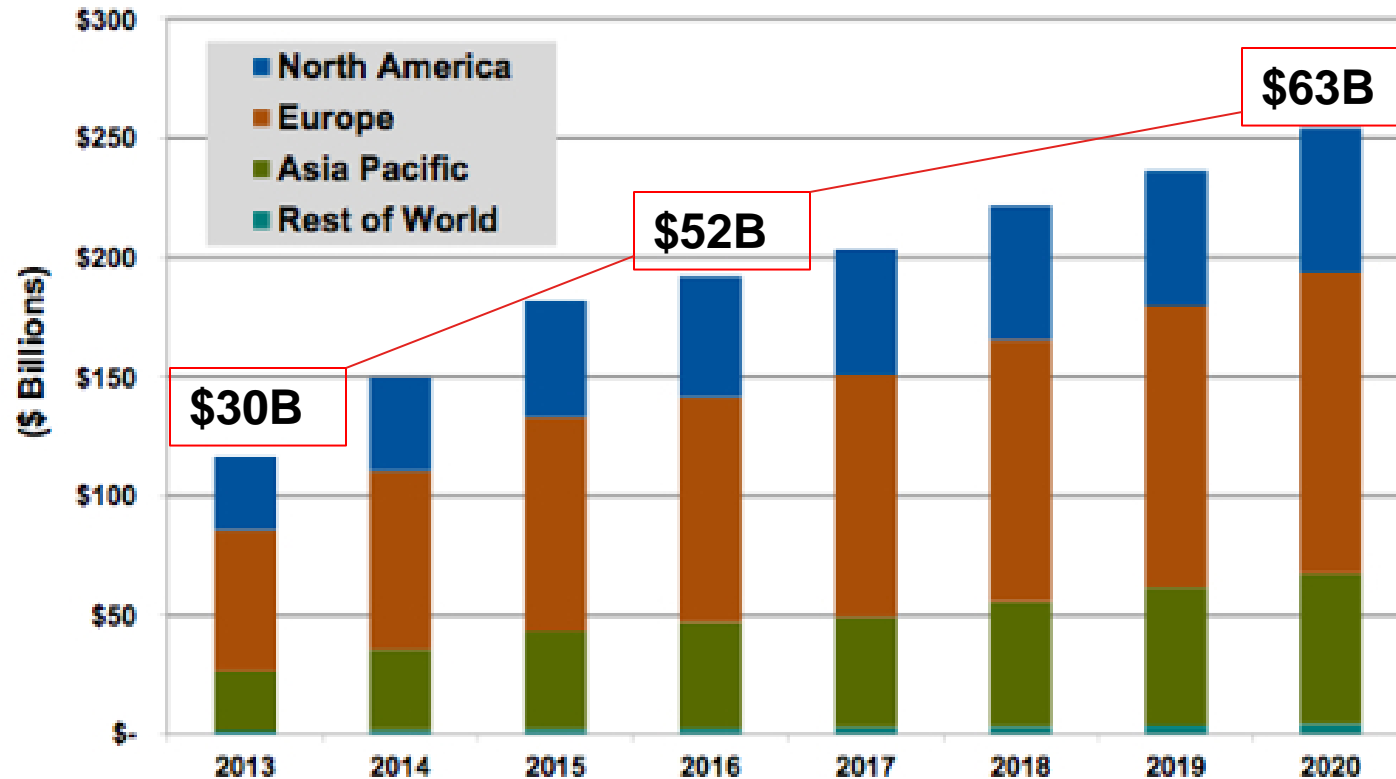


■ Green ■ Conventional



# Market Value of Materials

Chart 1.1 Market Value of Green Construction Materials by Region, World Markets: 2013-2020



(Source: Navigant Research)



ATLANTA FALCONS STADIUM  
360 ARCHITECTURE



CALIFORNIA HIGH SPEED RAIL  
PARSONS-BRINCKERHOFF

**“...will target Platinum ... is pursuing the EPD credit”**

**“...provide EPDs for concrete mix designs, including pre-cast and cast-in-place concrete, and all steel.”**

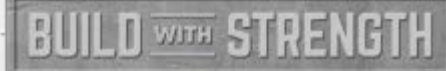


SOUND TRANSIT (SEATTLE)  
SELLEN CONSTRUCTION

**Proposed Spec: 90% by volume of the cast-in-place concrete submit EPDs...demonstrate lower GWP (CO<sub>2</sub>e) as compared to NRMCA Benchmarks for Northwest Region.**



# Disclosure reports "Demanded" by A/E Firms





More detailed information on the Top 100 Green Contractors:

[The Top 100 Green Buildings Contractors](#)

Current Top 100 Green Contractors Story:

[Green Building Standards Grow](#)

Click below for earlier editions:

[2015](#) | [2014](#) | [2013](#) | [2012](#) | [2011](#) | [2010](#) | [2009](#) | [2008](#) | [2007](#)

**\$20B / \$53 B  
total revenue**

Rank 2016/2015	Firm	Green Accredited Staff	Green Contracting Revenue
1/1	THE TURNER CORP., New York, N.Y.	1,477	5,701.00
2/2	CLARK GROUP, Bethesda, Md.	375	2,620.00
3/16	HENSEL PHELPS, Greeley, Colo.	304	2,285.83
4/6	SKANSKA USA, New York, N.Y.	481	1,941.40
5/10	SWINERTON INC., San Francisco, Calif.	350	1,918.00
6/4	GILBANE BUILDING CO., Providence, R.I.	424	1,746.36
7/5	THE WHITING-TURNER CONTRACTING CO., Baltimore, Md.	296	1,602.63
8/9	STRUCTURE TONE, New York, N.Y.	163	1,460.80
9/7	DAVID E. HARVEY BUILDERS, Houston, Texas	56	1,339.00
10/19	HOLDER CONSTRUCTION CO., Atlanta, Ga.	190	1,335.00



# Material Category EPD s

<b>Div</b>	<b>Industry</b>	<b># company EPDs</b>
03	Concrete	49
04	Masonry	10
05	Metals	12
06	Wood / Plastic / Composite	10
07	Thermal & Moisture	26
08	Openings	19
09	Finishes	80

# Progress: EPD Tools

- Climate Earth
  - Links Command Alkon production software with Climate Earth environmental impact data
- Athena
  - Customized, plant specific calculator
- Quantis / PCA tool
  - Launched August 2016







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**Oliver Brooks**

**Martin Marietta**



# Meeting New LEED v4 Product Transparency Requirements with System Verified EPDs

December 15, 2016





# Martin Marietta Company Overview



## COMPANY SNAPSHOT

Martin Marietta, an American-based company and a member of the S&P 500 Index, is a leading supplier of aggregates and heavy building materials, with operations spanning 26 states, Canada, the Bahamas and the Caribbean Islands. Dedicated teams at Martin Marietta supply the resources for the roads, sidewalks and foundations on which we live. Martin Marietta's Magnesia Specialties business provides a full range of magnesium oxide, magnesium hydroxide and dolomitic lime products.



7,200+ Employees



347 Aggregate Quarries & Yards



8 Asphalt Plants



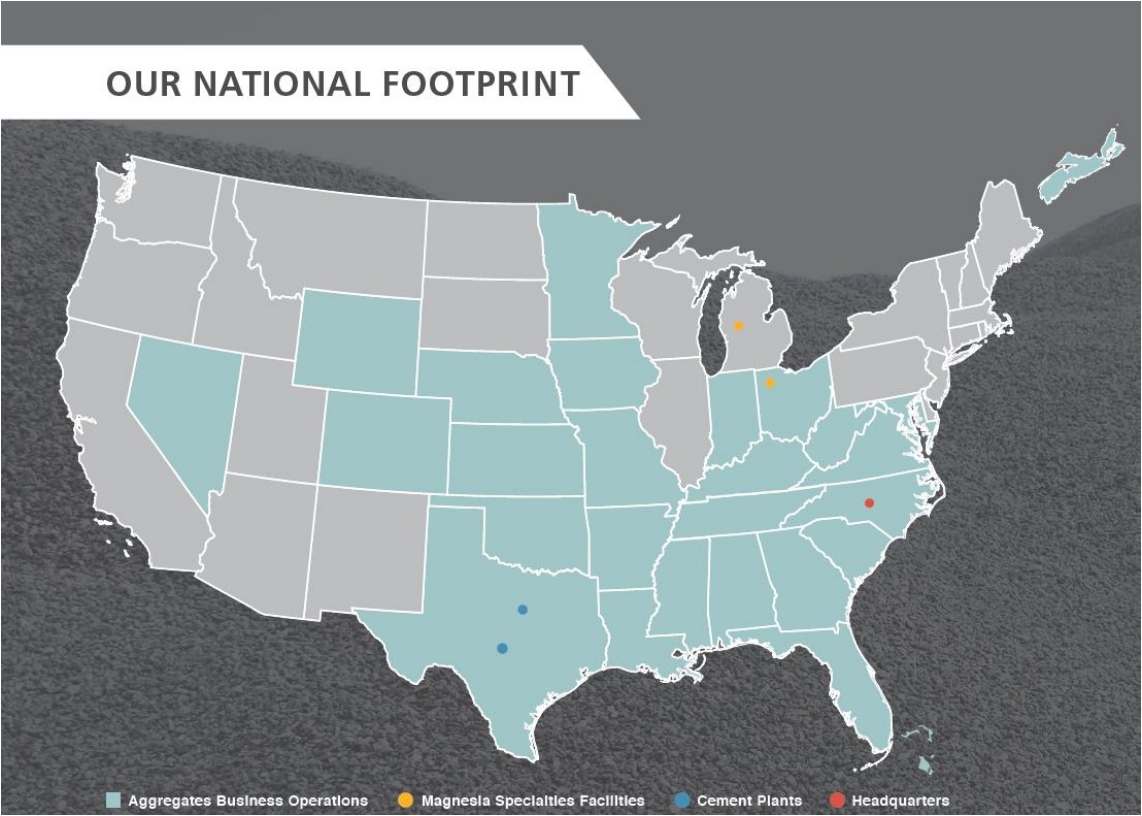
2 Cement Plants



124 Ready Mix Concrete Facilities



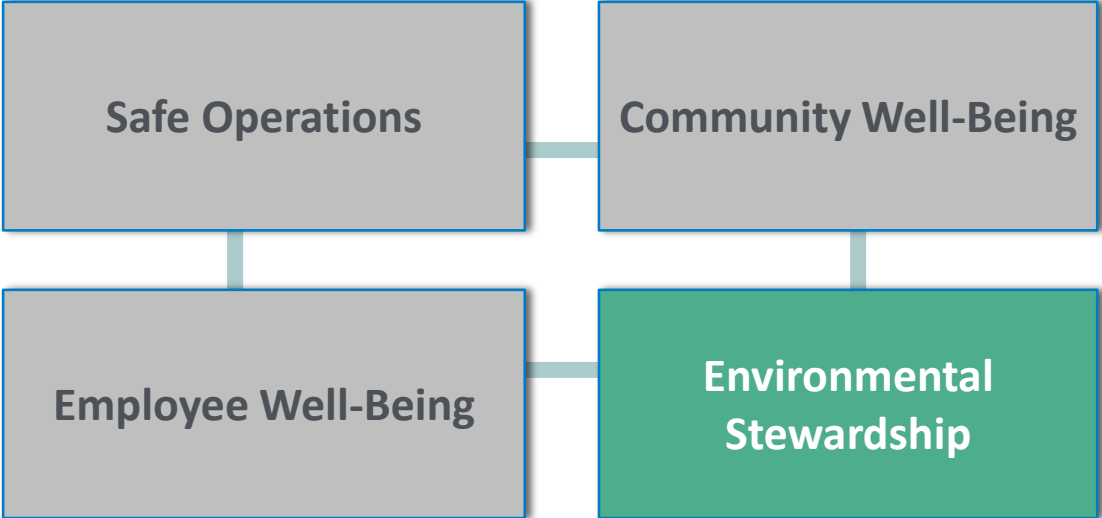
2 Magnesia Specialties Facilities



# Martin Marietta's Commitment to Sustainability



## Martin Marietta's Sustainability Approach





# Why LEED? Why now?

## Why LEED?

- Improves how buildings and communities are planned, constructed, maintained and operated
- Supports green building and transparency focus by developers and owners
- Works for all buildings at all phases
- Promotes double bottom line – environmental and cost benefits

## Why now?

- Serves local customer demand
- Expands value proposition
- Aligns with Martin Marietta commitment to environmental stewardship
- Supports industry efforts on transparency
- LEED v4 exclusive as of 11/1/16

**Over 1.8 million square feet are LEED certified every day**



# Local LEED Certified Projects



“Colorado Ranks 5<sup>th</sup> in the Nation for LEED Green Building in 2015”

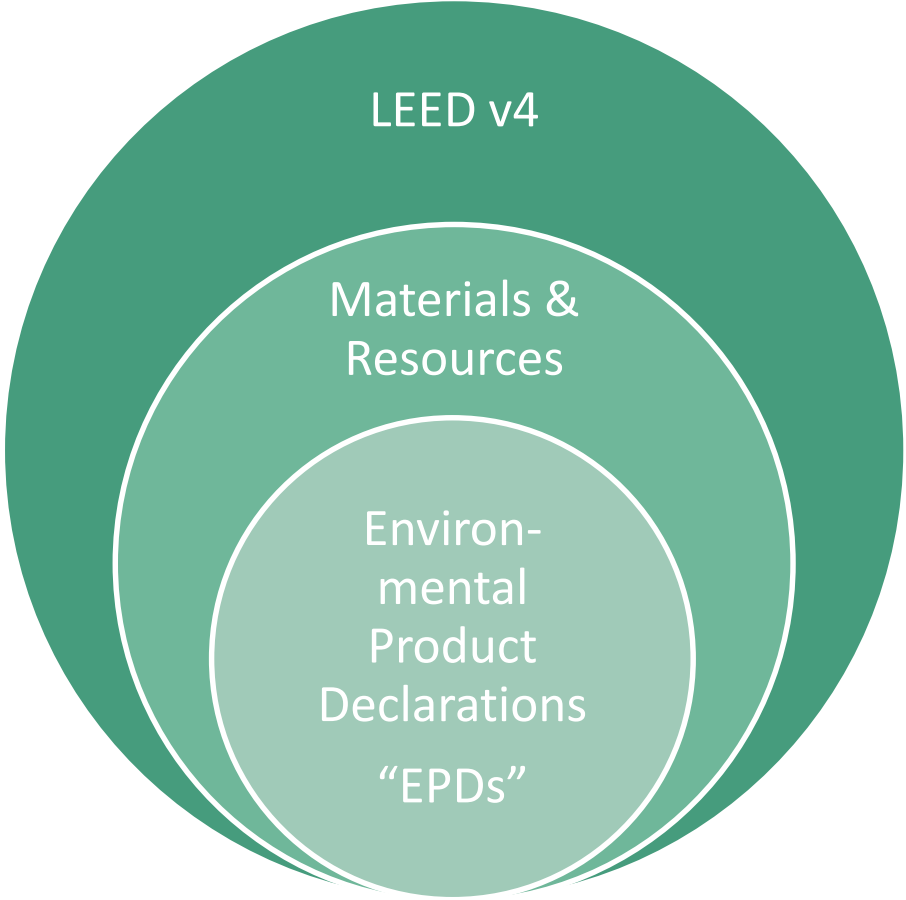
*Announced by Gov. John Hickenlooper on 1/26/16, as released by the USGBC*



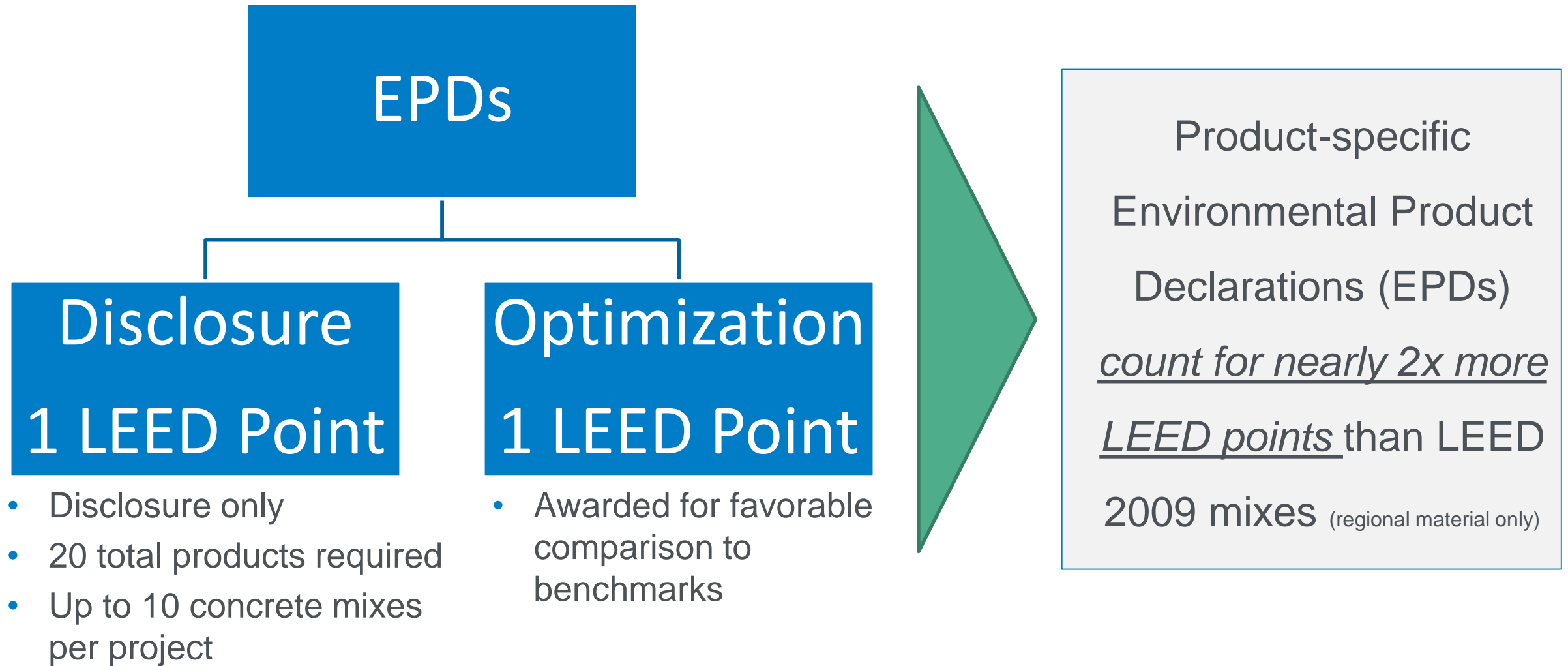
# What is concrete's contribution to LEEDv4?

Concrete can contribute to most LEED v4 credits, but EPDs are for Materials & Resources

Credit Category	LEED v4 Points
Integrative Process	1
Location & Transportation	16
Sustainable Sites	10
Water Efficiency	11
Energy & Atmosphere	33
Materials & Resources	13
Indoor Environmental Quality	16
Innovation	6
Regional Priority	4
<b>Total</b>	<b>110</b>



# What are EPDs contribution to LEEDv4?





# Martin Marietta EPDs

**Martin Marietta**  
Environmental Product Declaration  
Mix A4375 • Chambers Plant



This Environmental Product Declaration (EPD) reports the impacts for 1 m<sup>3</sup> of ready mixed concrete mix, meeting the following specifications:

- ASTM C94: Ready-Mixed Concrete
- UNSPSC Code 30111505: Ready Mix Concrete
- CSI Section 03 30 00: Cast-in-Place Concrete

**Company**

**Martin Marietta**  
2710 Wycliff Road  
Raleigh, NC 27607  
<http://www.martinmarietta.com/>

**Plant**

**Chambers Plant**  
2650 Chambers Rd.  
Aurora, CO 80011

**EPD Program Operator**  
**National Ready Mixed Concrete Association**  
900 Spring St. • Silver Spring • MD 20910  
<http://www.nrmca.org/sustainability/>



**Date of Issue**

07/16/2015 (valid for 5 years until 07/16/2020)

**Environmental Impacts**

**Declared Product:**  
Mix A4375 • Chambers Plant  
Exterior 4500 PSI  
Compressive strength: 4500 psi at 28 days

**Declared Unit:** 1 m<sup>3</sup> of concrete

Global Warming Potential (kg CO <sub>2</sub> -eq)	358
Ozone Depletion Potential (kg CFC-11-eq)	9.1E-6
Acidification Potential (kg SO <sub>2</sub> -eq)	1.11
Eutrophication Potential (kg N-eq)	0.42
Photochemical Smog Creation Potential (kg O <sub>3</sub> -eq)	21.7
<b>Total Primary Energy Consumption (MJ)</b>	<b>2,422</b>
Nonrenewable (MJ)	2,324
Renewable (MJ)	98.2
<b>Total Concrete Water Consumption (m<sup>3</sup>)</b>	<b>3.22</b>
Batching Water (m <sup>3</sup> )	0.17
Washing Water (m <sup>3</sup> )	0.13
Nonrenewable Material Resource Consumption (kg)	2,446
Renewable Material Resource Consumption (kg)	2.39
Hazardous Waste Production (kg)	0.02
Nonhazardous Waste Production (kg)	3.28

Product Components: natural aggregate (ASTM C33), Portland cement (ASTM C150), fly ash (ASTM C618), admixture (ASTM C494), batch water (ASTM C1602)

## Environmental Product Declarations

- Known as “EPDs”
- Nutrition label format
- Reports environmental impact of each unit of concrete
- Does not disclose ingredients
- Provides transparency, not superiority
- On-demand and product specific
- Valid for 5 years

# Martin Marietta's EPD Approach

## EPDs for Top Mix Designs

- Upfront development
- Specific to each plant

## EPD Calculator

- Ongoing subscription
- On-demand EPDs
- Updated annually

**6 Ready Mix Concrete Plants**





# EPD Development

- ✓ Track ALL constituents of mixes
- ✓ Track shipping distances and methods
- ✓ Track chemicals
- ✓ Track plant utilities
- ✓ Track water usage

Transport Material type	Material	Supplier	Quantity purchased	Unit of measure		Truck (miles)	Data source type	Rail (miles)	Data source type	Ocean (miles)	Data source type
				Default	Other (specify)						
Portland cement	CEM 1-2		15,000	lb	tons	18	Indirect	75	Indirect	0	Indirect
Portland cement	CEM 1-2		15,000	lb	tons	18	Estimated	75	Estimated	0	Estimated
Portland cement	CEM 1-2		15,000	lb	tons	18	Direct	75	Direct	0	Direct
Portland cement	CEM-5		15,000	lb	tons	18	Estimated	75	Estimated	0	Estimated
			<b>TOTAL</b>			18		75		0	
Fly ash	C-ASH		15,000	lb	tons	18	Indirect	75	Indirect	0	Indirect
Fly ash	C-ASH		15,000	lb	tons	18	Estimated	75	Estimated	0	Estimated
Fly ash	F-ASH		15,000	lb	tons	18	Direct	75	Direct	0	Direct
Fly ash	F-ASH		15,000	lb	tons	18	Estimated	75	Estimated	0	Estimated
			<b>TOTAL</b>			18		75		0	
Aggregate (natural)	SAND		15,000	lb	tons	18	Estimated	0		0	
Aggregate (natural)	67-57-RR		15,000	lb	tons	18	Estimated	0		0	
Aggregate (natural)	PEA-GRVL		15,000	lb	tons	18	Estimated	0		0	
Aggregate (natural)	PEA-GRVL		15,000	lb	tons	18	Estimated	0		0	
Aggregate (natural)	#89AGG		15,000	lb	tons	18	Estimated	0		0	
			<b>TOTAL</b>			18		0		0	
Admixture (other)	FIBER 3/4"		15,000	lb	bags	18	Estimated	0		0	
Admixture (accelerating)	CALCIUM		15,000	lb	bags	18	Estimated	0		0	
Admixture (accelerating)	NCA		15,000	lb	bags	18	Estimated	0		0	
Admixture (other)	CORR-INH		15,000	lb	bags	18	Estimated	0		0	
Admixture (plasticizing)	MRWR-NC		15,000	lb	bags	18	Estimated	0		0	
Admixture (color)	COLOR		15,000	lb	gal	18	Estimated	0		0	
Admixture (retarding)	HYD-STAB		15,000	lb	gal	18	Estimated	0		0	
Admixture (superplasticizing)	HRWR-R		15,000	lb	gal	18	Estimated	0		0	

Utility type	Total quantity	Data source type	Unit of measure		QTY/cyd
			Default	Other (specify)	
Electricity			kWh		0.000000
Natural gas			trm		0.000000
Propane			gal		0.000000
Diesel, off road			gal		0.000000



# On-Demand EPDs

**Martin Marietta** **climate earth.**

### EPD 'On-Demand' Ready-Mix Calculator

**CHAMBERS PLANT | XXXXX, 5000 PSI AT 28 DAYS**

Material	Amount	Unit	Action
Batch Water	30	GAL	✓
67-57-CR	1000	LB	✗
SAND	1000	LB	✗
CEM 1-2	660	LB	✗
Select Material	Amount		

← Back Calculate →





# On-Demand EPDs (continued)

**Martin Marietta**

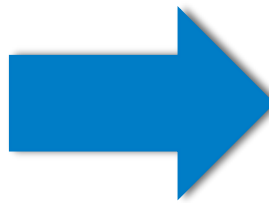
**Environmental Impacts**

**DECLARED PRODUCT:**  
XXXXX • CHAMBERS PLANT

**DECLARED UNIT:**  
1 M3 OF CONCRETE

<b>Global Warming Potential (kg CO<sub>2</sub>-eq)</b>	<b>457</b>
<b>Ozone Depletion Potential (kg CFC-11-eq)</b>	<b>1.2E-5</b>
<b>Acidification Potential (kg SO<sub>2</sub>-eq)</b>	<b>1.29</b>
<b>Eutrophication Potential (kg N-eq)</b>	<b>0.55</b>
<b>Photochemical Smog Creation Potential (kg O<sub>3</sub>-eq)</b>	<b>24.6</b>
<b>Total Primary Energy Consumption (MJ)</b>	<b>2,860</b>
<b>Nonrenewable (MJ)</b>	<b>2,729</b>
<b>Renewable (MJ)</b>	<b>130</b>
<b>Total Concrete Water Consumption (m<sub>3</sub>)</b>	<b>2.26</b>
<b>Batching Water (m<sub>3</sub>)</b>	<b>0.16</b>
<b>Washing Water (m<sub>3</sub>)</b>	<b>0.13</b>
<b>Nonrenewable Material Resource Consumption (kg)</b>	<b>1,885</b>
<b>Renewable Material Resource Consumption (kg)</b>	<b>3.22</b>
<b>Hazardous Waste Production (kg)</b>	<b>0.02</b>
<b>Nonhazardous Waste Production (kg)</b>	<b>4.10</b>

← Disapprove & Re-Work      Approve & Generate EPD PDF



**Martin Marietta**  
Environmental Product Declaration  
Mix A4375 • Chambers Plant

**Environmental Impacts**

This Environmental Product Declaration (EPD) reports the impacts for 1 m<sup>3</sup> of ready mixed concrete mix, meeting the following specifications:

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Compressive strength: 4500 psi at 28 days

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<b>Renewable (MJ)</b>	<b>98.2</b>
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<b>Batching Water (m<sub>3</sub>)</b>	<b>0.17</b>
<b>Washing Water (m<sub>3</sub>)</b>	<b>0.13</b>
<b>Nonrenewable Material Resource Consumption (kg)</b>	<b>2,446</b>
<b>Renewable Material Resource Consumption (kg)</b>	<b>2.39</b>
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**Product Components:** natural aggregate (ASTM C33), Portland cement (ASTM C150), fly ash (ASTM C618), admixture (ASTM C494), batch water (ASTM C1602)



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**Chris Erickson**

**Climate Earth**



# EPD Enterprise

**A New Approach to Verified Product Specific EPDs**  
**Simple**  
**Immediate**  
**Very low cost**



**Chris Erickson**  
President and CEO  
415.391.2725  
Chris@climateearth.com

# Agenda



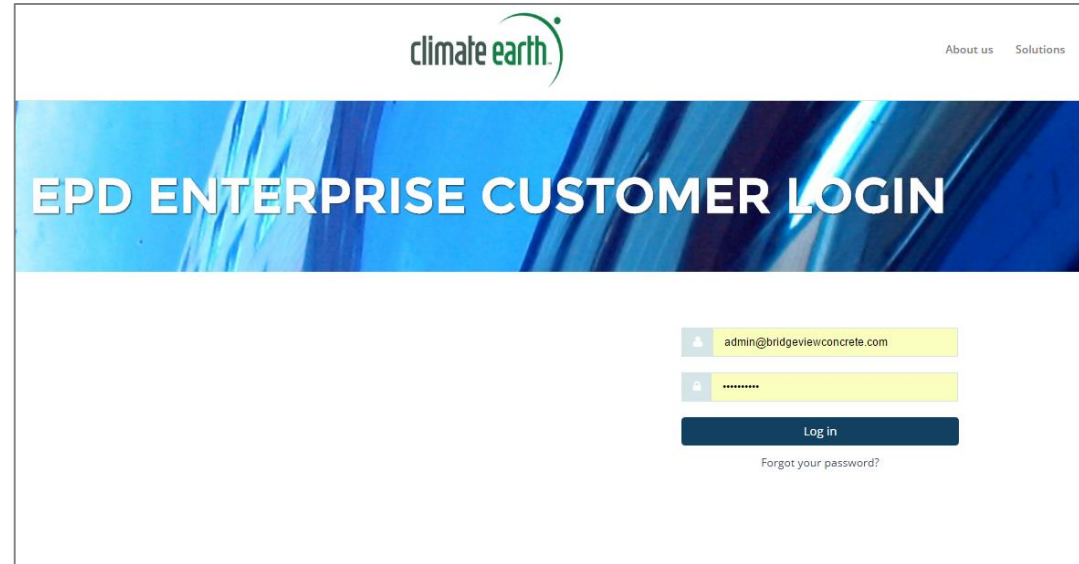
Climate Earth

The EPD Process

EPD Challenges for  
Ready Mix Producers

Streamlining the Process with  
Database

A Look at Costs



# Climate Earth- Systems for Sustained Performance



*Founded 2008, Berkeley, CA*

## We Provide:

- Environmental Product Declarations (EPDs)
- Supply chain life cycle analysis
- Business advisory services

## Our Expertise:

- Life cycle assessment
- Software and data management

## Selected Customers:



## Key Affiliations:





# Climate Earth and Concrete Industry Since 2009



Founder of Carbon Leadership Forum: Created First PCR

First EPDs for ready mix, block and aggregates

First volume EPD (1479 mixes)

First to integrate EPDs with Command Alkon

First system to generate EPD's on demand



# The Top 10 LEED States



**2013**

**226.8 million sq ft**

1. Illinois
2. Maryland
3. Virginia
4. Massachusetts
5. (tie) New York
6. (tie) California
7. Oregon
8. North Carolina
9. Colorado
10. Hawaii
11. Minnesota

**+21%**

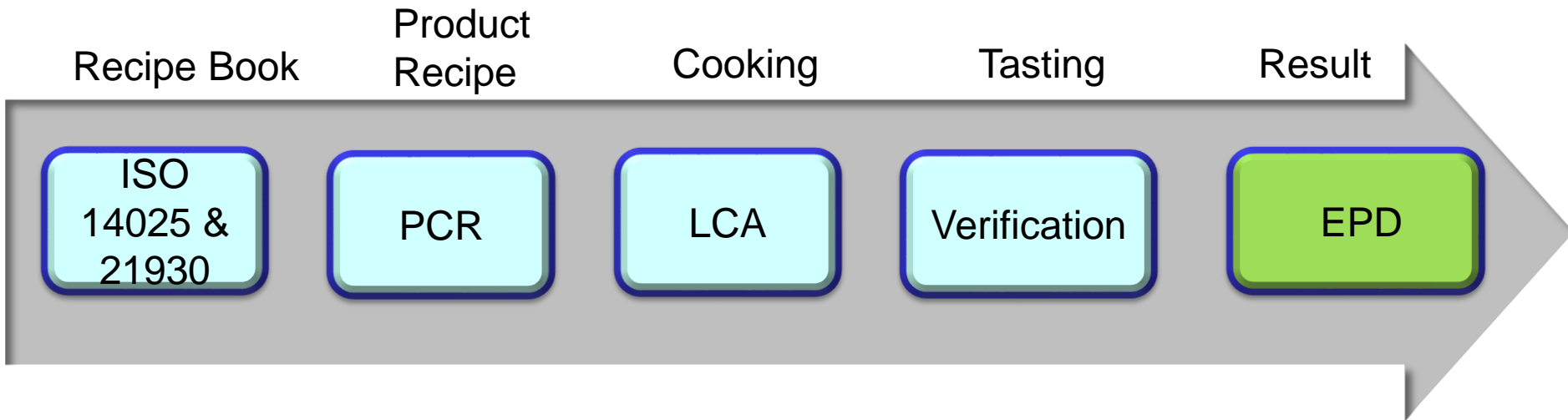
**2015**

**274.9 million sq ft**

1. Illinois
2. Maryland
3. Massachusetts
4. Washington
5. Colorado
6. Nevada
7. California
8. Texas
9. Virginia:
10. Utah

1,633 commercial and institutional projects

# All EPDs are Developed Under a Structured Process



A global standard formula for consistent, scientifically grounded environmental impact measurement



# What Does the process produce?

## EPD Standard

- Comes as a single booklet
- Includes all EPD information for about 30 selected mixes per plant
- Fixed for 5 years



## EPD Enterprise

- Generate new EPDs any time from your PC
- Data refreshed annually
- EPDs are renewed every year



# EPD Standard Does Not All Serve All Producers Well



Recipe Book

Product  
Recipe

Cooking

Tasting

Result

ISO  
14025

PCR

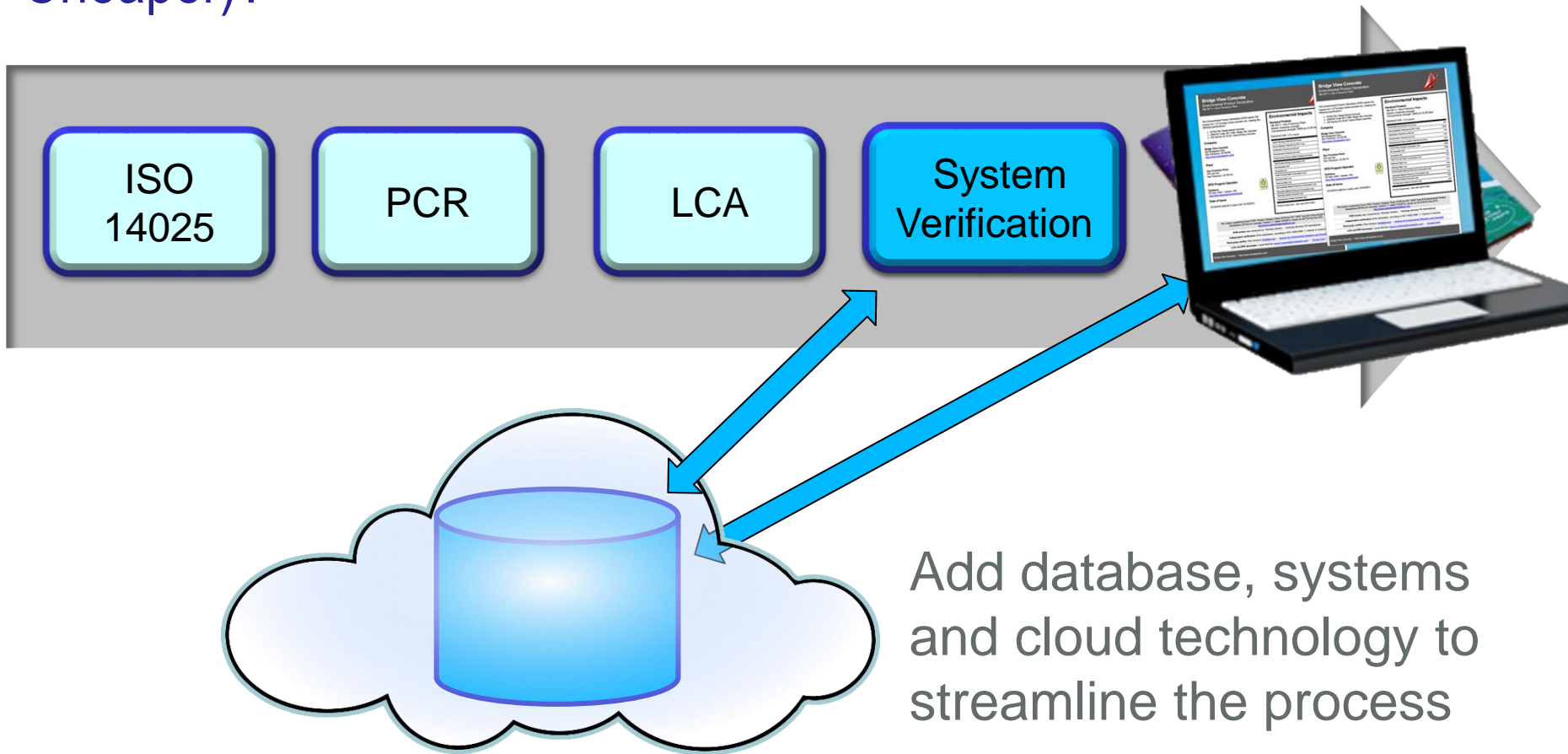
LCA

Verification



1. 5 year fixed life
2. One time, slow, manual, costly process
3. Not responsive to new product and new mix designs
4. Not updated as products, suppliers and processes change
5. Not effective when the numbers matter

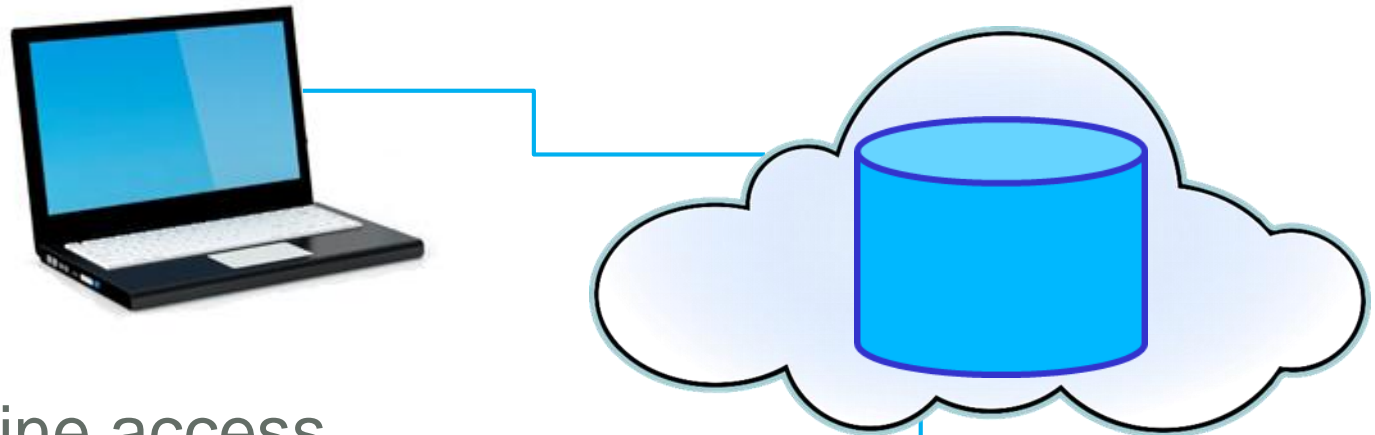
# How Can We make EPDs More Responsive (and Cheaper)?



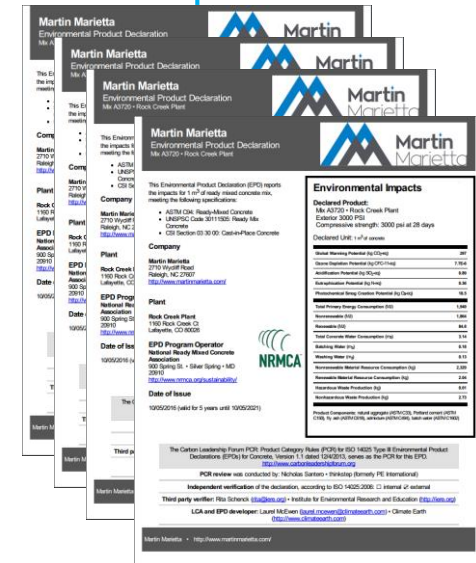
Add database, systems and cloud technology to streamline the process



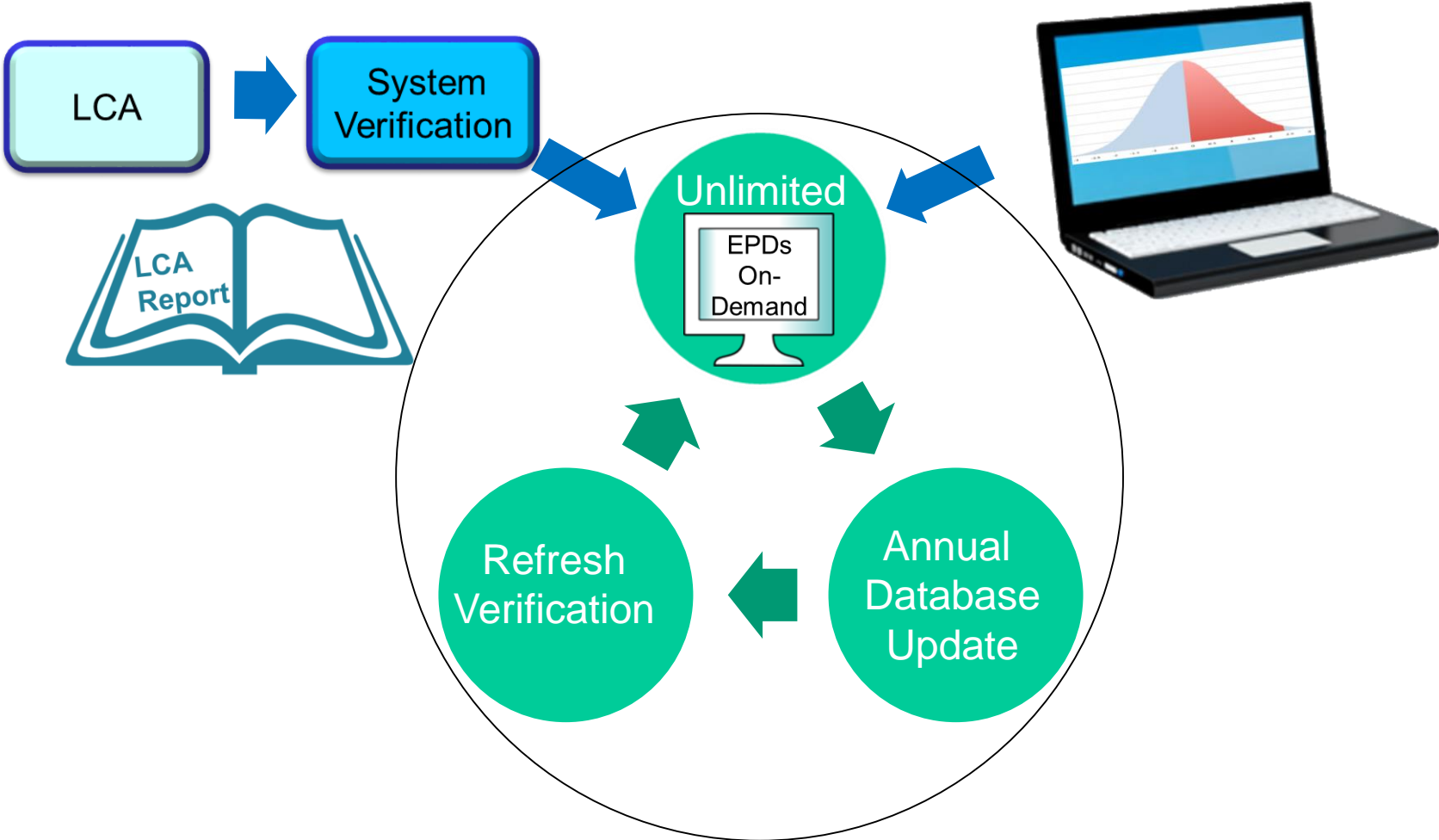
# The One Minute Demo



- Easy on-line access
- Generate unlimited branded EPDs
- Ready for bid submittal



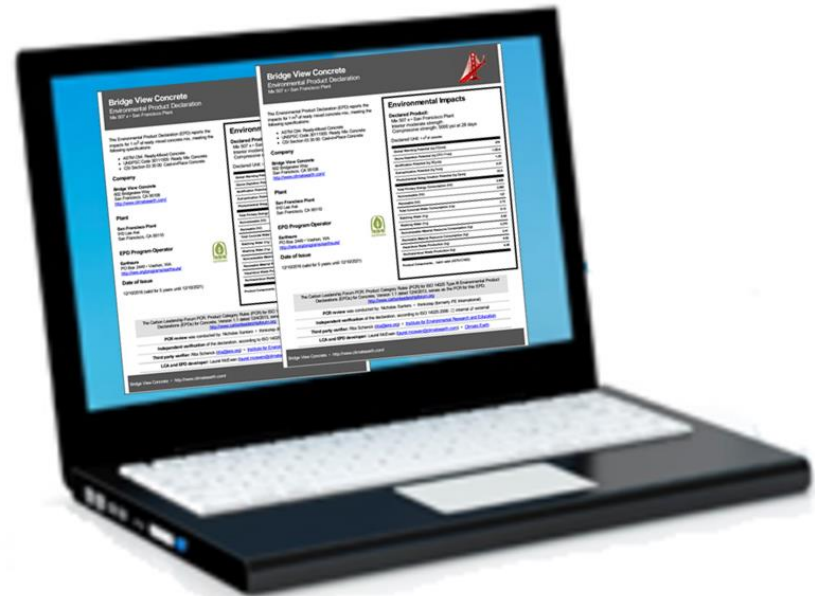
# The Full Process with System Verification



# How Do Producers Benefit from EPD Enterprise 'On-Demand'



- Create unlimited EPDs
- Optimal mix designs for any job, max LEED points
- EPDs always current (new mixes, new suppliers, etc)
- No hassle, low cost per EPD





# EPD 'On-Demand'- Strong Transparency

- Industry Average EPD
  - Not transparent
- EPD Standard
  - Year 2, 3, 4, 5?
- EPD 'On Demand'
  - Always current
  - Always transparent



# How Much Do They Cost?

First Year LCA and Set-Up	
# Plants	Price
2	~\$12,000
10	~ \$25,000

## EPD Enterprise

Annual Subscription and Database Update with Unlimited EPDs			
# Plants	\$ per month/plant	2 EPDs Month	5 EPDs per month
5	\$68	\$34	\$14
10	\$52	\$26	\$10

Pricing does not include verification

# EPDs On-Demand- Easy and Cost Effective



- Instant web access
- On-Demand
- Low Cost

*Integrated with  
CommandQC if desired*

**Bridge View Concrete**  
Environmental Product Declaration  
Mix 507 x - San Francisco Plant

This Environmental Product Declaration (EPD) reports the impacts for 1 m<sup>3</sup> of ready mixed concrete mix, meeting the following specifications:

- ASTM C94 Ready-Mixed Concrete
- UNSPSC Code 30111005 Ready Mix Concrete
- CSI Section 03 30 00 Cast-in-Place Concrete

**Company**  
Bridge View Concrete  
622 Bridgeway View  
San Francisco, CA 94108  
<http://www.climateearth.com/>

**Plant**  
San Francisco Plant  
910 Law Ave  
San Francisco, CA 94110

**EPD Program Operator**  
Earthware  
PO Box 2448 - Vashon, WA  
<http://www.orgprograms/earthware/>

**Date of Issue**  
12/10/2016 (valid for 5 years until 12/10/2021)

**Environmental Impacts**

Declared Product:	
Mix 507 x - San Francisco Plant	
Interior moderate strength	
Compressive strength: 5000 psi at 28 days	
Declared Unit: cu ft for concrete	
<b>Global Warming Potential (kg CO<sub>2</sub>e)</b>	
Climate Regulation Potential (kg CO <sub>2</sub> e)	1.262
Acidification Potential (kg SO <sub>2</sub> e)	1.26
Eutrophication Potential (kg N)	0.37
Photochemical Smog Creation Potential (kg O <sub>3</sub> e)	0.33
<b>Plant</b>	
Total Primary Energy Consumption (MJ)	1.888
Nonrenewable (MJ)	1.886
Renewable (MJ)	192
Total Concrete Water Consumption (lit)	3.72
Recharging Water (lit)	6.12
Washing Water (lit)	6.61
Nonrenewable Material Resource Consumption (kg)	3.375
Renewable Material Resource Consumption (kg)	3.61
Manufacture Waste Production (kg)	0.62
Nonhazardous Waste Production (kg)	4.38
Product Composition - 100% water (H <sub>2</sub> O) (kg)	

The Carbon Leadership Forum PCR Product Category Rules (PCR) for ISO 14025 Type III Environmental Product Declarations (EPDs) for Concrete, Version 1.1 (dated 12/02/2015), serves as the PCR for this EPD.  
<http://www.carbonleadershipforum.org/>

PCR review was conducted by: Nicholas Sartero - thestep (formerly PE International)

Independent verification of the declaration, according to ISO 14025:2008, is internal or external

Third party verifier: PHS Schenck ([www.phs-schenck.com](http://www.phs-schenck.com/)) • Institute for Environmental Research and Education

LCA and EPD developer: Laurel McEwen ([laurel.mcewen@climateearth.com](mailto:laurel.mcewen@climateearth.com)) • Climate Earth

Bridge View Concrete • <http://www.climateearth.com/>





Thank you

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**BUILD WITH STRENGTH**

A COALITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

**Thank You**

**Questions**