

ULTIMATE GUIDE TO LEED V4 & V4.1

MRc2: Environmental Product Declarations Option 1

A Resource Guide for General Contractors

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Earning MRc2 Option 1 Environmental Product Declarations in LEED v4.1

There's three things you'll need, and 40 pages you won't.

Environmental product declarations used to be rare as an albino jackalope, but these days there are a lot of options across the spectrum.

That's not to say you'll be walking the jobsite and trip over a pile of environmental product declarations (EPDs). In fact, most products still don't have them, but if you know where to look it's like shooting fish in a barrel. Where do I look, you may ask? Well that's what I'm about to tell you.





REQUIREMENTS



Requirements for MRc2 Option 1 for v4.1

1 Point

For most LEED BD+C Projects:

20 products with *qualifying* environmental product declarations.

1 Point

For Commercial Interiors, Core and Shell, and Warehouse projects:

10 products with *qualifying* environmental product declarations.

Exemplary Performance Point

40 products

(20 for CI, C&S, Warehouse)

You may be asking, why is the word qualifying in italix? What's the hidden meaning behind that?

Unsurprisingly, not all EPDs are created the same, and LEED has a number of different requirements and standards that an EPD must have incorporated, or you're SOL. Let's break it down for you.

What is an Environmental Product Declaration?

Environmental product declarations are independently verified reports based on life-cycle assessment (LCA) studies. The LCA studies must have been conducted according to a set of common rules ("product category rules," or PCRs) for each product category and then peer-reviewed.

EPDs are managed and created by "program operators" — organizations that ensure that the EPDs meet the various requirements. In the U.S. you'll see those from UL, SCS, ASTM or NSF, though there are a few others that are coming around.

Requirements for MRc5 in LEED v4.1, Cont.

There are 4 types of EPDs currently accepted by USGBC:

- Product specific LCA,
- Industry Wide,
- Product Specific Type III, Internally Reviewed
- Product Specific Type III, Externally Reviewed

The first three all count as 1 product in your quest towards 20, while Product Specific Type III, Externally reviewed counts as 1.5 products.

Broadly speaking, there are 2 main types of EPDs that we come across:

- Industry Wide
- Product Specific Type III Externally reviewed.

Industry wide means it is not brand specific. The EPD shown bellow is for concrete from the National Ready Mix Concrete association. You can apply it to any of 72 ready mixed concrete products, as long as the plant you get it from a plant that participated in the EPD.

Manufacturers must be specifically identified as participants in the EPD, or it won't count (or in this case, available to be verified through the link underlined bellow).

There aren't a lot of compliant industrywide EPDs out there, but you'll see them for some pretty common items like Type X gypsum board and glas-mat gypsum.

For concrete, keep in mind that there are 72 mix designs listed, and each one counts as a separate product - so you can potentially have multiple products from this single EPD.



According to ISO 14025

NSF International Certified

This industry-wide or sector average environmental product declaration is in accordance with ISO 14025 and describes the environmental characteristics of 72 ready mixed concrete products. It is a certified declaration and all relevant environmental information is disclosed as per the governing product category rules. A list of plants that are eligible to claim participation in this EPD is available at: www.nrmca.org/sustainability/EPDProgram/search

PROGRAM OPERATOR	NSF International 789 N. Dixboro Ann Arbor, MI 48105 www.nsf.org
DECLARATION HOLDER	The National Ready Mixed Concrete Association (NRMCA) 900 Spring Street Silver Spring, MD 20910 www.nrmca.org
DECLARATION NUMBER	EPD 10080
DECLARED PRODUCT	This industry wide EPD covers 72 ready mixed concrete products on a per cubic meter (cubic yard) basis

You can apply this Ready Mix Concrete EPD to any of 72 ready mixed concrete products, as long as the plant you get it from a plant that participated in the EPD.

Who is the EPD for?

That's the manufacture (or the Declaration Holder)

Who created the EPD?

That's the Program Operator

What is the EPD for?

That's your product specific (Declared Product).

Is it Internally or Externally Reviewed?

Finally a box that will be checked for internal or external, and it is almost always external, because that's what the manufacturer is shelling out the big bucks for.

Product Specific Type III Externally Reviewed EPDs count as 1.5 products on your quest to 10 or 20 total products.



Environmental, Health, Safety, and Regulatory Affairs 101 Prospect Avenue NW, Cleveland, Ohio 44115-1075

Date of Issue

The PCR review was conducted by

Environmental Product Declaration - PrepRite® Block Filler¹

PrepRite Block Filler Block Filler is effective on above grade and unpainted masonry surfaces. Allows topcoat on concrete block to be smooth and uniform.

The product image to the right is an example of one of the formulas covered by the EPD. A list of all relevant PrepRite Block Filler formulas is shown in Table 1 on page 2 of the EPD.



Certified

Product Declaration

Period of Validity	5 Years	
Contents of the Declaration	Product definition and material characteristics Overview of manufacturing process	
	Information about in-use conditions	
	Life cycle assessment results	

February 10, 2017

Testing verifications

Thomas P. Gloria, Ph. D.

t.gloria@industrial-ecology.com	
This EPD was independently verified by NSF International in	Jenny Oorbeck
accordance with ISO 21930 and ISO 14025.	joorbeck@nsf.org
☐ Internal	<u>JOOT DECKEMENT OF THE PROPERTY OF THE PROPERT</u>
This life cycle assessment was independently verified in accordance	Jack Geibig - EcoForm
with ISO 14044 and the reference PCR by	jgeibig@ecoform.com

Functional Unit:	1m ² of covered and protected substrate for a period of 60 years	
	(the assumed average lifetime of a building)	
Market-Based Lifetime Used in Assessment	5 years	
Design Lifetime Used in Assessment	3 years	
Test Methods Used to Calculate Design Life	ASTM D2805-11, ASTM D2486-06, ASTM D6736-08, ASTM D4828-94	
Estimated Amount of Colorant	Varies (see Table 2)	
Data Quality Assessment Score	Very Good	
Manufacturing Location(s)	Various Plants Throughout the United States	

By far and away, the most common EPs out there is Product Specific Type III, Externally reviewed.

That means they are for one manufacture, for a specific product line, and the information has been verified by a 3rd party.

And that's almost every EPD – that's what the manufacturer is paying someone for

- to verify it! So pretty much any EPD you get from UL, SCS, NSF or ASTM will all be third party verified and product specific.

Here's what you'll need to look at just to be sure. Frankly you can ignore 20 of the 21 pages in these documents.

There's always a little summary table that will tell you Program Operator – that's who created the EPD.





Strategies for MRc2 Option 1

Now that you know what an EPD is and what types qualify for LEED, let's dive in to where on earth will you find enough to earn the points? Its easy! I'm sure your architect provided a very detailed spec roadmap that identifies 25 products that they've picked out to ensure credit compliance - boom, you're set!

Wait, they didn't? There's just a generic spec saying provide EPDs for 20 products? Well, that doesn't help! Fortunately, I'm here to tell you where to look (and take notes, this will be the exact same guidance for earning Material Ingredient Reporting or MRc4 Option 1).

Where to find 20 products that have LEED Compliant Environmental Product Declarations

Green Badger recommends focusing on 6 different submittals, and its where you'll find boatloads of EPDs.

Here's where to start:

- 1. Insulation
- 2. Flooring
- 3. Gypsum board
- 4. Ceiling tile
- 5. Paint
- 6. Doors and hardware

Why focus on these six categories? Because each one has multiple manufactures with lots of options so you're not pigeonholed into sole sourcing. Plus, every construction project has these products.

I'll offer a precursor before I go into the details. Neither I nor Green Badger endorse, recommend, prefer, sponsor, etc. any of the brands and products listed. Nor is this a comprehensive list of every single product that exists with an EPD or HPD. It's simply some guidance on product categories to get your points without banging your head into a wall. Now, let's take a quick run-through.

1. Insulation

Noisy? Use acoustical insulation. Cold? Bundle up that thermal insulation. Condensating pipes? There's insulation for that! Odds are that you have at least 3 types of insulation on your project if not more. All the big players are here – Owens Corning, Johns Manville, Knauff, Certainteed – plus a lot of options including thermal, acoustic, batt, spray, faced, unfaced.



Pictured: Owens Corning EcoTouch Kraft Faced Insulation

Manufacturer	Product	Compliance
Certainteed	FIBERGLASS DUCT WRAP INSULATION FIBERGLASS BLANKET INSULATION Sustainable Insulation Unfaced & Kraft Faced Batts Blowing Wool Fiberglass Insulation	EPD EPD EPD EPD, MIR
International Cellulose Corp	K-13 Acoustical/Thermal Insulation System Ure-K Acoustical/Thermal Insulation System	SRM, MIR MIR
Johns Manville	ENRGY 3®.E 800 SERIES SPIN-GLAS® PERMACOTE LINACOUSTIC R-300 1000 SERIES SPIN-GLAS LINACOUSTIC® RC-HP	MIR EPD EPD EPD EPD
Knauff	Knauf Insulation EcoBatt® Insulation with ECOSE® Technology Unfaced Batts Knauf Insulation EcoBatt® Insulation with ECOSE® Technology Faced Batts JetStream Ultra Blowing Wool Insulation Earthwool® Redi-Klad® 1000° Pipe Insulation with ECOSE® Technology	EPD, SRM, MIR EPD, SRM, MIR EPD EPD
Owens Corning	EcoTouch Kraft Faced Insulation 700 Series Fiberglas® Insulation Faced Thermafiber® Mineral Wool Insulation FOAMULAR Extruded Polystyrene (XPS)Insulation ECOTouch Insulation Unfaced 700 Series Fiberglas® Insulation Unfaced Fiberglass Pipe Insulation Thermafiber UltraBatt Mineral Wool Insulation	EPD, SRM, MIR

2. Flooring Products

Next, we suggest the Flooring category. There are a ton of options for carpet, VCT, and ceramic tile. All the brands that show up – Armstrong, Shaw, Interface, Milliken – come with EPDs and HPDs. Don't forget the adhesives! Laticrete alone has over 100 products with HPDs, plus WF Taylor, XL brands, and others.



Pictured: Armstrong Luxury Vinyl Tile (LVT) via Armstrong.

Manufacturer	Product	Compliance
American Olean	American Olean Brand Tile - El Paso TX Wall Tile Manufacturing Facility American Olean Brand Tile - Monterrey Mexico Floor Tile Manufacturing Facility American Olean Brand Tile - Muskogee NA Body Tile Manufacturing Facility American Olean Brand Tile - Fayette AL Quarry Tile Manufacturing Facility American Olean Brand Tile - Muskogee OK Super White Body Tile Manufacturing	EPD EPD EPD EPD EPD
Armstrong	Luxury Vinyl Tile (LVT) Vinyl Composition Tile (VCT) BioBased Tile Summit-all-in-one Hardwood Adhesive S-799 High Moisture Adhesive for Linoleum and Rubber Tile	EPD, MIR EPD, MIR EPD, MIR MIR MIR
Beaulieu Commercial	Nexterra Carpet Tile (Nylon 6,6 Face Fiber) Beaulieu Standard Broadloom (Nylon 6,6 Face Fiber) Level Hybrid Flooring Tile Level Tile with Nexterra Backing System Nexterra Carpet Tile (Nylon 6 Face Fiber)	EPD, MIR EPD, MIR EPD MIR EPD, MIR
Knauff	AFFIXX Tile - Piece Dyed Nylon 6,6 AFIRMA™Hardback Tile- Piece Dyed Nylon 6,6 AFFIXX Tile - Solution Dyed Nylon 6,6 NexStep Piece Dyed N66 Healthbond 2300 Adhesive	EPD EPD EPD, MIR MIR

Flooring Products

Manufacturer	Product	Compliance
ECORE International	UltraTile ECOsurfaces PlayGuard Expona Commercial Resilient Vinyl Floor Covering QT Sound Control	EPD EPD EPD EPD, MIR
Forbo Flooring Systems	Marmoleum Tile 2.0mm and 2.5mm Colorex SD Flotex Sheet Marmoleum 2.0mm and 2.5mm Coral Duo	EPD, SRM, MIR EPD, SRM, MIR EPD, MIR EPD, MIR EPD, MIR
Interface	Modular Carpet Tile Type 6,6 Nylon with GlasBac Modular Carpet Tile Type 6 Nylon with GlasBacRE Modular Carpet Tile Type 6 Nylon with NexStep Modular Carpet Tile Needlefelt with Graphlar Modular Resilient Flooring - LVT	EPD, SRM, MIR EPD, SRM, MIR EPD, SRM, MIR EPD, SRM, MIR EPD, MIR
Laticrete	L&M EMERYTOP 400 SPARTACOTE FLEX SB SPARTACOTE FLEX SB Low Gloss L&M FGS HARDENER PLUS SPARTACOTE FLEX PURE CLINICAL PLUS	MIR MIR MIR MIR MIR
Milliken	Solution Dyed Nylon 66 with Milliken ES Comfort Plus Backing Milliken Solution Dyed Nylon 6 with Milliken ESP Underscore Backing Digital Dye Injected Nylon 6 with Milliken ES Comfort Plus Backing Aquafil Econyl Solution Dyed Nylon 6 with Milliken ES Underscore Backing Milliken Continuous Dyed Nylon 66 Broadloom	EPD, MIR EPD, MIR EPD, MIR EPD, MIR EPD, MIR
Shaw Industries	EcoWorx Tile with Nylon Face Fiber EcoWorx PX Tile with Nylon Face Fiber Residential Broadloom with LifeGuard Backing System Classicbac TM PC with NYLON Face Fiber Engineered Ply-Core Hardwood Flooring	EPD, MIR EPD, MIR MIR MIR MIR

3. Gypsum Board

The next category we suggest is Gypsum Board. The big players are here too, including National Gypsum, USC, Certainteed, and American.

Gypsum board is another category with a wide variety of products like Type X, Fire Rated, Mold Resistant, GlasMat, Tile Backerboard, Shaftliner, abuse resistant – the list goes on and on! And they all count as separate products.



Pictured: Certainteed, Type X Gypsum Board

Manufacturer	Product	Compliance
American Gypsum	ClassicRic Gypsum Wallboard M-Bloc Gypsum Wallboard with Mold and Moisture Resistance M-Glass Glass Mat Gypsum Panels Exterior Soffit Gypsum Sheathing Exterior Gypsum Sheathing	MIR MIR MIR MIR MIR
Certainteed	Type X Gypsum Board Vancouver, British Columbia Facility Type X Gypsum Board, Seattle, WA Facility Type X Gypsum Board (MontrealFacility) M2tech Moisture & Mold Resistent Gypsum Board 12.7MM (1/2") (Montreal Facility) Type X Gypsum Board (Toronto Facility)	EPD, MIR EPD, MIR EPD, MIR EPD, MIR EPD, MIR EPD, MIR
National Gypsum	Gold Bond XP Fire-Shield Gypsum Boards Gold Bond SoundBreak XP Gypsum Boards Gold Bond XP Fire-Shield C Gypsum Boards Gold Bond Fire-Shield C Gypsum Boards Gold Bond Fire-Shield Gypsum Boards	MIR MIR MIR MIR MIR
USG	Sheetrock Brand EcoSmart Panels Mold Tough Firecode X Sheetrock Brand EcoSmart Panels Firecode 30 Sheetrock Brand EcoSmart Panels Firecode X Sheetrock Brand Firecode C Panels Sheetrock Brand Glass-Mat Panels Mold Tough AR Firecode	EPD, MIR EPD, MIR EPD, MIR MIR MIR

4. Ceiling Tile & Grid

Armstrong, Certainteed and USG all have multiple options, and when was the last time you had a project that just used 1 single ceiling tile throughout? And if you need to, you can always hang a different tile in the mechanical room! I didn't just say that, I'd never suggest such a shameless tactic to pick up a point!



Pictured: Mars ClimaPlus Healthcare

Manufacturer	Product	Compliance
Armstrong	Ultima Ceiling System	EPD, MIR
7 tillistrollig	Metalworks Snap In	EPD, MIR
	Metalworks Clip On	EPD, MIR
	Metalworks Torsion Spring	EPD, MIR
	Dune Ceiling System	EPD, MIR
	Ultima+	EPD, MIR
	Mesa Ceiling System	EPD, MIR
Certainteed	Baroque Ceiling Tile	EPD, MIR
Certainteed	Cashmere Style Edge Ceiling Tile	EPD, MIR
	Protectone Cashmere Ceiling Tile	EPD, MIR
	Fine Fissured High NRC Ceiling Tile	EPD, MIR
	Sereno Fine Fissured Ceiling Tile	EPD, MIR
	Sky Ceiling Tile	EPD, MIR
	Symphony m and Rx Symphony m	EPD, MIR
	cymphony in and hix cymphony in	£. 5,
	Mary Olive Dive Health and	FDD MID
USG	Mars ClimaPlus Healthcare	EPD, MIR
	Mars ClimaPlus HRC	EPD
	Mars ClimaPlus High-NRC	EPD
	Mars ClimaPlus	EPD
	RADAR™	EPD
	RADAR™Basic	EPD, MIR
	Radar ClimaPlus High-NRC	EPD

5. Paint Products

All the big manufacturers show up with compliant products in the paint category. What's great is that each sheen of paint counts as a product, so that means if you're using Sherwin Williams Promar 200 zero VOC paint, you can count the primer, flat, eggshell, semi-gloss, and gloss paints all as unique products! Throw in block fillers and direct to metals and you're nearly halfway there.



Manufacturer	Product	Compliance
Imperial Paints	ECOS Interior Matte Wall Paint Dark Base ECOS Interior Gloss Paint White Base ECOS Interior Eggshell Dark Base ECOS MDF Passivating Primer Paint ECOS Atmosphere Purifying Paint White Base ECOS Interior Semi-Gloss White Base ECOS Clear Gloss Varnish ECOS Interior Gloss Paint Dark Base ECOS Interior Semi-Gloss White Base Paint ECOS Electromagnetic Radiation (EMR) Shielding Paint	MIR
PPG	SPEEDHIDE zero Interior Flat Latex SPEEDHIDE zero Interior Semi-Gloss Latex SPEEDHIDE Interior/Exterior Masonry Hi Fill Latex Block Filler SICO Ecosource - Melamine SICO Ecosource - Primer/Sealer Ultra Zero VOC by Dulux Interior Latex Paint - Eggshell Ultra Zero VOC by Dulux Interior Latex Paint - Primer	EPD, MIR EPD, MIR EPD EPD EPD EPD EPD
Sherwin Williams	ProMar 200 Zero VOC Latex paint - Flat ProMar 200 Zero VOC Latex Primer Loxon Concrete & Masonry Primer PrepRite Block Filler Pro Industrial DTM Acrylic - Gloss Harmony Latex Paint - Semi-Gloss ProMar 400 Zero VOC - Primer	EPD, MIR EPD, MIR EPD, MIR EPD, MIR EPD EPD EPD

6. Doors & Hardware

Finally, we've arrived at the doors and hardware category.

There are a ton of options here from doors and frames to kickplates, gaskets, locks and closing devices. This one always slips through the cracks, but you could knock out half of your EPDs here.



Corbin Russwin IN120 Wifi Electronic Access Control Mortise Lock

Manufacturer	Product	Compliance
Arrow Lock and	5016N Series Door Closer	EPD
Door Hardware	7700 Series Swinging Door Operator	EPD
	7800 Series Swinging Door Operator	EPD
	7900 Series Swinging Door Operator	EPD
	900N Series Door Closer	EPD
Assa Abloy	Attack Resistant Opening Wood Doors	EPD
Assa Abioy	Pemko Mortise Aluminum Heavy Duty Geared Hinge	EPD
	Sketch Door	EPD
	Markar FM300 Stainless Steel Edge Mount Countinuous Pin and Barrel Hinges	EPD
	HES 1600 Series	EPD
	Earth Door Wood Door	EPD
	Attack Resistant Hollow Metal Steel Door	EPD
	Pemko PDB411E Acoustic Automatic Door Bottom	EPD
	High Pressure Laminate Wood Door	EPD
Corbin Russwin	IN120 Wifi Electronic Access Control Mortise Lock	EPD
Corbin Russwin	CL3300 Series Cylindrical Lock	EPD
	ED5400 SVR Exit	EPD
	IN100 Aperio Mortise Lock	EPD
	ED5000 Series Mechanical Exit Device	EPD
	CL3100 Series Vandal Resistant Lock	EPD
	ML2000 Series Mortise Lock	EPD
	ML20900 ECL Electromechanical Mortise Lock	EPD
	Access 600 RNE1	EPD

6. Doors & Hardware

Manufacturer	Product	Compliance
DORMA Deutschland GmbH	BTS 80 BTS 80 EMB and RTS 80 EMB Series concealed door closers BTS 75 V and RTS 87 Series concealed door closers 8600 and 8900 Series surface applied door closers 8000 and 9000 Series exits RTS 85 RTS 88 and BTS 84 Series concealed door closers	EPD EPD EPD EPD EPD
Norton	Norton 7500 Series Door Closer 5800 Series ADAEZ Door Opener Norton 1600 Series 6300 Series ADAEZ Door Opener 8000 Series Door Closer 9300 Series Door Closer Norton 7700PT Series Door Closer Norton DC 5600 Operator Norton 9500 Series Door Closer Norton 7200 Series Door Closer	EPD, SRM EPD
Sargent	80 Series Mechanical Exit Device 8200 Series Electromechanical Mortise Lock 7900 Series Mortise Lock Sargent Exit 80 Series 56- Electromechanical 281 Series Door Closer 1131 Ruen Series Door Closer 10 Line Cylindrical Lock 8200 Series Mortise Lock with EcoFlex 8200 SERIES MORTISE LOCK Harmony Mortise Lock	EPD
Schlage	Schlage L9000 Series Lock L9010 Mortise Lock Schlage AL Series Lock Schlage ND Series Lock Schlage B5000 Series Lock	EPD, SRM, MIR EPD, MIR EPD EPD EPD
Yale	3000 Series Door Closer 6000 SCR Exit Yale 4400 Series Door Closer 51 Series Door Closer 6000 Rim Exit	EPD EPD EPD EPD EPD

Recapping the Strategy Roadmap

Using this roadmap, most projects could pick up 6 paints, at least 4 flooring products, 3 door components, 4 wall products, 2 ceiling products, and 2 insulation types and you're home-free.

All without counting that they are worth 1.5 products apiece because all those EPDs are – you guessed it – Externally Reviewed!

So there you go. Hit up these submittals and I'm confident you'll have completed your requirements for EPDs and Ingredient reporting for Options 1 without having to get in fistfights with the architect, subcontractors, or anyone else.

Let's recap the strategy:

- Start your efforts with insulation, flooring, gypsum board, ceiling tiles, paint and doors/hardware
- Check the finish schedule early and often, and if possible, review with the architect to roadmap product selection
- Get to 20 products quickly, and you can change the acronym EPD from environmental product declaration to Every Person Drinking!

Summary of Strategies



6 Paints



4 Flooring Products



3 Door Components



4 Wall Products



2 Ceiling Products



2 Insulation Types

MORE BEST PRACTICES

For Environmental **Product Declarations**



1. Utilize Green Badger!

Sort of goes without saying but using your Green Badger project license makes this all so easy, so automated, so headache free.



2. Roadmap as early as possible with the architects.

We are seeing more and more architects detail out products to go for, but when they don't, get on the same page and have a joint strategy to make sure you're on the path to success.



3. Use a LEED materials cover sheet for your subcontractors.

Making them fill this out solves a number of problems - it helps you nail down material cost in a clean manner, requires the sub to put some thought into LEED attributes, and gives you a way to cross check the backup documentation.



4. Always double-check your Environmental Product Declarations

Double check the EPDs to make sure they detail what you need as you learned earlier. Make sure the whole EPD is included, not just 1 page of it.



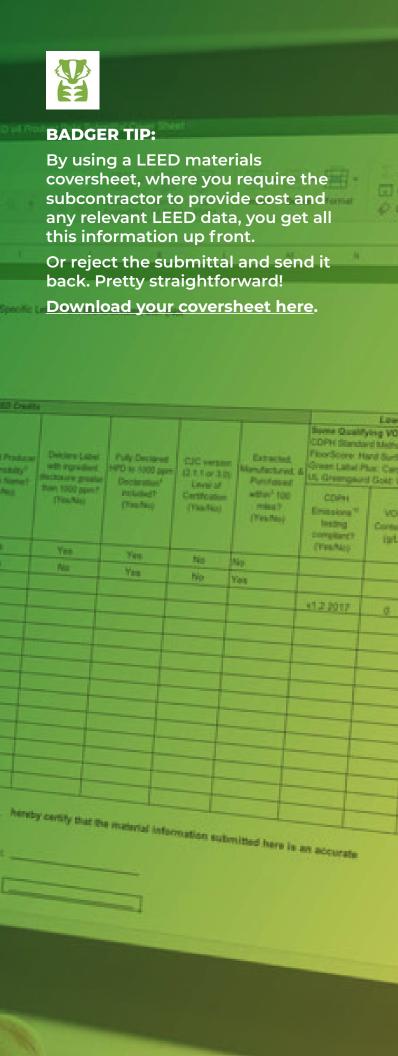
5. Create a LEED EPD folder

If you're not using Green Badger, go ahead and create a LEED EPD folder - you've got to submit ALL of them to USGBC, so having them in one folder you can zip up and upload at the end will make life a lot better come submission time.

Summary for MRc2 Option 1

Recaping how to earn 1 point:

- Make sure you are using LEED v4.1! Remember, you don't have to update your entire project to LEED v4.1
 you can opt-in on a credit by credit basis.
- Roadmap products early with the design team.
- Focus on insulation, flooring, gypsum board, ceiling tile, paints and doors/hardware.
- Verify and log your EPDs into a folder for easy submission to USGBC.



SUMMARY