

Guide to EPD and MIR: Options 1 & 2

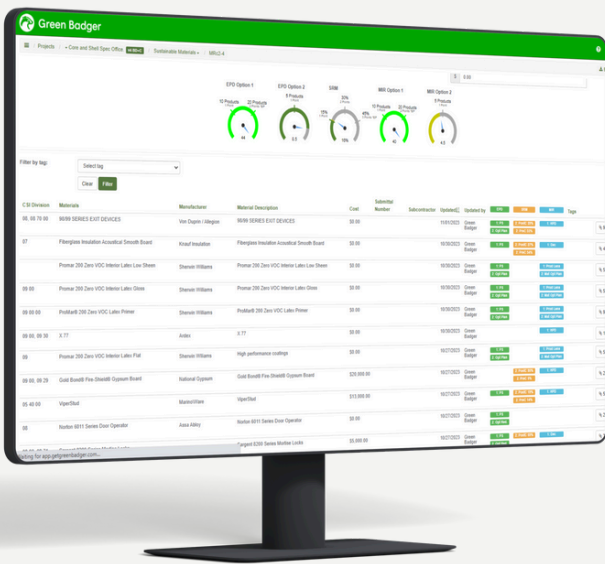


Table of Contents

- Introduction..... 1**
- About this Guide..... 4**
- Precursor and Q&A..... 5**
- What makes products compliant?..... 7**
- Environmental Product Declarations - Option 1..... 8**
- Material Ingredient Reporting - Option 1..... 10**
- LEED Compliant Products - Option 1..... 15**
 - Insulation..... 16
 - Flooring..... 18
 - Gypsum Board..... 21
 - Ceiling Tile & Grid..... 22
 - Paint Products..... 23
 - Doors and Hardware..... 25
- LEED Compliant Products - Option 2..... 28**
 - EPD Option 2..... 29
 - MIR Option 2..... 34
- Summary..... 38**

Introduction

It wouldn't be a day ending in "Y" if someone at Green Badger didn't have a conversation with a project team that resulted in the exasperated question of **"What the F@%K do I need to do to earn this credit?"**



We do our best to help them figure it out by consistently engaging with teams across the country, diligently reviewing quarterly updates, addendums, CIRs (because what's the point of creating a set of rules/standards if you're not going to change them every three months), and venting/raging/problem-solving with peer groups who feel the same frustrations as the rest of us.



While we could rant daily about the many “fun challenges” that come with earning LEED certification (I think Dante wrote about dealing with LEED review comments at some point), we’re taking the high road. We strive to be solution providers, and firmly believe in our motto of “Sustainability Simplified”.

We believe that people want to do the right thing – they just want to know what it is, without having to slog through and figure out what to do. While this might be an overly general statement for everything in life, it tends to hold true in LEED.

Don’t make me guess what paint/drywall/pipe complies. Just tell me which ones to use that earn the credit! And I think USGBC hears that.

Their effort to pre-approve products to let teams know they are compliant may help (and I know manufacturers have been begging to pay for yet another certification!). And if so, hopefully, it comes sooner rather than later.

In the meantime, we’ve created a guide to help teams plan a strategy to earn two of the Building Product Disclosure and Optimization credits for v4 and v4.1 - Environmental Product Declarations and Material Ingredient Reporting.

These two credits are chased on nearly every project we see (and we work with hundreds of project teams), yet they quite often pose a challenge to earn.

An update from our 2020 release, we're INCLUDING EPD and MIR Options 2 - which are now achievable with proper planning (and sometimes dumb luck!).

There's still not a ton, but we've seen 80+ products with EPD Option 2 documentation, and while a few hundred now existing for MIR Option 2. There still seems to be quite the learning curve for manufacturers and teams have to go through to demonstrate compliance (getting USGBC review comments on a manufacturer inventory isn't something we can do much about.)

Sourcing of Raw materials really comes down to recycled content and FSC wood, and, especially with the updates for v4.1) is pretty straightforward. Due to Federal procurement requirements, Biobased is growing in importance (but only valued at 50% by LEED, so maybe less important). But EPDs and MIR? We see too much finger pointing.



The general contractor gets a generic spec that says “Obtain EPDs where available,” but no strategy/guidance of where to look, or a spec that calls for a product with an HPD but it costs 20% more.

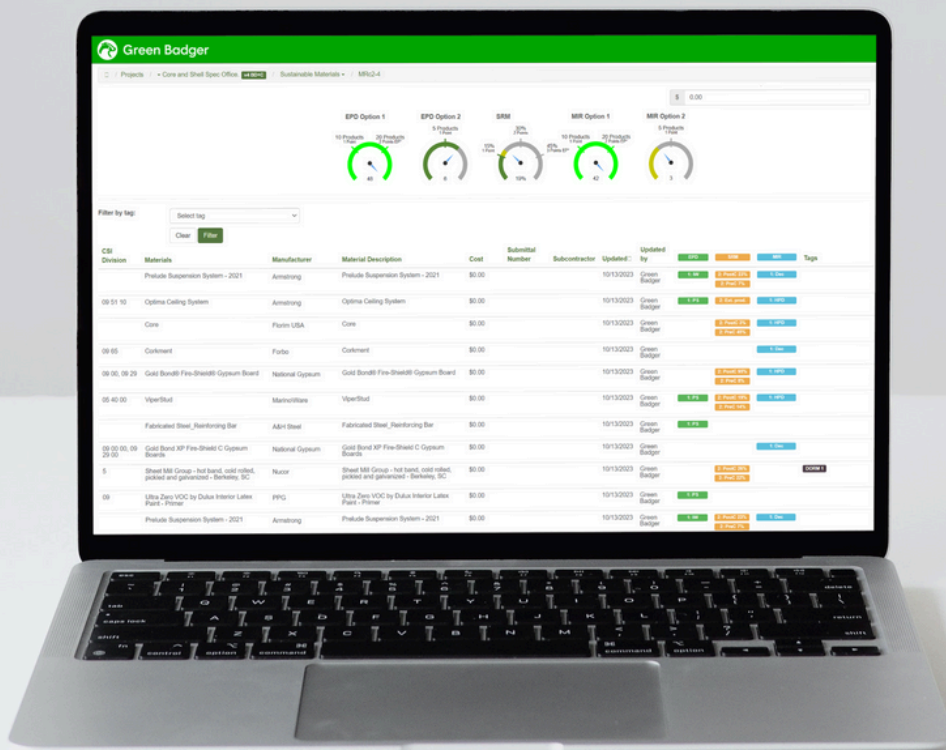
That's where this guide comes in. It's a starting point for where to most easily and readily find products that meet the requirements for EPDs and MIR.

This is NOT a comprehensive list of every single product that has LEED compliant documentation. Go spend a few hundred hours going product by product through all the various databases out there if you want that.

About This Guide

What this guide provides is a framework of the product categories that we at Green Badger see the broadest number of manufacturers and product lines with EPDs, HPDs, Cradle to Cradle certifications, Declare labels and anything else you need to earn those two credits.

Use it as a starting point. Hopefully you can find your 20 products in these few categories quickly and easily and get on with your life. The alternative involves scouring databases, reading through 500 page submittals, and earning a PhD in chemistry to determine if a product will help you earn your certification.



Precursor

A quick note before we get started - and by now, I really hope you know the answer to this question. Do you know the differences between LEED v4 and LEED v4.1, at least for the construction credits? Yes? Great! Collect \$200, please pass go, and jump to page 8! You didn't know v4.1 existed? Okay... here's what you need to know.

Green Badger unequivocally recommends that each and every project team opt into LEED v4.1 for the BPDO Credits (and low-emitting materials, but that's not what this guide is covering). Don't argue with the team, don't wonder if you can. Just do it. Life will be so much easier for you! Yea, yea, yea - USGBC dropped the term BPDO just like they dropped credit numbers, but guess what, everyone (including me) still calls the the BPDO credits and MRc2.



For those who don't want to take a Badger at their word, here's the quick breakdown of why you should immediately opt into v4.1 with a short Q+A.

Question: My project is registered as LEED v4. Can I use v4.1?

Answer: YES! Any LEED v4 project can opt into v4.1 on a credit by credit basis – no questions asked! You are eligible – the Badger guarantees it! It is not for the whole project. It is on a credit by credit basis, so if you only want to do it for the BPDO and Low Emitting Credits, you can.

Question: My project is registered as LEED v4.1. Can I use v4.1?

Answer: STFU

Question: What makes v4.1 better for the materials credits?

Answer: The Badger will make this as short and sweet as possible. For a more detailed answer, go to getgreenbadger.com/resources and check out the whole section dedicated to v4.1 updates.

One: Lower thresholds for certain project types. If your project is Commercial Interiors, Core and Shell, or Warehouse, the threshold for earning EPD and MIR Option 1 drops from 20 products to 10 products - its 50% easier to get!

Two: Most EPDs count for more. By far and away, most EPDs we see are Product Specific Externally reviewed products. This counted as 1 product under v4, but under v4.1, third-party externally review products count as 1.5 for both EPD and MIR. That means you really only need 14 products, rather than 20 which is a 30% reduction in the number of compliant products necessary for credit achievement.

Three: Sourcing of Raw Materials is much easier - we're not discussing strategies for this credit, but two big changes.

1. The threshold dropped from 25% to 15% making it much easier to achieve. A second point is available at 30% as well.
2. The structure/enclosure cap went away. That means no limitations on structural steel, rebar, concrete, etc that crippled project teams in v4.

Four: The calculators are awesome and super user-friendly! Just kidding, the calculators are still a nightmare of Excel crap that I couldn't imagine having to use on a day to day basis.

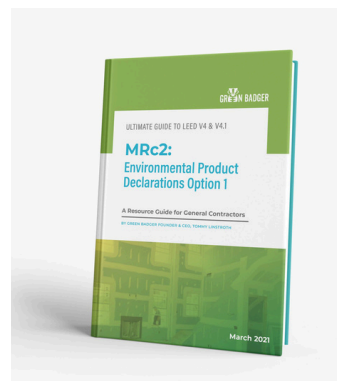
So there you go - use v4.1. Thresholds are lower across the board, and you need fewer compliant products.



EBOOK

MRc3: Sourcing of Raw Materials

It is a streamlined, more achievable version of the LEED v4 credit.



EBOOK

MRc2 Option 1: Environmental Product Declarations

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

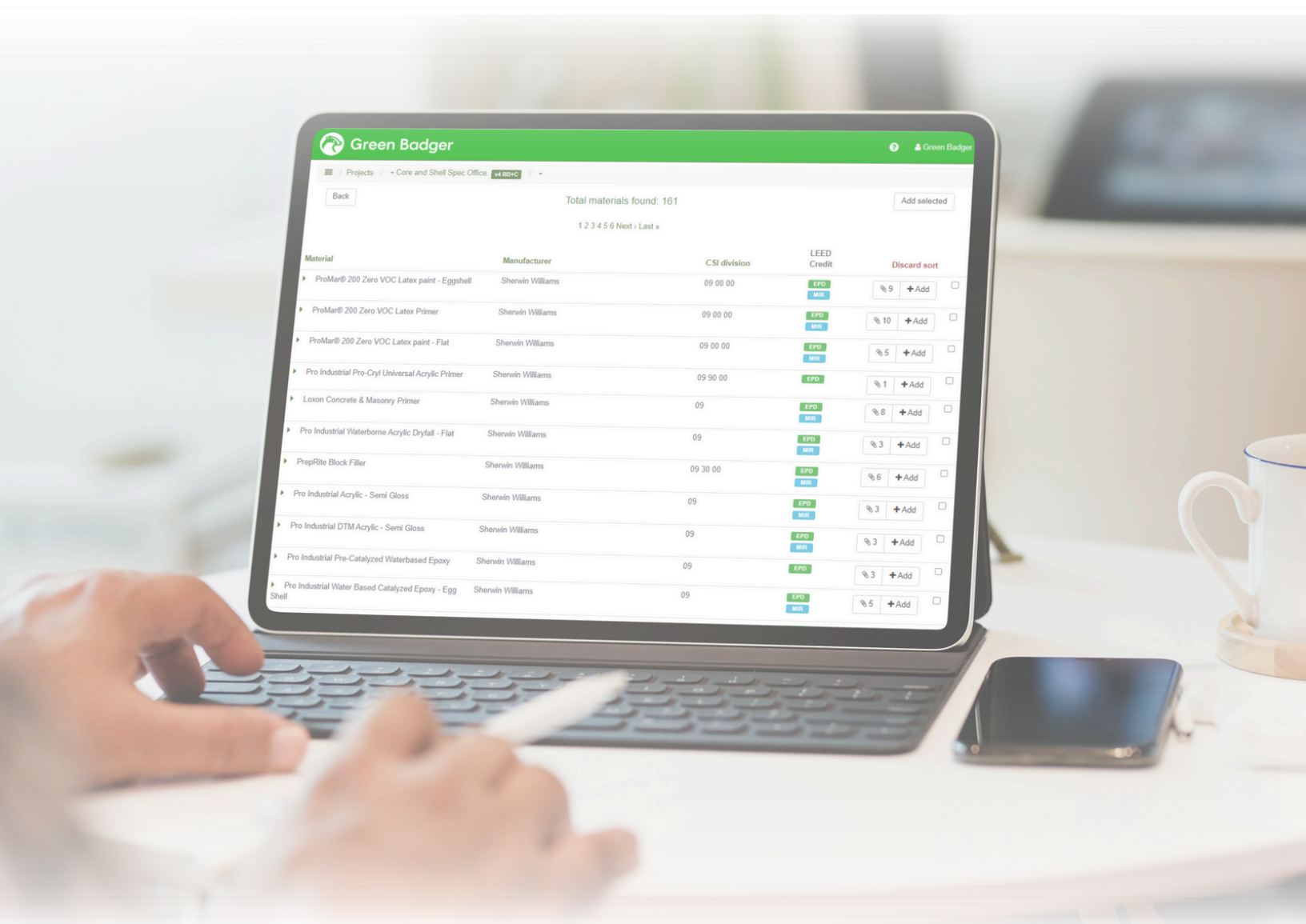
[CLICK HERE TO DOWNLOAD](#)

[CLICK HERE TO DOWNLOAD](#)

What Makes Products Compliant with LEED v4 and v4.1?

This guide is addressing four LEED credits: Environmental Product Declarations, Options 1 & 2, and Material Ingredient Reporting, Options 1 & 2.

For Option 1 for each credit, you need a total of 20 products that have an EPD or ingredient reporting to earn each credit (using v4.1, 10 if your project is Commercial Interiors, Core & Shell, or Warehouse) and some products count more than others.



Environmental Product Declarations

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 other that are coming around.

Broadly speaking, there are 3 main types of EPDs that we come across:

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

What’s the difference?

Industry wide EPDs are generic for certain product types of products such as Type X gypsum board or concrete. For LEED v4, it doesn’t really matter who the manufacturer is as long as they are a member of the association that generated the EPD.

This EPD to the right is from the Gypsum Association, and anyone from North America who is a member can claim this for their product. Industry wide EPDs are only worth a ½ a product contribution under v4.

LEED v4.1 is more stringent. For LEED v4.1, the manufacturer must be included or listed by name in the EPD as a participant. These industry-wide EPDs count as 1 full product under LEED v4.1.

Industry-wide EPD:
Gypsum Association

GYP SUM
ASSOCIATION

NSF

Certified Environmental Product Declaration
www.nsf.org

An Environmental Product Declaration

According to ISO 14025:2006 and ISO 21930:2017

An industry average cradle-to-gate EPD for 5/8" Type X Conventional Gypsum Board produced by Gypsum Association member companies for the USA and Canadian Markets.

NSF Certification, LLC
Ann Arbor, MI
www.nsf.org

Date of issue: 28/04/2020
Period of validity: 5 years
Declaration No.: EPD 10270

Type III Product Specific EPDs are for a very specific product from a defined manufacturer. You'll see it pretty easily.

This EPD is for Sherwin Williams PrepRite Block Filler. Nothing else, only this product.

Internally vs. Externally Reviewed

Type III Internally and Externally Reviewed just differ in whether an outside third party reviewed the information. You'll see it checked on an EPD pretty obviously, such as the case on this EPD, where the box specifically states Externally reviewed with a check mark.

Here's an example of an EPD where the box specifically states Externally reviewed with a check mark.

How many points are they worth?

For LEED v4, internally reviewed are worth 0.75 products and externally reviewed are worth 1 product. For LEED v4.1, it is 1 for internal and 1.5 products for external.

For LEED v4, Product Specific Externally Reviewed count as 1 product, and for v4.1, they count as 1.5.

EPD's must Comply with ISO & EN

Lastly, EPDs need to demonstrate they conform to ISO 14025 and EN 15804 or ISO 21930. You don't need to know what these ISO standards mean, but your EPD needs to say they were done in accordance with them.

We've seen a whole lot out there that say they meet ISO 14025, but don't reference EN 15804 or ISO 21930. These are getting comments from USGBC, through they've still been accepting them due to "independent research with the Program Operators."

Environmental Product Declaration - ProMar® 200 Zero VOC¹

Professional painters have it all with ProMar® 200 Zero VOC Interior Latex Paint. A complete professional line that not only has zero VOCs, but is also available in six sheens and every color. All while delivering maximum productivity with exceptional durability and touch up. And now, the flat sheen has improved hide and durability, and meets MPI certification. For additional information, please visit www.sherwin-williams.com.

The product image to the right is an example of one of the formulas covered by the EPD. A list of all relevant ProMar 200 Zero VOC formulas is shown in Table 1 on page 2 of the EPD.

Program Operator	NSF Certification LLC
Declaration Holder	The Sherwin-Williams Company
Declaration Prepared by	Doug Mazella (sustainability@sherwin.com)
Declaration Number	EPD10477
Declared Product	ProMar 200 Zero VOC
Product Category and Subcategory	Architectural Coatings - Interior Coatings
Program Operator	NSF Certification LLC nssf.org
Reference PCR	PCR for Architectural Coatings
Date of Issue	November 10, 2020
Period of Validity	5 Years
Contents of the Declaration	<ul style="list-style-type: none"> Product definition and material characteristics Overview of manufacturing process Information about in-use conditions Life cycle assessment results Testing verifications
The PCR review was conducted by	Thomas F. Globia, Ph. D. Industrial Ecology Consultants t.globia@industrial-ecology.com
This EPD was independently verified by NSF Certification LLC in accordance with ISO 21930 and ISO 14025.	Jenny Dorbeck dorbeck@nssf.org
<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External	
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by	Jack Geibig - EcoForm jack@ecoform.com
Functional Unit:	3m ² of covered and protected substrate for a period of 60 years (the assumed average lifetime of a building)
LCA Software Used	Gabi (Most Recent Version)
Market-Based Lifetime Used in Assessment	5 years
Design Lifetime Used in Assessment	3 or 7 years depending on base.
Test Methods Used to Calculate Design Life	ASTM D2896-11, ASTM D2406-06, ASTM D6736-06, ASTM D4829-04
Estimated Amount of Colorant	Varies (see Table 2)
Data Quality Assessment Score	Very Good
Manufacturing Location(s)	Various Plants Throughout the United States

¹ In order to support competitive assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and verifiability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the building level per ISO 21930 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-by-case basis.

Click here to Watch Now

Finding EPDs for LEED v4 and v4.1

WITH GREEN BADGER

Check out our YouTube channel for the video Finding EPDs for LEED v4 and v4.1 where we walk you through step by step.

Material Ingredient Reporting



There are multiple types of documentation that contribute towards ingredient reporting. The three most common the Badger sees are Health Product Declarations, Declare Labels, and Cradle to Cradle certifications (or material health certificates).

Let's take a look at what each one is, and what they need to show to comply with the LEED credits.

Health Product Declarations (HPDs) provide a full disclosure of the potential chemicals of concern in products by comparing product ingredients to a set of priority “hazard” lists based on the GreenScreen for Safer Chemicals and additional lists from other government agencies.

HPD's qualify for LEED v4 and 4.1 if the end use product has a published and complete Health Product Declaration with full disclosure of known hazards in compliance with the HPD open Standard. It must demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm).

Not all HPDs are fully LEED v4 compliant. Fortunately, the good people at the HPD Collaborative have put together an infographic showing what needs to be in place for an HPD to count.

For LEED v4 and 4.1, HPDs count as 1 product towards the 20 required to earn the point. For v4.1, third-party verified HPDs count as 1.5 products.

[Click here to Watch Now](#)

Finding Compliant HPDs for LEED v4 and v4.1

WITH GREEN BADGER

Check out our YouTube channel for the video Finding HPDs for LEED 4v and v4.1 where we walk you through step by step.

Material Ingredient Reporting continued...

Let's breakdown the HPD and take a look at each section.

Armstrong Suspension Systems Prelude by Armstrong World Industries
 CLASSIFICATION: 095300
 PRODUCT DESCRIPTION: Steel Suspension System

Health Product Declaration v2.1
 created via: HPDC Online Builder

Section 1: Summary
Basic Method / Product Threshold

CONTENT INVENTORY

<p>Inventory Reporting Format</p> <p><input type="checkbox"/> Nested Materials Method</p> <p><input checked="" type="checkbox"/> Basic Method</p> <p>Threshold Disclosed Per</p> <p><input type="checkbox"/> Material</p> <p><input checked="" type="checkbox"/> Product</p>	<p>Threshold level</p> <p><input type="checkbox"/> 100 ppm</p> <p><input checked="" type="checkbox"/> 1,000 ppm</p> <p><input type="checkbox"/> Per GHS SDS</p> <p><input type="checkbox"/> Per OSHA MSDS</p> <p><input type="checkbox"/> Other</p>	<p>Residuals/Impurities</p> <p><input checked="" type="checkbox"/> Considered</p> <p><input type="checkbox"/> Partially Considered</p> <p><input type="checkbox"/> Not Considered</p> <p><small>Explanation(s) provided for Residuals/Impurities?</small></p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Are All Substances Above the Threshold Indicated:</p> <p>Characterized Percent Weight and Role Provided? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Screened Using Priority Hazard Lists with Results Disclosed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Identified Name and Identifier Provided? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

MATERIAL | SUBSTANCE | RESIDUAL OR IMPURITY
GREENSCREEN SCORE | HAZARD TYPE

STEEL FOR SUSPENSION SYSTEMS | GALVANIZED STEEL | LT-UNK |
COATING FOR SUSPENSION SYSTEMS | TITANIUM DIOXIDE | T-1 | CAN |
END]

Number of Greenscreen BM-4(BM) contents..... 0
 Contents highest concern GreatScreen Benchmark or List translator Score..... LT-1
 Nanomaterial..... No

INVENTORY AND SCREENING NOTES:
 Residuals/impurities in select raw materials are quantitatively measured, and are displayed in the HPD when greater than 1000ppm.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE

See Section 3 for additional listings.
 LCA: Environmental Product Declaration
 Other: International Living Future Institute - Declare Label

CONSISTENCY WITH OTHER PROGRAMS

Pre-checked for LEED v4 Material Ingredients, Option 1

<p>Third Party Verified?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p>	<p>PREPARER: Self-Prepared</p> <p>VERIFIER:</p> <p>VERIFICATION #:</p>	<p>SCREENING DATE: 2017-08-23</p> <p>PUBLISHED DATE: 2017-06-23</p> <p>EXPIRY DATE: 2020-08-23</p>
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Armstrong Suspension Systems Prelude
www.hpdcollaborative.org
HPD v2.1 created via HPDC Builder Page 1 of 5

The box 1000 ppm or the more stringent 100 ppm must be selected.

Residuals/Impurities must be filled in – it cannot be blank.

If Partially Considered or Not Considered is selected: It must be explained in the Notes in section 2 of why that is the case.

It will also indicate if this HPD was third-party verified. (There aren't many that are, but if it is, then it counts for 1.5 products under LEED v4.1.

At the bottom of page 1, there needs to be a link where the HPD is available. Either from the HPD repository or the manufacturers site.

Characterized AND Screened must both be Yes (or Yes Ex/SC depending on HPD version).

Identified can be any of the options.

Material Ingredient Reporting continued...

Declare labels are another form of material ingredient reporting that are growing in popularity. According to the International Living Future Institute, who created and administers the program, a **Declare label tells you three things**.

1. Where does a product come from?
2. What is it made of?
3. Where does it go at the end of its life?

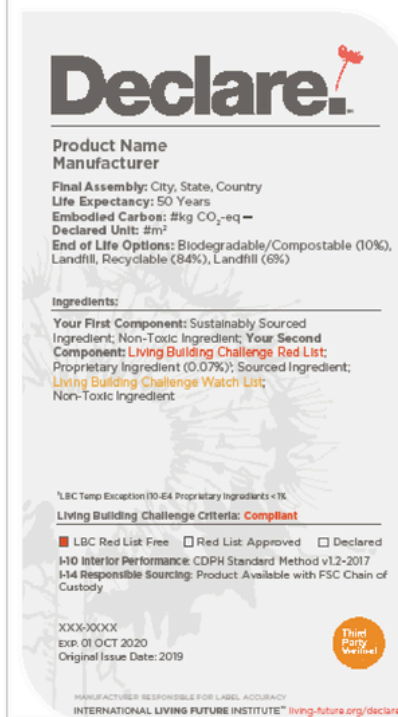
Similar to HPDs, not all Declare Labels are created equally in the eyes of LEED.

Declare has been approved as a compliance pathway for the LEED v4 and v4.1 Building

Product Disclosure and Optimization Credit, Option 1. Per USGBC, Declare labels contribute toward the credit when they meet the following requirements:

1. Declare labels designated as Red List Free OR Declared.
2. Declare labels designated as LBC Compliant that demonstrate content inventory to 0.1% (1000 ppm).
3. Declare labels meeting those requirements count as 1 product towards earning Material Ingredient Reporting in LEED v4 and v4.1. Third-party verified Declare labels count as 1.5 products for v4.1.

Declare labels are self-disclosed by manufacturers, and are Third Party Verified if the sticker appears on the label.



Source: International Living Future Institute

OPTION 1

LBC Red List Free and Declared products fulfill the disclosure credit requirements.

Red List Approved products that have disclosed at least 99.9% of ingredients fulfill the disclosure credit requirements.

Undisclosed proprietary ingredients that exceed 0.1% of the disclosure are not eligible for LEED v4 credits. Calculate the total proprietary content by summing the amounts in parentheses.

v4.1: Third Party Verified labels are worth 1.5 products for credit achievement calculations.

OPTION 2 (v4.1 only)

Third Party Verified, Red List Free labels fulfill the optimization credit requirements (valued at 100% by cost).

Material Ingredient Reporting continued...

Final Assembly Locations are collectively represented on a single label.


Embodied Carbon (optional) discloses the cradle-to-gate impacts of manufacturing the product as reported by manufacturer-specific Type III Environmental Product Declarations.

End-of-life options: take back programs; salvageable or reusable in its entirety; biodegradable/compostable (%); recyclable (%); landfill (%); hazardous waste.

Ingredients are reported by component. Ingredients without restriction appear in grey; **Red List chemicals appear in dark orange; Watch List Priority for Inclusion chemicals appear in light orange.**

LBC Temporary Exceptions recognize specific market limitations and provide a compliance pathway for products to obtain LBC Compliance recognition.

Declare Identifier for company and product, valid for 12 months. **Original Issue Date** indicates how long a product has been a registered product in the program.



Product Name
Manufacturer

Final Assembly: First City, State, Country; Second City, State, Country; Third City, State, Country
Life Expectancy: 50 Years
Embodied Carbon: # kg CO₂-eq ■
Declared Unit: # m²
End of Life Options: Recyclable (95%), Landfill (5%), Take Back Program (Program Name/Location)

Ingredients:

Your First Component: Sustainably Sourced Ingredient; **LBC Red List Ingredient;** **Your Second Component:** **LBC Watch List Priority for Inclusion;** Non-Toxic Ingredient; Undisclosed (<0.1%)²


¹LBC Temp Exception RL-009 Formaldehyde
²LBC Temp Exception RL-004var.a Proprietary Ingredients

Living Building Challenge Criteria: Compliant

I-13 Red List:
 LBC Red List Free **% Disclosed:** 99.9% at 100ppm
 LBC Red List Approved **VOC Content:** # g/L
 Declared

I-10 Interior Performance: CDPH Standard Method v1.2-2017
I-14 Responsible Sourcing: Product Available with FSC Chain of Custody

XXX-XXXX
 EXP. 01 OCT 2021
 Original Issue Date: 20XX



MANUFACTURER CLAIMS VERIFIED BY THIRD PARTY VERIFIED ASSESSOR
 INTERNATIONAL LIVING FUTURE INSTITUTE™ living-future.org/declare

LBC Criteria Compliance demonstrates compliance with all Imperatives applicable to the selection of building products within the Living Building Challenge. If a product meets the requirements for all applicable Imperatives, the product is considered fully compliant with the Living Building Challenge, and will be noted as such on the Declare label graphic itself.

I-13 Red List requires that manufacturers disclose the ingredients and VOC content (if applicable) in their products to ensure that they are free of Red List chemicals.

I-10 Interior Performance requires compliance with the California Department of Public Health (CDPH) Standard Method v1.1-2010 (or international equivalent) for all interior building products that have the potential to emit Volatile Organic Compounds (VOCs). The Declare label confirms a product's compliance with CDPH or an equivalent emissions standard.

I-14 Responsible Sourcing requires that manufacturers of wood products demonstrate sustainable extraction through certification with the Forest Stewardship Council, by meeting ILFI's definition of low risk or salvaged wood, or through the use of a formal LBC Exception.

Third Party Verification indicates assessment by a professional third-party assessor to ensure the accuracy of the manufacturer's supply chain, purchasing, ingredient claims, LBC compliance, and embodied carbon if reported.

Material Ingredient Reporting continued...

A third program that contributes to earning the MIR Option 1 credit is **Cradle to Cradle** certified products.

According to the Cradle to Cradle Institute who administers the program, products are assessed for environmental and social performance across five critical sustainability categories: material health, material reuse, renewable energy and carbon management, water stewardship, and social fairness.

A product is assigned an achievement level (Basic, Bronze, Silver, Gold, Platinum) for each category. A product's lowest category achievement also represents its overall certification level.

Cradle to Cradle Certified Product Scorecard	
MATERIAL HEALTH	Silver
MATERIAL REUTILIZATION	Silver
RENEWABLE ENERGY & CARBON MANAGEMENT	Silver
WATER STEWARDSHIP	Silver
SOCIAL FAIRNESS	Gold
OVERALL CERTIFICATION LEVEL	Silver
What's this?	


Products comply with MIR Option 1 if it has Material Health Certificate or is Cradle to Cradle Certified under standard version 3 or later with a Material Health achievement level at the Bronze level or higher. If it is Cradle to Cradle certified Bronze or higher, it complies, as the overall certification is based on the lowest level of achievement.

CRADLE TO CRADLE

PRODUCTS

INNOVATION
INSTITUTE

Material Health



BRONZE

FS-ONE MAX Firestop Sealant / CFS-FIL Firestop Filler Mastic

ISSUED TO Hilti Corporation EXPIRES 1 November 2024

STANDARD 3.1 LEAD ASSESSMENT BODY MBDC

PHASES AND PROCESSES CONSIDERED IN THE CHEMICAL TOXICITY ASSESSMENT
Final manufacturing; Professional use; Intended end of use: recycling; Unintended end of use: landfilling, incineration, uncontrolled burning, release to the environment

PRODUCTS COVERED
FS-ONE MAX Firestop Sealant / CFS-FIL Firestop Filler Mastic with product codes: 2101531, 22101532, 2101533, 2101534, 2101535, 2101536, 2052899, 2245696

PRODUCT OPTIMIZATION SUMMARY

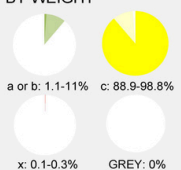
- Cradle to Cradle Certified® Banned List compliant
- Material Health optimization strategy developed
- No exposure from carcinogens, mutagens, or reproductive toxicants
- Meets VOC emissions testing requirements
- Product is fully optimized - does not contain any GREY or x-assessed chemicals
- Process chemicals have been identified and none are GREY or x-assessed

PERCENTAGE OF CHEMICAL SUBSTANCES ASSESSED BY WEIGHT

100%

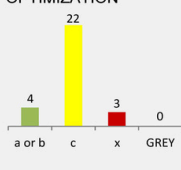
Inventory threshold for chemicals in each material = 100 ppm

ASSESSMENT RATINGS BY WEIGHT



% CHEMICAL SUBSTANCES

PRODUCT OPTIMIZATION



29 CHEMICAL SUBSTANCES

MHC6362

LEED Compliant Products

By now you should have already opted into LEED v4.1 for the materials credits, AND you know all the nuances of environmental product declarations and the various types of material ingredient reporting. Nice work!

Now onto the main course - where should I be looking for products that meet the LEED requirements? The Badger's about to tell you!

We'll offer a precursor beforehand: the Badger does not 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.

What follows are product categories that are found on nearly any construction project, with product types that have multiple brands and product offerings that help earn the LEED MR credits - that's it, nothing more, nothing less. If we missed a brand, sorry, let us know, we'll include it in an update.

Should you look for EPDs/HPDs in other places? Have at it!

But for an easy cheat-sheet of where the Badger would start looking to get to that magic number of 20 – read on.

CHEAT SHEET



IEQc4: Low Emitting Materials

There aren't currently a lot of products that comply with Materials and Resources Option 2 optimization requirements.

[CLICK HERE TO DOWNLOAD](#)



EBOOK

EPD & MIR Opt 2 Product Guide

There aren't currently a lot of products that comply with Materials and Resources Option 2 optimization requirements. Here's an updated list!

[CLICK HERE TO DOWNLOAD](#)

Insulation Products

Noise? 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.

The good news is that there are multiple brands that offer a variety of products chock full of EPDs, HPDs and are compliant with the CDPH standard (so you don't blow your low-emitting credits).

Here's just a sample of what you'll find from Certainteed, International Cellulose Corp, Johns Manville, Knauff and Owens Corning.

Insulation, insulation, insulation! Batt, rolls, fiberglass, cellulose – the types and uses abound.



MANUFACTURER	PRODUCT	COMPLIANCE
Certainteed	FIBERGLASS DUCT WRAP INSULATION	EPD, SRM
	FIBERGLASS BLANKET INSULATION	EPD, MIR
	Sustainable Insulation Unfaced & Kraft Faced Batts	EPD, MIR
	Blowing Wool Fiberglass Insulation	EPD, MIR
International Cellulose Corp	K-13 Acoustical/Thermal Insulation System	EPD, SRM, MIR
	Ure-K Acoustical/Thermal Insulation System	SRM, MIR
Johns Manville	Flat ENRGY 3® CGF	SRM
	800 SERIES SPIN-GLAS®	EPD, SRM
	PERMACOTE LINACOUSTIC R-300	EPD, SRM
	1000 SERIES SPIN-GLAS	EPD, SRM
	LINACOUSTIC® RC-HP	EPD

LEED Compliant Insulation Products continued...

MANUFACTURER	PRODUCT	COMPLIANCE
Knauff	JetStream Ultra Blowing Wool Insulation	EPD, MIR
	Fiberglass Insulation Acoustical Smooth Board	EPD, SRM, MIR
	Knauf Insulation EcoBatt® Insulation with ECOSE® Technology Unfaced Batts	EPD, SRM, MIR
	Knauf Insulation EcoBatt® Insulation with ECOSE® Technology Faced Batts	EPD, SRM, MIR
	Earthwool™ Redi-Klad™ 1000° Pipe Insulation with ECOSE® Technology	EPD, MIR
Owens Corning	EcoTouch Kraft Faced Insulation	EPD, SRM, MIR
	700 Series Fiberglas™ Insulation Faced	EPD, SRM, MIR
	Thermafiber® Mineral Wool Insulation	EPD, SRM, MIR
	FOAMULAR Extruded Polystyrene (XPS)Insulation	EPD, SRM, MIR
	ECOTouch Insulation Unfaced	EPD, SRM, MIR
	700 Series Fiberglas™ Insulation Unfaced	EPD, SRM, MIR
	Fiberglass Pipe Insulation	EPD, SRM, MIR
	Thermafiber UltraBatt Mineral Wool Insulation	EPD, SRM, MIR



EBOOK

BioBased Product Guide

Biobased products meet one of the Leadership Extraction Practices requirements for Sourcing of Raw Materials under LEED v4.1.

[CLICK HERE TO DOWNLOAD](#)

Flooring Products

Nearly every major flooring manufacturer has multiple options for you to choose from. What

was the last project you were on that only had 1 type of flooring? You can find carpet (tiles and broadloom), vinyl, cove base, tile, solid surface and more – all with CDPH compliance as well.

Don't forget the adhesives! You've got a number of products that can help you there. Heck, Laticrete has over 100 HPDs in their product catalogue.

Note: While you may use 6 different carpet styles, if they are all the same underlying product, then they only count once. Styles of carpet are not different products. It would have to be a different formula-tion/backing to count as another product.

You can literally stumble into a pile of EPDs and HPDs with your flooring submittal.



MANUFACTURER	PRODUCT	COMPLIANCE
American Olean	American Olean Brand Tile - El Paso TX Wall Tile Manufacturing Facility	EPD
	American Olean Brand Tile - Monterrey Mexico Floor Tile Manufacturing Facility	EPD
	American Olean Brand Tile - Muskogee NA Body Tile Manufacturing Facility	EPD, MIR
	American Olean Brand Tile - Fayette AL Quarry Tile Manufacturing Facility	EPD, MIR
	American Olean Brand Tile - Muskogee OK Super White Body Tile Manufacturing	EPD, MIR
Armstrong	Luxury Vinyl Tile (LVT)	EPD, SRM, MIR
	Vinyl Composition Tile (VCT)	EPD, SRM, MIR
	BioBased Tile	EPD, SRM, MIR
	S-799 High Moisture Adhesive for Linoleum and Rubber Tile	MIR
	Interlude, Prelude, & Suprafine XL Suspension Systems	EPD, SRM, MIR

LEED Compliant Flooring Products continued...

MANUFACTURER	PRODUCT	COMPLIANCE
Beaulieu Commercial	Nexterra Carpet Tile (Nylon 6,6 Face Fiber)	EPD, MIR
	Beaulieu Standard Broadloom (Nylon 6,6 Face Fiber)	EPD, MIR
	Level Hybrid Flooring Tile	EPD
	Level Tile with Nexterra Backing System	MIR
	Nexterra Carpet Tile (Nylon 6 Face Fiber)	EPD, MIR
Bentley Mills	AFFIX Tile - Piece Dyed Nylon 6,6	EPD, MIR
	AFIRMA™ Hardback Tile- Piece Dyed Nylon 6,6	EPD, MIR
	AFFIX Tile - Solution Dyed Nylon 6,6	EPD, MIR
	NexStep Piece Dyed N66	EPD, MIR
	Healthbond 2300 Adhesive	MIR
	High performance PC Broadloom Carpet	EPD, SRM, MIR
Crossville	Procelain Tile	EPD, SRM, MIR
ECORE International	UltraTile	EPD, MIR
	ECOsurfaces	EPD, MIR
	PlayGuard	EPD, MIR
	QT Sound Control	EPD, MIR
Forbo Flooring Systems	Marmoleum Tile 2.0mm and 2.5mm	EPD, MIR
	Colorex SD	EPD, SRM, MIR
	Flotex Sheet	EPD, MIR
	Marmoleum Sheet	EPD, SRM, MIR
	Coral Duo	EPD, MIR
Interface	Modular Carpet Tile Type 6,6 Nylon with GlasBac	EPD, SRM, MIR
	Modular Carpet Tile Type 6 Nylon with GlasBacRE	EPD, SRM, MIR
	Modular Carpet Tile Type 6 Nylon with NexStep	EPD, SRM
	Modular Carpet Tile Needlefelt with Graphlar	EPD, SRM
	Modular Resilient Flooring - LVT	EPD, MIR

LEED Compliant Flooring Products continued...

MANUFACTURER	PRODUCT	COMPLIANCE
Laticrete	L&M EMERYTOP 400	MIR
	SPARTACOTE FLEX SB	MIR
	SPARTACOTE FLEX SB Low Gloss	MIR
	L&M FGS HARDENER PLUS	MIR
	SPARTACOTE FLEX PURE CLINICAL PLUS	MIR
	PermcOLOR Grout	EPD, MIR
Milliken	Solution Dyed Nylon 66 with Milliken ES Comfort Plus Backing	EPD, MIR
	Milliken Solution Dyed Nylon 6 with Milliken ESP Underscore Backing	EPD, MIR
	Digital Dye Injected Nylon 6 with Milliken ES Comfort Plus Backing	EPD, MIR
	Aquafil Econyl Solution Dyed Nylon 6 with Milliken ES Underscore Backing	EPD
	Milliken Continuous Dyed Nylon 66 Broadloom	EPD, MIR
	Milliken Solution Dyed Nylon 6 with WellBAC Comfort	EPD, SRM, MIR
Shaw Industries	EcoWorx Tile with Nylon Face Fiber	EPD, SRM, MIR
	EcoWorx PX Tile with Nylon Face Fiber	EPD, SRM, MIR
	Residential Broadloom with LifeGuard Backing System	MIR
	Classicbac® PC with NYLON Face Fiber	EPD, MIR
	Engineered Ply-Core Hardwood Flooring	MIR
ClarkDietrich	Mill-Certified Cold-Formed Steel	EPD, SRM, MIR
Concrete	Cement Mortar for tile installation - TCNA (IW) National Readymix (IW)	
Tarkett Commercial	Johnsonite Baseworks Thermoset Rubber Wall Base	EPD, SRM, MIR

Gypsum Board

You'll find the major national manufacturers here, like American Gypsum, Certainteed, National Gypsum, USG – all with tons of options. Since the uses are different, they can count as separate projects.

Type X? Of course. Fire rated Type X? You're getting warmer! Shaftliner, tile backer, mold resistant, glasmat – if you're not getting excited, go pound another Monster energy drink!

You could pound a Monster energy drink and put your fist through an EPD with the options you've got in gypsum board!



MANUFACTURER	PRODUCT	COMPLIANCE
American Gypsum	ClassicRoc Gypsum Wallboard	MIR
	M-Bloc Gypsum Wallboard with Mold and Moisture Resistance	MIR
	M-Glass Glass Mat Gypsum Panels	MIR
	Exterior Soffit Gypsum Sheathing	MIR
	Exterior Gypsum Sheathing	MIR
Certainteed	Type X Gypsum Board Vancouver, British Columbia Facility	EPD, SRM, MIR
	Type X Gypsum Board, Seattle, WA Facility	EPD, SRM, MIR
	Type X Gypsum Board (Montreal Facility)	EPD, MIR
	M2TECH MOISTURE & MOLD RESISTENT GYPSUM BOARD 12.7MM (1/2") (Montreal Facility)	EPD, MIR
	Type X Gypsum Board (Montreal Facility)	EPD, MIR
National Gypsum	Gold Bond XP Fire-Shield Gypsum Boards	EPD, SRM, MIR
	Gold Bond SoundBreak XP Gypsum Boards	MIR
	Gold Bond XP Fire-Shield C Gypsum Boards	MIR
	Gold Bond Fire-Shield C Gypsum Boards	SRM, MIR
	Gold Bond Fire-Shield Gypsum Boards	EPD, MIR
	ProForm Paper Joint Tape	MIR
	Permabase Cement Boards	EPD, MIR
USG	Sheetrock Brand EcoSmart Panels Mold Tough Firecode X	EPD, SRM, MIR
	Sheetrock Brand EcoSmart Panels Firecode 30	EPD, MIR
	Sheetrock Brand EcoSmart Panels Firecode X	EPD, MIR
	Sheetrock Brand Firecode C Panels	EPD, MIR
	Sheetrock Brand Glass-Mat Panels Mold Tough AR Firecode	EPD, MIR

Ceiling Tile & Grid

Rare is the project that uses one ceiling tile throughout, and if you find you're one EPD short you can always hang a different type in the mechanical room... (the Badger didn't just say that, we'd never suggest such a shameless tactic to pick up a point).

This is another case where the big manufacturers make it easy for you. You have over 100 options to pick from between Armstrong, Certainteed and USG.

Another great product category where you know you'll have more than one option.



MANUFACTURER	PRODUCT	COMPLIANCE
Armstrong	Optima/Calla	EPD, SRM, MIR
	Ultima Ceiling System	EPD, SRM, MIR
	Metalworks Torsion Spring	EPD, SRM, MIR
	Dune Ceiling System	EPD, SRM, MIR
	Ultima+	EPD, SRM, MIR
	Mesa Ceiling System	EPD, SRM, MIR
Certainteed	Baroque Ceiling Tile	EPD, MIR
	Cashmere Style Edge Ceiling Tile	EPD, MIR
	Protectone Cashmere Ceiling Tile	EPD, MIR
	Fine Fissured High NRC Ceiling Tile	EPD, SRM, MIR
	Sereno Fine Fissured Ceiling Tile	EPD, SRM, MIR
	Sky Ceiling Tile	MIR
	Symphony m and Rx Symphony m	EPD, SRM, MIR
USG	Mars ClimaPlus Healthcare	EPD, SRM, MIR
	Mars ClimaPlus HRC	EPD, MIR
	Mars ClimaPlus High-NRC	EPD, SRM, MIR
	Mars ClimaPlus	EPD, SRM, MIR
	RADAR™	EPD, SRM, MIR
	RADAR™ Basic	EPD, SRM, MIR
	Radar ClimaPlus High-NRC	EPD, MIR

Paint Products

We'll skip the recap and just note that you can get literally 25% of the EPD/HPDs you need to earn the credit from paints (closer to 37% for v4.1 EPDs, since they are all third-party verified). While each color of a paint won't count as a separate product, each sheen or type of paint will.

So when you come in with a primer, flat, eggshell, semi-gloss and gloss paint, you've got 5 products helping you out. Throw in some block fillers and direct-to-metal paints and primers and you're practically 50% of the way there!

Don't have gloss paint on your project? There's a mechanical room for that!

If you missed the Badger blog post tying the Rolling Stones into EPDs and LEED, you can read that here.



MANUFACTURER	PRODUCT	COMPLIANCE
Benjamin Moore	Ultra Spec 500 Waterborne Interior Paint- all finishes	EPD, MIR
	Eco Spec Interior Latex Paint- all finishes	EPD, MIR
	Ultra Spec HP DTM Acrylic Enamels- Semi Gloss	EPD, MIR
	Multi-Purpose Primer	EPD, MIR
	SCUFF-X Interior- Matte	MIR
	Super Spec Latex Enamel Undercoat Primer and Sealer Coronado	MIR
	Super Kote 5000 Latex Production Block Filler Flat 958 Advance	MIR
	Waterborne Interior Alkyd Paint- All finishes	MIR
PPG	SPEEDHIDE zero Interior -ALL FINISHES	EPD, MIR
	SPEEDHIDE Interior/Exterior Masonry Hi Fill Latex Block Filler	EPD, MIR
	Pitt-Tech® Plus EP DTM	EPD
	SICO Ecosource - ALL FINISHES	EPD, MIR
	Prominence- ALL FINISHES	EPD, MIR
	DULUX® Ultra -ALL FINISHES	EPD, MIR
	DULUX® Lifemaster - ALL FINISHES	EPD, MIR
	PITT-GLAZE® WB1 Pre-Cat Epoxy Semi-Gloss	EPD
	SEAL GRIP Acrylic Universal Primer/Sealer	EPD
	AQUAPON WB EP	EPD

LEED Compliant Paint Products continued...

MANUFACTURER	PRODUCT	COMPLIANCE
Sherwin Williams	ProMar 200 Zero VOC Latex paint - <i>All Finishes</i>	EPD, MIR
	ProMar 200 Zero VOC Latex Primer	EPD, MIR
	Loxon Concrete & Masonry Primer	EPD, MIR
	PrepRite Block Filler	EPD, MIR
	Pro Industrial DTM Acrylic - <i>All Finishes</i>	EPD, MIR
	Harmony Latex Paint - Semi-Gloss	EPD
	ProMar 400 Zero VOC - <i>All Finishes</i>	EPD, MIR
	Pro Industrial Waterborne Acrylic Dryfall - <i>All Finishes</i>	EPD, MIR
Kelly Moore	Premium Professional Interior Paint and Enamels- <i>All Finishes</i>	EPD, MIR
	AcryShield Premium Exterior Paint and Enamels- <i>All Finishes</i>	EPD, MIR
	DuraPoxy Premium Interior Paint and Enamels- <i>All Finishes</i>	EPD, MIR
	DTM Exterior Enamels, -Eggshell & Semi-Gloss	EPD, MIR
	Kel-Pro Interior Paint and Enamels- all finishes	EPD, MIR



TEMPLATE

Contractor Submittal Example

Before you start building, one big job for contractors is handling construction submittals. They're a big deal for making sure your project's on point, runs on schedule, and doesn't blow your budget. To make your construction business shine, you gotta know what these submittals are, why they matter, the basics of a good template, what goes into them, and how to make the whole process easier.

[CLICK HERE TO DOWNLOAD](#)

Doors and Hardware

Make sure you're grabbing all the EPDs and HPDs from your door and hardware submittal! We see this one overlooked A LOT – and that's a huge mistake. I haven't been on a project that hasn't had a door in it, and I'm guessing you haven't either.

All of these products serve different functions, so you can count them all. Wood doors, metal doors, door frames, hinges, handles, closers, locks, security devices – knock it out of the park here!

You'll see a lot of familiar brands, many under the Assa Abloy umbrella, but there's others as well.

We're getting close to the end, so don't let the door hit you on the rear on your way out! ...see what we did there.



MANUFACTURER	PRODUCT	COMPLIANCE
Assa Abloy	Pemco S88 SiliconSeal Adhesive Smoke/Fire Gasket	EPD, SRM, MIR
	Pemco Mortise Aluminum Heavy Duty Geared Hinge	EPD
	Pemco S773 SiliconSeal Adhesive Smoke/Fire Gask	EPD, SRM
	HES 1600 Series Electric Strike	EPD, MIR
	AADG Attach Resistant Opening	EPD, MIR
	Ceco Imperial Hollow Metal Door Polyurethane Core	EPD, SRM
	Curries 747 Door	EPD, SRM, MIR
	Pioneer LW-Series Steel Stiffened Door	EPD, SRM
	SecUritron M62 MagnaLock	EPD, SRM, MIR
Corbin Russwin	IN120 Wifi Electronic Access Control Mortise Lock	EPD, SRM
	CL3300 Series Cylindrical Lock	EPD, SRM
	ED5400 SVR Exit	EPD, SRM
	ED5000 Series Mechanical Exit Device	EPD, SRM
	CL3100 Series Vandal Resistant Lock	EPD, SRM
	ML2000 Series Mortise Lock	EPD, SRM
	ML20900 ECL Electromechanical Mortise Lock	EPD, SRM
	DC8000 Series Door Closer	EPD, SRM

LEED Compliant Doors and Hardware continued...

MANUFACTURER	PRODUCT	COMPLIANCE
dormakaba	RTS88 Overhead Concealed Closers	EPD
	BEST T Deadbolt Series	EPD, MIR
	ALTERRA ALT50 Fixed Partition with Frameless Door	EPD, MIR
	Automatic Sliding Door Operator ES 200	EPD, MIR
	BEST Rack and Pinion Door Closer EHD9000	EPD, SRM, MIR
Norton Rixon	7500 Series Door Closer	EPD, SRM, MIR
	6000 Series Swinging Door Operator	EPD, MIR
	8000 Series Door Closer	EPD, SRM
	9500 Series Door Closer	EPD, SRM
	5800 Series ADAEZ Door Opener	EPD, SRM
	147 Offset Pivot	SRM, MIR
Sargent	80 Series Mechanical Exit Device	EPD, SRM
	8200 Series Electromechanical Mortise Lock	EPD, SRM
	7900 Series Mortise Lock	EPD, SRM
	Sargent Exit 80 Series 56- Electromechanical	EPD, SRM
	1131 Ruen Series Door Closer	EPD, SRM
	10 Line Cylindrical Lock	EPD, SRM
	8200 Series Mortise Lock with EcoFlex	EPD, SRM
	8200 SERIES MORTISE LOCK	EPD, SRM, MIR
	Harmony Mortise Lock	EPD, SRM
Schlage	Schlage L9000 Series Lock	EPD, SRM, MIR
	L9010 Mortise Lock	EPD, MIR
	Schlage AL Series Lock	EPD
	Schlage ND Series Lock	EPD, MIR
	Schlage B5000 Series Lock	EPD

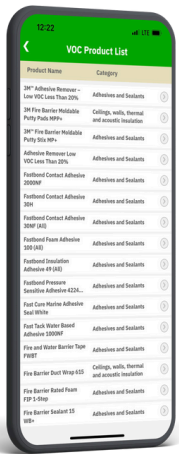
LEED Compliant Doors and Hardware continued...

MANUFACTURER	PRODUCT	COMPLIANCE
Yale	3000 Series Door Closer	EPD, SRM
	6000 SVR Exit	EPD, SRM
	Yale 4400 Series Door Closer	EPD, SRM, MIR
	6000 Rim Exit	EPD
	8800 Series Mortise Lock	EPD, SRM
Allegion	98/99 Series Exit Device	EPD, SRM, MIR
	IVES Architectural Hinges	EPD, MIR
	LCN 4000 Series Door Closer	EPD, SRM, MIR
	Schlage L9000 Series	EPD, SRM, MIR
	Von Duprin 33A/35A Series Exit Device	EPD, MIR
	Steelcraft L Series Door	EPD, SRM, MIR
	DL Series Doors with Honeycomb Core	EPD, SRM, MIR
Eggers	Interior Flush Wood Doors	EPD, MIR
	Interior Flush Wood Doors with Mineral Core	MIR
	Interior Flush Wood Doors with Structural	MIR
	with Composite Lumber Core	

LEED v4.1 EPD & MIR Option 2



There aren't currently a lot of products that comply with Materials and Resources Option 2 optimization requirements. That's why we release updates to keep your teams in the loop when new products hit the market.

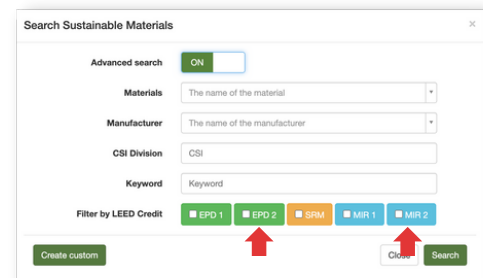


Green Badger's product database has around 90 products that comply with EPD option 2 requirements right now, and around 350 products for MIR option 2. This might seem like a lot, but most of those are Sherwin Williams paints for EPD option 2. This is because each sheen of paint counts as a separate product, and Sherwin Williams has a lot of product lines with many different sheens available.

However, if you're trying to achieve Option 2 LEED credits and need one more product that complies to hit your goals, Green Badger's product database is the perfect place to start!

As of January 2024, there are 90+ of products that comply with EPD Option 2 and 350+ of products that comply with MIR Option 2 in Green Badger's Product Database

Green Badger users can now search by LEED Materials & Resources Option 2 credit compliance in our green product and materials database to quickly see which products comply to earn each credit.



EPD Option 2

The credit thresholds have been re-written so that only 5 products are needed, and there's actually a confirmed standard to demonstrate compliance. The challenge that remains? As you'll see, there are still only a handful of these products, so you better plan on using all of them and have them identified from spec to installation. There's literally no room for error.

1 point under EPD Option 2 could be achieved for selecting 5 compliant products from 3 different manufacturers. See the following compliant products, whose manufacturers developed the required impact reduction analysis and plans (LEED v4.1 credit substitution):

The MRc2 credit that was dead-on-arrival in LEED v4, Multi-Attribute Optimization, now is achievable with some planning (or dumb luck) in LEED v4.1.



Life Cycle Impact Reduction Action Plan	value at ½ product
Life Cycle Impact Reductions in Embodied Carbon	value at 1 product
Life Cycle Impact Reductions in Embodied Carbon – 10% reduction global warming potential	value at 1.5 products
Life Cycle Impact Reductions in Embodied Carbon – 20% reduction in global warming potential and 5% reduction 2 other impact categories	value at 2 products

* expiring in 2022 ** expiring in 2023

EPD Option 2 Products continued...

What qualifies as a Lifecycle Impact Reduction Plan?

The manufacturer needs to have a product-specific LCA using EN 15804 or ISO 21930 for the product it is claiming. If it has an EPD that qualifies under Option 1 here, you're in good shape. There, the manufacturer has to provide a publicly available action plan to mitigate or reduce life cycle impacts. It must be critically reviewed and include the following components.

- Description of the LCA used by the manufacturer to complete the analysis (pretty straightforward, would already be found in the EPD).
- Identification of the largest life cycle impact areas identified in the analysis and a narrative description of the impact areas targeted for reduction in the action plan.
- Description of specific steps anticipated in implementation of the action plan, with dates and a timeline for implementation.
- This is just a plan for reducing the product's impact down the road – to get 50% credit (or ½ a product), the manufacturer needs to develop a plan to reduce impact, but it doesn't actually need to be implemented. You've got to crawl before you walk.

What qualifies as Life Cycle Impact Reductions in Embodied Carbon?

This one gets complicated pretty quickly if you read all the details. Literally, check it out below if you're a glutton for punishment:

Products that have demonstrated environmental impact reductions for the specified functional unit based on a current third-party EPD or verified LCA that conforms to the comparability requirements of ISO 14025 and ISO 21930. Here's where your good old EPD comes in. On top of that, it needs to be demonstrated that there is a reduction in the global warming potential (GWP) impact category. Any reduction in GWP is good for 1 product, a 10% reduction counts for 1.5 products, and 20% reduction AND at least a 5% reduction in 2 other impact categories yields 2 products.

What are these impact categories, you may be asking?

Well, I'll tell you. The impact categories are:

- Global warming potential (greenhouse gases), in CO₂e;
- Depletion of the stratospheric ozone layer, in kg CFC-11e;
- Acidification of land and water sources, in moles H⁺ or kg SO₂e;
- Eutrophication, in kg nitrogen equivalent or kg phosphate equivalent;
- Formation of tropospheric ozone, in kg NO_x, kg O₃ eq, or kg ethene; and
- Depletion of nonrenewable energy resources, in MJ using CML / depletion of fossil fuels in TRACI.

EPD Option 2 Products continued...

Earning 1 point for MRc2 Option 2 Multi-Attribute Optimization



This image shows you what the documentation looks like and you don't need a lab coat to understand it!

Earning 1 point for MRc2 Option 2: Multi-Attribute Optimization



Paint



Flooring



Gypsum Board



Wall Panels



Toilets



Insulation

EPD Option 2 Products continued...

The following list is not meant to be comprehensive – there are 350+ products in the Green Badger database that comply with MIR Option 2 requirements. The sample below represents some of the more popular products used in Green Badger projects.

ACOUSTICAL CEILINGS (09 51 00)

2 Product Weight

- USG Mars 7/8 Mars Healthcare High NRC (80/30) Acoustical Panels

TILE CARPETING (09 68 00)

.5 Product Weight

- Milliken Solution Dyed Nylon 6 with WellBAC Comfort*
- Interface Modular Carpet Tile Type 6 Nylon with GlasBacRE*

2 Product Weight

- J+J Flooring Kinetex® Modular Tiles*

THERMAL INSULATION (07 21 00)

1.5 Product Weight

- Owens Corning FOAMULAR® NGX™ 150 Extruded Polystyrene (XPS) Rigid Foam Insulation
- Owens Corning FOAMULAR & FOAMULAR NGX 350 & 350 CVI XPS

2 Product Weight

- Owens Corning Thermafiber Formaldehyde-free Mineral Wool Insulation
- Owens Corning Thermafiber SAFB Mineral Wool Insulation - Unfaced
- Owens Corning Thermafiber RainBarrier Continuous Mineral Wool Insulation
- Owens Corning Thermafiber FireSpan Mineral Wool Insulation
- Owens Corning Thermafiber UltraBatt FF
- Owens Corning Thermafiber Safing Formaldehyde Free Mineral Wool

LOOSE-FILL INSULATION (07 21 23)

1.5 Product Weight

- Advance Fiber Technology Carbon Smart Loose-Fill Cellulose Insulation

DOOR ACCESS CONTROLLERS AND OPERATORS (08 71 00)

.5 Product Weight

- Allegion Von Duprin 98/99 Series Exit Device
- Allegion IVES Architectural Hinges

1 Product Weight

- ASSA ABLOY Sargent 8200 Mortise Lock with EcoFlex Technology

2 Product Weight

- ASSA ABLOY Medeco XT Mortise Cylinder
- Allegion Von Duprin QEL Latch Retraction Kit
- Norton 6011 Series Door Operator
- Allegion Falcon MEL Latch RetractionKit

DOOR HARDWARE (08 17 00)

2 Product Weight

- ASSA ABLOY Corbin Russwin ED5000 Series Mechanical Exit Device
- ASSA ABLOY Corbin Russwin IN120 Electronic Access Control Mortise Lock
- ASSA ABLOY Corbin Russwin CL3300 Series Cylindrical Lock
- ASSA ABLOY Sargent 10X Line Cylindrical Lock

ASPHALT SHINGLES (07 31 13)

1.5 Product Weight

- Malarkey Vista AR Shingle Line

2 Product Weight

- Malarkey Dura-Seal Shingle
- Malarkey Highlander NEX AR Shingle Line
- Malarkey Ecoasis NEX Shingle Line

CERAMIC TILE PANELS (07 44 00)

.5 Product Weight

- Fireclay Tile Recycled Clay Body

EPD Option 2 Products continued...

GYPSUM BOARD (09 29 00)

1.5 Product Weight

- USG Sheetrock Brand EcoSmart Panels Firecode X

PAINTS AND COATINGS (09 91 23)

.5 Product Weight

- Sherwin Williams ProMar 200 Zero VOC Latex Primer*
- Sherwin Williams ConFlex Block Filler*
- Sherwin Williams Pro Industrial Pre Catalyzed Waterbased Epoxy*
- Sherwin Williams Harmony Latex Primer**
- Sherwin Williams Loxon Concrete and Masonry Primer**

TILING (09 30 00)

1.5 Product Weight

- Crossville Porcelain Tile

RESILIENT FLOORING (09 65 19)

.5 Product Weight

- Interface Modular Resilient Flooring, 4.5 MM LVT on Sound Choice Backing*

2 Product Weight

- Tarkett Premium and Plus ranges homogeneous vinyl flooring*

PARTITIONS (10 22 23)

1 Product Weight

- 3form Varia Ecoresin*

DECORATIVE GLASS GLAZING (08 81 13)

2 Product Weight

- 3form Pressed Glass*
- 3form Chroma Panels*

PLUMBING FIXTURES (22 42 00)

1.5 Product Weight

- Kohler Co Highcliff Toilet*

FLUSHOMETERS (22 42 43)

1 Product Weight

- Sloan Diaphragm Flushometers
- Sloan Piston Flushometers

1.5 Product Weight

- Sloan Sensor Flushometers



MIR Option 2

What is it about Option 2's that USGBC hates? If they make an Option 2 available, it is always the most complicated, cumbersome, and labor-intensive point available. In fact, if you want a good cheat-sheet, if there's an Option 2 available just run the other way. Option 2 of this credit in LEED v4 wasn't achievable, so they added an Option 3!

Thankfully, all of that is DOA for v4.1. Option 2 remains the same structurally, but the compliance thresholds have dropped significantly, and it puts this credit in the realm of possibly achievable.

Use products that have a compliant material ingredient optimization report or action plan. Use at least 5 permanently installed products sourced from at least three different manufacturers.



Material Ingredient Screening and Optimization Action Plan	value at 1/2 product
Advanced Inventory & Assessment	value at 1 product
Material Ingredient Optimization	value at 1.5 products

MIR Option 2 Products continued...

What qualifies as a Material Ingredient Screening and Optimization Action Plan?

The manufacturer has screened the product to at least 1,000 ppm and has provided a publicly available inventory meeting the requirements of Option 1 - that's the easy part. If you have an HPD already, the first step in the right direction!

Next, the manufacturer must create a detailed action plan to mitigate or reduce known hazards using the principles of green chemistry. This action plan needs to describe the screening platform and then identify the specific green chemistry principles targeted for implementation, specific steps anticipated for implementation, proposed changes in formulation or manufacturing processes that are planned and specific dates, and a full timeline for completion of all the steps described in the action plan.

If they do all that, their product counts as a whopping 0.5 contribution to earning this point.

What qualifies as an Advanced Inventory & Assessment?

The product needs a third-party verified HPD that was inventoried to 100 ppm. From there, you better be an expert in the GreenScreen Benchmark Assessment because it can't have any LT-1 or GHS Category 1 Hazards (whatever those are) or at least 75% by weight of the product is assessed using the GreenScreen Benchmark. Fortunately, there are easy-to-understand options available that don't require a chemistry degree.

- Declare labels designated as Red List Free that are third-party verified, or Living Product Challenge certified products that include a Red List Free Declare label.
- Cradle to Cradle: Product has Material Health Certificate or is Cradle to Cradle Certified™ under standard version 3 or later with a Material Health achievement level at the Bronze level or higher.

What qualifies as Material Ingredient Optimization?

The product needs a third-party verified HPD that was inventoried to 100 ppm with no Benchmark 1 or LT-1 hazards AND 95% by weight assessed using the GreenScreen Benchmark
OR

- Cradle to Cradle Certification: Product has Material Health Certificate or is Cradle to Cradle Certified™ under standard version 3 or later with a Material Health achievement level at the Silver level or higher.
- Living Product Challenge Certification: Products certified to the Living Product Challenge which includes achievement of Imperative 09: Transparent Material Health.

MIR Option 2 Products continued...

The following list is not meant to be comprehensive – there are 350+ products in the Green Badger database that comply with MIR Option 2 requirements. The sample below represents some of the more popular products used in Green Badger projects.

STEEL (05 31)

1 Product Weight

- ASC Steel Deck

REBAR (05 41)

1 Product Weight

- Nucor Bar Mill Group Rebar

INSULATION (07 00)

1 Product Weight

- International Cellulose K13 Acoustical Thermal Insulation

ROOFING & MEMBRANES (07 52 & 07 54)

1 Product Weight

- Soprema Bituminous Waterproofing Membranes
- Hertalan EPDM

ENTRANCE GRID SYSTEM (12 48)

1.5 Product Weight

- Construction Specialties Gridline

CEILINGS (09 54)

1.5 Product Weight

- Rockfon Sonar, Radar
- Lindner LMD Metal Ceiling
- Integra Metal Ceiling Panels

GLASS & GLASS PARTITIONS (08 81)

1 Product Weight

- AGC Float Glass
- Guardian LamiGlass
- Guardian Sputter Coated Float Glass

1.5 Product Weight

- AGC Patterned Glass
- AGC Pyrobel Glass
- Guardian
- Lindner

WINDOWS (08 51)

1.5 Product Weight

- Heroal Windows

ALUMINUM SYSTEMS (08 51 & 08 81)

1 Product Weight

- Kawneer 1600 Wall System

1.5 Product Weight

- Kawneer Aluminum Façade & Sliding Systems

HARDWARE (08 71)

1 Product Weight

- Pemko Perimeter Gasketing

FABRICS/WALL COVERINGS (09 72)

1.5 Product Weight

- Carnegie Xorel

FIRESTOP (07 84)

1 Product Weight

- Hilti Firestop

SHADE SYSTEMS (10 71 & 12 24)

1 Product Weight

- Mecho

1.5 Product Weight

- Kawneer Versoleil Sun Control Systems

RESILIENT FLOORING (09 65)

1 Product Weight

- Mannington Mills Rubber Tile
- Tarkett Rubber Flooring

1.5 Product Weight

- Gerflor Resilient Flooring
- Johnsonite Vinyl Wall Base
- Mondo (Artigo) Rubber Flooring
- Nora Noracare, Noraplan Standard
- Tarkett Linoleum & Base

MIR Option 2 Products continued...

ADHESIVES (0965)

1 Product Weight

- Forbo Sustain
- WF Taylor Resilient Flooring Adhesive
- XL Brands - various

1.5 Product Weight

- Forbo Sustain
- Henkel Loctite HB S Purebond Line
- Shaw S150 Spray Adhesive
- Tarkett Resilient Flooring & Cove Base Adhesive
- WF Taylor Adhesives

CARPET (0968)

1 Product Weight

- EF Contract (J&J) Kinetex
- Mohawk Ecoflex
- Shaw EcoWorx

1.5 Product Weight

- Bentley Mills Affix, Afirm, EliteFlex
- Bentley Mills Tile & Broadloom
- Interface CQuest™ Bio and Biox
- Modulys Ecoback/Comfortback
- Patcraft (Shaw) EcoWorx® Tile Carpets
- Tandus Centiva Powerbond Ethos Cushion
- Milliken Wellbac

DOOR & WALL PROTECTION (1026)

1.5 Product Weight

- Construction Specialties Acrovyn 4000
- Tarkett/Johnsonite Baseworks Thermoset Rubber Wall Base

TILE (0930)

1 Product Weight

- Crossville

PAINTS & COATINGS (0991)

.5 Product Weight

- Sherwin Williams Emerald line
- Sherwin Williams Loxon Concrete & Masonry Primer
- Sherwin Williams Preprite ProBlock
- Sherwin Williams Preprite Block Filler
- Sherwin Williams ProMar 200 Zero VOC line

ACCESS FLOORS (0969)

1 Product Weight

- Concore Tate Access Floor Panel
- Kingspan Access Floor Panels

1.5 Product Weight

- Linder



Summary



For the last time, if you haven't opted into LEED v4.1 for the materials credits, go do so immediately! Use the product categories above as a quick-start guide to finding LEED compliant products without having to go through 1000 submittals.

Heck, if the Badger was to crap out a repeatable list of products to earn the EPD and MIR Option 1 credits, it may look something like this:

1. Primer
2. Flat paint
3. Eggshell paint
4. Semigloss paint
5. Gloss paint
6. DTM Paint
7. Carpet 1
8. VCT 1
9. Thinset mortar
10. Grout
11. Wood door
12. Metal door
13. Door hinges
14. Door locks
15. Type X gypsum
16. Fire rated Type X gypsum
17. Mold-resistant gypsum
18. Tile backer
19. Ceiling tile 1
20. Ceiling tile 2
21. Thermal insulations
22. Acoustical insulation

And you're done. Lather, rinse, repeat. Heck, all those EPDs are third party verified, so you really could have stopped sooner - but don't forget there's an exemplary performance point at 40. If all this LEED paperwork makes you feel nauseous, head to the bathroom, where you'll find dozens of options from Kohler, Sloan and Toto to pick up a few more compliant products.