



ULTIMATE GUIDE TO LEED V4 & V4.1

# MRc2 Option 2: Multi-Attribute Optimization

**A Resource Guide for General Contractors**

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BY GREEN BADGER FOUNDER & CEO, TOMMY LINSTROTH

A photograph of a modern building interior, possibly a lobby or office space, with a green overlay. The image shows a person standing in the distance, and the architecture features large windows and a high ceiling.

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# Earning MRc2 Option 2 Multi-Attribute Optimization in LEED v4.1

*It can be done... but you're really going to have to plan for it!*

**A credit that was dead on arrival in LEED v4, Multi-Attribute Optimization, now has a very slight pulse in LEED v4.1.**

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? 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.



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# REQUIREMENTS



1 Point

## Requirements for MRc2 Option 2 for LEED v4.1

To earn one point, you need to use at least 5 permanently installed products that comply with one of the criteria we'll discuss shortly from 3 different manufacturers.

- Life Cycle Impact Reduction Action Plan (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)

And that's the cliff notes version.

The full language will have you mispronouncing eutrophication, learning about tropospheric ozone, and pounding bourbon like you're Al Swearengen.

So what does any of that mean? Let's try and break this down in plain English.

You need 5 permanently installed products from 3 different manufacturers. These products need to either have a plan in place to reduce lifecycle impacts OR show some actual reductions. Here's what this entails.



5 products  
from 3 different  
manufacturers



Plan in place OR  
demonstrated  
reductions



## 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.

Then, 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.

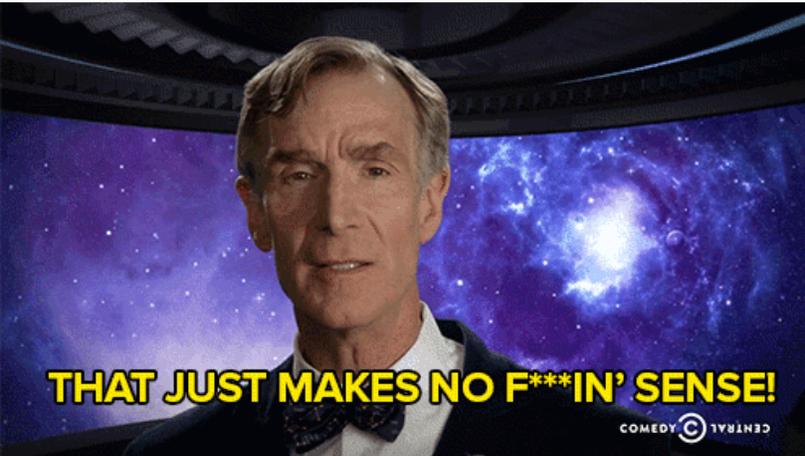
Any reduction in GWP is good for 1 product, a 10% reduction counts for 1.5 products, and 20% reduction AND at least a 5% reduction in 2 other impact categories yields 2 products.

### What are these impact categories, you may be asking? Well, I'll tell you. The impact categories are:

- Global warming potential (greenhouse gases), in CO<sub>2</sub>e;
- Depletion of the stratospheric ozone layer, in kg CFC-11e;
- Acidification of land and water sources, in moles H<sup>+</sup> or kg SO<sub>2</sub>e;
- Eutrophication, in kg nitrogen equivalent or kg phosphate equivalent;
- Formation of tropospheric ozone, in kg NO<sub>x</sub>, kg O<sub>3</sub> eq, or kg ethene; and
- Depletion of nonrenewable energy resources, in MJ using CML / depletion of fossil fuels in TRACI.

## Moles H+? MJ using CML? Kg NOx? Wtf?

Seriously, this would drive Bill Nye to drink, muchless this hapless guy.



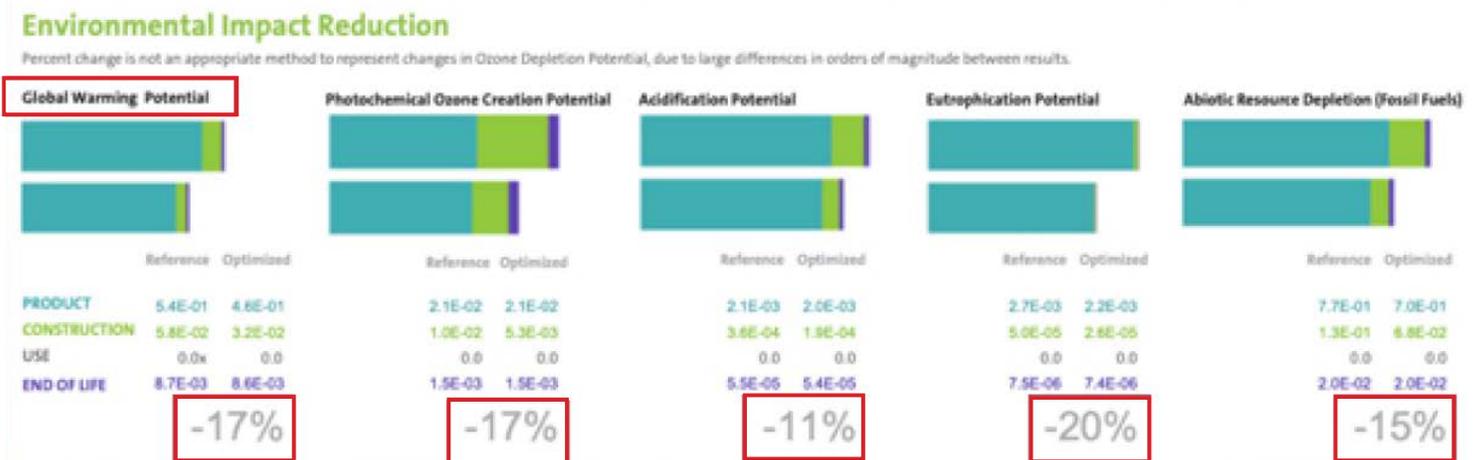
The good news is that the documentation being provided makes this pretty easy to understand, and there's nice, easy to read charts that demonstrate compliance - you don't need to count any moles, megajoules, or kilograms. Just read the chart like below.

This image shows you what the documentation looks like and you don't need a labcoat to understand it. These are the 5 impact categories called out in the credit mentioned, and any associated reductions (or additions) from the lifecycle analysis. In this case, the Eco Touch insulation from Owens Corning is demonstrating a 17% reduction in GWP.

This earns 1.5 products (or 150% by cost) towards credit compliance. IF the GWP was over 20%, it would count as 2 products (or 200%) because at least 2 of the other 4 impact categories show a reduction of at least 5% (in this example, all 4 other categories do).

## To restate, using documentation similar to below:

if the GWP shows ANY reduction (is a negative number, not 0 or a positive number), THEN it counts as 1 product. If it is at least 10% reduction (-10) then it counts as 1.5 products. Finally, if GWP is a 20% reduction or greater AND at least two of those other impact categories show a 5% reduction, then it counts as 2 products towards the goal of 5.



# STRATEGIES



## Strategies for Achieving MRc2 Option 2 in v4.1

**Here's the plan. We need to get 5 total products that either have a plan or show reductions in LCA impact categories.**

There are thousands of products on a construction site so this can't be too hard, right? Well as we mentioned in the introduction, this is possible – but there's barely 10 products we've seen with the required documentation, so you'll be using all of them!

*Side note: Some of the products here are at odds with products available for Material Ingredient Optimization, so you may have to choose which point to go after.*

**Here are the products Green Badger has documentation on that qualifies for Multi-Attribute Optimization:**

### FLOORING:

- Interface Modular Carpet Tiles on Glasbac, Nylon 6,6 styles (39% GWP reduction) - Counts for 2 products

### INSULATION:

- Owens Corning Eco Touch Fiberglass Insulation (17% GWP reduction) 1.5 products

### GYPSUM BOARD:

- USG Sheetrock Ecosmart Firecode X Panels (15% GWP reduction) 1.5 products

### TOILET;

- Kohler Highcliff Toilet (13% GWP reduction) 1.5 products

### WALL PANELS:

- 3form Pressed Glass Panels (21% GWP reduction) 2 products
- 3form Chroma Panels (35% GWP reduction) 2 products
- 3form Varia Panels (6% GWP reduction) 1 product

### PAINT:

- Sherwin Williams Loxon (Lifecycle Impact Reduction Plan) 0.5 product
- Sherwin Williams Harmony (Lifecycle Impact Reduction Plan) 0.5 product
- Sherwin Williams Pro Mar 200 (all sheens) (Lifecycle Impact Reduction Plan) 0.5 product
- Sherwin Williams Pro Mar 200 HP (Lifecycle Impact Reduction Plan) 0.5 product
- Sherwin Williams Pro Mar 400 (all sheens) (Lifecycle Impact Reduction Plan) 0.5 product
- Sherwin Williams Preprite Block Filler (Lifecycle Impact Reduction Plan) 0.5 product
- Sherwin Williams Preprite Primer/Sealer (Lifecycle Impact Reduction Plan) 0.5 product
- Sherwin Williams Multi Purpose Interior/Exterior Latex Primer (Lifecycle Impact Reduction Plan) 0.5 product
- Sherwin Williams Pre-Catalyzed Waterbased Epoxy (Lifecycle Impact Reduction Plan) 0.5 product



Flooring



Insulation



Gypsum Board



Toilets



Wall Panels



Paint

### Let's put the strategy together.

Here's a surefire way. Slapping down Interface carpet tiles (2 products), USG Sheetrock Ecosmart Fire-code X drywall (1.5 products) and Owens Corning EcoTouch Insulation (1.5 products) will get you to the 5 you need, and represents three manufacturers. If you can specify this, you're set! If not, consider the glorious Kohler Highcliff (1.5 products) toilet to keep compliance.

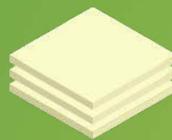
If those products don't align for your project, let's look at options. If you're using 3form wall

panels, you're likely set. Otherwise, it comes down to Sherwin Williams paint – and you'll need a lot of it! Each product has an impact reduction plan, which counts as 1/2 a product - so we may need a few to round out the math. Fortunately, each sheen of paint counts as a separate product, so let's say we're using the ProMar 200 primer, flat, semi-gloss, eggshell, and gloss. That's 5 - with counts for 2.5 total products.

Finish it off with some PrepRite Block filler and PrepRite Primer/Sealer and you've reached that magical total of 5 - good for 1 point!



Interface carpet tiles  
(2 products)



USG Sheetrock Ecosmart  
Firecode X drywall  
(1.5 products)



Owens Corning Eco  
Touch Insulation  
(1.5 products)



Kohler Highcliff toilet  
(1.5 products)



3form wall  
panels



Sherwin Williams paint  
(7 sheens at  
1/2 product each)

# Recapping the Strategy Roadmap

As you can see, there is almost no wiggle room for earning the Multi-Attribute Optimization credit.

The good news is that if you take this very scripted approach with the intent of earning this credit from the start, you can almost guarantee success. Additionally, for a product to qualify for Multi-Attribute Optimization, it pretty much has to have a Product Specific Environmental Product Declaration.

So you'll already have tallied 3 to 7 products (valued at 1.5 each since all their EPDs are externally reviewed), resulting in 4.5 to 10.5 products towards the EPD Option 1 goal of 20 (or if its a Core and Shell or Commercial Interiors you're earning the point and are well on the way to the exemplary performance bonus point).

## Summary

### How to earn 1 point:

- 1 point may be achievable, using a sum of 5 products across 3 manufacturers
- Take a scripted approach from the 6 manufacturers who have Multi-Attribute Optimization documentation
- Spec/sole-sourcing these products will ensure compliance (and may not be an option on federally funded projects)
- This will also get you 50% of the way to earning EPD Option 1

# Summary of Strategies



1 point may be achievable here. Use 5 products from 3 manufacturers.



Take a scripted approach using the 6 manufacturers who have Multi-Attribute Opt documentation.



Spec/sole-sourcing these products will ensure compliance.



This strategy will also get you 50% of the way to earning EPD Option 1