

LEED v4 Documentation (BD+C, ID+C, O+M, Homes)

Polyguard® TERM™ Barrier System

- TERM™ Sealant Barrier
- TERM™ Underslab Barrier
- TERM™ Foundation Barrier
- TERM™ Flashing Barrier & TERM™ Seam and Window Barrier
- TERM™ Sill Plate Barrier
- TERM™ Tile Underlayment Barrier
- TERM™ Flooring Underlayment Barrier – concrete substrate
- TERM™ Flooring Underlayment Barrier – wood substrate
- TERM™ Isolation Joint Barrier
- TERM™ 606 Double Sided Detailing Barrier
- TERM™ Bath Trap Barrier
- TERM™ Particle Barrier
- TERM™ Weep and Vent Barrier
- TERM™ UVR Flashing and Air Barrier
- LowFlow™ Protection and Drainage Mat
- Polyguard® Polyflow 15P Drainage Mat

May 19th, 2016

GREENCE, INC.

Section 1: LEED v4 for Building Design and Construction Credit Applicability Review and Sample Language

Applicable Credits:

EA prerequisite Minimum Energy Performance (required) &

EA credit Optimize Energy Performance (1-18 points):

Recommended Language:

As a building envelope material, Polyguard® TERM® Barrier System is a significant energy conservation measure, and may be included in the energy modeling. The percentage savings from this system is variable based on several factors including climate zone, building geometry, and the HVAC system type. Energy performance is improved in two primary ways:

First, the system includes several components designed to seal the building envelope from moisture and energy leaks, although this sealing also increases energy performance of the building by reducing air infiltration.

Second, the TERM™ Underlayment Barrier products create a thermal break between the floor and the cold concrete underneath the floor to reduce heat losses.

Notes:

This credit is typically achieved through energy modeling, using computer simulation software such as eQUEST or EnergyPlus. The methodologies for energy analysis are established in ASHRAE 90.1-2010, Appendix G. The number of points awarded in this credit (1-18) depends on the percentage of energy cost savings for the whole building, meaning that individual products or building systems (like the TERM™ Barrier System) can contribute, although they don't independently determine the energy cost savings for a building.

MR credit Building Product Disclosure and Optimization – Sourcing of Raw Materials (1-2 points):

Recommended Language:

The Polyguard® TERM™ Barrier System contains many system components which are manufactured with recycled materials. Further, many system components are sourced within 100 miles of the manufacturing location of Ennis, Texas. The recycled content and percentage sourced within 100 miles are as follows:

TERM Barrier Components – Recycled Content and Nearby Sourcing

TERM System Component	Recycled content percentages		Sourced within 100 miles
	Preconsumer	Postconsumer	
TERM Sealant Barrier	3.8%	21.3%	25%
TERM Underslab Barrier	1.0	5.9	6.2
TERM Foundation Barrier	1.3	7.6	8.9
TERM Flashing/Seam and Window Barrier	1.6	9.0	10.6
TERM Sill Plate Barrier	1.3	7.6	8.9
TERM Tile Underlayment Barrier	1.7	9.4	11.1
TERM Flooring Underlayment Barrier – concrete substrate	1.3	7.5	8.8
TERM Flooring Underlayment Barrier – wood substrate	2.9	7.5	8.8
TERM Isolation Joint Barrier	0.8	4.6	5.4
TERM 606 Double-sided Detailing Barrier	1.2	6.6	7.8
TERM Bath Trap Barrier	1.1	6.4	17.2
TERM Particle Barrier	0.0	0.0	0.0
TERM Weep and Vent Barrier	0.0	0.0	0.0
TERM UVR Flashing and Air Barrier	1.6	9.0	10.6
LowFlow Protection and Drainage Mat	0.0	100.0	0.0
Polyguard Polyflow 15P Drainage Mat	0.0	88.6	0.0

Notes:

Option 2 – one point: gives credit based on material cost, and recognizes the effective recycled content percentage as (1/2 preconsumer content + postconsumer content) on a component by component cost basis. Contributions are doubled if the project site is within 100 miles of the point of manufacture and the point of extraction for the raw material.

MR credit Building Product Disclosure and Optimization – Material Ingredients (1-2 points):

Recommended Language:

The Polyguard® TERM™ Barrier System has a published, complete Health Product Declaration with full disclosure of known hazards to at least 0.1% (1,000 parts per million) in compliance with the Health Product Declaration open Standard addressing all of the following system components:

TERM Barrier Components–Published and Complete, full Disclosure

TERM System Component
TERM Sealant Barrier
TERM Underslab Barrier
TERM Foundation Barrier
TERM Flashing/Seam and Window Barrier
TERM Sill Plate Barrier
TERM Tile Underlayment Barrier
TERM Flooring Underlayment Barrier – concrete substrate
TERM Flooring Underlayment Barrier – wood substrate
TERM Isolation Joint Barrier
TERM 606 Double-sided Detailing Barrier
TERM Bath Trap Barrier
TERM Particle Barrier
TERM Weep and Vent Barrier
TERM UVR Flashing and Air Barrier
LowFlow Protection and Drainage Mat
Polyguard Polyflow 15P Drainage Mat

MR credit: Construction and Demolition Waste Management (1 – 2 points)

Recommended Language:

Portions of the TERM Barrier Products are recyclable in areas where there is a facility to recycle which can contribute to earning Construction Waste Management credit:

TERM Barrier Components–Recycling Potential

TERM Packaging Components	Material	Weight – Pounds
Membrane core	Cardboard	2 / carton
Membrane carton	Cardboard	4 / carton
Accessory pail – steel	Steel	2 / pail
Accessory pail - plastic	HPDE plastic	2 / pail
Wooden Pallet – Membrane	Wood	52
Wooden Pallet – Accessories	Wood	45

EQ credit: Low Emitting Materials (1 – 3 points)

Recommended Language:

The table below contains a list of TERM Barrier and Polyguard products applied during new construction. VOC Content is listed, along with an indication of where the material is applied.

TERM Barrier Components–Product, VOC, and Where Applied

Interior Adhesives and Sealants – Applied on site (M = membrane / A = adhesive / O = other)	VOC Content	Where Applied
M – TERM Tile Underlayment Barrier	0%	Interior
M – TERM Wood Floor Underlayment Barrier – concrete substrate	0	Interior
M – TERM Wood Floor Underlayment Barrier – wood substrate	0	Interior
A – ShurTac Liquid Adhesive	0	Interior
Exterior Adhesives and Sealants – Applied on site (M = membrane / A = adhesive / O = other)	VOC Content	Where Applied
M – TERM Underslab Barrier	0%	Exterior
M – TERM 606 Double-sided Detailing Barrier	0	Exterior
M – TERM Foundation Barrier	0	Exterior
M – TERM Sill Barrier <i>(applied at perimeter of structure)</i>	0	Exterior
M – TERM Flashing / Seam and Window Barrier	0	Exterior
M – TERM UVR Flashing and Air Barrier	0	Exterior
O – TERM Weep and Vent Barrier	0	Exterior
M – TERM Isolation Joint Barrier	0	Exterior
O – TERM Particle Barrier	0	Exterior
A – ShurTac Liquid Adhesive	0	Exterior
A – Polyguard 650 LT Liquid Adhesive	527 g/l	Exterior
O – LowFlow Protection and Drainage Mat	0	Exterior
O – Polyguard Polyflow 15P Protection and Drainage Mat	0	Exterior

IN credit Innovation (1 point):

Recommended Language

The LEED program allows project teams to propose an Innovation credit strategy, provided it achieves a significant, measurable environmental or human health benefit using a strategy that is not otherwise addressed in the specific version of LEED used for the project.

Innovation Credit ALTERNATIVE 1:

LEED V4 standards call out the implementation of IPM (*Integrated Pest Management*). LEED credits are using wording such as:

“Nonchemical pest preventive measures, either designed into the structure or implemented as part of pest management activities.” (highlighting by Polyguard)

<http://www.usgbc.org/credits/existing-buildings-schools-existing-buildings-retail-existing-buildings-hospitality-exist-26>

Until now, the only physical pest barrier elements available for designing into the structure have treated specific spots around the building envelope. TERM Barriers give a new alternative – incorporating into the building envelope materials to exclude pests all around the structure. Close to 100 percent exclusion can be attained with proper construction.

Innovation Credit ALTERNATIVE 2:

TERM Barrier Systems add a new dimension to Interior Air Quality. A search of the WELL Building Standard v1 for “*pest*” shows 66 occurrences of “*pest*” or “*pesticide*”. This frequency speaks to the potential improvement in interior wellness which built-in pest exclusion will bring.

Section 2: LEED v4 for Interior Design and Construction Credit Applicability Review and Sample Language

Applicable Credits:

**EA prerequisite Minimum Energy Performance (required) &
EA credit Optimize Energy Performance (1-25 points):**

Recommended Language:

Recommended Language:

As a building envelope material, Polyguard® TERM® Barrier System is a significant energy conservation measure, and may be included in the energy modeling. The percentage savings from this system is variable based on several factors including climate zone, building geometry, and the HVAC system type. Energy performance is improved in two primary ways:

First, the system includes several components designed to seal the building envelope from moisture and energy leaks, although this sealing also increases energy performance of the building by reducing air infiltration.

Second, the TERM™ Underlayment Barrier products create a thermal break between the floor and the cold concrete underneath the floor to reduce heat losses.

Notes:

This credit is typically achieved through energy modeling, using computer simulation software such as eQUEST or EnergyPlus. The methodologies for energy analysis are established in ASHRAE 90.1-2010, Appendix G. The number of points awarded in this credit (1-18) depends on the percentage of energy cost savings for the whole building, meaning that individual products or building systems (like the TERM™ Barrier System) can contribute, although they don't independently determine the energy cost savings for a building.

MR credit Building Product Disclosure and Optimization – Sourcing of Raw Materials (1-2 points):

Recommended Language:

The Polyguard® TERM™ Barrier System contains many system components which are manufactured with recycled materials. Further, many system components are sourced within 100 miles of the manufacturing location of Ennis, Texas. The recycled content and percentage sourced within 100 miles are as follows:

TERM Barrier Components – Recycled Content and Nearby Sourcing

TERM System Component	Recycled content percentages		Sourced within 100 miles
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TERM Flooring Underlayment Barrier – concrete substrate	1.3	7.5	8.8
TERM Flooring Underlayment Barrier – wood substrate	2.9	7.5	8.8
TERM Isolation Joint Barrier	0.8	4.6	5.4
TERM 606 Double-sided Detailing Barrier	1.2	6.6	7.8
TERM Bath Trap Barrier	1.1	6.4	17.2
TERM Particle Barrier	0.0	0.0	0.0
TERM Weep and Vent Barrier	0.0	0.0	0.0
TERM UVR Flashing and Air Barrier	1.6	9.0	10.6
LowFlow Protection and Drainage Mat	0.0	100.0	0.0
Polyguard Polyflow 15P Drainage Mat	0.0	88.6	0.0

Notes:

(Option 2) gives credit based on material cost, and recognizes the effective recycled content percentage as (1/2 preconsumer content + postconsumer content) on a component by component cost basis. Contributions are doubled if the project site is within 100 miles of the point of manufacture and the point of extraction for the raw material.

MR credit Building Product Disclosure and Optimization – Material Ingredients (1-2 points):

Recommended Language:

The Polyguard® TERM™ Barrier System has a published, complete Health Product Declaration with full disclosure of known hazards to at least 0.1% (1,000 parts per million) in compliance with the Health Product Declaration open Standard addressing all of the following system components:

TERM Barrier Components–Published and Complete, full Disclosure

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TERM Sealant Barrier
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TERM Flashing/Seam and Window Barrier
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TERM Flooring Underlayment Barrier – concrete substrate
TERM Flooring Underlayment Barrier – wood substrate
TERM Isolation Joint Barrier
TERM 606 Double-sided Detailing Barrier
TERM Bath Trap Barrier
TERM Particle Barrier
TERM Weep and Vent Barrier
TERM UVR Flashing and Air Barrier
LowFlow Protection and Drainage Mat
Polyguard Polyflow 15P Drainage Mat

Notes.

IN credit Innovation (1 point):

Recommended Language:

The LEED program allows project teams to propose an Innovation credit strategy, provided it achieves a significant, measurable environmental or human health benefit using a strategy that is not otherwise addressed in the specific version of LEED used for the project.

Innovation Credit ALTERNATIVE 1:

LEED V4 standards call out the implementation of IPM (*Integrated Pest Management*). LEED credits are using wording such as:

“Nonchemical pest preventive measures, either designed into the structure or implemented as part of pest management activities.” (*highlighting by Polyguard*)

<http://www.usgbc.org/credits/existing-buildings-schools-existing-buildings-retail-existing-buildings-hospitality-exist-26>

Until now, the only physical pest barrier elements available for designing into the structure have treated specific spots around the building envelope. TERM Barriers give a new alternative – incorporating into the building envelope materials to exclude pests all around the structure. Close to 100 percent exclusion can be attained with proper construction.

Innovation Credit ALTERNATIVE 2:

TERM Barrier Systems add a new dimension to Interior Air Quality. A search of the WELL Building Standard v1 for “*pest*” shows 66 occurrences of “*pest*” or “*pesticide*”. This frequency speaks to the potential improvement in interior wellness which built-in pest exclusion will bring. With reduced pest entry, buildings with TERM Barriers will experience long-term minimization of the need for chemical treatments.

Section 3: LEED v4 for Operations and Maintenance Credit Applicability Review and Sample Language

Applicable Credits:

**EA prerequisite Minimum Energy Performance (required) &
EA credit Optimize Energy Performance (1-20 points):**

Recommended Language:

These credits in the LEED O+M program consider actual energy savings (compared to similar buildings and/or the buildings historic energy use data), so all contributions to the energy use of a building will collectively determine the number of points earned.

As a building envelope material, Polyguard® TERM® Barrier System is a significant energy conservation measure, and may be included in the energy modeling. The percentage savings from this system is variable based on several factors including climate zone, building geometry, and the HVAC system type. Energy performance is improved in two primary ways:

First, the system includes several components designed to seal the building envelope from moisture and energy leaks, although this sealing also increases energy performance of the building by reducing air infiltration.

Second, the TERM™ Underlayment Barrier products create a thermal break between the floor and the cold concrete underneath the floor to reduce heat losses.

Notes:

This credit is typically achieved through energy modeling, using computer simulation software such as eQUEST or EnergyPlus. The methodologies for energy analysis are established in ASHRAE 90.1-2010, Appendix G. The number of points awarded in this credit (1-18) depends on the percentage of energy cost savings for the whole building, meaning that individual products or building systems (like the TERM™ Barrier System) can contribute, although they don't independently determine the energy cost savings for a building.

MR credit Purchasing – Facility Maintenance and Renovation

Option 1. Products and Materials (1 point):

Recommended Language:

TERM Barrier Components – Recycled Content and Nearby Sourcing

TERM System Component	Recycled content percentages		Sourced within 100 miles
	Preconsumer	Postconsumer	
TERM Sealant Barrier	3.8%	21.3%	25%
TERM Underslab Barrier	1.0	5.9	6.2
TERM Foundation Barrier	1.3	7.6	8.9
TERM Flashing/Seam and Window Barrier	1.6	9.0	10.6
TERM Sill Plate Barrier	1.3	7.6	8.9
TERM Tile Underlayment Barrier	1.7	9.4	11.1
TERM Flooring Underlayment Barrier – concrete substrate	1.3	7.5	8.8
TERM Flooring Underlayment Barrier – wood substrate	2.9	7.5	8.8
TERM Isolation Joint Barrier	0.8	4.6	5.4
TERM 606 Double-sided Detailing Barrier	1.2	6.6	7.8
TERM Bath Trap Barrier	1.1	6.4	17.2
TERM Particle Barrier	0.0	0.0	0.0
TERM Weep and Vent Barrier	0.0	0.0	0.0
TERM UVR Flashing and Air Barrier	1.6	9.0	10.6
LowFlow Protection and Drainage Mat	0.0	100.0	0.0
Polyguard Polyflow 15P Drainage Mat	0.0	88.6	0.0

Notes:

This credit contains 2 options, and “Option 2. Furniture” applies to only “furniture and furnishings” in the LEED v4 O+M Rating System. Option 1 recognizes several sustainability-related criteria, including recycled content and regional sourcing, which is described as applicable for each system component.

EQ credit Integrated Pest Management (2 points):

Recommended Language:

The Polyguard® TERM™ Barrier System is a non-toxic pest management system, which creates a physical barrier between exterior pests and the building interior. This credit requires a written plan, which prioritizes nonchemical pest preventative measures like the TERM™ Barrier System.

Although most components of the TERM™ Barrier System are designed to be built into the structure at time of construction, there are several components which might be incorporated in existing buildings. Among these is TERM Particle Barrier, which is designed to protect exposed perimeters from termites. As a termite barrier, it contains no toxins.

Notes:

The credit requirements are really loose, and simply require a plan that meets certain criteria. The most notable criteria, is that the IPM plan must include nonchemical pest measures as a first line of defense.

Indirectly Applicable or Notable (reference):

The following credits have indirect connection to the product or are notable for the reasons indicated. LEED related language (where applicable) may be included, although it is not required for project teams to completely document the credit.

IN credit Innovation (1 point):

Recommended Language:

The LEED program allows project teams to propose an Innovation credit strategy, provided it achieves a significant, measurable environmental or human health benefit using a strategy that is not otherwise addressed in the specific version of LEED used for the project.

Innovation Credit ALTERNATIVE 1:

LEED V4 standards call out the implementation of IPM (*Integrated Pest Management*). LEED credits are using wording such as:

“Nonchemical pest preventive measures, either designed into the structure or implemented as part of pest management activities.” (*highlighting by Polyguard*)

<http://www.usgbc.org/credits/existing-buildings-schools-existing-buildings-retail-existing-buildings-hospitality-exist-26>

Until now, the only physical pest barrier elements available for designing into the structure have treated specific spots around the building envelope. TERM Barriers give a new alternative – incorporating into the building envelope materials and new details which exclude pests all around the structure. Close to 100 percent exclusion can be attained with proper construction.

Although most TERM Barriers are intended to be constructed into new buildings, there are several, such as the use of TERM Particle Barrier to exclude subterranean termites at exposed concrete perimeters, which might apply here, especially if renovation or expansion offers the chance to install more of the Barriers.

Innovation Credit ALTERNATIVE 2:

TERM Barrier Systems add a new dimension to Interior Air Quality. A search of the WELL

Section 4: LEED v4 for Homes Credit Applicability Review and Sample Language

SS credit Nontoxic Pest Control (2 points):

Recommended Language:

The Polyguard® TERM™ Barrier System includes various complementary measures to prevent pest intrusion into the building interior. The TERM Membrane Barriers have received an evaluation from the ICC (Report ESR 3632) which evaluated TERM against the AC 380 Standard (Acceptance Criteria for Termite Physical Barrier Systems. Additionally, TERM™ Particle Barrier is a physical termite barrier system applied around the building exterior, and has been shown by university testing to effectively exclude subterranean termites.

Notes:

The current LEED requirement states “Install a physical termite barrier system approved by code (1 point)”. The ICC AC 380 Standard can be considered to meet that requirement.

**EA prerequisite Minimum Energy Performance (required) &
EA credit Annual Energy Use (1-29 points):**

Recommended Language:

As a building envelope material, Polyguard® TERM® Barrier System is a significant energy conservation measure, and may be included in the energy modeling. The percentage savings from this system is variable based on several factors including climate zone, building geometry, and the HVAC system type. Energy performance is improved in two primary ways:

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Second, the TERM™ Underlayment Barrier products create a thermal break between the floor and the cold concrete underneath the floor to reduce heat losses.

Notes:

This credit is typically achieved through energy modeling, using computer simulation software such as eQUEST or EnergyPlus. The methodologies for energy analysis are established in ASHRAE 90.1-2010, Appendix G. The number of points awarded in this credit (1-18) depends on the percentage of energy cost savings for the whole building, meaning that individual products or building systems (like the TERM™ Barrier System) can contribute, although they don't independently determine the energy cost savings for a building.

EA credit Air Infiltration (1-2 points):

Recommended Language:

Polyguard® TERM™ Barrier System improves the building envelope, reducing air leaks and contributing toward improved performance during ACH50 testing and other metrics to meet criteria related to envelope tightness, as determined based on IECC climate zone designation (1-8).

Notes:

Credit requirements are based on IECC climate zone designation, and range from 4.25 for 1 point in IECC climate zone 1, to 1.5 for 2 points in IECC climate zone 8 for ACH50.

MR credit Environmentally Preferable Products (1-4 points):

Recommended Language:

Recommended Language:

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TERM Bath Trap Barrier	1.1	6.4	17.2
TERM Particle Barrier	0.0	0.0	0.0
TERM Weep and Vent Barrier	0.0	0.0	0.0
TERM UVR Flashing and Air Barrier	1.6	9.0	10.6
LowFlow Protection and Drainage Mat	0.0	100.0	0.0
Polyguard Polyflow 15P Drainage Mat	0.0	88.6	0.0

Notes:

IN credit Innovation (1 point):

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Innovation Credit ALTERNATIVE 2:

TERM Barrier Systems add a new dimension to Interior Air Quality. A search of the WELL Building Standard v1 for “*pest*” shows 66 occurrences of “*pest*” or “*pesticide*”. This frequency speaks to the potential improvement in interior wellness which built-in pest exclusion will bring. With reduced pest entry, buildings with TERM Barriers will experience long-term minimization of the need for chemical treatments.