



LEED

CERTIFICATION

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ELOWYNN COLLECTION

1.- CONTENT OF THIS REPORT

The credits of the Ranking System *New Construction* are described below, as well as the documentation necessary to demonstrate the contribution of MAINZU ceramic tiles.

In ANNEX I, the files are presented with which MAINZU can demonstrate the contribution of its tiles to LEED certified building projects.

2.- TILES INCLUDED WITHIN SCOPE

The tiles included within the scope of this report are tiles manufactured and marketed by MAINZU belonging to the water absorption group B1a according to the UNE-EN 14411:2016 standard.

3.- LEED ENVIRONMENTAL CATEGORIES.



4.- BUILDING DESIGN + CONSTRUCTION: NEW CONSTRUCTION.

The criteria presented below correspond to the Rating System Building Design + Construction : New Construction. This section describes each of the credits applicable to MAINZU ceramic tiles.

In table 1, a summary is presented that relates the credits applicable to the tiles, with the possible points that the building can achieve. It should be noted that the score is applicable to the building and to all the materials that make it up, that is, ceramic tiles do not score by themselves, but contribute to the building reaching the score.

IMPORTANT: *Scoring always refers to the building as a whole, not to the tiles.*



Table 1. Credits aplicables to MAINZU ceramic tiles in the Rating BD+C New Construction.

BUILDING DESIGN + CONSTRUCTION: NEW CONSTRUCTION	
Heat island reduction -Option 1. Nonroof and roof -Option 2. Parking under cover	Possible 2 points Possible 2 points Possible 1 point
Open space	Possible 1 point
Mínimum energy performance	Required
Optimize energy performance -Option 1 .whole-building energy simulation -Option 2. PrescriptiveCompliance: ASHRAE Advanced Energy Desing Guide -Option 3. Systems Optimization	Possible18 points Possible 18 points Possible 6 points Possible 4 points
Building life-cycle impact reduction -Option 3.Buliding and material reuse -Option 4. Whole-building life-cycle assessment	Possible 5 points Possible 4 points Possible 4 points
Building product disclosure and optimization-Sourcing of raw materials Responsible sourcing of raw materials	Possible 2 points Possible 2 points
Building product disclosure and optimization-Material ingredients Option 1. Material ingredient reporting Option 2. Material ingredient optimization	Possible 2 points Possible 1 point Possible 1 point
Construction and demolition waste management planning	Requerid
Construction and demolition waste management Option 1. Diversion Option 2. Reduction of total waste material	Possible 2 points Possible 2 points Possible 2 points
Low-emitting materials	Possible 3 points
Construction indoor air quality management plan	Possible 1 point
Indoor air quality assessment Option 2.Air testing	Possible 2 points Possible 2 points
Performance-based indoor air quality design and assesement Tier 1. Contaminant-based IAQ desing Tier 3. Demostrate IAQ Performance	Possible 7 points Possible 1 point Possible 3 points



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FICHA 1_ÍNDICE DE REFLECTANCIA SOLAR según norma ASTM E1980-11

Producto:

Clasificación: Gres porcelánico, perteneciente al grupo absorción agua Bla

MAINZU CERÁMICA cuenta con varios productos aptos para su colocación exterior en la cubierta de los edificios y zona no cubierta (por ejemplo, en pavimentos exteriores) con un elevado SRI y SR que pueden contribuir en el cumplimiento de los criterios que se presentan más abajo.

Para obtener los resultados del ensayo del índice de Reflectancia Solar (SRI) y Reflectancia solar (SR) específicos del producto de interés, póngase en contacto a través de la red comercial o a través de su página web <https://www.mainzu.com/>

Las puntuaciones específicas del Rating System New Construction LEED v4.1. se presentan a continuación:

Heat Island Reduction – Possible 2 points

OPCIÓN 1. Techado y no techado

OPCIÓN 2. Estacionamiento techado

Minimum Energy Performance – Required

Optimize Energy Performance – Possible 18 points



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Document 3.a_CHARACTERISITCS OF CERAMIC TILES Bla

Product:

Classification: Porcelain stoneware, belonging to the water absorption group Bla

For laying as outdoor flooring, ceramic tiles classified in MAINZU's Bla group offer a wide variety of **aesthetic and design possibilities, without the need to detract from the natural surroundings.**

In addition, MAINZU has technical sheets for Bla tiles with the results of the tests that show compliance with the ISO 13006 standard for outdoor floors, ISO 10545-12 on Frost resistance and ISO 10545-6 OR ISO 10545-7, depending on whether they are unglazed or enameled, abrasión resistance. All this guarantees the suitability of this type of tile for outdoor use.

Likewise, ceramic tiles have a useful life equal to that of the building, estimated at more than 50 years, without the need for replacement, repair and/or replacement, and can be reused in the same place where they were originally placed or in another place (*).

For more information on the technical performance of MAINZU tiles and suitability for use, please contact the sales network or through its website <https://www.mainzu.com/>

The specific scores of the Rating System New Construction LEED v4.1, are presented below:

Open Space – Possible 1 point

*** Building life-cycle impact reduction**

OPTION 3. Building and material reuse * - Possible 4 points



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Document 4_ADHERENCE TO THE RESPONSIBILITY PROGRAM

Product:

Classification: Porcelain stoneware, belonging to the water absorption group Bla

MAINZU CERÁMICA adheres to an **Integrated Container and Packaging Management System** authorized by a contract with the entity ECOEMBALAJES ESPAÑA, S.A. (ECOEMBES) with the number 13787. This adhesión is intended to correct the costs of managing the packaging waste placed on the market in Spanish territory.

In addition, they adhere to the LUCID DASHBOARD management system and to a Return an Return System (SDDR) with the ceramic glaze containers and packaging.

Likewise, on an anual basis, MAINZU makes an **Annual Declaration of packaging** and is also affected by the **Sectorial Prevention Plans**, with anual contributions of preventive measures to advance in the quantitative aspects of prevention, promoting the application of recyclability criterio in the packaging desing and content.

For more information, contact through the comercial network or through its website: <https://www.mainzu.com/>

The specific scores of the Rating System New Construction LEED v4.1. are presented below:

Building product disclosure and optimization - Sourcing of raw materials – Possible 2 points



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Document 5_ REACH OPTIMIZATION

Product:

Classification: Porcelain stoneware, belonging to the water absorption group Bla

Ceramic tiles, in relation to the **REACH Regulation**, do not contain substances of high concern(SVHC).

"Tiles, bricks, tiles crockery, toilets, bricks and refractory pieces and products decorated by third fire, among many others, meet the legal definition of "article". The mandatory registration of substances contained in articles is only applicable if the substances present in them are intended to be released under condition of normal or reasonably foreseeable use, and therefore NOT applicable to ceramic articles.

Likewise, the notification to ECHA of a substance present in articles must be carried out when the three requirements detailed below are jointly met:

1. Be a Substance of Very High Concern(SVHC) and have been included in the list of Candidate Substances for Authorization.
2. Be present in the articles in a total annual quantity greater than 1 ton/year per producer or importer.
3. Concentration of the substance in the article greater than 0,1% w/w.

Currently, there is no evidence of the presence of any substance included in the list of substances that are candidates for Authorization in ceramic articles, so the notification obligation is not applicable for these products.

Consequently, there is not, at the moment, the obligation to inform customers or consumers about the safe use of articles that contain any substance from said list in a concentration greater than 0,1% w/w."

Referencia: El reglamento REACH en el tejido industrial de la Comunitat Valenciana. Valencia: Conselleria d'indústria, comerç i innovació. Generalitat Valenciana, 2009

The specific scores of the Rating System New Construction LEED v4.1. are presented below

Building Product Disclosure and Optimization – Material Ingredients

OPTION 2. Material Ingredient Optimization (International Alternative Compliance Path – REACH Optimization) – Possible 1 point



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Document 6.a_WASTE GENERATED ON SITE

Product:

Classification: Porcelain stoneware, belonging to the water absorption group Bla

During the construction of the building Project, MAINZU CERÁMICA tiles generate packaging waste and ceramic waste generated in the cutting of pieces.

Container and packaging waste

- Cardboard: 72 g/m². Selective separation is recommended for subsequent recycling into other products with the same or different functionalities, including composting or biomethanization.
- Plastic: 169 g/m². Selective separation is recommended for subsequent recycling into other products with the same or different functionalities, including composting or biomethanization.
- Wood: 160g/m². It is suggested to reuse the pallets as many times as possible, with or without the help of repair operations. When it is not possible to extend the useful life of this product, it is considered waste, recommending its recycling, composting or biomethanization.

Residues from cuts of ceramic pieces

The amount estimated for this type of waste depends on the design of the building Project, therefore, it is not possible to make an *a priori* estimate of the waste generated.

The waste generated is inert in nature, that is, it does not undergo significant physical, chemical or biological transformations. They are not soluble, nor combustible, nor do they react physically or chemically in any other way, nor are they biodegradable, nor do they adversely affect other materials with which they come into contact in a way that could lead to environmental contamination or harm human health.

In this sense, it is proposed for example, to value waste as a load material in filling operations, substituting other virgin materials such as gravel, which in this type of operations leads to an optimization of the consumption of natural resources.

The specific scores of the Rating System New Construction LEED v4.1. are presented below :

Construction and Demolition Waste Management Planning - Required

Construction and Demolition Waste Management – Possible 2 points

OPTION 1. Diversion

OPTION 2. Reduction of Total Waste Material



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Document 7.a_Product free of volatile organic compounds and other contaminants

Product:

Classification: Porcelain stoneware, belonging to the water absorption group Bla

Ceramic tiles, in their manufacturing process, are subjected to a thermal process that exceeds 1000°C. At these temperatures, any organic compound present in the compositions decomposes, resulting in an **inert final product free of volatile organic compounds.**

"Inherently nonemitting sources. Product is an inherently nonemitting source of VOCs (stone, ceramic, powder-coated metals, plated or anodized metal, glass, concrete, clay brick, and unfinished or untreated solid wood) and has no integral organic-based surface coatings, binders, or sealants."

Referencia: LEED v.4.1

The installation of MAINZU CERÁMICA ceramic tiles simplifies the measures and plans to improve the indoor air quality in the building, before and during the occupation of the building.

The pollutants emitted during the placement and use stage of these ceramic tiles are detailed in the following table. It should be said that this information applies to ceramic tiles and not to the possible bonding material selected in the construction process.

Limited contaminant in LEED	Declared information about tiles
Formaldehyde	Does not emit formaldehyde
Particles (PM ₁₀ y PM _{2.5})	During the construction stage, MAINZU recommends the use of water jet tile cutters to avoid the emission of particles. During the use stage, they do not emit any type of particles.
Ozone (O ₃)	Does not emit ozone
Total Volatile Organic Compounds	Does not emit Compounds Organic Volatiles. See the "VOC-free product" sheet.
Carbon Monoxide (CO)	During construction stage, the use of tools that emit CO is not required. During the use stage, they do not emit CO

For more information, contact through the commercial network or through its website <https://www.mainzu.com/>

The specific scores of the Rating System New Construction LEED v4.1, are presented below :

Low Emitting materials – Possible 3 points

Indoor Air Quality Assessment

OPTION 2, Air Testing – Possible 2 points

Performance-based indoor air quality design and assessment

Tier 3. Demonstrate IAQ Performance – Possible 3 points



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Document 8.a ENVIRONMENTAL PRODUCT DECLARATION

Product:

Classification: Porcelain stoneware, belonging to the water absorption group Bla

MAINZU CERÁMICA has carried out a Life Cycle Analysis and an Environmental Product Declaration verified by an independent third party, registered in the GlobalEPD program, administered by AENOR, and which complies with the ISO 14040-44, ISO 14025 and EN 15804 standards :2012+A1:2013. This Environmental Product Declaration has a scope from cradle to grave, that is, it includes the stages of producto (A1-A3), distribución (A4), placemente (A5), use (B1-B7) and end of life (C1-C4).

The Functional Unit considered is "Cover 1 m² of a Surface (floor) of a home for 50 years with porcelain stoneware of 20x20 format and 8,5 mm thickness.

	AP [kg SO ₂ -Equiv.]	ADP-Element [kg Sb-Equiv.]	ADP-fossil [MJ]	GWP [kg CO ₂ -Equiv.]	ODP [kg R11-Equiv.]	EP [kg Phosphate-Equiv.]	POCP [kg Ethene-Equiv.]
A1-A3	9,7E-02	2,8E-05	109,5	6,6	4,9E-08	5,5E-03	4,7E-03
A4	3,4E-04	2,6E-08	4,5	3,3E-01	5,5E-17	6,6E-05	4,2E-05
A5	1,3E-03	1,2E-06	4,2	9,1E-01	1,4E-13	3,1E-04	1,3E-04
B2	1,5E-03	3,7E-07	1,4	2,7E-01	1,3E-07	3,6E-04	4,7E-04
C2	9,2E-05	9,1E-09	1,6	1,2E-01	2,0E-17	2,1E-05	1,4E-05
C3	0	0	0	0	0	0	0
C4	5,0E-04	3,1E-08	1,1	8,5E-02	8,7E-14	6,9E-05	4,0E-05
D	-7,4E-04	-7,1E-08	-4,3	-2,4E-01	-1,5E-09	-9,2E-05	-6,7E-05

AP: Acidification Potential

ADP-elements: Abiotic Depletion Potential for non-fossil resources

ADP-fossils: Abiotic Depletion Potential for fossil resources

GWP: Global Warming Potential

ODP: Ozone Layer Depletion Potential

EP: Eutrophication Potential

POCP: Photochemical Ozone Creation Potential

Only declared lifecycle modules are displayed

For more information, contact through the comercial network or through its website: <https://www.mainzu.com/>

The specific scores of the Rating System New Construction LEED v4.1. are presented below :

Building Life-cycle impact reduction

Option 4: Whole-Building life-cycle assessment - Possible 4 points

Building Product Disclosure and Optimization – Environmental Product Declaration

Option 1: Environmental Product Declaration - -Possible 1 point



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Document 9.a_RECYCLED CONTENT

Product:

Classification: Porcelain stoneware, belonging to the water absorption group Bla

ENVIRONMENTAL PRODUCT SELF-DECLARATION, according to UNE-EN ISO 14021:2017



41%

Content in pre-consumer recycled material, including water and mineral raw materials

1m ² of ceramic tile (group Bla)	Minimum content
Total water content (kg)	12,2
Total solids content (kg)	21,4
New water content (kg)	2,2
Virgin solid content (kg)	17,6
Pre-consumer recycled water content (kg)	10,0
Pre-consumer recycled solids content (kg)	3,7
MINIMUM PRE-CONSUMER RECYCLING CONTENT(%) [X=A/P·100]	41,0

The specific scores of the Rating System New Construction LEED v4.1, are presented below :

Building Product Disclosure and Optimization - Sourcing of Raw Materials – Possible 2 points



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Document 10.a_ CASRN Number(Chemical Abstract Service)

Product:

Classification: Porcelain stoneware, belonging to the water absorption group Bla

MAINZU has files in which the substances and materials present in ceramic tiles are identified, through the CASRN number, both with regard to the support and the glazing materials, thus allowing an inventory of the raw materials used in the manufacture of ceramic tiles.

To obtain this information, please, contact through the commercial network or through its website <https://www.mainzu.com/>

The specific scores of the Rating System New Construction LEED v4.1, are presented below :

Building Product Disclosure and Optimization – Material Ingredients

OPTION 1. Material Ingredient Reporting (Inventory indicating CASRN) – Possible 1 point



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Document 11.a_ REGIONAL MATERIAL

Product:

Classification: Porcelain stoneware, belonging to the water absorption group Bla

Mainzu Cerámica is located in the municipality of Vila-Real (Castelló, España), with the following geographic coordinates [39.944093, -0.091906](#)

The raw materials used to manufacture their ceramic products are extracted in the Mines whose composition, origin and type of transportation are detailed in the following table

COMPOSITION			
Type of raw material	%Composition	Origin (km)	Type of transportation
Clays	25,0	3000	Ship
Clays	12,0	150	Truck of 28t
Feldspars	30,0	1500	Ship
Feldspars	15,0	4200	Ship
Sands	5,0	100	Truck of 28t
Raw pot	5,0	30	Truck of 28t
Cooked pot	8,0	30	Truck of 17t