

# LEE E

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# **Medium Stoneware Tile**

# Dry-pressed stoneware tiles. This includes different models:

Absorption group Bla with water absorption ≤0.5%, and Absorption group Blb with water absorption between 0.5% and ≤3%.

# Ceramic floor and wall tiles

## Contact details

Argenta Cerámic, S.L. www.argentaceramica.com Pol. Ind. Vall d'Alba, Vall d'Alba (Castellón) Telephone: 964324003 argenta@argentaceramica.com

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Summary table: Environmental parameters to which the material makes a specific contribution. Detailed in the LEED environmental certification sheet

	Supporting	documents	Certificates	: EPD, LA	AB TESTS		Self-decla	arations	Potential	
Location & Transportation		Material reflection index SRI	Rainwater management	Ext. light control						
Energy & Atmosphere	4	Energy absorbed	Greenhouse gas effect	Reduction in energy demand	Equipment efficiency	Other polluting gases	Renewable energy	Energy manage- ment		
Materials	<b>/</b>	Accredited location	Pre- consumption recycling	Post- consumption recycling	Potential reuse	Certified wood	Site waste	Chemical composi- tion		
Water		Consumption < reference	Water management							
Indoor Environment		Low emission of VOCs	Low emission of formalde- hydes	Comfort control	Lighting control	Acoustic control	Air quality			
Innovation	•	Innovation Design								

#### NOTES:

- 1. The information in this document to comply with the credits for the environmental certificate study system chosen (LEED) is based on the information that the company contributes and provides. In order to ensure possible compliance with said credits, it is necessary, during the process of awarding any seals, to verify the validity of the information and data provided by the company.
- 2. This document does not constitute product certification, nor does it guarantee compliance with the local regulations in force.
- 3. The conclusions of this study apply only to the products mentioned in this report and are subject to the invariability of the product's technical conditions.
- 4. The validity of this document is subject to expiry of the supporting documents or changes in regulations and/or versions of environmental certificate seals.
- 5. This document informs of the possible contribution of the product studied to obtaining LEED certification. However, the final decision on whether a product does or does not comply with the LEED certification requirements is taken exclusively by GBCI (Green Business Certification Inc.).



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# REVERB COLLECTION

# SUMMARY OF LEED v4 CREDITS





# SUSTAINABLE SITES (SS)

SS, Heat island reduction.



# **ENERGY & ATMOSPHERE (EA)**

- EA, Minimum energy performance
- EA, Optimise energy performance



# **MATERIALS & RESOURCES (MR)**

- MR, Building life-cycle impact reduction
- MR, Building product disclosure and optimisation environmental product declarations
- MR, Building product disclosure and optimisation sourcing of raw materials
- MR, Building product disclosure and optimisation material ingredients
- MR, Construction and demolition waste management



# INDOOR ENVIRONMENTAL QUALITY (IEQ)

IEQ, Low Emitting Materials



# **INNOVATION IN DESIGN (ID)**

ID, Innovation

#### **LEED** environmental categories



(LT) Location & Transportation



(SS) Sustainable Sites



(WE) Water Efficiency



(EA) Energy & Atmosphere



(MR)
Materials &
Resources



(IEQ) Indoor Environment al Quality



(ID) Innovation in Design



(RP) Regional Priority

#### LEED Certification Standards (v4)

FB Existing Building RNC Retail New Construction DCNC Data Centre NC NC **New Construction REB** Retail Existing Building DCEB Data Centre EB CI Commercial Interiors RCI Retail Commercial Interiors WNC Warehouse NC CS Core & Shell Healthcare Warehouse EB HNC Hospitality-New Constr. SNC School New Construction NDP Neighbourhood Devel, Plan **HEB** Hospitality-Existing Building SEB School Existing Building ND Neighbourhood Develop. MRB Mid Rise Buildings HCI Hospitality-Commercial Int.





	Inclinación	IRS inicial	IRS a los tres años
Cubierta de poca inclinación	≤ 2:12	82	64
Cubierta muy inclinada	> 2:12	39	32



# CATEGORY SUSTAINABLE SITES (SS)

#### SS, Heat island reduction

(Option 1 may add up to 2 points. Compliance with this credit may add to 1-2 points in NC, SNC, RNC, CS, HNC, DCNC, WNC and 1 point in HCNC. EP\* may provide an additional

Intent To minimise effects on microclimates and human and wildlife habitats by

reducing heat islands.

Requirements The products included in the medium stoneware tile group from the company

Argenta Cerámica, S.L. in their lightest colours are materials with a high solar reflectance index, so they may add towards obtaining points for this credit,

especially Option 1.

Assessment procedure

Option 1. Nonroof and roof (2 points except Healthcare, 1 point Healthcare)

Meet the following criterion:

Total roof area

Alternatively, an SRI and SR weighted average approach may be used to calculate compliance.

Use any combination of the following strategies.

#### Nonroof measures

- Provide shade with architectural devices or structures that have a threeyear aged solar reflectance (SR) value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation.
- Use paving materials with a three-year aged solar reflectance (SR) value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation.

#### High-reflectance roof

Use roofing materials that have an SRI equal to or greater than the values in Table 1. Meet the three-year aged SRI value. If three-year aged value information is not available, use materials that meet the initial SRI value.

Table 1. Minimum solar reflectance index value, by roof slope

	Slope	Initial SRI	SRI after three years
Roof with slight slope	≤2:12	82	64
Roof with very steep slopes	>2:12	39	32

EP\*: Comply with both option 1 and option 2 but with 100% of parking spaces

\*EP- Exemplary performance: (Additional point)

**Analysis** example N/A

Supporting

01\_1-Certificado IRS KURSAAL\_SLATE.pdf 01\_2-Certificado IRS TANUM\_PLOMO.pdf





STONEWARE TILE, ARGENTA CERÁMICA

01\_3-Certificado IRS CRYSTAL\_WHITE.pdf 01\_4-Certificado IRS FOSTER\_WHITE.pdf

Reference standard

ASTM E1980-11



# CATEGORY ENERGY & ATMOSPHERE (EA)

EA, Minimum Energy Performance (pre-requisite)

EA, Optimise energy performance (credit)

(Compliance with this credit may add up to 16 points in SNC, 18 points in NC, CS, RNC, HNC, DCNC, WNC and 20 points in HCNC. EP\* may add an additional point)

Intent

Achieve good building efficiency in the building and its systems to reduce environmental and economic impacts associated with excessive energy use.

Requirements

The products included in the medium stoneware tile group from the company Argenta Cerámica, S.L. have very low thermal conductivities, contributing to efficiency and energy-saving.

The thermal conductivity of the products in group Bia is 1.50 W/mK and that for group Bib is 1.46 W/mK, as described in the certificate issued by the

accredited laboratory.

The thermal conductivity and thicknesses of the product can be used to perform the energy simulation of the target building, in accordance with LEED  $\,$ 

requirements.

NOTE: the final result to determine the total points depends on the design of the building, its location, direction, materials, definition of the envelope and the

systems used.

Assessment procedure

Option 1: Energy simulation.

Demonstrate, with an energy simulation, an improvement in the proposed building performance rating compared with the baseline building (defined according to ANSI/ASHRAE/IESNA standard 90.1-2.010, Appendix G, with errata)

Savings of 2-5% must be demonstrated for the prerequisite and 3-50% for the credit, which would vary depending on the rating system. The savings are given a score between 1 and 20 points.

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EP\* Option 1: Achieve an energy saving of at least 54% compared with the baseline building performance.

\*EP- Exemplary performance: (Additional point)

Analysis example

N/A

Supporting documents

02\_1-Certificado conductividad térmica grupo Bla.pdf 02\_2-Certificado conductividad térmica grupo Blb.pdf

Reference standard

ASTM D7984-16







# **CATEGORY**

# **MATERIALS & RESOURCES (MD)**

# MR, Building Life-Cycle Impact Reduction

(Option 4 may add up to 3 points. Compliance with this credit may add up to 2-5 points in **NC**, **SNC**, **RNC**, **HCNC**, **HNC**, **DCNC**, **WNC** and 2-6 points in **CS**. EP\* may provide an additional point.)

Intent To encourage reuse and the use of materials with lower environmental impacts

Requirements 
The products included in the medium stoneware tile group from the company

Argenta Cerámica, S.L. have an EPD verified by a third party.

The impact of the materials calculated in the relevant EPD may be used for

performance of the LCA for the target building.

Assessment procedure

Option 4: Whole-building life-cycle assessment (structure and enclosure)

Conduct a life-cycle assessment of the project's structure and enclosure that demonstrates a minimum 10% reduction compared with a baseline building, in at least three of the six impact categories listed below. One of the three must be global warming potential (greenhouse gas emissions):

- Global warming potential (CO2 eq.)
- Depletion of the stratospheric ozone layer (kg CFC-11)
- Acidification of land and water sources (moles H+ or kg SO2)
- Eutrophication (kg N or PO4)
- Formation of tropospheric ozone (kg NOx or kg C2H4)
- Depletion of nonrenewable energy resources (MJ)

No impact category assessed as part of the life-cycle assessment may increase by more than 5% compared with the baseline building.

EP\* Option 4: Improve the thresholds required for the six impact categories.

\*EP- Exemplary performance: (Additional point)

Analysis example

N/A

Supporting documents

03\_1-DAP-Gres Porcelánico Medio-Argenta-EN.pdf 03\_1-DAP-Gres Porcelánico Medio-Argenta-ESP.pdf

Reference standard

ISO 14025-2006 / ISO 14040-2006 / ISO 14044-2006 / UNE-EN 15804+A1





# **CATEGORY**

# **MATERIALS & RESOURCES (MD)**

### MR, Building product disclosure and optimisation - environmental product declarations

(Option 1 and Option 2 may add up to 1 point each. Compliance with this credit may add up to 1-2 points in NC, CS, SNC, RNC, HCNC, HNC, DCNC and WNC. EP\* may add an

Intent

To encourage the use of products and materials for which life-cycle information is available and that demonstrate a reduction in associated

impacts.

#### Requirements

The products included in the medium stoneware tile group from the company Argenta Cerámica, S.L. have an EPD verified by an independent third party, complying with option 1 of the credit (calculation: 100%) and may contribute to obtaining the credit.

Verified by the Institute of Construction Technology of Catalonia (Instituto de Tecnología de la Construcción de Cataluña - ITEC), according to ISO 14025 and UNE-EN 15804+A1.

The reference PCR used for the EPD is PCR002 - Ceramic cladding products - V.2 (2015).

EPD construction programme administered by the Official Association of Quantity Surveyors, Architectural Technicians and Construction Engineers of Barcelona.

In order to be able to contribute to compliance with option 2, it is necessary to compare the product with the industry average.

#### Assessment procedure

#### Option 1. Environmental Product Declaration (EPD) (1 point)

Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the criteria below:

- Products with a publicly available, critically reviewed life-cycle assessment (these products are valued as 25%)
- EPD (Environmental Product Declaration):
  - o Industry-wide (generic) EPD (valued as 50%)
  - o or a Product-specific Type III EPD (valued as 100%)

EP\* Option 1: install 40 products (from at least 5 manufacturers) that meet the requirements.

#### Option 2. Multi-Attribute Optimisation

Use products that comply with one of the criteria below for 50%, by cost, of the total value of permanently installed products in the project, certified by an independent third-party, that demonstrate impact reduction below industry average in at least three of the following categories. Global warming potential (CO2 eq.)

- Depletion of the stratospheric ozone layer (kg CFC-11)
- Acidification of land and water sources (moles H+ or kg SO2)
- Eutrophication (kg N or PO4)
- Formation of tropospheric ozone (kg NOx or kg C2H4)
- Depletion of nonrenewable energy resources (MJ)

For credit achievement calculation, products sourced (extracted, manufactured or purchased) within 100 miles (160 km) of the project site are valued at 200% of their base contributing cost (Location Valuation Factor MR).

EP\* Option 2: Purchase 75% of products that comply with the requirements.





\*EP- Exemplary performance: (Additional point)

Analysis example

N/A

Supporting documents

03\_1-DAP-stoneware tile Medio-Argenta-EN.pdf 03\_1-DAP-stoneware tile Medio-Argenta-ESP.pdf

04\_1-Declaración material local

Reference standard

ISO 14021-1999 / ISO 14025-2006 / ISO 14040-2006 / ISO 14044-2006 /

dard UNE-EN 15804+A1



## **CATEGORY**

# **MATERIALS & RESOURCES (MD)**

#### MR, Building product disclosure and optimisation - sourcing of raw materials

(Option 1 and Option 2 may add up to 1 point each. Compliance with this credit may add up to 1-2 points in **NC**, **CS**, **SNC**, **RNC**, **HCNC**, **HNC**, **DCNC** and **WNC**. EP\* may add an additional point.)

Intent

To encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.

Requirements

According to the self-declarations by Argenta and the raw materials supplier, the pre-consumption recycled content of the products in group BIa is 36% by weight.

# Assessment procedure

#### Option 2. Leadership Extraction Practices (1 point)

Use products that meet at least one of the responsible extraction criteria below for at least 25%, by cost, of the total value of permanently installed building products in the project. The materials in the structure and enclosure must not constitute more than 30% of the value of the complying product in the project:

- Extended producer responsibility.
- Bio-based materials.
- Wood products.
- Materials reuse.
- Recycled content.
- USGBC approved programme.

For credit achievement calculation, products sourced (extracted, manufactured or purchased) within 100 miles (160 km) of the project site are valued at 200% of their base contributing cost (Location Valuation Factor MR).

**EP\* Option 2**: Use products that meet at least one of the responsible extraction criteria for at least 50%, by cost, of the total value of permanently installed building products in the project.

Analysis example

N/A

Supporting documents

05\_1-Autodeclaracion ambiental del producto Bla (BPE) EN-Argenta.pdf 05\_1-Autodeclaracion ambiental del producto Bla (BPE) ESP-Argenta.pdf 05\_2-Autodeclaracion ambiental del producto materia prima-Argenta.pdf

04\_1-Declaración material local

Reference standard

N/A







# **CATEGORY**

# **MATERIALS & RESOURCES (MD)**

♠ MR, Building product disclosure and optimisation - material ingredients (Option 1 and Option 2 may add up to 1 point each. Compliance with this credit may add up to 1-2 points in NC, CS, SNC, RNC, HCNC, HNC, DCNC and WNC. EP\* may add an additional point.)

Intent To reward project teams for selecting products for which the chemical

ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimise the use and generation of harmful

substances.

**Requirements** The products included in the Medium Stoneware Tile group from the company

Argenta Cerámica, S.L., studied in this sheet, do not contain substances in the REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals)

Authorisation list or the candidate list. They therefore count as 100%.

Assessment procedure

#### Option 1. Product composition disclosure

Use a minimum of 20 different permanently installed products from at least five manufacturers that state the composition of the product in one of the following formats:

- List of components identified by name and CASRN (Chemical Abstract Service Registration Number) or GreenScreen rating.
- Safety sheet (HPD), stating hazardous products according to the Health Product Declaration open standard.
- C2C (Cradle to Cradle) C2Cv2 basic level / C2Cv3 bronze level certified products

#### Option 2. Improvements of the material's components

Use a minimum of 25% of permanently installed products in the project by cost that do not contain hazardous substances:

- GreenScreen v1.2: Products that do not contain ingredients classified as level 1
- C2C certified products with a level above C2C v2 Gold / C2Cv3 Silver.
- Products that do not contain substances in the REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) Authorisation list or the candidate list.

For credit achievement calculation for options 2 and 3, products sourced (extracted, manufactured or purchased) within 100 miles (160 km) of the project site are valued at 200% of their base contributing cost (Location Valuation Factor MR).

**EP\* Option 2**: Purchase at least 50% of all permanently installed products in the project, by cost, which meet the criterion in option 2.

\*EP: Exemplary performance: (Additional point)

Analysis example

N/A

Supporting documents

06\_1-Carta REACH a clientes-Argenta.pdf 06\_2-Guía REACH sector cerámico-Argenta.pdf

Reference standard

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH):echa.europa.eu/support/guidanceonreachandclpimplementation







# CATEGORY

# **MATERIALS & RESOURCES (MD)**

# MR, Construction and Demolition Waste Management

(NC, CS, SNC, RNC, HC, HNC, DCNC, WNC: Option 2 adds up to 2 points. Compliance with this credit may add up to 1-2 points. EP\* may add an additional point)

Intent To reduce construction and demolition waste disposed of in landfills and

incineration facilities by recovering, reusing and recycling materials.

Requirements According to the environmental declaration for the medium stoneware tile

product from Argenta Cerámica, construction waste per square metre of

material is as follows:

#### Spain:

Cardboard to be incinerated:	4.14E-03 kg
Cardboard to be recycled:	4.35E-02 kg
Cardboard for controlled landfill:	2.14E-02 kg
Pallet to be incinerated:	9.13E-04 kg
Pallet to be recycled:	1.30E-03 kg
Pallet for controlled landfill:	4.30E-03 kg
Plastic to be incinerated:	2.63E-02 kg
Plastic to be recycled:	2.46E-02 kg
Plastic for controlled landfill:	5.04E-03 kg
Recycling losses	2.62E-02 kg
Landfill losses	1.28E-01 kg

# Europe:

Cardboard to be incinerated:	1.02E-03 kg
Cardboard to be recycled:	3.78E-02 kg
Cardboard for controlled landfill:	1.23E-02 kg
Pallet to be incinerated:	1.26E-03 kg
Pallet to be recycled:	1.30E-03 kg
Pallet for controlled landfill:	2.27E-03 kg
Plastic to be incinerated:	8.30E-03 kg
Plastic to be recycled:	1.58E-02 kg
Plastic for controlled landfill:	1.74E-02 kg
Recycling losses:	1.94E-02 kg
Landfill losses:	9.48E-02 kg

## World:

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Cardboard to be incinerated:	1.60E-02 kg
Cardboard to be recycled:	8.02E-03 kg
Cardboard for controlled landfill:	5.61E-02 kg
Pallet to be incinerated:	1.52E-03 kg
Pallet to be recycled:	7.58E-04 kg
Pallet for controlled landfill:	5.31E-03 kg
Plastic to be incinerated:	1.30E-02 kg
Plastic to be recycled:	3.25E-02 kg
Plastic for controlled landfill:	1.95E-02 kg
Recycling losses:	3.05E-02 kg
Landfill losses:	1.50 E-01 kg

The amount of material for final elimination including material losses is 18.58kg/m<sup>2</sup> of product.

#### Assessment procedure

#### Option 2. Reduction of Construction Waste (2 points):

Do not generate more than 12.2 kg of construction waste per square metre of the building's floor area.





EP\* In addition to Option 1: Recycle 50-75% of the construction waste,

including 3-4 types of waste.

\*EP: Exemplary performance: (Additional point)

**Analysis** example

Supporting documents 03\_1-DAP-Gres Porcelánico Medio-Argenta-EN.pdf 03\_1-DAP-Gres Porcelánico Medio-Argenta-ESP.pdf

Reference standard

• European Commission Waste Framework Directive 2008/98/EC

• European Commission Waste Incineration Directive 2000/76/EC

• EN 303-1—1999/A1—2003

EN 303-3-1998/AC-2006

• EN 303-5—1999 • EN 303-5—2012

EN 303-6—2000
EN 303-7—2006







# **CATEGORY**

# INDOOR ENVIRONMENTAL QUALITY (IEQ)

# IEQ, Low Emitting Materials

(Compliance with this credit may add up to 1-3 points in NC, CS, SNC, RNC, HCNC, HCNC, DCNC and WNC. EP may add 1 additional point.)

Intent To reduce concentrations of chemical contaminants that can damage air

quality, human health, productivity and the environment.

Requirements 
The products included in the medium stoneware tile group from the company

Argenta Cerámica, S.L. are ceramic products so they inherently do not emit VOCs. They also have no organic-based surface coatings, binders, or

sealants, so they contribute to compliance with the credit.

Assessment procedure

#### Option 1. Product categories calculation:

Do not exceed the VOC content limits established for the following product categories:

- Interior paints and construction cladding.
- Interior sealants and adhesives applied during construction (except for floor adhesives).
- Flooring.
- Wood compounds.
- · Walls, ceilings and sound and thermal insulation.
- Furniture.
- Products applied outdoors (only for hospitals and schools):
   Adhesives, sealants, cladding and waterproofing applied in situ must comply with the VOC limits established.

The points for this credit will depend on the number of categories with which the project complies.

Products that are inherently not VOC emitters comply with the requirements for the credit without the need to present tests, provided they have no organic-based surface coatings, binders, or sealants.

EP\* Option 1: Achieve the maximum score and compliance for 100% of the products

\*EP: Exemplary performance: (Additional point)

Analysis example

N/A

Supporting documents

03\_1-DAP-Gres Porcelánico Medio-Argenta-EN.pdf 03\_1-DAP-Gres Porcelánico Medio-Argenta-ESP.pdf

Reference standard

N/A







# ID, Innovation

(NC, CS, SNC, RNC, HC, HNC, DCNC, WNC:

A maximum of 2 points (for two different credits) may thus be obtained. The values defined as exemplary performance have been indicated on this sheet as EP in the relevant credits.)

Intent To reward projects that achieve exceptional or innovative performance in

complying with LEED requirements.

The products included in the medium stoneware tile group from the company Requirements Argenta Cerámica, S.L. may comply with the exemplary performance

requirements for the following credits:

SS - Heat island reduction

EA - Minimal energy performance

EA - Optimise energy performance MR - Building life-cycle impact reduction

MR - Building product disclosure and optimisation - environmental product declarations.

MR - Building product disclosure and optimisation - sourcing of raw materials

MR – Building product disclosure and optimisation - material ingredients.

MR - Construction and demolition waste management

IEQ - Low emitting materials.

Assessment procedure

Option 3: Exemplary Performance - EP

Some LEED credits give the option of obtaining an extra point for Exemplary Performance (EP) if the requirements for said credit are exceeded, and the values defined by LEED as Exemplary Performance (EP) are achieved.

**Analysis** example

N/A

Supporting documents See relevant credit

Reference standard

See relevant credit





# **OTHER CONSIDERATIONS**

#### Other considerations

Description There is other evidence not included in the categories for the LEED v4

baseline but that may be used by the assessment technician. These are:

Supporting 07\_1-Certificado FSC.pdf documents

07\_2-Certificado PEFC.pdf 07\_3-Carta declaración madera controlada.pdf 08\_1-Declaración plan de demolioción.pdf

09\_1-Declaración residuos.pdf 10\_1-Certificación AENOR ISO 9001-Argenta.pdf 10\_2-Certificación IQNET ISO 9001-Argenta.pdf 11\_1-Certificación CSTB Porcelánico Bla-Argenta.pdf

Reference FSC-STD-50-001 (v1.2) EN FSC-STD-40-005 (v2.1) EN standard

FSC-STD-40-004 (v2.1) EN

ISO 9001-2008 EN 14411