# MD Facade

# Natural materials for technical solutions

## Description

MDFACADE is a special expanded insulation cork reference of Amorim Cork Insulation, recommended for exterior applications. The product was born, responding to the challenge launched by architects Álvaro Siza and Eduardo Souto Moura, to the project of Portugal Pavilion, at Expo Hannover in 2000. The project is now located in Coimbra since 2002, without any apparent anomaly.

## Advantages

- 100% natural and fully recyclable
- Excellent thermal and acoustic insulation
- Mechanical stability
- Healthier natural product
- $CO_2$ sink (Carbon Negative)
- Visual Cork

## Product lines

- Board dimension: 1000x500 (mm)
- Thickness up to 200 (mm)
- Option: Overlapping system

## Product specifications

- Density: 140 +/-10 kg/$m^3$
- Thermal Conductivity: 0,043 W/m.K
- Fire Reaction: Euroclass E

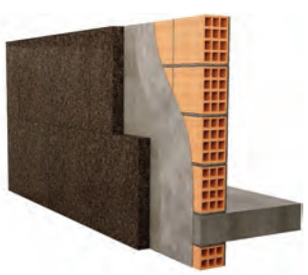
PHOTO: David Grandorge | PROJECT: Matthew Barnett Howland with Dido Milne and Oliver Wilton

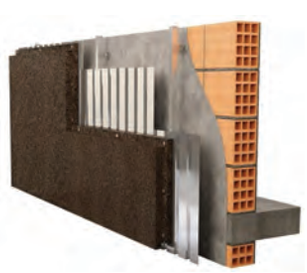
# Mechanical characterization

| Test | Standard | Results |
|---|---|---|
| Bending behaviour; σb [kPa] | EN 12089: 2013 | σb: 227 kPa Bending at max force: 14,54 mm |
| Dimensional properties | EN 822:2013 | Length: +/- 5mm: L2<br>Width: +/- 3mm: W2<br>Thickness: +/-1mm T1; +/- 2mm: T2 |
| Dimensional stability | EN 1604: 2013 | Length: Δ εl (%) = 0.3<br>Width: Δ εb (%) = 0.3<br>Thickness: Δ εd (%) = 0.40 |
| Tensile strength perpendicular to faces; σmt [kPa] | EN 1607: 2013 | σmt = 67,81 kPa |
| Tensile strength perpendicular to faces; Wet conditions; σmt [MPa] | ETAG 004: 2011<br>EN 1607: 2013 | Set 1 - σmt = 64.91 * E - 3 MPa<br>Set 2 - σmt = 64.15 * E - 3 MPa |
| Deformation under specified compressive load and temperature conditions; ε1, ε2 [%] | EN 1605: 2013 | Relative deformation ε1: 0,949 %<br>Relative deformation ε2: 4,63 % |
| Compressive stress at 10% strain; σ10 [kPa] | EN 826: 2013 | σ10 = 185 kPa |
| Shear strength; τ[kPa] | EN 12090: 2013 | τ = 110 kPa |
| Behaviour under point load; Fp [kN] | EN 12430: 2013 | Fp = 0.93 kN |
| Dynamic stiffness; S't [MN/m³] | ISO 9052 - 1: 1989<br>ISO 7626 - 5: 1994 | S't = 90 MN/m³ |

## Application systems

| Adhesive | Mechanical fixing |
|---|---|



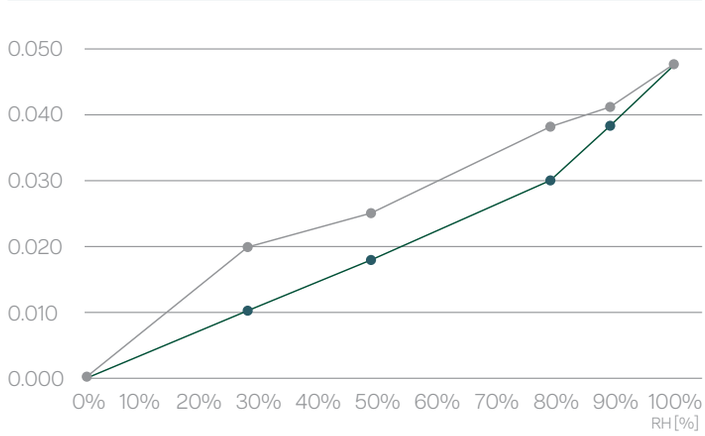


# Hygrothermal characterization

| Test | Standard | Results |
|---|---|---|
| Thermal conductivity coefficient λ [W/m.°C] | EN 12667: 2001 | Mean value:<br>λ = 0,0426 W/m.°C |
| Declared value for thermal conductivity and thermal resistance<br>λD [W/(m.°C)]<br>RD [(m².°C)/W] | EN 13170: 2012<br>Annex A | λD = 0.045 [W/(m.°C)]<br>RD = 1.55 [(m².°C)/W] |
| Short term water adsorption by partial immersion; Wp [kg/m²] | EN 1609: 2013 | Wp: 0,18 kg/m² |

| **Water vapour transmission properties** [EN 12086: 2013] | Mean value |
|---|---|
| Water vapour transmission rate g [mg/(h.m²)] | 455.54 |
| Water vapour permeance W [mg/(m².h.Pa)] | 0.3 |
| Water vapour resistance Z [(m².h.Pa)/mg] | 3.09 |
| Water vapour permeability δ [mg/(m.h.Pa)] | 0.01 |
| Water vapour diffusion resistance factor μ [-] | 54.61 |
| Water vapour diffusion equivalent air layer thickness Sd [m] | 2.19 |

**Hygroscopic adsorption properties**
Moisture content (kg/kg)

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