



LEA CERAMICHE AND THE ENVIRONMENT

Lea Ceramiche has always considered environmental protection a matter of great importance

- investing in the best technologies on the market to minimize the environmental impact of its activities
- giving all employees an excellent working environment
- obtaining prestigious environmental certifications



Bio Lumber is manufactured in a production site that is certified with Environmental Management System:

- ISO 14001: 2004 (internationally recognized standard)
- EMAS (European Regulation - EC Reg 1221/09)

DOCUMENTATION

The EMAS Environmental Statement of the production site, document describing the performance of production site and all the objectives LEA Ceramiche strives to achieve in terms of environmental safeguard, is available on the website www.ceramichelea.it.

LEA CERAMICHE CARES FOR THE ENVIRONMENT

LEA CERAMICHE's incessant strive for excellence has led us to respect the following principles when dealing with the environment.



100% INDUSTRIAL WASTE REUSED – NON FIRED TILES

The totality of the non fired material, which does not comply with our high quality standards, is reused in the production cycle. As these products are not yet fired, they can be reinserted in the initial phases of the production cycle. Recycling of this waste also reduces the need of raw materials.



LOW GAS EMISSIONS INTO THE ATMOSPHERE

LEA CERAMICHE complies strictly to Italian Standards (cf. Post-Kyoto Protocol negotiations on greenhouse gas emissions). The strive for excellence has led us to invest in high quality technology that keeps our emissions 10 times inferior to the allowed limits.



100% INDUSTRIAL WASTE RECYCLED – FIRED TILES

On the other hand the fired material cannot be recycled into the production cycle. For this reason all fired material is recycled externally and used in the construction industry. These waste products are used as a foundation in the construction of roads – this reduces the need of the natural resources which are commonly used for this purpose.



ENERGY SAVING

Through a complex piping system LEA CERAMICHE manages to conserve the heat emitted during the firing process and reuses it in the preparation of the mix used for the body – this reduces the need in methane by 25%.



100% INDUSTRIAL WASTE RECYCLED – NON CERAMIC WASTE

The totality of the non ceramic waste is differentiated and recycled externally.



100% RECYCLABLE MATERIAL USED FOR PACKING

The materials used for the packing of LEA CERAMICHE products are completely recyclable. These materials include carton boxes, plastic materials, wooden pallets, etc.



100% WASTE WATER RECYCLED – SAFEGUARD OF NATURAL RESOURCES

The production of tiles requires important amounts of water. So as to safeguard this precious resource LEA CERAMICHE recycles 100% of waste water from the production cycle. This allows the reduction of water consumption by 60%. None of the water used in the production cycle is discharged into the ecosystem.



FAO PALLETS

For shipments LEA CERAMICHE uses debarked pallets (DB), in accordance with the IPPC / FAO ISPM 15 standards. This is a further warranty for the forest safeguard of countries importing LEA CERAMICHE products.



CASACLIMA BUILDING WITH RESPECT

Lea Ceramiche has been recognized as a CasaClima Partner, proving that it can satisfy the necessary requirements for this certification. Lea Ceramiche stoneware is ideal for designing houses with low energy consumption. CasaClima is an autonomous agency that has for the last 20 years promoted energetic certification for buildings. In this way it promotes a culture of sustainable construction, which means building quality and comfortable housing that respect the environment.

LEED CREDIT SYSTEM

Lea Ceramiche is a member of the **U.S. Green Building Council**: this is an organisation that promotes buildings that are environmentally friendly, profitable and healthy places to live and work in.

SS Credit 7.1 – Heat Island Effect / Non roof (NC, CI, CS, SCHOOLS LEED Rating Systems): 1 LEED point is granted for the use of hardscape materials with $SRI \geq 29$.

Bio Lumber (*) does not contribute to change the energy balance of the environments where it is installed. It doesn't produce any Urban Heat Island Effect, thanks to its very good physical properties, i.e. Solar Reflectance Index $SRI \geq 29$.

(*) for Lodge Greige, Lodge Brown



EA Credit 1 - Optimize Energy Performance (NC, CI, CS, SCHOOLS LEED Rating Systems)

The Thermal conductivity λ of Bio Lumber is 0.75 Btu/ft h °F (1.3 Watt/m²K or 1.1 Kcal/m h °C). For this reason it is ideal for heating floors systems and external cladding.

MR Credit 2 - Construction Waste Management (NC, CI, CS, SCHOOLS LEED Rating Systems): 2 LEED points

are granted if at least 75% of the weight of Raw materials – tiles and packing – will be recycled. Bio Lumber and its packing material (carton boxes, plastic packaging materials, wooden pallets, straps, etc..) are 100% recyclable. The management of the waste on the building site is also easier because the quantity of waste is very small (weight of packaging is around 2-3% of weight of total material).

MR Credit 4 - Recycled Content (NC, CI, CS, SCHOOLS LEED Rating Systems): 2 LEED points

are granted if the % post-consumer waste + ½ of the % pre-consumer waste $\geq 20\%$ of the total raw materials, based on cost. Bio Lumber is produced with 40% of pre-consumer recycled materials, as certified by a qualified external company. The certificate is available on the website www.ceramichelea.it.

MR Credit 5 - Regional Materials (NC, CI, CS, SCHOOLS LEED Rating Systems): 2 LEED points

are granted if the use of local raw materials is equal to 20% of the total materials value, based on cost. • These Credits are applicable for buildings constructed within 500 miles (804,5 km) from Lea Ceramiche production site (Toano RE, Italy). • The % contribution based on the cost of Bio Lumber to a single LEED project is calculated based on the geographical position of the construction site.

MR Credit 5 - Regional Materials (CI Rating Systems Only): 2 LEED points

are granted if the use of local raw materials is equal to 20% of the total materials value, based on cost. • 1 LEED Point: use a minimum of 20% of the combined value of construction and Division 12 (Furniture) materials and products that are manufactured regionally within a radius of 500 miles from Lea Ceramiche production site (Toano RE, Italy). • 2 LEED Points: meet the previous criterion requirement and use a minimum of 10% of the combined value of construction and Division 12 (Furniture) materials and products extracted, harvested or recovered, as well as manufactured, within 500 miles of the project.

IEQ Credit 4.1 - Low Emitting Materials, Adhesives and Sealants (NC, CI, CS, SCHOOLS LEED Rating Systems): 1 LEED point

is granted if all adhesives and sealants used on the interior of the building comply with SCAQMD Rule #1168 (VOC limit of ceramic adhesives not more than 65 g/l less water).

IEQ Credit 4.3 - Low Emitting Materials, Flooring Systems (NC, CI, CS, SCHOOLS LEED Rating Systems): 1 LEED point

is granted if all flooring complies with the requirements indicated in IEQ Credit 4.3 Section. Bio Lumber obtains 1 LEED point because it doesn't contain any Volatile Organic Compounds VOC (see LEED 2009 NC, CI, CS, SCHOOLS Rating Systems).

IEQ Credit 4.6 - Low Emitting Materials, Ceiling and Wall Systems (SCHOOLS LEED Rating System only): 1 LEED point

Bio Lumber obtains 1 LEED point because it doesn't contain any Volatile Organic Compounds VOC (see Addenda of LEED Reference Guide for Green Building Design and Construction, 2009 Edition).

ID Credit 1 - Innovation in Design: 1-5 LEED points for NC, CI and CS, 1-4 LEED points for SCHOOLS

- "Innovation in Design": Bio Lumber has got antibacterial surface, that reduce bacterial presence by up to 99,9% (ISO 22196 test method).
- "Exemplary performances" MR Credit 2 - CONSTRUCTION WASTE MANAGEMENT: 1 LEED point may be earned if at least 95% by weight of the Raw Materials - material and packing - will be recycled. Bio Lumber and its packing material (carton boxes, plastic packaging materials, wooden pallets, straps, etc..) are 100% recyclable.
- "Exemplary performances" IEQ Credit 4.6 - LOW EMITTING MATERIALS, CEILING and WALL SYSTEMS: 1 LEED point may be earned for NC, CI, CS LEED Buildings: no traces of VOC (Volatile Organic Compounds) are present in Bio Lumber (see Addenda of LEED Reference Guide for Green Building Design and Construction, 2009 Edition).

RP Credit 1 - Regional Priority (NC, CI, CS, SCHOOLS LEED Rating Systems): 1-4 LEED points

Between 1 and 4 credits can be obtained, of the 6 Regional Priority credits identified by the USGBC regional councils and chapters, if the project has an environmental importance for the region, where it is being constructed. A database of Regional Priority credits and their geographic applicability is available on the USGBC website www.usgbc.org.

LEED Rating System of Existing Buildings Operations and Maintenance (EBOM)

The cleaning and maintenance procedures on Lea Ceramiche's general catalogue can help obtain the following LEED credits.

- SS Credit 7.1 - HEAT ISLAND REDUCTION (Non roof): 1 LEED point is granted if a maintenance program is organized, that ensures the surfaces are cleaned at least every 2 years to maintain a good reflectance.
- IEQ 3.1 - GREEN CLEANING, HIGH PERFORMANCE CLEANING PROGRAM: 1 LEED point.
- IEQ 3.3 - GREEN CLEANING, PURCHASE OF SUSTAINABLE CLEANING PRODUCTS AND MATERIALS: 1 LEED point.

MR 3 - Sustainable Purchasing, Facility Alterations and Additions: 1 LEED point is granted if the purchases contain at least 10 % post-consumer waste and/or 20 % pre-consumer waste material. Bio Lumber is produced with 40% of pre-consumer recycled materials, as certified by a qualified external company. The certificate is available on the website www.ceramichelea.it.

NC = LEED 2009 for New Construction, CI = LEED 2009 for Commercial Interior, CS = LEED 2009 for Core and Shell Development, SCHOOLS = LEED 2009 for Schools, EBOM = LEED 2009 for Existing Buildings Operations and Maintenance.

Lea Ceramiche is a member of the **Green Building Council ITALIA**, this is an organisation that promotes in Italy buildings that are environmentally friendly, profitable and healthy places to live and work in.



The LEED credits that can be obtained with Bio Lumber for NC 2009 Italia (New construction) are the same as the ones that can be obtained with USGBC LEED NC 2009 Rating System (please see table). The only differences are regarding credit MR 5 – REGIONAL MATERIALS (different method of calculating the distance from the production site and raw materials from the construction site) and IEQ 4.1 - LOW EMITTING MATERIALS, ADHESIVE AND SEALANTS (max emissions VOC = 200 mg/m², v. GEV Emicode EC1 ed. 03.03.2009).