



REPORT: WOODN's PRODUCTS PLACEMENT BASED ON LEED STANDARD

1.1 INTRODUCTION

LEED is an environmental certification for buildings. Each product, involved in the building project, if follows the parameters decided by LEED, can improve the score necessary for LEED certification. Even if this certification concerns the entire building, not the single product, every part of building plays a fundamental role to earn credits for the final score.

Who takes part in a LEED project needs suppliers able to offer products conforming to required standards. Able to guarantee their performance with informations, documentations and certifications.

The Us Green Building Council that is a no-profit association with 15.700 members from 40 Countries (2009) and which has brought great innovations in construction trade, introduced in 1993 The Certification of building LEED. This system certifies environmental and economic sustainability of the buildings taking into consideration many aspects: building plan, construction site, daily management, materials employees and energetic performance. LEED fixes some measurable parameters such as environmental and energetic consumptions or the interior quality, which defines the level of the eco-compatibility of the entire buildings. In this way, enterprises play a leadership role to support sustainability of living, comfort and quality of life. The LEED system is important, not only for the certification of the building, but also to promulgate a new idea of house/building, which directs communities toward an eco-sustainability architecture. This document has been set up in accordance with the last version of rating system, version n. 3 of 2009.

There are different rating systems of LEED depending on the area of interest. The new version, edited on April 2009, contains three standard in a unique handbook:

- Green Building Design and Construction: LEED® 2009 for New Construction and Major Renovation, LEED® 2009 for Schools New Construction and Major Renovation, LEED® 2009 for Core and Shell Development.

LEED® NC concerns commercial building including offices, institutional buildings (libraries, museum, churches, etc.) and residential building (at least four floors above ground).

Other standards:

- EB, Existing Buildings;
- CI, Commercial Interiors;
- LEED® for Homes.

In this moment is not possible to certify a LEED building for Homes.

LEED certification is based on a credit structure, which consists of seven categories:

1. Sustainable Sites
2. Water Efficiency
3. Energy & Atmosphere
4. Materials & Resources
5. Indoor Environmental Quality
6. Innovation Design
7. Regional Priority

Credits are divided into prerequisites, core credits and bonus credits.

The pending certification project must satisfy all the prerequisites, inasmuch they are obligatory. To achieve a higher score, the elements have to satisfy the fixed standard; more they are near to the parameters, more the building earns credits.

The sum of points earned by a project determines the level of certification that the project will receive

- § Certified (40-49 points)
- § Silver (50 – 59 points)
- § Gold (60 – 79 points)
- § Platinum (80 points and above)

This document reports the structure of LEED® credits NC (New Construction) in six articulated thematic areas.

The following list shows the codes concerning credit points

Ø Thematic areas:

- SS = Sustainable Sites
- WE = Water efficiency
- EA = Energy & Atmosphere
- MR = Materials & Resources
- EQ = Indoor Environmental Quality
- ID = Innovation Design
- RP = Regional Priority

Ø Distinction between PREREQUISITE (p), necessary to obtain credits in thematic areas, and CREDIT(c).

Ø IDENTIFICATION of prerequisite and credit (number and title)

- Examples:
- § MR p 1 "Separate collection of rubbish" ->prerequisite
- § MR c 4 "The use of recycled materials" ->credit

Ø SCORE total number of credits the project earns.

1.2 DESCRIPTION OF WOODN BUSINESS

The core business of WOODN INDUSTRIES consists in the production of profiles realized in a technical wood called WOODN. It can be used for many applications: indoor-outdoor covering, brise-soleil, decking , fences etc..

1.3 DESCRIPTION OF PRODUCTS / SERVICES OFFERED BY THE COMPANY

Woodn Industries has invested in research aimed at the creation and development of a technical material called WOODN. This material enhances the warmth and beauty of wood with technological innovation and respect for the environment. Woodn comes from the research and the fusion of eco-friendly materials and high quality recycled: Woodn combines strength with flexibility, versatility, beauty and ecology. The first of its kind in the world, Woodn succeeds in combining two incompatible components like PVC and wood fiber to create a material with an intrinsically high aesthetic appeal, rather than being the result of surface treatments typical of traditional WPC, with a dimensional stability that is much greater than both traditional WPC and wood itself. Woodn is fully recyclable as it is produced from scraps of wood and PVC. Wood fiber from environmentally friendly sources + polymers and/or virgin material from which we obtain the granules. The granule gives rise by heating and extrusion, to the finished product.

The aim of the company is to build confidence in the competitiveness (aesthetics, performance and economic) of eco-friendly materials in the hope of contributing to a gradual development of the forestry policies and their relevance in the balance of the ecosystem.

PRODUCTS:

- Floors
- Cladding for walls
- False ceiling
- Ventilated façade
- Outdoor decking
- Fences

- Interior design

2. LEED CREDITS, RAW MATERIALS AND BUILDING PRODUCTS

This section is focused on the LEED credits with regard to the analyzed product. In the description of the product are illustrated the characteristics of the same with respect to environment and to the contributions that can give the building in terms of sustainability, including aspects that are not taken into account by the LEED rating system.

Product name	WOODN
Description	<p>Woodn succeeds in combining two incompatible components like PVC and wood fiber to create a material with an intrinsically high aesthetic appeal, rather than being the result of surface treatments typical of traditional WPC, with a dimensional stability that is much greater than both traditional WPC and wood itself.</p> <p>The extrusion production project allows wide versatility of applications:</p> <ul style="list-style-type: none"> - Outdoor building - Interior and Exterior Design - Nautical industry, camper and caravan <p>In short time, thanks to the productive flexibility, it is possible to realize particular and customized products and projects.</p>
Documentation (Technical brochure, dépliants, etc.)	Technical brochure and dépliant.

3. CHECKLIST OF LEED CREDITS

This section explains the check list of LEED NC 3.0, for those cases in which the company's activities, its products and/or services don't concern only the credits focused on the products, but also on others (eg: for photovoltaic or sensor measurement)

Sustainability of the site								
Yes	Maybe	No	Credit	Description	Score	Requirements for the credit	Requirements satisfied by the product	Documentation
	X		Credit 7.1	Heat island effect : external surface	1	<p>OPTION 1: Provide a combination of the following strategies for 50% of paved and waterproof surfaces of the site (including roads, sidewalks, courtyards and parking areas):</p> <ul style="list-style-type: none"> - Shadow; - Provide shade through roofs with solar panels that produce energy to avoid the use of non-renewable sources - provide shade or structures with architectural techniques with SRI\geq 29. - Pavement materials with SRI\geq29; - Open mesh flooring system. <p>OPTION 2: Place a minimum of 50% of parking spaces under cover with SRI\geq 29.</p>	If external covering used in the project prove to have a SRI $>$ 29, the product would contribute to credit.	Not available.

Materials and Resources								
Yes	Maybe	No	Credit	Description	Score	Requirements for the credit	Requirements satisfied by the product	Documentation
	X		Credit 2	Management of construction waste: reduce the disposal of the 50% or 75%	2	Recycle or recover at least 50% of the non-dangerous remains of construction and demolition. Develop a waste management program of the site that identifies the recyclable materials and if these materials can be separated on-site or mixed together. Waste produced by the removal and remediation of the land does not contribute to this credit. Calculations can be done by weight or by volume if they are consistent.	The company can help the construction company to obtain this credit, demonstrating, for example, to recycle the packaging. WOODN uses for the transportation of products, pallets, cartons, copper clips wrapped in polyethylene. If the pallet was withdrawn by the company for future transport and cardboard were recycled, the company would help the construction business to increase the score.	Demonstrate, through bill of loading, that the pallets and cardboard are recycled and not conducted rubbish dump.

X			Credit 4	Recycled content: 10% or 20% (post-consumer +½ pre-consumer)	1 to 2	Use building materials that contain recycled materials such that the sum of post-consumer materials and ½ of those pre-consumer, constitutes at least 10% (1 point) or 20% (2 points), (referring to the cost) of the total value of the materials used in the project.	The product WOODN is composed of wood dust from the bamboo (22% content of pre-consumer recycled material)	Self-declaration by the supplier of the material WOODN.
X			Credit 6	Use rapidly renewable materials	1	Use rapidly renewable building materials and products (obtained from plants with a life cycle often years or less) for 2.5% of the total value of all products and building materials used in the project based on cost.	The product WOODN is composed of wood dust from the bamboo	Self-declaration by the supplier of the material WOODN

Indoor environmental Quality								
Yes	Maybe	No	Credit	Description	Score	Requirements for the credit	Requirements satisfied by the product	Documentation
X			Credit 4.1	Low emissivity materials: adhesives and sealants	1	All adhesives and sealants used inside buildings (defined as inside a weather proof system and applied on-site) shall comply with the requirements of the following standards: adhesives, sealants and base-sealants: South Coast Air Quality Management District (SCAQMD) Rule #1168. The limits of Volatile Organic Compounds (VOCs) are listed in the table below and correspond to the date of July 1, 2005, and modified on January 7, 2005	The adhesives used have lower VOC emission limits imposed by the legislation required by LEED New Construction and Major Renovation America.	Declaration by MAPEI that tests carried out on the stickers provided to WOODN were performed according to standard SCAQMD Rule 1168.