

26/11/2019

IT02-19092402

IT02-19092403

IT02-19092404

# LEED® COMPLIANCE DOCUMENT

SPECIES UNICA  
  
BORN IN VENICE

# WOODN

INDUSTRIES

WOODN  
GREENWOOD  
PLUG & PLAY

*Although Qualitynet believes the products examined can contribute to LEED® certification, it should be noted that, globally, only GBCI (Green Business Certification Inc) can give ratings and issue a LEED certificate. Bearing in mind that the LEED rating system certifies the building and not the materials, Qualitynet gives no guarantee of the achievement of the building's final rating.*

**Iris Visentin LEED AP BD&C**

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# WOODN Industries s.r.l.

## THE ENVIRONMENT AND SUSTAINABILITY

### COMPANY PROFILE

WOODN INDUSTRIES operates worldwide, offering solutions for the building and design industry that satisfy the highest aesthetic and quality standards. The ability of WOODN INDUSTRIES to develop projects is fundamental, as it allows the architect to see his ideas materialize.

Thanks to its production flexibility and long-standing know-how, WOODN INDUSTRIES accompanies the architect from the initial concept stage.

WOODN systems take shape and are modelled on the architectural project.

WOODN INDUSTRIES was established in 2002 and has grown into a global company that operates worldwide, offering solutions and products of the highest aesthetic and quality standards. The company's headquarters are in Belluno, in the heart of the Dolomites, while its production facilities are located in the province of Venice. These magical places inspire the brilliance, creativity and know-how which embody the Made in Italy concept.

### PRODUCTS EXAMINED

The following products are examined in this mapping:

#### WOODN

Woodn is a composite material made up of a wood- and PVC-based polymer alloy.

All wood used comes from FSC certified sources, a trademark which identifies products that contain wood from forests which are managed correctly and responsibly, adhering to strict environmental, social and economic standards for beech and spruce products.

The result of this alchemy is a technical wood that overcomes some of the limitations of wood, such as its reduced durability over time and its need for constant maintenance, while preserving its natural look and texture.

## GREENWOOD

Greenwood is a ground-breaking scientific and technological solution to the rapid deterioration and the ecological and economic problems encountered when using wood. It is made of wood flour from selected reuse from the wood industry and an eco-friendly plastic polyolefin component which helps protect and make it waterproof. This material combines the beauty, elegance and warmth of real wood while offering the amazing advantages of plastic.

## PLUG & PLAY – Woodn radiant false ceiling and Greenwood heating floorboards

The system, with electric radiant panels, considerably increases the level of comfort in the room, achieving substantial energy efficiency thanks to transfer through heat radiation. This solution is particularly interesting for new builds, renovations and localised heating, for instance at a workstation or in a bathroom. This original system combining Woodn and a special electric heating resistance made of carbon with an insulation class of IP64 is exceptionally light and beautiful, making it an interesting choice for architects and designers for residential, industrial and hospitality projects.

Another important aspect to consider is that the product is extremely easy to lay, as the planks snap into place and the structure is custom designed and produced.

**RECYCABLE AND GREEN**

It uses reclaimed raw materials which means less wood than traditional decking system, so fewer trees are cut down. It is eco-compatible because it does not release harmful emissions into the environment. When the material comes to the end of its natural life, it can be recycled or can be used as fuel with high heat value in waste-to-energy plants

**IRRELEVANT ELECTROMAGNETIC RADIATION**

The PLUGANDPLAY underfloor heating does not produce emissions

**ENVIRONMENTALLY FRIENDLY**

The power is supplied via connection to the grid / to the electricity network. Fuel is not used and CO2 is not produced

**SAVING ON INSTALLATION COSTS**

It is plugged in directly to the conduction line

**STABLE AND LONG-LASTING**

It will not age or stain, it withstands the elements and protects against marine microorganisms, fungi and insect damage. High safety standards (non-slip milling, splinter-free)

**IP67 INSULATION CLASS**

The electrical resistance and the connections are isolated against the passage of liquids and the dust

**IP67****MINIMAL MAINTENANCE**

The system does not require any periodic maintenance, as it occurs in any traditional system, but just a routine cleaning to remove any deposits, dust, leaves, etc..



## THE LEED® RATING SYSTEM

Sources: USGBC, GBC ITALIA

LEED® - Leadership in Energy and Environmental Design - is a voluntary building certification system that is applied in over 140 countries worldwide. The LEED standard was established in America by the U.S. Green Building Council (USGBC), a non-profit association set up in 1993 which today has more than 20,000 members and whose aim is to promote and develop a global approach to sustainability, giving recognition to virtuous performances in key areas of human and environmental health.

The LEED® standards, drawn up by the USGBC, indicate the requirements to build environmentally sustainable buildings, both from the energy point of view and from the point of view of the consumption of all the environmental resources involved in the construction process.

LEED® is a voluntary and consensus-based system for the design, construction and operation of high-performance green buildings and neighbourhoods which is becoming more and more popular globally; it can be used on any type of building and promotes an integrated design system which covers the whole building.

## LEED is green building

LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world. Available for virtually all building, community and home project types, LEED provides a framework to create healthy, highly efficient and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement.



### 2.2 million +

square feet is LEED certified every day with more than 92,000 projects using LEED.



### Flexible

LEED works for all building types anywhere. LEED is in over 165 countries and territories.



### Sustainable

LEED buildings save energy, water, resources, generate less waste and support human health.



### Value

LEED buildings attract tenants, cost less to operate and boost employee productivity and retention.



Certification involves verification by an independent third party of the performance of the entire building (or part of it) and/or of the urban areas. LEED® certification is internationally recognised and certifies that a building is environmentally friendly and is a healthy place to live and work.

By working on the whole process, from the design stage to actual construction, LEED® requires a holistic approach, otherwise the set goals will not be achieved. Only with carefully organised integrated planning and coordination is it possible to create a harmonious building in all the areas mentioned above.

The competitive advantages for those who adopt the LEED® standards, whether they are professionals or companies, lie above all in the final quality of the building, in the considerable saving of running costs which these buildings can obtain compared to traditional buildings and in certification by a third party.

LEED® certification, in fact, provides the market with a shared approach it can base its choices on, and a measurable standard for each aspect taken into consideration.

The LEED® rating system is organised in a set of protocols (manuals) depending on the type of building seeking certification. We will therefore have a protocol that certifies new constructions and major renovations (LEED New Construction, LEED NC, LEED BUILDING DESIGN AND COSTRUCTION LEED BD+C), a protocol for school buildings (LEED FOR SCHOOLS), a protocol which certifies retail buildings and the interiors of buildings (LEED COMMERCIAL INTERIOR and LEED RETAIL), one which certifies existing buildings (LEED EXISTING BUILDING OPERATION AND MAINTENANCE, LEED EBOM), one which certifies sets of buildings, e.g. neighbourhoods (LEED FOR NEIGHBORHOOD), and so on.

The framework of all these protocols is the same, in the sense that they are organised into the same areas or chapters, which are:

- Location and Transportation (LT)
- Sustainable sites (SS)
- Water efficiency (WE)
- Energy and Atmosphere (EA)
- Materials and resources (MR)
- Indoor environmental quality (EQ)

There are also two other areas / chapters which deal with aspects that are more related to the certification process:

- Regional priority: more points are given to credits in certain geographical areas due to the important relationship between the local context and the credit requirements;
- Innovation: aspects are recognised which are not considered in the specific protocol but feature in other protocols or a higher score is given for exemplary performances in some credits of the protocol. Everything is governed by the text of the manuals.

All these areas/chapters contain prerequisites and credits. Prerequisites are mandatory and do not give a score, whereas credits can be chosen by the design team and give the score which must be achieved to obtain the certification level defined as the objective of the certification.

Prerequisites and credits cover all aspects of a building, from the systems to the details of the design, the permeability of the ground, the consumption of drinking water, the relationship of the site with nearby services or the availability of public transport. Some also regard materials, in the sense that materials have characteristics that help the building meet certain requirements defined in the prerequisites and protocols. This document firstly identifies the possible credits that might concern the products of WOODN INDUSTRIES examined, and then verifies that their characteristics and documentation comply with the requirements. The credits the products can contribute to are explained in the paragraphs below.

**The LEED® rating system certifies the building, it does not certify the individual products or components of the building. They, however, can help meet the requirements of the protocol and, consequently, obtain the relevant scores for the building.**

It therefore follows that the product CANNOT have a score, the score is always and only for the building, but it can help the building get the score.

As already mentioned, the following paragraphs illustrate the excellence of WOODN INDUSTRIES as regards LEED® credits. As described above, all the protocols are structured in the same areas and, on the whole, the credits are the same or similar. In this project, to ensure the utmost clarity and avoid unnecessary repetitions (which may also create confusion) the LEED BD+C V4 protocol has been taken as a reference, inserting all the credits of that protocol which could refer to the products examined in this document.

## LEED v4 is the newest version of LEED

It's designed to be flexible and improve the overall project experience.

### Improvements:



#### Materials

Focuses on materials to get a better understanding of what's in them and the effect those components have on human health and the environment



#### Performance-based

Uses a stronger, performance-based approach to indoor environmental quality for better occupant comfort



#### Smart grid

Brings the benefits of smart grid thinking to the forefront with a credit that rewards projects for participating in demand response programs



#### Water efficiency









Provides a clearer picture of water efficiency by evaluating total building water use

[www.usgbc.org](http://www.usgbc.org)

## WOODN, GREENWOOD AND PLUG & PLAY AND LEED® V4 CREDITS

The checklists below show the credits which WOODN INDUSTRIES products can contribute to:

## LEED for New Construction and Major Renovations (v4)

	<b>MATERIAL &amp; RESOURCES</b>	<b>POSSIBLE: 13</b>
Credit	Storage and collection of recyclables	REQUIRED
Prereq	Construction and demolition waste management planning	REQUIRED
Credit	Building life-cycle impact reduction	5
Credit	Building product disclosure and optimization - environmental product declarations	2
Credit	Building product disclosure and optimization - sourcing of raw materials	2
Credit	Building product disclosure and optimization - material ingredients	2
Credit	Construction and demolition waste management	2
	<b>INDOOR ENVIRONMENTAL QUALITY</b>	<b>POSSIBLE: 16</b>
Prereq	Minimum IAQ performance	REQUIRED
Prereq	Environmental tobacco smoke control	REQUIRED
Credit	Enhanced IAQ strategies	2
Credit	Low-emitting materials	3
Credit	Construction IAQ management plan	1
Credit	IAQ assessment	2
Credit	Thermal comfort	1
Credit	Interior lighting	2
Credit	Daylight	3
Credit	Quality views	1
Credit	Acoustic performance	1
	<b>INNOVATION</b>	<b>POSSIBLE: 6</b>
Credit	Innovation	5
Credit	LEED Accredited Professional	1
	<b>REGIONAL PRIORITY</b>	<b>POSSIBLE: 4</b>
Credit	Regional priority	4
<b>TOTAL</b>		<b>110</b>
	40-49 Points CERTIFIED	50-59 Points SILVER
	60-79 Points GOLD	80+ Points PLATINUM
	<b>LOCATION &amp; TRANSPORTATION</b>	<b>POSSIBLE: 16</b>
Credit	Integrative process	1
Credit	LEED for Neighborhood Development location	16
Credit	Sensitive land protection	1
Credit	High priority site	2
Credit	Surrounding density and diverse uses	5
Credit	Access to quality transit	5
Credit	Bicycle facilities	1
Credit	Reduced parking footprint	1
Credit	Green vehicles	1
	<b>SUSTAINABLE SITES</b>	<b>POSSIBLE: 10</b>
Prereq	Construction activity pollution prevention	REQUIRED
Credit	Site assessment	1
Credit	Site development - protect or restore habitat	2
Credit	Open space	1
Credit	Rainwater management	3
Credit	Heat island reduction	2
Credit	Light pollution reduction	1
	<b>WATER EFFICIENCY</b>	<b>POSSIBLE: 11</b>
Prereq	Outdoor water use reduction	REQUIRED
Prereq	Indoor water use reduction	REQUIRED
Prereq	Building-level water metering	REQUIRED
Credit	Outdoor water use reduction	2
Credit	Indoor water use reduction	6
Credit	Cooling tower water use	2
Credit	Water metering	1
	<b>ENERGY &amp; ATMOSPHERE</b>	<b>POSSIBLE: 33</b>
Prereq	Fundamental commissioning and verification	REQUIRED
Prereq	Minimum energy performance	REQUIRED
Prereq	Building-level energy metering	REQUIRED
Prereq	Fundamental refrigerant management	REQUIRED
Credit	Enhanced commissioning	6
Credit	Optimize energy performance	18
Credit	Advanced energy metering	1
Credit	Demand response	2
Credit	Renewable energy production	3
Credit	Enhanced refrigerant management	1
Credit	Green power and carbon offsets	2

This chapter illustrates how the WOODN INDUSTRIES products analysed can contribute to the LEED V4 credits selected.

 <p>contributes to <b>SSC4,SSC5,EAP2</b> <b>EAC2,MRC2,MRC3,MRC5</b> credits (v4 BD+C) <b>IT02-19092402</b></p>	GREENWOOD
 <p>contributes to <b>SSC4,EAP2,EAC2</b> <b>MRC5,MRC6H</b> credits (v4 BD+C) <b>IT02-19092403</b></p>	PLUG & PLAY
 <p>contributes to <b>SSC4,SSC5,EAP2</b> <b>EAC2,MRC3,MRC5</b> credits (v4 BD+C) <b>IT02-19092404</b></p>	WOODN

This logo, called the Product Badge, is a visual summary of the credits each product can contribute to.<sup>1</sup>

<sup>1</sup> The Product Badge has the same identification codes as this document ("IT02-19092402; IT02-19092403; IT02-19092404") to prevent ambiguity. The Product Badge is given for the LEED® system as it was conceived and created to be in line with the references, policies and rules of the system.

## SUSTAINABLE SITES

Choosing the site to construct the building is one of the fundamental aspects of sustainability in the building industry. Environmental remediation of damage caused by building typically requires several years.

The Sustainable Sites section deals with the environmental aspects of the construction site, focusing particularly on how to manage the external areas and the relationship between the building and the surrounding environment. The LEED credits for Sustainable Sites for New Constructions promotes the following practices:

- Site selection and development;
- Reduction of transport emissions;
- Creation of a sustainable landscape;
- Protection of local ecosystems;
- Rainwater management;
- Heat island reduction for outdoor paving and roofing;
- Light pollution reduction.

The LEED NC V4 credits the WOODN INDUSTRIES products can contribute to are:

- SSc4 Rainwater Management
- SSc5 Heat Island Reduction



□

**SSc4****Rainwater  
Management**

*Intent: To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site, based on historical conditions and undeveloped ecosystems in the region.*

The aim of the credit is to manage rainwater in such a way to reduce the amount that ends up in drainage systems.

Both WOODN and GREENWOOD decking systems are installed with gaps between boards to create a pervious surface which reduces runoff and helps facilitate on-site water retentions and/or rainwater management.



**SSc5****Heat Island  
Reduction**

*Intent: To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.*

The aim of this credit is to reduce the effect of heat islands in urban environments through the paving and roofing. This credit is therefore applied to products which are used outside the building only and, in particular when referring to paving, products which have an SRI of at least 33.

The products which meet this rating are:

- Woodn Versatilis, brushed finish, light colours (color 01 – Carrara White, brushed finishing) SR 0.6 - SRI 80 in compliance with ASTM E1980 – 11
- Greenwood Deck 162x22 mm White 14 Loft: SR 0.6 - SRI 74 in compliance with ASTM E1980 - 11
- Greendeck, brushed finish: SR 0.6 - SRI 82 in compliance with ASTM E1980 - 11

For more information, please contact the Technical Office.

## ENERGY AND ATMOSPHERE

The use of electricity produced by fossil fuels such as oil, natural gas and coal has a negative effect on the environment in every stage of its life cycle, starting from the extraction and transportation process and followed by refining and distribution to the end consumer.

A building designed according to sustainable farming criteria deals with energy issues in two ways. Firstly, it reduces the building's energy needs: the lower the energy needs, the fewer greenhouse gases are emitted to meet these needs. Secondly, it uses energy with the least possible environmental impact, such as sources other than fossil fuels.

The LEED NC V4 credits the WOODN INDUSTRIES products can contribute to are:

- EA p2 Minimum Energy Performance
- EAc2 Optimize Energy Performance

**EAp2 Minimum  
Energy  
Performance**

**EAc2 Optimize  
Energy  
Performance**

*Intent: The purpose of this prerequisite and credit is to reach an increasing level of energy performance for buildings and project facilities, superior to the minimum values defined by current legislation and legislation, in order to reduce the economic and environmental impacts associated with excessive consumption of energy.*

The EAp2 prerequisite gives the minimum energy performance requirements for the building.

The EA21 credit rewards improvements in the building's energy efficiency and awards a score from 1 to 18 based on the percentage of the building's efficiency compared with a basic building (calculated according to ASHRAE regulations). The percentage is calculated by studying the dynamics of the building, taking all the components (envelope, drawings, etc.) and the conditions of the site (day, night, summer, winter, etc.) into account.

Product	Thermal conductivity
WOODN	0.1568 W/mK (ISO 22007-2)
GREENWOOD	0,195 W/Mk (UNI EN ISO 12667:2002)

**PLUG & PLAY – Cover for Woodn false ceiling**

- Adhesive PET heater mat and aluminium cover with silicone 500 mm power supply cable.
- Dimensions 950x45 mm
- Power absorption: 23 W
- Power supply voltage: 230 V / 50 Hz
- Constancy of yield: -40°C / +90 °C
- Protection class: IP64 (excluding connections)

**PLUG & PLAY – Covers for Greenwood decking**

Heating cable protected by Ø4 mm silicone extrusion with double insulation fixed onto a double sheet of aluminium.

- Dimensions: 1930 x 116 mm
- Power absorption: 100 W (300 W/sqm)

- Power supply voltage: 230 V / 50 Hz
- Constancy of yield: -40°C / +125 °C
- Max. power for each parallel circuit: 1800 W (18 x 100W slats)
- Bipolar interconnections with IP67 protection
- Produced with fire-resistant materials
- Withstands humidity
- Electromagnetic emissions created by the coils are negligible

## MATERIALS AND RESOURCES

Materials and Resources is an area which considers the sustainability of the building on the basis of the materials used to construct it. Obtaining LEED® credits in Materials and Resources (MR) can reduce the amount of waste and improve the building environment through responsible management of waste and selection of materials.

The credits in this section focus on two important issues as regards WOODN INDUSTRIES products: the environmental impact of the materials used in the building project and minimizing disposal. As regards the first issue, WOODN INDUSTRIES has chosen to use materials with the highest possible content of recycled product and adopt an in-house environmental policy at all levels, paying particular attention to the chemical substances used. As far as the second issue is concerned, it is able to support companies in the management of their waste thanks to the use of recyclable packaging.

In version 4 of the rating system, Materials and Resources is the area that is undergoing the greatest changes, rewarding good practices of companies and their environmental and social responsibility.

The LEED NC V4 credits which the WOODN INDUSTRIES products can contribute to are:

- MRc2 - Building product disclosure and optimization – environmental product declarations
- MRc3 – Building product disclosure and optimization – sourcing of raw materials
- MRc4 – Building product disclosure and optimization – material ingredients
- MRc5 – Construction and demolition waste management

**MRC2**  
**Building product  
disclosure and  
optimization –  
EPD**

*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 from manufacturers who have verified improved environmental life-cycle impacts.*

The credit awards one point to the building if there is the right number of products with a product LCA and/or EPD sector certification and/or product EPD as established by the requirement.

Of the WOODN INDUSTRIES products, GREENWOOD has an LCA study carried out in accordance with 14040 – 14044 (2006).

**MRC3****Building product disclosure and optimization - sourcing of raw materials**

*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.*

This credit rewards the use of sustainable FSC-certified raw materials, namely with recycled content, if wood.

Below are the percentages of recycled content:

Product	% recycled pre-consumption	% recycled post-consumption
GREENWOOD GREENDECK	58%	-
GREENWOOD WALL TO WALL	58%	-
VERSATILIS, MODULATUS, AETERNUS profiles	22%	-

**MRC5****Construction and  
demolition waste  
management**

*Intent: To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing, and recycling materials.*

As regards the product in question, this credit evaluates waste material and packaging on the work site during laying and installation and to what extent they are “saved” from the landfill and reintroduced back into a production cycle. This information must be gathered and calculated by the building contractor but WOODN INDUSTRIES plays an important role before the products enter the building site because it uses recyclable packaging. The types of packaging used are recyclable.

The packaging used by WOODN INDUSTRIES is made up of the following kinds of materials: pallets, low-density polyethylene, polyester straps, adhesive tape and cardboard boxes.

The Technical Data Sheet explains how product waste should be correctly managed.



**MRc6H****PBT- Source  
Reduction Lead,  
Cadmium, Copper**

*Intent: To reduce the release of Persistent Bioaccumulative and Toxic (PBTs) chemicals associated with the life cycle of building materials.*

The only product with an electric system is PLUG & PLAY. This system consists of a resistance in carbon fibre which therefore has none of the substances indicated in this credit.

Anyway no WOODN or GREENWOOD products contain Lead, Cadmium or Copper.

## CONCLUSION AND SUMMARY

QualityNet believes that WOODN and GREENWOOD by WOODN INDUSTRIES can contribute to the LEED certification score in the credits indicated in the table below:

CREDIT LEED BD+C V 4	Points	Title	Product features	WOODN	GREENWOOD	PLUG & PLAY
SSc4	2-3	Rainwater management	Products for outdoor use: gaps guarantee the permeability of the decking	✓	✓	✓
SSc5	1-2	Heat island reduction	SR / SRI values compliant for light colours	✓	✓	
EAp2	mandatory	Minimum energy performance	Thermal conductivity values as per test report	✓	✓	✓
EAc2	1-18	Optimize energy performance	Thermal conductivity values as per test report	✓	✓	✓
MRC2	1-2	Building product disclosure and optimization – Environmental Product Declaration	LCA study (2006)		✓	
MRC3	1-2	Building product disclosure and optimization – Source of raw material	Recycled content	✓	✓	
MRC5	1-2	Construction and demolition waste management	Recyclable packaging	✓	✓	✓
MRC6H	2	PBT source reduction- lead, cadmium and copper (Healthcare)	Products compliant with requirement			✓

For more detailed information, please contact the Technical Offices.