



SECTION 06 73 00

GREENWOOD ENGINEERED WOOD SYSTEM FOR OUTDOOR DECKING Guiding Specifications for **GREENWOOD GREENDECK**

Attention: these specifications are valid at the time of publication, but subject to change at any time without notice. Please, before the purchase of the material, check the validity of the present document with the manufacturer and/or the distributor.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A.Greenwood wood plastic composite decking system, including subframe and attachment accessories.
- B.Closing plank, trims, flashings and related accessories according project's needs.

1.2 RELATED SECTIONS

- A.Section 07 76 00 – Roof Pavers and Pedestals
- B.Section 05 50 00 – Metal Fabrications.
- C.Section 06 10 00 - Rough Carpentry.

1.3 REFERENCES

- A.American Society for Testing and Materials **ASTM E1981:2011**: *“Determination of Solar Reflection Index of flooring”*.
- B.**BS 7976-2:2002**: *“Slip resistance testing using the Pendulum Tester”*.
- C.Deutsches Institut für Norming **DIN 51130**: *“Determination of the anti-slip properties – Workrooms and fields of activities with raised slip danger, walking method – ramp test”*.
- D.Comité Européen de Normalisation **EN 12720:1997**: *“Resistance to cold liquids”*.
- E.Comité Européen de Normalisation **EN 310:1993**: *“Wood-based panels - Determination of modulus of elasticity in bending and of bending strength”*.
- F.**EN ISO 527:2003**: *“Tensile properties”*.
- G.**B.C.R.A. METHOD**: *“Determination of the coefficient of friction for floors”*.
- H.American Society for Testing and Materials **TMA ASTM E831:2005**: *“Coefficient of Linear Thermal Expansion with Thermomechanical Analyzer”*.

I.Comité Européen de Normalisation **EN ISO 9239-1:2002**: “Part 1: determination of the behaviour using a radiant heat source”.

J.**UNI EN ISO 178**: “Flexural Properties”.

K.**EN ISO 179-1:2007**: “Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact tests”.

L.Comité Européen de Normalisation **ISO 846**: “Plastics – Evaluation of the action of microorganisms”.

M.American Society for Testing and Materials **ASTM G21:1996**: “Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi”.

1.4 SUBMITTALS

A.Product Data: Manufacturer’s data sheets on each product to be used, including:

- 1.Profile’s description including finishes and features of each individual system’s component
- 2.Storage and handling requirements and recommendations;
- 3.Installation procedures, including preparation instructions and recommendations.

B.Shop Drawings: submit shop drawings including details of edge conditions, joints, panel profiles, corners, attachment systems, trim, flashings, closures and accessories and special details. Manufactures will provide distinctions between factory-assembled, shop-assembled and field assembled work.

C.Selection Samples: submit each profile’s finish, color and texture specified.

D.Quality control submittals: submit to Client the quality control forms used for internal quality assurance, complete with reports of the material produced/extruded internally and the items received in outsourcing checked before being introduced in the production cycle.

E.Code compliance: documents showing product compliance with local building code, shall be submitted before starting any work.

1.5 QUALITY ASSURANCE

A.Manufacturer Qualifications: Company specializing in manufacturing Wood Plastic Composites products specified in this section, with at least 10 years of documented experience.

1. Products covered under the Work listed in this section are to be manufactured in an ISO 9001 certified facility.

B.Installer: Installer shall be experienced in performing work of similar scope, well-trained workers competent to install systems in strict compliance with manufacturer’s installation instructions.

C.Mockups: build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects and to set quality standards for fabrication and installation.

- 1.Build mockup of typical wall panel assembly [**as per Architect drawing**], including corners, supports, attachments and accessories.
- 2.Do not proceed with remaining work until workmanship, color and finish are approved by Architect.

1.6 DELIVERY, STORAGE AND HANDLING

A.Delivery:

- 1.Materials shall be packaged to minimize or eliminate the possibility of damage during shipping. Each carton box/pallet will be clearly labelled as to specific

products contained inside and project's reference.

B.Storage:

- 1.Lay the product in the Manufacture's unopened packaging on a flat and stable support for the whole carton surface/length, in a dry and clean area, protected against frost, humidity and from direct sun exposure or any harmful weather condition, until ready for installation.
- 2.Keep the material in stock at temperatures close to the installation environment, for at least 48 hours before the installation.
- 3.Do not cover the product with non-breathable materials (plastic or similar).
- 4.Protect finish and edges of planks.
- 5.Protect from falling objects and construction activities.
- 6.Do not store the manufacturer's material in contact with other materials that might cause staining, denting or other surface damage.
- 7.Always refer to the Manufacturer's technical book for other storage suggestions.

C.Handling:

- 1.Handle the material in strict compliance with manufacturer's instructions and recommendations and in a manner to prevent bending, warping, twisting and surface damage.
- 2.Lift the profiles during displacement, do not dump or slide the material.
- 3.Ensure that any kind of eventual fabrications carried out on other products/items nearby do not determinate the accumulation of chips or dust of various kind on the material.
- 4.Always refer to the Manufacturer's technical book for other handling suggestions.

1.7 WARRANTY

A.Standard Warranty: The Warranty covers only original material or manufacturing defects of the Product that may occur under normal conditions of use and shall be null or void in case of Product defects deriving from acts of Gods, force majeure, whatsoever accidents, natural events, environmental conditions (atmospheric and air pollution, mold, etc.), staining from foreign substances, variations or changes in color of the Product caused by external elements, negligence, inappropriate uses, acts of war, vandalism, application or processing of fabrication not in conformity with the instructions contained in the guidelines provided by WOODN, poor or inappropriate storage, transport, treatment, assembly or installation by the Client or third parties, insufficient or erroneous maintenance, normal wear, tampering, repair and/or interventions by third parties without the written consent of WOODN, moving, distortion, or collapse of the support structure which the Product is installed on and any other cause that cannot be traced to an original Product defect. For example, any kind of moving, warping, cracking, shifting, buckling or in general any change of status and shape of the foundations/substrate/subframe/ (e.g. concrete, plaster, aluminum, wood or pressure treated laminated wood, steel beams, etc) which the Product is installed on, may affect the performances and features of the Product and consequently void the Warranty. Furthermore, there is no defect of conformity if, upon the conclusion of the contract, the Client was aware of the defect and could not ignore it according to standard duty of care. The Warranty has a validity of 5 (five) years on the Product beginning from the date of the invoice. The accessories supplied by WOODN are always warranted as free from defects due to workmanship and/or manufacture for a period of 12 (twelve) months from the invoice date. The effectiveness and operability of the Warranty is subject to the delivery

to WOODN of: a) the declaration of the Product defects pursuant to paragraph 5 below; b) a copy of the complete and signed order's form and of the invoice; c) a copy of this Warranty; d) a copy of the full payment of the claimed order.

B.Special Warranty: upon request and subject to evaluation, the Manufacturer can provide a Special Warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A.Acceptable Manufacturer: Woodn Industries Srl
Viale delle industrie 11
30030 Salzano, Venice
ITALY

B.Substitutions: Not permitted.

C.Represented locally by: [NAME OF DISTRIBUTOR] [DISTRIBUTOR'S ADDRESS].

2.2 MATERIALS

A.Product: GREENWOOD GREENDECK Exterior grade Greenwood wood plastic composite Decking solid planks produced by means of extrusions consisting of a proprietary compound with a low percentage of virgin polymer (PP, min.30%), natural wood fibers (pine and fir wood, min.70%), enriched with an exclusive blend of anti UV / aging / bacteria / oxidation additives, free from solvents, harmful volatile substances, heavy metals or formaldehyde. Resistant to woodworms and parasites, anti-vegetative and free from cracks and chips in presence of moisture or after cutting, drilling and sawing.

B.Properties:

- 1.Material: Greenwood wood plastic composite decking planks.
- 2.Color: [nr.____] to be selected by the Architect from available manufacturer's color's palette or custom color to be matched by material supplier.
- 3.Finish: brushed Loft or Solarium
- 4.Standard plank size: Length: 6', Width: 6"11/32
- 5.Plank thickness: 7/8".
- 6.Weight: 2.60 pound/ft.

2.3 PERFORMANCE REQUIREMENTS

A.American Society for Testing and Materials (according ASTM E1981:2011)

- | | |
|-------------------------|--|
| 1.Color 14-Bianco Loft: | if hc= 5 W/(m ² ·K); SRI= 82.4 |
| | if hc= 12 W/(m ² ·K); SRI= 82.5 |
| | if hc= 30 W/(m ² ·K); SRI= 82.5 |
| 2.Color 12-Miele Loft: | if hc= 5 W/(m ² ·K); SRI= 32.6 |
| | if hc= 12 W/(m ² ·K); SRI= 32.4 |
| | if hc= 30 W/(m ² ·K); SRI= 32.1 |

B.Slip resistance (according BS 7976-2:2002)

- | | |
|----------------|-------------------------|
| 1.Hard rubber: | >25 (wet) and >35 (dry) |
| 2.Soft rubber: | >35 (wet) and >86 (dry) |

C.Anti-slip properties (according DIN 51130): class R11.

- D. Resistance to cold liquids (according EN 12720:1997): class F.
- E. Maximum load applied in the middle of the span (according to EN 310:1993):
- | | |
|---------------------------|-----------|
| 1. Dry sample | 555 pound |
| 2. After 3 days immersion | 487 pound |
- F. Tensile properties (according EN ISO 527:2003):
- | | |
|------------------------|------------|
| 1. Dry sample | |
| Tensile strength | 17694 psi |
| Tensile elastic module | 144748 psi |
| Ultimate elongation | 1.89 % |
| 2. Saturated sample | |
| Tensile strength | 7106 psi |
| Tensile elastic module | 480219 psi |
| Ultimate elongation | 0.78 % |
- G. B.C.R.A. METHOD: Coefficient of friction (according B.C.R.A. Method): >0.49.
- H. Coefficient of Linear Thermal Expansion (according to TMA ASTM E831:2005):
- | | |
|---------------|--|
| 1. 14°F-113°F | 33.3 $\mu\text{m}/(\text{m}\cdot^{\circ}\text{C})$ |
| 2. 5°F-302°F | 29.6 $\mu\text{m}/(\text{m}\cdot^{\circ}\text{C})$ |
- I. Critical flux with radiant source (according EN ISO 9239-1:2002): 2.24 kW/m².
- J. Flexural Properties (according UNI EN ISO 178):
- | | |
|-------------------|------------|
| Flexural strength | 26686 psi |
| Elastic module | 171579 psi |
- K. Charpy impact resistance (according EN ISO 179-1:2007): 5.65 kJ/m².
- L. Evaluation of the action of microorganisms (according ISO 846): no visible growth.
- M. Evaluation of the action of fungi (according ASTM G21:1996): no visible growth.

2.4 ACCESSORIES AND COMPONENTS

A. Installation materials:

1. Substructure frame: aluminum substructure designed to withstand structural loading due to wind load and the deadload of the panel, suitable to apply the attachment intermediate/starting/finishing clips as per Manufacturer installation materials.
2. Fasteners: stainless steel AISI 304 (A2) clip fixed to the aluminum substructure, starting/finishing clip in stainless steel AISI 304 (A2) with fixing screws in AISI 304 (A2); comply with manufacturer's installation guides.
3. Accessories components: Wood Composite profile Smooth Board for bullnose and Wood Composite profile Edging both produced by the manufacturer in the same color and finish of the decking panels, trims, flashings and finish profiles in different materials as indicated on drawings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly checked, prepared, cleaned and until all unacceptable conditions have been duly corrected.
- B. Surfaces to receive substructure shall be even, smooth, dry, structurally suitable to accommodate all loads and free from defects detrimental to the installation of the

decking system.

C.Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of composite decking and related accessories.

D.Examine the feasibility of drilling holes, due to the eventual presence of membranes, like vapor or water barriers.

E.Examine alignment of foundation structure frame prior to installing sub-frame.

F.Field Measurements: Secure field measurements before preparation of shop drawings and fabrication; verify locations of structural members and eventual opening's dimensions to allow a proper fabrication and installation of the work.

3.2 PREPARATION

A.Install the system always referring to the Manufacturer's technical book and technical sheets.

B.Clean surfaces thoroughly prior to installation.

3.3 INSTALLATION

A.General: comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent local requirements apply.

B.Do not install damaged, or observed to be defective decking planks and components.

C.Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by Manufacturer for optimum results. Do not install products under environmental conditions outside Manufacturer's recommendations.

D.Substructure framing and decking planks shall be installed using the manufacturer's recommended joist spacing for the specific product being installed.

E.Substructure framing to be installed plumb and accurately levelled, spaced in accordance with manufacturer's recommendations, secured per engineering recommendations and in accordance with approved submittals and shop drawings, to allow for necessary movement and structural support.

F.Attachment components: concealed fastening system through plastic or stainless steel clips and stainless steel screws as per Manufacturer's details. Substructure supports allowing a cavity underneath decking planks to allow sufficient ventilation.

G.Fix the planks through the attachment components, considering the Manufacturer's instructions about expansion joint between the planks, fix and floating point.

H.Install substructure no more than 20" o.c.

I.Install fasteners: refer to the Manufacturer's technical book.

3.4 PROTECTION

A.Protect installed product and finish surfaces from damage during construction and on site transportation.

B.The panels shall be kept free from paint, plaster, cement scratches, water, oil or any other destructive forces.

C.Protect installed products from damage during subsequent construction.

D.Do not partially cover profiles and/or coated surfaces in order to avoid differences in sun exposure and thus a (though temporary) non-homogeneous color change.

E.Use of Manufacturer's proprietary sealer Greenwood Shield is recommended in case of high risk of staining such as small or large decking applications with intensive traffic.

3.5 ADJUSTING AND CLEANING

A.It is advised to clean the profiles quickly upon completion of site installation with pressure water and, subsequently, whenever it is deemed appropriate according to environmental conditions and to the type of application. It is advised to carry out periodical cleaning, as needed, using pressure water and, possibly, neutral detergent; then remove the excess of water. Refer to the Manufacturer's technical book for the correct way to clean the material.

B.Protect installed product and finish surfaces from damage during construction and on site transportation.

C.In case of persistent stains refer to the Manufacturer's recommendations.

END OF SECTION