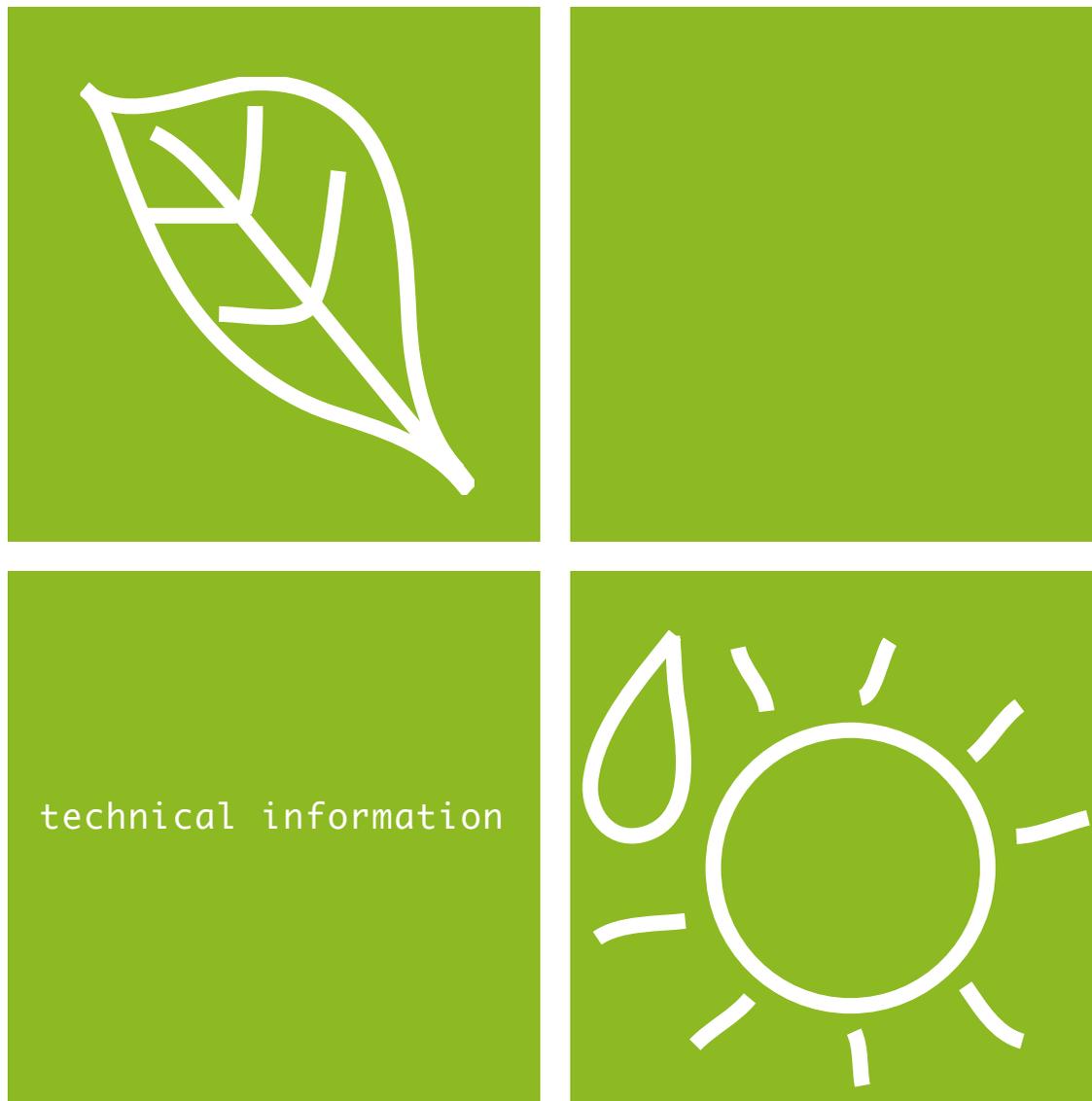




**GREENWOOD**<sup>®</sup> Venezia - Italia  
next generation [www.greenwood-venice.com](http://www.greenwood-venice.com)





**GREENWOOD**<sup>®</sup>  
made in venice





Armando Bettiol President of Bizeta S.r.l. Group



Fabrizio Bettiol President and CEO of Greenwood S.r.l.

## A STORY TO TELL

GREENWOOD Srl was founded in 2005 and developed in Venice, where, since then, it has developed its productive activity. GREENWOOD is now leader in Italy in the extrusion of composite wood and part of Bizeta Srl Group which since the early 70 's has been operating successfully in the field of thermoplastic extrusion and construction, furnishings, automotive and refrigeration markets.

Thanks to the extensive knowledge of the physical and chemical properties of thermoplastics and more than ten years of experience in the extrusion industry, GREENWOOD has taken this new composite wood-based material and successfully shaped it into different forms to cover a wide range of applications.

Greenwood's mission is to become the technological and market leader in the composite wood extrusion industry in Europe and it is confident it can make a responsible contribution with its environmentally-friendly, 100% recyclable product.

"In an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge" (I. Nonaka). These words of wisdom have guided GREENWOOD throughout its strategic growth.

Thanks to the knowledge of materials, technology and processes, Greenwood has developed new products and applications in composite wood, which are playing an important role in sustainable and environmentally responsible development both today and in the future.

Greenwood's story started in Venice, the only place in the world where the magical properties of wood are constantly under attack from the ravages of water and time; it started with a project aimed at finding an innovative and ecological alternative to wood which could be used in the lagoon. Research Institutes and Research Centers participated in the project, which earned Greenwood the first prize at the fifth edition of the "Prize for Innovation in Veneto Region".



## **GREENWOOD: HI-TEC COMPOSITE WOOD**

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



# UP AGAINST THE ELEMENTS IN VENICE

Greenwood is the result of a research project into eco-compatible materials which would protect the environment in the Venice lagoon; innovation and technology were combined to come to the rescue of a city where every building and outdoor element has to withstand the elements and some of the most difficult environmental conditions on earth.

## MOORING POLES

Greenwood acts as a real barrier against pests which attack traditional wooden poles; boats can be moored easily thanks to its outstanding mechanical strength and elasticity; the poles can be driven in using the most common techniques whatever the underwater terrain in the lagoon.

wind  
earth

impact  
water  
ship-worms



## PUBLIC TRANSPORT LANDING STAGES

Greenwood guarantees high safety standards even under mechanical stress and extreme wear and tear. This compact material prevents splitting, a typical occurrence in wood and one which, as well as being a sign of deterioration, can threaten the functionality of the structure.

Thanks to its special finish and unique composition, Greenwood decking is non-slip and is guaranteed to remain so over time, even in the wettest conditions and when subjected to the wear and tear of millions of people walking over it.

More than 1 million people every year use public transport landing stages to get around Venice



# GREENWOOD: HI-TECH ENVIRONMENTALLY-FRIENDLY WOOD

RESPECT FOR THE WORLD WE LIVE IN AND A NEW ENVIRONMENTAL AWARENESS – JUST TWO OF THE VALUES OF OUR NEW ETHICAL VISION OF THE FUTURE-



LCA (Life Cycle Assessment): quality evaluation

The life cycle assessment shows that Greenwood is both an eco-friendly product and process because:

- > it uses recycled raw materials which means less wood than traditional decking systems, so fewer trees are cut down
- > it is eco-compatible because it does not release harmful pollutants into the environment
- > when the material comes to the end of its natural life, it can be 100% recycled in the same production process or can be used as fuel in waste-to-energy plants

**Greenwood was created in Venice**

**Greenwood defends trees**

**Greenwood is against deforestation**

**Greenwood challenges the power of the elements**

**Greenwood is safe**

**Greenwood is eco-sustainable**

**Greenwood lasts longer**

**Greenwood looks to the future**

**Greenwood is chic**

**Greenwood is innovative**

**GREENWOOD**<sup>®</sup>  
made in venice

# GREENWOOD DECK: A NEW SOLUTION FOR INDOOR AND OUTDOOR FIXTURES AND FITTINGS

The decking system has been designed and created to bring out the very best in the wood, enhancing its natural style and warmth.

PROPERTY	NOTES	METHOD	UNIT	VALUE
Density		ISO 1183	g/cm <sup>3</sup>	1,17
Bending	Bending strength	ISO/DIS 178:2008	MPa	29
	Modulus of elasticity	ISO/DIS 178:2008	MPa	3900
Traction	Tensile strength	EN ISO 527/96	MPa	20
	Moduls of elasticity	EN ISO 527/96	MPa	4600
	Ultimate elongation	EN ISO 527/96	%	0,98
Charpy impact strength	Impact strength	EN ISO 179-1:2007	KJ/m	5,65
Water absorption	72 h a 20 ± 3°C	CATAS procedure	%	4,5
Coefficient of linear thermal expansion (with TMA)	-10°C÷75°C	ASTM E 831/05	µm/(m°C)	67,1
Slip resistance (*) USRV coefficient (>35 safe floor surface)	USRV after 12 months of being trodden on	UNI EN 14231:2004	USRV	38
Fatigue strength under concentrated load	Cycles of 180 kg applied to centre of board	Internal procedure	Cycles	>250000
Mould/mildew resistance	Exposure to fungi for 28 days	ASTM G21:2009	Fungal growth	No growth

(\*) Test has been made on finish "solarium" boards

## Greenwood guarantees:

>top physical, mechanical and thermal properties

>good dimensional stability

>it will not age or stain, it withstands the elements, it protects against fungi, mould, bacteria and insect damage

>low maintenance

>low water absorption

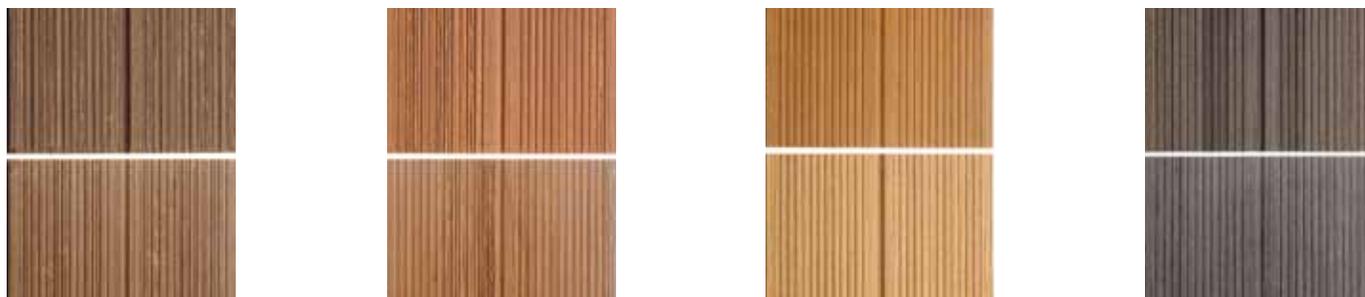
>high safety standards (non-slip, splinter-free)

## NATURAL BEAUTY

The appearance of this product is very similar to that of real wood; it is available in a wide range of colours, offering an endless choice of combinations for creating different settings.

## COLOUR

In the first months following the installation of wooden composite flooring, it is subjected to a gradual change of the original color, due to the occurrence of two phenomena. The yellowing is caused by surface oxidation of lignin contained in wood fibers following exposure to UV rays, this phenomenon has a transitional nature and disappears within a few months. The wood fibre also tends to turn naturally into grey; This process is a lot slower compared to what happens to the wood due to the presence of the plastic component and special additives and it is influenced by environmental conditions of exposure (local climatic conditions, weather conditions, exposure to solar radiation, etc.). After this weathering process is complete, the colour remains practically the same over time. As with any wood or composite product, there may be slight variations in the colour and brushing of Greenwood Deck between batches. It is therefore advised to buy all the necessary boards for the installation in a single lot and possibly to buy directly extra tables for any future repairs or replacements. In this regard, it must be noted that the repaired or replaced boards will be initially of a more alive colour, but will reach within a few months a colour that is similar to that of other previously installed. Colour changes described in this manual regard the surface of the product and do not affect its physical and mechanical properties.



original shade

The samples shown are purely for demonstration purposes and may differ from the final product

weathered shade

## THERMAL PROPERTIES

Like any other building material also Greenwood heats up for effect of solar radiation, leading to the achievement of surface temperatures that depend on the color of the boards and the intensity of irradiation.

## MAINTENANCE

Greenwood Deck requires considerably less maintenance than similar products in wood (even if they have been treated). However, to help maintain the natural beauty of the decking over time, periodic cleaning is recommended to remove debris, dust, leaves, etc., which can build up on the surface and lead to water collecting and inadequate ventilation of the boards. Sweep the boards and rinse with water and, if necessary, a mild detergent. A high-pressure washer may be used (recommended maximum pressure 80 bar) with a fan tip nozzle, taking care to spray in the direction of the grooves on the boards. Specific deck wash products may also be used for stubborn dirt.

## STAINS

Composite material is more resistant than wood to spills and chemicals and if these substances come into contact with the decking, they do not cause damage to the surface but leave a barely visible mark (depending on the colour of the boards). All stains, however, must be removed immediately to stop them from being absorbed and then drying in the sunlight. The longer a stain sits on the decking, the easier it is to see and the harder it is to remove. Surface scratches or nicks on Greenwood Deck with the 'loft' finish can be minimized by rubbing with fine grain sandpaper. A wire brush can be used to eliminate scratches on decking with the 'solarium' finish, taking care to brush in the direction of the grooves. In both cases the treated area will initially be a slightly different colour from the rest of the decking since the process exposes the raw materials below the surface. The treated area will, however, gradually weather and the decking will take on a durable, uniform colour. Given the presence of the wood component the appearance of halos of water is considered a natural phenomenon of transitional nature. Halos can appear and disappear cyclically, with variable speed in relation to the frequency and the amount of water, rain or artificial origin (from pool, shower or clean), to which the decking is subject.



low absorption  
contact angle test

For more information, contact the Greenwood Technical Service Department  
[www.greenwood-venice.com](http://www.greenwood-venice.com) - [info@greenwood-venice.com](mailto:info@greenwood-venice.com)

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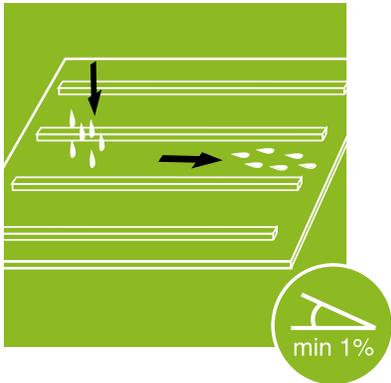
# GREENWOOD DECK FLOORING SYSTEM: NATURALLY TECHNOLOGICAL

Greenwood Deck is a system whose beautiful, essential look adds a touch of class to any environment, whether it is traditional or modern. It is a complete decking system made up of composite wood boards with a sophisticated design and high quality, functional accessories with great aesthetic appeal. It is easy to install and is secured into place with hidden steel clips. It is cut to customer specifications and traditional carpentry tools are used to make the necessary holes.

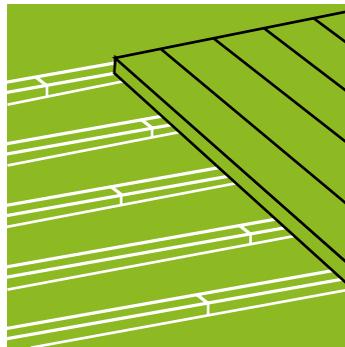
The system is composed of:

- > Greenwood composite wood boards  
Standard dimensions: 162x22 mm (wxh) L=2000 mm  
Colours: 12 HONEY – 14 WHITE – 12 TOBACCO – 23 SIENNA – 31 EBONY – 32 WENGE'  
Finishings: LOFT – SOLARIUM
- > Longitudinal aluminium support profiles  
Standard dimensions: 55x30 mm (wxh) L=2000 mm
- > Stainless steel fastening clips
- > Jolly PA 66 fastening clips
- > Stainless steel start/end clips
- > Fastening screws
- > Indicative weight of the system: 25 kg/sqm

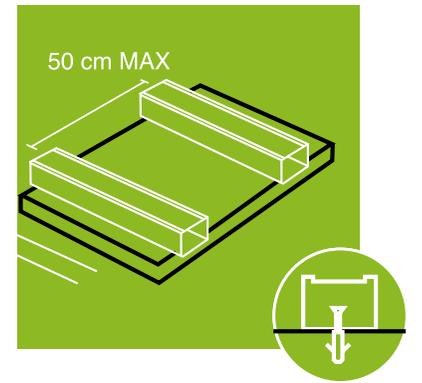




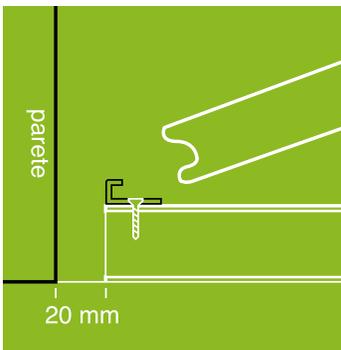
Check the water run-off gradient.



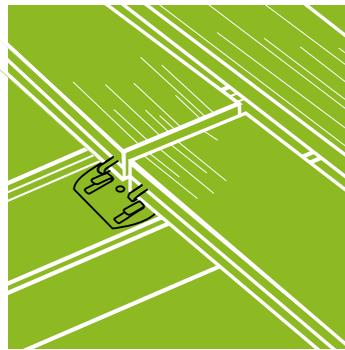
Alternate the joints on the metal connectors on the subframe.



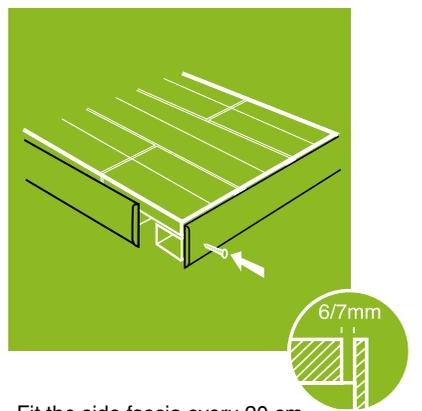
The distance between the metal connectors should be approx. 50 cm. Fix the subframe to the ground.



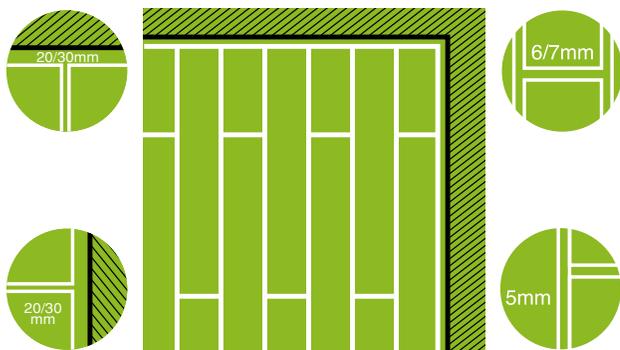
Use starter-end clips on the first board on the outside edge of the decking.



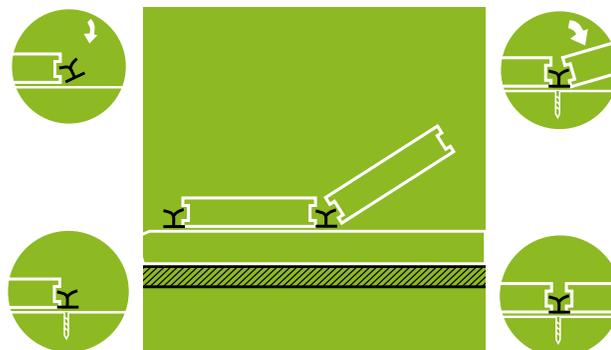
Position the ends of the boards in relation to the subframe.



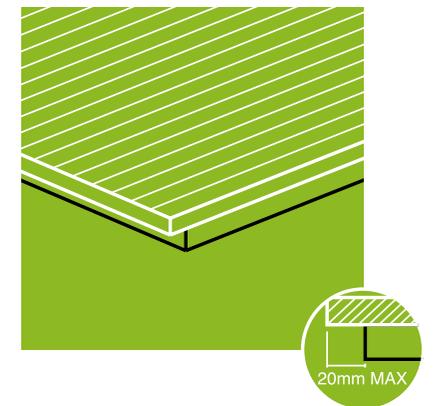
Fit the side fascia every 20 cm approx.



Respect spacing gaps.



install the material as shown.



Maximum overhang around the edge: 20mm.

## > WOOD

requires frequent, time-consuming maintenance because it is easily affected by outdoor conditions



Foto by Veronica Croce

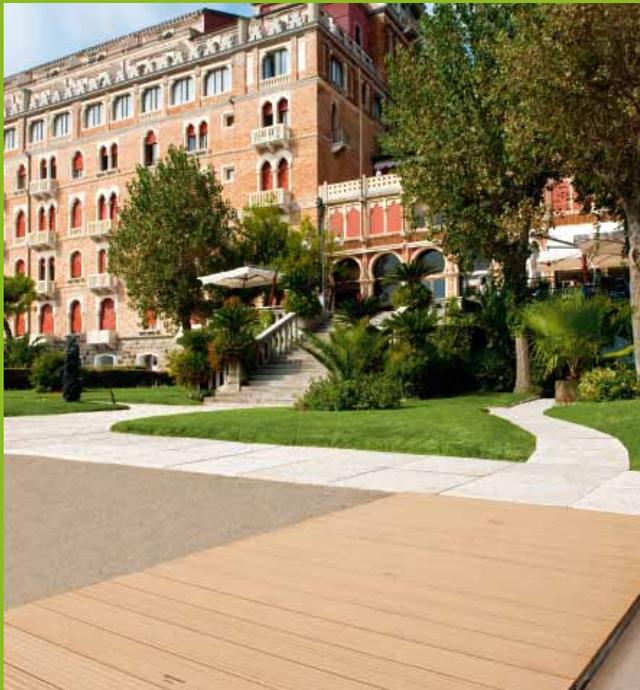
## > GREENWOOD

despite looking like real wood, it withstands the elements thanks to its innovative composition and is therefore low maintenance compared to wood products used in the same conditions



# GREENWOOD LINK: THE MODULAR SOLUTION FOR OUTDOORS

Greenwood Link is a versatile modular system, which is ideal for a wide range of environments – sandy shores, gardens, public outdoor spaces.



It is made up of:

- > Greenwood composite wood boards
- > Polyester-coated aluminium structure, with 10-year warranty
- > Stainless steel fastening clips

Features:

- > high safety standard
- > non-slip surface
- > splinter-free
- > easy to handle
- > modular

# MANUFACTURER'S NOTES

The product will retain the features described in this catalogue only if:

- it is installed using the manufacturer's complete installation kit supplied to the purchaser;
- it is installed and maintained correctly, following manufacturer's instructions.

Any defects and flaws caused by the following conditions will not be considered as such:

- improper handling and storage of the product;
- acts of god (including flooding, earthquakes, etc.) and acts of vandalism;
- failure to install the product in accordance with the manufacturer's guidelines or safety standards and local building codes;
- improper use of the product;
- use of the product as a supporting structure;
- collapse and warping or buckling of any existing substructure on which the product is installed;
- failure to observe the manufacturer's instructions for use and maintenance, misuse or neglect by the purchaser or third party;
- development of mould, discharges, marks left by water, food or organic materials and stains caused by paint and other substances;
- use of abrasive materials and/or tools;
- application of unapproved treatments and products on the surface of the product;
- normal wear and tear.

Greenwood decking contains wood fibre which naturally tends to change colour over time. This variation in the original colour, which occurs in the first couple of months after the decking has been installed, does not constitute a defect or flaw but is a natural feature of the material. There may be slight variations in the colour of the wood fibre itself between batches. Under no circumstances can these phenomena be attributed to manufacturing defects or substandard materials. The manufacturer is therefore not liable for the cost of removing and replacing products or applying stains or paint to the decking should it change colour.

The information contained in this catalogue is not legally binding. The manufacturer cannot be held responsible for the accuracy, completeness, quality and reliability of the information or the obtainable results of the products. Before using the product, the purchaser must determine its suitability for the intended use and is responsible for the results of its use.

**References:**

**Parco Scientifico e Tecnologico VEGA**

**Consorzio Venezia Ricerche**

**Universita' di Padova**

**IUAV Istituto Universitario di Architettura di Venezia**

**Universita' la Sapienza /Design Industriale Roma**

**ASM Comune di Venezia**

**Istituzione Previsione e Segnalazione Maree**

**PMV Patrimonio Mobilità Veneziana**

**ACTV Azienda Comunale Trasporti Venezia**

**Premio Regione Veneto**

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