Blue Green Roof - Irriga

DAKU

LA NATURA SUL TETTO

DAKU

LA NATURA SUL TETTO

/ DAKU IRRIGA

/ DAKU BLUE GREEN ROOF

/THE CONTEXT HAS CHANGED

Heavy rains followed by droughts are among the main effects of climate change. In urban areas, waterproof surfaces are continuously increasing and impacting how the soil reacts to the incoming rains. In urban environments, water cannot easily infiltrate the soil and flows away quickly, thus impacting the natural cycle of water. Sewers are also often not able to handle extreme weather, thus causing destructive and dangerous floods. Nowadays, public authorities are requesting more and more often new and renovated buildings to have systems for managing rainwater, such as lamination tanks. At the same time, when there is a water shortage, these systems must store and use it efficiently, so that such a precious resource is not wasted.

For these reasons, architects, engineers and companies need to develop innovative solutions that can sustain extreme weather caused by climate change and bad urban planning. DAKU, after conducting research on nature-based solutions (NBS), developed the Blue Green Roof (BGR) and DAKU IRRIGA systems to make green rooftop even more efficient in managing and consuming water. Furthermore, DAKU created an intelligent and efficient control system for green rooftops, based on the Internet on Things technology (IoT). The BGR system can be used in different climates and its flexibility allows it both to store water to handle droughts and to dispose of excess water.

All society is responsible for the good management of natural resources. It is no longer possible to imagine the growth of global economy without considering the impact that human activities have on natural ecosystems. Daku IRRIGA and BGR systems transform ideas into reality, bringing to the world practical innovations for a more sustainable environment.

/Visit our website and discover the DAKU answer to Climate Change

/ DAKU IRRIGA
PATENTED SYSTEM

Water saving

Development of healthier roots

Decrease in vegetation management costs

/ DAKU BLUE GREEN ROOF
THE ROOF OF THE FUTURE

Mitigating the effects cloudbursts

Remotely managed lamination and storage tank (IoT)

Savings in excavation costs for lamination tanks

Water storage for irrigation

Limited structural impact

Enhancing the thermal insulation capabilities of the rooftop

Reducing maintenance costs

/ DAKU IRRIGA

PATENTED SYSTEM

/ WATER SAVING

The patented DAKU IRRIGA system was developed by observing the dynamics of plant growth and development in nature. Under natural conditions, the main source of water supply that plants draw from is located deep within the soil. This situation makes the vegetation develop its roots downwards. DAKU IRRIGA recreates, through a specific stratigraphy, such supply conditions: irrigation water, instead of being delivered in traditional way, top-down, is slowly transferred to the substrate bottom-up.

/ HEALTHY ROOT SYSTEM

In artificial settings, traditional irrigation systems tend to promote unbalanced growth of the root system, with a consequent development of the roots only in the first centimeters of the substrate. In this condition, the roots are exposed to heat shocks and undergo water stress damages, that consequently lead to a susceptibility to pathogen attacks.

With the DAKU IRRIGA irrigation system, the vegetation is able to develop its root system to the fullest, and along the entire height of the substrate. This results in improved health of the plant itself and increased transpiration capacity, which is used to further cool down the below standing infrastructure.

/ DECREASE IN VEGETATION MANAGEMENT COSTS

Constant maintenance interventions for rooftop greenery are always necessary depending. The use of DAKU IRRIGA irrigation system enables a reduction in the volume of water needed for irrigation, resulting in savings in water supply costs and increasing the environmental sustainability.

Moreover, the elimination of water in the first centimeters of substrate allows an increase in the phytosanitary well-being of vegetation and a decrease in pathogens and of weeds.

/ DAKU IRRIGA - PATENTED SYSTEM

WATER SAVING AND REDUCED MAINTENANCE COSTS

DAKU IRRIGA is a patented irrigation system that reproduces the optimal conditions for root development. In artificial settings, traditional “sprinkler” or “drip” irrigation systems promote unbalanced growth of the root system by concentrating the rootzone in a few superficial centimeters. In this condition, the roots are exposed to heat shocks and the onset of water deficit phenomena that make the vegetation vulnerable to water stress damage and, consequently, pathogen attack.

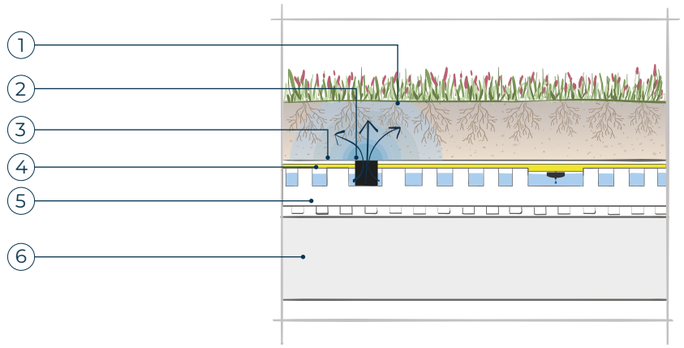
The principle behind DAKU IRRIGA irrigation system involves the supply of water from the DAKU FSD IRRIGA panel, trough “permeable ducts” ending in the Stabilfilter IRRIGA and then to the substrate. The DAKU IRRIGA system allows well-distributed root system growth similar to achieve its natural development, by removing water stagnation at ground level. It also results in reduced costs for green maintenance works and, most importantly, a drastic reduction in water consumption for irrigation.

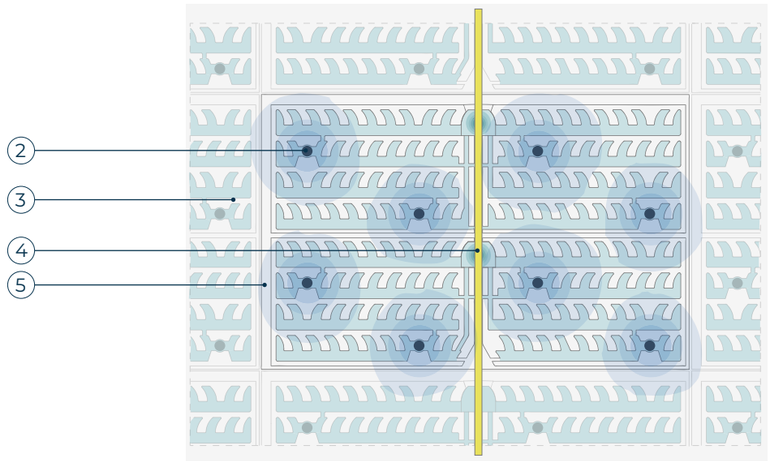
With DAKU IRRIGA the irrigation water is almost completely absorbed by the roots, limiting the losses through evaporation and deep drainage to a minimum, lowering the volumes of water needed for irrigation by as much as of 60-65%. In addition, by supplying water from below, plants transpire and help to lower the surface temperatures, promoting a decrease in the “heat island” phenomenon.

/ DAKU IRRIGA - PATENTED SYSTEM

HOW IT WORKS

/ DISTRIBUTION OF WATER THROUGH THE FILTERING COMPONENT

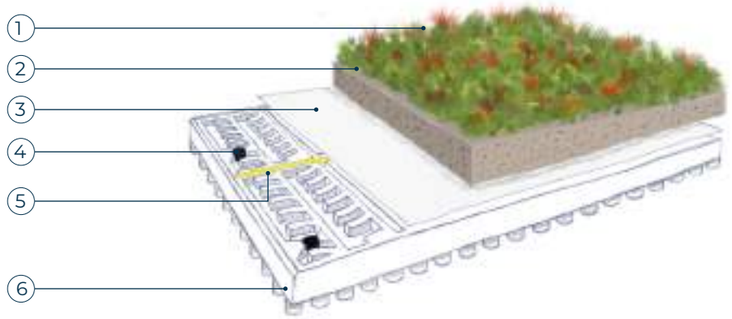




1. **DAKU ROOF SOIL 2 IRRIGA** substrate
2. Permeable ducts
3. **DAKU STABILFILTER IRRIGA** filtering component
4. Irrigation pipe
5. **DAKU FSD IRRIGA** panel
6. Rooftop

/ DAKU EXTENSIVE
IRRIGA

The DAKU IRRIGA EXTENSIVE system features the DAKU FSD IRRIGA storage and drainage panel coupled with the innovative DAKU IRRIGA irrigation system. Moreover, with the new soil DAKU ROOF SOIL 2 IRRIGA, the drainage capacity of the substrate is guaranteed, but capillarity water transmission capacity is also employed.



/ SYSTEM COMPONENTS

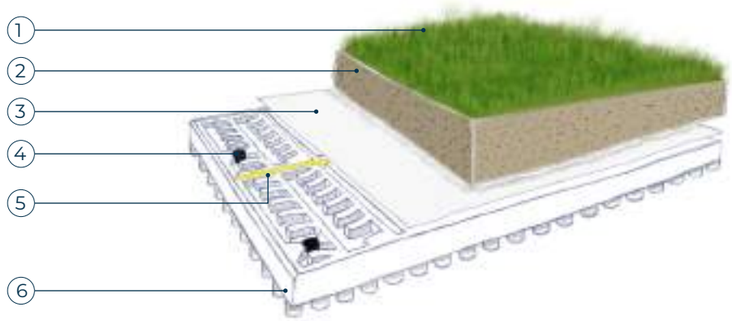
1. **DAKU Sedum** plants mixture
2. **DAKU ROOF SOIL 2 IRRIGA** substrate 8 cm thick
3. **DAKU STABILFILTER SFE IRRIGA** filtering component
4. Permeable ducts
5. **DAKU IRRIGA** irrigation system
6. **DAKU FSD IRRIGA** storage and drainage panel

/ SPECIFICATIONS

System thickness	cm. ca	16	
Permeable ducts	pz/m²	8	(minimum)
Weight of saturated system	kg/m²	115	(maximum)
Total amount of water avaiable for the system	l/m²	42	(minimum)
Air volume of the system (with saturated primary tank)	l/m²	44	(minimum)

/ DAKU INTENSIVE
IRRIGA

The ability to adjust irrigation water volumes in each portion of the area allows the system to be adapted to the planned vegetation design. The reduced volumes granted by the DAKU IRRIGA system allow the cultivation of different plant species in full compliance with the sustainability parameters required by environmental building certifications.



/ SYSTEM COMPONENTS

1. Lawn/small bushes**
2. **DAKU ROOF SOIL 1 IRRIGA** substrate 15 cm thick
3. **DAKU STABILFILTER SFI IRRIGA** filtering component
4. Permeable ducts
5. **DAKU IRRIGA** irrigation system
6. **DAKU FSD IRRIGA** storage and drainage panel

/ SPECIFICATIONS

System thickness	cm. ca	23	
Permeable ducts	pz/m²	8	(non inferiore)
Weight of the saturated system	kg/m²	207	(non superiore)
Total amount of water avaiable for the system	l/m²	70	(non inferiore)
Air volume of the system (with saturated primary tank)	l/m²	59	(non inferiore)

** This applies to the DAKU INTENSIVE system, on which a lawn, ground cover plants and a wide variety of bushes can be planted. To plant the bushes the thickness of the substrate has to be modified. The DAKU IRRIGA system is capable of providing different volumes of water on specif parts of the surface, depending on the needs of the plants

/ DAKU BLUE GREEN ROOF

/ MITIGATING THE EFFECTS OF HEAVY RAINS

Extreme rainfalls, also known as “cloudbursts” are events more and more common and destructive. The existing sewers are not able to handle them, since they were designed to drain smaller amounts of water. DAKU green rooftops have an excellent runoff rate, meaning they can absorb a high amount of water when it rains. During heavy rains, the efficiency of green rooftops is reduced.

In its basic configuration, DAKU BGR can absorb up to 125 mm of water per square meter. This value applies to systems installed on roofs that can sustain 100 kg/sqm of snow and with a substrate’s thickness of 8 cm (minimum requirement for the basic DAKU extensive system).

/ LAMINATION BASIN

DAKU Blue Green Roof (BGR) is a system designed to accumulate, store and manage rainwater. These features are possible thanks to the primary tank, built between the building’s rooftop surface and the substrates of the green roof. The BGR system can hold 100% of incoming rainwater (even during heavy rains) and using it when needed. By using the stored water and the new DAKU IRRIGA irrigation system, BGR is self-sufficient and can irrigate almost all plant species. To ensure best performance, DAKU equipped the primary tank with an innovative IoT system (Internet of Things), that calculates the amount of water stored and makes weather forecasts. When rain is expected, the system will calculate if the incoming water can be stored. If that is not possible, the primary tank will automatically release the water in excess before the rain comes.

Thanks to these features, the BGR system is an intelligent, dynamic and adaptable solution in different climates.

/ SAVINGS IN EXCAVATION COSTS

DAKU BLUE GREEN ROOF (BGR) manages hydraulic invariance directly on the roof, allowing for downsizing of buried lamination tanks and consequently reducing the cost of excavated soil disposal. It also indirectly manages the risks if the excavated soil is considered special waste. This technical advantage results in:

- decreased costs and construction time
- reduction of excavated soil disposal costs
- reduction of risks related to the nature of the soil and its disposal as special waste
- simplification of the infrastructure for managing hydraulic invariance

DAKU BLUE GREEN ROOF

/ WATER STORAGE

DAKU Blue Green Roof (BGR) uses the primary tank to provide water to the irrigation system. By using a pump, water is sent to a secondary tank and spread on the substrate through a series of permeable ducts. The water exchange between the two tanks represents the core of both DAKU BGR and DAKU IRRIGA systems. The primary tank is connected to the water supply network to ensure water even in case of drought.

/ LIMITATED STRUCTURAL IMPACT

DAKU Blue Green Roof (BGR) uses the primary tank as a lamination tank and stores rainwater without having to build underground tanks. The BGR system has an integrated and automated drainage equipment, that ejects the water in excess in case of rain or snow. The added weight on the roof represented by the mass of water stored in the tank will not cause structural damage to the building. Its weight will in fact be lower than the one of maximum amount of snow the roof can sustain. It is possible to install a bigger primary tank, but in order to do that, the whole building has to be redesigned to ensure stability.

/ THERMAL INSULATION

Green rooftops enhance the thermal insulation performances of roofs. They are great at reducing and dissipating heat, especially during the summer. By having water stored in the primary tank, DAKU BGR systems have an even better thermal insulation performance. Data collected during the test phase show that temperature on the rooftop is lower by 3-4 °C when the primary tank is full of water. Water absorbs heat and enhances the thermal insulation capabilities of the roof.

/ LOW MAINTENANCE FEES

The system uses an innovative drip irrigation mechanism that has three positive effects on maintenance costs and plants growth:

- less water is required to irrigate. This reduces operating costs of and increases sustainability
- plants grow roots similar to those found in nature and are more resistant to thermal shocks
- plants are stronger as pathogens and weeds do not have an area to grow and spread.

/ THE HEART OF DAKU SYSTEM

THE DAKU *BLUE GREEN ROOF* FOR EFFICIENT WATER MANAGEMENT

Water is an energy carrier and the most effective element for temperature control. In urban areas water is used without considering the benefits it could have on temperature and is quickly directed towards the sewers.

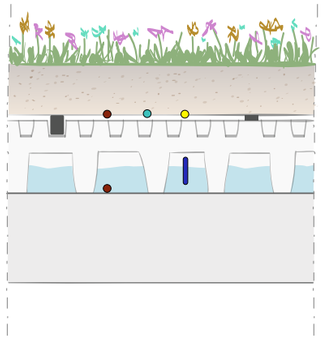
DAKU BGR, in addition to all the usual features of green roofs, can accumulate, store and use rainwater. Thanks to the primary tank, each raindrop can be stored. This allows the system to mitigate the effects of heavy rains and to have a water reserve during droughts. The stored water is then transferred to a secondary tank, from which an irrigation system developed and patented by DAKU (DAKU IRRIGA) takes it and gives it to the plants. By using this technology, the BGR system ensures that water is saved (thus reducing operating costs) and plants grow correctly. DAKU BGR is a smart and predictive system: it uses sensors inside the substrate to track temperature and humidity, plus a sensor in the primary tank to measure the saturation level, which indicates how much rainwater can be stored.

The system also has a IoT device, connected to a weather forecast service, to determine frequency and intensity of incoming rains. By combining all these data, the system can calculate if it can store all the rainwater expected for the next 24 hours. If not, it will determine how much water to eject so that all the incoming one can be stored. Thanks to these features, DAKU BGR works at the same time as a lamination tank and a storage tank, reducing the effects of heavy rains and the amount of water needed for the plants.

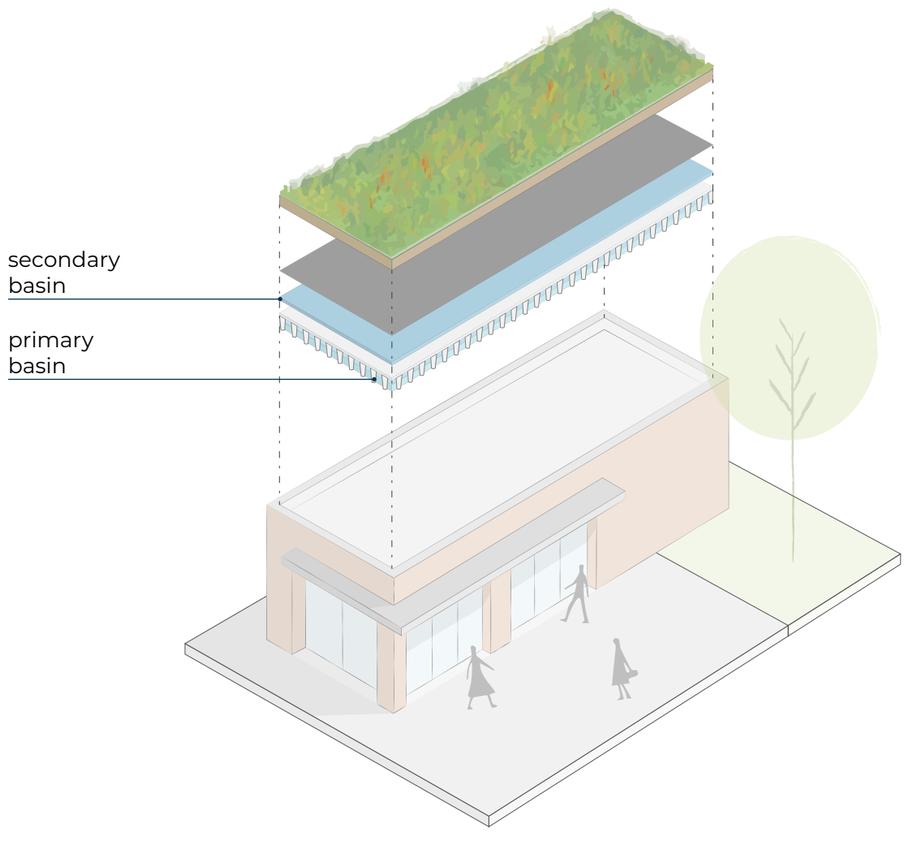
If the system needs to be installed on a renovated building, the presence of water on the roof will not cause structural damage to the building. Its weight will in fact be lower than the one of maximum amount of water/ snow the roof can sustain.

/ STRATIGRAPHY

- Temperature sensor
- Moinsture sensor
- Soil multiparameter sensor
- Water level detection sensor



/ PRIMARY AND SECONDARY WATER RESERVOIR

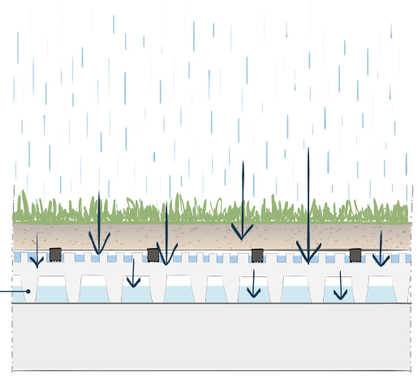


/ DAKU BLUE GREEN ROOF + DAKU IRRIGA

HOW THESE TWO SYSTEMS WORK

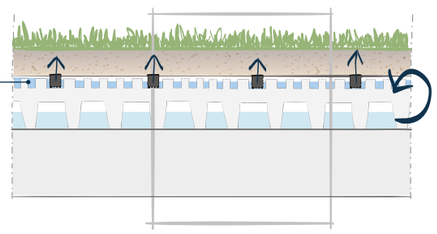
1 / PRIMARY RESERVOIR FOR STRORAGE/LAMINATION

/ primary reservoir

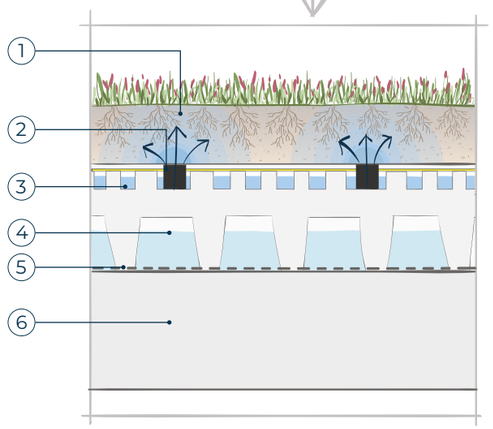


2 / WATER POMP FROM THE PRIMARY RESERVOIR TO THE SECONDARY RESERVOIR

/ secondary reservoir



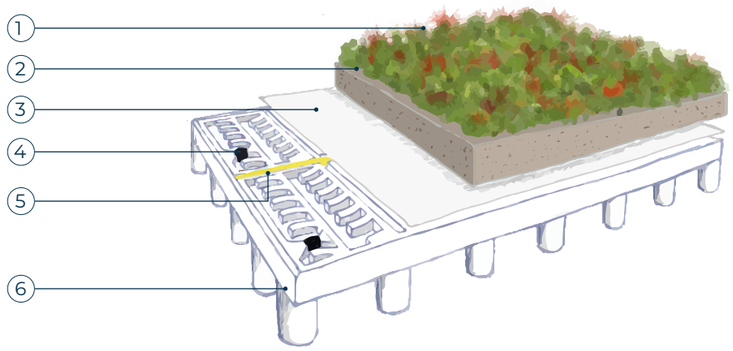
3 / WATER FLOW AND GROWTH OF THE ROOTS



1. DAKU substrate
2. Permeable ducts
3. Secondary reservoir
4. Primary reservoir
5. Waterproof membrane
6. Roof

/ DAKU EXTENSIVE
BLUE GREEN ROOF

DAKU EXTENSIVE BGR IRRIGA is a system that guarantees the best balance between water storage efficiency, self-sufficiency and low maintenance costs. This system represents a high return investment, as it increases thermal insulation and longevity of the waterproof components. The lamination tanks installed directly on the rooftop and the use of IoT devices, makes the whole roof more valuable and efficient.



/ SYSTEM COMPONENTS

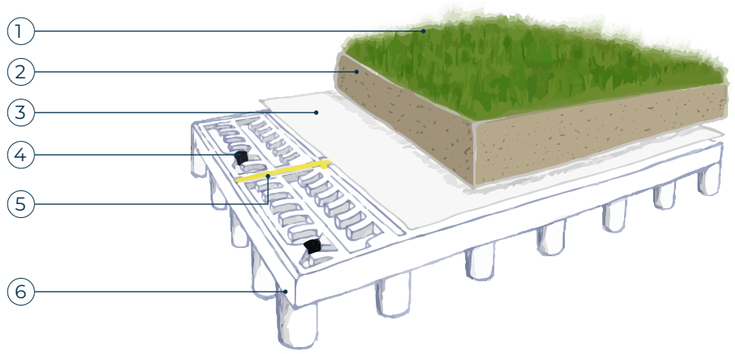
1. **DAKU SEDUM** plants mixture
2. **DAKU ROOF SOIL 1 IRRIGA** substrate 8 cm thick
3. **DAKU STABILFILTER SFI IRRIGA** filtering component
4. Permeable ducts
5. **DAKU IRRIGA** irrigation system
6. **DAKU FSD BGR IRRIGA** storage and drainage panel

/ SPECIFICATIONS

System thickness	cm. ca	27	
Water storage in the primary tank	l/m²	93	(minimum)
Permeable ducts	pz/m²	8	(minimum)
Weight of the saturated system (with empty primary tank)	kg/m²	116	(maximum)
Total amount of water (with empty primary tank)	l/m²	42	(minimum)
Air volume of the system (with saturated primary tank)	l/mq	43,50	(minimum)

/ DAKU INTENSIVE
BLUE GREEN ROOF

The system can adjust the volumes of water being used, depending on the needs of the plants on the garden. A wide variety of plants can be installed on the system, as it can store a great volume of water and only needs a limited amount of it to maintain the plants. The system complies with the strictest sustainability parameters required by the law.



/ SYSTEM COMPONENTS

1. Lawn/small bushes**
2. **DAKU ROOF SOIL 1 IRRIGA** substrate 15 cm thick
3. **DAKU STABILFILTER SFI IRRIGA** filtering component
4. Permeable ducts
5. **DAKU IRRIGA** irrigation system
6. **DAKU FSD BGR IRRIGA*** storage and drainage panel

/ SPECIFICATIONS

System thickness	cm. ca	34	
Water storage in the primary tank	l/m²	100	(minimum)
Permeable ducts	pz/m²	8	(minimum)
Weight of the saturated system	kg/m²	209	(maximum)
Total amount of water (with empty primary tank)	l/m²	70	(minimum)
Air volume of the system (with saturated primary tank)	l/m²	58,50	(minimum)

** this applies to the DAKU INTENSIVE system, on which a lawn, ground cover plants and a wide variety of bushes can be planted. To plant the bushes the thickness of the substrate has to be modified. The DAKU IRRIGA system is capable of providing different volumes of water on specif parts of the surface, depending on the needs of the plants.

/ SMART GREEN ROOF

A GREEN ROOFS NETWORK FOR *SMART CITIES*

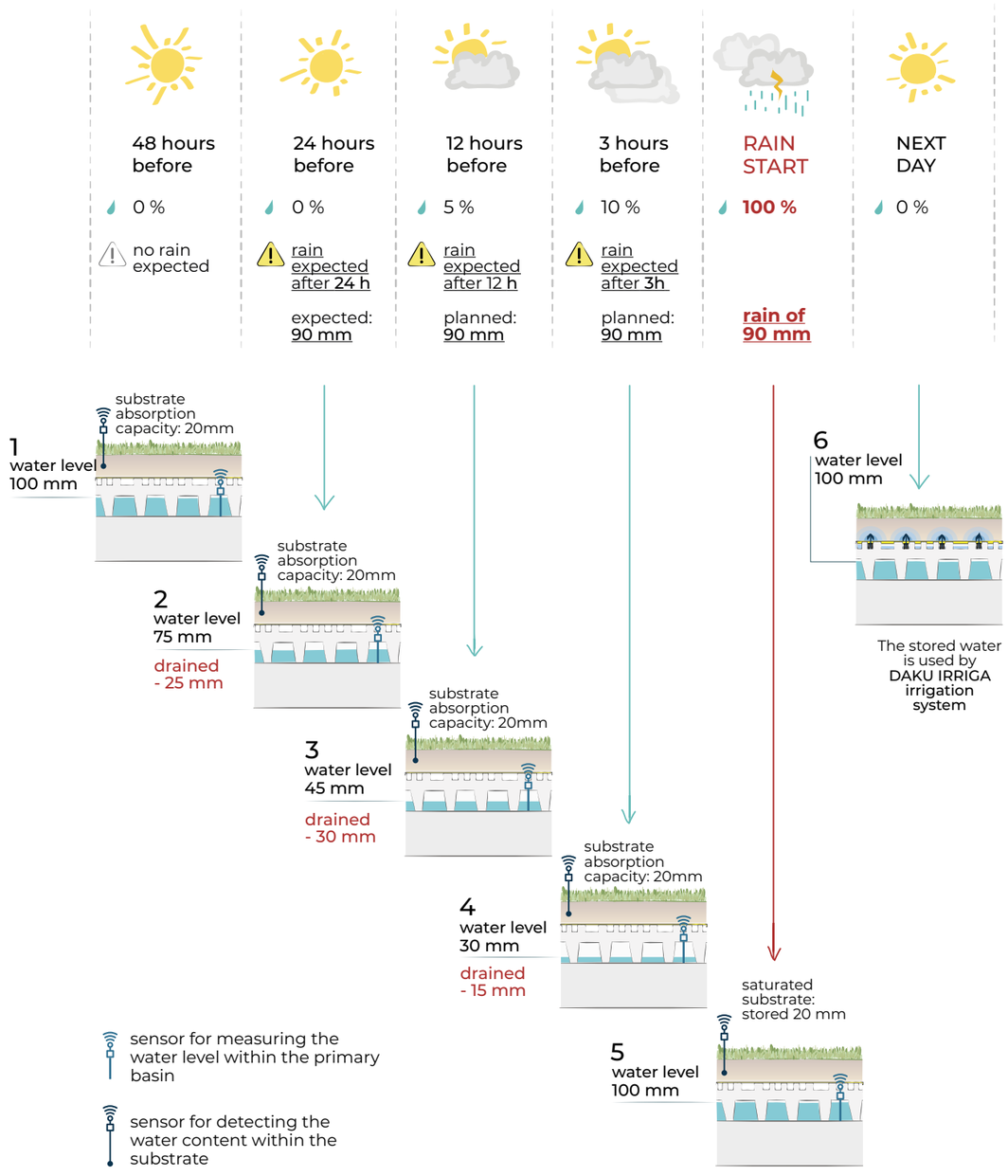
Urban planners all around the world are considering the correlation between urban expansion and impact on the environment to develop the cities of the future. These development plans are based on technological innovation, which can be seen as a great opportunity to transform cities into areas that are more inclusive, resilient and less impacting. This is how Smart Cities are planned to be: technological, intelligent, capable of providing services that make live simpler, efficient and fair.

DAKU BGR and IRRIGA systems combine the efficiency of green roofs with the use of innovative IoT technologies to control and manage irrigation, water storage, plants health and the substrate. For these reasons, the system is equipped with sensor that measure temperature, humidity and substrate's conditions. This allows the system to constantly track the amount of water stored in the tanks and to spot even the smallest variations. The measured data are analyzed by and IoT device, that operates the drainage valves to release water in excess and that regulates the amount of water flowing in the irrigation system, depending on the saturation of the substrate. When for example the substrate is saturated after a rainfall, the system will automatically provide a lower volume of water, increasing it again when the humidity sensor indicates that more water is needed.

Thanks to these implementations, DAKU offers a technological system, focused on the optimization of water consumption. This creates innovative infrastructure useful to communities and the environment. Roofs and green rooftops are perfect for collecting data, that then can be shared with private and public entities. These data can be used to analyze the interaction between plants and urban areas, by looking for example at the ability that plants have of absorbing pollution and smog.

/ DYNAMIC LAMINATION

BGR AND THE *IOT SYSTEM*



/ ECONOMIC BENEFITS
IRRIGA

Reduced irrigation costs

Plants maintenance costs are reduced

/ ECONOMIC BENEFITS
BLUE GREEN ROOF

Increased durability of the waterproof membrane

Hydraulic invariance parameter is increased

Less energy is required to reduce heat

/ ECONOMIC BENEFITS **DAKU IRRIGA**

/ IRRIGATION

Economic impact

Capillary transmission of water from the panel to the ground helps reduce water loss due to evaporation. The DAKU IRRIGA irrigation system provides the incentive for the plants to develop their own roots deeply, thus making the vegetation more resistant during periods of water stress.

The reduction in water needs for the irrigation, compared to traditional solutions, can amount up to 60-65%. This is both an economic advantage and a long-term sustainability benefit for the green roof. According to the rules of some sustainability certification methods, such as the LEED certification, the use of tap water for irrigation hinders the achievements of certification on the whole project.

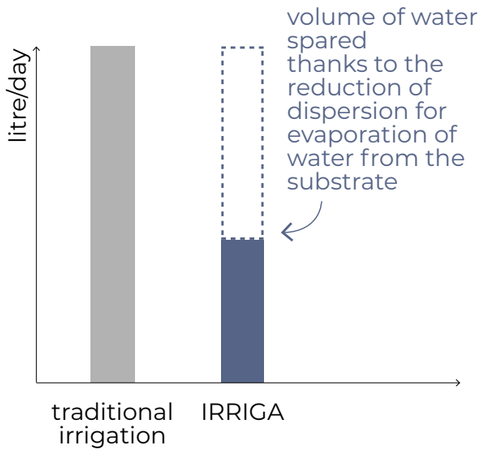


Diagram representing the water savings of the DAKU IRRIGA irrigation system in comparison with the conventional irrigation system. Normally, water usage volumes with DAKU IRRIGA can reach 65-70%. The figure was defined trought tests with some test fields.

/ OPERATING COSTS

Economic impact

Pathogenic elements and germination of weeds on the green roof is a problematic condition often facilitated by a humid ambient. This leads to increase in maintenance costs which, although necessary in all solutions of green roof, can become a consistent cost over the years of life of the system.

DAKU IRRIGA irrigation system, on the other hand, is a system from reduced need for maintenance, that involves the growth of healthier vegetation and with a higher phytosanitary well-being, due to the reduction of pest control treatments.

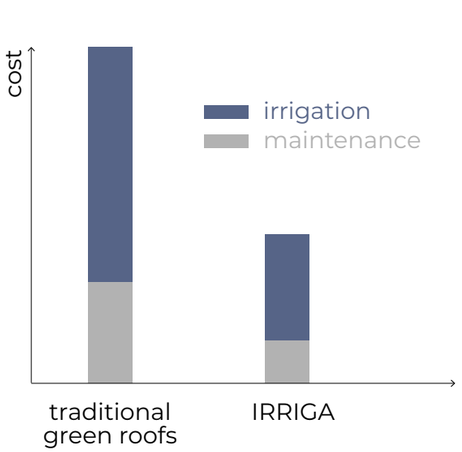


Diagram representing the reduction in operating costs of the green roof with the DAKU IRRIGA system. The innovative irrigation system encourages the development of healthier and stronger vegetation with a consequent reduction in maintenance costs. Moreover, the supply of water from the bottom allows a reduction of the water requirements of the vegetation and thus a reduction of the costs for the supply of water.

/ ECONOMIC BENEFITS **BLUE GREEN ROOF**

/ WATERPROOF MEMBRANES

DAKU green roof is a protection layer for roofing waterproofing layers as it effectively counteracts major materials ageing factors such as UV rays, violent weather events, chemical aggression and thermal fluctuations.

Economic impact €€€

The increased protection allows to triple the service life of the technical layers used to waterproof the roof: with the use of BGR technology the service life of these materials rise up to the 50 years horizon.

/ HYDRAULIC INVARIANCE

Many local and regional authorities require for new construction, renovation, and change-of-use developments, the construction of lamination basins to mitigate their impact on the water disposal network. These systems can retain large volumes of water during the rainfall events, delaying the inflow of water in the drainage system. For regulatory reasons the normal lamination basins cannot be used simultaneously as a basin of rainwater storage, because

Economic impact €€€€€

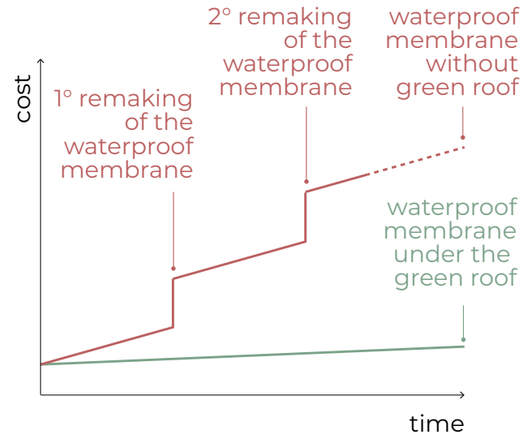
to receive the water they always must be empty. BGR, on the other hand, allows both functions to be achieved with a single basin and at a lower expense for the installation of green roof than the realization of an underground lamination basin. Being made on the roof BGR allows for the downsizing of the underground lamination tanks and consequently lowers the disposal costs of the soil, in some cases also considered special waste.

/ COOLING

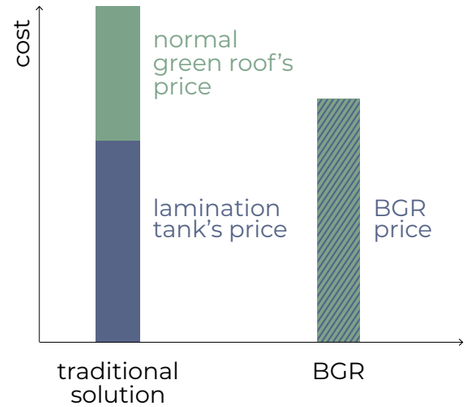
The presence of water on the roof is the added value of DAKU BLUE GREEN ROOF and its benefits are measurable and applicable at different scales, from the building to the city. When the primary tank stores a huge volume of water, the thermal insulation performance of the

Economic impact €€€

rooftop improves considerably, especially during the summer. Analysis made on the BGR test models show that plants help reducing heat on rooftops, by comparing the temperature of a normal roof with the one of a green one it became clear that on temperature can differ up to 20°C.



It is necessary to renovate waterproofing surfaces about every fifteen years. By using a greencover to protect waterproofing membranes, the average lifetime of the layer increases, reducing the cost of maintaining the roof.



The cost of building lamination tanks leads to a considerable increase in the final cost of the work. Thanks to the BGR technology, these costs are written off and the environmental impact is much lower.

CATEGORY	°C	DELTA
Air temperature	32,7	
Waterproof membrane (without greenroof) temperature	48,2	0
Waterproof membrane temperature under the TRADITIONAL GREEN ROOF	30,8	-17,4
Waterproof membrane temperature under the BLUE GREEN ROOF	26,1	-22,1
indoor comfort needs	26,0	

The table shows the temperatures detected when the BGR and IRRIGA systems were prototyped. Through POR-FESR funding from the Veneto Region, six traditional test fields of traditiona green roofs and BGR have been developed, monitored by temperature and moinsture sensors. The data collected show the efficiency of the BGR system, an improvement over the traditional suspended green systems.

OUR /VISION

/TECHNOLOGICAL PLATFORMS ON THE ROOF

DAKU develops technological infrastructures that have a positive impact on economy, society and environment. These technologies take advantage of the possibilities offered by green rooftops and turn sustainability from a word into a reality. Only by acting on economy, society and environment it is possible to bring a real change and development. DAKU developed the concept of Smart Green Roof to innovate green rooftops and make them more advanced, intelligent and connected to their surroundings. For these reasons, the vision that DAKU has can be summarized in three points:

> **Environmental Sustainability**
DAKU took inspiration from the natural evolution of plants to develop the components of its systems. These innovative components optimize water consumption and reduce heat, mitigating the effects of urban heat islands.

> **Social Sustainability**
By building innovative and technological green rooftops, urban areas become more resilient and healthier. People live in a better environment and the quality of their lives improve.

> **Economic Sustainability**
The innovative products developed by DAKU are investments with high returns. The main goal of an investment is to increase over time the sum that was initially invested. DAKU BGR offers a series of advantages and is with no doubt a high return investment like no other in the construction industry, as it was shown in the section “Layers, Hydraulic Invariance, Heat Reduction, Irrigation and Maintenance costs”.

/ NATURE-BASED ROOF

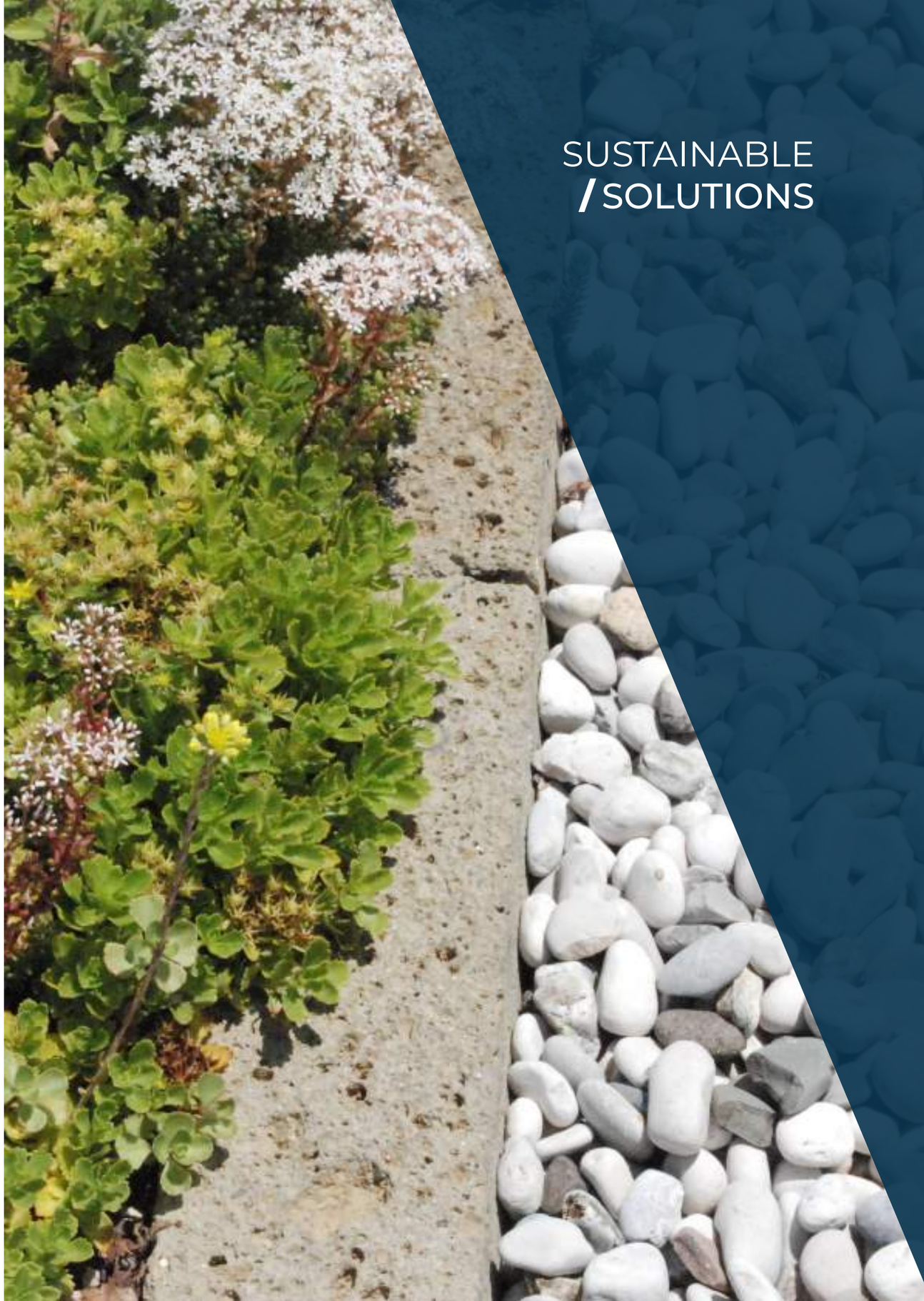
Our researches are taking inspiration from nature, that is where real sustainability can be found.

DAKU BGR has been designed by observing the natural growth processes of plants and by considering the problems caused by climate change. DAKU created a Bio-Inspired system, in which the Blue Green Roof and the DAKU IRRIGA technologies work side by side. DAKU IRRIGA is a patented irrigation system, which has been developed by studying the natural growth processes of the plants. It is designed to guarantee an optimal growth of the roots and a minimal water consumption. By using it, together with the BGR system, the roof can become almost completely water self-sufficient, as it can store almost 100% of rainwater and to use it to sustain plants.

Plants used on our green rooftops are a key component and have to be chosen carefully, studying climate and environment where the structure is located. As standard, BGR systems are fitted with a highly durable and resistant vegetation. Thanks to the use of DAKU IRRIGA, the amount of water needed to maintain it is limited. For rooftops where maintenance is harder, Sedum are used: these are a mixture of auto regenerative plants, carefully selected by DAKU to be resistant and healthy during the whole year.

DAKU BGR is a system that is highly adaptable to different climates and surfaces. It can be used by designers and professional who want to create more resilient cities, able to mitigate the effects of climate change.

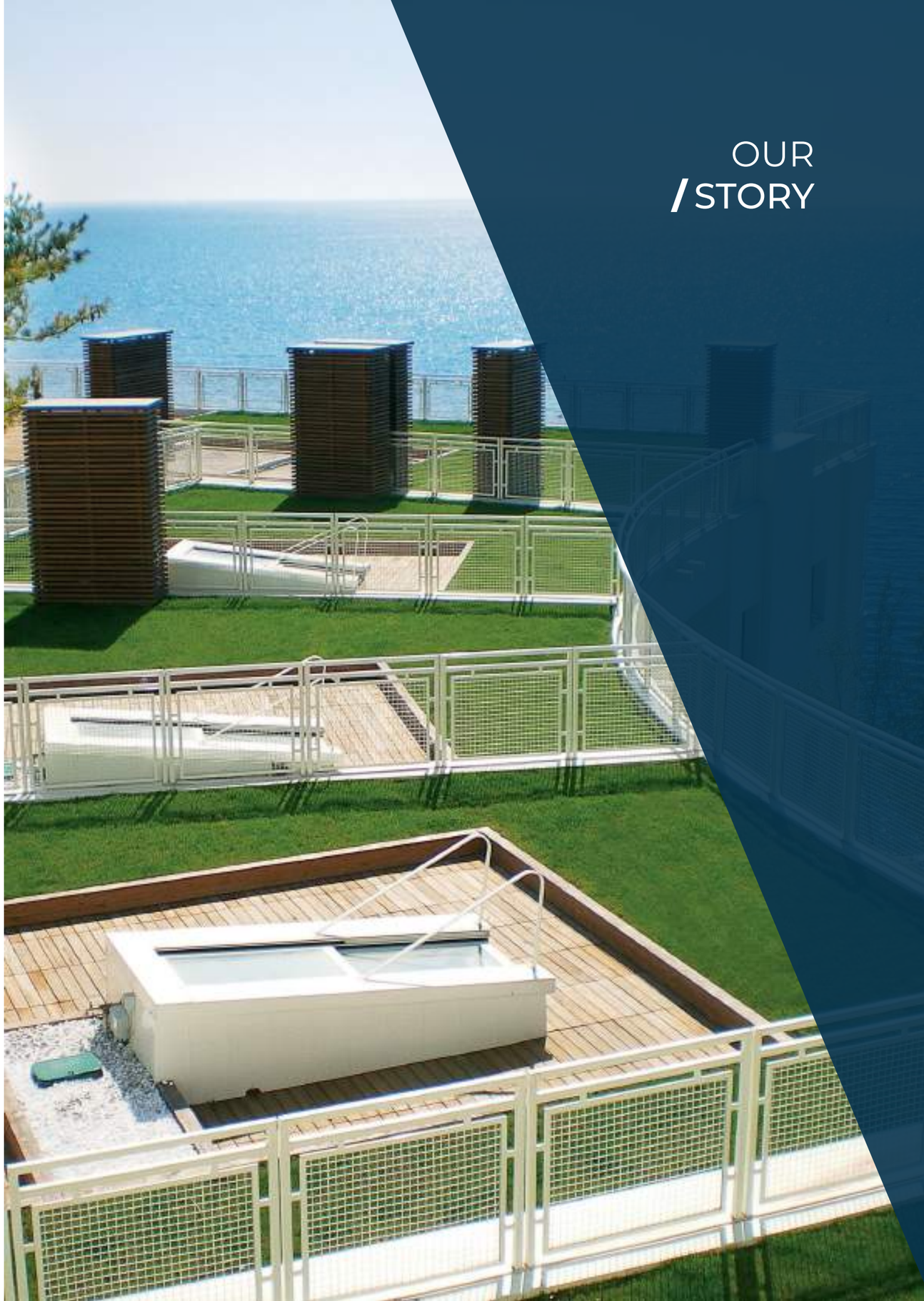
> “Nature is not a place to visit. It is our home.”
>
> Gary Snyder
> Poet and environmentalist



/ THE STORY CONTINUES

DAKU Italia was born in the early 90s, when Mariano Fantin, founder and current administrator of the company, discovered the new technologies for green rooftops developed by the German company DAKU. He understood the potential of these technologies and joined DAKU, founding their Italian branch. During the year DAKU Germany and Italy have constantly collaborated to improve their systems and products. After ten years of being merged, the two companies became independent. Since its foundation, DAKU Italia has been adapting the German technologies to the Italian landscape and climate, by keeping however the technological core of the systems unaltered. This continued until 2016, when it became clear that the requests coming from the market were changing, due to the climate change and new regulations. From that moment, DAKU Italia started a deep reorganization and transformed itself from a company focused only on constructing green rooftops, to a company involved in Research & Development. DAKU increased its know-how thanks to investments and public research projects, put in practice the experience accumulated during the years, hiring new and talented professionals. All these efforts resulted in the first patent totally designed and tested by DAKU, the DAKU IRRIGA system. In 2020, DAKU was awarded as “Innovative SME”, due to its effort in innovating its products, making them more sustainable and efficient. This award is a testimony of the long and constant effort made by the company to improve.

Passion and attention to detail have been the keys to success and today allow the company to be considered as one of the main developers and builder of green rooftops in Italy. Thanks to its technical knowledge, its attention to the customer’s needs and its constant innovation, DAKU gained the trust of its clients. Over the years DAKU built over 1.500.000 m2 of green rooftops, becoming an absolute market leader.



/ CERTIFICATIONS AND RESEARCH PROJECTS

During the development of its systems, DAKU collaborated with public and private entities. Researches focused on the thermal and energetic performance of substrates for green rooftops (in collaboration with Polytechnic University of Milan and ITC CNR of San Giuliano Milanese) and on the development of innovative irrigation systems (in collaboration with Landlab s.r.l and MAC Fondazione Minoprio). DAKU also participated in a research program between two public universities (University of Padua and Iuav University in Venice) and a network of companies to develop the BGR system. The research was sponsored by the Veneto Region and used the POR-FESR funds. During the research, companies and public entities exchanged their know-how and DAKU received the confirmation of the absolute quality of its materials.

Thanks to its efforts in making its system less impacting and more sustainable for the environment, DAKU in 2021 was awarded with the EDP certification. The certification guarantees the positive impact of DAKU's materials and of their production methods. It also takes in consideration the commercial and administrative structure of the company, with the objective of defining an improvement plan also for the future. DAKU is constantly innovating and doing research to comply with the strictest protocols and certifications recognized worldwide, such as the LEED certification.

/ DAKU'S PRODUCTS ARE CERTIFICATED


Certificato N. IT21/1025
CONVALIDA EPD
Si dichiara che la Dichiarazione Ambientale di Prodotto
(rev.6.1 del 11.11.2021) effettuata da
DAKU ITALIA SRL
Sede Legale
Sito di Produzione
è conforme con
GENERAL PROGRAMME INSTRUCTIONS v.3.01, IES
e alla PCR 2019:14 Construction Products v.1.1 e
EN 15804:2012+A2:2019
MODULI PER TETTI VERDI
Sistema estensivo standard
Sistema intensivo standard
Autorizzato da
Paolo Santarelli
Page 1 of 1

LA NATURA SUL TETTO

/ REGISTERED AND ADMINISTRATIVE SEAT

Daku Italia S.r.l - PMI Innovativa
Via XIII Martiri, 28
30027 - San Donà di Piave
Venezia, Italy
info@daku.it
www.daku.it

/ SALES OFFICES

Piazzale della Pieve, 16
47121 - Forlì
Forlì-Cesena, Italy

Strada per Castelnuovo Nigra, 84
10081 - Castellamonte
Torino, Italy

/ IRRIGA & BLUE GREEN ROOF COMMERCIAL DEVELOPMENT

Andrea Fantin
cell: +39 345 8511339
email: andrea@daku.it

/Visit our website!

DAKU

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