

RotoTrends

*Exploring the potentials of
rotational moulding in design*

Issue 4



ARMO
ASSOCIATION OF ROTATIONAL MOULDING ORGANISATIONS

Introduction

The evolution that has distinguished rotational moulding in recent decades is intimately related to the development of awareness of rotomoulding in the design world.

In other words, as the potential of rotomoulding becomes “common knowledge” amongst designers and producers the sophistication of their projects using our technology for industrial applications grows. RotoTrends explores the different potentials of rotational moulding showing case-histories where the roto technology is able to open new markets, developing innovative products and working successfully in new niches.

The projects developed in partnership with international design institutes, and the selected industrial products produced a faithful portrait of an industry constantly hungry for new ideas, eager to experiment with new shapes and new materials, sensitive to the international richness of globalization.

Rotomoulding is strategically placed as one of the key technologies for rethinking the industry according to today's needs for technology and performance.

Key elements about Space Sanitization

The contagiousness of COVID-19 is acute due to its long half-life and airborne spread. Exhaled breathe from infected person, cough, sneeze, etc., aid in infecting the air.

This *vulnerability of an ambience* and associated likelihood of transmission of the virus by airborne route creates the necessity for *ambience sanitization*. On a colony or street level, infected areas and containment zone become difficult regions for human involved sanitization.

Sanitization for surfaces and for ambience can tackle the spread of COVID-19 virus in *professional and domestic spaces*.

Chemical disinfectants applied to floors, doorknobs, table surfaces and surfaces in domestic and office use can be used to deactivate the corona spread. The measure to contain the spread of virus needs application of a *fluid layer n the surfaces*.

Key factors Details

- *Compact and easy* to handle and transport
- *Easy to use*: the equipment is started using the *dedicated master switch* and the dedicated spray gun is used to direct the nebulized solution easily and effectively
- The solution supply takes place so as to ensure *extended and distributed product permanency in the air* of the treated location, to reach and sanitize all surfaces therein
- The *dispenser gun* is the point where the solution mixes with the air
- The *spiral tube* links the machine to the spray gun. Its spiral shape means that it can extend up to 3.5 m, to reach places it would be difficult to get to otherwise
- *Easy access to the internal machine components* to make it easier to refill with solution and for easy maintenance



Sanitizer Sanex

production Comac - Italy

Sanex is a mobile compressor sanitizer that's perfect for spraying sanitizing products in small and medium-sized environments.

Lightweight and easy to transport, Sanex is the ideal solution for sanitizing and deodorizing rooms and offices in any sector. The battery-powered versions also allows even more freedom of movement in places without a power socket. The structure consists of two main rotomoulded parts while the solution supply takes place so as to ensure extended and distributed product permanency in the air of the treated location, to reach and sanitize all surfaces therein

The compressor sanitizer is easy to use: the equipment is started using the dedicated master switch and the dedicated spray gun is used to direct the nebulized solution easily and effectively

This equipment adapts to various requirements, allowing the use of sanitizing, disinfectant or deodorizing solutions and use inside cars and air conditioning circuits.

All this makes Sanex extremely versatile. It can also be used in larger environments like entrance areas and convention rooms or offices, bars, restaurants, shops, schools, gyms and any other place where effective sanitization is needed.

www.comac.it





> *Lightweight and easy to transport, Sanex is a flexible solution for sanitizing*



Bikesharing Trend Present and Future Overview

While worldwide population is on the rise, *smart city planners* know that city centres are in need of a greener, lighter mode of transport that is both easy to access and pollution-free – enter, *the bikesharing trend*.

Bikesharing is a *smart solution* to rising populations and dense city centres with too much pollution and congestion, providing an *eco-friendly opportunity* for citizens to quickly get from point A to B.

In more recent years, *dockless bikesharing* became a popular trend, allowing the consumer to drop the bike anywhere within the home zone and be found by the next user with GPS on their smartphone app.

Key factors Features and Technologies

New features and technologies currently improving the bikeshare industry include:

Lock-to features: These features are now being implemented as a response to the dockless bikeshare graveyards, which require riders to *lock their bikes to a bike station before taking off*. This allows the “dockless” opportunity in bikeshare to continue while mitigating the risk for theft or vandalism.

Electric bikes and charging stations: the electric bikeshare programs offers *electric bikes and charging stations for tourists and commuters*. The program is based on several *bike stations* placed in different areas of a town.

Technologies to power electric bikesharing: These technologies include *sensors, embedded motor controllers, and software to undergo onboard diagnostics* to identify maintenance problems and alert the fleet operator of needed repairs.

Parklets, Bike Station

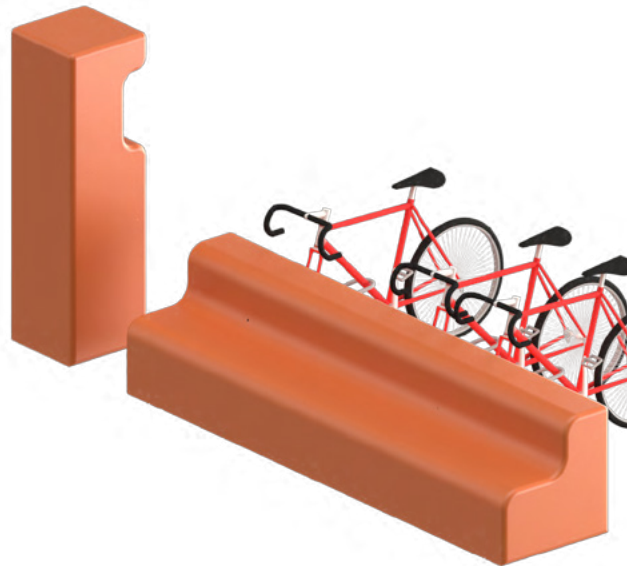
project Betul Akgun
Bilgi University, İstanbul

Parklets are extensions of the sidewalk that function as a public space of leisure and coexistence. While two parking spaces on the street are used by 40 people per day, a parklet, or living parking space, serves approximately 100 people during this period, as well as promoting greater social interaction among citizens, and the democratic use of the soil, not only for automobiles.

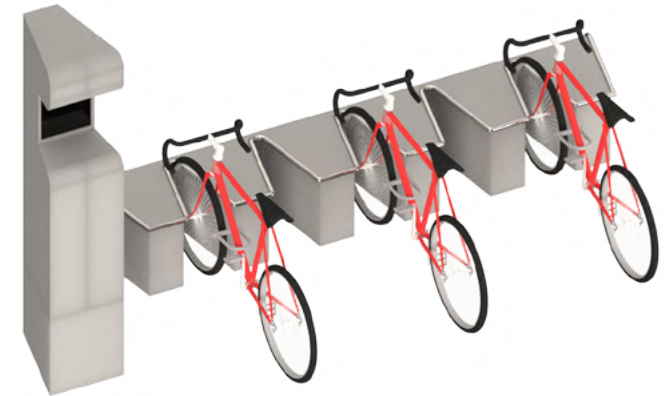
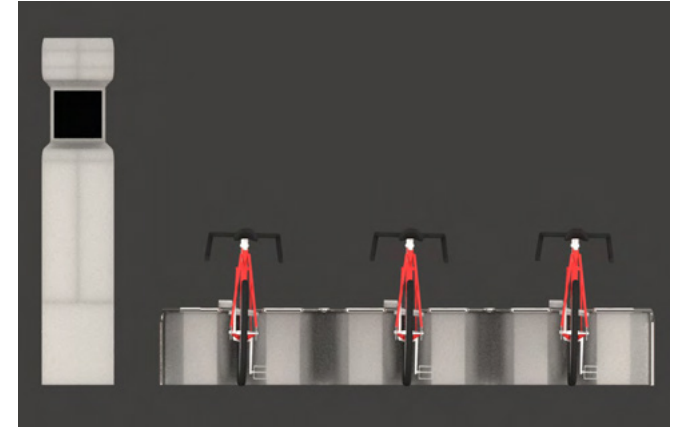
The structure of the mainframe looks like a long rotomoulded seat with the bike station, giving it stability and accentuating the bike station edges. The bike station is designed to be rotational moulded with five main modular parts.

The small interventions of the parklets have a great scope in transformations of the space. They bring the essence of the city into a small place, which can serve for a break, a rest, find a friend, read a book, and especially, serve none of these and so many other things, that is the beauty of democratic use of a public space.

www.bilgi.edu.tr



>
modular elements that can be
organized in different ways



Baby Changing Facilities

A *baby changing facility* is a clean, private and accessible facility where parents can comfortably change their baby's diapers and dispose it appropriately.

A standard, baby changing facility should have several specific *well-designed products* as a *baby changing unit/table, sink, chair and waste bin*.

Lack of baby changing facilities in public spaces result in parents changing their babies in crowded and unsanitary conditions or are forced to avoid certain venues and events, due to their lack of adequate facilities. This *denies children the ability to enjoy the cities* that they are growing in.

Key Factors Features

Design priorities for baby changing facilities are:

- overall size
- ergonomics of deployment and use, coupled with rugged construction
- ease of cleaning and maintenance

Rotational moulding combined with microbial surface treatment, makes these kind of products especially effective for areas where an enhanced degree of hygiene is required.

The design is also driven by providing the safest environment to change babies :

- Eliminating sharp corner or finger trap to avoid accidental injury
- Fitting a safety belt
- Avoiding bacteria void



Baby Changing Table

production Baby Point - Great Britain
manufacturing Tecni-form - Great Britain

Baby Point is the main provider of baby changing facilities for mainstream retailers, shopping centres, airports and leading attractions in the UK.

The new portable baby changing table is assembled from six polyethylene and one polypropylene rotomoulded parts with high dimensional accuracy. The design incorporates optional components, such as bins and lockable castors, with all assembly carried out by Baby Point to customers' individual specifications. The stylishly formed baby changing cradle is manufactured from a new grade of high impact polypropylene, the weight being supported by the base structure.

This commercial baby changing station is stand-alone allowing short term or long term installation thus leasing. Trolley version is available with four braked castors.

The design with its polished surfaces and rounded edges, ensures a safe and comfortable environment for babies, and this is enhanced by the cradle incorporating an anti-microbial additive to increase hygiene standards further.

www.thebabypoint.com



> The baby changing station is stand-alone allowing short term or long term installation thus leasing



Designing Post-COVID Learning Spaces

So much uncertainty remains as schools, colleges and universities reopen or plan for the reopening of their buildings to students and educators.

To ensure the safety of students, educators and staff, everything will look very different — from classrooms and cafeterias to playgrounds and social spaces.

The coronavirus has forever changed education. Our opportunity is to leverage what we've learned to rethink learning experiences and make face-to-face connections even better than before.

Key Factors Strategies

Strategies include limiting classroom and meeting room capacity, repurposing larger unused spaces like gyms and libraries for classes, having students remain in one location while teachers move from class to class, adding barriers, changing the configuration and placement of desks to observe physical distancing guidelines and ensure people aren't facing one another, frequent cleaning and more support for those still learning from home.

Clever

design Nos - Mexico City

After analyzing the products on the market for rural schools in Mexico, local design studio Nos has come to redesign the traditional school desk. aiming to create a product that would be affordable, resistant to extreme weather conditions and easy to use, the designers developed Clever, a lightweight rotomoulded and stackable desk with a seat.

The result of the project is a two-piece school desk with a rotating board that students can move depending on their needs. It is light and can be produced in many colors, allowing the schools to choose a two-color combination if needed.

The seat has a conical shape so it can fit on top of other seats for storage. It has a hook on the backrest so students can hang their schoolbags. It also has a pocket under the seat where they can store books and school supplies. Both pieces are mass produced by rotomolding, using polyethylene.

www.nos.mx



> Rotationally moulded polyethylene (MDPE) seats

> The pocket under the seat to store books



> The hook on the backrest to hang schoolbags





> *Chair's aluminium mould*

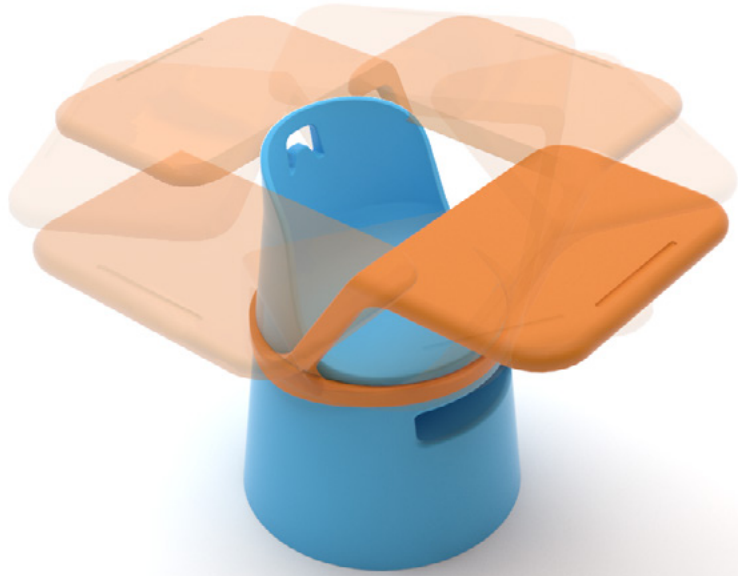


> *Desk's aluminium mould*

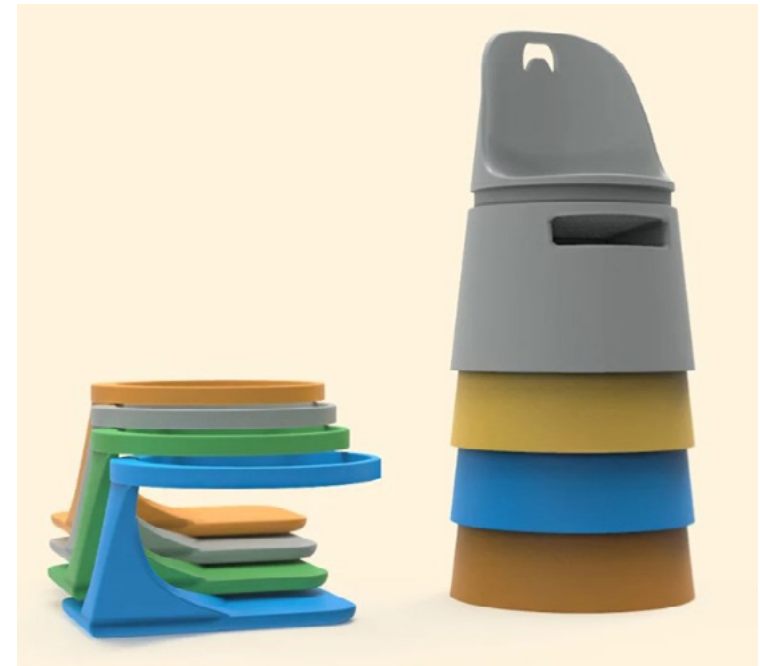


> *Desk and chair are rotomoulded with a large range of mass colours*





> *The chair has a rotating board that students can move*



> *Rotomoulded and stackable desk and seat*



> *Aluminium mould*



> *Clever chairs furnish a rural Mexican school*

The Evolution of the Wellness Experience

Consumers are placing *more value on beauty and wellness* than on material objects these days, and the definition of health and wellness has evolved.

The phrase no longer refers simply to a lack of illness and disease, but to a *more holistic state of being*, where one's mental, physical and emotional health are in sync.

And in an era in which so many catalog their lives on social media, looking great, feeling good and sleeping well are *the new luxuries that consumers* want to enjoy and flaunt.

Consumers are increasingly participating in beauty activities that improve well-being; using *products that are able to mix design and performance all together*, with innovative materials and technologies.

Key factors Goals

Finest materials, superior quality, best functionality, modern design and exclusive innovations, coupled with the flexibility to respond quickly to customer requirements is *the guiding principle of every product for Spa, beauty and wellness*.

More than just an equipment manufacturer, the main goal is to develop products able to offer an exceptional *wellness experience* while also providing therapists with ergonomic and comfortable designs to minimize discomfort.

The wellness industry is constantly *seeking new technologies outside* of the spa/beauty realm to produce and offer cutting edge designs to truly deliver unparalleled equipment for unforgettable wellness experiences.



Backwash Units Fly and Maya

production Gharieni, Germany

With almost 30 years of experience, Gharieni Group is one of the world's leading manufacturers of high-quality treatment tables and equipment for spa, beauty & wellness.

Present in more than 100 countries around the globe, luxury hotels, spas and resorts around the world rely on our "Made in Germany" exceptional products.

Recognized by the industry as a prominent and prestigious manufacturer of professional grade products, it has led to sustained dynamic growth.

Its innovative concepts and designs have been greatly acknowledged and rewarded with awards and prizes. Fly and Cocoon are new timeless, modern wash units that invite to relaxation. The collection has been designed as a must: new products with right combination of comfort and technology, a modern and elegant chair with rotomolded main structure.

Fly shows a removable cushion for the lumbar region comfort, a new vertical adjustment through back-lit navigator and a rotomoulded base for best position of the back.

Maya has a comfortable seat with horizontal topstitching and a roundshape station which is a real added-value for salons. The base is made through rotomoulding.

www.gharieni.com



> Fly Backwash Unit



> *Fly Backwash Unit*



> *Maya Backwash Unit*

The Evolution of the Contemporary Bathroom

In recent decades, a constant evolution of the concept of living and the way of living the home have influenced the criteria for the design and furnishing of the entire home environment.

The modern bathroom has played a leading role in this process of change, showing the most significant changes, both functionally and from the aesthetic point of view.

In the 80s began the attention on the centrality of the body and the self-care, promoting the development of new design concepts and business (such as gyms and wellness centers).

With the affirmation of a culture increasingly oriented to self-expression of one's being, the relationship with the domestic environment is changed passing from an attitude purely focused on functional dimension to a new creative approach to space. Single rooms evolve from areas of service to theme areas.

Key factors Advantages

In this context the bathroom left his label of simple room of service, and it ennobled becoming an environment of relax, wellness and body care.

Each design element of the bathroom assumes significant importance to the achievement of a specific atmosphere, the room becomes space of expression and all contribute to meeting the specific housing needs and lifestyles of those who live it.

Every detail is studied in a global perspective, preferring minimal lines, light and spacious, custom-built furniture, designer furniture and accessories themed tanks with the latest materials, shower open-space with dishes at floor, light with special lamps for a soft light and relaxing.



Host Bath Collection

production Wet, Italy

Host, nominated to the prestigious design award Compasso d'Oro, is a flexible and unique bathroom-system specifically studied for the hotel sector in which the rotomoulded washbasin "hosts" all water-supplies for both washbasin and showerwall. This way no extra watersupply-connections are needed for the shower.

This design avoids the need for any wall bracket to keep the showerwall in place. This unique & innovative way of installation keeps your wall completely free of any accesories. In fact, where in traditional shower situations the sliding-bar is normally mounted against the wall, in the typical Host situation, the sliding-bar will now be mounted directly to the glass showerwall, which visibly cleans your space.

Integrated appliences for both washbasin and showerwall are complete with internal connections and come with a "structural" 3mm stainless steel mounting-plate that firmly fixes the showerwall against the washbasin which therefor avoids any extra wall-brackets. Washbasin and shower are rotational moulded with low-density polyethylene.

www.wet.co.it



> Host Bath Collection



> Host has a special extra large syphon with 120mm of diameter

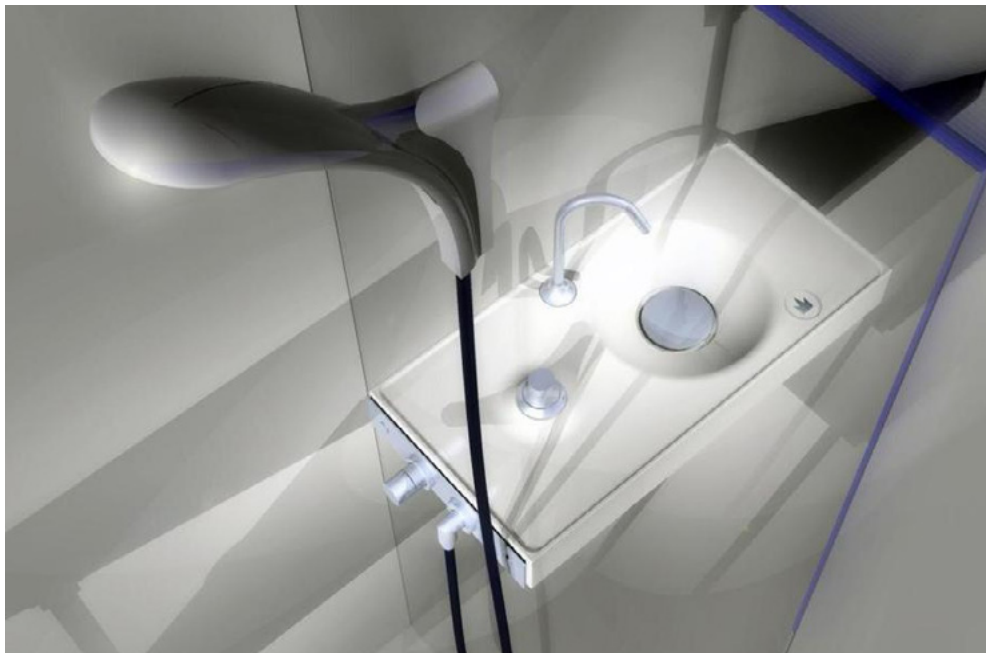


> Host is standard equipped with its innovative magnetized corners





> *Mobile rotomoulded shower*



Expo, Exhibitor System

design Aishwarya Ashwin,
Domus Academy, Milan, Italy

Expo is a luminous display, ideal to customize on every side. Its design fits in every kind of settings: Expo is high and thin, available in two different sizes, resistant and in the same time easy to move, thanks to its low weight.

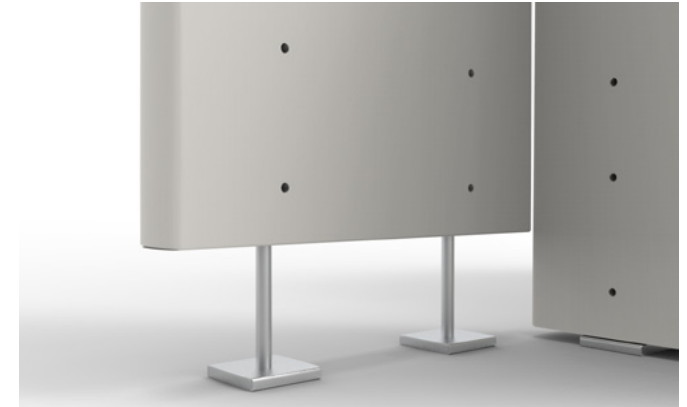
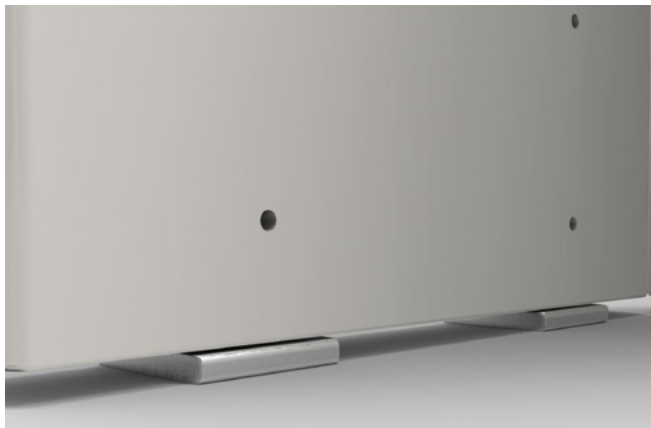
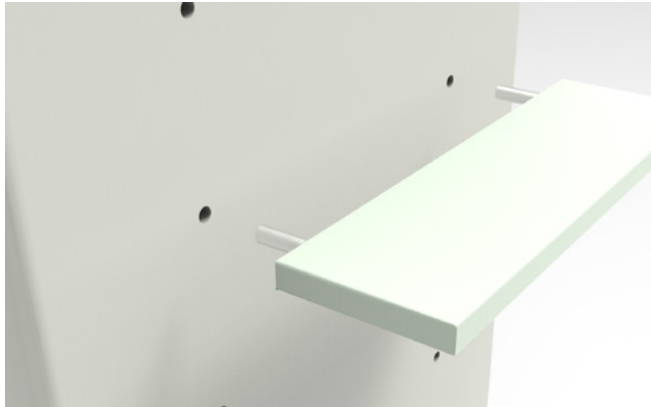
Its dim light is ideal to highlight logos, descriptions and large images, thanks to customized stickers that can be applied to the whole surface. The rotational moulded panels can be arranged in multiple ways, even one on top of the other. Additional parts like shelves, hooks etc can easily be attached on the holes of the panels. A versatile solution for any display.

Expo is perfectly suitable for events as fairs and exhibitions and contract both indoor and outdoor.

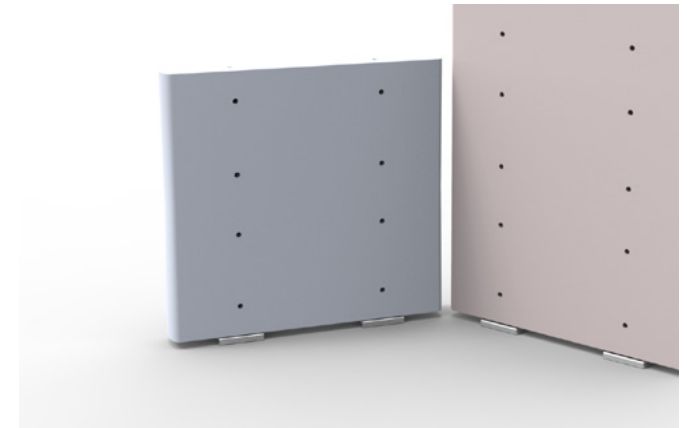
www.domusacademy.it



> Rotomoulded panels available in two main sizes



> Metal frame



RotoTrends *Exploring the potentials of rotational moulding in design*



> Expo is perfectly suitable for events as fairs and exhibitions



Lawn Mower Global Trends

The global robotic lawn mower market size was valued at \$538 million in 2020 and is projected to reach \$1,437 million by 2025, growing at a CAGR of 12.9% from 2018 to 2025.

Technological advancements in the field of artificial intelligence (AI) has paved the way for mobile robots making them more efficient.

Increase in dependency on automation in the commercial sector to reduce operational cost and rise in the adoption of domestic robots for various household applications such as cleaning, lawn mowing, and many more drive the growth of the robotic lawn mower in the global market.

Main Features

A robotic lawn mower looks as an *autonomous machine* that functions without human intervention within a defined area.

The system must be designed to include a *mobile base, a docking station, sensory feedback control programmed to mow the ground*, and other accessories that help in smooth functioning of the system.

The introduction of *innovative features* in robotic lawn mower is expected to help key vendors to attract more consumers and gain larger market share.



Parcmow Robot Mower

production Belrobotics, Belgium

Bigmow is one of the most innovative and high-performance professional robot mower in the world and it can mow up to 24.000 m² of turf. It can live up to the challenge on sports grounds, driving ranges and golf courses, as well as public spaces.

Bigmow is programmed for mowing with mulching up to 24.000 m² in a few hours. The vegetable matter from mulching will fertilise the soil in a 100 % natural way. The technology allows you to reduce inherent maintenance costs of green spaces around your business, in a way that benefits a sustainable policy and a reduction in your ecological footprint. It also equipped with an intuitive interface, an anti-theft and malfunction alert, various on-board safeties, a GPS guidance and accident prevention system.

Belrobotics robotic mowers are equipped with an extremely robust aluminium chassis that is separate from its hood, and the main body is rotational moulded HDPE. Each part can be replaced individually, so the mower can almost always be repaired.

www.belrobotics.com



> *Parcmow has a rotomoulded body and it is equipped with an intuitive interface*



> *Parcmow is fitted with 3 floating cutting heads that adapt instantly to the ground elevation.*



> *Parcmow is fitted with sonars deactivating its cutting system if it detects an obstacle.*



> *Parcmow works with 9 its stainless steel blades.*



Micro-mobility and the Last-mile Trend

With the rise of electric scooters used particularly in cities, brands and governments are prioritizing scooter and city designs that cater to the professional consumers who use them.

These designs, whether they include dispersed charging stations or enhanced portability in the scooters themselves, are able to enhance the efficiency that urban professionals crave in their eco-friendly commutes.

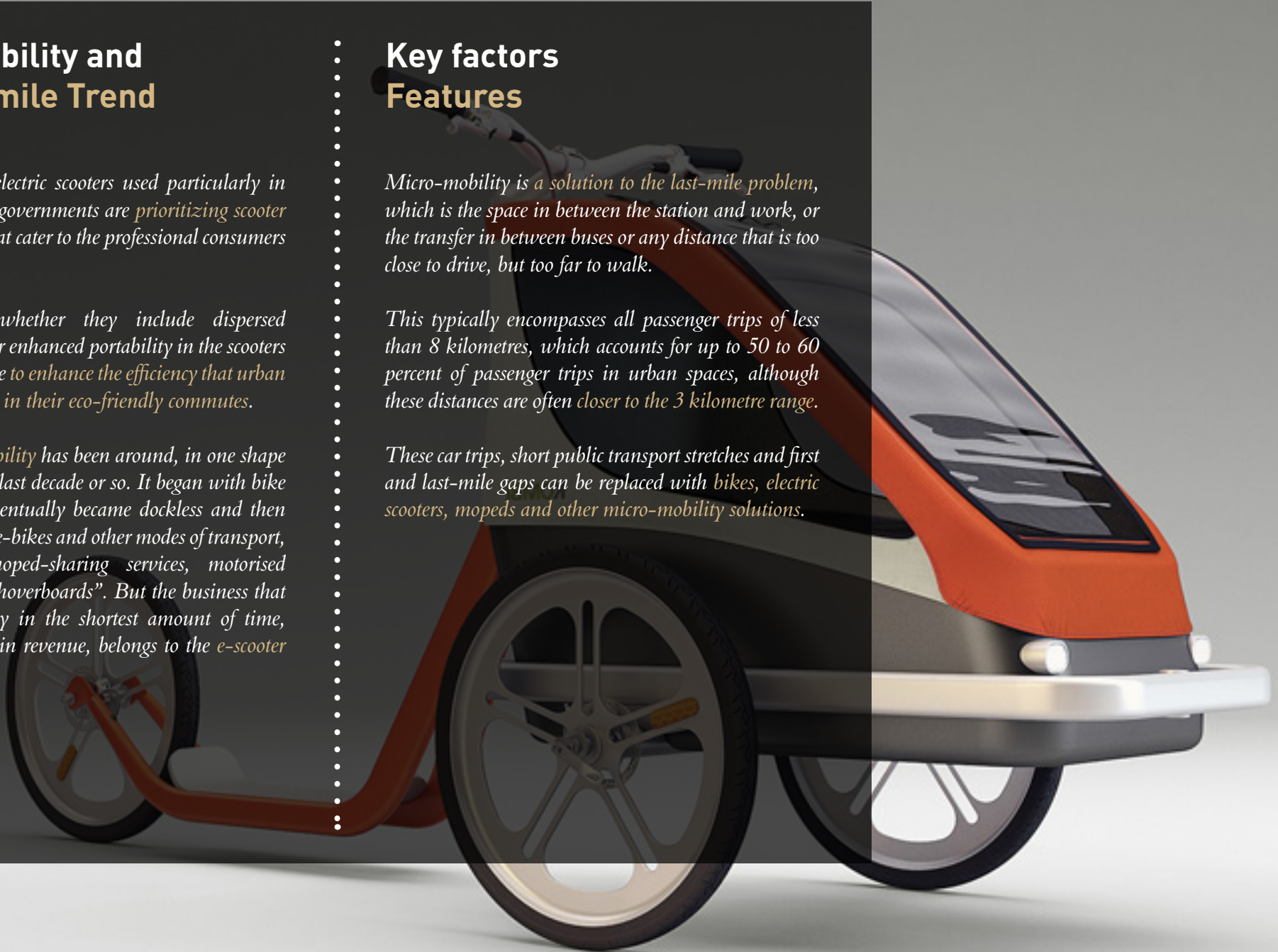
Shared micro-mobility has been around, in one shape or another, for the last decade or so. It began with bike sharing, which eventually became dockless and then paved the way for e-bikes and other modes of transport, ranging from moped-sharing services, motorised skateboards and “hoverboards”. But the business that grew exponentially in the shortest amount of time, amassing billions in revenue, belongs to the e-scooter revolution.

Key factors Features

Micro-mobility is a solution to the last-mile problem, which is the space in between the station and work, or the transfer in between buses or any distance that is too close to drive, but too far to walk.

This typically encompasses all passenger trips of less than 8 kilometres, which accounts for up to 50 to 60 percent of passenger trips in urban spaces, although these distances are often closer to the 3 kilometre range.

These car trips, short public transport stretches and first and last-mile gaps can be replaced with bikes, electric scooters, mopeds and other micro-mobility solutions.



Kombi modular urban scooter

design Godbout+ Plante, France

Both utilitarian and fun, the unique design of the Kombi modular urban scooter is based on the notion of using one product in multiple ways. Just like the principles of cameras with interchangeable, bayonet-type lenses or multi-head tools, Kombi's various modules can be attached to the scooter's deck section using a "slide-in," quick-release connector.

Kombi is a multifunctional system providing several modes of transport. It can be used as a solo, cargo or stroller scooter; a bike trailer; or a regular stroller.

Built entirely of aluminum, Kombi is ultralight and easy to maneuver. It is also designed to stand up to intensive use in the city.

With the stroller rotomoulded module connected to the front, Kombi makes it possible to take the children out for an energetic ride or a relaxing stroll.

Removing the top from the stroller creates the cargo configuration, making it easy to run errands to the neighborhood supermarket or hardware store.

With its lower bin section made of rotomoulded plastic, the cargo module is tough enough to transport small loads without worrying about damaging it.

The scooter can also be ridden in the solo (or single) mode with the single wheel attachment.

In addition to Kombi's scooter configurations, the stroller can be disconnected from the scooter deck and used as a bike trailer.



> *The design is based on the concept of a versatile product*





Waterscape A New Design Concept

Waterscape is design-led. It's the first product of its kind that responds to what the customer wants and needs in a waterfront lifestyle product.

The designers have created something so alluring and so desirable that, in a moment, the user is transported to a place of peace.

The Waterscape concept produces a design that provides new experiences for waterfront property owners and developers.

The adaptable and customisable features of Waterscape are in response to the environmental challenges of waterfront living as well as addressing the needs and desires of the customer.

Key Factors Goals

Waterscape is an efficient and flexible adaptable floating structure.

The project extensively explores the technology and incorporated cutting-edge materials that have allowed to protect marine craft when mooring while at the same time providing a stable floating structure.

In addition, modularity allows us to create a product that can be shipped anywhere in the world and assembled in an easy and logical way.



Waterscape

design Alexander Lotersztain - Australia

Creators John Hogan and Alexander Lotersztain are passionate about changing the perception of 'water appeal'. Street appeal, they explain, is a commonly recognised real estate and architectural concept; water appeal is underestimated and misunderstood. Waterscape changes that: it provides a beacon from the water to the front door of a resort or home. Now, a property has two front doors – from the street and from the water.

Waterscape has been designed for both the commercial and domestic user, providing the market with a visionary new option in waterfront living. Waterscape is a product for the global market – the patented design and construction features mean that it can be adapted and customised to suit any user from the large scale corporate and commercial to residential.

Functionality design has addressed both the end user and the manufacturer/installer – there is ease of shipping, assembly and installation. Design functionality allows for rotomoulded multi compartment buoyancy, post installation buoyancy trimming and subsea anchoring to negate the need for any visual detractor as a result of anchor piles.

Rotomoulded furniture, service and accessory options are easily clip on or off, or changed, due to the custom designed waler.

www.water-scape.com



> Modular flotation that allows for buoyancy adjustment





> *Variable deck and balustrade options to allow for site or use specific choice of materials*





> *Waterscape, a floating structure that is functional but, at the same time, aesthetic.*



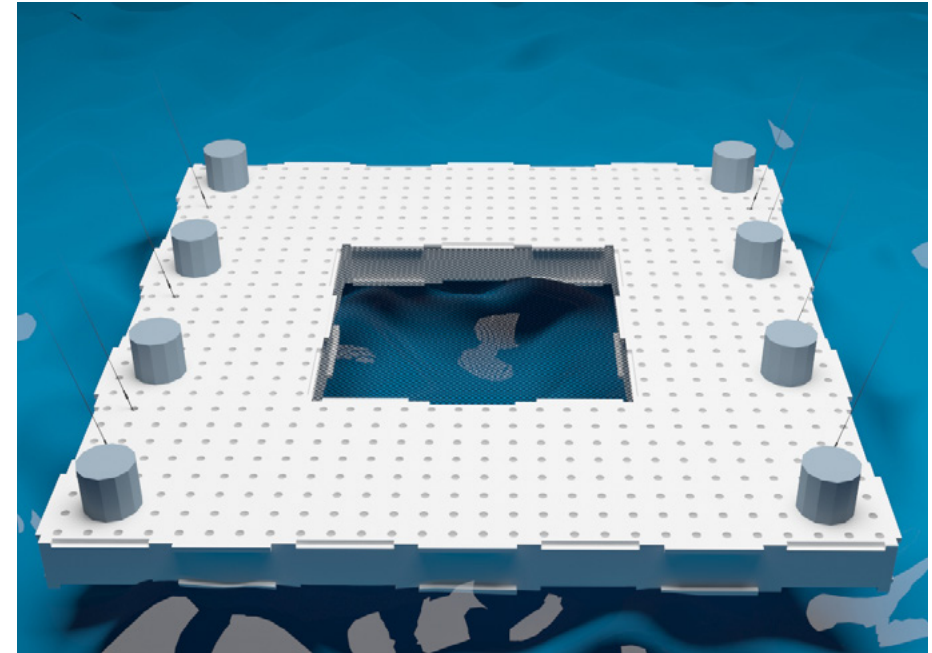
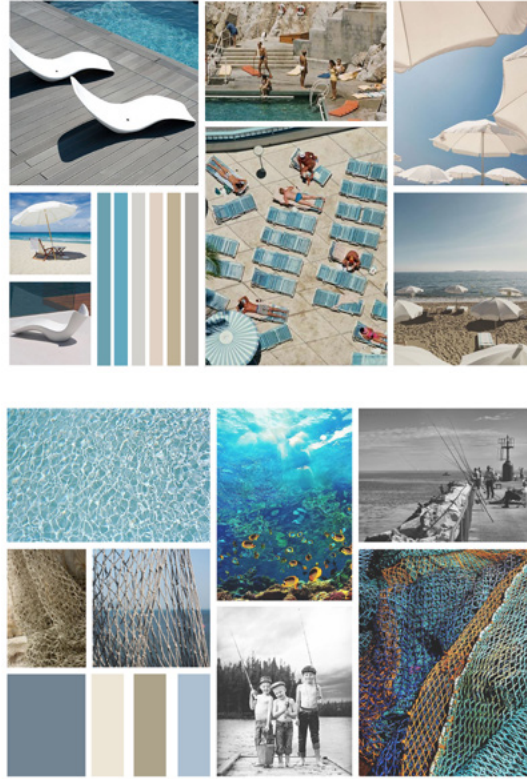
Recreational Island

design Gabriella Nasrallah - Lebanon
Central St. Martins, London, UK

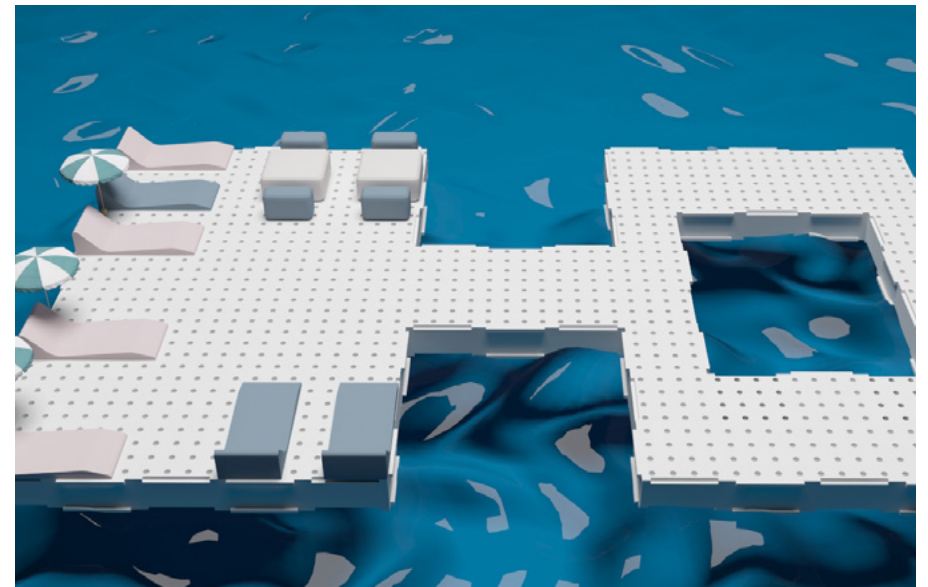
Recreational Island floating platform can be located anywhere, offering a unique opportunity to enjoy a private space, a pool, a water sports platform, a small boat and a diving board.

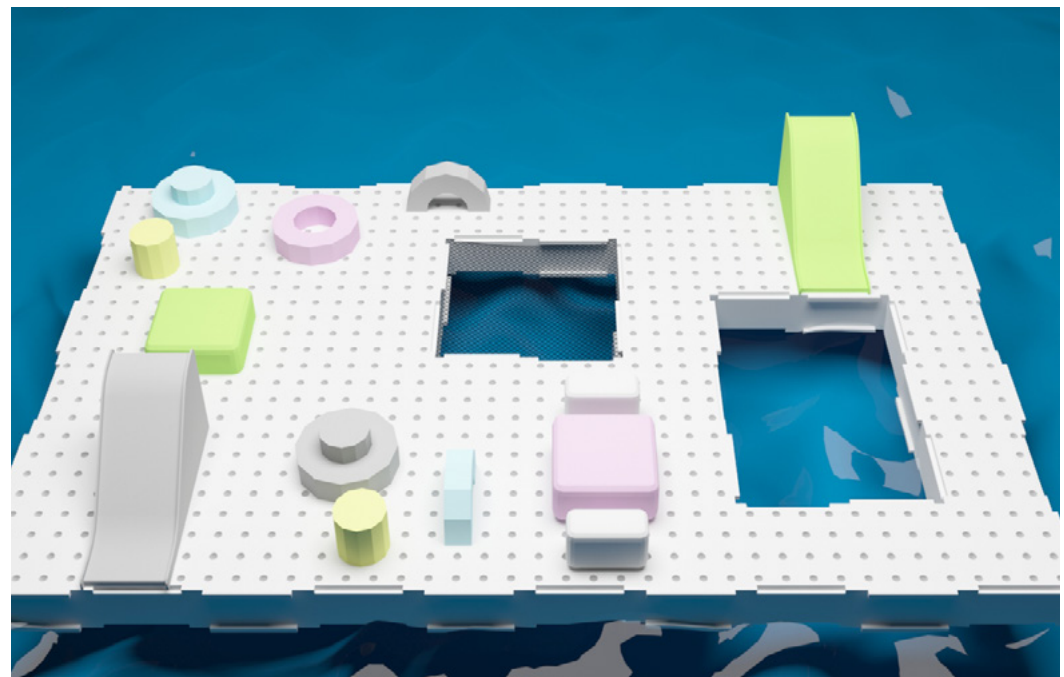
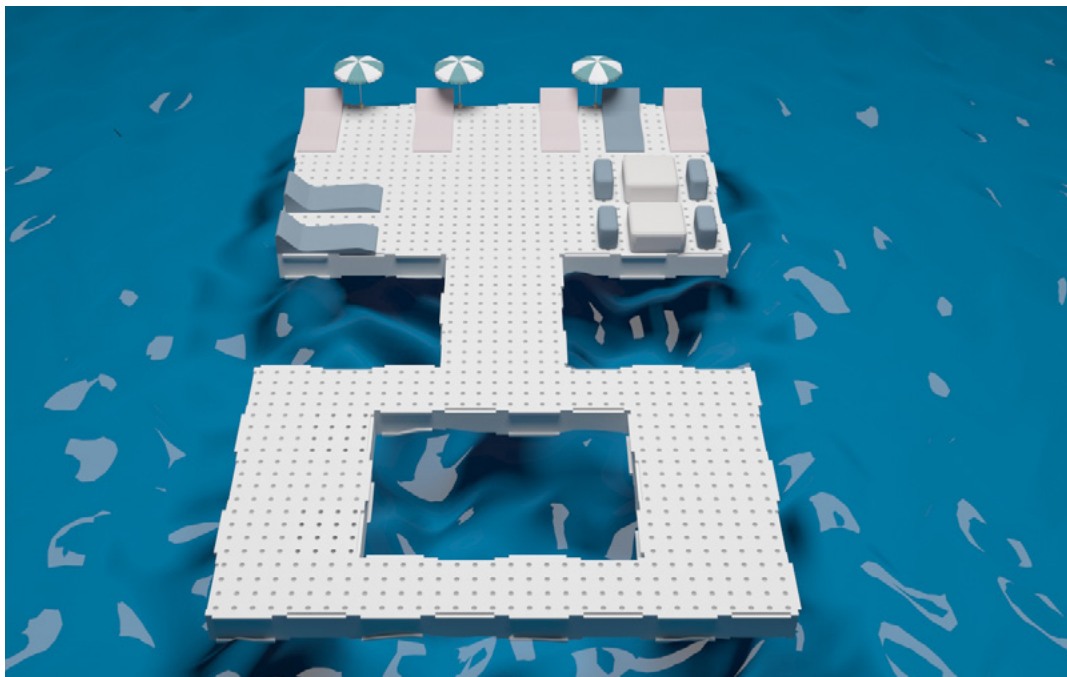
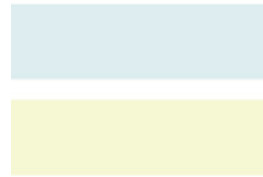
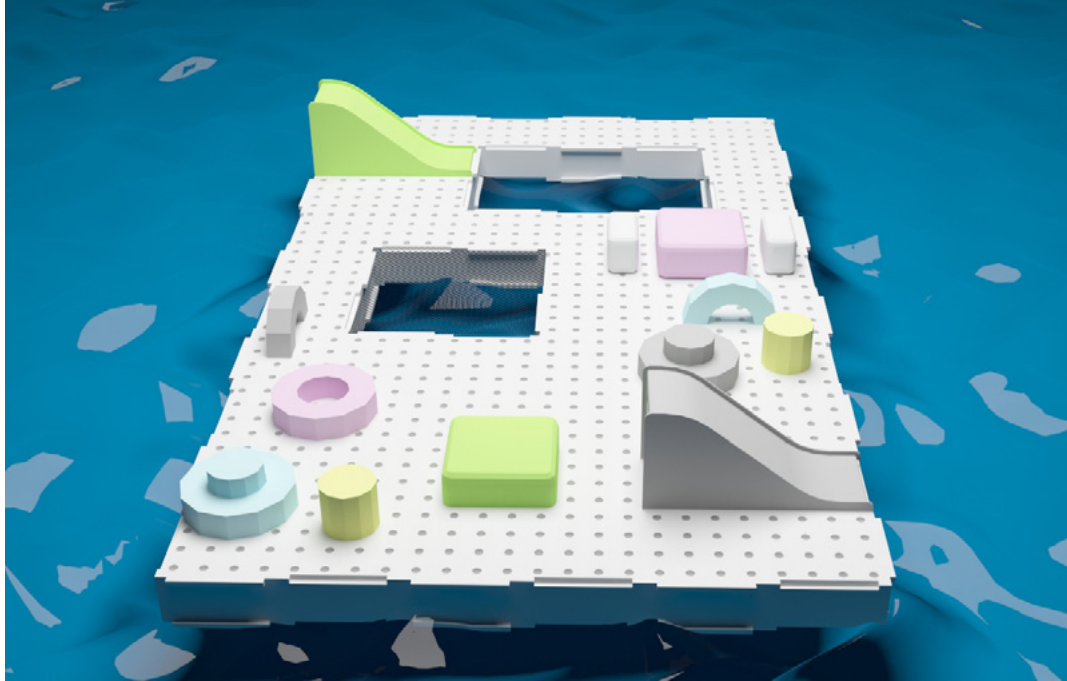
The Recreational Island has been designed to optimise available space, whether it is opened out on the water, or tucked away in the garage of your super yacht. It is deployed using two standard overhead cranes and once in the water it is towed using a second tender to a preferred location.

Recreation Island floating platform offers a nice deck and a pool that can be used for a party, short getaways or unforgettable one day trips.



> *Recreation Island floating platform offers a nice deck and a pool*





Thinking to New Bicycle Storages

One of the biggest hassles of owning a bike is making sure *it's safe and stored properly* without taking too much living space inside your home.

The bike or motorbike capsules are designed specifically to *fulfill these storage needs*.

The capsules look as a *custom garage* for your bike that's built out of "indestructible" material and equipped with an integrated locking mechanism.

The pod can house almost *any type of bike*, including mountain bikes with wide handlebars, as well as your cycling accessories.

The pod bolts securely to the ground and offers *waterproof coverage* suitable for outdoor use, garages or in shared spaces. *than one bike*.

Key Factors Features

Many cities are adopting regulations that require *minimum bike parking spots* based on occupancy, square footage and more.

Short-term or "visitor" bicycle parking is designed to be used for *a few minutes up to a couple of hours*. As a result, short-term parking should be easily accessible, racks should provide *a secure point for locking up* and it is best if racks are covered for weather protection.

A design that ensures the bicycle rack is *easily detectable for partially sighted or blind people*. For example, adding a tapping rail to span the bottom of an inverted U style rack will make it easier for visually impaired people to detect.

Sheltered racks provide an even higher quality of short term parking. Shelters offer *weather protection* and can help protect bicycles from accidental damage by providing greater separation from a sidewalk or parking area.

Alpen Bike Capsule

production Alpen Storage - USA

The ultimate solution to your bike storage needs. Built from virtually indestructible roto-molded polyethylene and equipped with an integrated locking mechanism, it's a custom home for your beloved bicycle, engineered to protect and extend the life of your investment.

The unique, patented design offers secure, waterproof bicycle storage, perfect for outside your home or fitting comfortably inside a garage or building common area.

The circular design gracefully blends form with function, providing easy access to almost any type of bike, including mountain bikes with wide handlebars. There is even plenty of space for all your cycling accessories.

www.alpenstorage.com



> *The Alpen Bike Capsule providing easy access to almost any type of bike*





> *The circular design gracefully blends form with function*







credits

AlpenStorage, *USA*

Belrobotics, *Belgium*

Comac, *Italy*

Gharieni, *Germany*

Nos Design, *Mexico*

The Baby Point, *Great Britain*

Water-Scape, *USA*

Wet, *Italy*

Cover Pictures

courtesy Euro3Plast, *Italy*

Projects

Domus Academy, *Italy*

Ecal, *France*

Istituto Europeo Design, *Spain*

UDK, *Germany*

Politecnico di Milano, *Italy*

SJB-Institute of Technology, *India*

St. Martins School, *Great Britain*

Concept

Studio Giovanetti, *Italy*

affiliates



AFR - Association
Francophone du Rotomoulage



ARM - Association of
Rotational Molders



ARMA - Association of
Rotational Moulders Australasia



ANIPAC - The Mexican Plastic
Association



ARMSA - Association of Rotational
Moulders Southern Africa



ARM-CE - Association of Rotational
Moulders Central Europe



StAR - Society of Asian
Rotomoulders



Nordic ARM - Nordic Association
of Rotational Moulders



BPF - Rotational Moulders
Group



IT-RO - Italia Rotazionale



RPC-CPPIA



Rotopol Association