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# MARMOMAC MEETS ACADEMIES
# ADVANCED RESEARCH AND LITHIC EXPERIMENTATION
# THE PROJECTS

Curated by: Giuseppe Fallacara
Collaborators: Alessandro Angione, Ilaria Cavaliere, Dario Costantino
Technical support: Katia Gasparini

**Stone Translucent Verticalities**
DESIGNER/S: Pedro Varela, Maurizio Barberio
UNIVERSISTIES: University of Porto, Polytechnic of Bari
AFFILIATED COMPANIES: Solubema and ETMA
*Stone Translucent Verticalities* is an architectural sculpture that highlights the potentialities of stone/marble digital design and fabrication combined with artificial lighting. The main theme of the design is the relationship between sculpted lithic materials and translucency: in fact, by reducing the thickness of the stone at certain points, light can pass through the matter and allows it to be backlit. The two columns are like "different twins", as they are defined by the same geometrical pattern, but the first one is smooth outside and carved inside, while the second is sculpted outside and smooth inside. This duality allows two different sensorial perceptions of the same phenomenon, enabling a variegated discovering experience for the visitors of the exhibition.

**Petralumina - Floor**
DESIGNER: Stefano Chiocchini
UNIVERSITY: IID – Istituto Italiano Design
AFFILIATED COMPANIES: PI.MAR S.r.l.
*Petralumina* is a modular flooring and cladding system made of natural stone with inserted photoluminescent decorative motifs. The product line consists of two-dimensional and three-dimensional modular elements made with numerical control machines and the insertion of a mix of natural resins and photoluminescent powders which guarantee the re-emission of absorbed photons (from natural or artificial light), generating safety light in the absence or in minimal lighting conditions. The tiles have various dimensions: 15x15 cm, 30x30 cm, 30x60 cm, 60x60 cm, 90x90 cm, 60x120 cm and various thicknesses. The photoluminescence inserted in Lecce limestone combines design with eco-sustainable architecture, it has an eternal charging and discharging of energy, a perfectly green and natural product, a clean and renewable energy source that helps us save energy.
*Petralumina*, it is in the darkness that the light is found.

**Kinetic Stone Wall**
DESIGNER/S: Giuseppe Fallacara, Micaela Colella
UNIVERSITY: Polytechnic of Bari
COLLABORATORS: Ing. Pietro Boccadoro
AFFILIATED COMPANIES: CNC Design, Stilmarmo S.r.l.
The *Kinetic Stone Wall* prototype represents a portion of a stone façade, consisting of a large slab of Apricena stone, into which a pattern generated by a recursive geometry has been carved. The stone “petals”, thus generated, can open and close thanks to a mechanism behind them, allowing air and light to penetrate the

building as required. The movement mechanism consists of an electric motor that can be activated remotely or with sensors, programmed with Arduino.
In recent years, examples of buildings with envelopes capable of changing their configuration according to the changing needs of users and changing climatic conditions, during the seasons and during the same day, have spread with multiple technical solutions with aesthetic outcomes of great impact. While most of these solutions envisage the use of very light materials, aluminium panels in primis, in this case, the proposed solution envisages the use of stone cut with a reduced thickness and coupled with a material that is as light as it is resistant and suitable for the aesthetics of the indoor part of the wall, wood. In this way, it is possible to integrate responsive mechanisms and logic within buildings with a stone wall envelope.

**Butterfly wing**
DESIGNERS: Nicola Parisi, Francesco Fieni
UNIVERSITY: Polytechnic of Bari
AFFILIATED COMPANIES: Manzi Marmi S.r.l., Robologica S.r.l.
Designed to challenge the production limits of numerically controlled manufacturing techniques, this experimental prototype has been made using specific subtractive digital manufacturing processes that approximate the result achievable using hybrid prototyping techniques by superimposing sections obtained by a robotic machining process known as double-sided fabrication. The geometries of the artefact are designed using a procedural algorithm with the aim of demonstrating the structural performance of the minimum surfaces known as gyroids, which can guarantee a significant reduction in the weight of the structure without compromising its mechanical performance.
The aim of the research is to take the first steps towards demonstrating the huge potential of reusing waste materials from stone processing for high performance circular architecture. The future implications of this research include the involvement of cross-disciplinary fields, such as materials science and the development of hybrid digital manufacturing technologies, and even the possibility of addressing the challenges of producing increasingly complex geometric shapes that cannot be achieved with isolated subtractive or additive technologies.

**TechnoVauld**
DESIGNER/S: Dustin White
UNIVERSITY: Florida Atlantic University (FAU) School of Architecture
AFFILIATED COMPANIES: Concr3de 3D Printing, PI.MAR S.r.l.
*TechnoVauld* is a portmanteau of "techno" and "vault", a fusion of technology and architectural form. The project aims to showcase the integration of additive manufacturing technology in ashlar construction through a novel 3D printed stone fabrication process. *TechnoVauld* represents a creative and imaginative design process that evokes a sense of modernity and innovation in the architectural and construction realms, while also addressing the critical need to honor the precious nature of stone as a finite resource.
By leveraging additive manufacturing technology, we can overcome environmental challenges and promote responsible material management in the construction and architecture industries. This technology enables us to reduce waste, optimize resource usage, and integrate sustainable materials into the 3D printing process. As a result, we can minimize the environmental impact of construction activities and enhance the overall sustainability of our built environment.
Moreover, the utilization of *TechnoVauld* not only reflects technological advancements, but also allows us to explore a new lens of honoring stone material. By acknowledging the material's symbolic and spiritual connotations, we continue adding depth and meaning to the built environment. This approach harmonizes human creativity with the beauty and strength of the natural world, ensuring that we uphold the cultural significance and aesthetic appeal associated with stone.
In conclusion, *TechnoVauld* serves as an innovative pathway to not only embrace technology in construction but also to honor and preserve the precious nature of stone as a finite resource. Through responsible material management and a fresh perspective, we can build a sustainable future that combines modernity, innovation, and the inherent beauty of stone.

**m(AIR)ble chair**
DESIGNER/S: Marco Massafra, Francesco Ciriello
UNIVERSITY: Polytechnic of Bari
AFFILIATED COMPANIES: Gurrado Marmi s.r.l., Archimed s.r.l.s.
*M(AIR)ble chair* is born from the combination of two different digital fabrication techniques: the 3D printing of a gyroid structure made of flexible material and the robotic milling of marble. This combination introduces a new chair concept that can offer a new balance between flexibility, strength and aesthetics. The supporting structure of the chair features a gyroid geometry, a mathematical structure belonging to a class of shapes known as minimal surfaces. The gyroid is characterized by a repeating lattice that extends to infinity in three dimensions; it consists of interconnected, curved and twisted surfaces that form a network of channels that pass through the entire structure, allowing the passage of air. The gyroid base was made through an FDM 3D printing process, using a one-process TPU (Thermoplastic Polyurethane) material, which combines the properties of rubber and plastic, providing the base of the chair with flexibility, elasticity and resistance to shocks, impacts and chemicals. The white Carrara marble seat and back cover the top of the base, integrating with the sinuous shape in continuity with the gyroid structure. The combination of the flexible material extruded in a repeated mathematical geometry and the robotic milling of the marble gives the chair a new balance of strength and flexibility, allowing comfortable seating while maintaining structural integrity.

**Bridge Table. A tribute to Sergio Musmeci**
DESIGNER: Giuseppe Fallacara
UNIVERSITY: Polytechnic of Bari
AFFILIATED COMPANIES: Mastropasqua Marmi S.r.l., Donatoni Macchine S.r.l.
The creative genius of Sergio Musmeci, a well-known Italian structural engineer famous for the bridge over the Basento river (Potenza, Basilicata. Italy), continues to inspire multi-scalar research on the structural minimum and on minimal surfaces.
Minimal surfaces are defined geometrically as surfaces that minimize the area among given borders. The *Bridge Table* is inspired by a drawing of a pier of a bridge by Sergio Musmeci, exhibited at the Maxxi in Rome in the exhibition dedicated to him, that was named *inGenio Idee visionarie dall'Archivio di Sergio Musmeci*. The pile of a bridge becomes the marble base of a table by changing its scale.
The complexity of the shape requires specific tools for CNC machining, so that the thin double-curved shape of the table can be extracted from a single block of white marble. The thinness of marble that is achieved for the construction of the structure, starting from a single block, is the real challenge of the work.

**Coral Sitting**
DESIGNER: Massimo Russo
UNIVERSITY: Polytechnic of Bari
AFFILIATED COMPANIES: Techology Helios Automazioni, Manufacture Sante Aceto Gruppo Tortuga Design.
The organic design is freely inspired by the reticular geometry of coral. The seat appears as part of a possible complex modular system. Its curved lines and cavities respond to a mathematical generative logic; it is an object that returns an unconventional image, a metaphor that refers to the structure and the most intimate parts of the material.

**Osteomorphic helicoidal staircase**
DESIGNER/S: Giuseppe Fallacara
COLLABORATORS: Francesco Tarricone, Francesco Brunetti
UNIVERSITY: Polytechnic of Bari
AFFILIATED COMPANIES: FabLab Poliba, Stilmarmo S.r.l., Tarricone Prefabbricati, CNC Design, Mapei S.p.A.
The prototype is the latest in a series of experiments carried out on the theme of the helicoidal staircase made up of modular load-bearing elements. It is the evolution of studies on stereotomic staicases present on French treatises since the Renaissance period. In particular, the *Osteomorphic helicoidal staircase* is a helicoidal staircase with a load-bearing ramp and supported treads, made up of prefabricated modular elements of reinforced concrete and treads in fibre-reinforced Apricena stone. The morphology of the load-bearing ramp of the staircase is inspired by the vertebral column, whereby each vertebra is perforated at the

center for the passage of reinforced concrete, which represents the bone marrow of the structure. Each vertebra has been built starting from a 3D printed three-dimensional model, from which the mold was created. The tread rests on three points of the vertebra and is made up of a 3 cm stone slab whose lower part is hollowed out for the insertion of mortars and high structural performance stainless steel bars, which prevent the fragile breakage of the thin limestone slab.

**Stone Origami – Rocalia 2023**
DESIGNER/S: Giuseppe Fallacara
COLLABORATORS: Marco Stigliano, Michele Masciavè
UNIVERSITY: Polytechnic of Bari
AFFILIATED COMPANIES: Association Rhônapi, Mastropasqua Marmi S.r.l.
*Stone Origami* is a fragment of a roofing system inspired by the triangular geometry of origami. The prototype is an urban shelter for passers-by and travellers. It has a multifaceted geometry and it is made up of two-dimensional elements assembled together. Research focused on the possibility to create a double-sided sandwich panel capable of fulfilling both the structural and aesthetic functions, composed of a load-bearing metal sheet, an aluminum honeycomb panel and a thin layer of natural stone (pierre bleue de Savoie and pierre de Chandoré). Panels thus produced can be assembled indefinitely, through metallic mechanical connections, and can create complex shapes generated by the triangular composition of the elements. The constructive system can be easily disassembled and reassembled and can assume different formal configurations with the same constituent elements. The prototype in its entirety will be presented at the Rocalia Salon (Lyon, France) in December 2023.

**Arx Eterea Petrae**
DESIGNER/S: Sara D'Adamo, Teresa Lanzetta, Clara Rosa Romano, Clelia Santovito, Andrea Sgherza, Giuseppe Tota
UNIVERSITY: Polytechnic of Bari
AFFILIATED COMPANIES: Lanzetta Francesco & Figli S.N.C.
The architectural project created during the Architectural Design Course IV held by prof. Arch. Fallacara and subsequently improved and deepened during the final thesis laboratory, consists of a skin for a façade made of semi-supporting modules of Minervino Murge stone and optional infill panels made of thin marble slabs. Minervino Murge stone is renowned among the stones of the Trani basin for its resistance and durability. Its compact structure and mineral composition make it able to effectively resist bad weather and atmospheric agents, maintaining its beauty and integrity over the years. The insertion of thin marble infills within the façade offers various design and functional possibilities. Not only they create a play of light and shadow along the surface of the building, but they can also be left open to allow direct airflow, improving ventilation of interior spaces. This characteristic can be particularly important in hot, humid climates, such as the Mediterranean one, where air circulation is essential for the comfort of the occupants.

**Sempiternal Renascence**
DESIGNER/S: Anne-Cécile Surga
UNIVERSITY: Polytechnic of Bari, FabLab Poliba
COLLABORATORS: Giuseppe Fallacara, Francesco Ciriello
AFFILIATED COMPANIES: Hérès, Nanterre; Centro Internazionale per la Scultura, Peccia, ArchiMed 3d
*Sempiternal Renascence* brings its contemporary contribution to the history: craft and ancestral knowledges work with new technologies to face digital fabrication challenges with the utmost solution. The sculpture project is composed of three elements in Swiss Cristallina marble, bound together by two elements of 3d printed pneumatic flexible joints. The latter, in addition to guaranteeing a soft connection between the marble blocks, ensures their bonding thanks to the micro sucker conformation of the parts constituting the joint. The shape of the project comes from an original marble sculpture of 60 cm by the artist Anne-Cécile Surga, that has been 3D scanned and computerized, divided in three elements and cut using a CNC machine. Upon completion of the robotic cuts, the artist worked again by hand on marble to give the final form. The project connects art, science and technologies: beside the artist's creativity, concepts of geometry and new fluid stereotomy, as well as the latest computer-based mechanization were needed to bring it to completion.

These three axes of research are metaphorized in the three elements of the work. The layer uniting these concepts intertwines what can be thought of as opposite into a harmonious ensemble.

**Stone and structure - Innovative construction with load-bearing natural stone**
DESIGNER/S: Anne Hangebruch, with students BA / MA
UNIVERSITY: TU Dortmund University
COLLABORATORS: Anne Hangebruch, Christian Hartz
AFFILIATED COMPANIES: Bamberger Natursteinwerk Hermann Graser GmbH
With the design and construction seminar *Pavilion of Stone*, Jun.Prof. Architect Anne Hangebruch and students are investigating the potential of natural stone as a static and not merely cladding element in contemporary architecture. In close cooperation with the Bamberger Natursteinwerk Hermann Graser GmbH, they are looking for experimental, innovative solutions that use stone as a structural material. The aim is to sound out the balance between constructive necessities, structural framework conditions and the appearance as a large architectural context. Material-specific construction and expression methods for natural stone are being researched and developed. Prof. Dr.-Ing. Christian Hartz is supervising the integrated structural planning of the designs. The usage concept is part of the student competition, whereby one could well imagine a temporary coffee bar. Just as a kiosk creates a place for neighbourly encounters beyond its commercial function, the prototypical realization of the *Pavilion of Stone* is intended to provide students and teachers alike with the opportunity for informal exchange on the South Campus of the TU Dortmund. One of the design proposals is shown as a 1:3 stone model: The creation of the space is based on the construction of a classical cross vault. Therefore, the forces in the arch run in a parabolic line – the support line – making the vault self-supporting. Additionally, the stone section is worked out in such a way that there are no exposed horizontal joints between the individual stone elements. The surface structure of the pavilion results from the manufacturing process of the complex forms. In summary, the design exemplifies today's possibilities for working with natural stone using robotics.

**Particle-Trail**
DESIGNER/S: Michael Davis, Alessandro Premier, Sarosh Mulla
UNIVERSITY: University of Auckland, Faculty of Creative Arts and Industries, School of Architecture and Planning, Future Cities Research Hub
COLLABORATORS: Davis Wu, Ricky Wong, Adam Hunt, Katia Gasparini
AFFILIATED COMPANIES: Pietre Rare s.r.l.
The research project proposed by the University of Auckland team is a furniture element generated from a conceptual design created using Unity Particle System Trails. It represents a fusion of the organic with the technology of a real-time 3D digital development platform, expressed in travertine, a building material with classical antecedents.
At the heart of the project, presented at Marmomac 2023, is a question and exploration. Can the inner structure of bone – which provides critical support and strength to the human skeleton – be transposed and transformed into an architectural element? Conceived as an assembly of 3D-printed components, the goal of 'Particle-Trail' is to exploit new technologies of subtractive manufacturing to design and fabricate furniture that can be built in natural stone, re-using any manufacturing waste generated in subsequent projects, for a more circular approach.
The conceptual design is based on an approximation of the internal structure of cancellous or spongy bone, as observed through a Scanning Electron Micrograph. While compact bone makes up the hard exterior of bone, cancellous bone – characterised by its honeycomb-like structure – forms part of the interior structure of long bones and ribs, the skull, pelvic bones and vertebrae. A small portion of these small, coral-like, honeycomb structures became the foundation for the creation of particles in Unity. Through complex manipulation to explore possibilities for transformation, we created an architectural element able to function as a new model of support. Through algorithmic shaping, our cancellous structure became an arch-shaped object, which was then realised in 'Particle-Trail' as two arch-shaped structures – equal but opposite – the supporting structure of a table. As a modular architectural furniture element, its potential is to be scaled for use in different contexts and scenarios, providing a structure of support for the creation of varied and distinct architectural objects.

**OverThree**
DESIGNER/S: Aurora Camparsi, Sofia Carazza, Jessica Rita De Martin Topranin e Cecilia Pauletti
UNIVERSITY: Accademia di Belle Arti Statale di Verona
AFFILIATED COMPANIES: Donatoni Macchine srl
*OverThree* is a partition wall, decorative and modular, made of marble. It refers to waves and reflections of the water surface. It is made up of three identical slabs which are repeated and rotated by 90° and 180° and inserted into a special base. Each slab has holes and by placing them one against the other they create plays of light and shadow.

**FIGURA**
DESIGNER/S: Vincenzo Minenna
UNIVERSITY: Politecnico di Bari, CDLM Industrial Design
AFFILIATED COMPANIES: PI.MAR S.r.l.
The design is based on technology-driven innovation, i.e. the possibility of integrating new technologies to the product or production process, in order to improve performance, usability, production cost, etc. The design process adopted is linked to user-centred design methods (which place the user at the centre of design) and digital fabrication techniques enhanced by the use of parametric-generative methods. Therefore, the various theoretical and technological aspects can be perfected and can innovate the methods of transformation, prefiguration, composition and prototyping of stone material with the consequent improvement of the usability and accessibility of the product (user experience tests). The starting point of the experimentation was the understanding of the multiple interactions in the relationship between stone design and technologies, specifically the mathematical research oriented to the design experimentation of a vase. A better design strategy was identified through the generative method, which is mainly based on the design of an algorithm containing simple design data (geometric and formal aspects), which can be enhanced by the input of other constraints (such as production, assembly, static and material characteristics) or parametric variables (environmental conditions or particular static stresses). In this regard, the model has been realized with parametric tools with which it is possible to obtain variants of the basic model by acting on variables such as thickness, height, inclination, pattern, etc. The generated algorithm has been uploaded onto a web platform composed of a three-dimensional preview and a control bar for the variables. The interface is designed to be implemented on a website and is particularly suitable for commercial purposes.

**Stereotomic Tripod**
DESIGNER/S: Ilaria Cavaliere, Alessandro Angione, Dario Costantino
COLLABORATORS: Francesco Brunetti
UNIVERSITY: Polytechnic of Bari
AFFILIATED COMPANIES: FabLab Poliba, Stilmarmo S.r.l., CNC design, Mapei S.p.A.
The *Stereotomic Tripod* is a triangular vault composed of hollow 3D printed elements, shaped to create different patterns. The edges are characterized by quadrangular ashlars, while the corners are filled with a triangular pattern. The entire system has been conceived to be assembled without the use of centrings, by reciprocally fixing the blocks using screws. Even if it has been realized in PLA, the vault has been designed using the rules of stereotomy, which is a discipline historically linked to stone. Moreover, the three pentagonal ashlars in correspondence of abutments are covered with Apricena stone slabs on the extrados, in order to show the possibility to create innovative coffers.
The central part of the *Stereotomic Tripod* is completed with a shell made of woven glass and carbon fibers, which maintain it shape because they are imbued with epoxy resin. Specifically, the glass fiber network aims at creating the correct geometry, on which carbon fiber can properly lay, reinforcing the structure. Carbon fibers help improving the rigidness of the entire structure, preventing the arches to tip over.
The *Stereotomic Tripod* is a demonstrator of the possibility to mix different innovative techniques and technologies, starting from lithic tradition and hybridizing it with new fabrication processes and materials.

**MultiSENSE - inclusive sensory seating**
DESIGNERS: Madina Gabbazova, Alejandra Fuertes Garcia, Eleonora Natale, Annalaura Nucci
COLLABORATORS: Elio Ravà, Carlos Acosta Fontana

UNIVERSITY: University of Rome “Sapienza”
AFFILIATED COMPANY: Balducci Marmi S.r.l. - Camporgiano LU
*MultiSENSE* consists of Inclusive modular seatings that combine different sensory experiences to be useful for people with reduced perceptive abilities. The aim is to create urban furniture that is not only accessible to all, but is also useful for the accessibility of places where it is positioned. The use of marble not only recalls the artistic and architectural tradition of many historic places, but also proposes an emblematic counterpoint between the monumental and the ordinary. Seats are part of an extensive system under development that integrates stone processing with advanced detection and Wi-Fi communication systems. The four prototypes on display refer to an array of sensory experiences, each based on one of the five senses. HEAR_IT incorporates a sound source that is activated to provide information about, for example, an urban location. WATCH_IT uses a light stimulus to attract attention and provide directional information. SNIFF_IT produces a scent that makes it easier to identify the seat and pleasant to use. TOUCH_IT can include tactile signals or Braille. The different finishes of the faces can be customized in relation to the orientation to provide an additional indication. In the commercial version, the seats can be activated either automatically or by means of a switch. The seats were conceived during the design workshop of Architecture and Building Design II (Prof. Marco Ferrero) of the master’s degree in Architectural Engineering at the Sapienza University of Rome and then developed in collaboration with the company Balducci Marmi, which also produced the prototypes. The students were supervised and guided by the architects Elio Ravà and Carlos Acosta Fontana, as well as by Prof. Marco Ferrero himself. The digital platform is currently being studied at the Faculty of Civil and Industrial Engineering of Sapienza University.

**Da Vinci’s Bridge**
DESIGNER/S: Giuseppe Fallacara, Nicola Parisi, Ilaria Cavaliere, Angelo Vito Graziano
UNIVERSITY: Polytechnic of Bari
AFFILIATED COMPANIES: FabLab Poliba, WASP, B&Y S.r.l.
The *Da Vinci’s Bridge* is a modern reinterpretation of the bridge designed by the Italian genius Leonardo Da Vinci in 1502. The proposed model is composed of nine stereotomic ashlars, conceived to be realized through additive manufacturing. 3D printing is widely spreading in the construction field and some prototypes of 3D printed bridges have already been realized using concrete. The purpose of this project is to test a new stone powder-based mixture (using waste materials from Apulian quarries), in order to propose a sustainable approach to lithic construction. The small bridge has been thought to be printed with a Delta WASP 3 mt using a printing path characterized by non-horizontal layers. As a matter of fact, each layer is oriented to be perpendicular to stresses in order to maximize the structural performance.

**Stereoma**
DESIGNER/S: Giuseppe Fallacara
COLLABORATORS: Ilaria Cavaliere, Dario Costantino, Alessandro Angione, Sara D’Adamo, Teresa Lanzetta, Clara Rosa Romano, Clelia Santovito, Andrea Sgherza, Giuseppe Tota
UNIVERSITY: Polytechnic of Bari, FabLab Poliba
AFFILIATED COMPANIES: Stilmarmo Srl, CNC Design, Tarricone Prefabbricati, Mapei SpA
The central set-up of the Marmomac Meets Academies exhibition consists of a suspended "vault" composed of artificial coral breccia pieces hanging from the ceiling with a precise geometric scheme. The research consists of three fundamental aspects: the first is related to the possibility of artificially replicating natural coral breccia using specific aggregates, binders and additives; the second is related to the possibility of recreating the appearance of a vaulted space, controlling the global geometry of the dome and the points of attachment to the attic; the third refers to the desire of interpreting the Greek term *stereoma* (firmament in Latin, i.e. the starry sky, the place where stars are fixed in an infinite space) focusing on its fundamental elements that are the fixed stars suspended in the dome of the sky. The pieces made of recomposed breccia are internally equipped with fragments of recycled glass which lights up when touched by light artificial or natural lights, simulating the shine of the stars. The term stereotomy derives from the term stereoma and it is used to indicate the discipline that deals with the scientific cutting of stones in order to build vaulted spaces. Finally, the recomposed coral breccia is very similar to the coral breccia of Castel del Monte and it

can be indeed considered as a sort of tribute to this monument built in Puglia by Emperor Frederick II of Swabia in 1240.

**134**
DESIGNER: Vincenzo Minenna
UNIVERSITY: Politecnico di Bari, CDLM Industrial Design
COLLABORATORS: Andrea Lenoci, Elisabetta Valente, Andrea Yiaghis
AFFILIATED COMPANIES: ARTEDIL, Apricena & Helios Automazioni, San Salvo
The project is based on design-driven innovation and in particular through the process of aesthetic innovation and meaning of the stone product. This process is the result of a new formal interpretation whose aim is to make the product different, i.e. immediately recognisable and, consequently, attractive. "To achieve this, the designer manipulates morphological characteristics such as shape, colour, finish, materials, and the relationship between parts" (Chen, K. and Owen, C. L. (1997). Aesthetic innovation has also been called 'language innovation' (Verganti, 2003) or 'semiotic innovation' (Peirce, 1991), referring to the infinite expressive possibilities of a language. The innovation of meaning related to the emotional and symbolic aspects of the product is to be considered the most interesting for the stone sphere, which by its very nature has some peculiar characters and synaesthetic elements that are recurrent or of new interpretation. Specifically, table 134 seeks to define, through the "fold", the constitution of the soul and the modern experience. The stone material bends, unfolds, folds, bringing the table to a monad in which the visual composition, dense with arithmetic relationships and "chords" contribute to the creation of that new harmony different from the formal archetype and meaning of the table. The stone material, among natural materials, has always been a bearer of technical and expressive qualities, qualities dictated by the special conditions of uniqueness and expressiveness that through the use of modern techniques and technologies continue to amaze us.

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