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01

Chapter

AIR Technology

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Quality, Versatility and Performance



GammaStone® is synonymous with creativity and excellence, the qualities that stem from our 50 years of experience in the stone industry and our tireless dedication in realizing high performance products. Clients from all over the world have certified our products in terms of quality, versatility, reliability and performance. With its extensive experience in the stone industry, our company highlights the materials and brings out the utmost quality using modern technology and engineering. Our panelized solutions can be made with a variety of materials such as natural stone, porcelain, glass, UHPC Plus and brick. Each solution is characterized by compactness, excellent technical characteristics, extraordinary resistance and incomparable aesthetics that complement any architectural style. The countless number of AIR Technology solutions fulfil any taste's desire; the panels are suitable for the outdoor and indoor of all classic and modern projects.

Our large-format panels are manufactured using the most sophisticated production technology in the world. The company is among the first ISO 9001 certified by IMQ (Istituto Italiano del Marchio di Qualità), Italy's most important certification body and a European leader in assessments and laboratory testing for safety, quality, and sustainability. GammaStone products are manufactured in compliance with the strict requirements of EOTA (European Organization for Technical Approval), the European institute that certifies product performance and sustainability.

GammaStone products have been nominated and granted with numerous awards based on their originality, innovation, and functionality. Research and development have been the key parameters to success in the production of large-format lightweight panels. GammaStone is well known for developing creative and industry-leading solutions in cladding. New product ideas, processes, and technologies are developed every day in GammaStone laboratories, which has enabled us to emerge as market leaders.

The world's safest lightweight panels

Over 200 tests in the bestleading European and American laboratories

The company has the ISO 9001 certification issued by IMQ (Istituto Italiano del Marchio di Qualità), Italy's most important certification body and a European leader in assessments and laboratory testing for safety, quality, and sustainability. Our products are a combination of visual, technical and design quality flawlessness. The reliability and aesthetic perfection of our surfaces and facades are now an undisputed fact, accredited by important international certifications for the full range of products.

PANEL GammaStone AIR

All GammaStone AIR panels (glass, stone Natural and porcelain tiles) have undergone the rigorous testing required by international regulations. The performance results are striking, all GammaStone AIR products have excellent design life and performance characteristics. The results also confirm that GammaStone AIR panels which are installed outdoors can resist in the most extreme conditions.

IMPACT STRENGTH

The test was performed in accordance with the standard guidelines:

- ETAG 034-1:2012 April 2012 "Guideline for European technical approval of kits for external wall claddings - Part I: Ventilated cladding kits Comprising cladding components and associated fixings
- UNI EN 14019:2004 01/11/2004 of Curtain walling - Resistance to impact
- Performance requirements

Also this test proved extraordinary results. The panel resists to impacts by of 0.5 and 1 kg hard body and 50 kg soft body.

TEST REPORT No. 309029

GammaStone AIR FAÇADE SYSTEM

To ensure maximum safety, the GammaStone AIR façades have been subjected to rigorous tests required by the ETAG standard guidelines, conducted at the Istituto Giordano.

The sample under test is a portion of the ventilated façade with concealed hangers which consists of the supporting structure in extruded aluminum profiles and brackets, an external cladding of 3000x1000 mm sandwich panels with 15mm thickness finished with gres porcelain tiles.

WIND LOAD RESISTANCE







The test was performed in accordance with the EOTA standard guideline (European Organisation for Technical Approvals) ETAG 034-1:2012 April 2012 "Guideline for European technical approval of kits for external wall claddings - Part I: Ventilated cladding kits comprising cladding components and associated fixings." The sample was mounted on the test bench and was subjected to the test of resistance to wind load in depression, with measurement of the deformations under load and detection of residual deformations according to paragraph 5.4.1 "Wind load resistance" ETAG 034-1 : 2012. The test results proved to be exceptional in depression 4610 Pa (470 kg/sqm). **TEST REPORT No. 309028**



AIR Technology

GammaStone AIR patented panels are produced by state-of-the-art manufacturing equipment that enables the production of lightweight panels in natural stone, porcelain, glass, UHPC Plus, and brick in large-format sizes up to 4200x1500mm (approx. 13x5 feet). GammaStone AIR panels are extremely lightweight and have very high resistance to impact, bending, and compression from the use of innovative materials that are used in the aerospace industry.

GammaStone AIR panels represent a state-of-the-art solution that guarantees high-performance standards and unparalleled aesthetic beauty. The GammaStone AIR system enables the designer to specify large-format panels with confidence. The panels are anchored mechanically allowing simple attachment to the substrate. The resistance to wind load is greatly superior to any technical requirement imposed by the current regulations even in climatic zones subject to weather extremes such as monsoons and hurricanes. The GammaStone AIR product is protected by patent (Patent No. RM2013A000068).

	Large format up to 4200x1600 mm		Acoustic insulation and protection from water		Impact Resistant
	Lightweight (weight of 14 kg/sqm)		Re-qualification of buildings		Bending Resistant
	A concealed or visible fixing solution		Functionality and Aesthetics		Resistant to thermal shocks
	Safety (maximum safety with mechanical anchorage)		Easy to maintain		Resistance in Neutral Salt Spray NSS
	Easy Handling		Panel edges of the same tone as the panelling material		Resistant to hurricanes
	Easy Installation		Minimal vertical and horizontal joints of 5 mm		High Performance
	Energy Saving		Monolithic effect (variable finishing for external corners)		Customisable Solutions
	Insulation from atmospheric agents		Easy to cut and trim		Monolithic architectural elements

Panels of surprising lightness

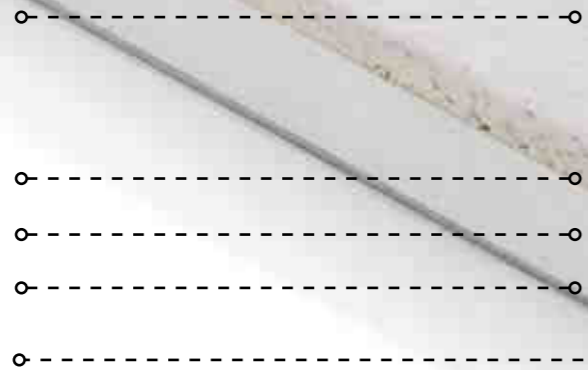
UHPC Plus / Natural
Brick / Glass / Gres

Fiberglass

Structural Core

Fiberglass

Stainless Steel

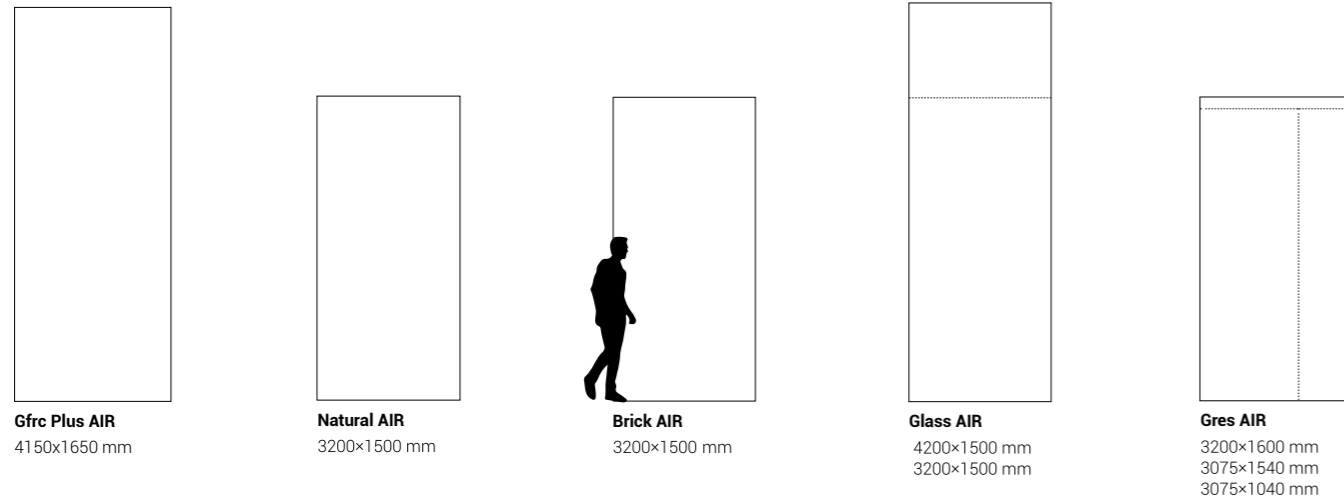



Lightweight
(weight of 14 kg/sqm)


Bending
Resistant

The structural core foam, which is mainly used in aerospace applications, provides the GammaStone AIR ventilated facade system lightness which is impossible to achieve with other materials. GammaStone AIR panels have excellent technical characteristics, which enable extraordinary finishes and are increasingly being incorporated in projects by internationally renowned architects and designers who always experiment with new aesthetic and architectural solutions. GammaStone AIR system is suitable for any type of structure and purpose of interior and exterior use.

Large format up to
4200x1600 mm



High resistance to impacts, bending, and compression thanks to the use of excellent and innovative materials.

State-of-the-art solutions that guarantee high performance standards and offers an unparalleled aesthetic beauty.

Extremely light slabs thanks to the stratification pressed to 10,000 kg/sqm with the structural core that makes the panel even more compact and elastic.

Easy installation compared to other products — a direct result of the lightness of the panels.

Large Format Panels



↓ EU

UHPC Plus AIR

Max panel sizes: 4150x1650 mm (6,84 m²)
Total panel thickness: 16 mm
UHPC thickness: 5 mm
Panel weight: 18 kg/m²

Natural AIR

Max panel sizes: 3200x1500 mm (4,80 m²)
Total panel thickness: 17; 21; 22; 23 mm
Stone thickness: 6; 10; 11; 12 mm
Panel weight: 25; 30; 35; 36 kg/m²

Brick AIR

Max panel sizes: 3000x1000 mm (3,00 m²)
Total panel thickness: 19; 18÷23; 27; 32 mm
Brick thickness: 7; 6÷11; 15 mm
Panel weight: 17; 27÷30; 22 kg/m²

Glass AIR

Max panel sizes: 4200x1500 mm (6,30 m²)
Total panel thickness: 17 mm
Glass thickness: 6 mm
Panel weight: 21 kg/m²

Gres AIR

Max panel sizes: 3200x1600 mm (5,12 m²)
Total panel thickness: 14; 16; 17 mm
Ceramic thickness: 3; 5; 6 mm
Panel weight: 14; 19; 21 kg/m²

↓ USA

UHPC Plus AIR

Max panel sizes: 163-25/64"x 64-61/64" (73.67 ft²)
Total panel thickness: 5/8"
UHPC thickness: 13/64"
Panel weight: 39.7 lb/sqft

Natural AIR

Max panel sizes: 125-63/64"x59-1/16" (52.42 ft²)
Total panel thickness: 43/64"; 53/64"; 55/64"; 29/32"
Stone thickness: 15/64"; 25/64"; 7/16"; 15/32"
Panel weight: 55.1; 66.2; 77.2; 79.4 lb/sqft

Brick AIR

Max panel sizes: 118-7/64"x39-3/8" (32 ft²)
Total panel thickness: 3/4"; 45/64"÷29/32"; 1-1/16"; 1-17/64"
Brick thickness: 9/32"; 15/64"÷7/16"; 19/32"
Panel weight: 3.5; 5.5÷6.1; 4.5 lb/sqft

Glass AIR

Max panel sizes: 165-23/64"x59-1/16" (67.81 ft²)
Total panel thickness: 43/64"
Glass thickness: 15/64"
Panel weight: 46.3 lb/sqft

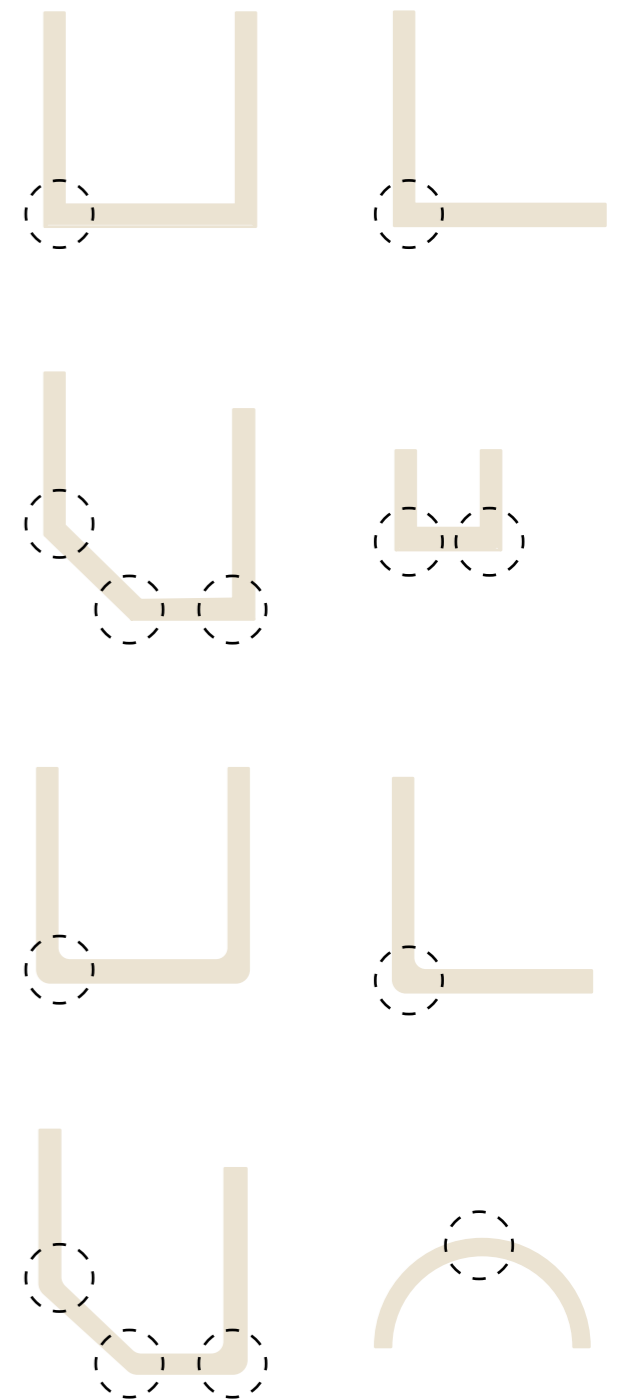
Gres AIR

Max panel sizes: 125-63/64"x62-63/64" (55.11 ft²)
Total panel thickness: 35/64"; 5/8"; 43/64"
Ceramic thickness: 1/8"; 13/64"; 15/64"
Panel weight: 30.9; 41.9; 46.3 lb/sqft

Architectural monolithic elements

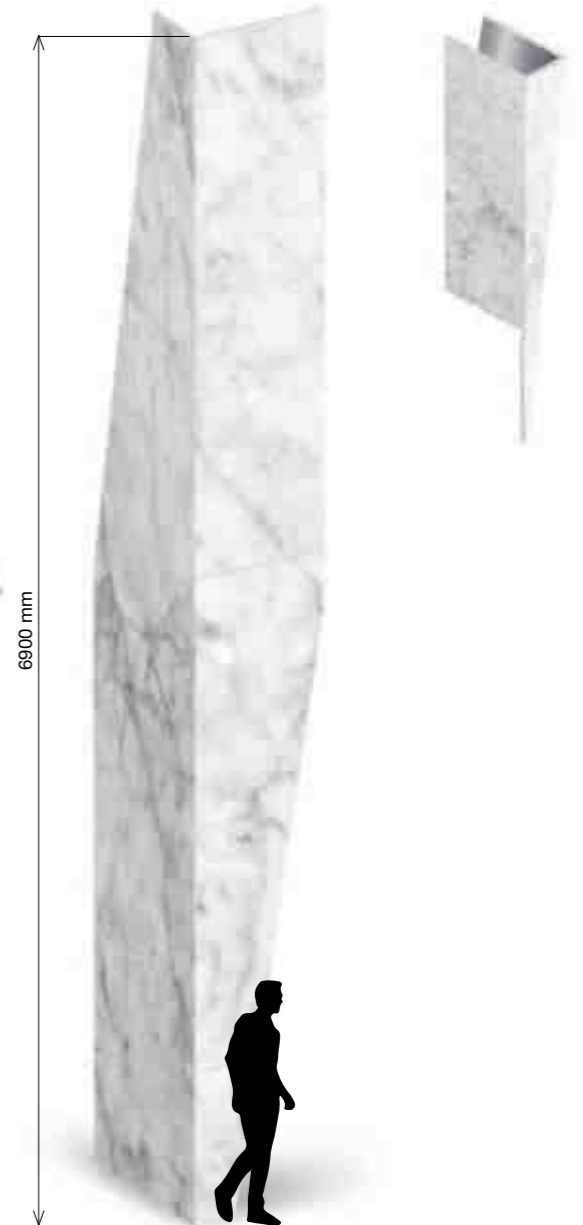
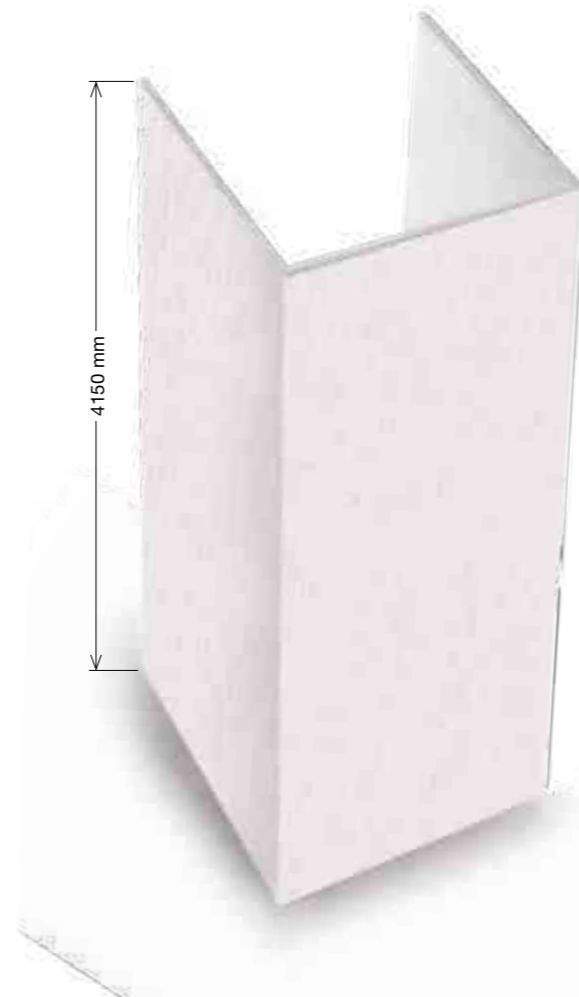


⬇ Shapes



STATE-OF-THE-ART SOLUTIONS

The GammaStone AIR system enables designers to choose large-format lightweight panels with confidence. The panels are anchored mechanically either with concealed or visible fixings allowing simple attachment to the substrate. The main feature of the GammaStone AIR system is the high level of workability and usage flexibility; the panels can be cut at different angles, adhered with structural epoxy adhesives, and reinforced by metal angles to form a single monolithic architectural element able to meet the most varied aesthetic and functional requirements. These unique panels allow us to manufacture false beams or columns with complex and even irregular shapes or revitalize existing buildings with a new aesthetics. These items are manufactured entirely in our factory and delivered ready for installation on site.



02

Chapter

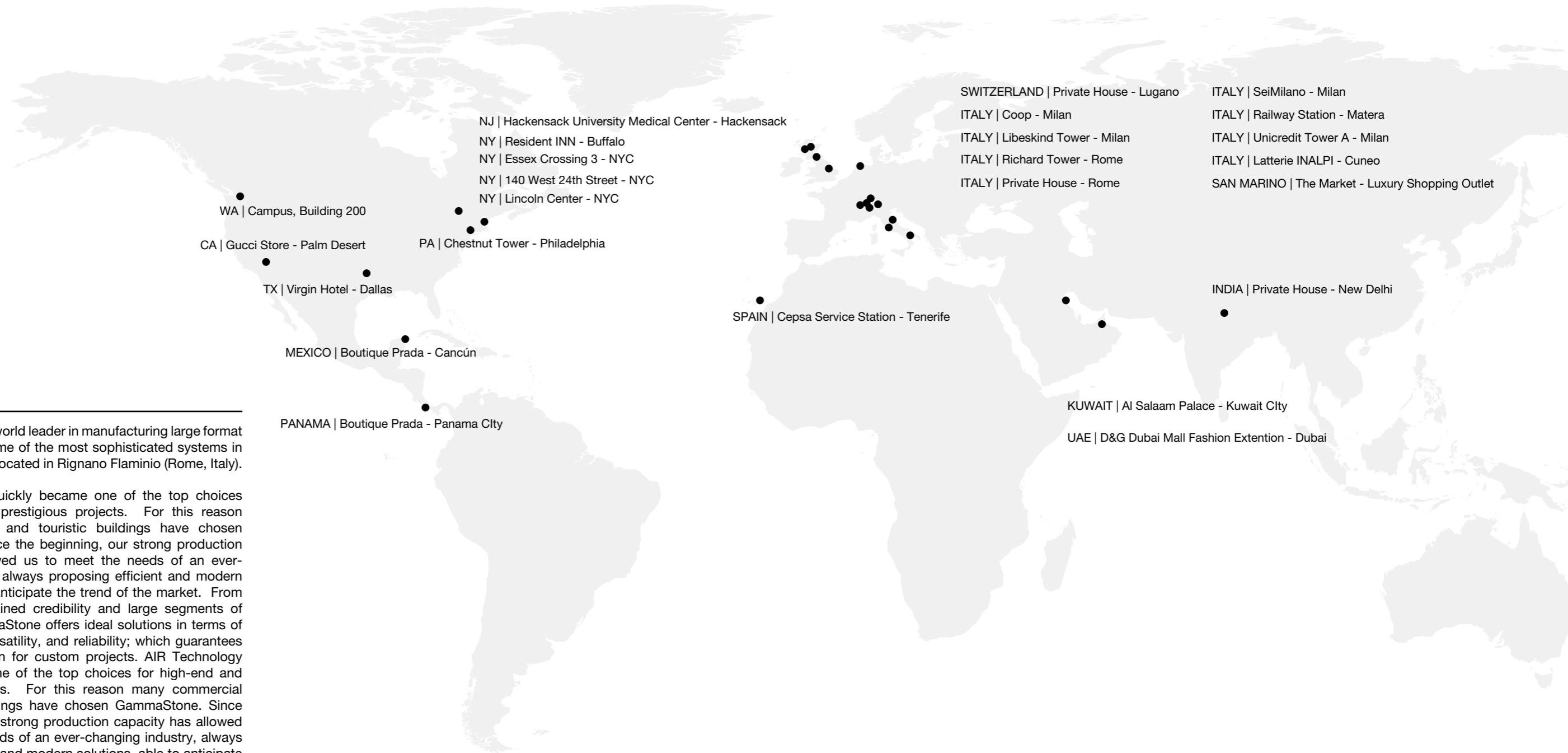
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Our Projects in the world

- UK | Greenhead College - Huddersfield
- UK | Student Residence - Glasgow, Scotland
- UK | Student Residence - Edinburgh, Scotland
- UK | Cavendish House - Norwich
- UK | Student Residence VITA - Newcastle
- NETHERLANDS | Boutique Prada - Amsterdam
- ITALY | Residential Building - Milan
- ITALY | Symbiosis - Milan
- ITALY | Reale Mutua Assicurazioni Offices - Turin
- ITALY | Piedmont Region Headquarters - Turin
- ITALY | CR Park Shopping Center - Cremona
- ITALY | Museo Paleontologico Territoriale dell'Astigiano - Asti



GammaStone is a world leader in manufacturing large format panels and has some of the most sophisticated systems in the world. We are located in Rignano Flaminio (Rome, Italy).

AIR Technology quickly became one of the top choices for high-end and prestigious projects. For this reason many commercial and touristic buildings have chosen GammaStone. Since the beginning, our strong production capacity has allowed us to meet the needs of an ever-changing industry, always proposing efficient and modern solutions, able to anticipate the trend of the market. From this we have obtained credibility and large segments of the market. GammaStone offers ideal solutions in terms of quality, design, versatility, and reliability; which guarantees the perfect solution for custom projects. AIR Technology quickly became one of the top choices for high-end and prestigious projects. For this reason many commercial and touristic buildings have chosen GammaStone. Since the beginning, our strong production capacity has allowed us to meet the needs of an ever-changing industry, always proposing efficient and modern solutions, able to anticipate the trend of the market. From this we have obtained credibility and large segments of the market. GammaStone offers ideal solutions in terms of quality, design, versatility, and reliability; which guarantees the perfect solution for custom projects.



GammaStone is participating in a modern urban and landscape redevelopment project in Milan, SeiMilano. A contemporary neighborhood, an “inhabited park” at the service of the city. A new place to live, not only for residents but for all citizens.

SeiMilano is the result of the partnership between Borio-Mangiarotti and Värde Partners to create a multifunctional district integrated into a park, designed by Studio Mario Cucinella Architects (MC A) and by the International Landscape Designer Studio Michel Desvigne (MDP).

The exterior design is unique and extremely original characterized by a mosaic of perfectly white windows and facades that come together to create an unparalleled geometric pattern. In the choice of materials, the designers favored resistance and respect for nature.

The external cladding of the two buildings is made with the innovative GammaStone UHPC Plus AIR solution in white Bergen finish. The panels, which reach a maximum size of 1000x4000 mm, cover the structure like a real architectural skin.



THE MARKET

Architectural design:
One Works

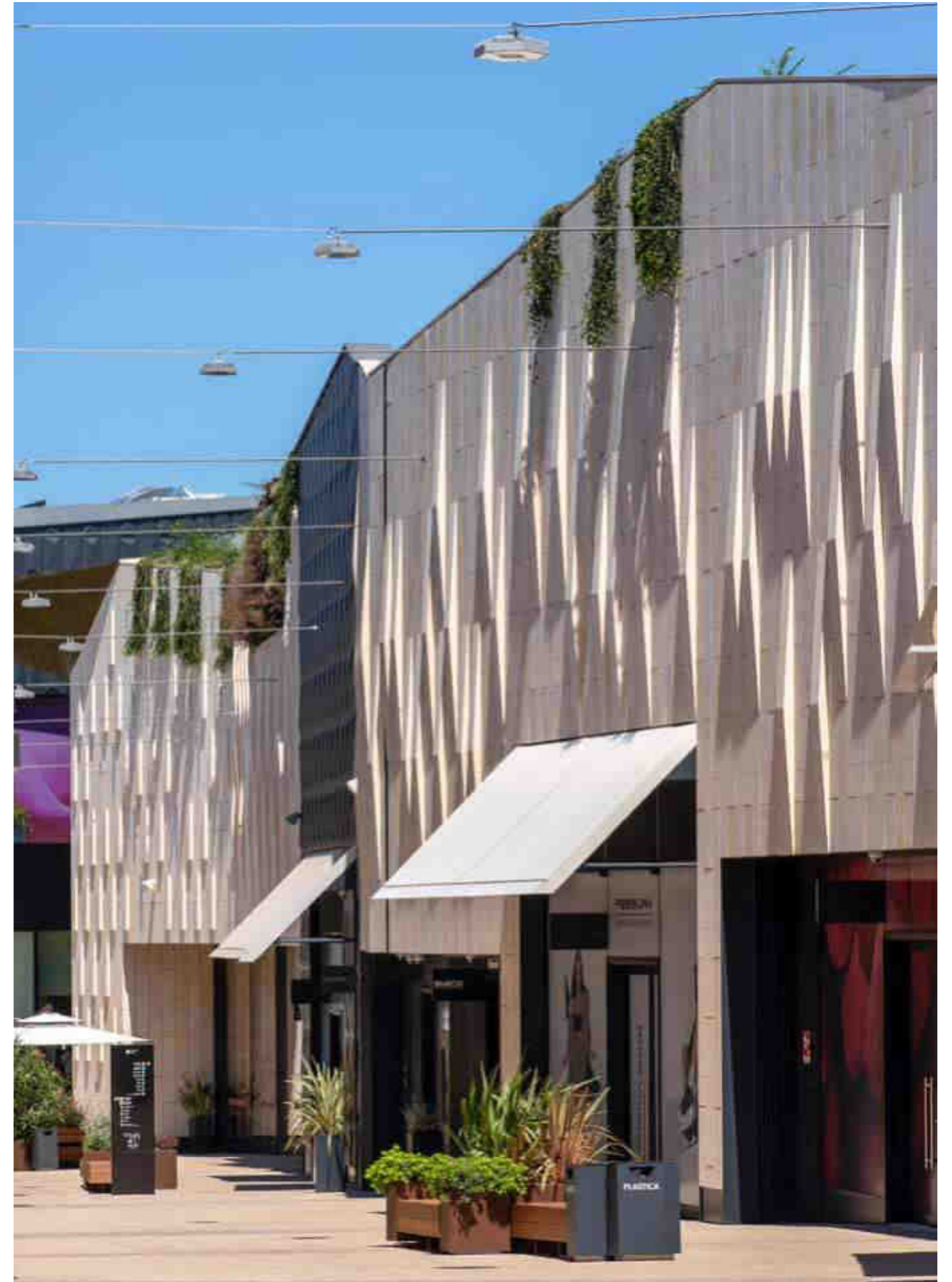
The Market – a luxury shopping center in the Republic of San Marino – featuring the Natural AIR system with Vicenza stone to achieve the architect's unique vision, incorporating perforations, reliefs, and other detailed elements. This large development consists of multiple buildings that wind along the site's natural topography.

Natural AIR

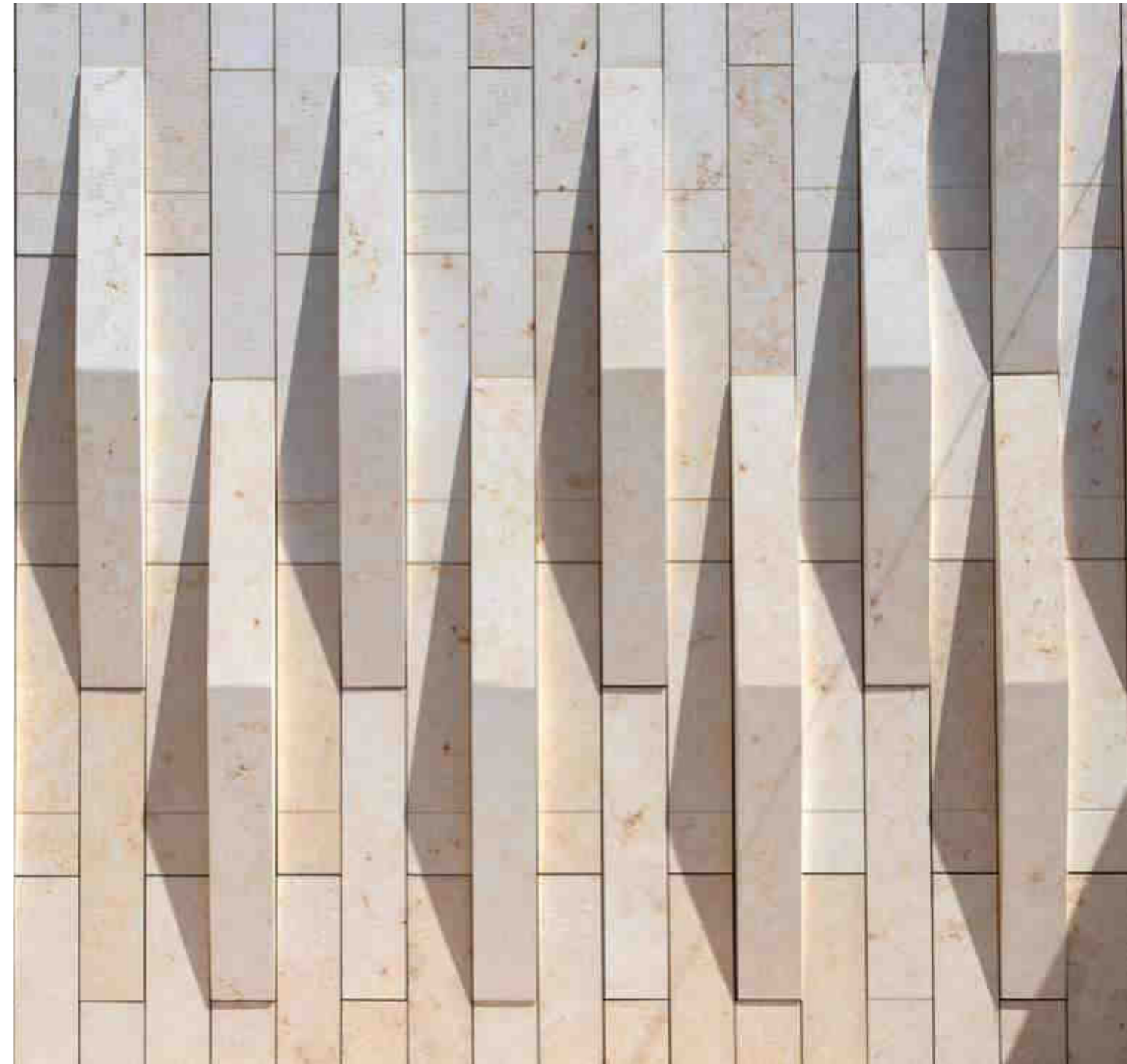


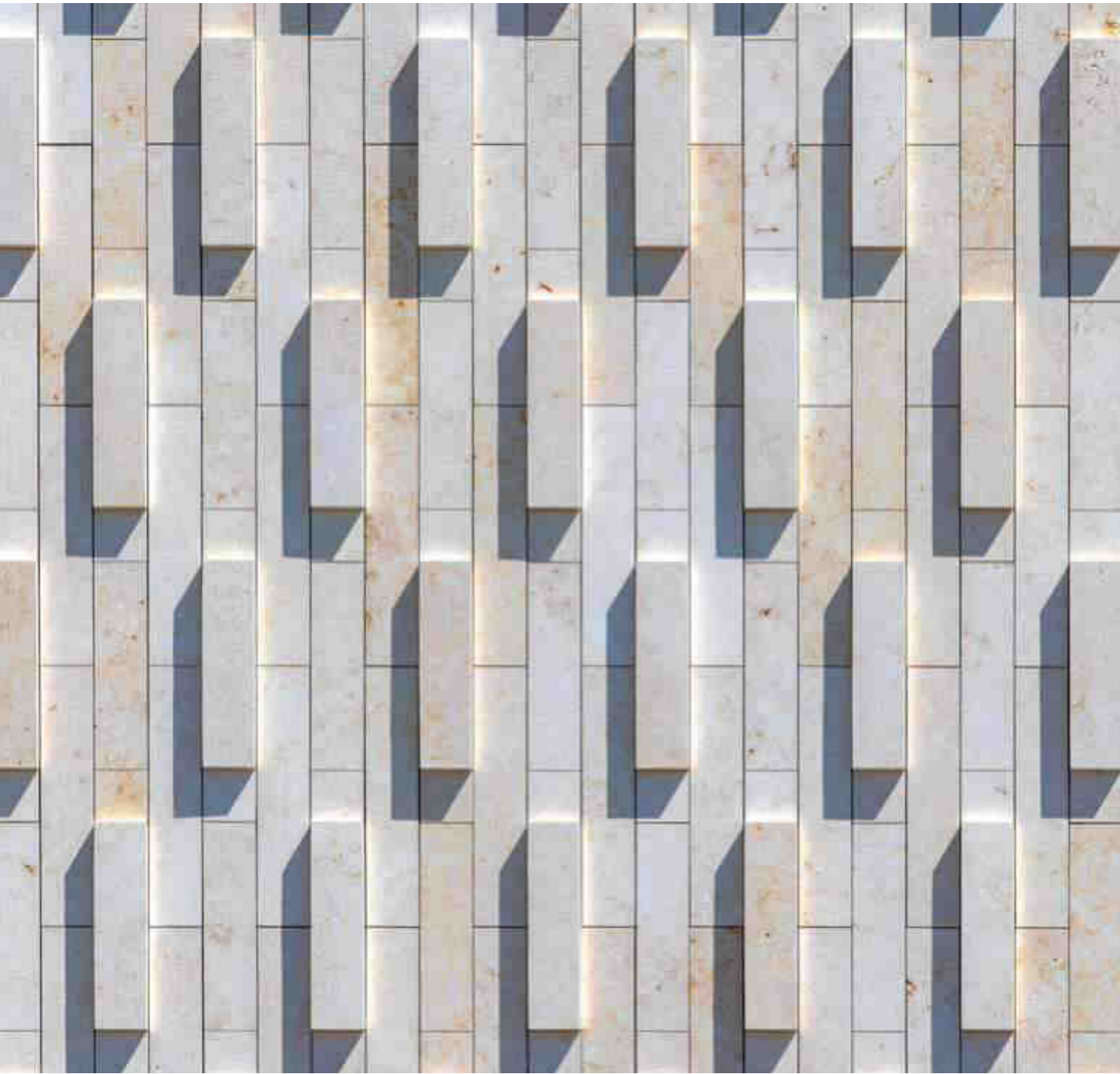
GammaStone Natural AIR
Vicenza Stone

The Market -
Luxury Shopping Outlet
San Marino
43°55'55.24"N
12°26'54.42"E











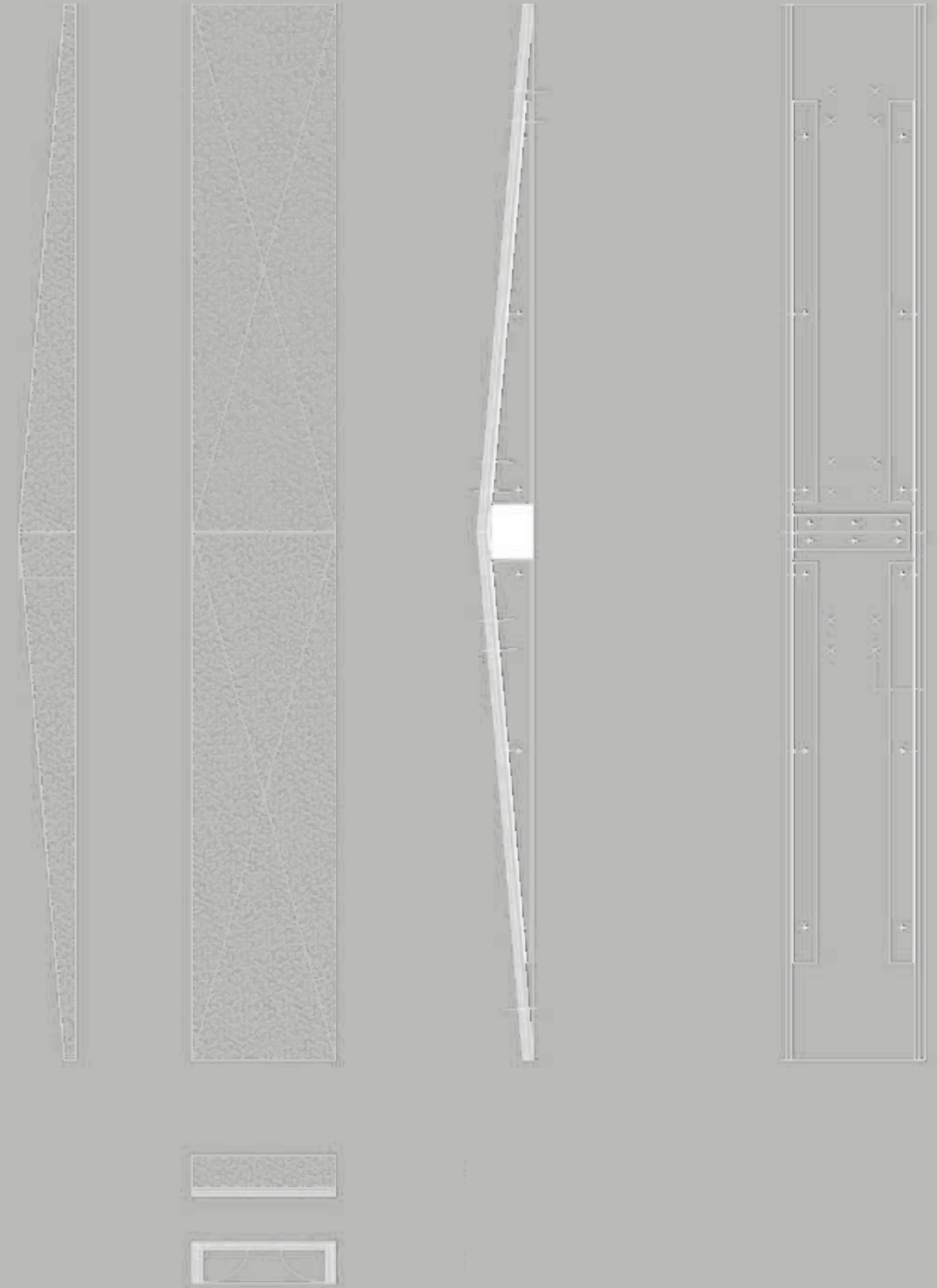


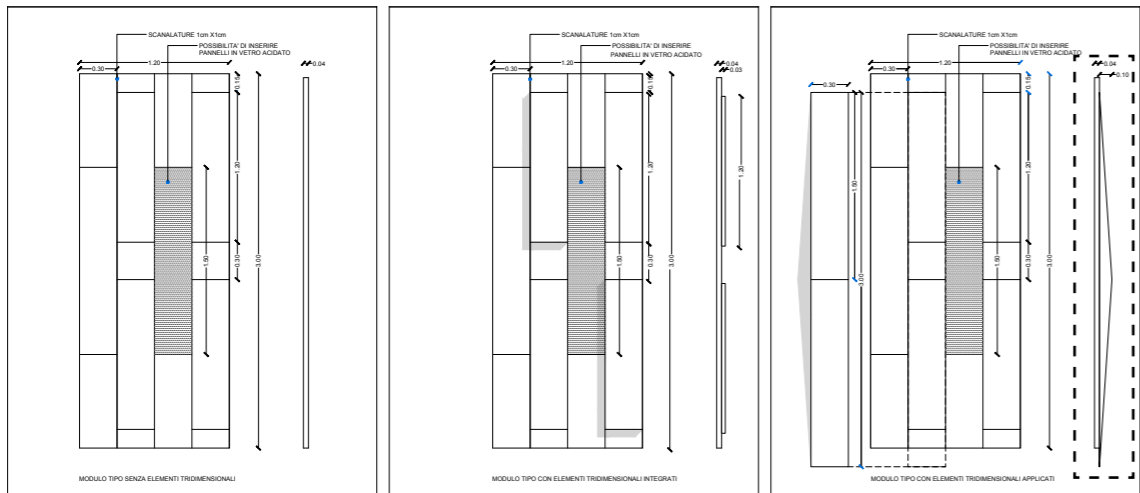


GammaStone Natural AIR
Ashlar in Vicenza Stone
Width: 300 mm
Height: 1200 mm
Depth: 80 mm



Covering an area of roughly 25,000 square meters, The Market is a modern architectural development which respects the context of San Marino in terms of shapes, materials, and colors. It reflects the characteristics of the historic center of the capital. Also respecting the environment, the planning and construction were planned in accordance with the very strict international BREEAM certification.

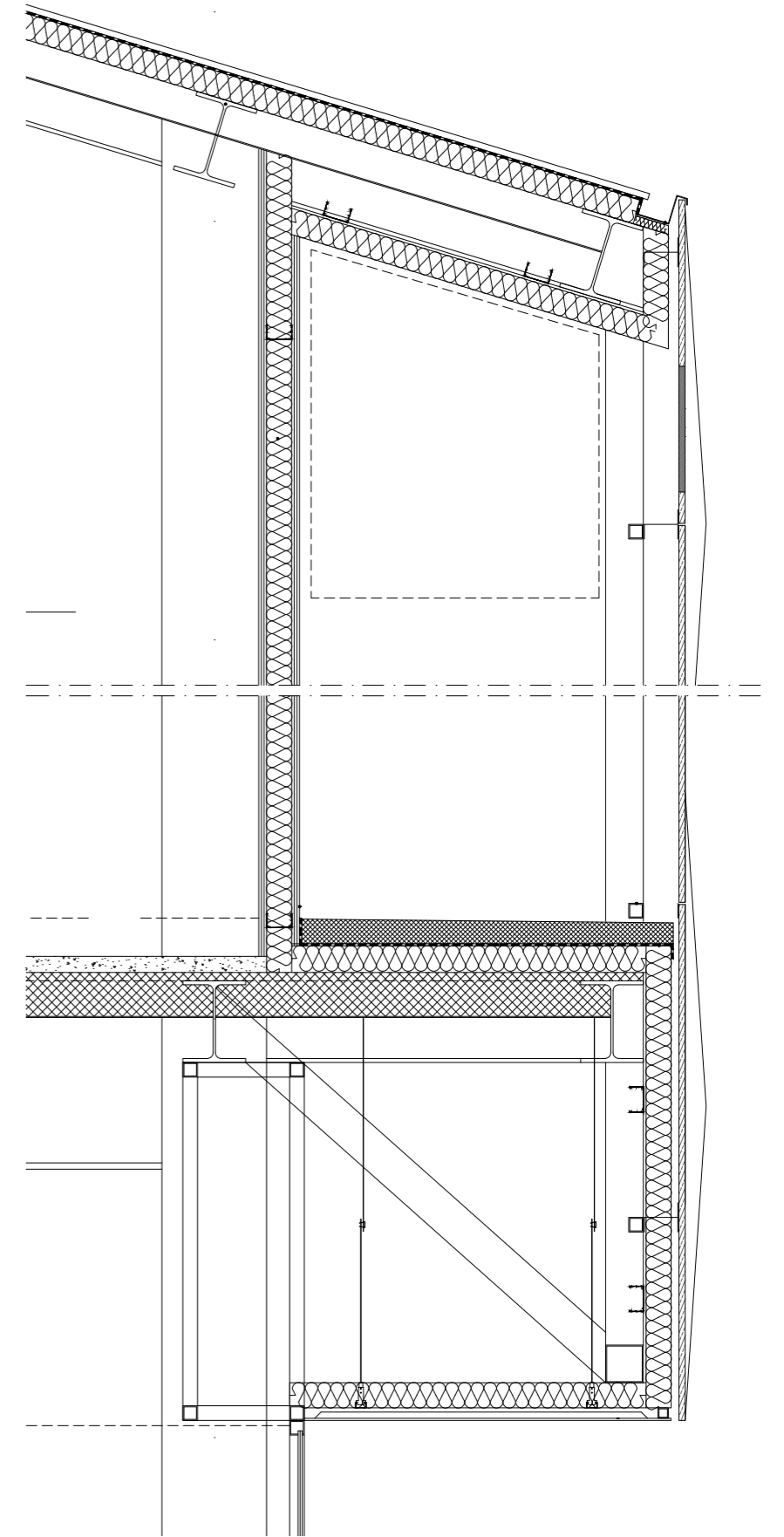


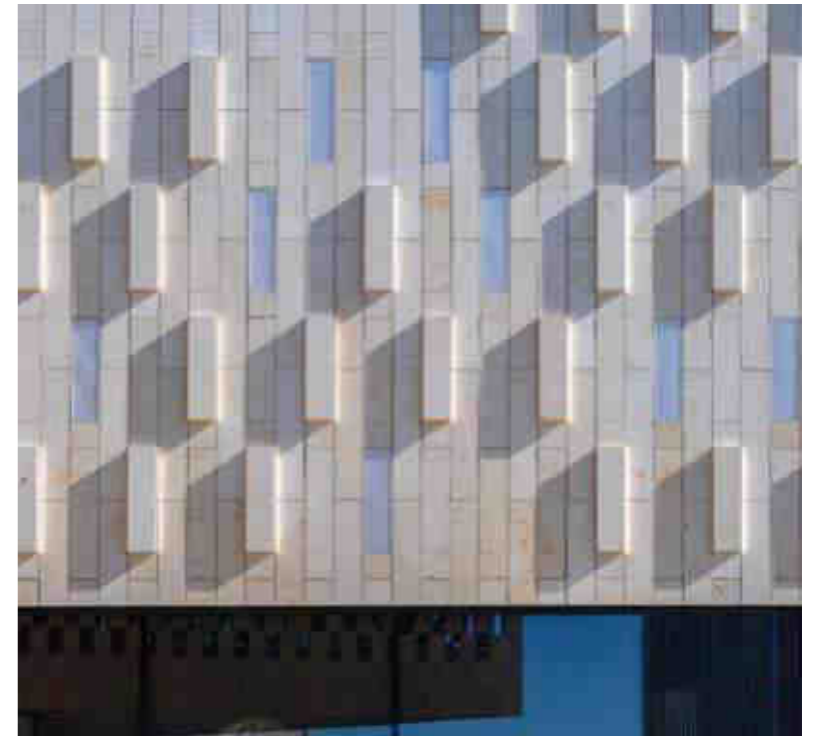


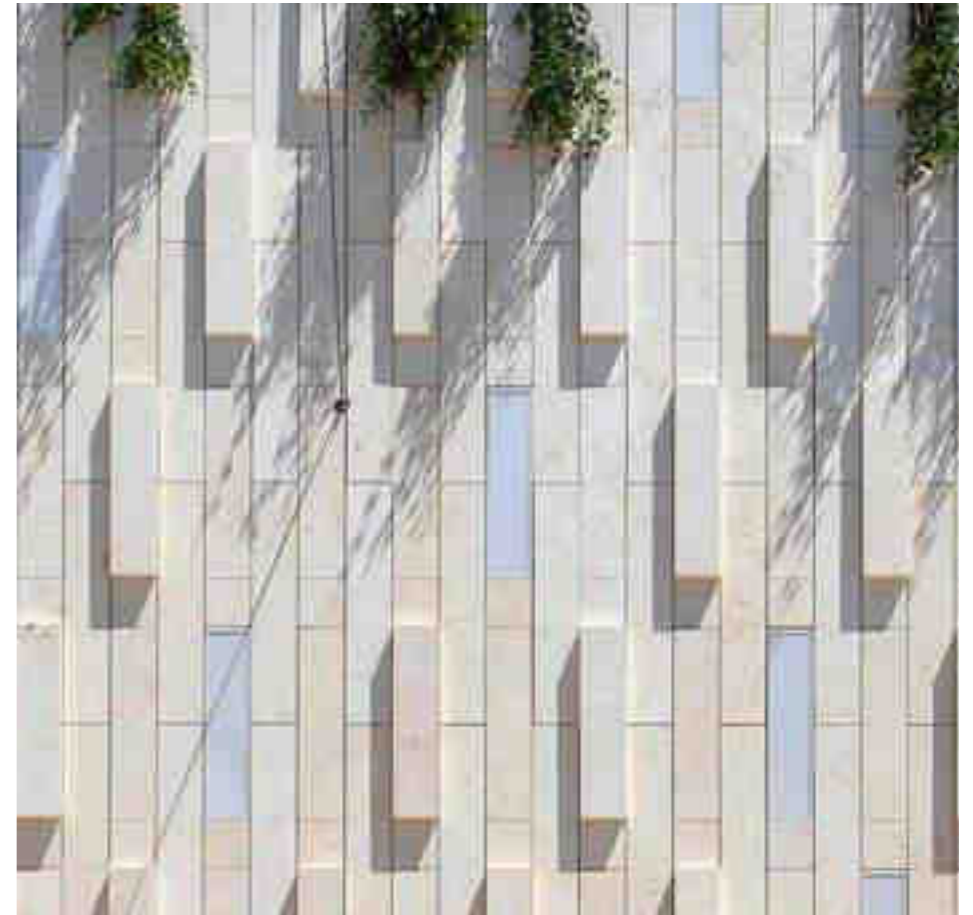
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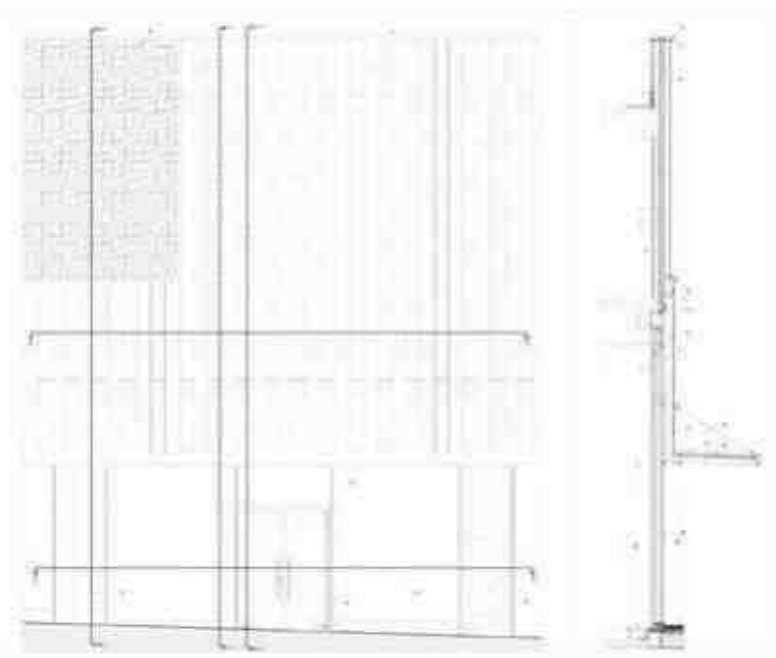
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NEW YORK

THE STRONG

Architectural design:
CJS Architects

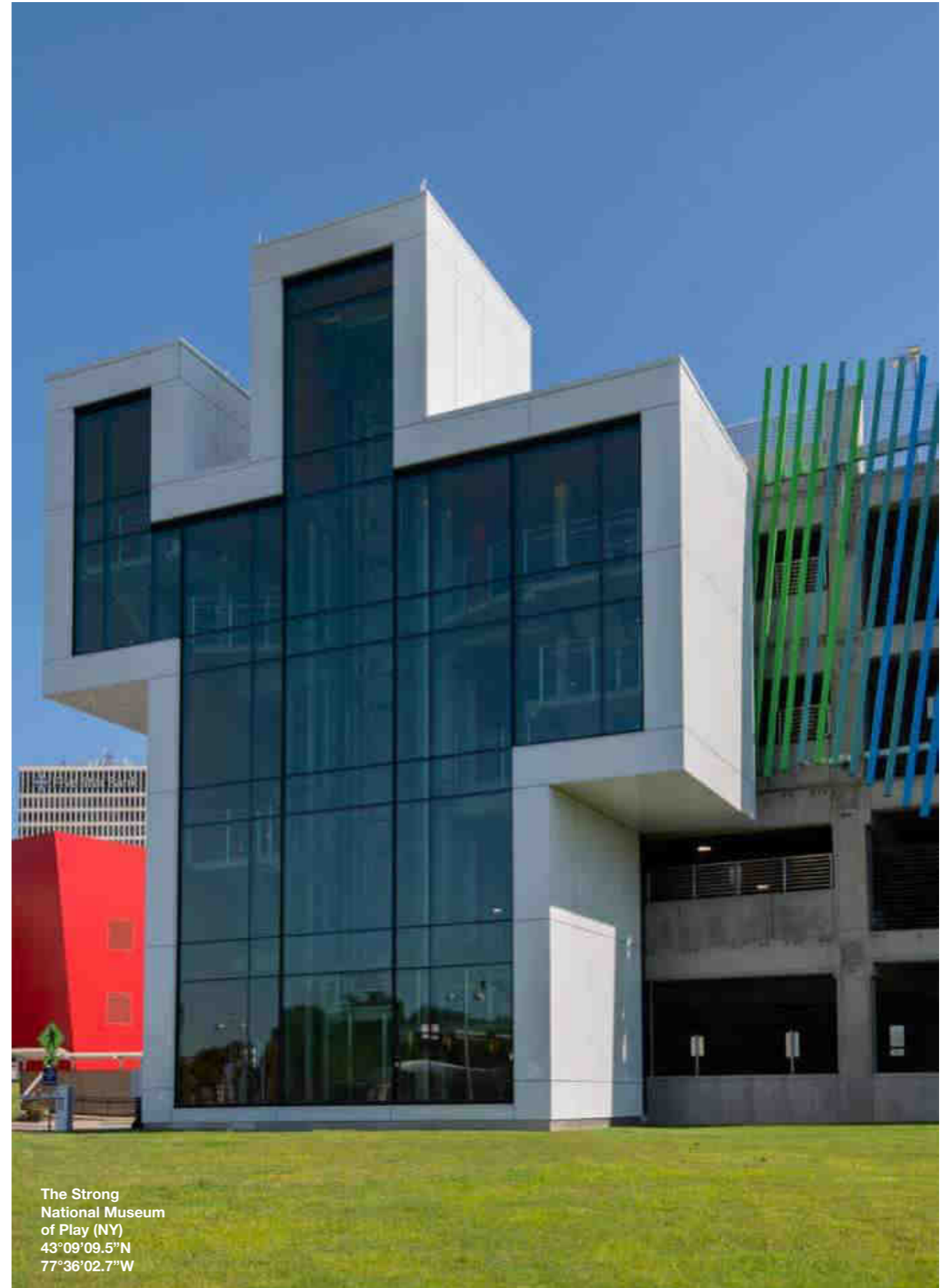
The Strong is a highly interactive, collections-based museum devoted to the history and exploration of play. It is one of the largest history museums in the United States and one of the leading museums serving families. The Strong houses the world's largest and most comprehensive collection of historical materials related to play.

GammaStone Glass AIR
- Optical White
- Blue
- Orange

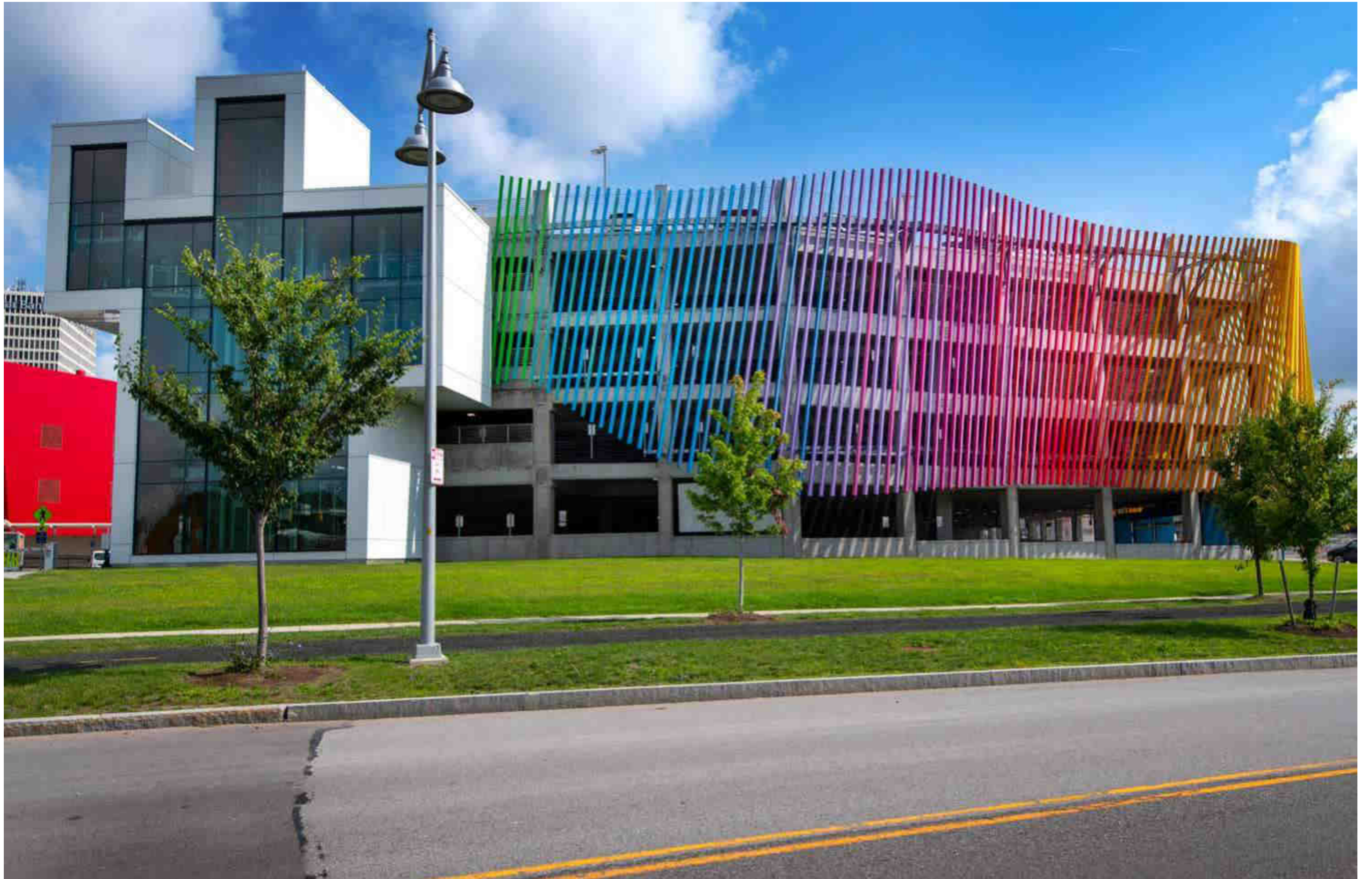
Glass AIR



GammaStone Glass AIR
- Optical White
- Orange
- Blue



The Strong
National Museum
of Play (NY)
43°09'09.5"N
77°36'02.7"W

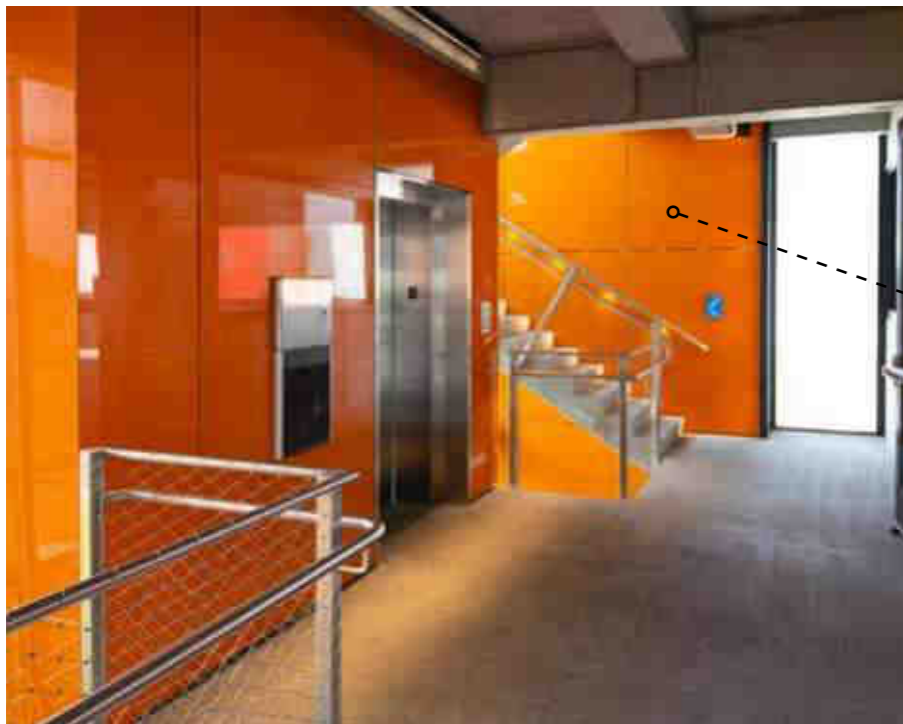




*GammaStone Glass AIR
Blue*

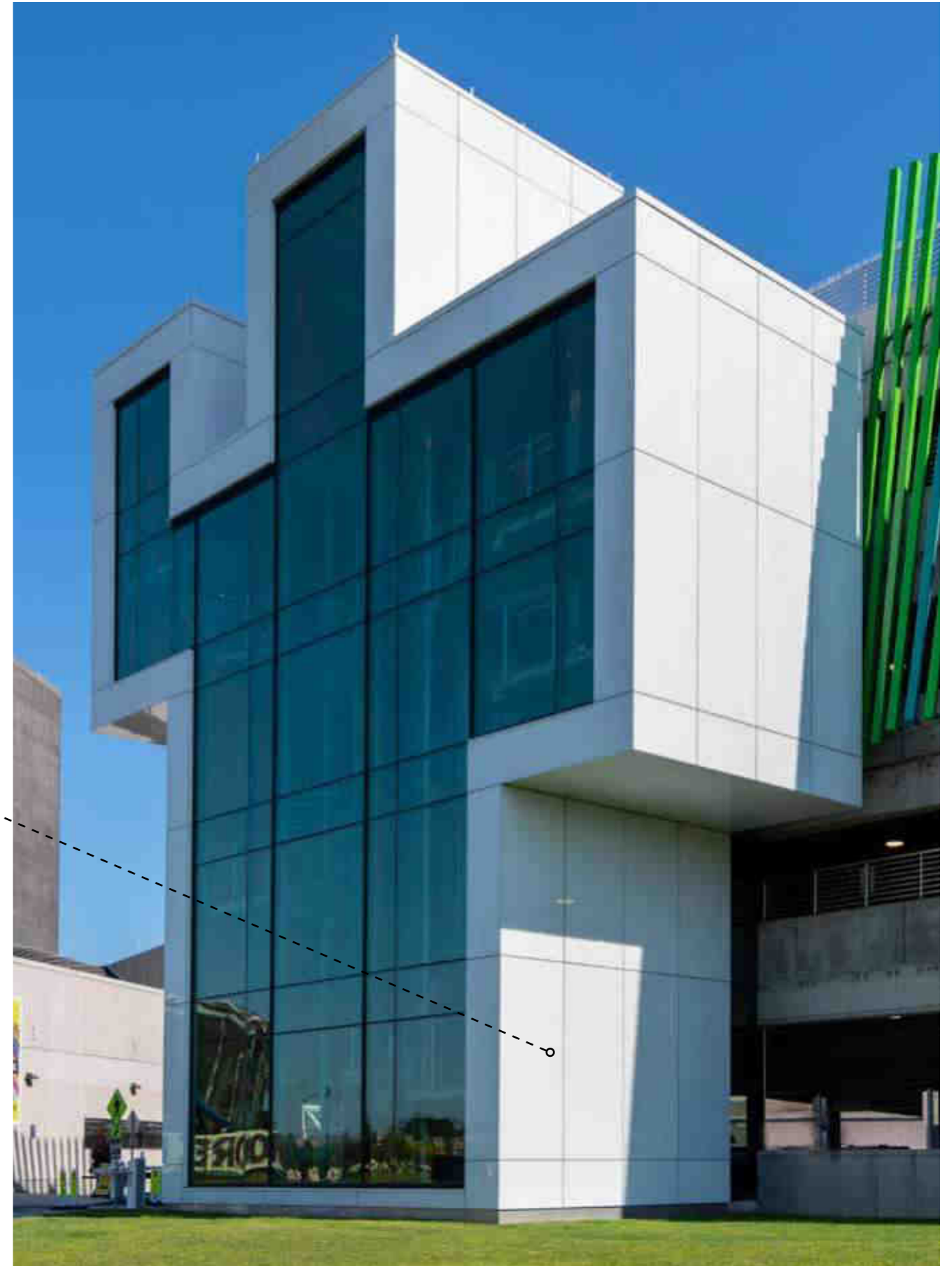
GammaStone supplied the flat glass panels in white, light blue and orange. White and blue were applied for the geometric structure and garage entrance, respectively, while orange was applied to the interior of the museum. Our flat panels achieved a perfect balance with the rainbow of strips, creating a fantastic color play!

The GammaStone Glass AIR panels reached the maximum size of 4200x1500 mm.

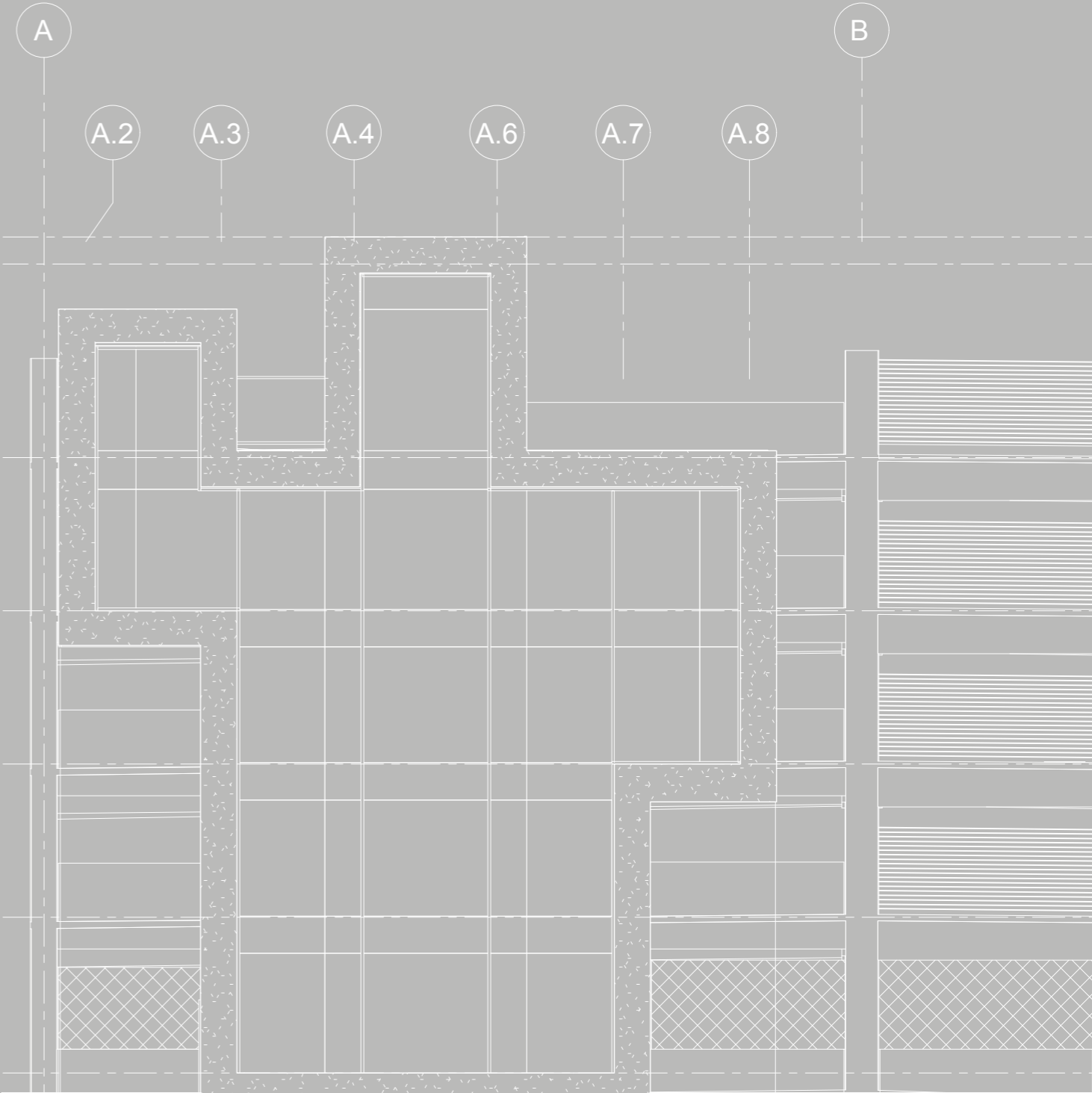


*GammaStone Glass AIR
Optical White*

*GammaStone Glass AIR
Orange*







BUILDING

HACKENSACK, NY

HACKENSACK UNIVERSITY MEDICAL CENTER / HUMC

Architectural design:
RSC Architects

Natural AIR



GammaStone NATURAL AIR
Roman Travertine

Hackensack
University Medical Center
(HUMC)
40° 53' 7.974" N
74° 3' 25.887" W





Hackensack University Medical Center (HUMC), one of two flagship Academic Medical Centers within the Hackensack Meridian Health System, is constructing a new critical care and surgical pavilion that will improve their quality of care.

The facades of the building will be made with GammaStone Natural AIR panels made of travertine marble.

The aura of eternity guaranteed by the Roman Travertine is well known throughout the world. This project effectively proves that tradition and innovation can be combined to provide an impressive aesthetic result together.

The Helena Theurer Pavilion will be a new, eleven-story, 530,000 s.f. building that will encompass 24 state-of-the-art operating rooms, with six robotic operating rooms and an intra-operative MRI; 50 intensive care patient rooms; 100 medical/surgical private patient rooms; and a 50-bed orthopedic institute with a CT scanner. Its design also provides future flexibility for the hospital, with a shell space for an additional twenty-five intensive care patient rooms. Spanning over an existing public roadway, the facility connects to an existing parking garage, the Heart and Vascular Institute, and the existing main hospital. A new lobby and valet drop-off will create a dedicated entrance for the critical care and surgical pavilion, and the project's new single-patient rooms will provide the hospital with the flexibility to modernize their existing patient rooms from semi-private to private rooms.

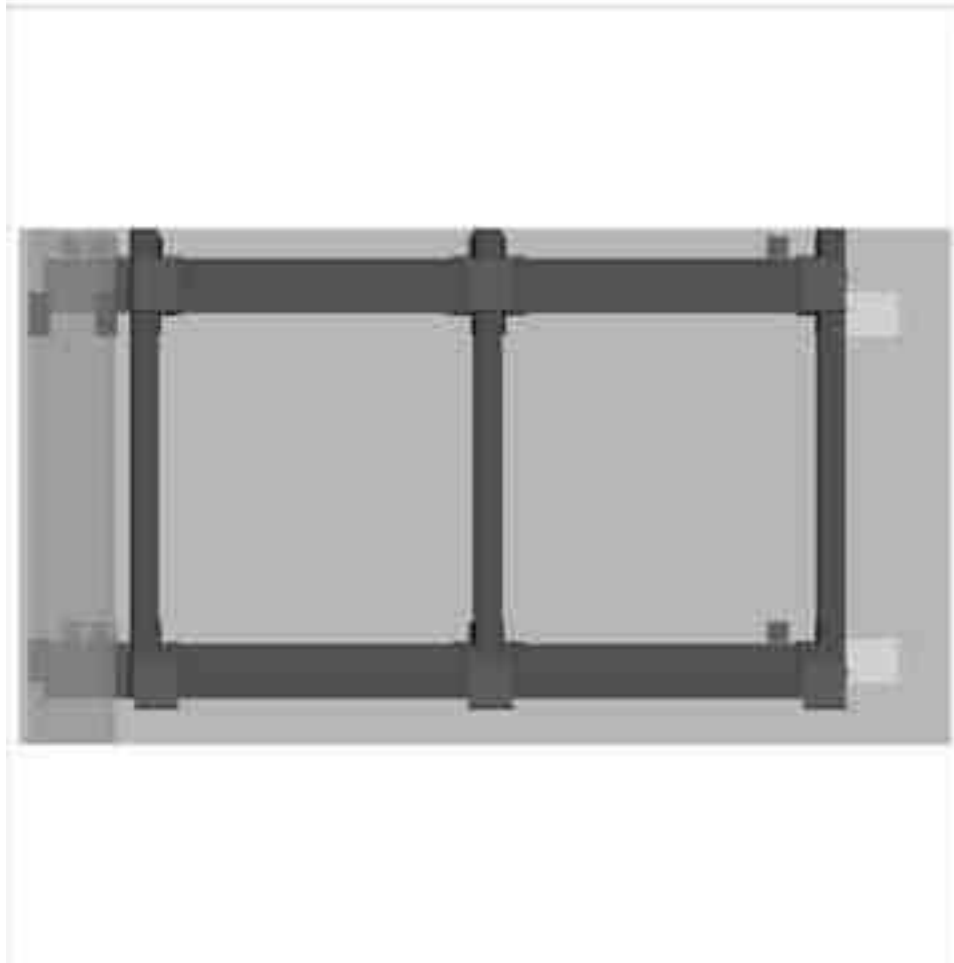
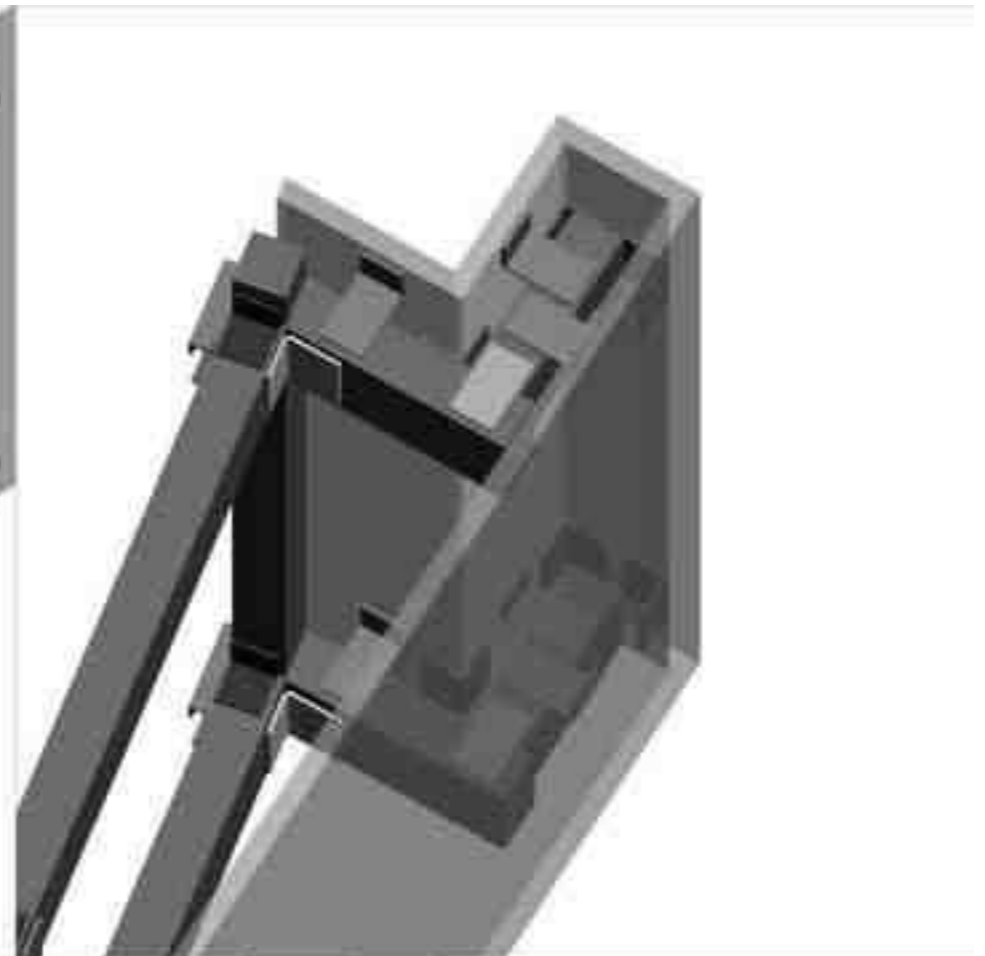
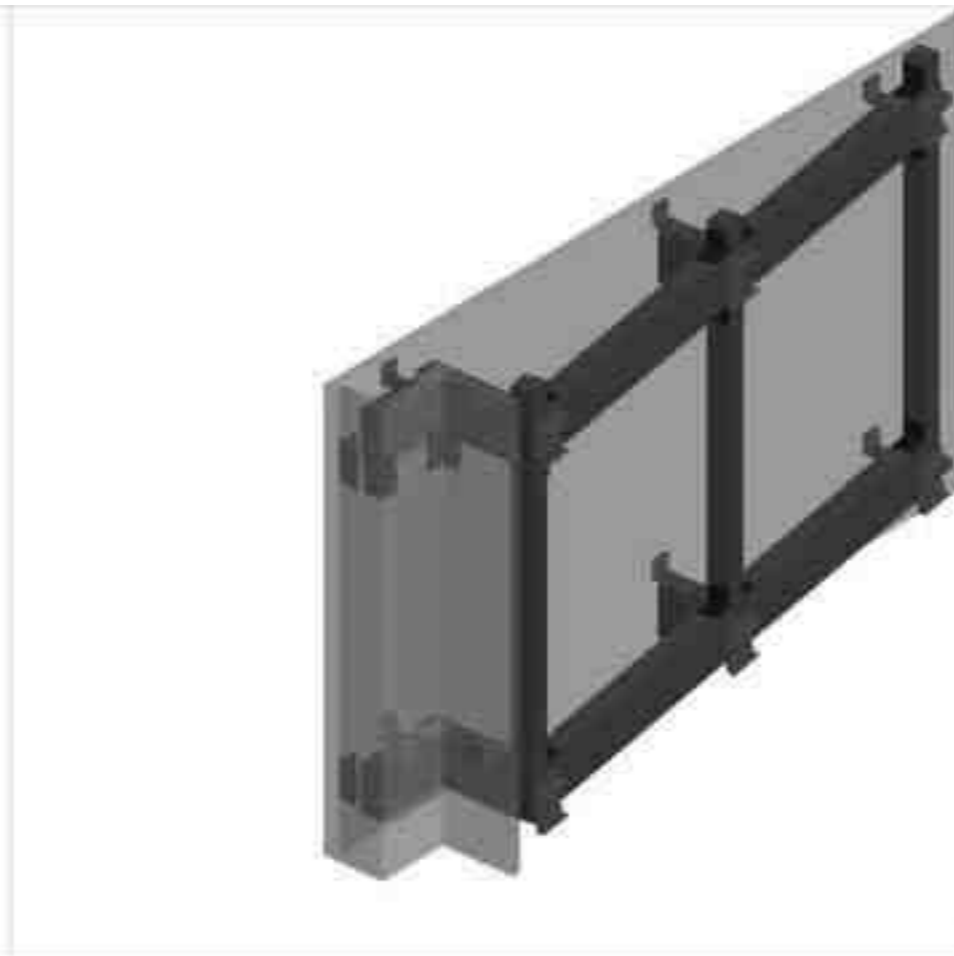






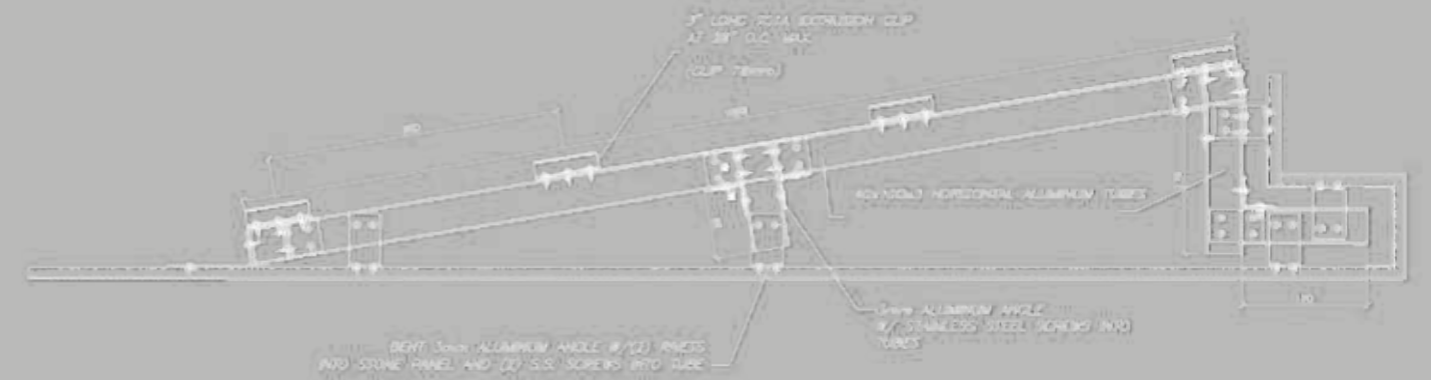


3D Mock up





The GammaStone AIR solution in natural stone allows the mechanical installation of large panel sizes formed with marble, granite, limestone or travertine. It can be used to make beams, columns and any other architectural element with a monolithic result, creating the one piece effect.



NEW FASTWEB HEADQUARTERS

SYMBIOSIS — MILAN

Architectural design:
Antonio Citterio Design

GammaStone took part of one of Milan's major redevelopment projects, Symbiosis. This project saw the transformation of a historic industrial area into a new hub of innovation and technology. Symbiosis integrated sustainability and architecture – offices, greenspace, and multifunctional areas coexist to optimize and improve the quality of work and life in a new strategic vision for the city.

Each detail was given careful attention, ensuring high design and quality, guaranteeing to reduce maintenance costs over time. The innovative GammaStone Gres AIR solution was selected for the external cladding of the ventilated facade for the new Fastweb headquarters. The Gres AIR panels alternate with the large windows, creating a linear and schematic architectural design.

Symbiosis, Milan
45°27'50.98"N
9°11'25.21"E

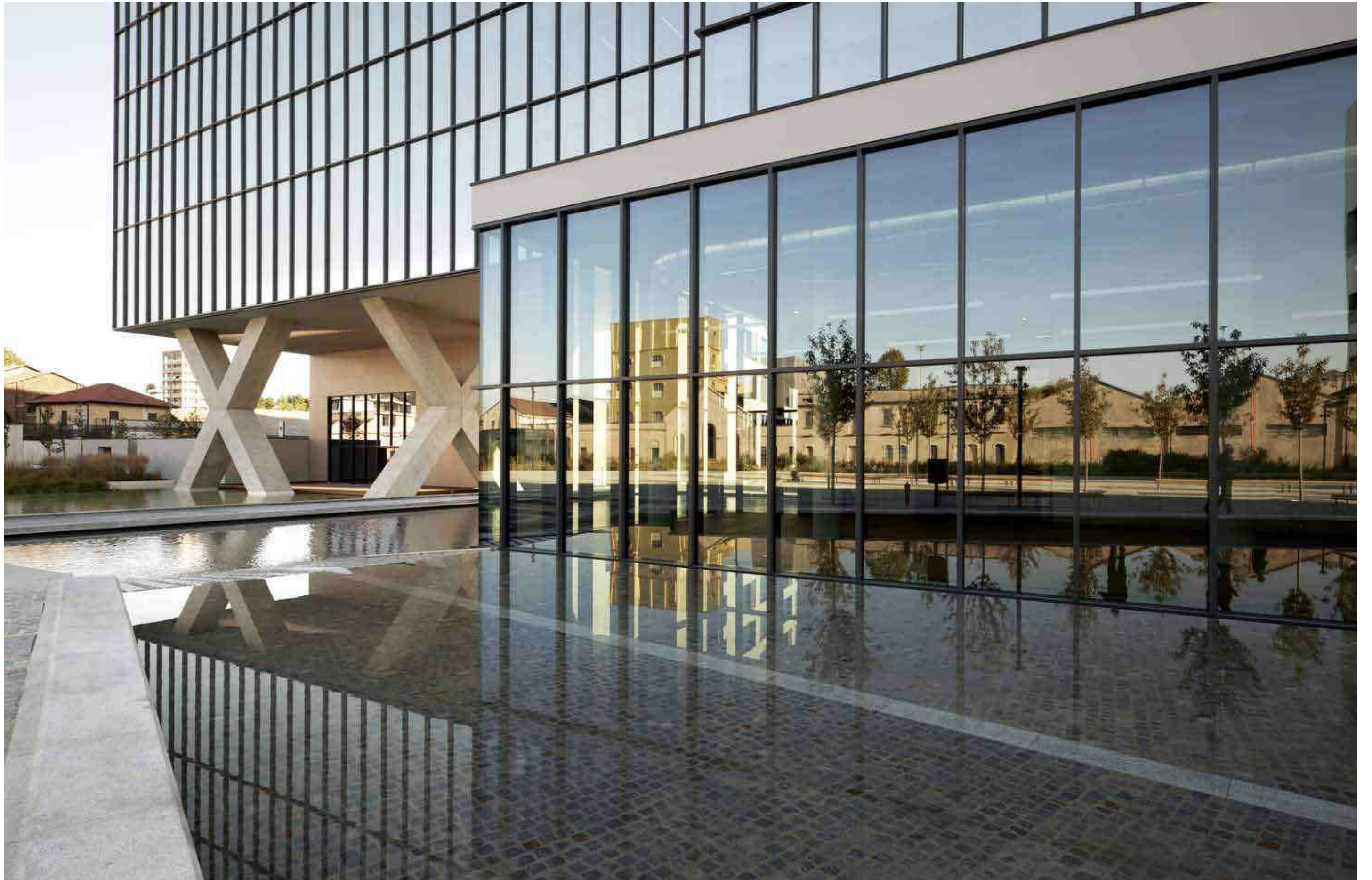
Gres AIR



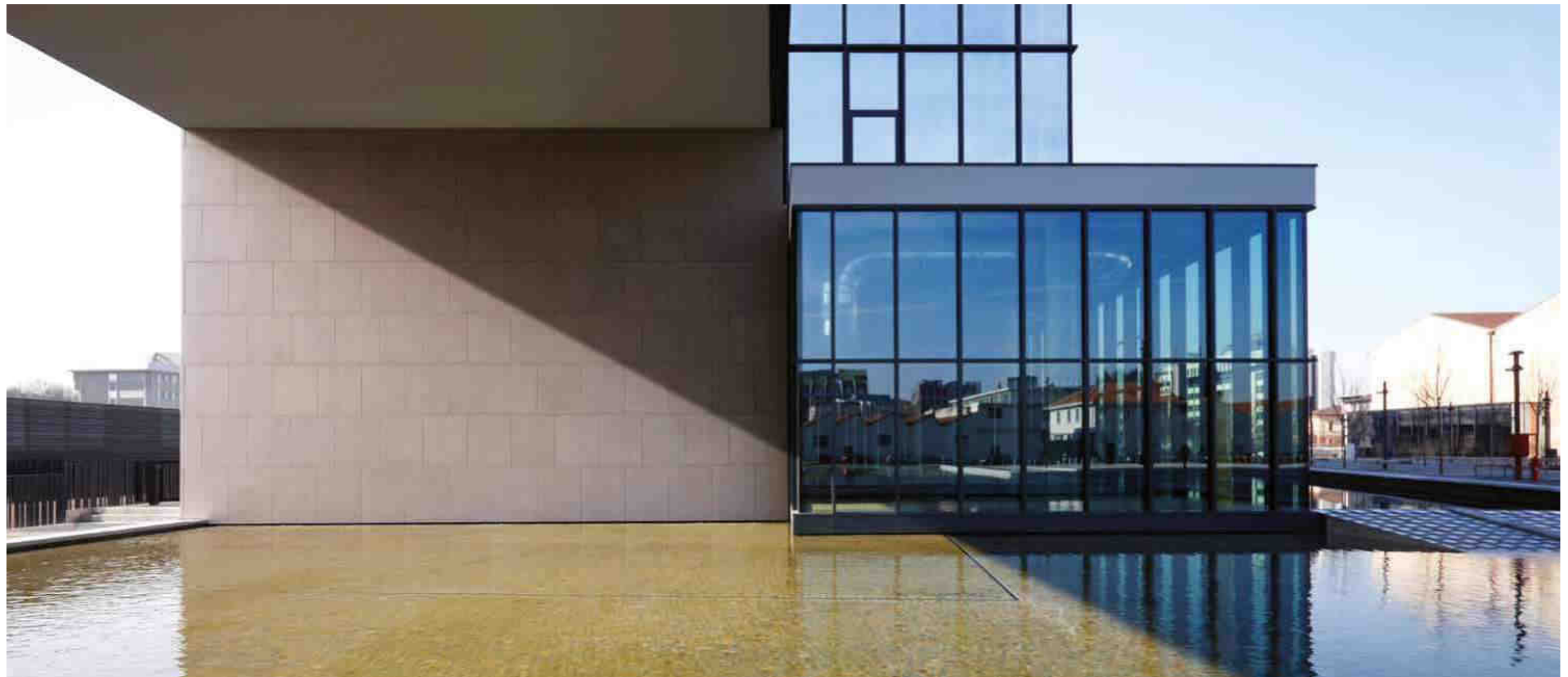
GammaStone GRES AIR
Cluny Argerot







A refurbished and entirely sustainable area that redefines the city's geography. Symbiosis is a flexible and highly technological Business District south of the Porta Romana neighborhood of Milan that introduces a previously unimaginable model of the future. The iconic project, designed by Antonio Citterio and Patricia Viel, meets important sustainability, technology and flexibility criteria, and communicates these values through an ongoing dialogue between indoor and outdoor environments.

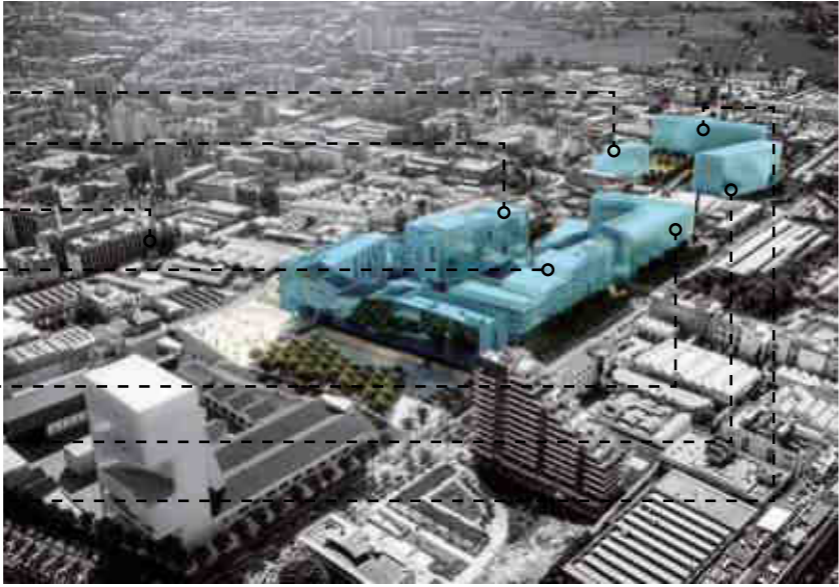




External facades - SOUTH Elevation, Via Adamello - Milan

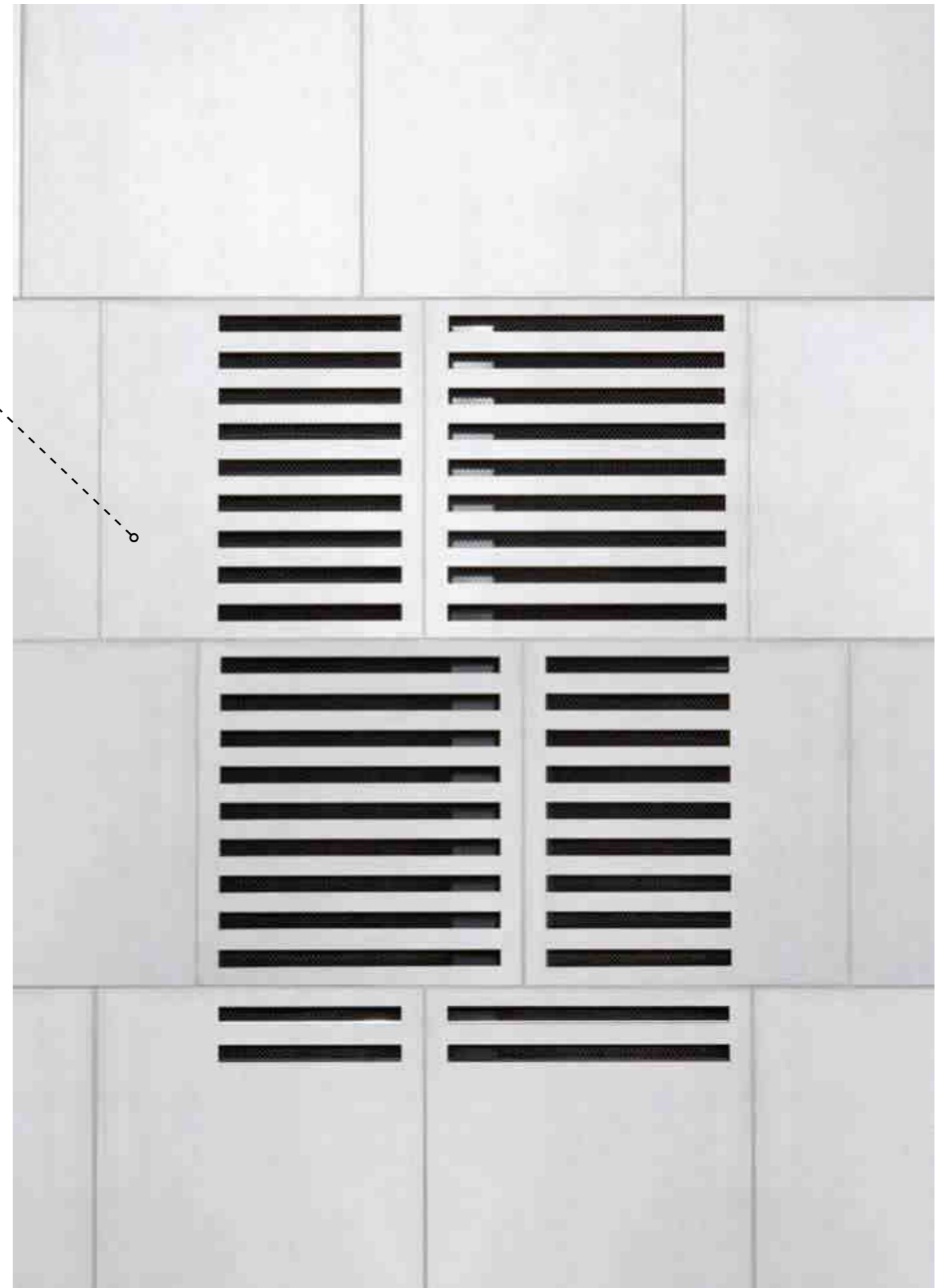
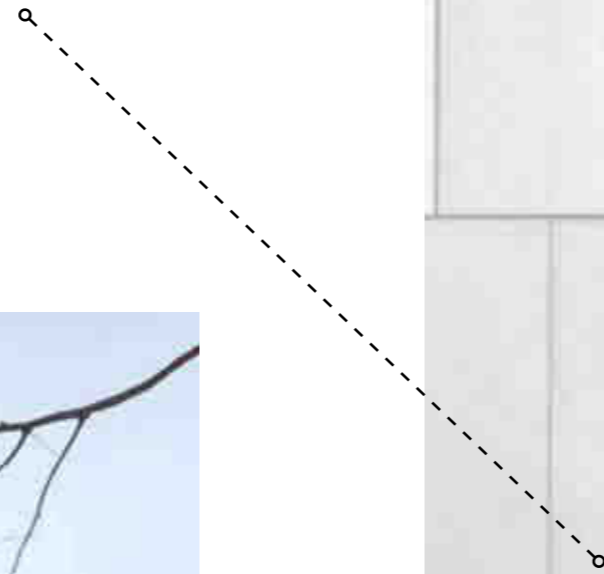
A landmark development project in Milan

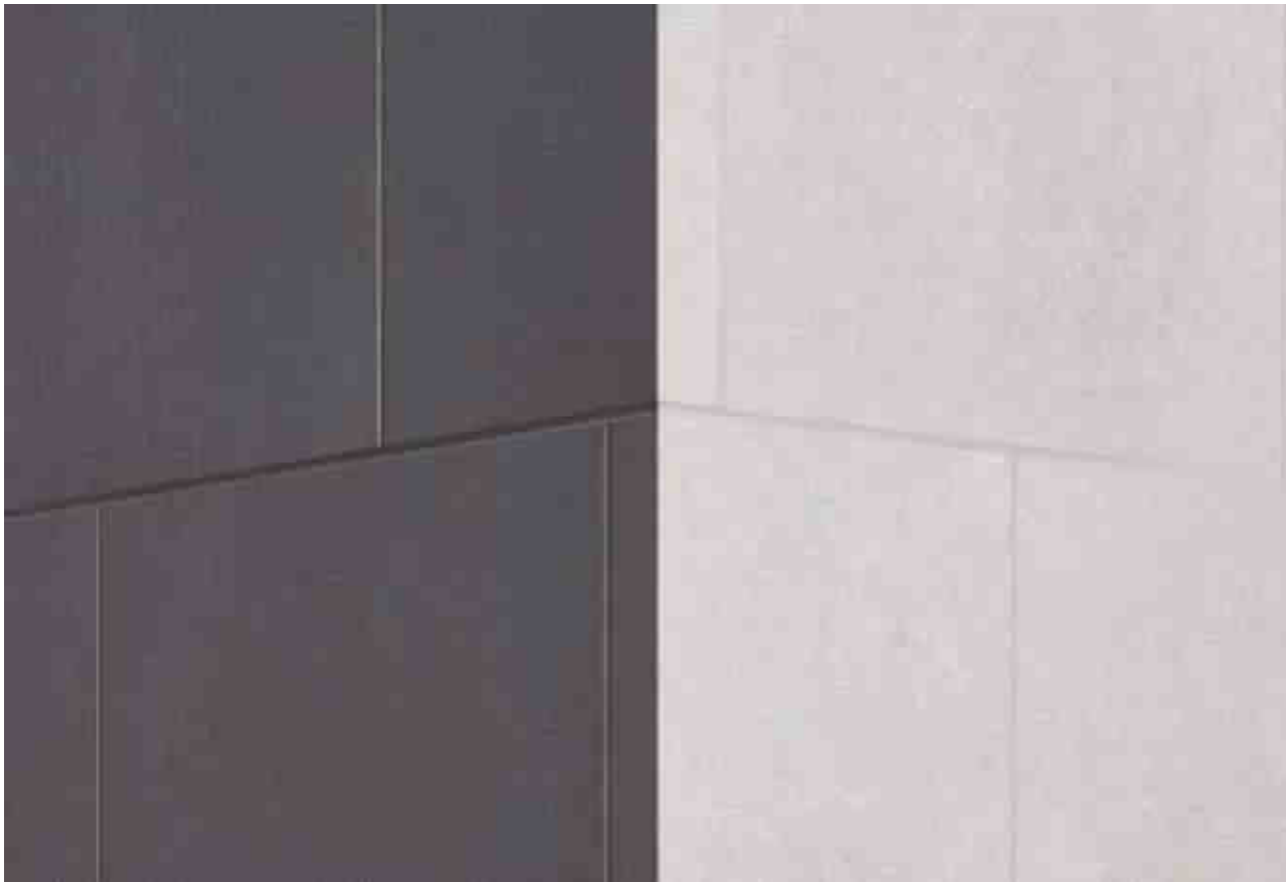
- A+B Fastweb HQ & Cirfood: 20,500sqm
- C+E Offices: 18,800sqm
- D Offices: 20,500sqm
- F Offices: 21,300sqm
- G Offices: 16,200sqm
- H Offices: 18,500sqm
- ICS School: 9,200sqm



The workspaces are lit through wide full-height glass windows, integrated settings that create the ideal habitat for cooperation and development of new ideas. The new public spaces at ground level aim to become a reference point for the district's community and a meeting place for outdoor activities, integrating work and play. The large glass façades of the building establish a connection between the internal and external environment, and the choice of a neutral ceramic material for the external coating gives a touch of absolute modernity. The white color, practical and undoubtedly refined, adapts naturally to the environment and refers to the concept of practicality responding as well to the current need of the digital reality of the company.

*Pannelli Asolati
Slotted Panels*

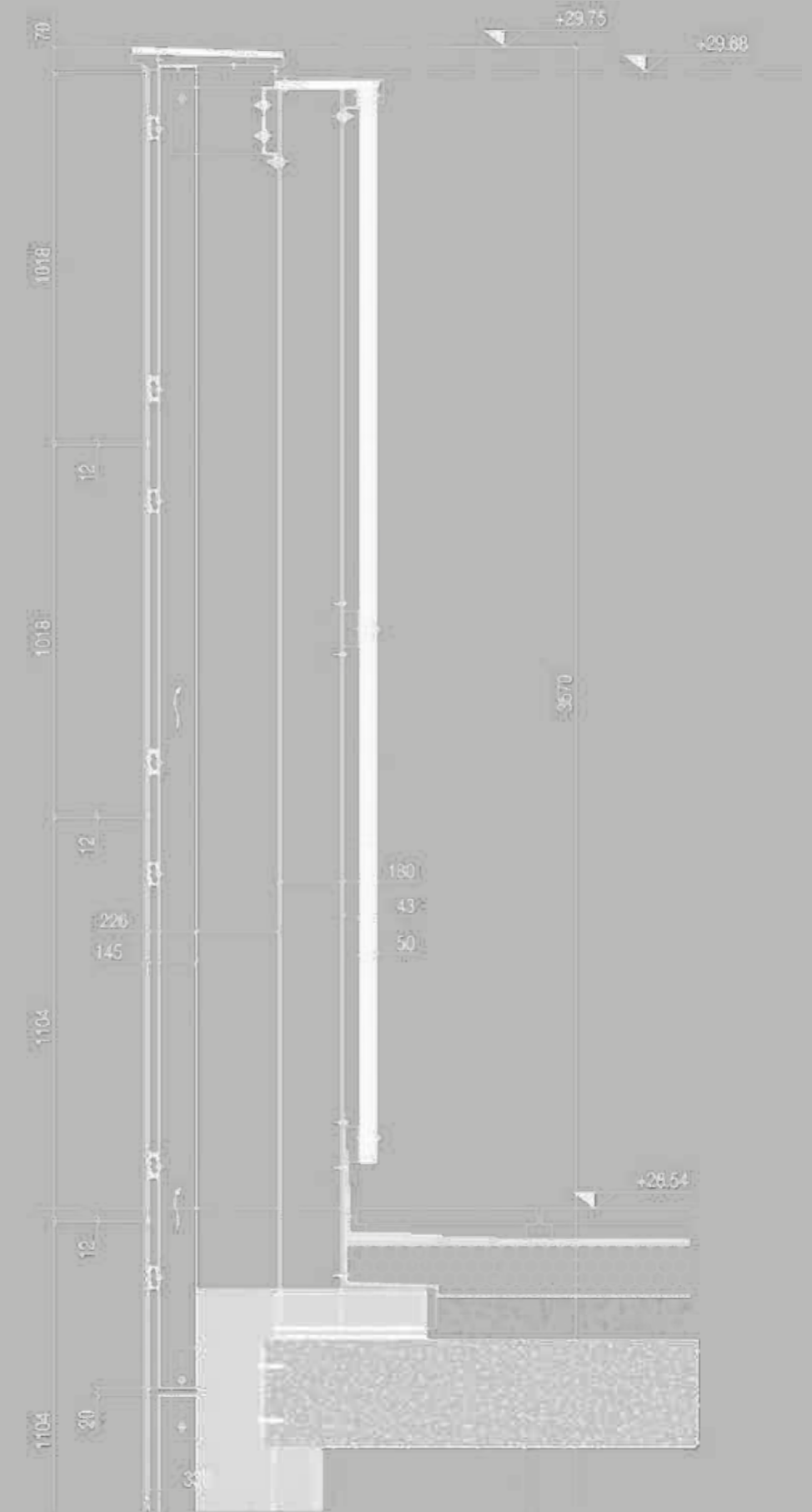


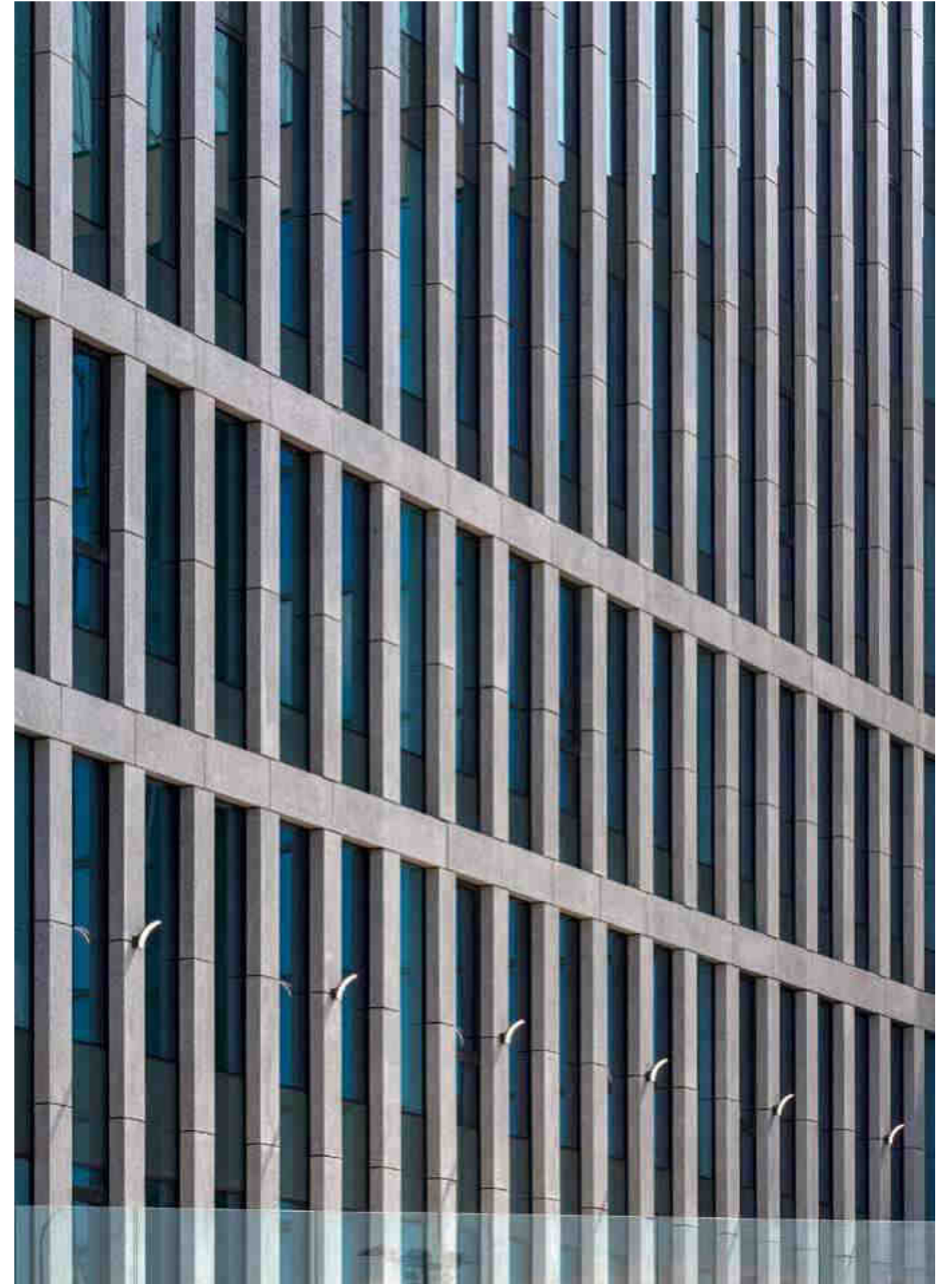


Mitered returns



Closed





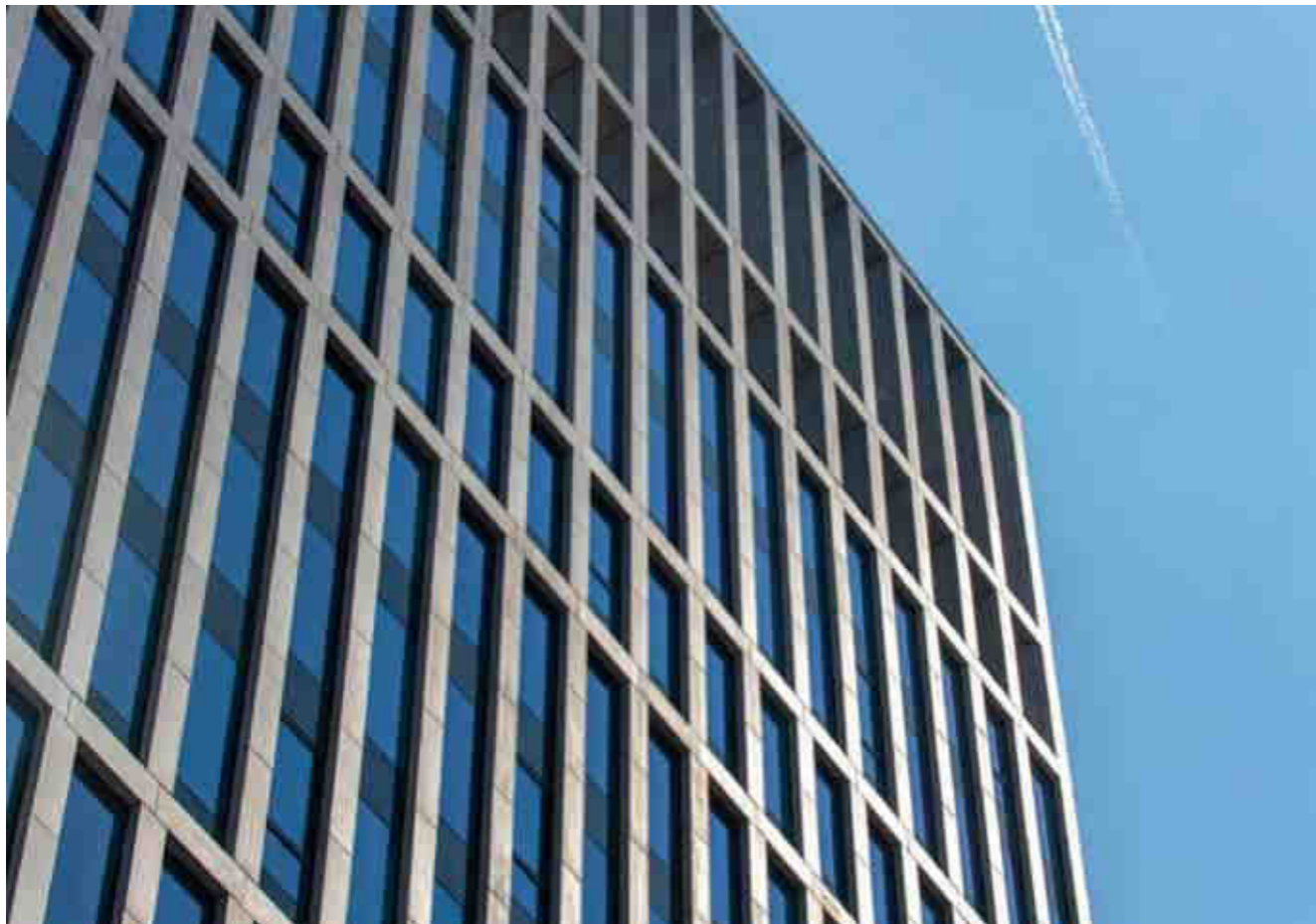


The Richard Towers redevelopment project in Milan represents an excellent and innovative architectural design by BMS Progetti.

The complex consists of 7 towers, where GammaStone provided the façade, pilasters and string courses of the 18-storey Tower C with its Gres AIR “Valmalenco Stone effect” lightweight panels and pre-assembled elements.

The exclusively designed and customized corner solutions of the pre-assembled elements make this project unique and exclusive.

Rethinking two of Milan’s tallest towers, to create a model and standard for future redevelopments of surrounding buildings. The retrofit project started from the ground level, redefining its relationship with the street by adding a double-height covered porch that creates a filtered space between the road and the real entrance to the building. Similar buildings located throughout the city, currently in a state of almost total abandonment, are the manifesto of an intense expansion, often disconnected from the surrounding urban fabric. This was an important opportunity to rethink these building complexes, giving them a stronger identity through the use of a renewed language, akin to the architectural and urban culture of the city.



Quirk assembled elements

The facade system features a vertical wall pattern that flows to the top of the tower and creates a true building crown. It perfectly integrates with the signage of the building. The new facade consists of two elements, the pilasters and the windows, alternating with a regular rhythm to generate a constant horizontal modularity on the entire tower. The wall surface, stone-like in material, pursues a simple design, made up of few but meticulous details, in harmony with the neighboring towers but simultaneously showing desire for change and modernization.

The partial demolition of the existing sills with the extension of the transparent part of the glazed façade leads to a high level of energy efficiency and comfort in the internal space.

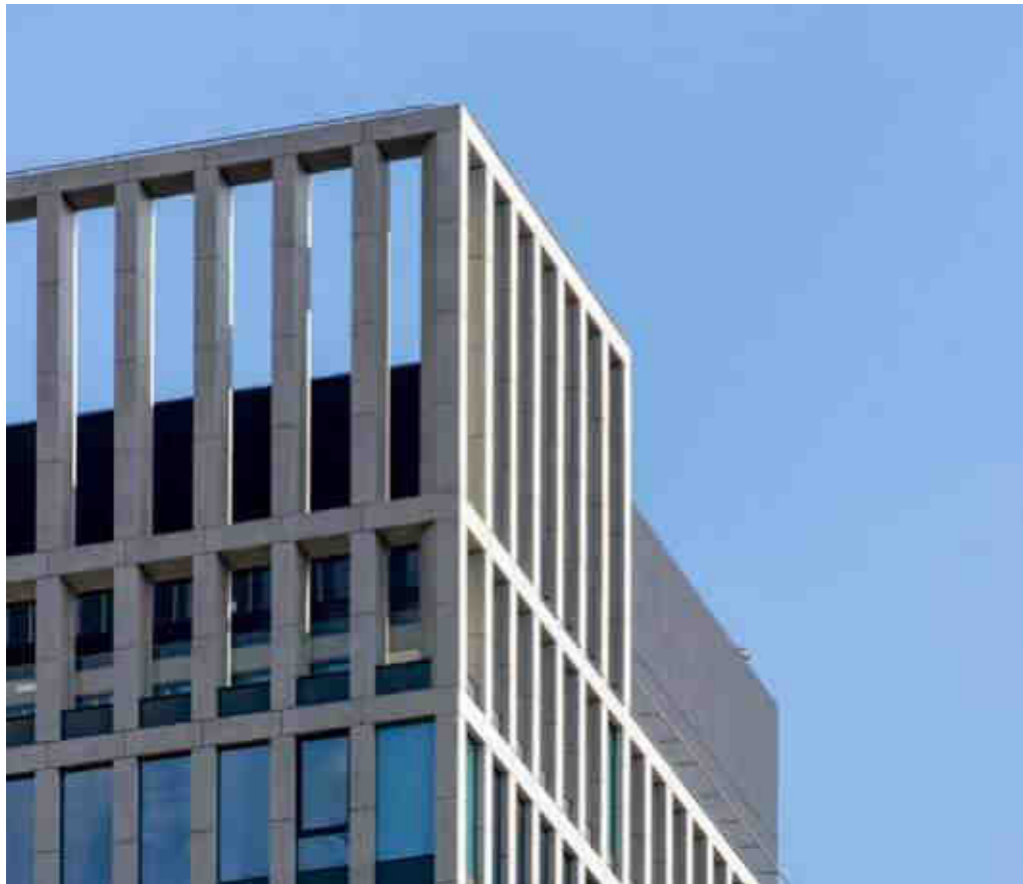


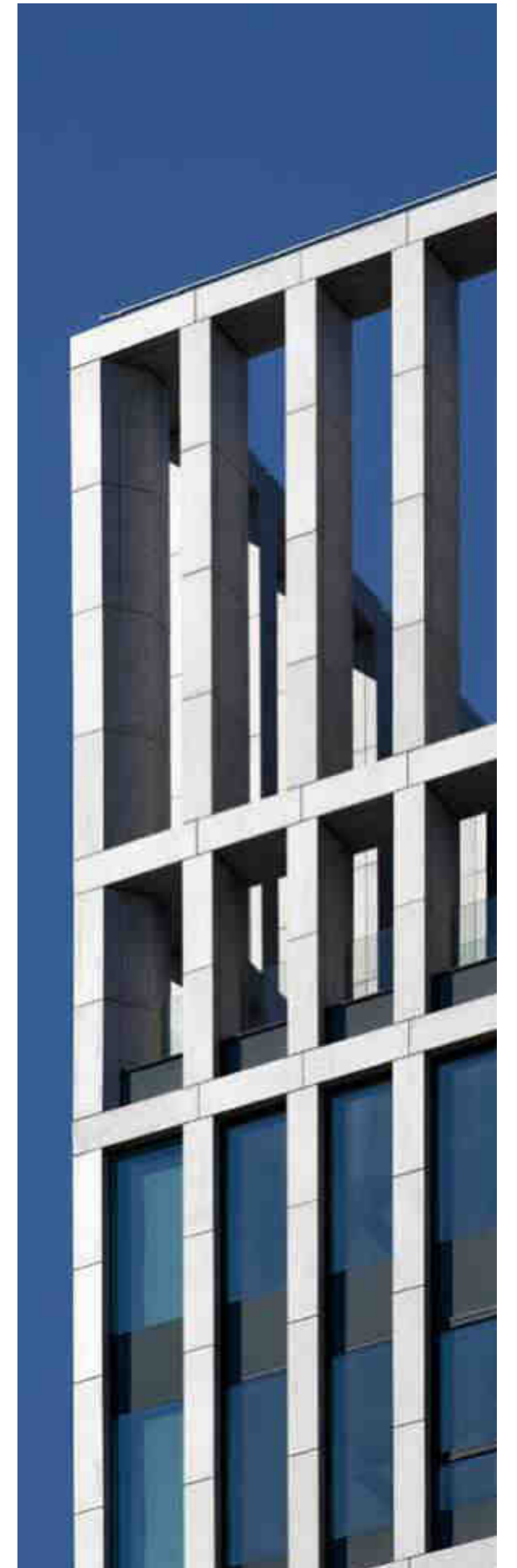
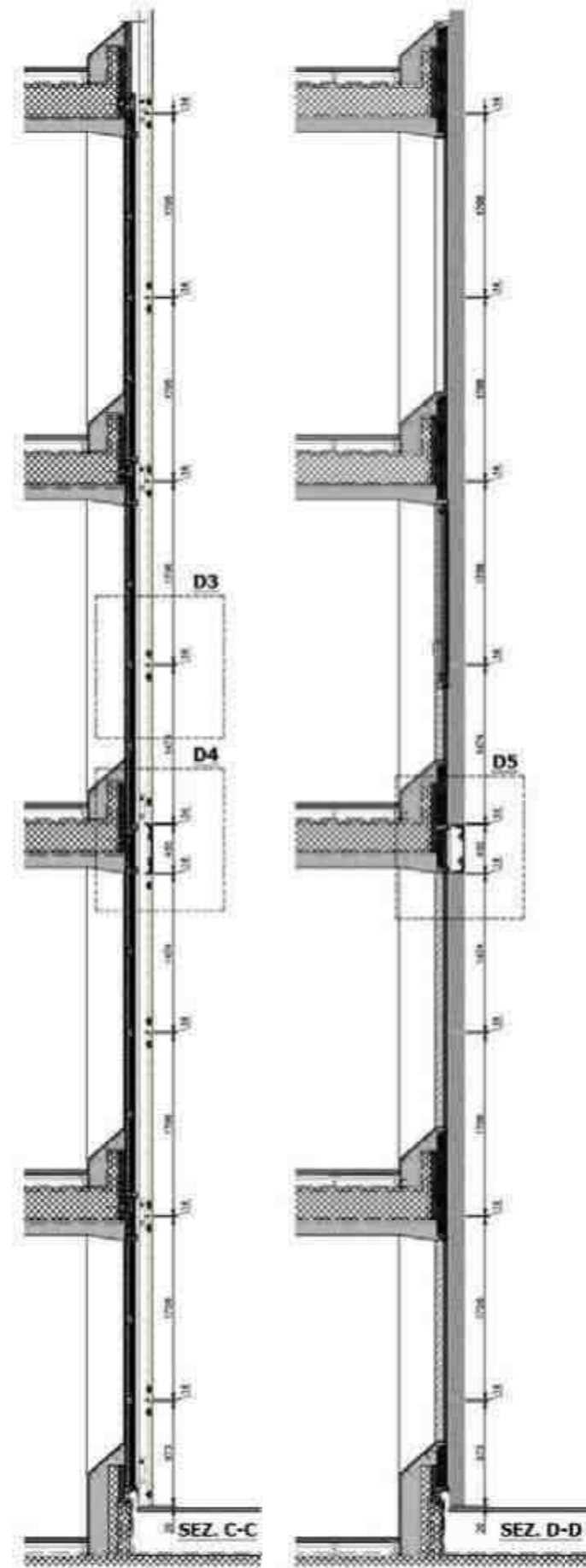
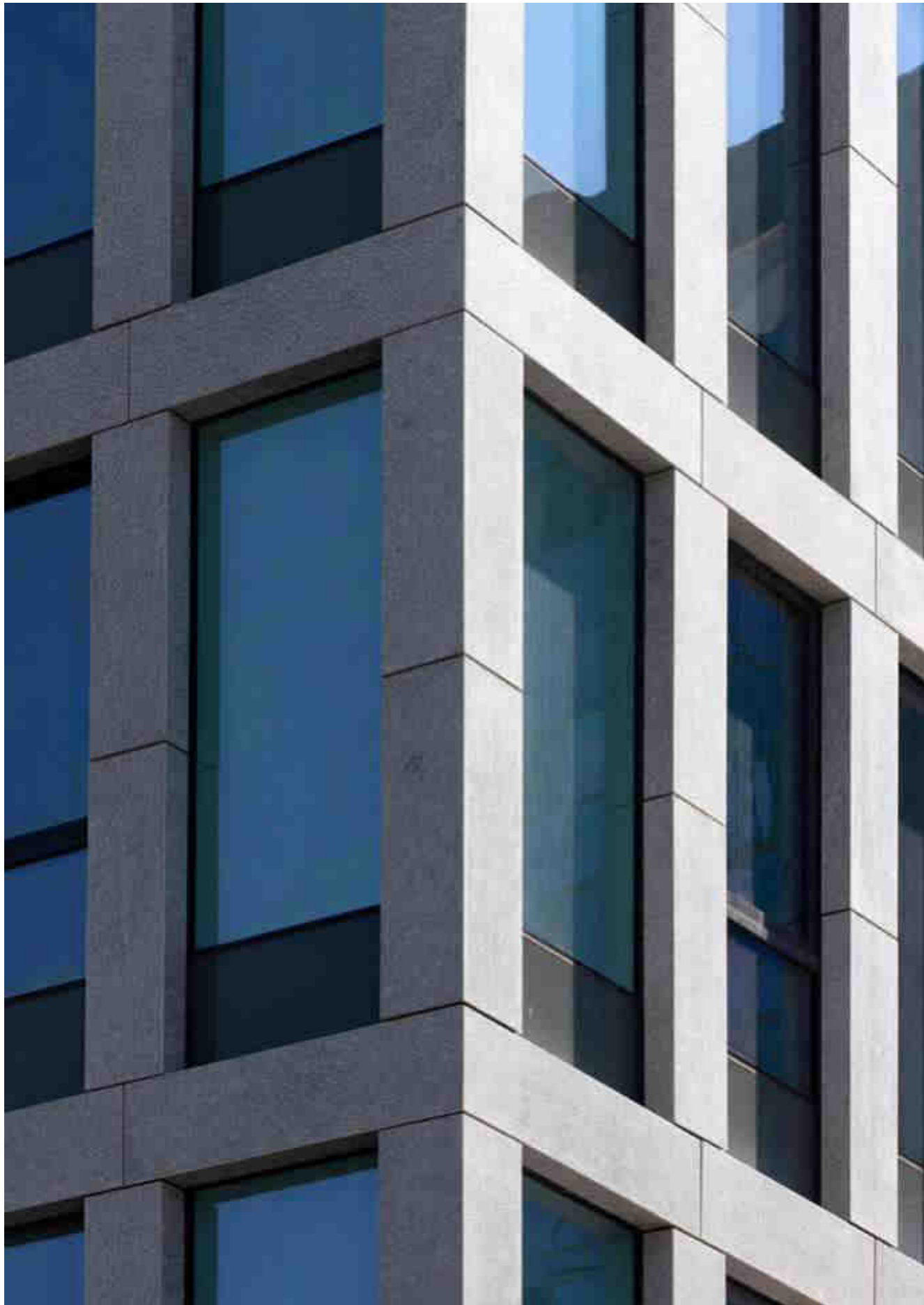
GammaStone GRES AIR
Slabs cut

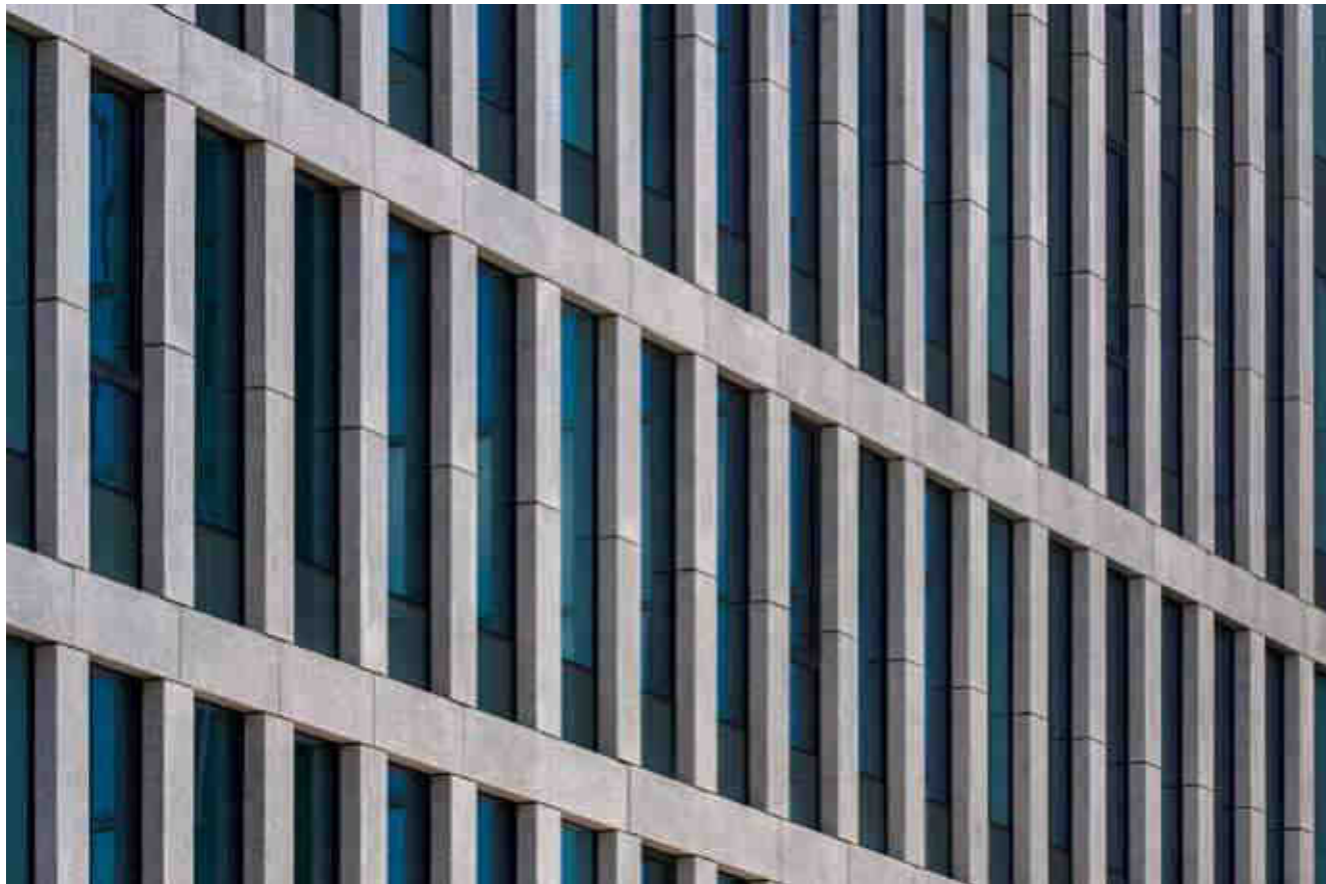


The panels are adhered together with structural epoxy adhesives and reinforced by metal angles forming a single monolithic architectural element.









LUXURY OFFICE

TURIN

REALE MUTUA ASSICURAZIONI

Architectural design:
Iotti + Pavarani Architetti

Elegance and simplicity are the results of meticulous and creative work. The facade of Reale Mutua Assicurazioni building, designed in GammaStone Gres AIR panels Kerlite Bergen Base, is a testament to the craftsmanship and ingenuity of GammaStone AIR and the an extraordinary vision of the design team. The facades establish a dialogue with the surrounding buildings (dated XVIII – XIX century), integrating materials, colors, proportions, and alignments. The shapes achieved are timeless, escaping the mutability of fashion. The building aims to be contemporary and at the same time intimately connected to the place, as if it had existed there since the beginning. Exuding a sense of permanence and solidarity, values that represent Reale Mutua and Turin.

Reale Mutua
Assicurazioni,
Turin
45°04'N 7°42'E

Gres AIR

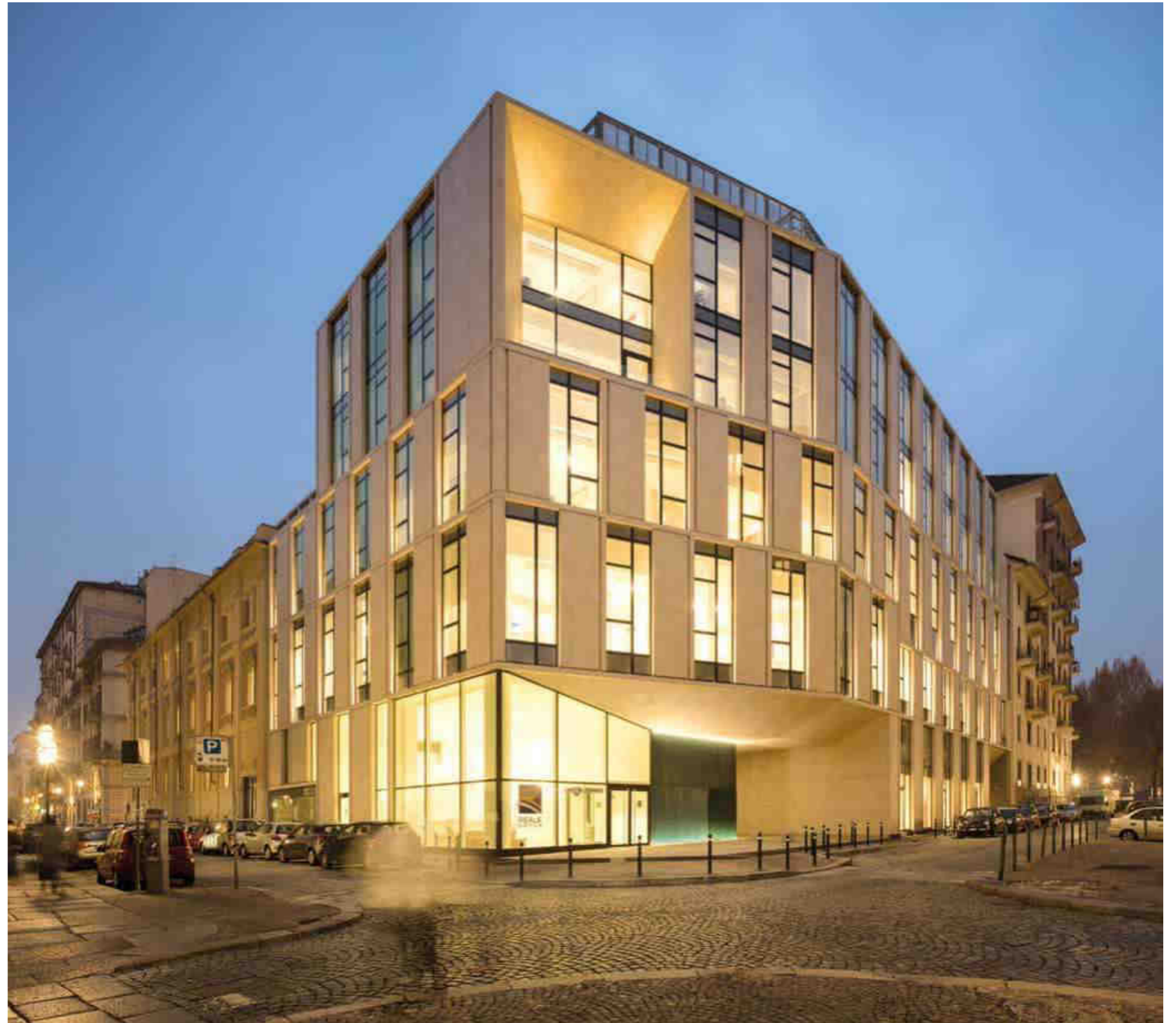


GammaStone GRES AIR
Base Bergen

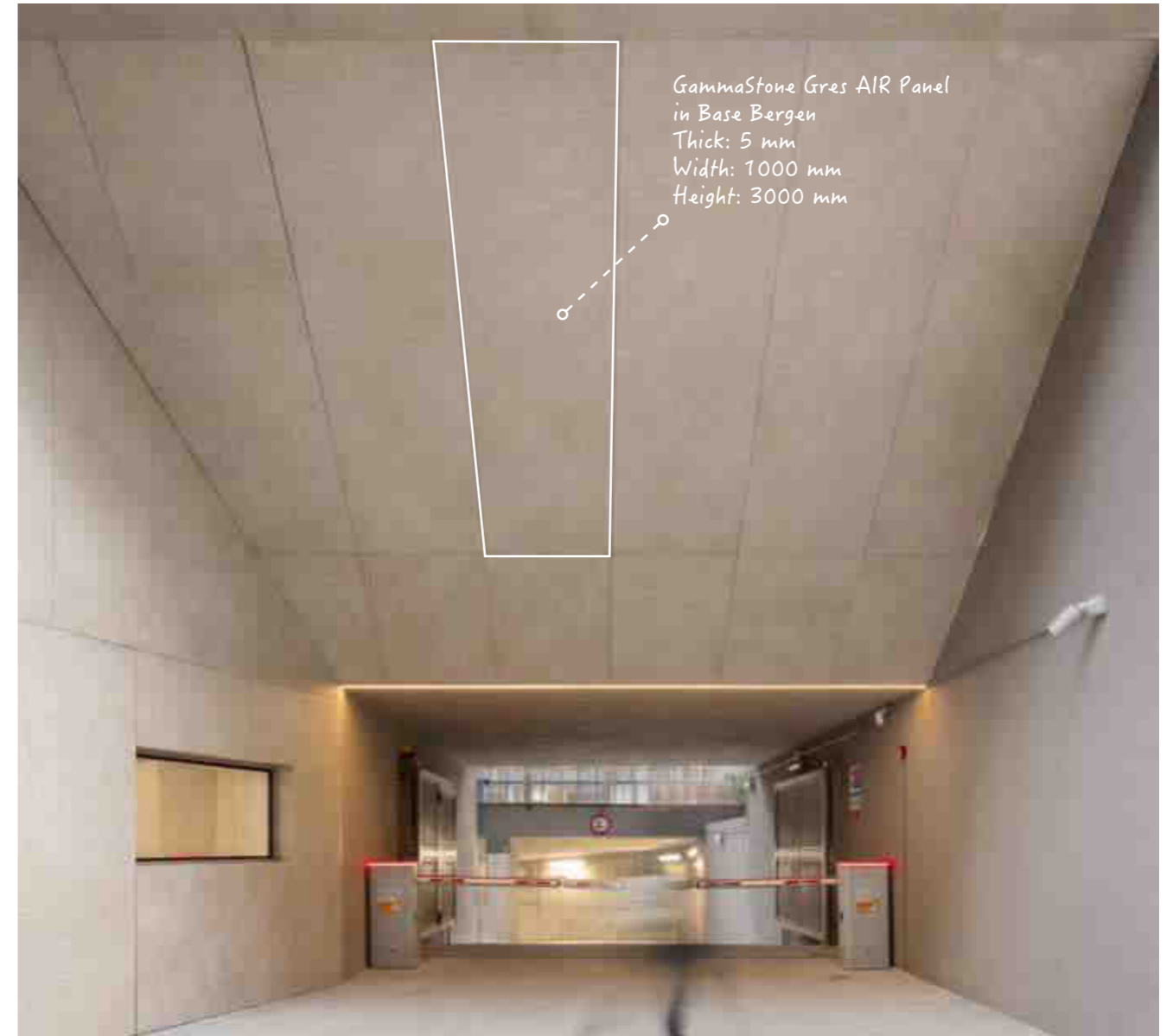




External facades - West elevation on Reale Mutua, Corso Siccardi - Turin (ITALY)

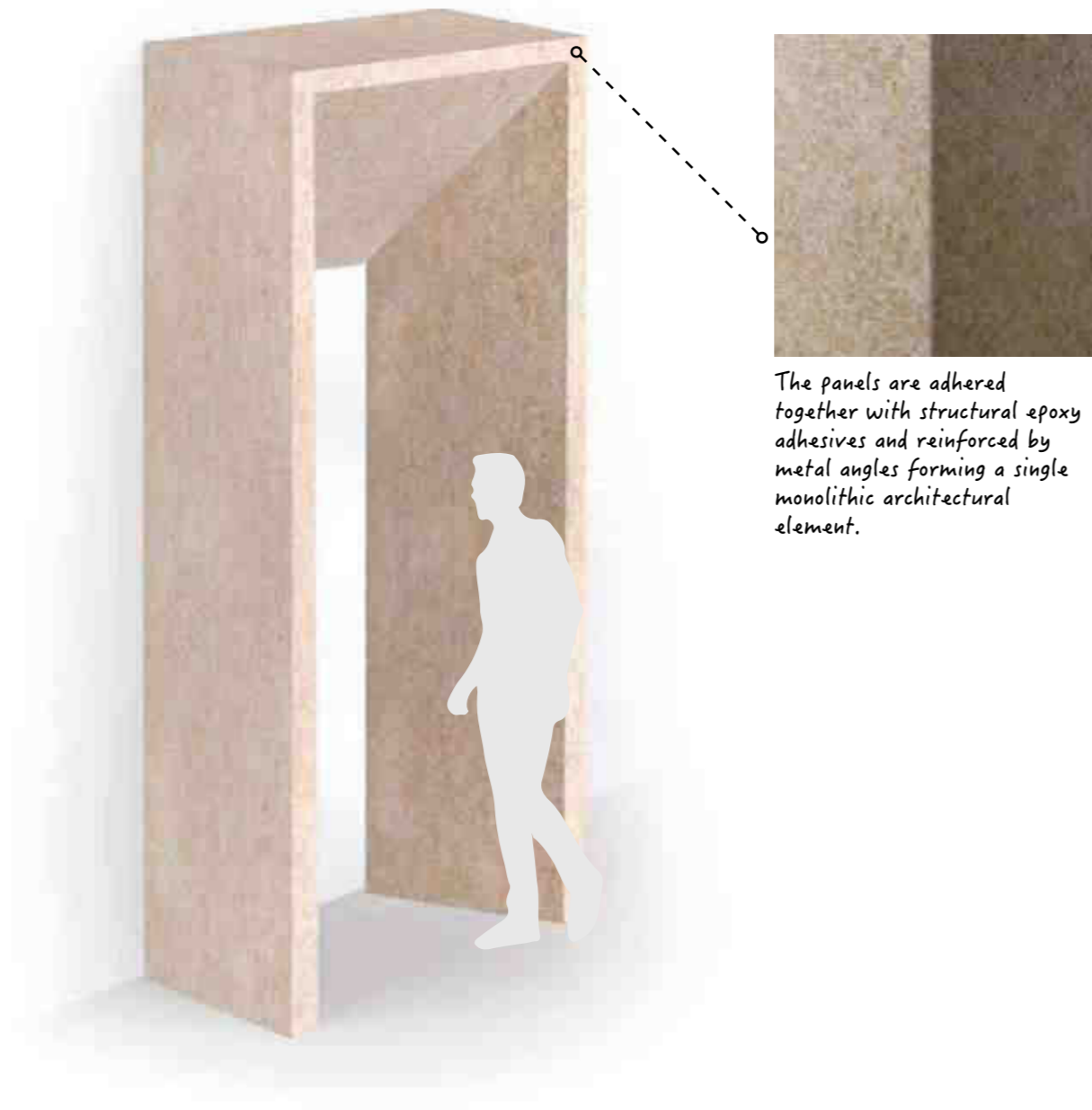




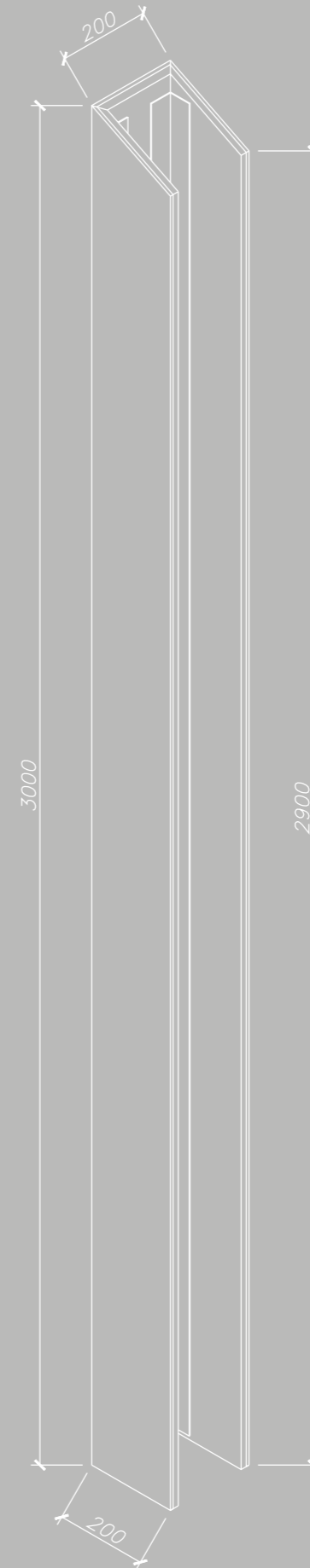


Monolithic architectural Elements

The GammaStone AIR system enables the designer to specify large-format panels with confidence. The panels are anchored mechanically either with concealed or visible fixings allowing simple attachment to the substrate. The resistance to wind load is greatly superior to any technical requirement imposed by the current regulations even in climatic zones subjected to weathering extremes such as monsoons and hurricanes. GammaStone AIR is a patent protected product.



The panels are adhered together with structural epoxy adhesives and reinforced by metal angles forming a single monolithic architectural element.







This external cladding is characterized by large windows with ornamental architectural elements. The alternation between the glass and porcelain gres and the varying window sizes gives dynamism and modernity to the façade. These features harmoniously match with the traditional color of the ceramic, ensuring a functional and prestigious result.



CITYLIFE DISTRICT
AS "PORTAL TO EUROPE"

LIBESKIND TOWER

Architectural design:
Libeskind

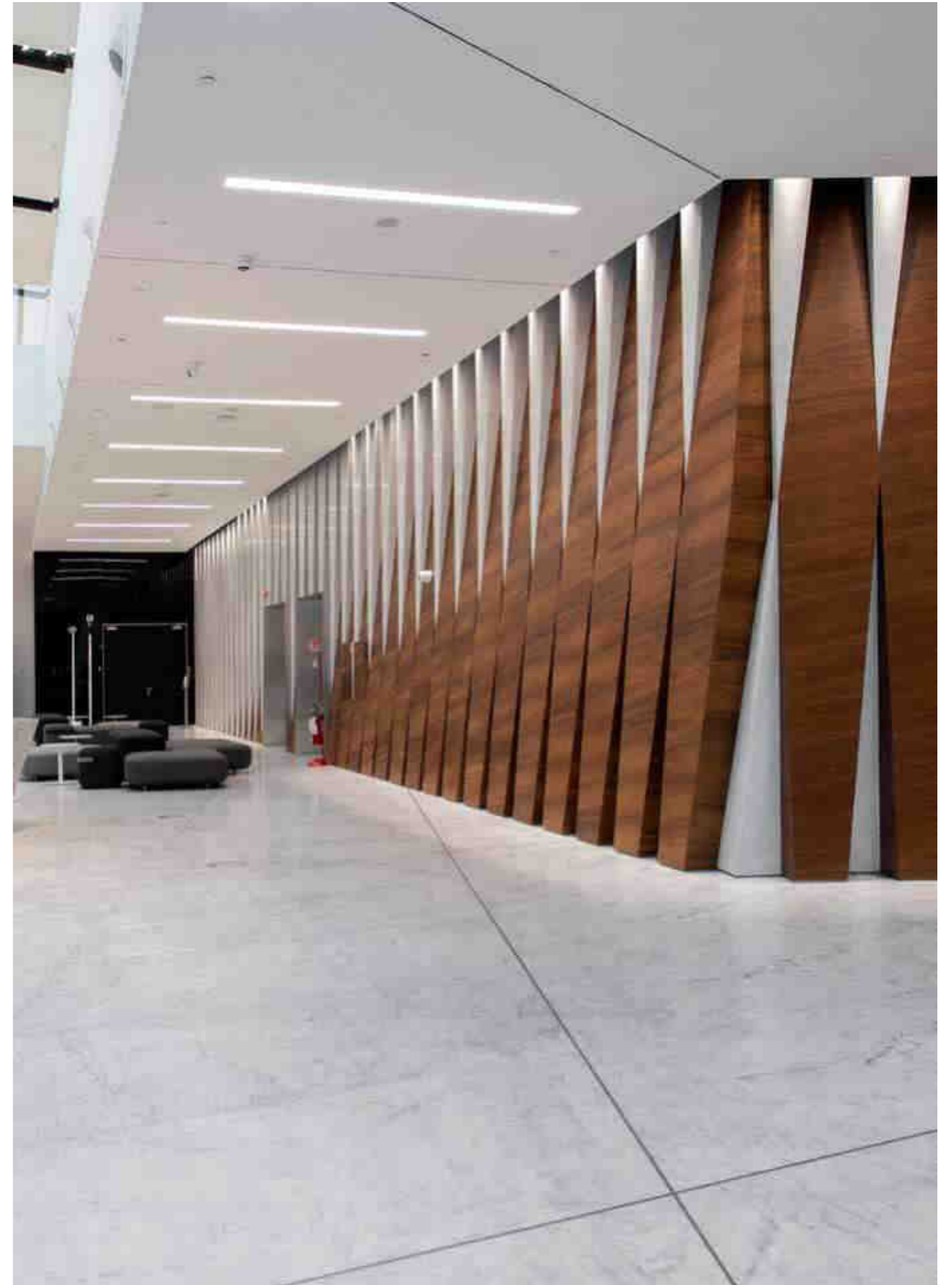
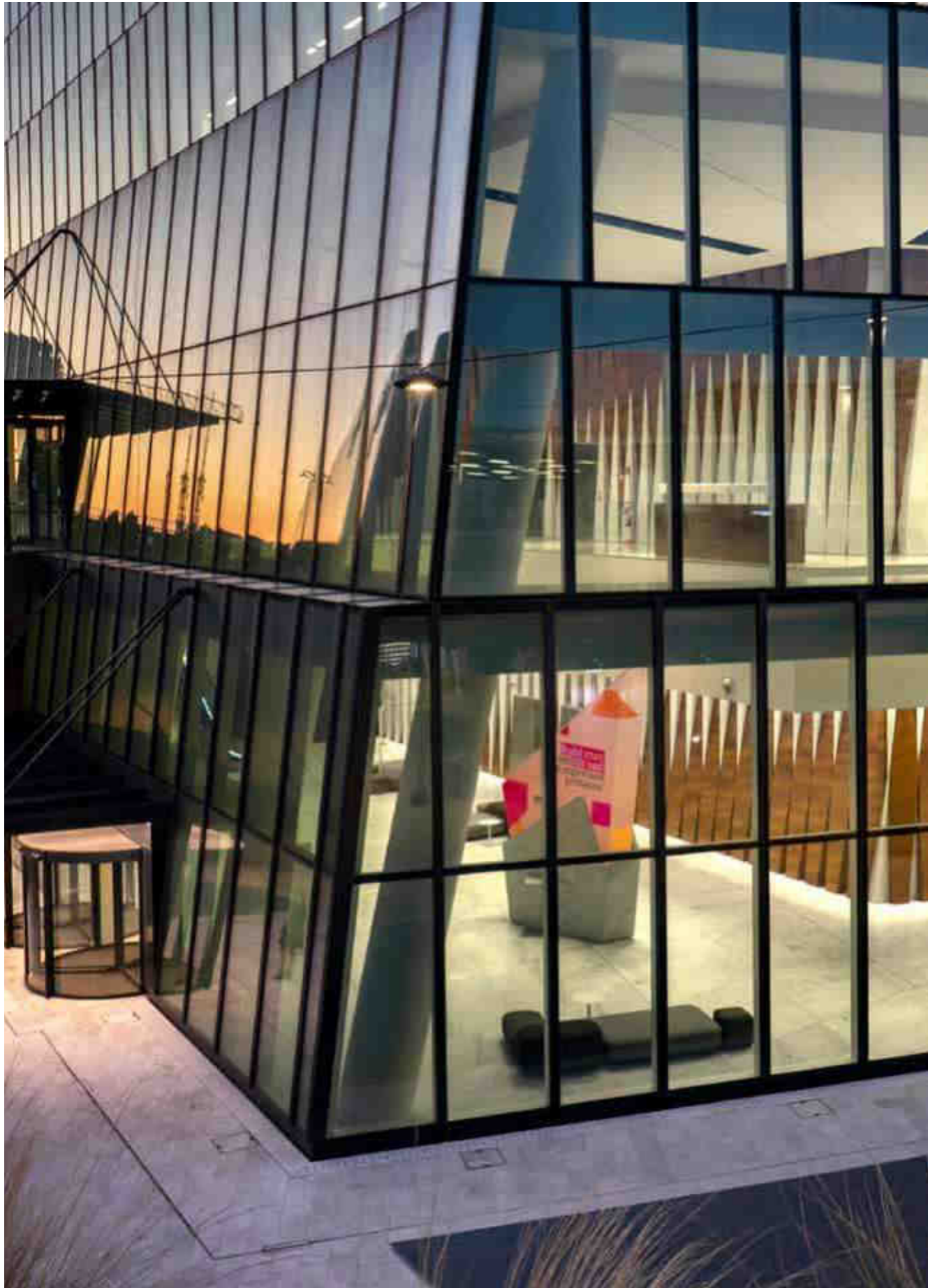
Natural AIR



GammaStone NATURAL AIR
Carrara White Marble

CityLife District, Milan - Italy
40°39'40"N 73°56'38"W

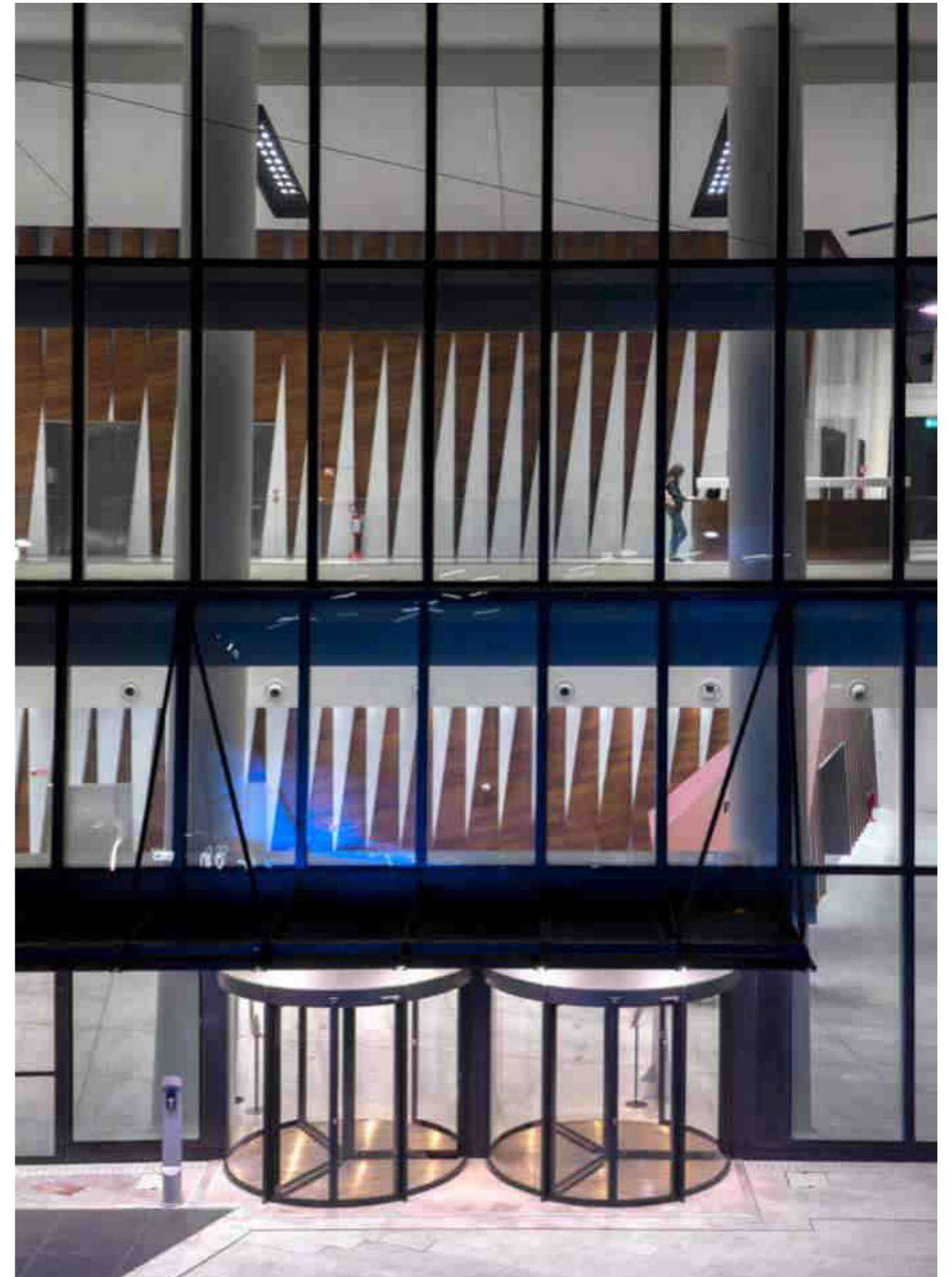




Thanks to the overall surface of 360,000 m², CityLife represents one of the largest urban renewal schemes in Europe, with its balanced mix of public and private services.

The well-known CityLife in Milan is one of the largest residential-commercial districts in Europe and GammaStone is proud to be a part of it. The GammaStone solutions can be found in the lobby and several interior areas of the prestigious Libeskind Tower. GammaStone Natural AIR panels made with the symbolic Carrara white marble form the emblematic pyramidal columns; panels which fully meet Daniel Libeskind's design concepts for the tower.

The project consists of several polygonal shapes with irregular thicknesses and angles, but once again GammaStone shows its skills and flexibility in challenging projects by providing smart solutions. The 3D volumes are placed between the panels with a wooden finish, which enhance the charm of natural stone.

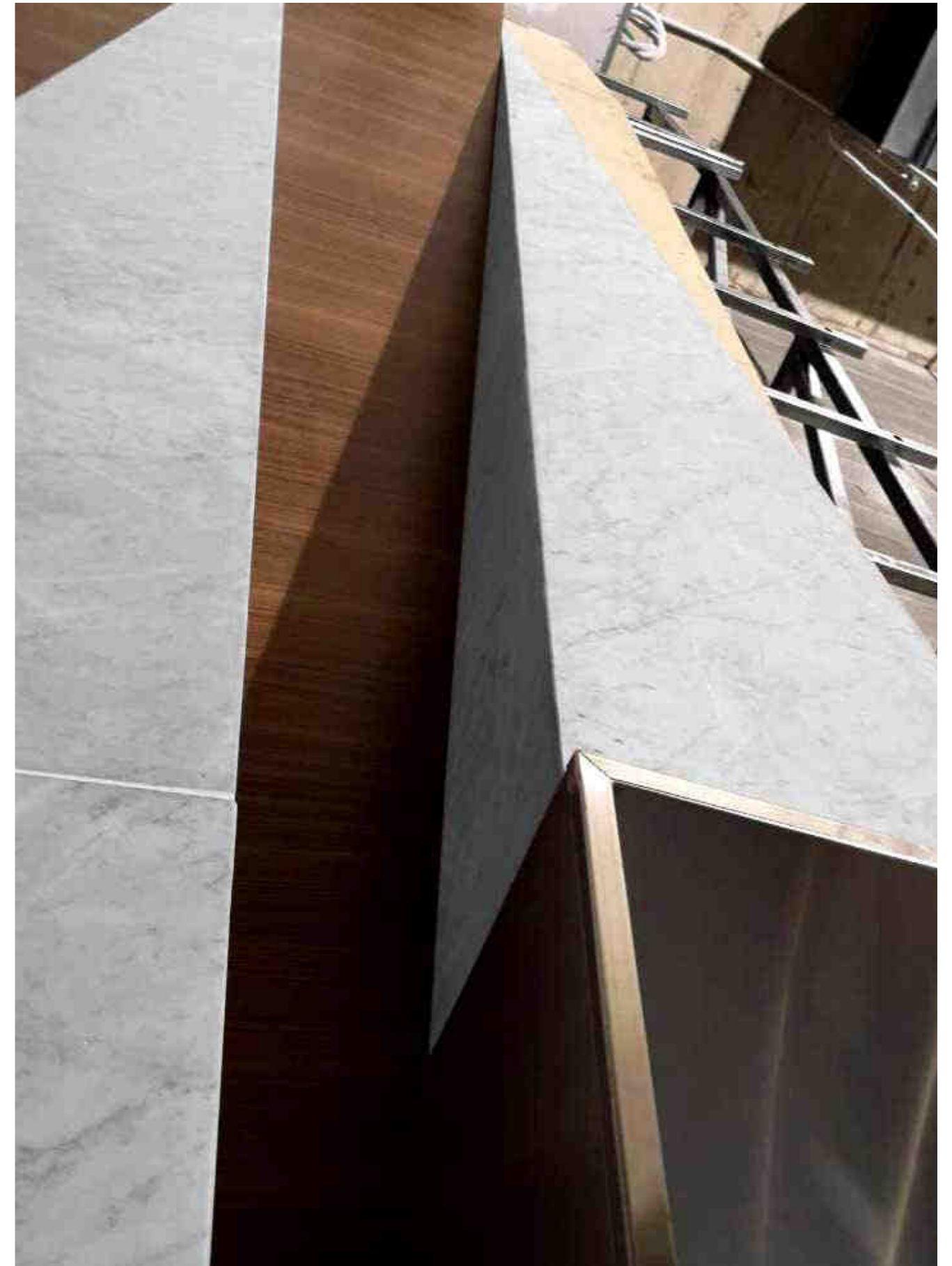
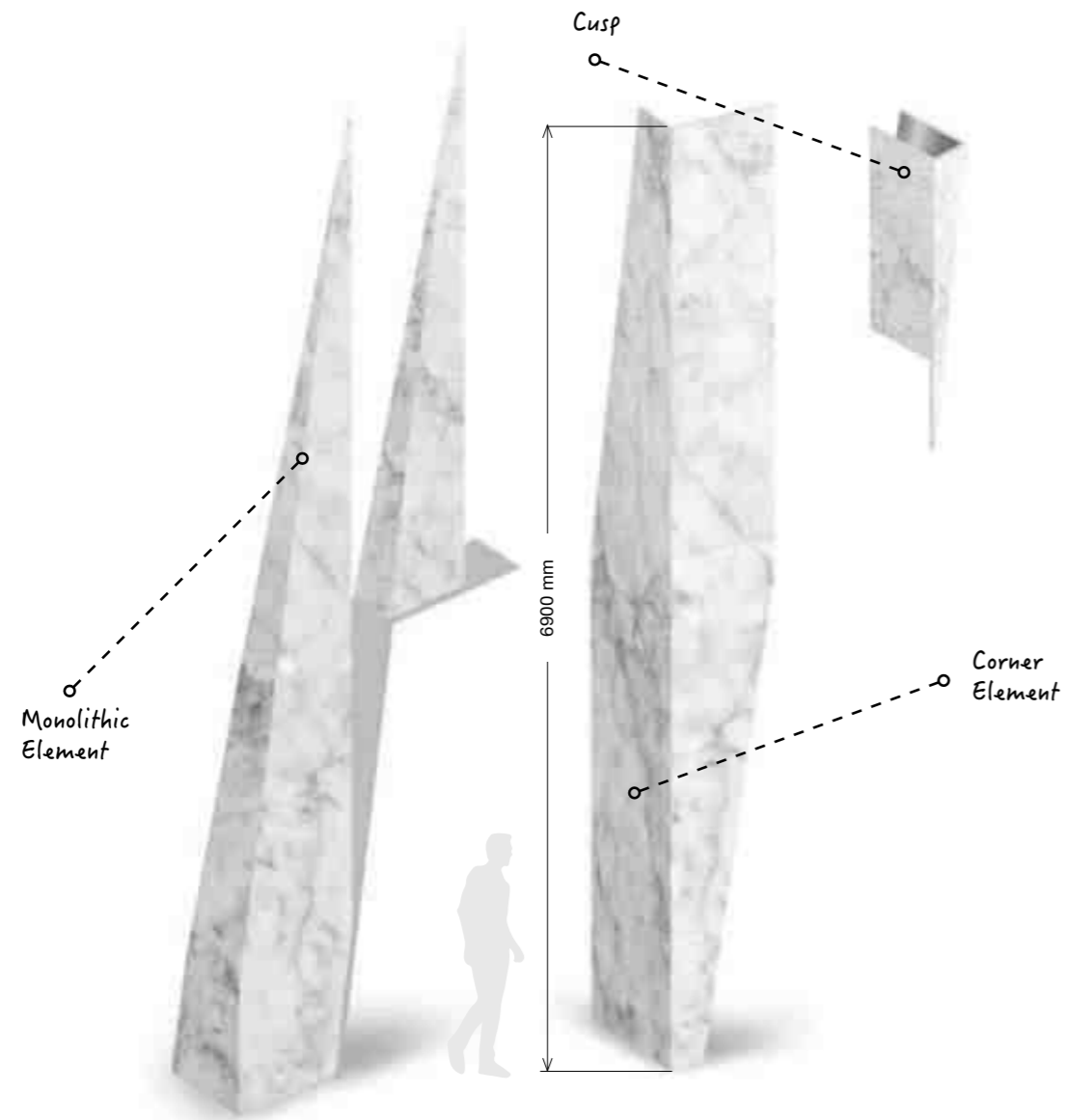


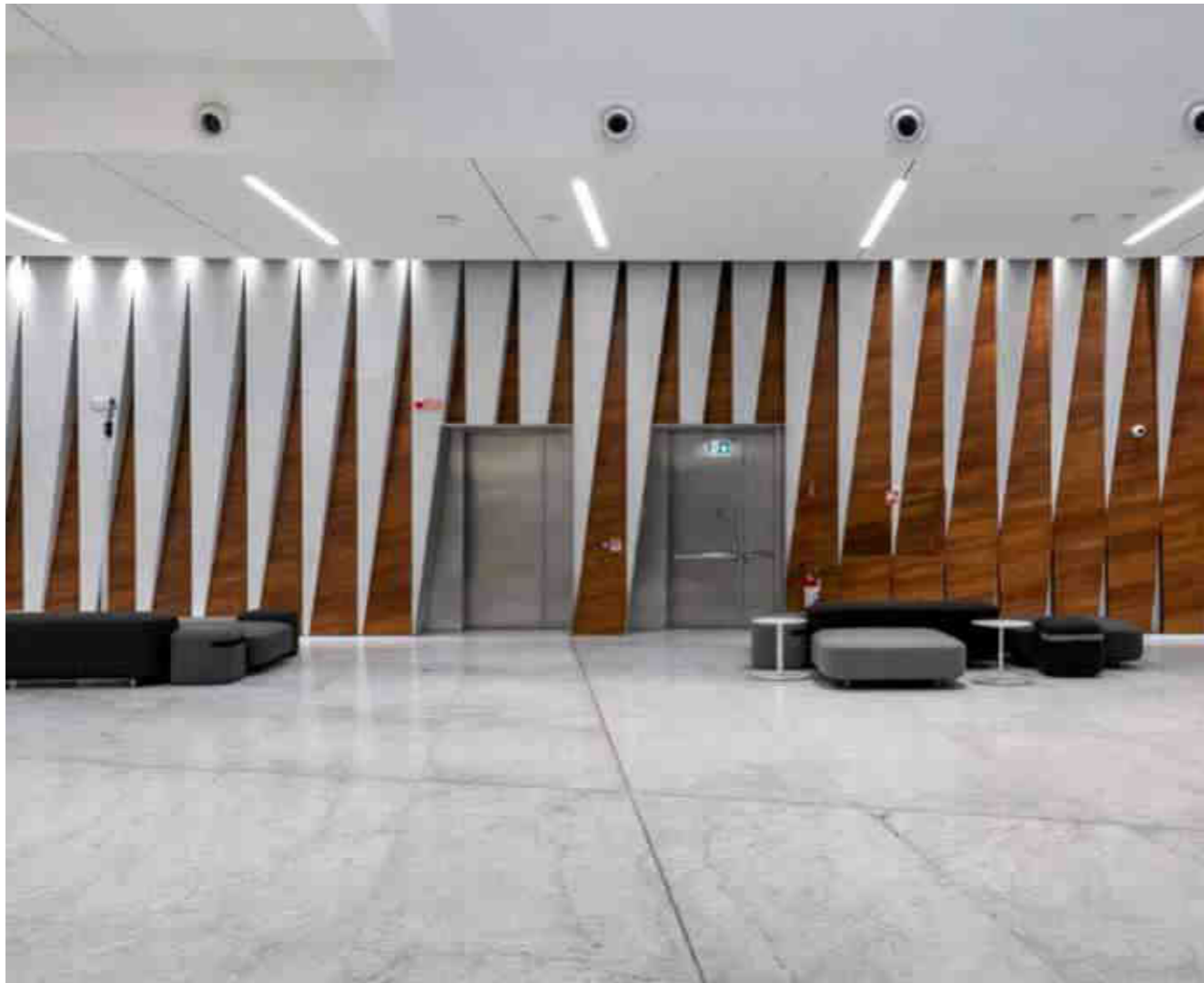
Architectural monolithic elements

At the entrance of the Libeskind Tower in Milan, there are more than 500 three-dimensional monolithic elements with complex and varying geometry. Each element is designed to follow the style of the building. For this project our material experts visited the Carrara quarry and carefully selected the slabs which met our standards in order to be processed in our laboratories. The material's characteristics creates a homogenous atmosphere between the columns and the geometric shapes. Moreover, a magnificent aesthetic effect has been applied to the design using wooden columns among the marble and opaque elements.



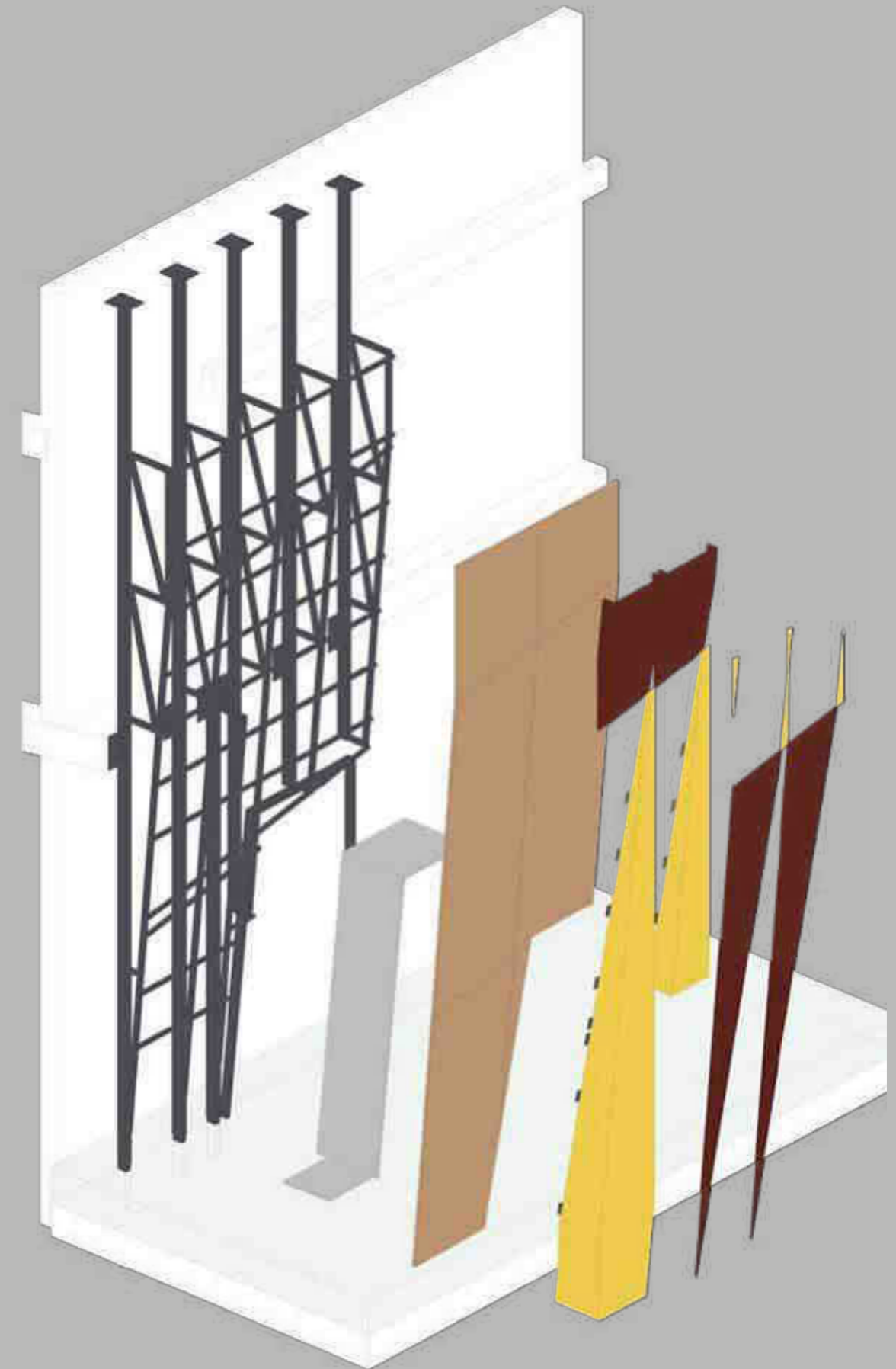
The panels are adhered together with structural epoxy adhesives and reinforced by metal angles forming a single monolithic architectural element.





The ground floor of the tower hosts an impressive three story lobby, accessible from level -1, where the Shopping District and the M5 underground station are located, as well as from the upper level of the new urban square. In the lower level, in line with the public space, there is a conference area with three halls, each accommodating 50 seats. The area just outside the lobby is equipped with an underfloor system so that it can easily transform into an exhibition space, supporting the conference center or the building tenant.

The Renaissance cupola is the basic principle behind Tower Libeskind's concept. As a matter of fact, it is reinterpreted through the concave movement of its elevation and it culminates in the crown, both distinctive elements of the project.



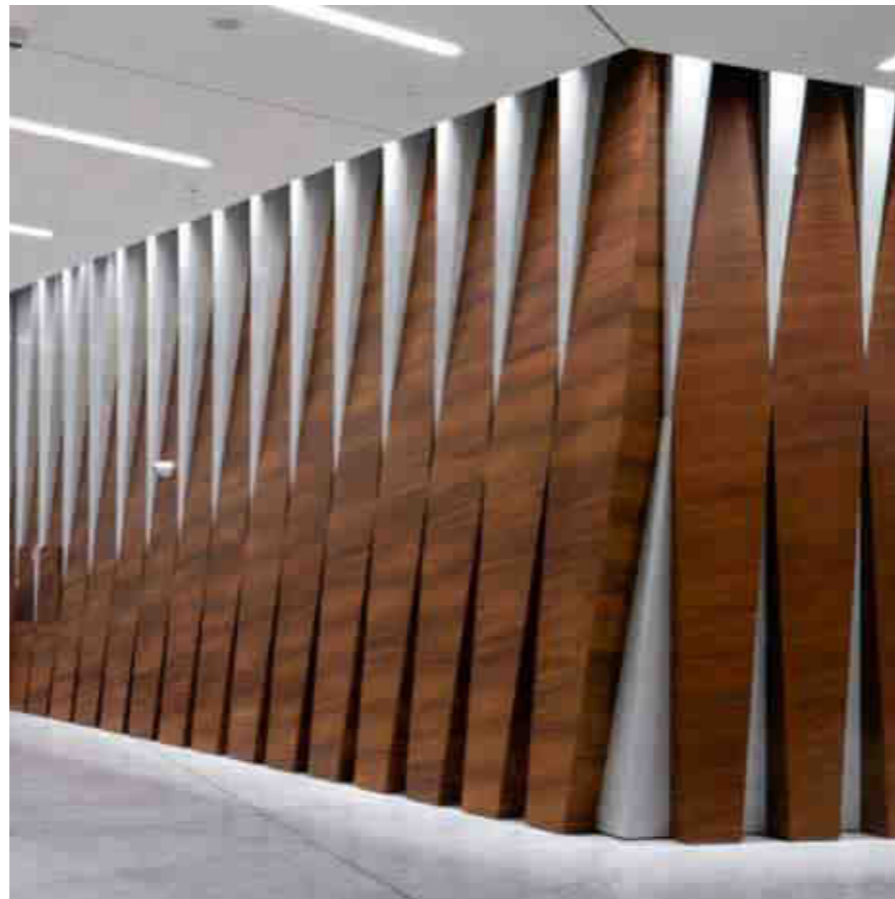
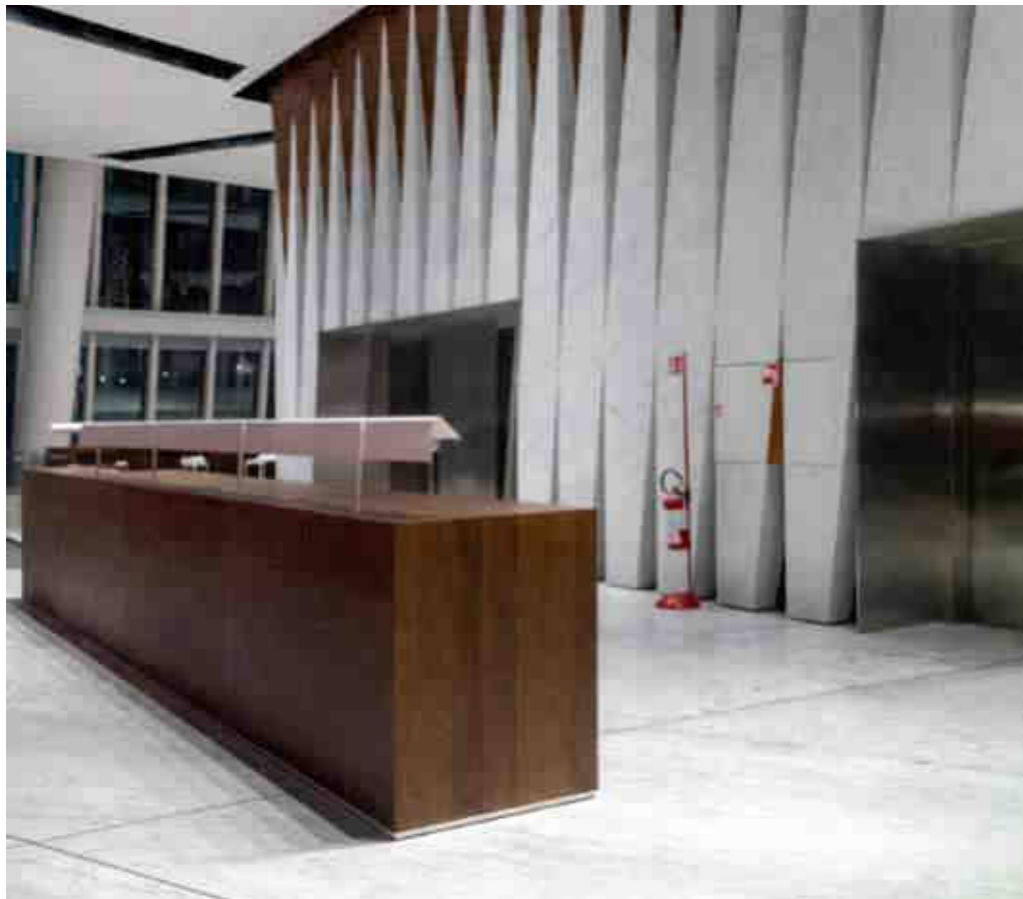
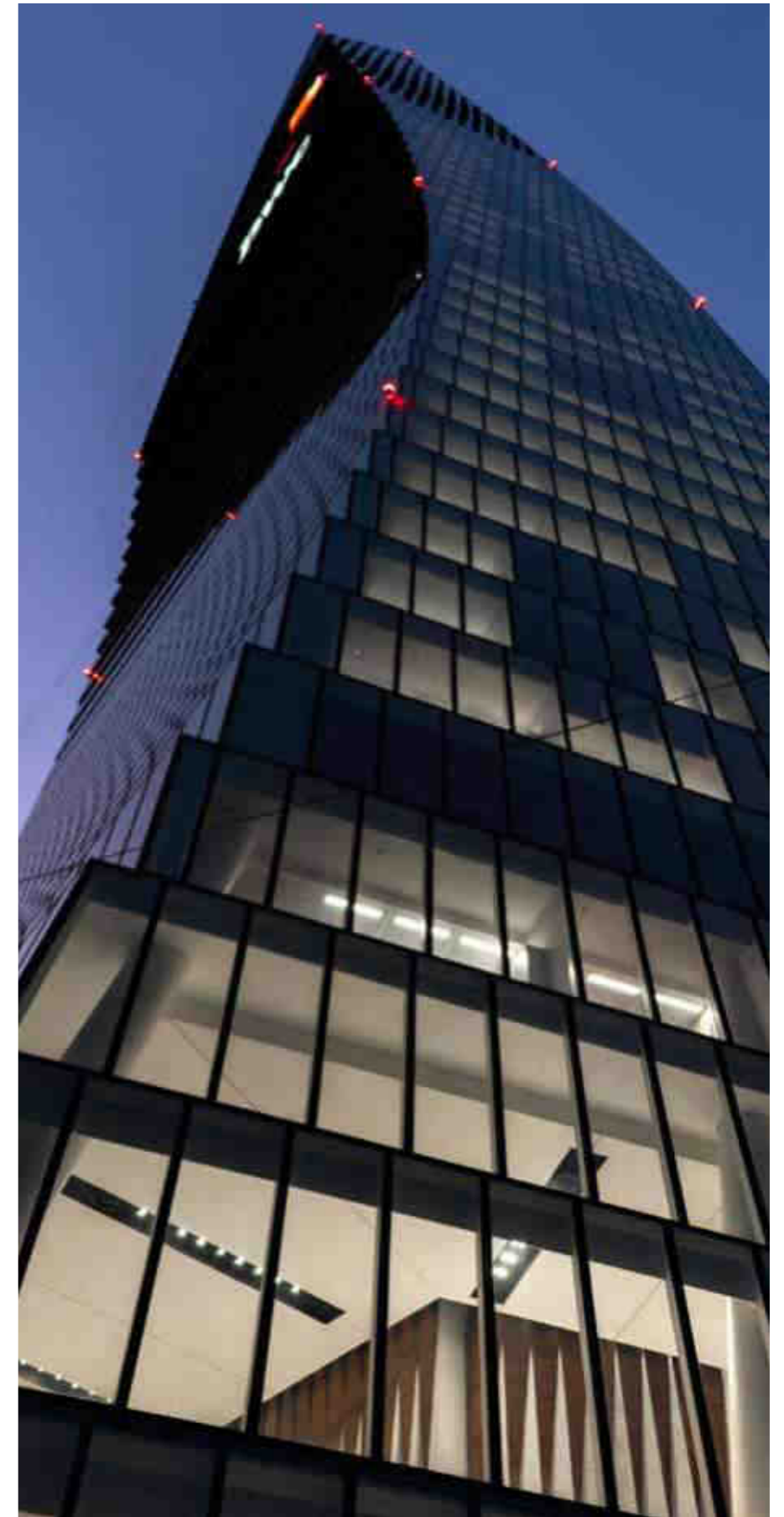
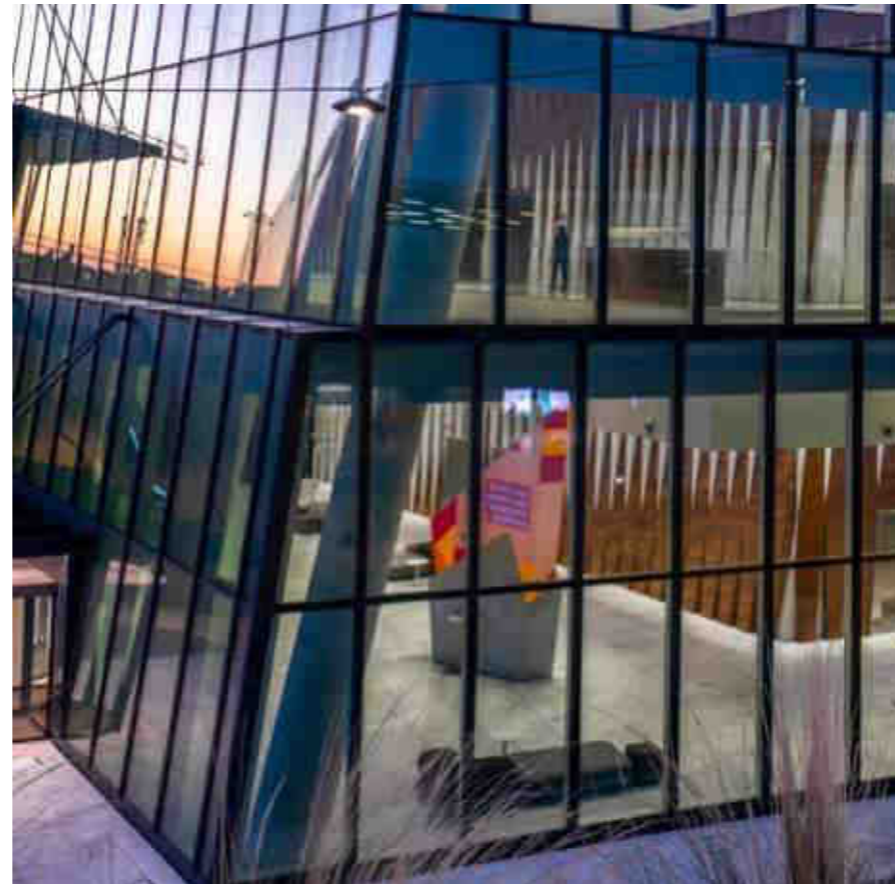
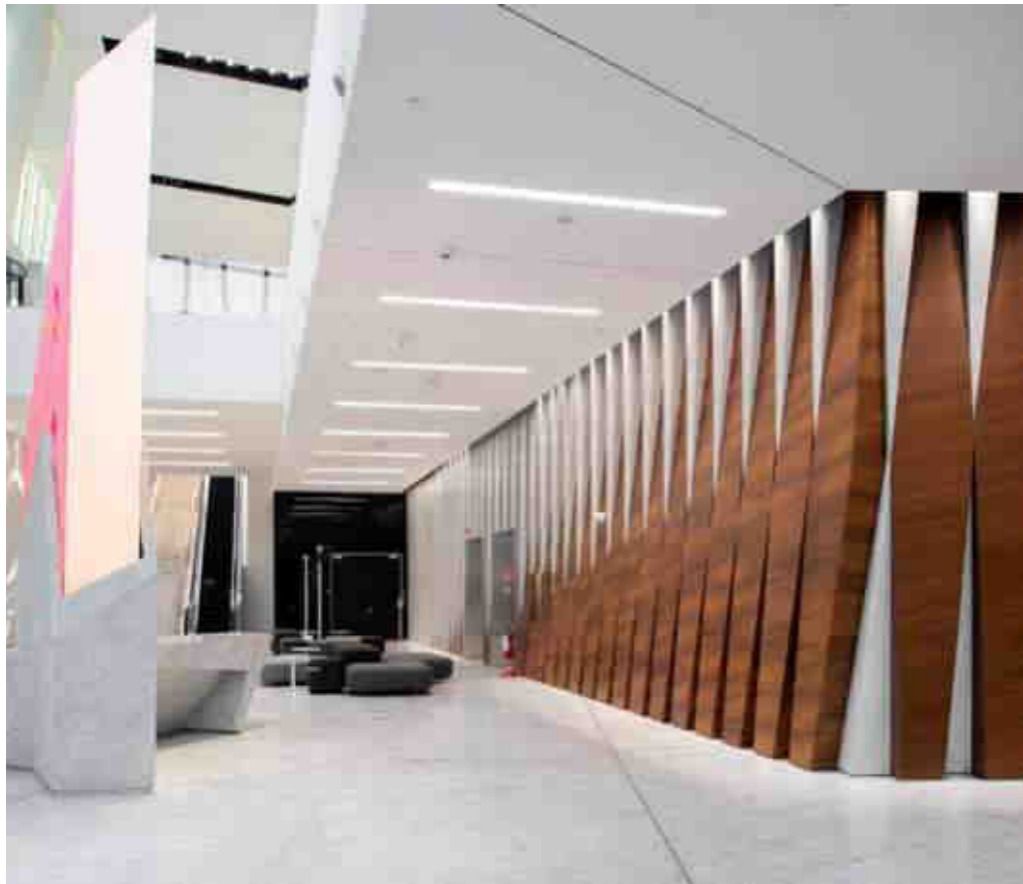


General information

- GEA: 57,040 m²
- Total GLA: 35,882 m²
- 28 office floors, 3 story lobby, 3 basement levels
- Typical floor plate: from 1,200 m² (low-rise) to 1,000 m² (high-rise)
- 226 parking spaces in the underground parking garage
- Maximum daytime: 2,716 people

Thanks to the overall surface of 360,000 m², CityLife represents one of the largest urban renewal schemes in Europe, with its balanced mix of public and private services.





SHOPPING CENTER

ESSEX CROSSING

NEW YORK

— 3

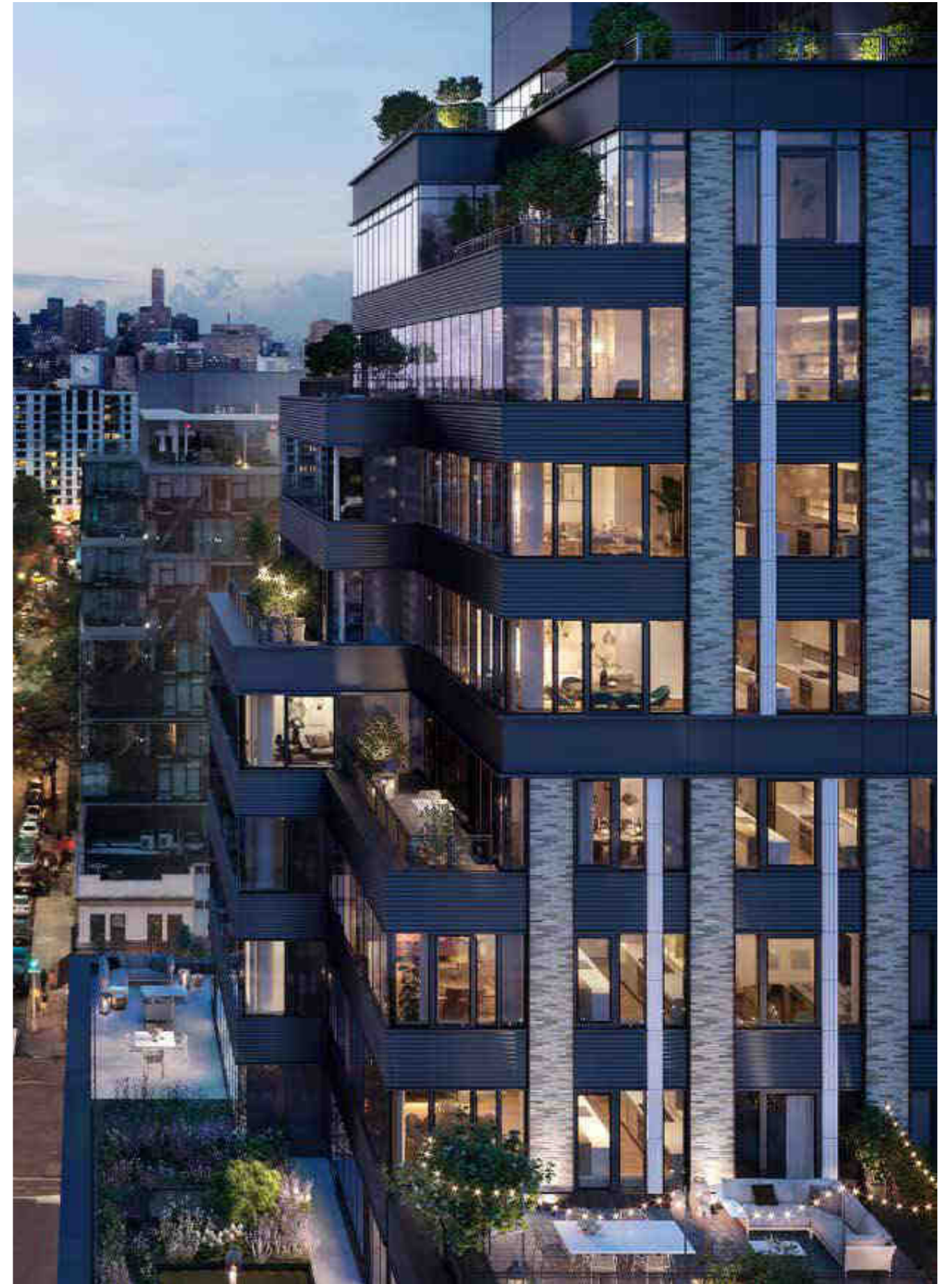
Architectural design:
CetraRuddy Architecture

Brick AIR



GammaStone BRICK AIR
Facciavista Longformat

Shopping Center
New York City
40°39'40"N 73°56'38"W



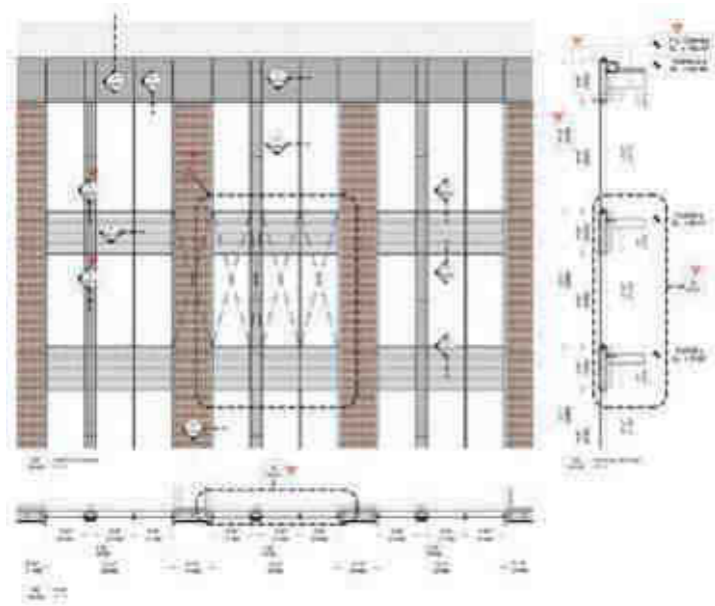


Essex Crossing 3 is the flagship project of GammaStone Brick AIR being incorporated in a curtain wall system. Thanks to the collaboration and partnership of all involved, the “Facciavista Longformat” brick paneling was able to be installed in continuous frames. One of the main characteristics of this product is its visual adaptableness. GammaStone’s Brick AIR is produced in an integrated modern line of production followed by rigorous quality control procedures.

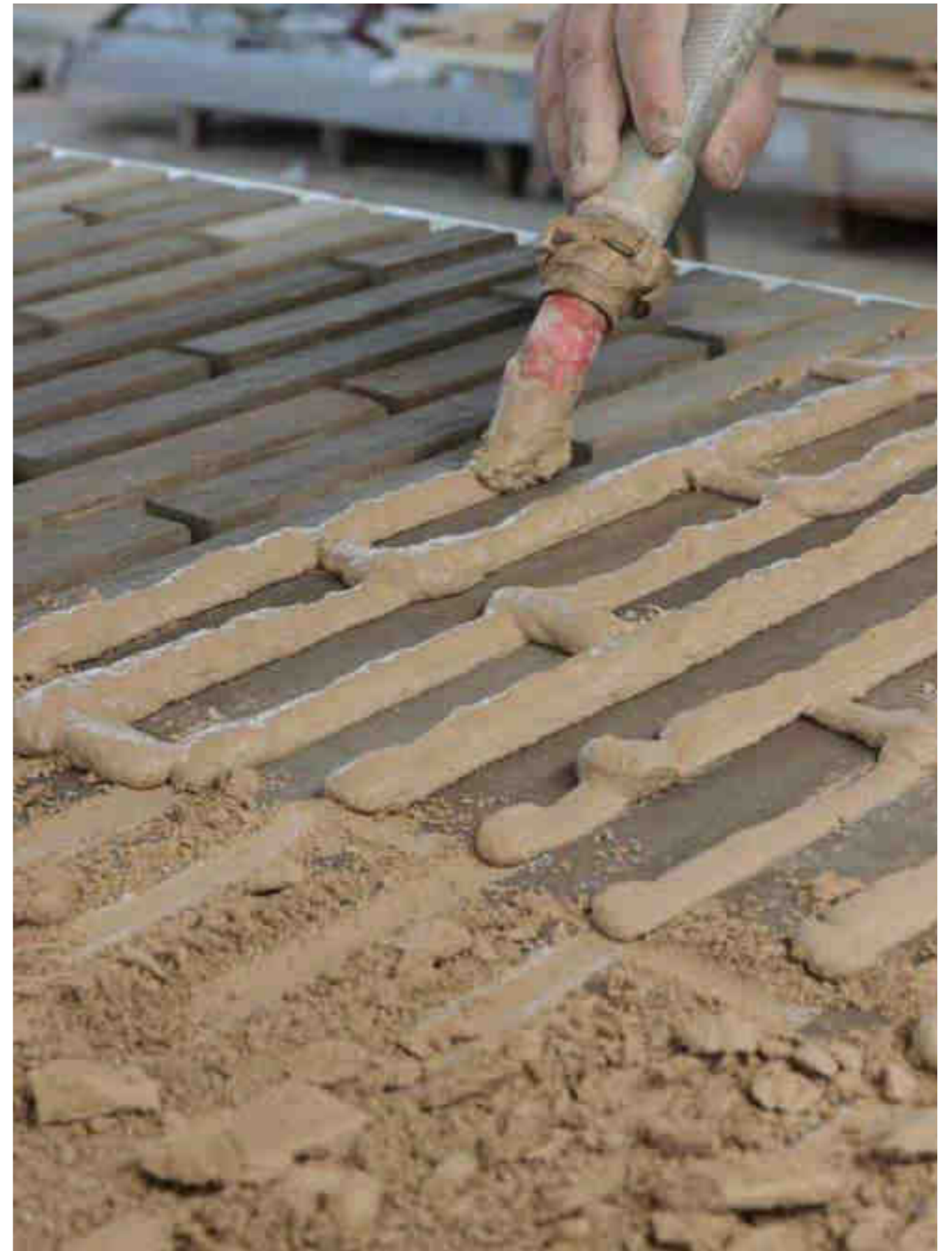
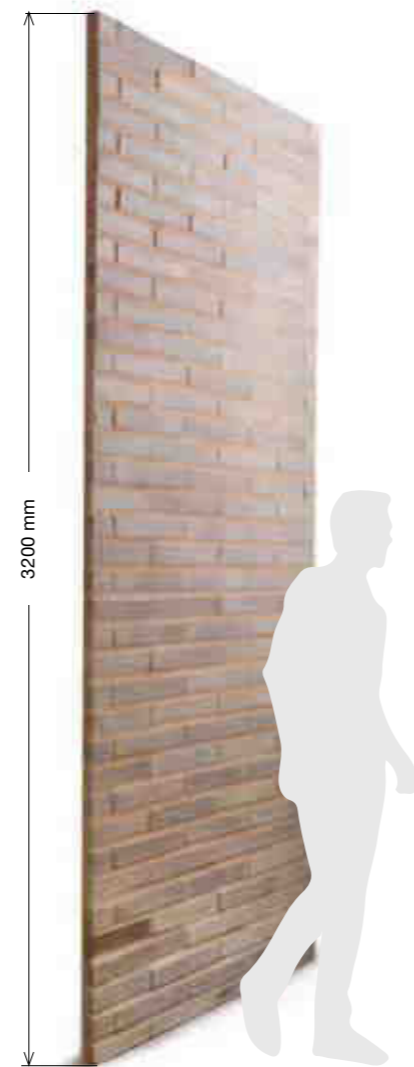


GammaStone Brick AIR

GammaStone AIR panels represent a state-of-the-art solution that guarantees high performance standards and offers an unparalleled aesthetic beauty. The GammaStone Brick AIR solution allows dry installation of Klinker or porcelain bricks with advantages of a fast installation and beautiful aesthetics. The panel is supplied and pointed with mortar ready for installation. The joints between panels are designed to guarantee a unique effect on the entire facade.



PODIUM
Enlarged Elevation

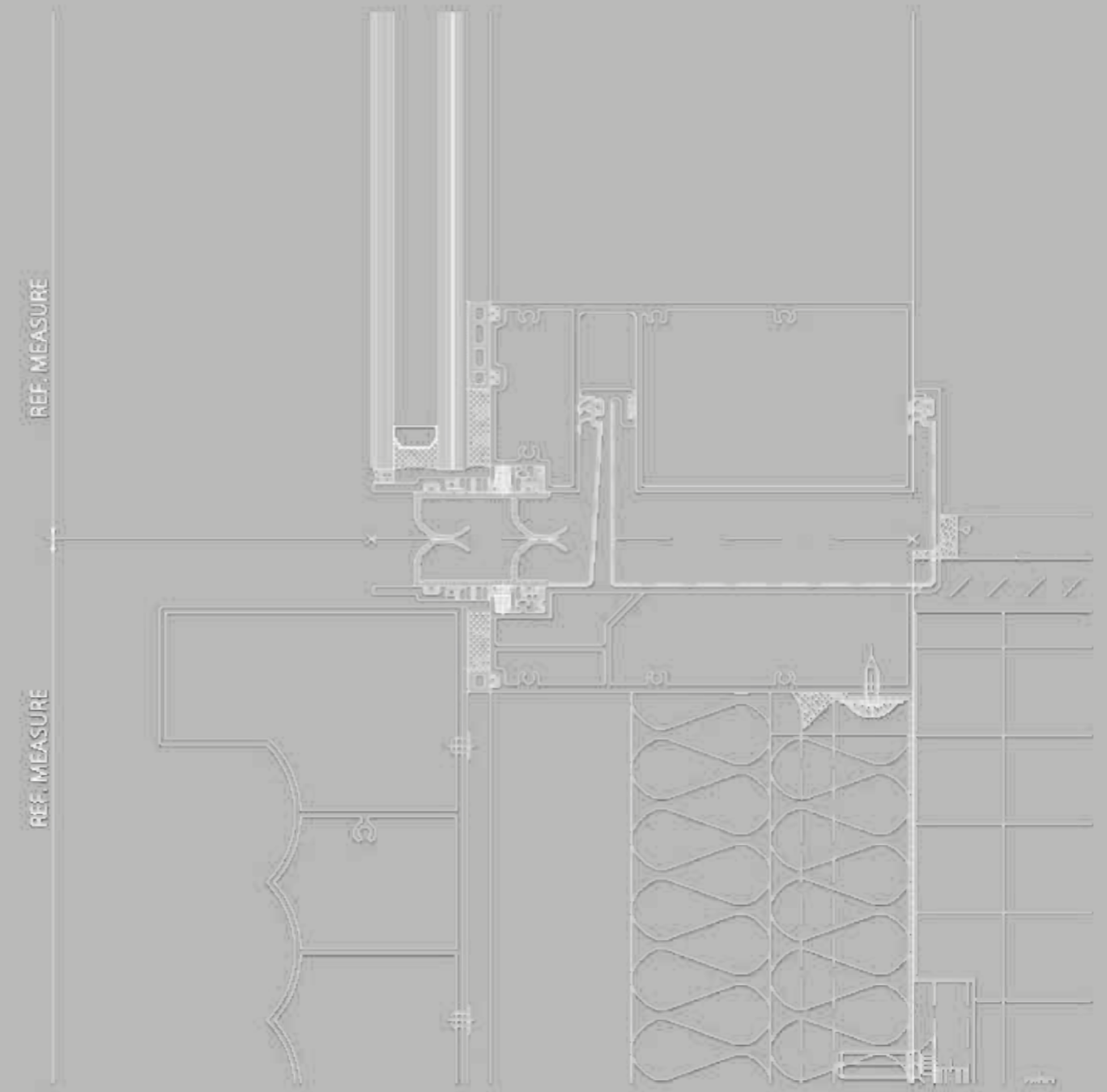


Our high standards for quality control, combined with advanced technology, allow a rapid assembly and a simple installation onsite.



Our technology allows us to adapt the panels to the design demands of the building and achieve a project that is both functional and unique. For Essex Crossing 3 we were able to insert different size bricks into the panel, which gave the architect the ability to design down to each brick.

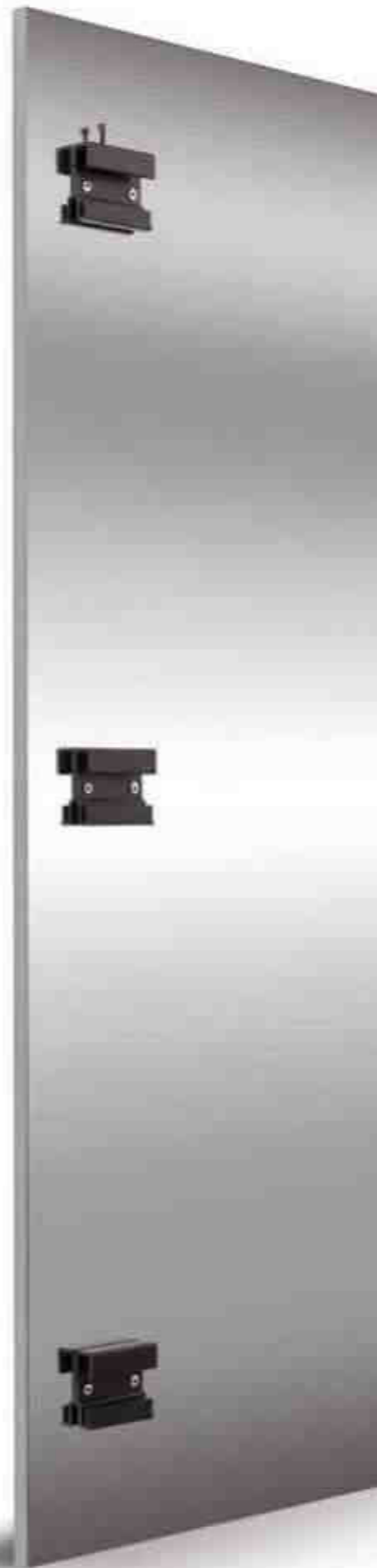
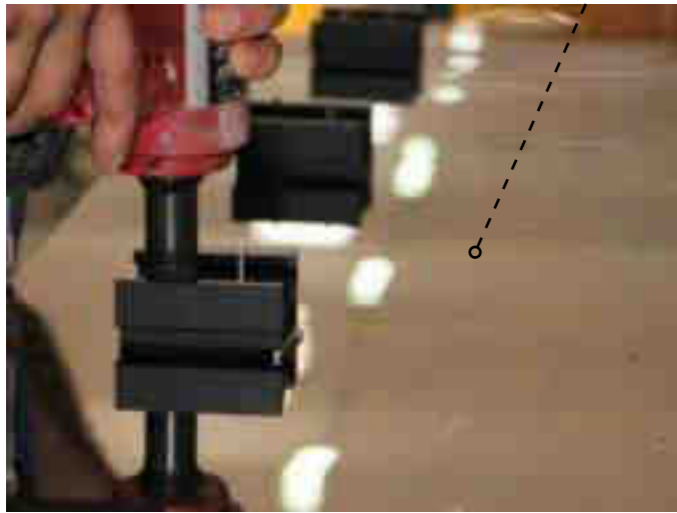
GammaStone Brick AIR panels are delivered to the curtain wall manufacturer, so they can be assembled in the frame and arrive to the site ready for installation.



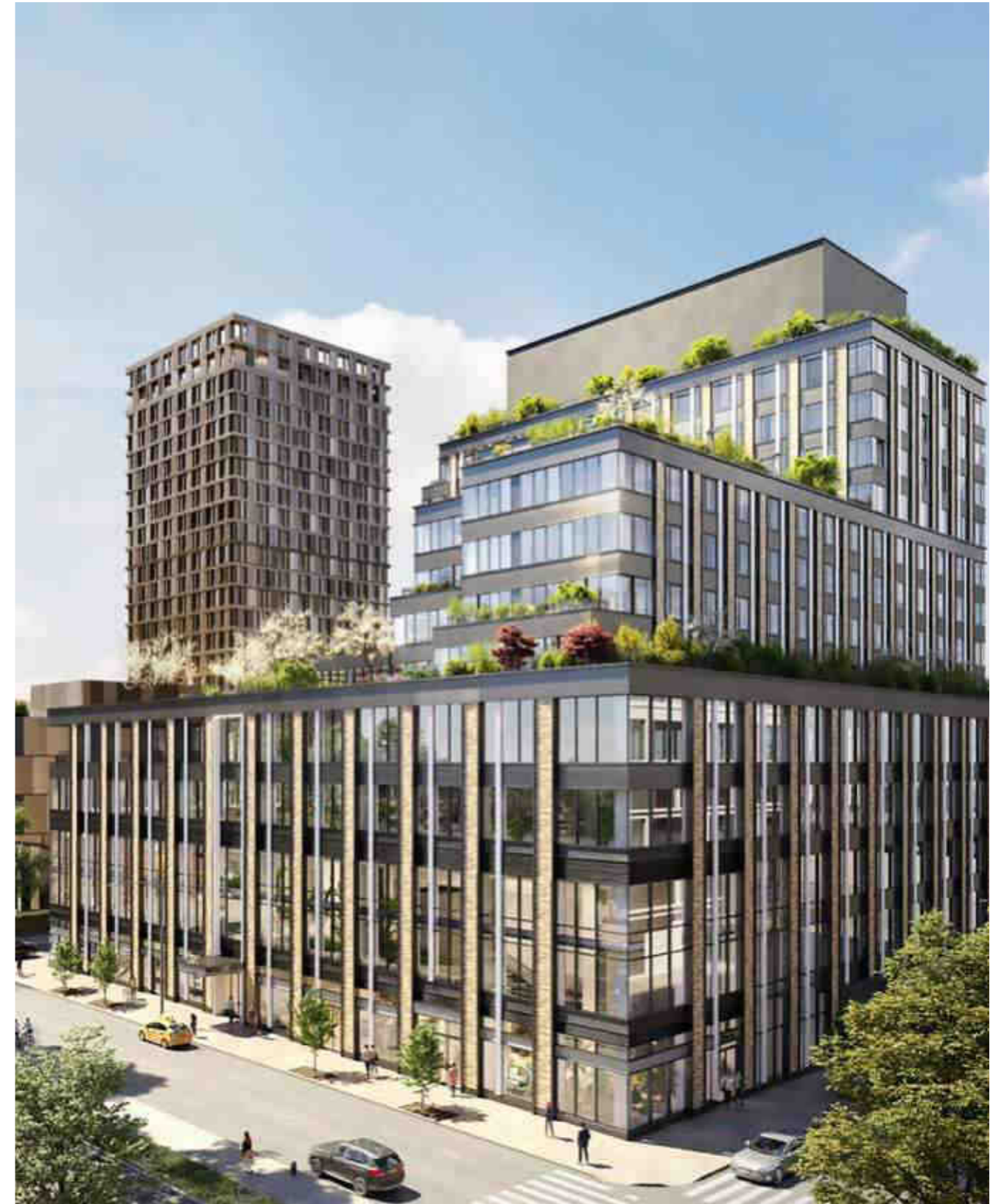
podium
Sect. Ref. Measure

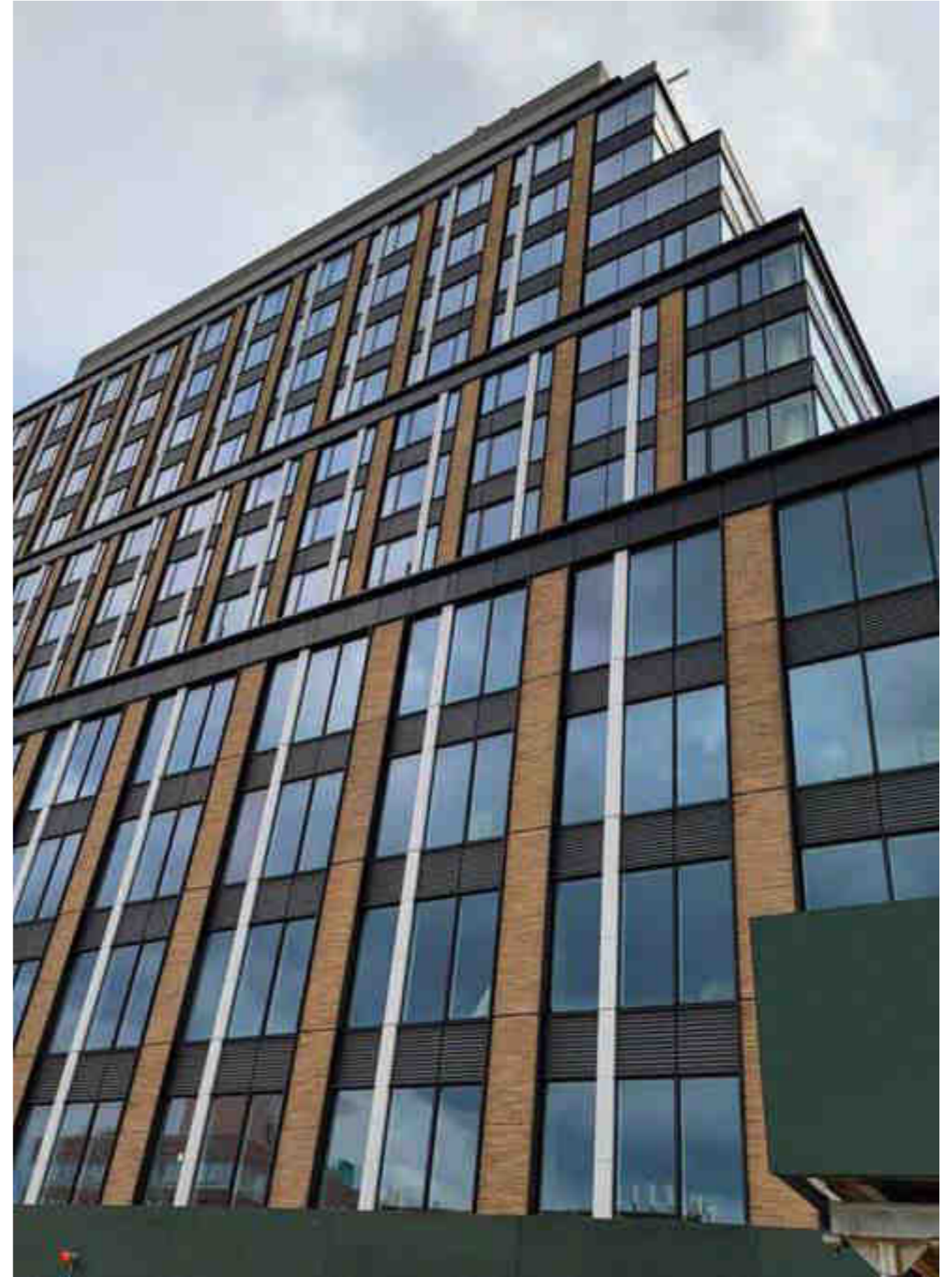


Clips being mechanically fastened



The speed of installation, as well as the flexibility of the use of the panels in this project shouldn't be underestimated, since this building is located in the heart of Manhattan — NYC. GammaStone is pleased to have been able to meet this challenge and participate in a successful project.





EXTERIOR FACADE

140 WEST 24TH ST

NEW YORK

Architectural design:
Gene Kaufman Architect PC

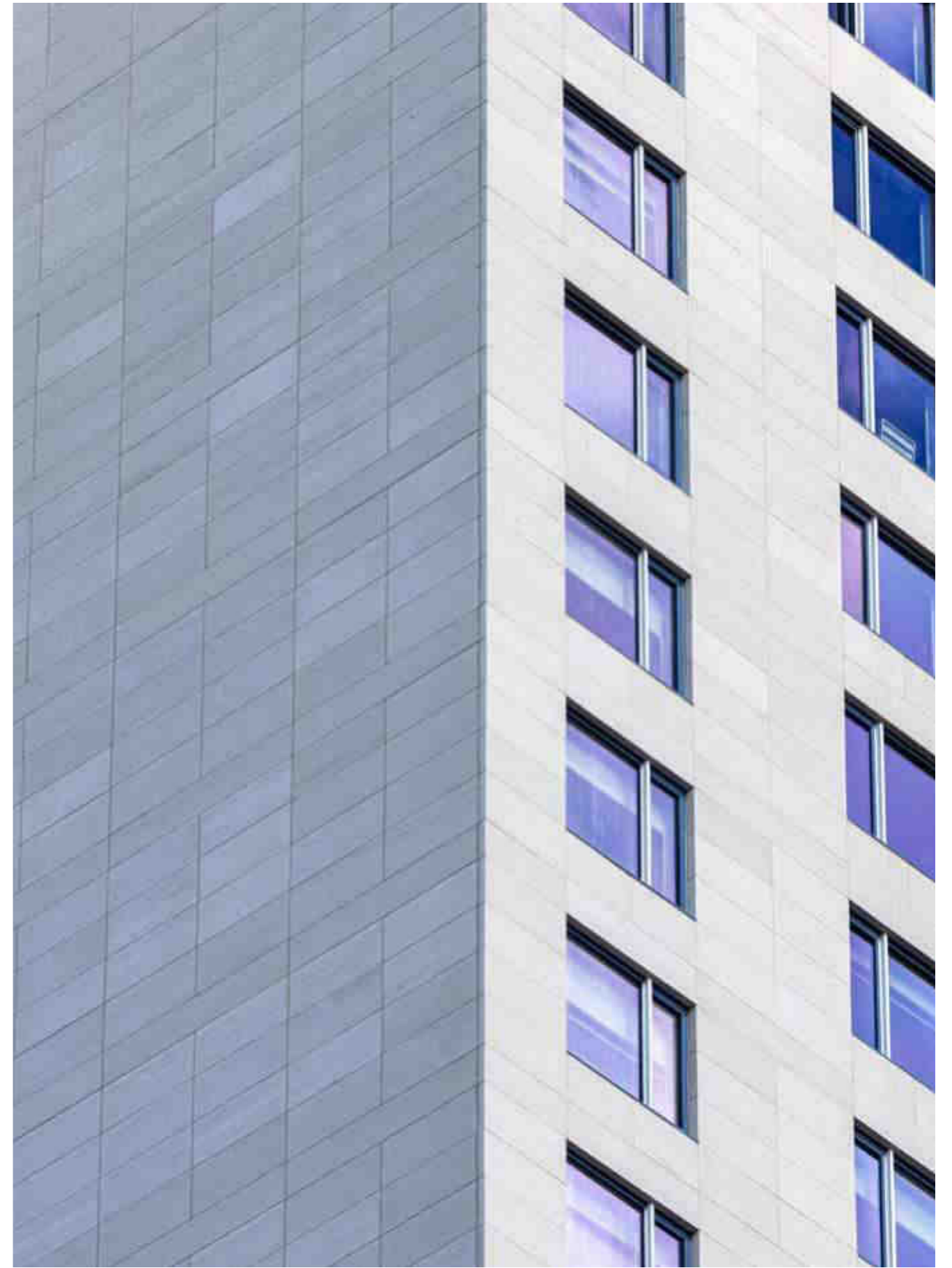
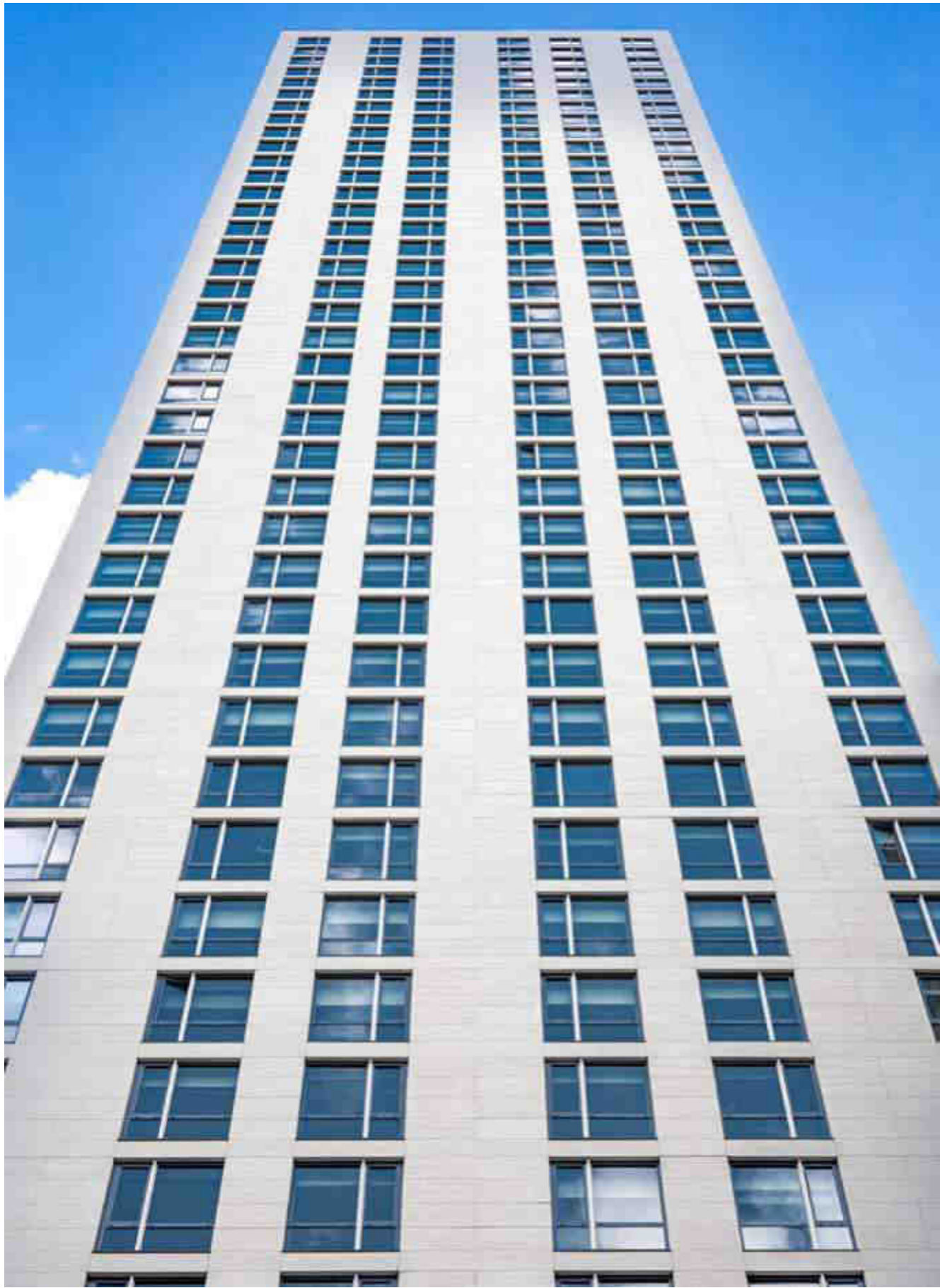
Natural AIR



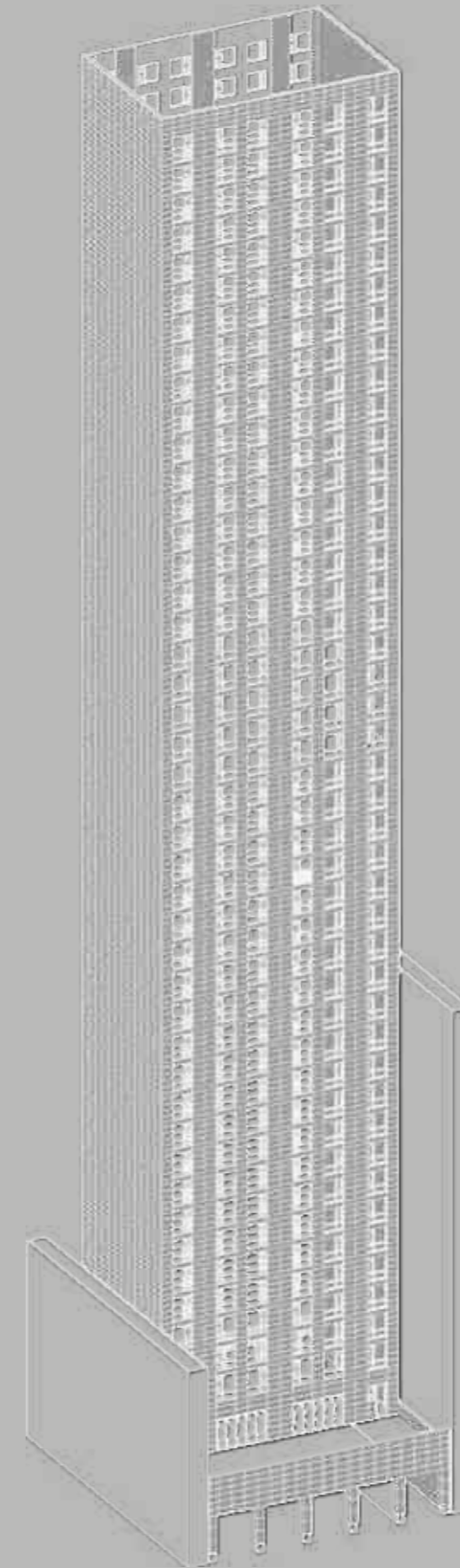
GammaStone NATURAL AIR
Limestone Mocha Cream Fine Grain

140 West 24th St,
New York - USA
40°44'38.83"N - 73°59'39.19"W











One of the tallest Marriott Springhill Suites/Townplace hotels in the country standing at 46 stories with over 500 rooms, this dual brand Marriott hotel has sweeping views of the city to the north and south including of the Empire State Building and the Freedom Tower.

This 45 story hotel rising out of New York's Chelsea neighborhood can be seen from miles away as it reaches high above the neighboring buildings.

With such a prominent exposure on all 4 sides, the design required a natural stone exterior to anchor it into the surrounding context.

Also the façade was required to have all cladding and exterior insulation layers within only a 4" total system depth, while having some depth to account for tolerances on a very tall concrete superstructure.



GammaStone Natural AIR

GammaStone Natural AIR in beige 6mm thick Portuguese Limestone allows the natural stone to be utilized while meeting today's strict energy requirements. The unique ability of GammaStone to make special monolithic elements ready for installation contributes to the indisputable success of GammaStone AIR panels worldwide. They are the result of substantial investments in research and development, for advanced solutions; a philosophy that contributes to study and patent innovative construction systems.

The elements as corners, soffits, ceilings, columns, beams, etc. are assembled entirely in our laboratories and are installed with extreme simplicity common anchorage systems.

This system allows us to produce large and surprising light architectural geometric elements, impossible to realize with traditional products.

All GammaStone AIR elements have a real monolithic appearance and allow architects to realize highly complex shapes without neglecting the smallest details.

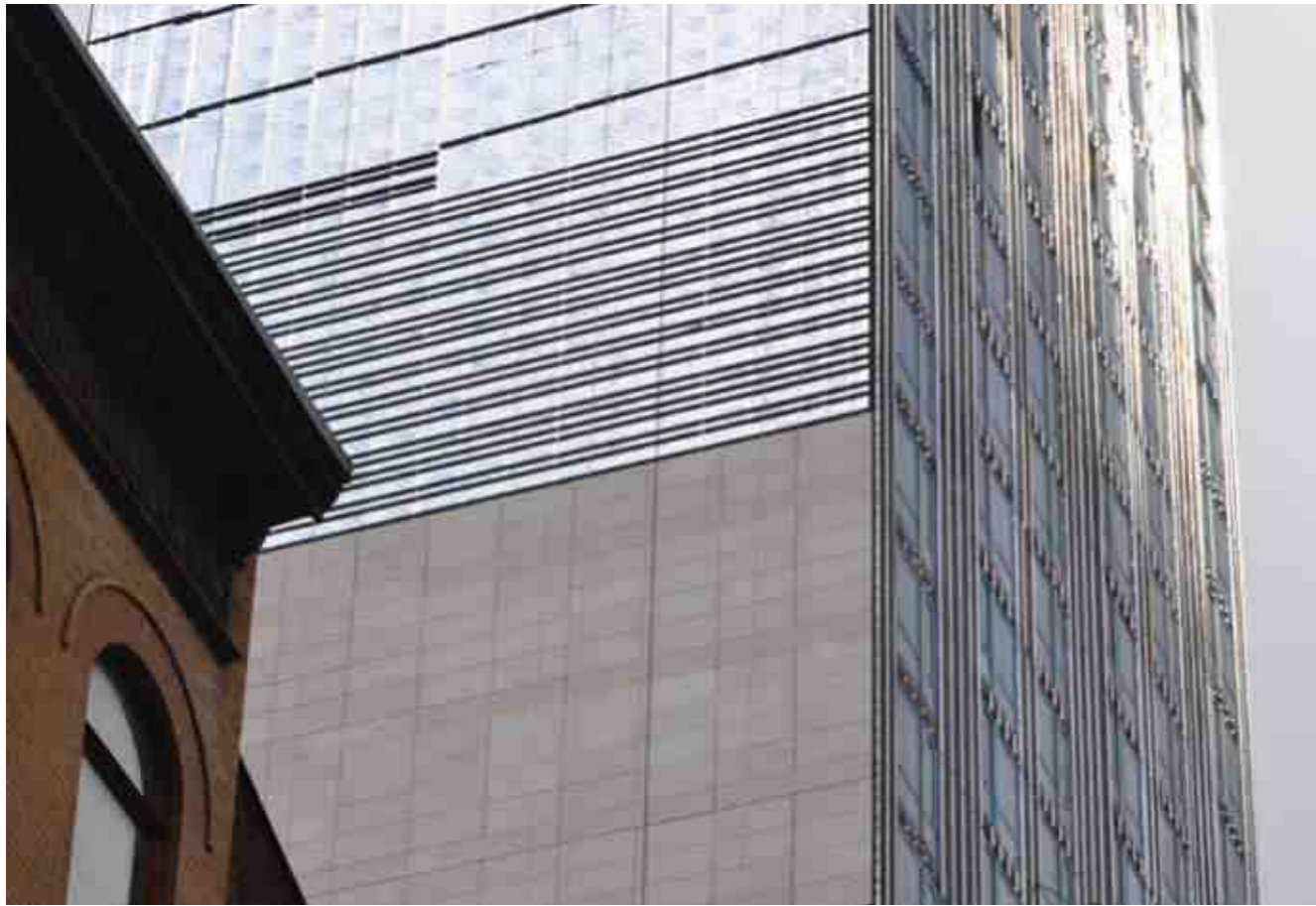






The facades of the building in GammaStone Natural AIR panels, Limestone Mocha Cream, bring about an astonishing monolithic effect. The beauty of the material and the quality of the finish enhance the quality of the project. A perfect demonstration of the great Italian architectural tradition.





TOP FLOOR FACADE RENOVATION

LINCOLN CENTER

NEW YORK

Architectural design:
David Geffen Hall

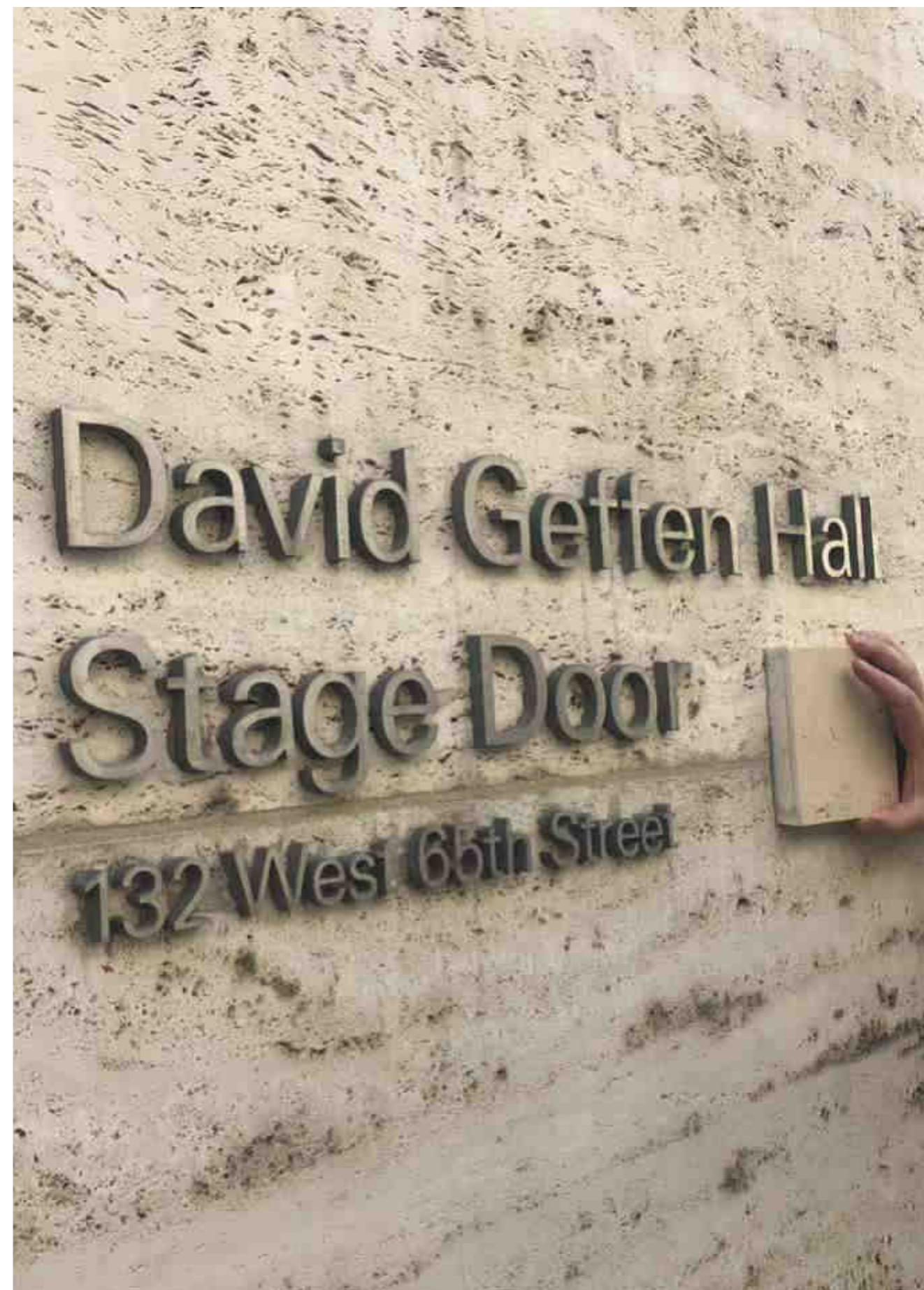


Natural AIR



GammaStone NATURAL AIR
Este Light Travertine

Lincoln Center
New York - USA
40°46'26.4"N - 73°58'55.2"W



Facade Renovation of the Lincoln Center for the Performing Arts in GammaStone Natural AIR

The Lincoln Center for the Performing Arts in New York City is world renowned for its architectural prominence and beautiful natural travertine facades. The original campus was completed in the 1960's using Este Light Travertine 6cm quarried in central Italy. Over time weathering has caused some areas to require extensive maintenance and replacement. Now the trustees of Lincoln Center have sought a more advanced solution for replacement, while maintaining the original aesthetic and feel of dimensional stone. The GammaStone Natural AIR system is being utilized with stone from the very same quarry that was used 60 years ago.



This thickness is enough to maintain all details of the open pores of the stone while utilizing rainscreen technology to make panels lighter and more readily able to shed water and hold up to harsh seasons for many years.





GammaStone Natural AIR
in Este Light Travertine
Width: 2' - 9 13/16" - 860 mm
Height: 2' - 4 1/4" - 1330 mm



RENOVATION OF AN OLD BUILDING

MILAN

COOP ARONA CENTER

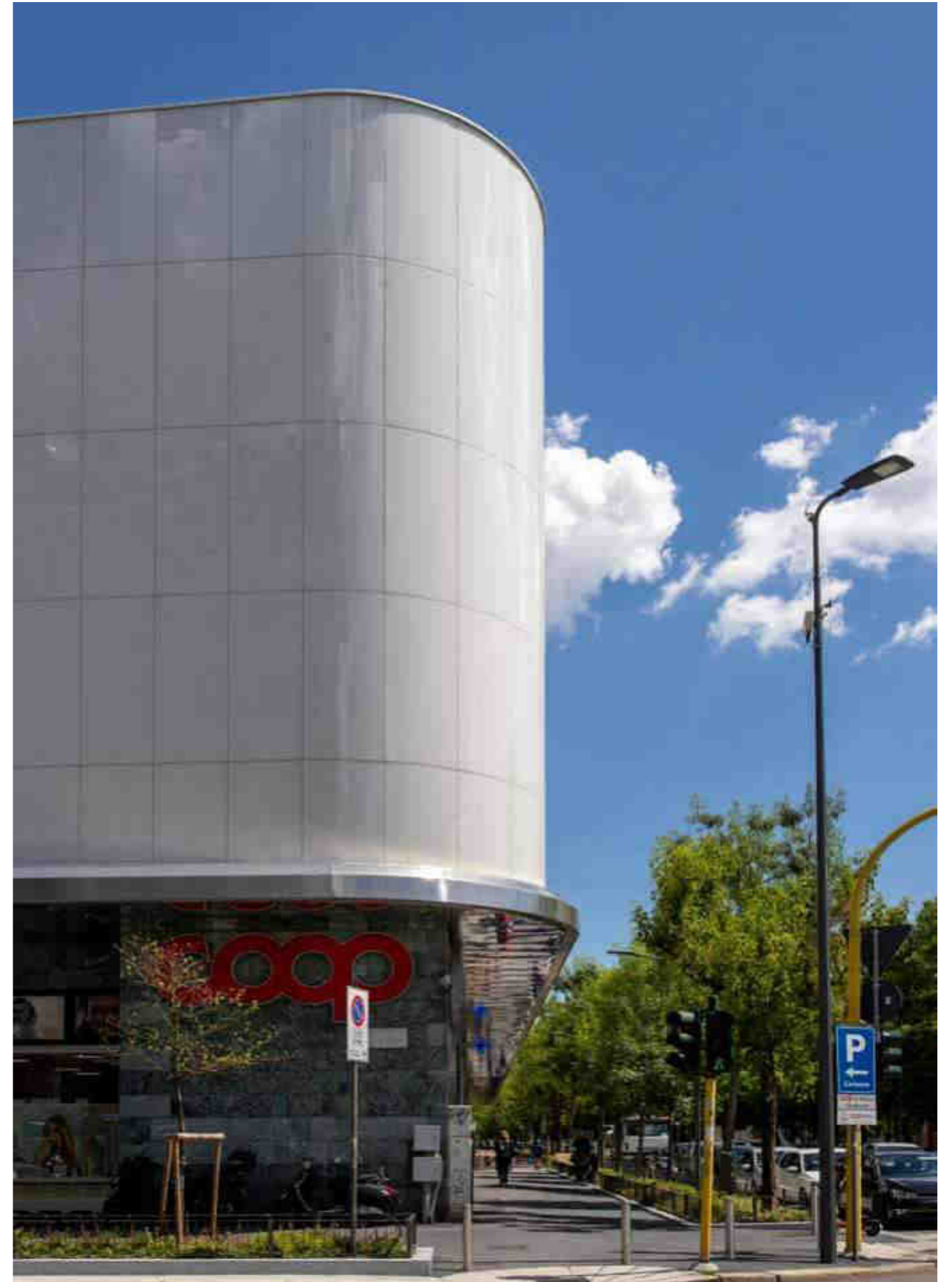
Architectural design:
Guidarini & Salvadeo Architetti Associati

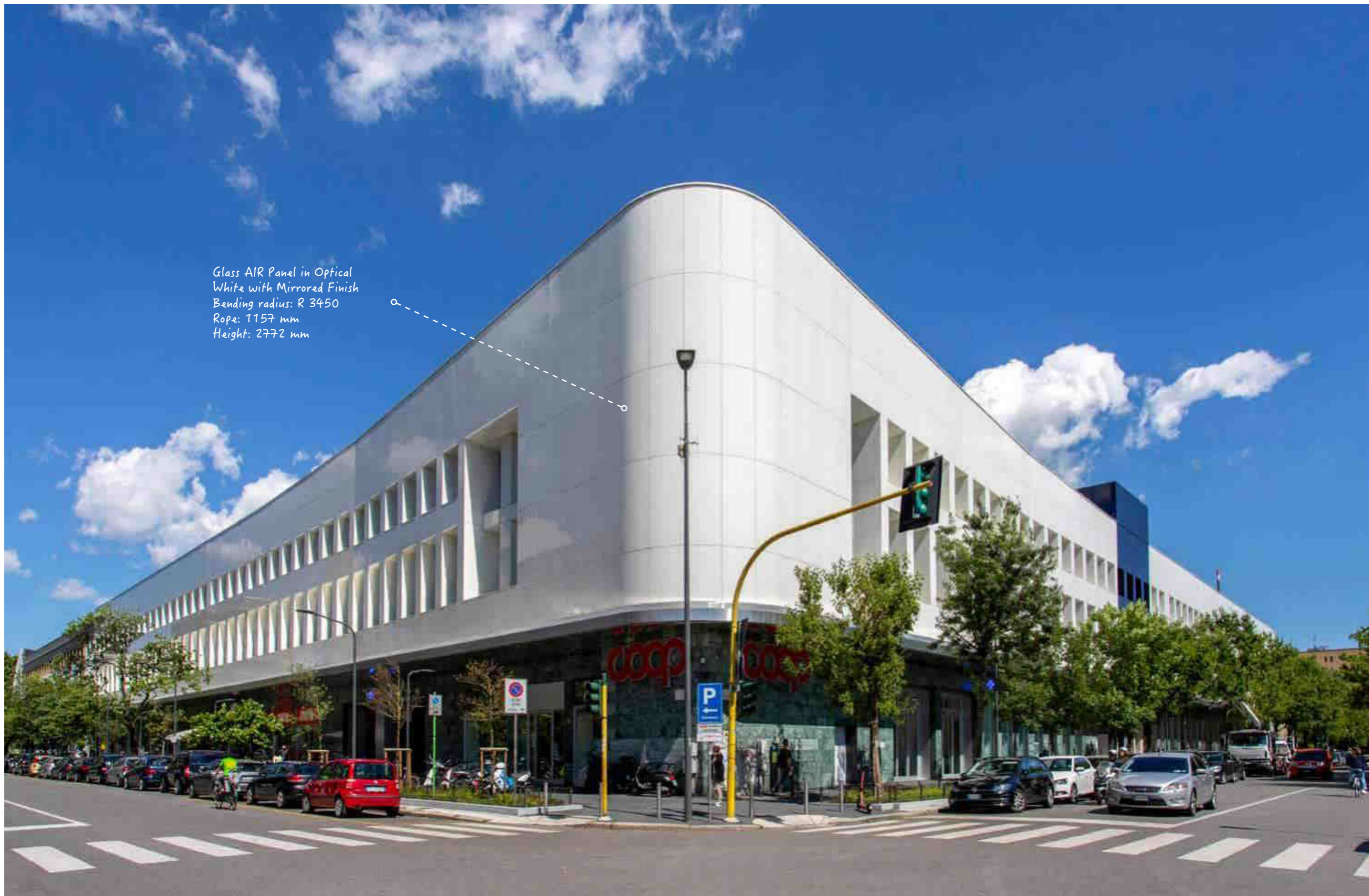
Glass AIR



GammaStone GLASS AIR
Optical White

Shopping Center
Coop, Via Arona 18, Milan
45°28'58.38" N
9°9'30.94" E





Glass AIR Panel in Optical
White with Mirrored Finish
Bending radius: R 3450
Rope: 1157 mm
Height: 2772 mm

The Coop. on Via Arona in Milan represents a flawless renovation of an old building which fits perfectly into an urban context close to the city center. The timeless beauty of glass makes the building elegant and majestic.

GammaStone Glass AIR panels are segmented to give the effect of continuous movement to the entire façade – dynamism from every angle and perspective.

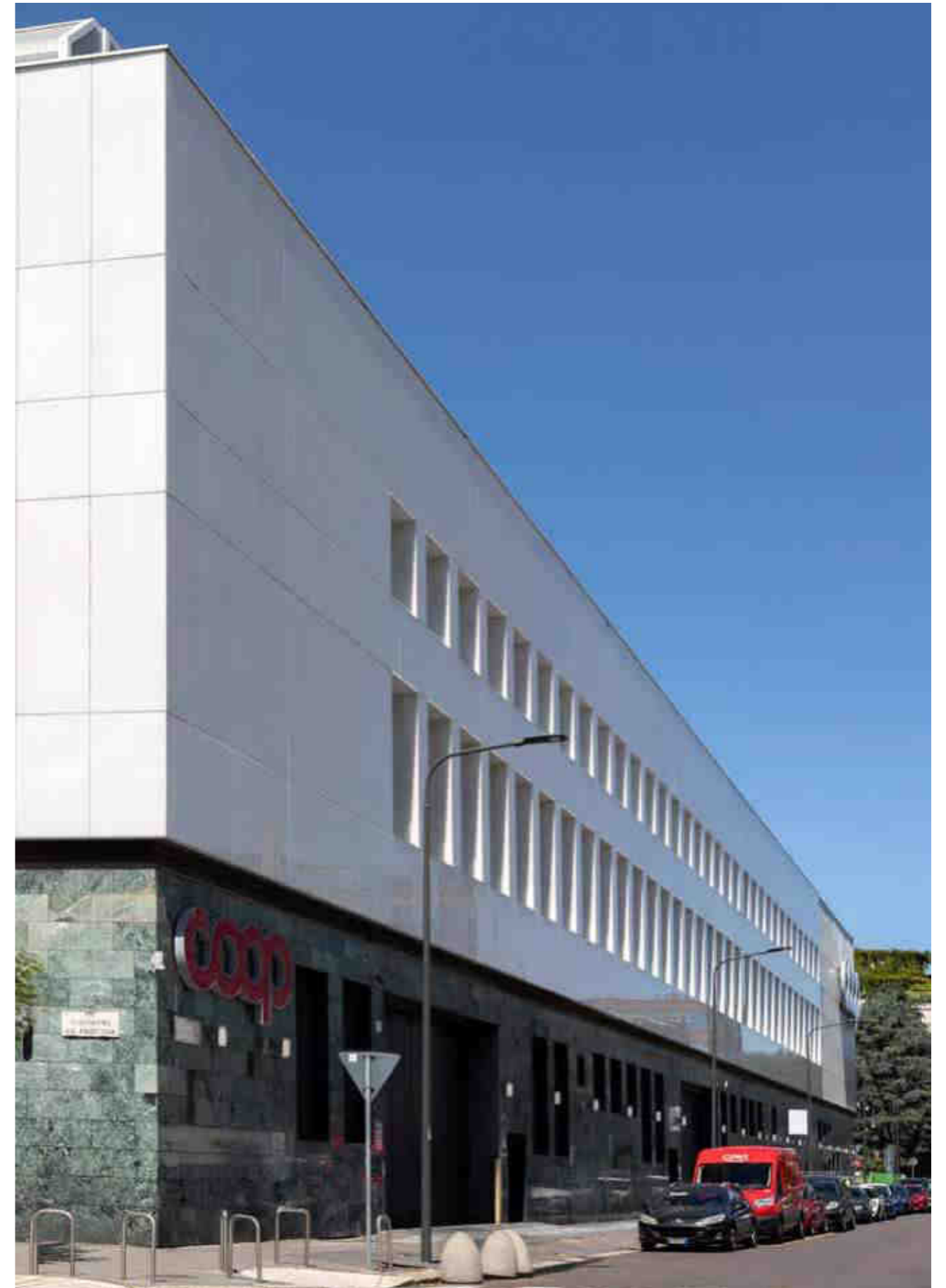
GammaStone exceeds expectations always, by applying itself with talent and passion.



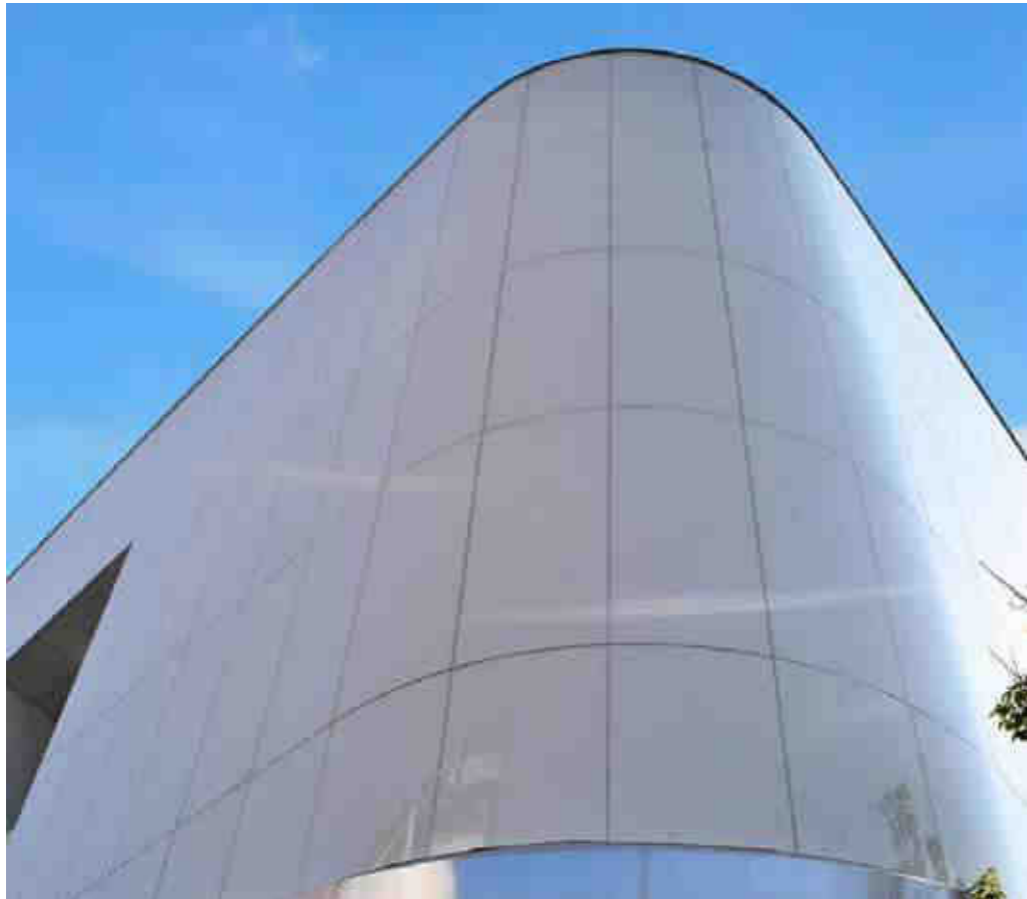
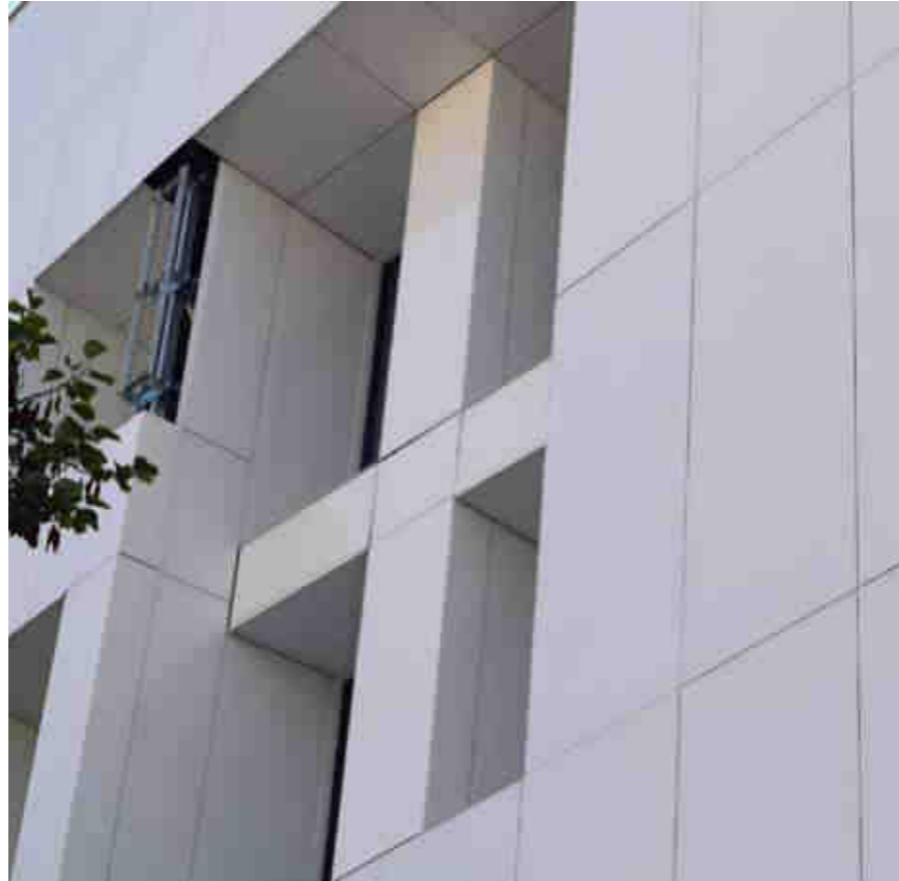
before

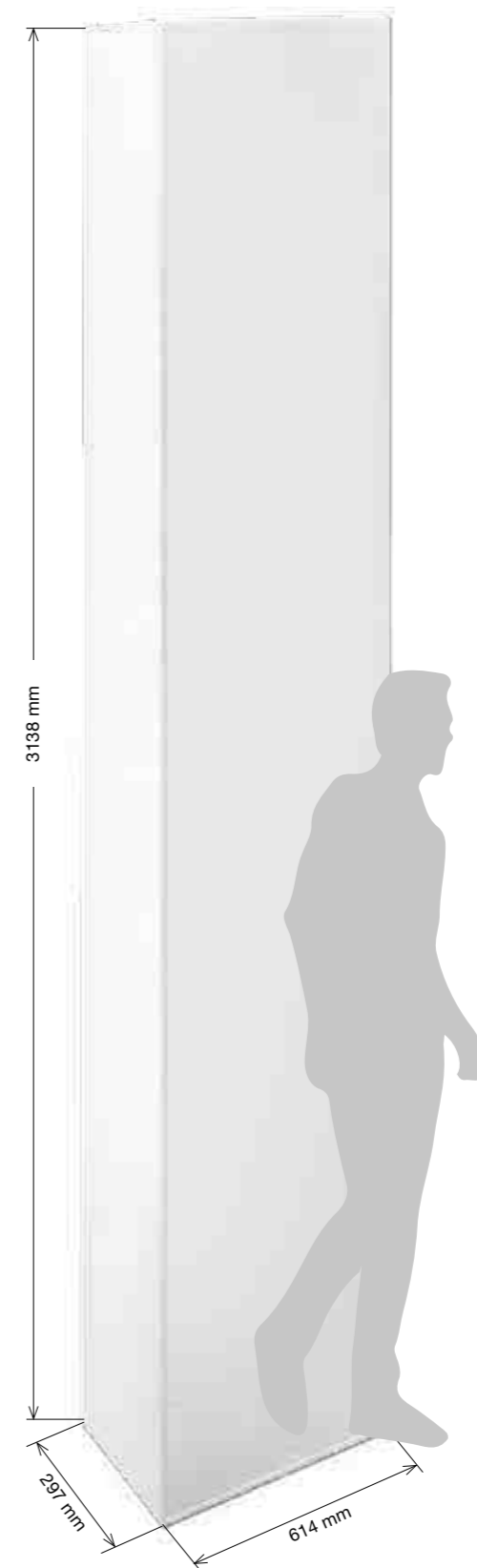
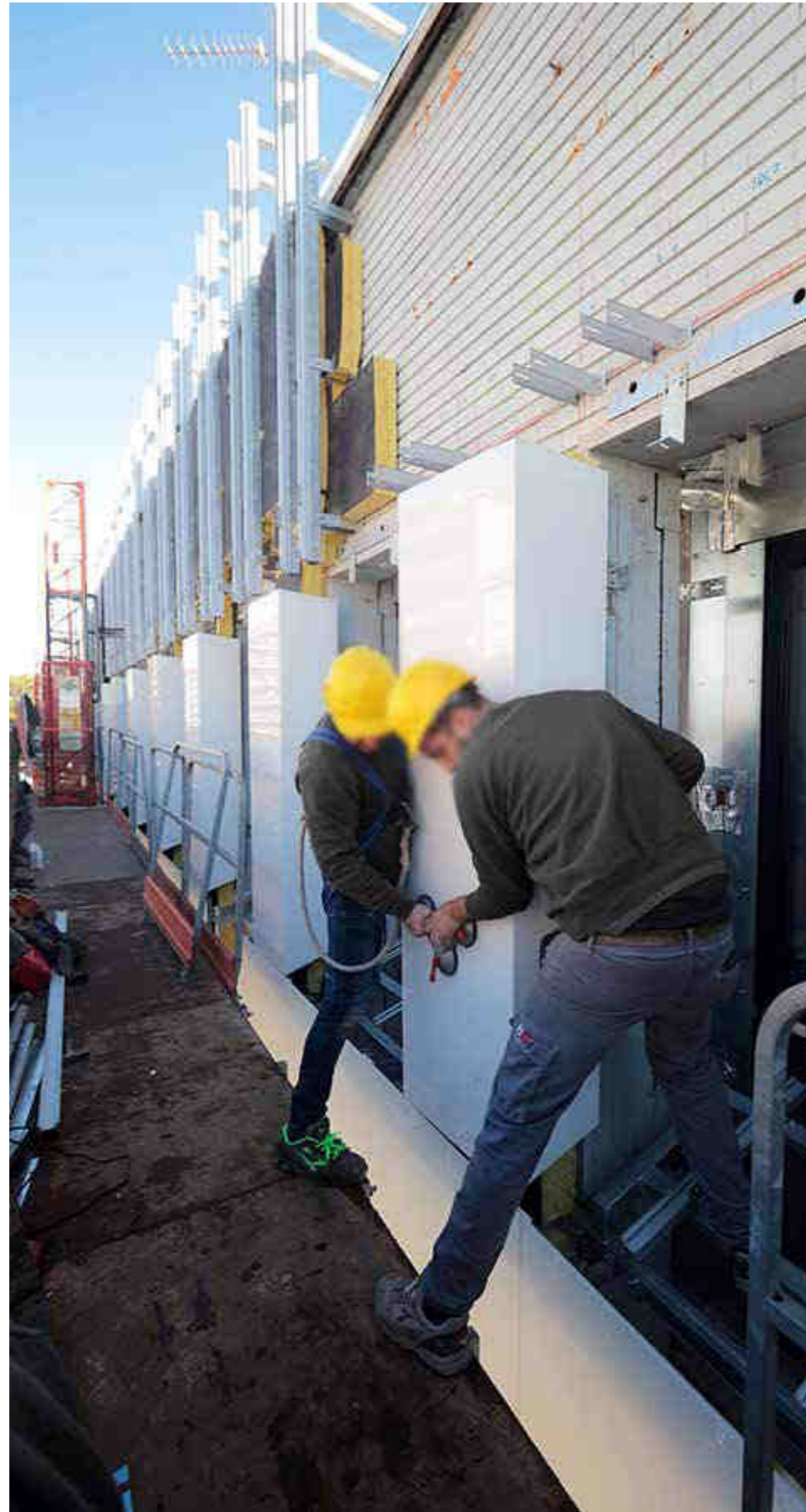
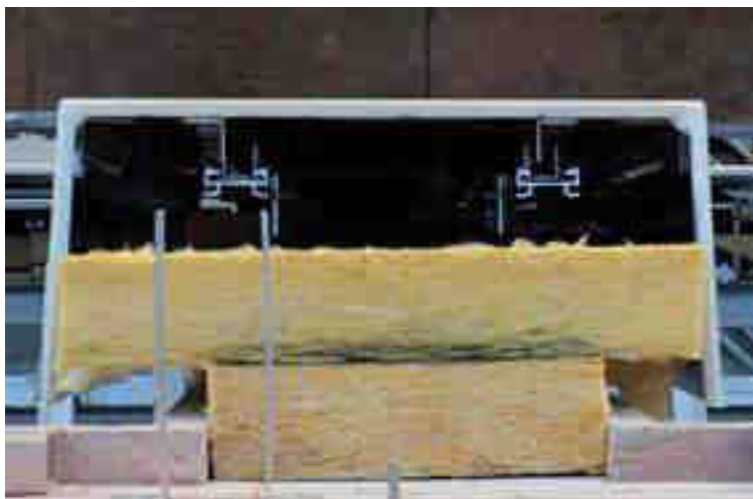
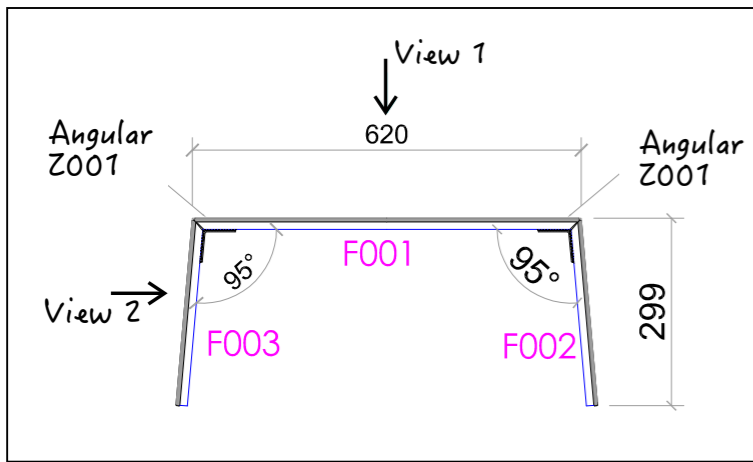


...after







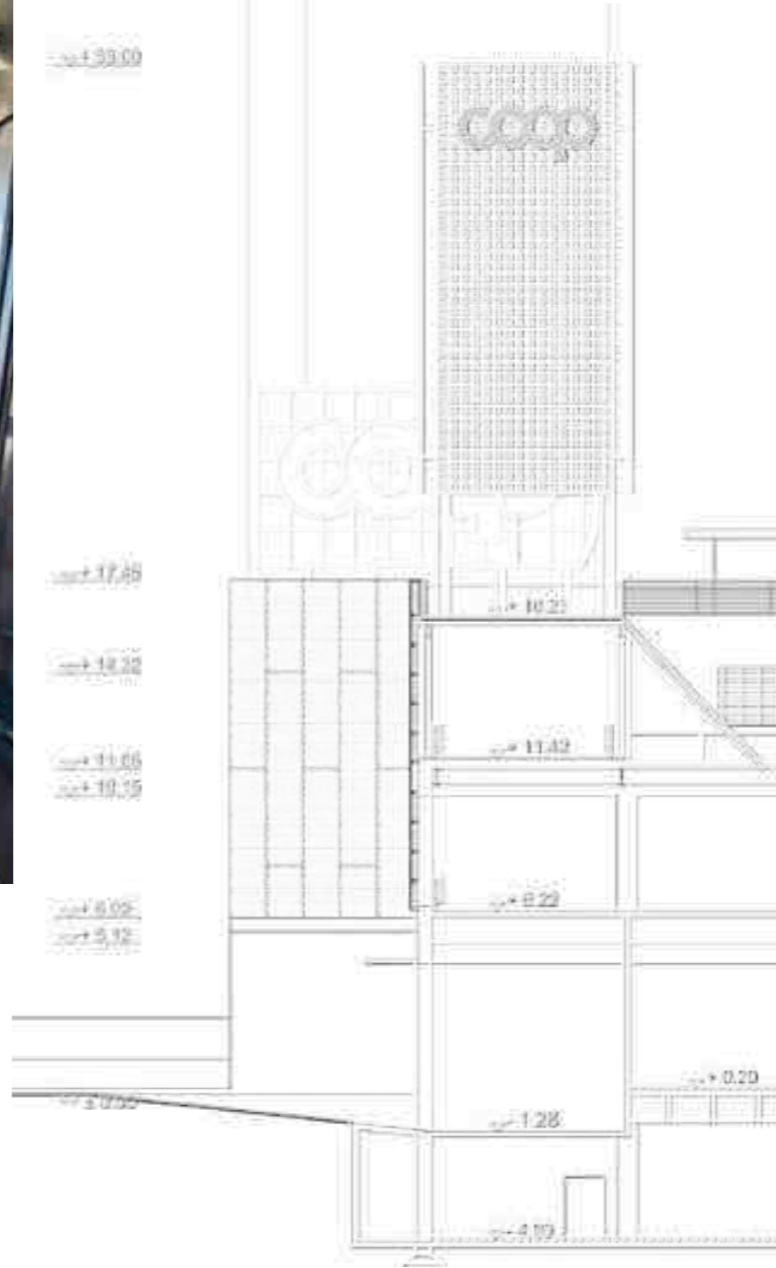


The panels are adhered together with structural epoxy adhesives and reinforced by metal angles forming a single monolithic architectural element.



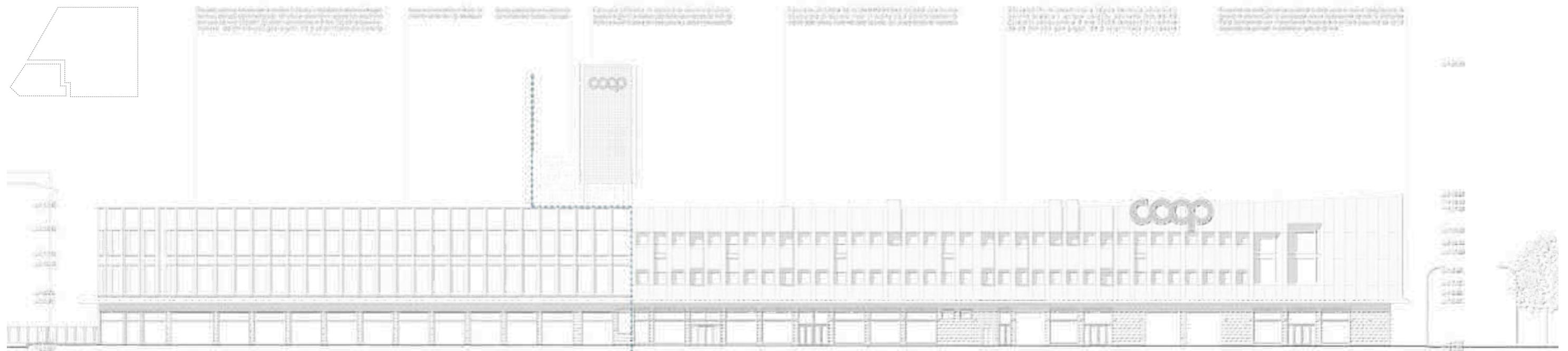
Facciata ventilata serie GAMMASTONE GLASS con anima strutturale in acciaio inox - cristallo 13.2 antirifondamento
 Inibiti defloccazione naturale della facciata, con anodi sacrificali ripetuti

Scritta pubblicitaria in alluminio
 con struttura in tubolari d'acciaio



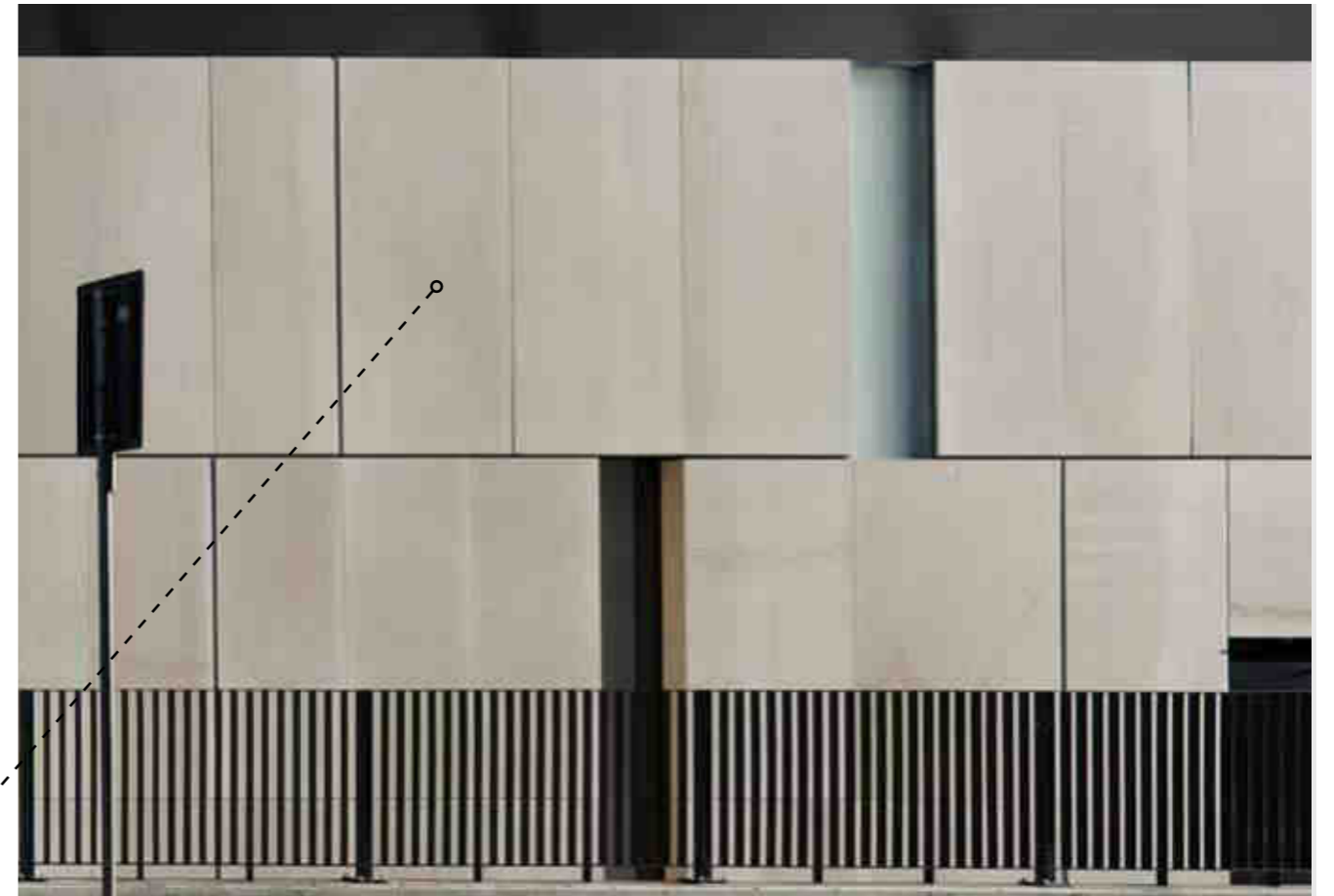
This is a result of a history of developing technologies and combining this with the Italian tradition of artisanal quality. Our experienced team of engineers and architects has made GammaStone the go-to solution for this project.

The sinusoidal shape and the curved corner are central to the design of the project. Using a single color enhances the effect of continuity and the curvature. The optical white with a mirrored finish creates a unique architectural feature, while emphasizing the Coop. branding on the building.

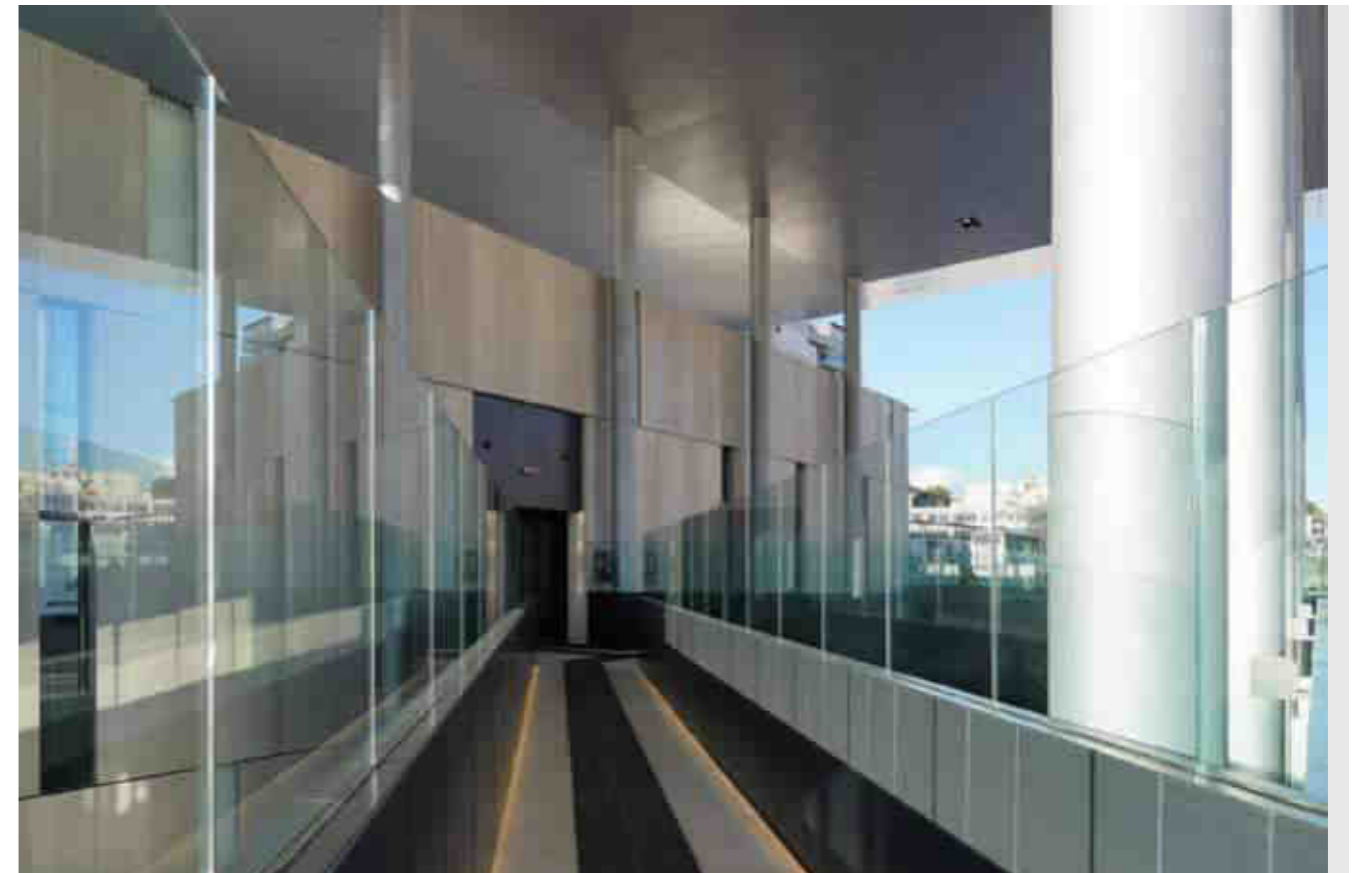




Redesigned by the world-renowned architect Stefano Boeri, this building renovation project brought greater prominence to the Matera Central Station FAL. GammaStone Natural AIR in Pietra di Tufo, a local stone, allowed the architect to design in large formats, creating a project that stands out while maintaining the natural characteristics of the town. The redesigned railway station brings greater access to other Italian cities and creates a new urban landmark.

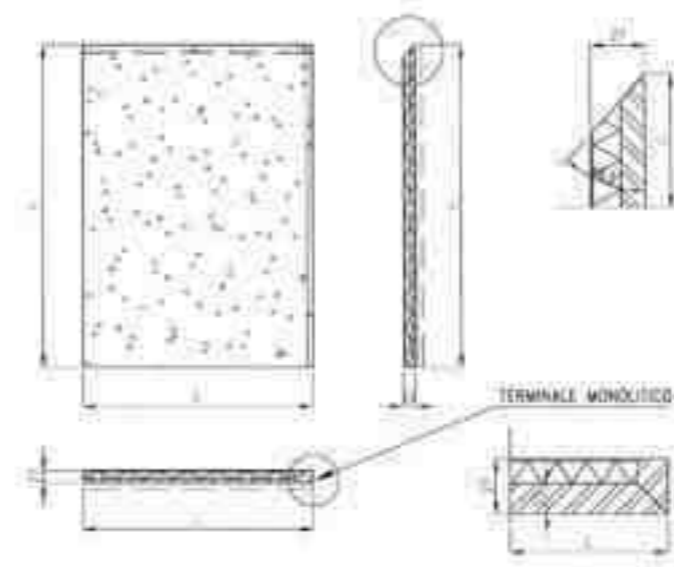


GammaStone Natural AIR
Panel
in Trani Stone
Width: 1500 mm
Height: 3000 mm



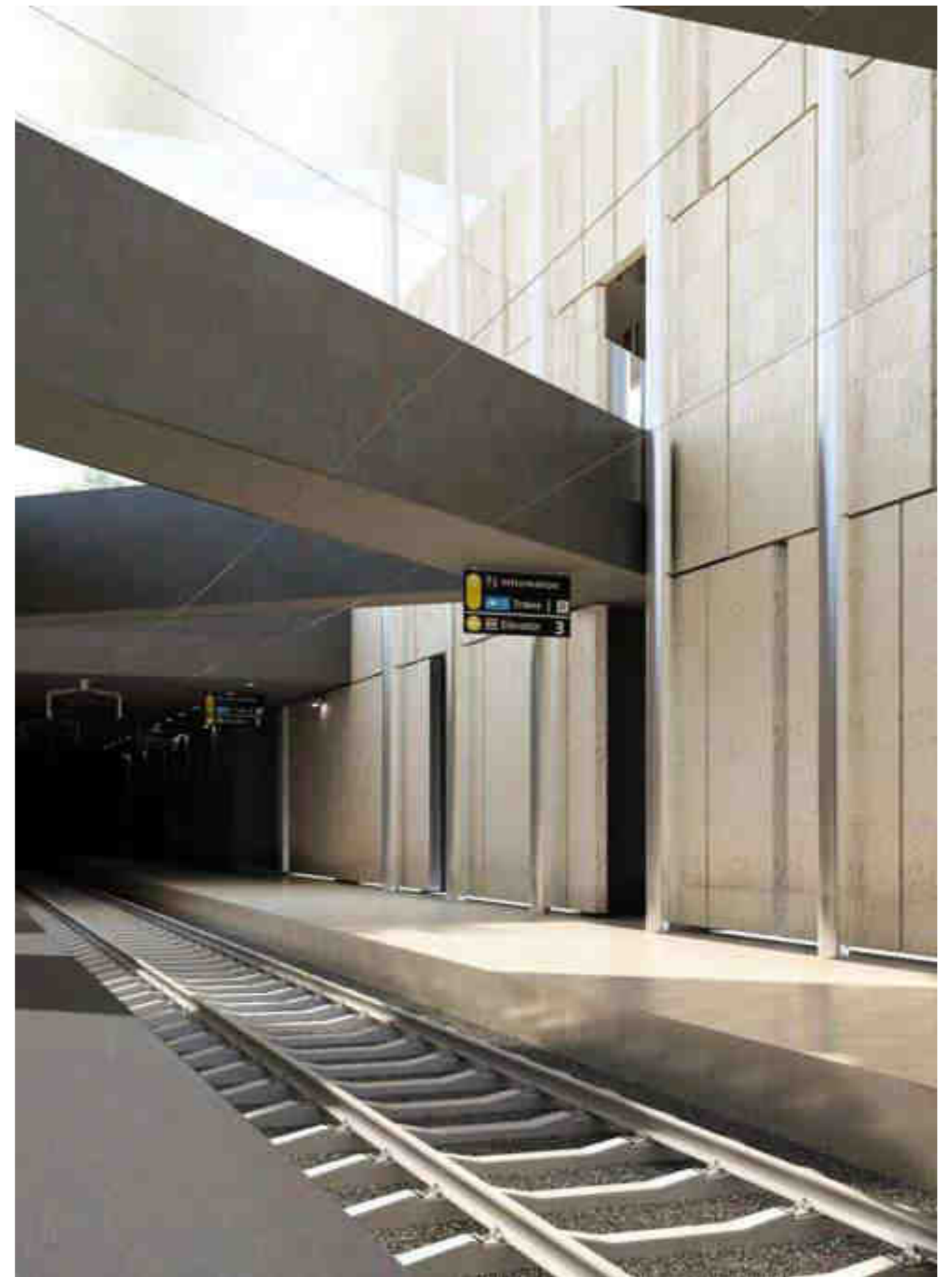


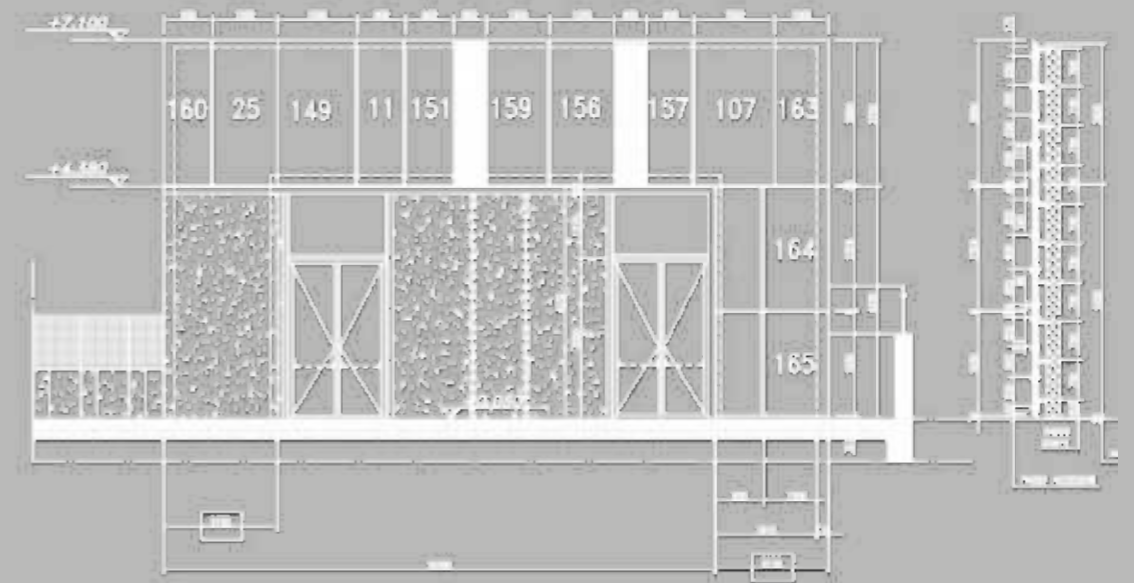
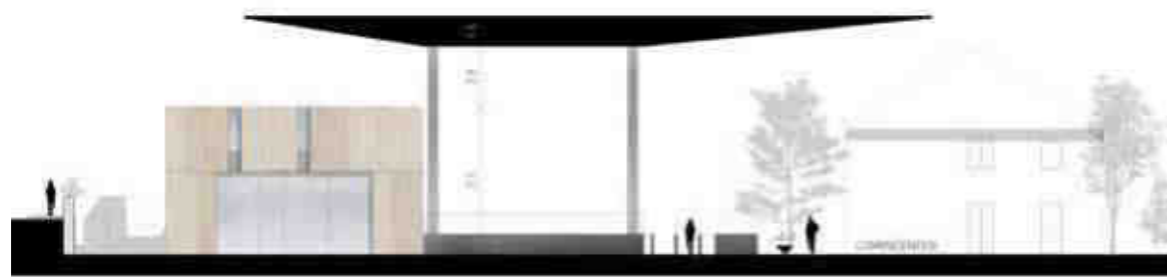
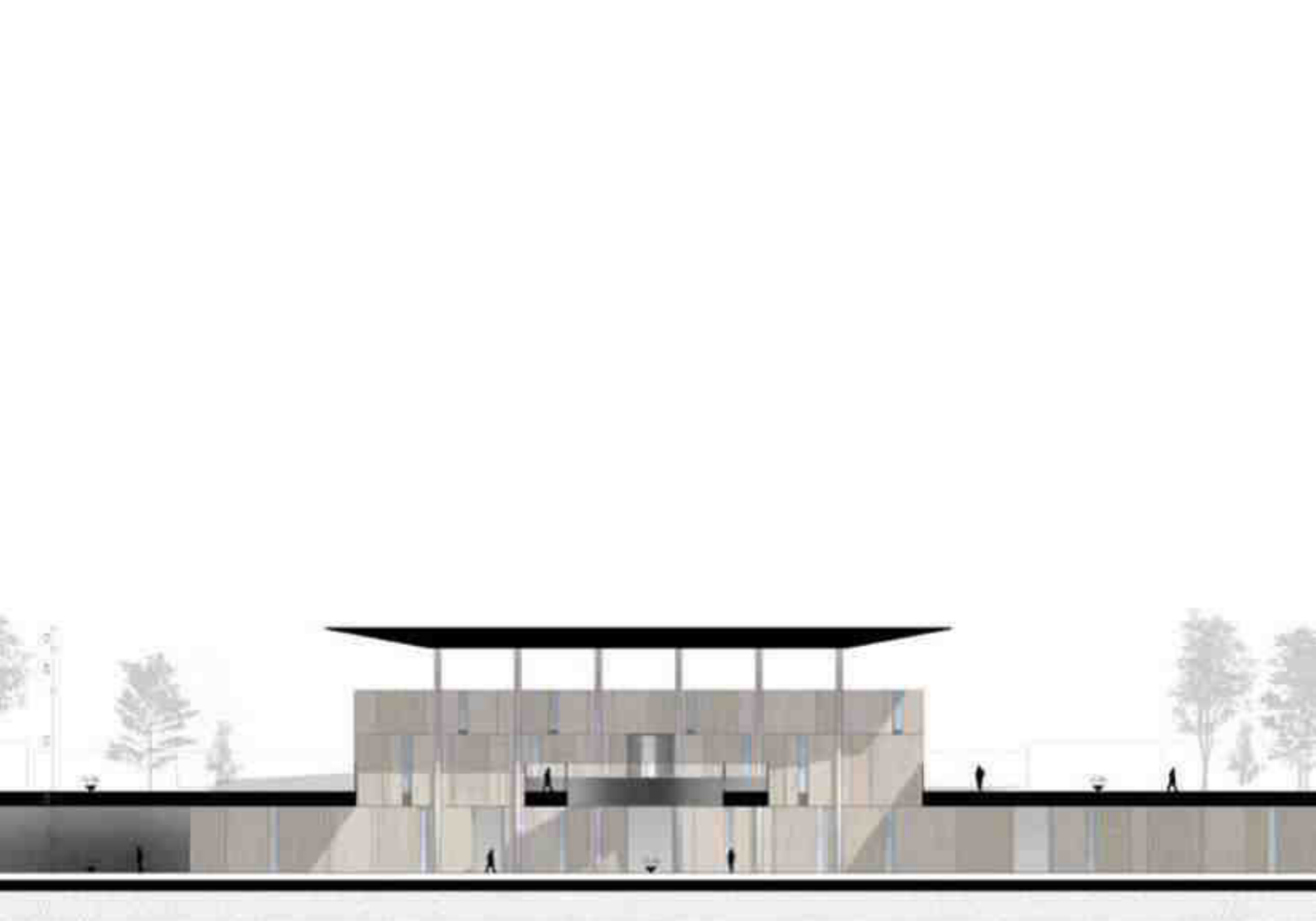
The Stefano Boeri Architetti project, the new Matera Centrale station, connects the second largest city in Basilicata to the nearest airport in Bari and the rest of Italy with even faster connections.

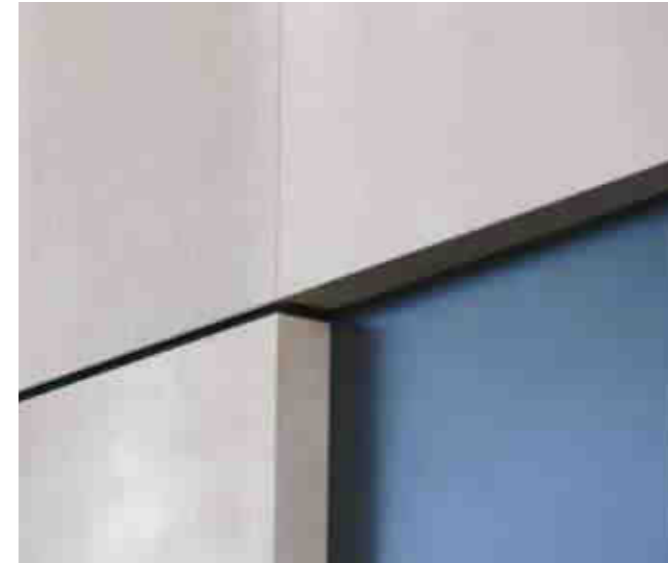


Ultralight large format panels

GammaStone AIR panels represent a state-of-the-art solution that guarantees high performance standards and offers an unparalleled aesthetic. The GammaStone AIR system enables designers to specify large format panels with confidence. The delicate veins of Trani's Stone are rendered with great precision and with a three-dimensionality able to transmit an extreme visual depth.







The new station is designed to become a landmark public space, a place that makes a lasting impression when visitors arrive in the city.



EXTERNAL FAÇADE CLADDING

RESIDENTIAL BUILDING

MILAN

Architectural design:
Carlo Donati Studio

Natural AIR

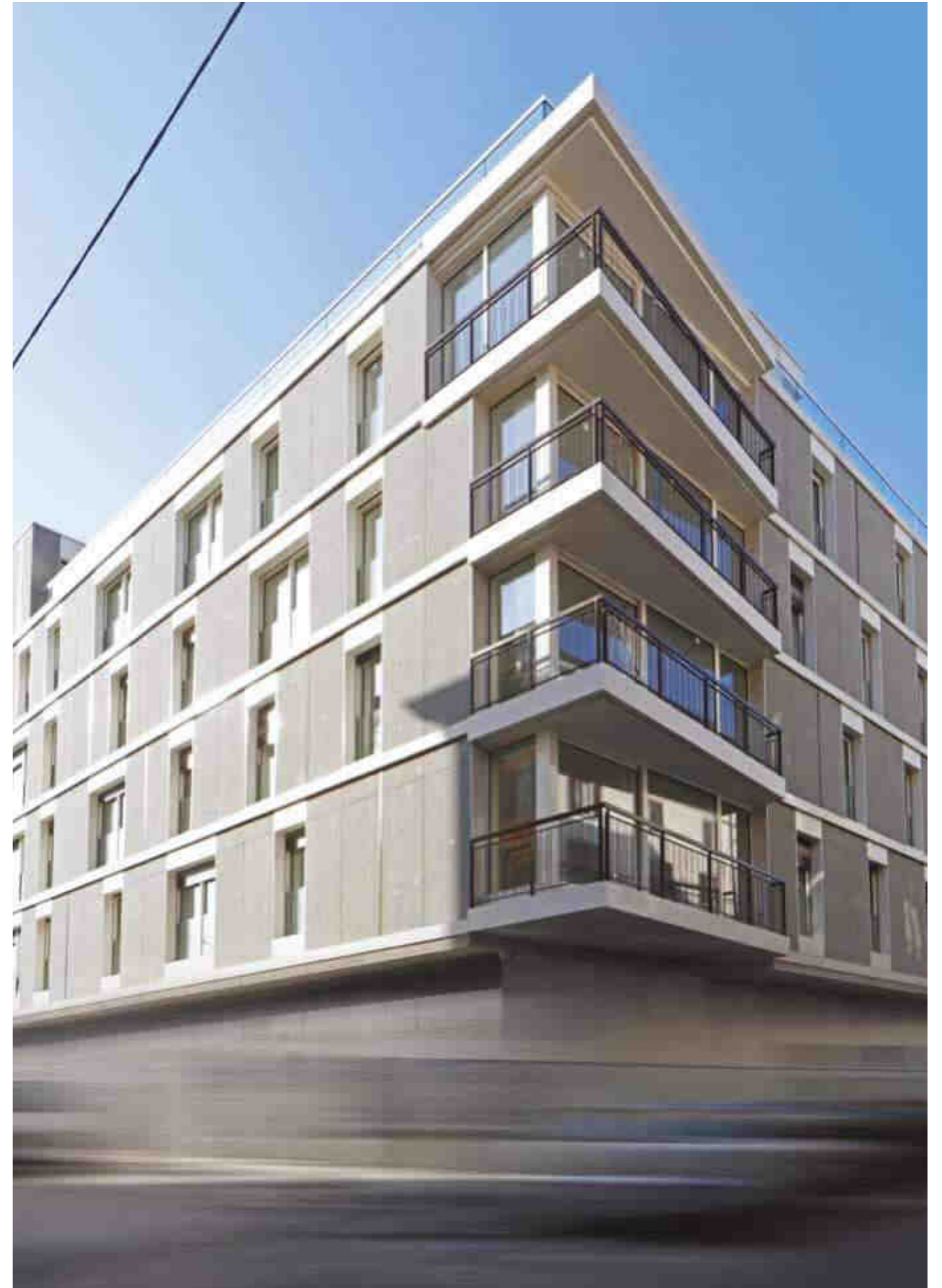
Residential Building,
Palermo Street, Milan
45°27'50.98"N - 9°11'25.21"E

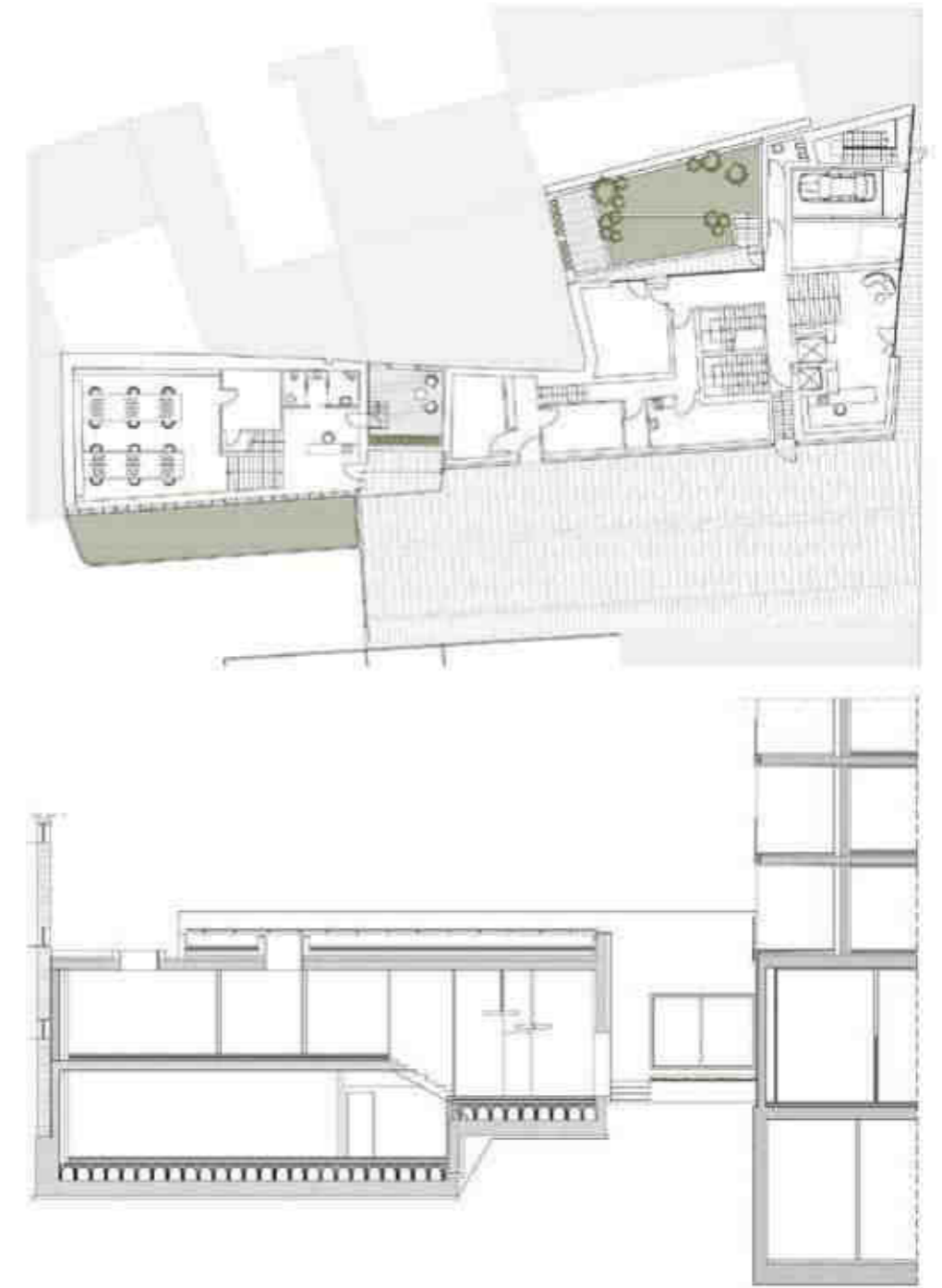


GammaStone Natural AIR
Basalt



GammaStone Natural AIR
Peperin





GammaStone makes a reserved and quiet neighborhood speak through the façade of a new development of luxury residences located on Via Palermo, Milan – the heart of the elegant Brera district. The building stands on a lot of rather complicated geometry, in the past it was a blighted site. The designers did meticulous research on the materials and colors, to ensure they interact perfectly with historical Milan. The color green became the central element for the entire project. The building is characterized by bright apartments, thanks to the large windows and slightly off-axis corner balconies. GammaStone Natural AIR in Basalt and Peperino follow one another along the façade with extreme regularity, setting a perfect purposely studied game of joints and alternations.

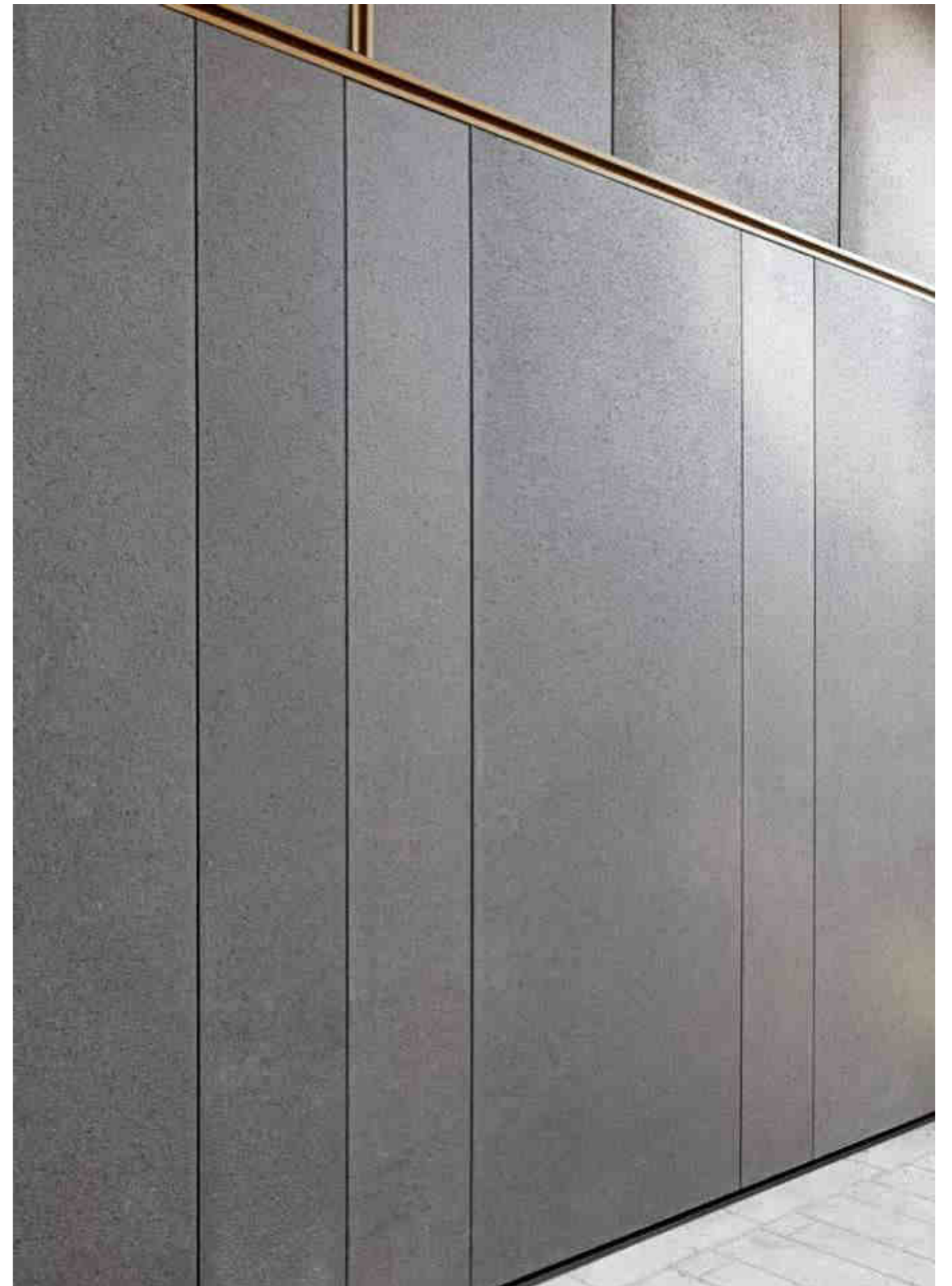


GammaStone Natural AIR
Panel in Peperino
Width: 1300 mm
Height: 3000 mm



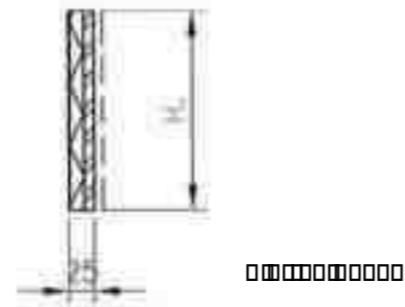
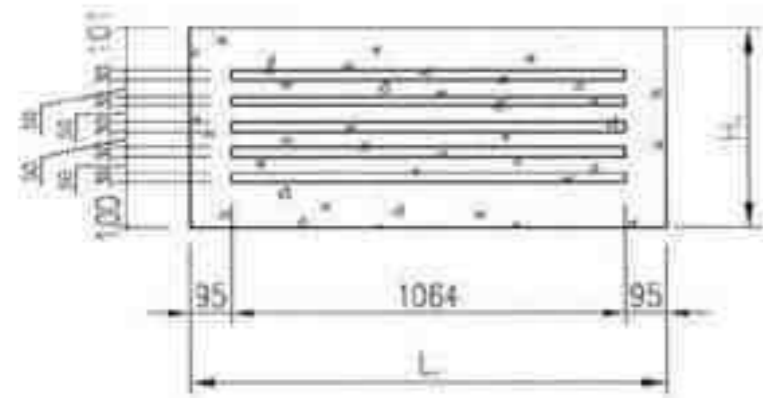
Ultralight large format panels

GammaStone AIR panels represent a state-of-the-art solution that guarantees high performance standards and offers an unparalleled aesthetic. The GammaStone AIR system enables designers to specify large format panels with confidence. The basement in black basalt stone, interrupted by burnished brass profiles, accentuates the volume of stone, while the wall on the street tilts inwards and is covered with bronzed micro-perforated sheets.





The neutral black and grey tones of the natural stones, Basalt and Peperino, allow for a contemporary building, in contrast with the surrounding context. The stones' finishes create an elegant look. Both stones are volcanic, which guarantees its resistance over time.





Carlo Donati designed the project in the typical Lombard tradition, a façade of Peperino stone interrupted by staggered floor-to-ceiling windows. He succeeded, together with AIR technology, in exceeding the artistic expectations of his client. GammaStone was able to provide him the ability to design in large formats and create a project that is both modern and traditional Lombardian.

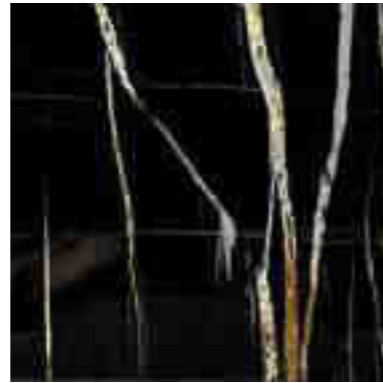


LUXURY BUILDING

THE DUBAI MALL

D&G STORE

Gres AIR



GammaStone GRES AIR
Black Veined

The Dubai Mall
5°16'11"N 55°18'34"E

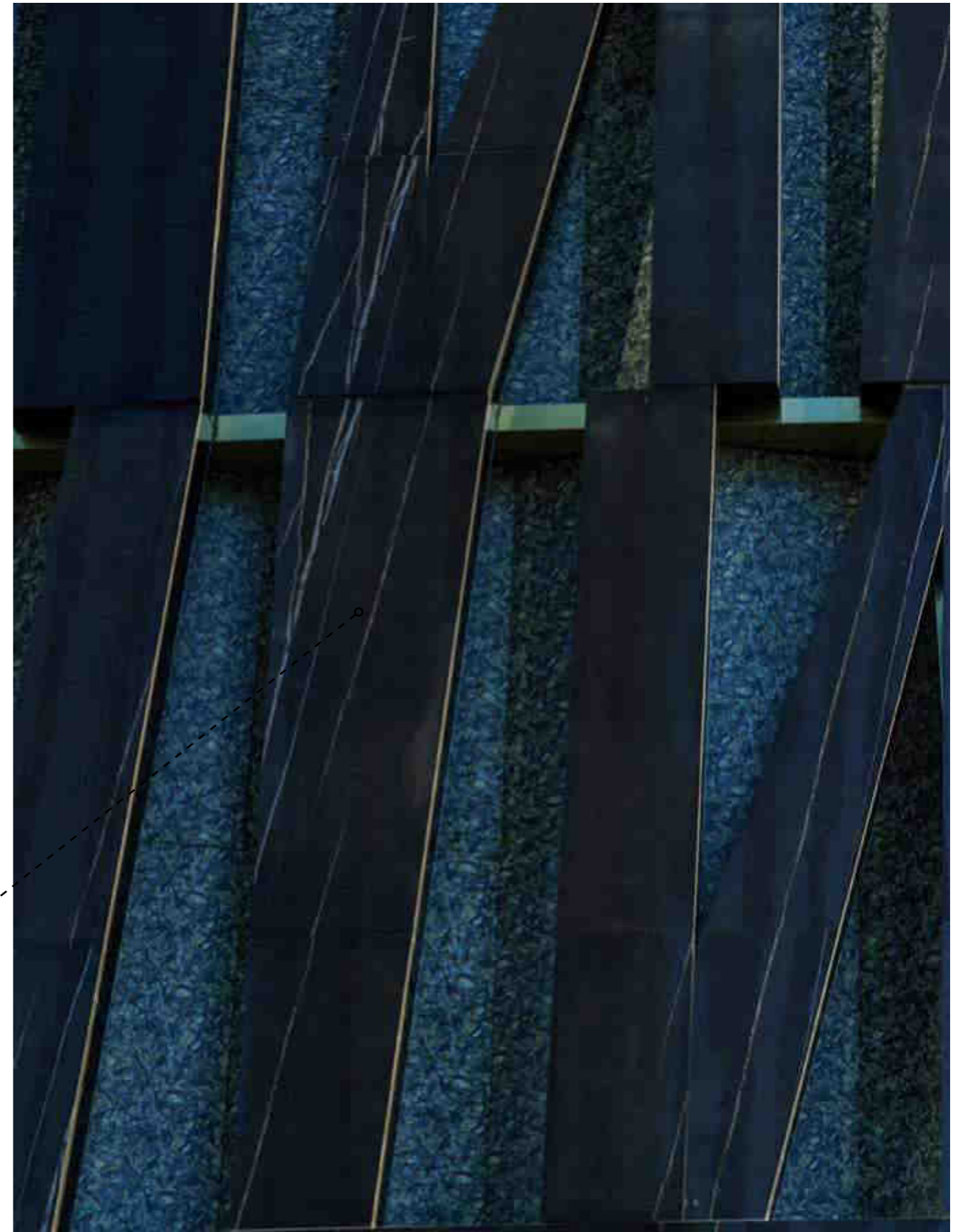


The new D&G store at The Dubai Mall is a sophisticated and complex design project. It is a perfect union between innovation and aesthetic beauty – pure elegance. GammaStone created large monolithic panels, over 4200x1600mm, assembling a large number of different pieces into large shapes, while maintaining the continuity of the veined finish with an imperceptible joint. The result is a visual effect of absolute prominence, which gives a three-dimensional effect and dynamism to the entire façade on all its sides. GammaStone is constantly innovating and developing new technologies to allow designers to achieve designs such as the D&G store at The Dubai Mall.

Our production is characterized by artisanal craftsmanship, made possible by an experienced and professional team. Our strategy is to pre-assemble all the elements in our factory, so they arrive on site ready for installation, ensuring quality and ease of installation. It also provides the project savings in labor cost making GammaStone AIR an innovative solution.



The Monolithic Elements assembled entirely in our laboratories and sent for be installed in all the world

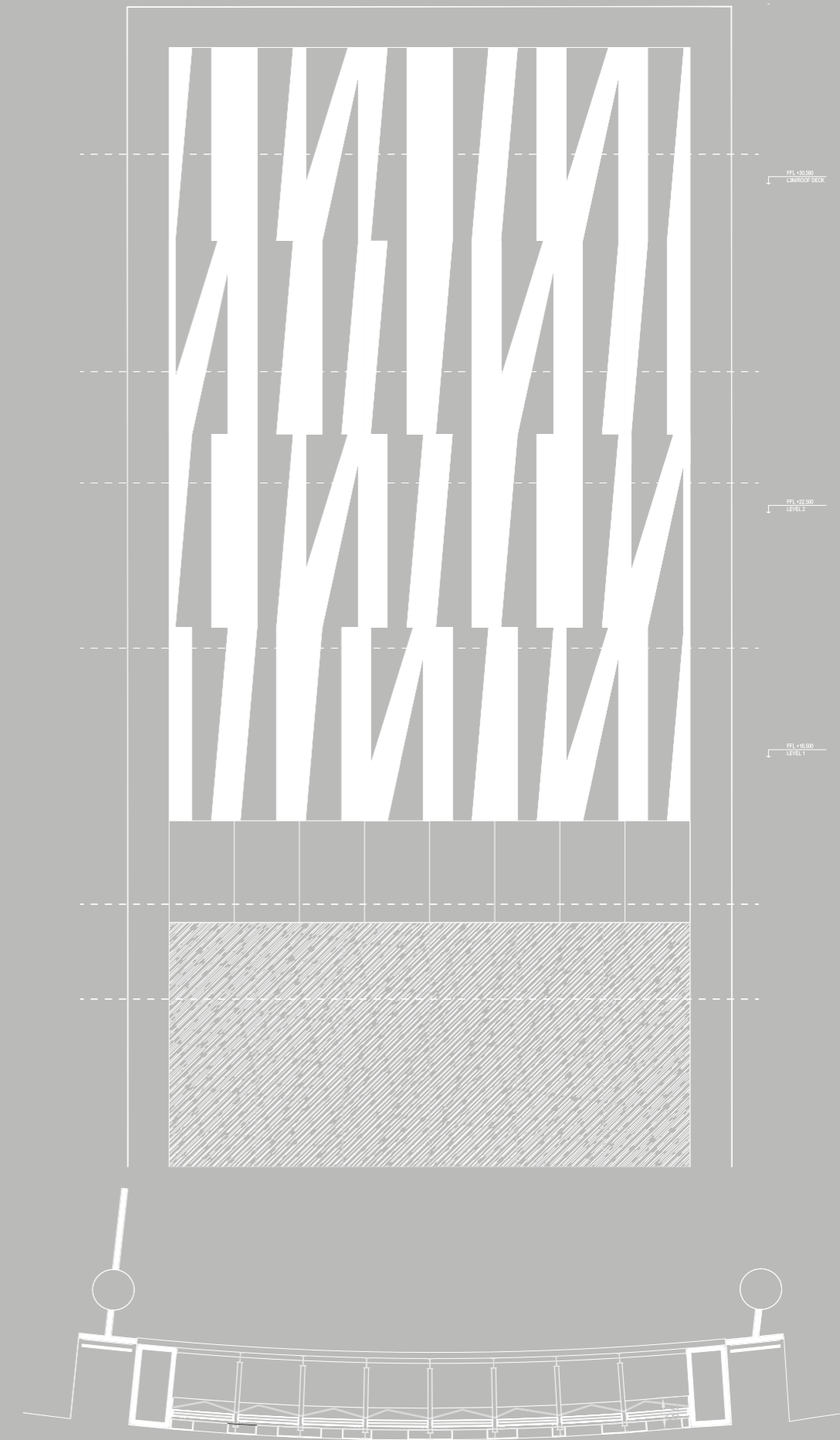
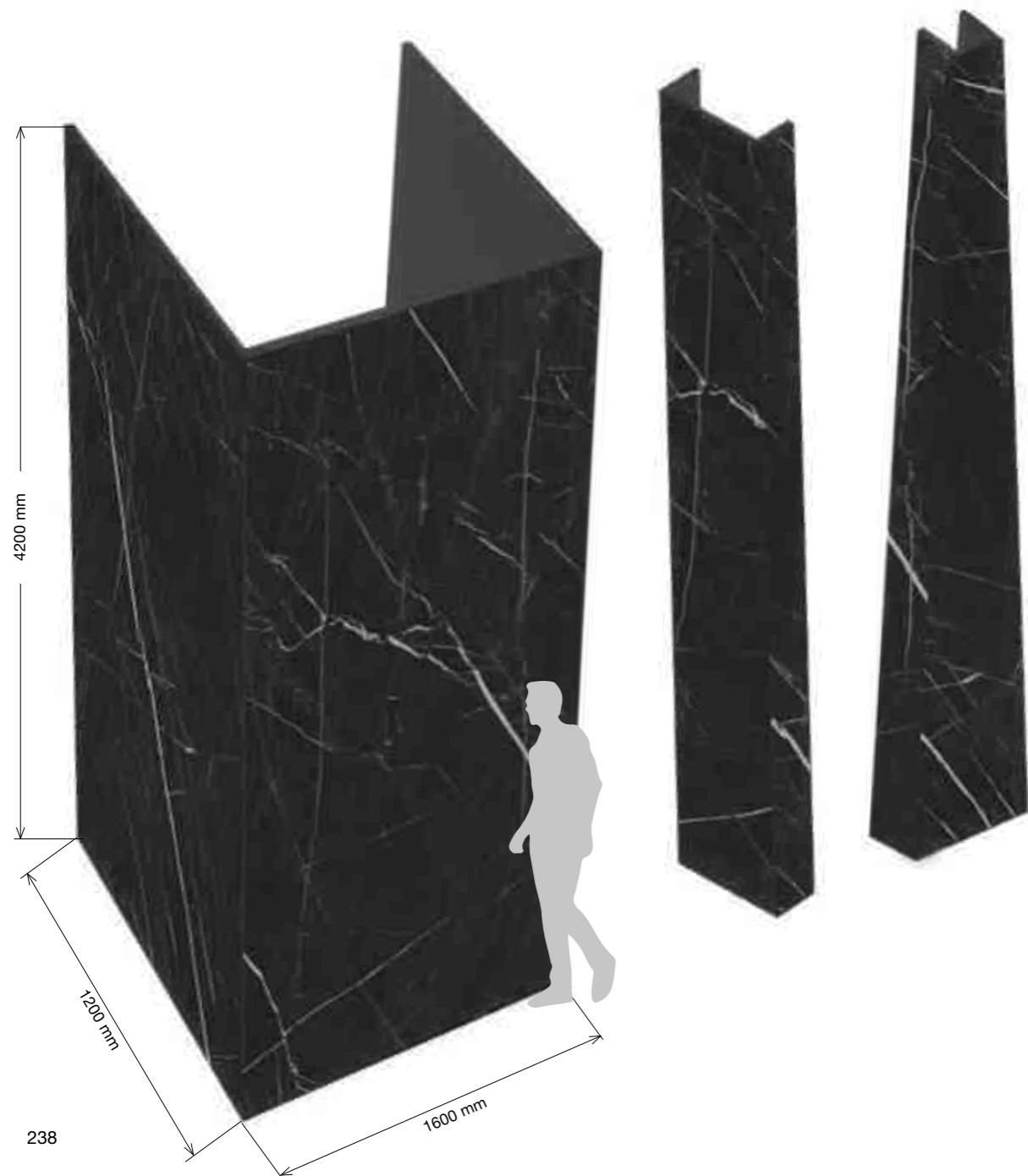


Architectural monolithic elements

The GammaStone AIR system enables designers to choose large-format lightweight panels with confidence. The panels are anchored mechanically either with concealed or visible fixings allowing simple attachment to the substrate. The main feature of the GammaStone AIR system is the high level of workability and usage flexibility; the panels can be cut at different angles, glued with structural epoxy adhesives, and reinforced by metal angles to form a single monolithic architectural element able to meet the most varied aesthetic and functional requirements. These unique panels allow us to manufacture false beams or columns with complex and even irregular shapes or revitalize existing buildings with a new aesthetics. These items are manufactured entirely in our factory and delivered ready for installation on site.



The panels are adhered together with structural epoxy adhesives and reinforced by metal angles forming a single monolithic architectural element.



LUXURY HOTEL

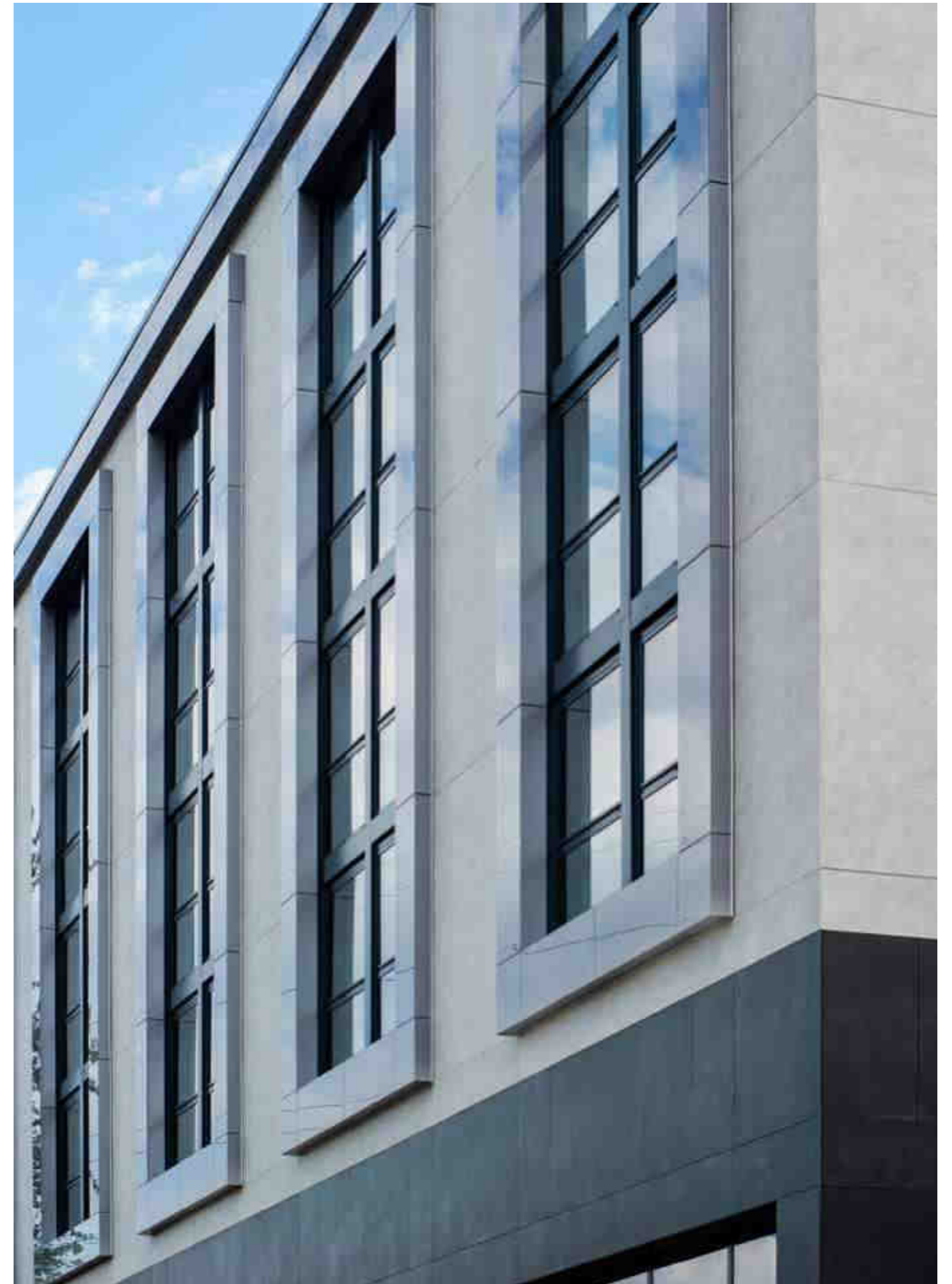
HOTEL BARCELONA

Architectural design:
COAC Arquitectes

Glass AIR



GammaStone GLASS AIR
Gray

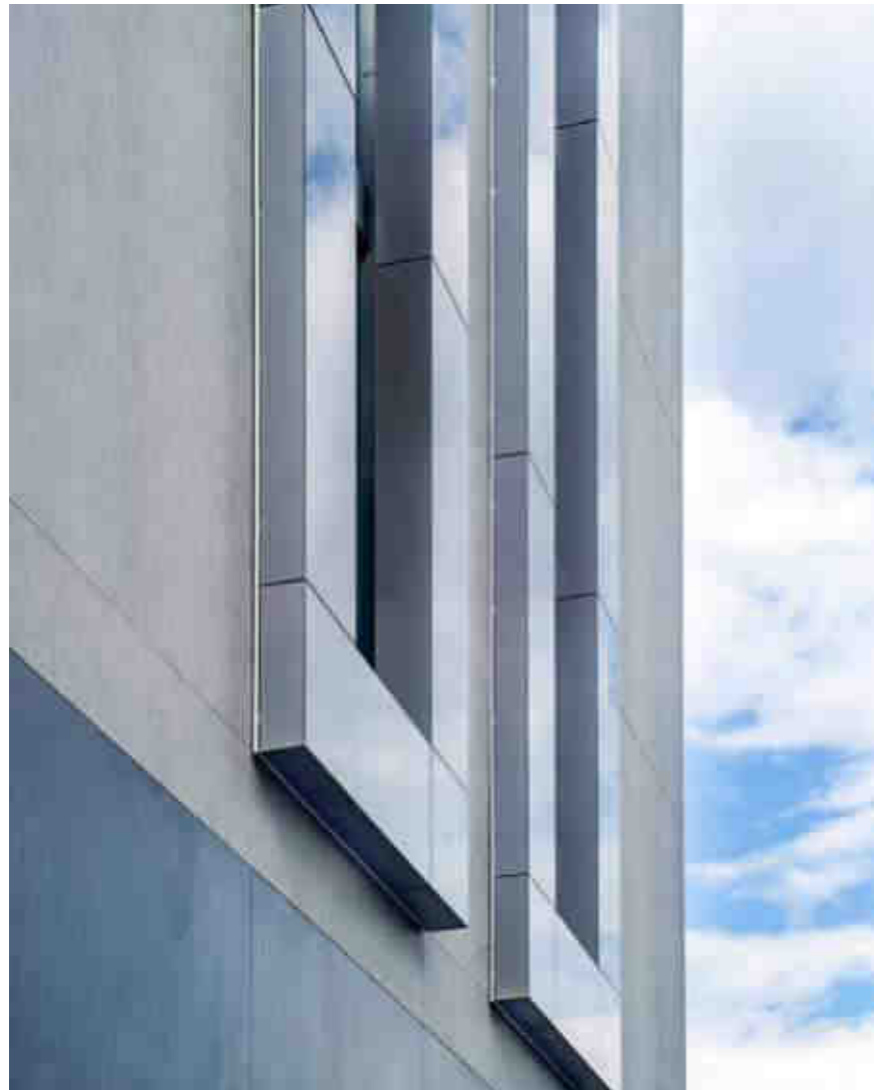


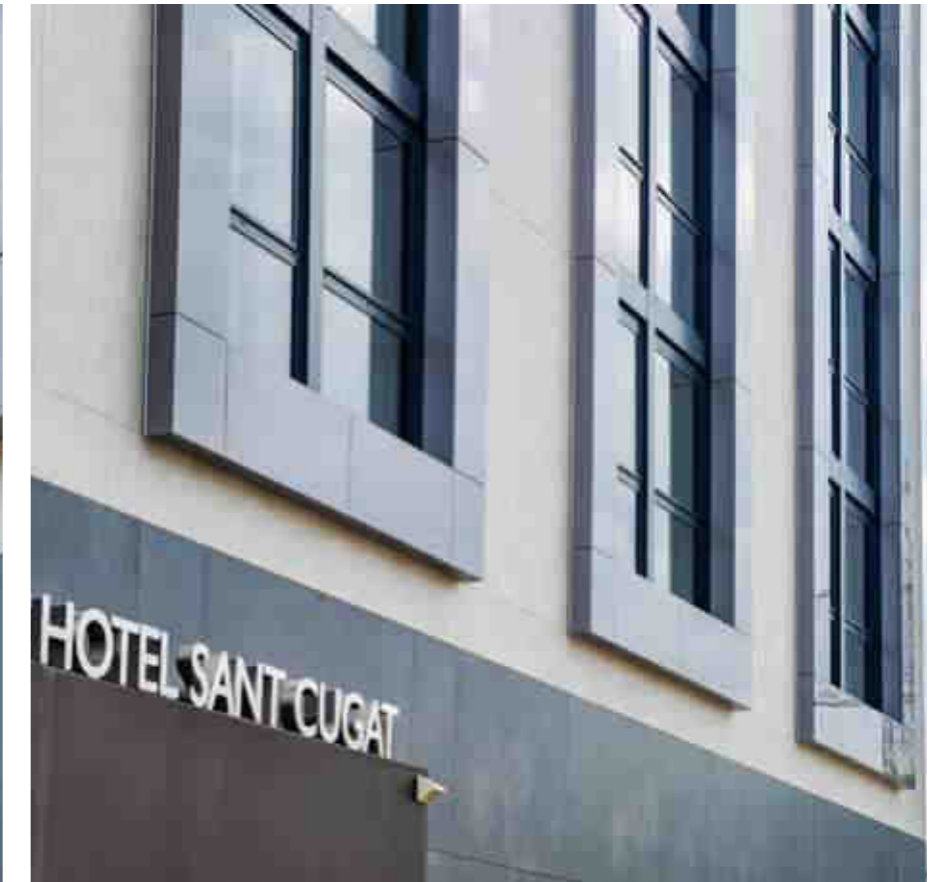
Ultralight and large sized panels GammaStone Glass AIR.

Glass AIR creates an elegant and reflective frame around the windows and crowns the building. The C-shaped panels, with two prefabricated monolithic corners, demonstrates the freedom GammaStone AIR provides architects to design in shapes, as well as the easiness of installation for the installer.

This international hotel brand wanted this renovation project to give its guests a sense of comfort and relaxation when they approach it, while maintaining a sense of modernity and minimalism. The designers chose a glass with a reflective color to brighten the façade by playing with the sunlight and outlining the large windows.

GammaStone was able to provide this project the right solution with GammaStone Glass AIR and met the designers challenge with enthusiasm.







FACADE AND INTERIOR CLADDING

CHESTNUT TOWER

PHILADELPHIA

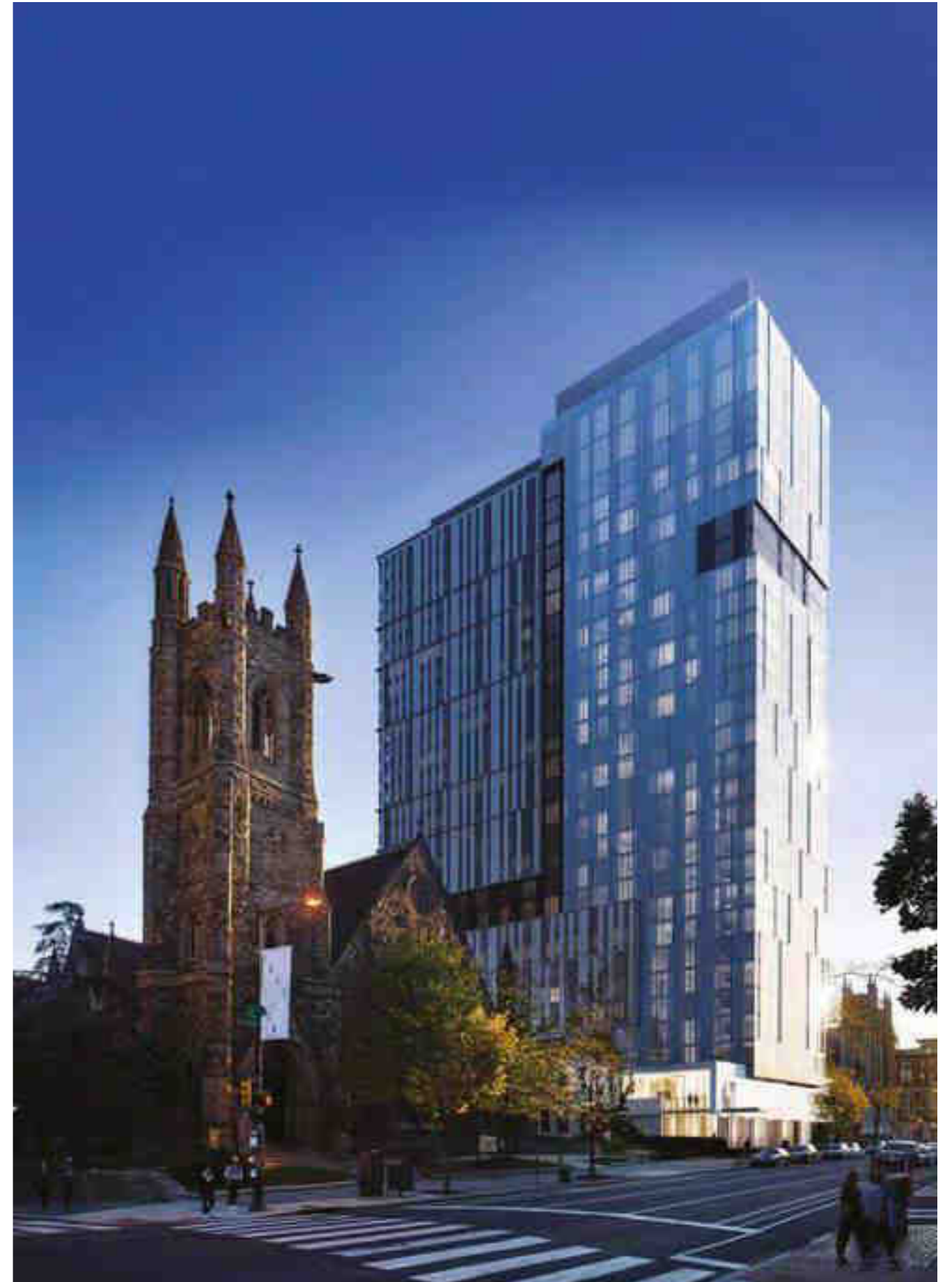
Architectural design:
SITIO

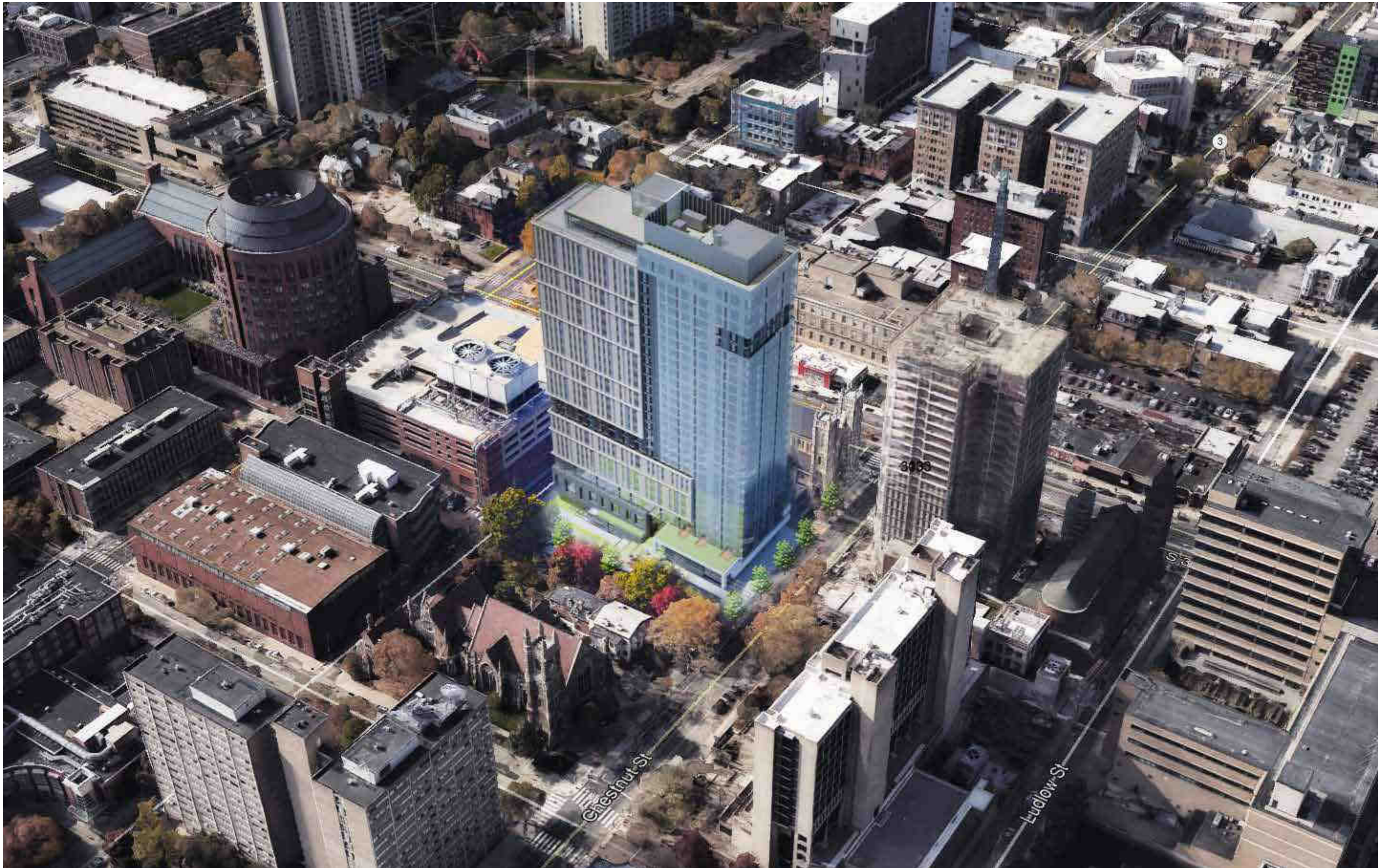
Natural AIR



GammaStone NATURAL AIR
Carrara White Marble

Chestnut Tower
Philadelphia - USA
40°05'13.56" N
75°13'40.08" W





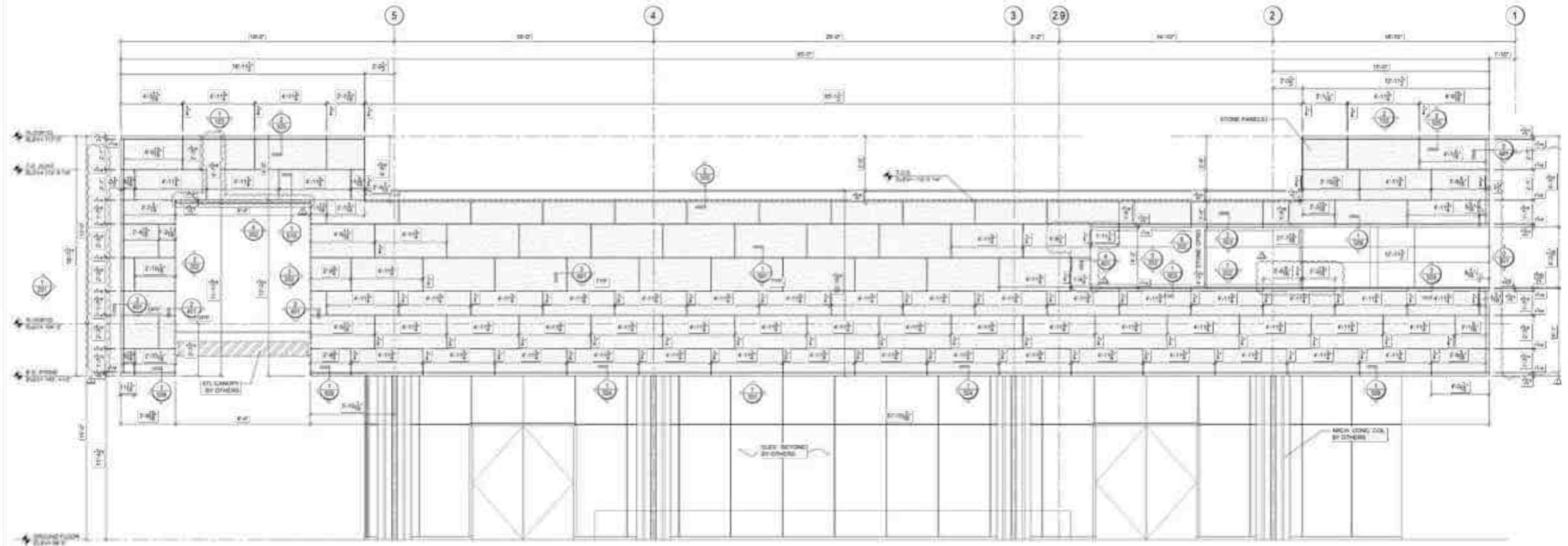
30-storey building entrance and interior areas with GammaStone Natural AIR

The Chestnut at University City is a 30-storey multipurpose project in the heart of Philadelphia. The development consists of 405 luxury apartments with amenity spaces and a sky deck pool. Vibrant retail spaces front Chestnut Street and are clad in Carrara Marble panels by GammaStone. The high-end natural aesthetic flows into the lobby space to imply monumentality and permanence.



The development is designed as a “tower-in-the-garden”, with indoor-outdoor spaces providing an elegant setting for gracious urban living at the heart of University City.

The façade is the first element on which the eye falls on, making GammaStone AIR the prime choice when designing to make a statement.



LUXURY FACADE

PRIVATE HOUSE

INDIA

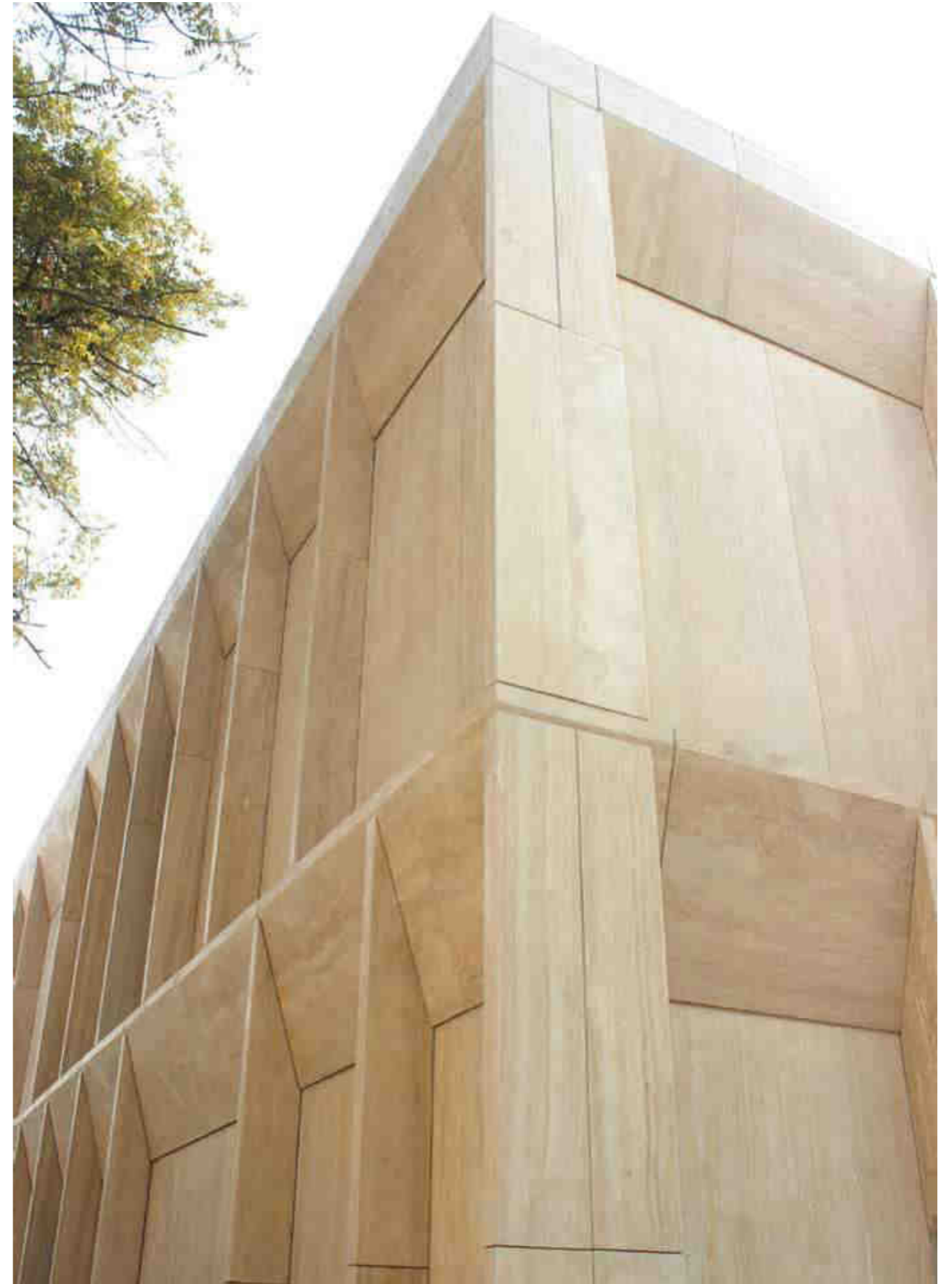
Architectural design:
PLS Design

Natural AIR



GammaStone NATURAL AIR
Roman Travertine

Private Building
New Delhi
28°36'N 77°12'E



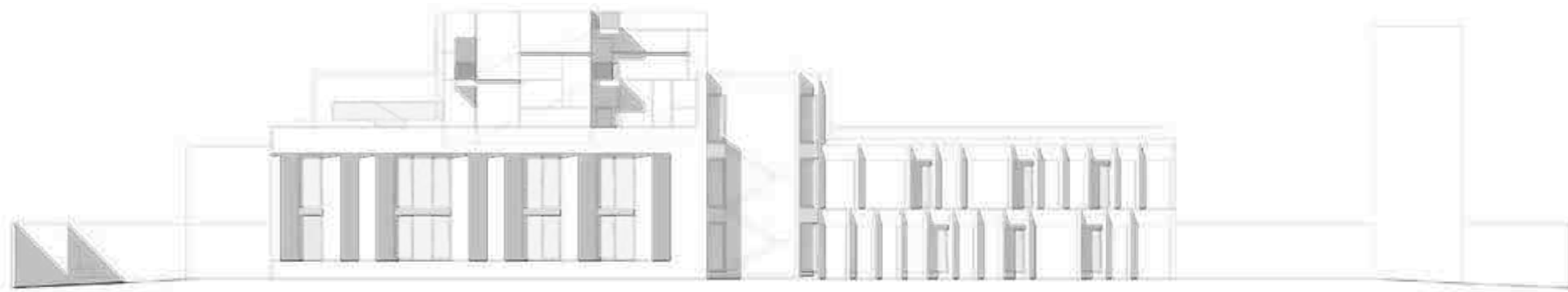
The aura of eternity guaranteed by the Roman Travertine is well known throughout the world. This project proves that tradition combined with innovation can result in an impressive aesthetic and contribute to a high standard of living.

The facades of the building are GammaStone Natural AIR with a travertine marble and create a complex surface with an astonishing monolithic effect. The beauty of the material and the quality of the finish enhance the design of the project that portrays superbly the great Italian architectural tradition.

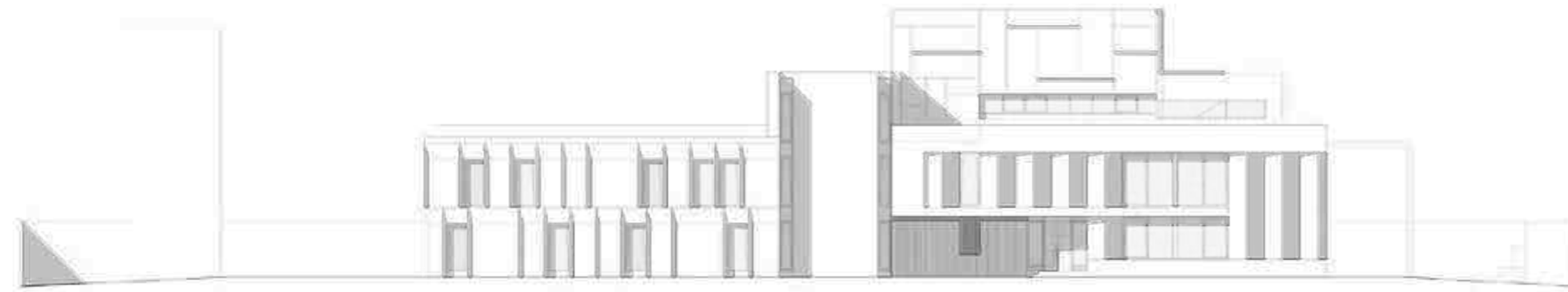


Natural stones give buildings a beauty that defies the centuries, emitting magnificence and sophistication.

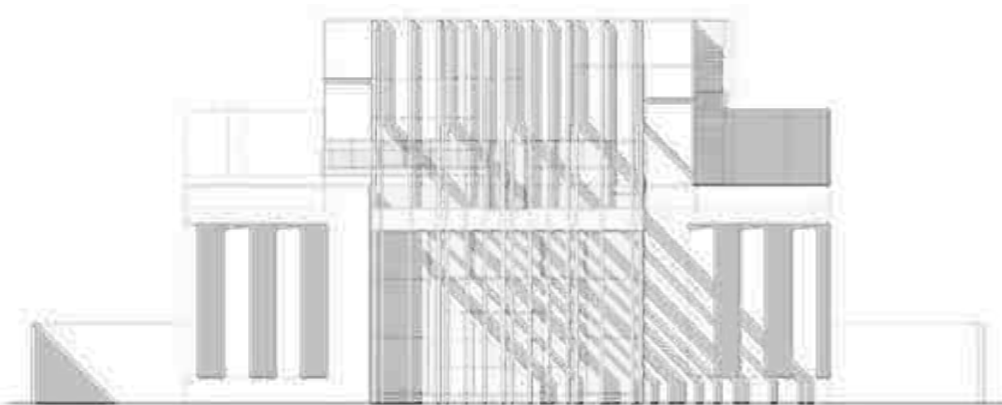




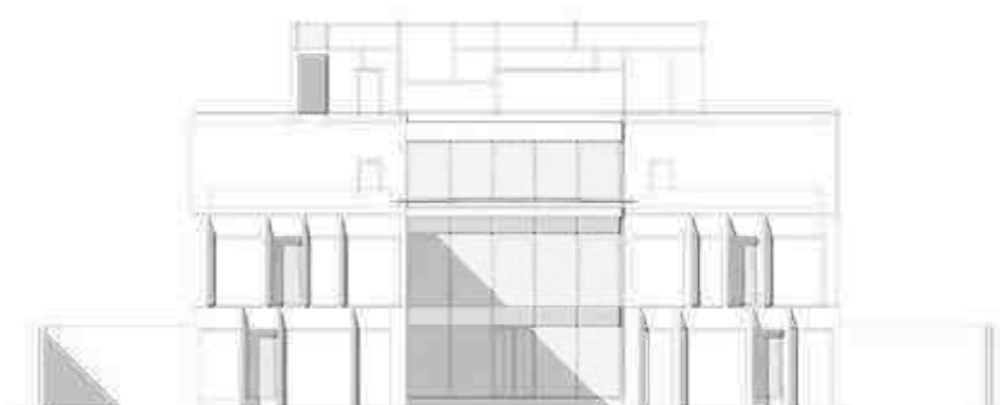
External facades
EAST Elevation



External facades
WEST Elevation



External facades
SOUTH Elevation



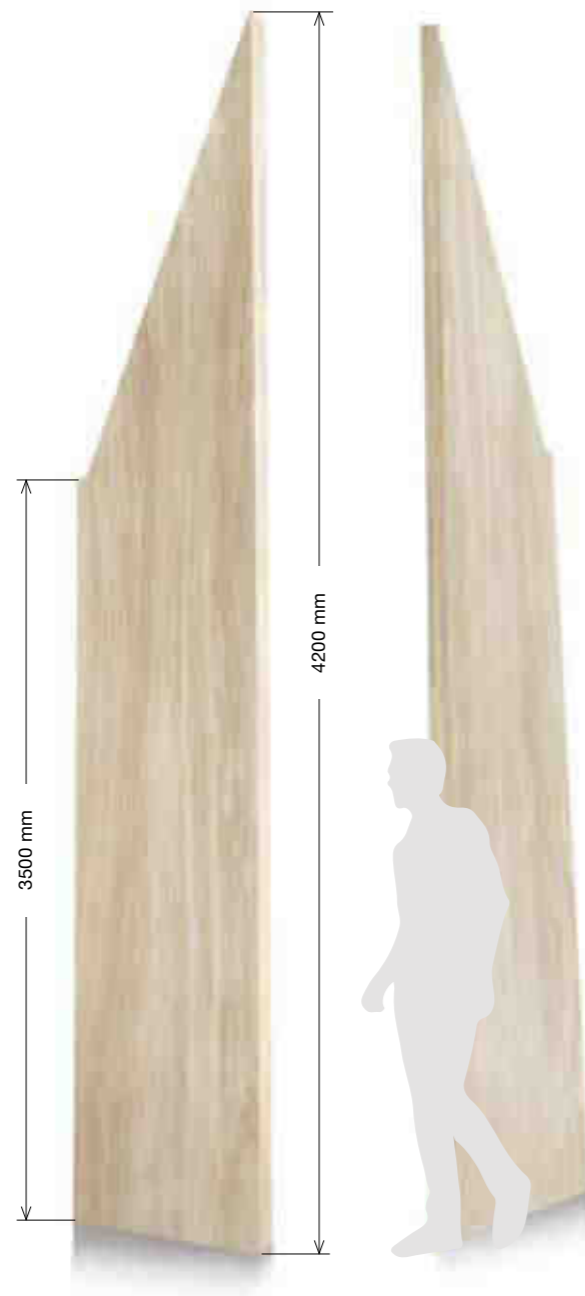
External facades
NORTH Elevation

Architectural monolithic elements

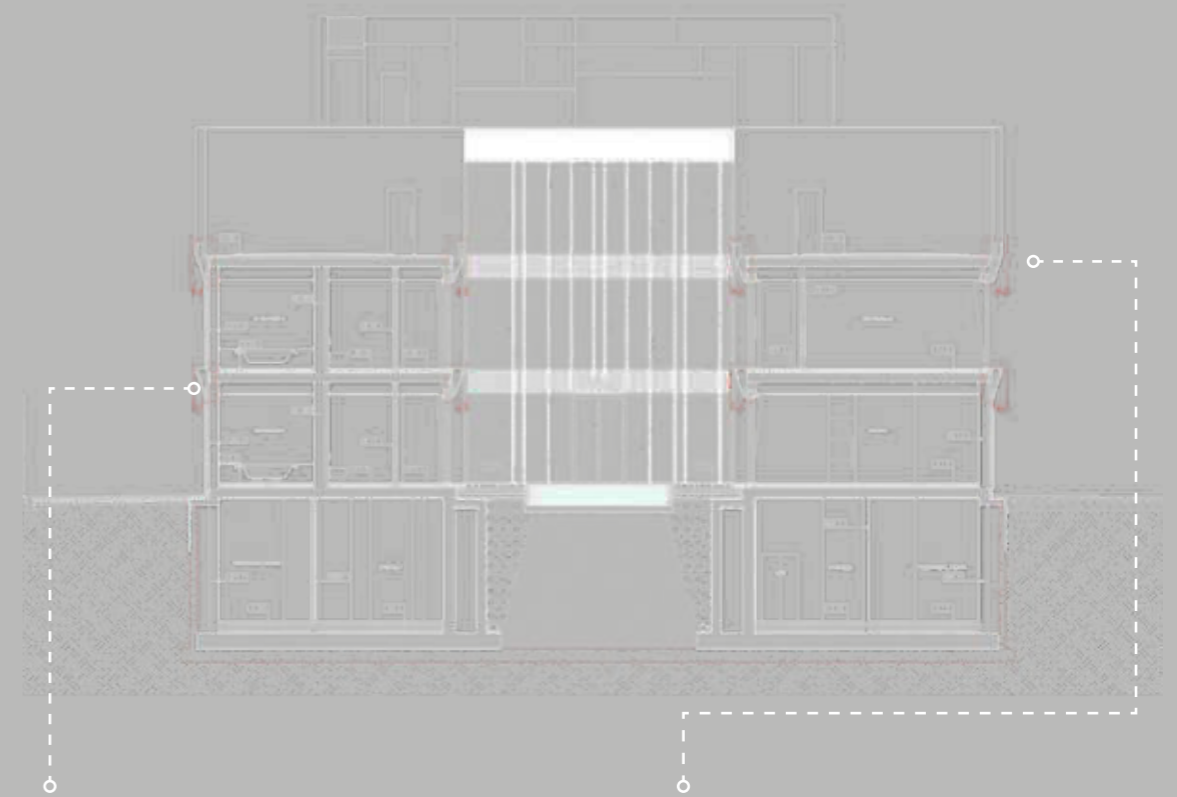
The GammaStone AIR solution in natural stone allows the mechanical installation of large panel sizes formed with marble, granite, limestone or travertine. It can be used to make beams, columns and any other architectural element with a monolithic result, creating the one piece effect. Panel sizes depend on the block size, up to 3200x1500 mm.



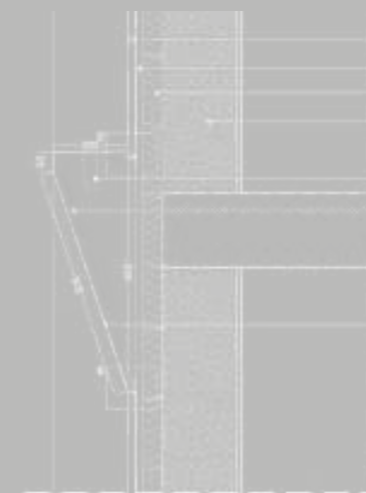
The panels are adhered together with structural epoxy adhesives and reinforced by metal angles forming a single monolithic architectural element.



Section CC

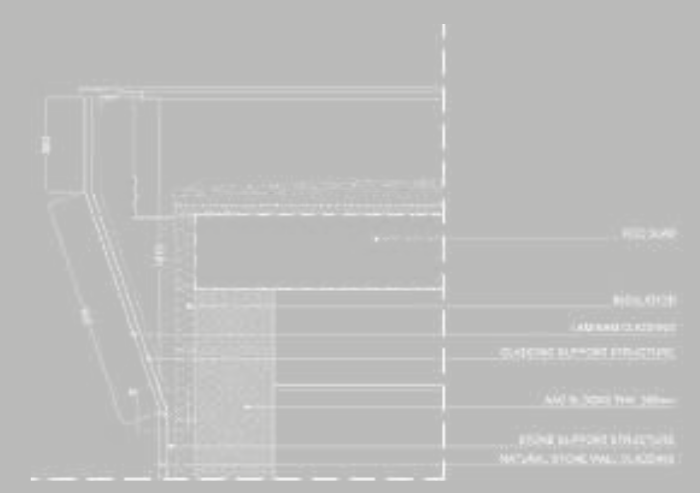


Detail 7

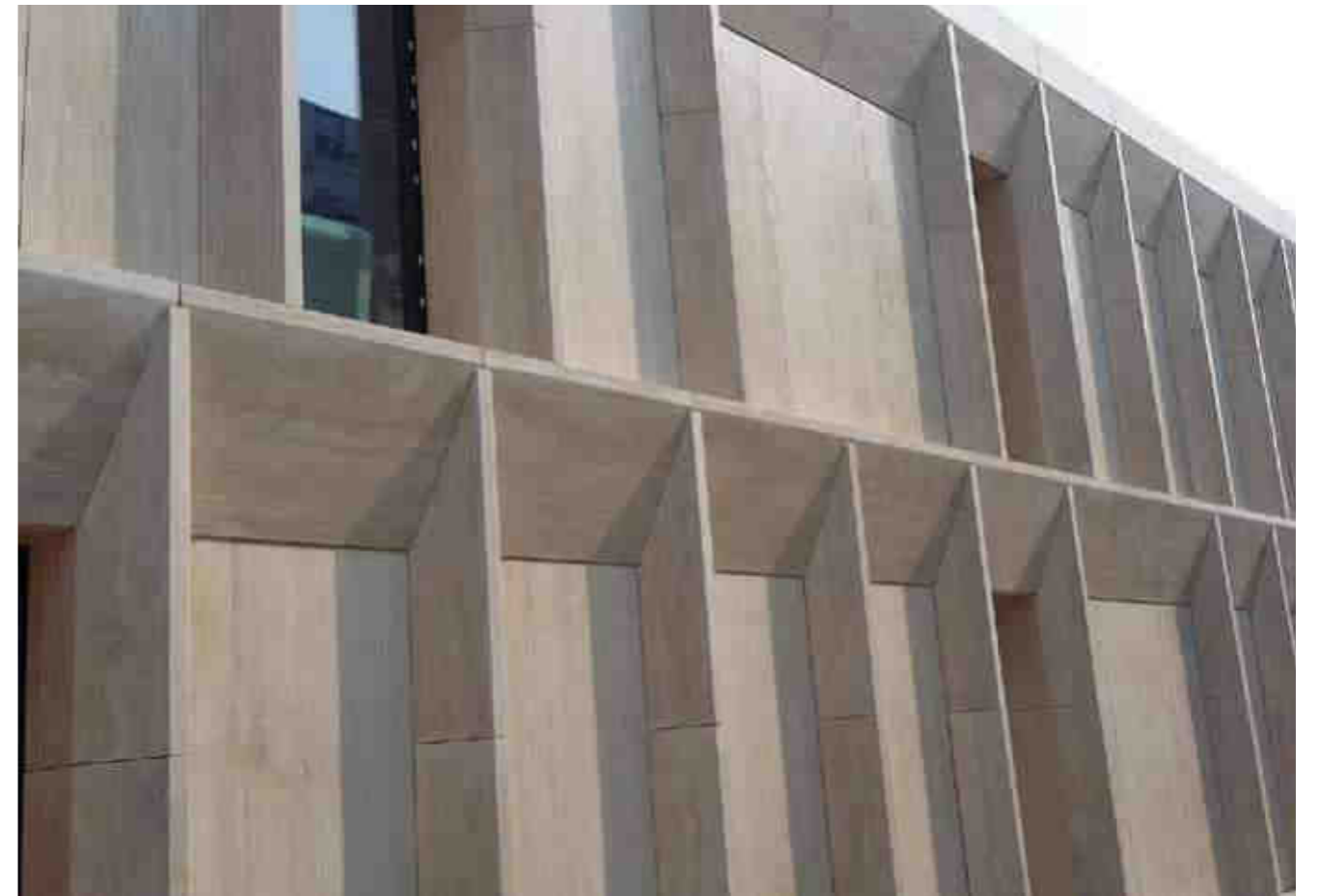
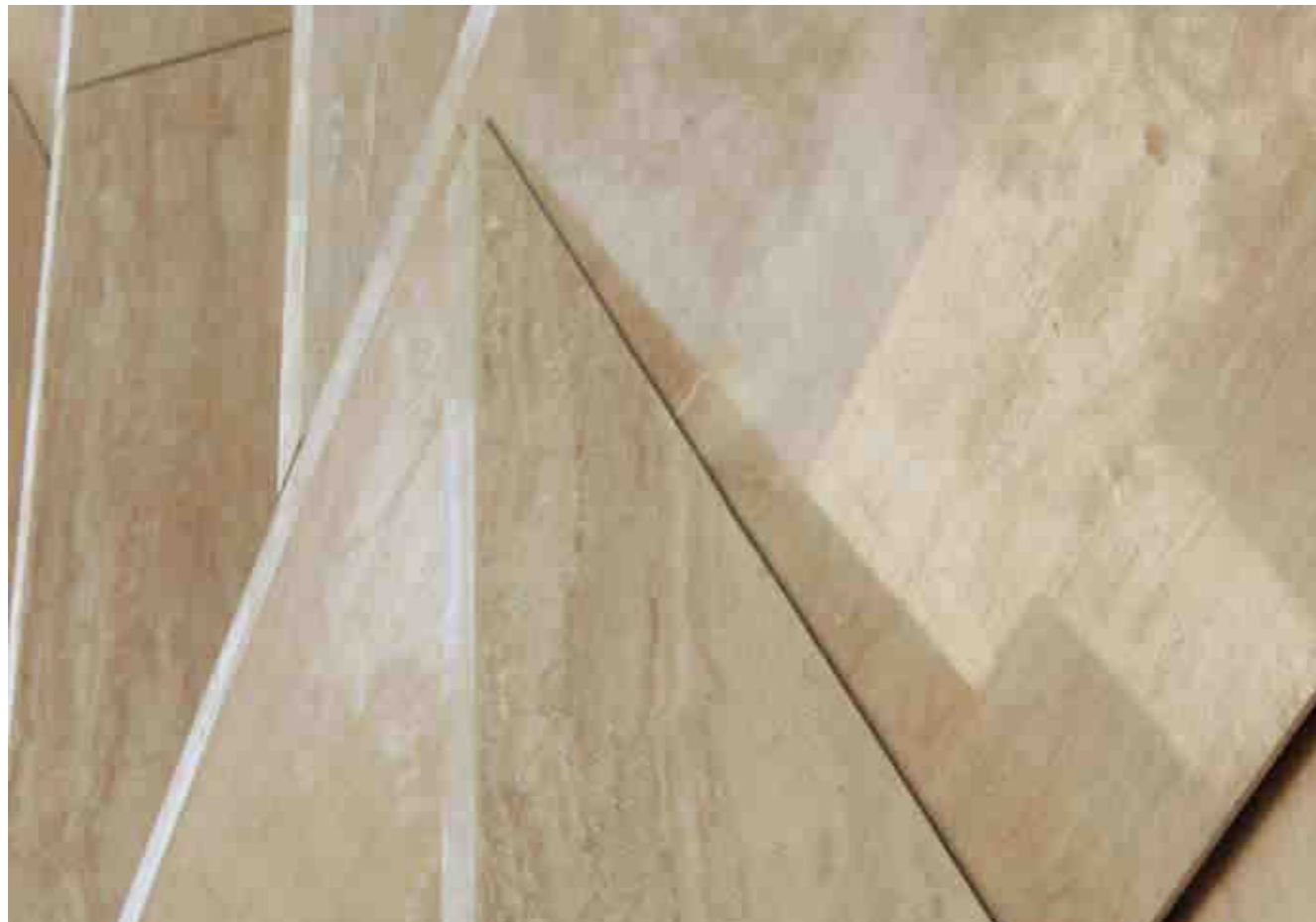


NATURAL STONE WALL GLAZING
 STONE SUPPORT STRUCTURE
 INSULATION
 AAC BLOCKS 300mm
 LED LIGHTS (OPTIONAL)
 OUTSIDE SUPPORT STRUCTURE
 REINFORCEMENT
 INSULATION

Detail 8



INSULATION
 REINFORCEMENT
 LAMINATED GLASS
 OUTSIDE SUPPORT STRUCTURE
 AAC BLOCKS 300mm
 EDGE SUPPORT STRUCTURE
 NATURAL STONE WALL GLAZING



EXTERIOR FACADE

LATTERIE INALPI

Architectural design:
Simete - EP&S

LATTERIE INALPI is the first example of a façade made with GammaStone UHPC PLUS AIR panels in Italy. GammaStone UHPC PLUS AIR technology allows a wide range of textures, any color on the RAL scale, and many types of finishing made with special silicone molds. In this project the designers chose optical white with a rough textured finish, because they wanted to create an envelope that would give the building a sense of softness and pureness, while maintaining a defined architectural line.

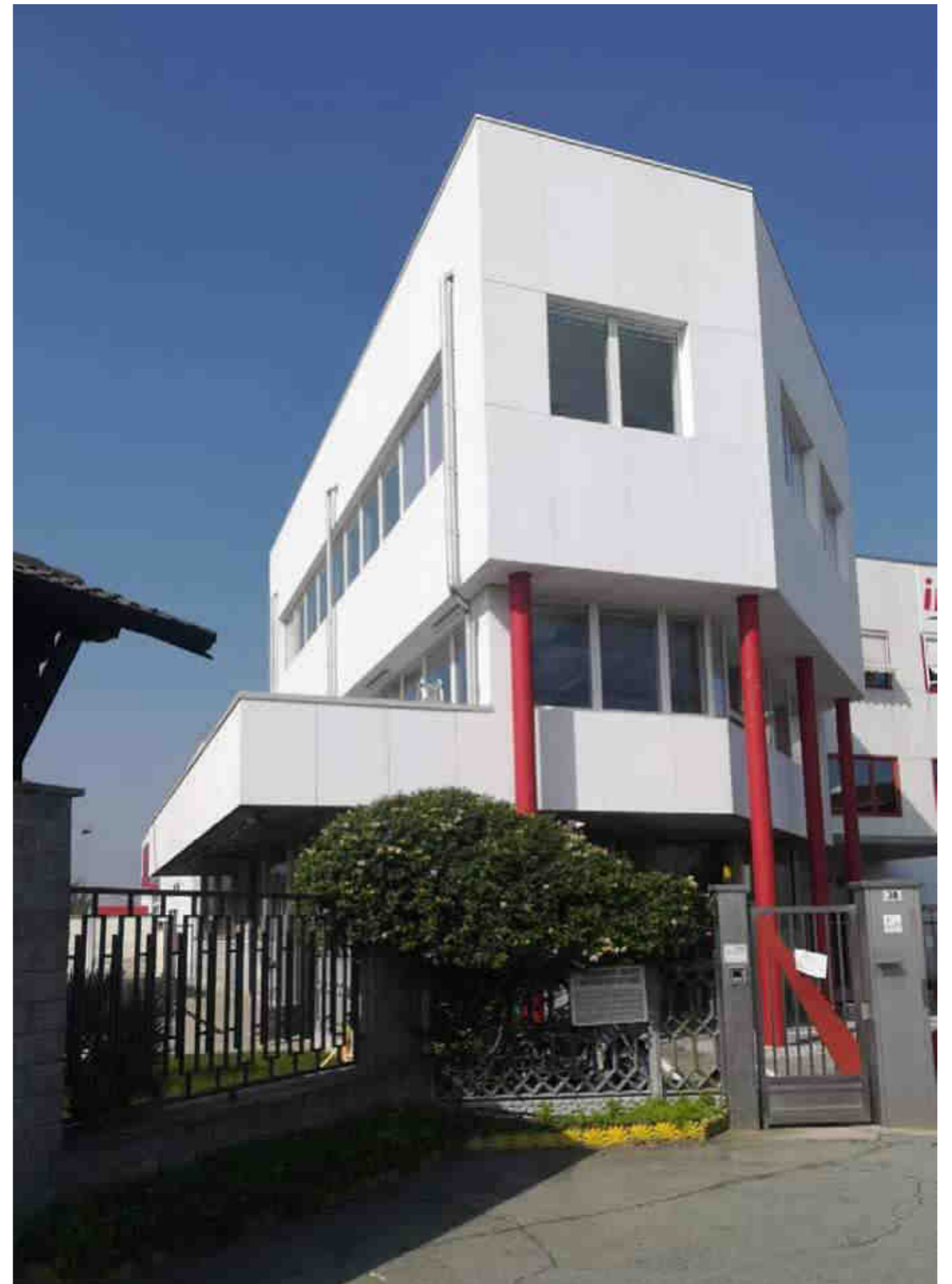
GammaStone UHPC PLUS AIR achieved the desired result, enclosing all these features in one inimitable product. It once again distinguishes itself for the light and easy installation, despite the large sizes.

UHPC PLUS AIR



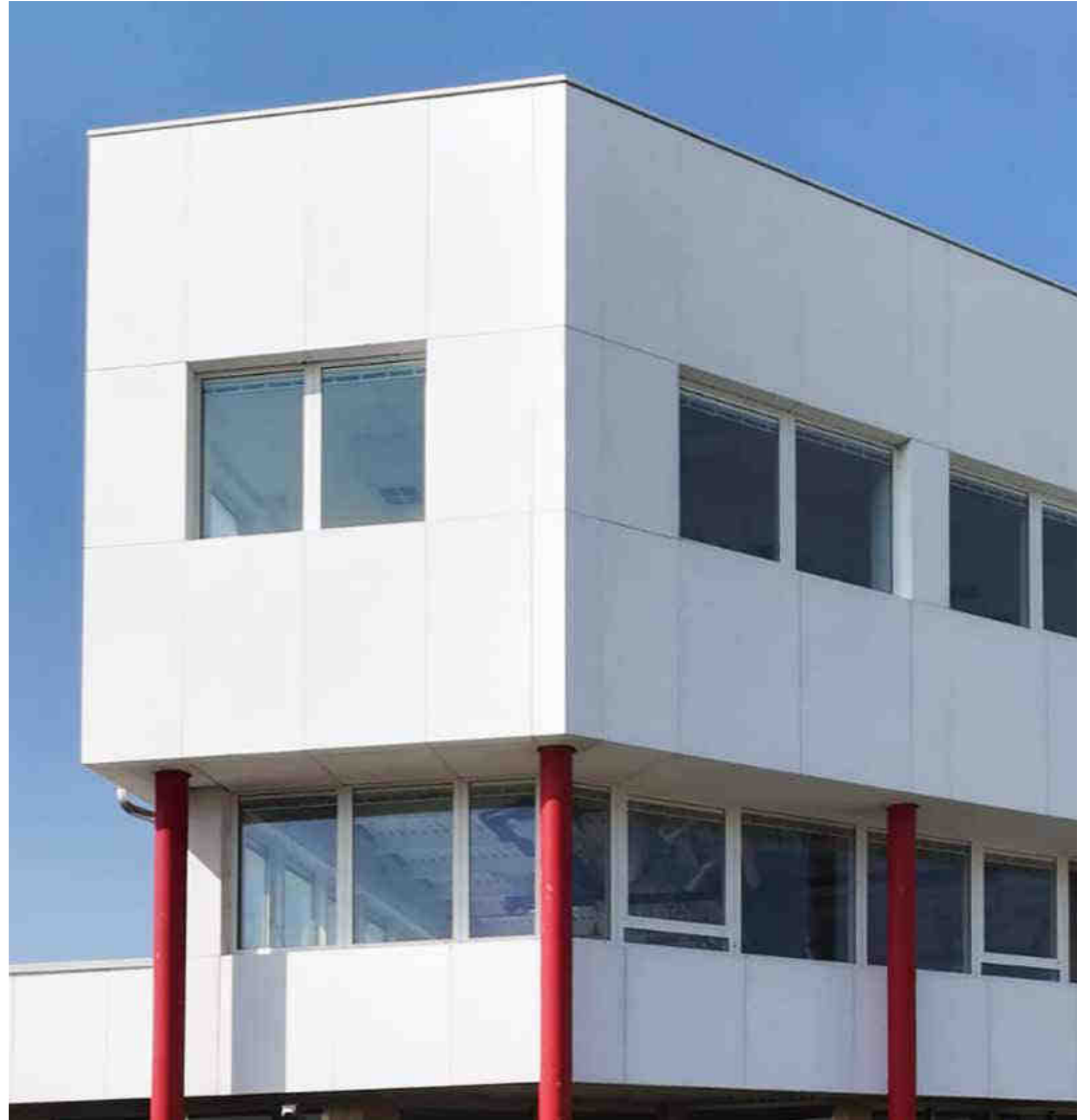
GammaStone UHPC PLUS AIR
Bergen

Via Cuneo, 38
12033 Moretta (CN)
44°45'07"N - 7°31'55"W



Architectural monolithic elements

The design challenge for this project was to clad the many non-continuous surfaces in a way that brought continuity. The monolithic shapes and large format panels (size 1500 x 3000 mm) of GammaStone AIR technology made this project a success.



RESIDENCE INN

BUFFALO, NY

Architectural design:
FFAE Architects

Buffalo, NY
42°54'17"N
78°50'58"W

The renowned Marriott chain offers a modern concept of welcoming its customers. The essential lines and measured proportions of the building are a spokesman of sobriety and balance. The renovation is done by GammaStone AIR; starting from the architectural design and continuing with the covering of the entire façade thanks to ultralight and large GammaStone Gres AIR panels (up to 2800mm). The realization of recurring monolithic elements characterize the entire façade and together with the singular slotted ceiling for the insertion of LED lights, give modernity and minimalism to the project.

Natural AIR



GammaStone GRES AIR
Pietra Limestone



archiproducts
DESIGN AWARDS
—
WINNER 2018



The renowned Marriott brand offers a modern concept of welcoming its guests. The essential lines and measured proportions of the building gives a sense of balance and stability. Incorporating GammaStone Gres AIR from the beginning design phases allowed this project to be a success. The monolithic elements characterize the façade together with the LED lights inserted in the slotted panels to achieve the design goals of Marriott.

The elegance of simplicity has labeled the hotel as one of the most sought after in the area, especially amongst business travelers. The porcelain chosen was specified for its aesthetic functionality and its robust appearance.



BRITISH STONE AND ITALIAN TECHNOLOGY

STUDENT RESIDENCE

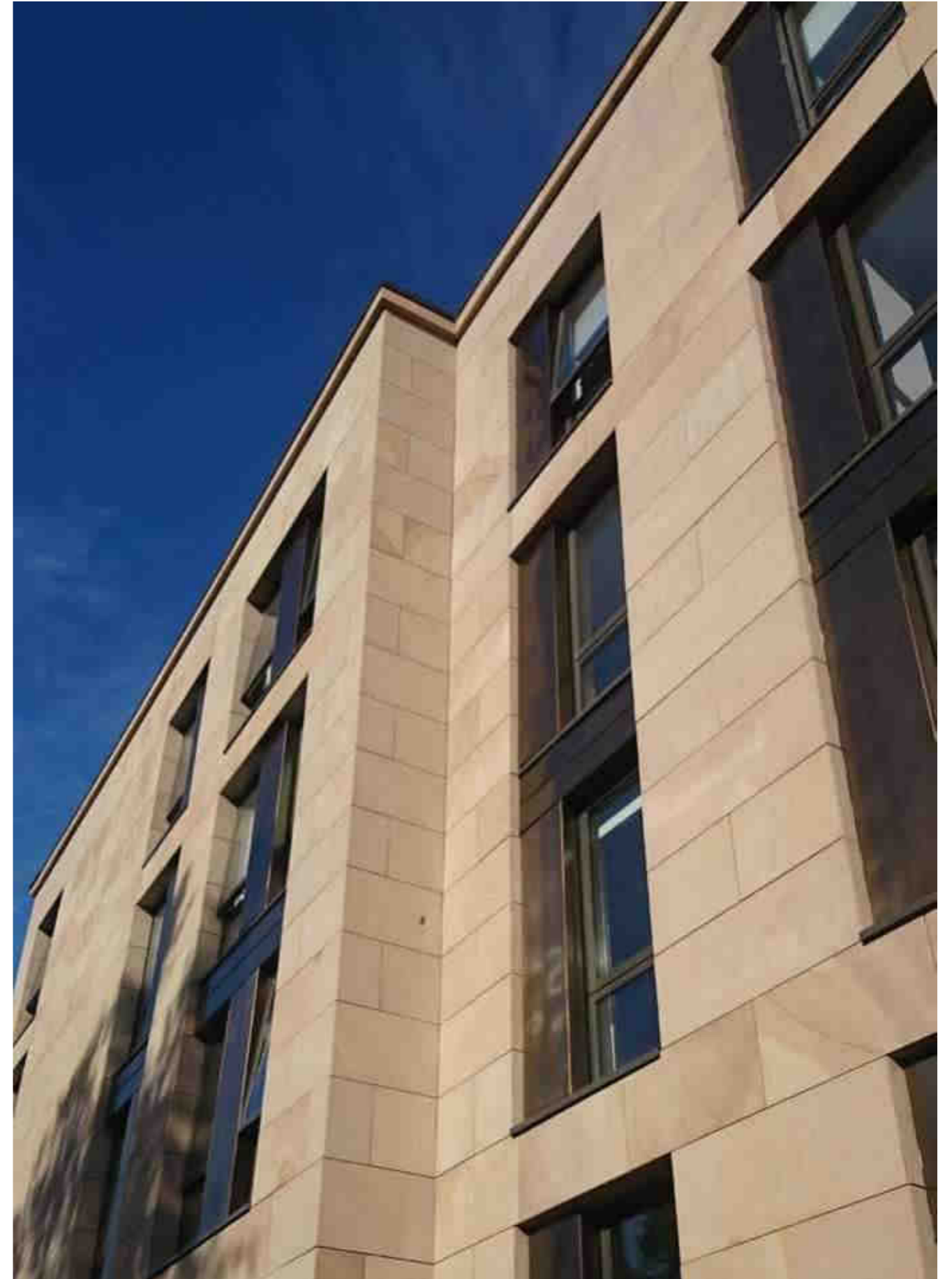
In respecting tradition designers do not have to sacrifice innovation when using GammaStone AIR. This architectural solution achieves energy efficiency, while maintaining traditional colors and design concepts of its surroundings. GammaStone Natural AIR panels in Stanton Moore Sandstone has ensured the building is in harmony with the surrounding structures.

Student Residence
Edinburgh Scotland Uk
55°56'58"N 3°09'37"W

Natural AIR



GammaStone NATURAL AIR
Stanton Moore Sandstone



VENTILATED FACADE

STUDENT RESIDENCE

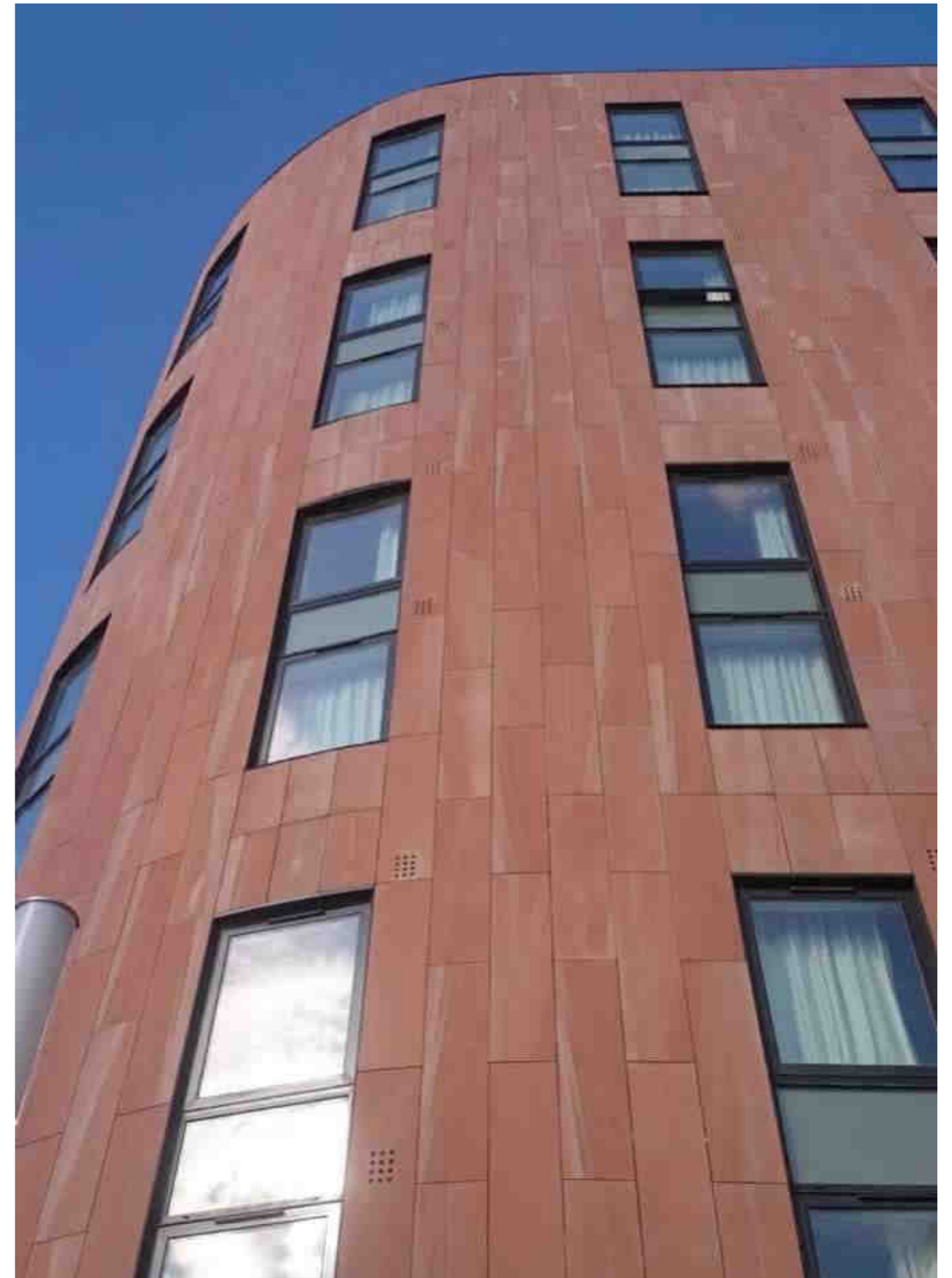
Beith Street is an innovative student housing project in the West Village complex next to the University of Glasgow. More than 2,000 panels were called for to complete this unique project. GammaStone Natural AIR enabled the designer to create a modern and energy efficient building in perfect harmony with the surrounding architectural environment and the Scottish urban landscape by choosing a local stone. Ventilated facades are very effective in counteracting the high humidity of the local climate.

Student Residence
Glasgow Scotland Uk
55°56'58"N 3°09'37"E

Natural AIR



GammaStone NATURAL AIR
Locharbriggs Red Sandstone



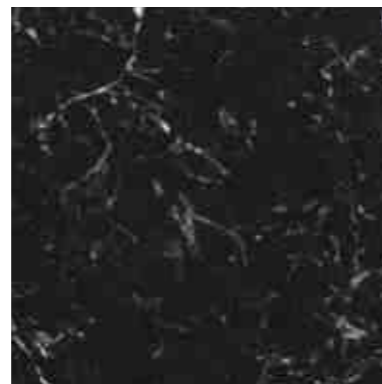
BOUTIQUE PRADA

Absolute black is the color of luxury and elegance, in both fashion and in architecture. GammaStone interpreted this timeless trend for a Prada boutique in Panama City and Amsterdam. In this project, we wanted to honor this great Italian brand through the use of a precious material that enhances the distinction and exclusivity of Prada. We customized each project individually, understanding the personalities of each city. For Panama City we incorporated Zimbabwe Black granite and for Amsterdam Marquina Black Marble demonstrating the customization capabilities of GammaStone AIR.

Natural AIR



GammaStone NATURAL AIR
Black Zimbabwe Granite



GammaStone NATURAL AIR
Black Marquina Marble



Boutique Prada Panama
8°37'N 80°22'W



Boutique Prada Amsterdam
52°22'N 4°52'E

CAVENDISH HOUSE

Simple design and a pleasant urban landscape go hand in hand in quality of living. This is the vision that inspired the Cavendish House project in Norwich, United Kingdom. The harmonious integration of the old brick structure and the new ventilated facade made of GammaStone panels has been achieved by the geometrical shapes and the solemnity of the grey Jura limestone. Thanks to its patented technology, GammaStone achieved continuity of the material in this façade. This technology allowed large format panels to be installed on the façade despite the considerable weight of the natural stone used for this project. Remarkably, GammaStone was able to achieve the appearance of monolithic corners by combining the different elements and providing a separate anchorage to the support structure for each panel.



The natural stone selected for this project contains fossils of ancient marine organisms. Those fossils are visible in some parts of the façade, making this building even more exceptional and unique.

Natural AIR



GammaStone NATURAL AIR
Jura Limestone Grey

Cavendish House
Norwich UK
52°37'41"N 1°17'57"E



VIRGIN HOTEL

DALLAS

Architectural design: 5G Studio Collaborative

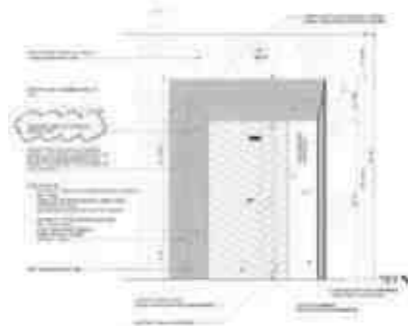
Once again, GammaStone leaves its mark with the well-known “Commons Club” restaurant located in the Virgin Hotel, Dallas. The Carrara White Marble chosen by the client enhances the entrance and gives a touch of elegance to a place frequented by many VIP customers.

Designing in GammaStone Natural AIR cladding allowed the designers to create a unique entrance. The panels converge in the direction of the entrance which gives an inviting appearance. The panels are three inclined surfaces which come together at a single calculated point with peculiar asymmetric cuts and rounded edges.

Although the panels have altered geometries, the structure is coplanar and homogeneous. A careful architectural study allowed the GammaStone to maintain the veins of the stone across panels. A 6 mm joint was incorporated to give a sense of direction to the whole assembly.



Natural AIR



GammaStone NATURAL AIR
Carrara White Marble

1445 Turtle Creek Blvd,
Dallas, TX 75207, USA
32° 47.759'N - 96° 49.3014'W

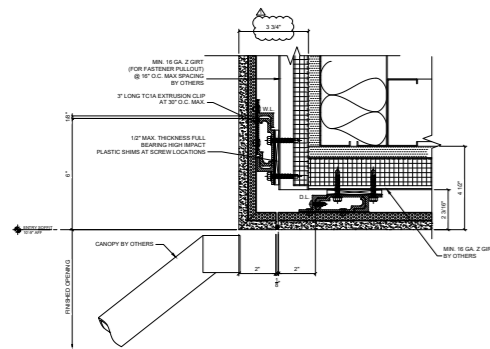


GUCCI STORE

PALM DESERT - CA

Architectural design:
DTM Architects

Given its vast and varied range of collections inspired by elegance of natural marble, GammaStone solutions were chosen for the exterior of the new luxury Gucci Store in Palm Desert, California. The timeless beauty of Calacatta Gold marble with its elegant veins combined with GammaStone's performance, durability, and lightness, remodels the exterior to create a sophisticated environment.



Natural AIR



GammaStone NATURAL AIR
Calacatta Gold

Gucci Store
73-585 El Paseo Suite #1112
Palm Desert, California,
92260, United States
31°47'34.3320" N
106°27'11.0844" W



CEPSA SPAIN SERVICE STATION

Architectural design:
Malka+Portús arquitectos

CESPA opened its first service station in Tenerife by incorporating the elegant choice of GammaStone Glass AIR. The red traffic light color gave an innovative and modern appearance to the station. This is the first service station to incorporate smart building, a new construction model. Remarkably, this project incorporates the most advanced technologies in terms of energy savings. Among these, the GammaStone Glass AIR ventilated façade stands out, composed of tempered glass that significantly reduces heat dispersion. GammaStone was also able to accommodate curved glass corners with a radius of 450mm. Incorporating the panel system on the doors allowed them to blend in with the building and create a sense of continuity.

Glass AIR



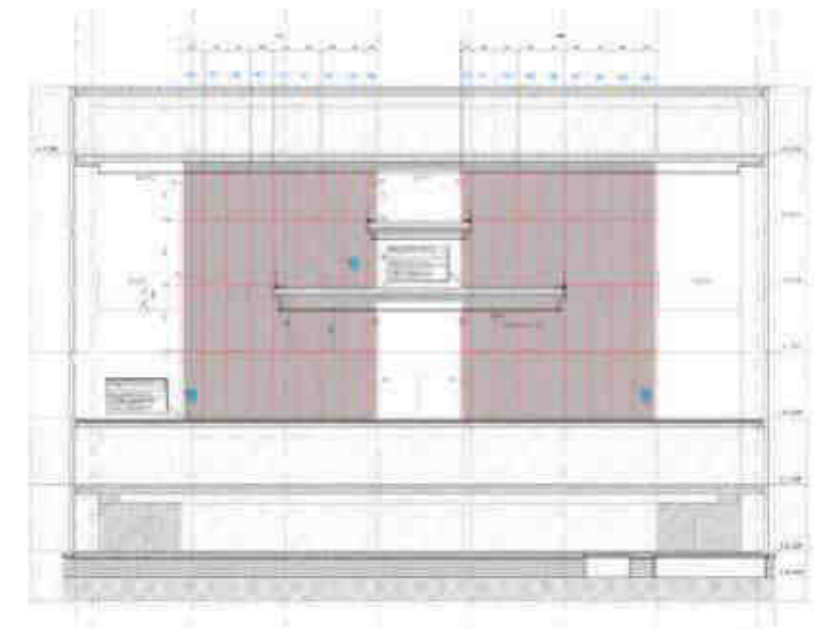
GammaStone GLASS AIR
Red Traffic

Cepsa Service Station - Spain
28°19'N 16°34'W



PIEMONTE REGION HEADQUARTERS

TURIN



Architectural design: Studio Fuksas

Choosing materials is a critical step in the creative process. Top designers understand that materials enable them to create spaces and influence the way a building interacts with the people it serves and the environment around it. Incorporating GammaStone Glass AIR panels in the Torre Regione Piemonte project demonstrates this perfectly. The designer chose white lacquered glass to obtain a clean and rational effect, suited to an environment that is both institutional and commercial. In Torre Regione Piemonte we installed large reflective glass panels for the internal cladding of large common areas, obtaining a striking result in terms of brightness and aesthetic appeal.

Glass AIR



GammaStone GLASS AIR
Optic White

Piemonte Region Headquarters
Turin - Italy (Fuksas Project)
45°04'N 7°42'E



UNICREDIT BANK

Glass is increasingly being incorporated into professional environments for its modern appearance and the office environment it creates. In the UniCredit Bank project, GammaStone cladded the interior lobbies of the prestigious Milanese Bank in ice colored lacquered glass. The large panels are a key design feature and the GammaStone AIR solution allowed them to be installed with ease. The 5cm gap between panels was strategically designed to allow for power and communication lines to be accessed.



Glass AIR



GammaStone GLASS AIR
Ice



Unicredit (Tower A), Milan - Italy
45°27'50.98"N 9°11'25.21"E

MUSEUM

ASTI

The Paleontological Museum in Asti, Italy incorporated GammaStone Glass AIR into an exhibition space. This project required large monolithic elements to be created and GammaStone was able to bring a sense of elegance to the space. The shiny finish of the Blue Distant colored glass enhances the visitor experience by creating an engaging environment.

Architectural design:
Interno 10 Architettura



Glass AIR



GammaStone GLASS AIR
Blue Distant

Museo Paleontologico
Territoriale dell'Astigiano,
Asti - Italy
45°27'50.98"N 9°11'25.21"E

SHOPPING MALL

MILAN

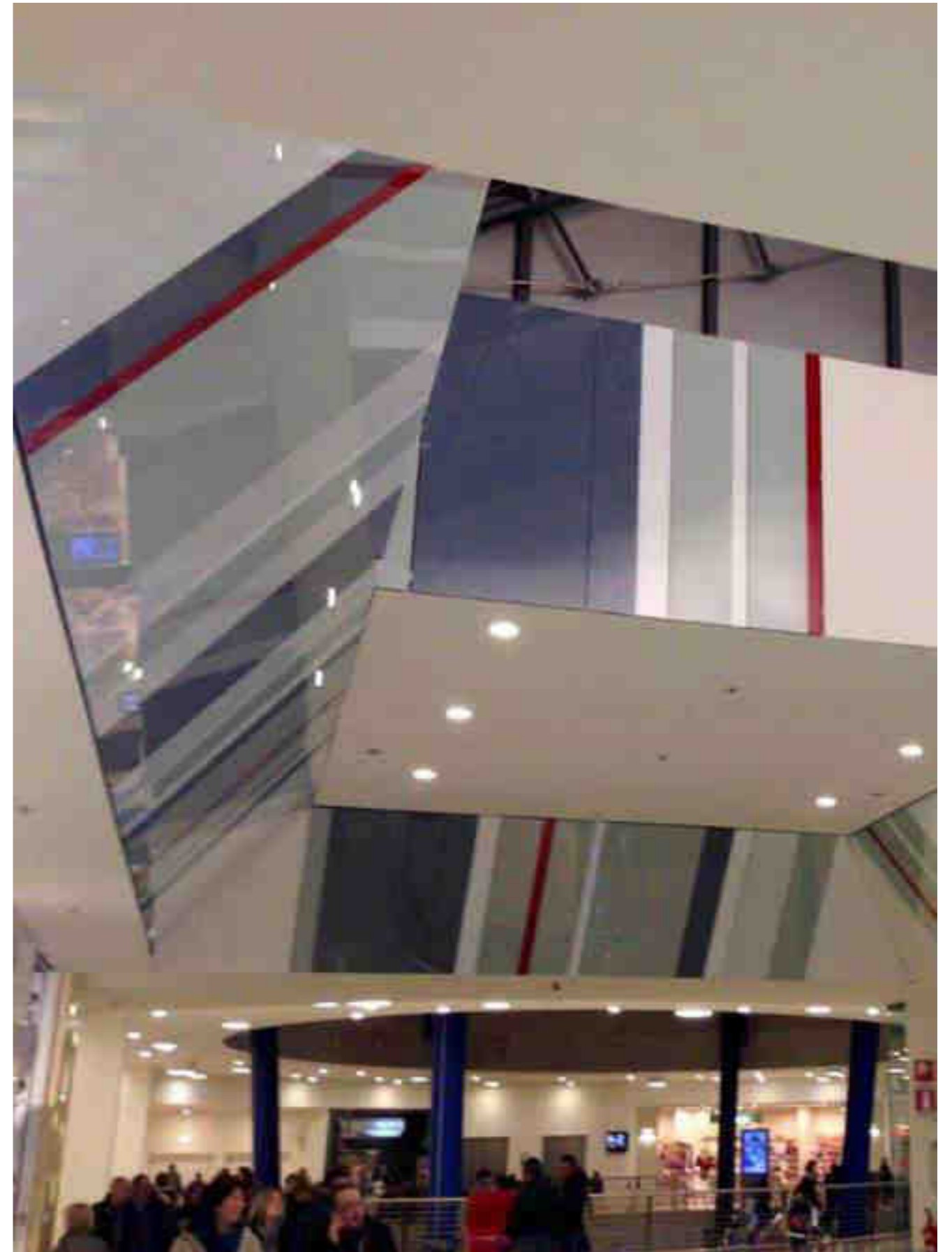
GammaStone provided a shopping mall in Milan a unique design solution of offering multiple colors of glass on one AIR panel. It demonstrates the infinite possibilities of designing in GammaStone AIR. It also provided a cost savings to the project, by not requiring multiple independent panels to achieve the multi colored look.

Glass AIR



GammaStone GLASS AIR

Shopping Mall, Milan - Italy
45°27'50.98"N 9°11'25.21"E



03

Chapter

Products

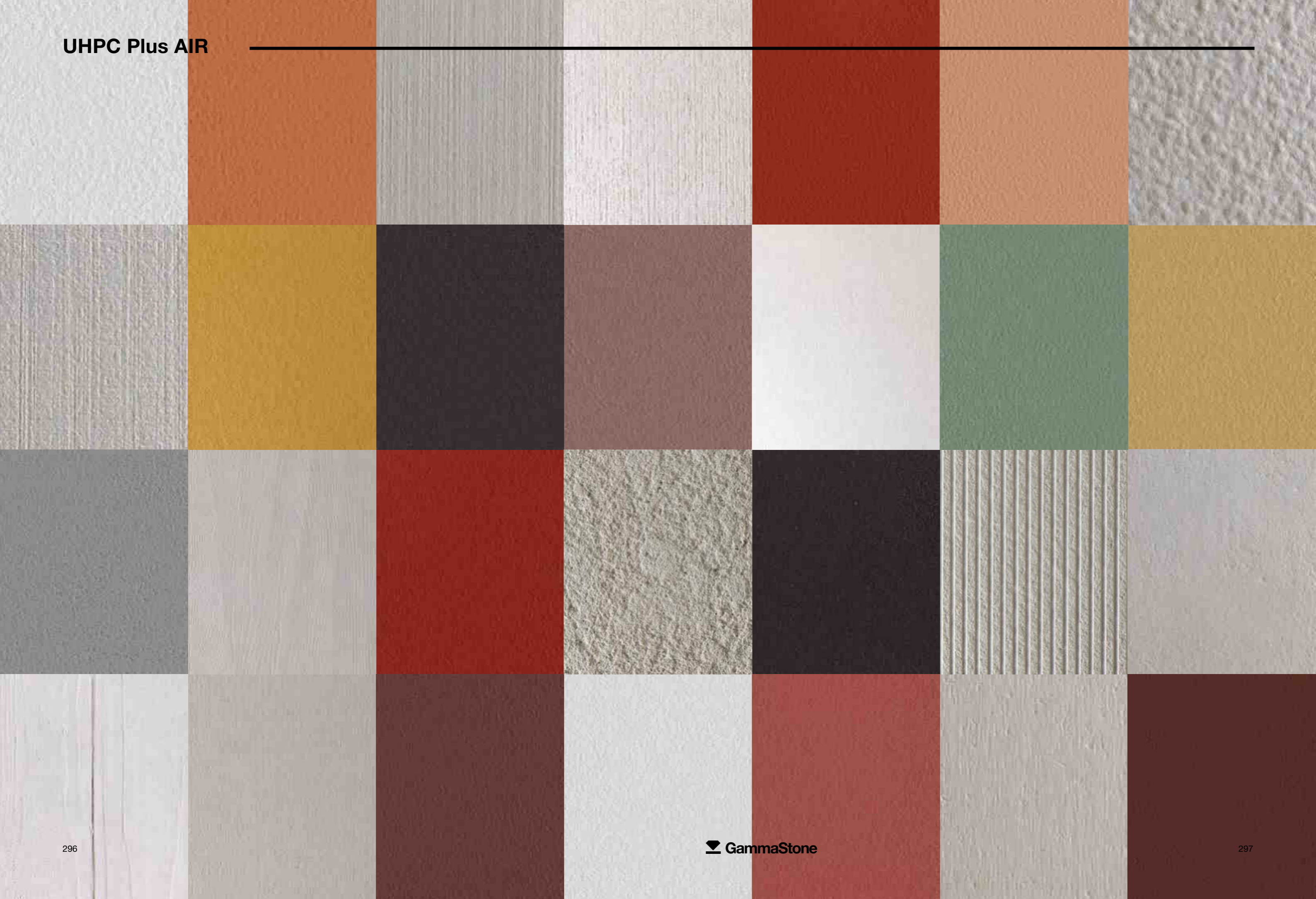
UHPC Plus AIR [New]	294
Natural AIR	376
Brick AIR	412
Glass AIR	424
Gres AIR	432

New colors and finishes.



UHPC Plus AIR

GammaStone UHPC Plus AIR is an ultra-high performance concrete panel that is lightweight and extremely strong. Architects can design the façade is UHPC Plus to achieve a concrete appearance without intensely stressing the underlying structure – making it a unique solution for high-rise buildings. The UHPC Plus AIR panel consists of a thin ultra-high performance concrete slab and a structural core placed between two glass fiber mats and supported by a 0.5 mm thick stainless steel plate. The total panel thickness is 17mm and the total weight is 18kg/sqm. The maximum size is 4150x1650mm. Made-to-size elements are cut to the correct size with water jets. All GammaStone UHPC Plus AIR panels can be customized in shape, color, and surface finish to suite the designer's requirements.



UHPC Plus AIR

UHPC Plus

Fiberglass

Structural Core


Fiberglass

Stainless Steel



What is UHPC?


Ultra-High Performance Concrete (UHPC) is a type of concrete which has very high flexural and compressive strength and is used for heavy-duty applications.


 Highly moldable,
Extreme precision

 Reduce Environmental
Impact

 Installation
Time Saving

 Flexible
Design

 Resistance
to abrasion

 NO
Cracking

Why choose UHPC for architectural applications?

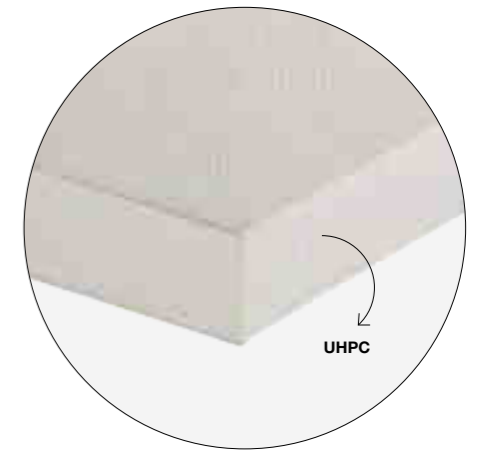
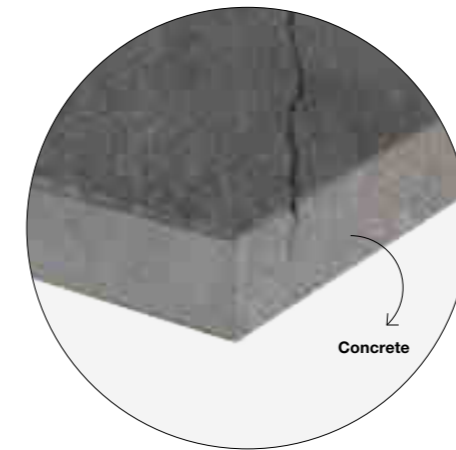
GammaStone has developed a high-performance cementitious mortar specifically for façade applications. It has been designed for external use and is therefore very flexible and resistant to all types of natural external stress.



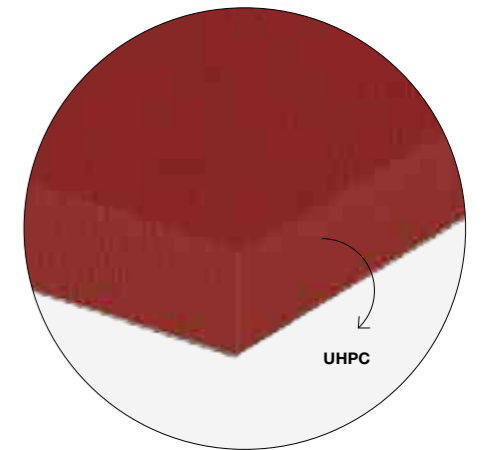
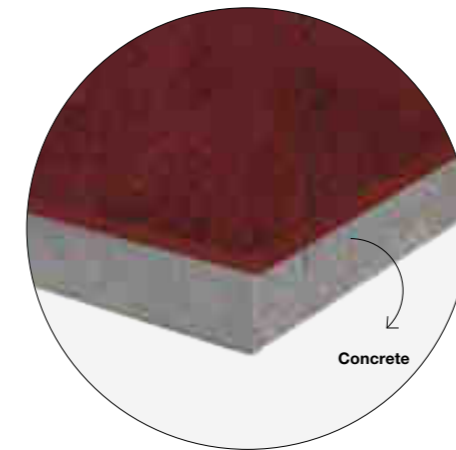
Less is More

UHPC is much stronger than classic GFRC and therefore its performance is more comparable to steel than to concrete.

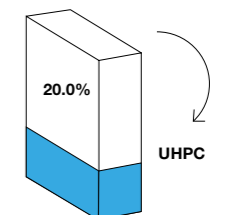
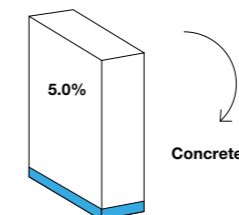
SURFACE QUALITY



COLOR INTEGRITY



WATER CONTENT



UHPC Plus AIR

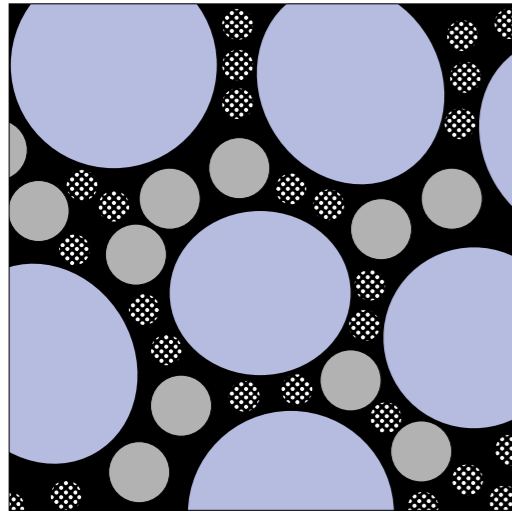
Water resistant

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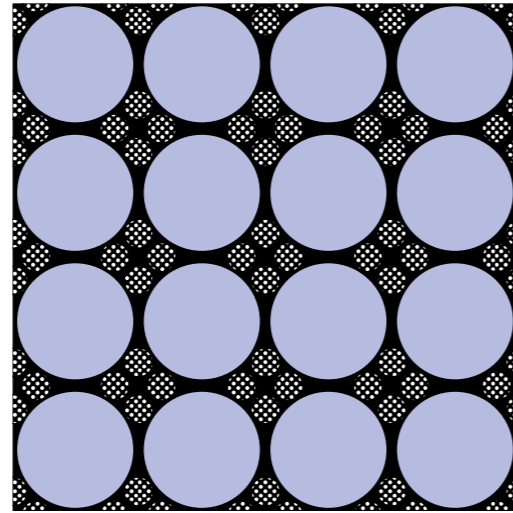


Material Characteristics

GammaStone UHPC Plus AIR is the result of extensive research into aggregates and hydraulic binders. It guarantees a high resistance to bending, compression, and impact because the molecules are extremely thin and there are no pores in the mortar.



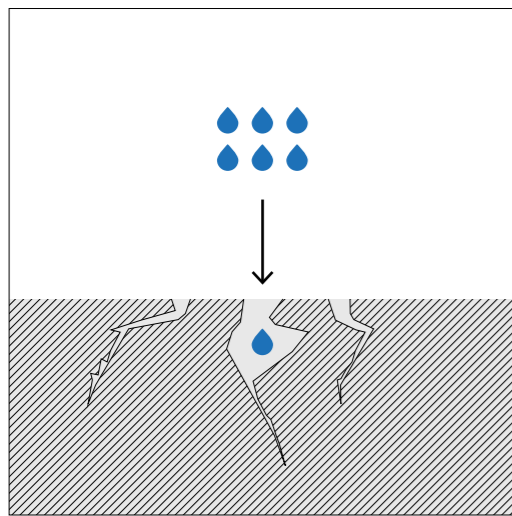
Conventional Concrete



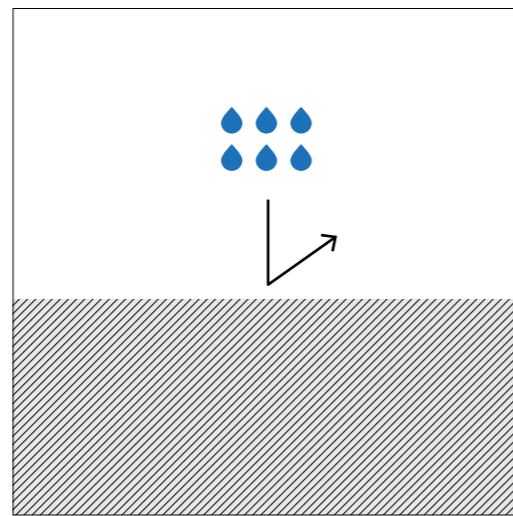
UHPC

Freeze/Thaw Performance

Since the molecules are so thin and poreless, unlike traditional concrete, GFRC, or fiber cement, UHPC absorbs much less water. This makes it much more resistant to freezing/thawing conditions because it will not crack or degrade over time. It also performs well in locations exposed to salt spray.



Conventional Concrete



UHPC

Environmental Impact

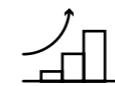
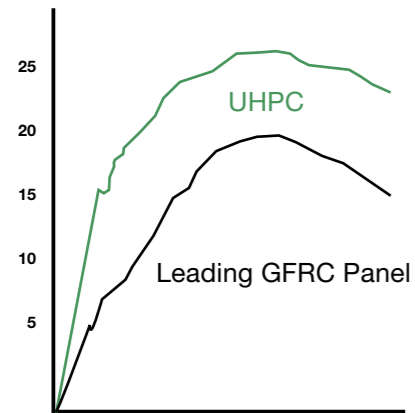
The production of UHPC at GammaStone's facility respects all environmental standards. Furthermore, since the thickness of the cement is lower, the environmental impact is less since we use less material.





Design Options Comparison: GammaStone UHPC with other GFRC

The quality of GammaStone's UHPC surface is aesthetically superior to other types of materials, as the colors are more saturated and more resistant to UV rays. Since it is a very thin and fluid compound it follows exactly the surface finish of the panel ensuring an even application and not interfering with its aesthetic appearance.



Strength + Stability Comparison: GammaStone UHPC with other GFRC

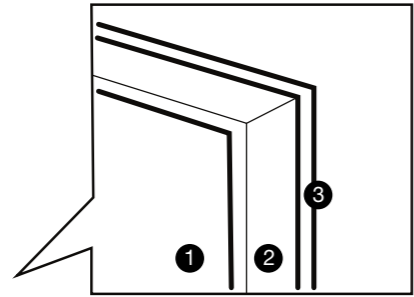
In contrast, UHPC panels can be up to four times stronger, withstand much higher loads, are much more stable and have low thermal expansion.





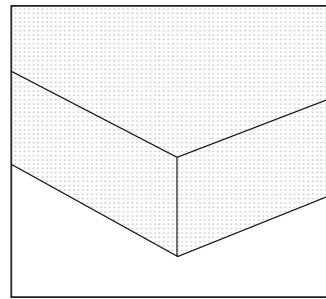


Panel structure

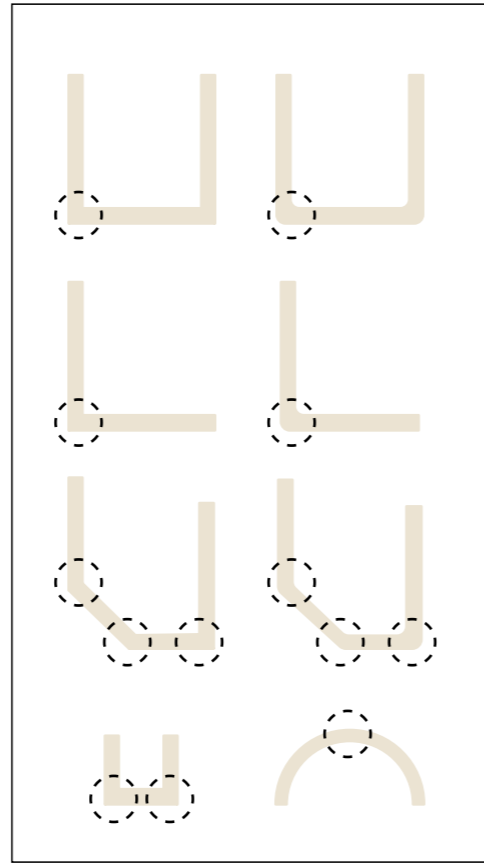


- 1. UHPC
- 2. Structural Core
- 3. Stainless Steel

2. Structural Core



AIR Technology



Shapes

[EU]

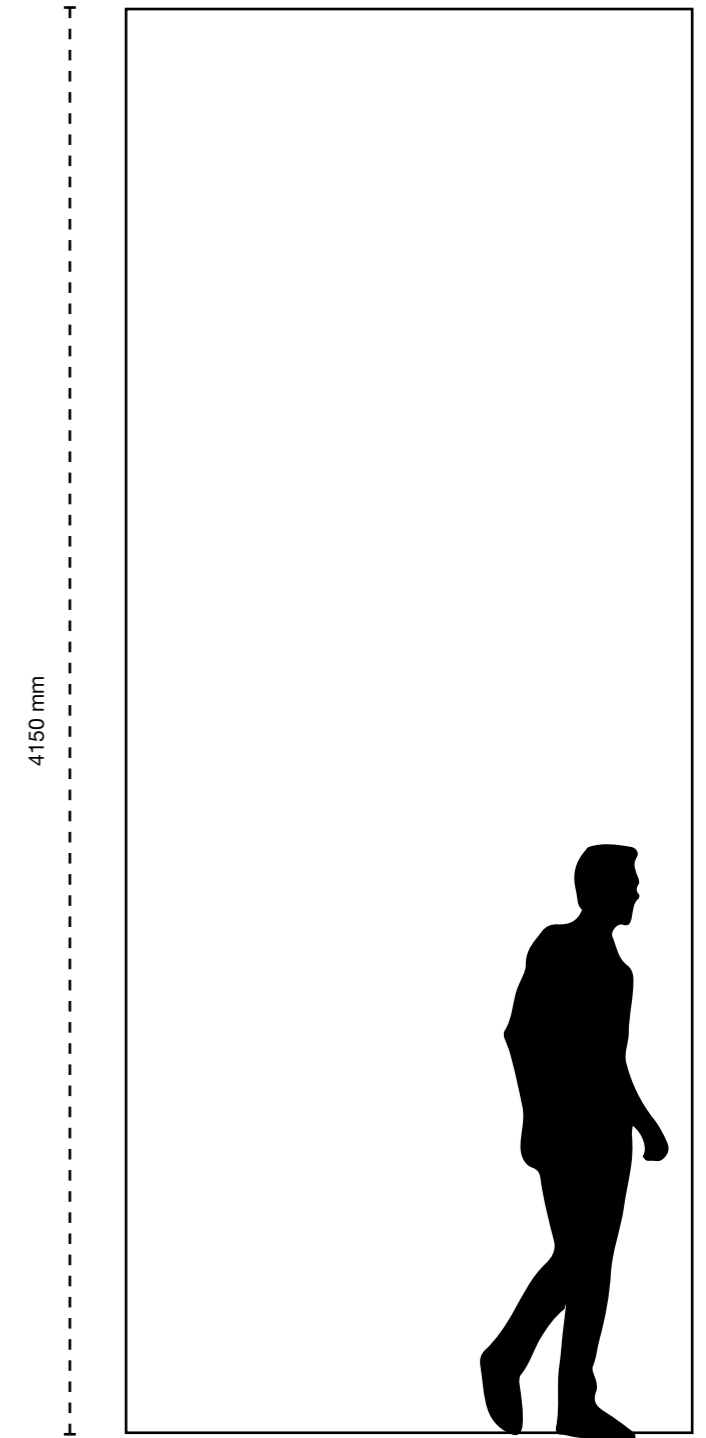
Max panel sizes: 4150x1650 mm (6,84 m²)

Total panel thickness	UHPC thickness	Panel weight
16 mm	5 mm	18 kg/m ²

[USA]

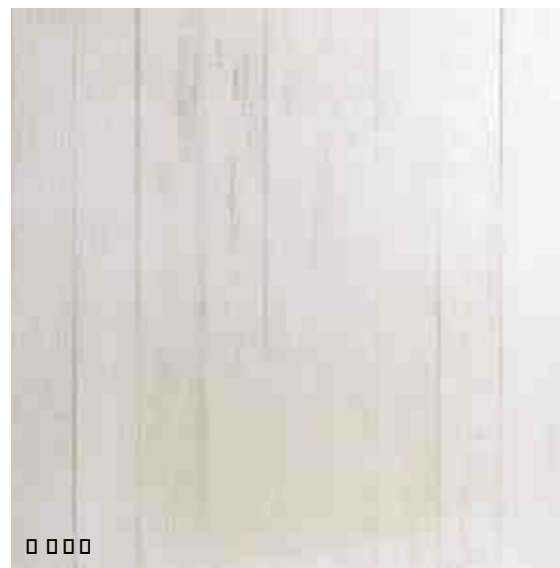
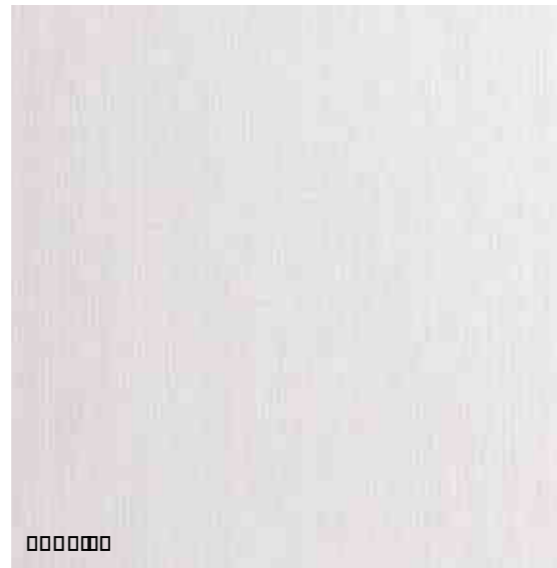
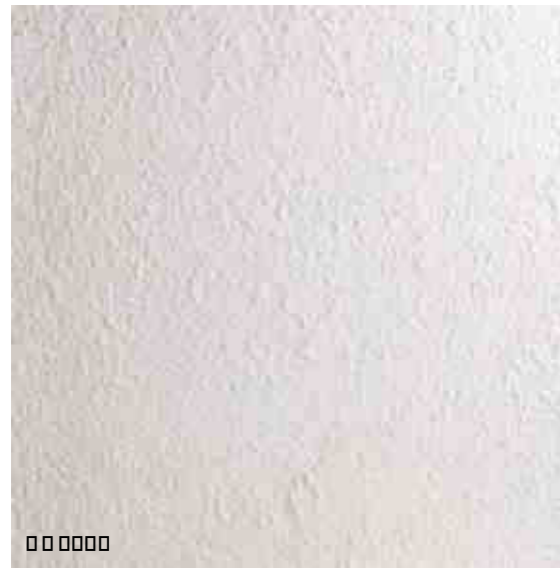
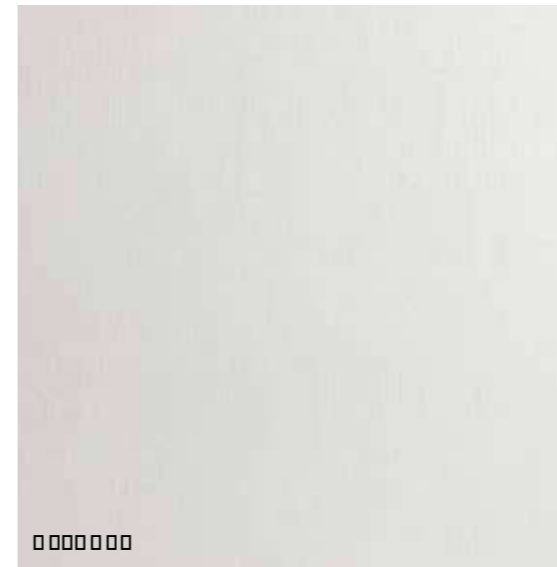
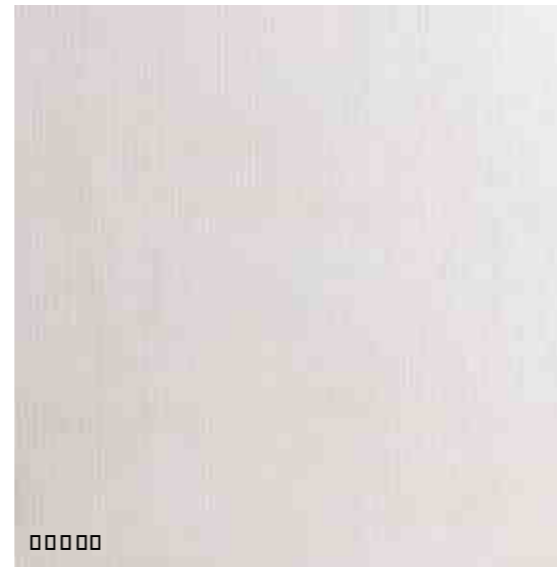
Max panel sizes: 163-25/64"x 64-61/64" (73.67 ft²)

5/8"	13/64"	3,7 lb/sqft
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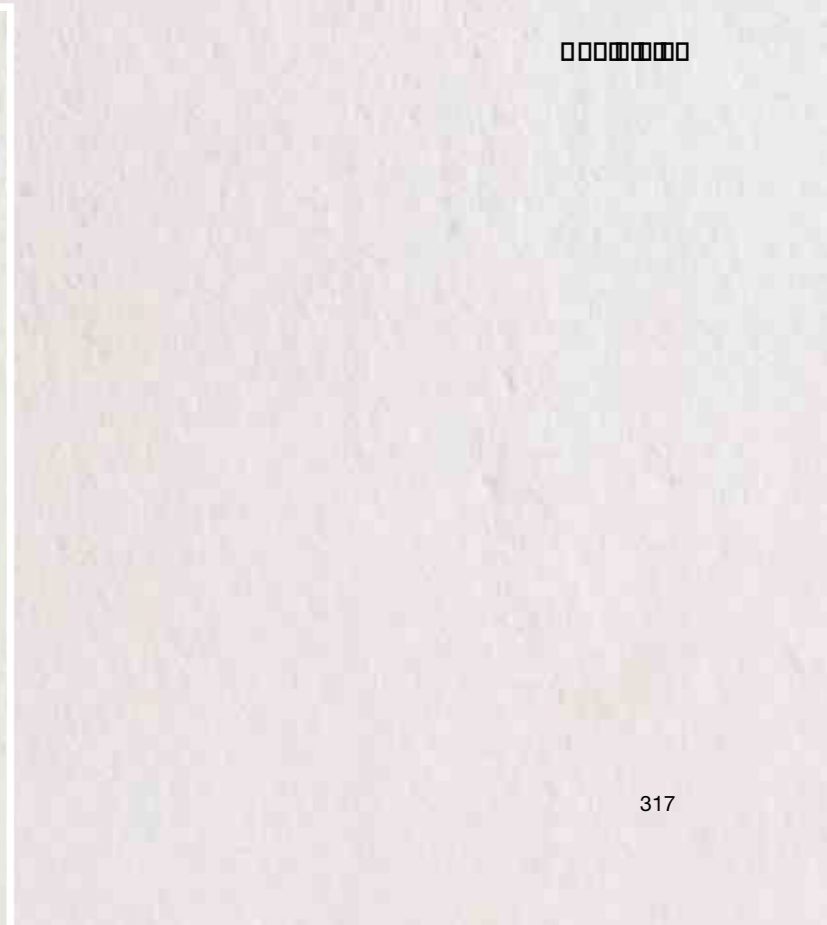
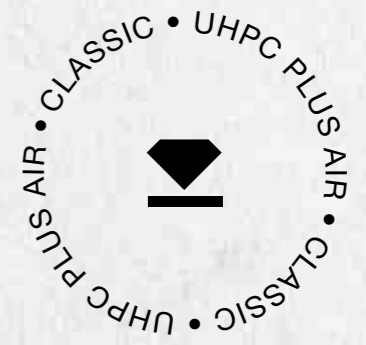
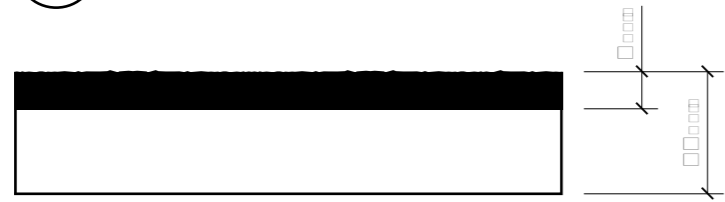
4150 mm

1650 mm



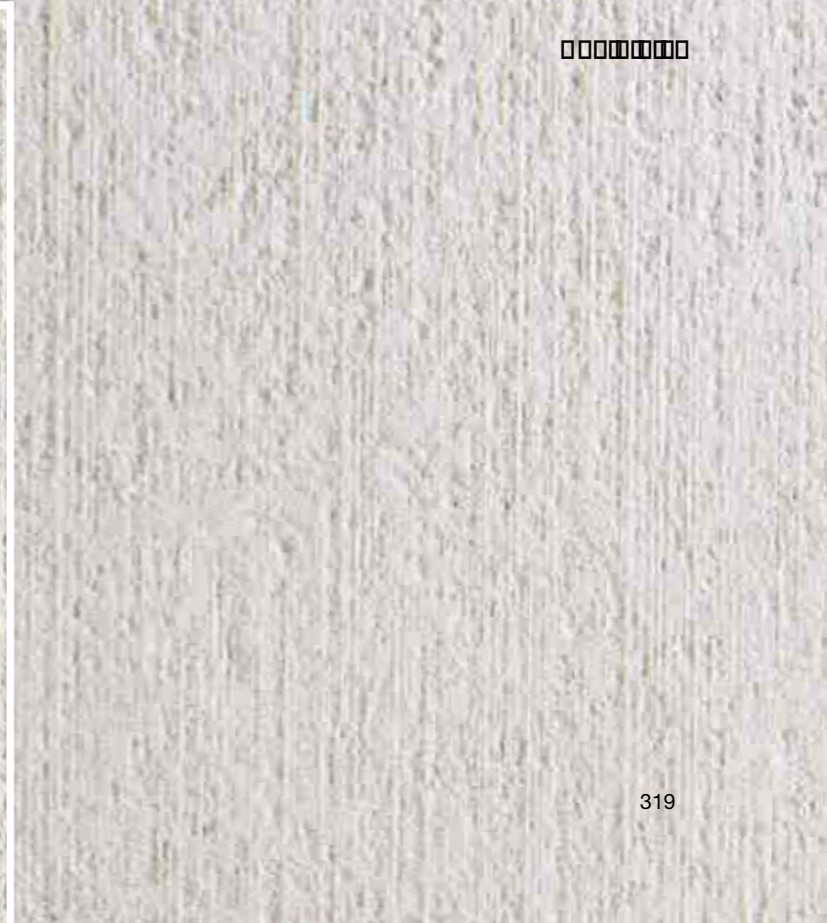
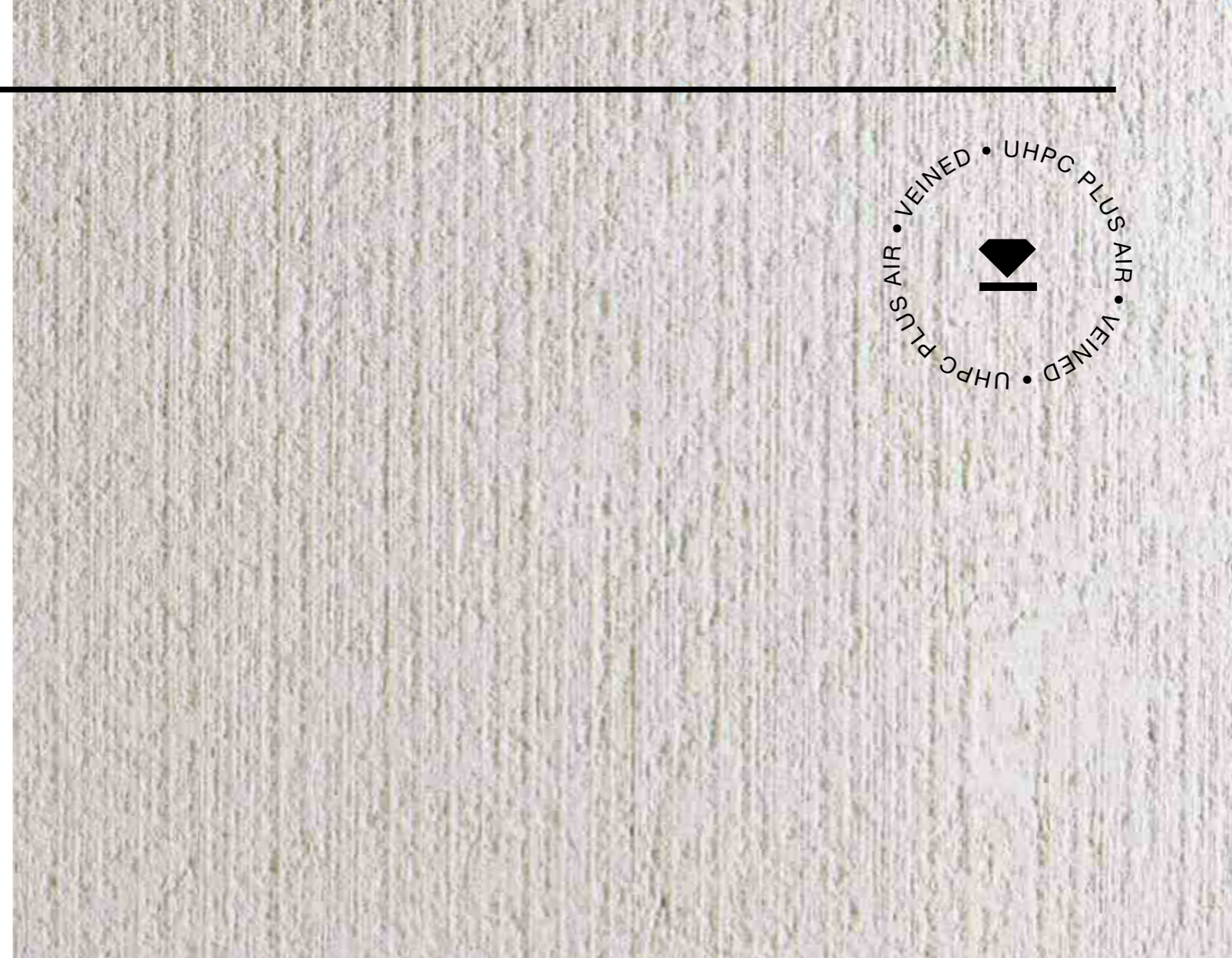
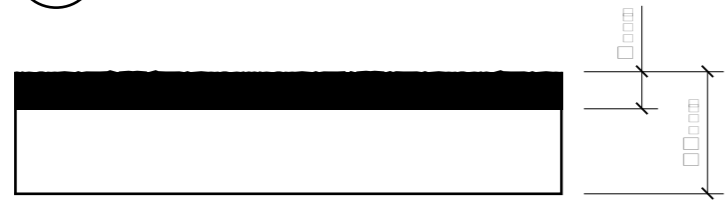
Classic - UHPC Plus AIR

 Panel Structure



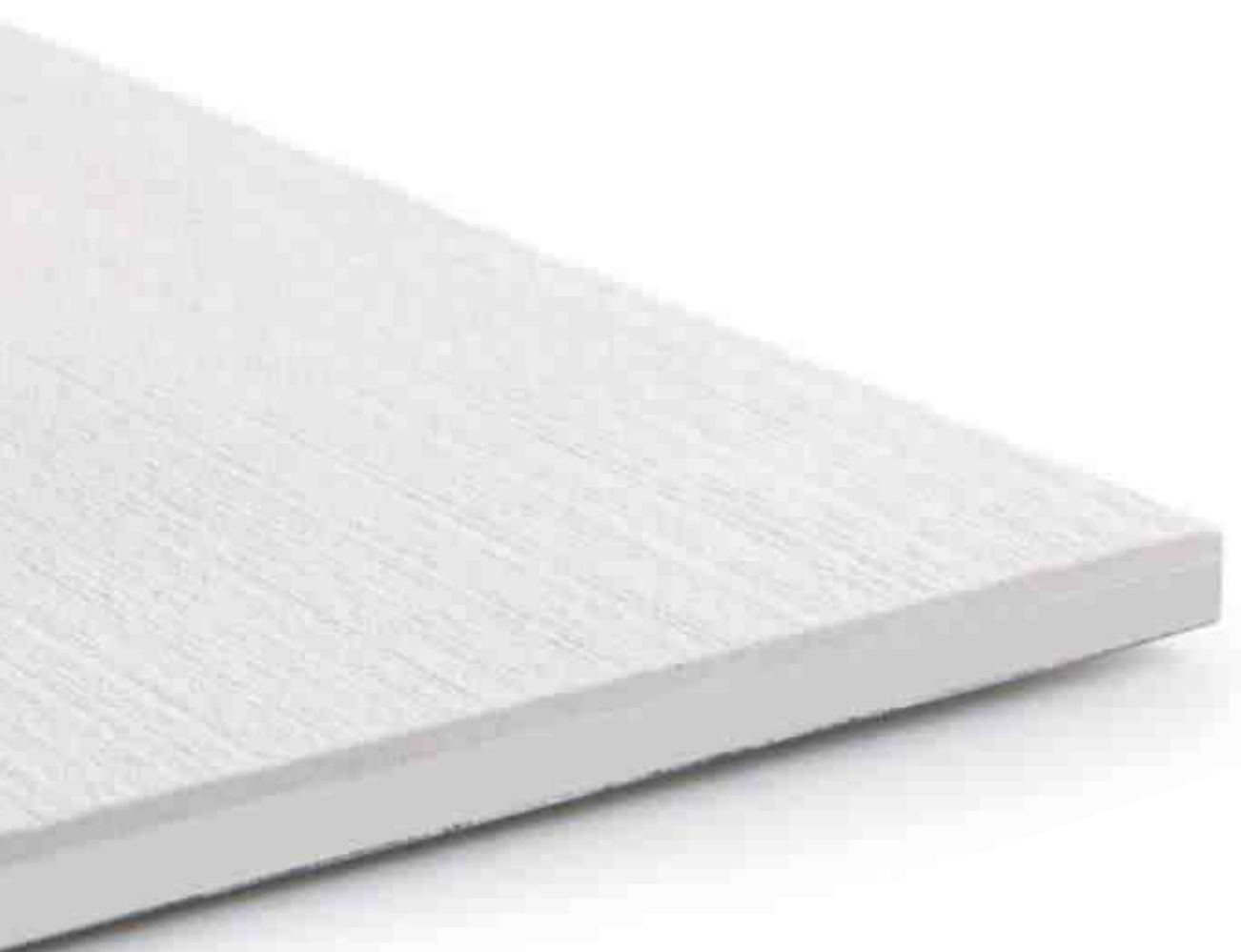
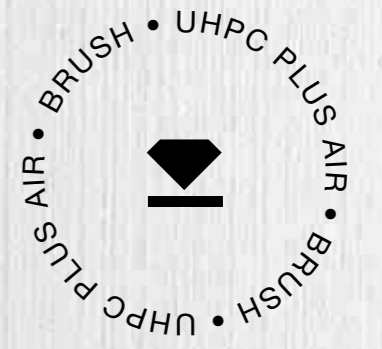
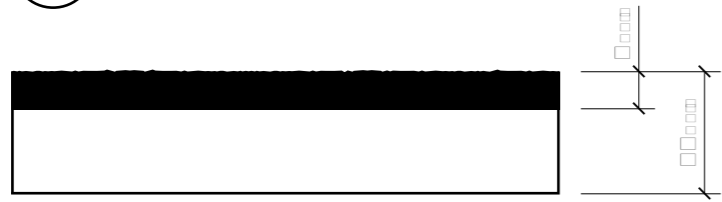
Veined - UHPC Plus AIR

 Panel Structure



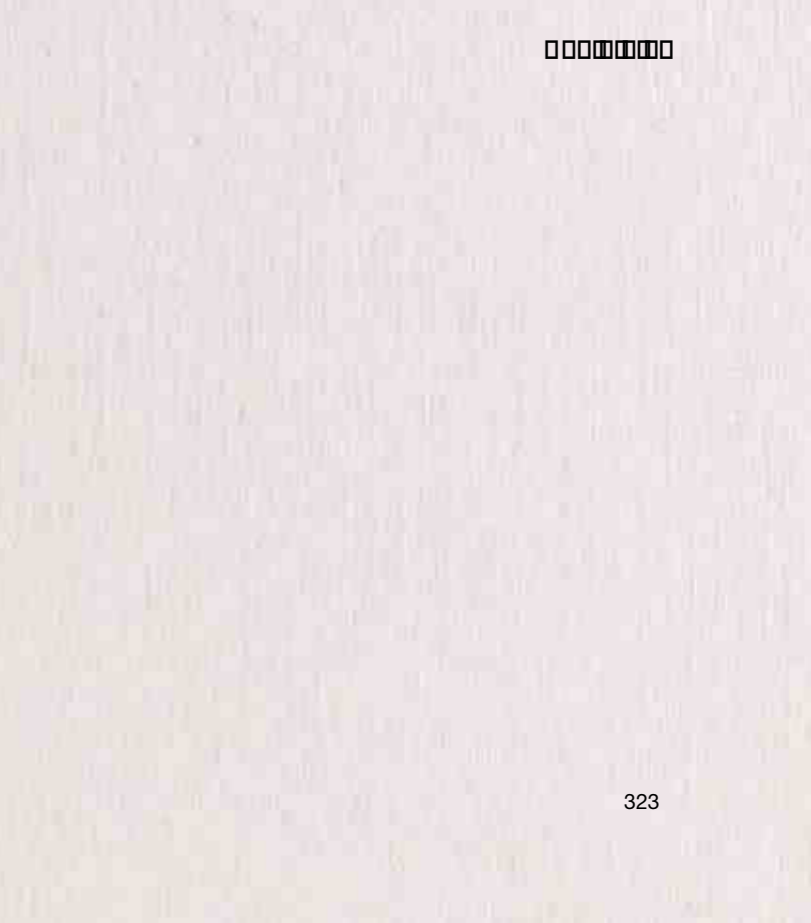
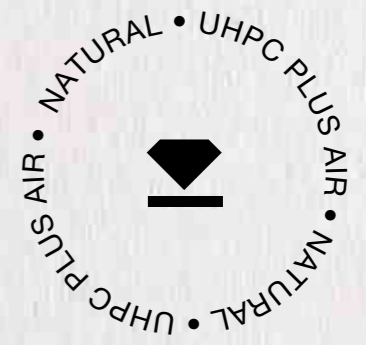
Brush - UHPC Plus AIR

 Panel Structure



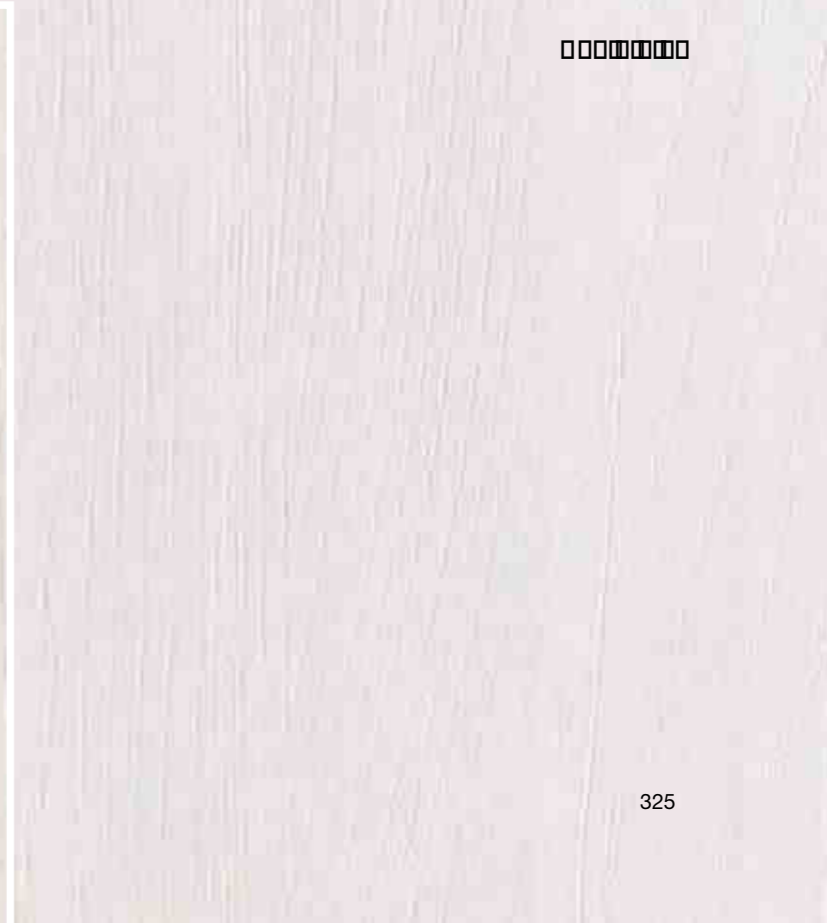
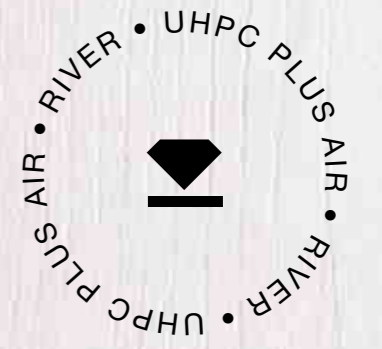
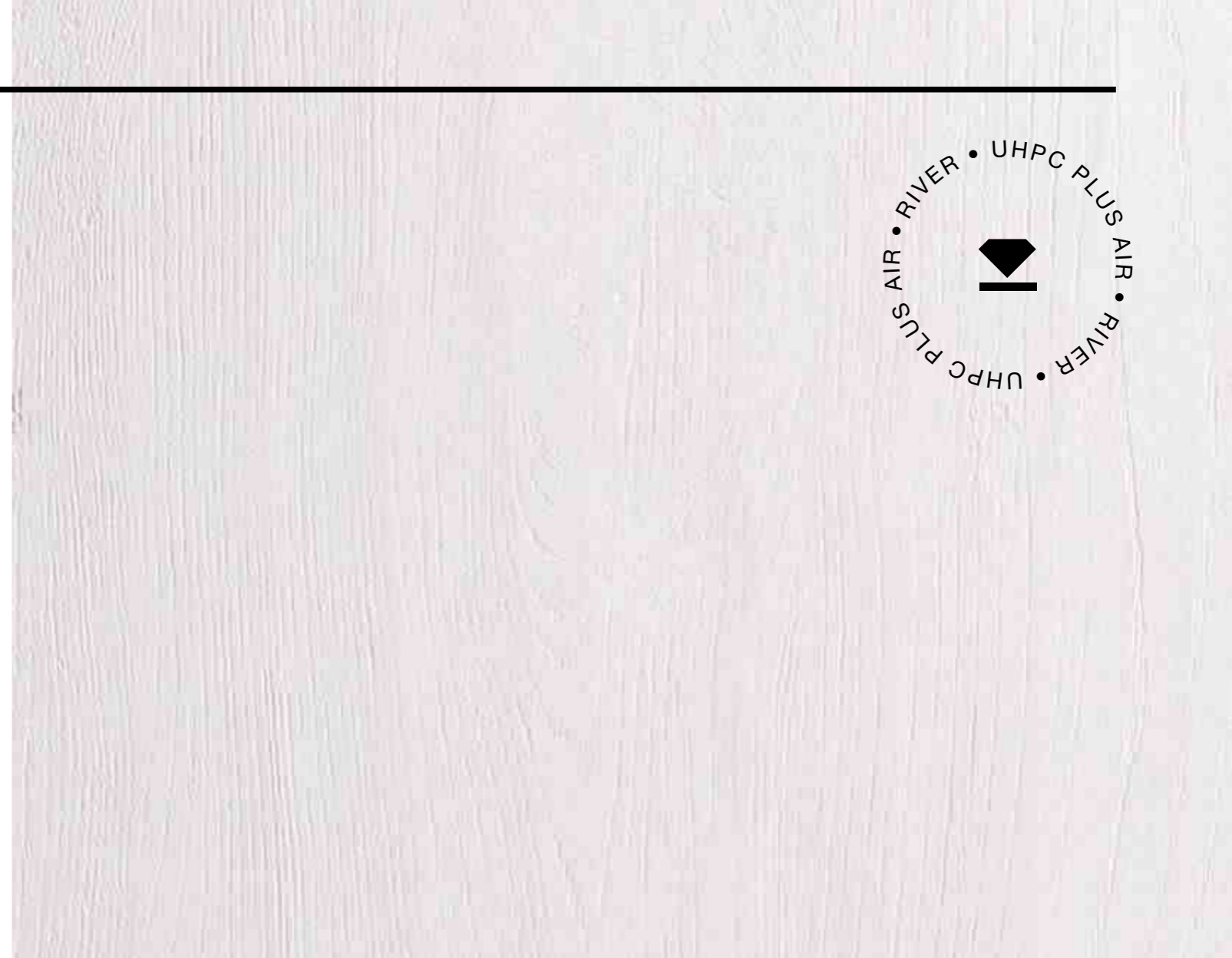
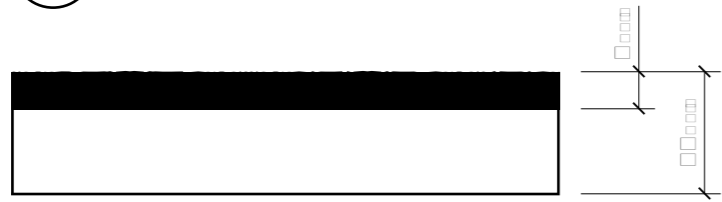
Natural - UHPC Plus AIR

 Panel Structure



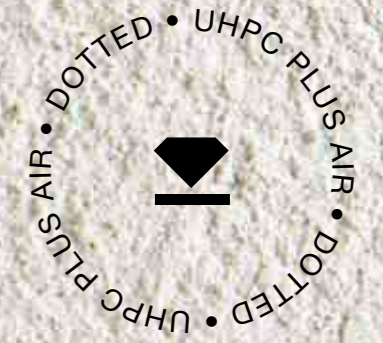
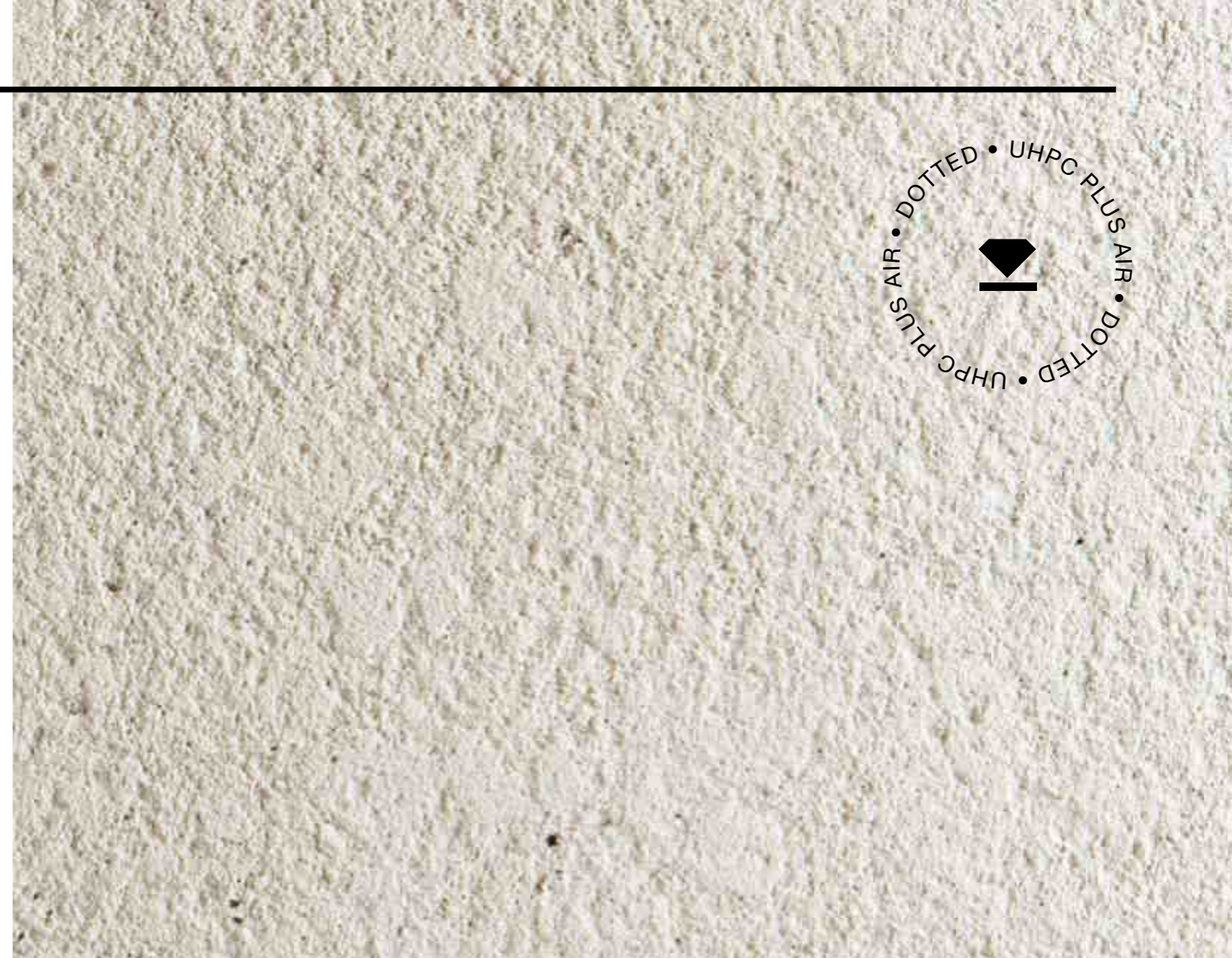
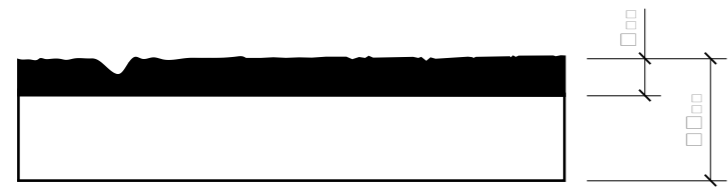
River - UHPC Plus AIR

 Panel Structure



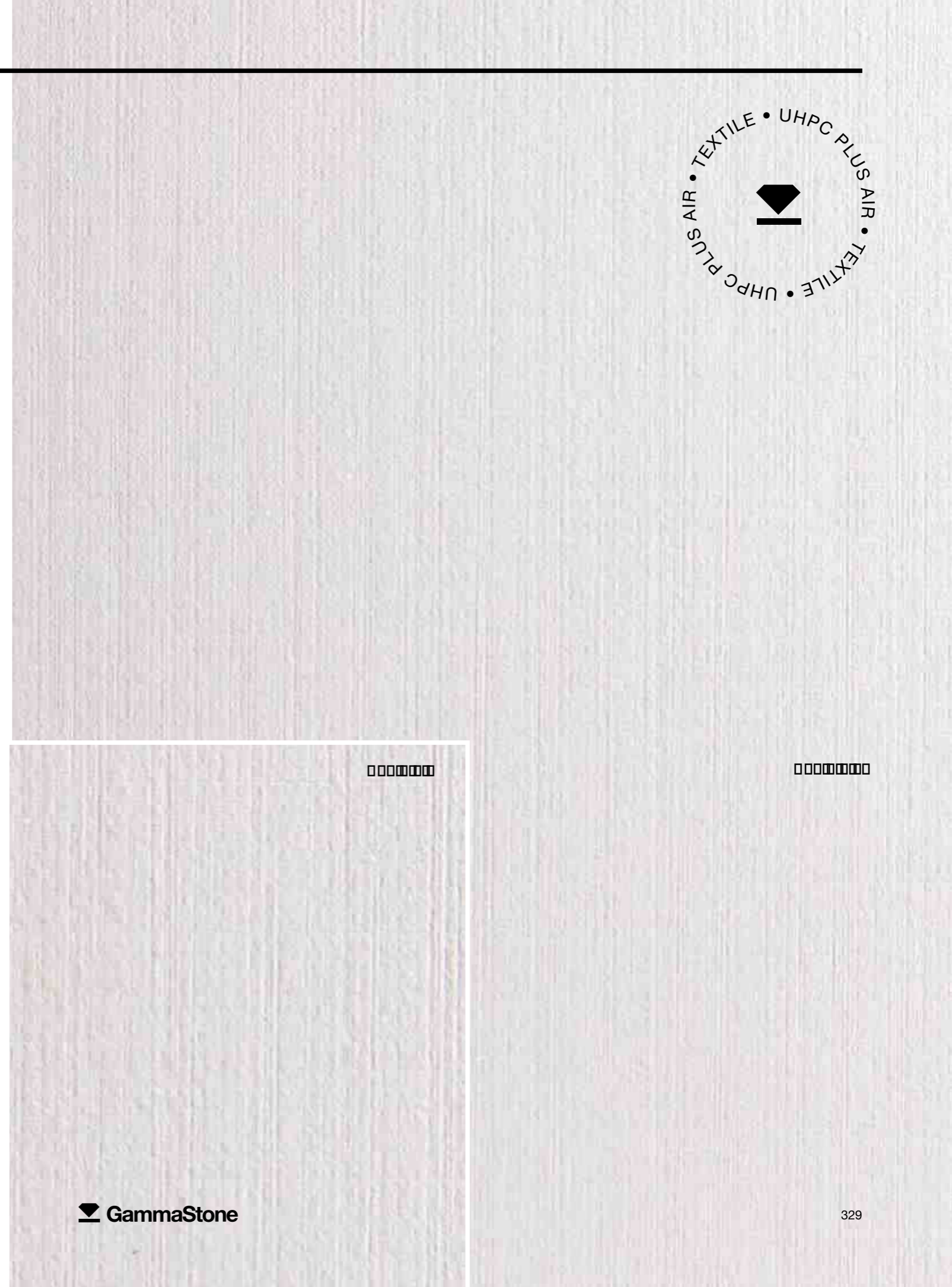
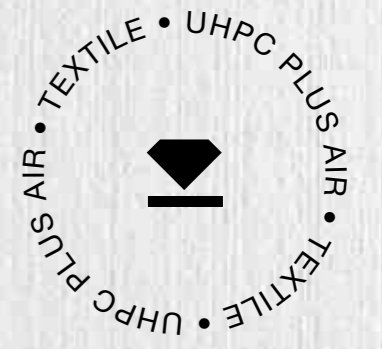
Dotted - UHPC Plus AIR

 Panel Structure



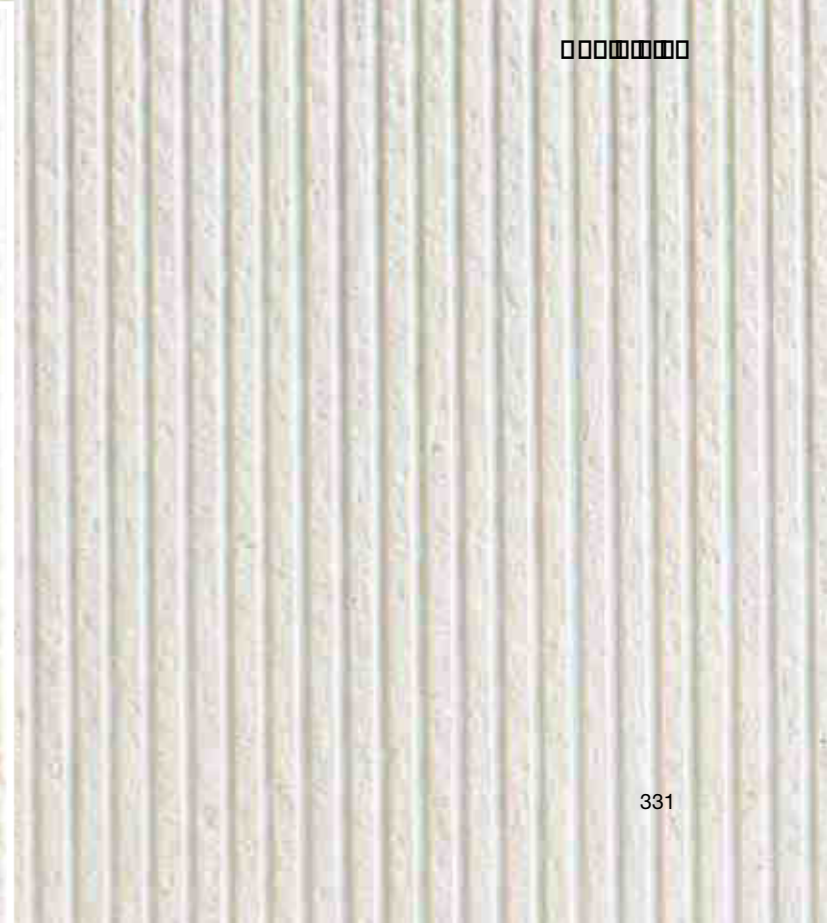
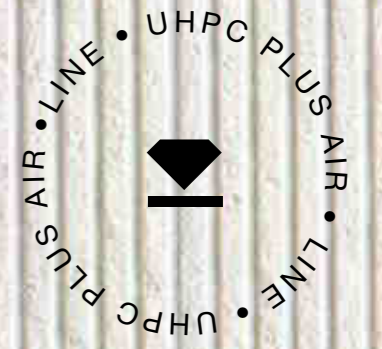
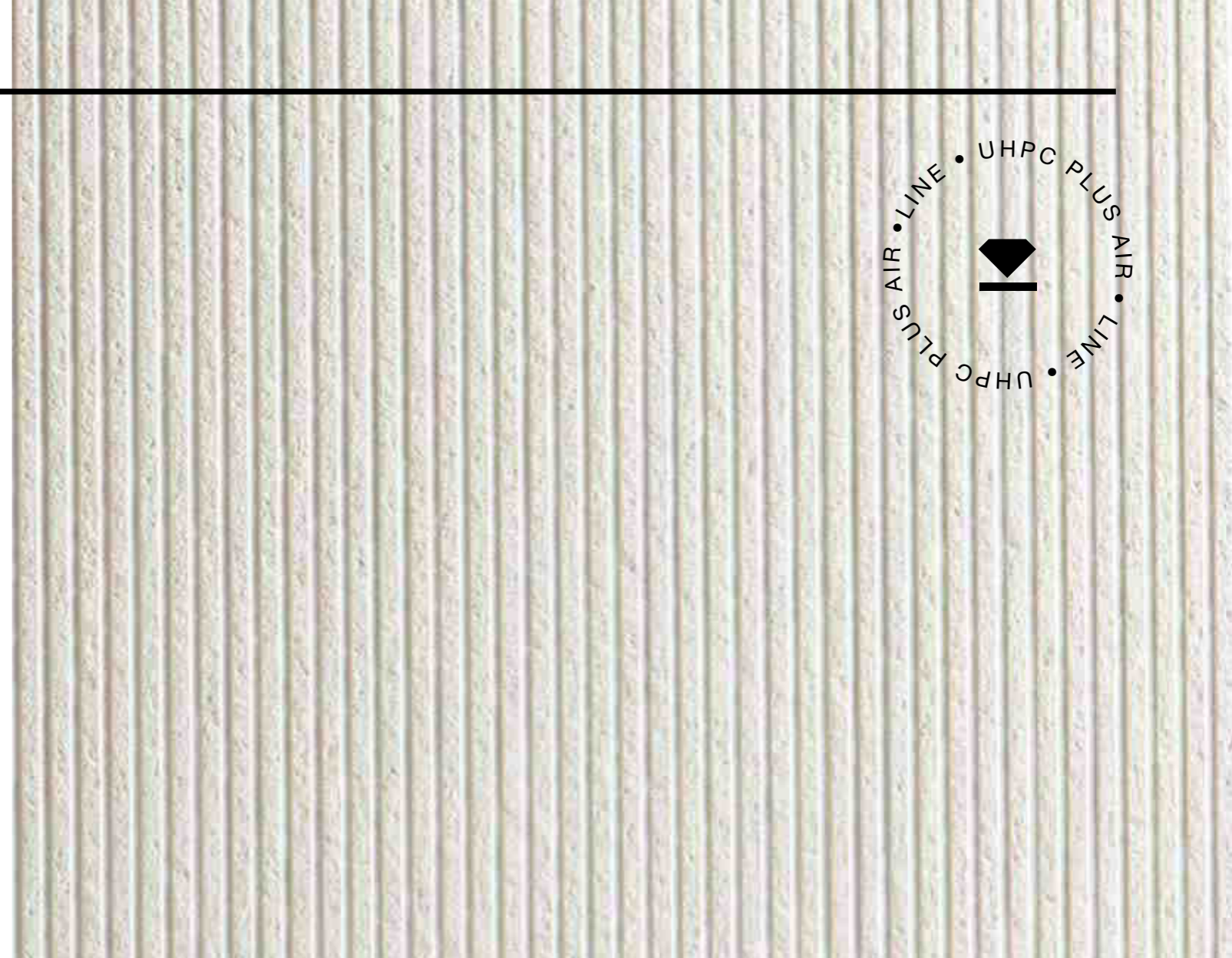
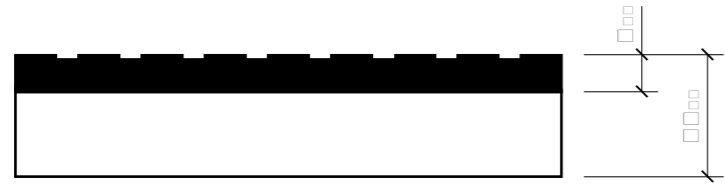
Textile - UHPC Plus AIR

 Panel Structure



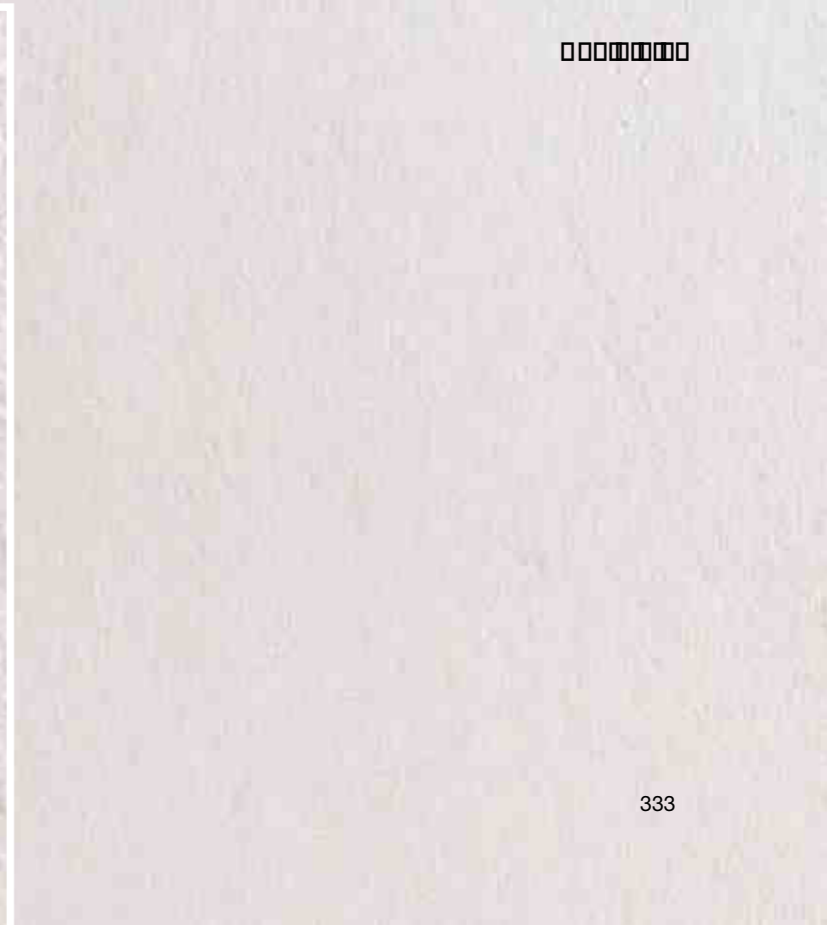
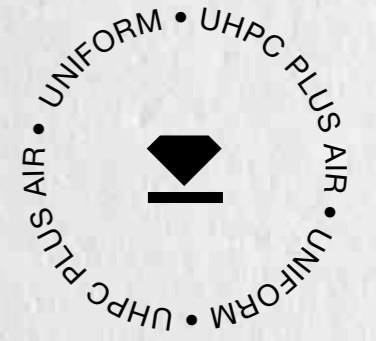
Line - UHPC Plus AIR

 Panel Structure



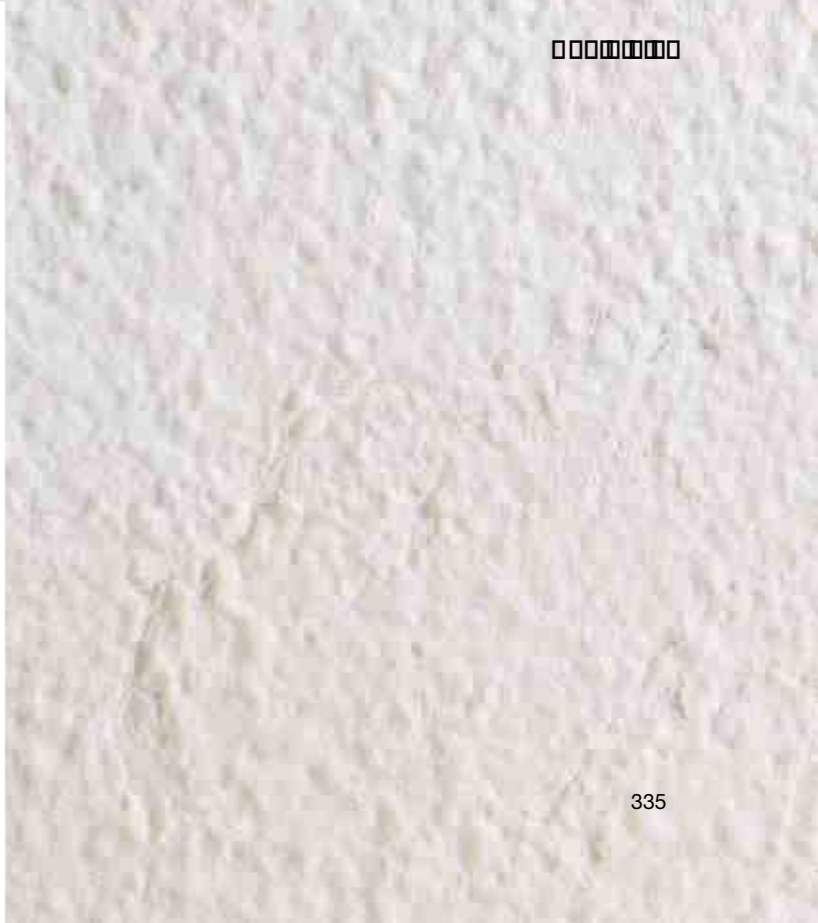
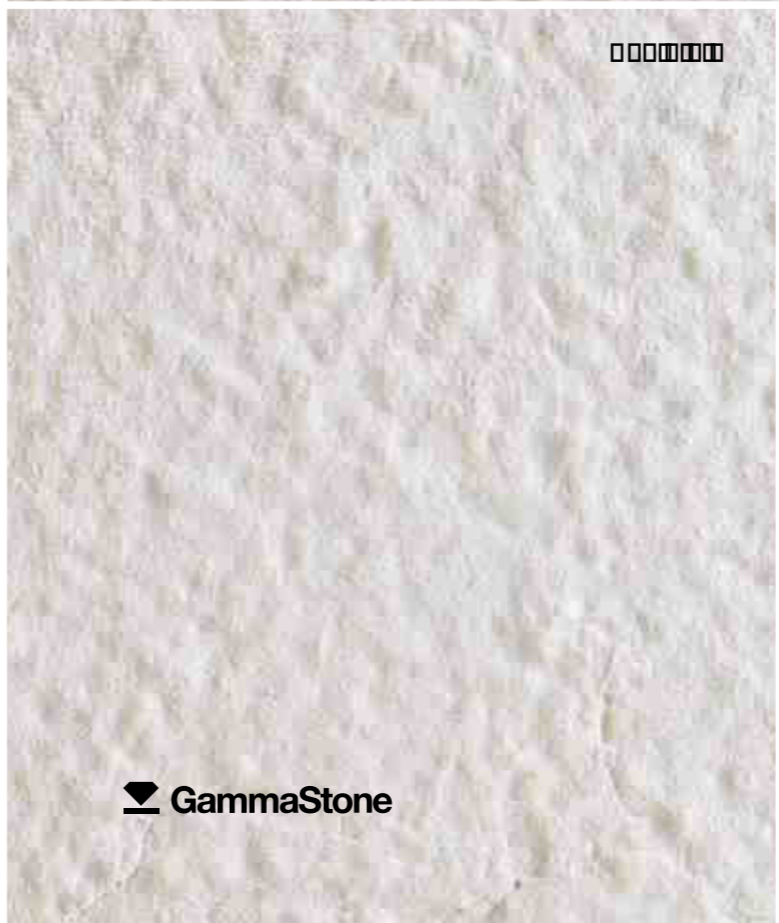
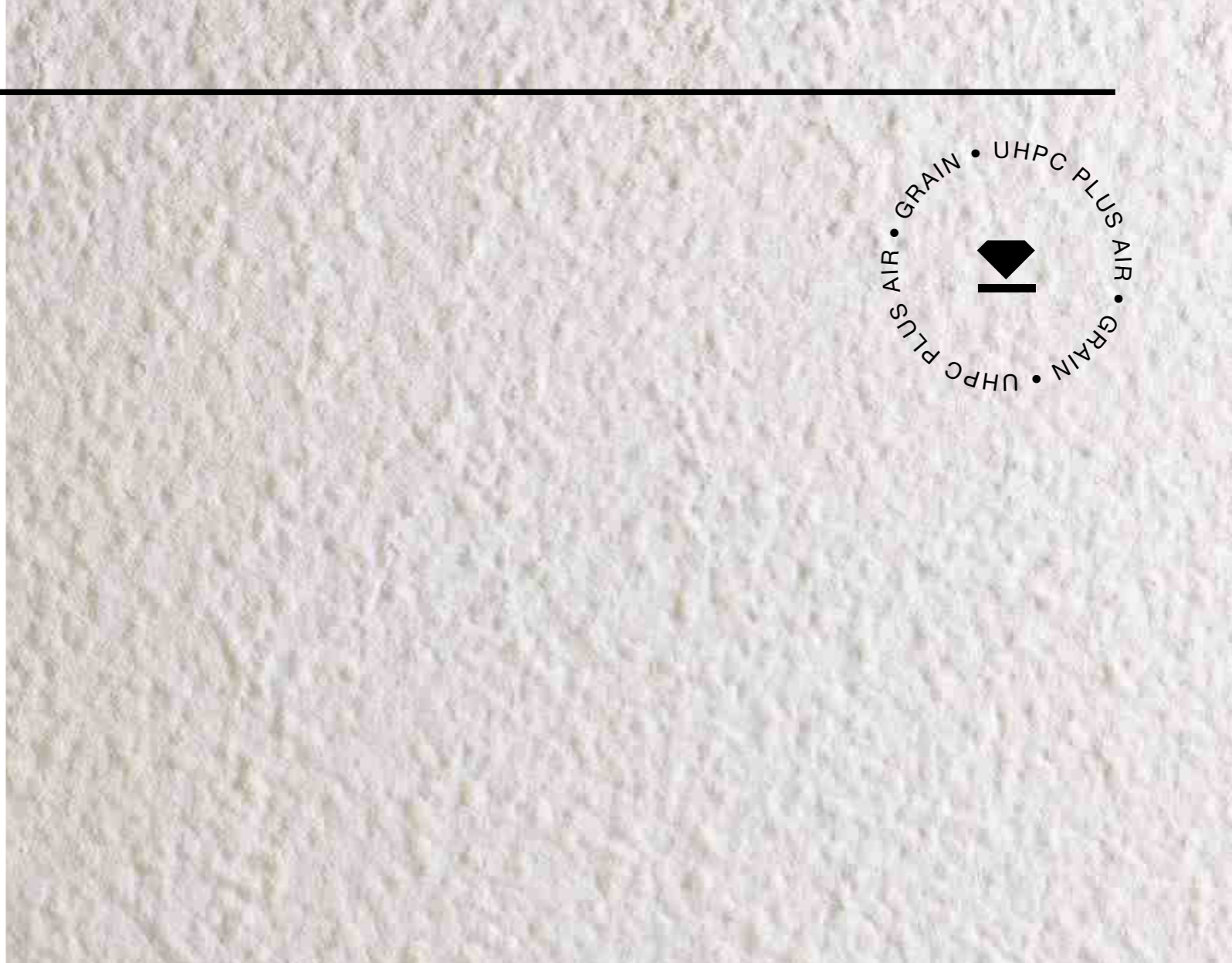
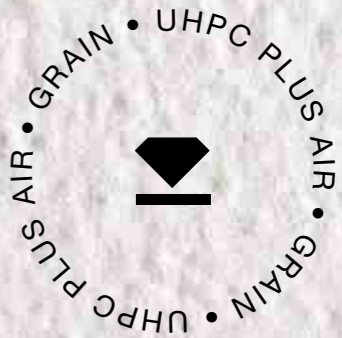
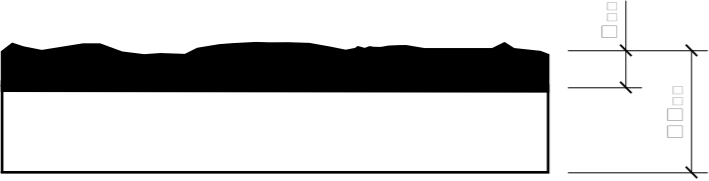
Uniform - UHPC Plus AIR

 Panel Structure



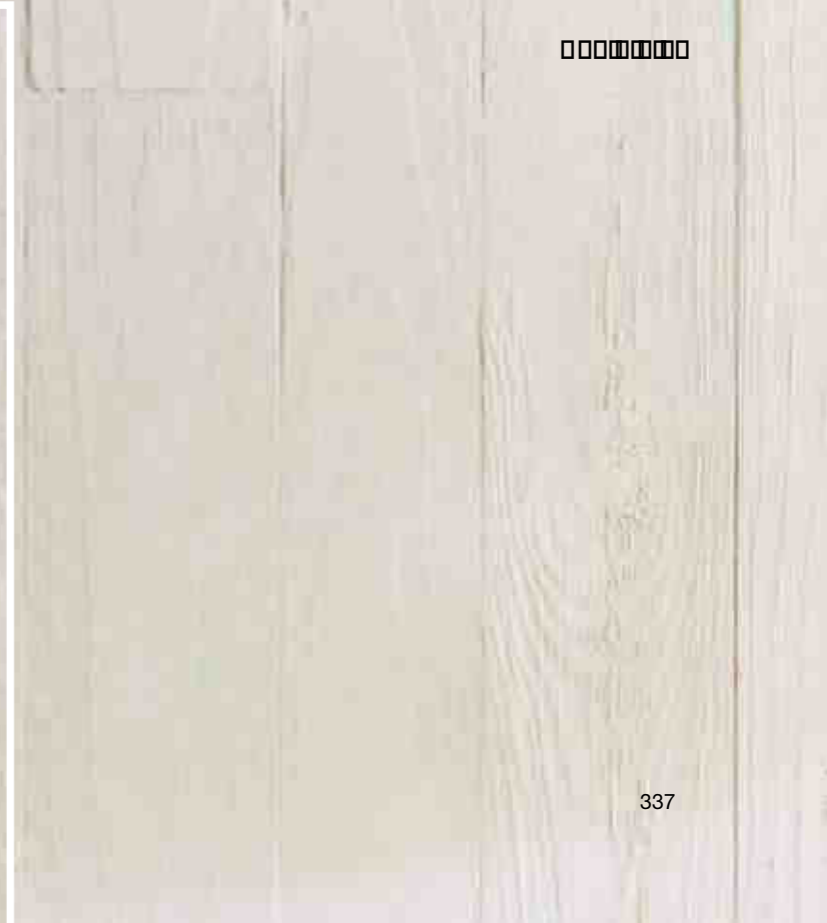
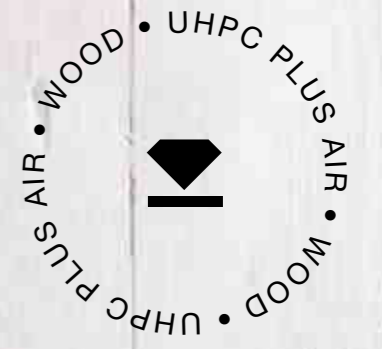
Grain - UHPC Plus AIR

 Panel Structure



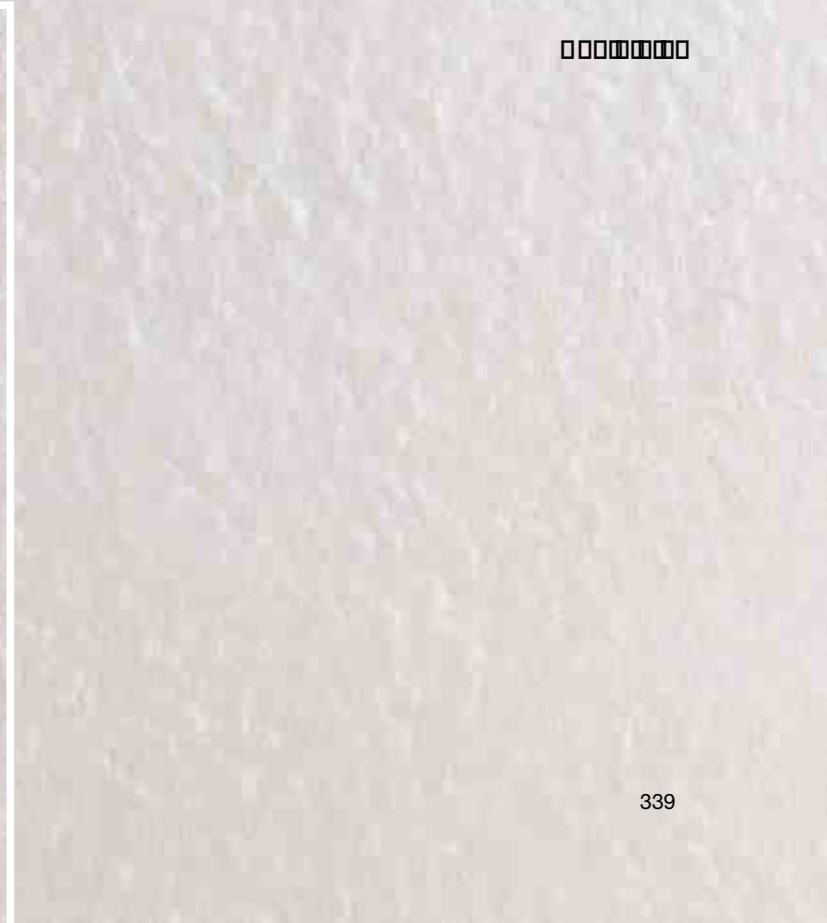
Wood - UHPC Plus AIR

 Panel Structure



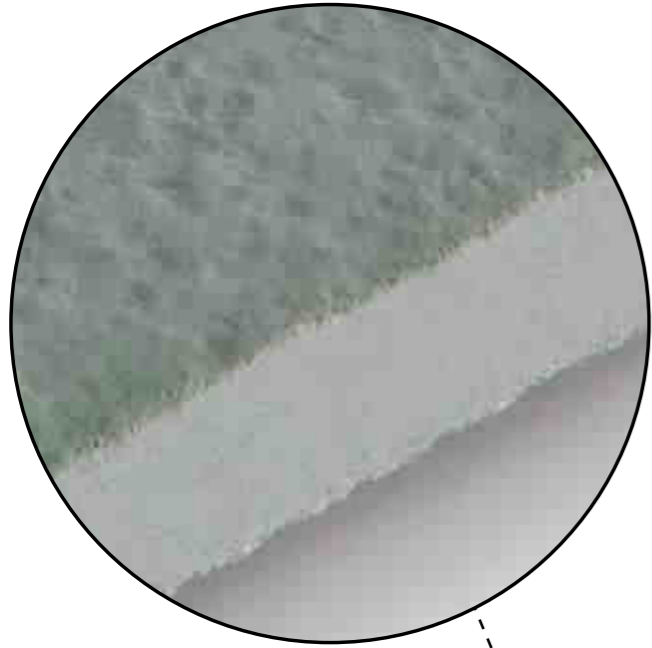
Bergen - UHPC Plus AIR

 Panel Structure



Colors - UHPC Plus AIR

One of UHPC's defining qualities is its ability to be formulated in an expansive range of colors. All panels contain pigments that are UV-stable and specifically engineered for use in Ultra High Performance Concrete. Pigments are integral and consistent throughout the material matrix, and both custom and standard pigmented panels are tested rigorously for weathering.



Pigments are integral and consistent throughout the material matrix.

cod. GF1

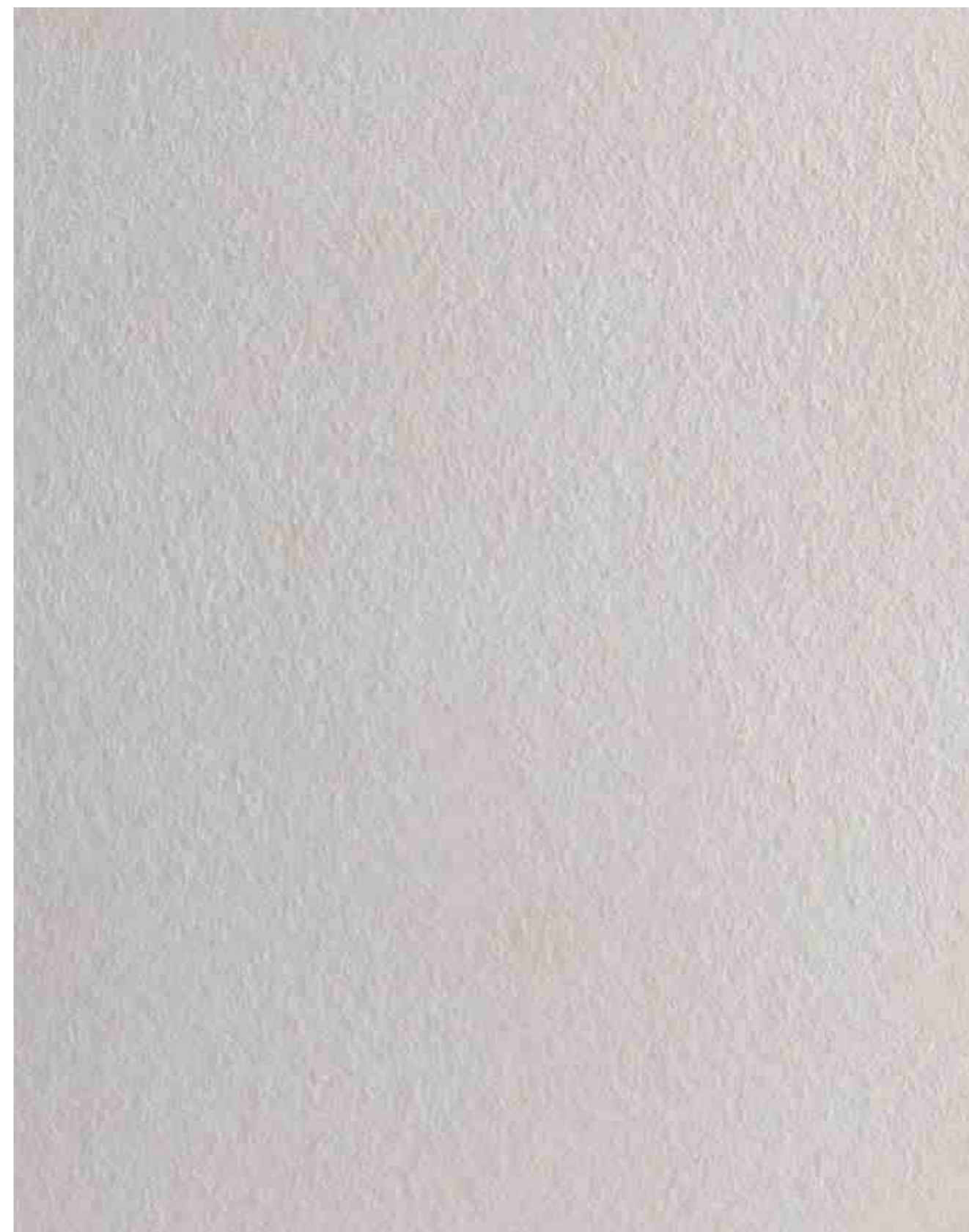
* Colors are purely representative.



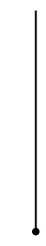
Colors - UHPC Plus AIR



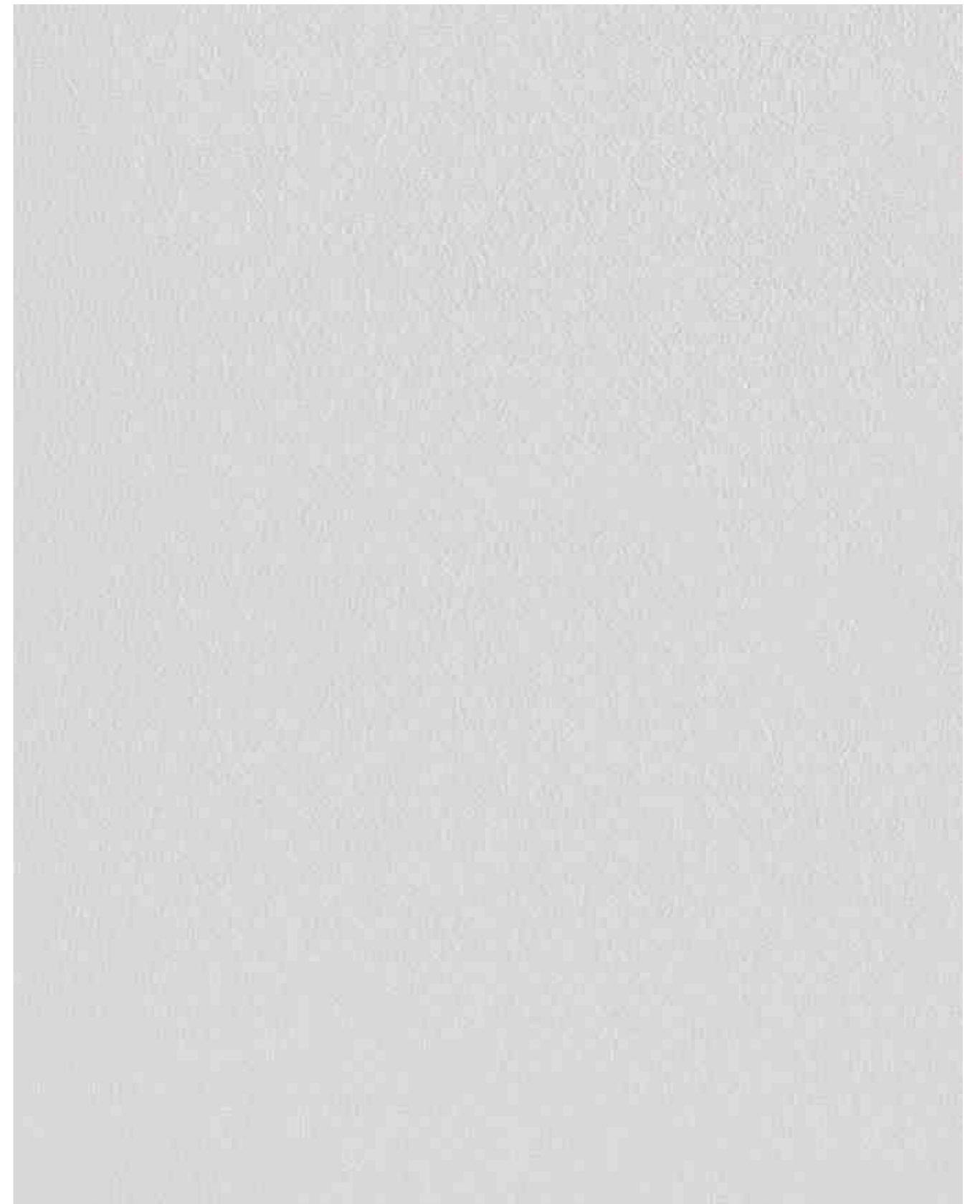
Bianco



Colors - UHPC Plus AIR



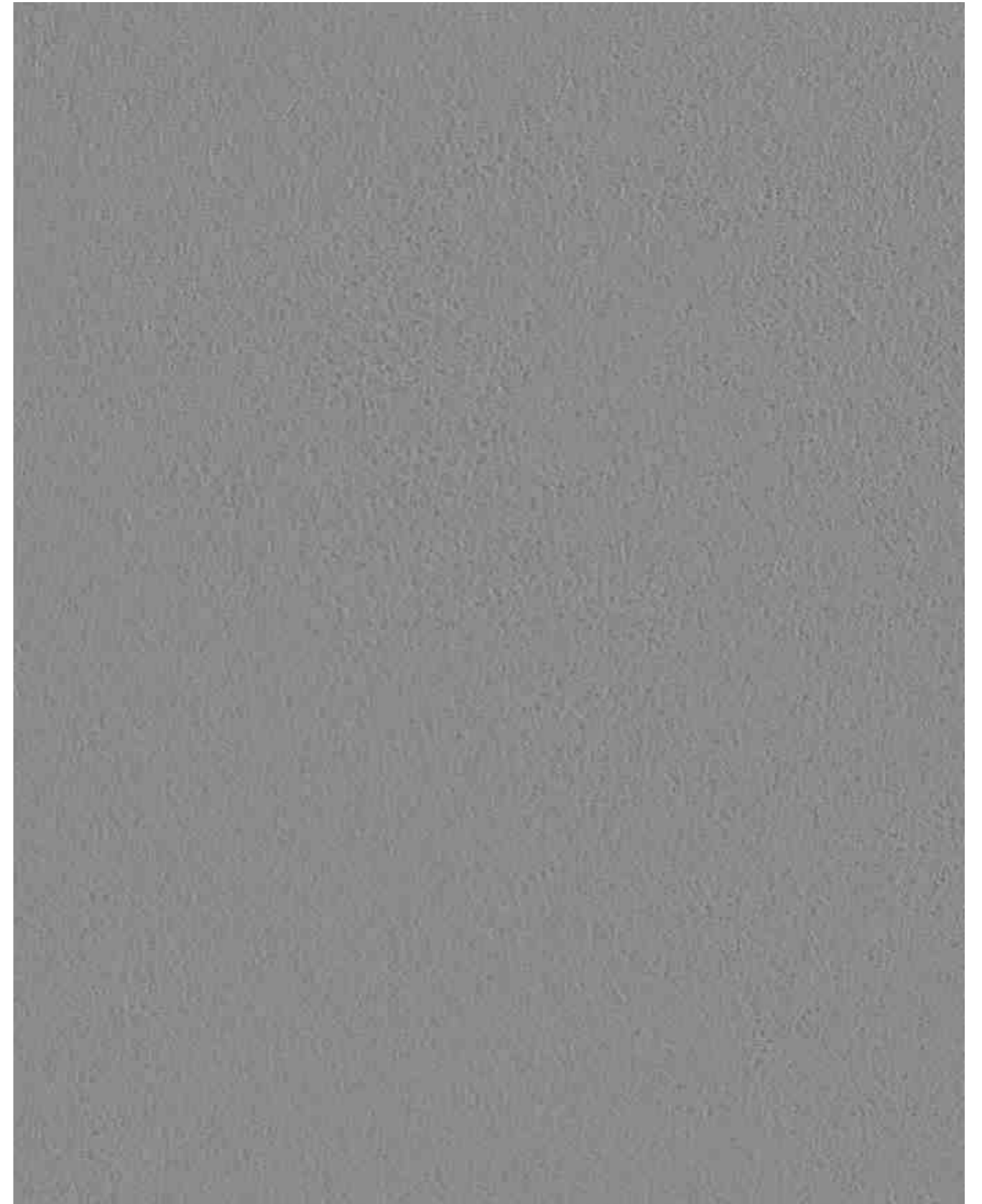
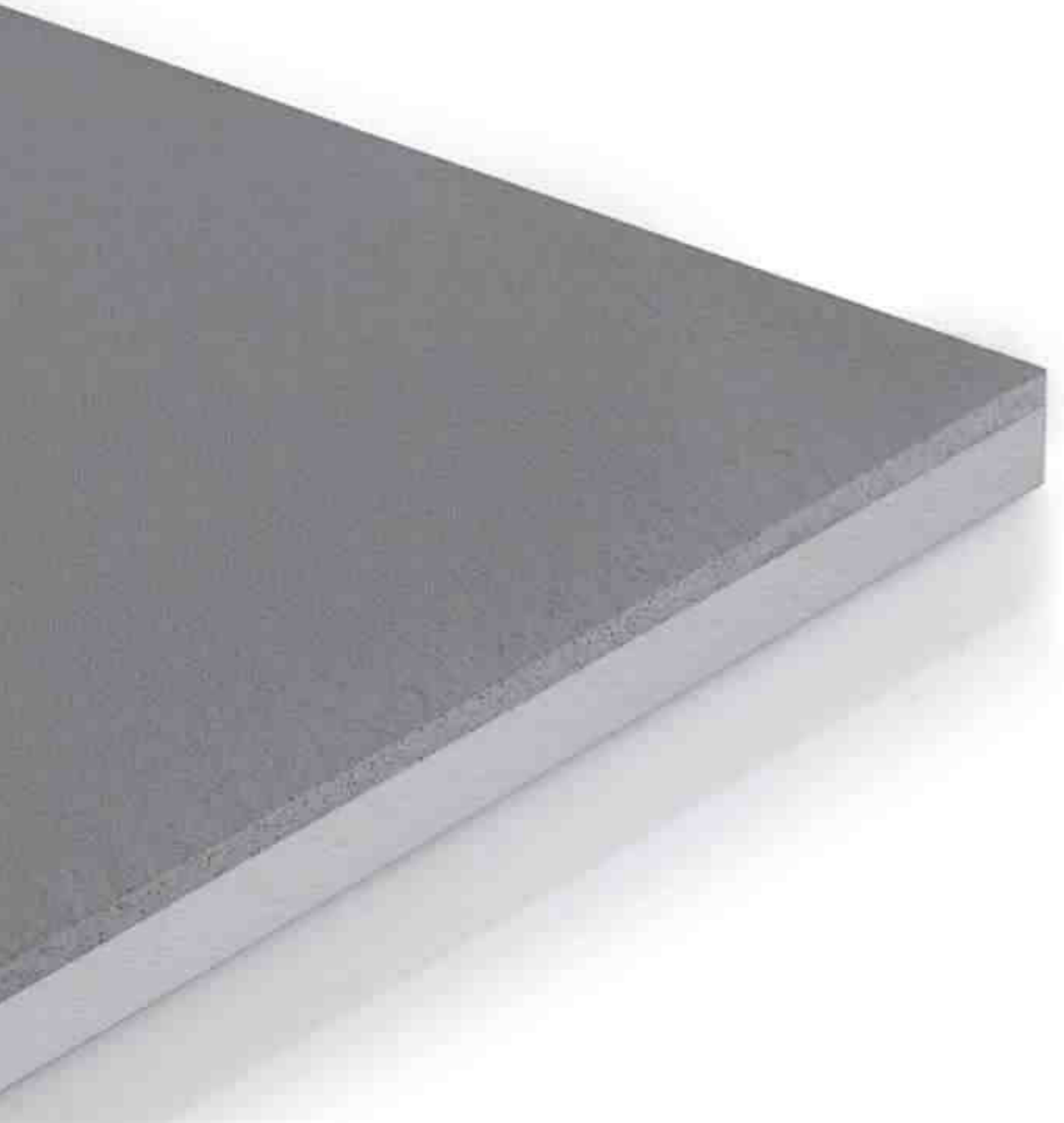
Bianco Assoluto



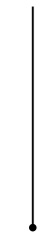
Colors - UHPC Plus AIR



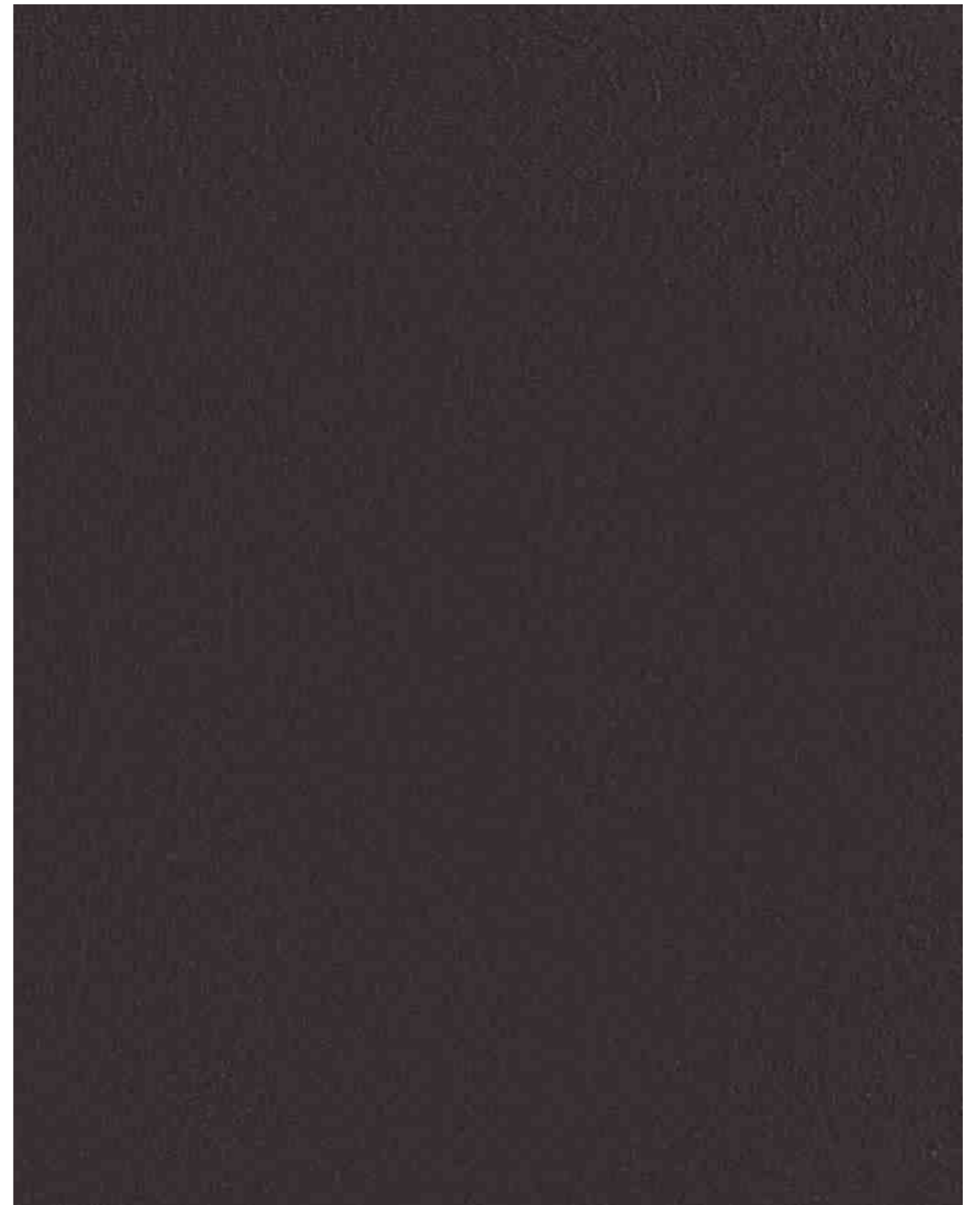
Grigio Nebbia



Colors - UHPC Plus AIR

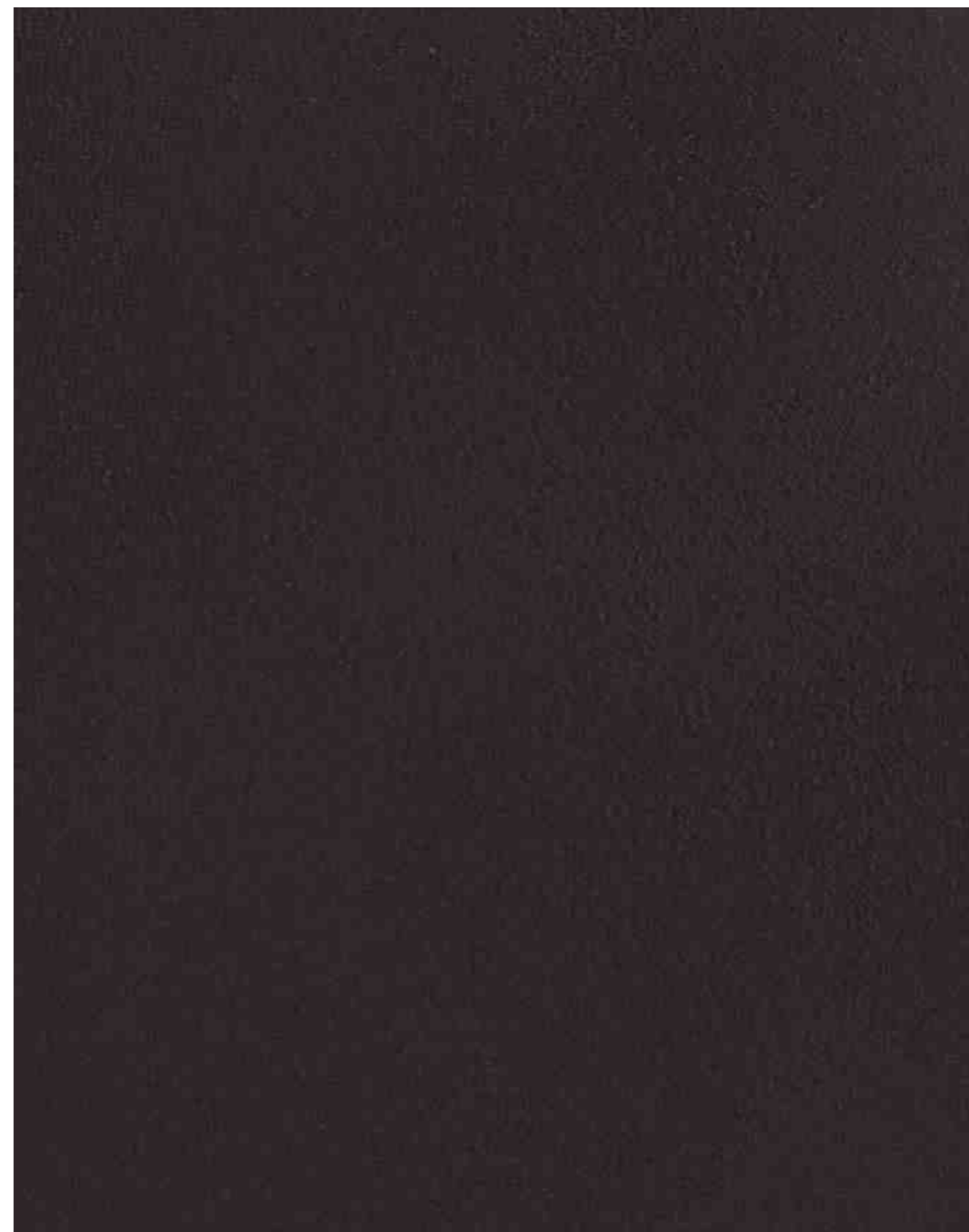


Grigio Fumo

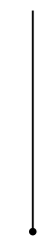


Colors - UHPC Plus AIR

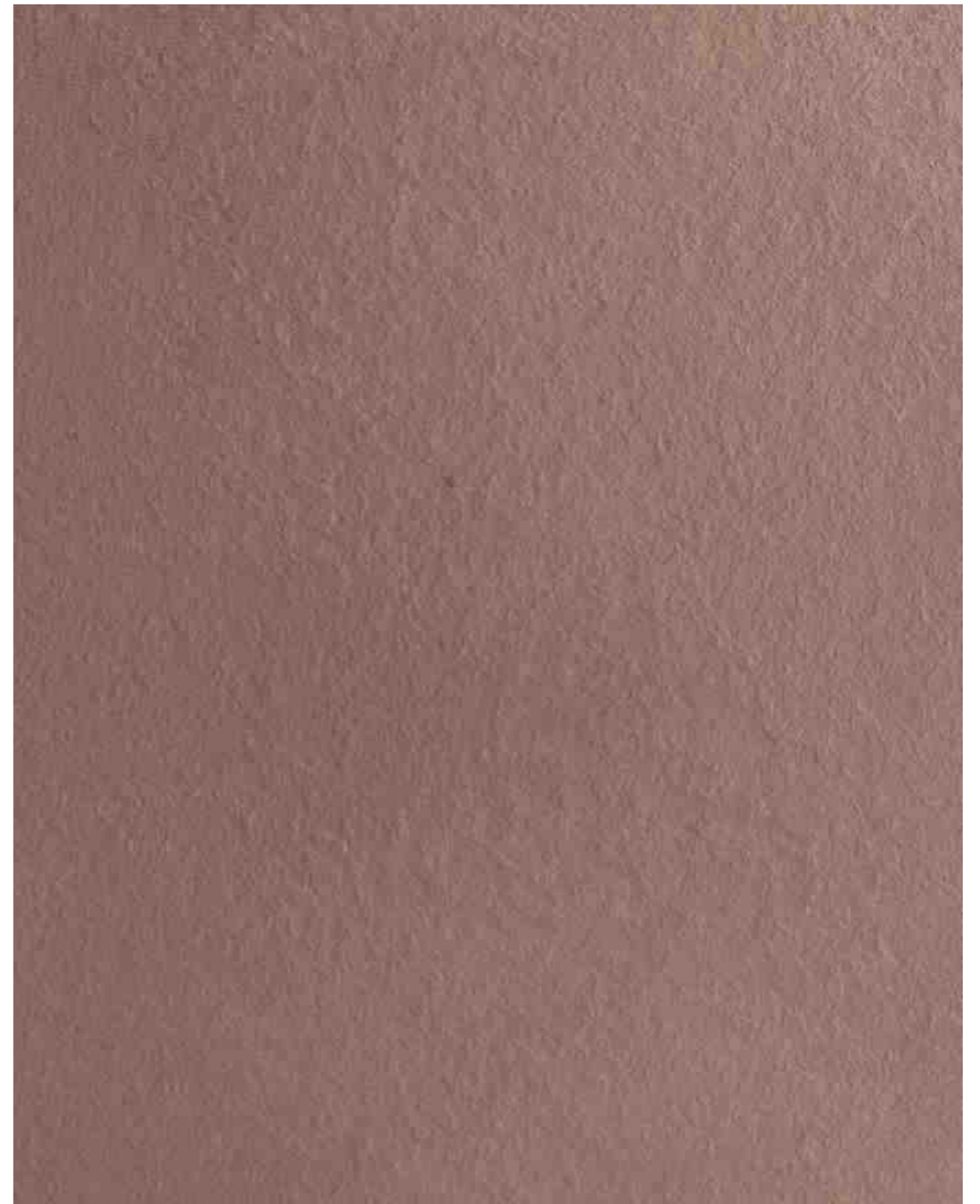
Grigio Canna di Fucile



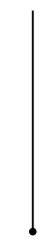
Colors - UHPC Plus AIR



Marrone Gesso



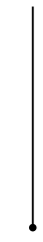
Colors - UHPC Plus AIR



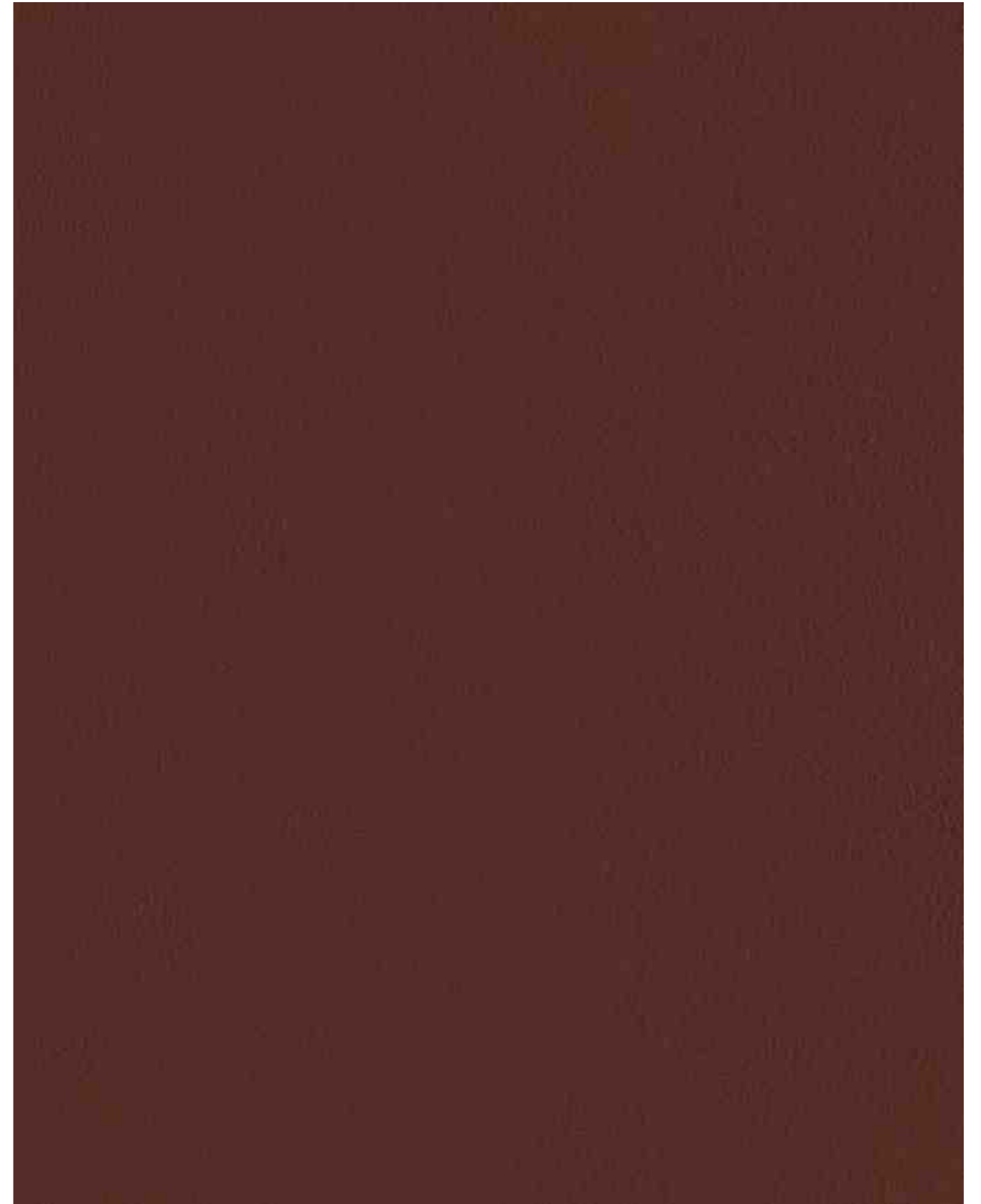
Marrone Daino



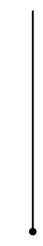
Colors - UHPC Plus AIR



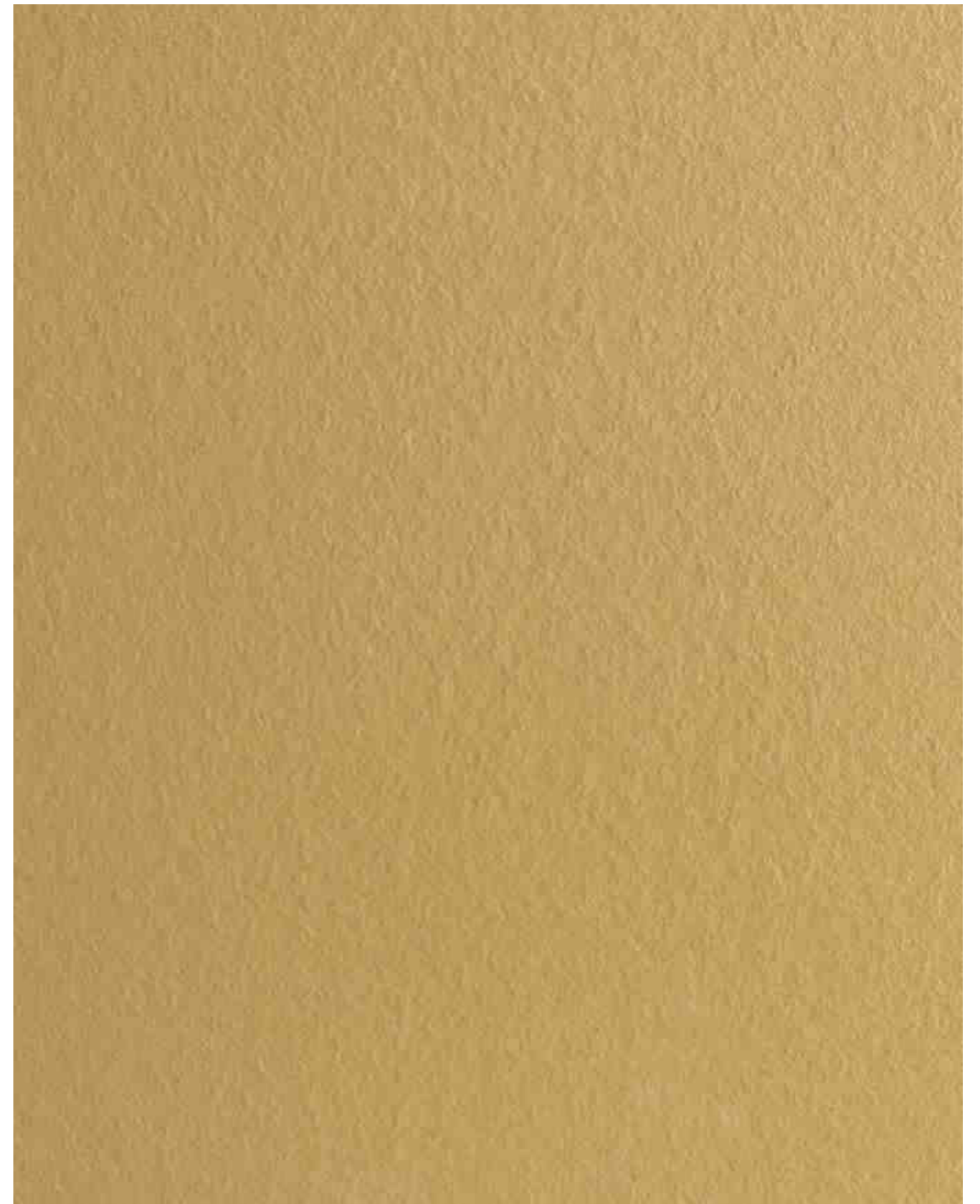
Marrone Moca



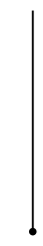
Colors - UHPC Plus AIR



Giallo Imperiale



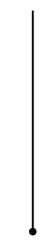
Colors - UHPC Plus AIR



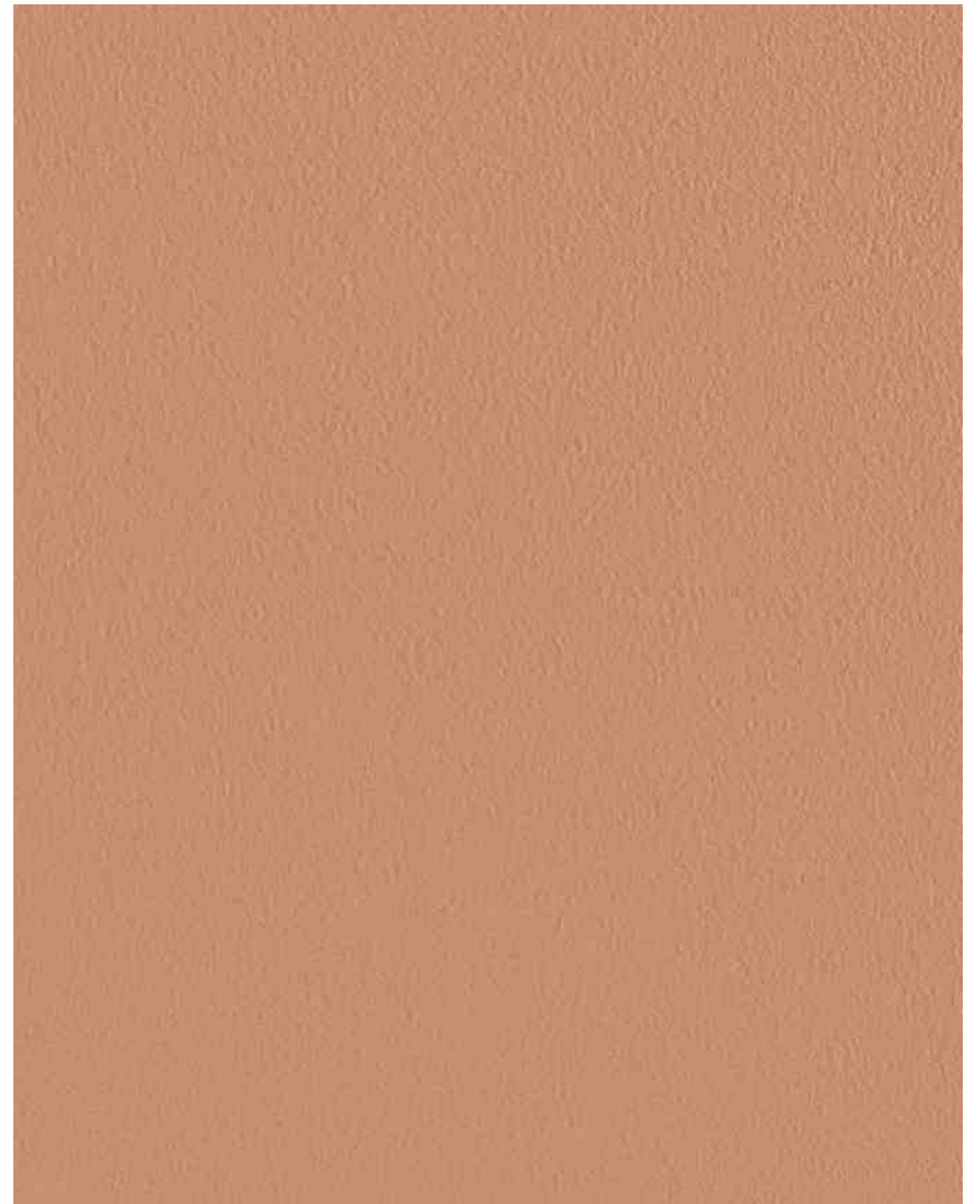
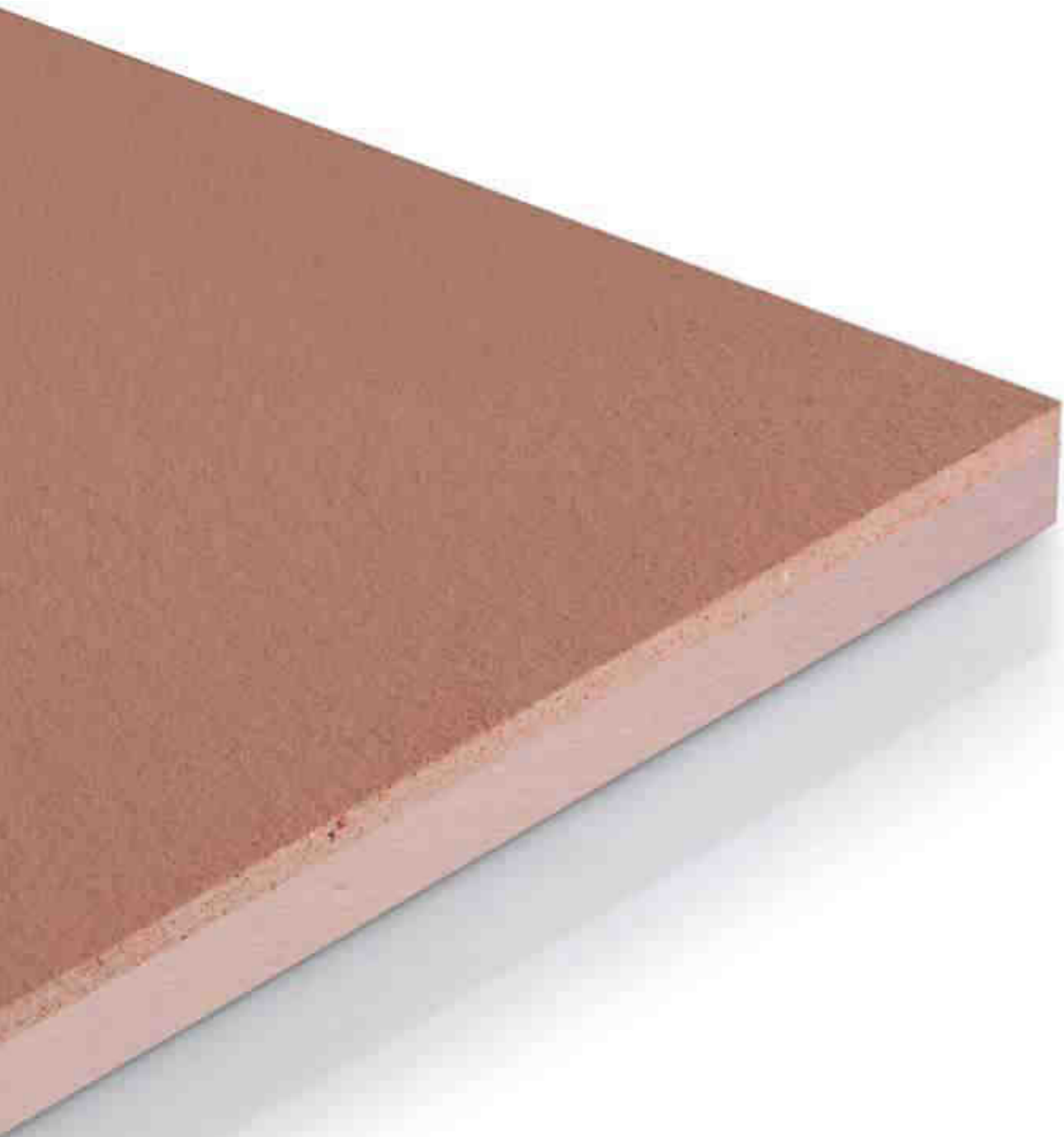
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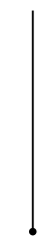
Colors - UHPC Plus AIR



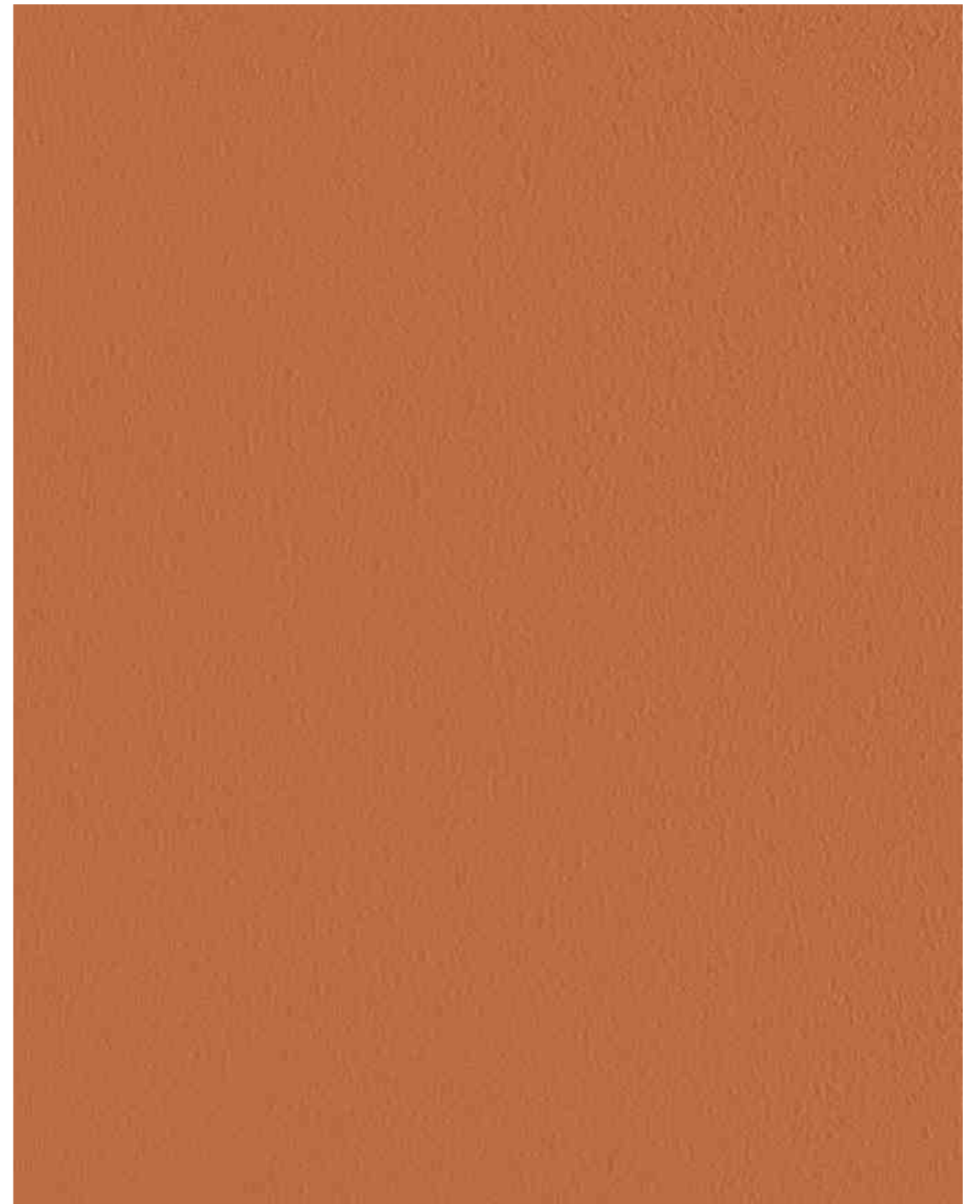
Ambra



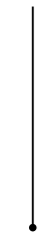
Colors - UHPC Plus AIR



Arancio



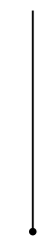
Colors - UHPC Plus AIR



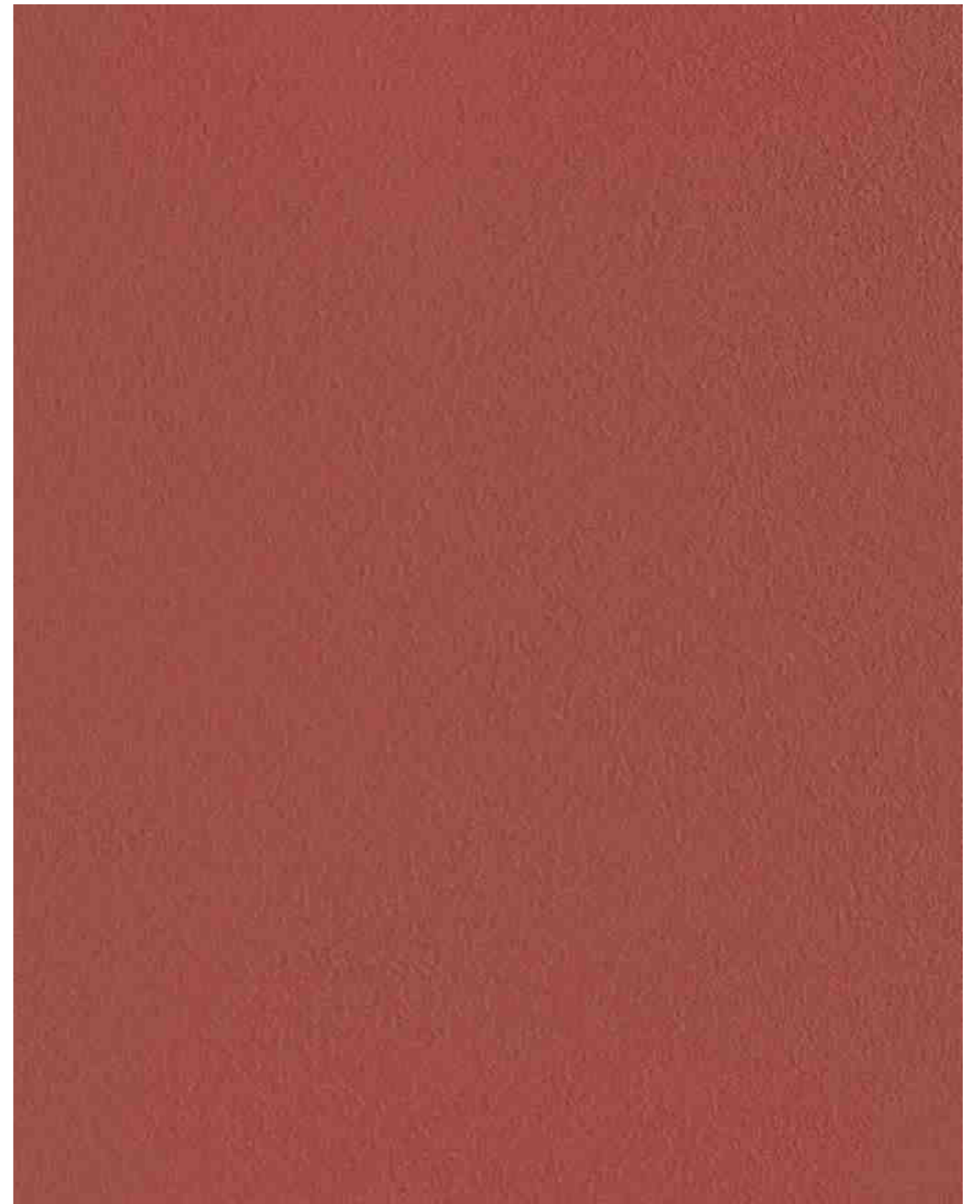
Rosso Thè



Colors - UHPC Plus AIR



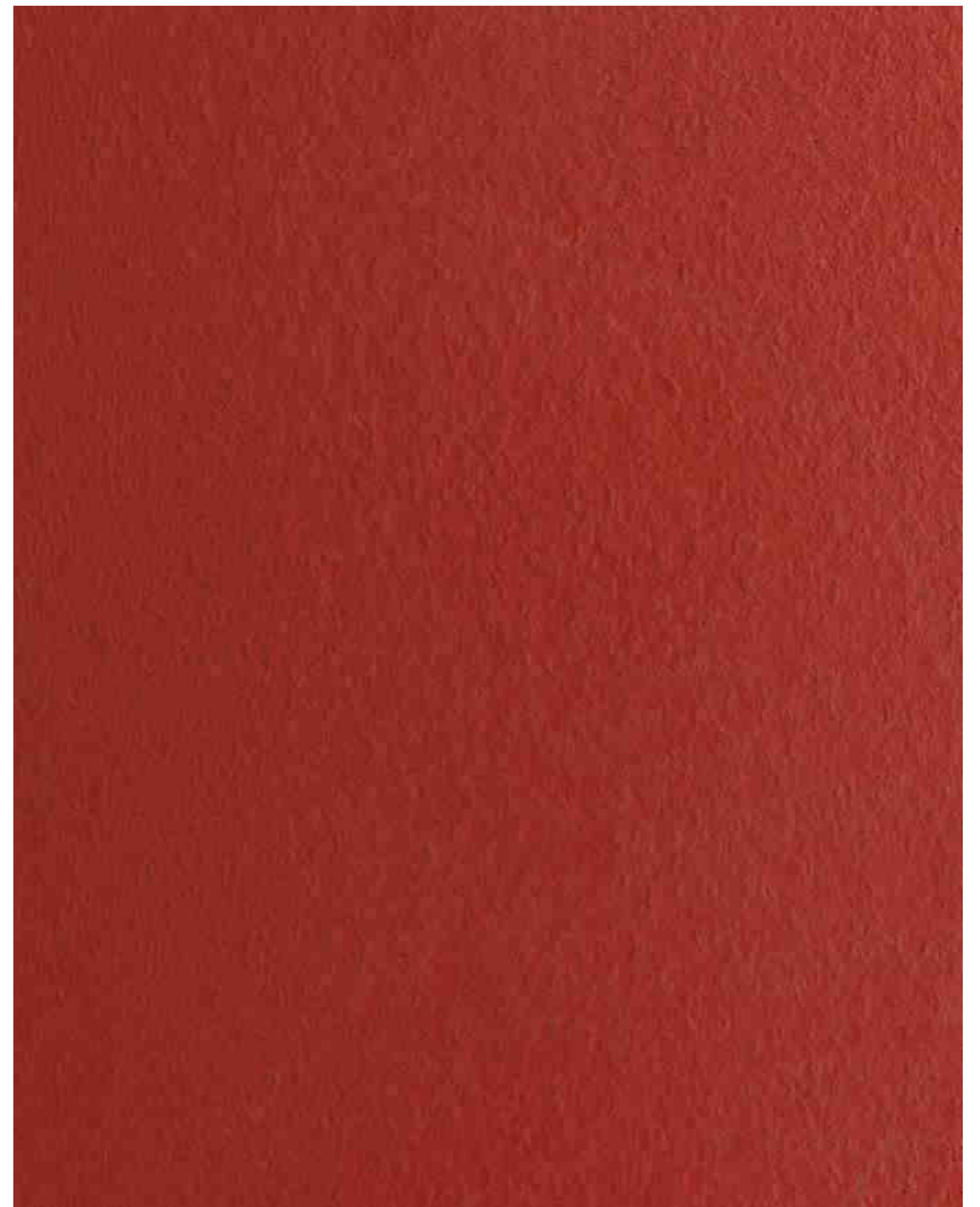
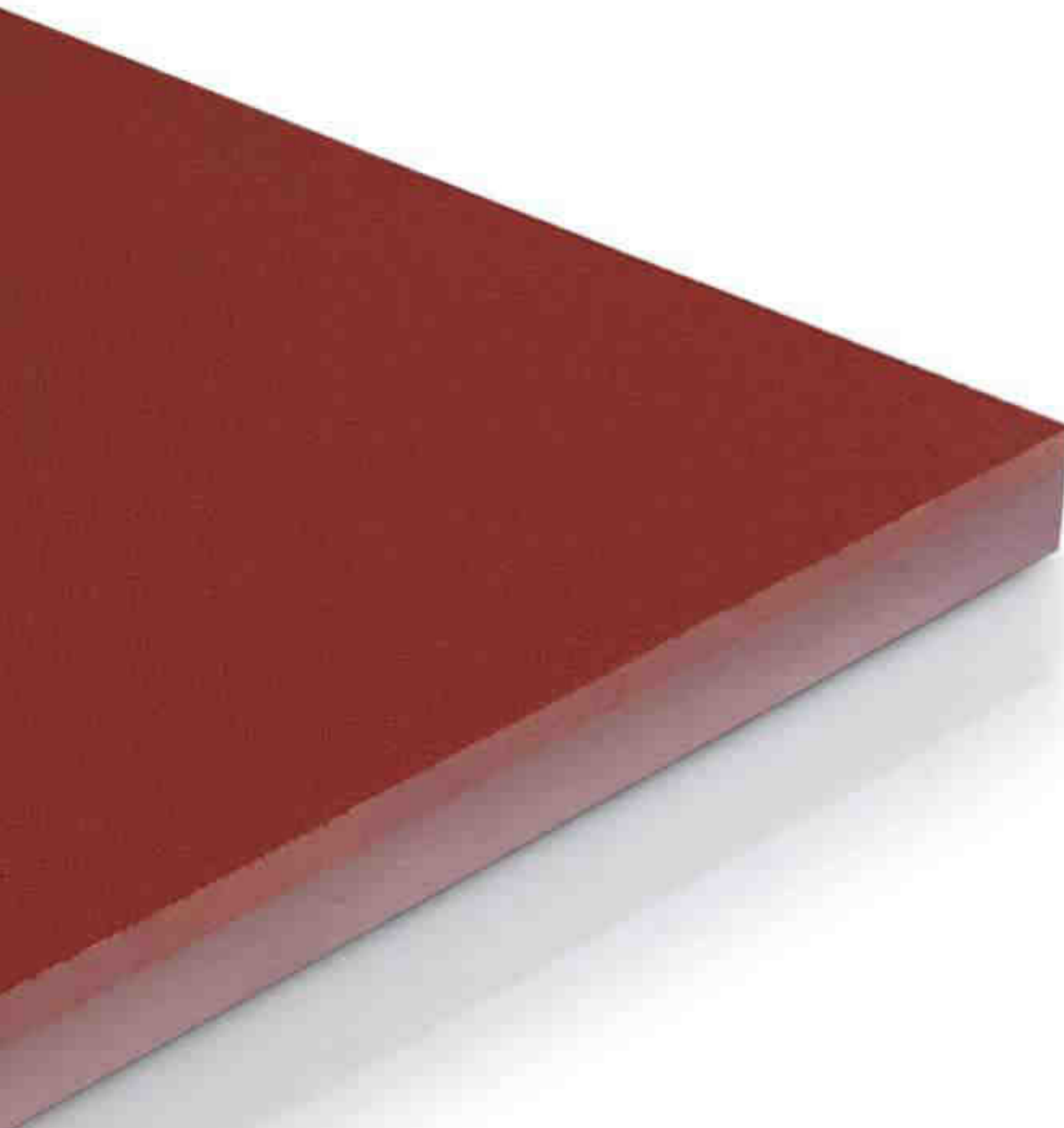
Rosso Pesca



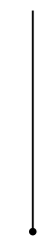
Colors - UHPC Plus AIR



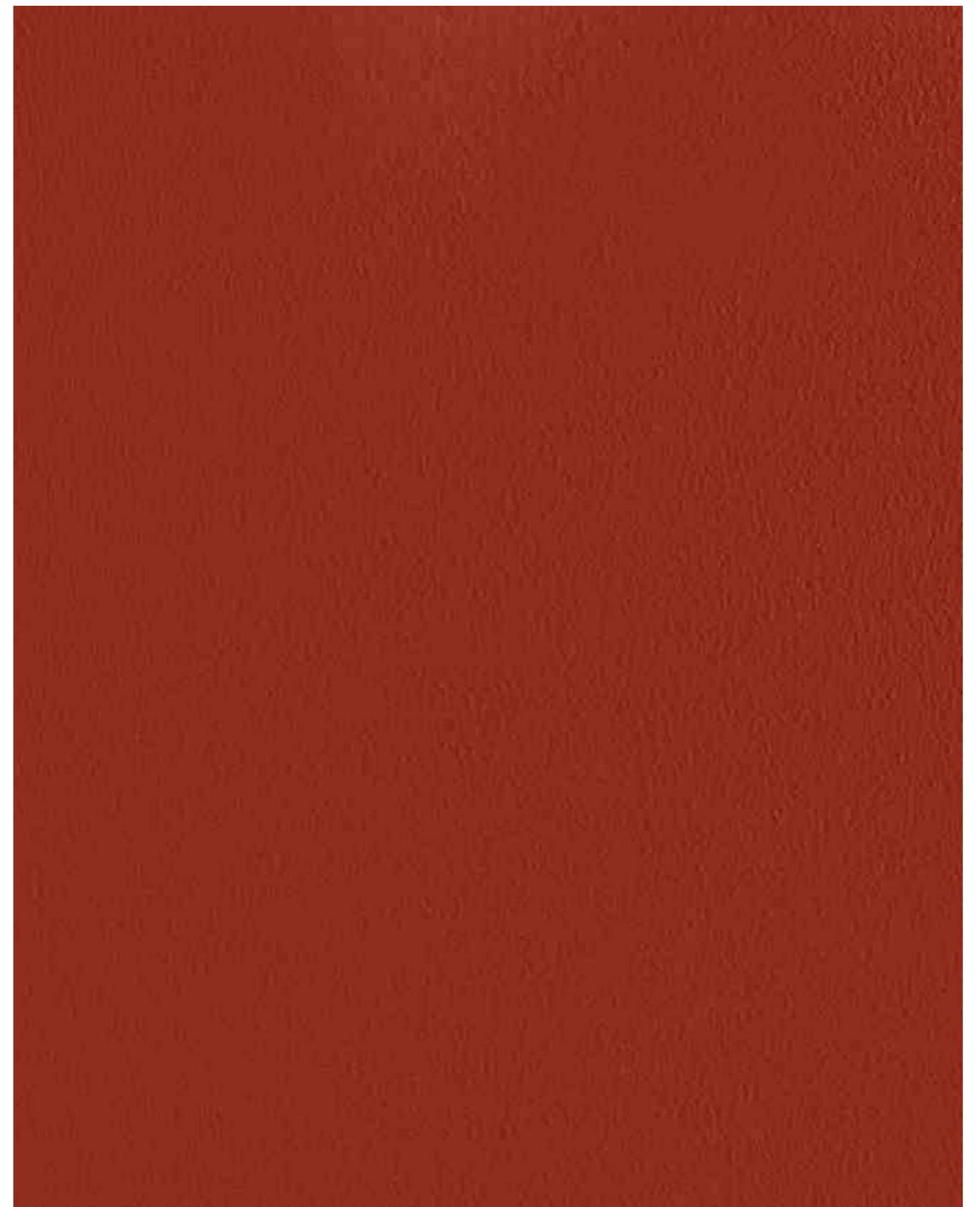
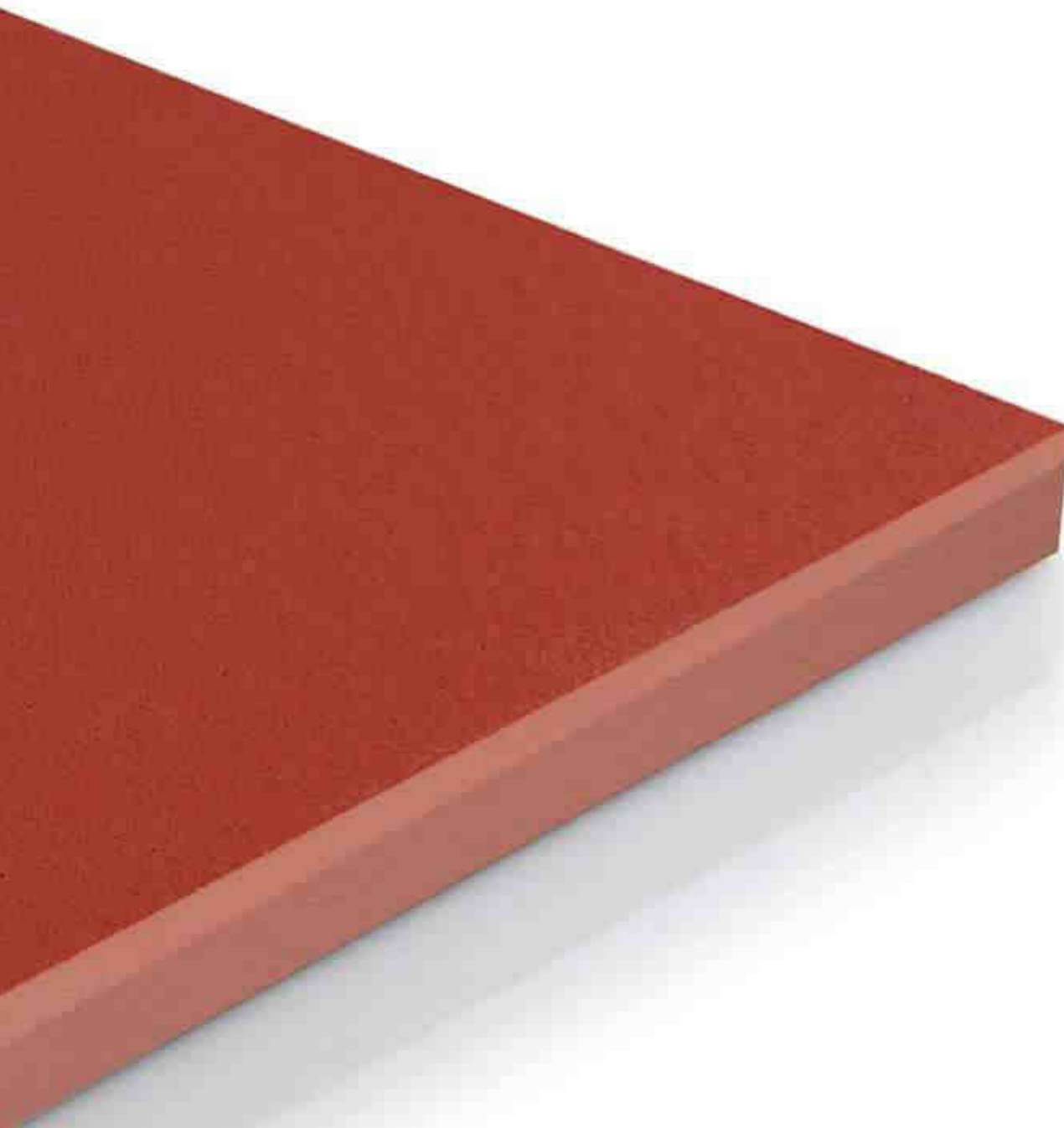
Rosso Mattone



Colors - UHPC Plus AIR



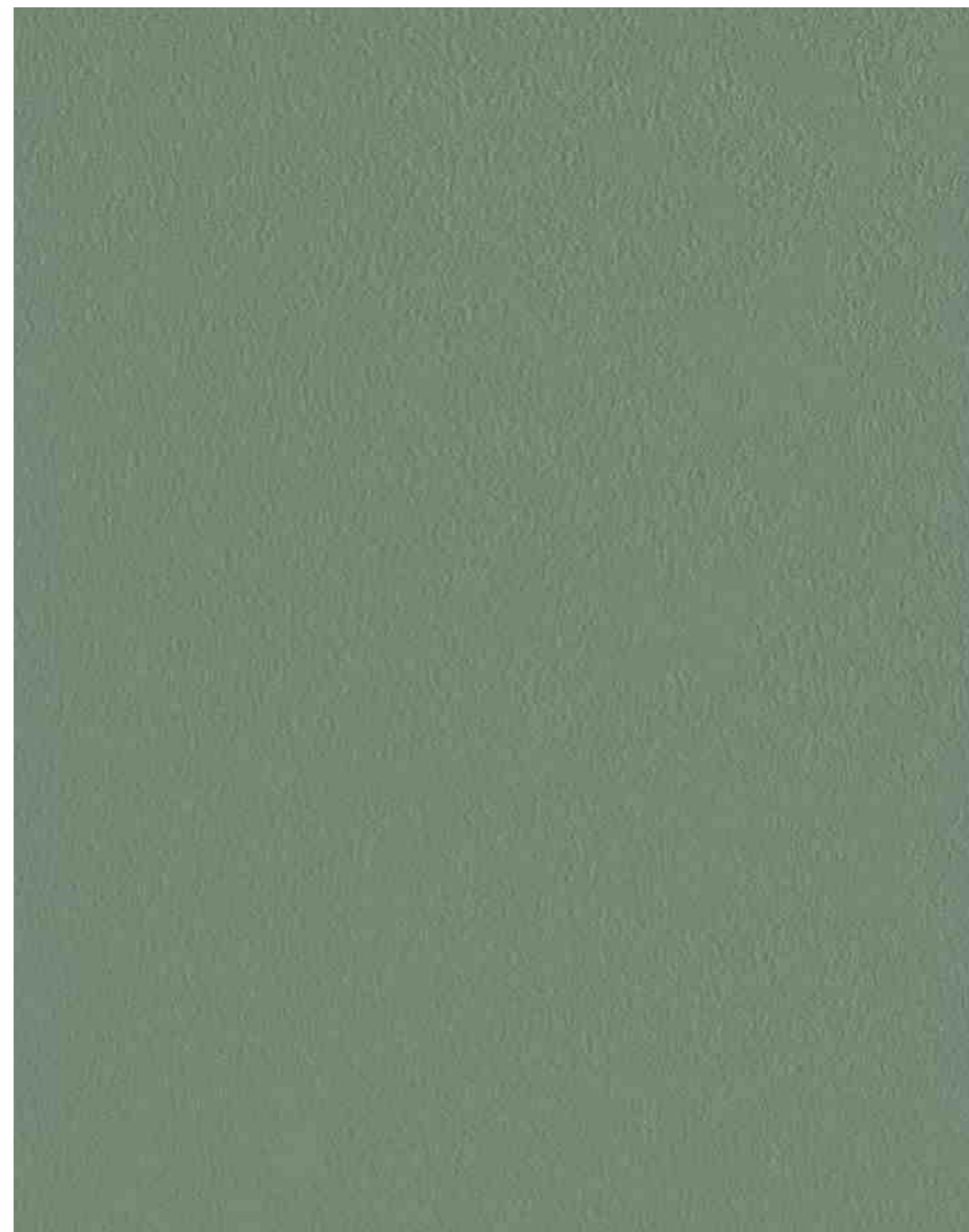
Rosso Terre di Siena



Colors - UHPC Plus AIR



Verde Salvia



Natural AIR

Natural stone gives a building a beauty that defies time, emitting magnificence and sophistication. The wide range of marble, granite, travertine, and other natural stones, alongside the many available finishes allows for any architectural requirement to be achieved. The available sizes depend on each stone type, but the maximum panel size is 3200x1500 mm. All GammaStone Natural AIR panels can be customized following the designer's needs, see the "Working Techniques" annex. The panel is composed of a thin natural stone slab, a structural core inserted between two fiberglass mats and a .5 mm thick stainless steel backing plate.

The unique ability of GammaStone to make monolithic elements ready for installation contributes to the indisputable success of GammaStone AIR panels worldwide. They are the result of substantial investments in research and development – a philosophy of continuing to study and patent innovative construction systems. The elements as corners, soffits, ceilings, columns, beams, etc. are assembled entirely in our laboratories and are installed with simplicity due to our custom attachment system. Our technology allows us to produce large and surprisingly light architectural geometric shapes, impossible to realize with traditional products. All GammaStone AIR products have a real monolithic appearance and allow architects to realize highly complex elements without compromising their design intent.

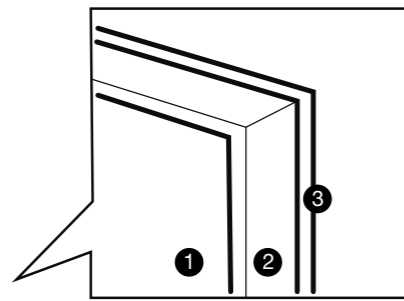
Natural AIR



00000000

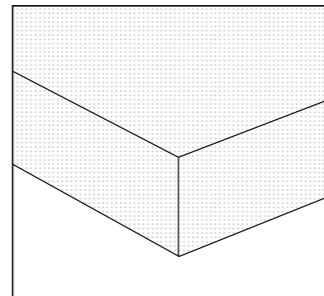
Natural AIR

Panel structure

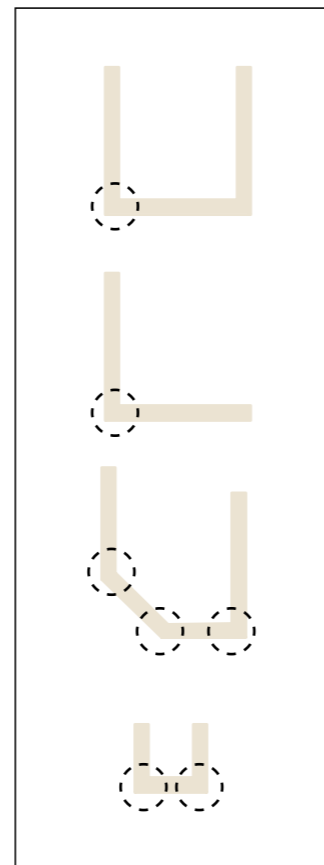


- 1. Stone
- 2. Structural Core
- 3. Stainless Steel

2. Structural Core



AIR Technology



Monolithic shapes

GammaStone AIR solution in natural stone allows the mechanical installation of large sized panels in marble, granite, limestone, or travertine. It can be used to make beams, columns and any other architectural element with a monolithic result – creating the effect of one piece. The available sizes depend on the stone type, but the maximum size is 3200x1500 mm.

[EU]

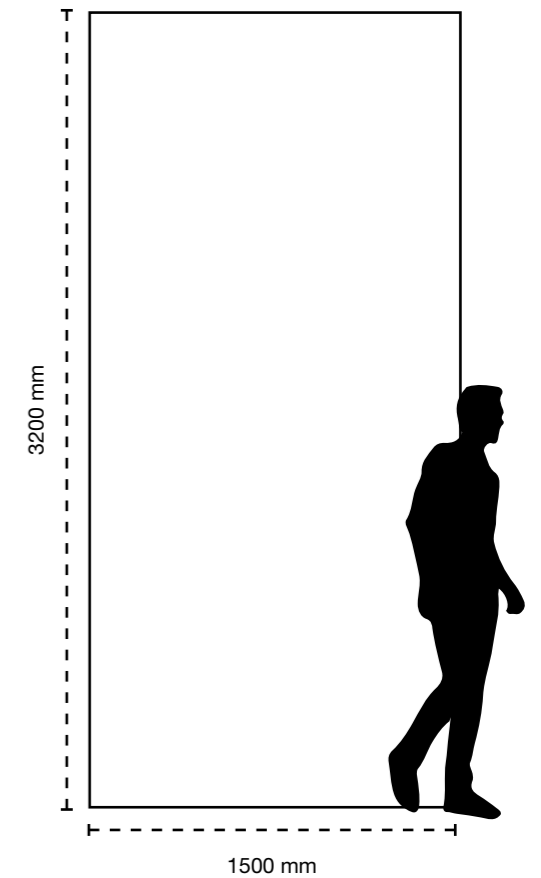
Max panel sizes: 3200x1500 mm (4,80 m²)

	Total panel thickness	Stone thickness	Panel weight
	17 mm	6 mm	25 kg/m ²
	21 mm	10 mm	30 kg/m ²
(granite)	22 mm	11 mm	35 kg/m ²
	23 mm	12 mm	36 kg/m ²

[USA]

Max panel sizes: 125-63/64"x59-1/16" (52.42 ft²)

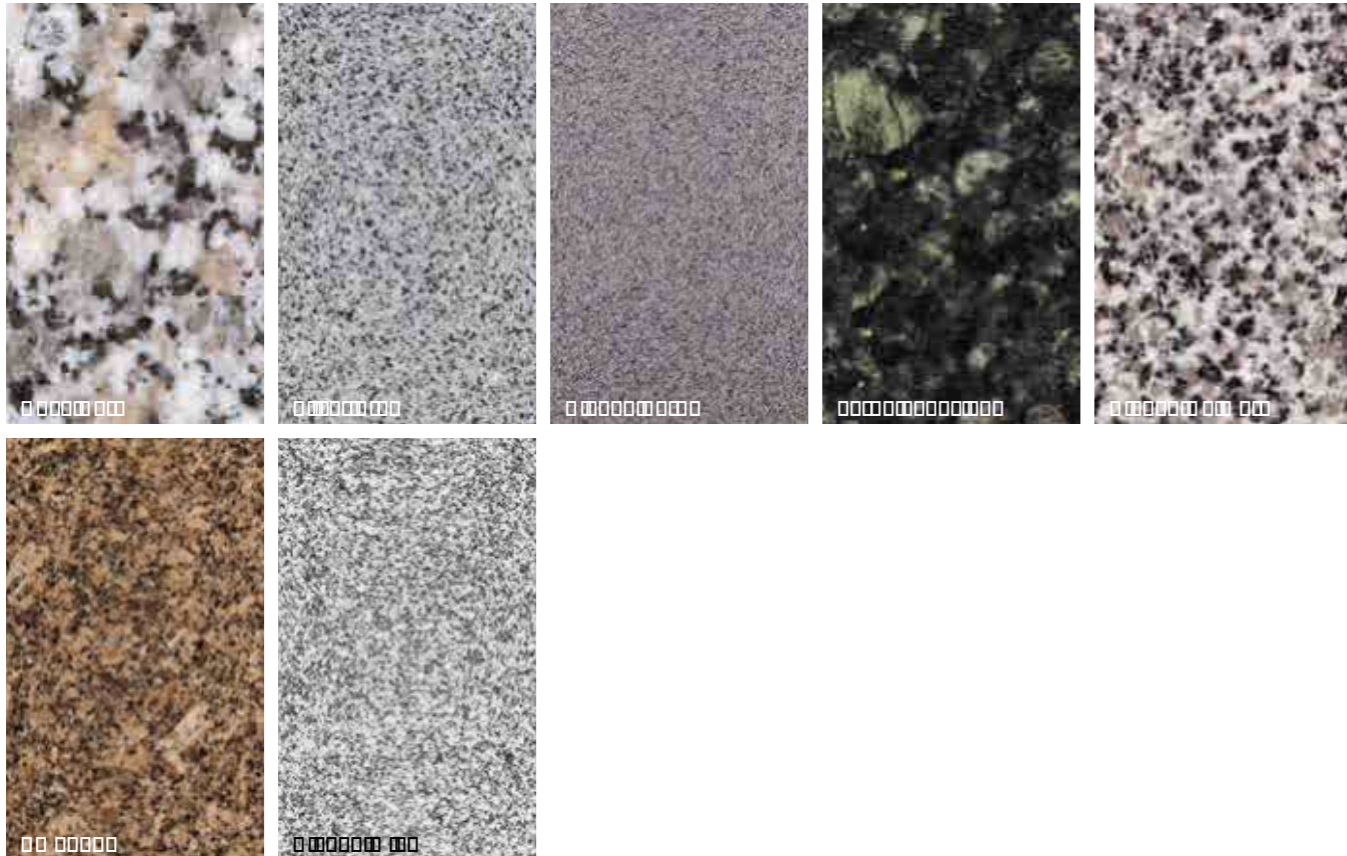
	43/64"	15/64"	5,1 lb/sqft
	53/64"	25/64"	6,1 lb/sqft
(granite)	55/64"	7/16"	7,2 lb/sqft
	29/32"	15/32"	7,4 lb/sqft



GRANITE
cod. NF1



GRANITE
cod. NF2

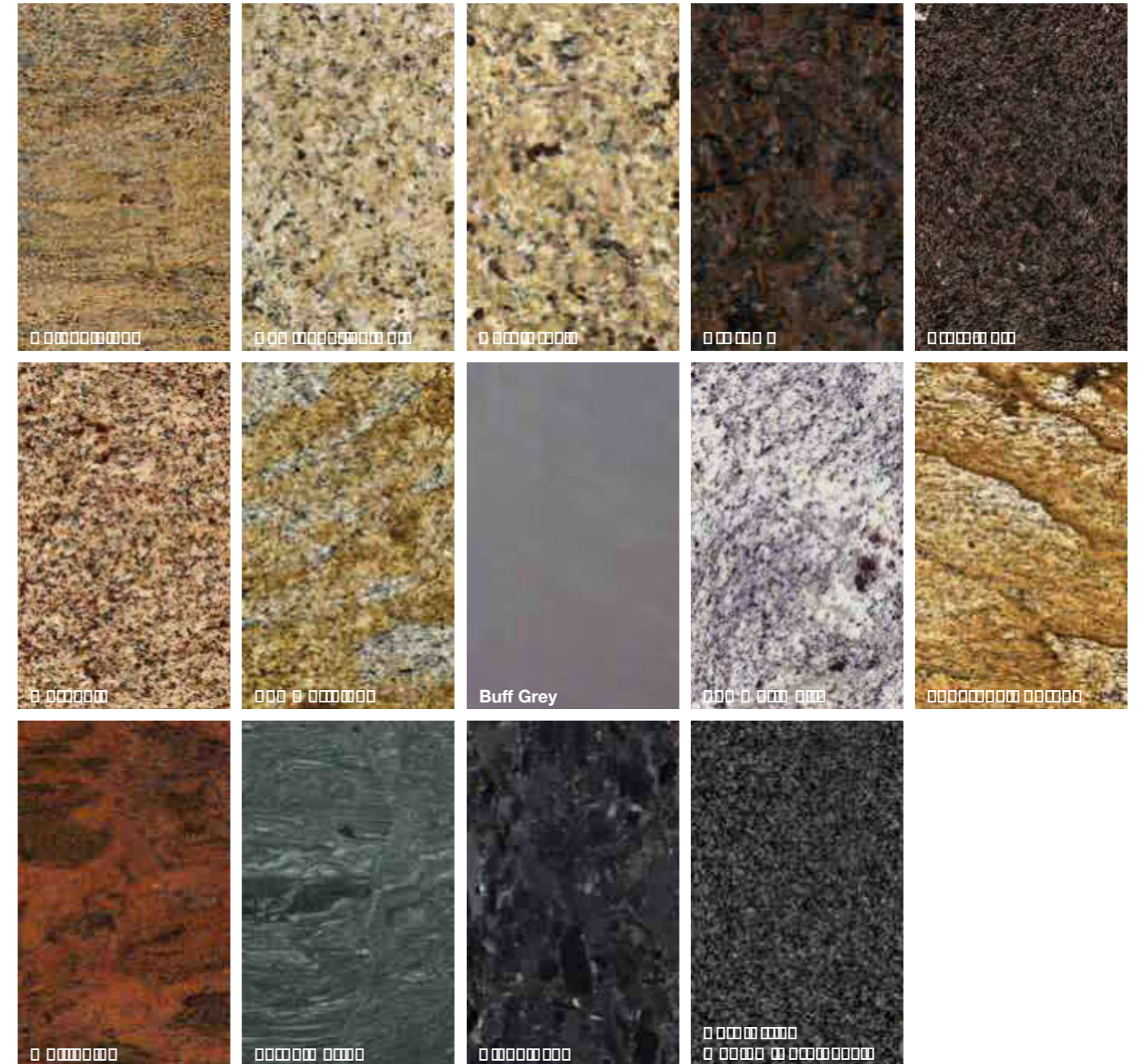


GRANITE
cod. NF3



Materials - Natural AIR

GRANITE
cod. NF4



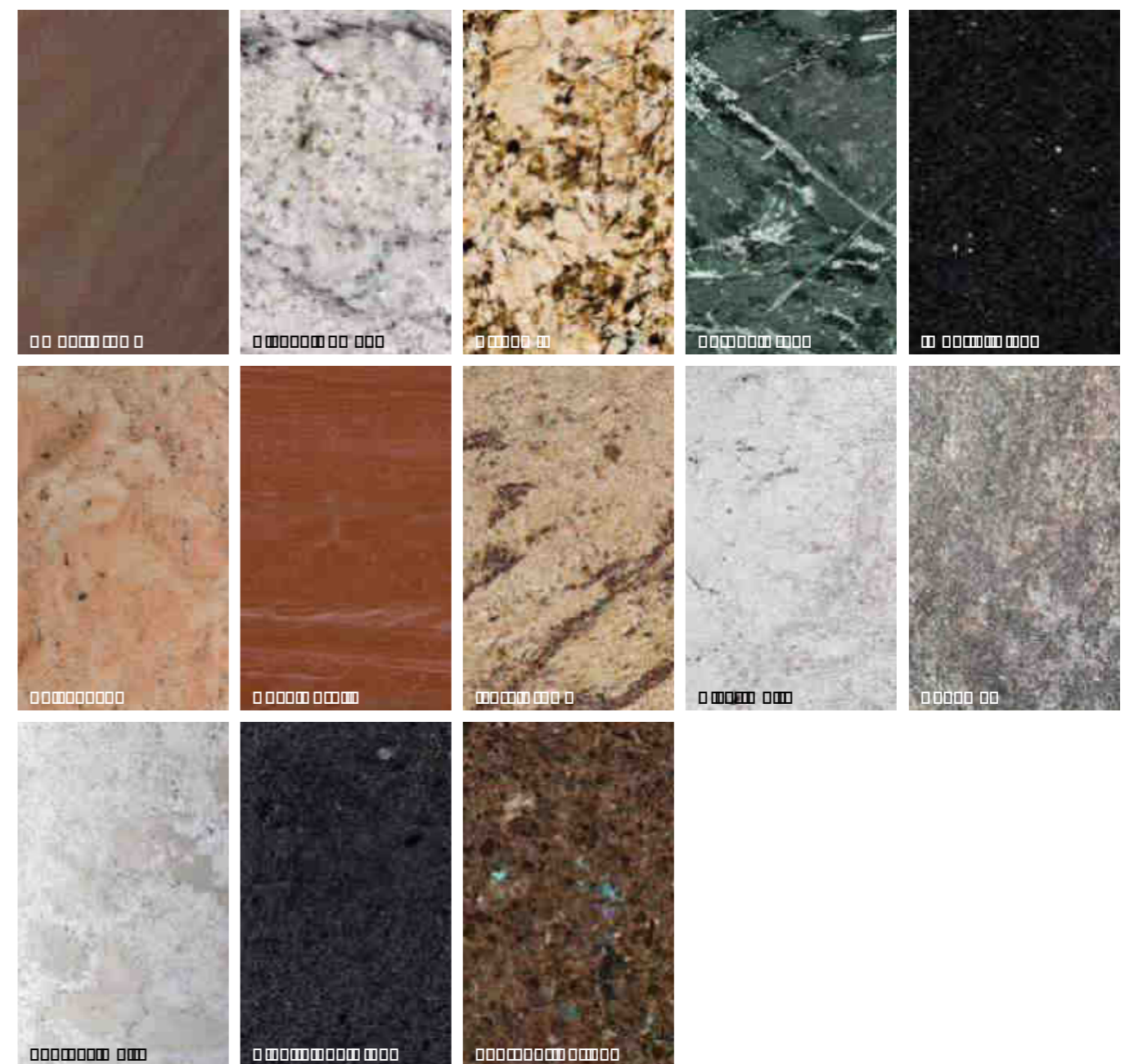
Materials - Natural AIR

GRANITE
cod. NF5



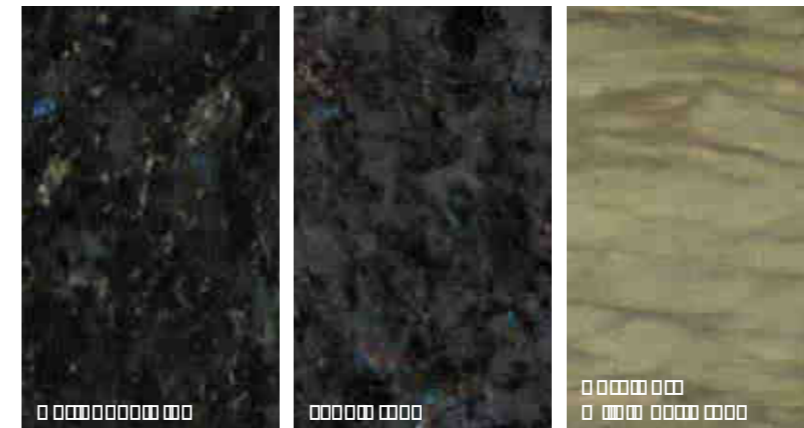
Materials - Natural AIR

GRANITE
cod. NF6

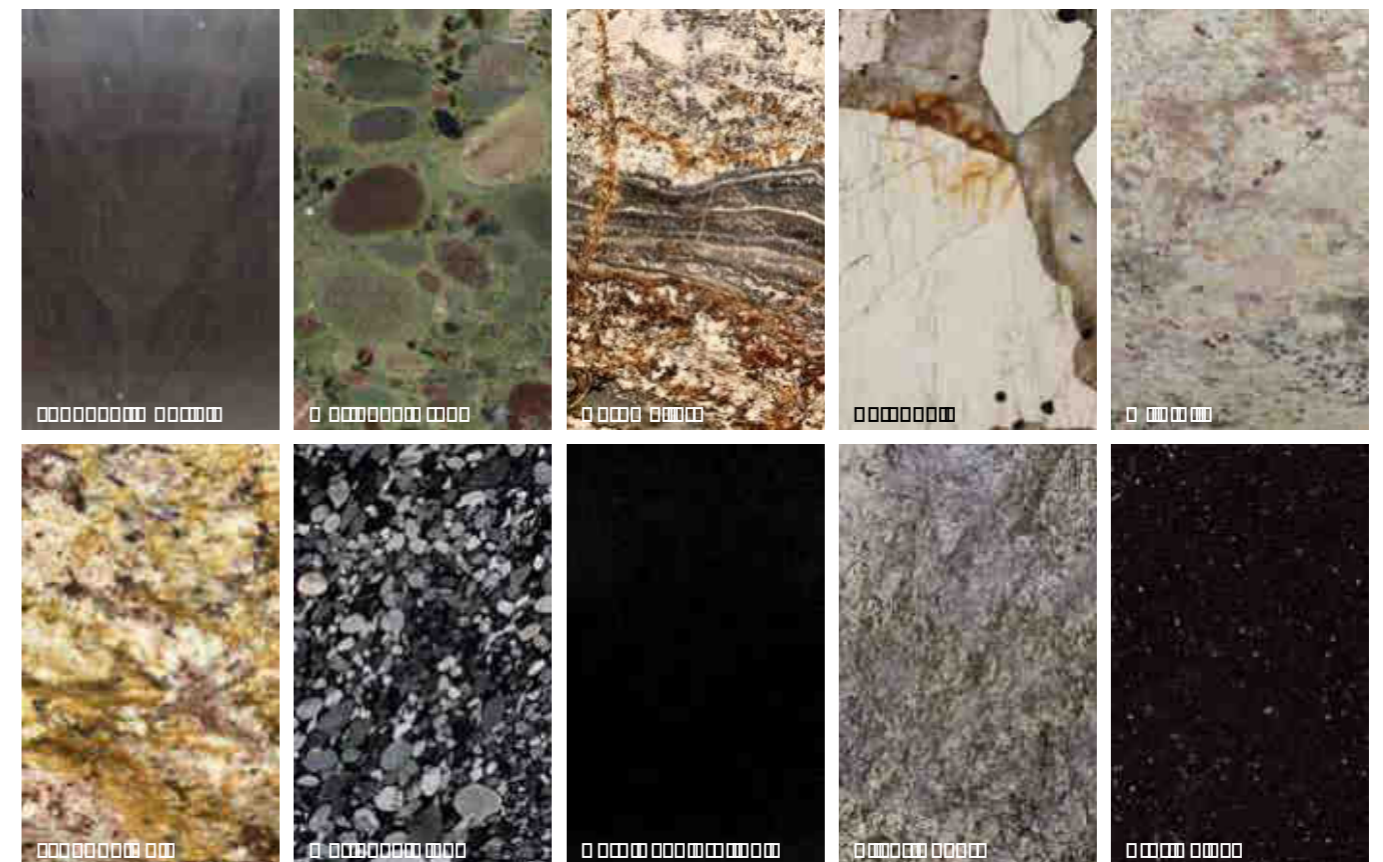


Materials - Natural AIR

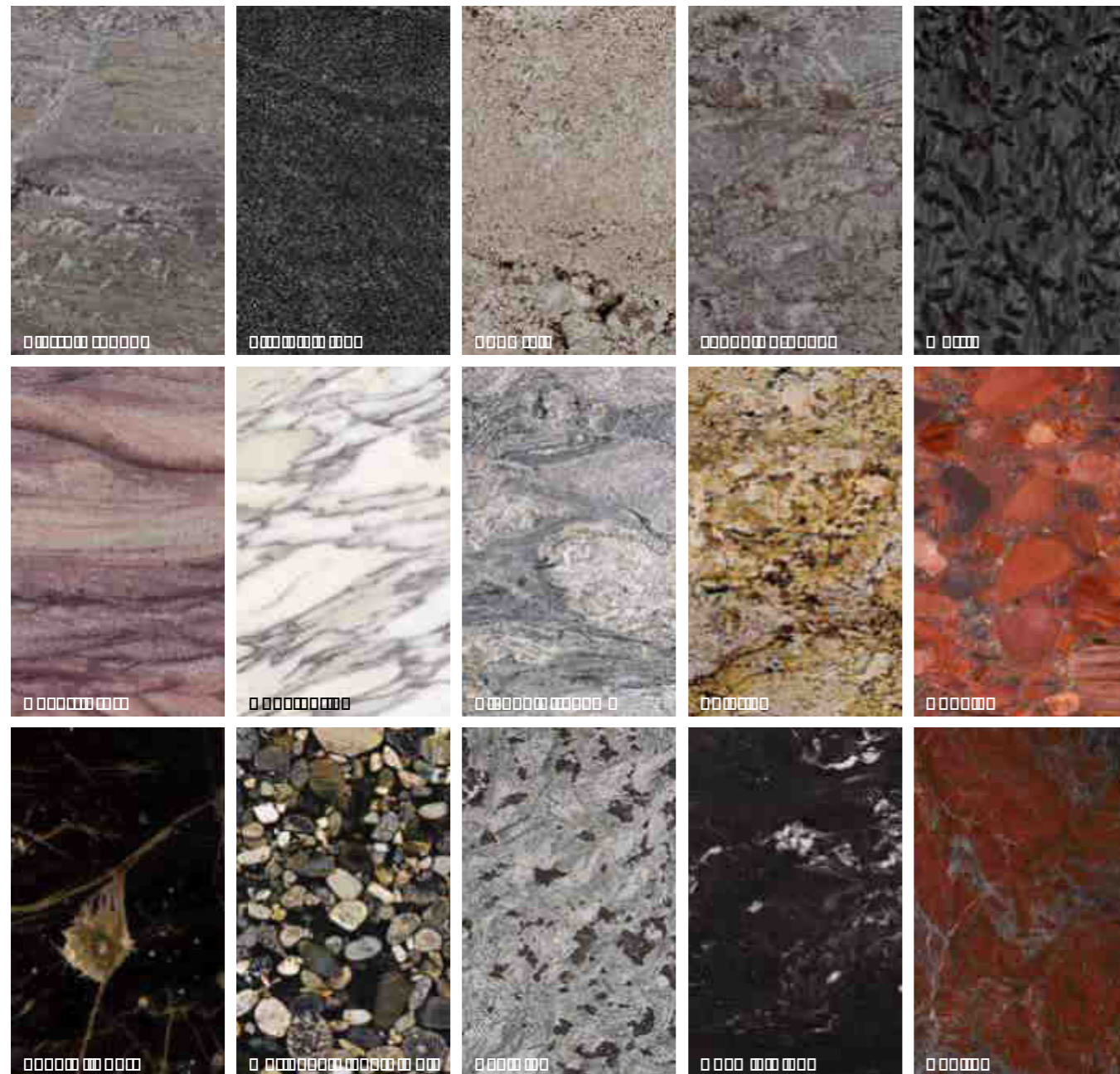
GRANITE
cod. NF7



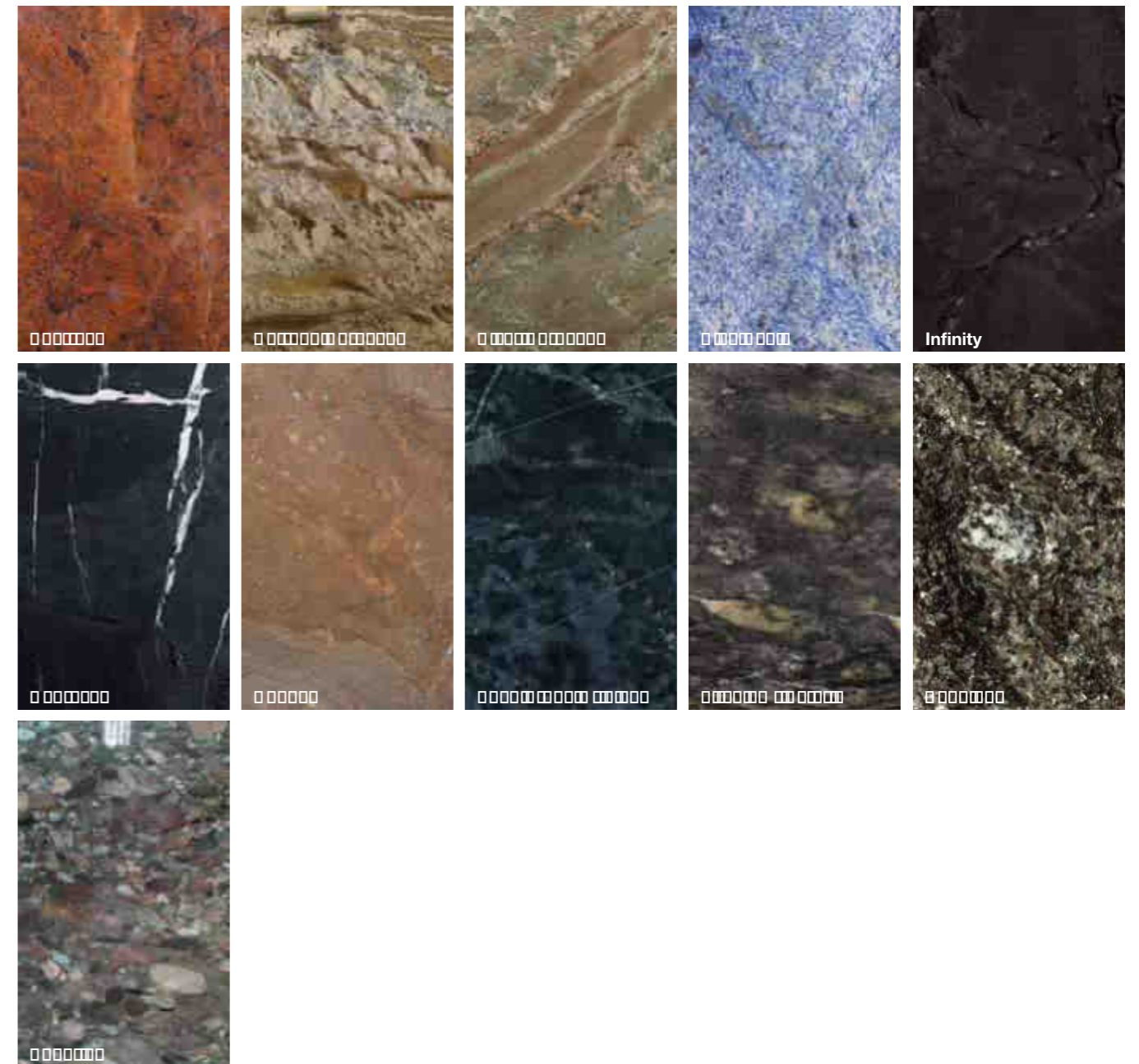
GRANITE
cod. NF8



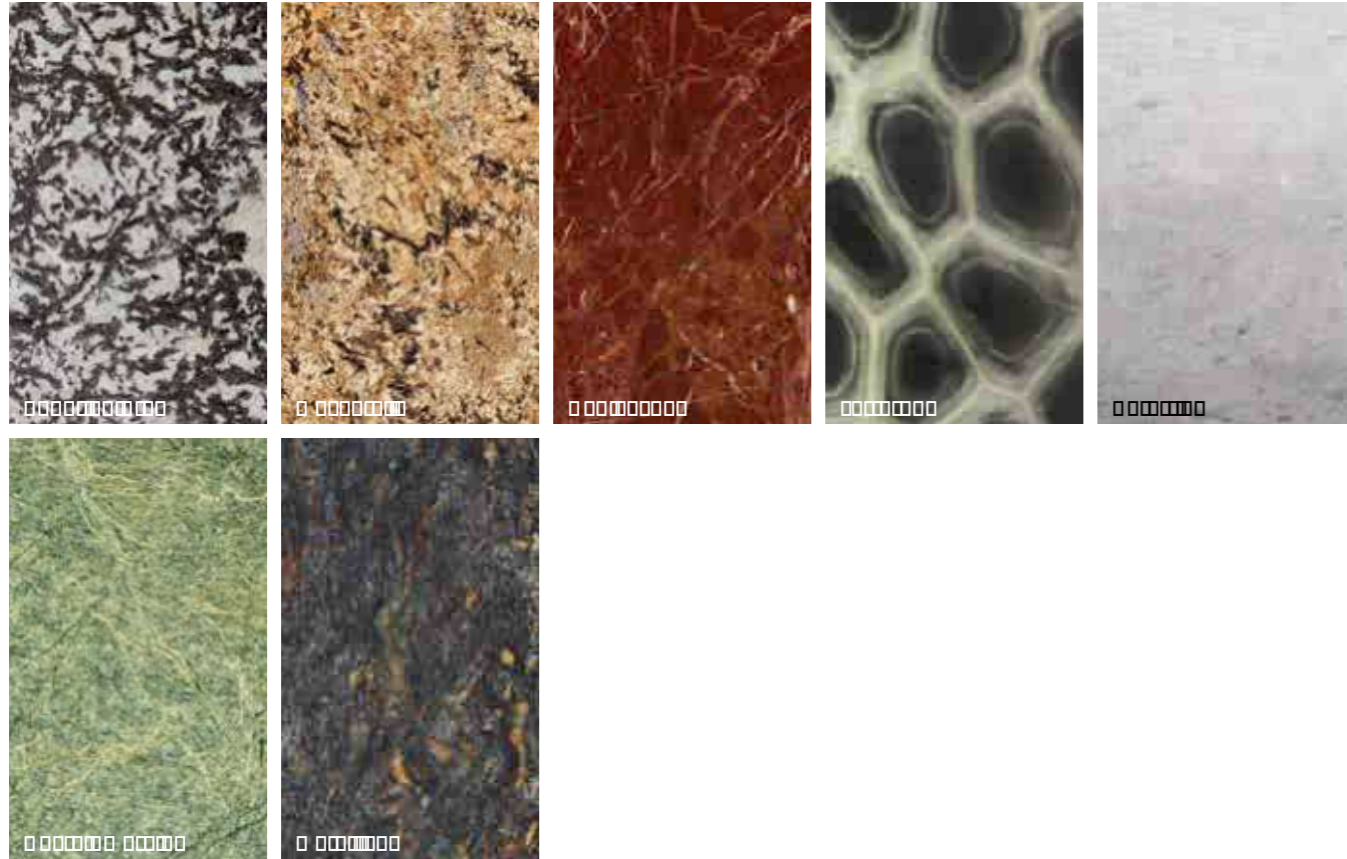
GRANITE
cod. NF8



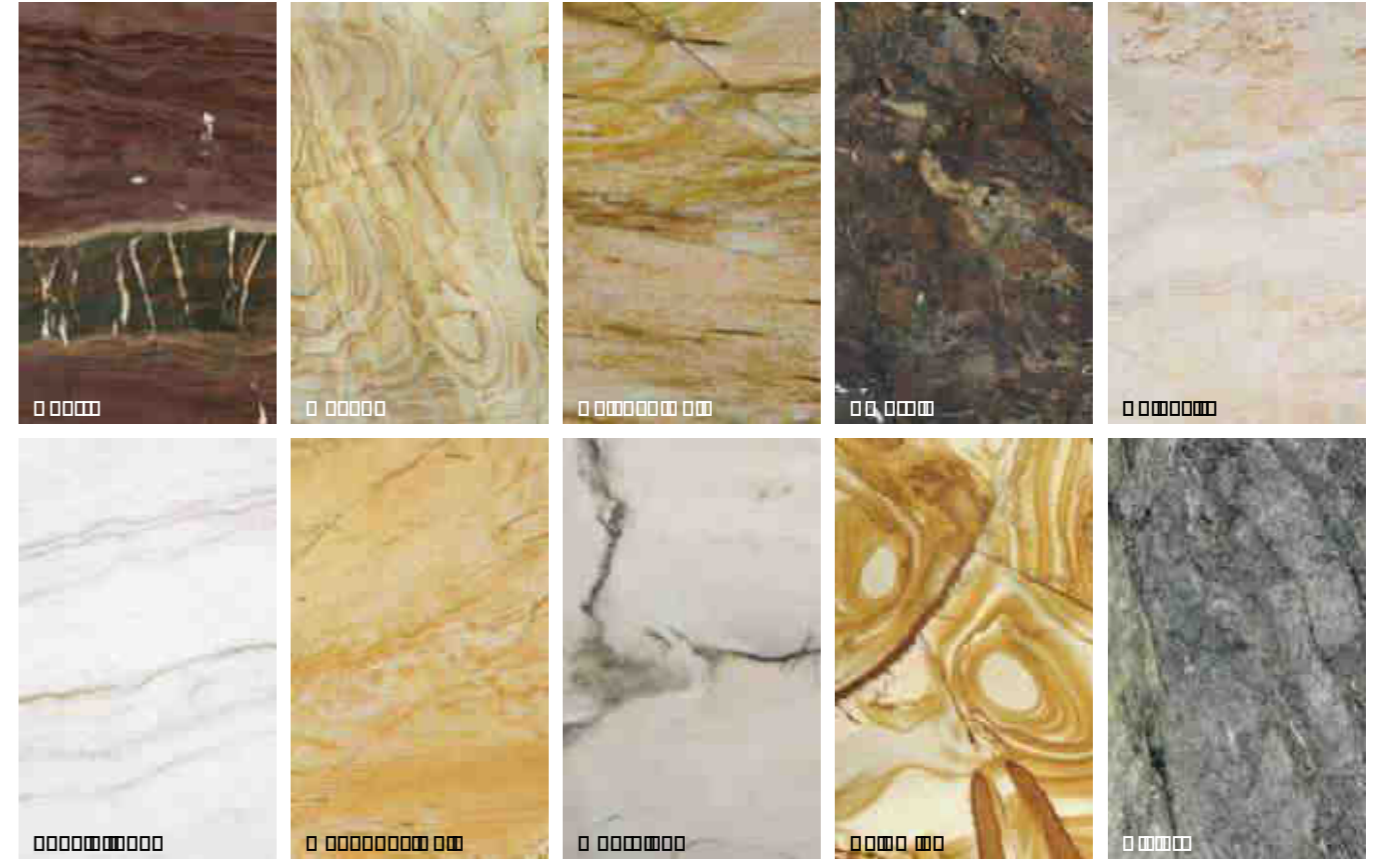
GRANITE
cod. NF9



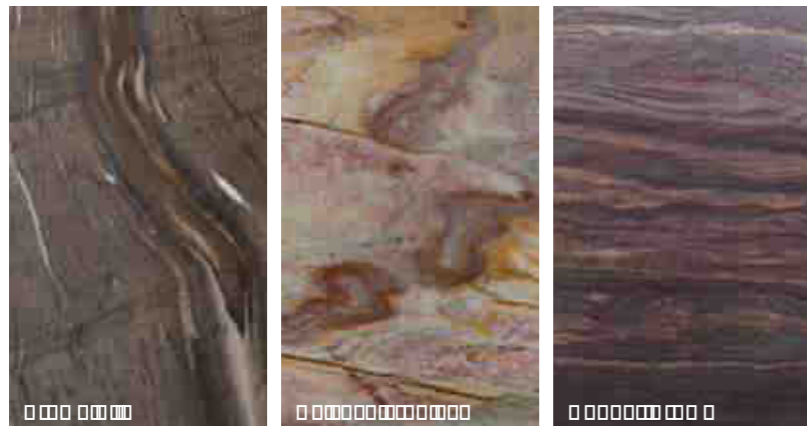
GRANITE
cod. NF10



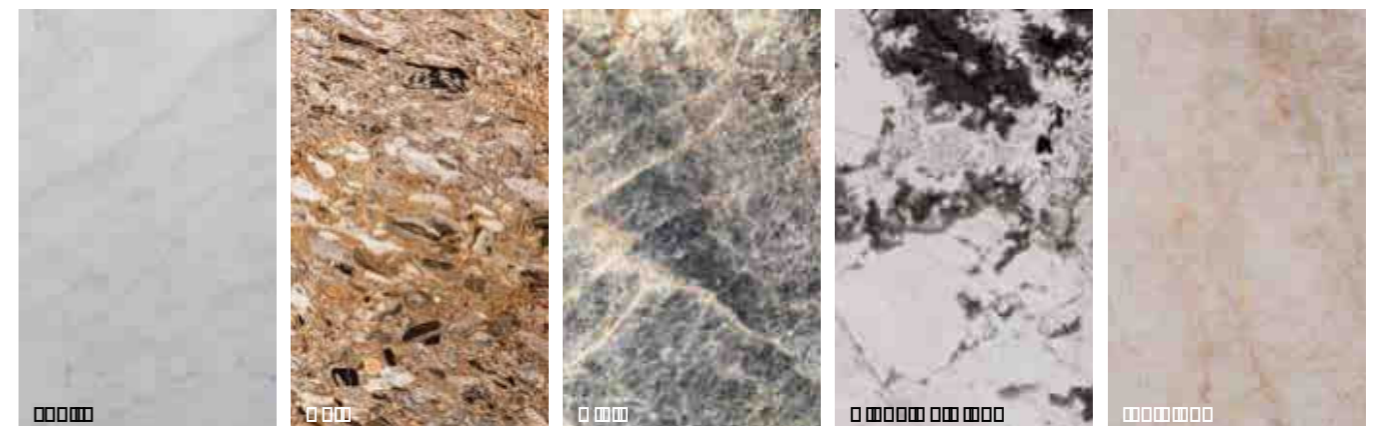
GRANITE
cod. NF12



GRANITE
cod. NF11

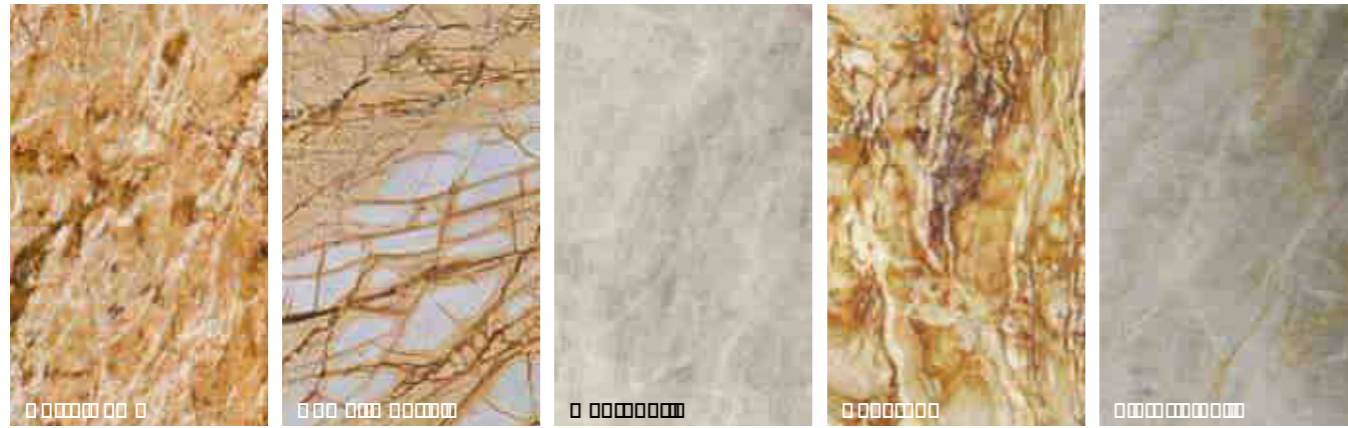


GRANITE
cod. NF13

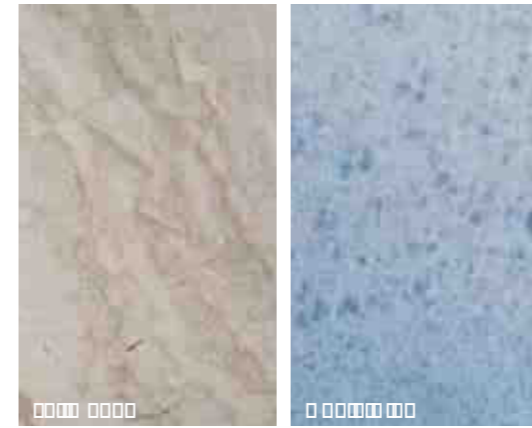


Materials - Natural AIR

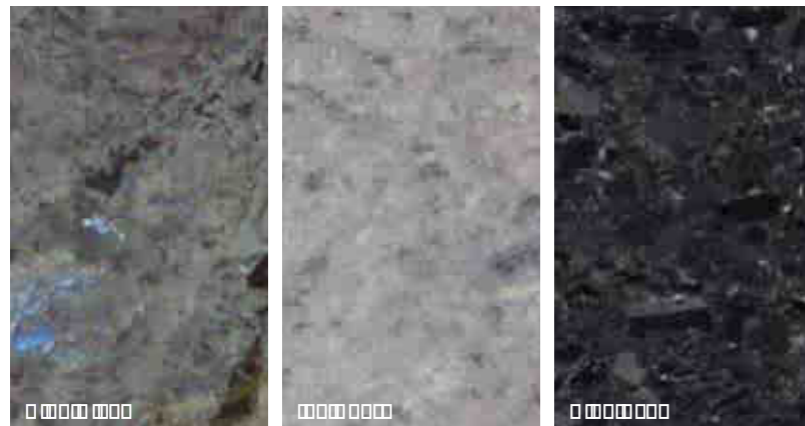
GRANITE
cod. NF13



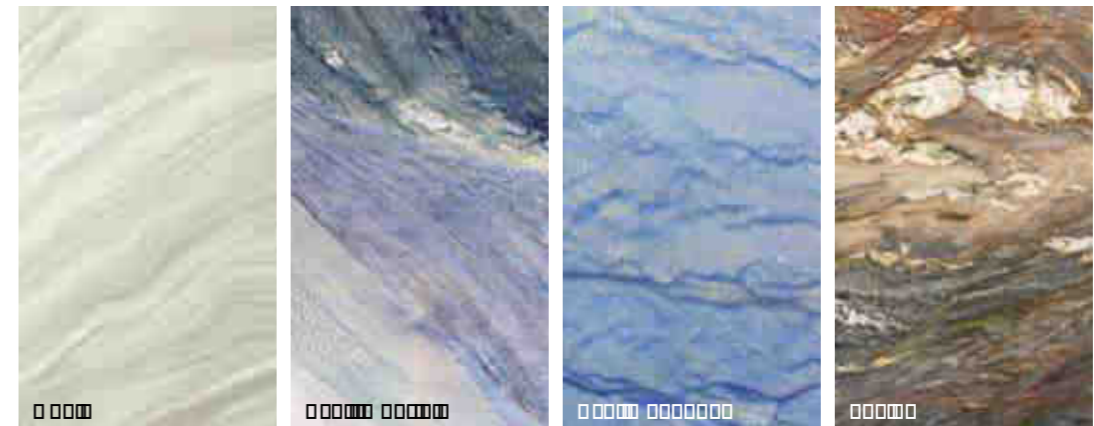
GRANITE
cod. NF16



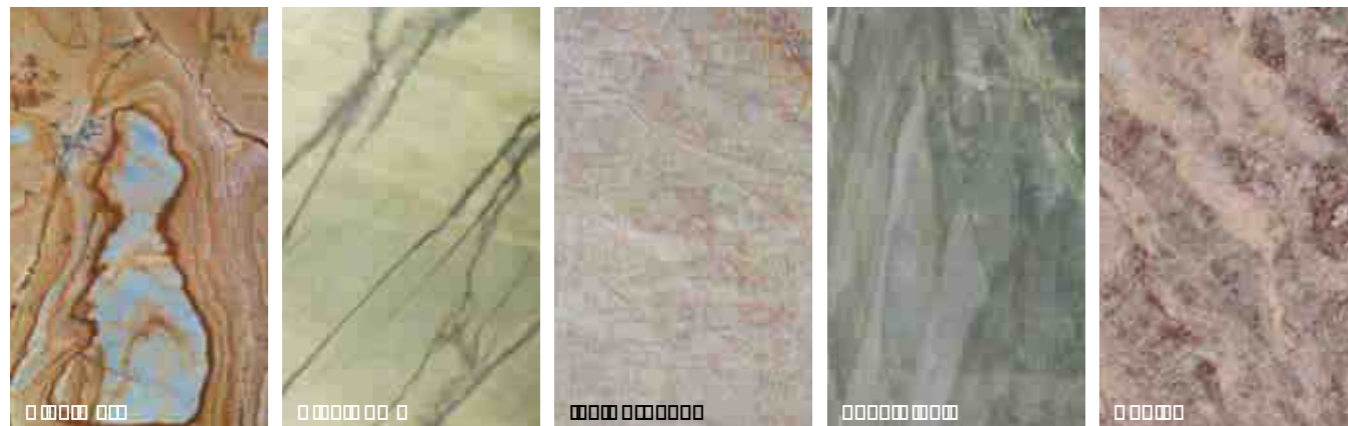
GRANITE
cod. NF14



GRANITE
cod. NF17



GRANITE
cod. NF15

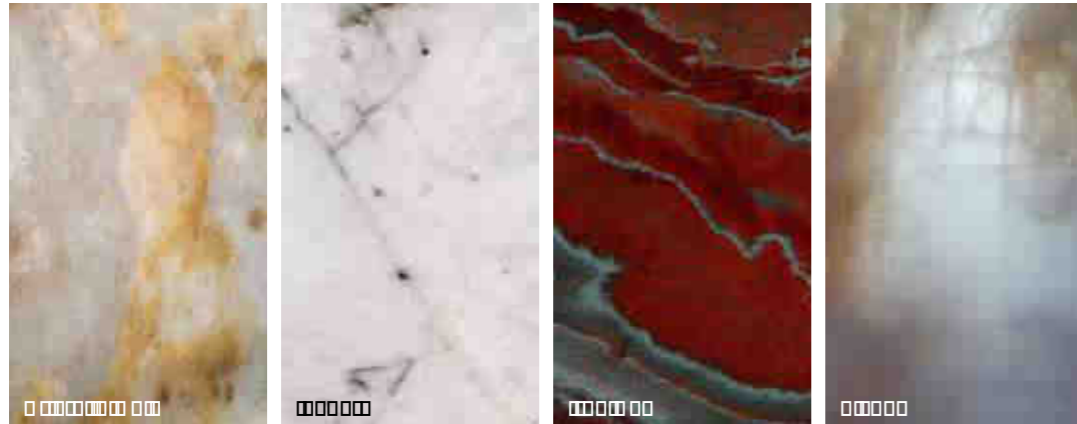


GRANITE
cod. NF18



Materials - Natural AIR

GRANITE
cod. NF19



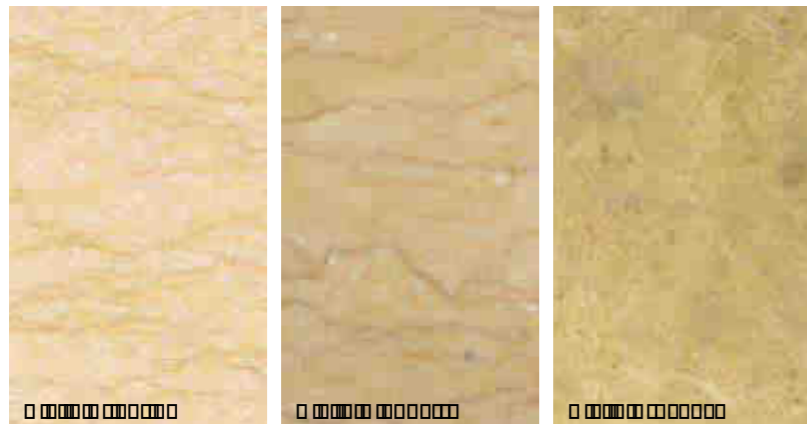
GRANITE
cod. NF20



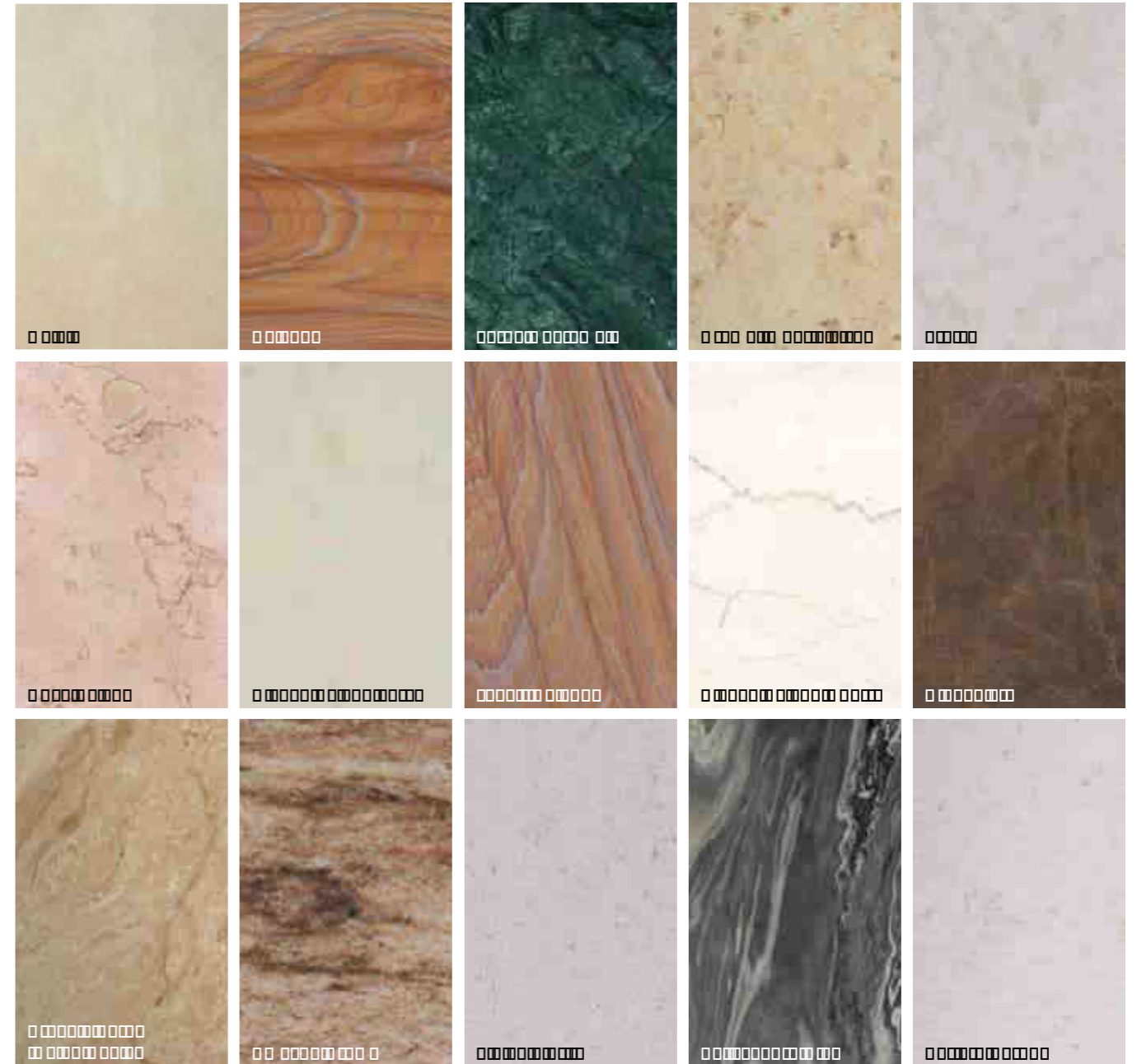
GRANITE
cod. NF21



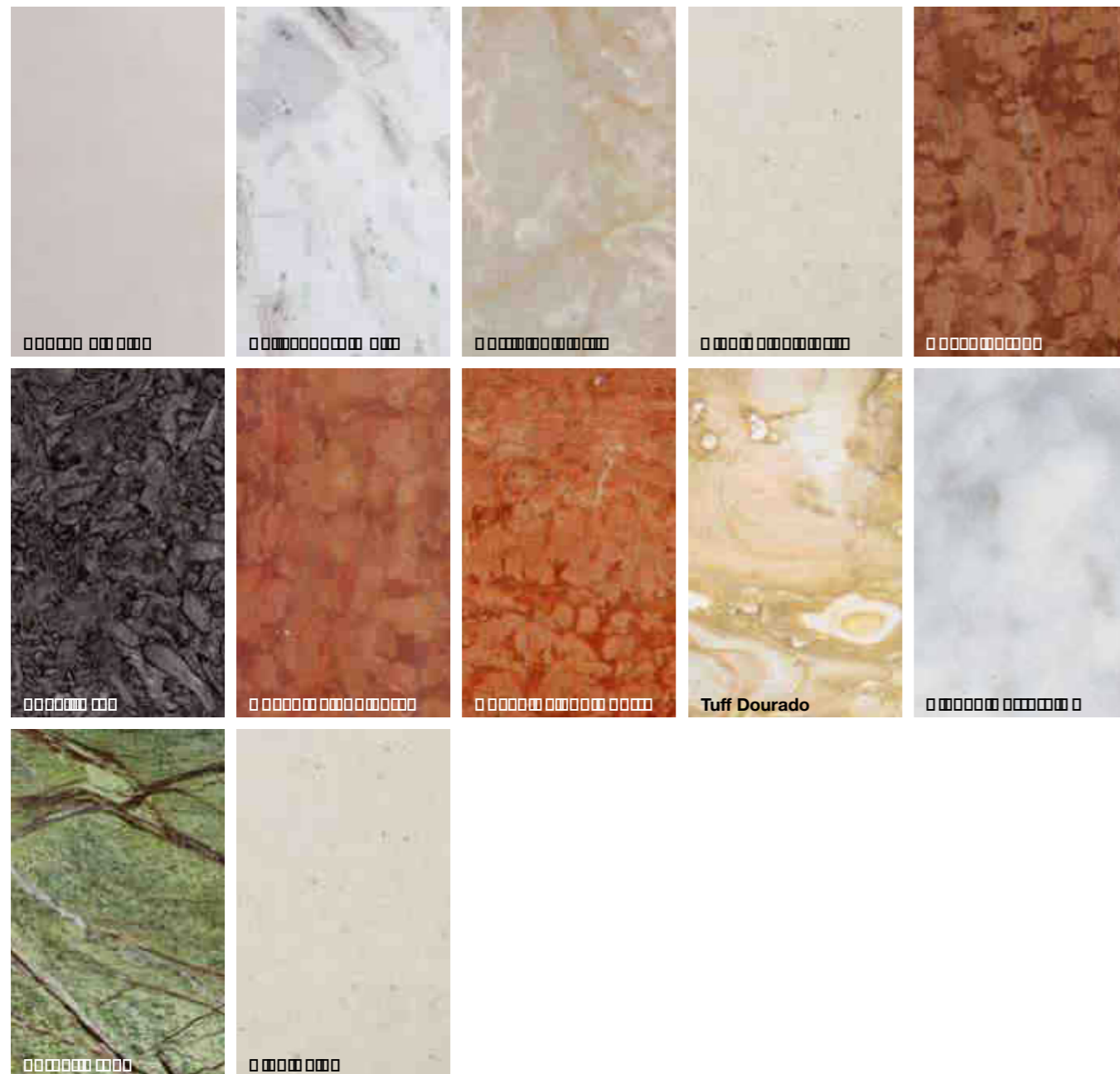
MARBLE
cod. NF2



MARBLE
cod. NF2



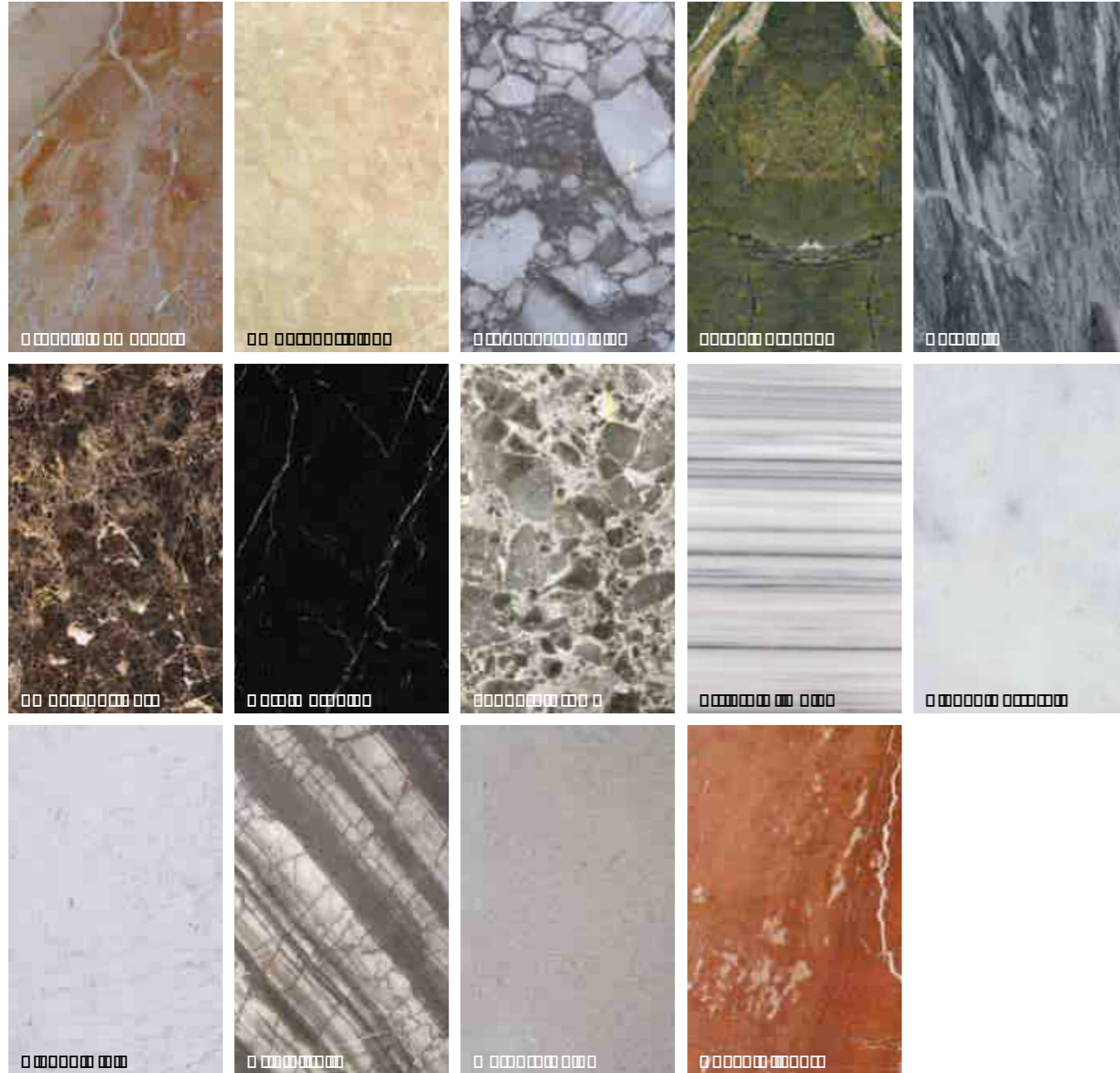
MARBLE
cod. NF3



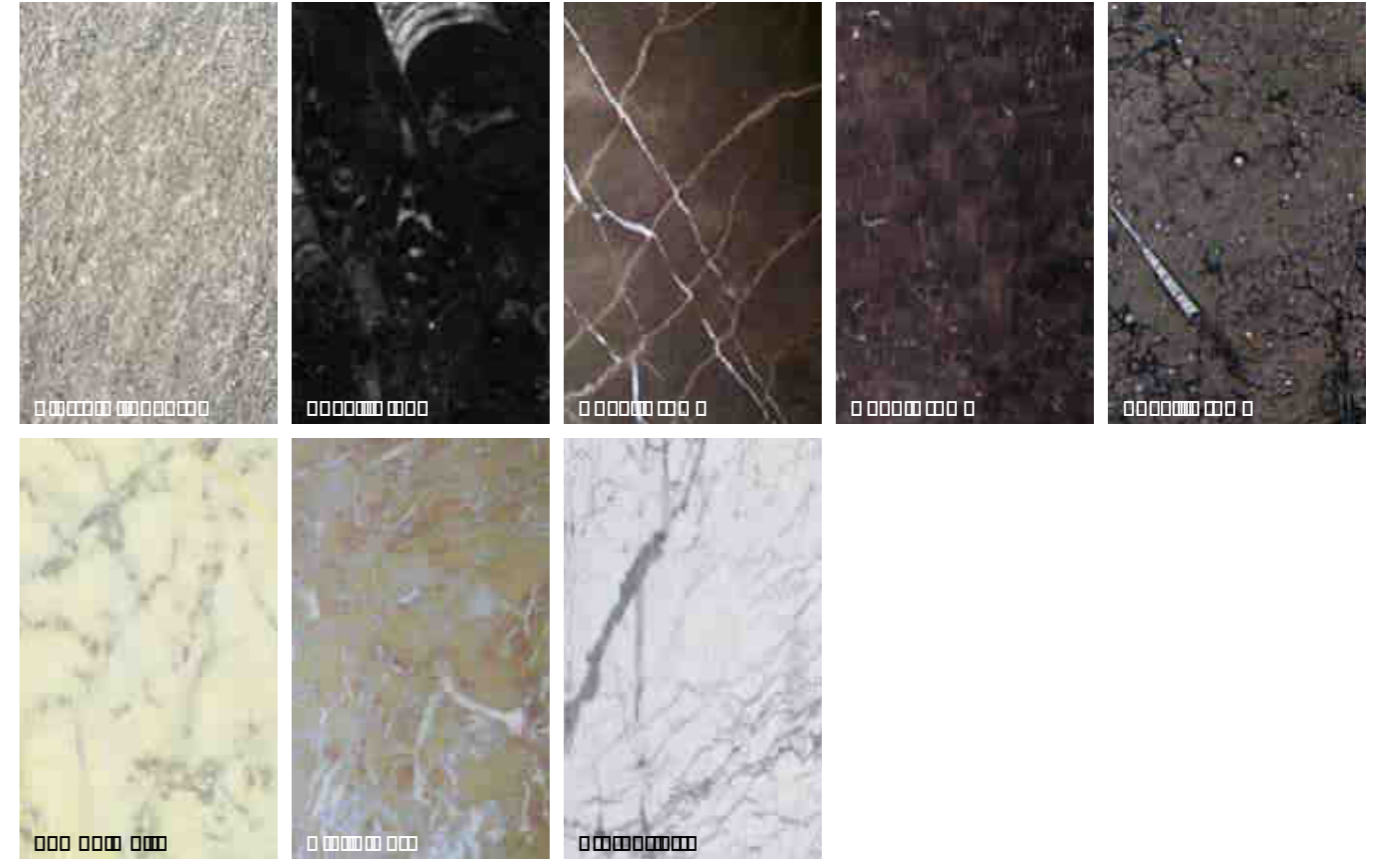
MARBLE
cod. NF4



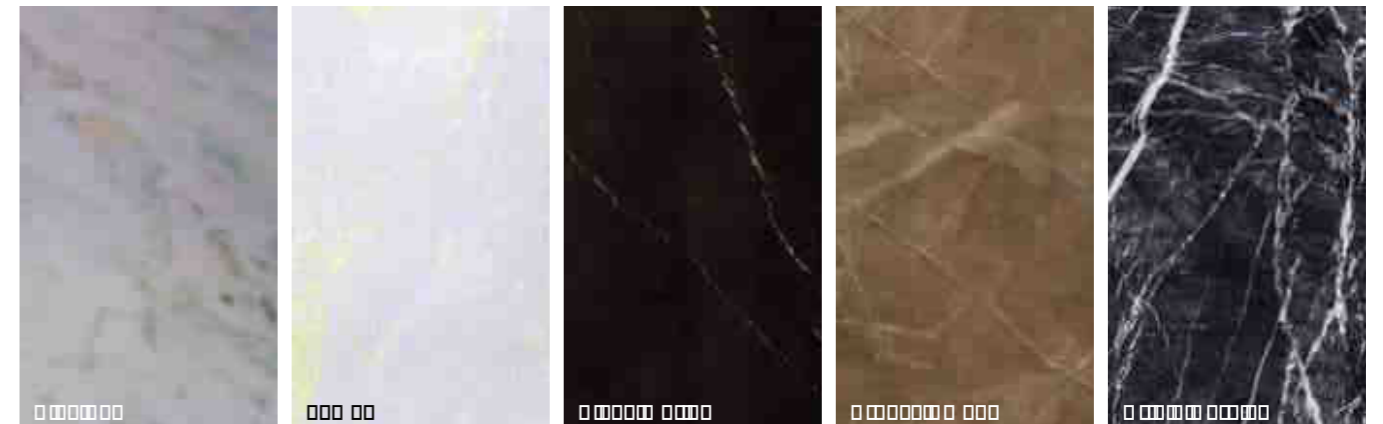
MARBLE
cod. NF5



MARBLE
cod. NF6

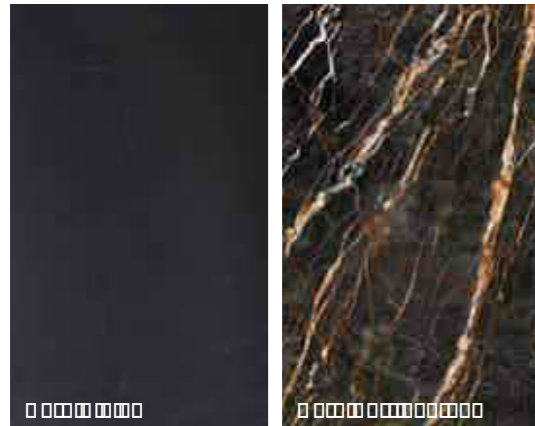


MARBLE
cod. NF7



Materials - Natural AIR

MARBLE
cod. NF7



MARBLE
cod. NF8



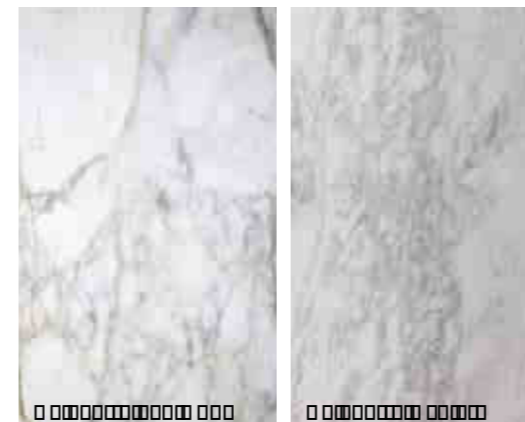
MARBLE
cod. NF8



MARBLE
cod. NF9



MARBLE
cod. NF11

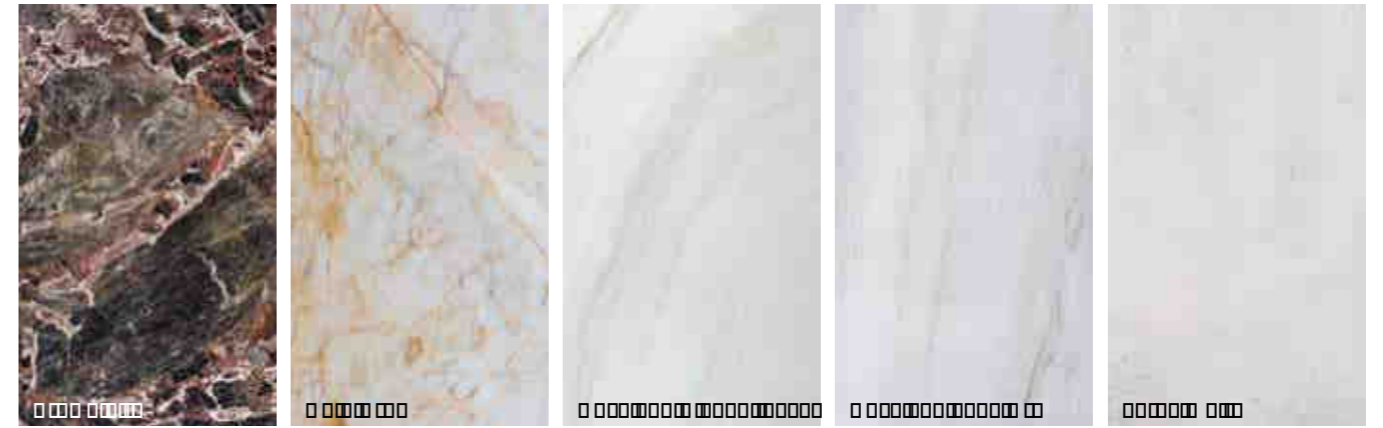


Materials - Natural AIR

MARBLE
cod. NF12



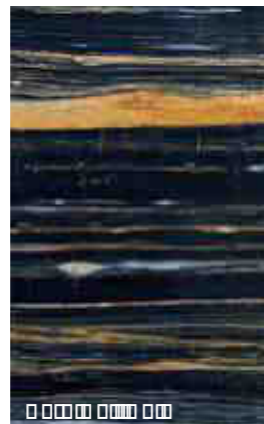
MARBLE
cod. NF16



MARBLE
cod. NF13



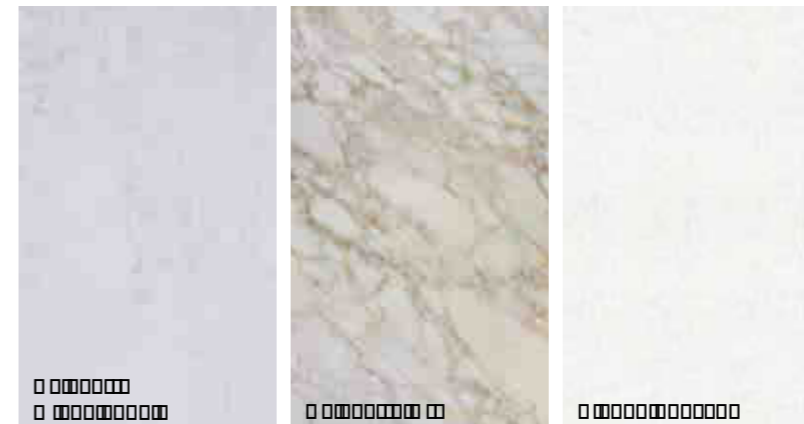
MARBLE
cod. NF14



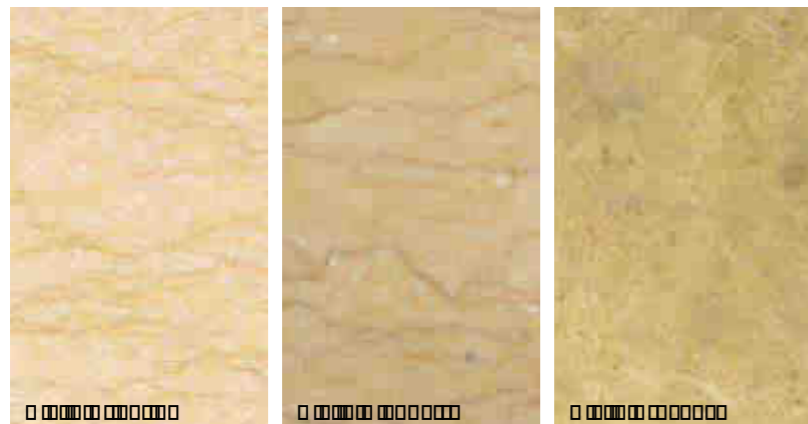
MARBLE
cod. NF15



MARBLE
cod. NF17



MARBLE
cod. NF11



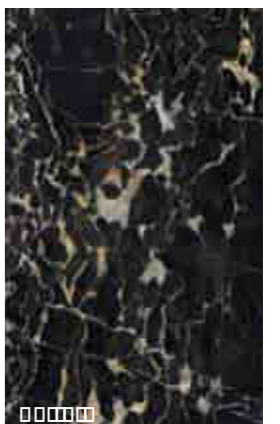
MARBLE
cod. NF18



MARBLE
cod. NF19

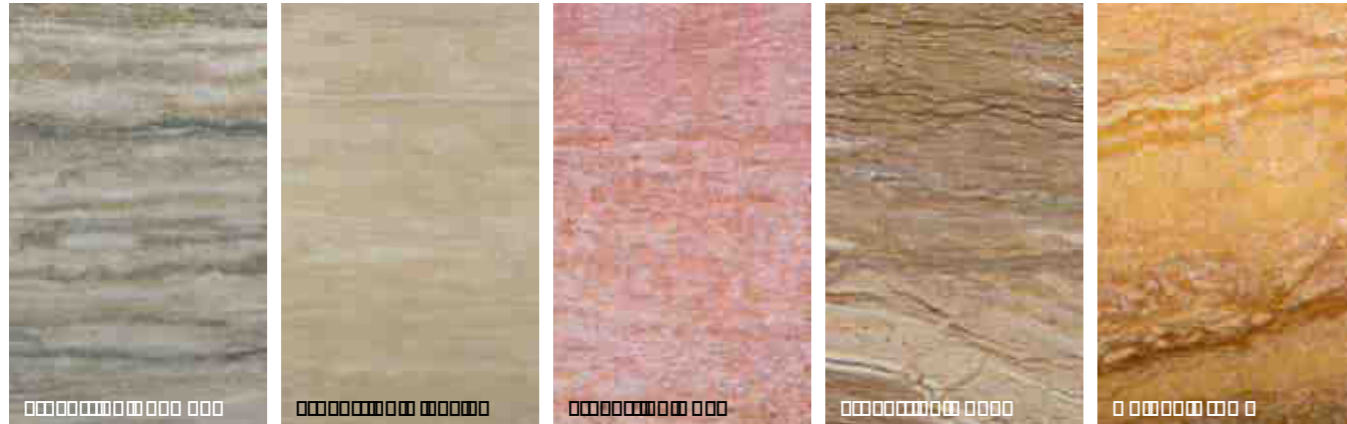


MARBLE
cod. NF20



Materials - Natural AIR

TRAVERTINE
cod. NF3



LIMESTONE
cod. N1



TRAVERTINE
cod. NF4



LIMESTONE
cod. N2



TRAVERTINE
cod. NF6



TRAVERTINE
cod. NF7



LIMESTONE
cod. N3





□ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



□ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



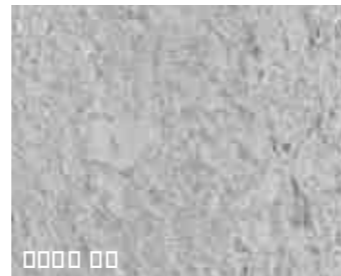
□ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



□ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



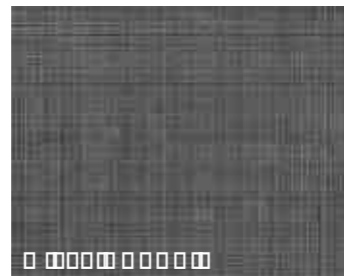
□ □ □ □ □ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



□ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



□ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



□ □ □ □ □ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



□ □ □ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



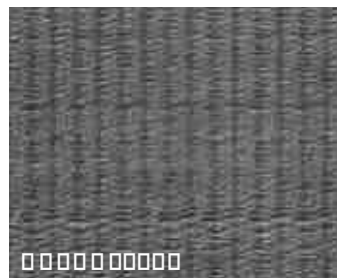
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Marble / Travertine / Limestone
Granite / Sandstone



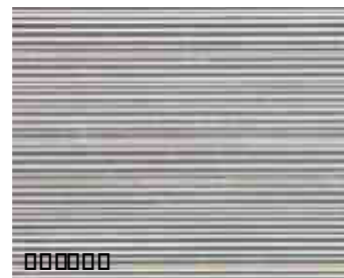
□ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



□ □ □ □ □ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



□ □ □ □ □ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



□ □ □ □ □ □ □
Marble / Travertine / Limestone
Granite / Sandstone



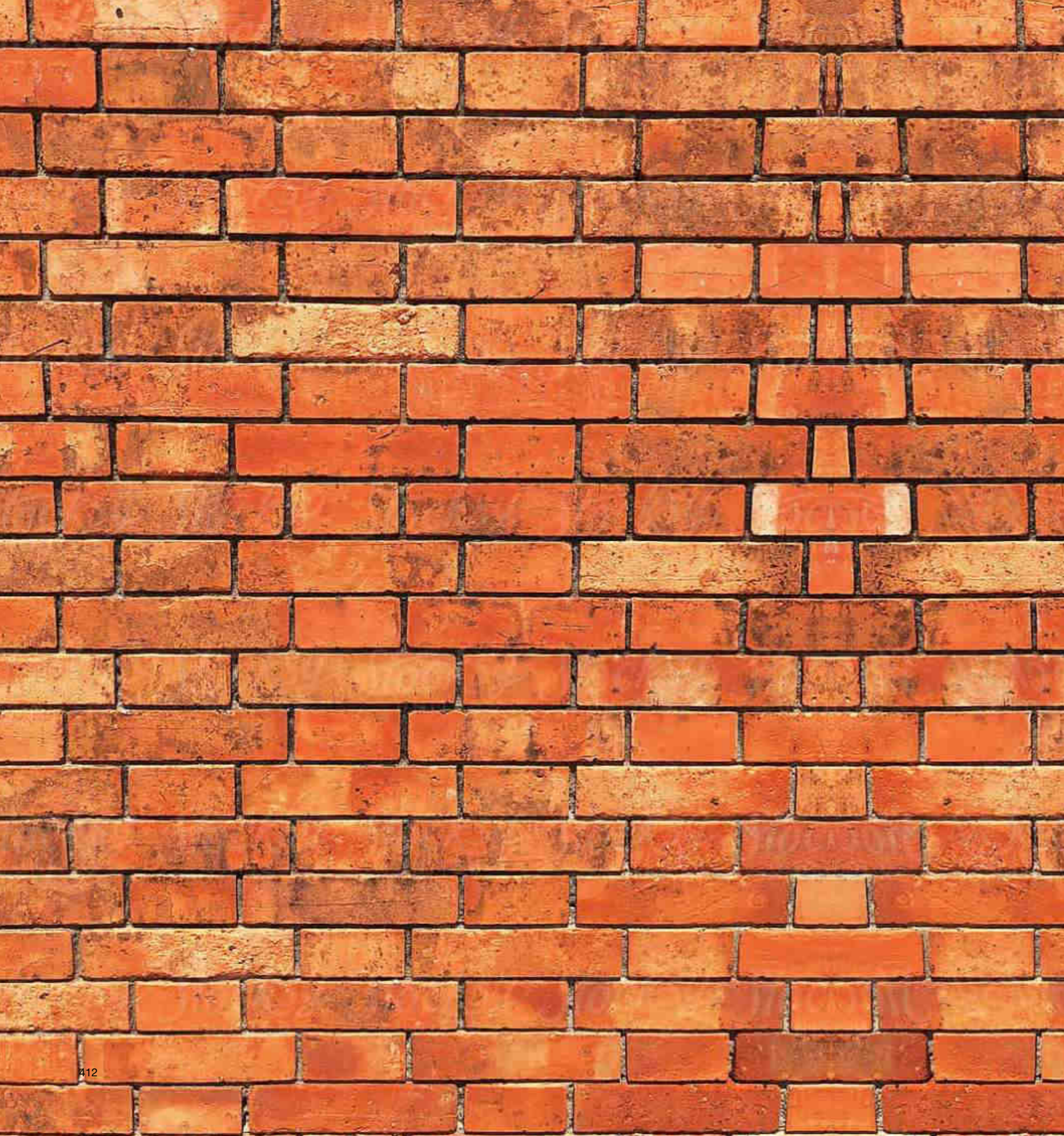
3D AIR

Thanks to the GammaStone 3D AIR solution, the combination of different materials with various thicknesses is now possible, enabling the creation of 3D effect panels customizable by the designer.



Mattoncini AIR

The GammaStone Mattoncini AIR solution guarantees mechanical installation of stone bricks with the advantage of fast installation and beautiful aesthetics. The panel is supplied and pointed with mortar ready for installation. The joints between panels are designed to guarantee a unique effect on the entire facade.

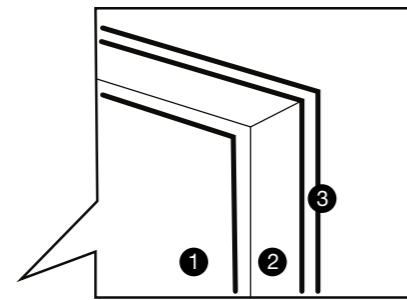


Brick AIR

The GammaStone Brick AIR solution allows dry installation of Klinker or porcelain bricks with advantages of a fast installation and beautiful aesthetics. The panel is supplied and pointed with mortar ready for installation. The joints between panels are designed to guarantee a unique-effect on the entire facade.

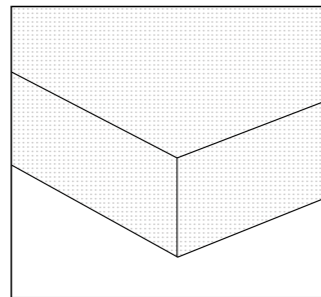


Panel structure

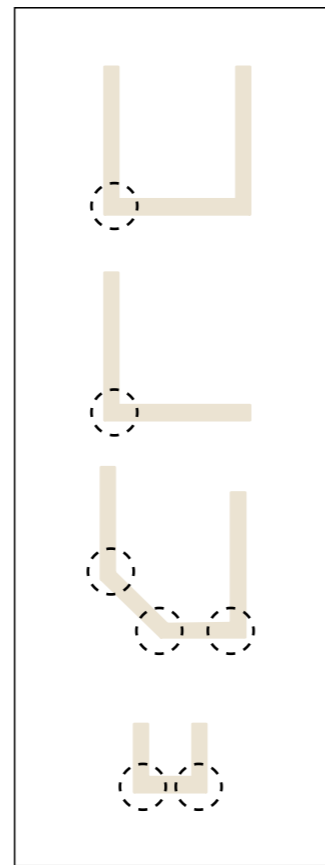


1. Brick
2. Structural Core
3. Stainless Steel

2. Structural Core

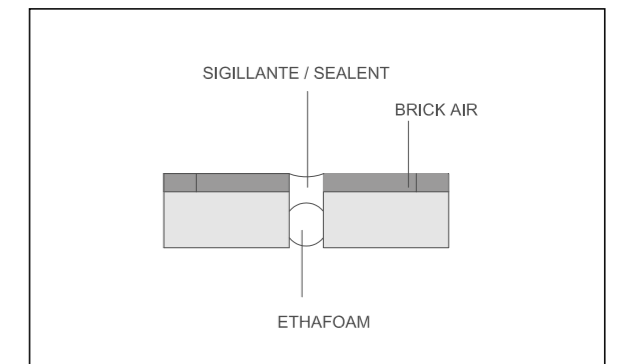


AIR Technology



Monolithic shapes

GammaStone Brick AIR solution allows dry installation of Klinker or porcelain bricks with advantages of a fast installation and beautiful aesthetics. The panel is supplied and pointed with mortar ready for installation. The joints between panels are designed to guarantee a unique effect on the entire façade.



Closed joint solution

[EU]

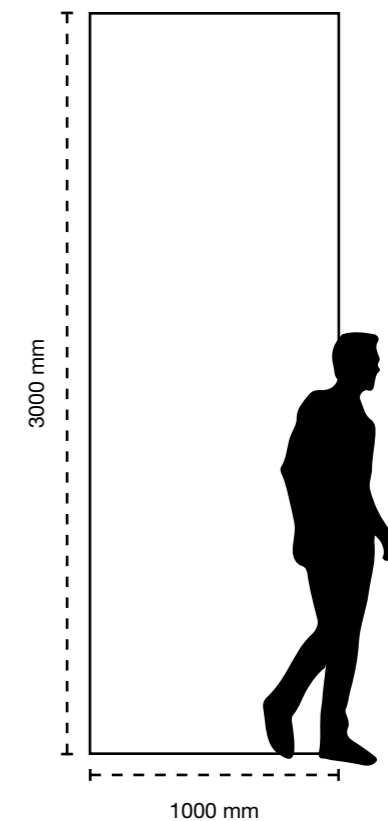
Max panel sizes: 3000x1000 mm (3,00 m²)

	Total panel thickness	Brick thickness	Panel weight
Brick Gres	19 mm	7 mm	17 kg/m ²
Klinker A	18÷23 mm	6÷11 mm	27÷30 kg/m ²
Klinker B	27 mm	15 mm	22 kg/m ²
Facciavista	32 mm	20 mm	22 kg/m ²

[USA]

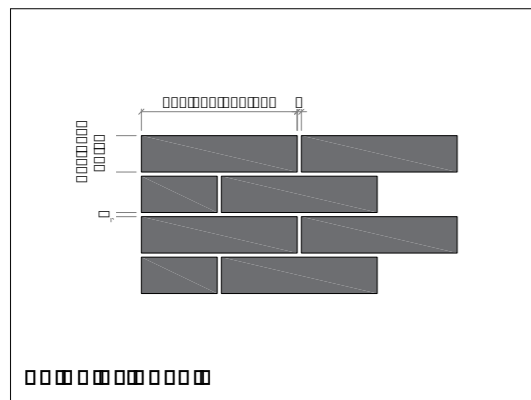
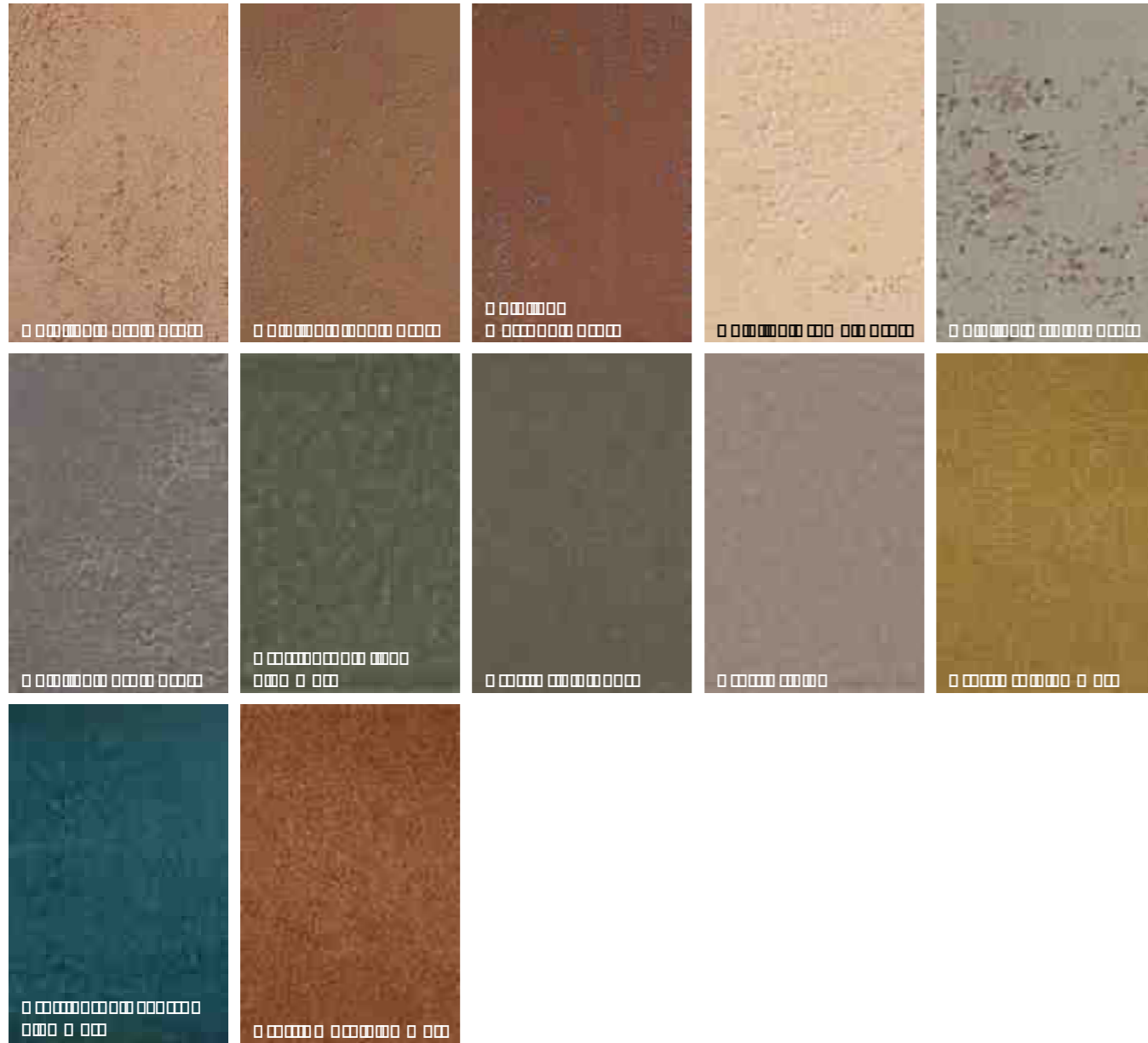
Max panel sizes: 118-7/64"x39-3/8" (32 ft²)

	Total panel thickness	Brick thickness	Panel weight
Brick Gres	3/4"	9/32"	3.5 lb/sqft
Klinker A	45/64"÷29/32"	15/64"÷7/16"	5.5÷6.1 lb/sqft
Klinker B	1-1/16"	19/32"	4.5 lb/sqft
Facciavista	1-17/64"	25/32"	4.5 lb/sqft

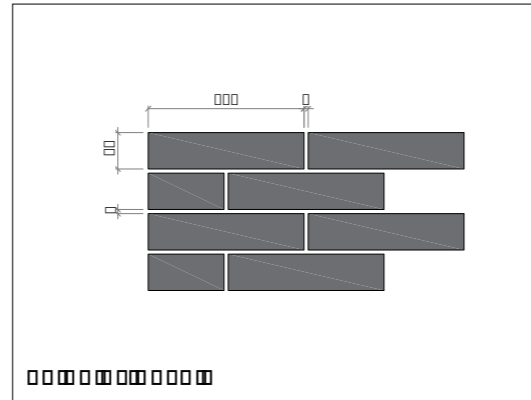


Colors - Brick AIR

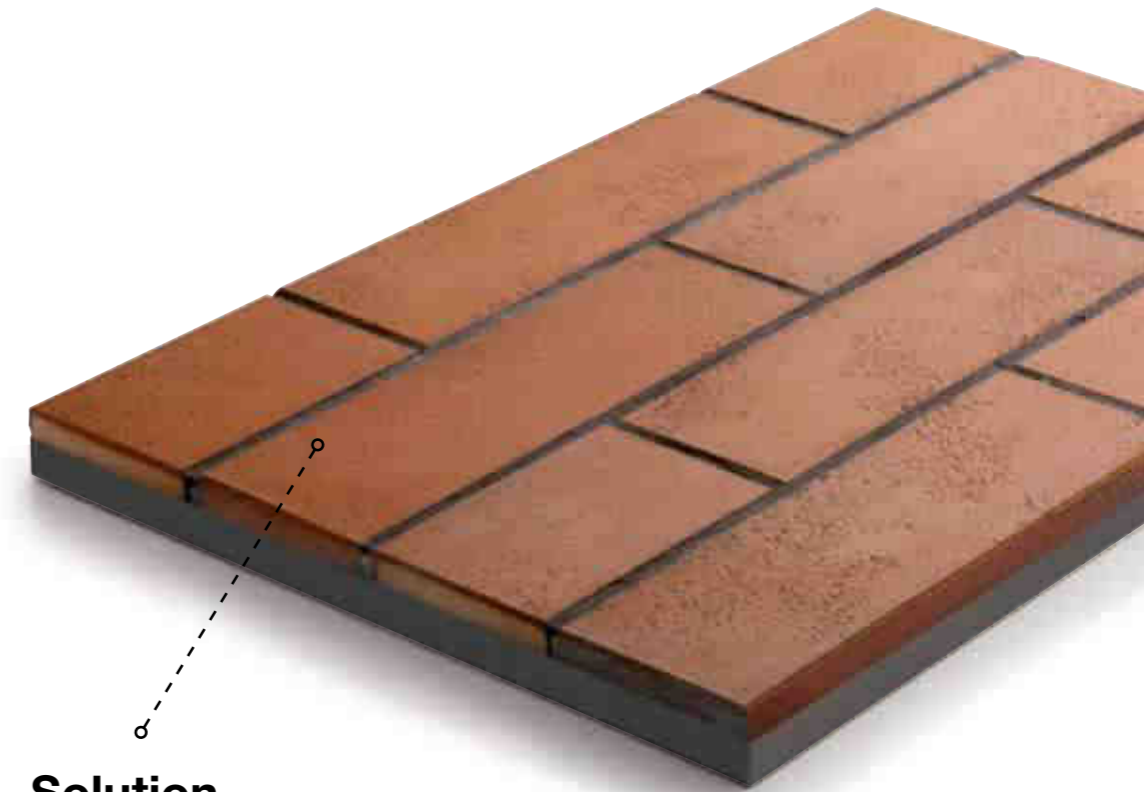
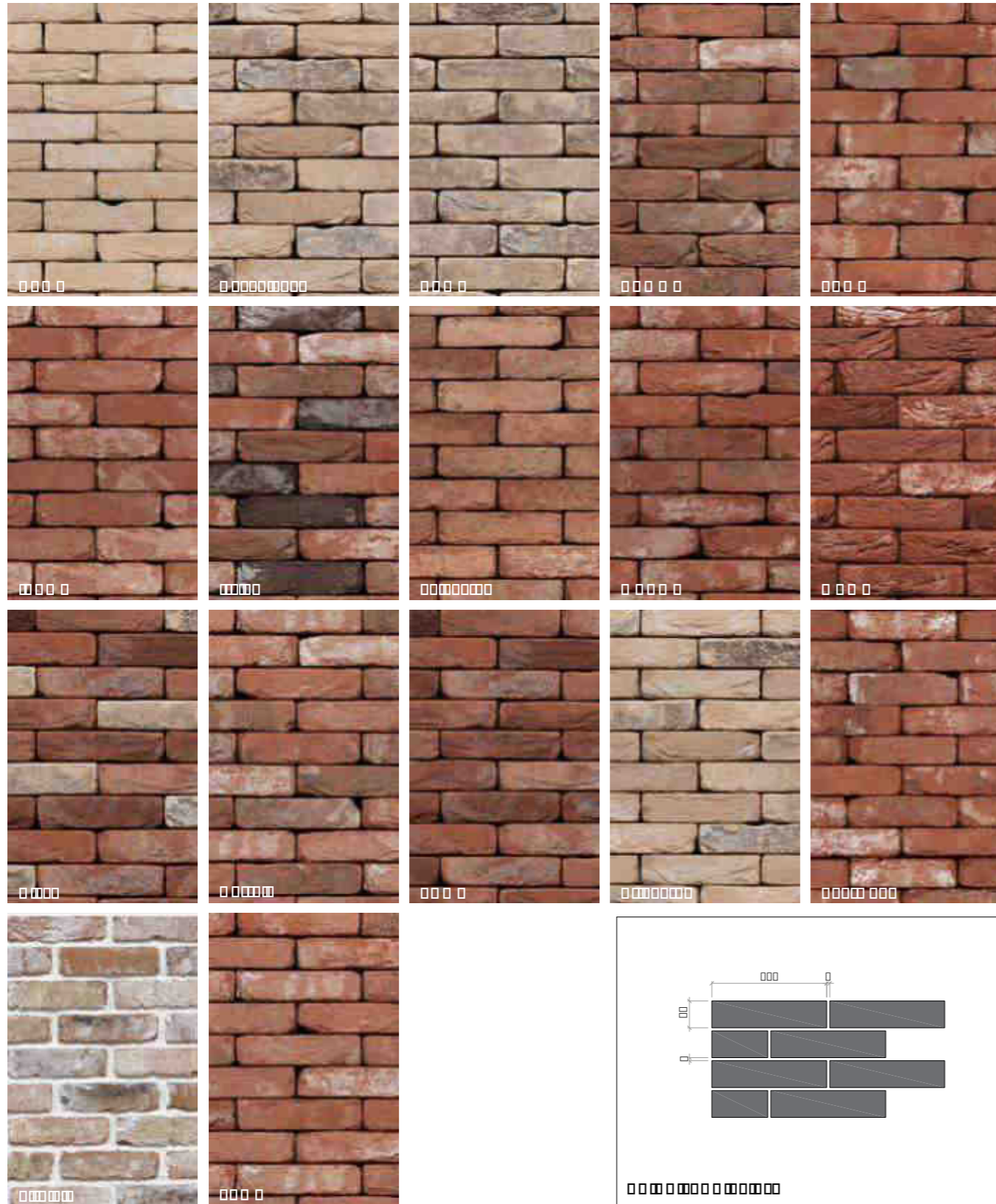
BRICK KLINKER B
cod. BR1



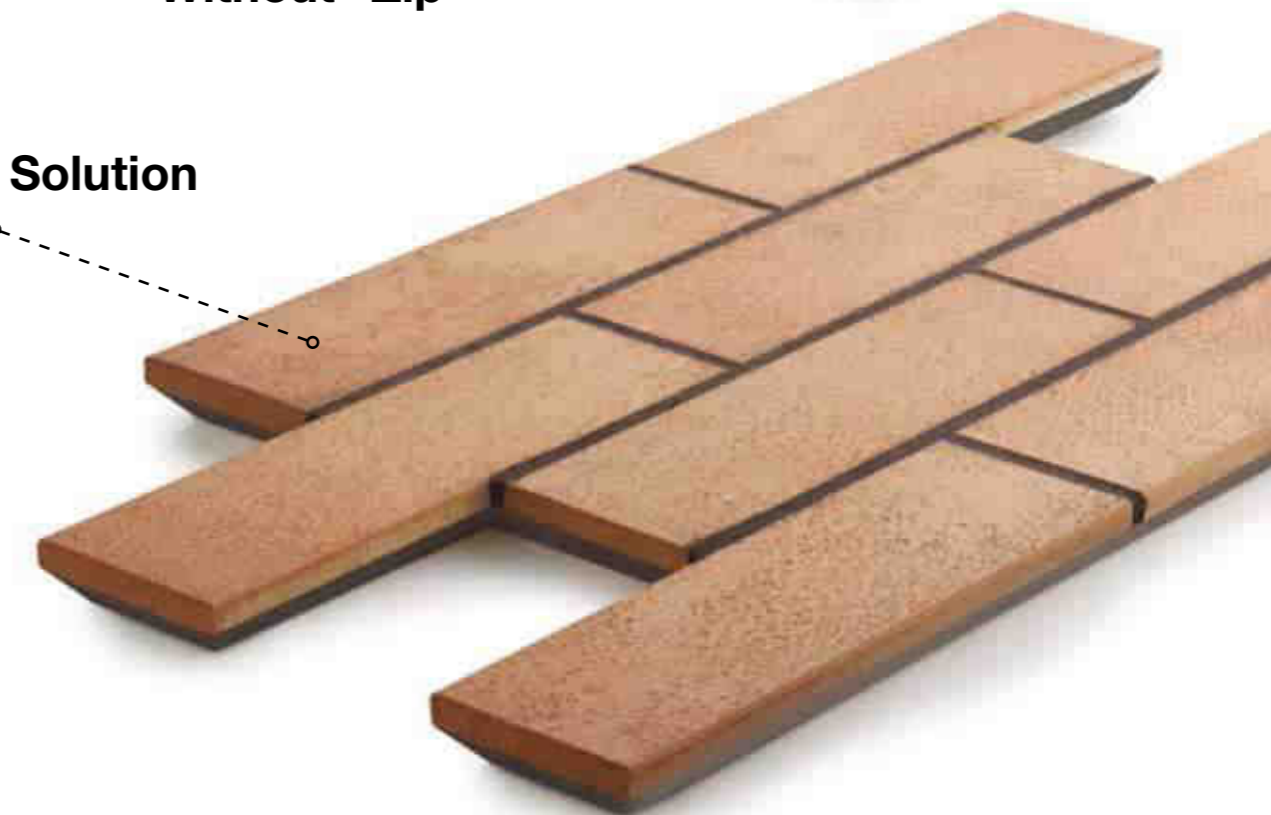
BRICK KLINKER C
cod. BR1



BRICK FACCIAVISTA
cod. BR3



Solution Without "Zip"



"Zip" Solution

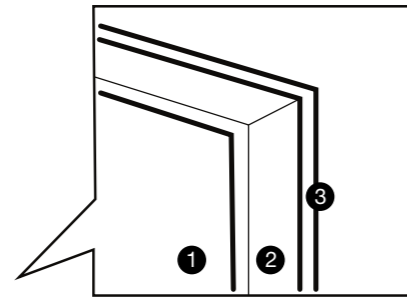
Glass AIR

Glass, with its timeless beauty, gives majesty and elegance to any building or environment. The wide selection of colors, the various compositions and processes allow us to meet any design intent. The World's most renowned glass manufacturers, our partners, enable us to offer multiple solutions: varnished, reflecting, screen-printed and more. Available sizes up to 4200x1500 mm. All GammaStone Glass AIR panels can be customized following the designer's specific needs, see the "Working Techniques" annex. The panel is composed of ultra slim glass, a structural core inserted between two fiberglass mats, and a .5mm thick stainless steel backing plate. Float or tempered glass is applied depending on the sizes and required applications.

The unique ability of GammaStone to make monolithic elements ready for installation contributes to the indisputable success of GammaStone AIR panels worldwide. They are the result of substantial investments in research and development – a philosophy of continuing to study and patent innovative construction systems. The elements as corners, soffits, ceilings, columns, beams, etc. are assembled entirely in our laboratories and are installed with simplicity due to our custom attachment system. Our technology allows us to produce large and surprisingly light architectural geometric shapes, impossible to realize with traditional products. All GammaStone AIR products have a real monolithic appearance and allow architects to realize highly complex elements without compromising their design intent.

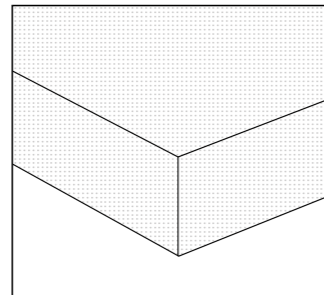


Panel structure

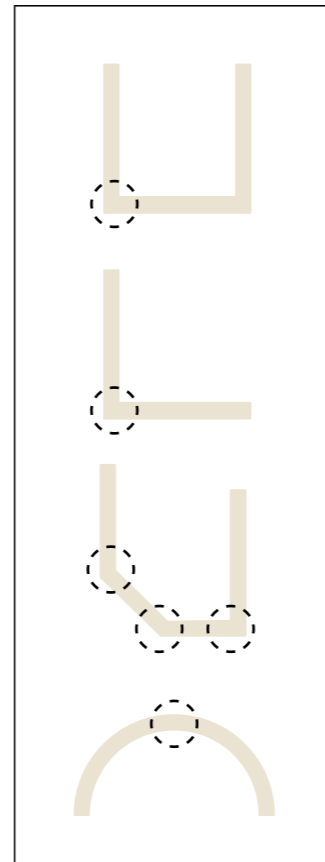


1. Glass
2. Structural Core
3. Stainless Steel

2. Structural Core



AIR Technology



Monolithic and curved shapes

GammaStone AIR in lightweight back-lacquered glass allows the mechanical installation, both indoor and outdoor, of extremely lightweight panels in large-format. It also provides a high level of resistance against breakage by shock, far superior to traditional solutions with laminated glass. Available sizes up to 4200x1500 mm. Float or tempered glass is applied depending on the sizes and required applications.

Glass Types

- Extra light
- Float

Back-Lacquered

- Lacquered
- Reflective
- Silk printed

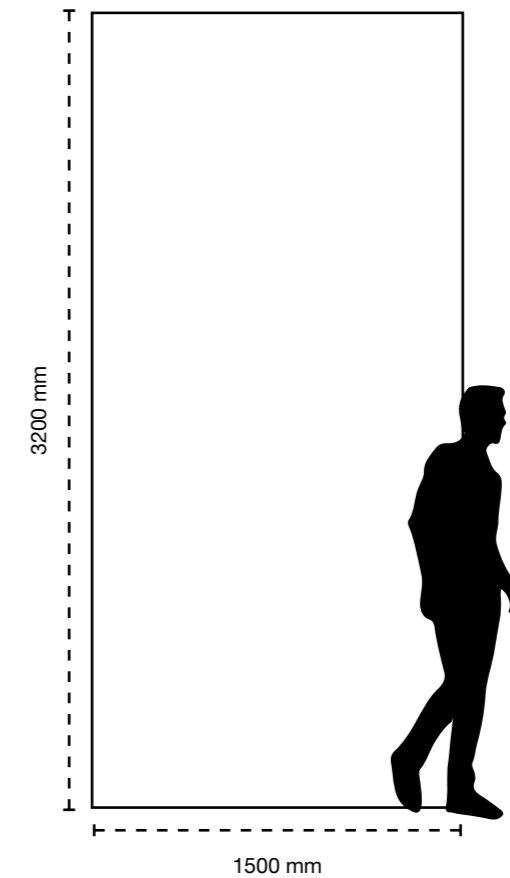
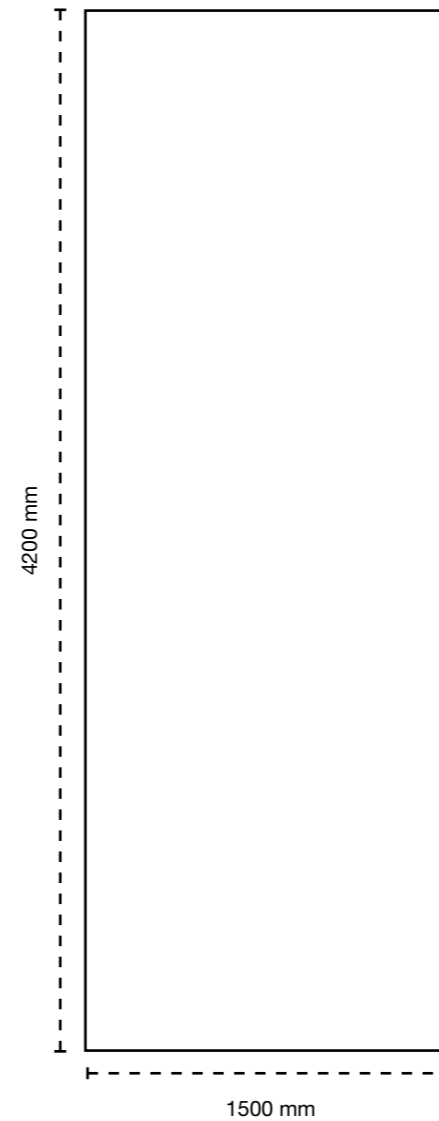
Finish Glass

- Polish
- Sandblasted
- Satin

Edge

- Rough edge
- Matte edge

Tempered on request.



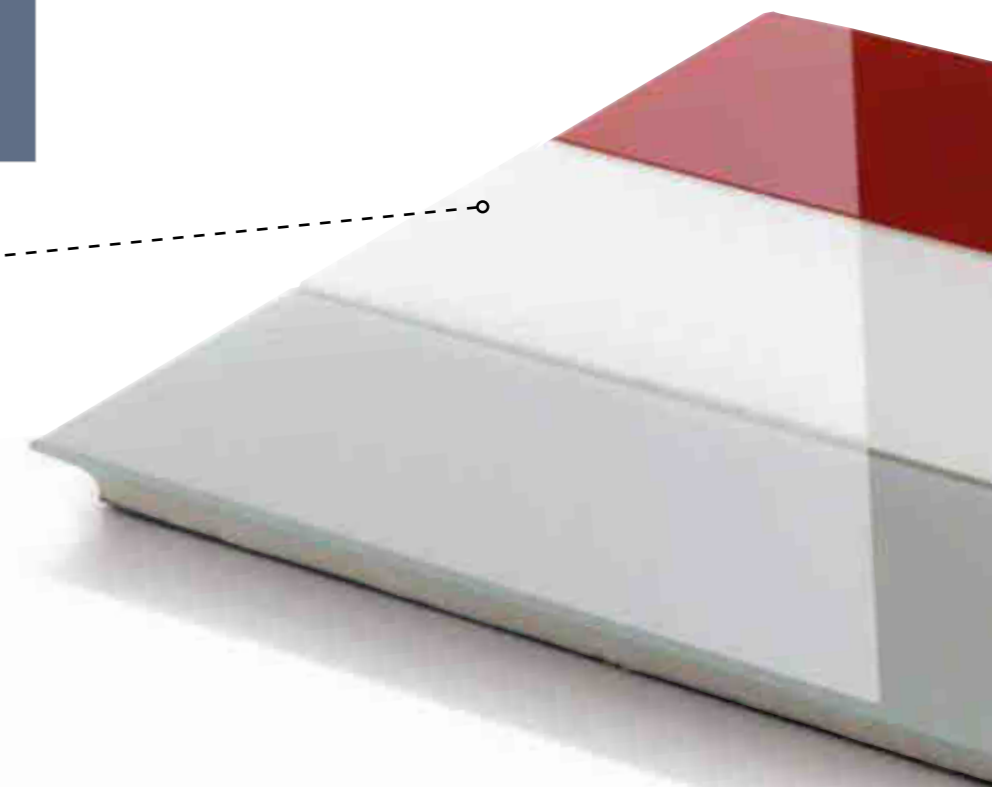
[EU]		
Max panel sizes: 4200x1500 mm (6,30 m ²); 3200x1500 mm (4,80 m ²)		
Total panel thickness	Glass thickness	Panel weight
17 mm	6 mm	21 kg/m ²
[USA]		
Max panel sizes: 165-23/64"x59-1/16" (67.81 ft ²); 125-63/64"x59-1/16" (51.67 ft ²)		
43/64"	15/64"	43,3 lb/sqft

Any other color is available on request



Bicolor

GammaStone Bicolor AIR solution was born from the combination of different colored glass applied to a single panel. With the infinite possibilities of using different colors, designers can create a truly unique project.

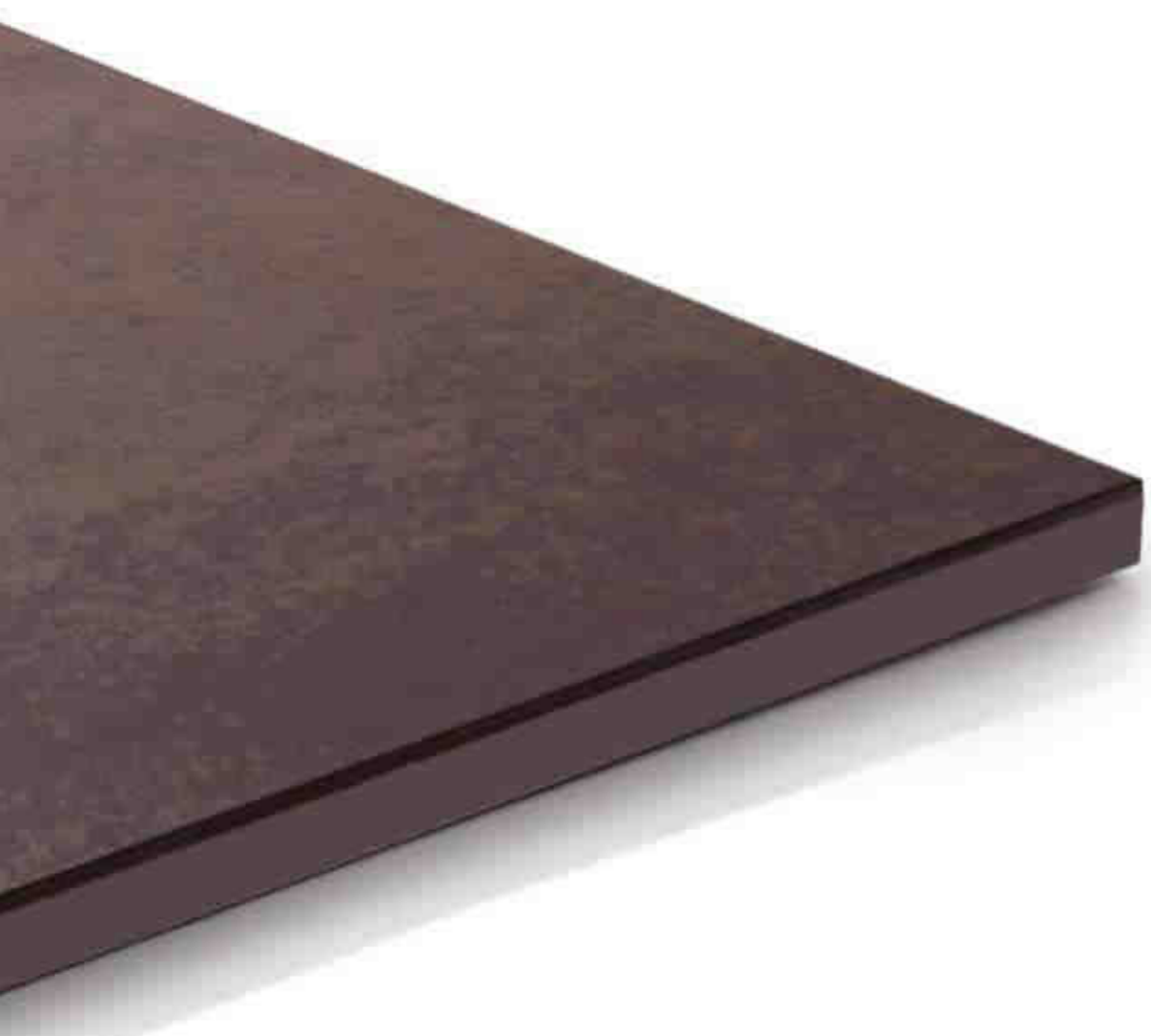


Gres AIR

GammaStone AIR in porcelain gres is a highly technological product that can fulfill all architectural designs. GammaStone uses only the highest quality porcelain gres made in Italy. Our high quality porcelain gres is a compact ceramic paste, which is hardened and colored, obtained from sintering at temperatures around 1200-1400°C, until reaching a non-porous and waterproof vitrification. Porcelain gres guarantees optimal resistance to scratches, wear and tear, UV rays, stains, and molds. Available sizes up to 3200x1500 mm. All GammaStone Gres AIR panels can be customized following the designer's specific needs, see the "Working techniques" annex. The panel is composed of an ultra slim porcelain gres slab, a structural core inserted between two fiberglass mats, and a 5mm thick stainless steel backing plate.

The unique ability of GammaStone to make monolithic elements ready for installation contributes to the indisputable success of GammaStone AIR panels worldwide. They are the result of substantial investments in research and development – a philosophy of continuing to study and patent innovative construction systems. The elements as corners, soffits, ceilings, columns, beams, etc. are assembled entirely in our factory and are installed with simplicity due to our custom attachment system. Our technology allows us to produce large and surprisingly light architectural geometric shapes, impossible to realize with traditional products. All GammaStone AIR products have a real monolithic appearance and allow architects to realize highly complex elements without compromising their design intent.

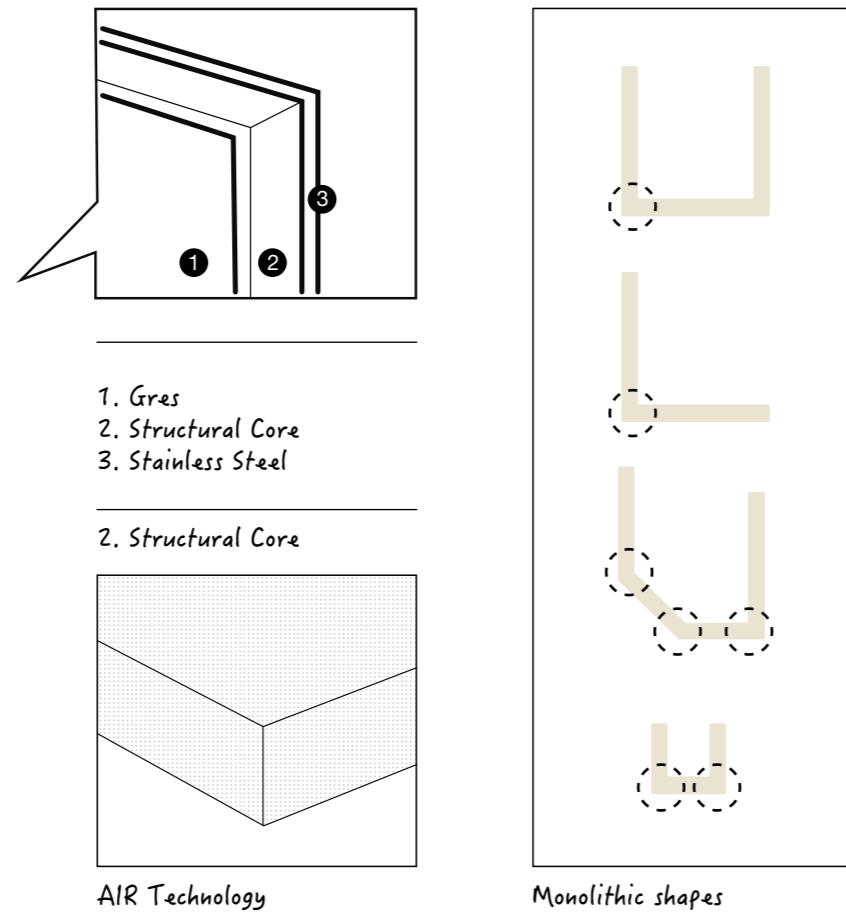
Gres AIR



archiproducts[®]
DESIGN AWARDS

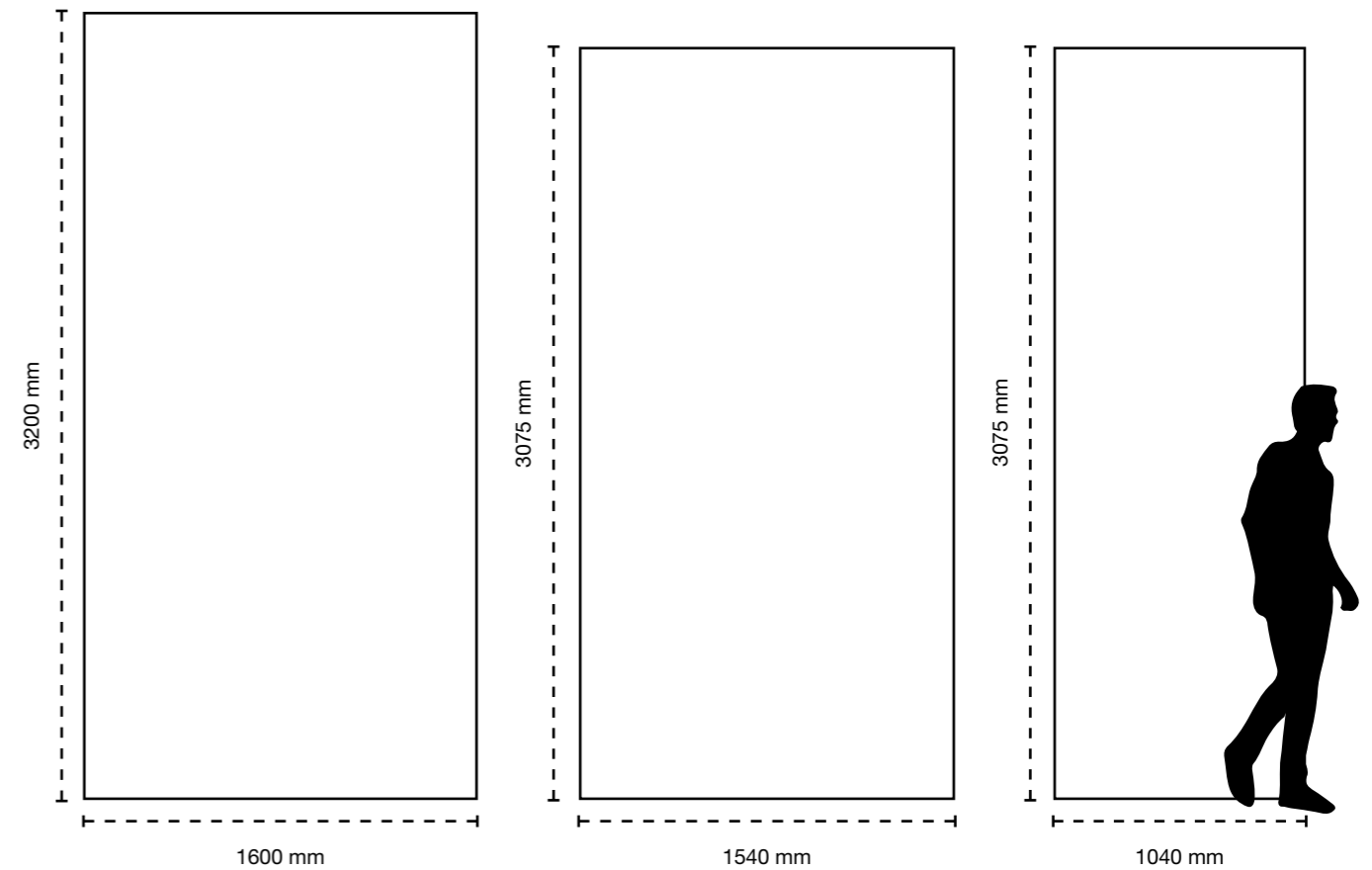
—
WINNER 2018

Panel structure



GammaStone AIR solution in porcelain gres is available in large-formats and is a highly technological product which allows mechanical installation of 3 to 6 mm thick ceramic slabs and the realization of architectural monolithic elements. Available sizes up to 3200x1500 mm.

[EU]		
Max panel sizes: 3200x1600 mm (5,12 m ²); 3075x1540 mm (4,73 m ²); 3075x1040 mm (3,19 m ²)		
Total panel thickness	Ceramic thickness	Panel weight
14 mm	3 mm	14 kg/m ²
16 mm	5 mm	19 kg/m ²
17 mm	6 mm	21 kg/m ²
[USA]		
Max panel sizes: 125-63/64"x62-63/64" (55.11 ft ²); 121-1/16"x60-5/8" (50.97 ft ²); 121-1/16"x40-15/16" (34.42 ft ²)		
35/64"	1/8"	2,9 lb/sqft
5/8"	13/64"	3,9 lb/sqft
43/64"	15/64"	4,3 lb/sqft



Colors - Gres AIR

cod. GR1



Colors - Gres AIR

cod. GR2



cod. GR3



Colors - Gres AIR

cod. GR3



cod. GR5



cod. GR4



cod. GR6



cod. GR7



cod. GR8



04

Chapter

Technical booklet

GammaStone fixing system	446
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GammaStone fixing system

Invisible fixing system

The system consists of clips and rails manufactured by GammaStone in black anodized aluminum. The clip is fixed on the back of the panel GammaStone AIR with two rivets. The upper clips have holes where you can insert screws for adjustment.

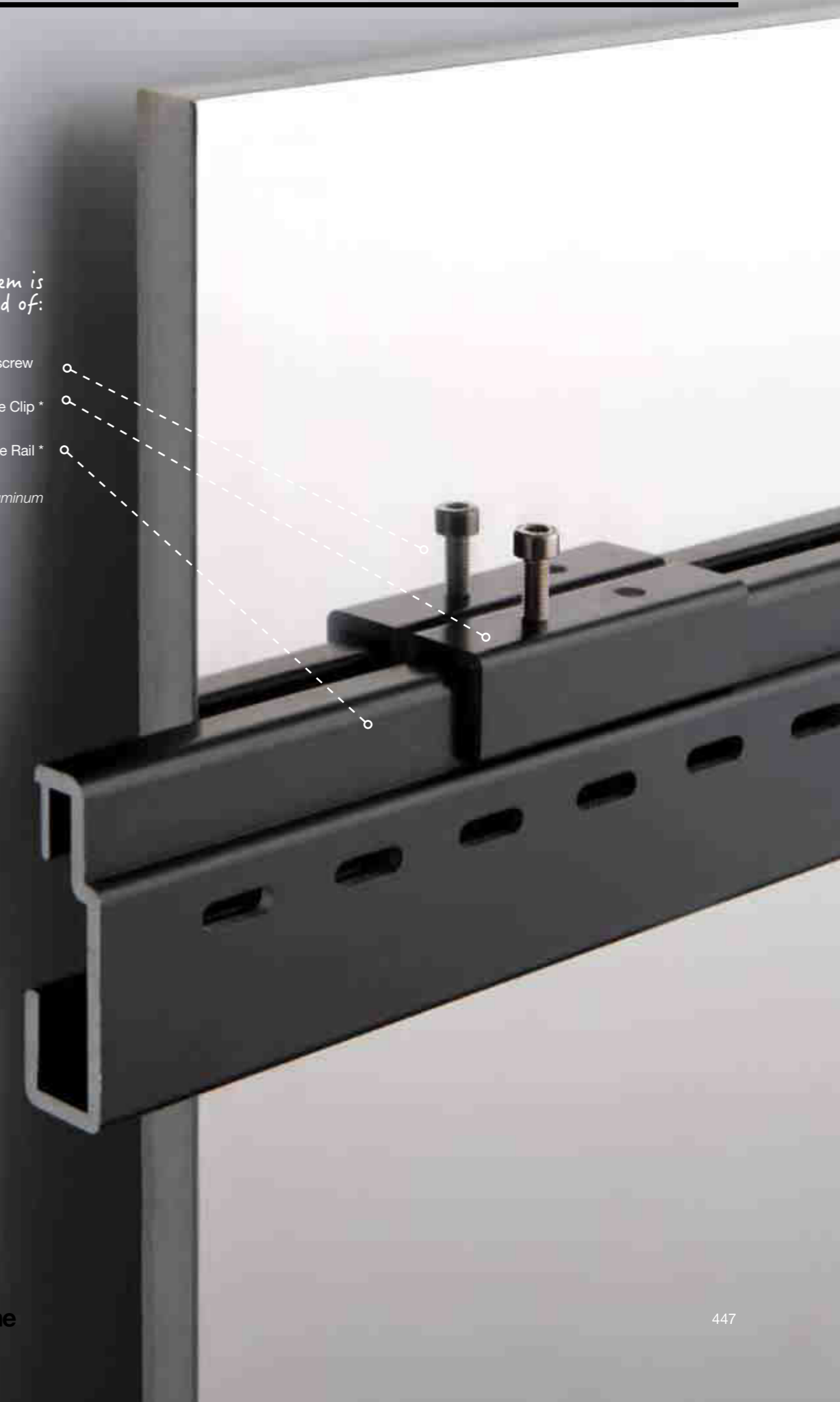
The system is composed of:

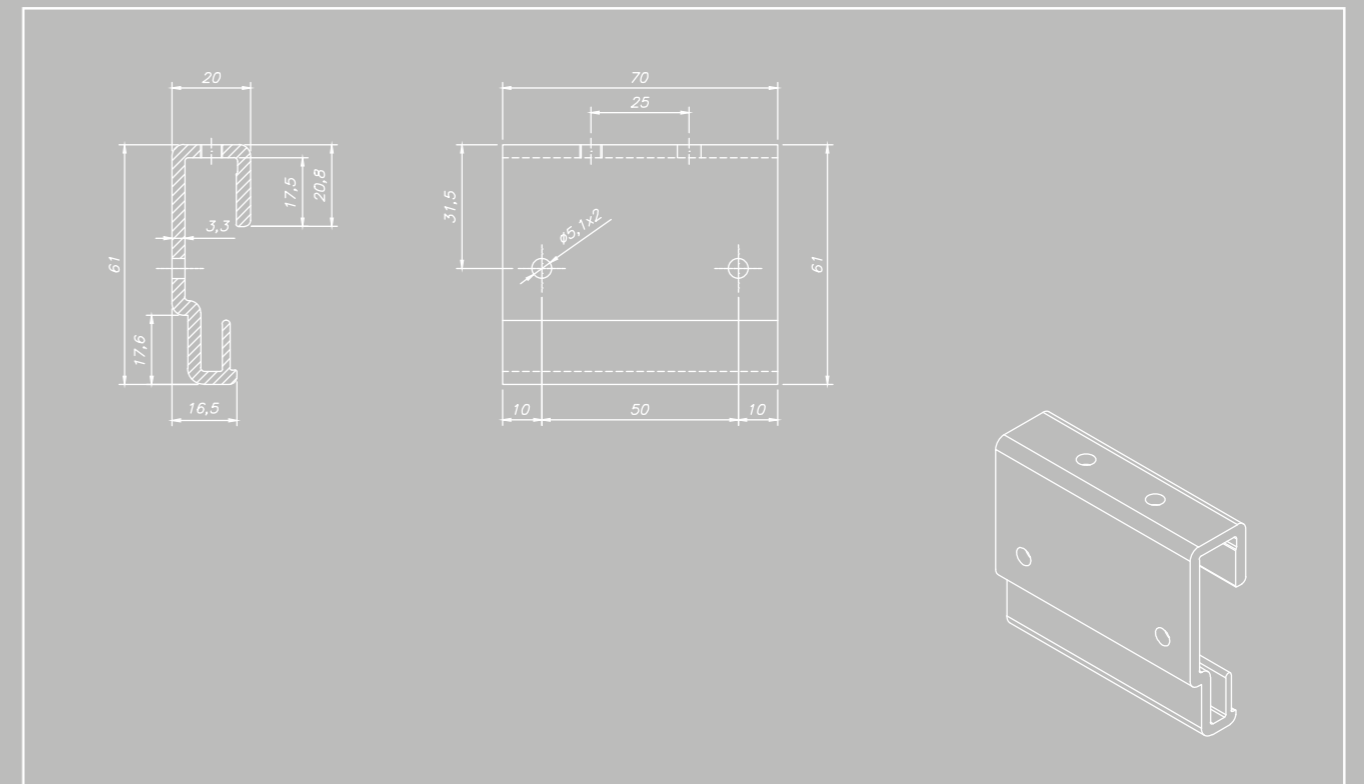
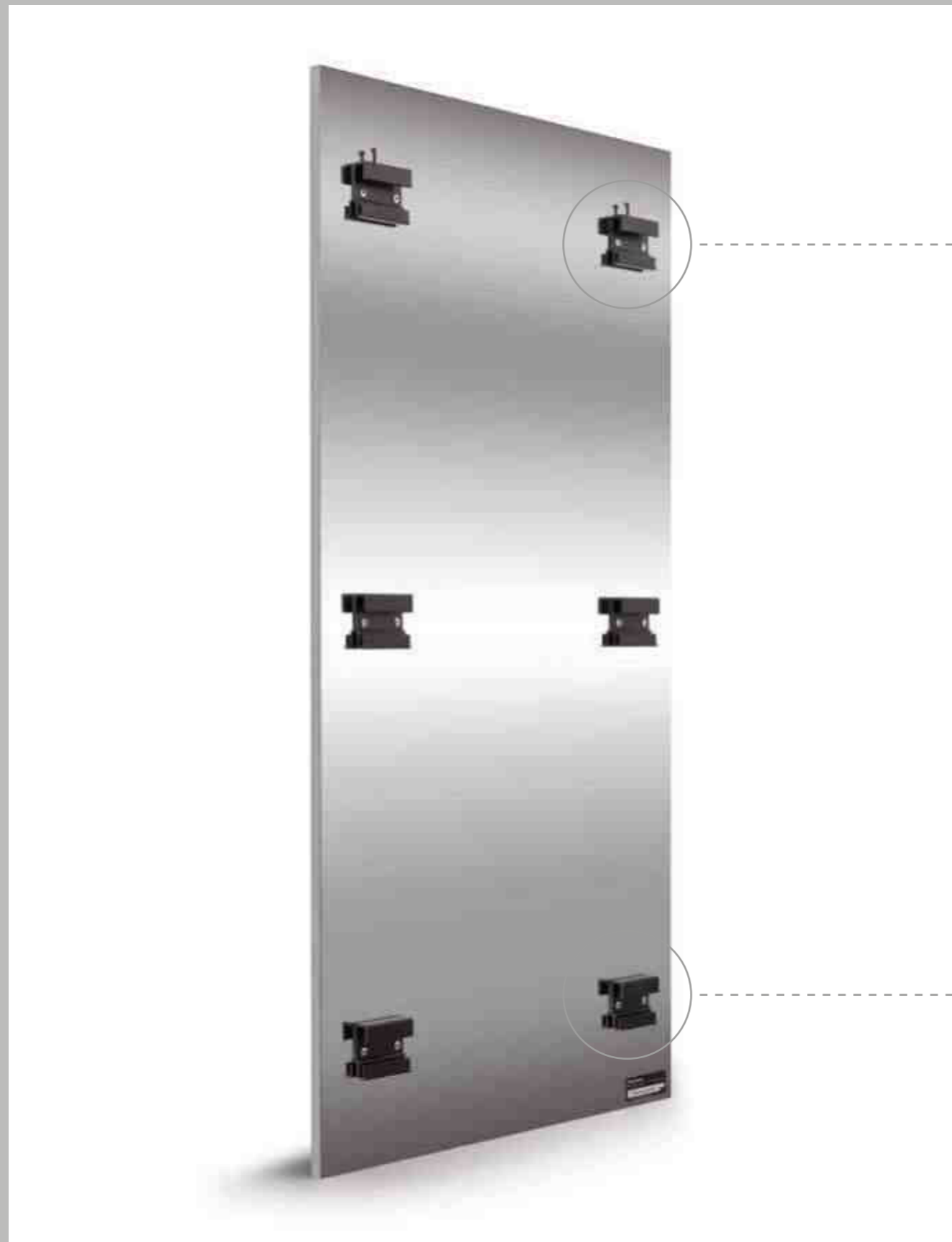
Adjusting screw

GammaStone Clip *

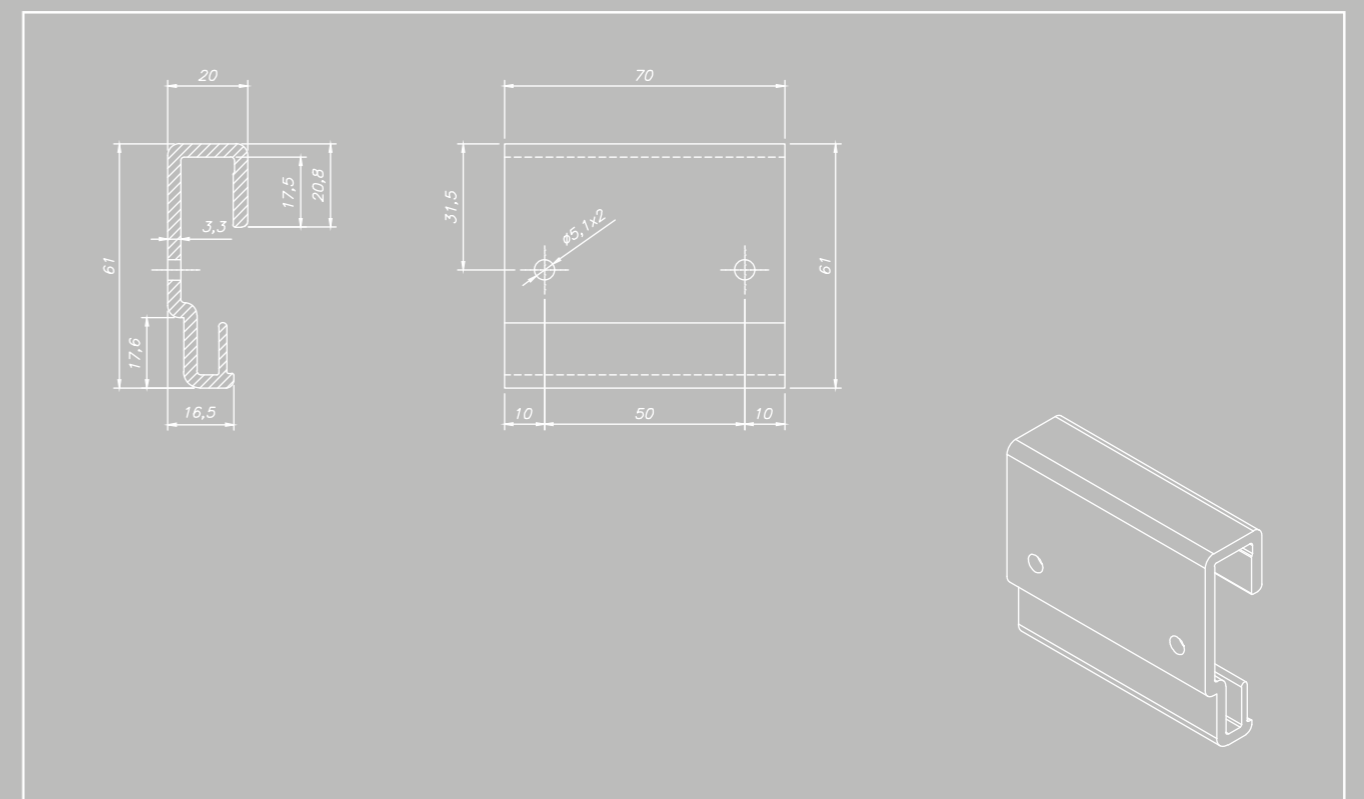
GammaStone Rail *

** in black anodized aluminum*

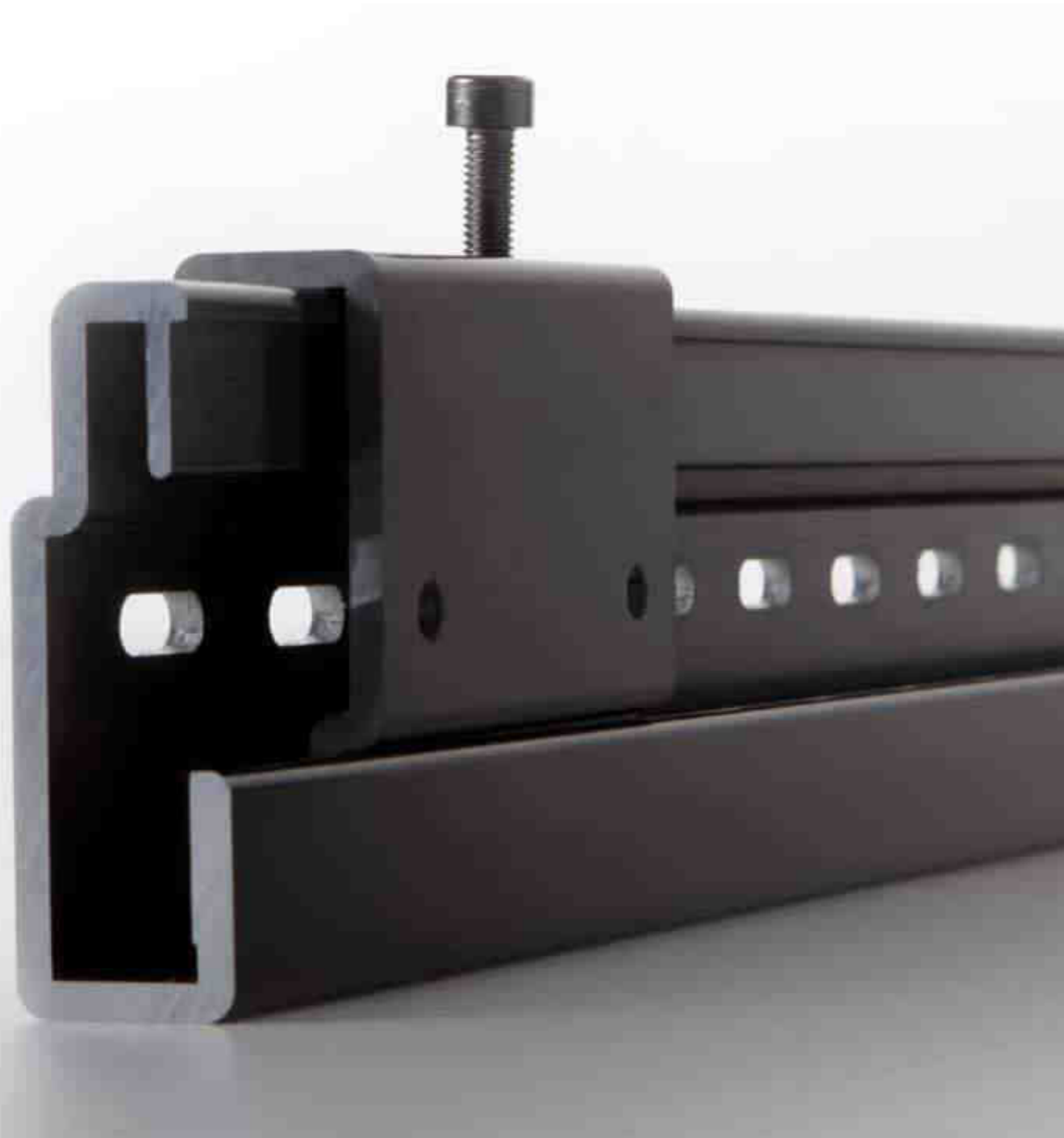


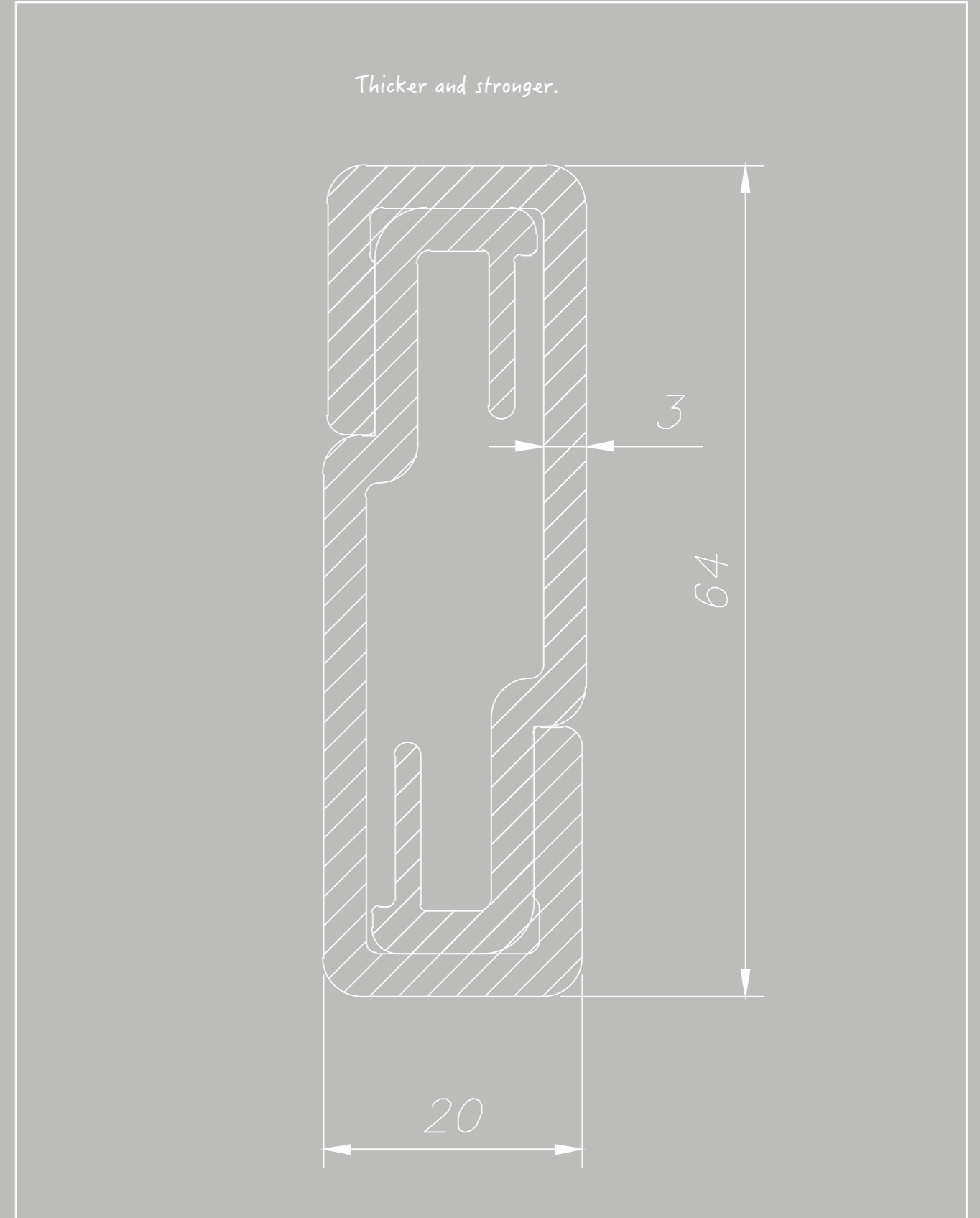


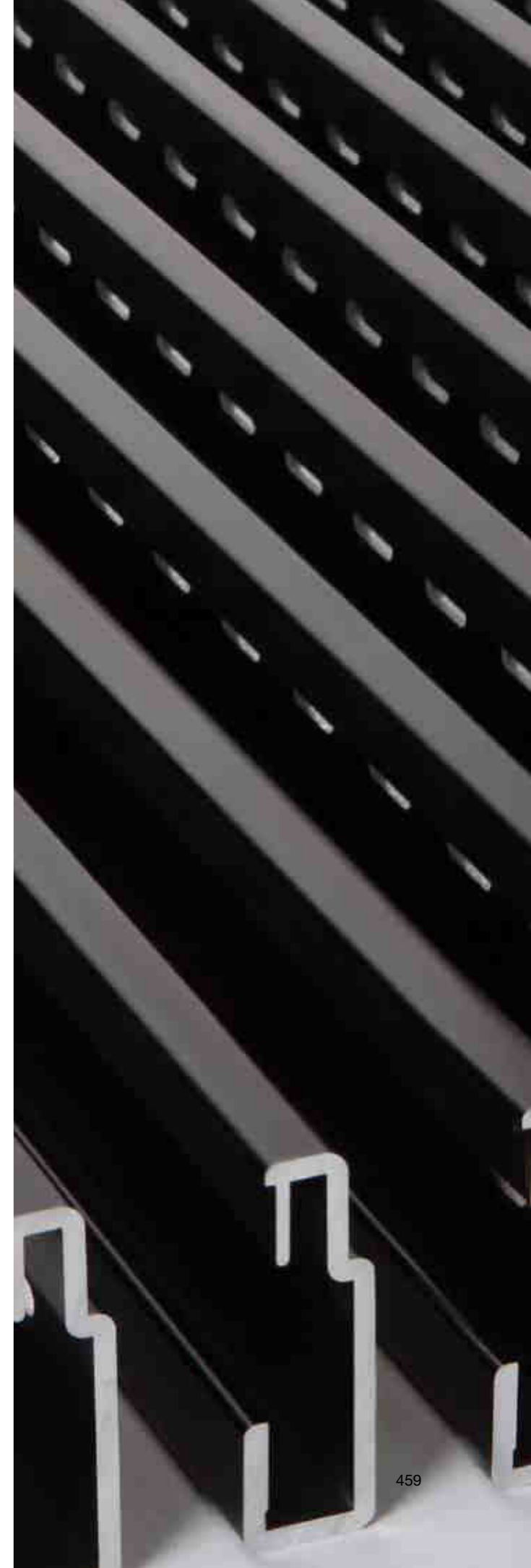
Adjustable clip fixed point



Clip sliding point







Ventilated façades

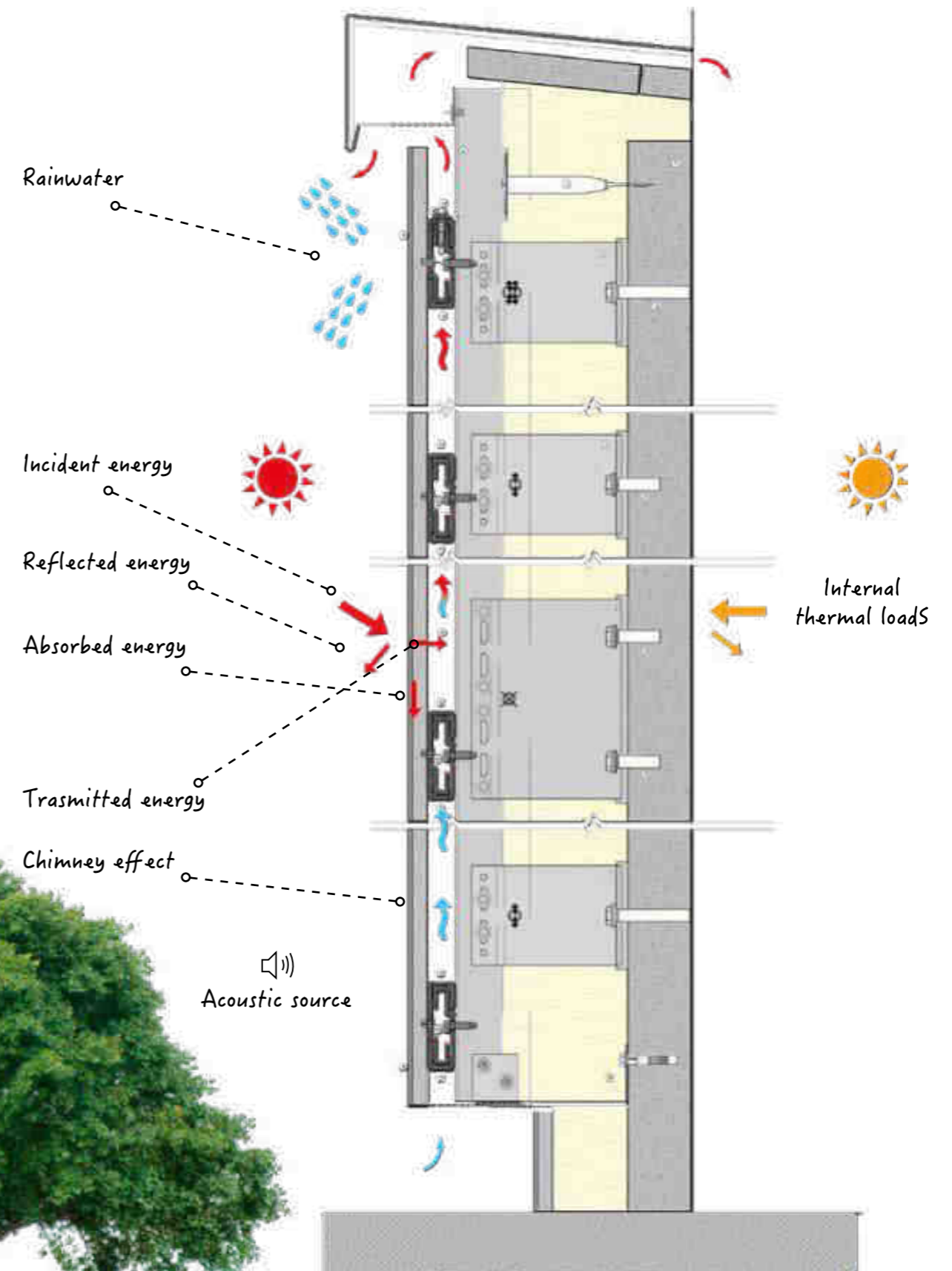
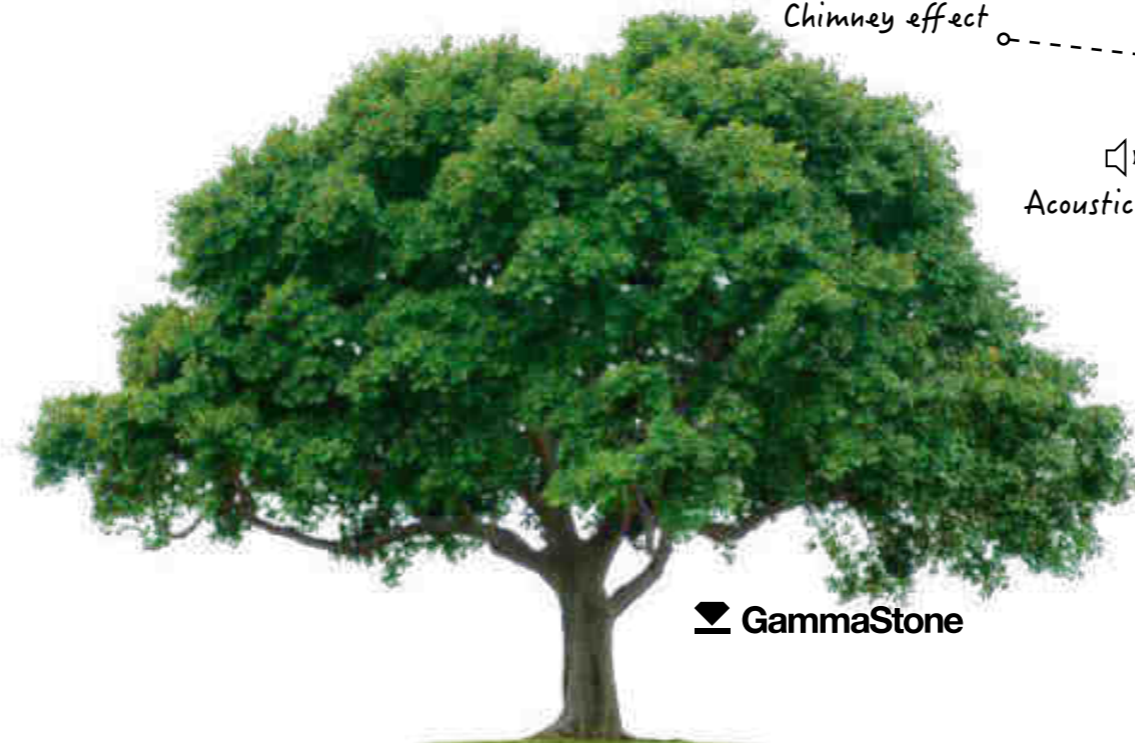
Easy installation and versatility in architectural design

GammaStone AIR is the most important technological advancement in the ventilated façade industry. It is the result of significant investments in R&D combined with the skilled work of expert teams of architects, engineers, and designers. Our team is committed to continually improve and innovative revolutionary building systems with the aim of harmonizing the aesthetics with functionality and technical performance.

GammaStone AIR is an advanced system able to satisfy the most ambitious and modern stylistic trends of architecture. It also optimizes the functional requirements, the practicality and the comfort of living.

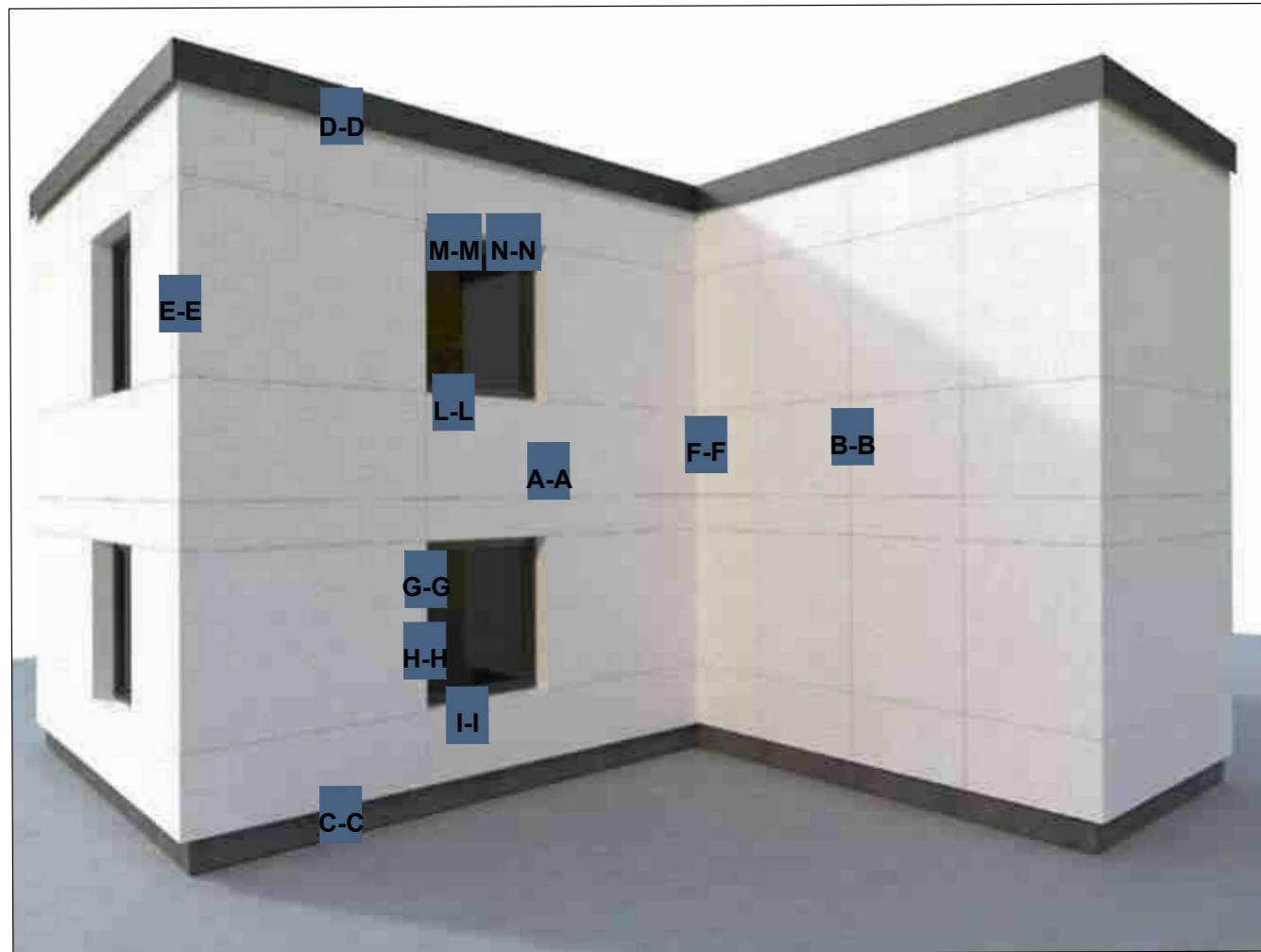
Our ventilated façades resulted from an intense research process and answer the widespread need of efficient thermal and acoustic isolation for homes, work environments, and commercial settings, without sacrificing design and aesthetic beauty. GammaStone AIR panels allow an easy installation process, versatility in architectural design and original stylistic solutions. We offer a high variety of large-sized marble, granite, and porcelain slabs. Structurally speaking, GammaStone AIR ventilated façades are reliable; our panels undergo strict tests against wind, compression, hurricanes, etc. They are installed on a GammaStone designed metal hanging structure system fixed to the wall of the building.

The function of the external panels is to protect and insulate and to create a gap between external environment and the structural wall of the building.

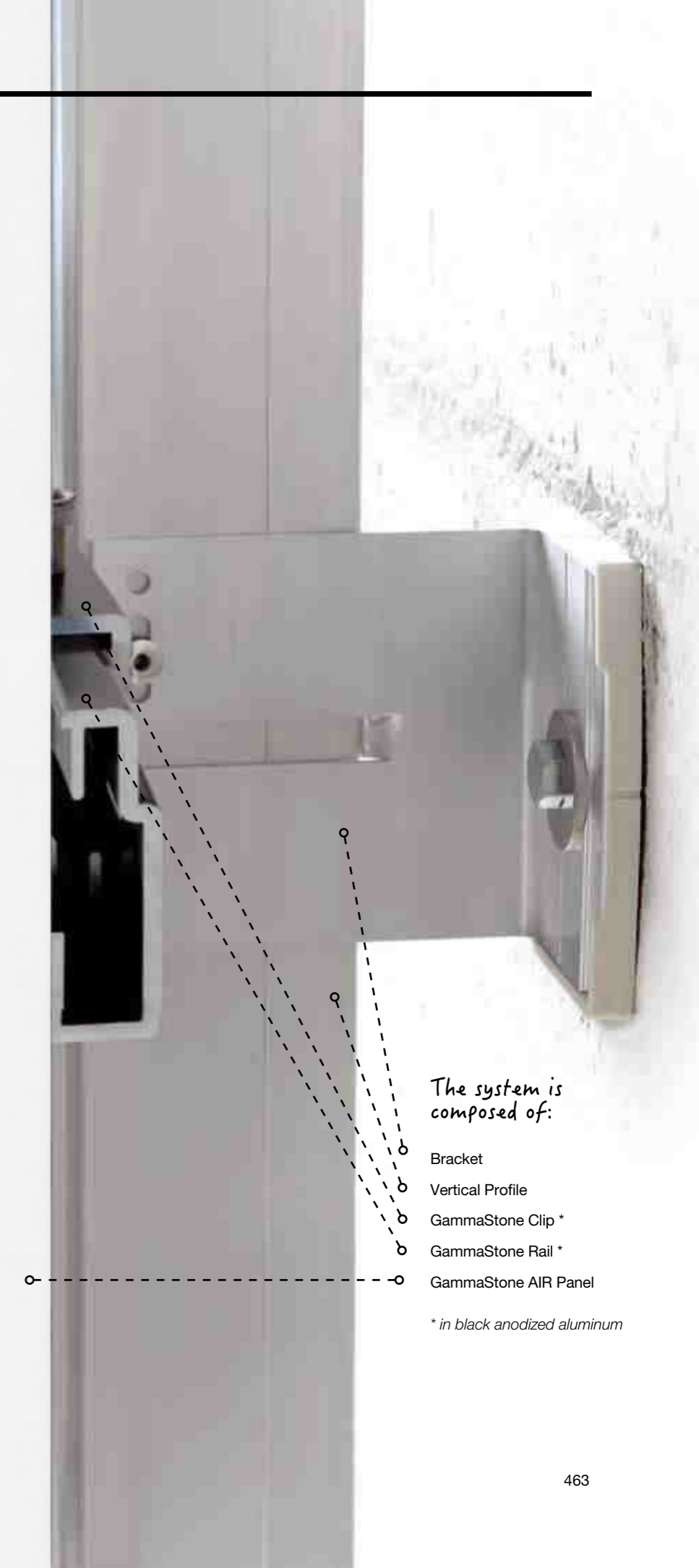


Technical Details






Ventilated Facades – Invisible Fixing Solution



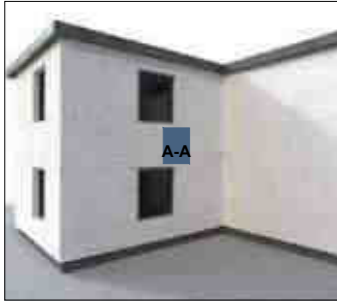
- C.S. A-A Horizontal Section
- C.S. B-B Vertical Section
- C.S. C-C Base Detail
- C.S. D-D Head Detail
- C.S. E-E External Corner
- C.S. F-F Internal Corner
- C.S. G-G Window - AIR Reveal
- C.S. H-H Window - Steel Reveal
- C.S. I-I Window - Steel Sill
- C.S. L-L Window - AIR Sill
- C.S. M-M Window - AIR Ceiling
- C.S. N-N Window - Steel Ceiling



The system is composed of:

-  Bracket
-  Vertical Profile
-  GammaStone Clip *
-  GammaStone Rail *
-  GammaStone AIR Panel

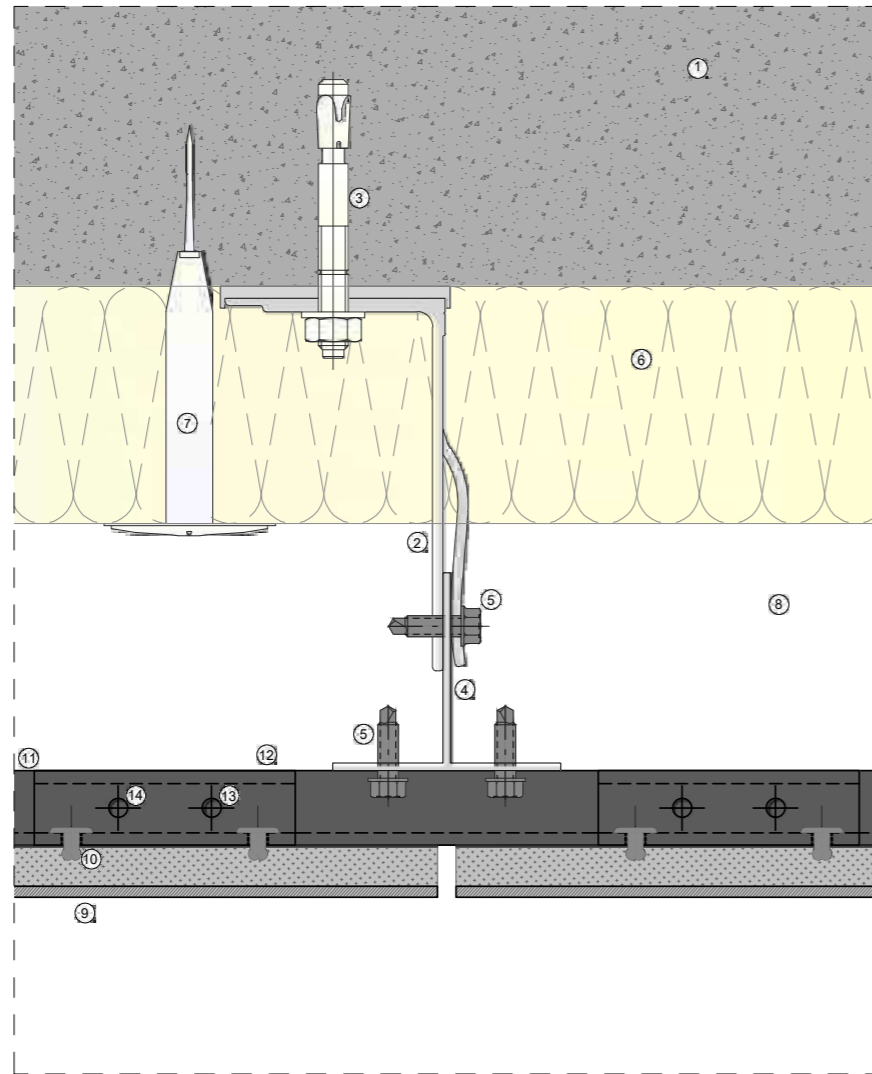
** in black anodized aluminum*



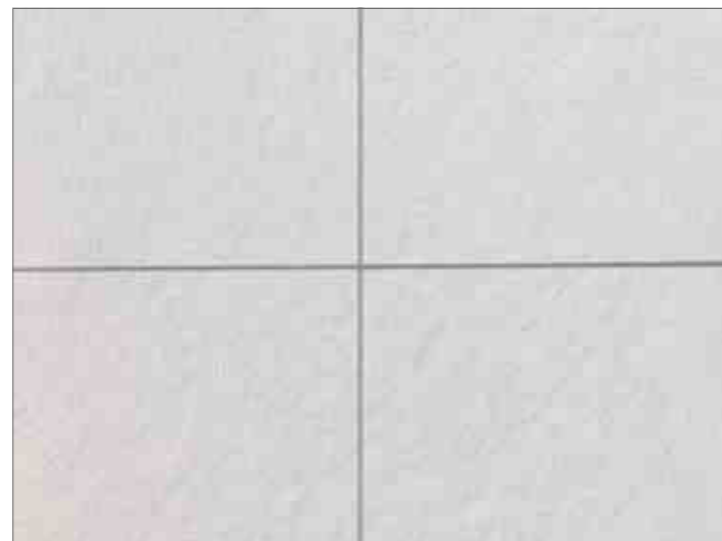
Horizontal Cross Section A-A

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



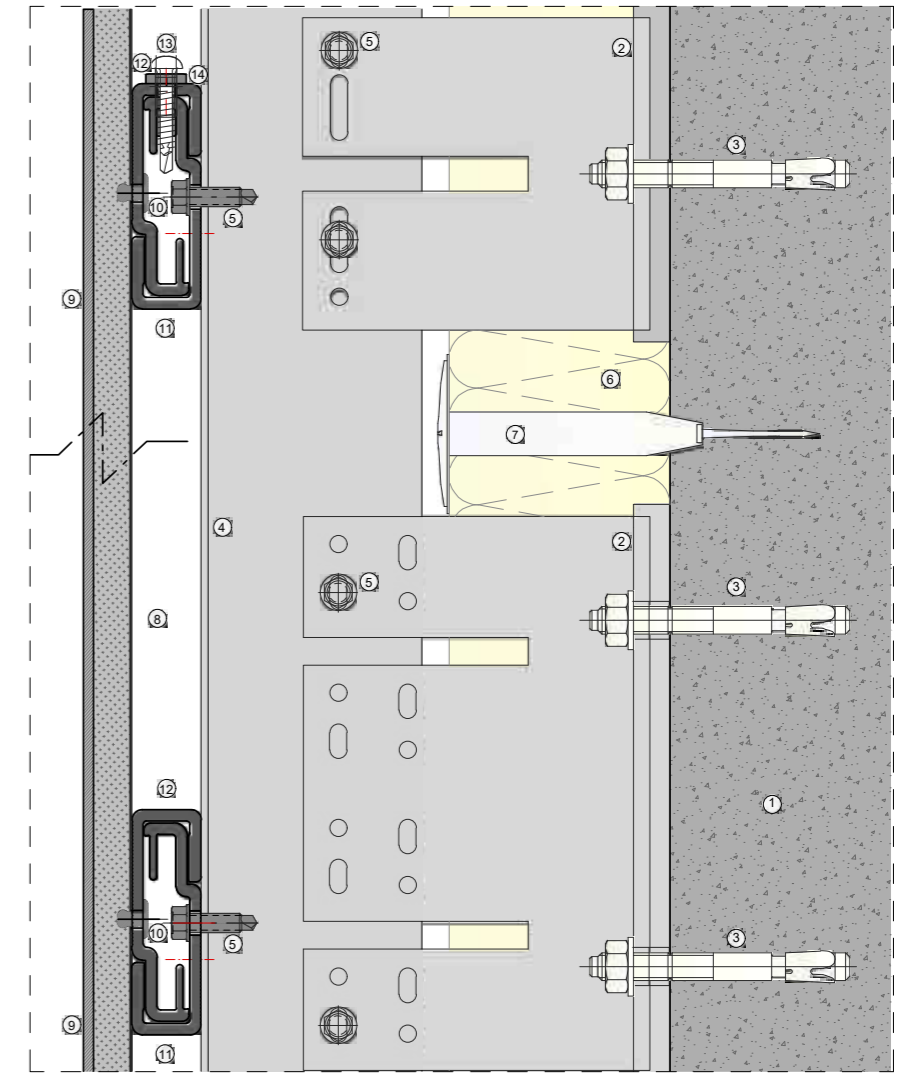
The horizontal cross section shows all components of the system. The dimension of the ventilation cavity can vary based on the needed performances and the chosen insulation, as hard or soft insulation vary in size.



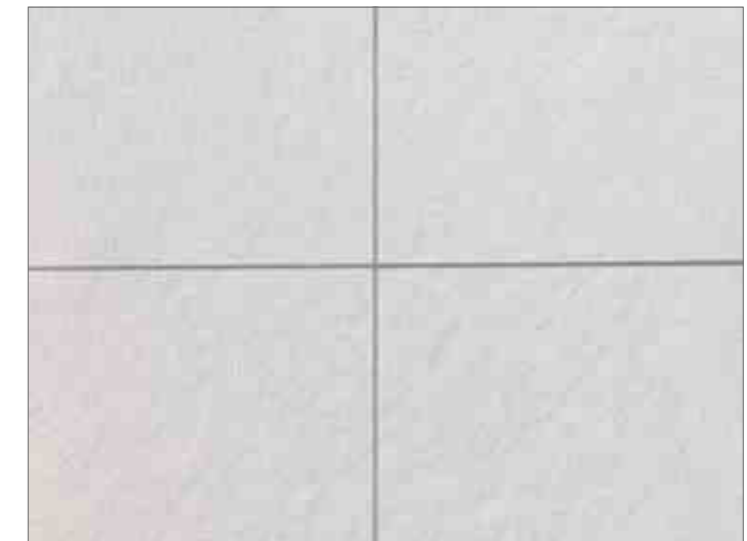
Vertical Cross Section B-B

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



The structural bracket guarantees a fixed point of control for the linear dilatation of the façade and is the point at which all the mullions are attached. The smaller bracket has a static task and allows the relative sliding between the brackets and mullions. The distance between brackets and their quantity is calculated according to the static system requirements.

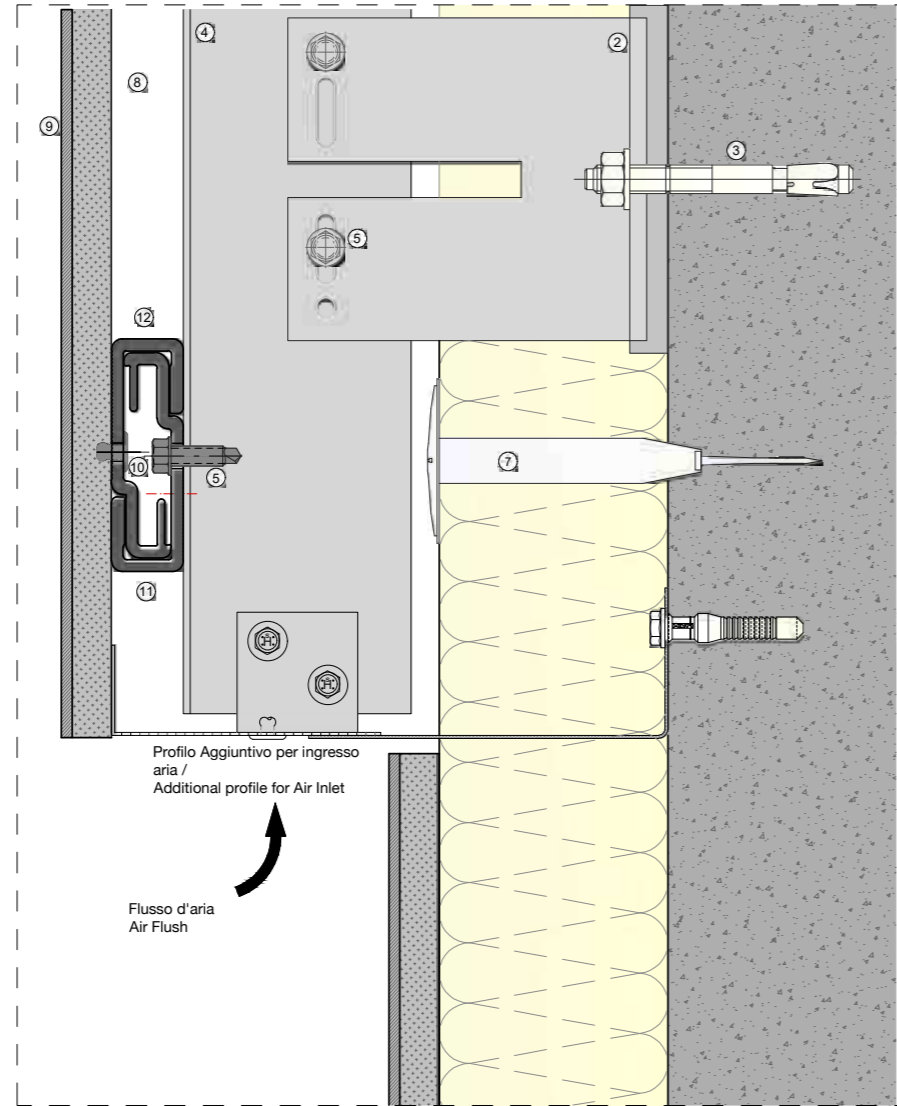




Base Detail Section C-C

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *

* in black anodized aluminum



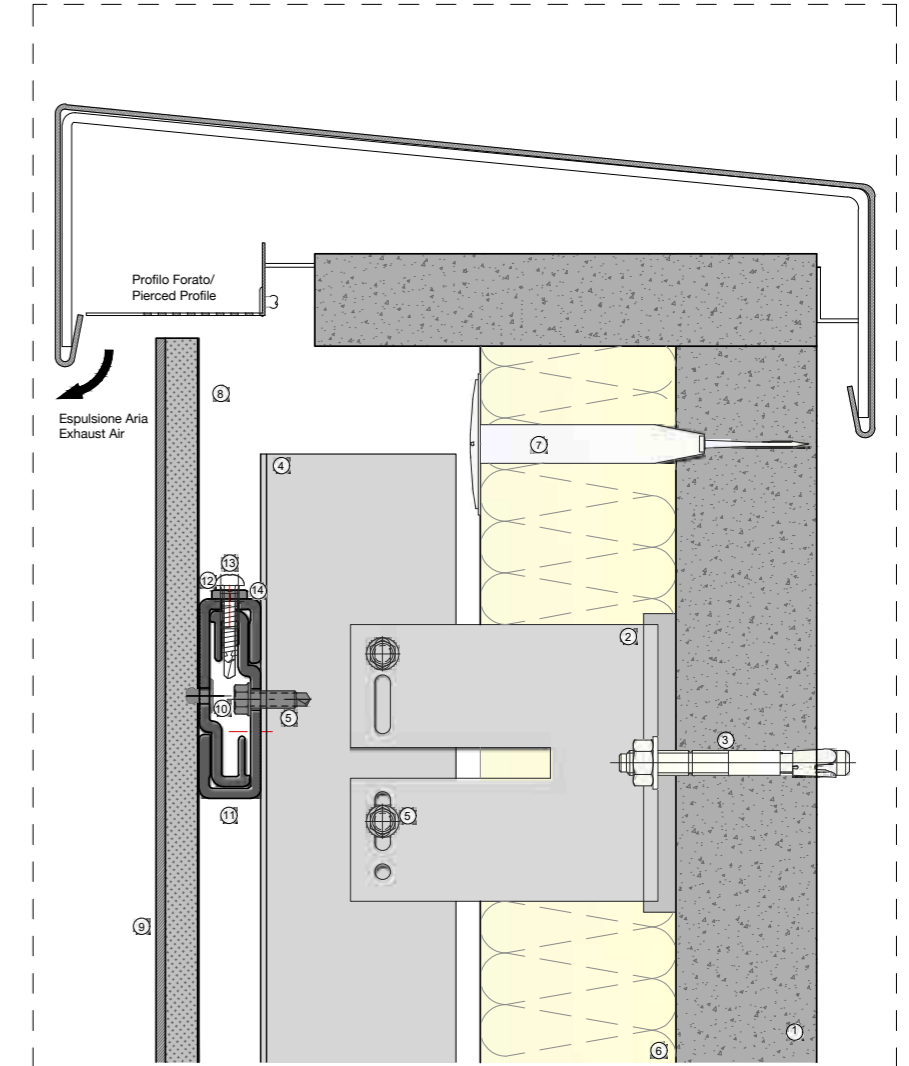
This is the main entry point for air to enter the façade, and if the system is well designed the air will move up to the top of the façade in a laminar motion. A grid or perforated aluminum profile (included in our accessories range) must be installed to allow the external air to pass in the ventilation space according to the calculations.



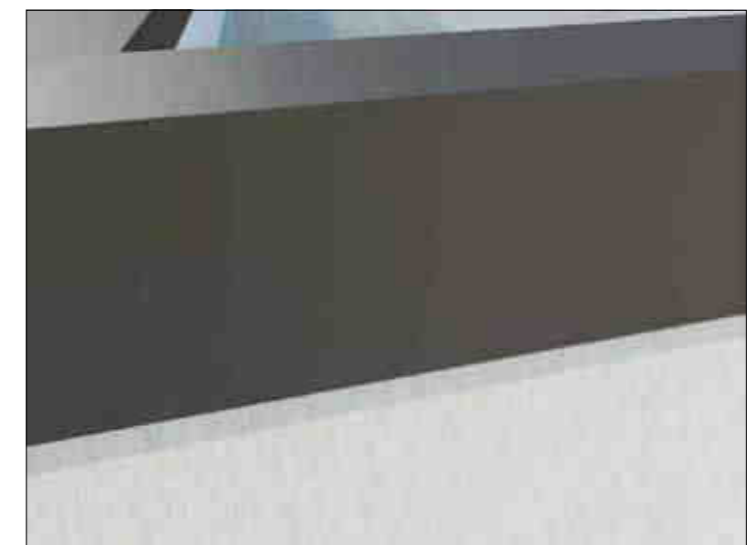
Head Detail Section D-D

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



This is the outlet for the air coming up from the base of the system. It serves two functions, it protects the system from water entering the system, while also allowing the air to exist without a vortex effect or warm air stagnation.

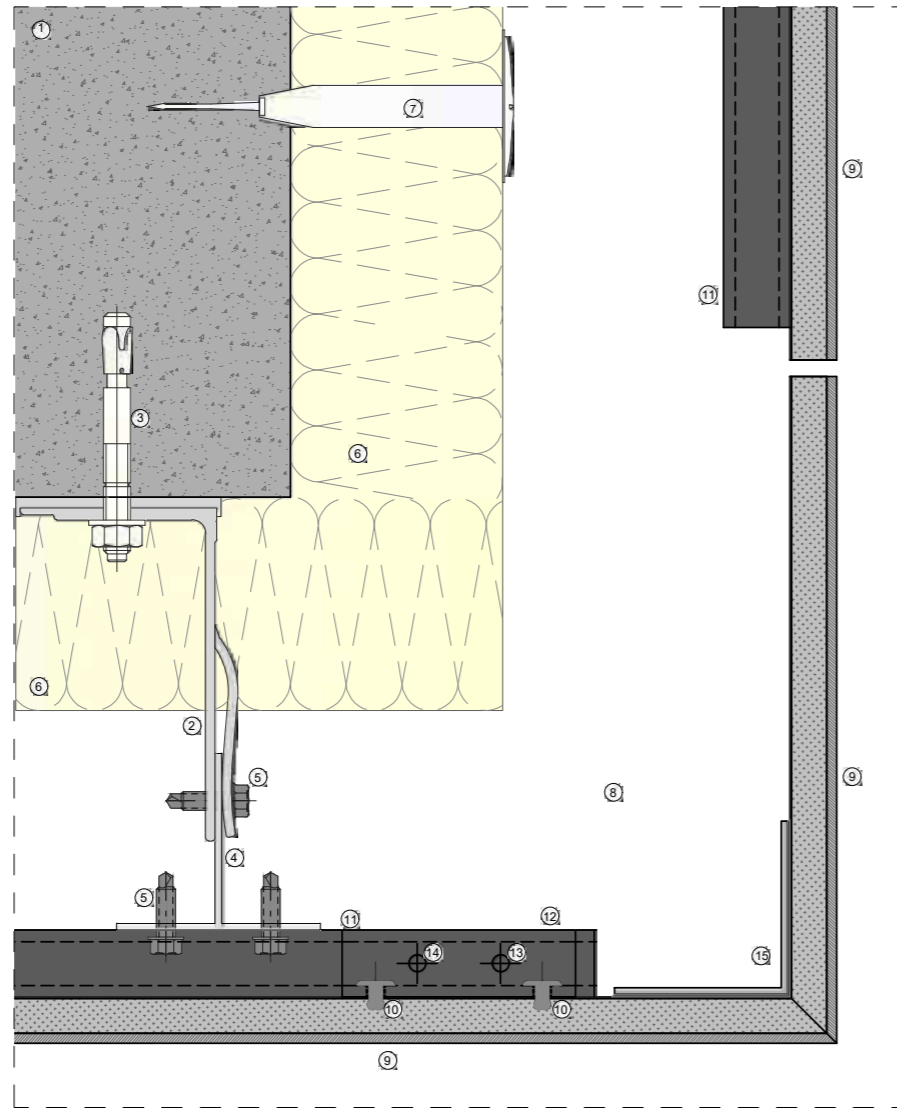




External Corner Section E-E

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum



The monolithic outer corner is one of the highlights of the GammaStone AIR façade system. The panels are cut at 45° and are fixed to each other in the back with stainless steel anchors in our factory.

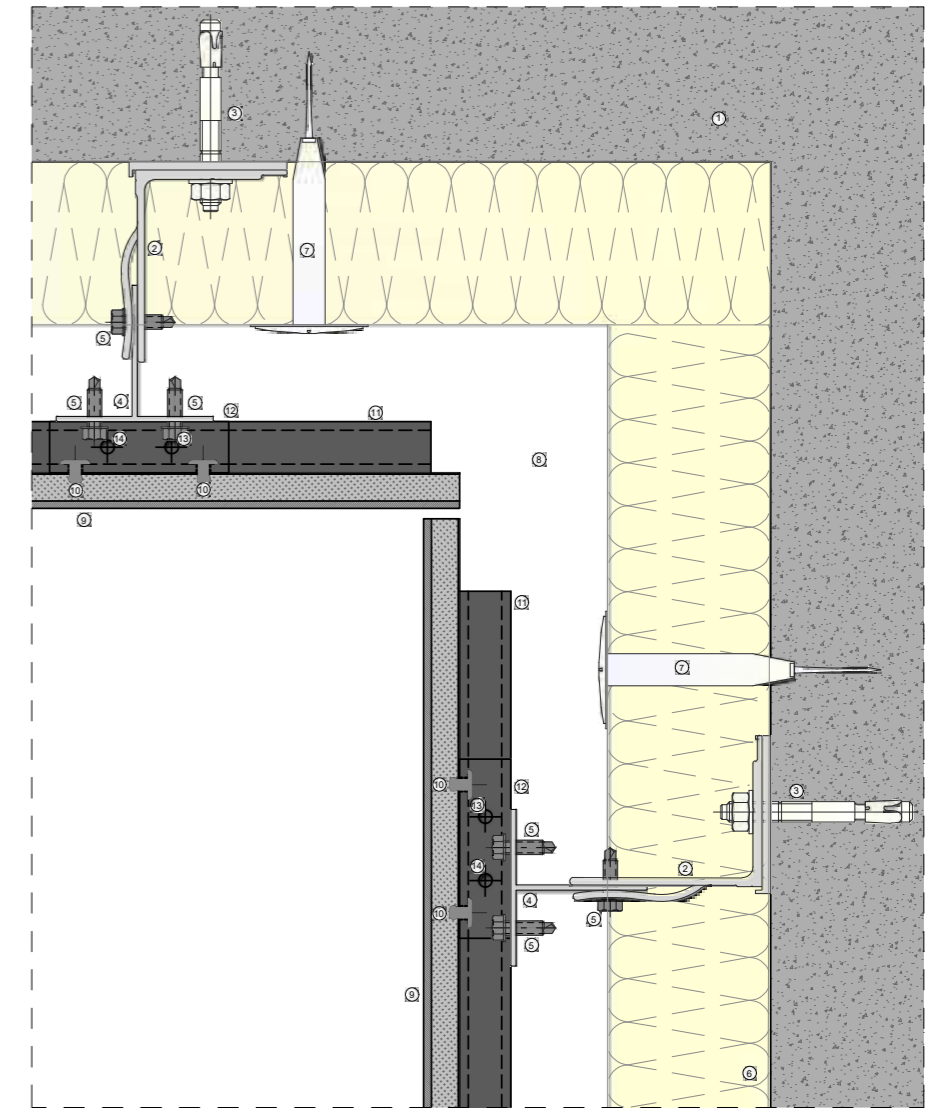
The monolithic angles are manufactured in our state-of-the-art production facility with different angle grades, from the simplest to the most complex, in order to meet any architectural requirement. The two elements that form the corner are joined together obtaining an invisible joint; they are meticulously worked to guarantee the highest finishing standards and a monolithic effect.



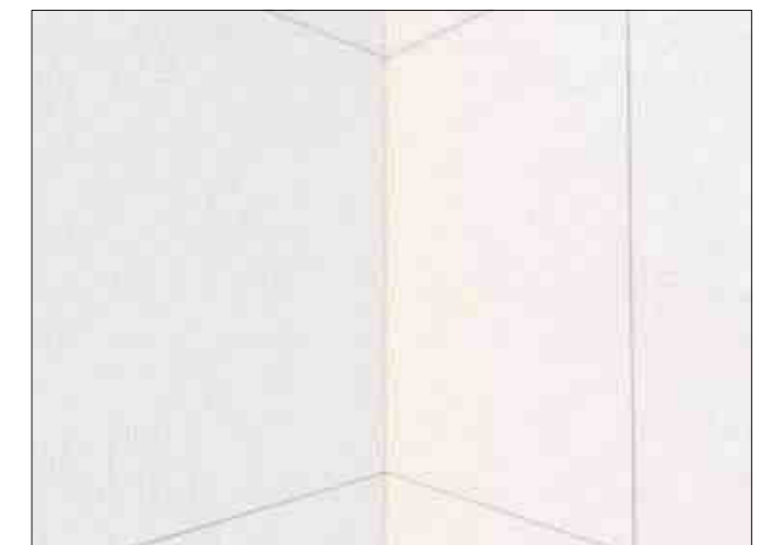
Internal Corner Section F-F

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



In this interior corner detail, the panels are attached individually to the structural system behind and placed side by side to reduce the joint and thus make the facade look homogeneous. The joint can be sealed at the designer's discretion.

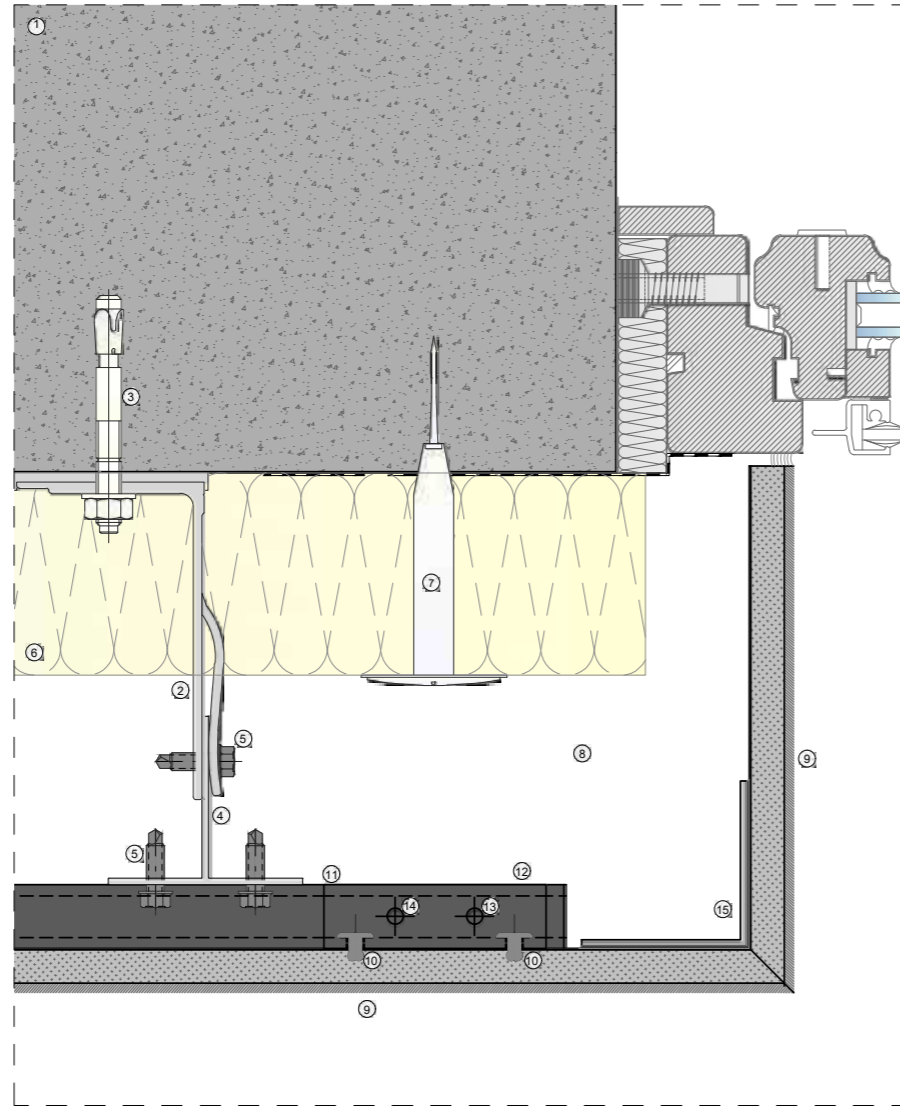




Window/Air Reveal Section G-G

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum



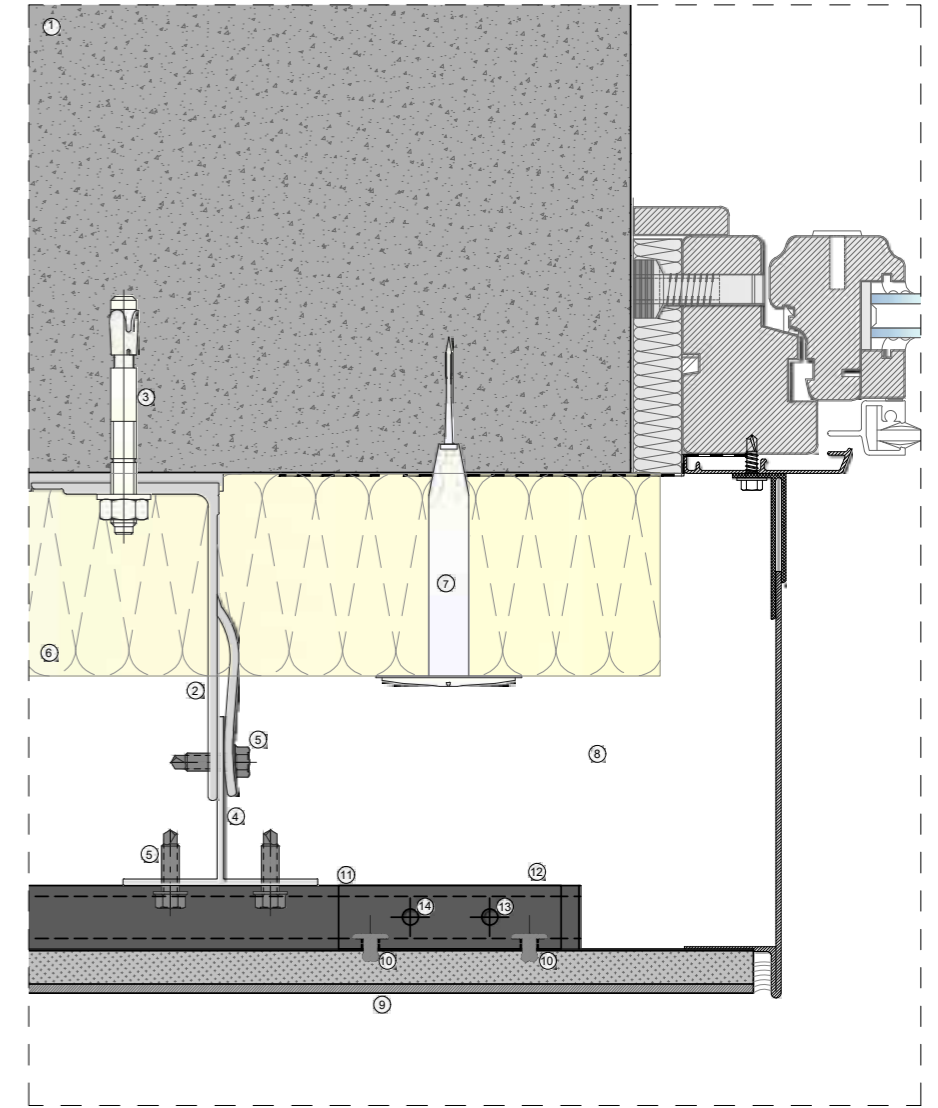
The monolithic elements designed for window frames give an appearance of continuity and being robust. They can be made to accommodate the simplest to the most complex angle grades to form a frame around the window and meet any architectural requirement. The two elements that form the corner are joined together to obtain an invisible joint; the result is a monolithic aesthetic.



Window/Steel reveal Section H-H

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



The choice of designing window frames in sheet metal provides a lighter solution and highlights the presence of the windows in the facade. This solution must be designed to consider the right tolerances to compensate for expansion and contraction of the metal profile.

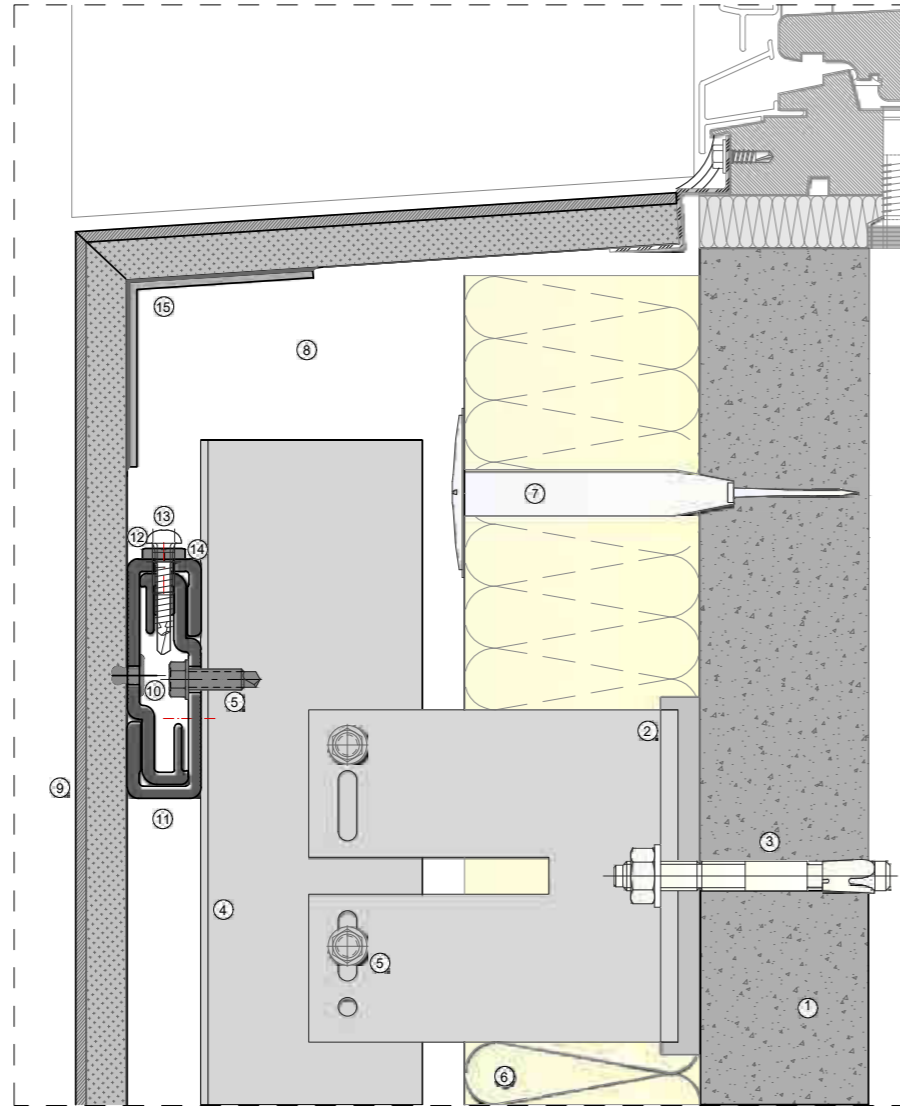




Window/Air sill
Section I-I

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum



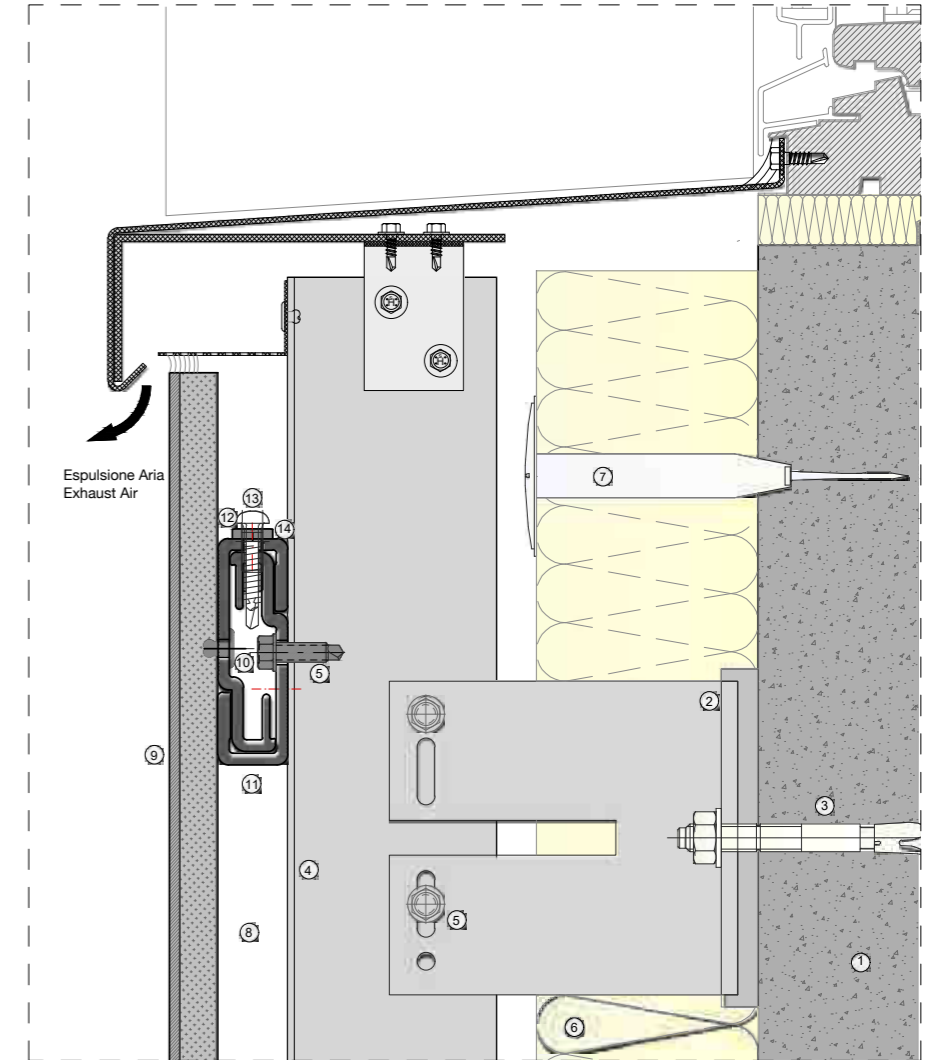
A sheet metal sill is the right solution when combining it with sheet metal casing. It must be properly sealed to prevent rainwater infiltration, but the air flow is guaranteed by the gap between the panel and the sheet metal in the front. This solution must be designed to consider the right tolerances to compensate for expansion and contraction of the metal profile.



Window/Steel sill
Section L-L

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



Designing the sill in GammaStone AIR is the optimal solution, because it is properly sealed to prevent rainwater infiltration and results in a monolithic appearance.

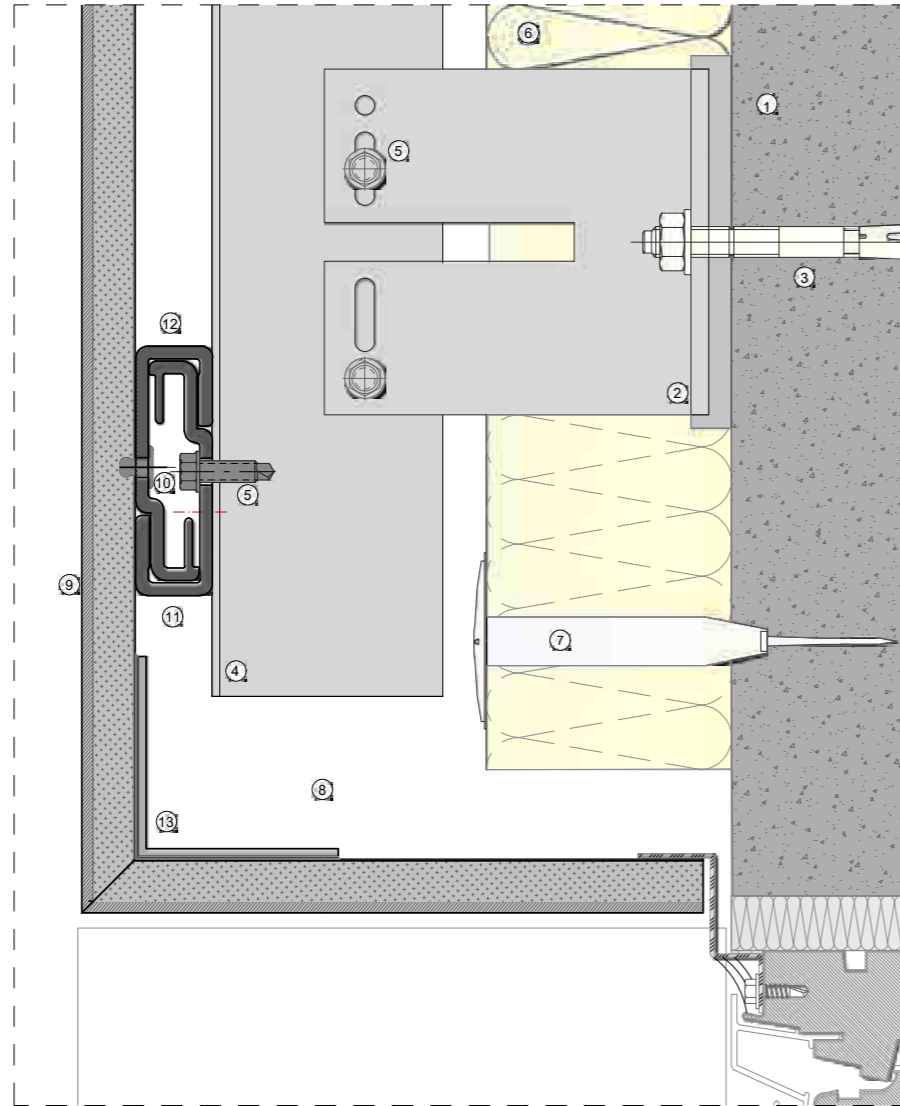




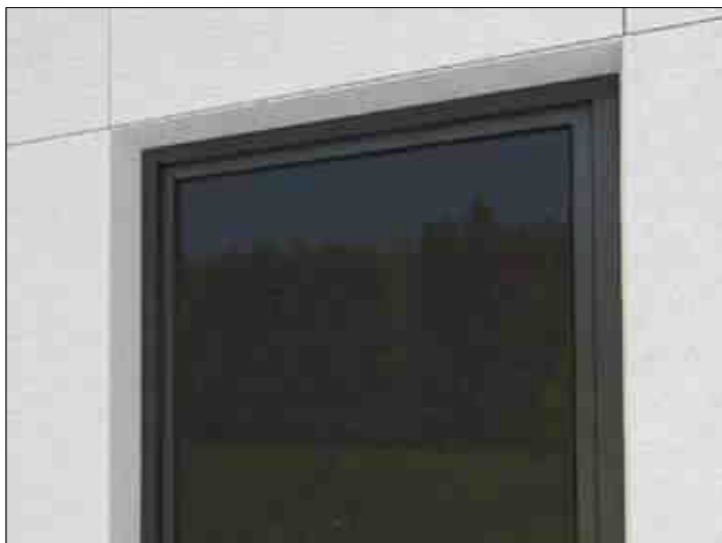
Window/Air ceiling
Section M-M

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Structural angle in stainless steel

* in black anodized aluminum



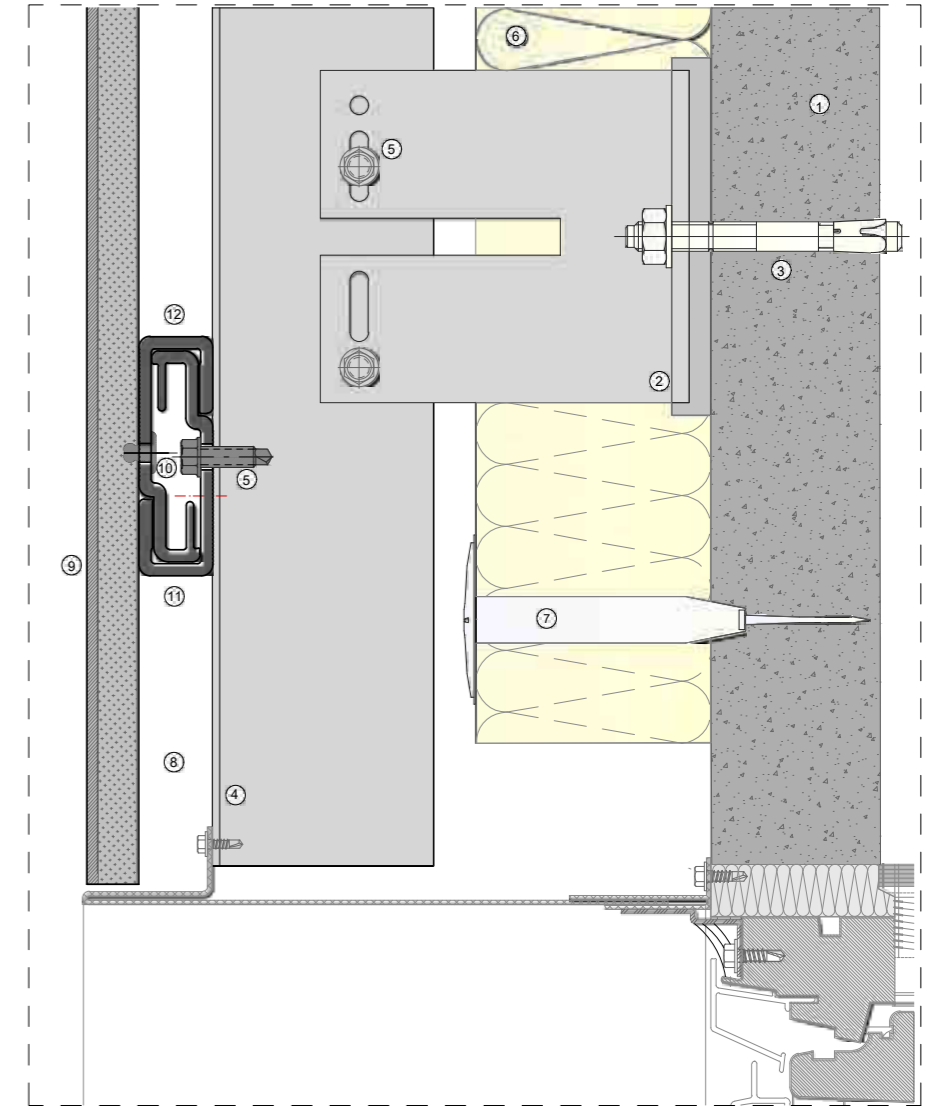
Designing the header in GammaStone AIR completes the window surround and ensures an appearance of continuity and being robust.



Window/Steel ceiling
Section N-N

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *

* in black anodized aluminum



The pressed sheet metal header completes the window surround with a unique effect. Due to its lightness it is easily installed to the existing substructure. This solution must be designed to consider the right tolerances to compensate for expansion and contraction of the metal profile.



Curtain Wall

Thermal resistance and thermal insulation

GammaStone AIR panels can be incorporated into curtain walls, both with mechanical fastening or being structurally glazed into the system. Allowing designers complete freedom in creating a unique building envelop. It also can add to the fire protection measures of the building, as the stainless steel sheet on the back of the panel acts as a barrier from internal flames. The rear stainless steel sheet is also compatible with standard types of structural silicone used in glazing. Allowing GammaStone AIR panels to easily be incorporated throughout the façade. According to the UNI EN 12664, the GammaStone AIR curtain wall solution guarantees a thermal resistance U (W/m^2K) 0.5, contributing to the thermal insulation of the building despite the panel thinness.

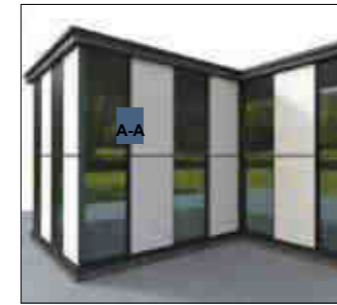


Technical details

Curtain Wall — Invisible Solution

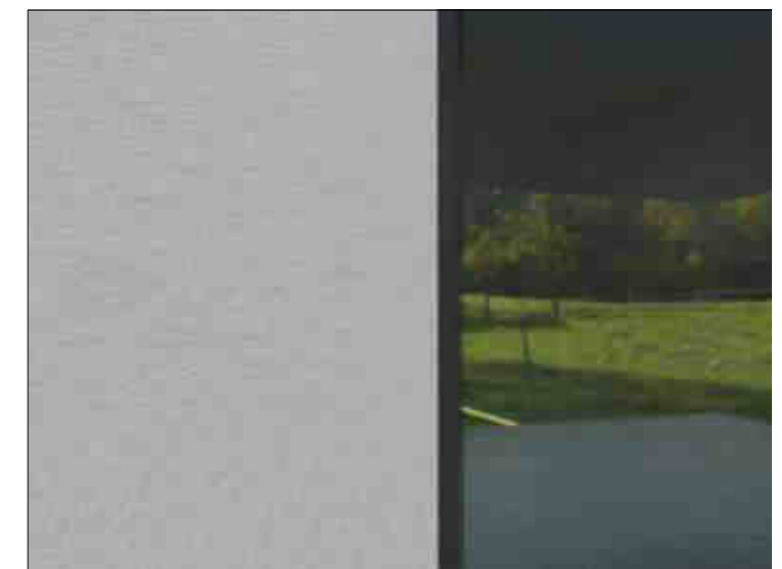
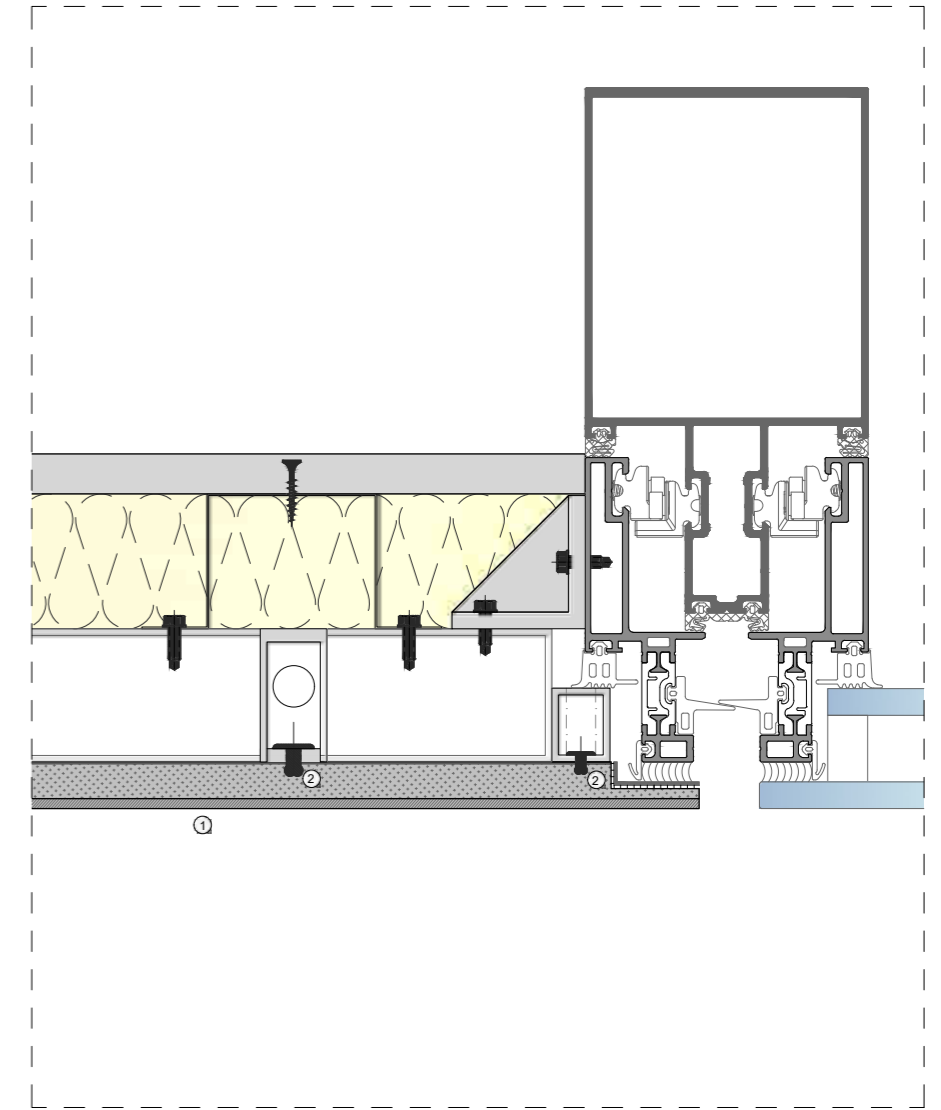


- C.S. A-A: Horizontal cross section
- C.S. B-B: Vertical cross section
- C.S. C-C: Base detail
- C.S. D-D: External corner
- C.S. E-E: Variable external angle
- C.S. F-F: Internal corner
- C.S. G-G: Slab edge
- C.S. H-H: Pilaster/window
- C.S. I-I: Head detail



Horizontal Cross Section
A-A

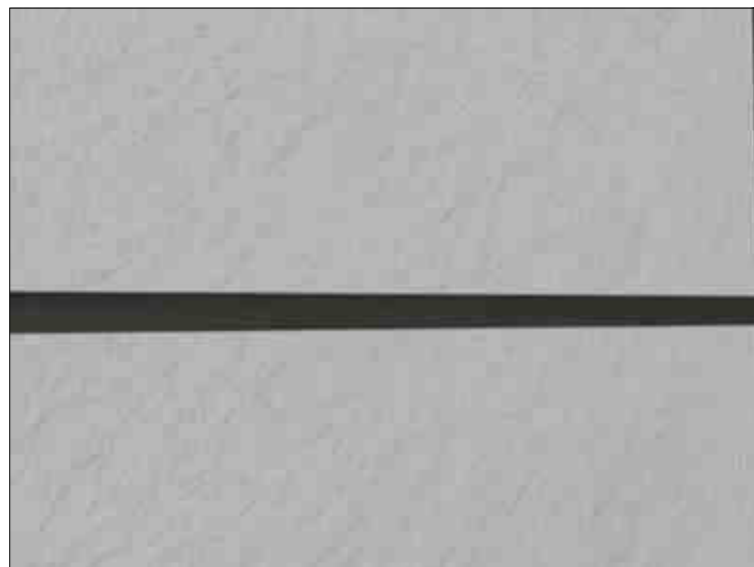
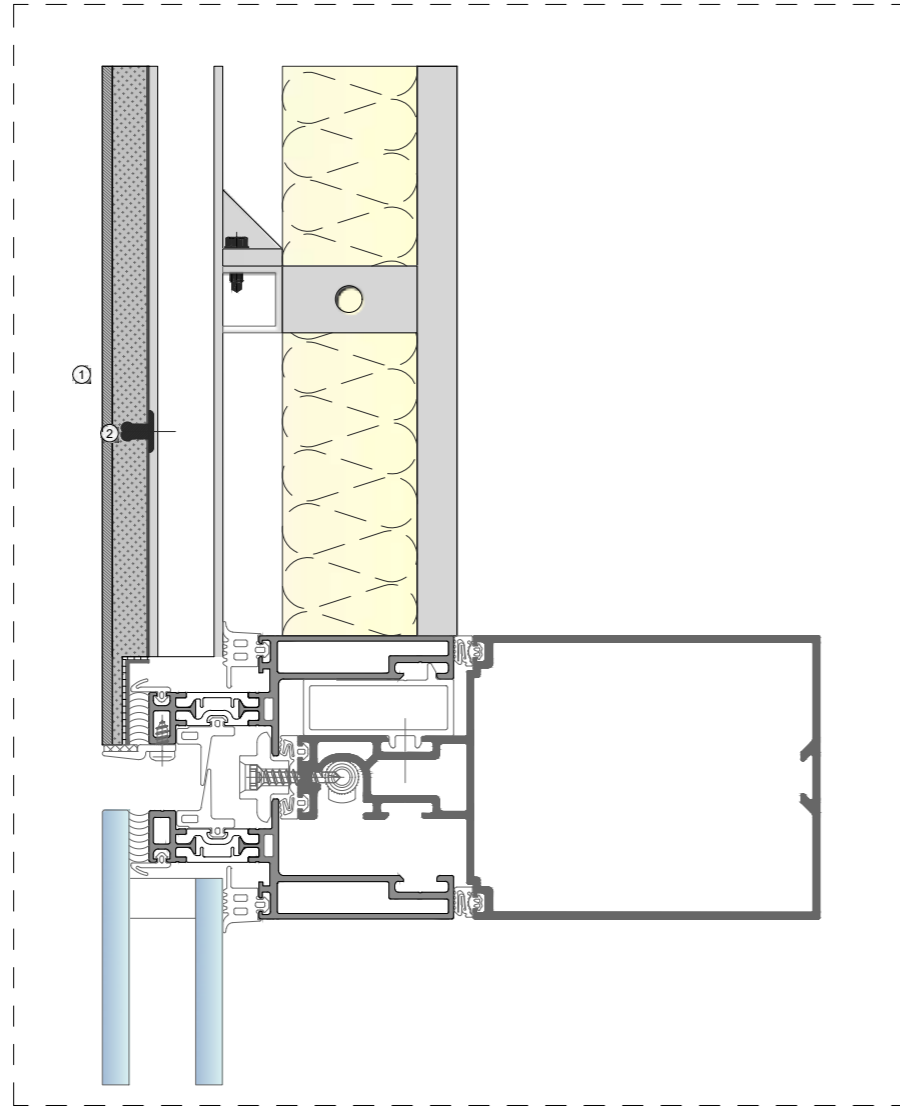
- 1) GammaStone AIR Panel
- 2) Rivet





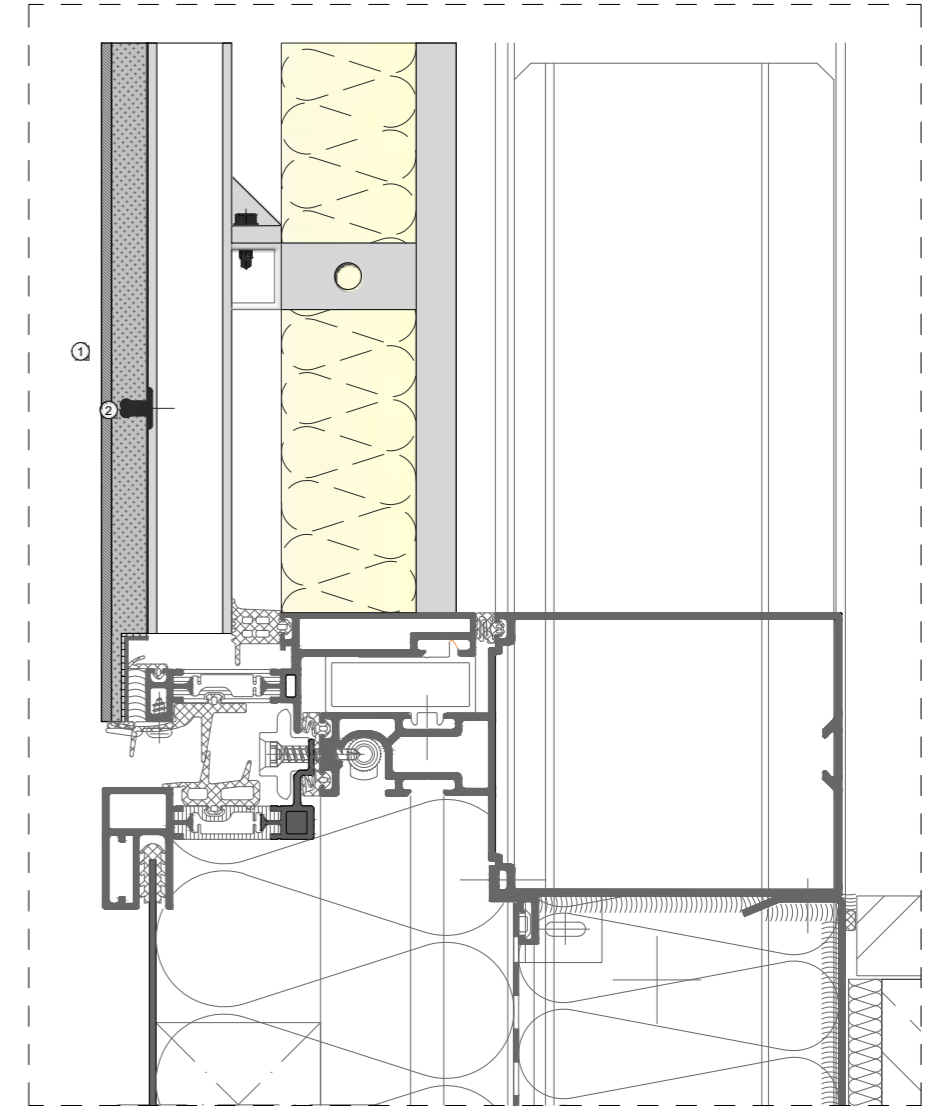
Vertical Cross
Section B-B

- 1) GammaStone AIR Panel
- 2) Rivet



Base Detail
C-C

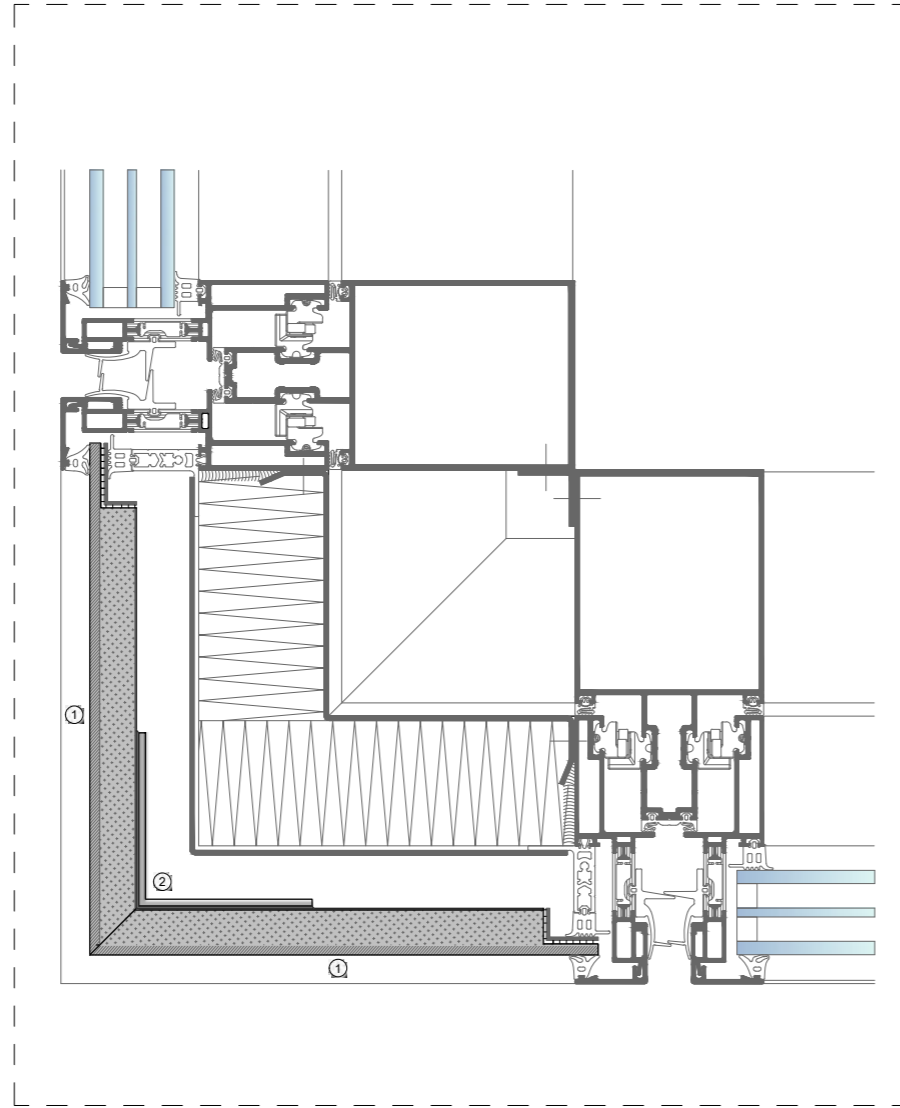
- 1) GammaStone AIR Panel
- 2) Rivet





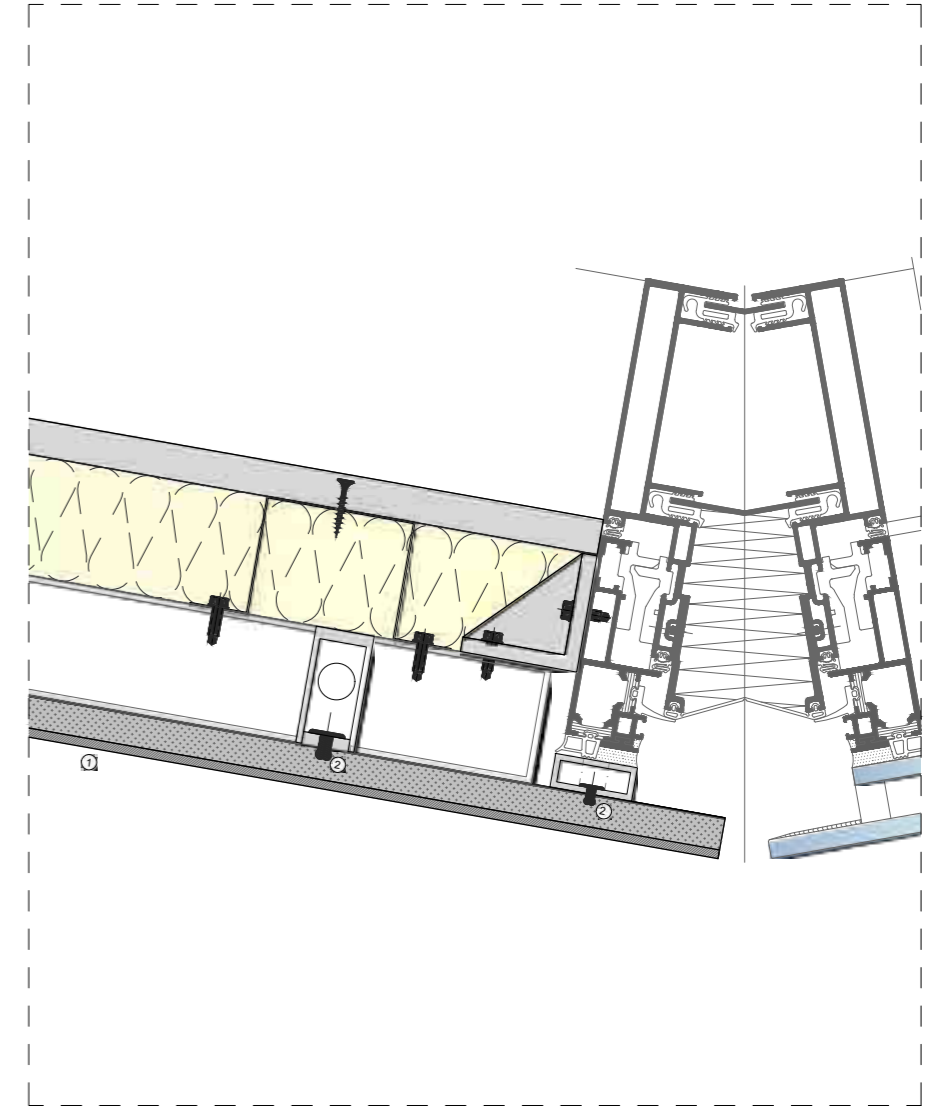
Horizontal Cross Section
Corner D-D

- 1) GammaStone AIR Panel
- 2) Structural angle in stainless steel



Variable External Corner
E-E

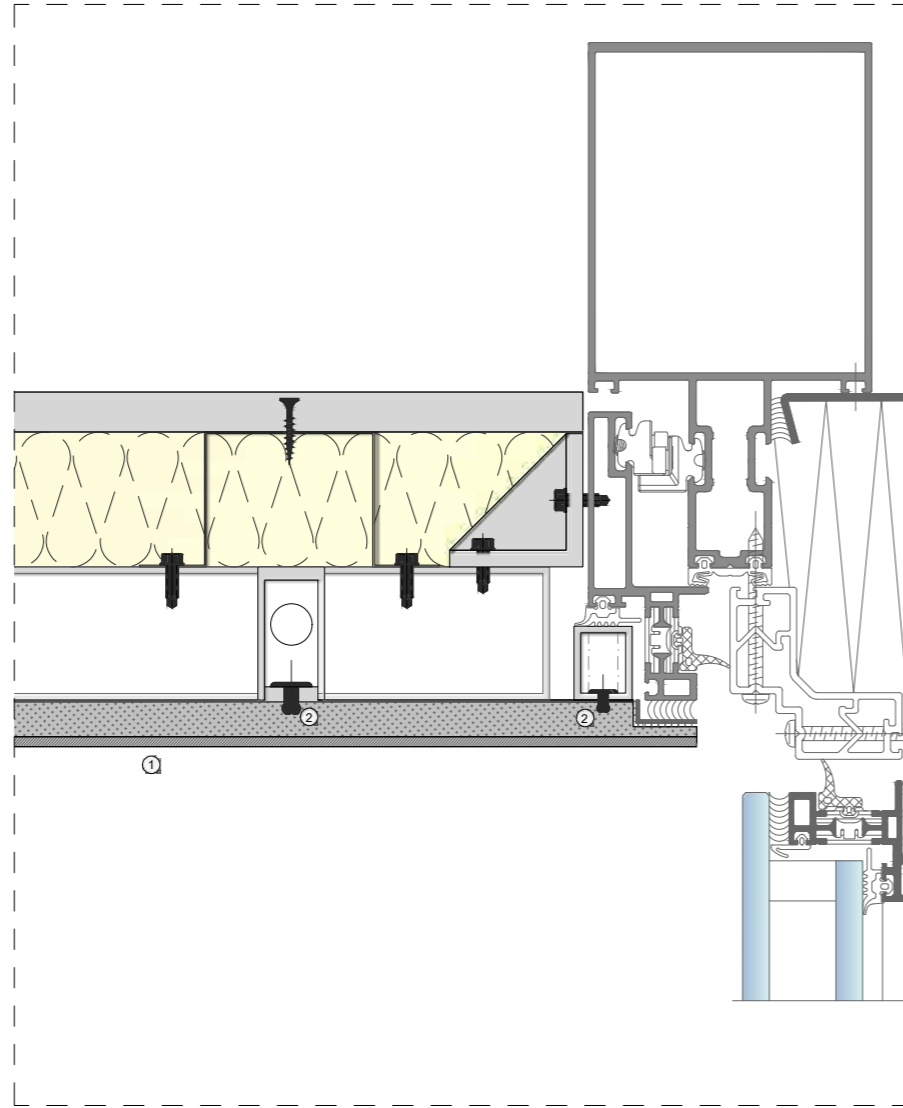
- 1) GammaStone AIR Panel
- 2) Rivet





**Internal Corner
F-F**

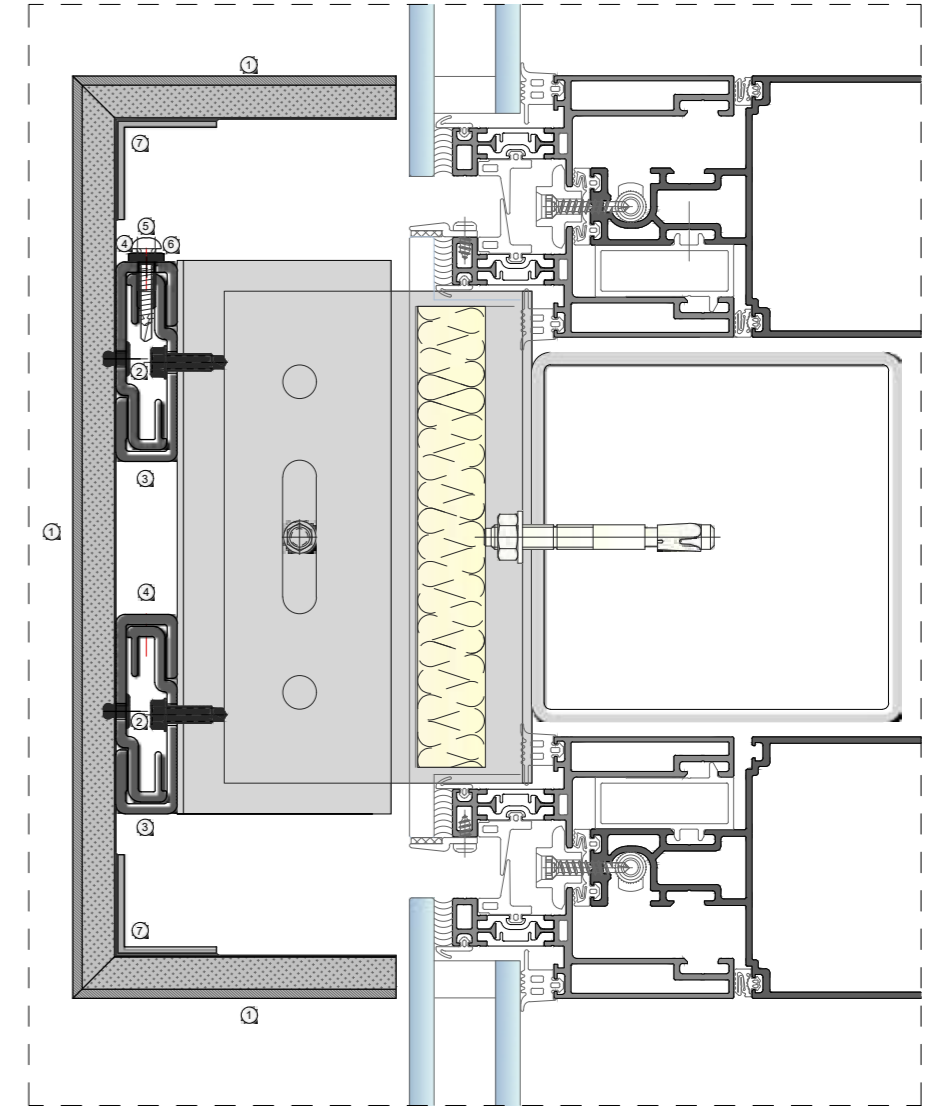
- 1) GammaStone AIR Panel
- 2) Rivet



**Vertical Cross Section
Slab Edge G-G**

- 1) GammaStone AIR Panel
- 2) Rivet
- 3) GammaStone rail *
- 4) GammaStone clip *
- 5) Fixing Screw
- 6) Adjust. Screw
- 7) Structural angle in stainless steel

** in black anodized aluminum*

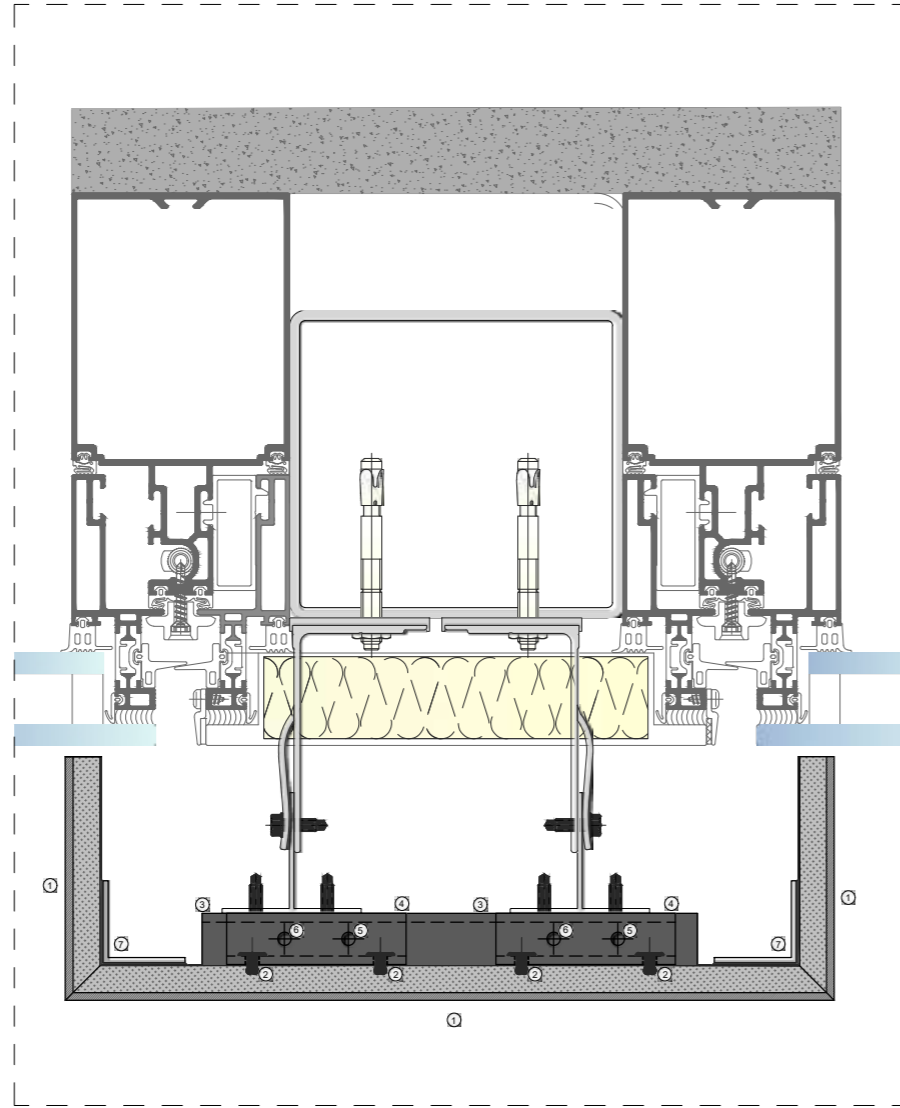




**Pilaster/Window
Horizontal Cross Section
H-H**

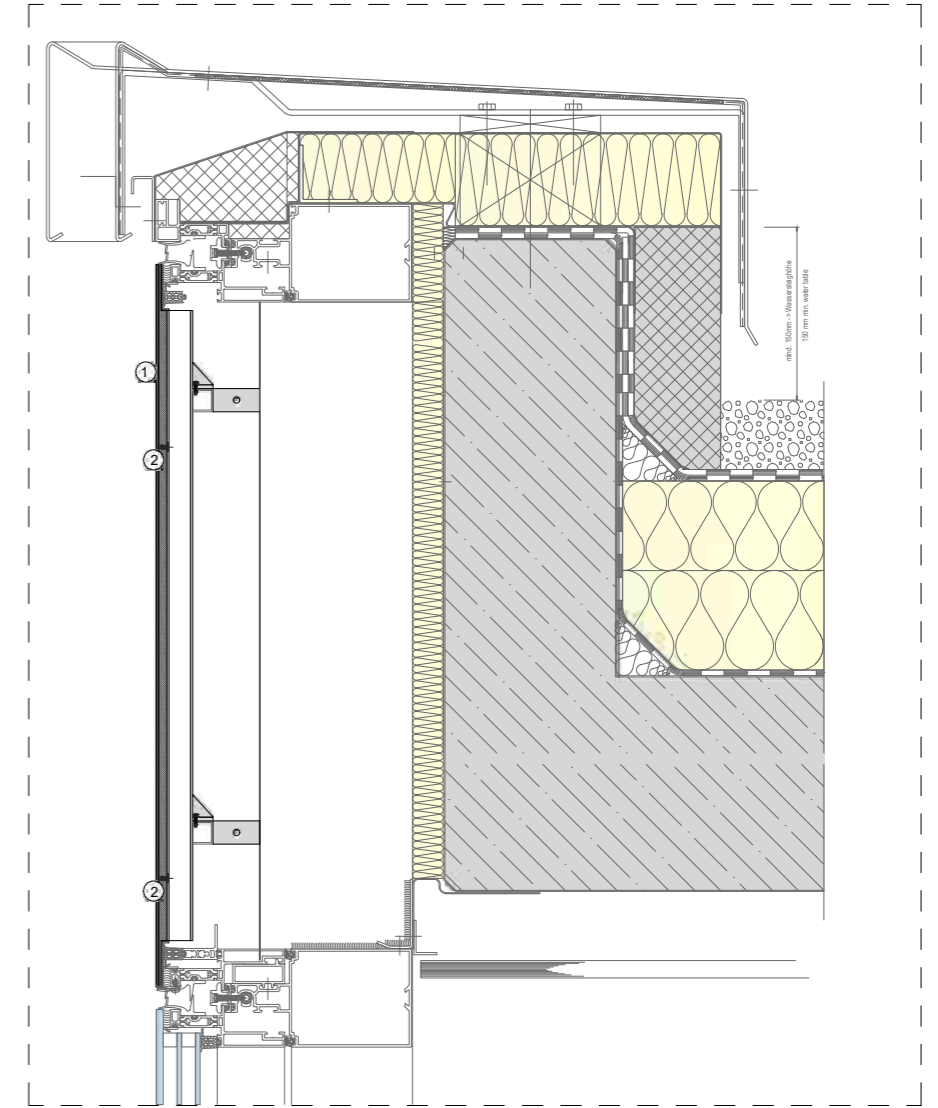
- 1) GammaStone AIR Panel
- 2) Rivet
- 3) GammaStone rail *
- 4) GammaStone clip *
- 5) Fixing Screw
- 6) Adjust. Screw
- 7) Structural angle in stainless steel

* in black anodized aluminum



Head Detail I-I

- 1) GammaStone AIR Panel
- 2) Rivet

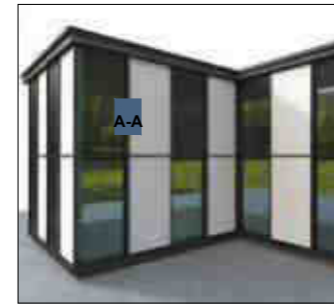


Technical details

Captured Curtain Wall

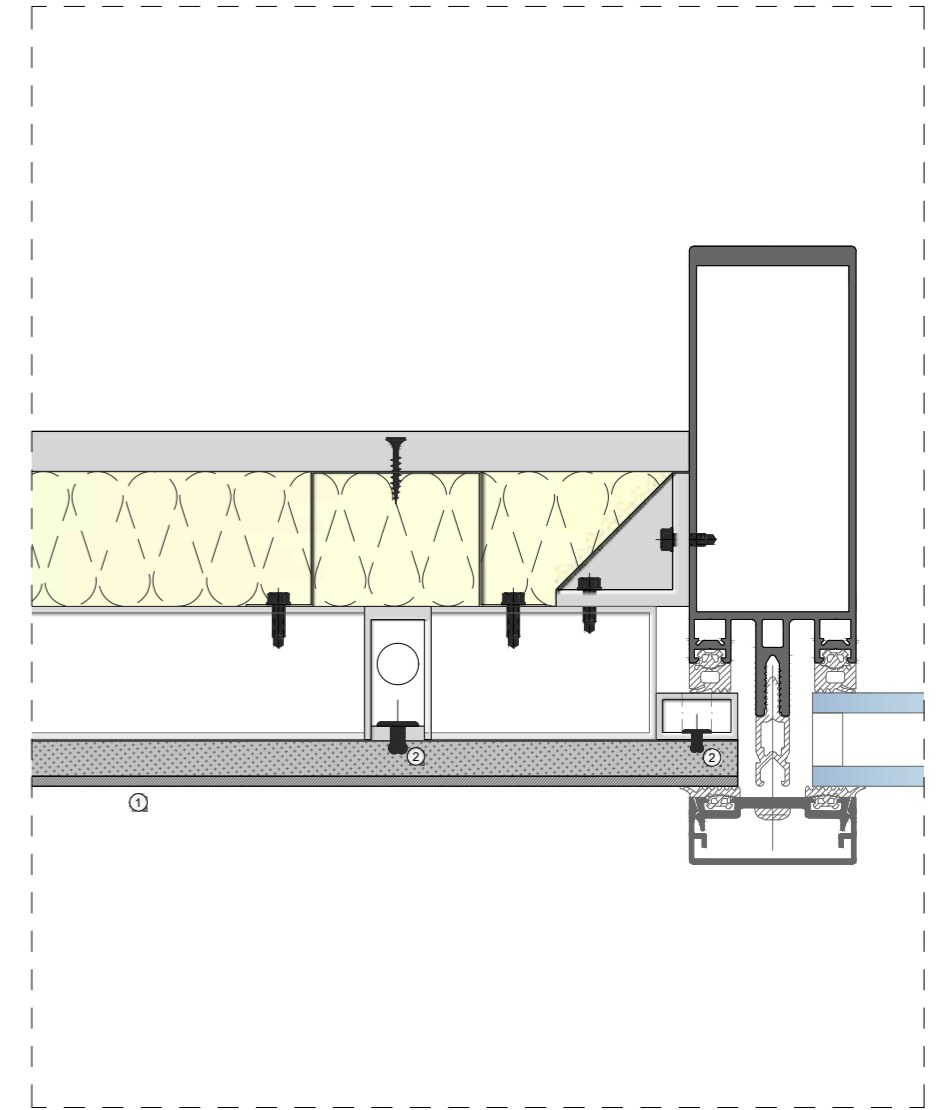


- C.S. A-A: Horizontal cross section
- C.S. B-B: Vertical cross section
- C.S. C-C: External corner
- C.S. D-D: Variable external corner
- C.S. E-E: Base detail
- C.S. F-F: Internal corner
- C.S. G-G: Variable internal corner
- C.S. H-H: Slab edge
- C.S. I-I: Pilaster/window
- C.S. L-L: Head detail



Horizontal Cross Section A-A

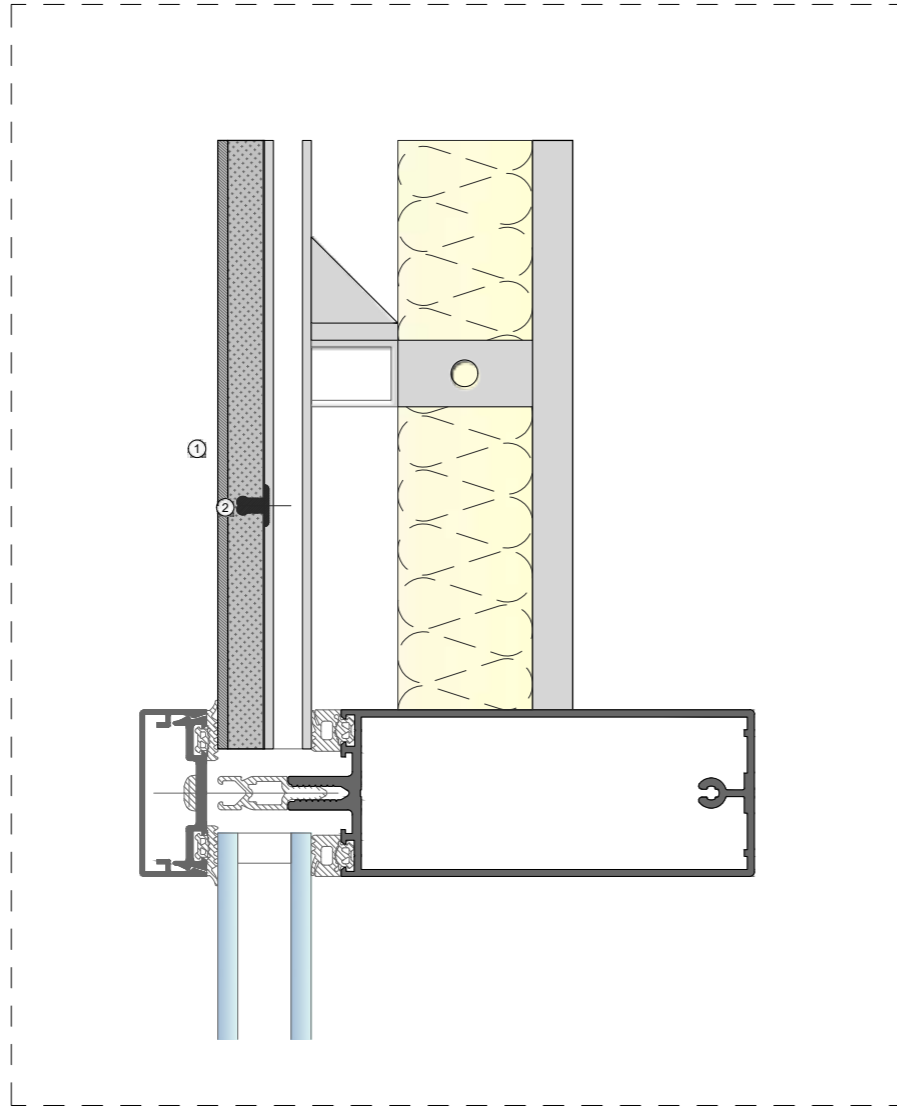
- 1) GammaStone AIR Panel
- 2) Rivet





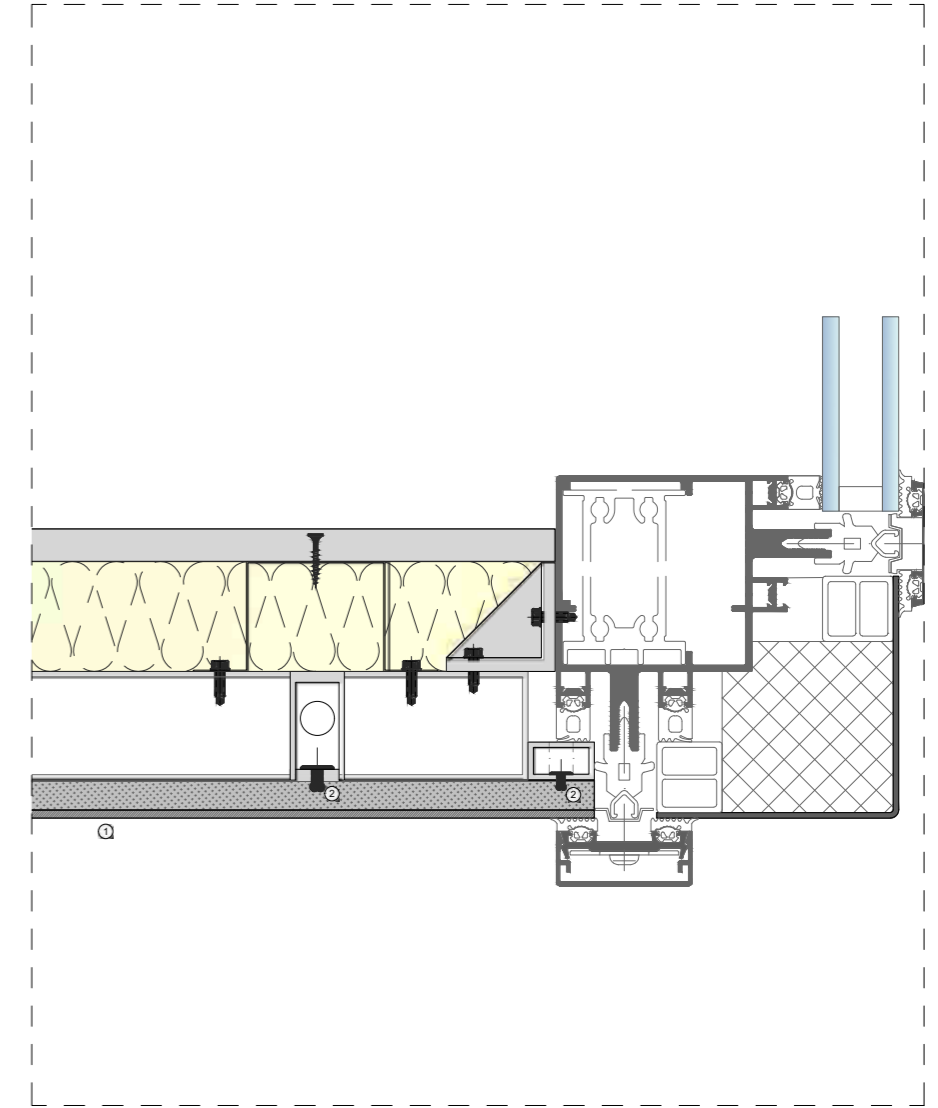
Vertical cross section
B-B

- 1) GammaStone AIR Panel
- 2) Rivet



External corner
C-C

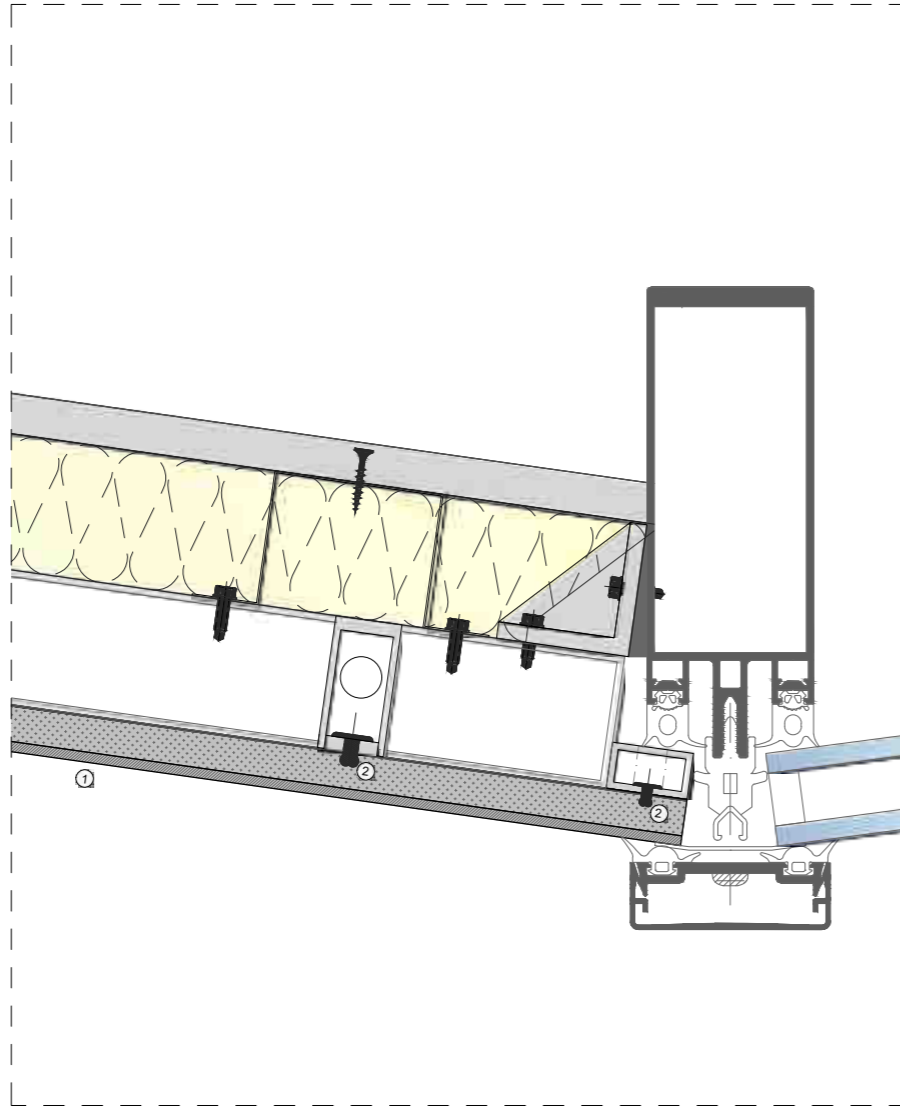
- 1) GammaStone AIR Panel
- 2) Rivet





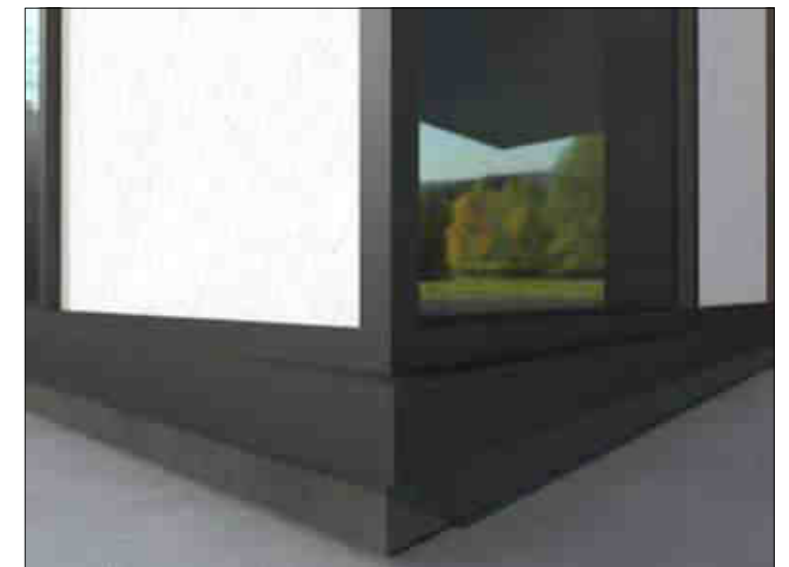
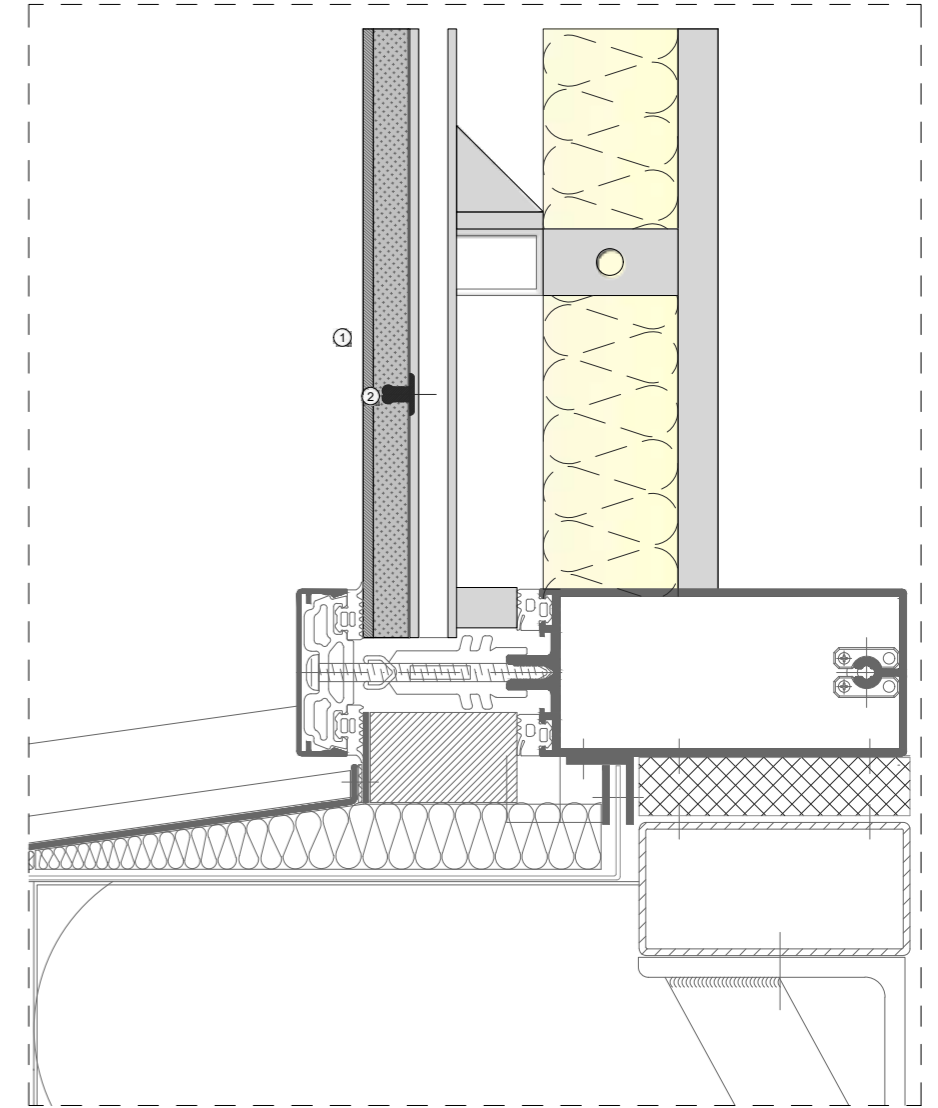
Variable external corner
D-D

- 1) GammaStone AIR Panel
- 2) Rivet



Base detail
E-E

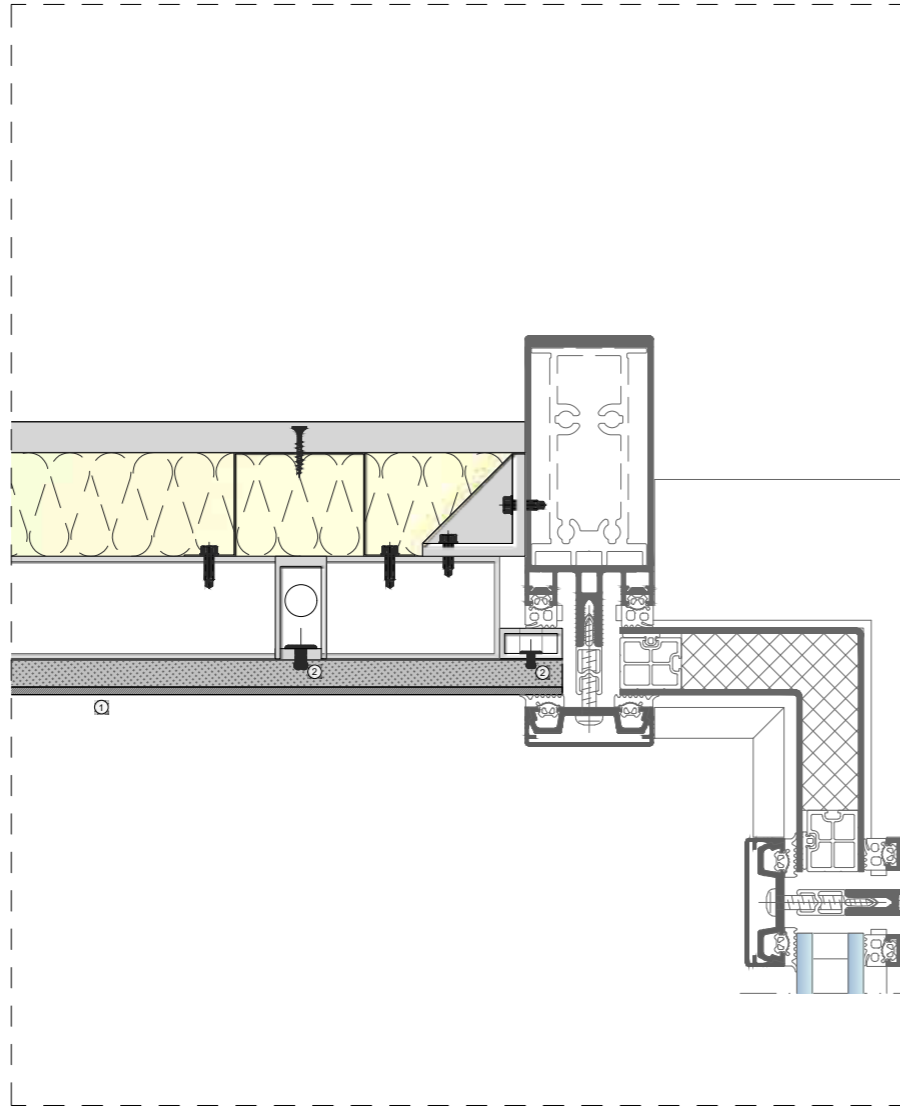
- 1) GammaStone AIR Panel
- 2) Rivet





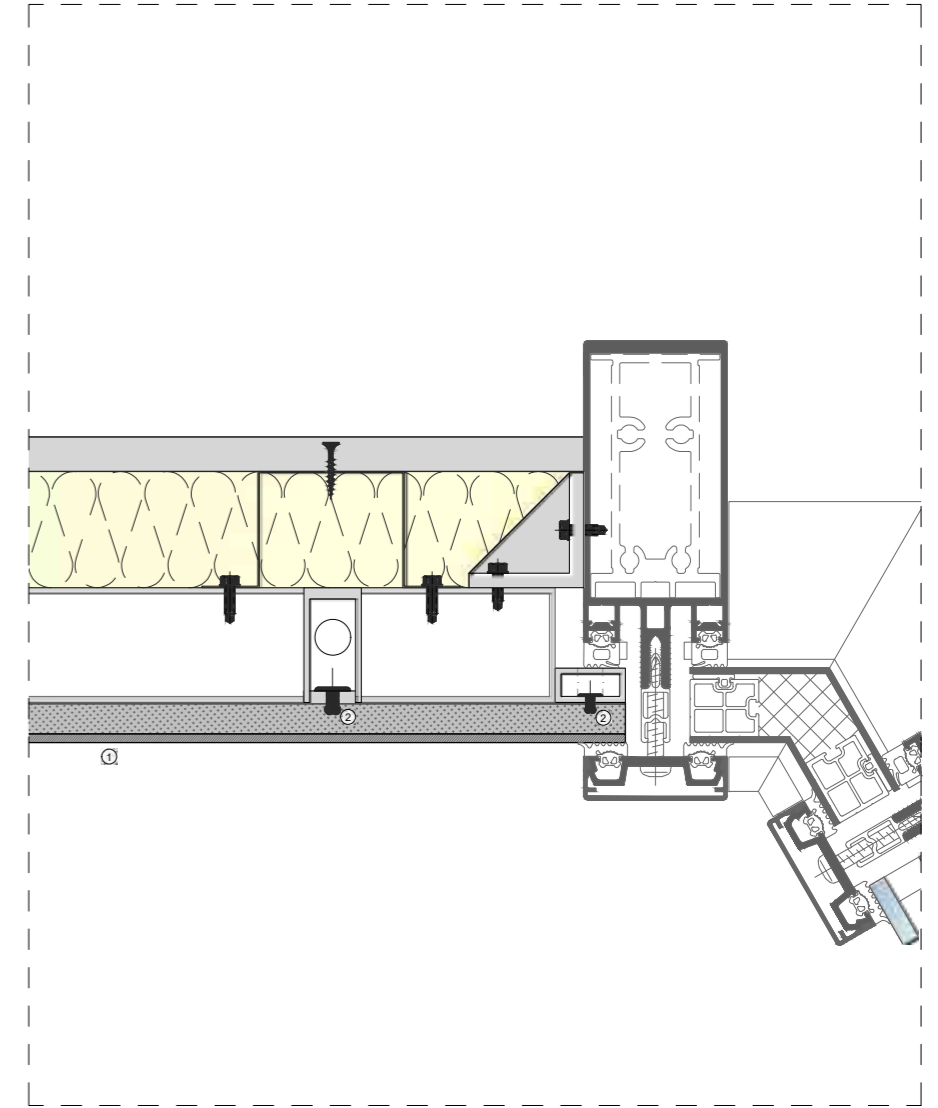
Internal corner F-F

- 1) GammaStone AIR Panel
- 2) Rivet



Variable internal corner G-G

- 1) GammaStone AIR Panel
- 2) Rivet

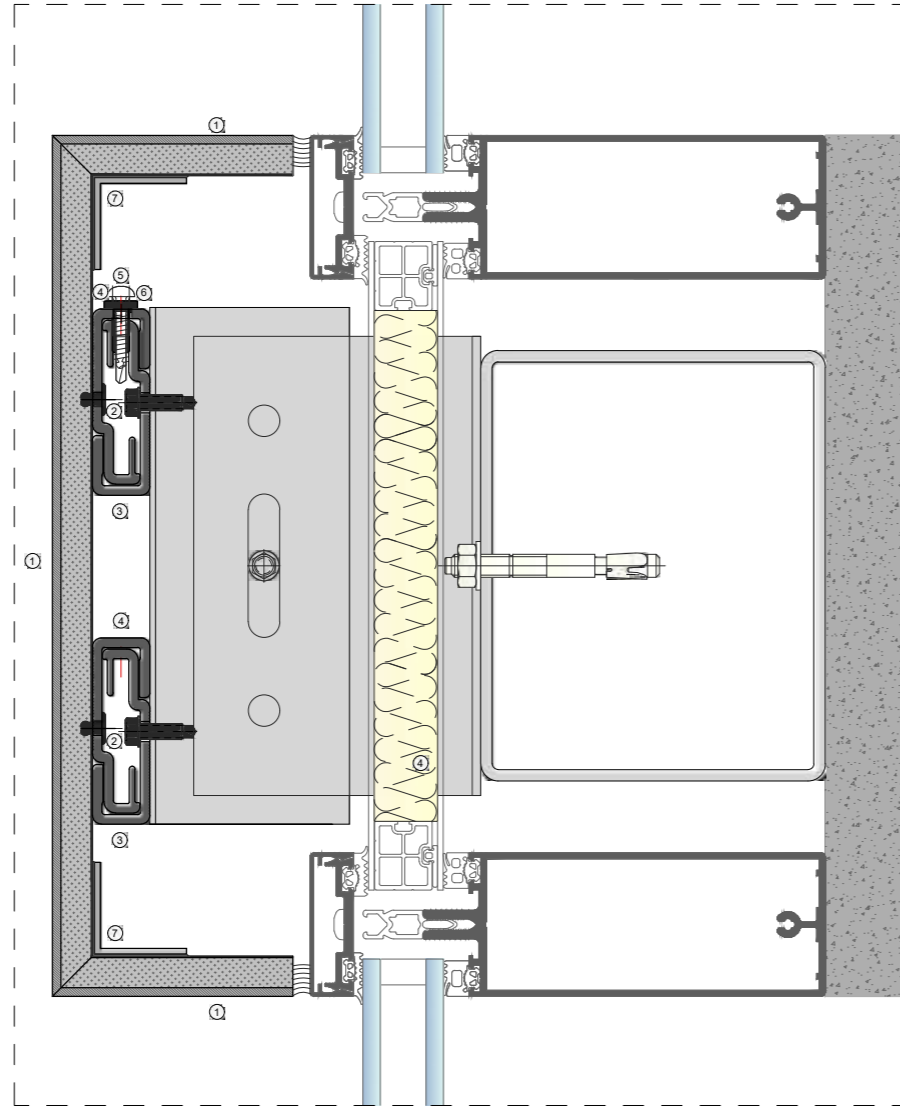




**Vertical cross section
Slab edge H-H**

- 1) GammaStone AIR Panel
- 2) Rivet
- 3) GammaStone rail *
- 4) GammaStone clip *
- 5) Fixing Screw
- 6) Adjust. Screw
- 7) Structural angle in stainless steel

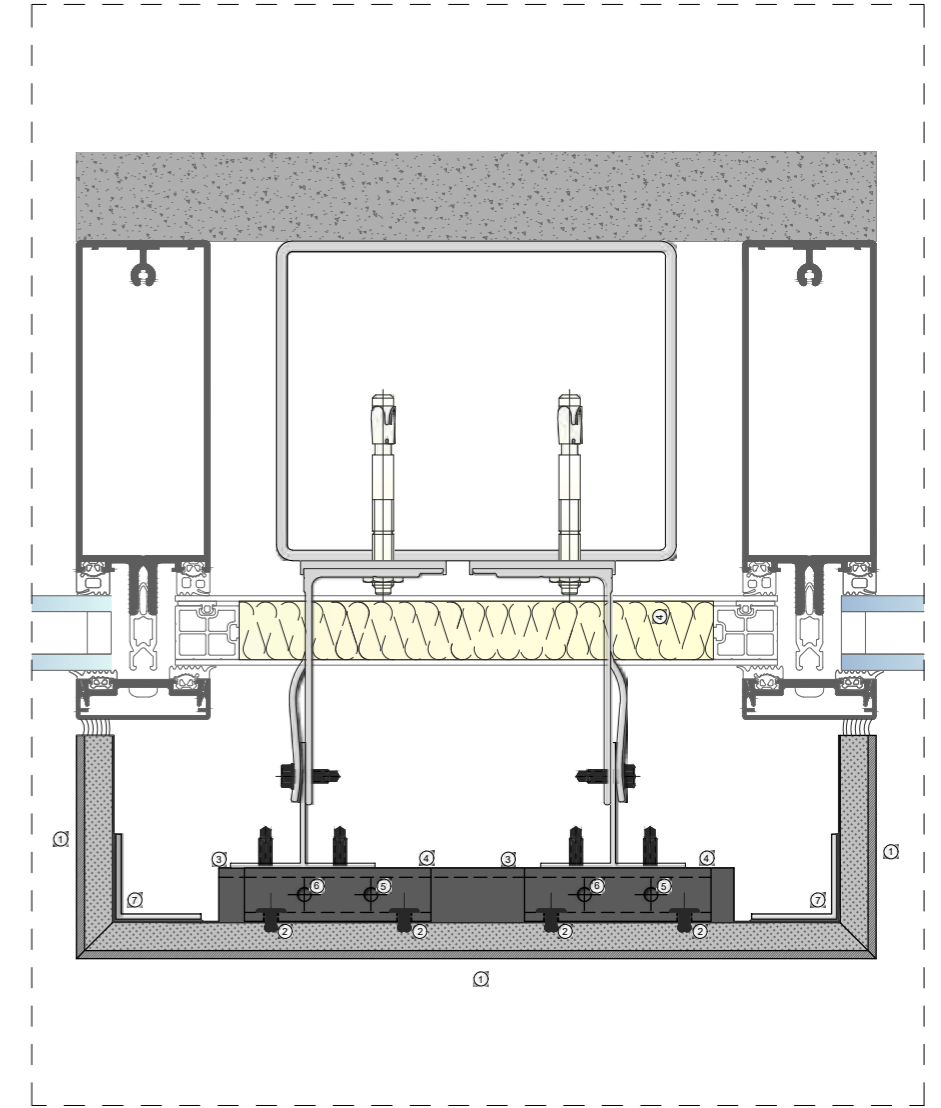
* in black anodized aluminum



**Horizontal cross section
Pilaster/window
I-I**

- 1) GammaStone AIR Panel
- 2) Rivet
- 3) GammaStone rail *
- 4) GammaStone clip *
- 5) Fixing Screw
- 6) Adjust. Screw
- 7) Structural angle in stainless steel

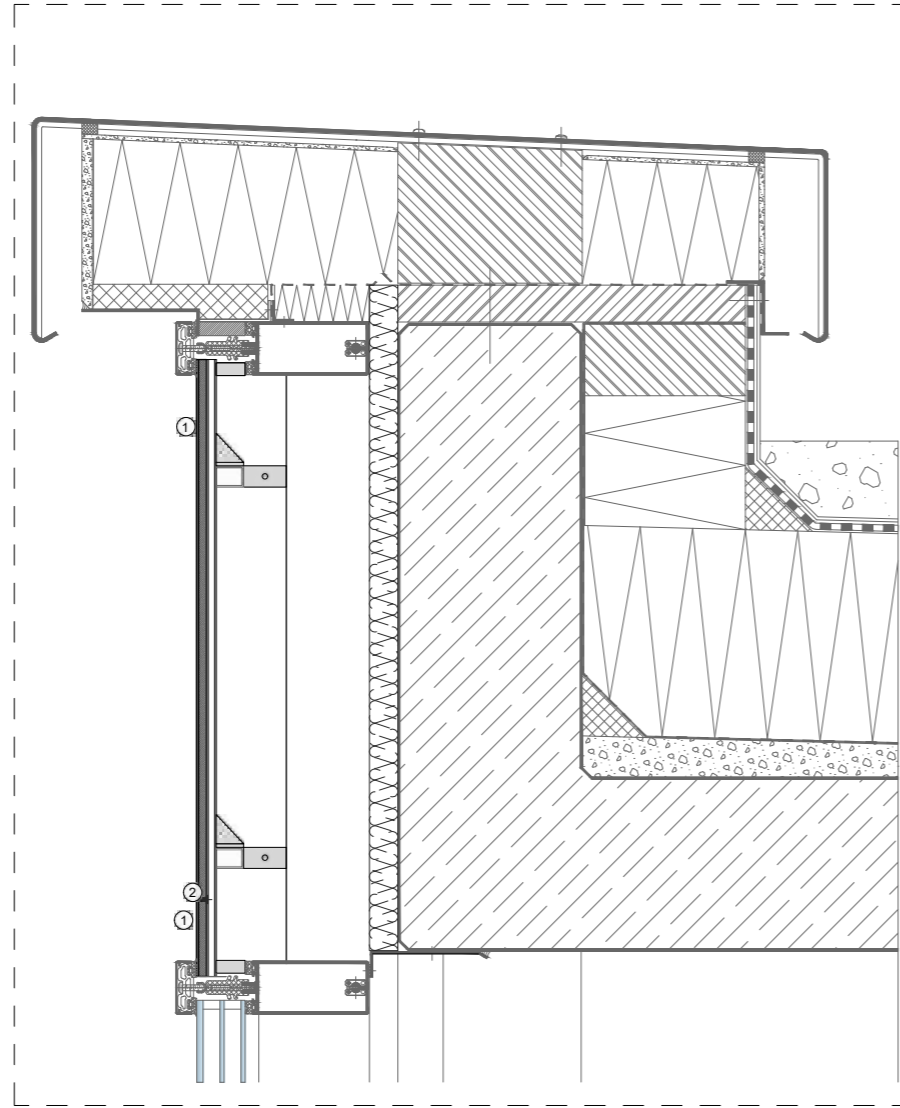
* in black anodized aluminum





Head detail L-L

- 1) GammaStone AIR Panel
- 2) Rivet



Interior cladding

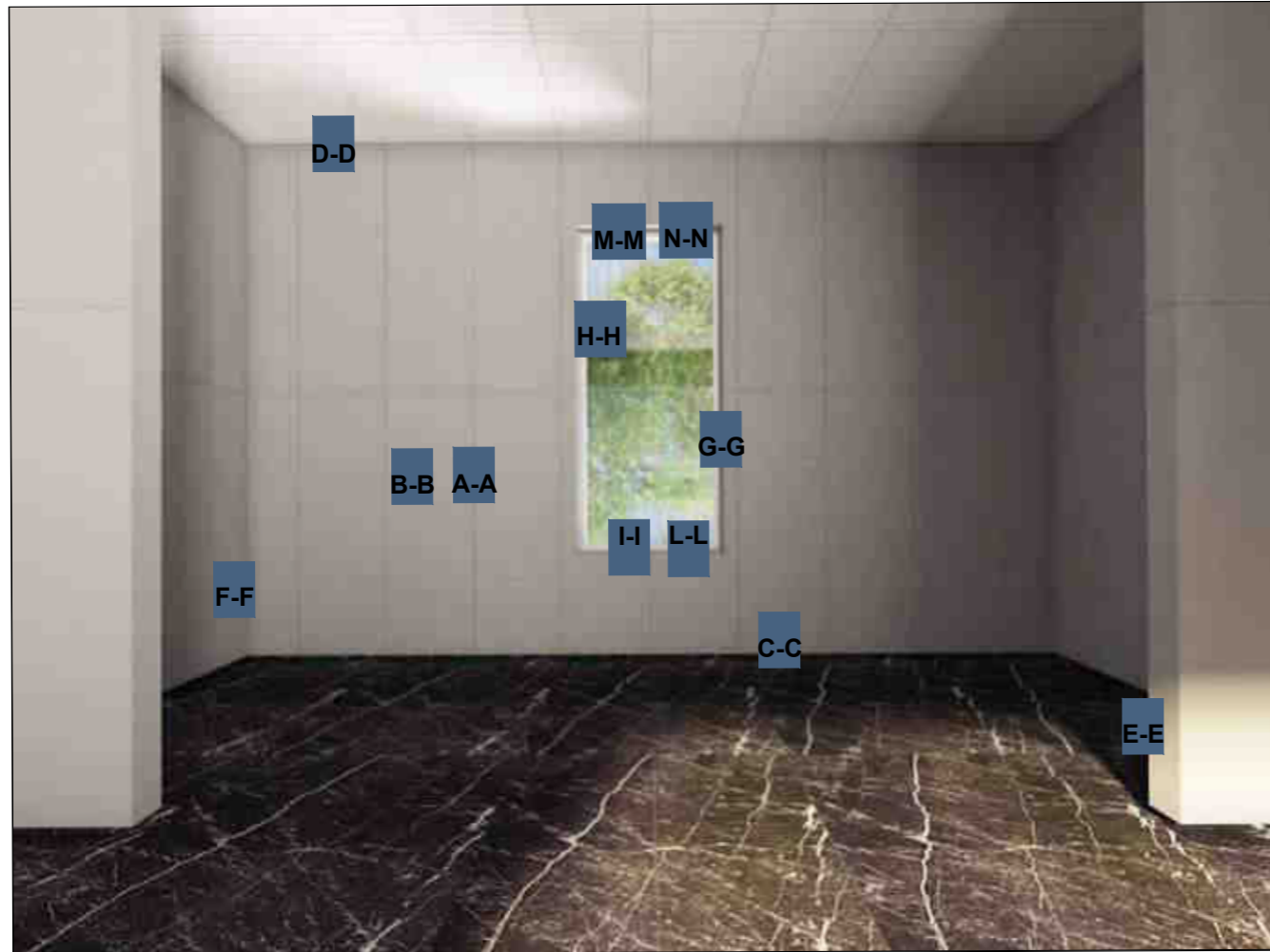
GammaStone AIR allows you to drywall entire walls in a very short time and with maximum cleanliness, also leaving a gap between the panel and masonry useful for the wiring of the rooms.

The overall dimensions of the system are minimal, about 5 cm are sufficient for the complete package of adjustments, hooks and panel GammaStone AIR. Thanks to the reduced thickness of the system, it maximizes the use of the rooms and does not subtract useful space to the livability of the same. The width of the gap is still variable, are used fixing systems of the length required by the designer. The system ensures lightness, secure hooking system, high stability even in the presence of an obvious seismic risk.



Technical Details

Interior Cladding



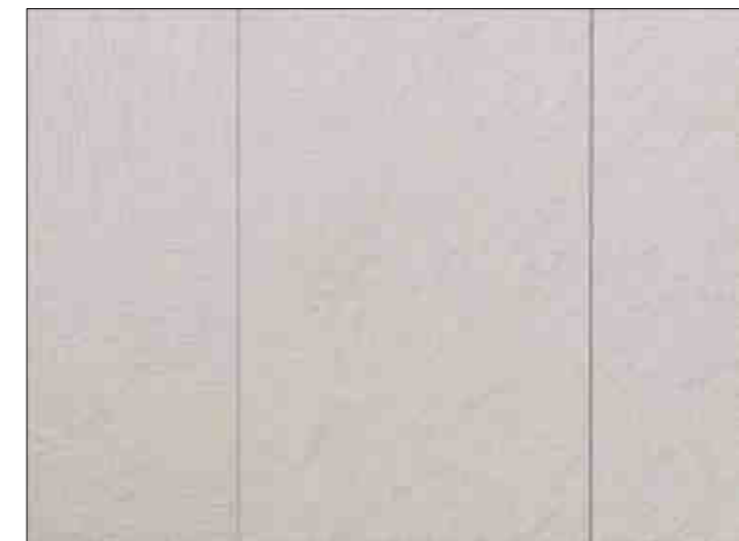
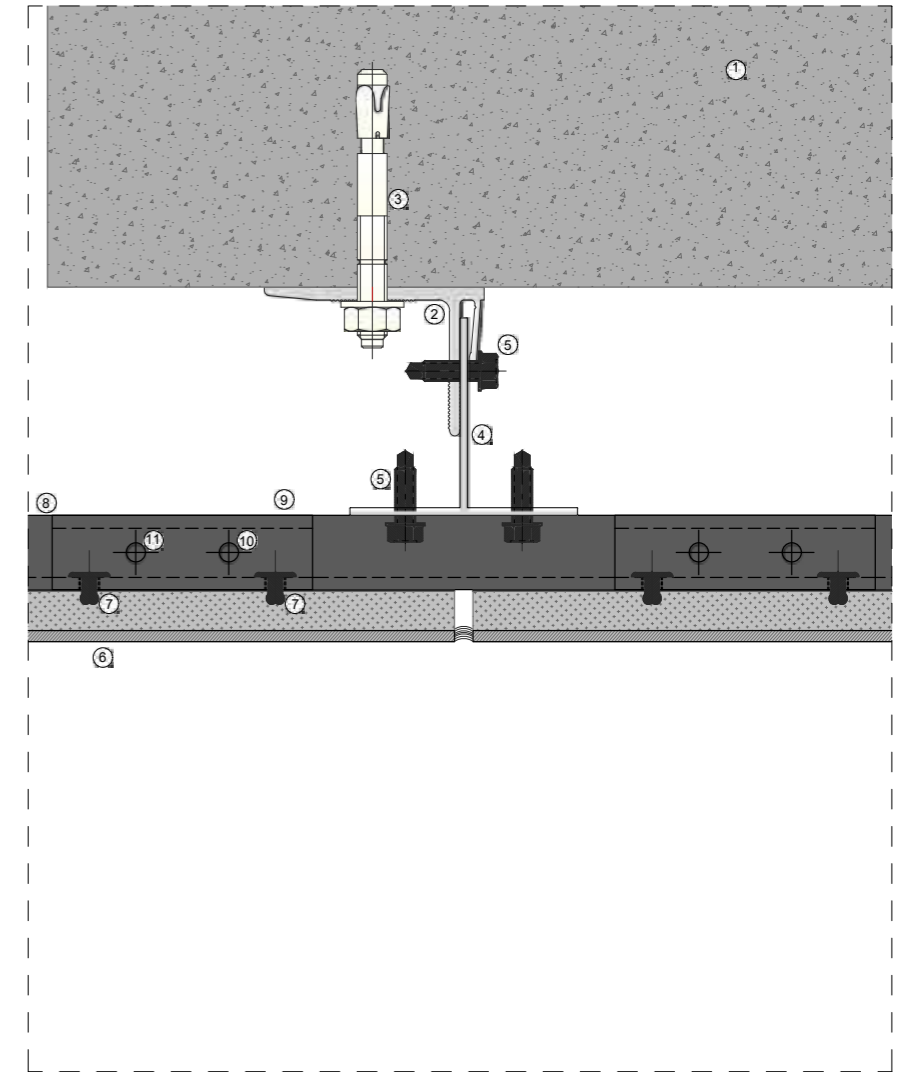
- C.S. A-A Horizontal Section
- C.S. B-B Vertical Section
- C.S. C-C Base Detail
- C.S. D-D Head Detail
- C.S. E-E External Corner
- C.S. F-F Internal Corner
- C.S. G-G Window - AIR Reveal
- C.S. I-I Window - AIR Sill
- C.S. M-M Window - AIR Ceiling
- C.S. H-H Window - Steel Reveal
- C.S. L-L Window - Steel Sill
- C.S. N-N Window - Steel Ceiling



Horizontal section
Section A-A

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw

* in black anodized aluminum

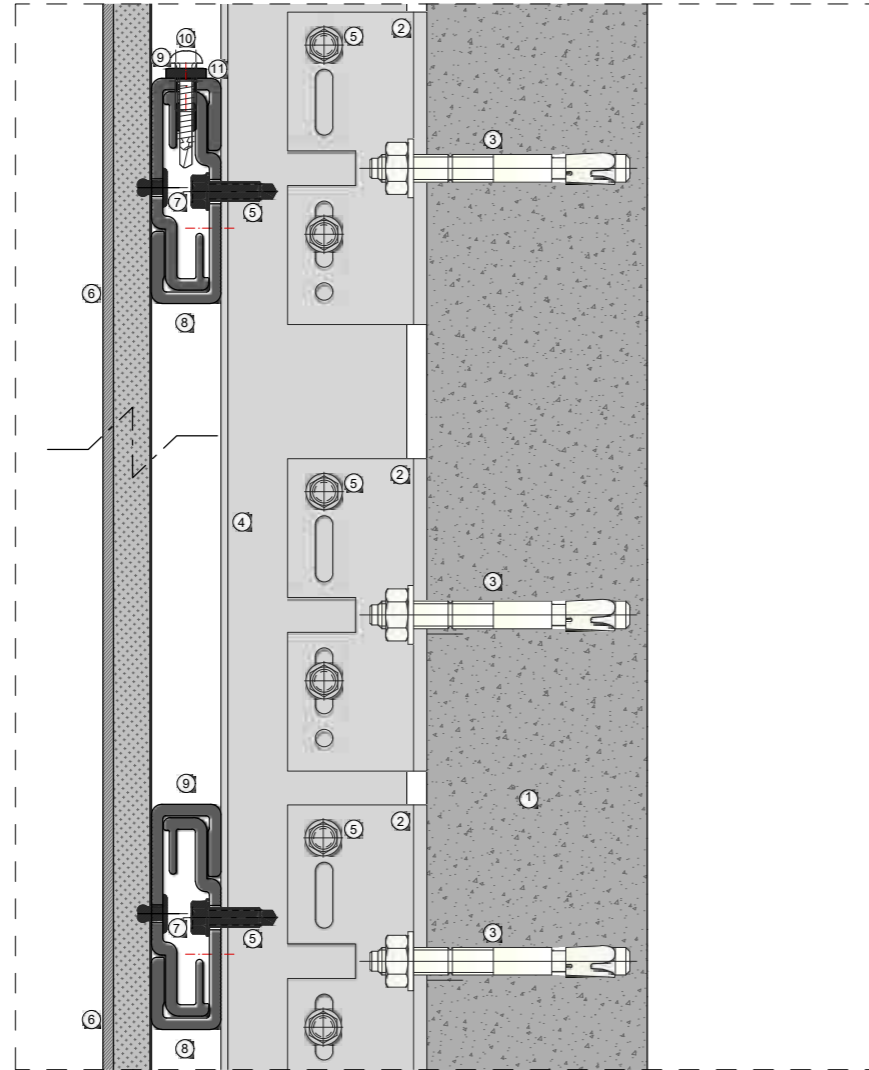




Vertical section
Section B-B

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw

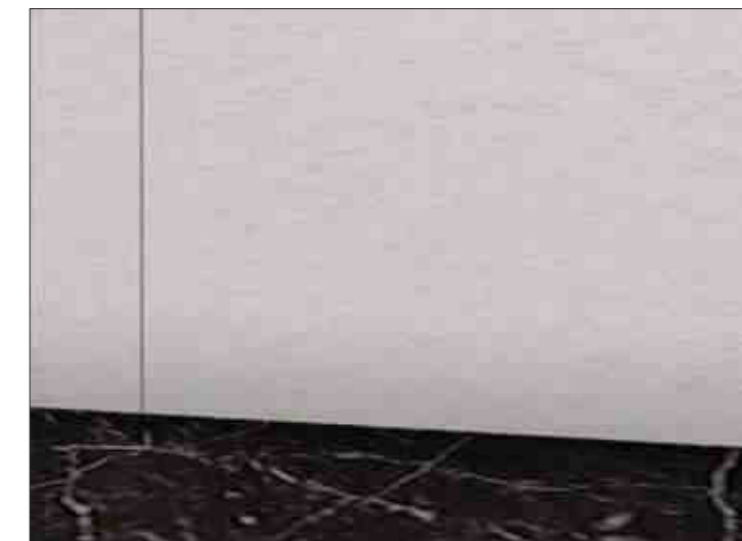
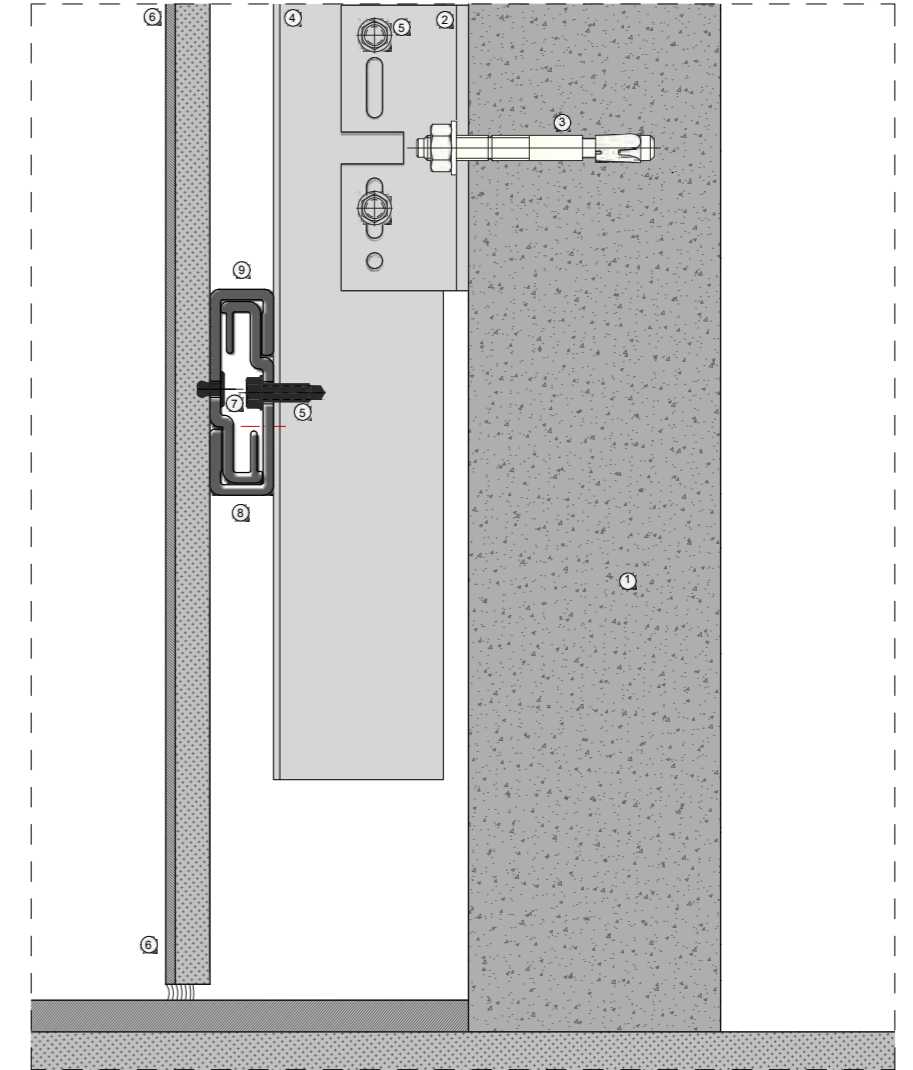
* in black anodized aluminum



Base Detail
Section C-C

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *

* in black anodized aluminum

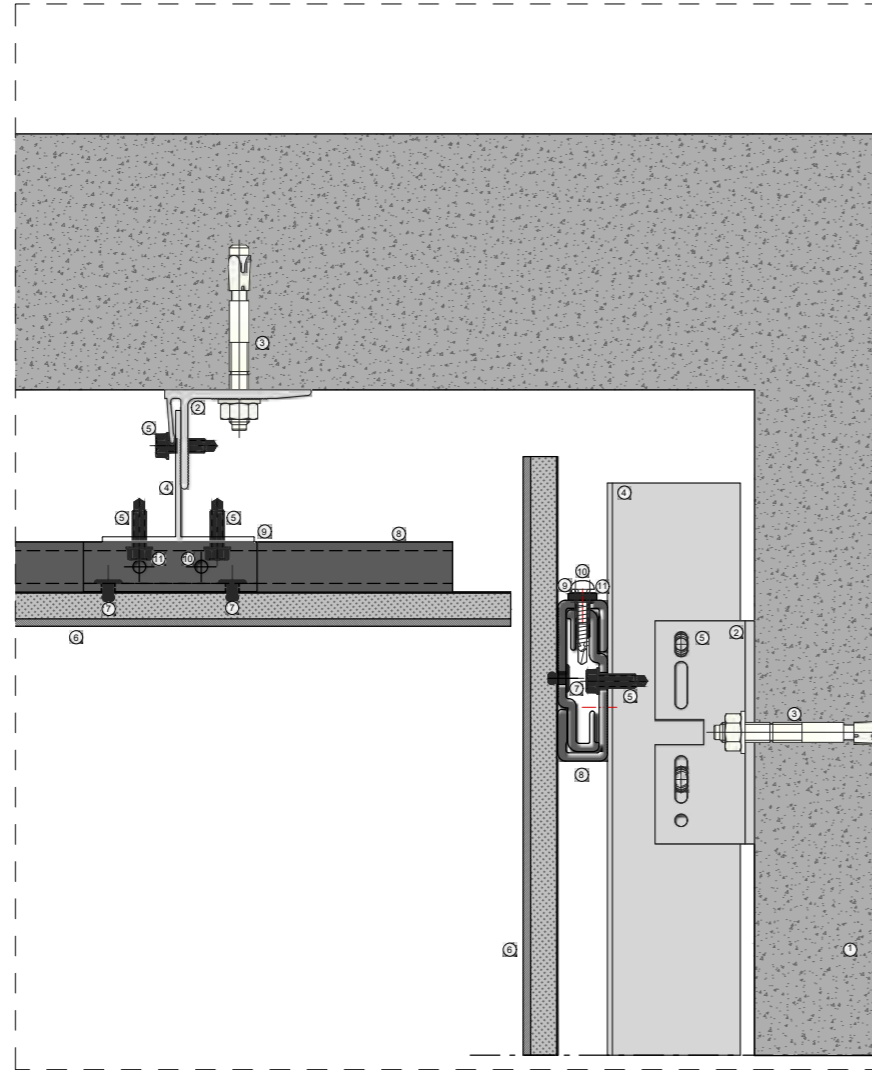




Head Detail Section D-D

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw

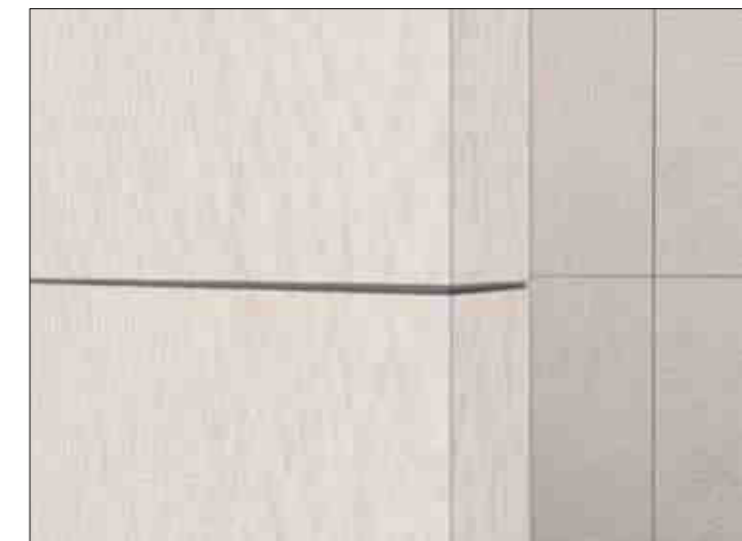
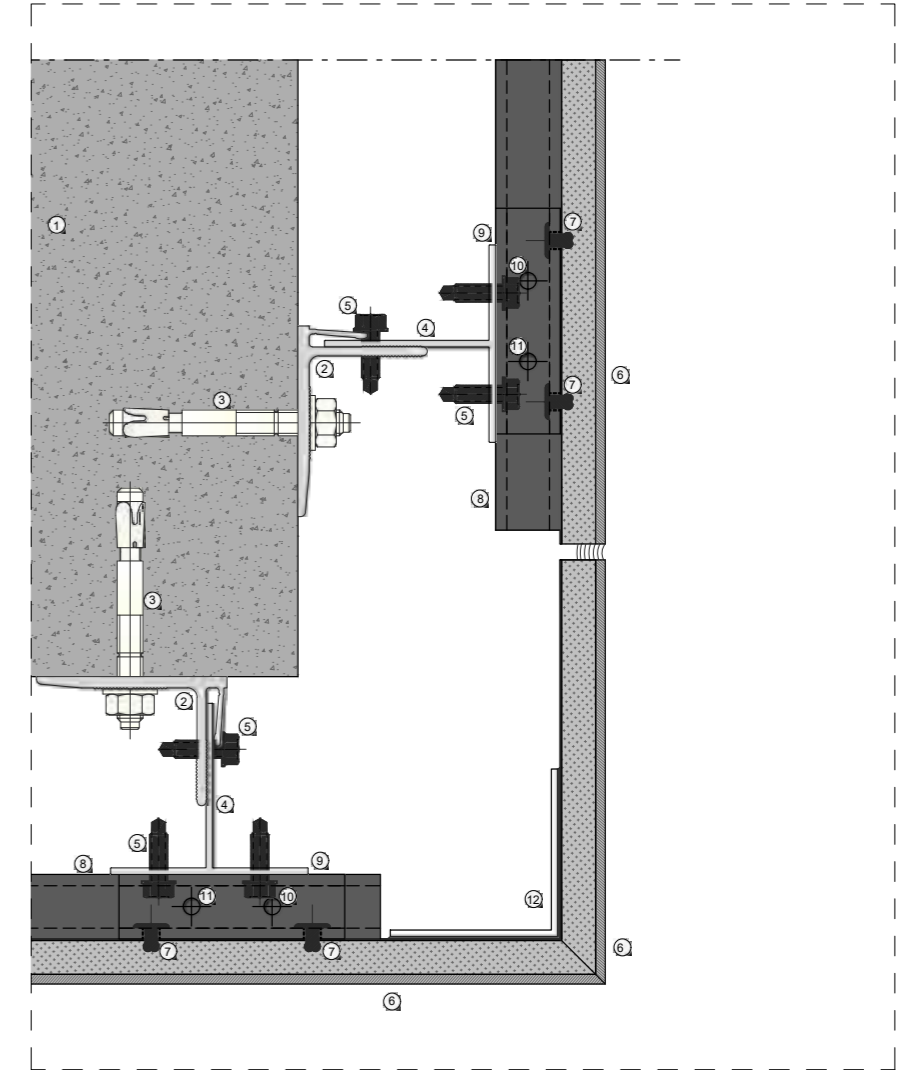
* in black anodized aluminum



External Corner Section E-E

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw
- 12) Structural angle in stainless steel

* in black anodized aluminum

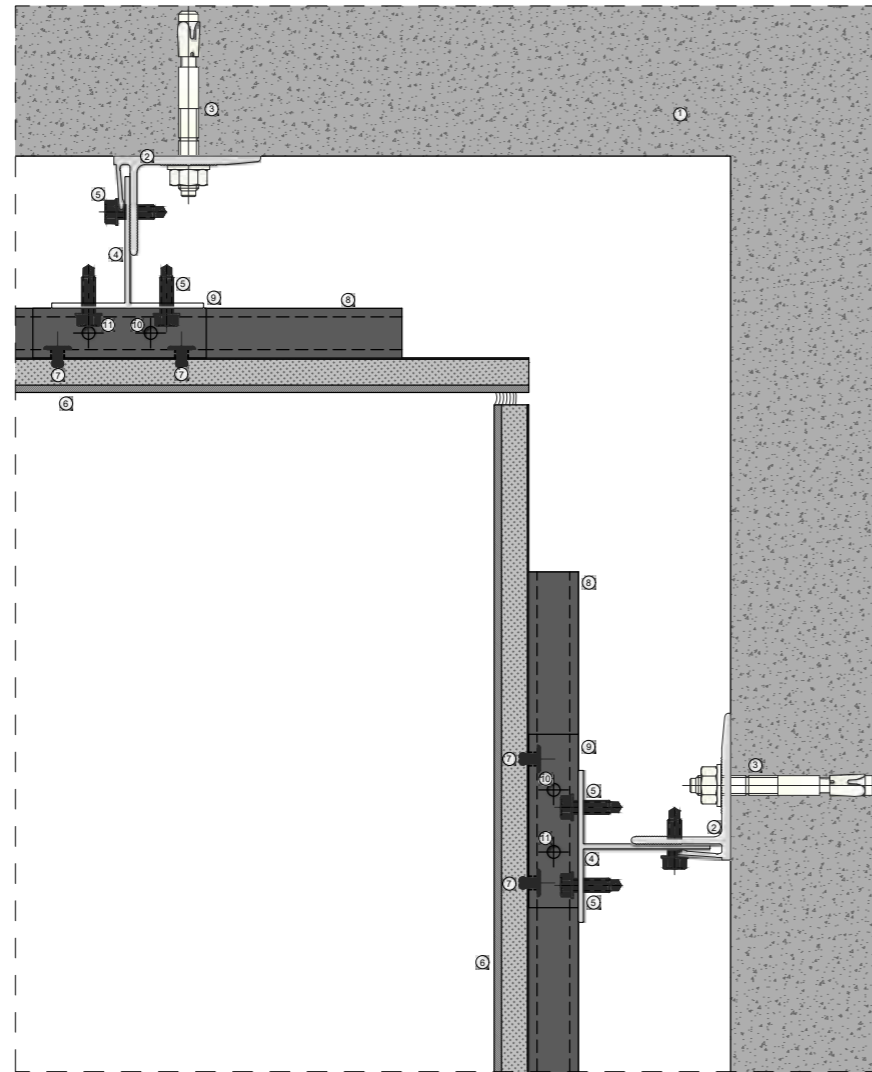




Internal Corner
Section F-F

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw

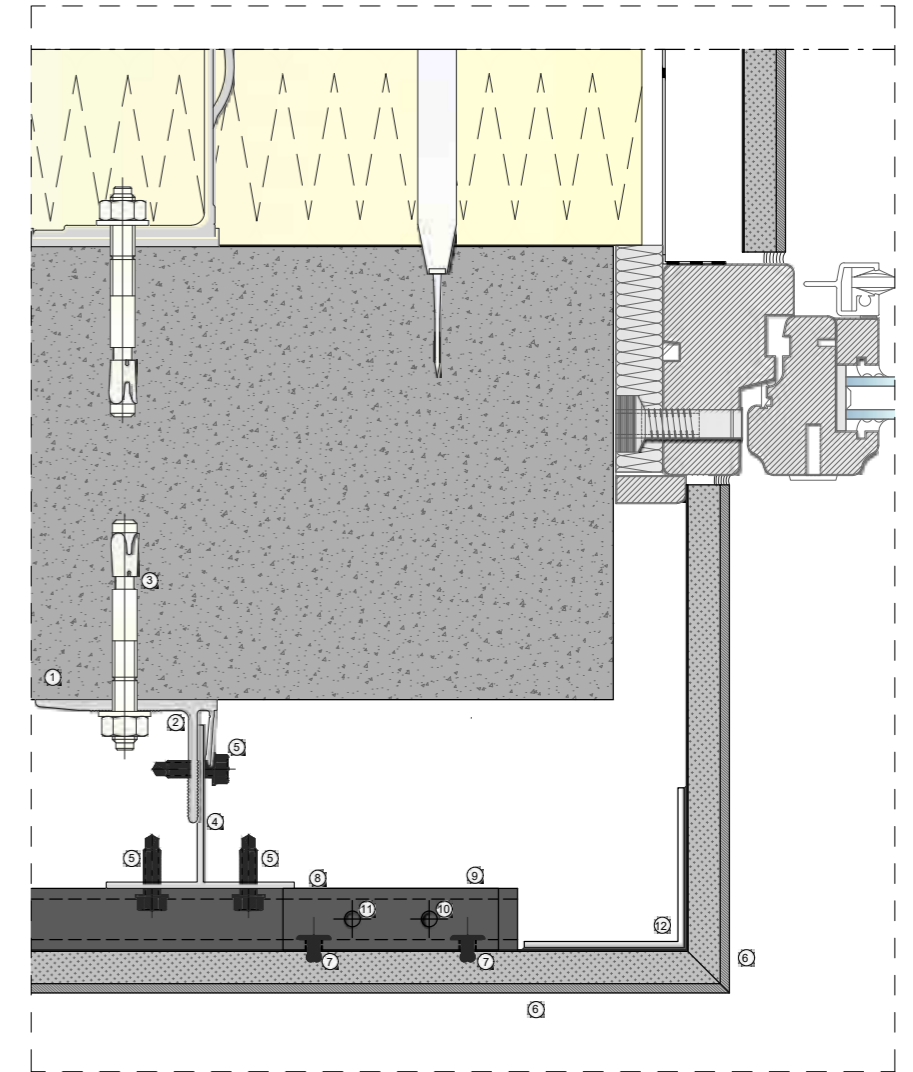
* in black anodized aluminum



Window/Air reveal
Section G-G

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw
- 12) Structural angle in stainless steel

* in black anodized aluminum

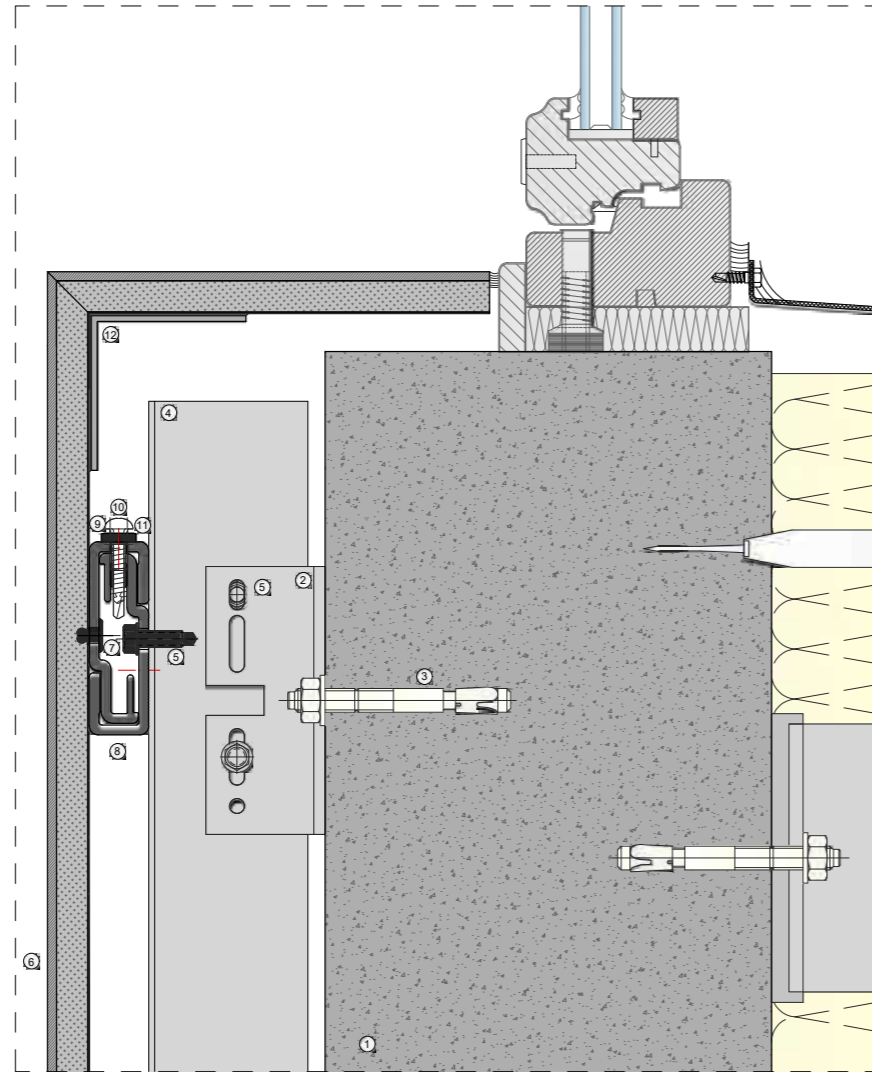




**Window/Air sill
Section I-I**

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw
- 12) Structural angle in stainless steel

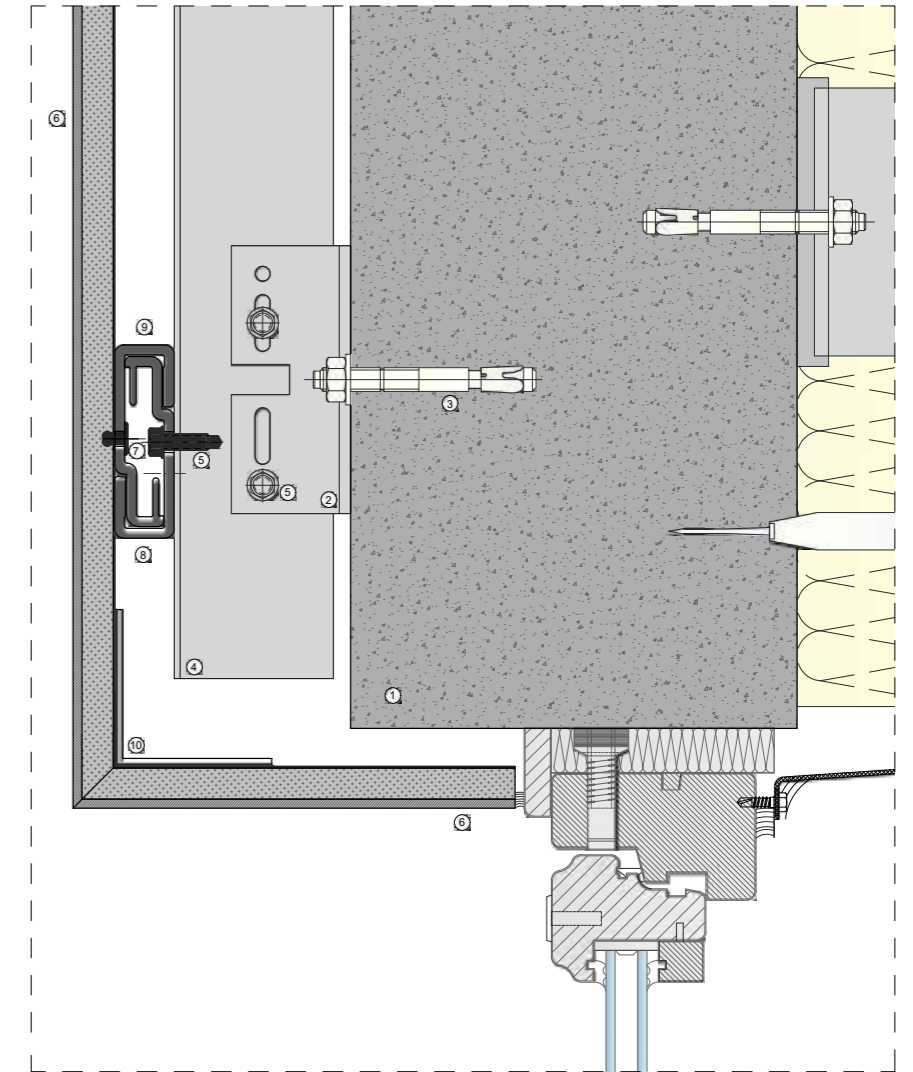
* in black anodized aluminum



**Window/Air ceiling
Section M-M**

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Structural angle in stainless steel

* in black anodized aluminum

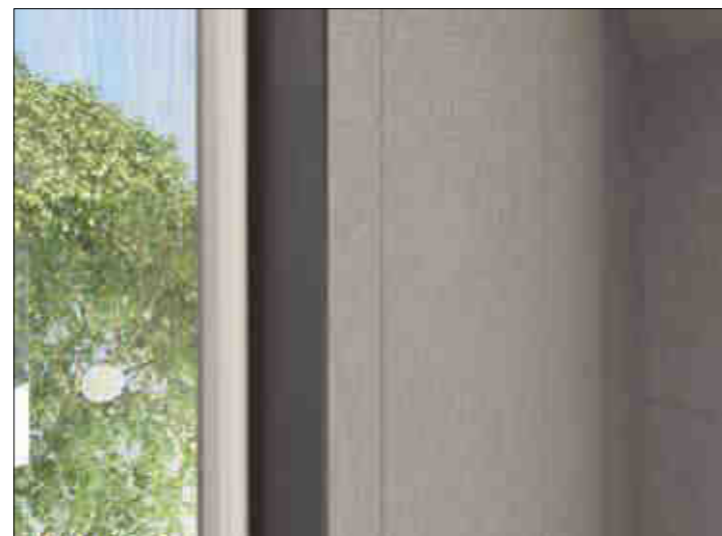
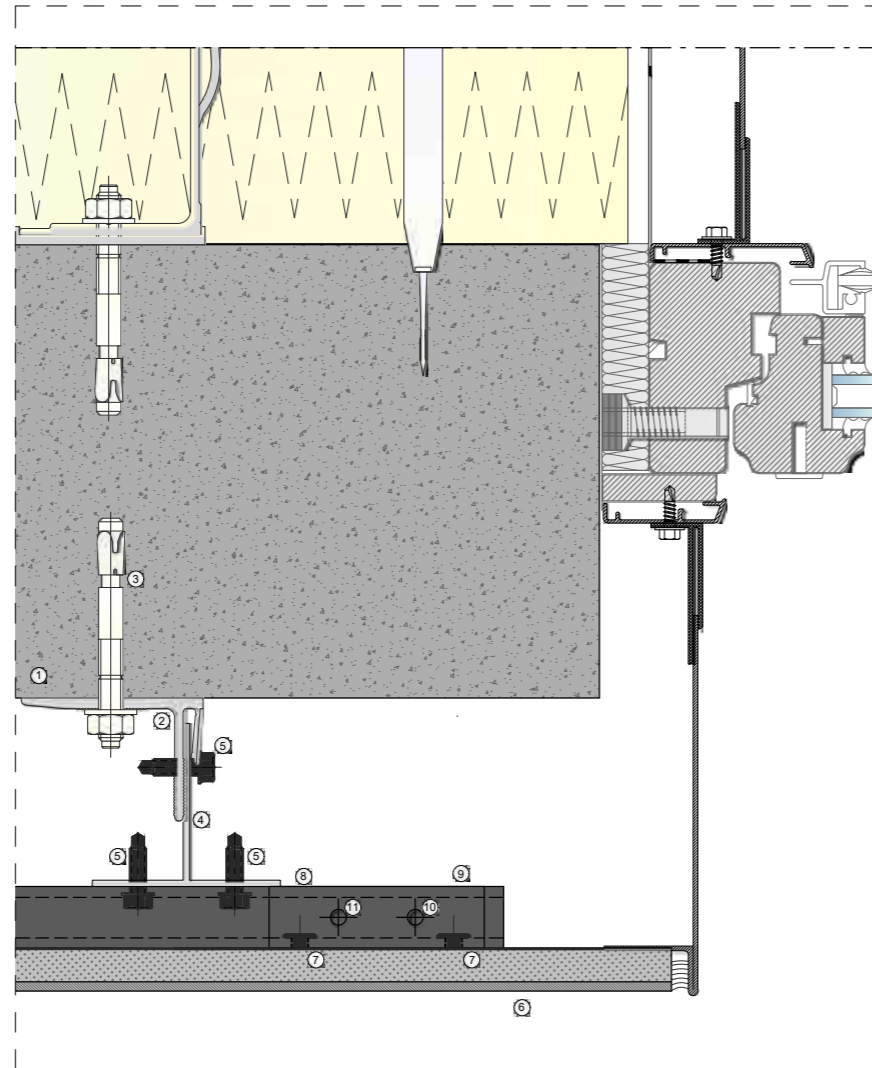




Window/Steel reveal
Section H-H

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw

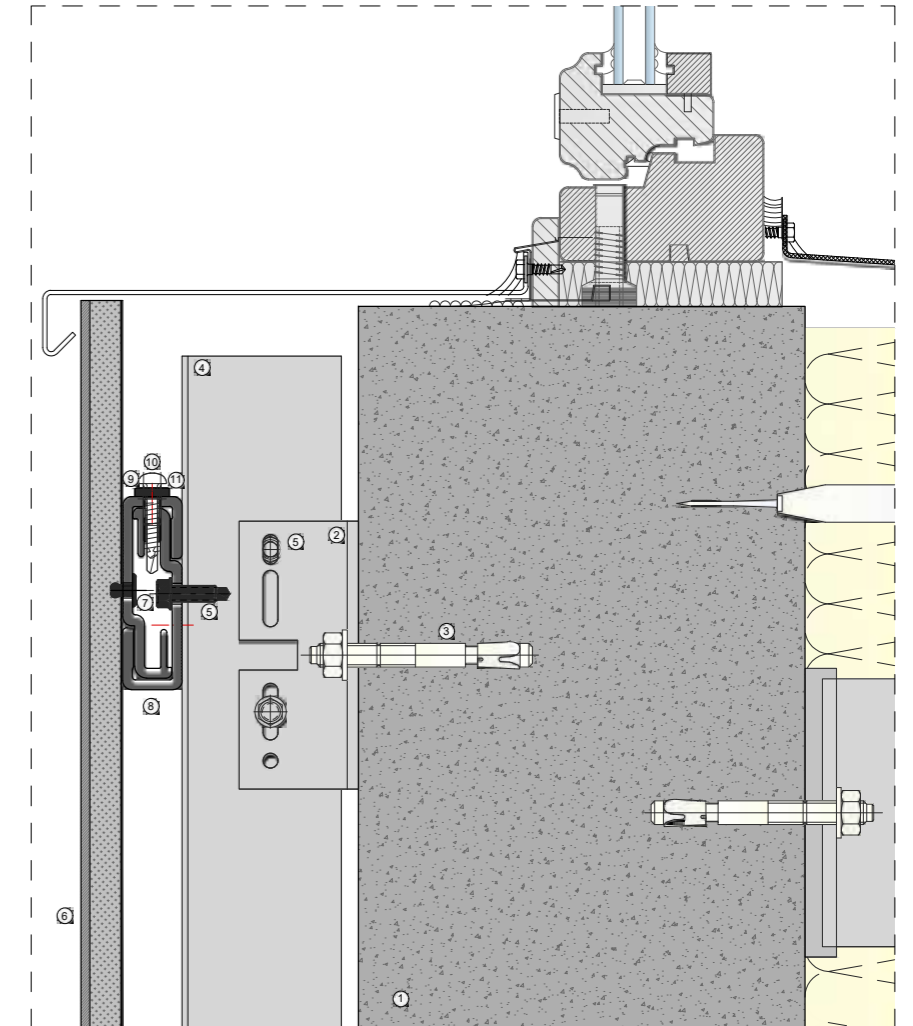
* in black anodized aluminum



Window/Steel sill
Section L-L

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw

* in black anodized aluminum

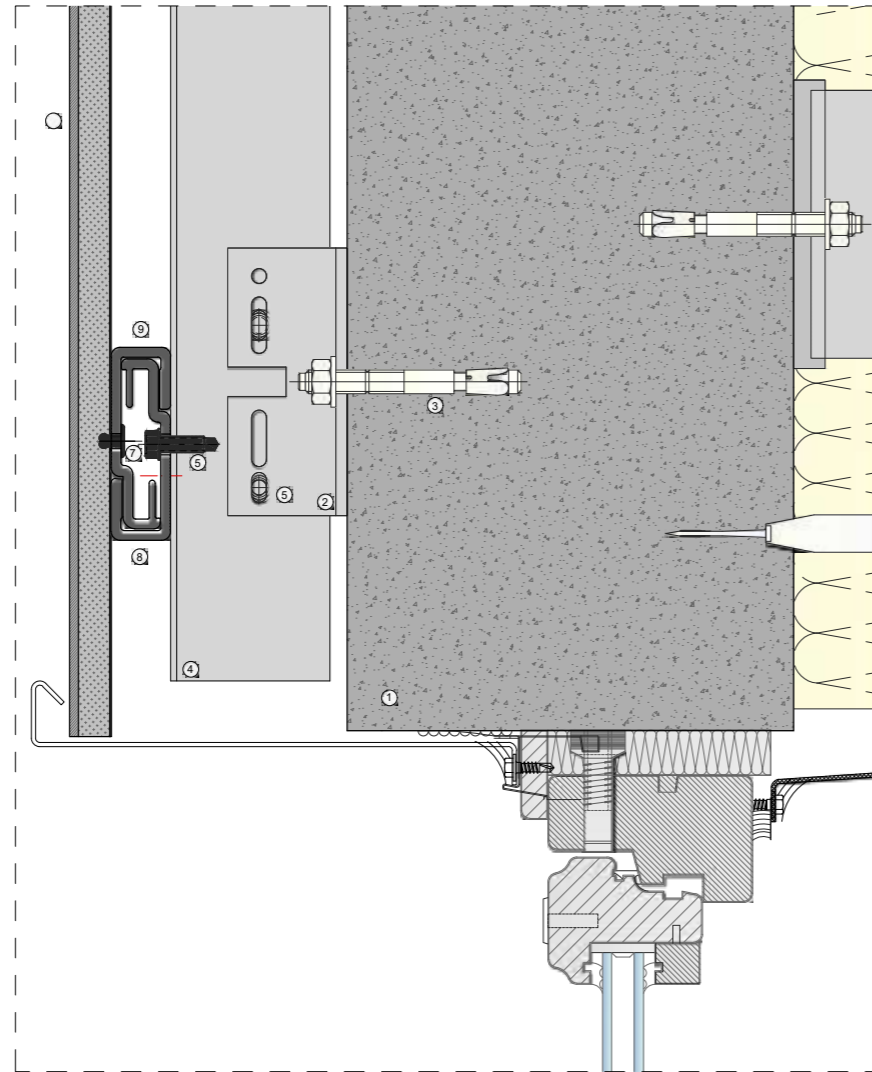




Window/steel ceiling
Section N-N

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *

* in black anodized aluminum



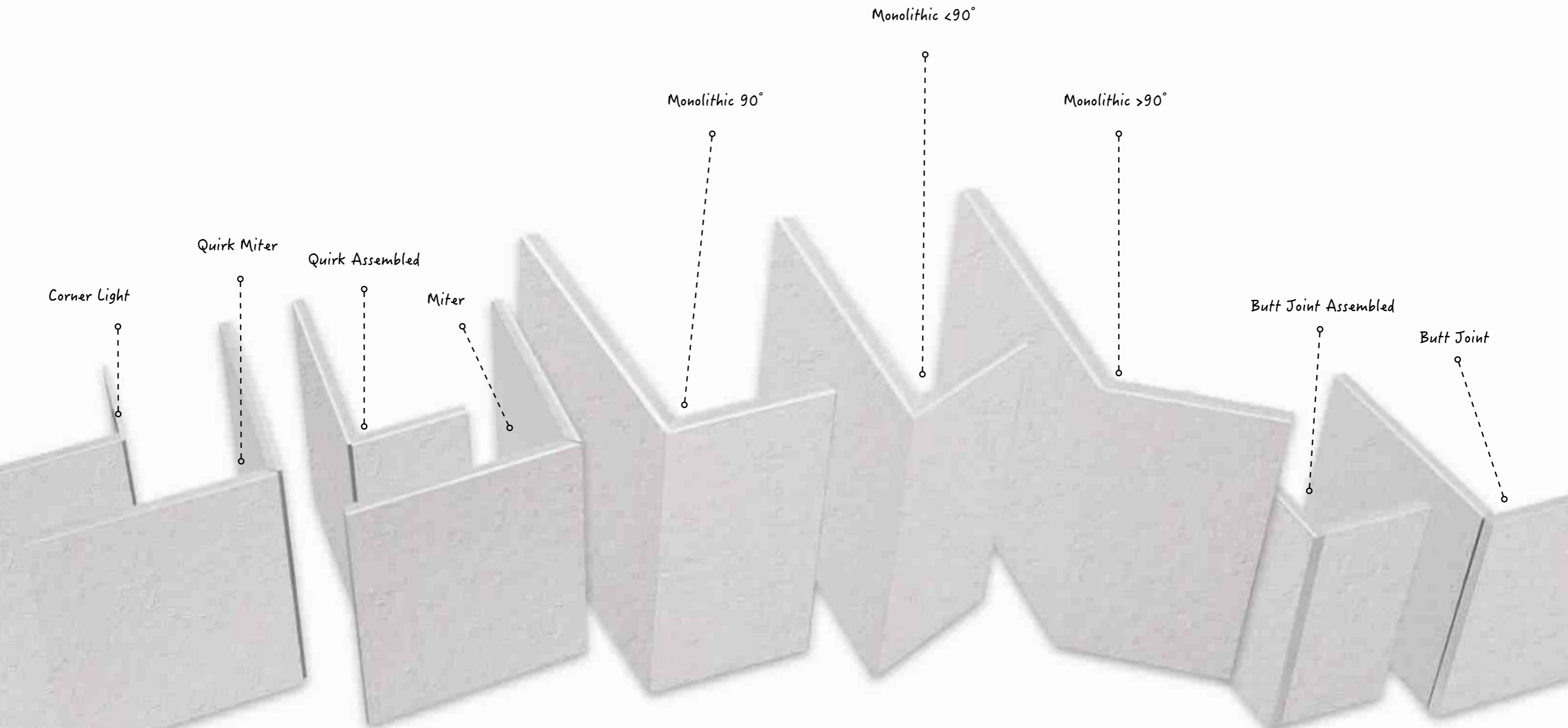
Types of corners

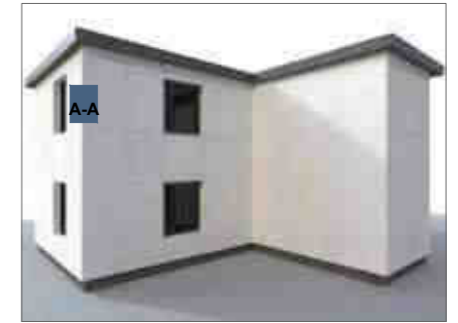
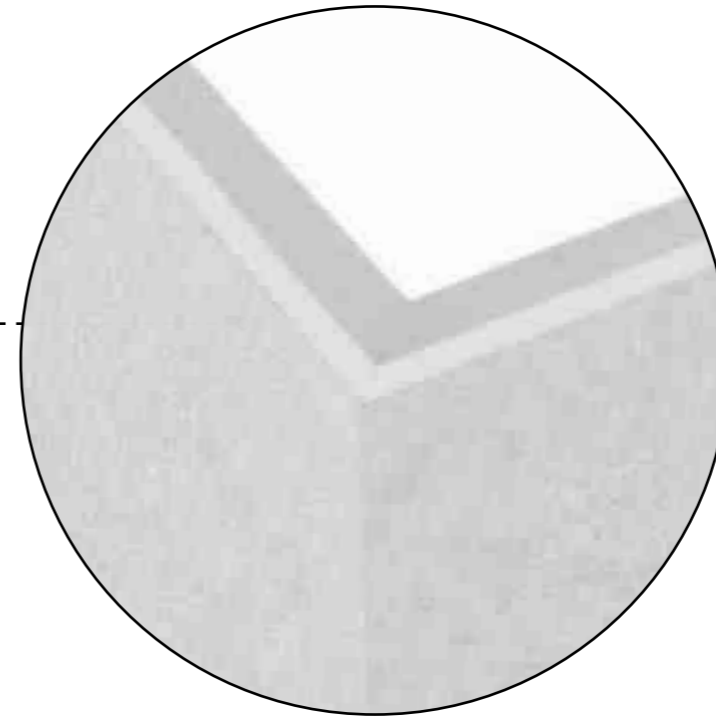
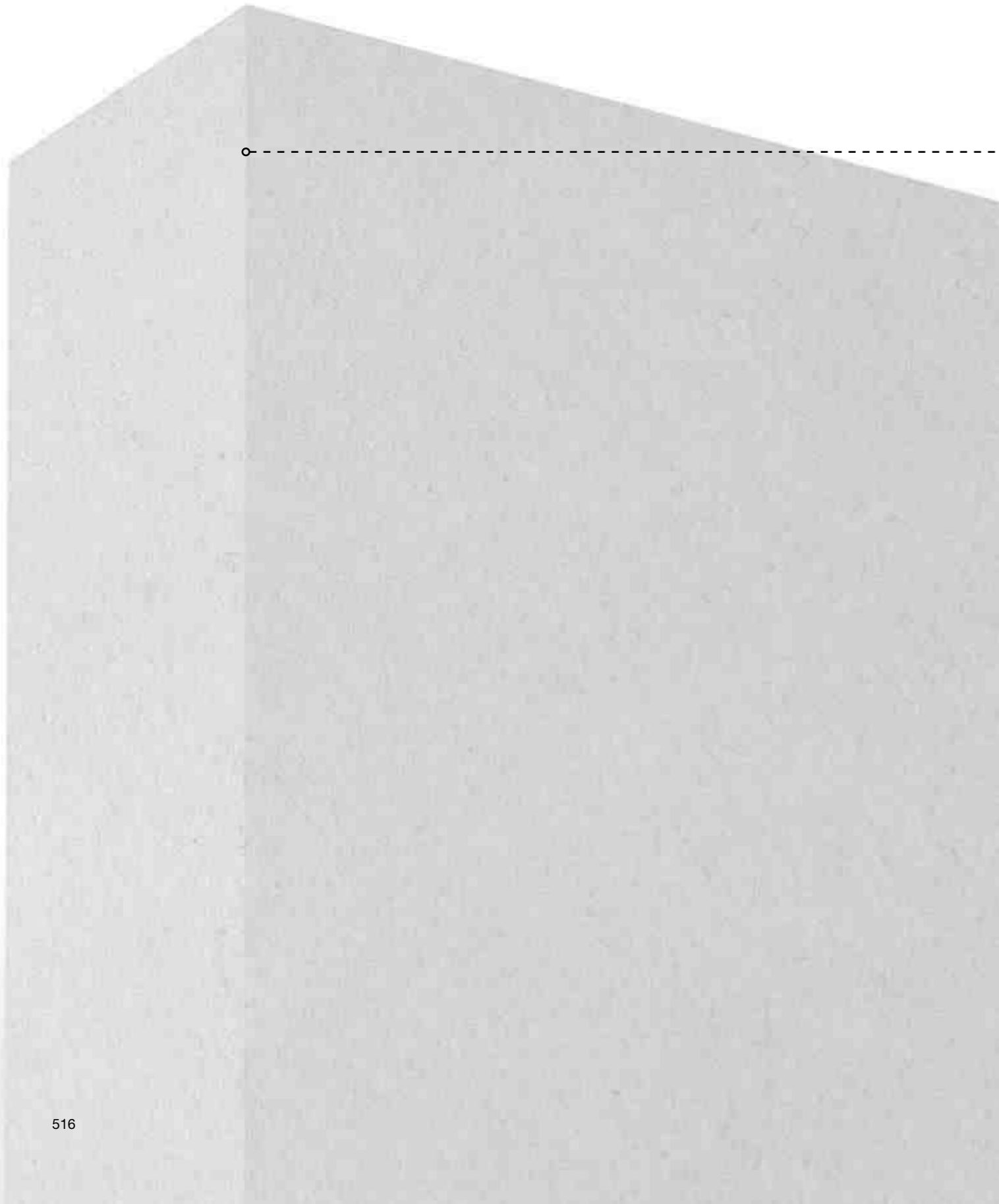
Edges in various angles

Monolithic shapes can be produced to achieve the most complicated and difficult angles, making it possible to satisfy any architectural design. We create them in our state-of-the-art facility and ensure the highest quality; GammaStone is synonymous with excellence and elegance. As an Italian company, our approach is not one of just a manufacturer, but also as artisans. Our teams experience combined with advanced technology have made us the world leader in large format lightweight panel manufacturing and in particular being known for the monolithic corners we can achieve.

Types of corners

GammaStone boasts a unique technology obtained by years of experience and improvement, collected in a series of patents and certifications.



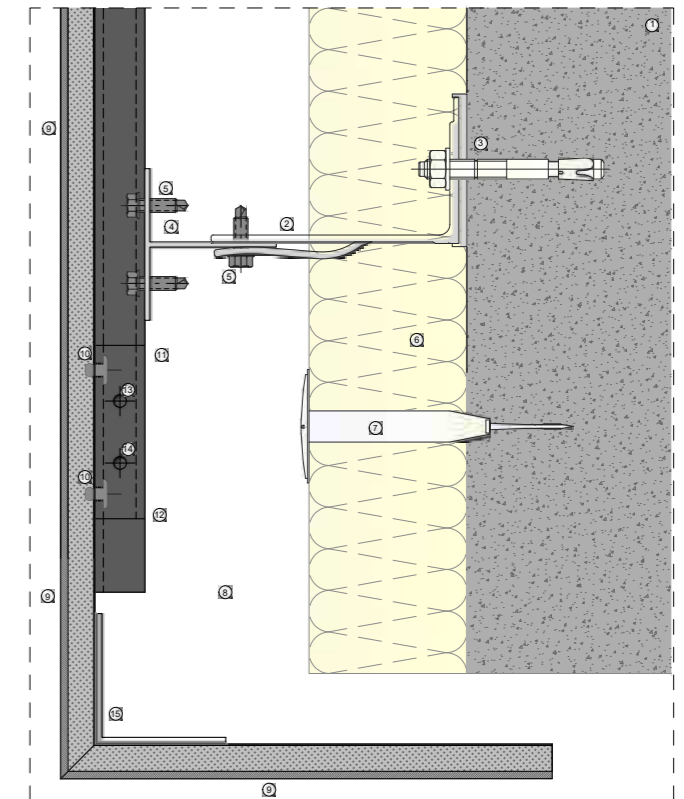


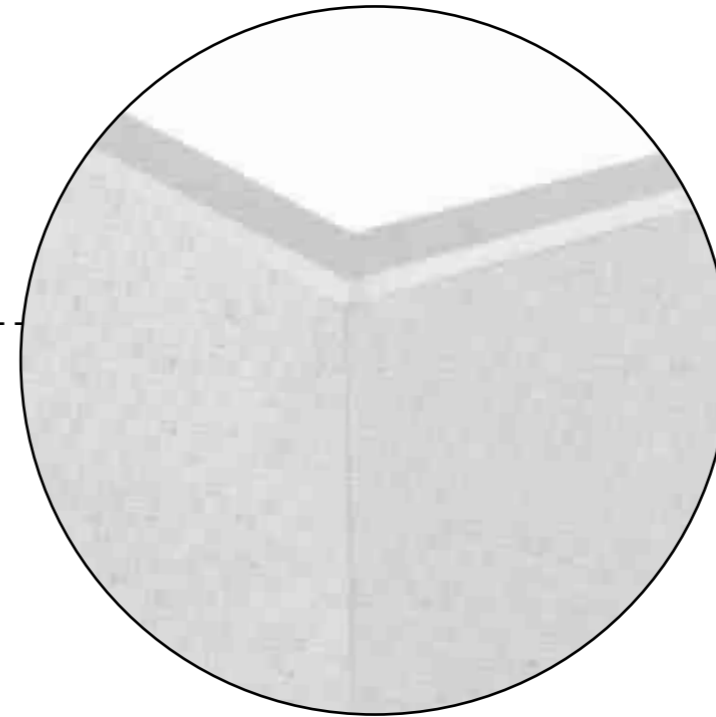
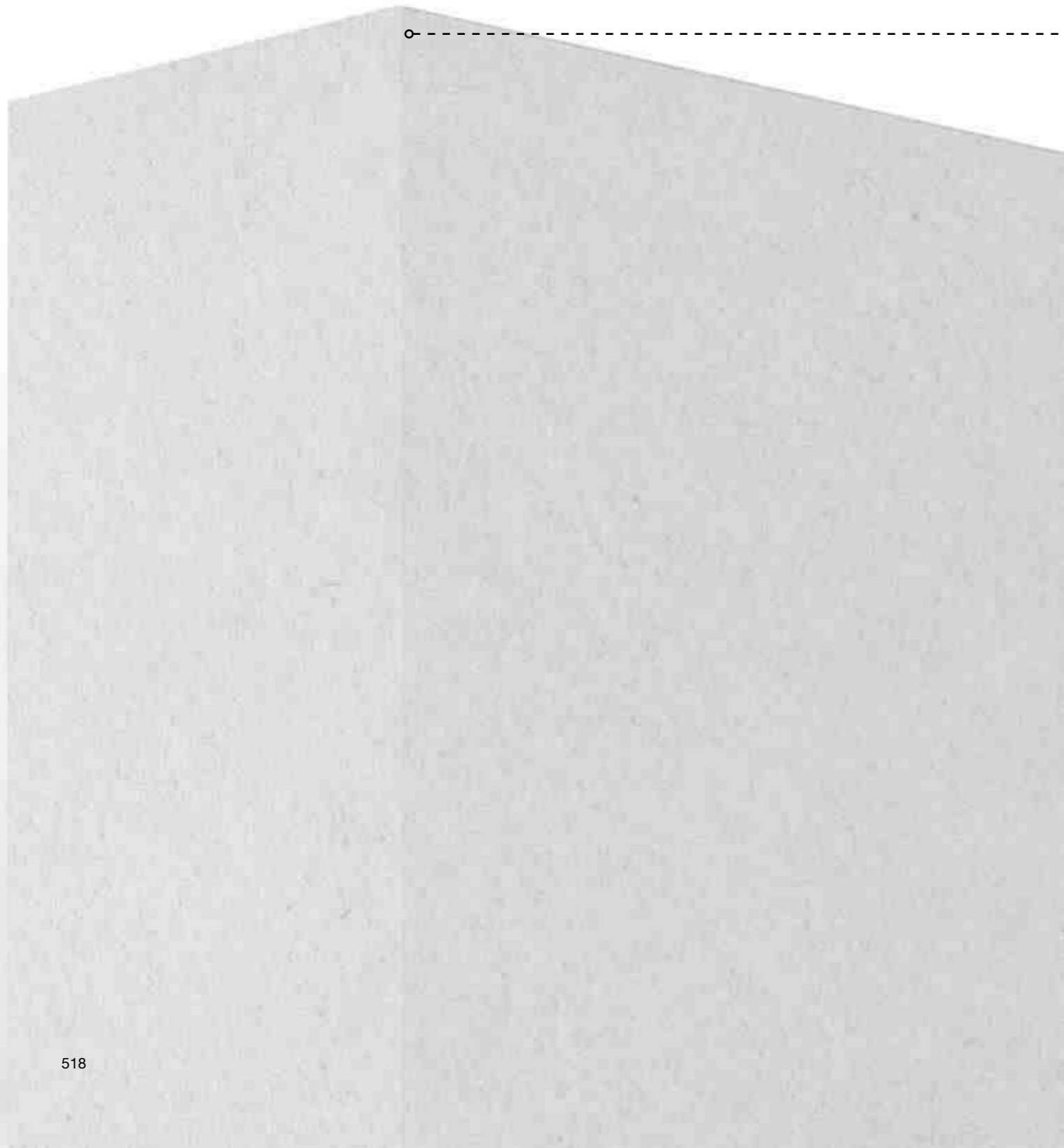
Section A-A

Monolithic 90°

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum



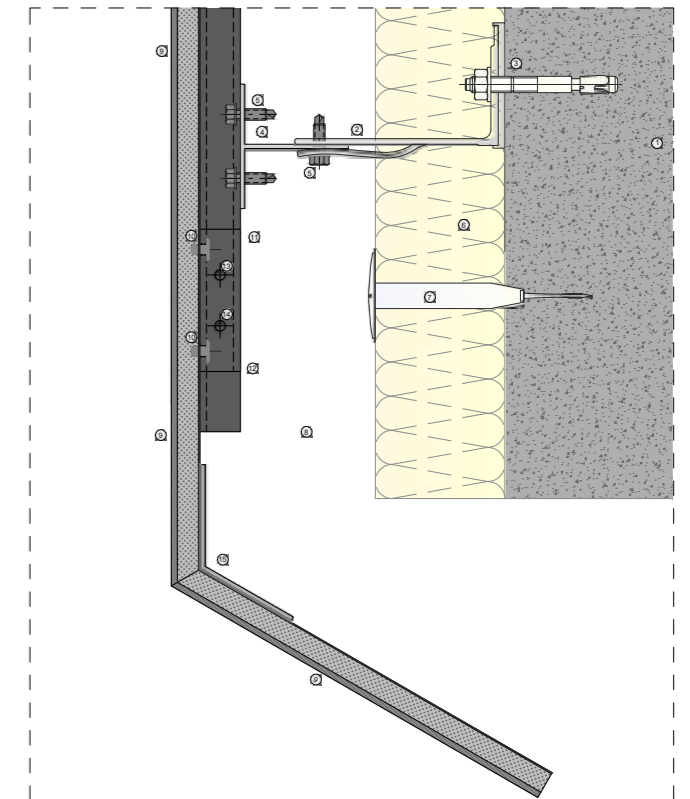


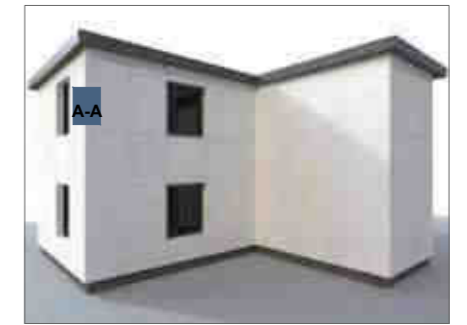
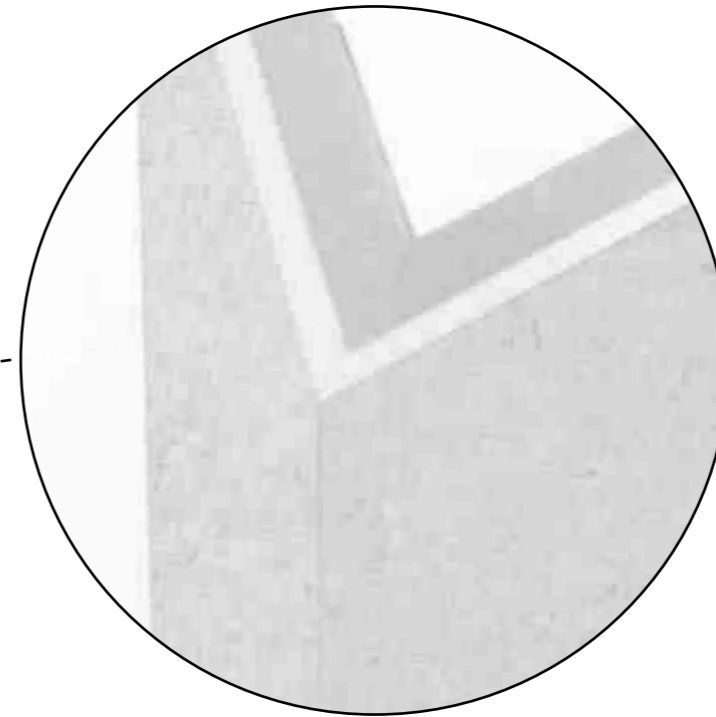
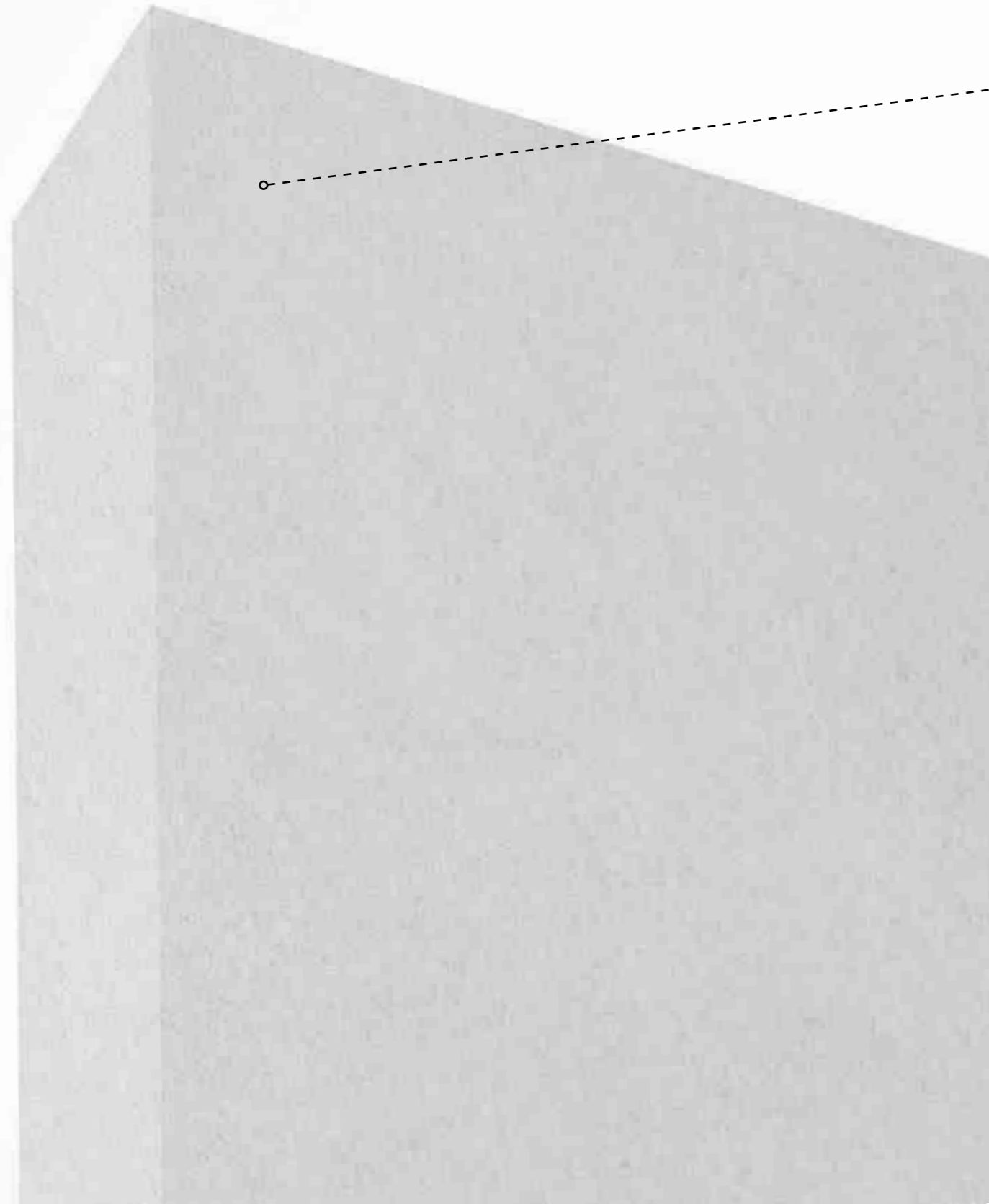
Section A-A

Monolithic > 90°

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum



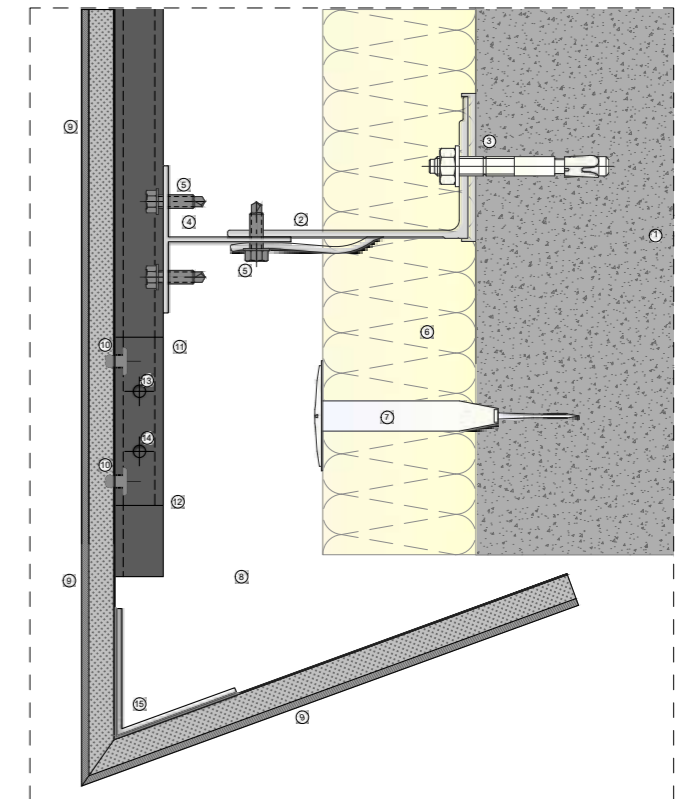


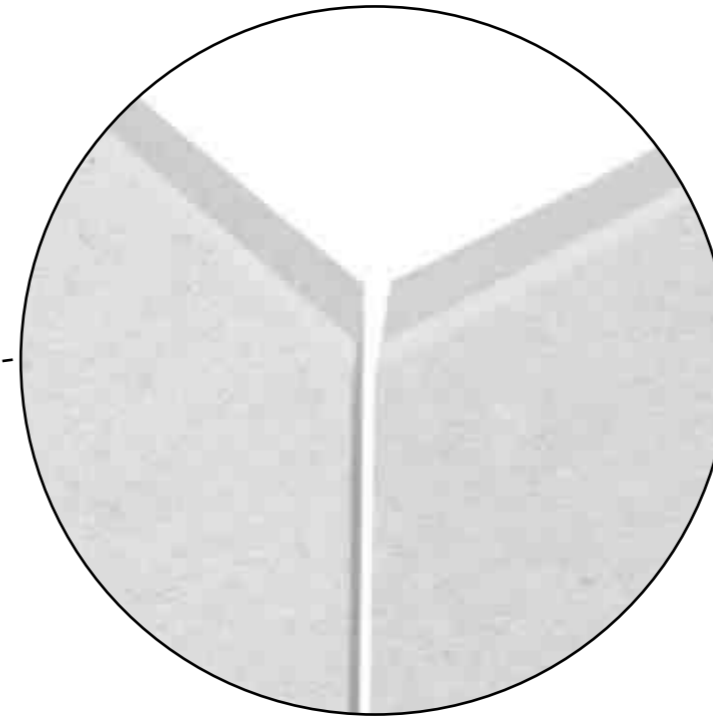
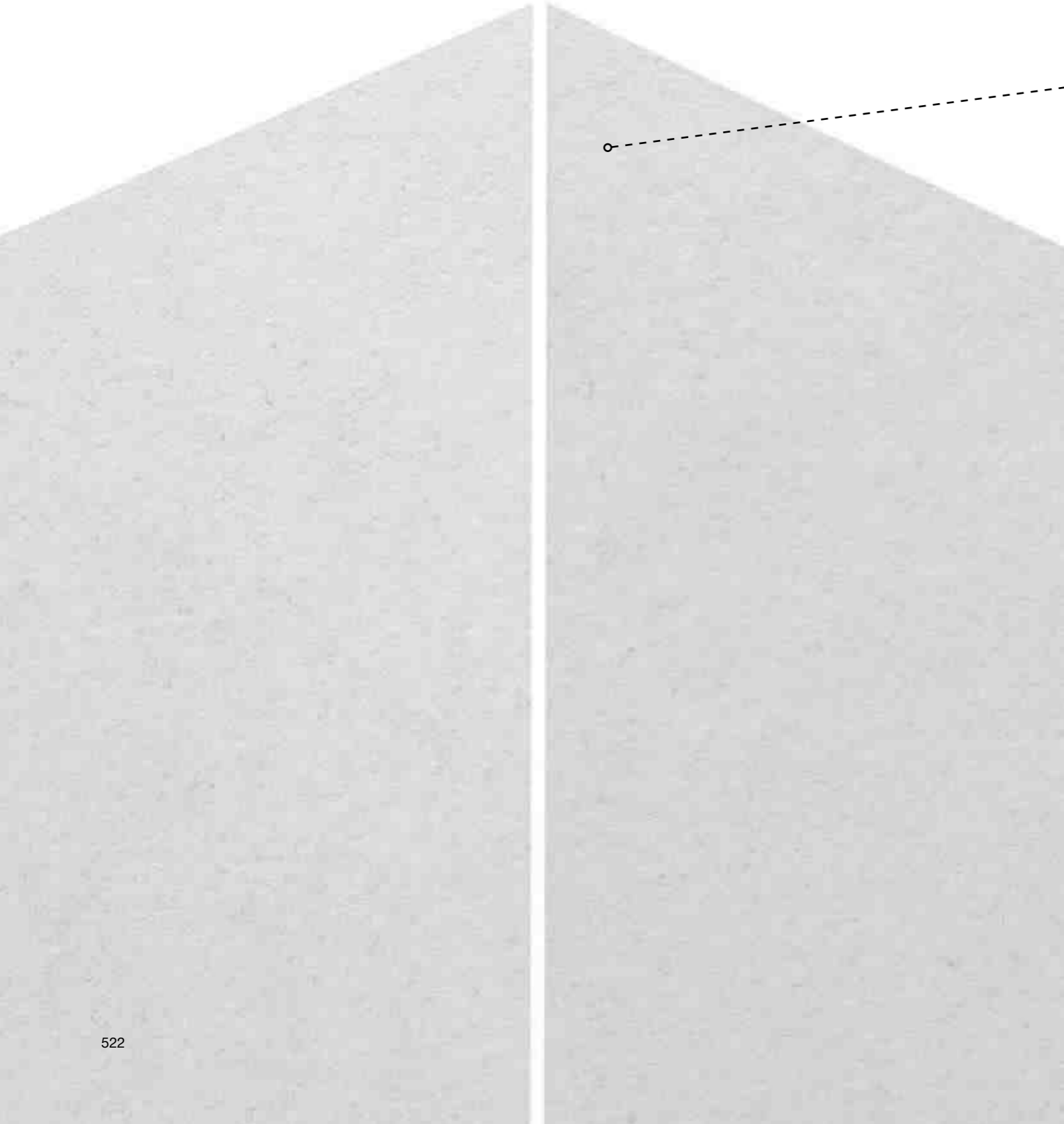
Section A-A

Monolithic < 90°

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum



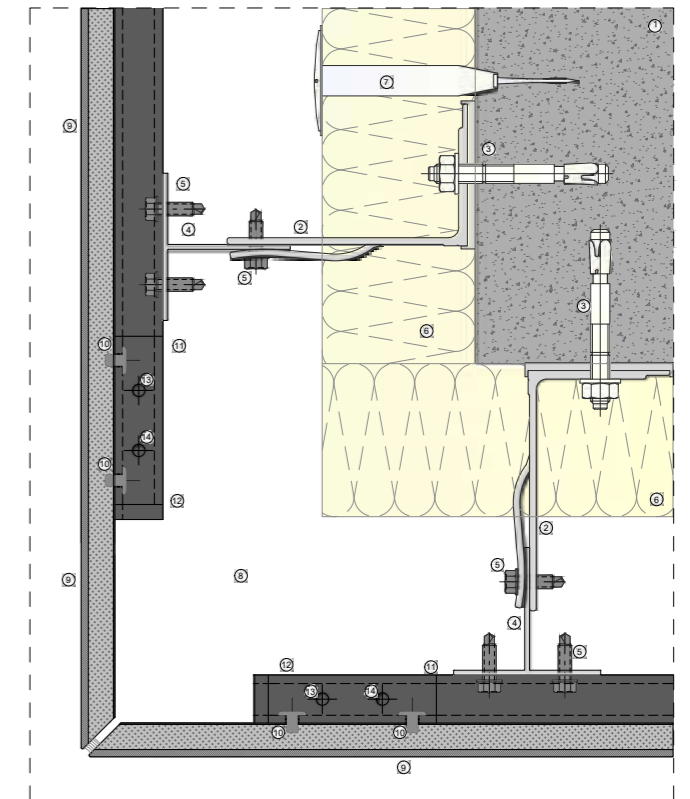


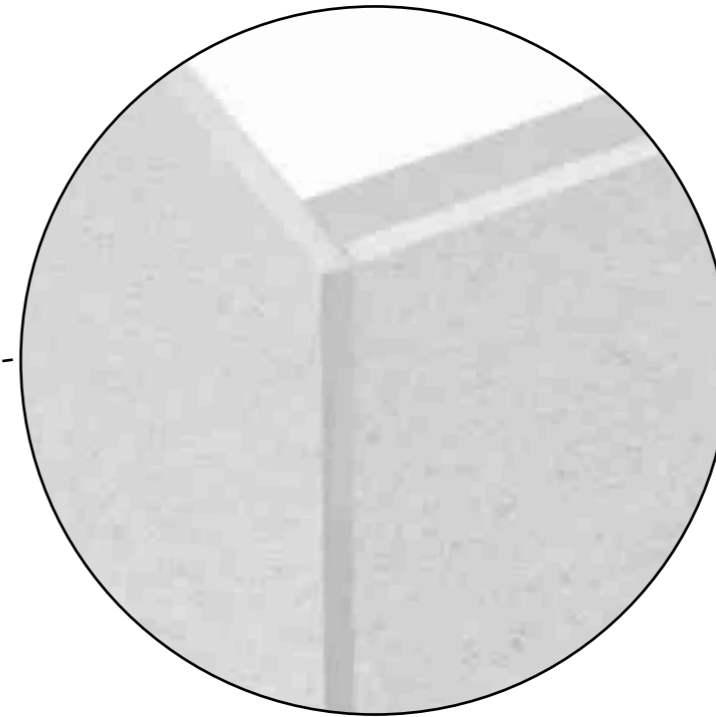
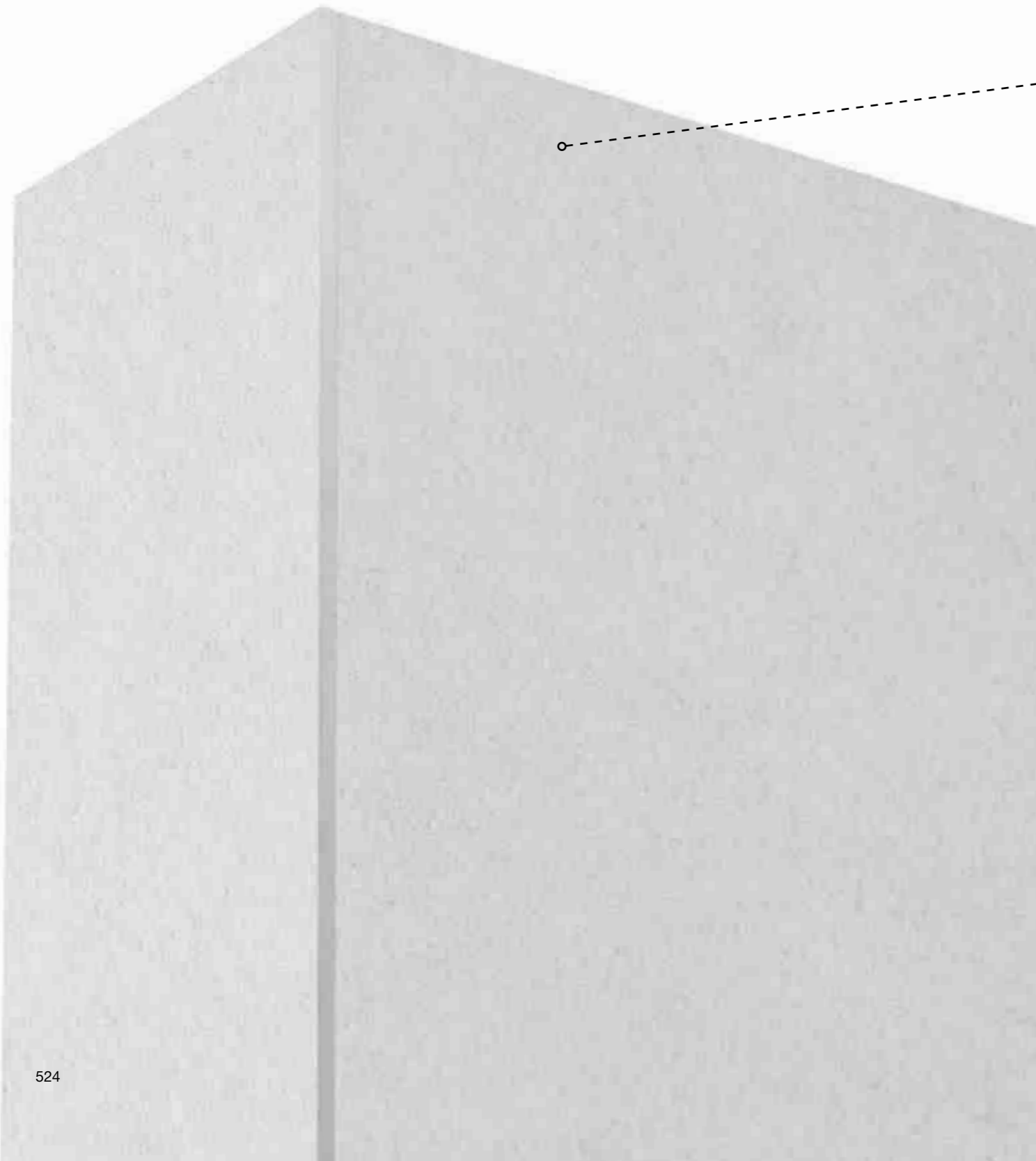
Section A-A

Miter

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



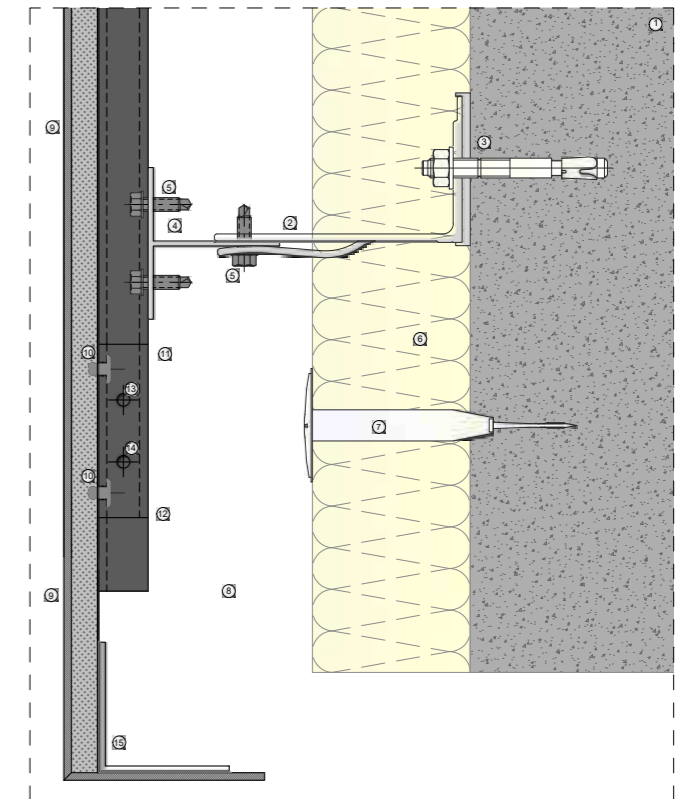


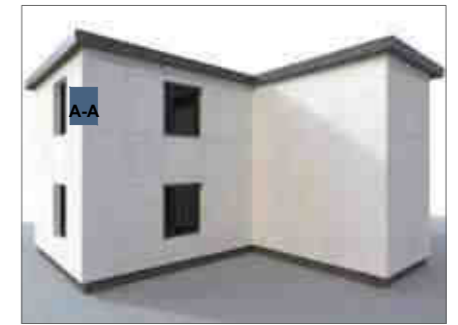
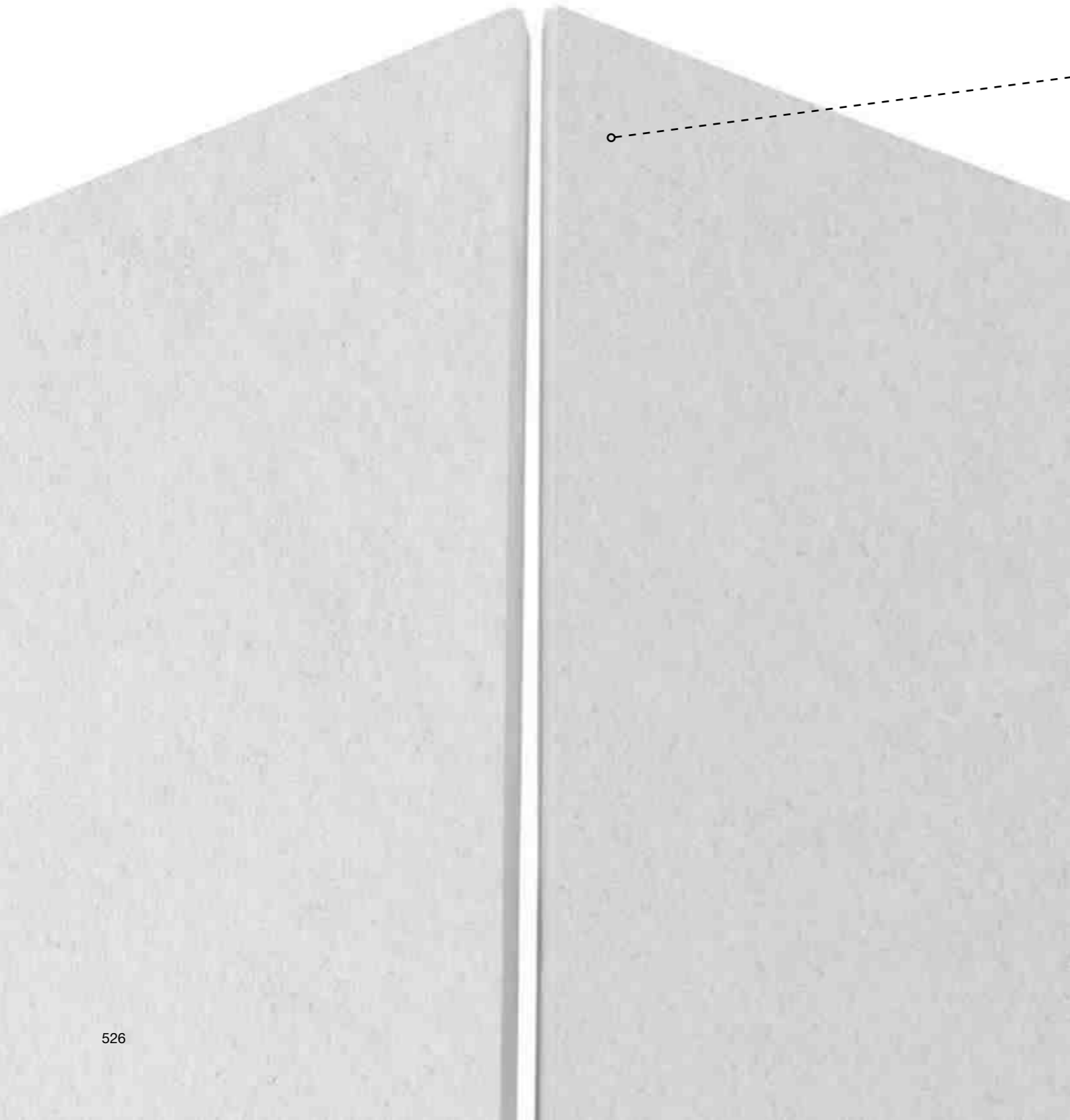
Section A-A

Corner Light

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip*
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum



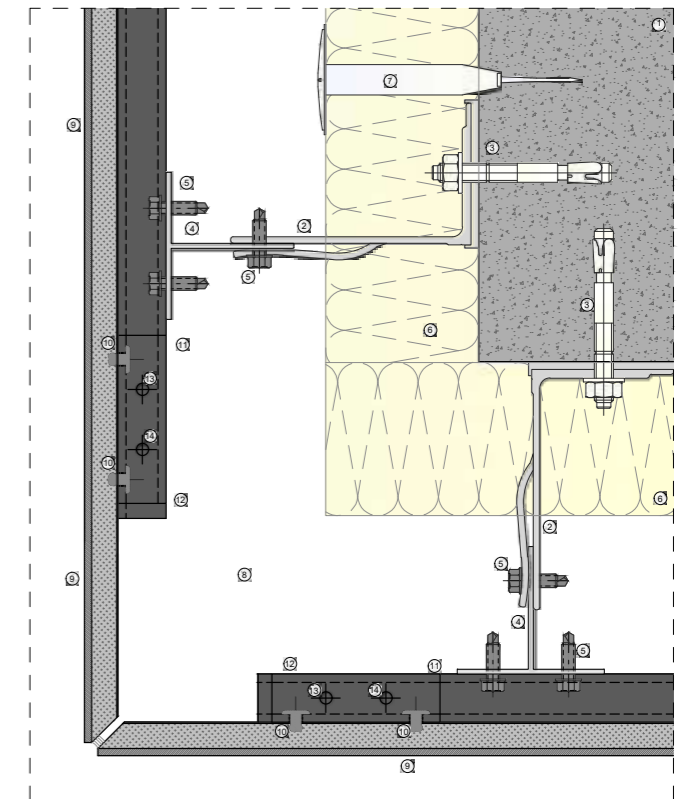


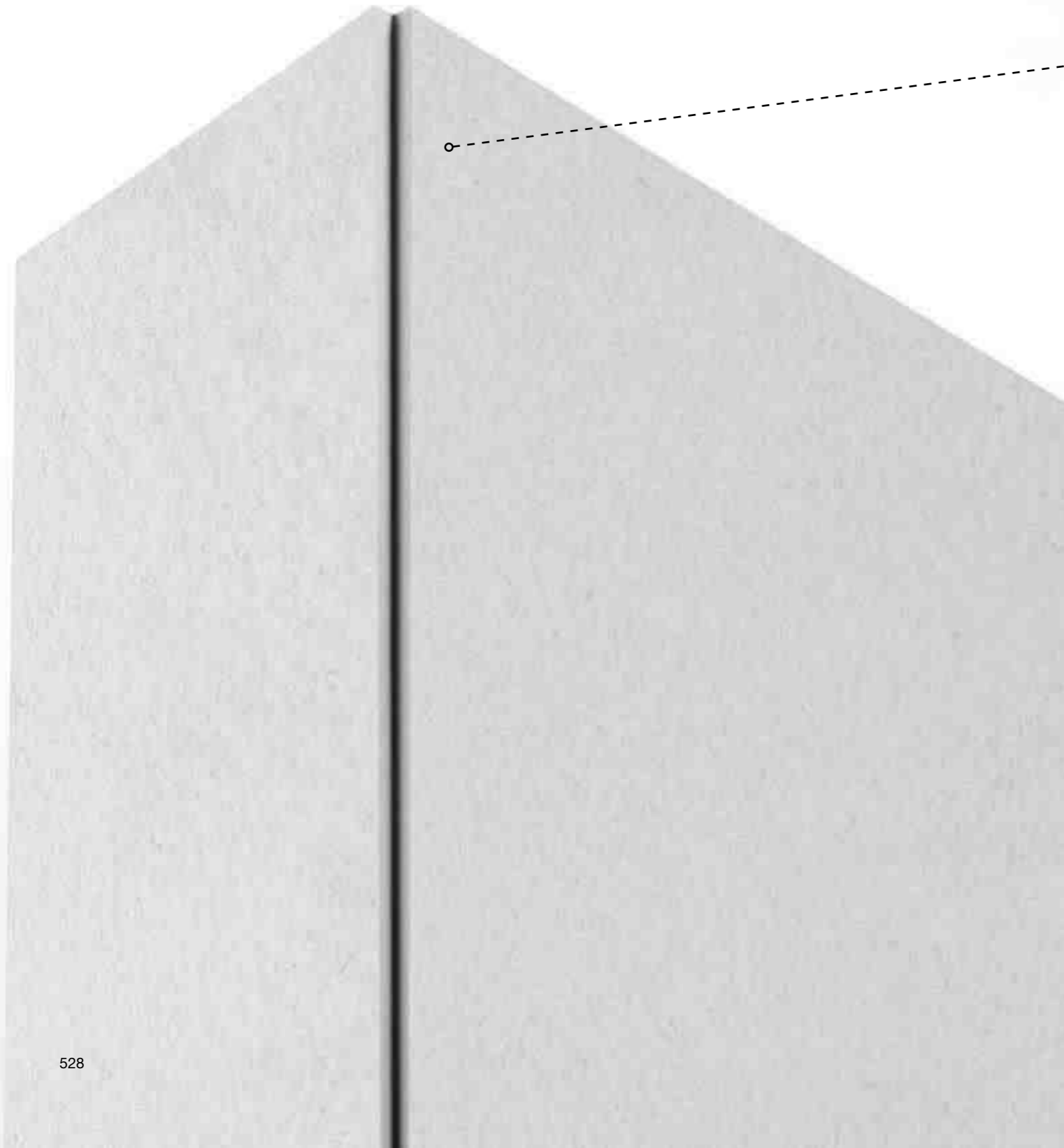
Section A-A

Quirk Miter

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



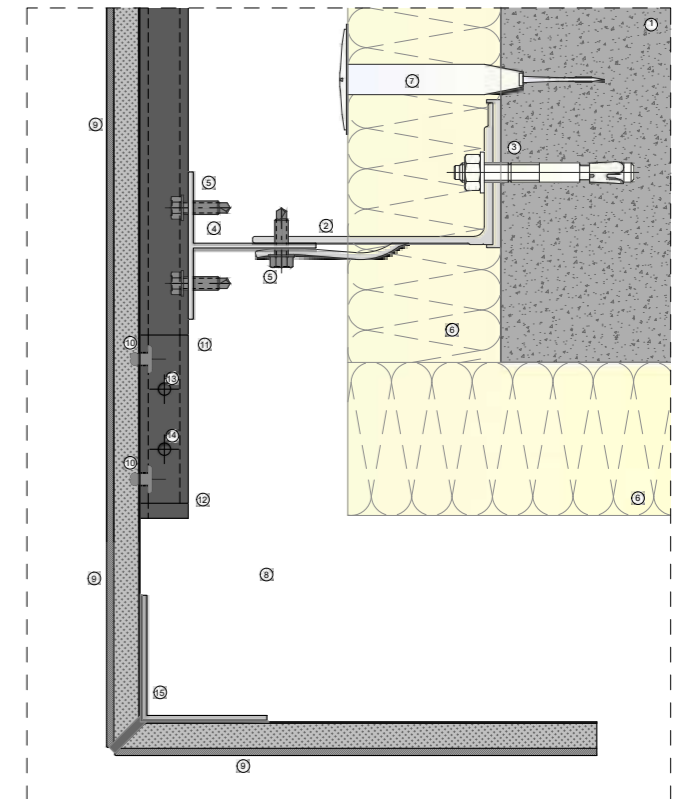


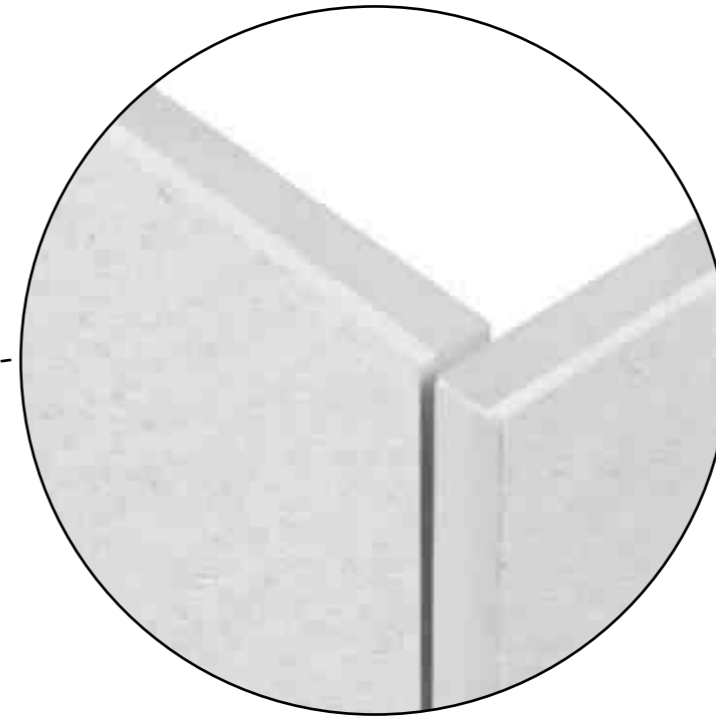
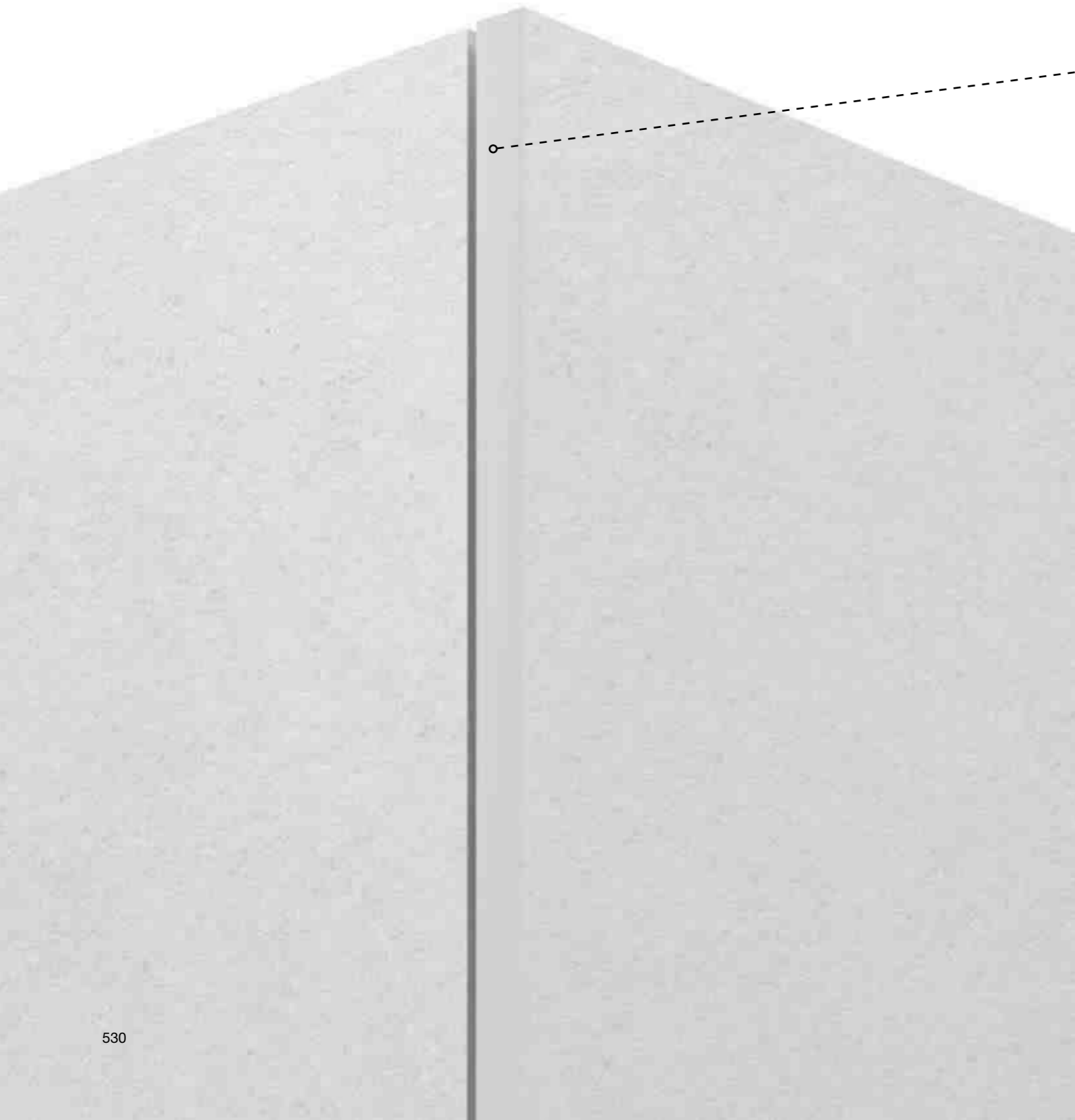
Section A-A

Quirk Assembled

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum



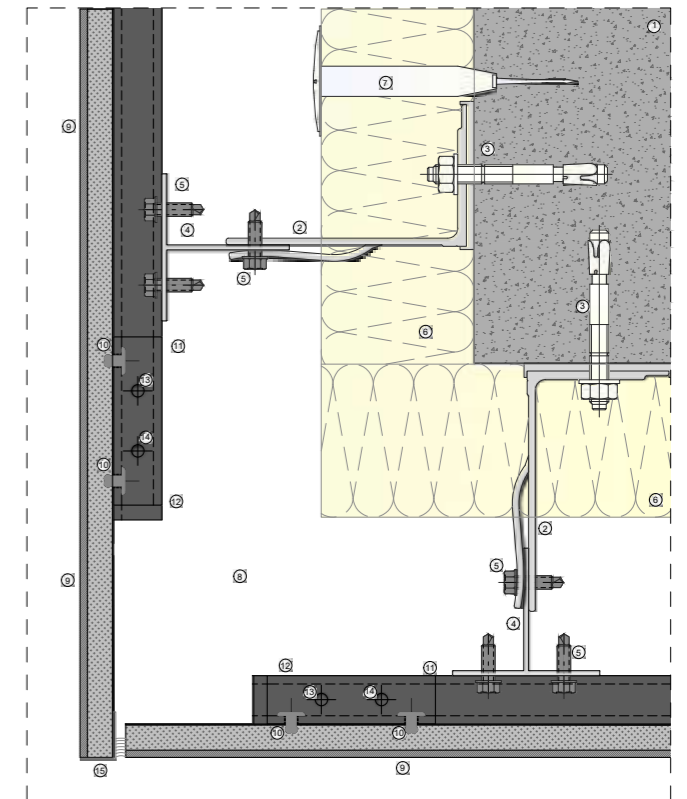


Section A-A

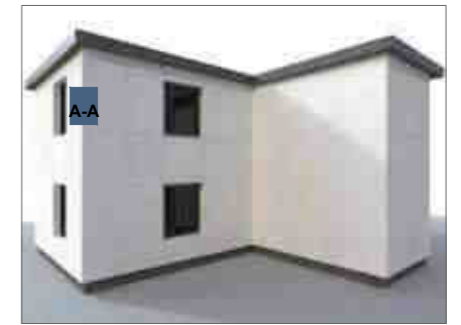
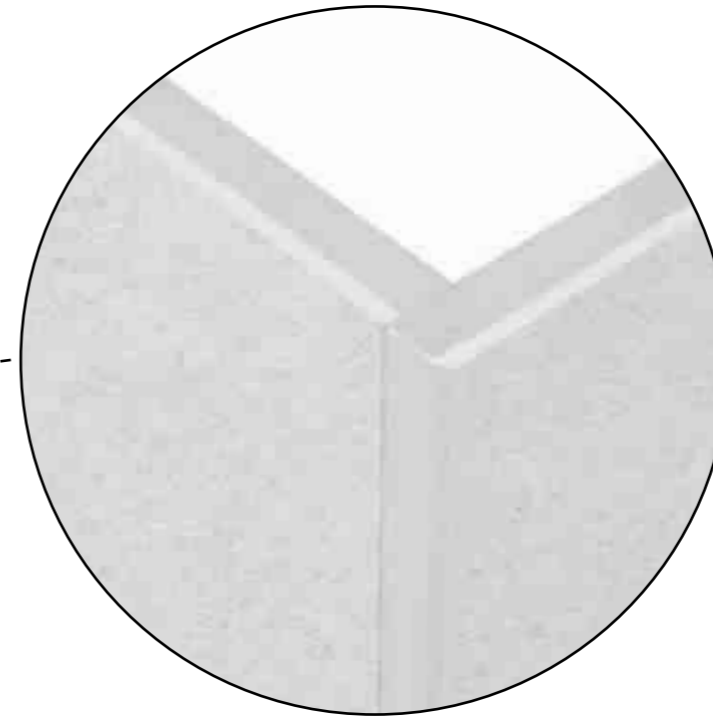
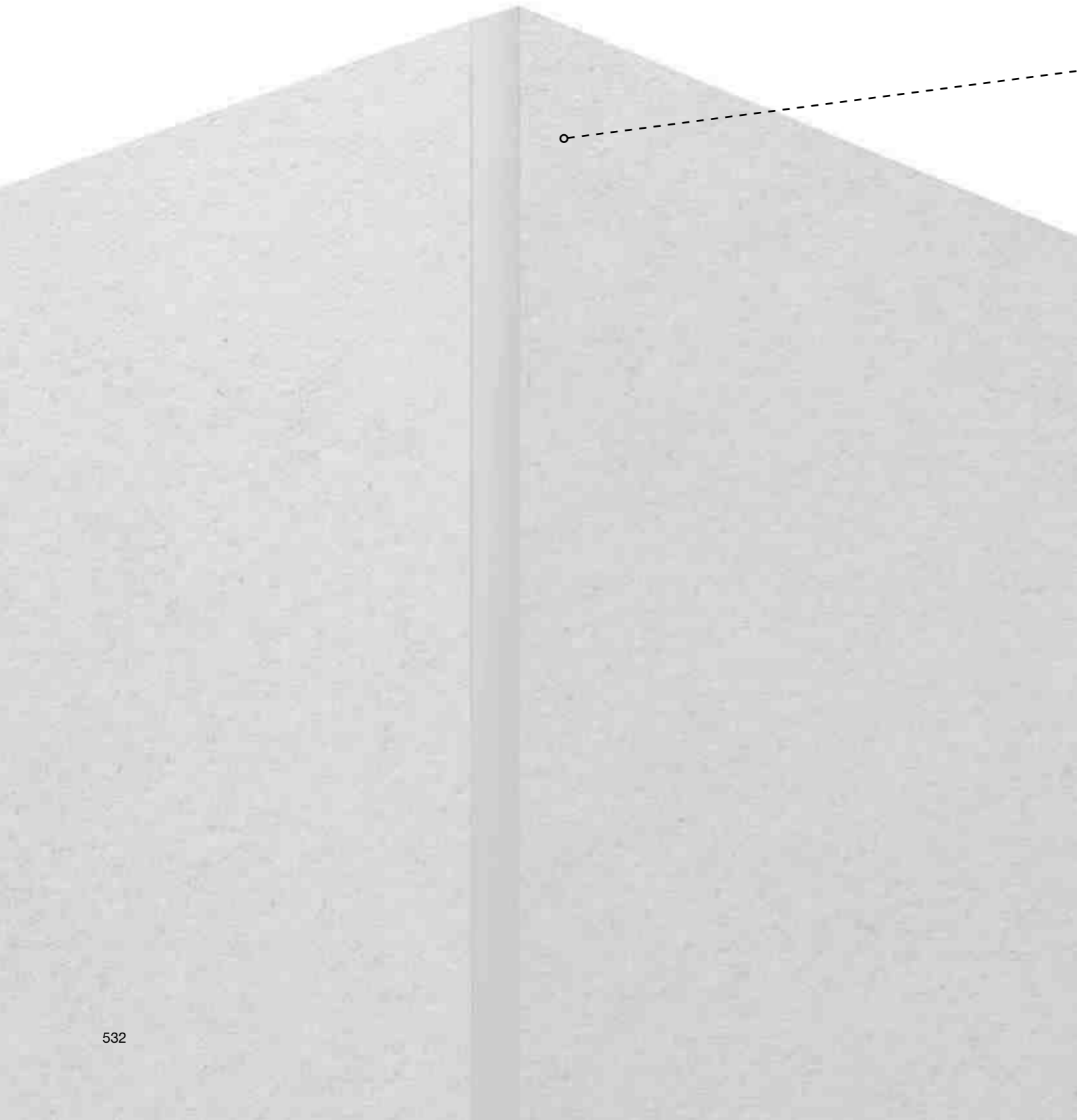
Butt Joint

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Stainless steel or aluminium terminal

* in black anodized aluminum



Butt Joint Assembled

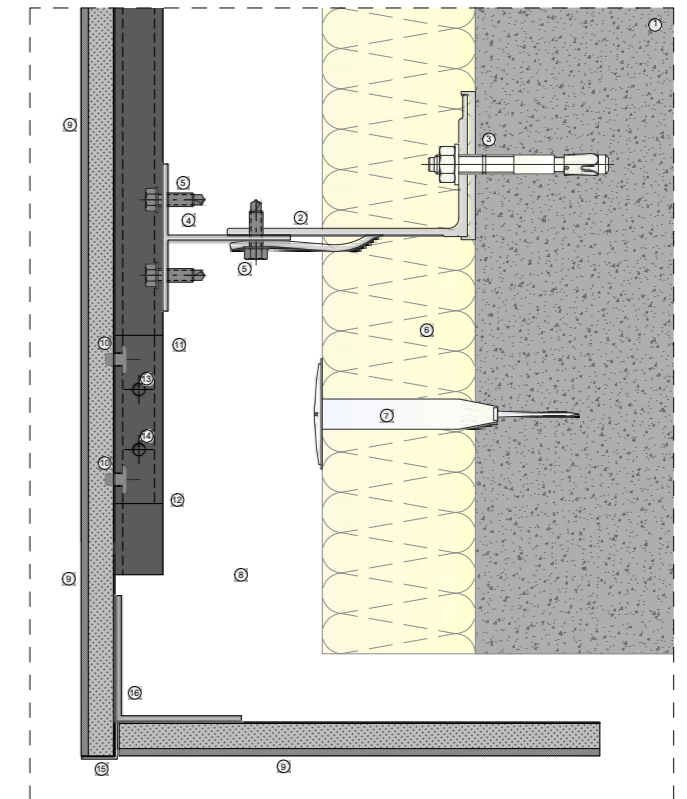


Section A-A

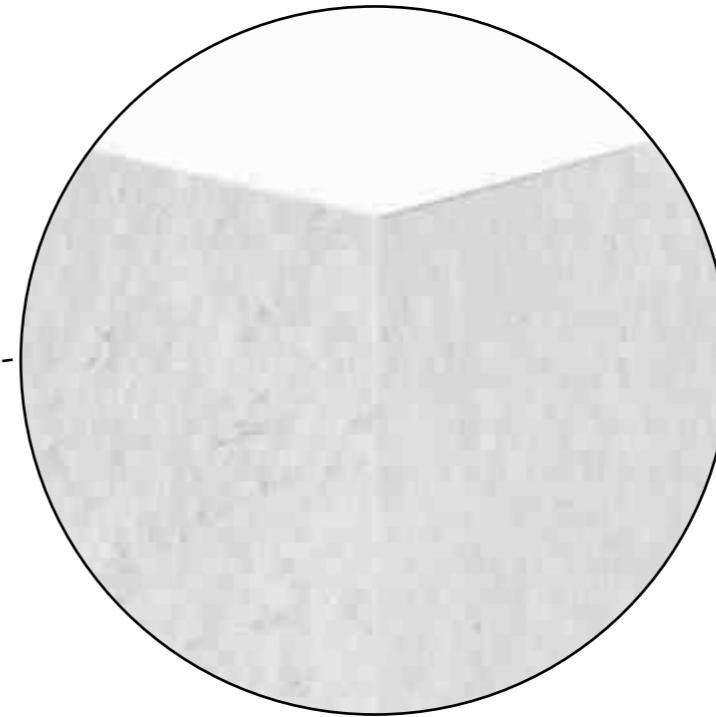
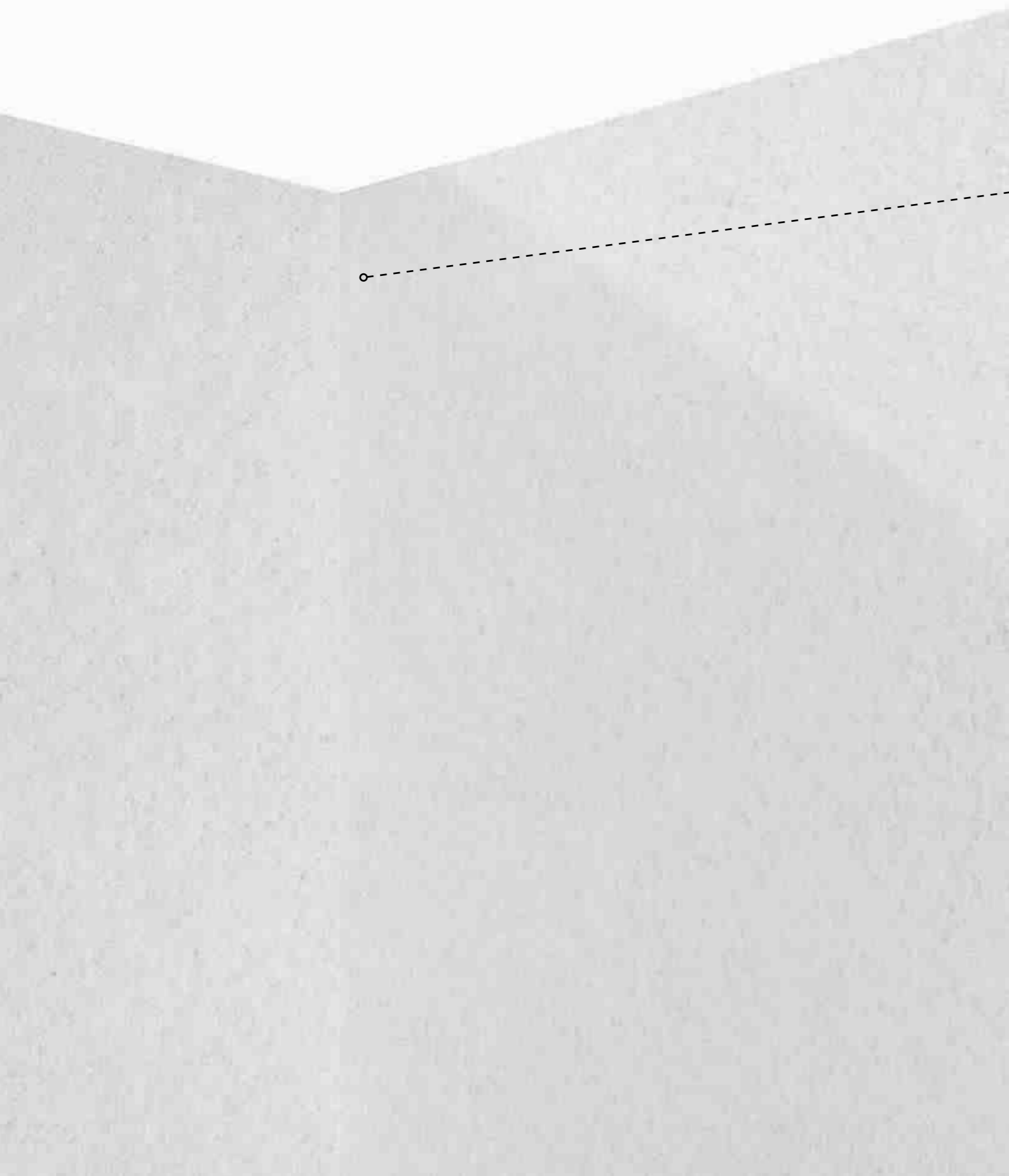
Butt Joint Assembled

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Stainless steel or aluminium terminal
- 16) Structural angle in stainless steel

* in black anodized aluminum



Internal Corner

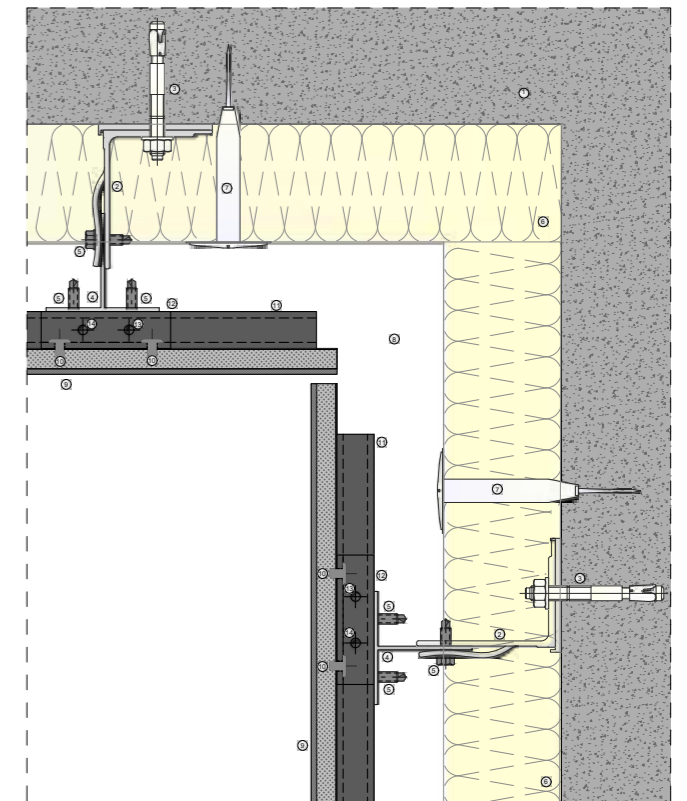


Section B-B

Internal Corner

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



Columns and stringcourses

Produced in our laboratories

Columns not only serve a structural purpose for the building, but also provides a visual effect that affects the way the building interacts with its environment and the people it serves. When architects design in GammaStone AIR they are capable of creating unique and one-of-a-kind aesthetics. Monolithic panels to be fitted over columns, beams, slab edges have a great impact on the overall building design. GammaStone can ensure that all our monolithic shapes can be custom designed to meet any architectural demand and are produced with the highest quality standards.

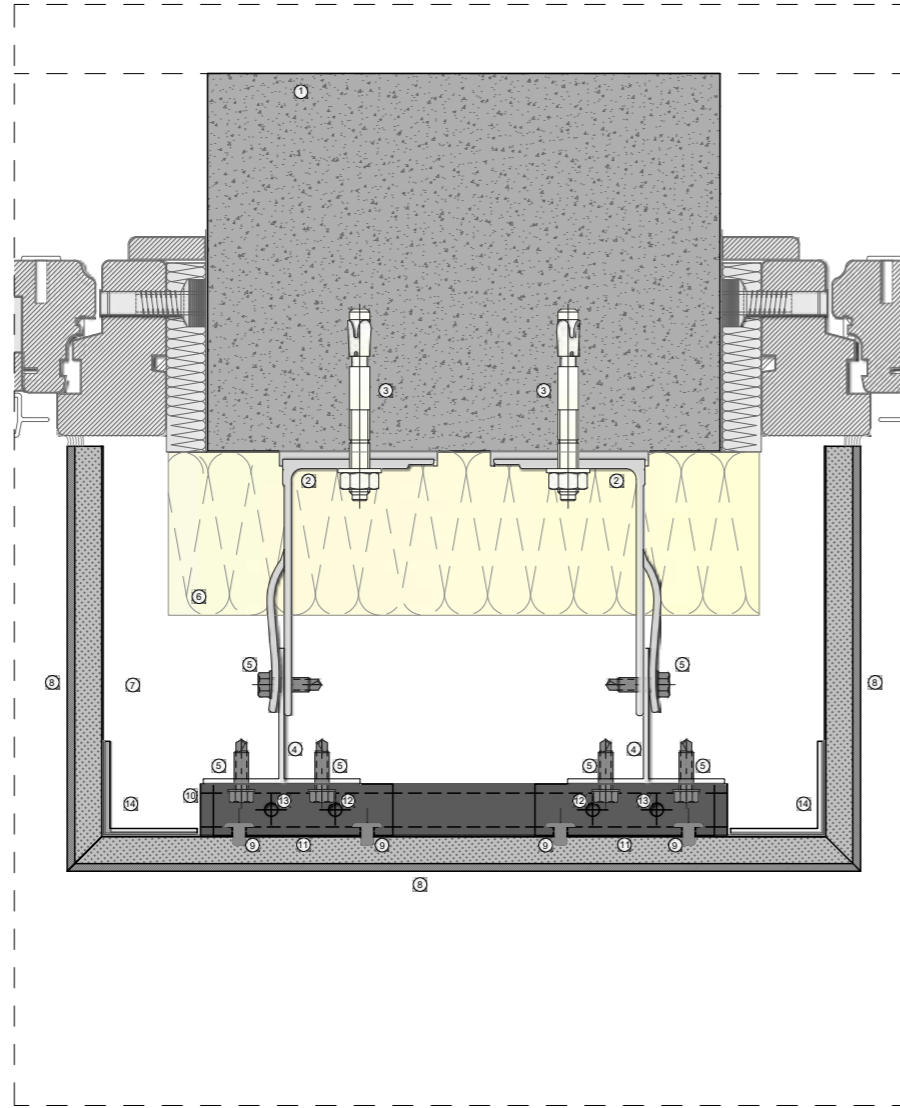




Pilaster A-A

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self dril. Screw
- 6) Insulation
- 7) Ventilation
- 8) GammaStone AIR Panel
- 9) Rivet
- 10) GammaStone rail *
- 11) GammaStone clip *
- 12) Fixing Screw
- 13) Adjust. Screw
- 14) Structural angle in stainless steel

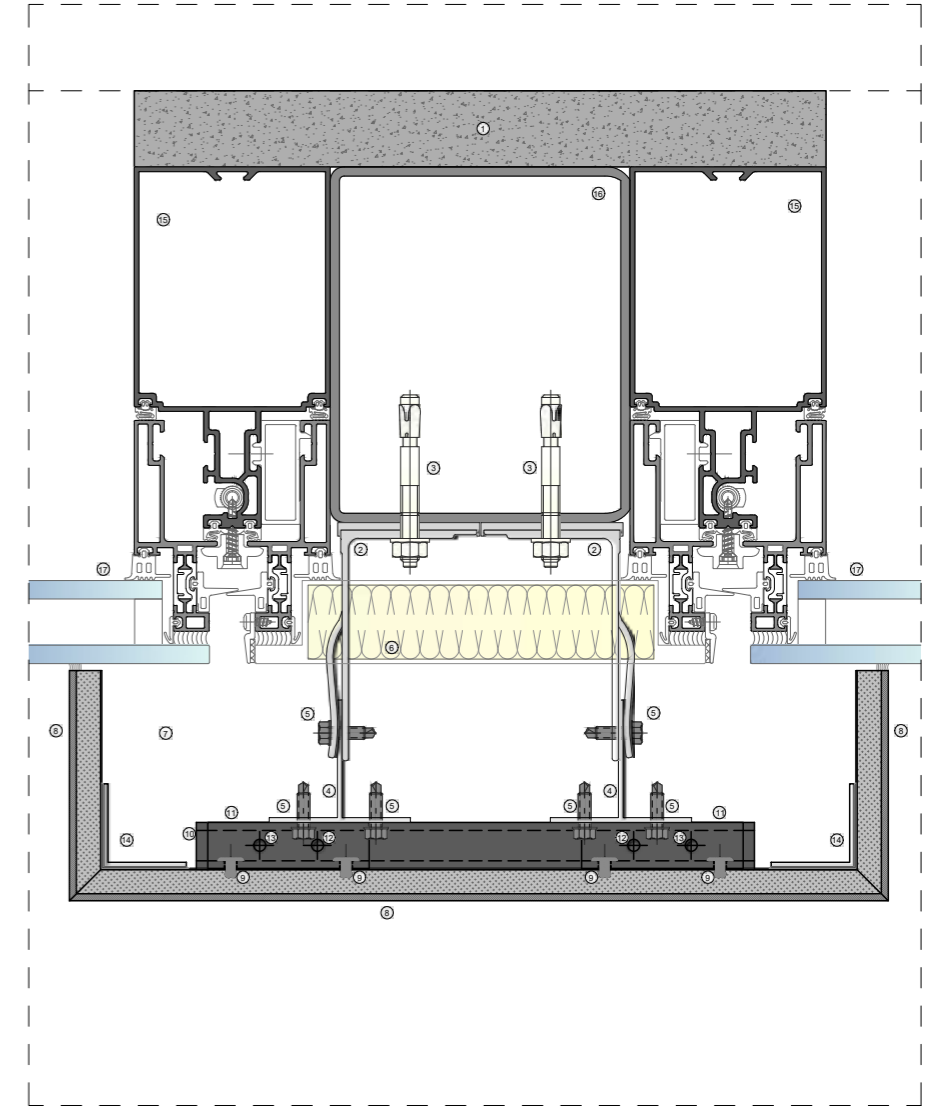
* in black anodized aluminum



Pilaster/Window A-A

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self dril. Screw
- 6) Insulation
- 7) Ventilation
- 8) GammaStone AIR Panel
- 9) Rivet
- 10) GammaStone rail *
- 11) GammaStone clip *
- 12) Fixing Screw
- 13) Adjust. Screw
- 14) Structural angle in stainless steel
- 15) Cross
- 16) Thickness profile
- 17) Glass

* in black anodized aluminum

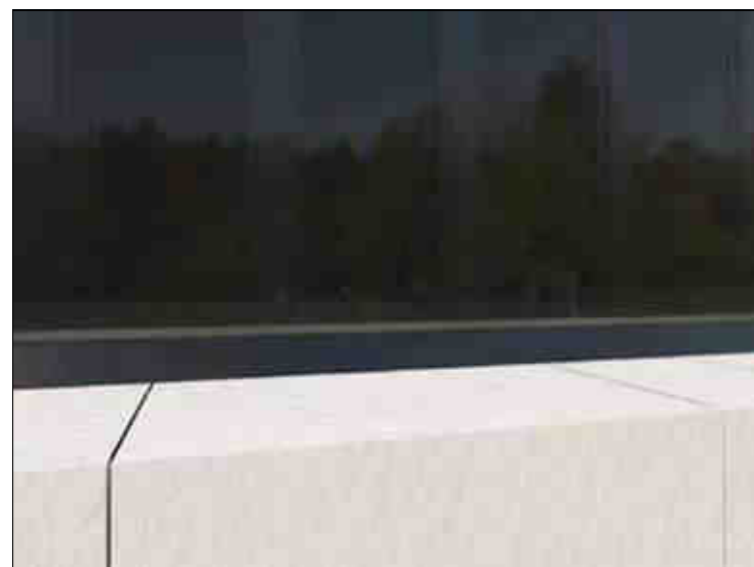
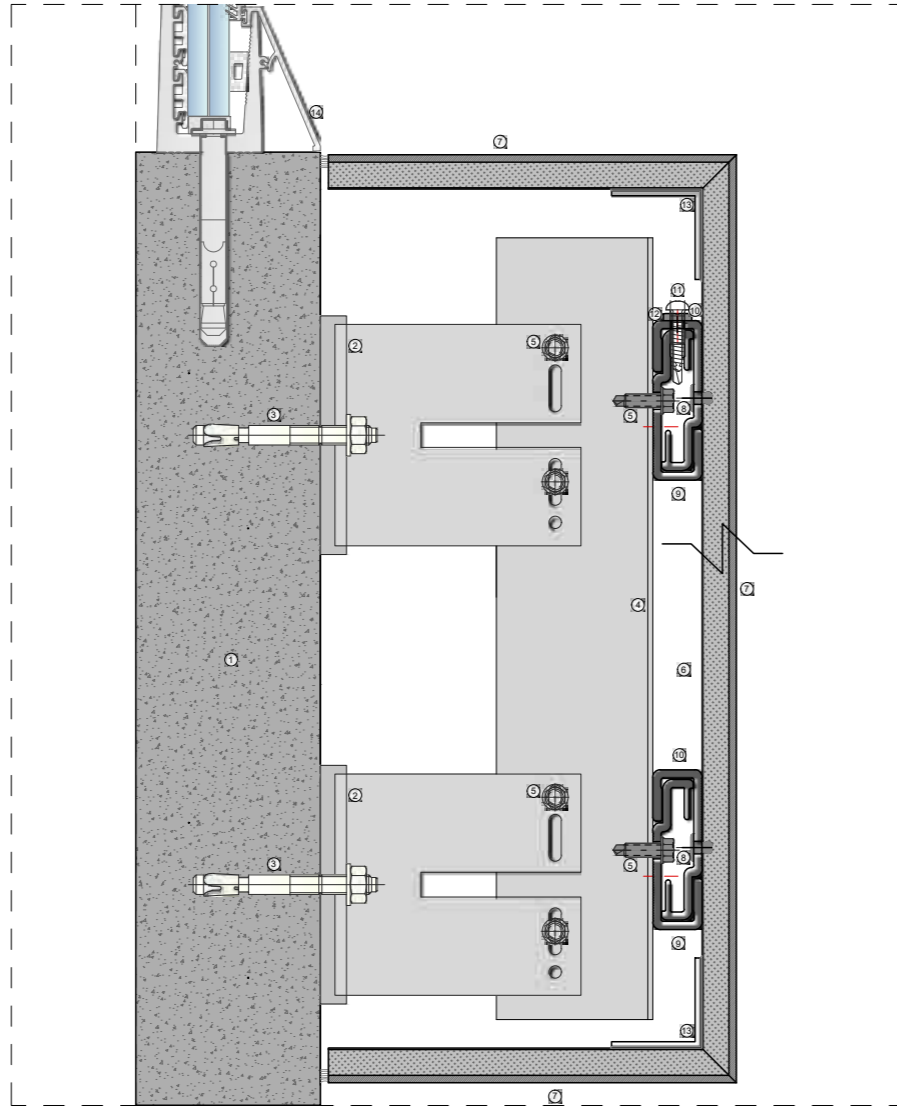




Slab edge/railing B-B

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Ventilation
- 7) GammaStone AIR Panel
- 8) Rivet
- 9) GammaStone rail
- 10) GammaStone clip
- 11) Fixing Screw
- 12) Adjust. Screw
- 13) Angolare strutturale in acciaio inox
- 14) Parapet
- 15) Structural

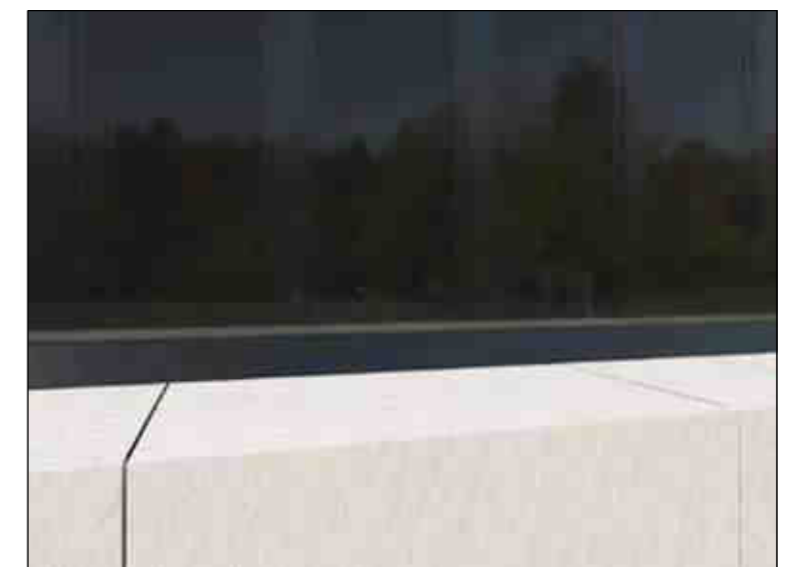
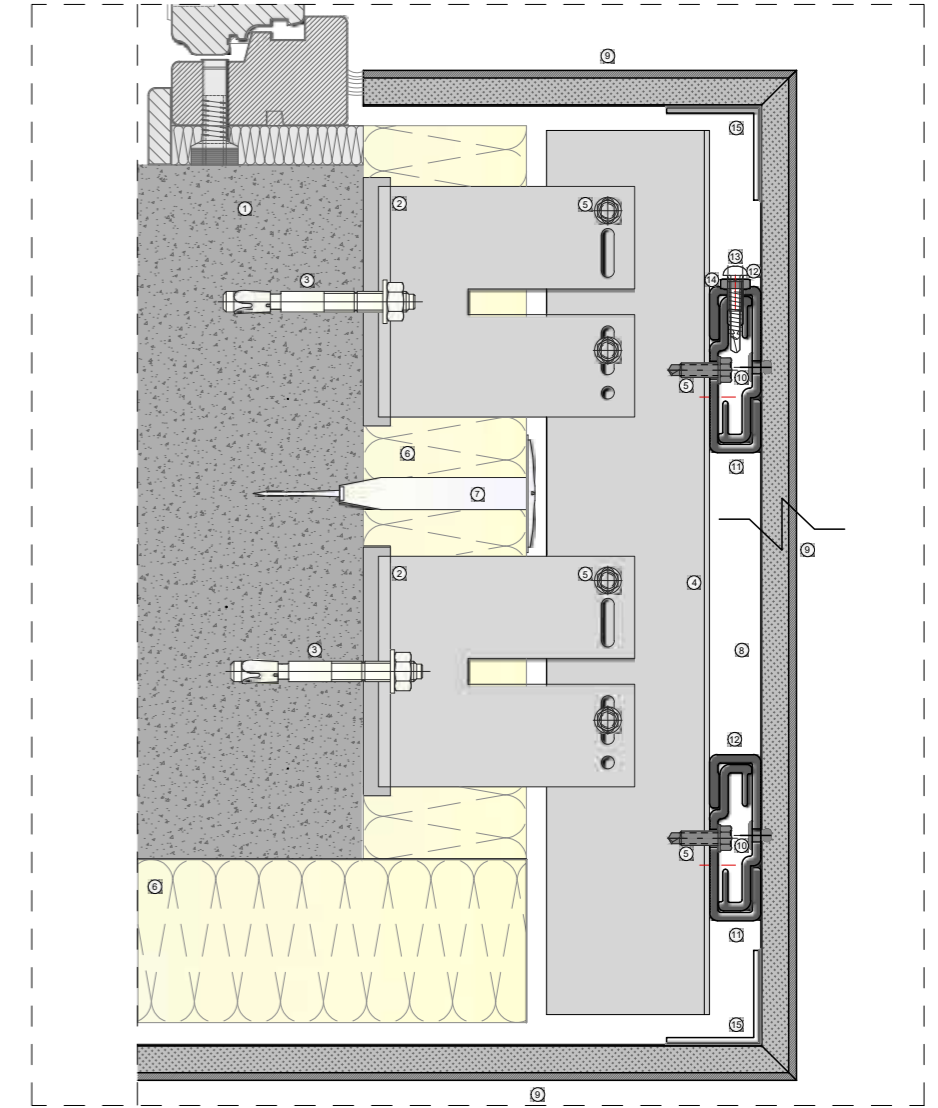
* in black anodized aluminum



Slab edge projecting solution C-C

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum

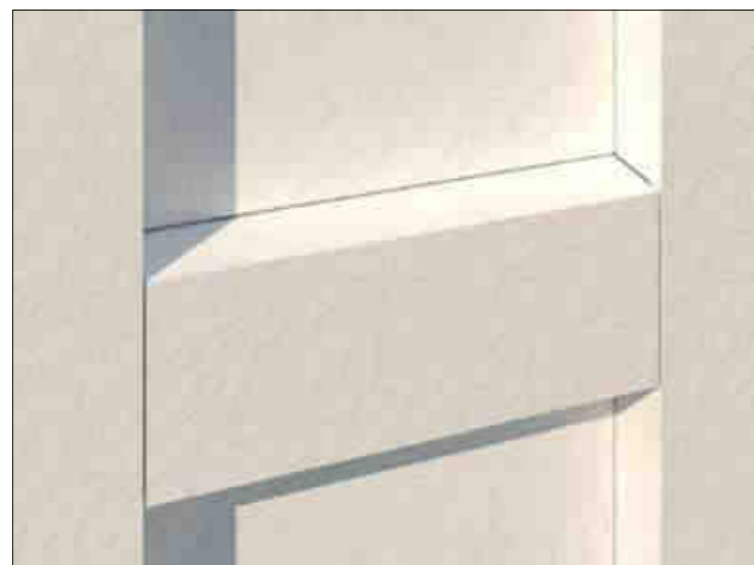
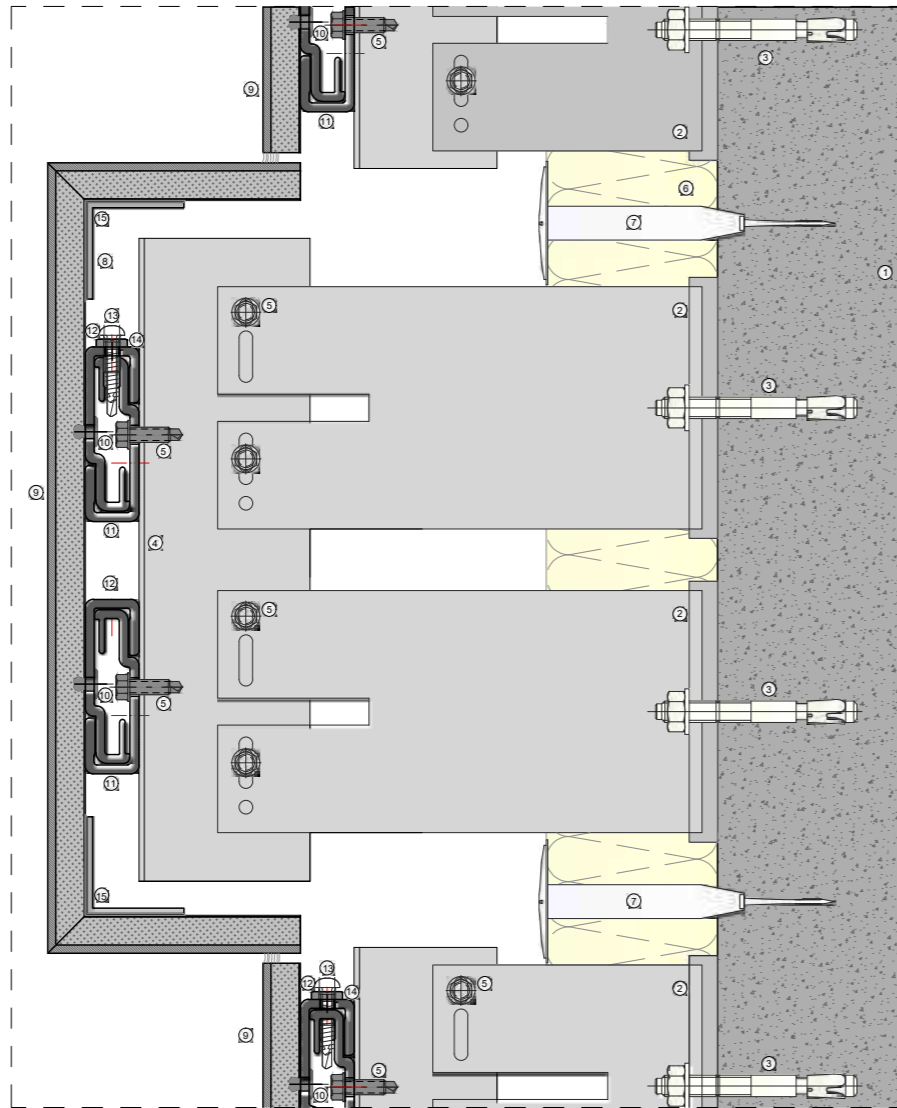




Vertical Section
Slab edge D-D

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Structural angle in stainless steel

* in black anodized aluminum



Sunblades

Sunblades play both a functional and aesthetic role for the façade of a building. They have a great impact on a building's ability to be energy efficient. Sunblades block solar radiation from entering the building and consequently the building's temperature can be more easily regulated. They also allow building users to more comfortably live, work, and play in the space, because direct sunlight is removed.

Sunblades also add to the appearance of the building and when designed in GammaStone AIR can be a focal point to the building. We can achieve any of the most difficult designs. Sunblades can be fixed to the building in a horizontal or vertical position. They can also be incorporated into an automated movable system.

GammaStone AIR can be used to build a sunshade systems with ceramic or stone as external materials, giving the building the same visual impact of the ventilated facades.

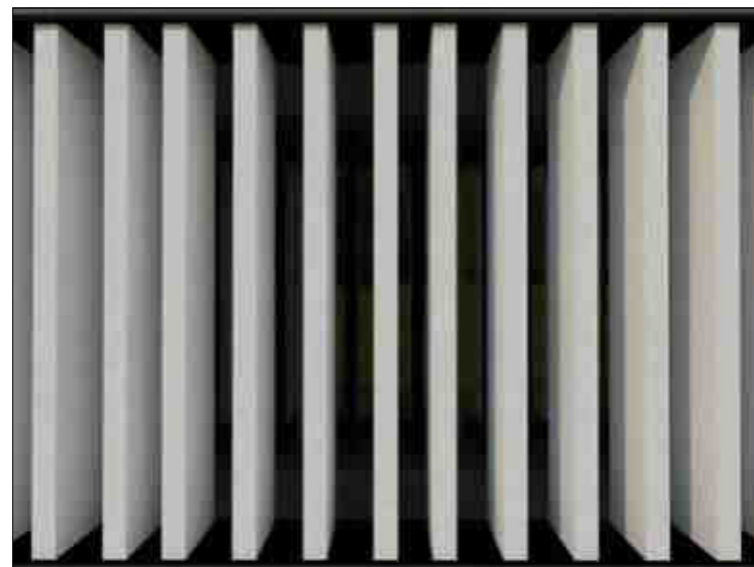
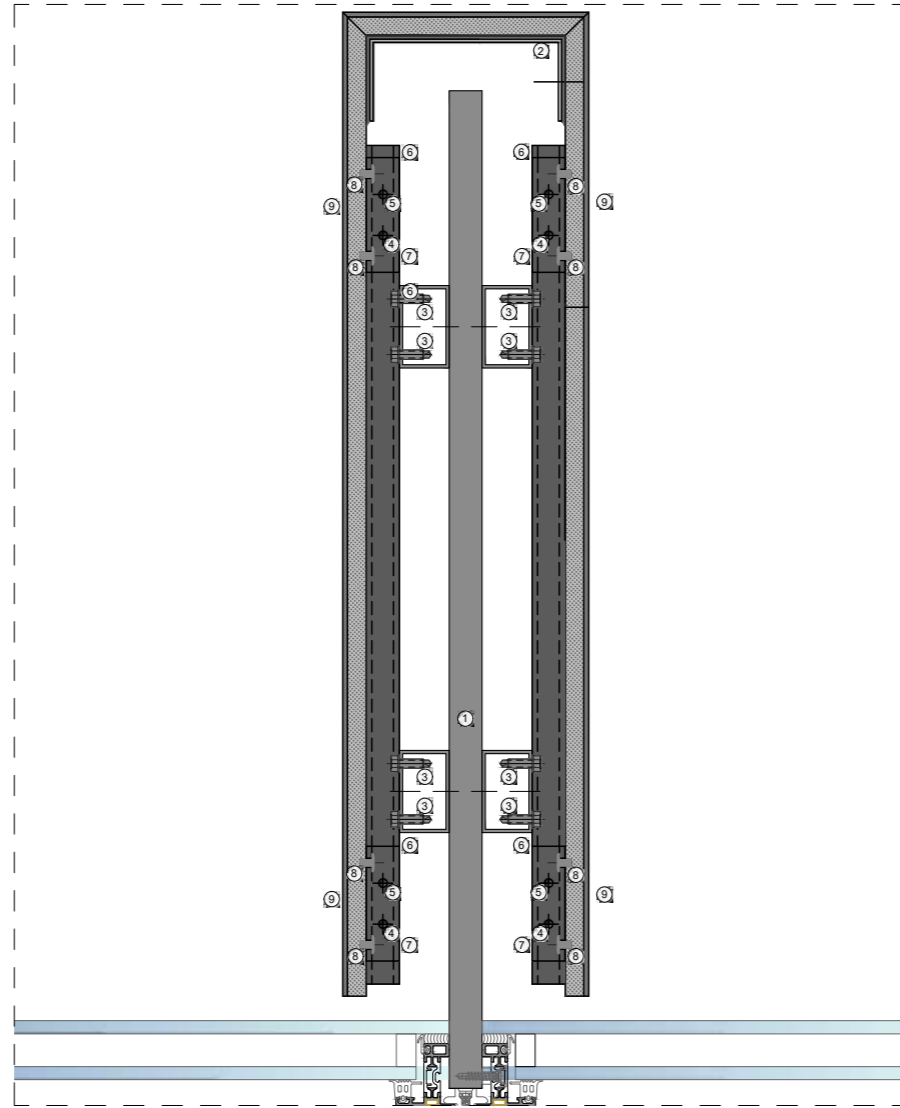




Sunblades

- 1) Structure of the sunbreaker
- 2) Metal profile
- 3) Self drill. Screw
- 4) Fixing Screw
- 5) Adjust. Screw
- 6) GammaStone rail *
- 7) GammaStone clip *
- 8) Rivet
- 9) GammaStone AIR Panel

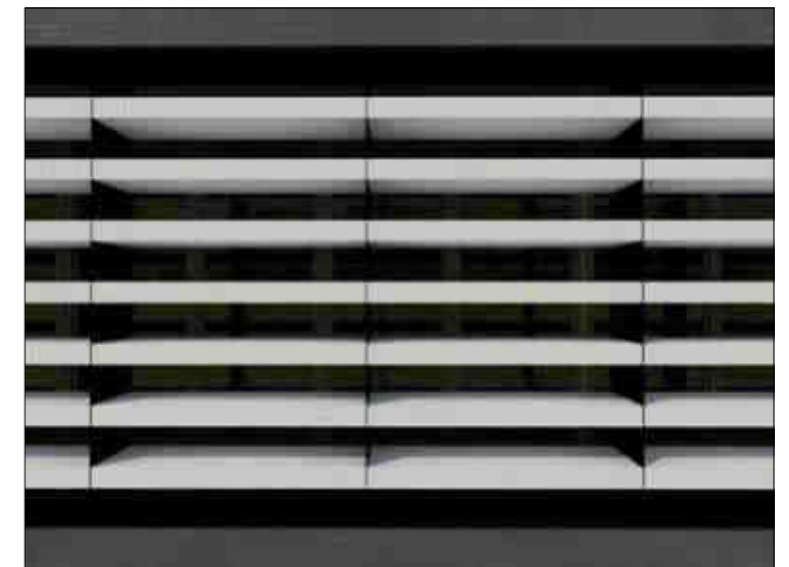
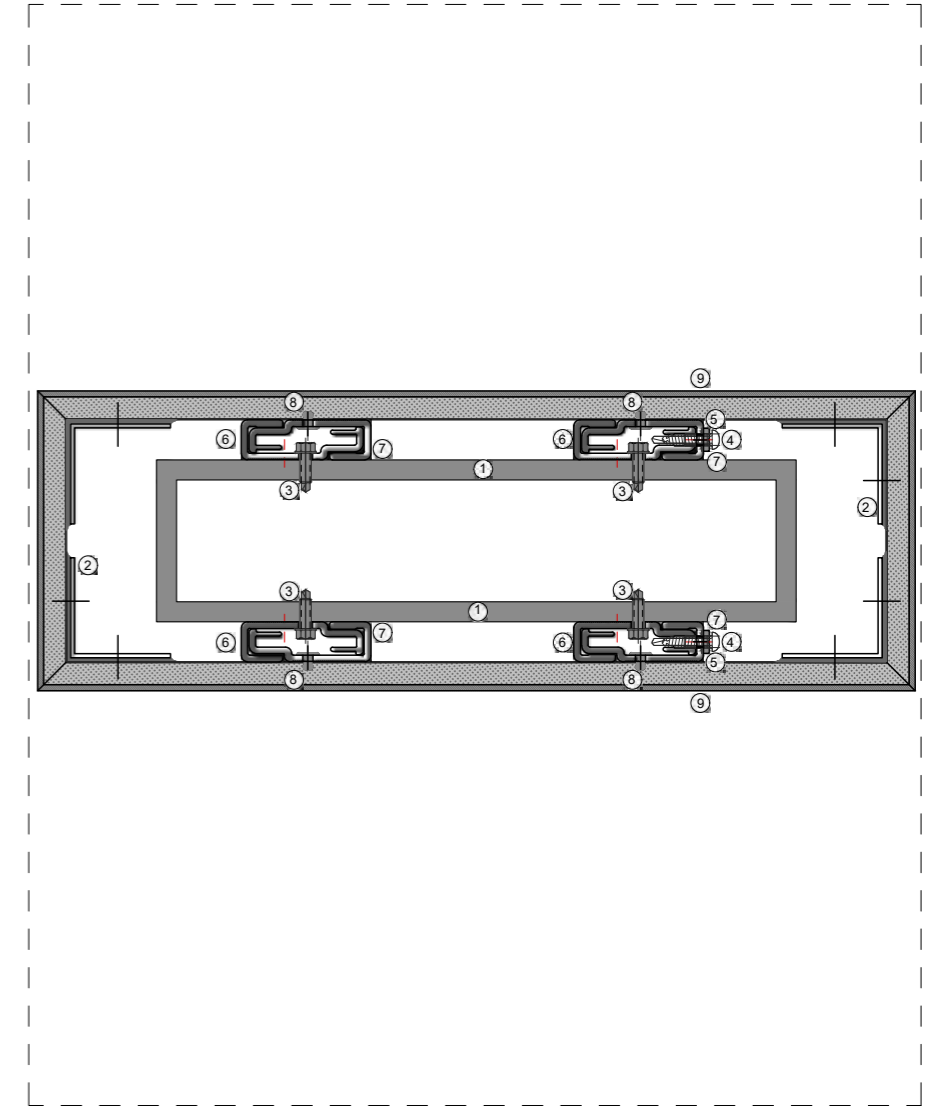
* in black anodized aluminum



Sunblades

- 1) Structure of the sunbreaker
- 2) Metal profile
- 3) Self drill. Screw
- 4) Fixing Screw
- 5) Adjust. Screw
- 6) GammaStone rail *
- 7) GammaStone clip *
- 8) Rivet
- 9) GammaStone AIR Panel

* in black anodized aluminum



Curved panels

Leading technologies

GammaStone produces curved panels in different materials. In our state-of-the-art factory we are able to ensure all quality and security standards are met and that they are shipped ready to be installed. We scrupulously follow every detail and our leading technologies allow us to achieve spectacular results. This record is proven through the multiple certifications and tests our panel systems have achieved.

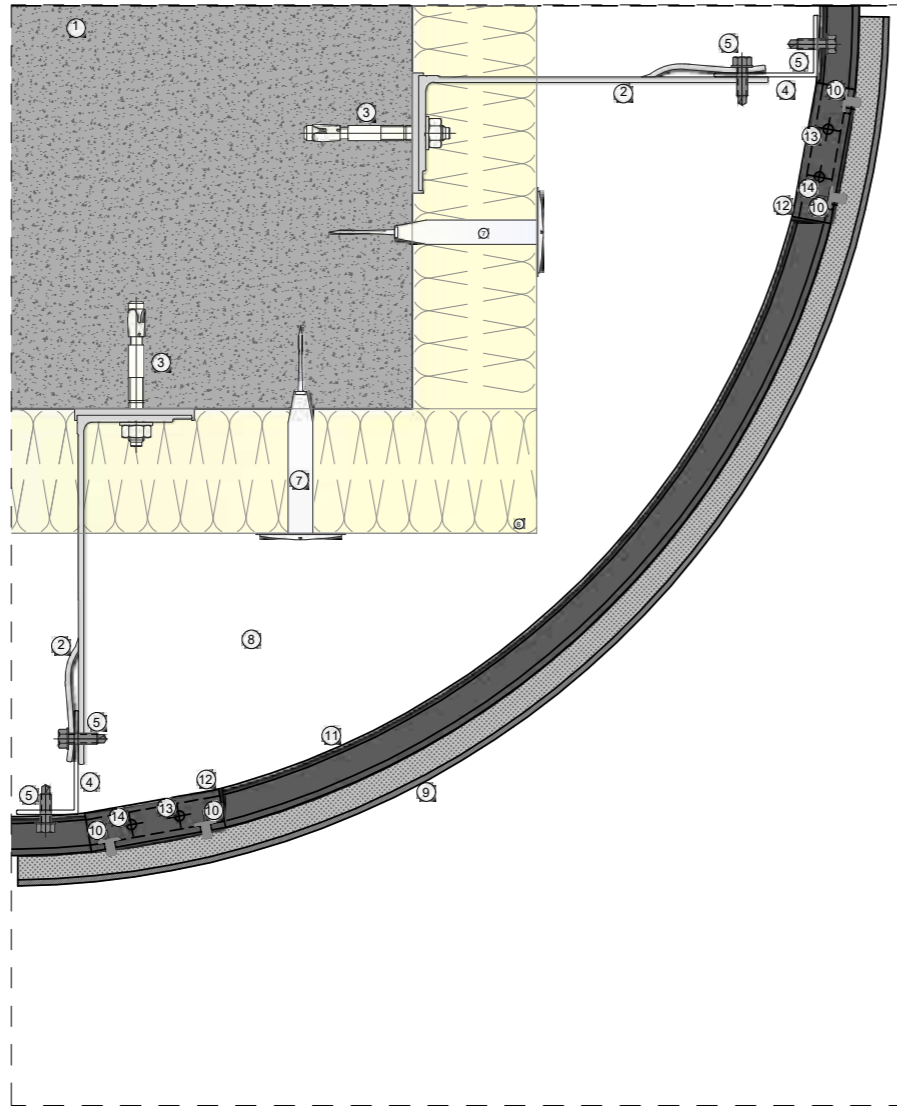




Curved Panel

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

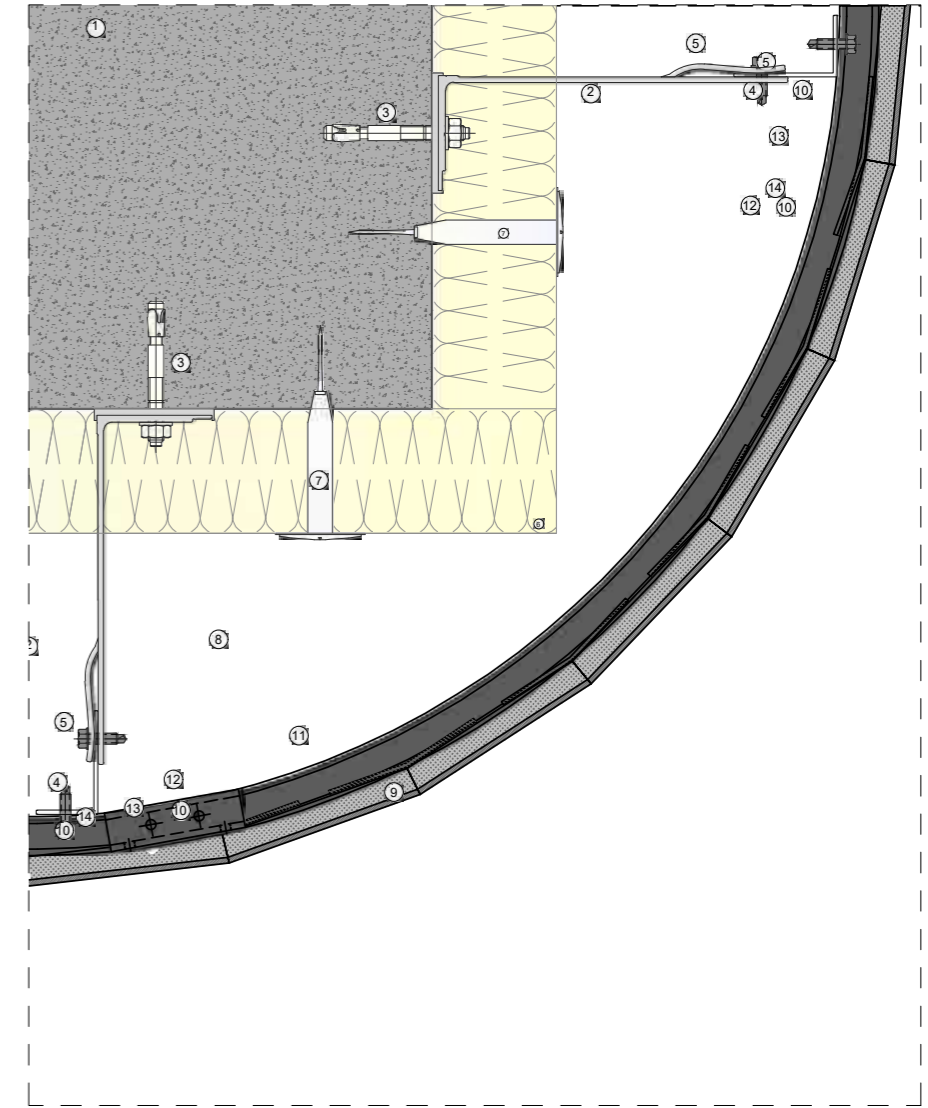
* in black anodized aluminum



Segmented curved panel

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

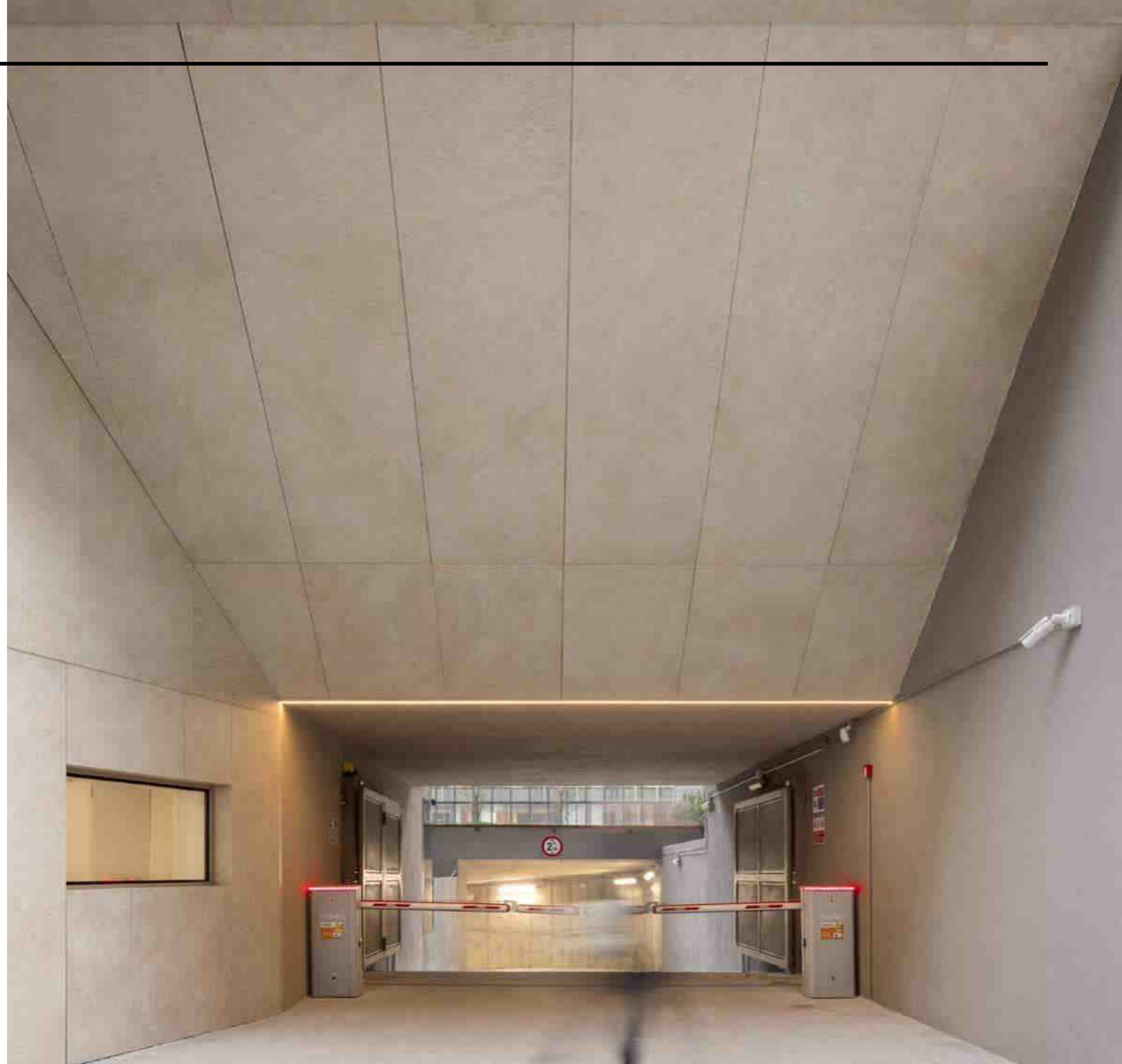
* in black anodized aluminum

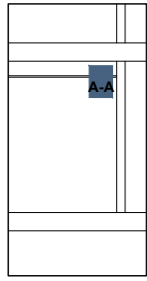


Ceiling coating

High ceiling stability

GammaStone AIR panels are a perfect solution for ceilings. They are the ideal choice for both architects and interior designers. The system is lightweight and ensures a safe coupling system. The coupling system gives stability even in areas characterized by a high seismic risk.

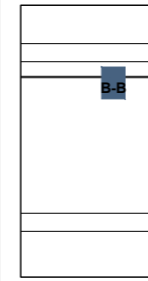
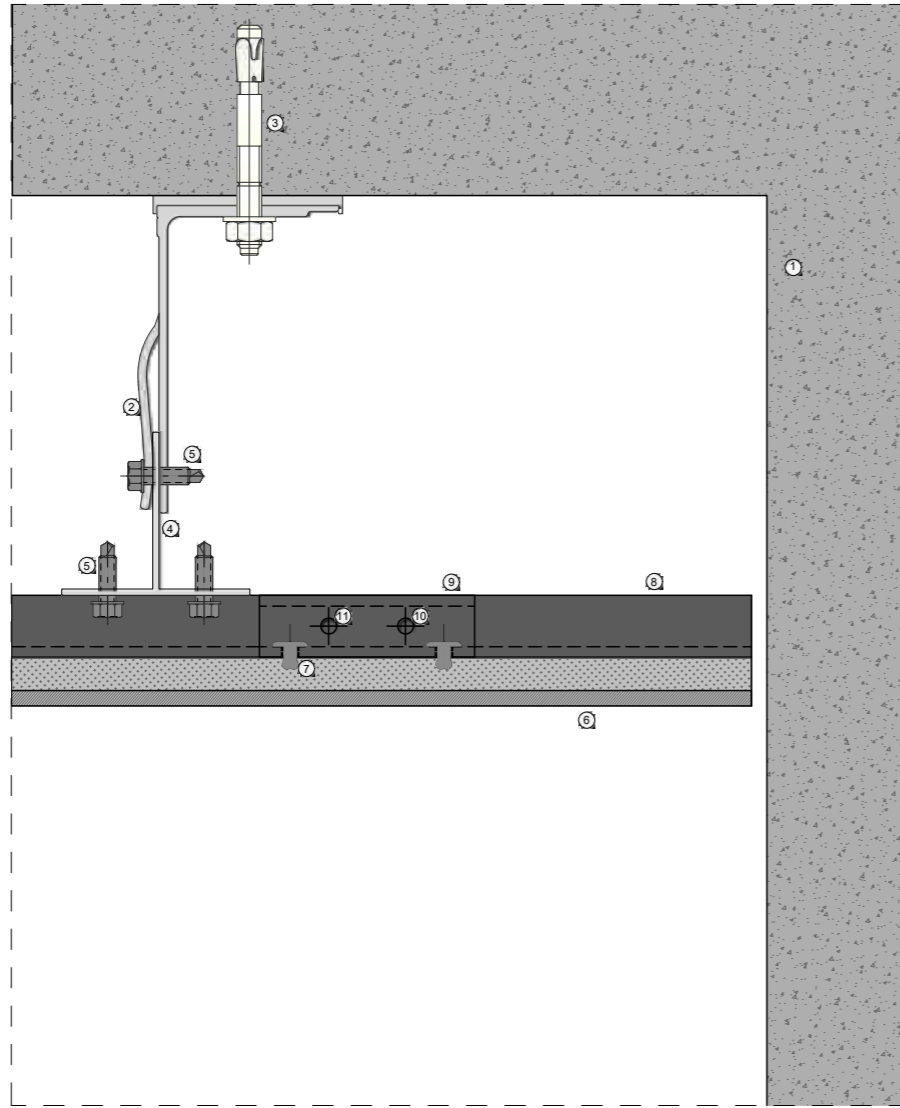




Ceiling A-A

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *
- 10) Fixing Screw
- 11) Adjust. Screw

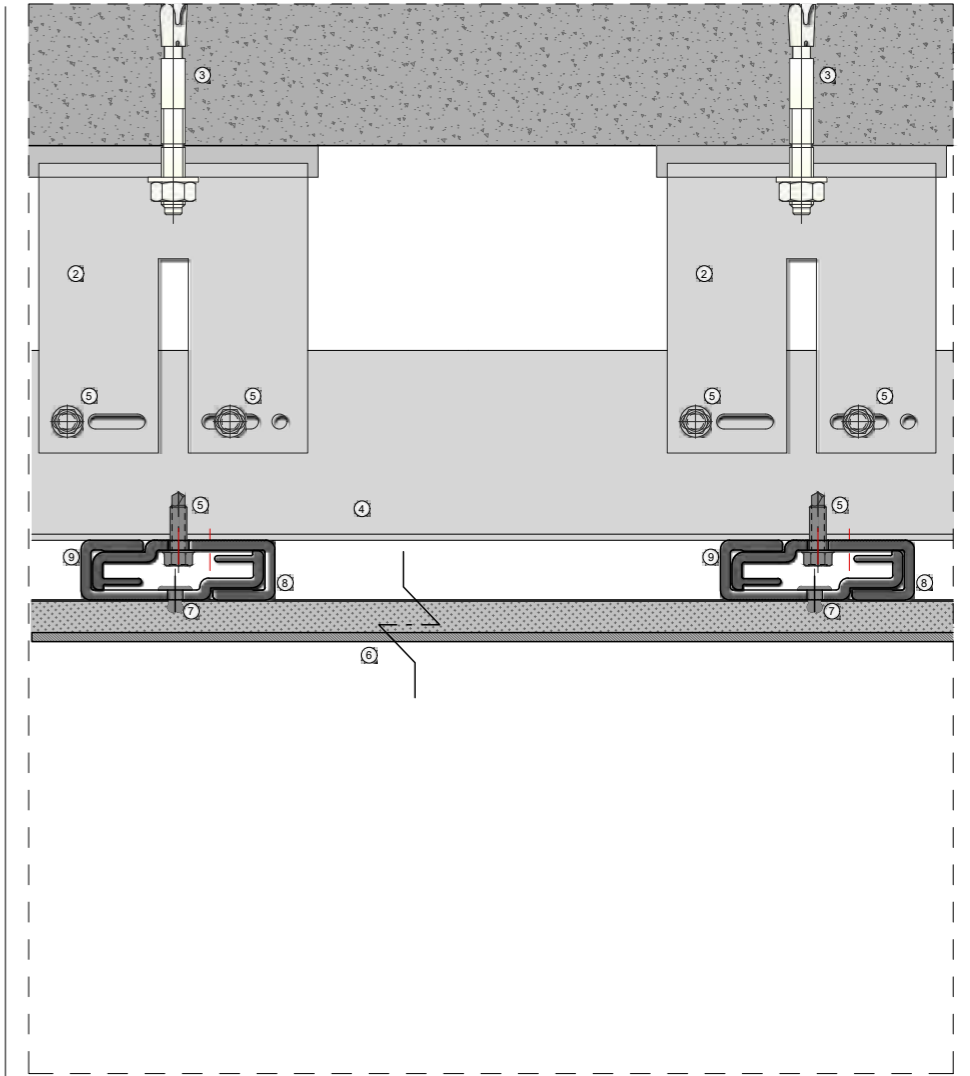
* in black anodized aluminum



Ceiling B-B

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) GammaStone AIR Panel
- 7) Rivet
- 8) GammaStone rail *
- 9) GammaStone clip *

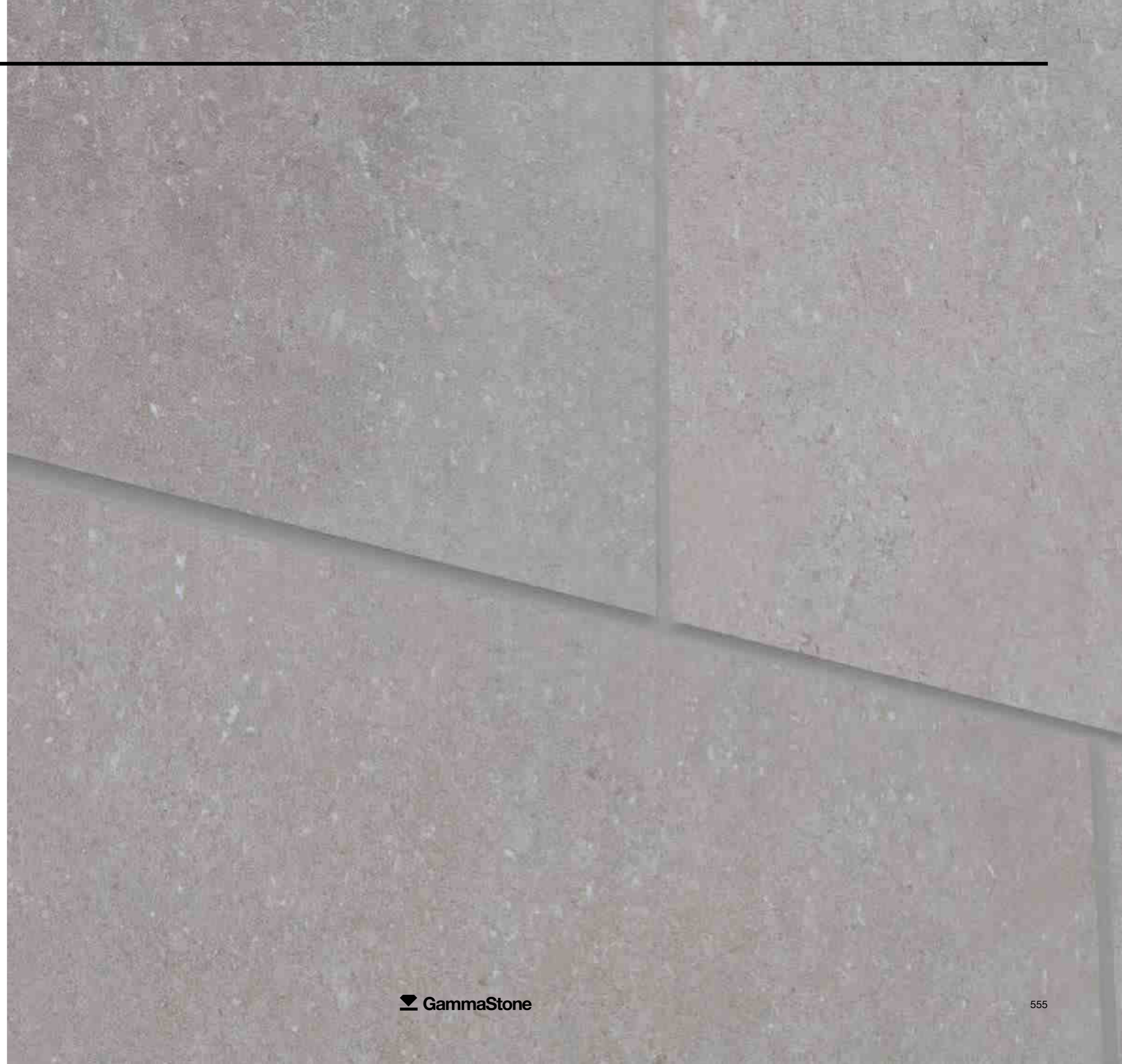
* in black anodized aluminum



Closed joint

GammaStone façade can be installed with closed joints

Closed joints give the façade an appearance of being full stones with grouted joints. It also helps stop water infiltration into the cavity behind. The joints are sealed with silicon, which can either match the façade or be in contrast with the color of the façade.

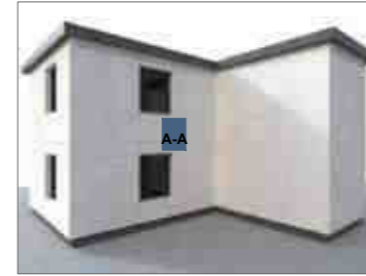
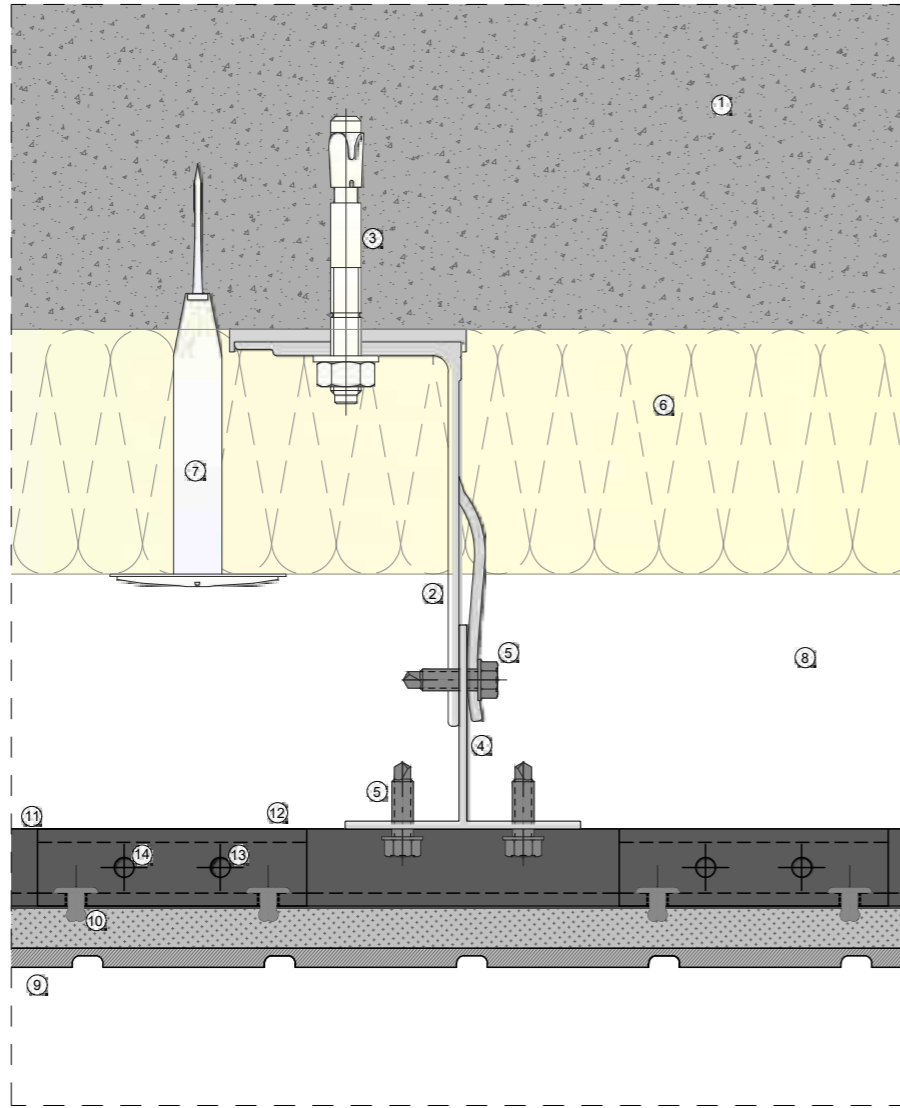




Horizontal Section/False Joint

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

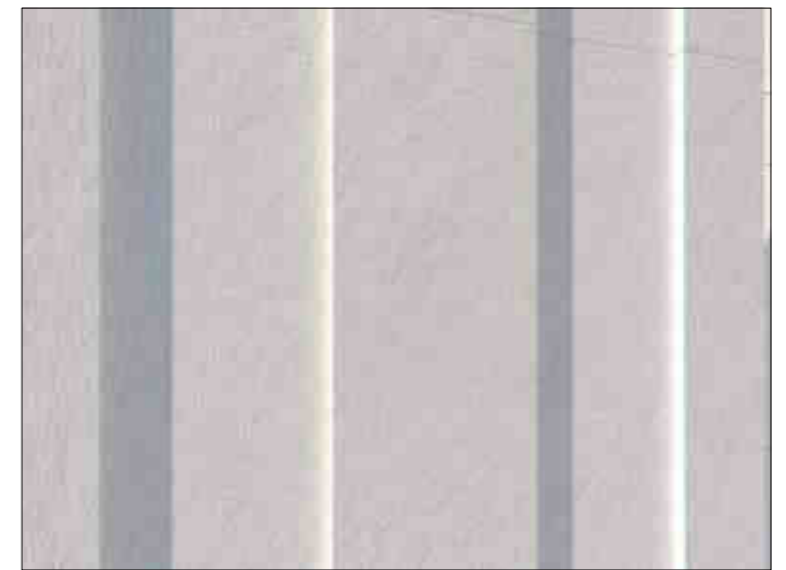
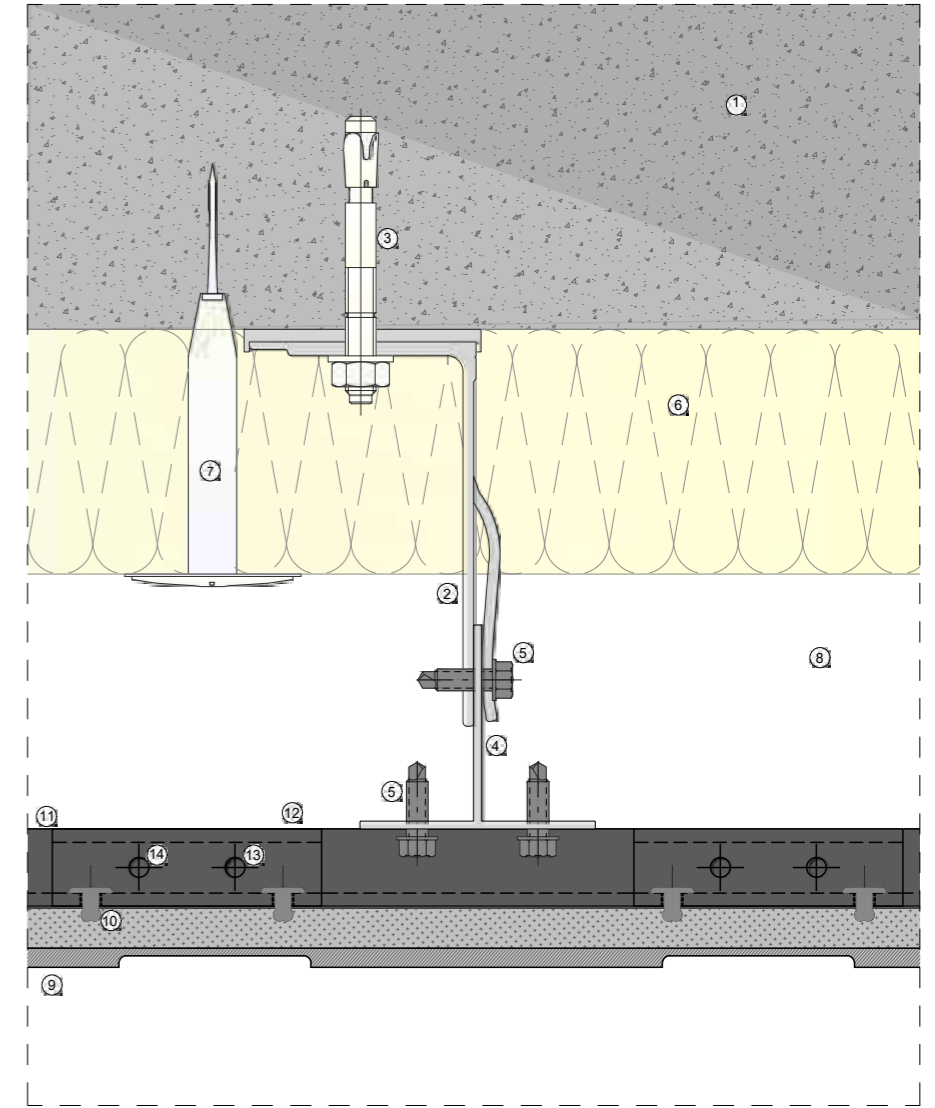
* in black anodized aluminum



Horizontal Section/Grooved Panel

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum

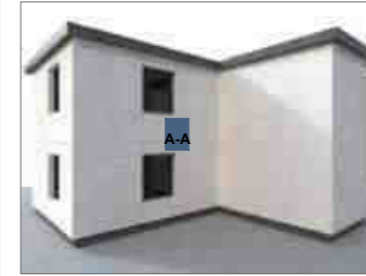
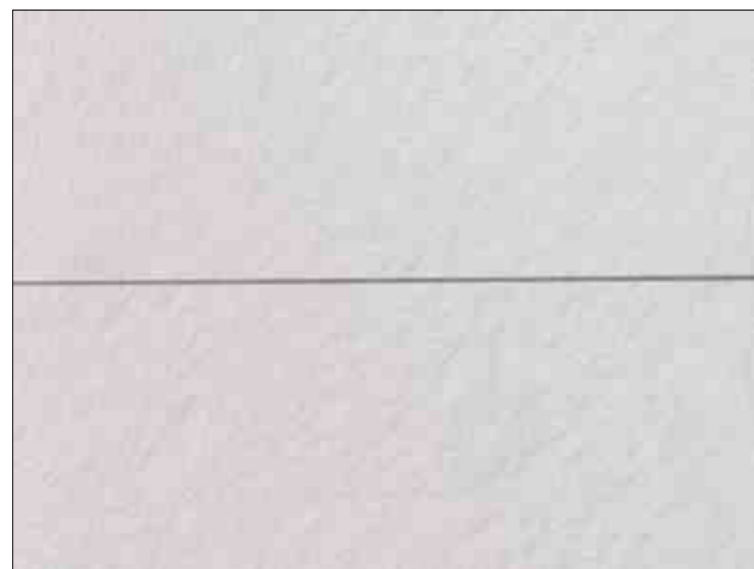
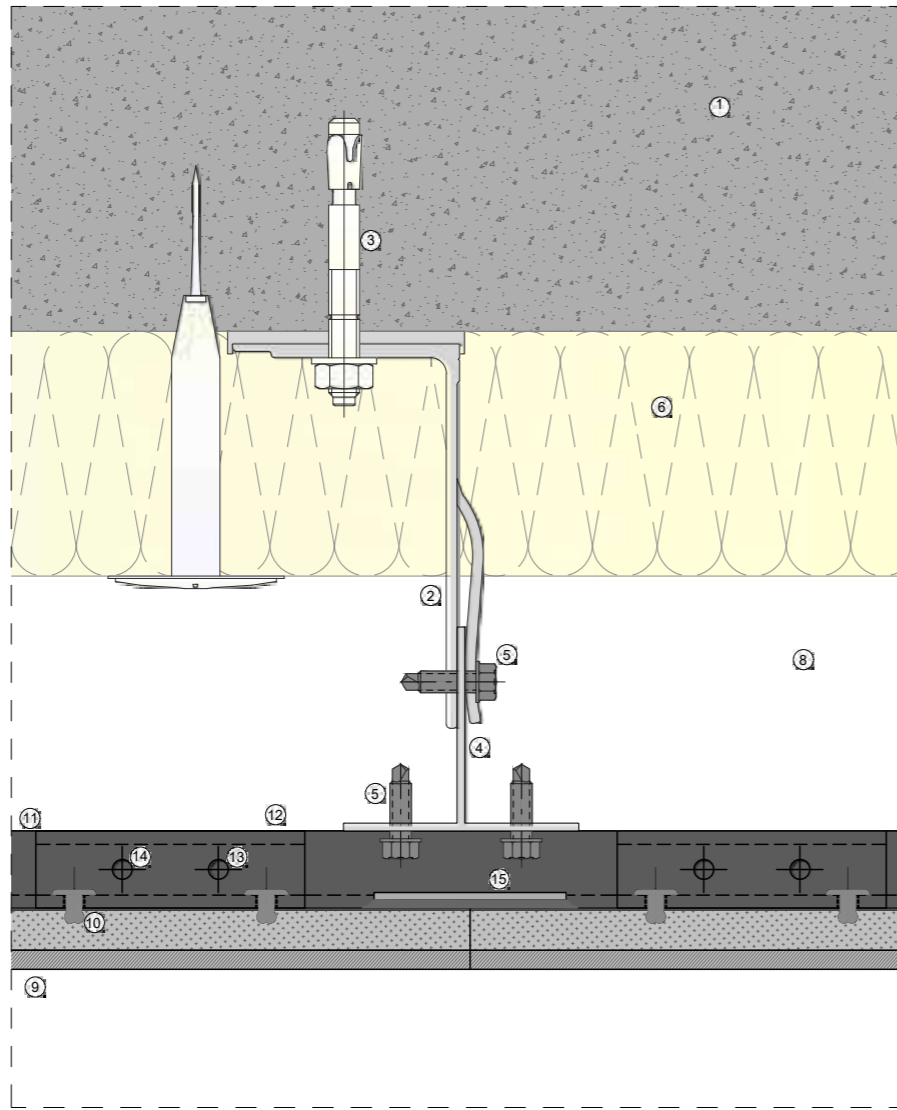




Horizontal Section/Hairline Joint

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Metal profile

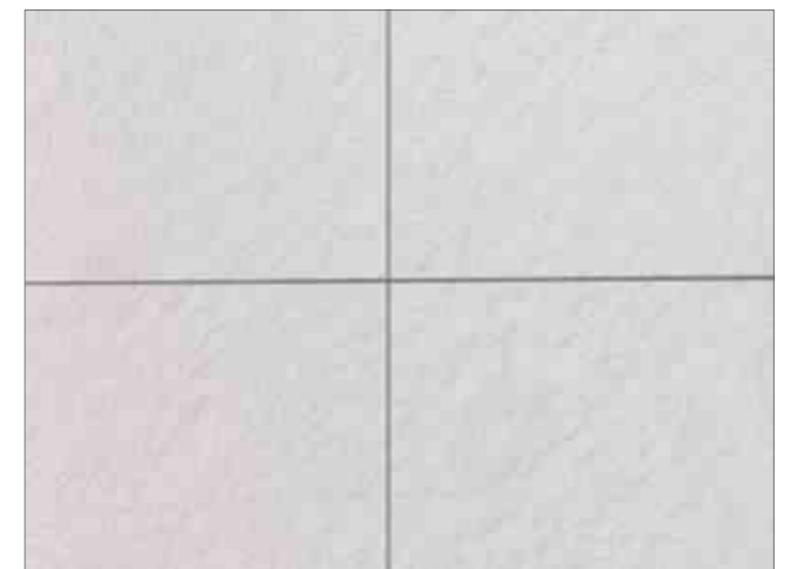
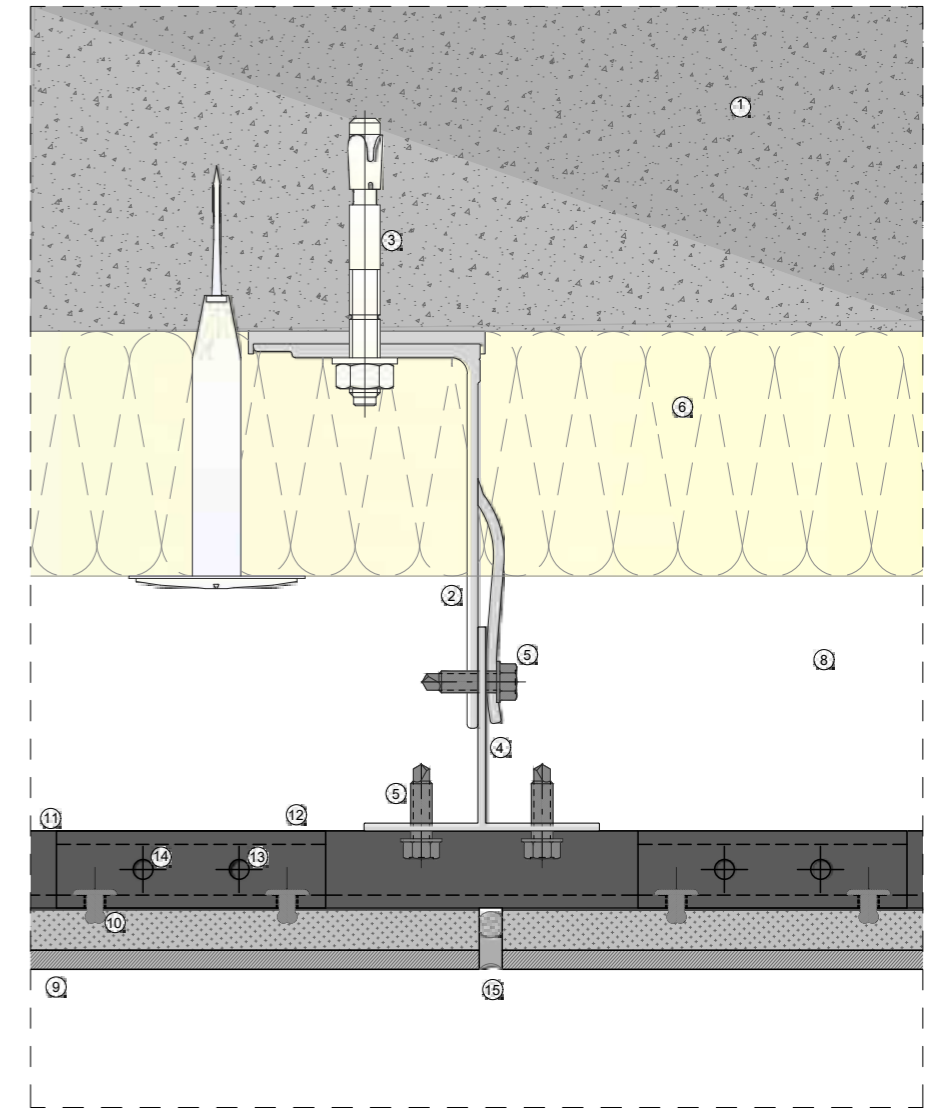
* in black anodized aluminum



Horizontal Section/Closed Joint

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw
- 15) Silicon joint

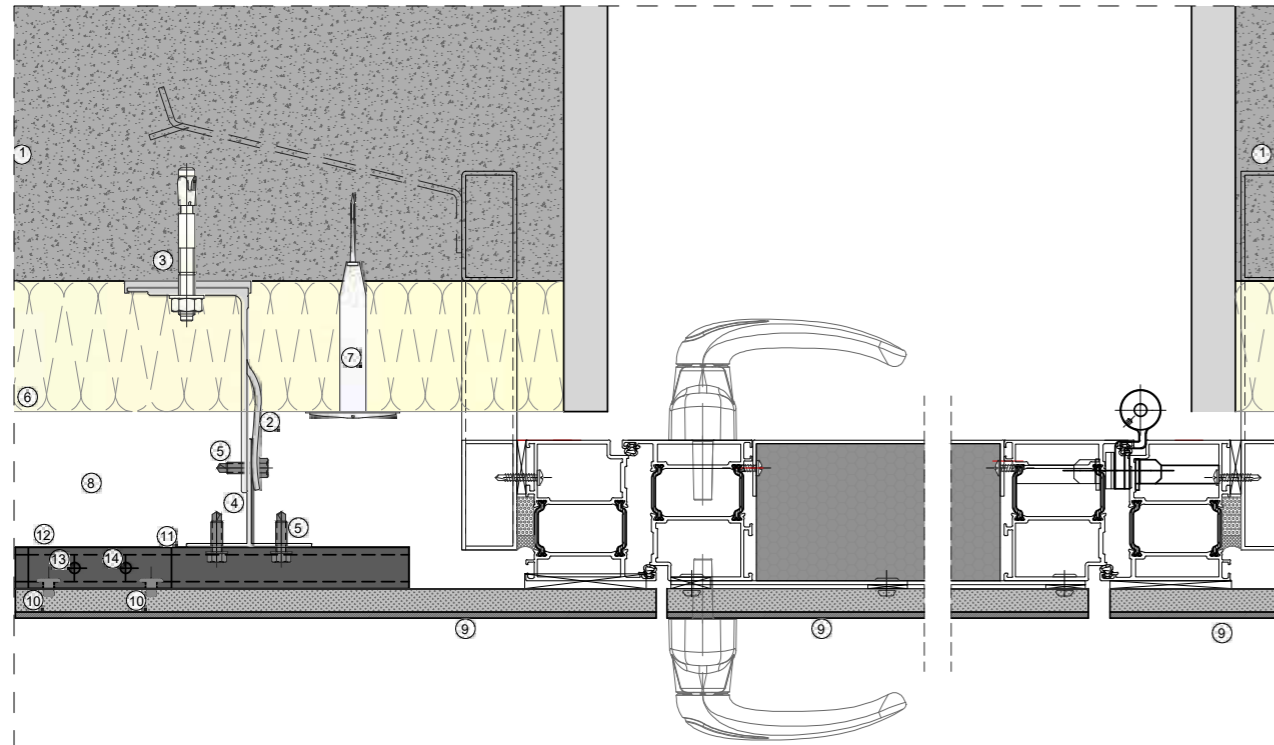
* in black anodized aluminum



Doors coating

The GammaStone panels are perfectly suitable to clad interior or exterior doors

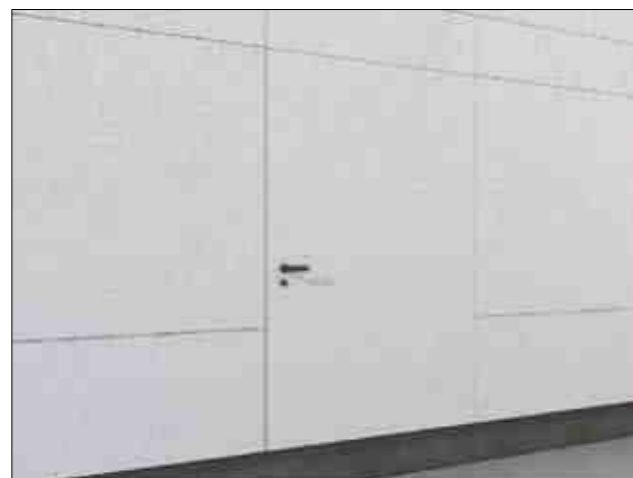
This solution allows continuity between the façade and the doors, providing an incomparable aesthetic effect. The lightness of our panel allows the doors to be installed with ease, even if in a large format. Using the specific framing engineered by GammaStone, the door can be installed in line with the façade and the hinges can be invisible from the outside.



Door

- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Fixing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum



Panels & Mock-up

At the request of architects, planners, and designers we can supply samples of any material: marble, stone, porcelain, glass, monolithic corners, or mock-ups.



GammaStone Natural AIR Panel Material:
Jura Beige, ribbed finish, thickness 10 mm.



GammaStone Natural AIR Panel Material:
Jura Beige, ribbed finish, thickness 10 mm.



GammaStone Natural AIR Peperino.
Bush hammered finish and polished.



GammaStone Gres AIR panel milled at
different widths



GammaStone UHPC Plus AIR Grey.
Smooth and rough finish.



GammaStone Gres AIR Panels
with a "closed joint" system

MAPEFOAM

Panels & Mock-up



GammaStone Natural AIR



GammaStone Glass AIR

GammaStone Metal AIR



GammaStone Gres AIR



GammaStone Natural AIR



GammaStone Natural AIR

Mock-up

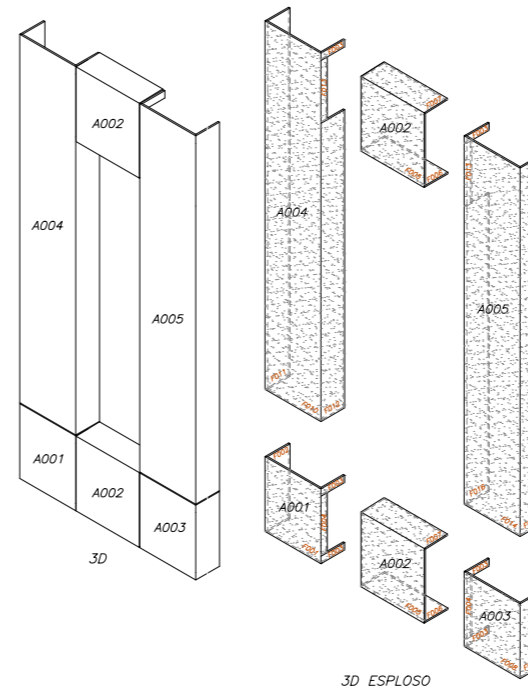
Visual & Performance



Mock up - The Market luxury outlet



Visual - SeiMilano



Performance - SeiMilano

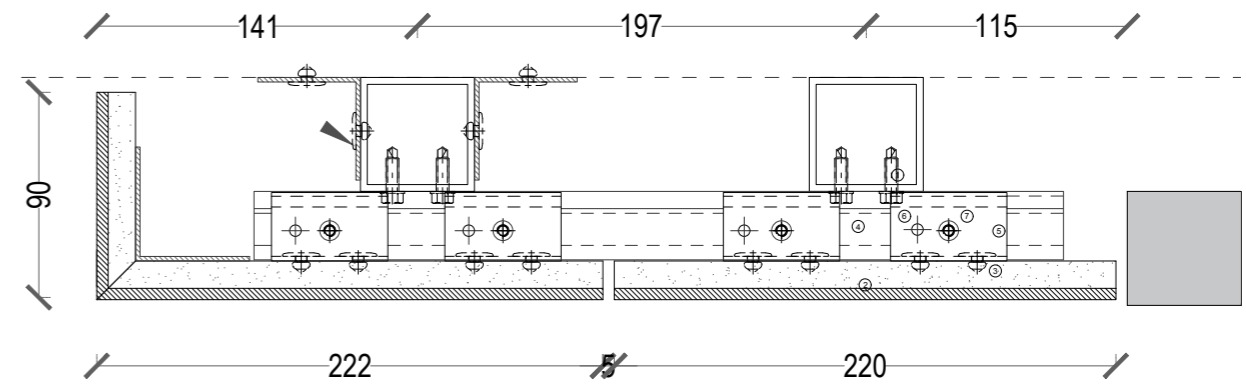
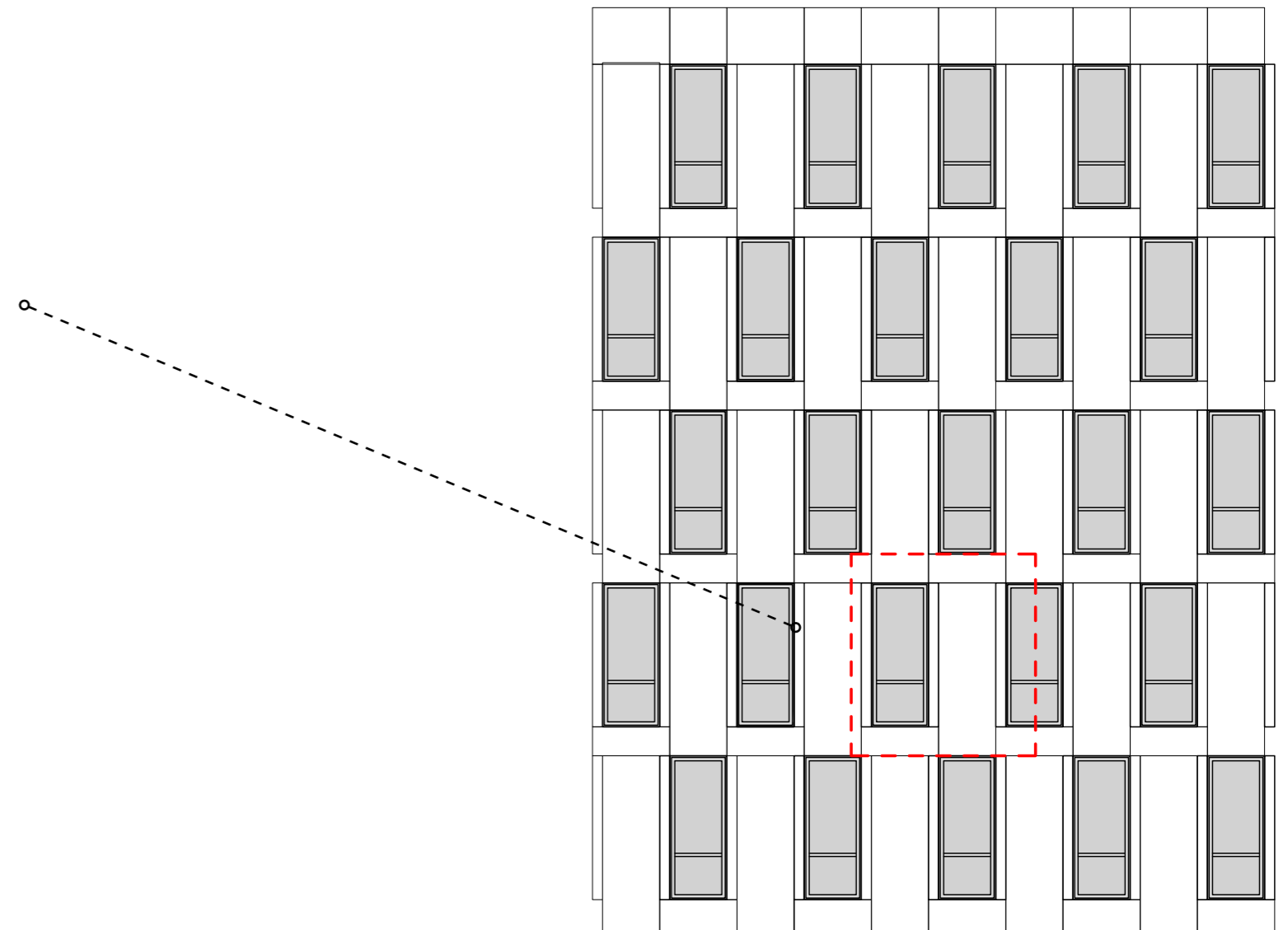


Mock-up

Visual & Performance



Mock up - UHPC



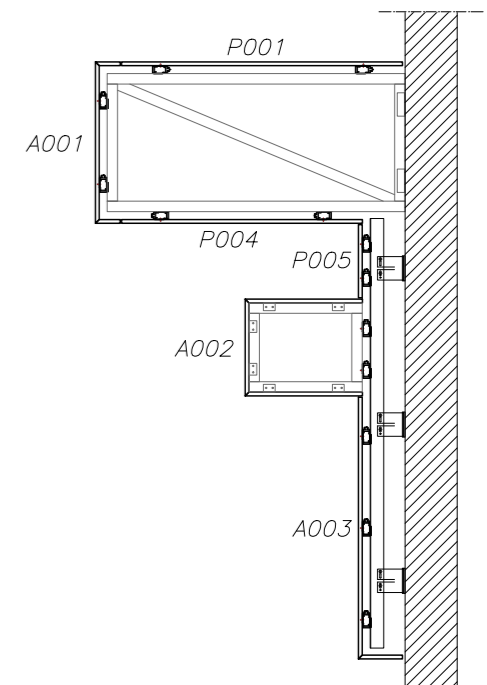
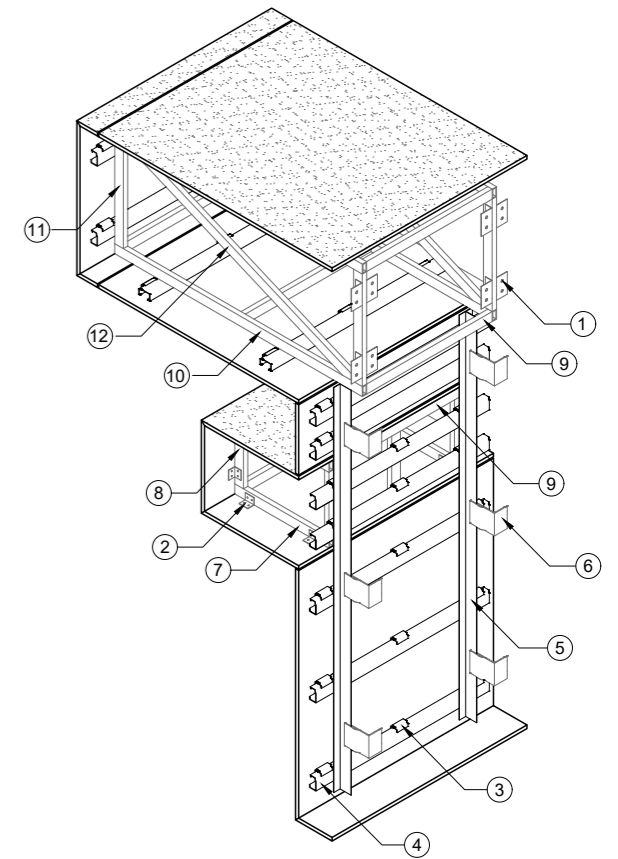
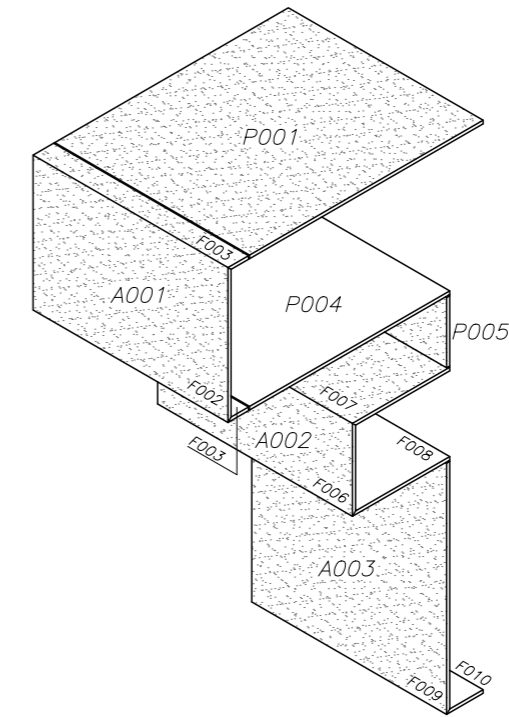
Dettaglio - UHPC

Mock-up

Visual & Performance



Mock up - GRES



05

Chapter

Production

Production

GammaStone® is synonymous with creativity and excellence, the qualities that stem from our 50 years of experience in the stone industry and our tireless dedication in realizing high performance products. Clients from all over the world have certified our products in terms of quality, versatility, reliability and performance. With its extensive experience in the stone industry, our company highlights the materials and brings out the utmost quality using modern technology and engineering. Our panelized solutions can be made with a variety of materials such as natural stone, porcelain, glass, UHPC Plus, and brick. Each solution is characterized by compactness, excellent technical characteristics, extraordinary resistance and incomparable aesthetics that complement any architectural style. The countless number of AIR Technology solutions fulfil any taste's desire; the panels are suitable for the outdoor and indoor of all classic and modern projects.



New production Plant - 135.000 sqft facility

Loc. Quartaccio - strada provinciale 74 - km1,4501034 Fabrica di Roma (VT) Italy

**Best certified
panel
manufacturer
in the world.**





Innovative machinery.





**Production plant
135.000 sqft facility.**



**120.000 sqft
production area.**



Production







06

Chapter

Services

Building Information Modeling (BIM)	594
Design services	596
Product configurator	598
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Assembly plan	602
Installation	604

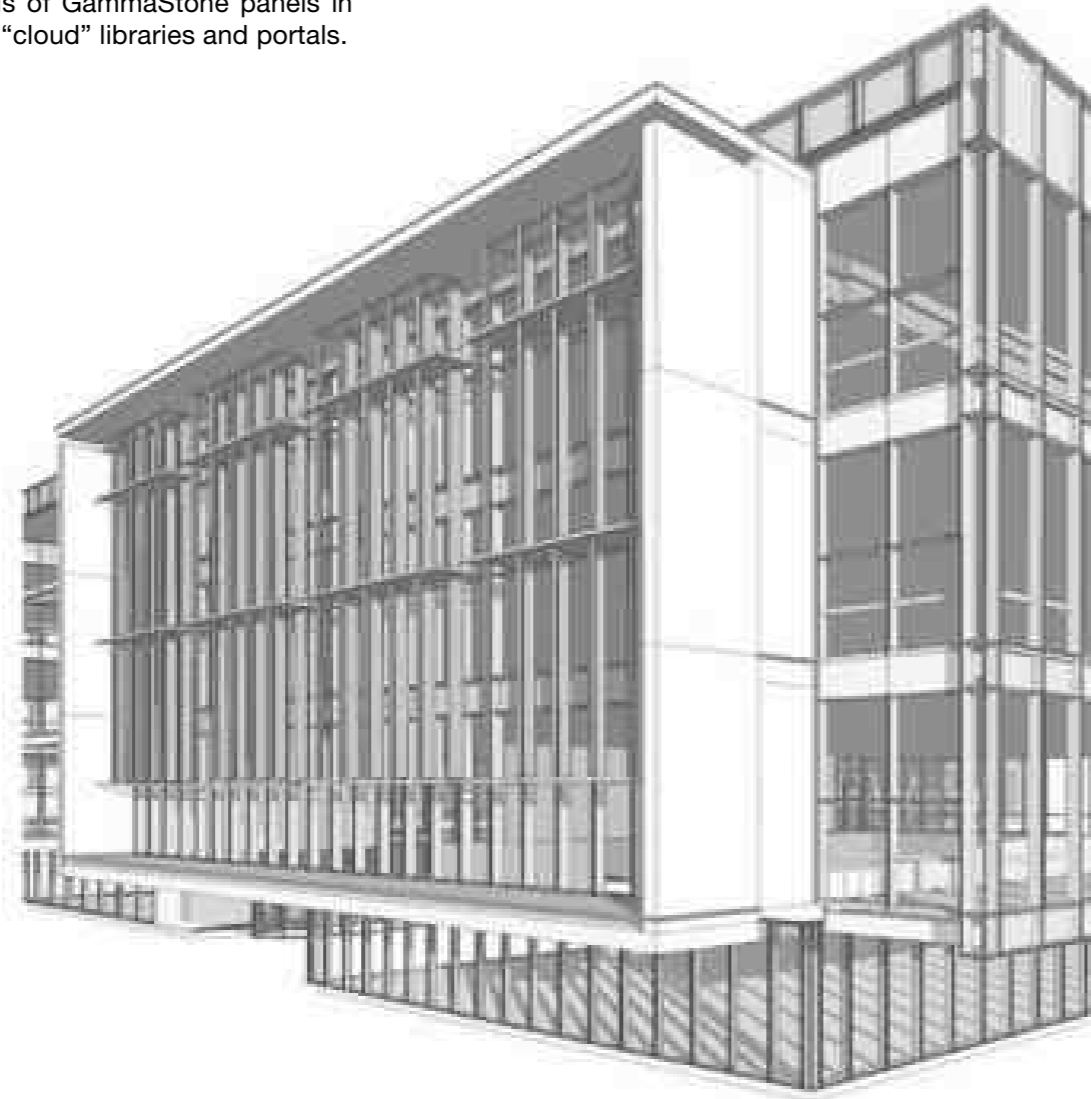
Services

Building Information Modeling (BIM) Services

GammaStone is on the forefront of building façade engineering application of BIM software, allowing our clients to comply with project BIM requirements. GammaStone's BIM application includes clash detection between façade elements and surrounding construction, an overall coordination between the structure and other trades. We can also translate the 3D façade system detailing into part fabrication drawings for manufacturing applications. We are adding BIM object/models of GammaStone panels in the following BIM "cloud" libraries and portals.



We created objects/models for the most common BIM design software.



Stone Sourcing Services

In addition to design consulting, engineering and drafting for natural stone cladding projects, GammaStone offers full stone sourcing services to owners, architects and contractors. We can identify economical, aesthetically acceptable and structurally sound material options, and assist in its procurement for architectural stone cladding applications.

- Research and procure samples natural stone from worldwide quarries
- Evaluate stone quarry and fabricator capabilities
- Develop budget pricing for material acquisition and cladding installation
- Establish preconstruction stone testing and observation protocol
- Suggest value enhancing stone material alternatives and technical detailing options
- Observe stand-up slab mockup, and coordinate record samples
- Coordinate full-scale pre-fabrication visual mockup at stone fabrication facility
- Review contract drawings, shop drawings and calculations
- Perform subcontractor design peer reviews
- Observe material fabrication for aesthetic and structural conformance
- Establish production stone testing protocol, and observe testing
- Review and comment on field workmanship mockup
- Observe stone cladding installation on project site for conformance with design requirements

DESIGN Services

The design of a cladding system of a new building whether it may be ventilated, micro-ventilated etc. is a complex procedure. It requires industrial planning criteria which should be considered and defined before beginning the realization in order to avoid substantial and / or unforeseen changes during the various stages of the manufacturing process. GammaStone is able to develop projects considering the different modules of the façade: jointless architectural elements made or façade components like openings, string courses or other non-modular elements. Those elements are usually needed during renovations.

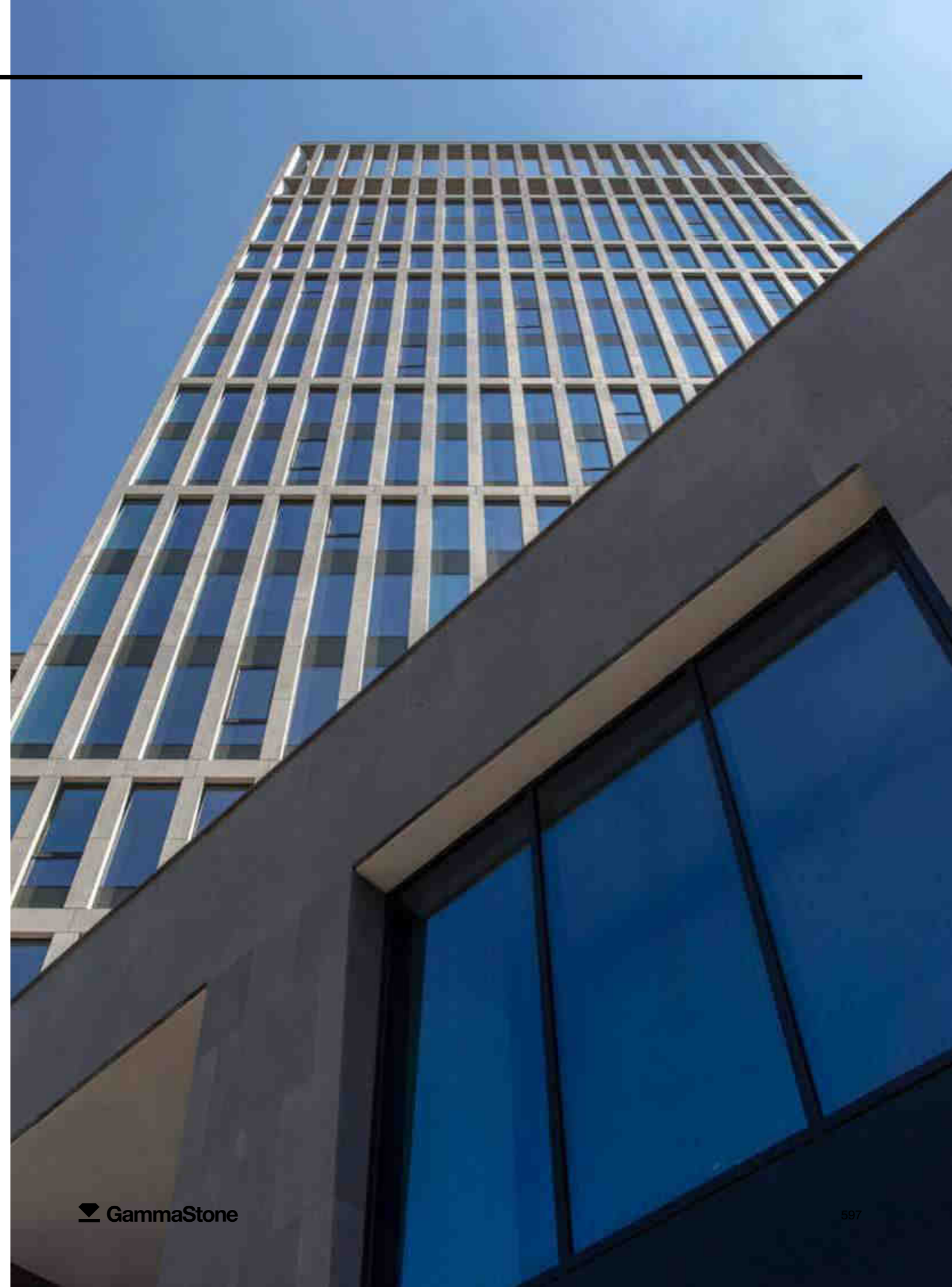
GammaStone technical department elaborates customized executive drawings in order to optimize the number of cuts on the slab, to obtain faultless aesthetics in the combination of the formats avoiding wastage of valuable materials.

GammaStone Technical department consists of a team of architects and engineers aimed to develop projects following all the phase of the design process:

1. Acknowledgement of the projects and / or the architectural concept for the cladding system of the building;
2. Feasibility assessment;
3. Identification of the materials of the perimetric wall to be covered;
4. Definition of the structural plan and the respective general calculations;
5. Implementation of the projects executive drawings.

GammaStone offers the following integrated design services:

- Development of construction drawings
- Development of records
- Mounting plan
- Dimensioning of the panels
- Calculations of the joints
- Optimization of scraps according to the dimensions of the slabs.
- BOM processing
- Static analysis
- Packing list processing



Services

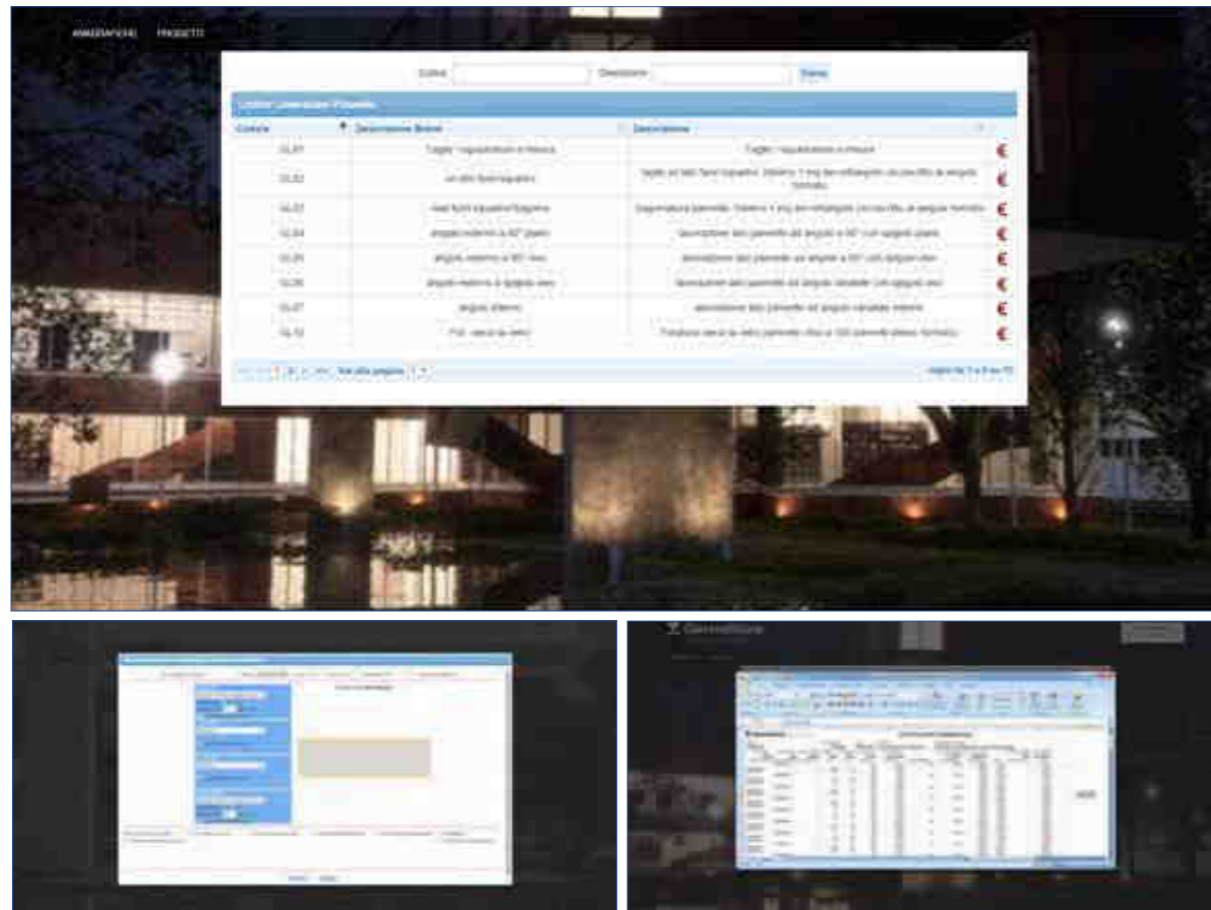
Product configurator

GammaStone has developed its own web application to map the façade by a self-explanatory computation of the GammaStone panels and of the monolithic elements that compose it. This computation allows to customize a project and associate it with every single customer. This project contains all the information of technical and commercial aspects that will determine the Bill of Materials, the production process, the relative total cost and the cost for every piece and specific manufacturing technique applied.

The insertion procedure comprise for the following macro phases:

- 1) Inserting a new project associated with the customer, the site and the material;
- 2) Technical computation with easy logical insertion of flat panels and assembled components with monolithic corners, with any additional manufacturing technique required;
- 3) Verification of the total and specific costs of the project through a screen visualization of the project report.
- 4) Commercial release of the quote / order resulted from the performed compilation.

Thanks to this application the customer has a clear and detailed overview of all the layers and of all the GammaStone AIR materials used in the project.



Static analysis

The static calculations consider a uniformly distributed unit load (weight, pressure and depression). The loads used for the different sizing procedures are evaluated using the principle of superposition (linear-elastic calculation). The procedures for designing all the elements of the façade conform to the following combinations considering the most significant stresses (wind load, own weight, load from ice formations, seismic load). Note: the design of the façade elements will be provided for the combination of the most relevant load. Details relating to the design of the shelves, to the fastening of the bracket to the base material and fixing of the profile to the bracket are shown in separate documents (statics of the system).

GammaStone has developed an exceptional working relationship with many architectural firms around the world. Based on our reputation experience and expertise in exterior building façade systems. Owners and Architects routinely engage GammaStone early in the design of a project. This collaboration from the start of the design process helps eliminating problems before they become issues in construction.

EN 1993-1-1:2005

Table 2.1: Nominal values of the yield strength f_y and the ultimate tensile strength $f_{t,k}$ for structural steels in EN 10082

Steel grade	Type	Nominal values			
		Yield strength f_y (N/mm ²)	Ultimate tensile strength $f_{t,k}$ (N/mm ²)	Yield strength f_y (N/mm ²)	Ultimate tensile strength $f_{t,k}$ (N/mm ²)
S235	S235	235	355	235	355
		235	355	235	355
S275	S275	275	475	275	475
		275	475	275	475
S355	S355	355	555	355	555
		355	555	355	555

2.1.3 Design values of material coefficients

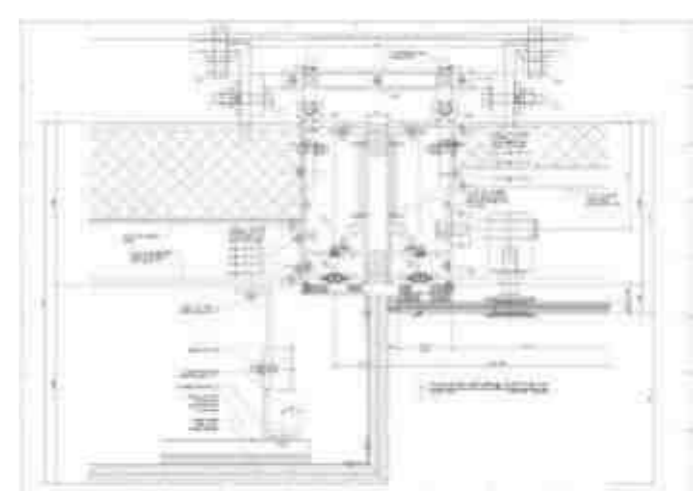
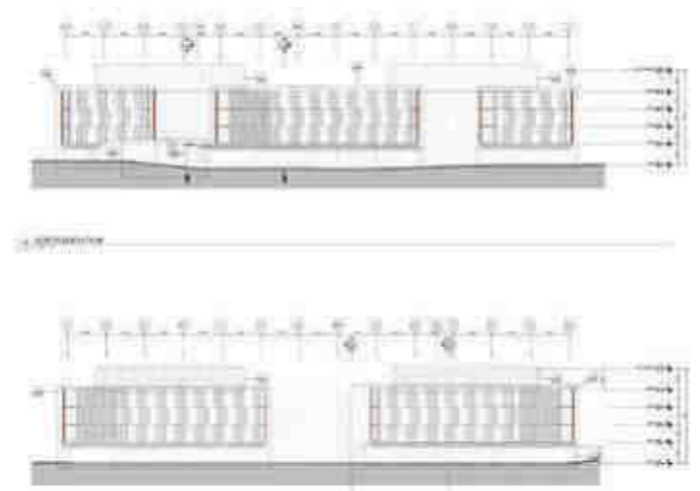
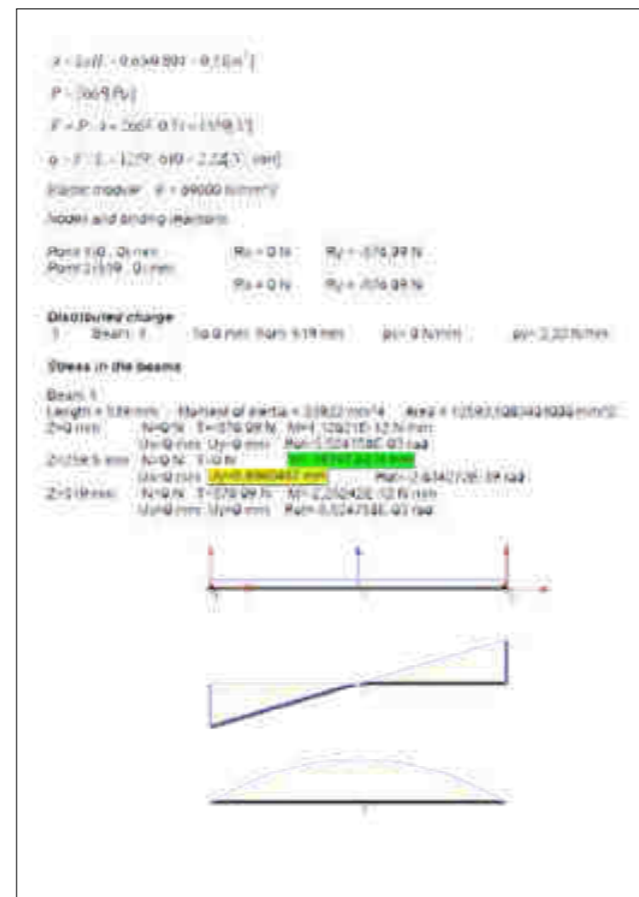
(1) The following values of the material coefficients may be assumed for the global analysis and in following the calculation of member end connections:

Material coefficient γ_M

- γ_{M1} = 23.5 for yield strength and ultimate tensile strength in Table 2.1 including plasticity
- γ_{M2} = 1.0 for ultimate tensile strength in Table 2.1
- γ_{M3} = 1.0 for yield strength and ultimate tensile strength in Table 2.1

Steel coefficient α may be assumed as $\alpha = 1.0$

Partial safety factor may be assumed as $\gamma_{M1} = 1.0$



Example details - Campus Building

Example details - Campus Building

Services

Installation

Installing GammaStone façades is extremely simple and safe. Thanks to the collaboration of leading companies producing fixing systems, we provide a system that is well tested. Since our panel system is extremely lightweight installing is even easier than with other ventilated façade solutions.



07

Chapter

Certifications

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Impact resistant & compressions

GammaStone AIR panels are extremely lightweight and have a high resistance to impacts, bending and compression thanks to the use of excellent and innovative materials which are used in the aerospace industry. GammaStone AIR panels represent a state-of-the-art solution that guarantees high performance standards and offers an unparalleled aesthetic beauty far superior to any solution available today on the market. GammaStone AIR system enables the designer to design not only with a beautiful product, but one that ensures safety.

The panels can be installed mechanically with either concealed or exposed attachment systems. The guarantee of resistance to wind load is greatly superior to any technical requirement imposed by current regulations, even in climatic zones subjected to weathering extremes such as monsoons and hurricanes.



Watch the video of
resistant to impacts

1 kg >>>

Fire Performance

Has successfully passed the fire test

GammaStone AIR panels are NON FLAMMABLE, do not emit smoke, and have no drippings (burning droplets) when exposed to fire. Consequently they are extremely safe in the event of a building fire. They meet all the requirements to be installed in ventilated facades as well as in interior cladding, in escape areas and in interior drop ceilings (Fire Reaction Class 1 attributed in accordance with UNI 9177).

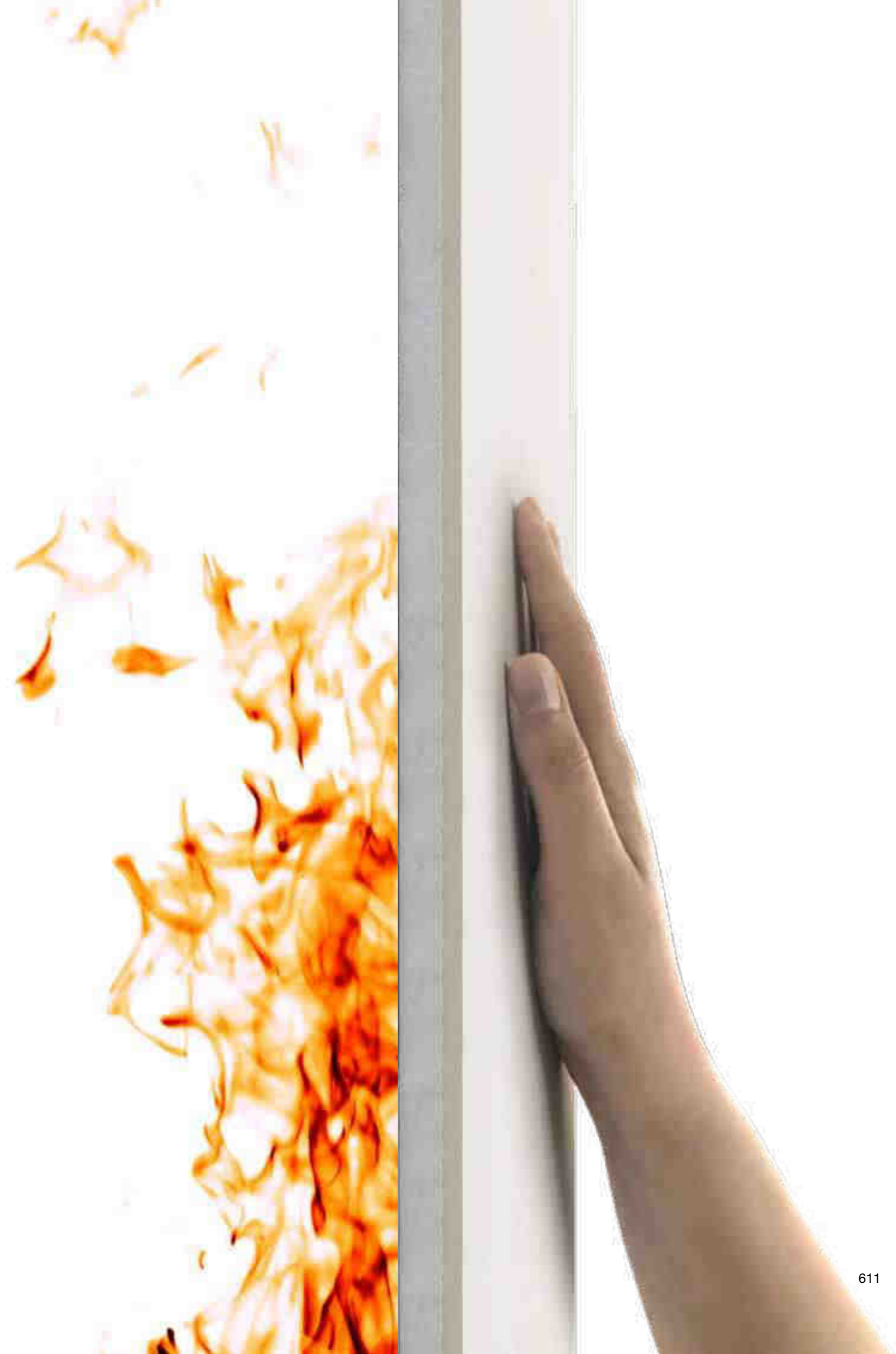
They have also obtained RINA MARED certification and can therefore be installed on ships. They have been subjected to 16 fire tests with results higher than those required by regulations in Europe, USA, and Australia. In Italy they comply with the Decree of the Ministry of the Interior of 15 March 2005 and the Guide for the determination of "fire safety requirements of facades in civil buildings".

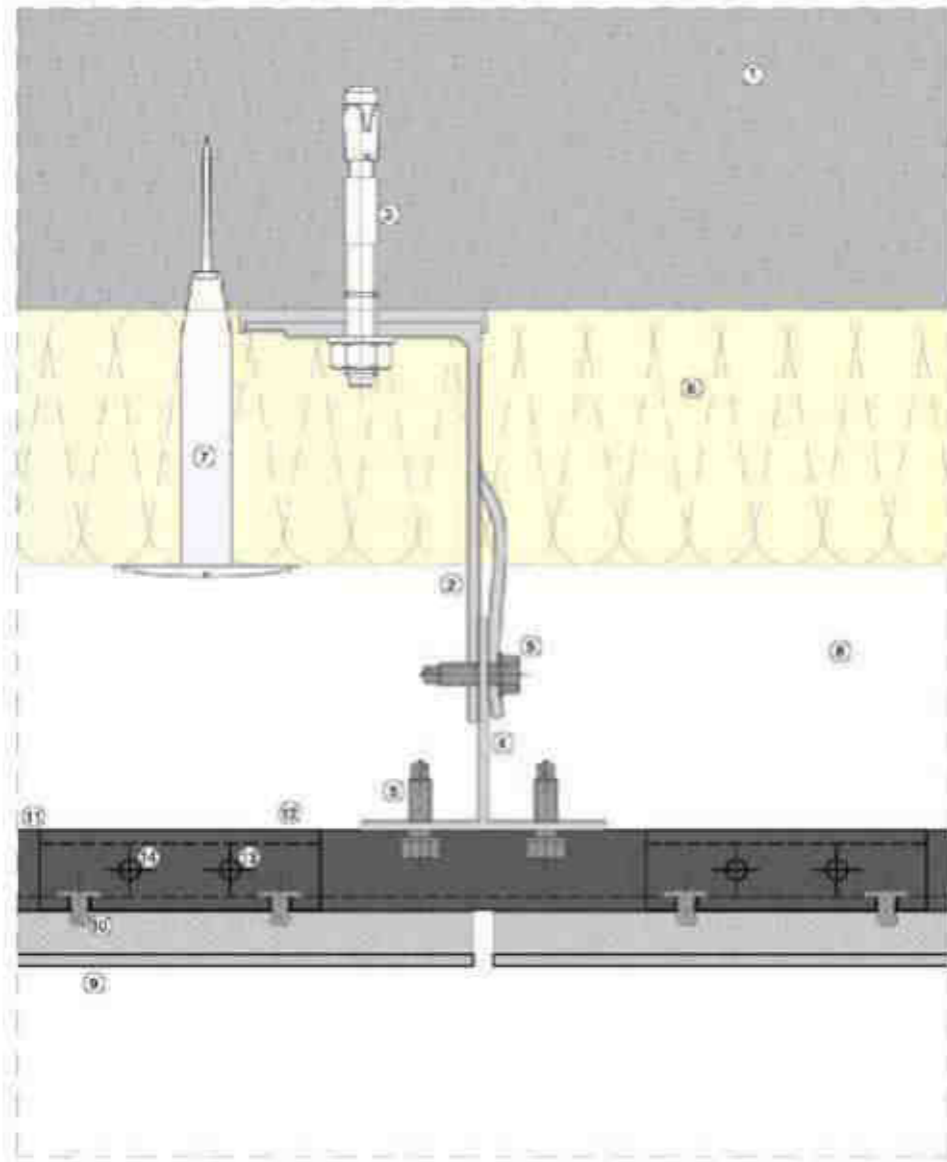


NFPA 285 - BS8414-1

GammaStone AIR panels have passed the toughest internationally recognized tests for fire ratings, the American (NFPA 285) and the English (BS8414-1). GammaStone is committed to supplying high quality, fully tested ventilated rain screen systems. Our system passed the strict NFPA 285, confirming it complies with U.S. fire regulations for exterior panels installed on the building façade.

The GammaStone system also passed the strict BS8414-1 test. Our material was installed on a concrete structure using an aluminum anchoring system for ventilated facades. The surface of over 30 sqm, which reached a height of 8.5m, was subjected to flames emitted by a 2m combustion chamber at the base of the wall. The "fire test" lasts a total of 60 minutes, of which the first 30 minutes is direct exposure to the flame. This test is considered fundamental for the use of building materials in UK, Middle East, Australia, and New Zealand.





- 1) Structural wall
- 2) Bracket
- 3) Anchor
- 4) Mullion
- 5) Self drill. Screw
- 6) Insulation
- 7) Insul. Facing
- 8) Ventilation
- 9) GammaStone AIR Panel
- 10) Rivet
- 11) GammaStone rail *
- 12) GammaStone clip *
- 13) Fixing Screw
- 14) Adjust. Screw

* in black anodized aluminum

NFPA 285 Passed

One of the most rigid and significant tests for ventilated facade installation is the NFPA 285 performed in the United States. Our system was tested in an Intertek laboratory. Intertek www.intertek.com is the world's largest consumer technical testing group with a network of more than 1,000 laboratories in 100 countries.

The test involves replicating a ventilated facade in all its components, setting a massive fire that escapes through the window below, and observing the reaction of the panels exposed to the flames for 30 minutes.

In order to pass the NFPA 285 test, the fire must NOT spread to the upper floors, as soon as the fire is extinguished the panels must NOT continue to burn, and also the temperature on the upper floors must NOT exceed certain limits. GammaStone panels passed this test.



Scan to see
NFPA 285 TEST
video



Scan to see
NFPA 285 TEST
complete video



GammaStone AIR test wall under construction



GammaStone AIR Wall Assembly



Reaction to fire of GammaStone AIR wall assembly after 30'00" of direct flame exposure



Assembly post test

BS8414-1

Passed

A very similar test which was conducted in England is the BS 8414. It was performed at the BRE government laboratories www.bre.co.uk and the methodology of the test is similar to the American NFPA 285. Also here, to pass the test, the fire must NOT spread to the upper floors, as soon as the fire is extinguished the panels must NOT continue to burn and the temperature on the upper floors must NOT exceed certain limits. GammaStone panels also passed this test.



Scan to see
BS8414-1 TEST
video



Scan to see
BS8414-1 TEST
complete video



GammaStone AIR test wall under construction



GammaStone AIR Wall Assembly



Reaction to fire of GammaStone AIR wall assembly after 30'00" of direct flame exposure



Assembly post test

GammaStone test result

TEST	DESCRIPTION	RESULT
ASTM E 136	Behavior of materials at 750°C (1382°F)	Non-combustible
CAN/ULC-S114 ASTM E1530:2006	Test for Non-Combustibility	Non-combustible
ASTM C297/C297M - 16	Standard Test Method for Flatwise Tensile Strength	Non-combustible
NFPA 285	Fire test	Passed
BS8414-1	Fire test	Passed
ASTM E 84 (UL 723)	Surface burning characteristics	Class A
UNI 9177:2008 UNI 8457:2010 UNI 9174:2010	Reaction to fire	Classe 1
UNI EN 13501-1:2009 UNI EN 13823:2010 UNI EN ISO 11925-2:2005	Fire classification	B - s1, d0
UNI EN 12664:2002	Thermal resistance	0,237 m2 K/W
MED 2014/90/EU	Determination of calorific value	1,37 ± 0,05 MPa
MED 2014/90/EU	Determination of the limited ability to propagate the flame	Passed

Intertek approved

ABOUT INTERTEK

Intertek Total Quality Assurance expertise, delivered consistently with precision, pace and passion, enabling our customers to power ahead safely. We go beyond testing, inspecting and certifying products; we are a Total Quality Assurance provider to industries worldwide. Through our global network of state-of-the-art facilities and industry-leading technical expertise we provide innovative and bespoke Assurance, Testing, Inspection and Certification services to customers. We provide a systemic approach to supporting our customers' Quality Assurance efforts in each of the areas of their operations including R&D, raw materials sourcing, components suppliers, manufacturing, transportation, distribution and retail channels, and consumer management. Intertek is an industry leader with more than 44,000 employees in 1,000 locations in over 100 countries. We deliver Total Quality Assurance expertise 24 hours a day, 7 days a week with our industry-winning processes and customer-centric culture. Whether your business is local or global, we can help to ensure that your products meet quality, health, environmental, safety, and social accountability standards for virtually any market around the world. We hold extensive global accreditations, recognitions, and agreements, and our knowledge of and expertise in overcoming regulatory, market, and supply chain hurdles is unrivalled.

Intertek can sharpen your competitive edge

- With reliable testing and certification for faster regulatory approval
- Through rapid, efficient entry to virtually any market in the world
- With Total Quality Assurance across your supply chain
- Through innovative leadership in meeting social accountability standards
- By reducing cost and minimizing health, safety, and security risks
- By becoming a TRUSTED BRAND



VARIOUS ASTM PHYSICAL PROPERTY EVALUATION OF GammaStone AIR PANEL SYSTEM COMPONENTS

Intertek Building & Construction (B&C) was contracted by GammaStone to perform physical properties testing on various components of their GammaStone AIR Panel System in general accordance with ASTM C393, ASTM C272, ASTM C297, ASTM C880, and ASTM C482. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek B&C test facility in York, PA.

TEST METHODS

The specimens were evaluated in accordance with the referenced sections of the following:

- ASTM C393/C393M-16, *Standard Test Method for Core Shear Properties of Sandwich Constructions by Beam Flexure*
- ASTM C272/C272M-18, *Standard Test Method for Water Absorption of Core Materials for Sandwich Constructions*
- ASTM C271/C271M-16, *Standard Test Method for Density of Sandwich Core Materials*
- ASTM C297/C297M-16, *Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions*
- ASTM C880/C880M-18, *Standard Test Method for Flexural Strength of Dimension Stone*

The specimens were evaluated in general accordance with the following:

- ASTM C482-02 (2014), *Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement Paste*



SI UNIT CONVERSION SUMMARY FOR MITER JOINT SHEAR EVALUATION OF GammaStone AIR PANEL SYSTEM

Intertek Building & Construction (B&C) was contracted by GammaStone to perform physical properties testing on various components of their GammaStone AIR Panel System in general accordance with ASTM C482. This results summary represents SI unit conversions for ASTM C482 test results previously published, in US customary units, within comprehensive test report no. J2813.01-106-31R0. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek B&C test facility in York, PA.



SUMMARY OF TEST RESULTS

ASTM C482- Mitered Corner Joint Assembly Shear Loading Evaluation

TEST CONDITION	NO.	PRETEST VISUAL EVALUATION	MITER JOINT DIMENSIONS (mm)		TOTAL MITER JOINT BOND AREA (mm ²)
			LENGTH	WIDTH	
Equilibrium Dry	1	Good	101.9	20.1	2,038.7
	2	Good	102.4	19.6	2,006.4
	3	Good	102.1	19.3	1,967.7
	4	Good	101.9	20.6	2,083.9
	5	Good	101.9	19.1	1,948.4

SPECIMEN NO.	FAILURE LOAD (kgf)		MITER JOINT ULTIMATE STRENGTH (kgf/linear mm)	FAILURE MODE
	INITIAL CRACK/YIELD	ULTIMATE FAILURE		
1	319.6	548.8	5.39	Miter Joint Release/ Adhesive Disengagement of Reinforcing Clip
2	419.8	586.0	5.73	Miter Joint Release/ Adhesive Disengagement of Reinforcing Clip
3	116.8	355.7	3.48	Miter Joint Release/ Adhesive Disengagement of Reinforcing Clip
4	355.6	429.1	4.21	Miter Joint Release/ Adhesive Disengagement of Reinforcing Clip
5	205.7	331.2	3.25	Miter Joint Release/Facing Stone Fracture Adhesive Disengagement of Reinforcing Clip
Average	283.5	450.2	4.41	

We have obtained the RINA certification

GammaStone AIR panels fully meet the requirements of the IMO FTP Code 2010. The purpose of the test was to determine the flammability of the material under examination and to determine its calorific value, fully demonstrating that the GammaStone AIR panels comply with the increasingly stringent regulations of the naval field. Specifically, the ultralight GammaStone AIR panels can be used for interior cladding and finishing material for dividing walls and ceilings, raised floors, cabins, corridors, halls. The large selection of marble, granite, travertine, and stone allow us to satisfy the most sophisticated needs of the project. It allows GammaStone AIR panels to be incorporated in the interior design of luxury yachts and cruise ships, enhancing the furnishing elements. GammaStone is once again an unrivaled choice of style and elegance.



GammaStone AIR has obtained the rigorous Rina naval certification for the installation on ships of ultralight and large-format GammaStone AIR panels. The untiring commitment and dedication to the creation of the highest quality products has allowed GammaStone to obtain the RINA IMO MED certification.



GammaStone Natural AIR TRAVERTINO

The test sample comprises 5 specimens, nominal size 50 mm x 50 mm each, cut from composite material and complete with steel blocks for fixing to the test apparatus.

Normative References

The test was carried out in accordance with the requirements of standard ASTM C297/C297M - 16 dated 01/04/2016 "Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions".

Test apparatus

The following equipment was used to carry out the test:

- Istituto Giordano S.p.A. IG 10000 universal testing machine, range 0-10000 kg (apparatus in-house identification code FT161);
- AEP Transducers TS load cell, capacity 10 kN (apparatus in-house identification code EDI073);
- Borletti CDEP15 digital calliper gauge, range 0-150 mm and resolution 0,01 mm (apparatus in-house identification code EDI066);
- bonded steel loading blocks.

Test method

Prior to testing, the specimens were conditioned for more than 24 h at a temperature of 23 °C and 50% relative humidity. The test was carried out in accordance with the requirements of clause 11 "Procedure" of standard ASTM C297/C297M - 16.

Environmental conditions during test

Ambient temperature (23 ± 2) °C

Relative humidity (50 ± 5) %

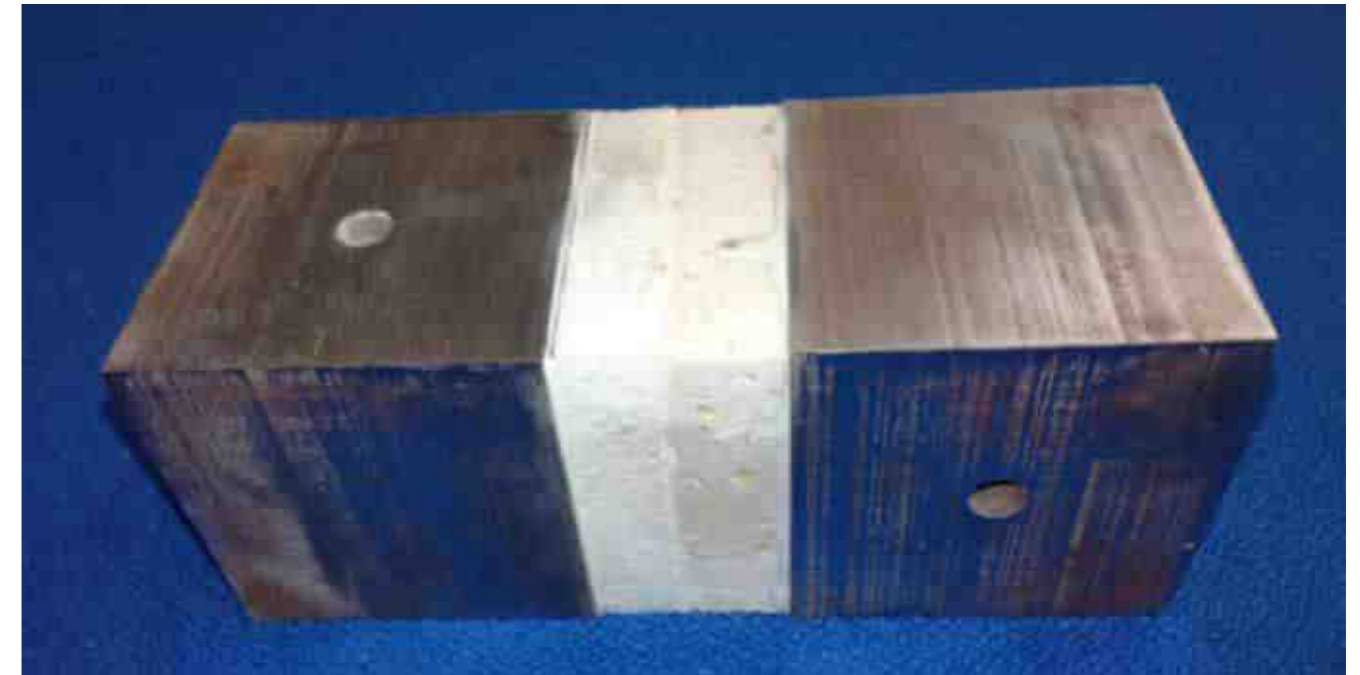
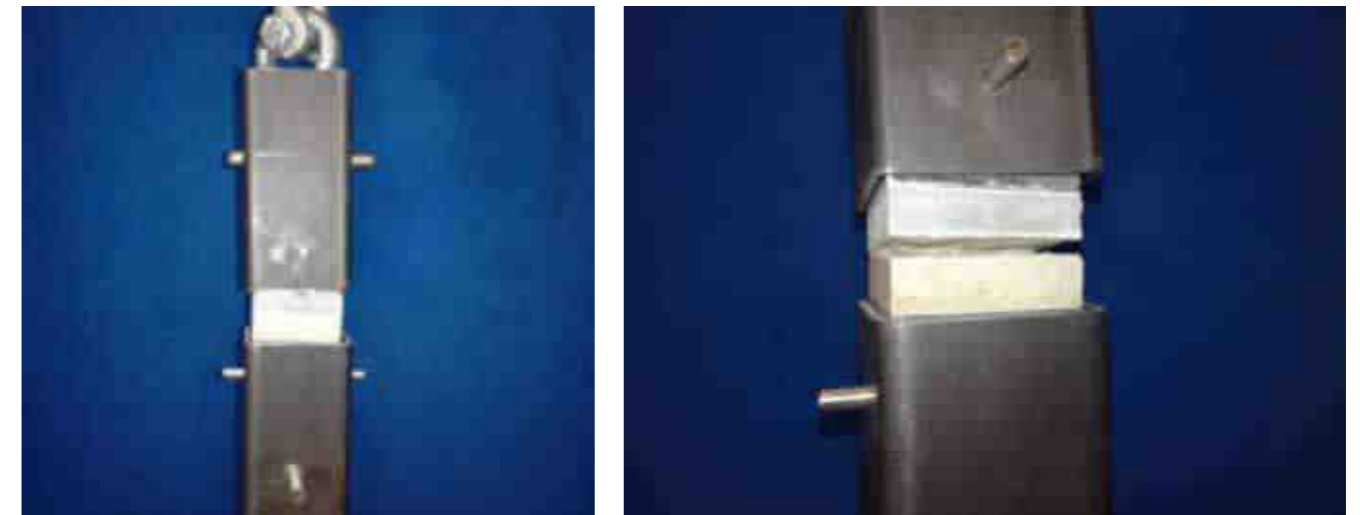


Photo of a specimen



Photos of a specimen during testing



Photo of a specimen after testing

Thermal conductivity

Experimental determination of thermal conductivity $\lambda_{10,dry}$ (UNI EN 12664 STANDARD) of a multi-layer slab for ventilated façades named "GammaStone Natural AIR" of the firm "GammaStone S.r.l."



Results

This Test Report describes the determination of the thermal conductivity $\lambda_{10,dry}$ of a multi-layer slab for ventilated façades, requested to CertiMaC Laboratory in Faenza by the Customer "GammaStone S.r.l.", Rignano Flaminio, Rome, Italy. Results are reported in Table 1. Test was performed on 50.8 mm diameter samples, produced from panels sent to the Laboratory by the Customer.

Conclusions

The value of thermal conductivity $\lambda_{10,dry}$ is comprised between 0.157 e 0.170 W/mK. The values represent an equivalent conductivity of the multi-layer systems, therefore they cannot be extended to similar systems composed of the same materials but with different thicknesses.



GammaStone Natural AIR

Frost resistance

Experimental determination of frost resistance (UNI EN ISO 10545-12 STANDARD) of a multi-layer slab for ventilated façades named "GammaStone Natural AIR" of the firm "GammaStone S.r.l."



Test Execution and results

This Test Report describes the determination of the frost resistance of a multi-layer slab for ventilated façades, requested to CertiMaC Laboratory in Faenza by the Customer "GammaStone S.r.l.", Rignano Flaminio, Rome, Italy. Results are reported in Table 1. Test was performed on 10 samples (600 x 300 x 24 mm), subjected to n° 100 thermal cycles within the following temperature range: $-5 \div +5$ °C. After drying to a constant weight, tiles are placed in a vacuum tank to a pressure of (60 ± 4) kPa below atmospheric pressure. Water is introduced while this pressure is maintained for 15 minutes before returning to atmospheric pressure.

Each cycle consists in:

- cooling to -5 °C at a speed of 20 °C/hour;
- maintaining at -5 °C for 15 minutes;
- introduction of the water at (20 ± 5) °C to raise the temperature tiles to $+5$ °C
- maintaining at 5 °C for 15 minutes;
- examination, at the end of 10 cycles, for visible defects.

Conclusions

The product "GammaStone Natural AIR" doesn't show any defect after n° 100 frost resistance cycles.



GammaStone Natural AIR

Partners



GammaStone is a member of **UNICMI** (National Union of Industries of the Metalworks, Envelope and Windows) whose aim is to represent the interests of Italian industrial sectors of the building envelope and metalworks to all institutions, and to promote its products on the market.

All GammaStone products are certified, through rigorous tests at the special test stations of **Istituto Giordano**, technical institute for product test, certification, research, design and training with awards and ministerial authorizations. Our systems have obtained multiple certifications including corrosion resistance, acoustic insulation, wind resistance (pressure and depression), impact, thermal and fire resistance.

GammaStone products are manufactured in compliance with the strict requirements of **EOTA** (European Organization for Technical Approvals) primary organization for the technical evaluation of construction products.

The company is certified **ISO 9001** by **IMQ** the most important Italian certification institution, leader in Europe in evaluation of Compliance (safety, quality, sustainability) in Italy and abroad, distinctive element of the made in Italy production. GammaStone AIR panels are designed in collaboration with the **CNR National Research Council**. It is the largest public research institute with high competence technical scientific, supervised by the Minister Education, University and Research

(MIUR) that value the Research and implementation of their results for the technological development of our country. GammaStone panels are certified at international level by **BBA**, leader of certification bodies in the construction sector in Great Britain, ensuring high safety and reliability.

GammaStone panels are selected for their originality, innovation and functionality by ADI GammaStone obtained important awards for the protection of the Intellectual property.

Test	Description	Result
UNI EN ISO 10545-8:2014	Determination of linear thermal expansion	1.6
UNI EN 772-14:2003	Determination of moisture movement	0.04 ÷ 0.13 mm/m
UNI EN ISO 10545-4:2012 UNI EN 12467:2016	Determination of the breaking strength	4.3 ÷ 6.2 N/mm ² 2.9 ÷ 3.9 N/mm ²
UNI EN 12089:2013	Determination of bending behavior	4160 ÷ 5867 kPa
UNI EN 12467:2016	Determination of frost/defrost resistance	No fault
UNI EN 12467:2016	Determination of water absorption	No water
UNI EN ISO 10545-9:2013	Determination of resistance to thermal shock	No fault
UNI 9177:2008 UNI 8457:2010 UNI 9174:2010	Reaction to fire	Classe 1
UNI EN 13501-1:2009 UNI EN 13823:2010 UNI EN ISO 11925-2:2005	Fire classification	B - s1, d0
ETAG 034-1:2012	Wind depression load resistance	4610 Pa
ASTM E 84 (UL 723)	Surface burning characteristics	Class A
ASTM E 136	Behavior of materials at 750°C (1382°F)	Non-combustible
CAN/ULC-S114 ASTM E1530:2006	Test for Non-Combustibility	Non combustibile Non-combustible
ASTM C297/C297M - 16	Standard Test Method for Flatwise Tensile Strength	1,37 ± 0,05 MPa
NFPA 285	Fire test	Passed
BS8414-1	Fire test	Passed
MED 2014/90/EU	Determination of calorific value	Passed
MED 2014/90/EU	Determination of the limited ability to propagate the flame	Passed

The tests refer to a GammaStone UHPC Plus AIR panel with 5mm thick UHPC. The complete list of tests and certifications can be found on GammaStone.com.

General and geometrical tolerances

Dimensional deviations

(sizes in mm)

Up to 1.000	More than 1.000 Up to 2.000	More than 2.000 Up to 4.000
± 1	± 1.5	± 2

Dimensional deviations of monolithic assembled returns

(sizes in mm per each assembled return)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +2	-1 +2.5	-1.5 +3

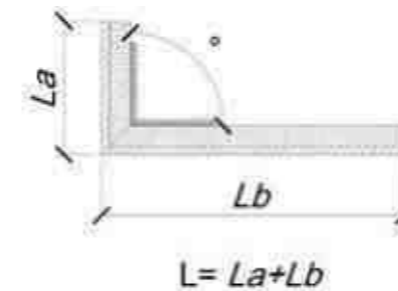
(sizes in mm per double assembled returns)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +3	-1 +3.5	-1.5 +4

Edge tolerances for monolithic assembled returns

Limit deviations refer to the total length in mm of the panels on the sides of the return

L Up to 500	L More than 500 Up to 1000	L More than 1000
± 1°	± 0°30'	± 0°20'



UHPC Plus AIR

General and geometrical tolerances

Edges for monolithic assembled returns

Dimension of the bevel or radius of the monolithic edge

UHPC	Max 5 mm
------	----------

Thickness

The thickness tolerance of the AIR Panel is strictly linked to the material used because it is determined by the sum of the UHPC tolerance + the tolerance of the AIR panel laminated to the slab of UHPC.

Maximum Thickness deviation of AIR Panel (Σ Deviation in mm)	$\pm 2,50$
--	------------

Deviation from the diagonals of the single non assembled panels

Diagonal Dimension D1	Difference with Diagonal D2
Up to 1000 mm	2 mm
Between 1000 and 2000 mm	3 mm
Above 2000 mm	5 mm

ATTENTION: Deviating from the above specifications requires written agreement between both parties.

Gres AIR

Technical data sheet

Test	Description	Result
UNI EN ISO 10545-3:2000	Determination of water absorption	0,9%
UNI EN 12089:2013	Determination of bending behavior	27772 kPa
UNI EN ISO 10545-12:2000	Determination of frost resistance	No fault
UNI EN 12664:2002	Thermal resistance	0,237 m ² K/W
UNI 9177:2008 UNI 8457:2010 UNI 9174:2010	Reaction to fire	Classe 1
UNI EN 13501-1:2009 UNI EN 13823:2010 UNI EN ISO 11925-2:2005	Fire classification	B - s1, d0
UNI EN 826:2013	Determination of compression behavior	1377 kPa
UNI EN ISO 9142:2004	Accelerated ageing	No fault
UNI EN ISO 9227:2012	Resistance in Neutral Salt Spray NSS	No fault
UNI EN ISO 10545-9:2013	Thermal shock resistance	No fault
UNI EN 772-14:2003	Determination of moisture movement	0.0 mm/m
UNI EN 14019:2004 ETAG 034-1:2012	Impact resistance	No damage
ETAG 004:2013	Heat-Rain 80 cycles and Heat-Cold 5 cycles resistance	No fault
UNI EN ISO 10545-8:2014	Determination of linear thermal expansion	2.1 (<0.1 mm/600 mm)
UNI EN ISO 10545-4:2012	Determination of the breaking strength	22.9 \pm 1.7 N/mm ²
UNI EN ISO 10545-4:2012	Flexure after Heat-Rain 80 cycles + Heat-Cold 5 cycles	23.2 \pm 3.0 N/mm ²
Rif. Test Certimac POI	Determination of bond strength by pull-off	1.63 \pm 0.20 N/mm ²
Rif. Test Certimac POI	Bond strength after Heat-Rain 80 cycles + Heat-Cold 5 cycles	1.42 \pm 0.25 N/mm ²
Rif. Test Certimac POI	Bond strength after water immersion (21 days)	1.01 \pm 0.27 N/mm ²
ETAG 034-1:2012	Wind depression load resistance	4610 Pa
ASTM E 84 (UL 723)	Surface burning characteristics	Class A
ASTM E 136	Behavior of materials at 750°C (1382°F)	Non-combustible
CAN/ULC-S114 ASTM E1530:2006	Test for Non-Combustibility	Non-combustible
ASTM C297/C297M - 16	Standard Test Method for Flatwise Tensile Strength	Non-combustible
NFPA 285	Fire test	1,37 \pm 0,05 MPa
BS8414-1	Fire test	Passed
MED 2014/90/EU	Determination of calorific value	Passed
MED 2014/90/EU	Determination of the limited ability to propagate the flame	Passed

Gres AIR

General and geometrical tolerances

Dimensional deviations

(sizes in mm)

Up to 1.000	More than 1.000 Up to 2.000	More than 2.000 Up to 4.000
± 1	± 1.5	± 2

Dimensional deviations of monolithic assembled returns

(sizes in mm per each assembled return)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +2	-1 +2.5	-1.5 +3

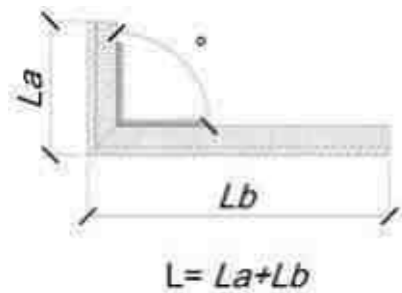
(sizes in mm per double assembled returns)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +3	-1 +3.5	-1.5 +4

Edge tolerances for monolithic assembled returns

Limit deviations refer to the total length in mm of the panels on the sides of the return

L Up to 500	L More than 500 Up to 1000	L More than 1000
± 1°	± 0°30'	± 0°20'



Edges for monolithic assembled returns

Dimension of the bevel or radius of the monolithic edge

Gres	Max 3 mm
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Thickness

The thickness tolerance of the AIR Panel is strictly linked to the material used because it is determined by the sum of the Gres tolerance + the tolerance of the AIR panel laminated to the slab of Gres.

Material Thickness deviation (mm)			Maximum Thickness deviation of AIR Panel (Σ Deviation in mm)
Gres	tsg	Variable ¹	tss+tsg

¹ Depends on the type of porcelain gres selected

Deviation from the diagonals of the single non assembled panels

Diagonal Dimension D1	Difference with Diagonal D2
Up to 1000 mm	2 mm
Between 1000 and 2000 mm	3 mm
Above 2000 mm	5 mm

ATTENTION: Deviating from the above specifications requires written agreement between both parties.

Natural AIR

Technical data sheet

Test	Description	Result	Test	Description	Result
ETAG 004:2013	Heat-Rain 80 cycles	No fault	ASTM C393/C393M-16	Core Shear Properties (Negative Windload - Machine Direction)	102,4 psi
ETAG 004:2013	Heat-Cold 5 cycles	No fault		Core Shear Properties (Positive Windload)	18,7 psi
UNI EN ISO 10545-8:2014	Determination of linear thermal expansion	6.6* (<0.3 mm/600 mm)	ASTM C272/C272M-18	Core Shear Properties (Negative Windload - Crosswise Direction)	100,2 psi
UNI EN 772-14:2003	Determination of moisture movement	0.4 mm/m		Water Absorption of Core Materials	6,143 ibm/ft ³
UNI 9177:2008 UNI 8457:2010 UNI 9174:2010	Reaction to fire	Classe 1	ASTM C297/C297M-16	Flatwise Tensile Bond Strength Evaluation (Fiberglass Mesh)	359 psi
UNI EN 13501-1:2009 UNI EN 13823:2010 UNI EN ISO 11925-2:2005	Fire classification	B - s1, d0		Flatwise Tensile Bond Strength Evaluation (Foam Core)	190 psi
UNI EN ISO 10545-4:2012	Determination of modulus of rupture and breaking strength	2.8± 0.3 N/mm ²	ASTM C297/C297M-16	Flatwise Tensile Bond Strength Evaluation (Steel)	57,6 psi
UNI EN ISO 10545-4:2012	Breaking strength Heat-Rain 80 cycles + Heat-Cold 5 cycles	5.0± 0.5 N/mm ²		Flexural Strength Evaluation (Negative Windload - Dry Condition) Initial Failure	1.043 psi
Rif. Test Certimac POI	Determination of bond strength by pull-off	1.15 ± 0.26 N/mm ²	ASTM C880/C880M-18	Flexural Strength Evaluation (Negative Windload - Dry Condition) Ultimate Failure	2.932 psi
Rif. Test Certimac POI	Bond strength after Heat-Rain 80 cycles + Heat-Cold 5 cycles	1.01 ± 0.31 N/mm ²		Flexural Strength Evaluation (Positive Windload - Dry Condition)	2.787 psi
Rif. Test Certimac POI	Limit of detachment after water immersion (21 days)	0.27 ± 0.17 N/mm ²	ASTM C880/C880M-18	Flexural Strength Evaluation (Negative Windload - Wet Condition)	891 psi
UNI EN ISO 10545-3:2000	Determination of water absorbtion	6%*		Flexural Strength Evaluation (Positive Windload - Wet Condition)	2.903 psi
UNI EN ISO 10545-9:2013	Determination of resistance to thermal shock	No fault	ASTM C482-02	Bond Strength Mitered Corner Joint Assembly Shear Loading Evaluation	992,4 lb _f
UNI EN ISO 10545-12:2000	Determination of frost resistance	No fault	AS/NZS 1530	Determination of ignitability, flame-propagation, heat release and smoke release	Ignitability 0
ETAG 034-1:2012	Wind depression load resistance	4610 Pa			Spread of flame 0
UNI EN 12664:2002	Determination of thermal conductivity	0.157 ÷ 0.170 W/mK		Heat Evolved 0	
ASTM E 84 (UL 723)	Surface burning characteristics	Class A		Smoke developed 0-1	
ASTM E 136	Behavior of materials at 750°C (1382°F)	Non-combustible			
CAN/ULC-S114 ASTM E1530:2006	Test for Non-Combustibility	Non-combustible			
NFPA 285	Fire test	Passed			
BS8414-1	Fire test	Passed			
MED 2014/90/EU	Determination of calorific value	Passed			
MED 2014/90/EU	Determination of the limited ability to propagate the flame	Passed			

* It depends on the type of natural stone, the lower value refers to the Travertine, the highest value is for Sandstone. The results are based on tests made on a GammaStone Natural AIR panel in Sandstone sawn finish, untreated.

Natural AIR

General and geometrical tolerances

Dimensional deviations

(sizes in mm)

Up to 1.000	More than 1.000 Up to 2.000	More than 2.000 Up to 4.000
± 1	± 1.5	± 2

Dimensional deviations of monolithic assembled returns

(sizes in mm per each assembled return)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +2	-1 +2.5	-1.5 +3

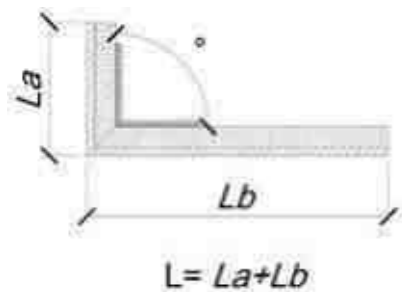
(sizes in mm per double assembled returns)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +3	-1 +3.5	-1.5 +4

Edge tolerances for monolithic assembled returns

Limit deviations refer to the total length in mm of the panels on the sides of the return

L Up to 500	L More than 500 Up to 1000	L More than 1000
± 1°	± 0°30'	± 0°20'



Edges for monolithic assembled returns

Dimension of the bevel or radius of the monolithic edge

Natural Stones	Max 5 mm
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Thickness

The thickness tolerance of the AIR Panel is strictly linked to the material used because it is determined by the sum of the stone tolerance + the tolerance of the AIR panel laminated to the slab of stone.

Material Thickness deviation (mm)		Maximum Thickness deviation of AIR Panel (Σ Deviation in mm)
Natural Stone	tsn	tss+tsn
	Variable ²	

² Depends on the type of natural stone selected

Deviation from the diagonals of the single non assembled panels

Diagonal Dimension D1	Difference with Diagonal D2
Up to 1000 mm	2 mm
Between 1000 and 2000 mm	3 mm
Above 2000 mm	5 mm

ATTENTION: Deviating from the above specifications requires written agreement between both parties.

Glass AIR

Technical data sheet

Test	Description	Result
UNI EN 12089:2013	Determination of bending behavior	84053 kPa
UNI EN 13049:2004	Determination of impact strength	No damage
UNI 9177:2008 UNI 8457:2010 UNI 9174:2010	Reaction to fire	Classe 1
UNI EN 13501-1:2009	Fire classification - glass side	B - s2, d0
UNI EN 13501-1:2009 UNI EN 13823:2010 UNI EN ISO 11925-2:2005	Fire classification - steel side	B - s1, d0
UNI EN 826:2013	Determination of compression behavior	2135 kPa
ETAG 004:2013	Heat-Rain 80 cycles and Heat-Cold 5 cycles	No fault
UNI EN ISO 10545-8:2014	Determination of linear thermal expansion	4.2 (<0.2 mm/600 mm)
UNI EN 772-14:2003	Determination of moisture movement	0.0 mm/m
UNI EN ISO 10545-4:2012	Determination of modulus of rupture and breaking strength	23.2 ± 0.9 N/mm ²
UNI EN ISO 10545-4:2012	Breaking strength Heat-Rain 80 cycles + Heat-Cold 5 cycles	23.2 ± 0.9 N/mm ²
Rif. Test Certimac POI	Determination of bond strength by pull-off	1.56 ± 0.19 N/mm ²
Rif. Test Certimac POI	Bond strength by pull-off results – sample “after immersion” (21 days)	1.24 ± 0.28 N/mm ²
UNI EN ISO 10545-3:2000	Determination of water absorption	0.2%
UNI EN ISO 10545-9:2013	Determination of resistance to thermal shock	No fault
UNI EN ISO 10545-12:2000	Determination of frost resistance	No fault
ETAG 034-1:2012	Wind depression load resistance	4610 Pa
UNI EN 12664:2002	Determination of thermal conductivity	$0.118 \div 0.123$ W/mK
ASTM E 84 (UL 723)	Surface burning characteristics	Class A
ASTM E 136	Behavior of materials at 750°C (1382°F)	Non-combustible
CAN/ULC-S114 ASTM E1530:2006	Test for Non-Combustibility	Non-combustible
ASTM C297/C297M - 16	Standard Test Method for Flatwise Tensile Strength	$1,37 \pm 0,05$ MPa
NFPA 285	Fire test	Passed
BS8414-1	Fire test	Passed
MED 2014/90/EU	Determination of calorific value	Passed
MED 2014/90/EU	Determination of the limited ability to propagate the flame	Passed

The results are based on tests made on a GammaStone Glass AIR panel in enameled tempered, glass, 6mm thick.
The complete list of tests can be found on GammaStone.com.

Glass AIR

General and geometrical tolerances

Dimensional deviations (sizes in mm)

Up to 1.000	More than 1.000 Up to 2.000	More than 2.000 Up to 4.000
± 1	± 1.5	± 2

Dimensional deviations of monolithic assembled returns (sizes in mm per each assembled return)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +2	-1 +2.5	-1.5 +3

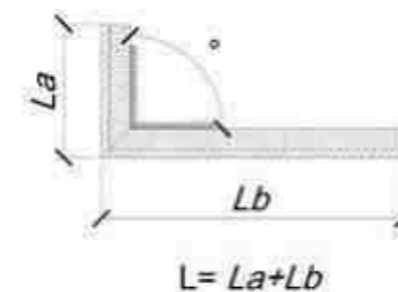
(sizes in mm per double assembled returns)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +3	-1 +3.5	-1.5 +4

Edge tolerances for monolithic assembled returns

Limit deviations refer to the total length in mm of the panels on the sides of the return

L Up to 500	L More than 500 Up to 1000	L More than 1000
$\pm 1^\circ$	$\pm 0^\circ30'$	$\pm 0^\circ20'$



Glass AIR

General and geometrical tolerances

Edges for monolithic assembled returns

Dimension of the bevel or radius of the monolithic edge

Glass	Max 5 mm
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Thickness

The thickness tolerance of the AIR Panel is strictly linked to the material used because it is determined by the sum of the Glass tolerance + the tolerance of the AIR panel laminated to the slab of Glass.

Material Thickness deviation (mm)	Maximum Thickness deviation of AIR Panel (Σ Deviation in mm)
Glass tsv $\pm 0,20$	$\pm 1,20$

Deviation from the diagonals of the single non assembled panels

Diagonal Dimension D1	Difference with Diagonal D2
Up to 1000 mm	2 mm
Between 1000 and 2000 mm	3 mm
Above 2000 mm	5 mm

ATTENTION: Deviating from the above specifications requires written agreement between both parties.

Brick AIR

Technical data sheet

Test	Description	Result
UNI EN ISO 10545-3:2000	Determination of water absorption	0,9%
UNI EN 12089:2013	Determination of bending behavior	27772 kPa
UNI EN ISO 10545-12:2000	Determination of frost resistance	No fault
UNI EN 12664:2002	Thermal resistance	0,237 m ² K/W
UNI 9177:2008 UNI 8457:2010 UNI 9174:2010	Reaction to fire	Classe 1
UNI EN 13501-1:2009 UNI EN 13823:2010 UNI EN ISO 11925-2:2005	Fire classification	B - s1, d0
UNI EN 826:2013	Determination of compression behavior	1377 kPa
UNI EN ISO 9142:2004	Accelerated ageing	No fault
UNI EN ISO 9227:2012	Resistance in Neutral Salt Spray NSS	No fault
UNI EN ISO 10545-9:2013	Thermal shock resistance	No fault
UNI EN 772-14:2003	Determination of moisture movement	0.0 mm/m
UNI EN 14019:2004 ETAG 034-1:2012	Impact resistance	No damage
ETAG 004:2013	Heat-Rain 80 cycles and Heat-Cold 5 cycles resistance	No fault
UNI EN ISO 10545-8:2014	Determination of linear thermal expansion	2.1 (<0.1 mm/600 mm)
UNI EN ISO 10545-4:2012	Determination of the breaking strength	22.9 ± 1.7 N/mm ²
UNI EN ISO 10545-4:2012	Flexure after Heat-Rain 80 cycles + Heat-Cold 5 cycles	23.2 ± 3.0 N/mm ²
Rif. Test Certimac POI	Determination of bond strength by pull-off	1.63 ± 0.20 N/mm ²
Rif. Test Certimac POI	Bond strength after Heat-Rain 80 cycles + Heat-Cold 5 cycles	1.42 ± 0.25 N/mm ²
Rif. Test Certimac POI	Bond strength after water immersion (21 days)	1.01 ± 0.27 N/mm ²
ETAG 034-1:2012	Wind depression load resistance	4610 Pa
ASTM E 84 (UL 723)	Surface burning characteristics	Class A
ASTM E 136	Behavior of materials at 750°C (1382°F)	Non-combustible
CAN/ULC-S114 ASTM E1530:2006	Test for Non-Combustibility	Non-combustible
ASTM C297/C297M - 16	Standard Test Method for Flatwise Tensile Strength	1,37 ± 0,05 MPa
NFPA 285	Fire test	Passed
BS8414-1	Fire test	Passed
MED 2014/90/EU	Determination of calorific value	Passed
MED 2014/90/EU	Determination of the limited ability to propagate the flame	Passed
ASTM C67/C67M-18	Freeze Thaw Cycling Resistance Evaluation (Continued) MASS CHANGE	0,16 %

Brick AIR

Technical data sheet

Test	Description	Result
ASTM C273/C273M-18	Shear - Calculated Results	902,0 psi
	Shear - Calculated Results (C481 Aged)	1.040,50 psi
ASTM C364/C364M-16	Edgewise Compressive Strength	3.397 psi
	Edgewise Compressive Strength (C481 Aged)	3.686 psi
ASTM C365/C365M-16	Flatwise Compressive Strength	948 psi
	Flatwise Compressive Strength (C481 Aged)	1.883 psi
ASTM C297/C297M-16	Flatwise Tensile Bond Strength Evaluation	91,4 psi
	Flatwise Tensile Bond Strength Evaluation (C481 Aged)	88,5 psi
ASTM C393/C393M-16	Results (Control - Lengthwise Production)	300,3 psi
	Results (Control - Crosswise Production)	249,8 psi
	Results (C481 Aged - Lengthwise Production)	306,0 psi
	Results (C481 Aged - Crosswise Production)	237,4 psi
ASTM D1781-98(2012)	Climbing Drum Peel Strength	140,61 lb _f
	Climbing Drum Peel Strength (C481 Aged)	120,24 lb _f
ASTM G154-16	UV Exposure/ D2244 Color Shift Evaluation	0,78 ΔE
	UV Exposure/ D2244 Color Shift Evaluation (Grout)	0,92 ΔE
AS/NZS 1530	Determination of ignitability, flame-propagation, heat release and smoke release	Ignitability 0 Spread of flame 0

The tests refer to a GammaStone Brick AIR panel with 20 mm thick brick. The complete list of tests can be found on GammaStone.com.

Brick AIR

General and geometrical tolerances

Dimensional deviations

(sizes in mm)

Up to 1.000	More than 1.000 Up to 2.000	More than 2.000 Up to 4.000
± 1	± 1.5	± 2

Dimensional deviations of monolithic assembled returns

(sizes in mm per each assembled return)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +2	-1 +2.5	-1.5 +3

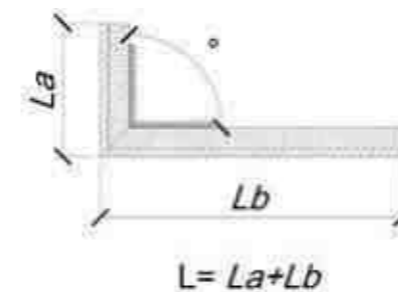
(sizes in mm per double assembled returns)

Up to 500	More than 500 Up to 1.000	More than 1.000 Up to 2.000
-1 +3	-1 +3.5	-1.5 +4

Edge tolerances for monolithic assembled returns

Limit deviations refer to the total length in mm of the panels on the sides of the return

L Up to 500	L More than 500 Up to 1000	L More than 1000
± 1°	± 0°30'	± 0°20'



Brick AIR

General and geometrical tolerances

Edges for monolithic assembled returns

Dimension of the bevel or radius of the monolithic edge

Brick	Max 5 mm
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Thickness

The thickness tolerance of the AIR Panel is strictly linked to the material used because it is determined by the sum of the Brick tolerance + the tolerance of the AIR panel laminated to the slab of Brick.

Material Thickness deviation (mm)			Maximum Thickness deviation of AIR Panel (Σ Deviation in mm)
Brick	tsg	Variable ¹	tss+tsg

¹ Depends on the type of brick selected

Deviation from the diagonals of the single non assembled panels

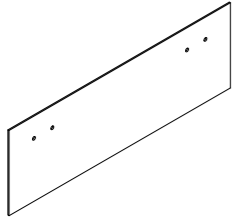
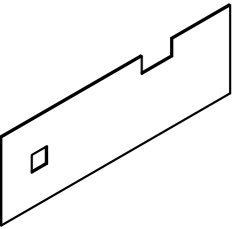
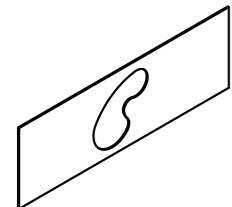
Diagonal Dimension D1	Difference with Diagonal D2
Up to 1000 mm	2 mm
Between 1000 and 2000 mm	3 mm
Above 2000 mm	5 mm

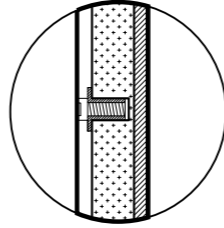
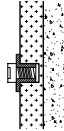
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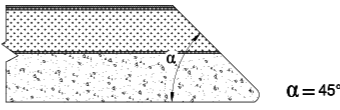
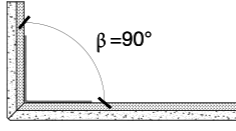
Manufacturing techniques

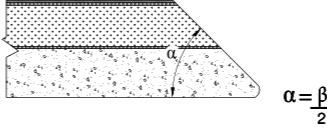
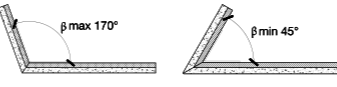
GammaStone Gres AIR, Natural AIR, UHPC Plus AIR, and Brick AIR

PANEL CUTTING	CODE
Cut/Squaring same format quantity more than 30 sqm.	GL01
Cut/Squaring same size quantity below 30 sqm	GL01
Out of square cut of trapezes, triangles, parallelograms (min. 1 sqm per single format based on the circumscribed rectangle).	GL02
Shaped cut of special and round shapes (minimum 1 sqm per single format for the circumscribed rectangle).	GL03

PASSING HOLES	CODE
 Raw holes Ø25-30-35-40 mm. More than Ø40 look at the passing slots.	GL20
 Raw edge slots (simple geometrical shapes. Min. perimetral 1 lm). For slots bigger than 1 perimetral 1m look at the shaped slots.	GL21
 Perimetral internal shapes slot (special geometrical shapes).	GL22

PRE-DRILLING / BLIND HOLES	CODE
 Blind holes made in the back side of the panel for the installation of the hangers.	More than 100 pieces same positioning GL10 Till 100 pieces same positioning GL10
 Threaded insert M4 (value to add to the code GL10).	GL11

90° MONOLITHIC EXTERNAL CORNER	CODE
 Only corner cut with external edge of the panel in section. Min. 1 lm (note that the not assembled material can be irregular). $\alpha = 45^\circ$	GL05
 Assembly, positioning of bent corner and gluing (minimum 1 meter for each assembled corner). $\beta = 90^\circ$	GL30
Two edge working, assembly and positioning of bent corner, standard gluing and chamfer of the edge (min. 1 lm per single assembled corner).	
GL05x2 + GL30	

MONOLITHIC EXTERNAL CORNER WITH VARIABLE CORNER	CODE
 Only corner cut external edge of the panel in section. Min. 1 lm (the material not assembled can have some imperfection in the visible edge). $\alpha = \frac{\beta}{2}$	GL06
 Assembly and positioning of bent corner, standard gluing and chamfering of the edge (min. 1 lm per single assembled corner). $\beta \max 170^\circ$ $\beta \min 45^\circ$	GL32
Two edge working, assembly and positioning of bent corner, standard gluing and chamfer of the edge (min. 1 lm per single assembled corner).	
GL06x2 + GL32	

Panel specification

Panel specification

or klinker bricks slabs thick 7 or 10 mm, a structural core inserted between two fiberglass mattings and a stainless steel plate having a thickness

UNI 8457:2010 Reaction to fire Classe 1

UNI EN 135011:2009 Fire classification B s1, d0

Determination of bond strength by pulloff 1.63 ± 0.20 N/mm2

Determination of bond strength by pulloff 1.63 ± 0.20 N/mm2

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Determination of bond strength by pulloff 1.63 ± 0.20 N/mm2

Applications specifications

Applications specifications

panel), insulation board and aluminum structure. The structure consists of profiles and brackets both made from extruded aluminum alloy 6060 in

When fixing the mullions to the brackets, pay attention to the profile to be fixed in one point only, leaving freedom of movement in the longitudinal direction in the additional hardware to ensure the appropriate spaces needed for the effect of thermal expansion of the aluminum. Take care that

1) Glass panel: the panel consists of a glass slab with a thickness of 4 or 6 mm a structural core interposed between two glass fiber mats and a

2) Natural stone panel: the panel consists of a natural stone slab with a thickness of 10 mm, a structural core interposed between two glass fiber

3) Porcelain panel: panel consists of a porcelain plate with a thickness of 3 or 6mm, a structural core interposed between two glass fiber mats and

in the raw state and with various surface finishes, consisting of:

- Raw Brackets, "L" shaped, fixed by anchors suitably dimensioned and chosen according to the existing masonry;
- Isolator placed between aluminum bracket and masonry;
- Raw "T" Profile (called vertical mullion), fastened on the brackets with rivets (large head, steel / aluminum) in respect of "fixed point" and "sliding
- Insulating panel, both rigid or soft, thickness according to the project requirement;
- Slotted horizontal current, fixed to the uprights by means of rivets (large head, steel / aluminum), and shaped so that the stresses due to wind action result axial to the hangers;
- Aluminum hangers fixed on the GammaStone AIR panel stainless steel sheet with rivets large head, steel / aluminum), and placed according to

Applications specifications

- Aluminum mullions, T shaped;
- "L" shaped aluminum brackets;
- Isolator for the interruption of the thermal bridge;
- Anchors suitable for the existing masonry;
- Insulating panel, both rigid or soft, according to the thermal calculations;
- Normalized rivets or self-drilling screws for fixing of mullions, brackets and transoms;
- Regulation hangers, with screws for precision adjustment;

GammaStone

Provide drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, as indicated.

Section 05100 - Stone, Ceramic Tiles, and Glass

05100 - Stone, Ceramic Tiles, and Glass

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, as indicated.

05100 - Stone, Ceramic Tiles, and Glass

Provide stone, ceramic tiles, and glass as indicated. Fabricator shall be experienced in performing work as specified. Manufacturer's data required to prove compliance with these specifications, manufacturer's shop drawings shall be complete with specific instructions for the installation of panels, sub-frame assemblies and other component parts.

05100 - Stone, Ceramic Tiles, and Glass

A. Provide experienced, well-trained workers competent to complete the work as specified. Fabricator/installer shall be experienced in performing work as specified. Manufacturer's data required to prove compliance with these specifications, manufacturer's shop drawings shall be complete with specific instructions for the installation of panels, sub-frame assemblies and other component parts.

05100 - Stone, Ceramic Tiles, and Glass

B. Submit list of materials to be provided for this work; manufacturer's data required to prove compliance with these specifications, manufacturer's shop drawings shall be complete with specific instructions for the installation of panels, sub-frame assemblies and other component parts.

D. Shop drawings shall be complete with specific instructions for the installation of panels, sub-frame assemblies and other component parts.

05100 - Stone, Ceramic Tiles, and Glass

B. Field Measurements: Secure field measurements before preparation of shop drawings and fabrication where possible, for proper fabrication and installation. Materials must be transported flat and kept dry in a warehouse/storage facility or in an area protected from exposure to harmful elements.

05100 - Stone, Ceramic Tiles, and Glass

A. Deliver material in manufacturer's original, unopened, undamaged containers with identification labels intact. Materials must be transported flat and kept dry in a warehouse/storage facility or in an area protected from exposure to harmful elements.

05100 - Stone, Ceramic Tiles, and Glass

E. Accessory Items: Install corner profiles, gaskets and trim with fasteners and adhesive appropriate for use with adjoining constructions as indicated.

05100 - Stone, Ceramic Tiles, and Glass

A. Manufacturer's warranty: Submit, for owner's acceptance, manufacturer's standard warranty document executed by authorized company official.

05100 - Stone, Ceramic Tiles, and Glass

GammaStone AIR (choose one) [STONE], [CERAMIC], [GLASS], [UHPC], [BRICK]. The panel is composed of a (select one) [.2 inches, (5mm)], [.39 inches, (10mm)], [.47 inches, (12mm)] natural stone slab, a structural core inserted between two fiberglass layers and a stainless steel plate having a thickness of 0.5 mm.

05100 - Stone, Ceramic Tiles, and Glass

A. EXTERIOR GRADE (choose one) [STONE], [CERAMIC], [GLASS], [UHPC], [BRICK], COMPOSITE PANELS: The panel is composed of a (select one) [.2 inches, (5mm)], [.39 inches, (10mm)], [.47 inches, (12mm)] natural stone slab, a structural core inserted between two fiberglass layers and a stainless steel plate having a thickness of 0.5 mm.

The panel is composed of a (select one) [.12 inches, (3mm)], [.20 inches, (5mm)], [.24 inches, (6mm)] porcelain gres slab, a structural core inserted between two fiberglass layers and a stainless steel plate having a thickness of 0.5 mm.

The panel is composed of a (select one) [.16 inches, (4mm)], [.24 inches, (6mm)] glass slab, a structural core inserted between two fiberglass matting and a stainless steel plate of 0,5 mm thickness.

The GammaStone UHPC Plus AIR solution is composed of (select one), [.2 inches, (5mm)], [.67 inches, 17mm)] high-performance concrete reinforced with amorphous metal fibers, a structural core inserted between two fiberglass matting and a stainless steel plate of 0.5 mm thickness.

B. TECHNICAL REQUIREMENTS: (choose one) [STONE], [CERAMIC], [GLASS], [UHPC], [BRICK] 1. SURFACE: Per Architect's selection (choose one: [STONE], [CERAMIC], [GLASS], [UHPC], [BRICK])

4. WEIGHT: (dependent on panel configuration) 5. SURFACE BURNING CHARACTERISTICS: Report on surface burning characteristics determined by ASTM E84 (twenty-five-foot tunnel furnace test method) All panels meets class A, flame spread index 0 - 25 and a smoke developed index of 0 – 450. 6. All GammaStone AIR panels have passed the test of 4610 Pa

05100 - Stone, Ceramic Tiles, and Glass

Provide stone, ceramic tiles, and glass as indicated. Fabricator shall be experienced in performing work as specified.

05100 - Stone, Ceramic Tiles, and Glass

Provide stone, ceramic tiles, and glass as indicated.

05100 - Stone, Ceramic Tiles, and Glass

05100 - Stone, Ceramic Tiles, and Glass

Provide stone, ceramic tiles, and glass as indicated.

05100 - Stone, Ceramic Tiles, and Glass

B. Attachment system: GammaStone Hidden fastening [Ventilated], [Micro-ventilated], [Curtain wall],[Ceiling],[Sunblades]. Manufacturer's data required to prove compliance with these specifications, manufacturer's shop drawings shall be complete with specific instructions for the installation of panels, sub-frame assemblies and other component parts.

E. Accessory Items: Install corner profiles, gaskets and trim with fasteners and adhesive appropriate for use with adjoining constructions as indicated.

05100 - Stone, Ceramic Tiles, and Glass

Provide stone, ceramic tiles, and glass as indicated.

05100 - Stone, Ceramic Tiles, and Glass

B. Provide final cleaning of the panel system.

05100 - Stone, Ceramic Tiles, and Glass

A. Protect installed product and finished surfaces from damage during construction.

GammaStone

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