The façade cladding has to be made with light-weight panels (type GammaStone AIR or similar) made of an external layer in back lacquered glass slabs.

### Glass Panel

- **Fire Classification**: B s2, d0
- **Reaction to Fire**: Classe 1
- **Impact Resistance**: No fault
- **Heat Rain 80 cycles and Heat Cold 5 cycles**: No fault
- **Wind Depression Load Resistance**: 4610 Pa
- **Thermal conductivity**: 0.157 ÷ 0.170 W/mK
- **Breaking Strength**: 2772 ± 0.35 kPa

### Natural Stone Panel

- **Fire Classification**: steel side: B s1, d0; glass side: B s2, d0
- **Reaction to Fire**: Classe 1
- **Breaking Strength**: 2772 ± 0.35 kPa
- **Water Absorption**: 6%*
- **Frost/Defrost Resistance**: No fault

### Ceramic Panel

- **Fire Classification**: Class A
- **Reaction to Fire**: Classe 1
- **Breaking Strength**: 2377 ± 0.35 kPa
- **Water Absorption**: 0.9%
- **Frost Resistant**: No fault
VENERABILE FACADE / INVISIBLE SOLUTION

The GammaStoneAIR ventilated facade with concealed fastening is based on the integrated system between large panels (up to 3x1 m in single panel), insulation board and aluminum structure. The structure consists of profiles and brackets both made from extruded aluminum alloy 6060 in the 6000 series according to UNI EN 573-3, physical condition T6 according to EN 515. 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 additional hardware to ensure the appropriate spaces needed for the effect of thermal expansion of the aluminum. Take care that the free space of the joint is at least 1.2 x 0.5mm (in mm). The safety of the whole system must be guaranteed by appropriate checks in accordance with the applicable regulations (Technical Standards for Construction DM 01/14/08 UNI 11018 and January 2001 on “Coatings and anchoring systems for ventilated facades in mechanical assembly. Instructions the design, execution and maintenance.”

In particular, the system GammaStoneAIR concealed fastening is characterized by:

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 stainless steel sheet with a thickness of 0.5 mm.
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 mats and a stainless steel sheet with a thickness of 0.5 mm.
3. Porcelain panel: panel consists of a porcelain plate with a thickness of 3 or 6 mm, a structural core interposed between two glass fiber mats and a stainless steel sheet with a thickness of 0.5 mm.

4. Format: panels are provided in the format required by the designer with a maximum size of 4000x1500 mm (glass) 3200x1500 (natural stone) 3200x1200 (porcelain).
5. Substructure: substructure composed by Mullions, transoms and brackets all made of extruded aluminum alloy 6060 T6 series, available either 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;
   - Flaw "T" Profile (called vertical mullion), fastened on the brackets with rivets (large head, steel / aluminum) in respect of "fixed point" and "sliding point", as shown by the annexed tables.
   - Insulating panels, 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 hinges;
   - Aluminum hangers fixed on the GammaStoneAIR panel stainless steel slab with rivets large head, steel / aluminum, and placed according to the geometry shown in the annexed tables.

The panels thus assembled, are hanged on the slotted horizontal guide. This system, by means of millimetric adjusting screws, provides the possibility to obtain variable joints. The panels will be blinded by the surrounding removable locking system.

PART LIST:
- 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;
- Horizontal aluminum slotted transoms, with particular section, able to receive interlocking special nonoverturning hangers, fixed to the back face of the panel;
- Regulation hangers, with screws for precision adjustment;
- Simple hangers.

MOUSICA PANEL

The facade cladding has to be made with lightweight panels (type GammaStoneAIR or similar) made of an external layer in mosaic slabs color xxx thick 4 mm, a structural core inserted between two fiberglass mats and a stainless steel plate having a thickness of 0.5 mm. The panel is supplied with epoxy resin color xxx within the joints.
Size: panels provided according to the designer’s request with a maximum size of 3000x1000mm. Thickness: 16 mm. Weight: 16 kg/m2

Mosaico monolitico corner composed of mosaics with beveled edges, assembled with mastic, put on the back of a blend L-element and glued with structural adhesive.

The panel has to have the minimum performance levels as follows:

UNI EN 13049:2004 Determination of impact strength No damage
UNI EN 12089:2013 Determination of bending behavior 84053 kPa

The panel has to have the minimum performance levels as follows:

UNI EN 14019:2004 ETAG 034 1:2012 Impact resistance No damage
UNI EN ISO 10545 4:2012 Determination of modulus of rupture and breaking strength 23.2 ± 0.9 N/mm2

The panel is supplied with epoxy resin color xxx within the joints.

BRICK PANEL

The facade cladding has to be made with lightweight panels (type GammaStoneAIR or similar) made of an external layer in mosaic slabs color xxx thick 4 mm, a structural core inserted between two fiberglass mats and a stainless steel plate having a thickness of 0.5 mm. The panel is supplied with epoxy resin color xxx within the joints.
Size: panels provided according to the designer’s request with a maximum size of 3000x1000mm. Thickness: 16 mm. Weight: 16 kg/m2

Mosaico monolitico corner composed of mosaics with beveled edges, assembled with mastic, put on the back of a blend L-element and glued with structural adhesive.

The panel has to have the minimum performance levels as follows:

UNI EN 13049:2004 Determination of impact strength No damage
UNI EN 12089:2013 Determination of bending behavior 84053 kPa
SECTION 074320 – GAMMASTONE AIR (CHOOSE ONE) [STONE], [CERAMIC], [GLASS], [GFRC], [BRICK], [MOSAIC] EXTERIOR COMPOSITE PANELS

PART 1 – GENERAL

1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this section.

1.2 SUMMARY

A. Provide all materials and work for this section as indicated on the complete set of drawings and as required for a complete installation. Note that any component listing is for the convenience of the Contractor and that all items shall be provided whether included in this listing or indicated on the plans.

1.3 QUALITY STANDARDS

A. Provide experienced, well-trained workers competent to complete the work as specified. Fabricator/Installer shall be experienced in performing work of similar type and scope.

B. Provide all components, including related products and accessories, from a single manufacturer. Accessories other than those provided by panel manufacturer shall be approved by panel manufacturer.

C. Panels shall be installed adhering to ‘ventilated rain screen method’ per manufacturer’s instructions and shall provide unobstructed cavity for continuous air flow. [contaminant wall system requirements].

1.4 SUBMATERIALS

A. Manu all submittals as directed in Section ______ - SUBMITTALS.

B. Submit list of materials to be provided for this work, manufacturer’s data required to prove compliance with these specifications, manufacturer’s installation instructions, shop drawings as required, with complete details and assembly instructions.

C. Submit samples as required for approval by the Architect.

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

1.5 PRECONSTRUCTION AND PREPARATION

A. Examine and verify that job conditions are satisfactory for speedy and acceptable work.

B. Field Measurements: Secure field measurements before preparation of shop drawings and fabrication where possible, for proper fabrication and installation of the work.

C. Pre-Installation Meeting: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer’s installation instructions, shop drawings as required, with complete details and assembly instructions.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver material in manufacturer’s original, unopened, undamaged containers with identification labels intact. Materials must be transported flat and kept dry and protected from the elements and handled with care.

B. Storage and Protection: Materials must be stored flat and kept dry in a warehouse/storage facility or in an area protected from exposure to harmful weather conditions, at temperatures and humidity conditions recommended by the manufacturer.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer’s absolute limits.

1.8 WARRANTY

A. Manufacturer’s warranty. Submit, for owner’s acceptance, manufacturer’s standard warranty document executed by authorized company official. Manufacturer’s warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

PART 2 – PRODUCTS

2.1 BASIS OF DESIGN PRODUCT: GAMMASTONE AIR (CHOOSE ONE) [STONE], [CERAMIC], [GLASS], [GFRC], [BRICK], [MOSAIC] EXTERIOR COMPOSITE PANELS

A. GAMMASTONE - Exterior grade (CHOOSE ONE) [STONE], [CERAMIC], [GLASS], [GFRC], [BRICK], [MOSAIC] composite panels.

1. Manufactured by: GammaStone Via Flaminia 148 00068 Rignano Flaminio (Roma) Italy +39 0761 5051 info@gammastone.com

2. Local Contact: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

2.2 MATERIALS

A. EXTERIOR GRADE (choose one) [STONE], [CERAMIC], [GLASS], [GFRC], [BRICK], [MOSAIC] COMPOSITE PANELS:

[NATURAL AIR] - The panel is composed of a [select one]: 2 inches, (5mm), .3 inches, (10mm), .4 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 available sizes depend on the block size with a maximum size of 126” x 59” (3200 x 1500 mm).

[GFRC AIR] - GammaStone high-quality porcelain gres is a compact ceramic paste, obtained from the process of sintering at temperatures of 1200-1400°C, until reaching a non-porous and waterproof vitrification. The panel is composed of [select one]: 12 inches, (30mm), .2 inches, (5mm), .67 inches, (17mm) porcelain gres slab, a structural core inserted between two fiberglass layers and a stainless steel plate having a thickness of 0.5 mm. Available sizes up to 126” x 63” (3200 x 1500 mm) depending on ceramic sheet size.

[GLASS AIR] - The panel is composed of [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 float or tempered glass is applied depending on the sizes and required applications. Available sizes up to 165” x 59” (4200 x 1500 mm).

[GFRC PLUS AIR] - The GammaStone GFRC Plus Air solution is composed of [select one]: 2 inches, (50mm), 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. The panel offers self-cleaning and photo catalytic characteristics.

2.3 ACCESSORIES

A. Provide trim, gasket, fasteners and other related accessories recommended by the manufacturer to provide a complete system.

2.4 FABRICATION

A. Fabrication by Panel Manufacturer

PART 3 – EXECUTION

3.1 INSPECTION

A. Examine alignment of backup structure prior to installing subframe. Do not proceed until all defects are corrected.

3.2 INSTALLATION

A. Comply with Manufacturer’s guidelines for panel installation

B. Attachment system: GAMMASTONE Hidden fastening: [Ventilated], [Micro-ventilated], [Curtain wall], [Ceramic], [GFRC], [BRICK], [MOSAIC]

C. Install panels plumb and level and accurately spaced in accordance with manufacturer’s recommendations and approved submittals.

D. Fas ten solid exterior wall panels to supporting substrate with fasteners approved for use with adjoining construction.

E. Accessory items: Install corner profiles, gaskets and trim with fasteners and adhesive appropriate for use with adjoining constructions as indicated on drawings and as recommended by manufacturer.

3.3 DAMAGED MATERIAL

A. Repair or replace damaged materials

3.4 CLEANING

A. Do not use abrasive cleaners or cleaning tools. Dry and wipe down panel sections as work progresses.

B. Provide final cleaning of the panel system.

3.5 PROTECTION

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

END OF SECTION 074320