Decowall 2011, Stone-wall Decoration. Thermal Bath Project for the Blind in Vàrosliget Park, Budapest.

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Abstract: *In this paper I would like to discuss about the birth and results of Decowall 2011 projects, in the Városliget park, Budapest.*

Keywords: *color, pattern, harmony*

1 The Birth of The Project

DecoWall was born from an idea from Giuseppe Fallacara, professor and researcher in the Faculty of Architecture in Bari. During the 2010-2011 academic year, it was studied and developed by the students Claudia Cancellieri, Nicola Ladisa, Alessandra Maria Loglisci, Mariana Recchia, and Lorenzo Sciascia as the subject of their thesis for graduation: "Budapest, stone-wall decoration. Thermal Bath Project for the Blind in Vàrosiglet Park." This thesis was directed by professors Claudio D'Amato Guerrieri, Giuseppe Fallacara, and Gyorgy Radvanyi. The project offers a new and contemporary approach to expressive architecture using stone, consonant with the main research focus of the Faculty of Architecture of the Polytechnic Institute in Bari. This project constitutes one section of a larger thermal bath designed for the blind in Vàrosliget Park. DecoWall 2011 is consists of a fractal spiral wall that leads the user toward the building's entrance (Fig. 1). The continuous spiral wall, which inserts itself well into the naturalistic context through curvilinear forms devoid of sharps edges and corners, is suitable even to the enjoyment by people who are either blind or with serious problems of vision. We had these users in mind when conceiving this project (Fig. 2). Thanks to the logic of fractals, the main design element generates a series o increasing small environments that cling to the line of the main spiral or cluster in close proximity, all adhering to the logarithmical relationship of the spiral itself. Eight axes, which pass through the center of the swirling spiral,

define the position of the curved walls and of the subterranean compartments, which constitute the thermal baths in the hypogeal level with their various functions (Fig.3).

Fig.1 DecoWall in Vàrosliget Park: spiral wall of the thermal bath. Rendering by Nicola Boccadoro.

Fig.2 Plan of the ground level, elevation 0.00 m (left).

Fig.3 Plan of the hypogeal level, elevation -10.0 m (right).

2 Decowall at The International Marble Fair, Marmonacc 2011, Verona

A partial construction of the DecoWall project was displayed in the section "Marmomacc Meets Design" on the occasion of the 46th Verona marble fair, Marmomacc 2011, offering itself as a new answer to the decorative trends of several schools of thought in contemporary architecture. The mock-up was realized by the Hungarian firm Reneszànsz, the leading enterprise in the industry of stone extraction and processing in Budapest, which is often engaged in large projects for Budapest.

The mock-up began with the roughing out of the blocks and the statues with computer-controlled machines (CNC machine) and then finishing by expert stonemasons who have imparted a unique feel to the end product. As a result, the wall is a perfect synthesis between tradition and innovation, between architecture and sculpture (Figs. 3-4). The types of stones and finishes were chosen in accordance with the required range of colors stipulated in the design phase. To that end, we used two main types of local limestone: Sutto Haraszti (color of honey- cappuccino) with a cross-cut called "cross" or "fleuri" and Sutto Gazdabánya (the classic limestone color) with a vein or travertine cut.

Furthermore, aluminum-sheet templates were also used both for the definition of the size of raw material to be extracted from the quarry and for the development of various blocks.
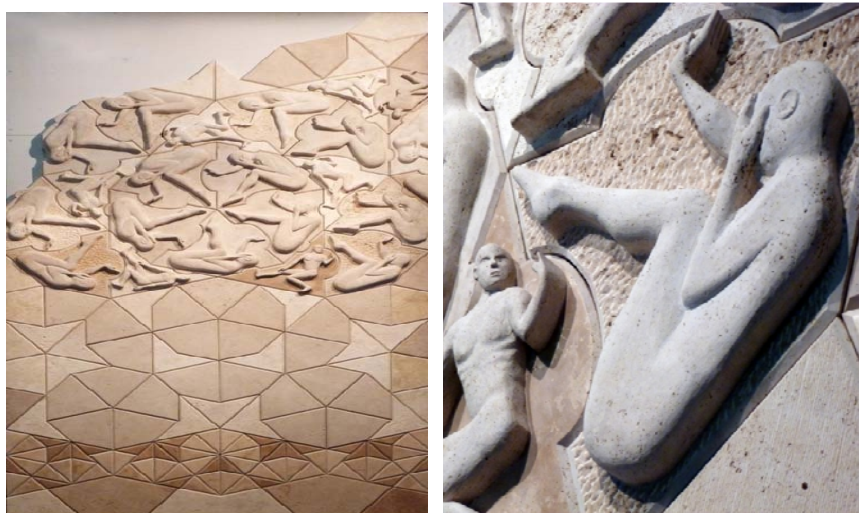
Figs.3-4 Mock-up made by Reneszànsz and displayed at the 46th Marmomacc. Verona 2011.
Photo by Raffaella Sanseverino.

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3 The Wall Tessellation

DecoWall presents a stone wall 5 m in height, structured according to stereotomic principles. It is inspired by the technique of *opus poligonalis*, which uses a polygonal configuration of stones to make the wall stronger from the static point of view and at the same time more interesting from the aesthetic point of view. The elements that compose it are arranged in an aperiodical tessellation.

According to the definition by the British mathematician Roger Penrose [1] (1931), tessellation is the drawing that is obtained by periodically repeating the same figure, without overlays, along two non-parallel directions so to fully cover a surface. In DecoWall, tessellation has been used as an aperiodical mode, that is to say through a rotation of 1/5,, using the kite and dart as primary figures. Both these figures, derived from the rhombus, are able to fully cover the surface but without ever composing the same rhombus. Their assembly makes serial configurations of polar types related through symmetry, which, in case of shifting, allows it to avoid the problem of collapsing because the tessellated shapes function as an arch. From the compositional point of view, the wall is composed of four horizontal bands to which is added a cornice and a base. This division is determined by the dimensional sequencing of the tessellation, according to which the blocks double in height until arriving at the maximum size of the sculpted band with the low-relief of human figures. These last blocks are different from the others because of their particular "puzzle" shape that allows mutual interlocking through concavity and convexity (Fig.5). This type of arrangement has permitted topological transformations not only with planar but also with curved elements (Fig. 6).
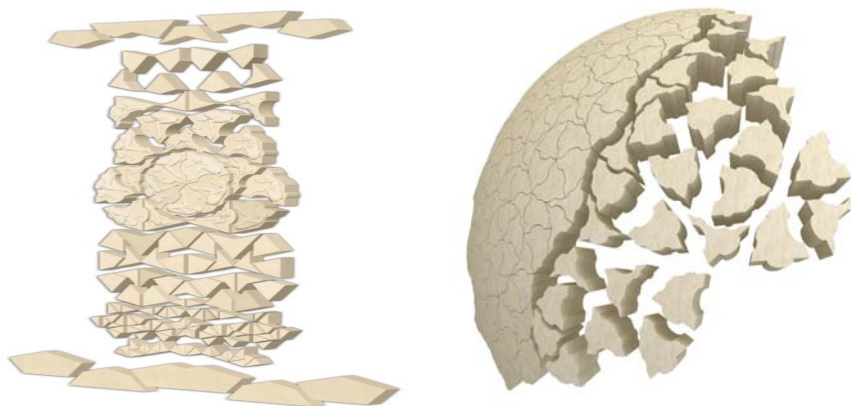

Fig.5- DecoWall: exploded axonometric (left)
Fig.6- Stereotomic tessellated dome (right)

4 Material Quality and Color of the Stones

Materials were selected in order to best communicate the design's intent. The goal for DecoWall was to harmoniously arrange together the most important Hungarian stones. For this reason, the Reneszànsz company made available its own quarries for the   selection of the various types of native limestone. These stones were processed differently according to their position in the structure of the wall and according to the chromatic effect that they were intended to give to the entire wall. In the base section, which by definition is the most solid part of any building, tessellation of many small elements might at first glance appear to contradict the need for the greatest strength in this position.   Yet, as explained above, it is precisely the interlocking polygonal form that gives strength to the structure. Three types of stones were chosen for this lowest band, ranging from a lighter to a darker color, in order to capture the attention of the viewer that is naturally led to look from the bottom to the top (Figs. 7-9).

Fig.7 Local brushed stone.

Fig.8 Local polished stone.

Fig.9 Local polished stone.

In the central part, which is the transition from smaller to larger tessellated stones, smooth stones of light color were used (Figs.10-12).

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Fig.10 Local smooth stone.

Fig.11 Local smooth stone.

Fig.12 Local smooth stone.

The objective was to prepare the user for a gradual transition to the next band with the low-relief figures, which emphasizes the material qualities of stone, while at the same time presenting a darker color (Figs. 13-15).

Fig.13 Local chiseled stone.

Fig.14 Local chiseled stone.

Fig.15 Local sandblasted stone.

References

[1] Cfr. R. Penrose, *The Road to Reality*, Universal Library Rizzoli, Milan 2006