
CHALLENGES AND RISKS OF THE RE-RESTORATION OF A TURN-OF-THE-CENTURY GLASS MOSAIC

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ABSTRACT

The almost four-square-meter large glass mosaic decorates the entrance of the Fasori Lutheran Church in Budapest executed by the Róth-workshop (1905). The continuous soaking of the porticus structure kept active the salt movement and evoked detachments. In 2006 it went through in-situ treatments which cannot solve the problems but accelerated them. A hydrophobic coating made practically impossible to execute the urgently needed treatments as it became chemically the unremovable part of the glass tesserae. During our restoration (2021), a completely new protocol was needed for the safe detachment and reattachment of the mosaic.

Keywords: retreatability, hydrophobic coating, glass mosaic, new backing system, Róth-workshop

INTRODUCTION

The case of an outdoor gold and glass mosaic originally executed by the Róth-workshop¹ in 1905, which went through in-situ treatments in 2006 became a good example concerning the problem of the so-called retreatability.

The lunette mosaic decorates the entrance of the Fasori Lutheran Church in Budapest. In the past, a nearly vertical structural crack was generated and appeared on the surface of the mosaic. The continuous soaking of the porticus structure kept active the salt movement and caused damages and losses in the unity



Fig. 1. Deformations and losses of the mosaic before application of the emergency facing, 2018 (photo by B. M. Kürtösi)

of the mosaic (Fig. 1). The previous operations cannot solve the problem but accelerated it.

THE CONTEXT

The Church was afraid to lose the mosaic and tried to find solution. We agreed that in this case only the detachment of the mosaic will surely help. Unexpectedly, an unknown coating was found on the surface during our emergency treatment (Kürtösi 2019). A not mentioned but previously used hydrophobic layer on the glass tesserae made practically impossible to execute any urgently needed treatments. Despite many cleaning attempts performed on test samples

and on the spot its removal was not satisfactory.

Examination of samples ² were performed to know more about the properties of the original materials and to gain information about the coating to ease the planning of the restoration. In this situation the main challenge was to select materials and treatments whose benefits far outweigh the losses they may cause. The investigation of the samples from the tesserae and that of the mortar showed that the coating material, a kind of organo-siloxane (Lesniaková 2019) is present on all sides of the tesserae, and it was penetrated the bedding mortar as well which fills the joints between tesserae. The complete restoration process must be planned to know that the organo-siloxane has already became the part of the mosaic and it chemically connects to the material of glass tesserae.

ORIGINAL METHODS AND MATERIALS

The mosaic composed of metal leaf tesserae and coloured glass pastes was originally made in studio by indirect technique, which means that the visible surface was fixed upside down on a temporary support, on paper with starch according to Róth, who described his method in his book (Róth 1942, 64). Then they cut the whole mosaic into pieces and fixed the sections on site. In this case the wall was prepared with three layers of mortar composed of slaked air-lime and early type of Portland cement mixed binder and crushed dolomitic limestone was added to it as filler material. The bedding layer was coloured pinkish but not with brick powder but by using red iron-oxide pigment.

RESTORATION STEPS

FACING AND DETACHMENT

The task was to detach the mosaic from the wall, but no traditional procedures could work. Finally, a two-component silicone paste (generally used for casting) was applied together with an embedded gauze layer as facing. The silicone was chemically similar to the material of the coating and strong enough to keep the mosaic together during the detachment process. The detachment by “*strappo*” method was finally executed in September of 2019 in 21 pieces.

BACKING SYSTEM AND NEW SUPPORT

The mosaic sections were transported to the workshop where a new backing system was developed and applied (Kürtösi 2021) before the mechanical cleaning (Fig.2). Firstly, fiberglass mesh was fixed on the backside of each section with a transparent MS polymer (modified silane polymer). The MS polymer consists of a polyether main chain end-capped with methylmethoxysilane groups (Petrie 2010). By this modification it differs from the silicones, which let it well applicable in this special case during treatments on the surface and on the back as well.

The 21 detached sections along with the reconstructed part were mounted on a new, lightweight, and flexible support, on a 1.6 cm thick polycarbonate panel by using the author's newly developed intermediate layer composed by the MS polymer filled with extruded polystyrene foam (XPS) filings. Before the realisation, model trials were performed to be sure about the nature of the layers prepared. After the



Fig. 2. Mechanical removal of the silicone facing after the application of the new backing system (photo by B. Dohárszky)

mounting of the sections the completion of the losses had happened.

AESTHETICAL COMPLETION

The missing parts were in connection with the face of the little girl recreated in 2006. The materials used at that time lead the detaching of some close original parts, and the aesthetical appearance was incompatible, thus the re-restoration of this section was also inevitable by using an archive photo.

The method was similar to the original, the indirect version of the setting which can help to create a smooth surface which is significant in the characteristic appearance of the mosaics from the period. Be-



Fig. 3. Indirect reconstruction process of the missing and incorrect part of the composition (photo by B. Dohárszky)

fore the process the mosaic was graphically documented tessera by tessera on PVC foil, which was useful during this part of the work to be able to fit the tesserae again in a proper connection with the surrounding mosaic details (Fig. 3).

FINISHING

The complete work was treated with a coloured joint mortar, which is similar in its properties to the original according to the examination. The removal of the silicone paste remnants was performed by using a poultice. The fractured tesserae were repaired with two-component epoxy kit and retouched with pigments bound with Hxtal NYL-1™ epoxy resin.



Fig. 4. The view of the mosaic on the spot after detachment, restoration, and reinstallation (photo by B. M. Kürtösi)

INSTALLATION

On the site the mortar layers were removed and the mosaic on the new support was fixed its original place by screwing. It was important feature to leave space behind and around the panel for the air and moisture circulation.

CONCLUSION

The mosaic preserved its qualities in appearance, but it is fixed separately from its original support, the building façade, thus it has no more direct connection with the wall and the 2.7 cm thick new system was suitable to place it in the original position (Fig. 4).

NOTES

1. Miksa Róth was the iconic master of the renewal of the Hungarian mosaic and stained-glass art in the period mainly inspired by the Art Nouveau movement.
2. Optical microscopy was performed by the author, followed by SEM-EDX and FTIR measurements by Petra Lesniaková (University of Pardubice, Faculty of Restoration, Department of Chemical Technology).

TECHNICAL NOTES

FI-X Expert transparent MS polymer,
<https://www.fi-x.expert/en/#tp/tech> (30. 12. 2022.)

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