



CAPACITY BUILDING PROGRAM FOR SUSTAINABLE RECONSTRUCTION - REBUILD

Deliverable 4.5

Report Study visit in Georgia

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PP	PP5; PP7

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Technical References

Project Acronym	REBUILD
Project Title	Capacity Building Program for sustainable reconstruction
Project Coordinator	IIPLE
Project Duration	24 months (01.01.2025 – 31.12.2026)

Deliverable No.	4.5
Dissemination level ¹	PU - Public
Work Package	4
Task	Study visit in Georgia
Lead beneficiary	PP5, PP7
Contributing beneficiary(ies)	Construct2 - Spectri
Due date of deliverable	31.07.2026
Actual submission date	31.07.2026

¹ PU = Public

PP = Restricted to other programme participants (including the Commission Services)

RE = Restricted to a group specified by the consortium (including the Commission Services)

CO = Confidential, only for members of the consortium (including the Commission Services)

Document history

V	Date	Beneficiary	Author
1	07.07.2026	Construct2	Teona Gabunia
2	10.07.2026	Construct2	Tamari Zakarashvili
3	20.07.2026	Spectri	Giorgi Noselidze
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SUMMARY

REBUILD – Capacity Building Program for Sustainable Reconstruction is an **international cooperation initiative** co-funded by the **Erasmus+ Programme of the European Union** (Action: *Capacity Building in the Field of Vocational Education and Training – CB-VET*).

The project aims to **strengthen and modernise Vocational Education and Training (VET) systems** in **Ukraine, Georgia, and Moldova**, three Eastern Neighbourhood countries not associated with Erasmus+, through the **transfer of European knowledge, skills, and best practices** for **sustainable and resilient reconstruction**.

Objectives and Rationale

The recent crises and natural disasters affecting Eastern Europe have highlighted the urgent need to **rebuild infrastructure and communities** in ways that are **environmentally sustainable, socially inclusive, and technologically advanced**.

REBUILD responds to this challenge by promoting **capacity building** and **skills development** in the construction and training sectors, with a special focus on the **green and digital transitions**.

The project's **overall objective** is to support **sustainable reconstruction and resilience-building** through enhanced cooperation between **VET providers, industry actors, and public authorities**. It seeks to strengthen **institutional capacity**, foster **innovation in teaching and learning**, and ensure that VET systems are better equipped to meet labour market needs in post-crisis contexts.

Key Focus Areas

REBUILD's training programme addresses **four core areas** essential to sustainable reconstruction and the modernisation of VET systems:

- 1. EU Regulations and Standards**
Understanding European policies, directives, and technical standards related to energy efficiency, construction quality, and environmental performance.
- 2. Economic Tools and Access to Funding**
Introducing financial instruments, incentives, and funding mechanisms that support reconstruction, innovation, and skills development.
- 3. Reconstruction Techniques and Sustainable Building Practices**
Promoting innovative and resilient construction methods, use of green materials, energy-efficient technologies, and circular resource management.
- 4. Digital Innovation in Construction**
Developing competences in **Building Information Modelling (BIM)**, **digital monitoring**, and **data-driven management systems** to improve quality and transparency in reconstruction projects.



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Implementation and Methodology

REBUILD combines **research, training, and transnational cooperation**.

It begins with a **comprehensive needs analysis** in the partner countries to identify gaps in skills, policies, and infrastructure. Based on this, partners will co-develop **modular training content** to be delivered via a **dedicated Moodle platform**, allowing flexible and open access for VET trainers and learners.

The digital training programme will be complemented by **face-to-face activities** such as **international exchanges, study visits, and expert seminars** that promote **practical, experience-based learning**.

A key milestone of the implementation phase is the **Study Visit in Georgia (Tbilisi, Zestaponi, Kutaisi, June 2026)**, hosted by the LEPL College Spektri and **Construction College Construct2**. The study visit enables project partners to gain first-hand experience of the local VET ecosystem while exploring practical approaches to sustainable reconstruction. Through expert presentations, guided field visits, and collaborative discussions, participants learn about effective practices, implementation challenges, and innovative solutions. The knowledge gained supports the transfer and adaptation of European experience to local environments while fostering stronger collaboration and mutual learning among project partners.

Expected Results and Impact

The Study Visit in Georgia plays a significant role in achieving the overall objectives of the REBUILD project by:

- **Providing participants** with a deeper understanding of the challenges and opportunities related to sustainable reconstruction within the local context;
- **Improving the capacities** of VET professionals through exposure to practical restoration approaches, expert knowledge, and real-life examples;
- **Supporting the adaptation** of European standards and methodologies to partner country contexts;
- **Promoting cooperation** between VET institutions, industry stakeholders, and public authorities;
- **Facilitating the transfer** and contextual adaptation of European good practices, standards, and methodologies in partner countries;
- **Fostering stronger partnerships** among VET providers, industry representatives, and relevant public institutions;
- **Supporting the design and enhancement** of practice-based educational and training resources;
- **Creating opportunities** for mutual learning, experience sharing, and lasting cooperation among project partners across participating countries.

Strategic Relevance

REBUILD aligns with major **European policy frameworks**, including the **European Green Deal**, the **Digital Education Action Plan**, and the **European Year of Skills**.

By connecting **education, innovation, and sustainability**, the project contributes to the EU's broader objectives for a **green, digital, and inclusive transition**.



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REBUILD is not only about rebuilding physical structures: it is about **rebuilding systems, competences, and resilience**. It empowers institutions and professionals to lead reconstruction efforts that are **environmentally responsible, technologically advanced, and socially fair**.

In doing so, REBUILD positions itself as a **catalyst for transformation** in the Eastern Neighbourhood region, promoting a new generation of **skilled professionals and educators** capable of shaping the future of sustainable reconstruction.



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1.AGENDA



The need to support sustainable reconstruction

The EU funded REBUILD Project aims to support sustainable reconstruction efforts in **regions affected by war or natural disasters**, while also aligning with the EU Green Deal and Digital Decade objectives.

REBUILD is an international capacity-building project in vocational education and training (VET) that brings together EU countries (Italy, Austria, Poland) and Eastern European nations (Ukraine, Moldova, Georgia).

Main objectives

At its core, REBUILD aims to strengthen cooperation between European and Eastern Partnership countries, fostering the **exchange of best practices in construction and training**.

A key focus is on equipping VET trainers with the necessary skills to **integrate digital tools**, energy-efficient building techniques, and innovative teaching methods into their programs. This includes the development of MOOCs and online learning platforms, ensuring broad and continuous access to high-quality training resources.

Another important aspect of the project is the **collaboration with the private sector**, encouraging construction companies to actively participate in sustainable rebuilding efforts. By bridging the gap between education and industry, REBUILD ensures that training programs are aligned with real labour market needs. Additionally, the initiative promotes **international exchanges and study visits**, creating opportunities for cross-border cooperation and knowledge-sharing among VET trainers and institutions. This approach not only enhances professional development but also contributes to a more resilient and future-oriented construction sector.

Study Visits

Upcoming Study Visit in Georgia

The CONSTRUCTION COLLEGE CONSTRUCT 2 and College Spectri LEPL will host an **international study visit in Georgia**, bringing together the REBUILD project partners. The visit will **showcase local examples of sustainable reconstruction and vocational training practices**.

Participants will engage in **site visits, presentations, and discussions** highlighting Georgia's current challenges and opportunities in the **rebuilding sector**. This exchange will foster deeper cooperation, inspire new approaches, and strengthen the shared commitment to resilient, future-oriented development across partner countries.

Study Visit Program

From the 9th to the 11th of June 2026

TIME (CET)	ACTIVITY	LOCATION
8 June 2026	Arrivals and check in at the hotel	Tbilisi, Georgia
9 JUNE 2026		
09.30 to 12.00	Coordination meeting	College 'SPECTRI' Besarion Chichinadze Street 10, Tbilisi
12.00 to 13.00	College Tour	College 'SPECTRI' Besarion Chichinadze Street 10, Tbilisi
14.00 to 16.00	Technical Visit at MEAMA Factory Modern industrial facility in Georgia, distinguished by its clean architectural design and integration with the surrounding landscape.	Givi Amilakhvari Street 2, Tbilisi City Transfer by "SPECTRI"
16.00 to 18.00	Technical Visit to State Silk Museum The museum building, as well as the display cases, was designed by the Tbilisi-based architect of Polish origin Aleksander Szymkiewicz. Constructed between 1890 and 1892, the building served as the main facility for the Caucasian Sericulture Station, which housed not only the Silk Museum but also a library, scientific laboratories for sericulture, and administrative offices.	Tbilisi 6 Giorgi Tsabadze St, Tbilisi, Georgia
10 JUNE 2026		
10:00 to 11.30	Technical Visit to Tbilisi Municipality Assembly The original building was built under the Imperial Russian rule in the 1830s, but was reconstructed several times, taking on a different look over the past two centuries.	Tbilisi 2 Galaktion Tabidze Street
11.30 to 13.00	Transfer to Mtskheta Private bus organised by Georgian Partners	Mtskheta
14.00 to 16.00	Transfer to Zestaponi, Imereti Private bus organised by Georgian Partners	Zestaponi



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16.00 to 18.00	Technical Visit to CONSTURCT2 Visiting the college campus	Construct2 Niko Nikoladze Street 31, Zestaponi
18.00 to 18.40	Transfer to Kutaisi Private bus organised by Georgian Partners	Kutaisi
11 JUNE 2026		
09.30 to 10.00	Transfer to Gelati Private bus organised by Georgian Partners	Meeting point: Central Square, Kutaisi
10.00 to 13.00	Technical Visit at Gelati Complex One of Georgia's most important medieval cultural and religious monuments. Founded in 1106 by King David IV "the Builder," it includes the main cathedral, several churches, an academy, and other monastic buildings. Gelati was a major center of education, science, and spiritual life during Georgia's Golden Age	Gelati
14.30 to 15.30	Technical Visit at Motsameta Monastery Picturesque XI Century hilltop complex with vibrant architecture and spiritual significance. Carefully reconstructed and restored over time to preserve its historical character.	Motsameta
15.30 to 16.00	Transfer to KIU Private bus organised by Georgian Partners	Kutaisi
16.00 to 18.00	Workshop at Kutaisi International University Modern campus with newly constructed buildings that reflect contemporary architectural design, combining innovative learning spaces, advanced infrastructure, and a layout integrated with the surrounding landscape.	Kutaisi
19.00	Transfer to Tbilisi Partners who have flights from Tbilisi will be transferred by a private bus organised by Georgian partners	Tbilisi, Georgia



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2. REPORT ON THE STUDY VISIT IN GEORGIA

The REBUILD Study Visit in Georgia, hosted by LEPL College Spektri (Tbilisi) and Construction College Construct2 (Zestaponi), from 09 to 11 June 2026, represented a key milestone in the implementation of the **REBUILD – Capacity Building Program for Sustainable Reconstruction** project. As a core activity within the project’s capacity-building and knowledge exchange framework, the visit brought together participants from Ukraine, Georgia, Moldova, Poland, and Italy, alongside local **experts in architectural monuments and built heritage**, to explore **the realities of sustainable reconstruction in an Eastern Neighbourhood context**.

The event combined **coordination meetings**, institutional presentations, and a series of **technical site visits** to significant heritage and **reconstruction sites** across the country. It provided participants with a comprehensive understanding of the Georgian VET system, the challenges faced in the construction and restoration sectors, and the opportunities for aligning local practices with European standards and policy frameworks. The programme also included discussions on the piloting process of the training modules developed within the project, with particular emphasis on the importance of collecting feedback from the teachers involved in their implementation.

Challenges and Opportunities in Sustainable Reconstruction

The study visit in Georgia provided participants with valuable insights into the **country's ongoing efforts to integrate sustainable construction principles** into both heritage restoration and contemporary building practices. Through visits to restored cultural heritage sites and modern construction projects, participants explored practical examples of how traditional building techniques can be combined with innovative technologies and sustainability-oriented solutions.

The discussions highlighted several **challenges** that continue to affect the sustainable reconstruction sector in Georgia. These include the **limited availability of professionals** with specialised expertise in sustainable restoration, insufficient practical training opportunities within vocational education, and the need for stronger collaboration between educational institutions, public authorities, and the construction industry. Participants also noted the complexity of balancing the preservation of historical authenticity with the application of modern energy efficiency requirements and contemporary construction standards.

At the same time, the study visit demonstrated significant opportunities for further development. Georgia has an extensive cultural heritage, increasing experience in the restoration of historic buildings, and a growing commitment to aligning construction practices with **European**



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sustainability principles. Recent restoration initiatives illustrated how innovative materials, **energy-efficient solutions**, and environmentally responsible construction methods can be successfully integrated into reconstruction projects. The exchange of experience between project partners reinforced the importance of strengthening vocational education, promoting interdisciplinary cooperation, and adopting European good practices to support a more sustainable and resilient construction sector.

Insights into Green and Digital Transitions

The Georgian study visit provided participants with valuable insights into the country's **evolving approach to sustainable reconstruction**, demonstrating how cultural heritage preservation can be successfully combined with contemporary construction technologies and European sustainability principles. Through visits to historical restoration sites and modern construction projects, participants explored practical examples of balancing conservation requirements with **innovation and environmental responsibility**.

A particularly valuable example was the visit to the **Gelati Monastery restoration project**, where participants were introduced to the use of **digital technologies** in planning and implementing reconstruction works. Experts demonstrated **computer-based visualisations** and **digital project models** used for the reconstruction of the monastery's roof and the preservation of its historic wall paintings. These technologies support more accurate planning, informed decision-making, and careful monitoring of restoration interventions while helping to safeguard the site's outstanding cultural value.

Within the framework of technical visits, participants had the opportunity to observe a range of restoration and rehabilitation projects that reflect international best practices. For example, the rehabilitation project of the **Silk State Museum** was presented as being largely implemented in accordance with the principles of the Venice Charter, as noted by the project architect.

The study visit also highlighted Georgia's increasing commitment to **adopting sustainable construction practices in line with European standards**. Participants observed examples of **energy-efficient building solutions**, **environmentally responsible construction methods**, and the integration of innovative materials and technologies into contemporary construction projects. These experiences demonstrated the growing importance of sustainability as a guiding principle across the construction sector.

At the same time, discussions identified several areas requiring further development. **Challenges include strengthening the digital competences of construction professionals and VET educators**, expanding practical training opportunities in heritage conservation and sustainable construction, and increasing the use of advanced digital tools, such as Building Information Modelling (BIM) and



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digital documentation systems, within restoration and construction projects. Addressing these challenges through vocational education, international cooperation, and knowledge exchange will contribute to a more resilient, innovative, and sustainable construction sector in Georgia.

Preliminary Outcomes and Implications for REBUILD

The Study Visit in Georgia provided valuable, **field-based insights** that contribute directly to the objectives of the Capacity Building Program for Sustainable Reconstruction - REBUILD. The combination of field observations, expert contributions, and peer-learning exchanges facilitated the identification of priority areas for skills development, including heritage restoration, sustainable construction practices, energy efficiency, and digital competences.

The findings emphasise the importance of contextualising European best practices to ensure their relevance and applicability within partner country environments. In this regard, the study visit reinforced the adoption of learner-centred and experience-based pedagogical approaches, consistent with **contemporary VET methodologies promoted at EU level**, including **project-based learning and competency-based training** frameworks.

Furthermore, the activity contributed to strengthening **transnational partnerships and institutional cooperation** among project beneficiaries. These enhanced linkages are expected to support the co-creation, piloting, and validation of training modules, as well as the effective deployment of digital learning platforms and resources.

Overall, the Georgian Study Visit complements the Italian experience by providing a context-specific perspective on the **challenges and opportunities associated with sustainable reconstruction** in partner countries. It reaffirms the **strategic importance of aligning national systems with European policy frameworks** while ensuring flexibility, inclusiveness, and responsiveness to local needs, thereby contributing to the achievement of the REBUILD project's overarching objective of promoting green, resilient, and inclusive **development within the VET sector**.

Institutional visits to the Georgian VET partner institutions

The institutional visits to **LEPL College Spectri** in Tbilisi and **Construction College Construct2** in Zestaponi represented a central component of the REBUILD Study Visit. While the external technical visits provided concrete examples of heritage conservation, industrial construction and contemporary educational infrastructure, the visits to the two partner institutions enabled participants to examine how the knowledge, techniques and technologies observed could be transferred into vocational education and training systems.

The activities focused on the institutional capacity of the Georgian VET providers, the organisation of training in the construction sector, the relationship between theoretical teaching and practical



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learning, the available learning environments and equipment, and the cooperation established with public authorities, companies and other construction-sector stakeholders.

Particular attention was given to the capacity of the institutions to respond to evolving labour-market needs and to integrate sustainable reconstruction, green skills, occupational safety, energy efficiency and the responsible use of materials into vocational curricula.

With regard to digital skills, the visits highlighted the need for further development, particularly in the fields of **Building Information Modelling (BIM)**, digital documentation, project data management and the use of digital tools for the planning and control of construction activities. This need is directly connected to the objectives of REBUILD, which identifies digitalisation in building and construction as one of the project's four main training areas.

The visits were fully aligned with the objectives of REBUILD, which aims to strengthen the capacity of VET providers in the Eastern Partnership countries through the transfer and contextual adaptation of European knowledge, methodologies and good practices.

The institutional discussions therefore went beyond a general presentation of the two colleges and addressed curriculum development, trainers' competences, work-based learning, cooperation with the productive sector, the use of digital learning resources and the possible application of the training modules developed within REBUILD. The Study Visit was intended to provide direct knowledge of the Georgian VET ecosystem, supporting comparison between training methodologies, professional practices and local skills needs.

Technical and institutional visit to LEPL College Spectri

The visit to LEPL College Spectri provided participants with an overview of one of Georgia's most established vocational education institutions operating in multidisciplinary technical fields related to construction.

The college presented its training offer, organisational model and role in preparing qualified professionals for the public and private sectors in Tbilisi and the surrounding area. Particular attention was paid to the interaction between construction training and related fields such as energy, electrical engineering, materials, industrial technologies, environmental engineering, basic information technology and design.

The REBUILD proposal describes Spectri as offering a broad range of engineering and arts programmes, including construction, energy, materials, industrial technologies, environmental fields, information technology and design.

During the visit, strong interest emerged in the development of BIM-related competences. Subject to confirmation through the documentation of the visit, it may be stated that, at the time of the meeting, the college did not yet have dedicated BIM software and had not implemented specific training courses in this field. This situation was considered an opportunity for further development through the REBUILD training activities.



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Participants also discussed the importance of adapting training content to local labour-market needs and strengthening cooperation between the college, Tbilisi Municipality, public institutions and private companies.

IIPLE, as project coordinator, also had the opportunity to meet the **Head of the Vocational Education Department**. The meeting supported mutual institutional understanding and initiated a preliminary discussion on possible future cooperation in the fields of vocational education, sustainable reconstruction and the development of trainers' competences.

Technical and institutional visit to Construction College Construct2

The visit to Construction College Construct2 focused on the practical organisation of vocational training in the construction sector and on the relationship between the college, employers and the Georgian construction labour market.

Participants were introduced to the college's training activities, learning spaces, equipment and approaches to developing the occupational competences required by construction companies.

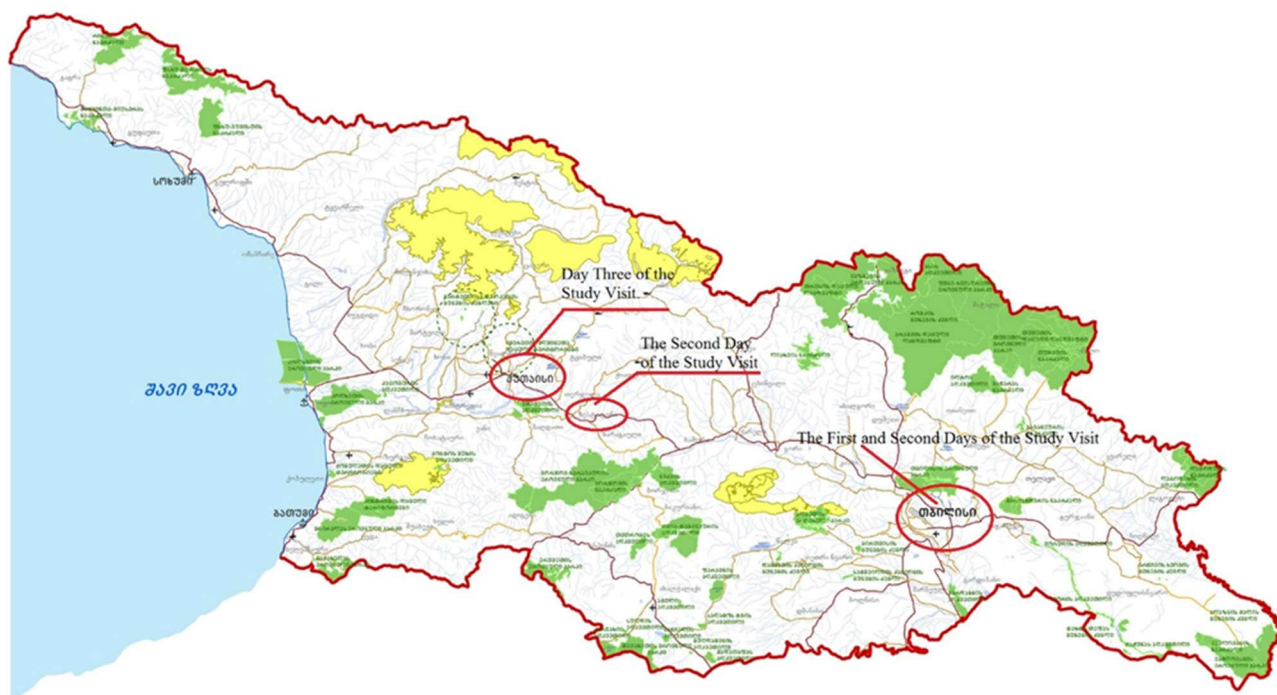
The visit provided an opportunity to examine the relationship between classroom-based learning, practical workshop activities and training in real working environments. Particular attention was given to construction processes, safe working procedures, the correct use of equipment and materials, quality control and the progressive acquisition of practical competences.

Construct2 maintains close relationships with construction companies and uses regular dialogue with the productive sector to update its training offer in accordance with emerging occupational and skills needs.

Construct2's cooperation with the construction sector, and in particular its relationship with **BK Construction**, represents a concrete example of collaboration between vocational education and the labour market.

Construct2 has also developed cooperation with industrial groups and technology suppliers that provide equipment, machinery and simulators for educational purposes. These partnerships contribute to the modernisation of learning environments, expose learners to technologies used in professional practice and support closer alignment between training provision and the technical requirements of construction companies.

3. SITES VISITED



1. Rehabilitation and Restoration of the State Silk Museum, a Cultural Heritage Monument



Tbilisi, Georgia
2026

Introduction

The building was constructed between 1890 and 1892 and was designed by **Alexander Szymkiewicz**, a Polish architect who served as the Municipal Architect of Tbilisi from 1885 to 1891. Its original function was to serve as the main building of the Caucasian Sericulture Station. Today, it houses the **State Silk Museum**. Since 1996, the building has been included in the register of cultural heritage monuments of Georgia.

Built between 1890 and 1892, the museum building represents a cultural heritage asset of outstanding historical and cultural importance. Beyond its distinguished architectural and artistic characteristics, it retains unique and valuable evidence of the tradition of sericulture in Georgia, particularly in Tbilisi, and thus constitutes a significant source for the study of the region's silk-producing heritage.



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The structure is built of red brick, which was also used for the cornices and the simple relief ornamentation of the façades. The decorative pilasters are plastered; originally, they were adorned with geometric ornamental patterns. The exterior walls of the basement level (plinth) are faced with basalt stone.

Central and corner risalits articulate the symmetrical building's north-eastern façade. The main entrance is accentuated by a portico attached to the central risalit, which is supported by two massive columns and creates a transitional space between the building and the garden. The south-western façade is also symmetrical. The risalits are richly decorated, while the remaining wall surfaces are treated in a more restrained and simplified manner. The plinth level is faced with basalt stone.

The building's plan represents a composition of rooms and halls symmetrically arranged along a central axis. The main entrance hall, together with the vestibule and staircase, is located on this axis. The two-storey building also includes a basement level and an additional room in the attic under the central roof section.

The basement level was originally designated for laboratories, workshops, and technical spaces. It is provided with windows on all sides, ensuring adequate natural lighting and ventilation. The basement entrance is also located on the central axis, though it is accessed from the courtyard side.

The building underwent a comprehensive rehabilitation between 2020 and 2024 under the direction of architect **Nino Chachkhiani**.

The rehabilitation project was implemented with co-financing provided by the Tbilisi City Hall and the International Association of Francophone Mayors (AIMF).





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Relevance to REBUILD: primarily relevant to thematic area 3 (Reconstruction Techniques and Sustainable Building Practices), through its evidence-based structural diagnostics and phased rehabilitation approach; also touches on area 1 (EU Regulations and Standards) via its alignment with Venice Charter principles.

Structural and Physical Condition of the Monument

A) Assessment from an Architectural Perspective

The building is distinguished by a high standard of construction quality. Despite its deteriorated condition, all architectural features that define its exceptional artistic and historical significance have been preserved. The structure retains the elements that contribute to its distinctive architectural character and heritage value.

B) Assessment from a Structural Perspective

According to the regulations in force at the end of the 19th century, the construction of dedicated seismic-resistant systems was not practiced. Consequently, the primary structural system of the building consists of arches supported by pilasters, providing stiffness at the intersections of four longitudinal and eight transverse axes within the corridors of the basement and first floor.

At present, cracks of varying severity and dimensions are observed in a significant number of these arches. The load-bearing walls remain stable; however, most of the basement floor is inundated with water. The outdated and deteriorated drainage and storm water systems surrounding and located beneath the building contribute to the degradation of the foundation.

C) Sources of Structural Damage

Environmental factors - 2002 Earthquake, environmental conditions, and atmospheric precipitation

Anthropogenic impact - An unsympathetic and visually incompatible extension was added to the monument on the stadium side. Water from the damaged sewage and storm water drainage systems of the adjacent stadium flows into the museum's basement on a daily basis. In 1989, improper repair works were carried out, during which inappropriate materials were used, resulting in further deterioration of the building's condition.

D) Potential Risks and Recommended Interventions - Water infiltrating the basement from damaged storm water and sewage drainage systems is causing deterioration of the foundations and load-bearing walls. As a result of differential settlement of the building, cracks of varying severity and dimensions have developed in the load-bearing structural elements and arches.

The building requires rehabilitation of the tin roofing system, and the surrounding infrastructure must be properly organized and upgraded. Appropriate measures should be implemented to strengthen the structural elements and ensure the overall stability of the building. In addition, conservation and restoration works are required.

Careful demolition of unsympathetic extensions located in the immediate vicinity of the building is also necessary, as they significantly diminish the architectural and artistic value of the monument.

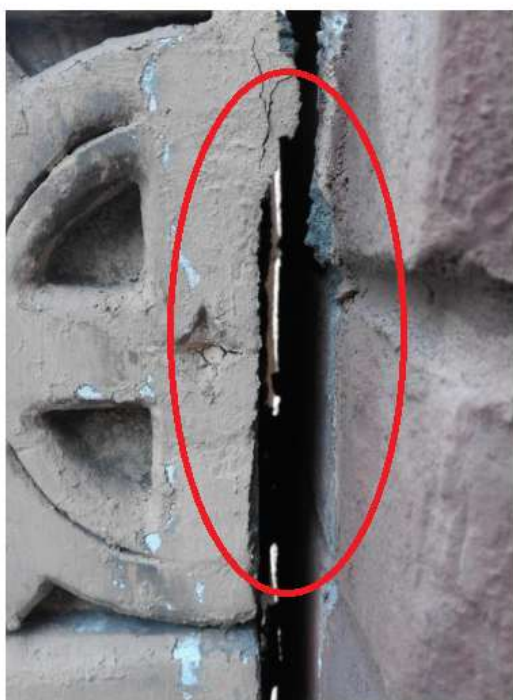
Documentary Evidence of Damage to the State Silk Museum



The primary structural system is composed as follows: in the corridors of the basement and the first floor, stiffness at the intersections of four longitudinal and eight transverse axes is provided by arches supported on pilasters. Cracks of varying intensity and size are observed in most of the arches.



Most of the basement floor is inundated with water. As previously noted, the storm water and drainage systems installed around and beneath the building in 1989, as well as earlier systems, are completely non-functional and have become a contributing factor to the deterioration of the foundations.





Deteriorated plastered columns on the facade of the State Silk Museum

Structural Approaches to the Repair of Damages in the State Silk Museum

The building is a historical monument and is located on relatively flat terrain. It is a two-storey structure with a basement. The building's foundations are of strip footing type, and the basement walls are constructed in brick masonry. The load-bearing structural system, in both longitudinal and transverse directions, consists of a system of brick masonry walls.

The inter-storey and attic floor structures are composed of brick arches supported on metal beams. The roof is a four-pitched structure, constructed with timber rafters and covered with sheet metal roofing. Vertical circulation between floors is provided by staircases located on metal stringers.

Visual inspection of the building revealed the presence of deformations and cracks with excessive openings. Inclined cracks are observed near window and door openings. All of the above-mentioned damages are caused by periodic water saturation of the building's foundation soils. In the basement level, the metal railings are severely deteriorated.

According to the results of the geological survey, the building is founded on clay soils of soft-plastic consistency. For the safe future operation of the building, the installation of a perimeter drainage system around the structure shall be taken into consideration.



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The rehabilitation project предусматривает measures for strengthening the building foundations. The foundation strengthening shall be carried out by constructing a foundation slab beneath the existing building. For the installation of the foundation slab, a 30–40 cm layer of rubble stone masonry beneath the load-bearing walls shall be removed. The removal of the rubble stone masonry shall be carried out in 1-meter-long segments.

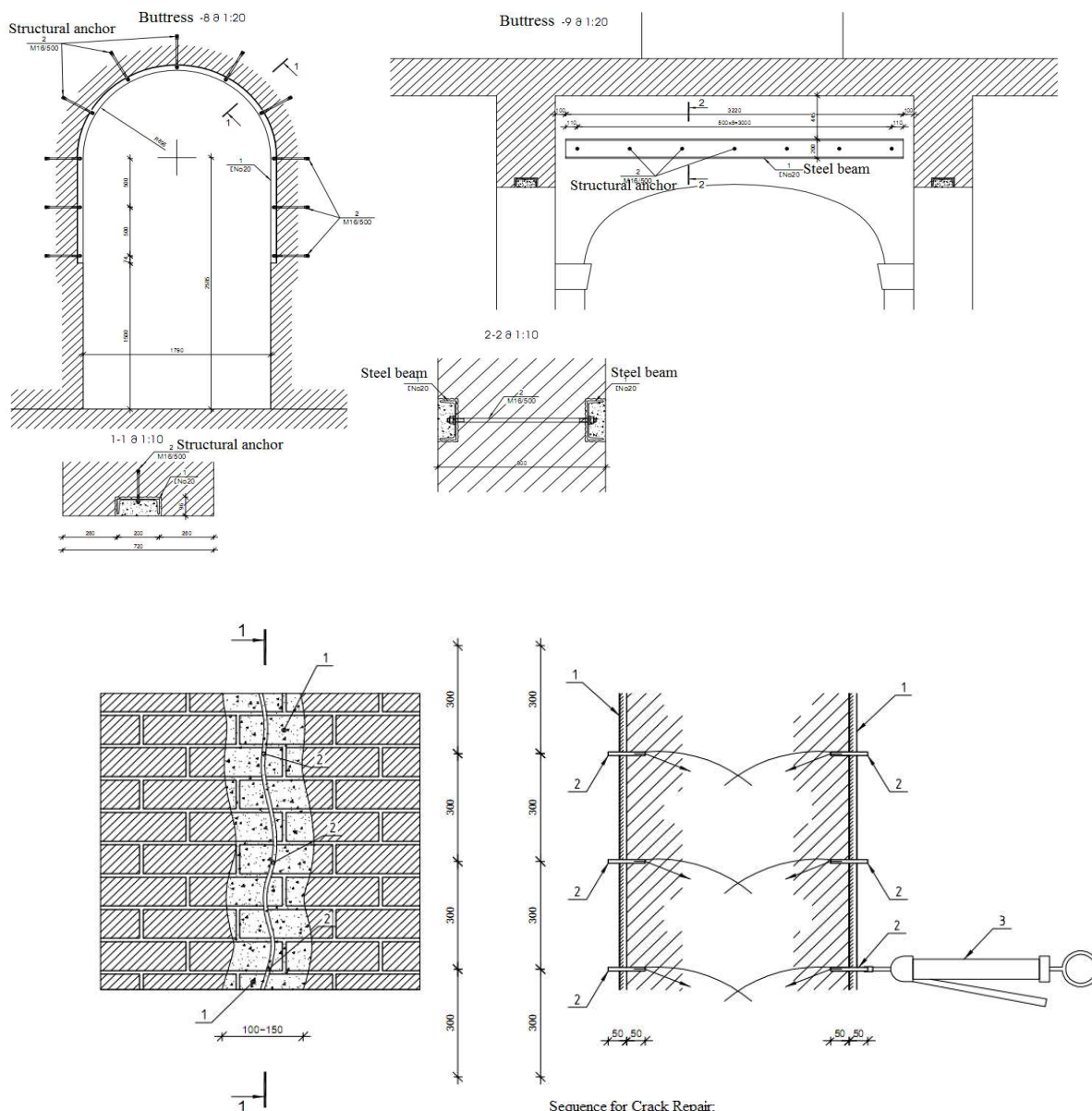
Concrete casting beneath the supporting walls shall be performed using 40–50 cm high shoring (temporary supports). After reinforcement and concreting of individual segments, work on the adjacent section may commence no earlier than three days after casting, followed by removal of excess concrete.

After the complete execution of works within the width of the load-bearing walls, the reinforcement and concreting of the entire foundation slab may be carried out. The waterproofing grade of the foundation slab concrete shall be W-8.

The rehabilitation project includes the replacement of the load-bearing metal railings in the basement level. Cracks in the load-bearing walls of the building shall be filled using polymer-cement injection, and crack strengthening shall be carried out using stainless steel helical anchors. The rehabilitation project the construction of a lift shaft extension to the building. The extension is designed to be constructed using steel structural elements.

Connection of the steel elements shall be performed by manual electric arc welding (electrode E-42) along the entire contact perimeter. The weld height shall be equal to the minimum thickness of the connected elements. Steel elements shall be treated with anti-corrosion coatings. Timber elements shall be treated with antiseptic solutions.

Project for the Repair of Cracks and Strengthening of Structural Elements of the State Silk Museum



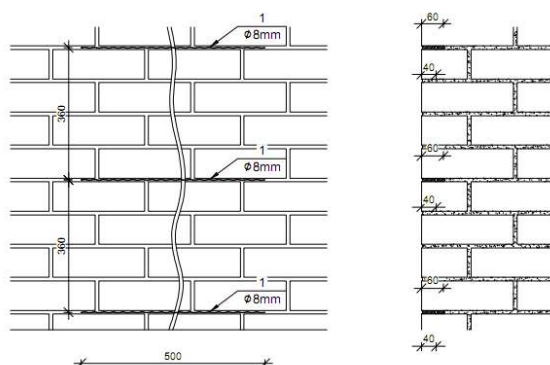
Translation (technical terms):

1. Cement-sand plaster
2. 8–10 mm diameter pipes (injectors)
3. Injection nozzle (spray gun)

Sequence for Crack Repair:

1. The wall surface in the areas of cracks shall be cleaned.
2. For injection purposes, the cracks shall be drilled to a depth of 150 mm with a diameter of 8–10 mm at intervals of 300 mm.
3. Metal pipes with a diameter of 8–10 mm and a length of 200 mm shall be installed in the drilled holes.
4. The cracks shall be treated with compressed air under pressure.
5. A 10–15 cm wide cement-sand mortar layer shall be applied as plastering.
6. Crack filling shall be carried out using a polymer-cement mortar applied by injection (spraying) method.
7. Injection shall be performed from bottom to top.
8. After completion of the injection process, the cement-sand plaster layer shall be removed.

Strengthening of cracks with helical anchors scale 1:10



Sequence for Installation of Spiral Anchors:

1. The mortar joint in the brick masonry shall be cut to a depth of 4–6 cm.
2. The width of the cut shall be 10 mm.
3. The joint shall be filled with a mounting (installation) mortar using a special injection gun, with a layer thickness of 20 mm.
4. A stainless steel helical anchor shall be inserted under pressure into the applied mounting mortar.
5. In the final stage, the joint shall be filled with mounting mortar up to 20 mm from the brick masonry surface.
6. The remaining 20 mm shall be filled with cement-sand grout.

Crack Reinforcement Detail in the Load-Bearing Structure of the State Silk Museum.



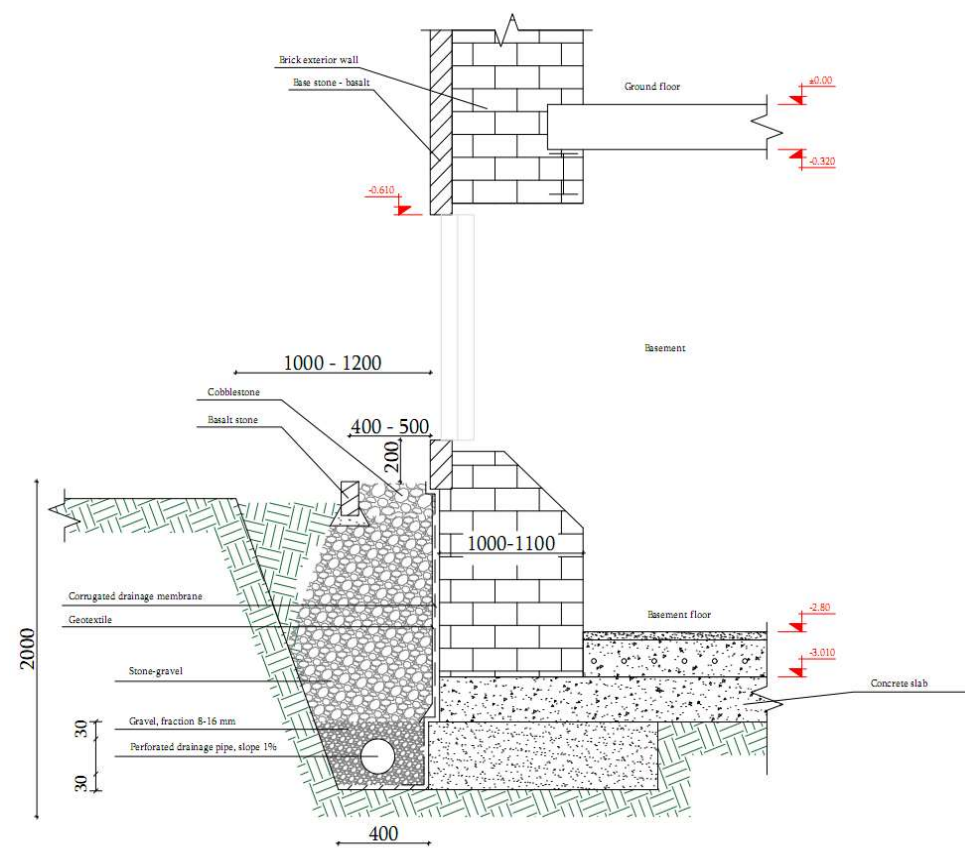
Detailed Section of Drainage System Installation

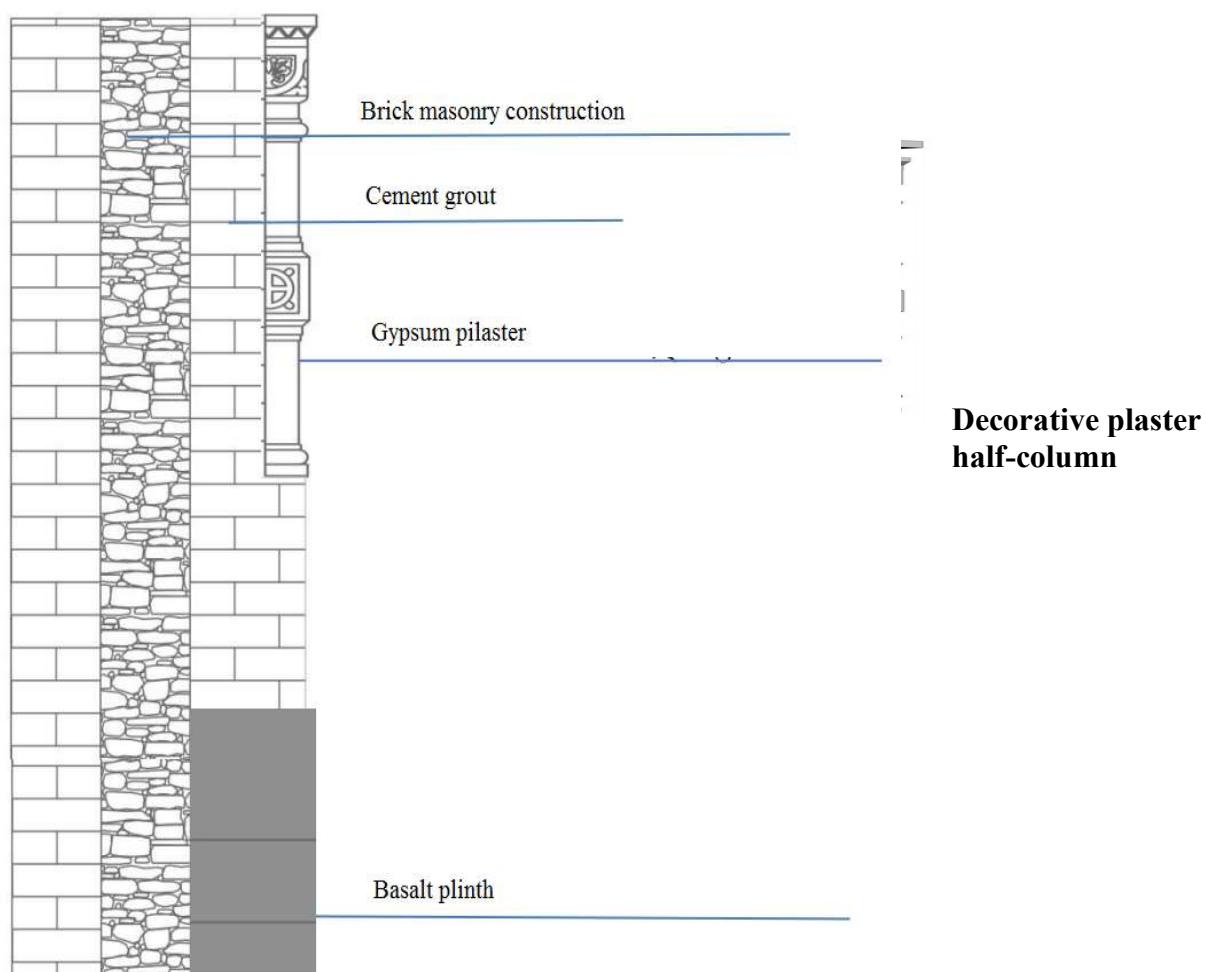
A trench shall be excavated along the perimeter of the building's foundation at the level of the foundation's lower elevation (along three façades, excluding the western, i.e., the Mushthaid façade; on the Mushthaid side, along the sidewalk). The excavation shall be carried out without damaging the basalt stone of the plinth, and if necessary, the plinth stones shall be temporarily reinforced to prevent collapse.

The trench width at ground level shall be 100–120 cm, and at the base 40–50 cm.

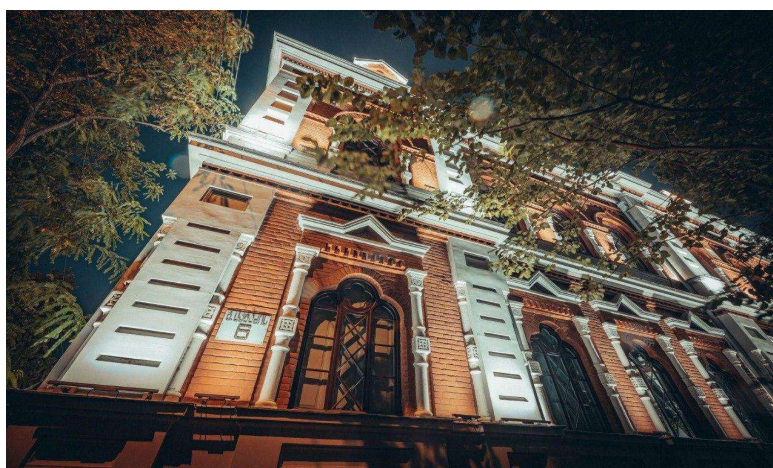
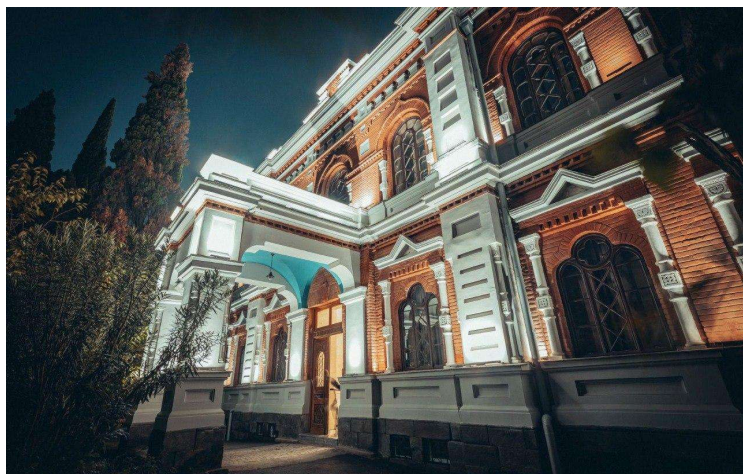
The wall shall be covered with a profiled membrane, with the profiled side facing the wall and the flat side facing outward. The membrane sheets shall overlap both horizontally and vertically to ensure that water does not reach the wall surface. The membrane shall cover the entire external wall surface from the base of the plinth stone down to the bottom of the trench.

Detailed cutaway of the drainage arrangement





The State Silk Museum after Completion of Rehabilitation



Project perspective: Key Lessons for Sustainable Reconstruction

The rehabilitation of the State Silk Museum demonstrates the importance of evidence-based intervention methodologies for buildings affected by natural disasters or prolonged structural deterioration. The project illustrated the value of comprehensive condition assessment, structural diagnostics, geotechnical investigations, damage mapping, and phased rehabilitation planning before commencing restoration works. Particular emphasis was placed on addressing the root causes of deterioration, including water infiltration and foundation instability, rather than treating only visible damage. Such approaches are directly applicable to post-disaster reconstruction of historic buildings damaged by earthquakes, floods, or armed conflicts. For REBUILD partners, the project highlights the importance of preparing professionals capable of conducting structural assessments, selecting appropriate rehabilitation techniques, coordinating multidisciplinary interventions, and ensuring that heritage preservation is fully integrated into resilient reconstruction strategies.

2. Rehabilitation Project of the Tbilisi City Assembly Building



The Tbilisi City Assembly (Sakrebulo) Building is located in Liberty Square and represents one of the most significant historical and architectural landmarks of the capital city. The building was constructed with distinctive Neo-Moorish architectural elements and is characterized by unique architectural and structural design features. As a result of long-term operation and exposure to environmental factors, both the structural system and architectural components of the building experienced various forms of deterioration and damage. Consequently, a comprehensive rehabilitation program was required to restore the building's structural integrity, architectural value, and functional performance.

General Description of the Project

The rehabilitation project of the Tbilisi City Assembly (Sakrebulo) Building represents a comprehensive engineering and restoration initiative aimed at the preservation and functional modernization of a structure with significant historical and cultural value. Located in the central part of Tbilisi, on Liberty Square, the building is one of the capital's most important administrative and architectural landmarks. Owing to its historical and cultural significance, the rehabilitation works were carried out with a high level of professional responsibility and in accordance with established conservation standards.

The primary objective of the project was to ensure the structural stability of the building, restore damaged components, preserve its historical appearance, and adapt the facility to



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contemporary functional requirements. As a result of long-term service and natural deterioration processes, various structural and architectural elements of the building exhibited signs of damage, making rehabilitation measures necessary. Particular attention was given to the principles of cultural heritage conservation during the planning and implementation stages in order to preserve the authenticity and historical value of the structure.

The rehabilitation project encompassed a wide range of construction, structural, restoration, and engineering works. The scope of the project included the repair and strengthening of damaged structural elements and, where necessary, their replacement; restoration of the façades; rehabilitation of historic interior features; reconstruction of the assembly hall; and modernization of the building's engineering systems. In addition, a modern aluminum dome roof structure was installed over the inner courtyard, significantly enhancing the building's functional capacity and usability.

Modern construction technologies and materials were employed throughout the project to ensure both operational safety and the maximum possible preservation of the building's historic character. Special emphasis was placed on the restoration and conservation of existing architectural details, decorative elements, historic furnishings, and other valuable interior components.

Upon completion of the rehabilitation works, the technical condition of the building was substantially improved, its service life was extended, and its functional capabilities were enhanced. At the same time, the historical and cultural significance of the structure was successfully preserved, which can be regarded as one of the project's most important achievements. The project serves as a successful example of historic building rehabilitation, demonstrating the effective integration of cultural heritage conservation principles with modern engineering requirements.

Relevance to REBUILD: relevant to thematic area 3 (Reconstruction Techniques and Sustainable Building Practices), illustrating the integration of modern structural interventions (aluminium dome roof) within a protected historic structure; also relevant to area 1, given the regulatory and conservation-compliance dimension of the works.

Technical Condition of the Building Prior to Rehabilitation

Prior to the commencement of the rehabilitation works, the Tbilisi City Assembly (Sakrebulo) Building exhibited a variety of technical and structural deficiencies resulting from long-term operation, as well as the impact of natural and anthropogenic factors. The building had been subjected to intensive use for several decades, leading to significant deterioration of individual structural and architectural components.



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Visual inspections and technical investigations revealed deterioration in both load-bearing and non-load-bearing elements. Cracks, localized deformations, and signs of material degradation were observed in the building's walls and certain roof components. Of particular concern were damages caused by prolonged moisture exposure, which adversely affected the stability and durability of structural elements, as well as the condition of interior spaces and exterior façades.

A number of decorative façade elements had deteriorated due to the effects of atmospheric precipitation, temperature fluctuations, and environmental conditions. In several areas, the finishing layers had detached, ornamental details had been damaged, and material erosion was evident, resulting in a gradual decline in the building's architectural appearance.

Various forms of deterioration were also identified within the interior spaces. Certain sections of wall and ceiling finishes required restoration, while portions of the historic furniture and decorative features required specialized conservation and restoration works. Furthermore, the building's engineering services, including electrical installations, heating systems, and other technical infrastructure, no longer satisfied contemporary operational requirements and required modernization.

The technical assessment concluded that comprehensive rehabilitation and restoration measures were essential to ensure the continued safe operation of the building. Particular attention was required for the repair or replacement of damaged structural elements, restoration of the facades, modernization of engineering systems, and conservation of historically significant architectural features. These conditions necessitated the implementation of a comprehensive rehabilitation project aimed at preserving the building's structural stability, functional performance, and cultural significance.

The building's condition prior to rehabilitation clearly demonstrated that, without timely intervention, the risk of further structural deterioration and the potential loss of valuable historical and architectural heritage would have increased substantially. Consequently, the project was designed not only to address existing deficiencies but also to ensure the long-term protection, sustainability, and efficient operation of the building.

The earthquake of April 25, 2002, was one of the most damaging seismic events in the history of Tbilisi. The earthquake caused significant damage to numerous historic buildings throughout the city, particularly those constructed of masonry and stone. The observed damage included cracks, wall deformations, roof failures, and the aggravation of pre-existing structural deficiencies.

As the Tbilisi City Assembly (Sakrebulo) Building is a nineteenth-century historic structure constructed prior to the introduction of modern seismic design standards, it is reasonable to assume that the earthquake may have affected its structural condition to some extent. This is particularly



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likely if the building had already been experiencing age-related deterioration and existing structural damage at the time of the seismic event.

Rehabilitation Works Performed and Structural Intervention Measures

Within the scope of the project, the following works were carried out:

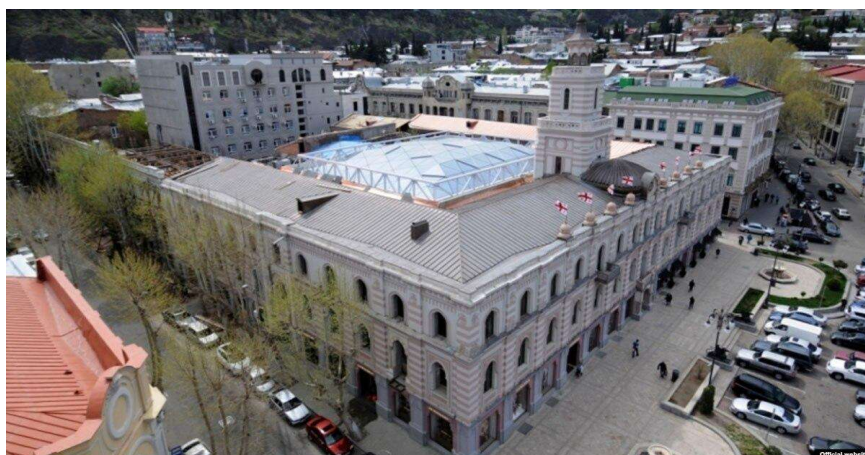
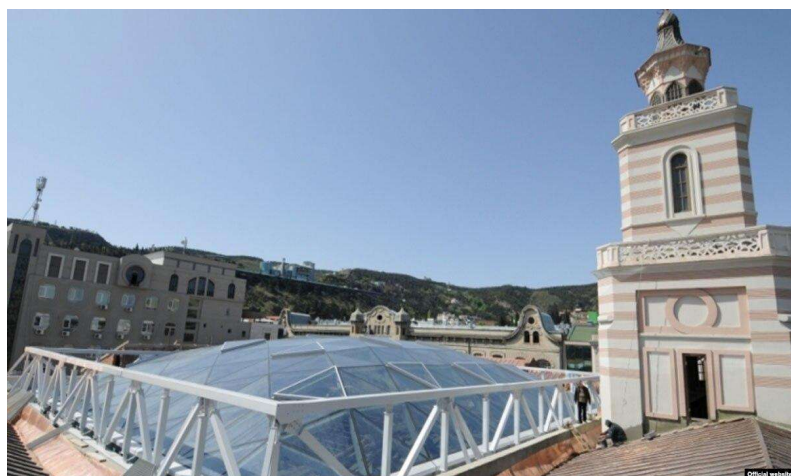
- Replacement of severely damaged structural elements;
- Restoration of the building's structural stability;
- Installation of an aluminum dome roof structure over the inner courtyard;
- Restoration of the building facades;
- Renovation of the assembly hall;
- Restoration of historic furniture and chandeliers;
- Upgrading and adaptation of engineering systems to meet modern requirements

Damaged structural elements were completely replaced as part of the rehabilitation works. In the rehabilitation of similar historic buildings, the following structural interventions are typically implemented:

- Strengthening of load-bearing walls;
- Replacement of deteriorated roof components;
- Restoration of steel and timber structural elements;
- Strengthening of structural connections and improvement of the overall stability of the structural system.

It should be noted that, in the case of the Tbilisi City Assembly (Sakrebulo) Building rehabilitation project, the measures listed above represent a general engineering assessment rather than a complete list of officially documented works. The only officially confirmed intervention is the replacement of damaged structural elements.

As part of the rehabilitation process of the Tbilisi City Assembly (Sakrebulo) Building, the inner courtyard was covered with a modern aluminum-and-glass roof structure. The dome-shaped roof was installed during the rehabilitation works carried out between 2012 and 2014. Its primary purpose was to expand the functional use of the internal space, provide natural daylight, and protect the courtyard from weather conditions. This architectural solution enabled the adaptation of the historic building to contemporary functional requirements while preserving its original architectural character and historical appearance.



Structural Design of the Dome Roof over the Inner Courtyard

- Aluminum load-bearing structural system;
- Glass panel roofing;
- Provision of natural daylight;
- Consideration of snow and wind loads in the structural design;
- Integration of a modern structure with a historic building.

Conclusion

The rehabilitation project of the Tbilisi City Assembly (Sakrebulo) Building represents a successful example of the restoration and functional modernization of a structure with significant historical and cultural value. The necessity of the project arose from the deterioration of the building's technical condition, damage to structural elements, and the need to comply with contemporary operational requirements. The rehabilitation process involved comprehensive

construction and restoration measures aimed at improving the structural stability of the building, preserving its historic architectural appearance, and enhancing its functional capabilities. Within the scope of the project, damaged structural elements were restored, façade and interior restoration works were carried out, engineering systems were upgraded, and a modern dome roof was installed over the inner courtyard, significantly improving the usability and functionality of the building.

Particularly important is the fact that the building's authentic character and historical value were preserved to the greatest extent possible throughout the rehabilitation process. The completed works successfully combined cultural heritage conservation principles with modern engineering requirements. As a result, the building retained its historical and architectural significance while acquiring improved technical and functional characteristics.



Following the completion of the project, the Tbilisi City Assembly Building fully satisfies the requirements of a modern administrative facility and provides safe and efficient operation. The rehabilitation project serves as a successful example of how a historic structure can be preserved, restored, and adapted to contemporary needs while maintaining its cultural significance.

Therefore, the rehabilitation of the Tbilisi City Assembly Building has made a significant contribution both to the preservation of the historical character of the city and to the protection of cultural heritage through the application of modern construction and restoration practices. The project can be regarded as one of the successful examples of historic building rehabilitation in Georgia.

REBUILD Perspective: Key Lessons for Sustainable Reconstruction

The rehabilitation of the Tbilisi City Assembly Building provides an example of how historic public infrastructure can be successfully adapted to contemporary safety, accessibility, and operational requirements while preserving its architectural significance. The project demonstrates intervention methodologies based on structural strengthening, replacement of deteriorated components,

upgrading engineering systems, and integrating modern construction technologies within protected heritage structures. Similar approaches are highly relevant for rebuilding administrative and public buildings following earthquakes, military conflicts, or other crisis situations. The project also illustrates the growing need for professionals who combine expertise in structural engineering, conservation architecture, project management, and regulatory compliance to deliver sustainable and resilient reconstruction projects.

3. Coffee Production Plant - Meama

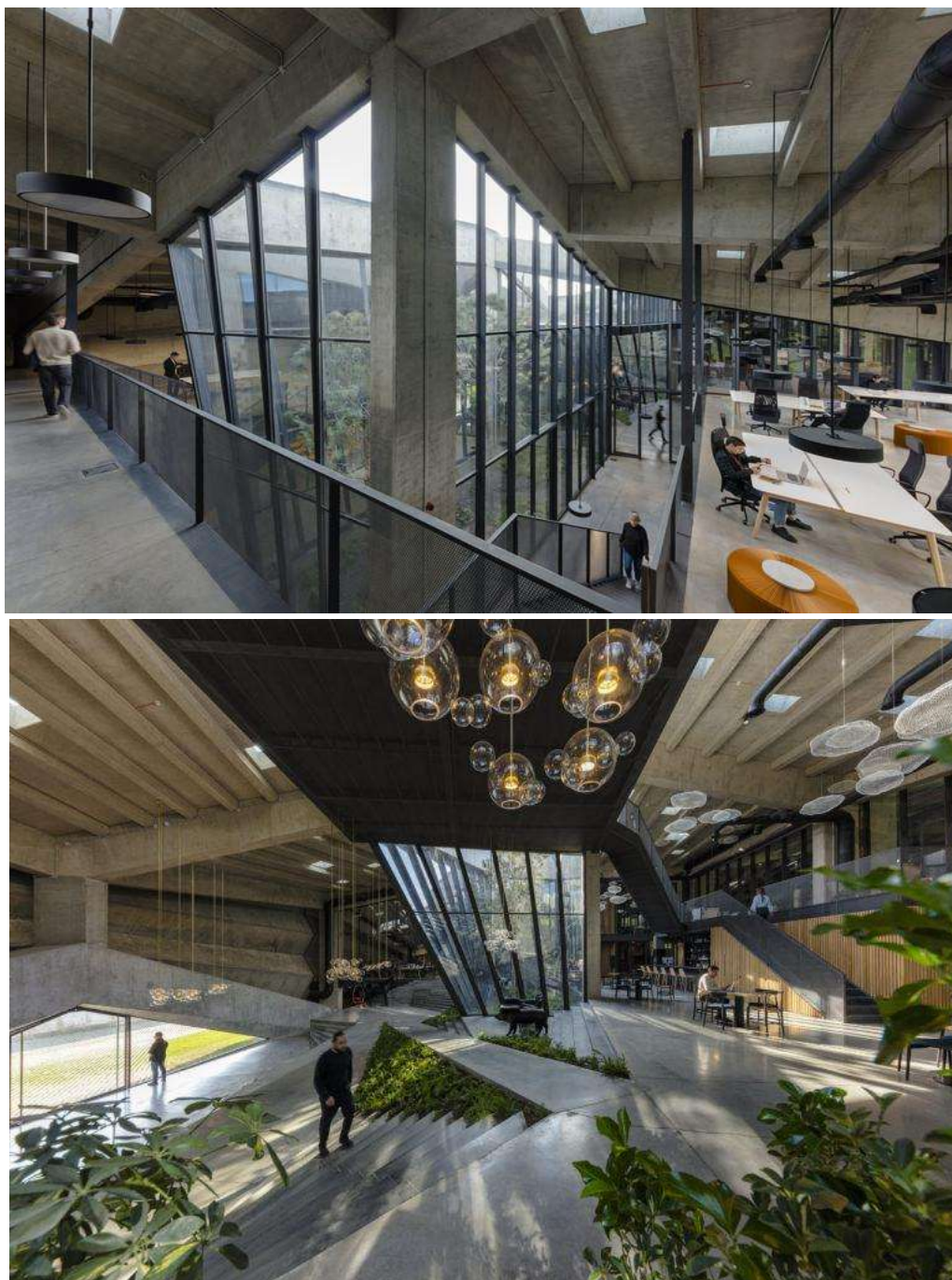


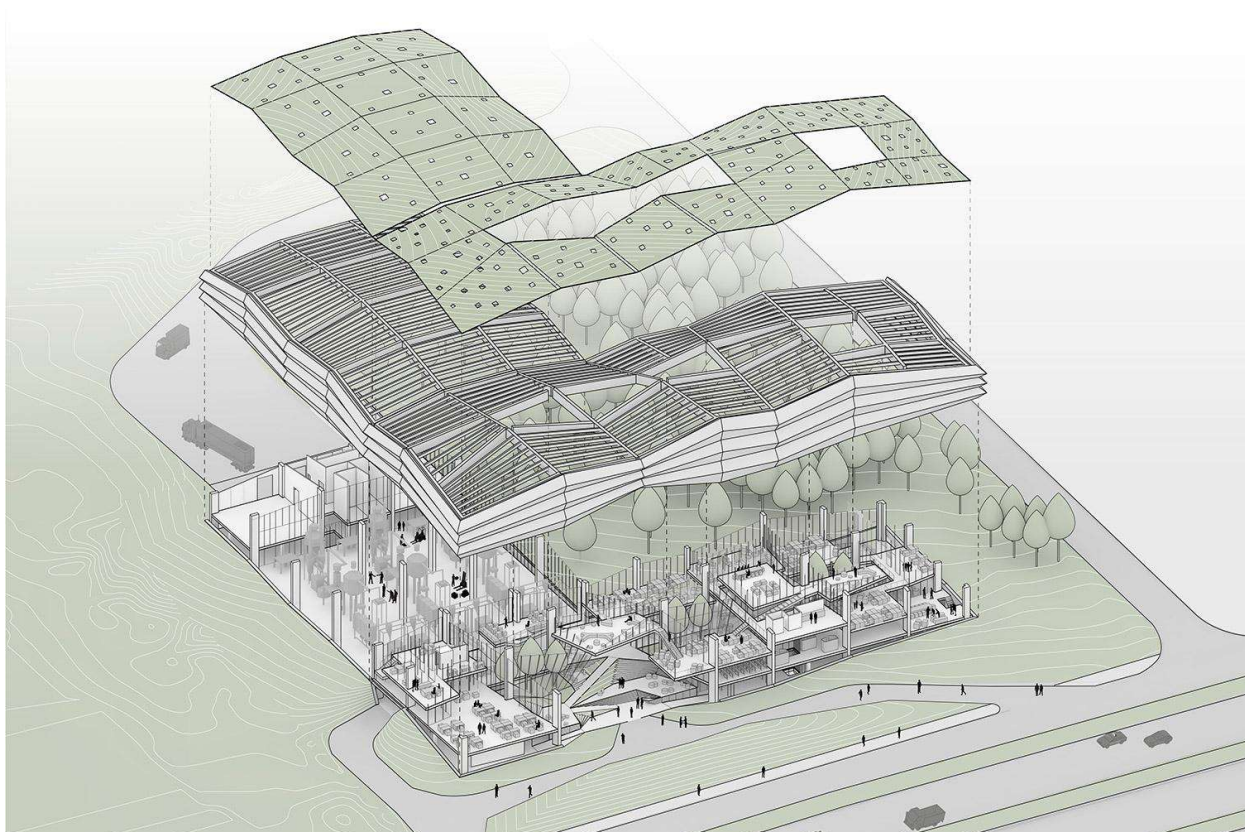
The Meama Coffee Production Plant (Tbilisi, 2017–2019, architect Giorgi Khmaladze) is not a rehabilitation project, but it is included in the study visit as a benchmark for contemporary sustainable industrial construction relevant to the REBUILD training areas on sustainable building practices and digital innovation.

The building uses a monolithic reinforced-concrete structure with a one-way waffle slab roof spanning up to 16 metres, allowing large column-free interior spaces. A vegetated green roof is combined with an integrated waterproofing and corrosion-protection treatment applied to the below-grade foundation slabs and the roof structure, addressing a durability issue that is directly relevant to reconstruction contexts with high moisture or seismic exposure. The design was developed in accordance with modern seismic standards, and natural daylighting was prioritised through atriums and large glazed openings.

Collaborators: Capiteli (structural design), Cubicon (structural elements), Casa Calda (MEP), Lightstudio (lighting), Unix Development (developer).

Relevance to REBUILD: the case illustrates how energy-efficient construction, waterproofing technologies, green roofing and seismic-resistant design can be combined in a single project — principles directly transferable to "Build Back Better" approaches in post-disaster reconstruction. It is relevant to thematic area 3 (Reconstruction Techniques and Sustainable Building Practices) and area 4 (Digital Innovation in Construction), through its use of digitally modelled structural solutions and integrated engineering systems.







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This building has received numerous international recognitions-among them, it won ICONIC AWARDS 2020: Innovative Architecture – "Best of Best" and also became the Grand Prix winner of ArchDaily & Strelka Award 2019.

Meama Coffee Production Plant won 3 main awards at the Architizer A+Awards international architectural competition:

1. Best Office Building (Low Rise) — Jury's Choice (Commercial-Office Low Rise - Jury Winner).
2. Interior Design / Office Space — Jury's Choice (Concepts - Interior-Office - Jury Winner).
3. Interior Design / Office Space — People's Choice (Concepts - Interior-Office - Popular Choice Winner).

This coffee production plant represents an outstanding example of modern industrial architecture, where production, technology, and architecture are integrated into a single functional environment. The building features an unusual architectural form that is closely connected to the topography of the site, allowing it to blend harmoniously with its surroundings. The design emphasizes functionality, efficiency, and aesthetics, with the overall shape of the building being determined by the specific requirements of the production process.

The modern facade design reflects the company's identity while creating a dynamic visual effect through carefully designed facade elements. A green roof covered with grass contributes to the building's environmental performance and sustainability goals. The structure is built using a monolithic reinforced concrete system, which provides large clear spans and minimizes the number of columns within the production hall, ensuring efficient operations and flexible use of interior spaces.

Special attention has been given to natural daylighting, which plays a significant role in improving the quality of the working environment. The layout is optimized for production logistics, and the organization of spaces supports a continuous and efficient workflow. High ceilings accommodate production equipment and contribute to the functionality of the facility. Material selection was guided by principles of durability and sustainability, while the overall design promotes employee comfort and well-being.

Designed in accordance with modern seismic standards, the project demonstrates a balance between structural performance, operational efficiency, and architectural quality. The result is a contemporary and sustainable production environment that successfully meets the demands of modern industrial production.

Project Perspective: Implications for Post-Disaster Reconstruction and Capacity Building

MEAMA Coffee Production Plant is not a rehabilitation project, it demonstrates valuable principles for resilient construction through sustainable design and innovative engineering solutions. The project illustrates how energy-efficient construction, durable materials, waterproofing technologies, green roofing systems, and seismic-resistant structural design can significantly improve the long-term performance of industrial facilities. These principles support the "Build Back Better" approach promoted in post-disaster recovery by encouraging reconstruction that not only replaces damaged infrastructure but also improves environmental performance, operational resilience, and resource efficiency. The project underlines the importance of equipping future construction professionals with competences in sustainable design, climate-responsive construction, innovative materials, and integrated engineering solutions.

4. Gelati Monastery Complex





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Brief Information and Historical Overview

The Gelati Monastery is one of the most important religious, cultural, and educational monuments in Georgia. It is located near the city of Kutaisi in western Georgia.

Historical Overview

Gelati Monastery was founded in 1106 by the Georgian king David IV of Georgia, one of the country's greatest rulers. The monastery quickly became a major center of learning, science, philosophy, and theology. An academy established within the complex attracted prominent scholars from Georgia and abroad, earning Gelati the nickname "the Second Athens" and "the New Jerusalem." During the medieval period, Gelati played a significant role in Georgia's cultural and intellectual development. Many important manuscripts were copied and preserved there, contributing to the flourishing of Georgian literature and education.

Architectural and Cultural Significance

The monastery complex includes several churches, a bell tower, and academy buildings. It is renowned for its remarkable medieval architecture, beautiful mosaics, and well-preserved frescoes. The mosaic of the Virgin Mary in the main cathedral is considered one of the finest examples of medieval Christian art in the Caucasus region.

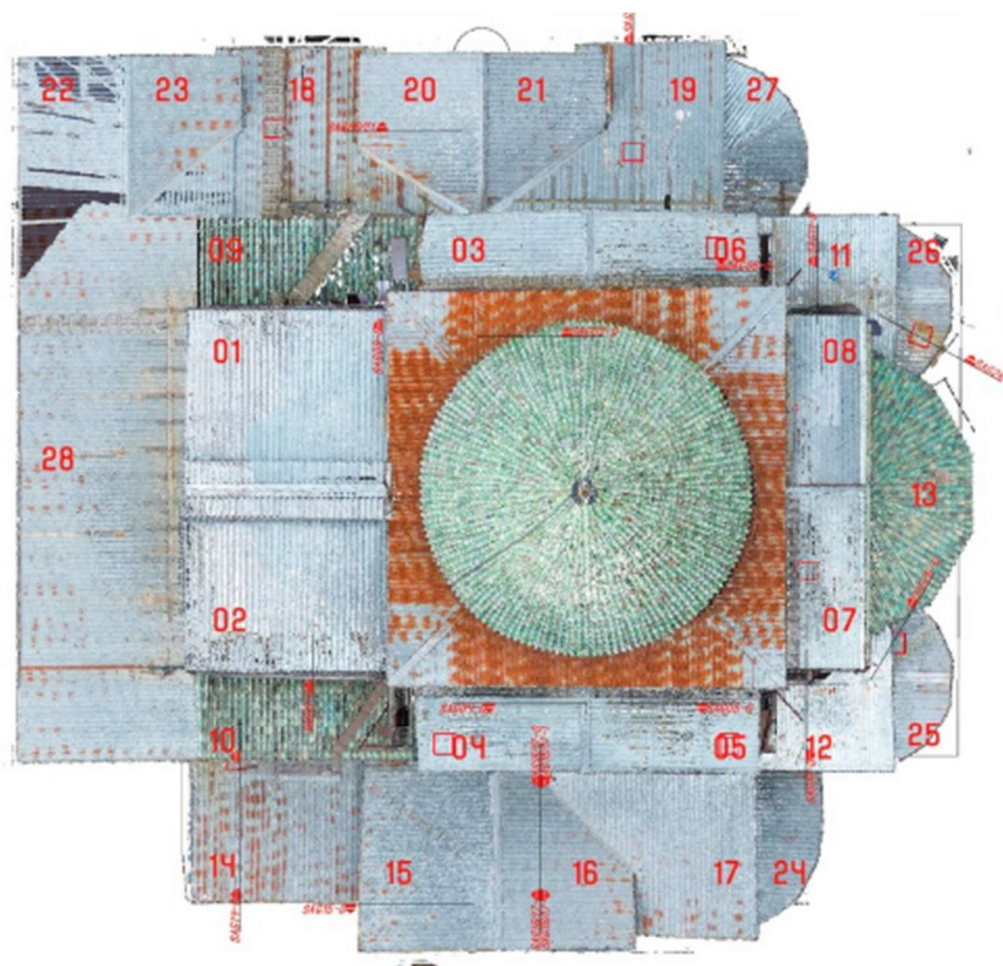
Modern Importance

Today, Gelati Monastery remains an active religious site and a symbol of Georgia's cultural heritage. It is recognized internationally for its historical and artistic value and is part of the UNESCO World Heritage program.

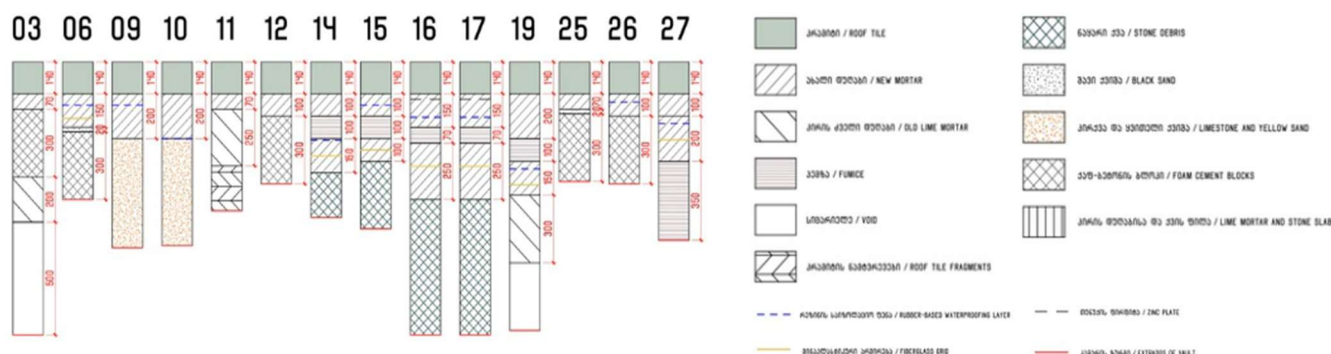
In recent years, unsuccessful rehabilitation works on the roofing of the world heritage monument - the Church of the Nativity of the Virgin at Gelati Monastery - caused water infiltration through the roof, creating a major threat to the structural integrity of the monument as well as to the stability of its paintings and mosaics. In 2020-2021, in order to halt further damage processes, temporary tin coverings were installed over the tiles of the Virgin's Church. Consequently, it became a highly critical issue to place the church under a unified protective roof that would allow for long-term research and conservation works beneath it. The installation of such a unified temporary roof was strongly recommended in the decisions of the World

Heritage Committee sessions NYY COM 78.47 and N45 COM 78.54, as well as in the report of the joint advisory mission carried out in 2022 by the World Heritage Centre and ICOMOS. Accordingly, commissioned by the Gelati Temporary Rehabilitation Committee, a project was implemented for a unified temporary roof over the church of the Nativity of the Virgin at Gelati Monastery, with safe scaffolding for access to the church surfaces. This project was agreed upon with the World Heritage Centre and ICOMOS, its advisory bodies.

Relevance to REBUILD: relevant to thematic area 3 (Reconstruction Techniques and Sustainable Building Practices) and, notably, area 4 (Digital Innovation), given the explicit use of digital documentation, endoscopic investigation and computer-based visualisation in planning the restoration works.



Roof Numbering Scheme



Construction of the unified temporary roof structure was completed in June 2025. In certain pre-selected segments of the structure, vertical openings were left for climatic adaptation of the church, and these were filled with appropriate pvc material at the end of September.

As a result, the temporary tin protective roofs installed in 2020 -2021 were no longer needed and were dismantled, making way for research and subsequent restoration works on the church.

REPORT ON THE WORKS CARRIED OUT

For the removal and cleaning of the roofs of Gelati 's main church, preliminary research and analysis were defined. It was planned that on each roof slope one test trench would be opened, to study the existing construction technology, layer thicknesses, materials used, and possible sources of salts. The main church roof consists of 28 slopes, numbered according to previous research campaigns for easier comparison of results.

In past years, slopes 1 and 2 of the western arm were opened and covered with temporary metal structures; therefore, no trenches were planned there. Likewise, no trenches were planned on slope 13 above the conch or slope 7 above the bema, since these works had already been carried out during the 2022 research campaign by Shartava-Kiparoidze, and the committee relied on their documentation. As for slope 8 above the bema, opening a trench was deemed inadvisable due to the critical conservation condition of the mosaic, following the guidance of Prof. Roberto Nardi.

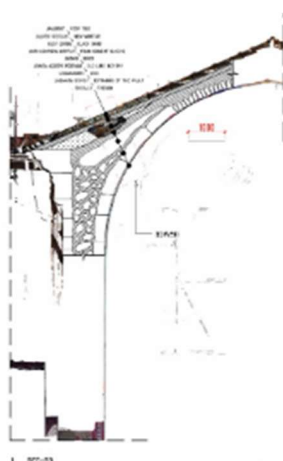
Within the project, trenches were opened on 14 roof slopes. On slopes 7 and 8, endoscopic investigations were carried out instead, since beneath these slopes, during the October november 2025 conservation campaign of the wall paintings, stratified plaster fillings were applied, which are not yet fully consolidated. Additionally, from the passage beneath the narthex roofs, the internal structure of slopes 22, 23, and 28 is visible. Therefore, opening trenches and further intervention there was considered unnecessary. No trench was opened on slope 24 either, since beneath it, in

the conch of the chapel, there is delamination of plaster layers of the paintings. Opening there was postponed until after the spring 2026 conservation campaign of the wall paintings, when the integrity of the plaster layers in that section will be ensured.

Methodology of opening trenches in the project

The project was preceded by the study of reports of previous works and the development of trench-opening methodology, prepared through collaboration between studio Berlucchi and architect Vakhtang Zesashvili.

Investigations and observations to be conducted during roof opening



Test Pit No. 3

- **Location:** Test Pit No. 3 is located on the western roof of the northern arm, at the edge of the façade wall.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection carried out from the interior showed no delamination or detachment of the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 7-8 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



Test Pit No. 4

- **Location:** Test Pit No. 4 is located on the western roof of the SUTH arm, at the edge of the façade wall.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection carried out from the interior showed no delamination or detachment of the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 7-8 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



Test Pit No. 5

- **Location:** Test Pit No. 5 is located on the EASTERN roof of the SOUTH arm, at the edge of the façade wall.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection carried out from the interior showed no delamination or detachment of the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 9-10 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



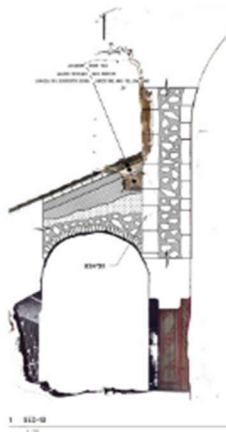
Test Pit No. 6

- **Location:** Test Pit No. 6 is located at the edge of the eastern roof of the northern arm, near the cornice.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection carried out from the interior showed no delamination or detachment in the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 10-15 cm 10-15 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



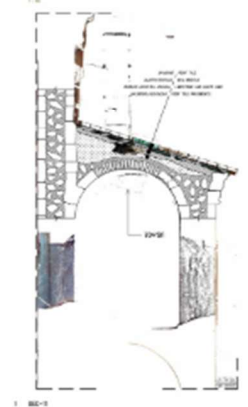
Test Pit (Shurfi) No. 9

- **Location:** Test pit No. 9 is located on the northern side of the Patronikon roof, near the pilaster adjacent to the load-bearing wall of the western arm of the church.
- **Preliminary Visual Inspection:** Visual examination revealed no surface or structural damage. Inspection from the interior also showed no structural deterioration. The vault and the walls in this area are not painted or plastered.
- **Endoscopic Investigation:** Endoscopy revealed a 15-20 cm thick mortar layer beneath the glazed roof tiles.



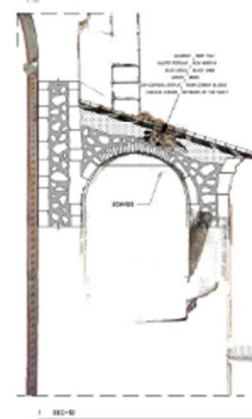
Test Pit No. 10

- **Location:** Test Pit No. 10 is arranged on the southern side, on the roof of the Patronikon, near the pilaster located at the load-bearing wall of the church's western arm.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection from the interior showed no delamination or detachment in the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 15-20 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



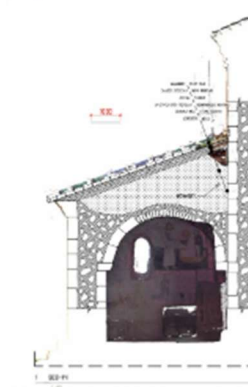
Test Pit No. 11

- **Location:** Test Pit No. 11 is arranged in the central section of Roof No. 11.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection from the interior showed that the vault and walls are neither painted nor plastered.
- **Video Endoscopic Survey:** Endoscopy revealed a 7-10 cm thick mortar layer beneath the glazed tiles, below which a change in material was observed, followed by a 20-26 cm thick second mortar layer. Beneath this second layer, a void was detected. A second endoscopic inspection—conducted closer to the back of the vault, in the lower cavity beneath the roof—showed that the material layers and mortar thicknesses corresponded to those seen in the first endoscopy; however, in this case, no void was detected.



Test Pit No. 12

- **Location:** Test Pit No. 12 is located in the central part of Roof No. 12.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection from the interior showed no delamination or detachment in the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 7-10 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



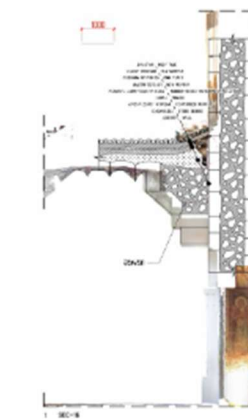
Test Pit No. 14

- **Location:** Test Pit No. 14 is located at the edge of Roof No. 14, near the gutter and the
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection from the interior showed no delamination or detachment in the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 7-10 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



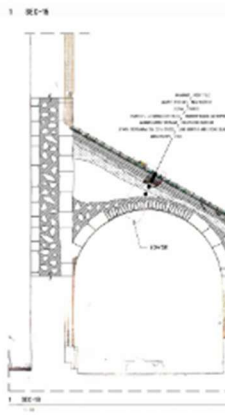
Test Pit No. 15

- **Location:** Test Pit No. 15 is located at the edge of the gutter of Roof No. 15, on the western slope of the south porch.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the interior inspection showed no delamination or detachment in the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 7-10 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



Test Pit No. 16-17

- **Location:** Test Pit No. 16 is located between Roofs No. 16 and No. 17, near the pilaster situated on the southern façade.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the interior inspection showed no delamination or detachment in the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 7-10 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



Test Pit No. 19

- **Location:** Test Pit No. 19 is located on the roof of the side chapel (ekvleri), positioned in the central part of the roof.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection from the interior showed no delamination or detachment in the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 25-28 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



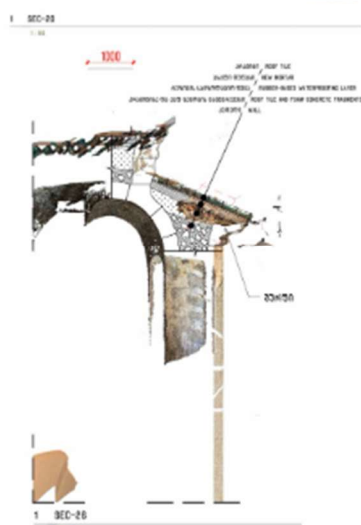
Test Pit No. 20 – 21

- **Location:** Test Pit №20 №21 is located above the northern gate.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection from the interior showed that the vault and walls are neither painted nor plastered.



Test Pit No. 25

- **Location:** Test Pit No. 25 is arranged on the eastern side, above the small conch of the diaconicon.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection from the interior showed that the vault and walls are neither painted nor plastered.
- **Video Endoscopic Survey:** Endoscopy revealed a 10-13 cm 10-13 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



Test Pit No. 26

- **Location:** Test Pit No. 26 is arranged on the eastern side, above the small conch of the diaconicon.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection from the interior showed that the vault and walls are neither painted nor plastered.
- **Video Endoscopic Survey:** Endoscopy revealed a 10-13 cm 10-13 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.



Test Pit No. 27

- **Location:** Test Pit No. 27 is located on the roof of the conch of the northern side chapel, adjacent to the façade wall of the church.
- **Preliminary Inspection:** A visual inspection of the roof revealed no surface damage. Likewise, the inspection from the interior showed no delamination or detachment in the plaster layer beneath the paintings.
- **Video Endoscopic Survey:** Endoscopy revealed a 2525-28 cm 28 cm thick mortar layer beneath the glazed tiles, under which inert filler material is present.

Project Perspective: Implications for Post-Disaster Reconstruction and Capacity Building

The restoration works at Gelati Monastery represent an excellent example of international cooperation in safeguarding cultural heritage under conditions of significant structural vulnerability. Participants observed intervention methodologies including systematic investigation, continuous monitoring, temporary protective structures, phased conservation planning, and the application of internationally recognised conservation principles developed by UNESCO and ICOMOS. These approaches are particularly relevant for heritage sites affected by natural disasters or armed conflicts, where immediate stabilisation and long-term conservation must be carefully balanced. The project demonstrates the importance of interdisciplinary collaboration between architects, engineers, conservators, and heritage specialists, while highlighting the growing role of digital technologies in supporting informed decision-making throughout the reconstruction process.

5. Motsameta Monastery



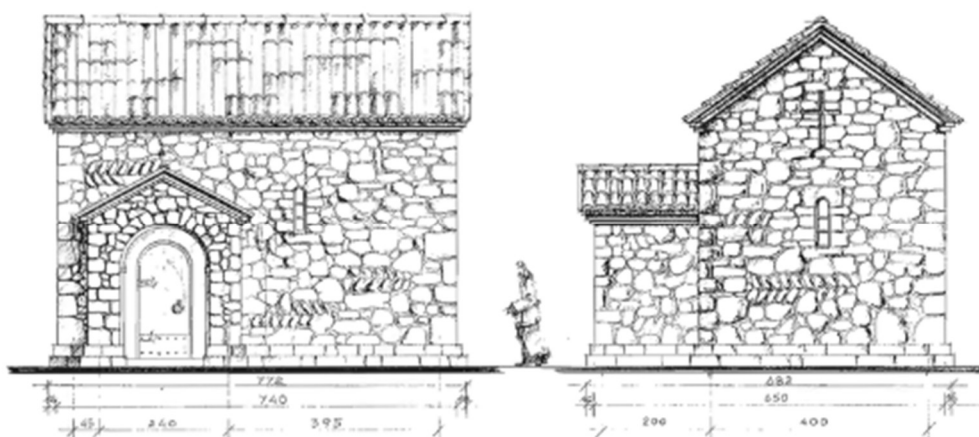
The Motsameta Monastery complex is one of the most significant monuments of Georgia's cultural heritage.

The Motsameta Monastery is located 6-7 km east of Kutaisi, on a rocky promontory near the village of the same name, on the right bank of the Tskhaltsitela River. The river flows around the promontory on three sides, making the monastery a significant fortified stronghold. The monastery grounds include: the domed Church of the Annunciation of the Virgin Mary (1844–1845), a bell tower (1846), two towers, and a monks' residential building (1960).

Architecture

The Motsameta Church is a cross-domed structure. All four arms of the cross are equal. The dome rests on four pillars, two of which are projections of the altar apse. A distinctive feature of the church is the altar arranged on the north side. This may be explained by the fact that the relics of the saints were buried to the east — the place of honor — and therefore the architect relocated the altar to the north. There are two entrances — from the west and from the south. The altar is separated by a 19th-century wooden iconostasis, which depicts scenes from the Gospel and the lives of the saints. To its left, on an elevated spot resting on two carved wooden lions, lies a wooden sarcophagus containing the relics of the saints. In the conch of the altar, a painting has been preserved — a composition of intercession, which appears to have been executed in the late Middle Ages. To the south of the church stands a two-story 19th-century bell tower. On the monastery grounds, the

remains of two towers that survived from the times of the "Age of Fear" (Shishianoba) are preserved. The monastery complex is enclosed by a surrounding wall.



A church originally stood on the site of Motsameta Monastery, but it was destroyed during the Arab invasions led by Marwan ibn Muhammad (known in Georgian history as Marwan the Deaf) between 735 and 737 AD. During this period, the princes of Argveti, David and Constantine, were martyred for their faith.

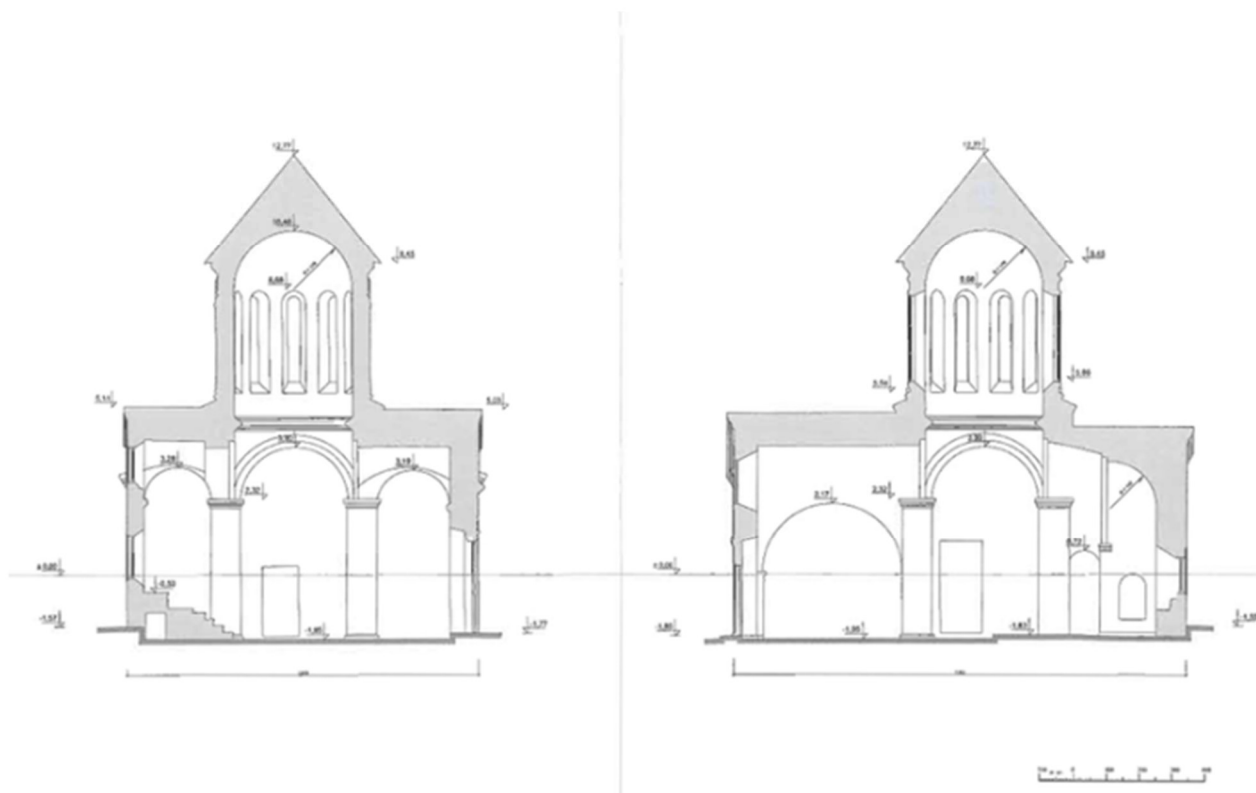
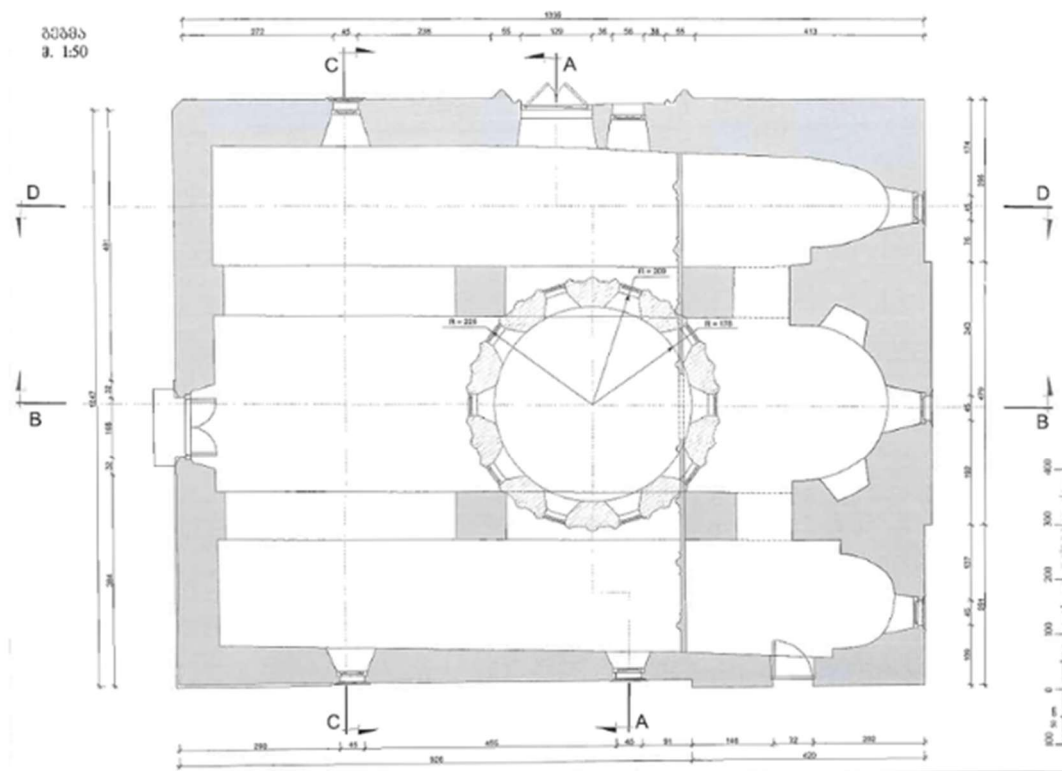
In the 11th century, King Bagrat IV of Georgia built a new church on the site of the destroyed one and transferred the relics of Saints David and Constantine to the newly constructed temple. This event is considered the revival of Motsameta Monastery and the beginning of its modern history.

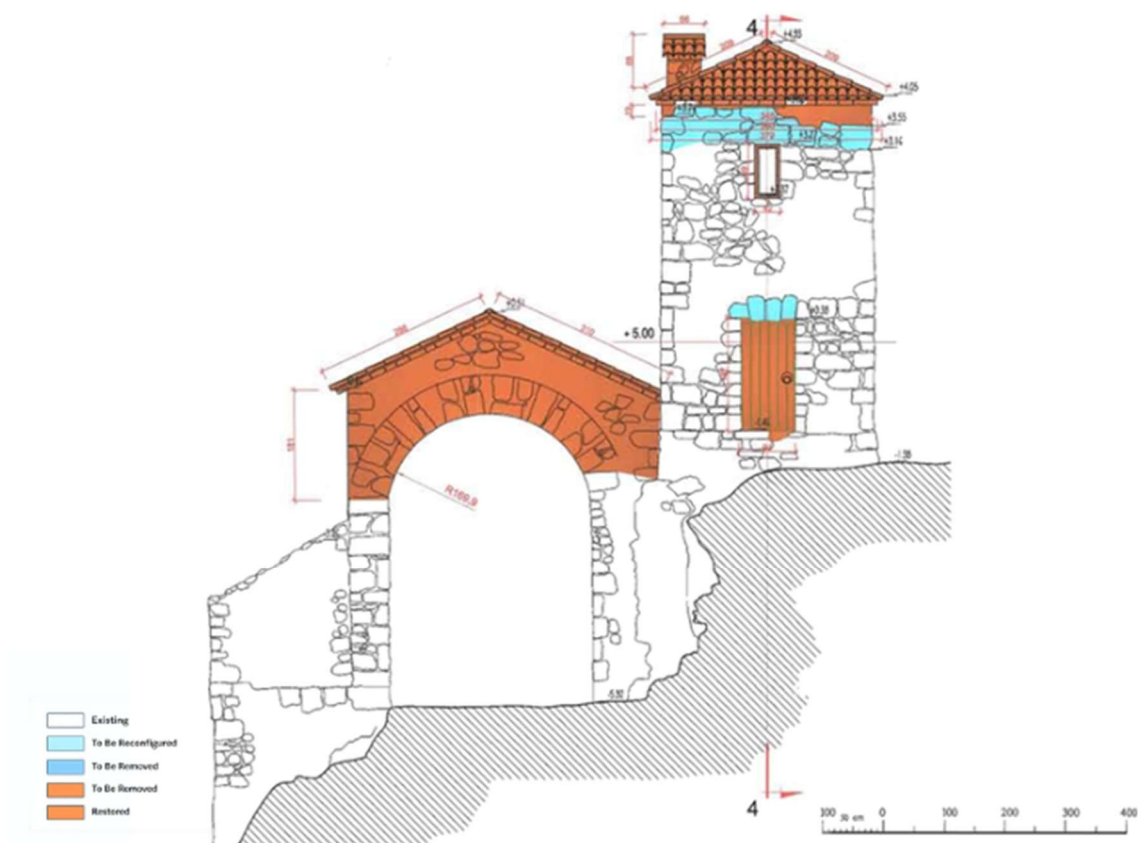
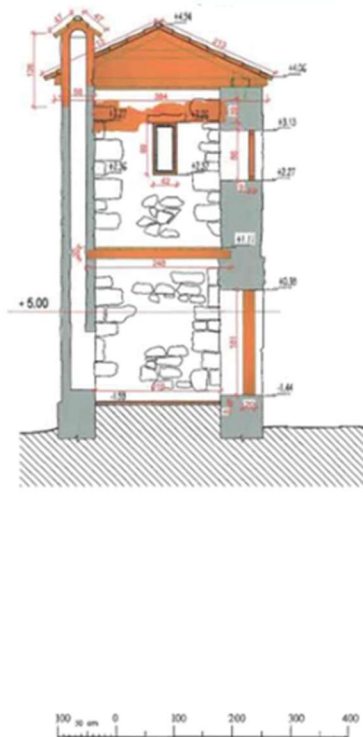
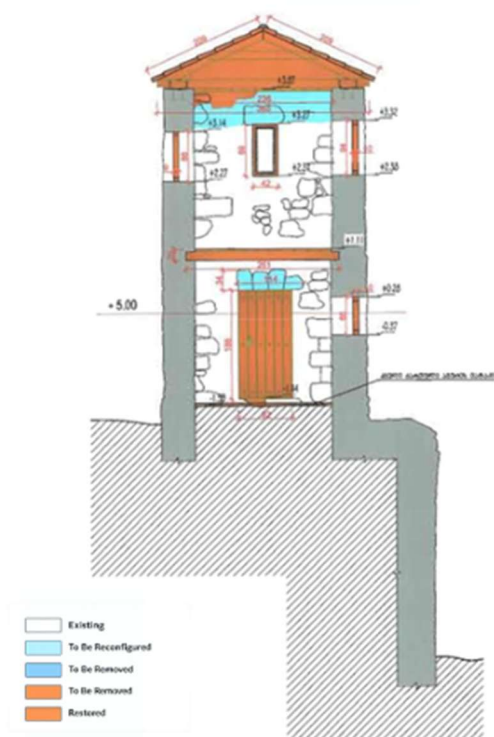
Historical sources do not provide detailed information about the reconstruction process itself. However, it is known that:

- A new church was built on the site of the one destroyed by the Arabs;
- The relics of Saints David and Constantine were transferred there;
- The monastery developed into an important religious and pilgrimage center;
- Later, during the 19th century (1844–1865), the monastery underwent significant renovation and expansion, resulting in the architectural appearance that can be seen today.



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REBUILD Perspective: Implications for Post-Disaster Reconstruction and Capacity Building

The restoration of Motsameta Monastery highlights the importance of preserving historical authenticity while ensuring the structural durability of heritage assets. Although carried out under planned conservation conditions, the project demonstrates methodologies that are equally applicable in post-disaster recovery, including the use of compatible construction materials, respect for traditional building techniques, and careful planning of structural interventions. These practices contribute to maintaining cultural identity while improving resilience against future environmental and structural risks. For vocational education providers, the project emphasises the importance of developing specialised competences in heritage conservation, traditional craftsmanship, sustainable construction materials, and interdisciplinary collaboration between conservation experts and structural engineers.

6. Kutaisi International University Campus

Sustainable Construction in Practice

The activity at Kutaisi International University (KIU) combined a thematic workshop with a guided visit to the campus. During the workshop, participants were introduced to modern approaches to sustainable construction, energy efficiency, resource-conscious design, resilient educational infrastructure and the integration of innovative technologies into the planning, construction and operation of buildings. The Ukrainian delegation also joined the workshop online, highlighting the particular relevance of the REBUILD project for Ukraine, where the reconstruction of buildings, educational facilities and infrastructure damaged by the war requires not only the replacement of what has been lost, but also the adoption of safer, more sustainable, energy-efficient and resilient solutions.

Following the workshop, participants took part in a guided tour of the KIU campus, including teaching spaces, student accommodation, shared facilities and recreational areas. The visit provided a concrete example of contemporary sustainable construction integrating innovative design, energy-efficient technologies and environmentally responsible building practices. As one of Georgia's newest higher education campuses, KIU was designed in accordance with modern international construction standards, with particular attention to resource efficiency, user comfort and long-term operational sustainability.

Participants observed how sustainability principles were incorporated throughout the campus through energy-efficient building systems, high-performance materials, smart infrastructure and the integration of buildings with the surrounding environment. The visit demonstrated how modern



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educational facilities can combine environmental performance with high-quality learning, residential and recreational spaces. It also highlighted the importance of considering sustainability

throughout the entire life cycle of educational buildings, from planning and design to construction, operation and maintenance.



REBUILD Perspective: Implications for Post-Disaster Reconstruction and Capacity Building

Kutaisi International University provides an example of how newly developed educational infrastructure can integrate sustainability, innovation and resilience from the earliest stages of planning and construction. The workshop and guided visit demonstrated the application of energy-efficient systems, resource-conscious design principles and modern engineering solutions that improve environmental performance while enhancing user comfort and operational efficiency.

Such practices are particularly relevant when rebuilding educational infrastructure following natural disasters, armed conflict or other crisis situations, where reconstruction offers an opportunity to introduce higher standards of safety, sustainability and resilience rather than simply replacing damaged facilities. The contribution of the Ukrainian delegation further underlined the importance of these principles in the context of post-war reconstruction.

The activity also reinforced the need to train VET professionals and future construction workers to integrate green building technologies, digital design tools, energy-efficiency measures and



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climate-resilient construction practices into reconstruction projects. The KIU experience therefore provided both a technical case study and a practical reference for the development of REBUILD training materials and future capacity-building activities.

It is relevant to thematic area 3 (Reconstruction Techniques and Sustainable Building Practices) and area 4 (Digital Innovation), as an example of newly built, digitally-integrated sustainable educational infrastructure; also relevant to area 2 (Economic Tools and Access to Funding) if information on the project's funding model is available.

4. EXPERTS AND TECHNICAL GUIDES INVOLVED IN THE STUDY VISIT

Tbilisi

State Silk Museum

The visit focused on the rehabilitation and restoration of the State Silk Museum, covering the building's architectural characteristics, its structural and physical condition prior to the intervention, the main causes of deterioration, and the technical measures adopted during the rehabilitation process. Participants examined issues such as cracking, water infiltration, foundation instability and the deterioration of structural components, as well as the drainage, strengthening and conservation interventions required to ensure the building's stability and long-term preservation.

Expert/technical guide: **Architect Nino Chachkhiani** (technical information provided by the Tbilisi Development Fund, <https://tdf.com.ge/index.php?lang=eng>)

Tbilisi City Assembly Building

Technical information was provided by:

- The Tbilisi Development Fund (<https://tdf.com.ge/index.php?lang=eng>)
- **Architect Ioseb Nagladze**
- **Chief Engineer Levan Iorashvili**

Coffee Production Plant – MEAMA

The technical visit to the MEAMA Coffee Production Plant presented a contemporary industrial building characterised by a large-span concrete structure, extensive natural lighting, landscape integration and a planted roof.

Expert/technical guide: materials and technical information provided by company Meama (https://giorgikhmaladze.com/projects/Coffee_Production_Plant_Meama; <https://architizer.com/blog/inspiration/stories/meama-coffee-plant-aawards/>)



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Kutaisi and surrounding area

Gelati Monastery

The technical visit to Gelati Monastery focused on the reconstruction of the roof, conservation of historic wall paintings, structural vulnerability, digital documentation and monitoring of the restoration works.

The experts involved were:

- **Mariam Mindiashvili – Reconstruction Site Manager**
- **Sophie Mikaberidze – Wall Restoration Specialist**

Motsameta Monastery

The visit to Motsameta Monastery addressed restoration management, traditional construction techniques, compatible materials and the preservation of the monument's historical character.

The expert involved was:

- **Mikehil Chogvadze – Reconstruction Project Manager**

Kutaisi International University

The visit and local workshop at Kutaisi International University addressed contemporary educational infrastructure, sustainable construction, energy efficiency and modern campus development.

The institutional representative involved was:

- **Vaktang Tsagareli – Rector of Kutaisi International University**

Online contribution from the National Erasmus+ Office – Ukraine during the workshops

During the workshop at Kutaisi International University, participants connected online with **Svitlana Shytikova, Coordinator of the National Erasmus+ Office – Ukraine**. She welcomed the participants and expressed the Office's support for the REBUILD project and its international cooperation activities. She also highlighted the possibility of disseminating information about the project's activities and outcomes among a wider network of Ukrainian vocational education and training institutions.

Her contribution drew attention to the challenges affecting project implementation in Ukraine under martial law and confirmed the National Erasmus+ Office's willingness to support cooperation, dissemination and institutional engagement whenever possible.

5. PICTURES





6. CONCLUSIONS

The Study Visit in Georgia represented a significant milestone in the implementation of the REBUILD project, offering partners direct exposure to a national context markedly different from their own experience — one shaped primarily by seismic risk and post-Soviet urban heritage rather than hydrogeological hazard, yet governed by comparable principles of structural diagnostics, material compatibility, and adaptive reuse. This contrast proved valuable in itself: it allowed partners to test the transferability of the project's core concepts against a genuinely different risk profile, sharpening the distinction between what is context-specific and what constitutes a truly transversal competence for reconstruction professionals.

From a project perspective, the visit generated concrete input across several dimensions of WP4. The evidence-based diagnostic approach observed at the State Silk Museum and the systematic use of digital documentation and endoscopic investigation at the Gelati Monastery offer directly usable reference cases for the Trainers Capacity Building Programme (Task 4.1) and for the validation plan and performance indicators currently under development (Task 4.2). The Meama Coffee Production Plant, although not a reconstruction project, broadened the partners' reference framework on sustainable industrial construction, while the institutional presentation at Kutaisi International University illustrated a model of digitally-integrated, sustainability-oriented educational infrastructure that partners can draw on when designing their own training environments.

The visit also had a tangible impact on the partnership itself. Direct contact with Georgian institutions — including Construct2, Spectri, and Kutaisi International University — has expanded the network of practitioners and experts partners can draw on beyond the lifetime of the project, and represents a concrete starting point for the Memorandum of Understanding to be developed under WP5. For several partner organisations, the visit also prompted an internal reflection on how their own national practices compare with the Georgian approach, particularly regarding the integration of traditional craftsmanship with contemporary engineering and digital tools — a comparison that will directly inform the further development of REBUILD's training content and its long-term sustainability strategy.



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Capacity Building Program for Sustainable Reconstruction

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Project: 101182786 — REBUILD — ERASMUS-EDU-2024-CB-VET



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