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Ambassador Extraordinary and
Plenipotentiary
Permanent Delegate of
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Maison de l'UNESCO

15 February 2024

Culture Sector
World Heritage Centre

Ref: CLT/WHC/ENA/24/14702

Dear Ambassador,

I would like to follow up on my previous letter of 18 December, in particular with regard to the proposed dates for the joint World Heritage Centre/ICOMOS/ICCROM Reactive Monitoring mission to the World Heritage property **'Gelati Monastery'**.

Your competent authorities had indicated 25 to 29 March as the preferred dates for the mission. However, in view of the dates of the upcoming 46th session of the World Heritage Committee, to be held in New Delhi, India, from 21 to 31 July 2024, and the workload leading up to it, and after consultation with ICOMOS International and ICCROM, I would like to inform you that UNESCO and the Advisory Bodies would prefer to conduct the Reactive Monitoring mission to the property in the second half of September 2024. This timing will allow more time for the State Party to implement the recommendations of the Advisory mission to the property, which took place in December 2022, and still allow sufficient time for the mission team to prepare the resulting report and making it available to the World Heritage Committee well in advance of its 47th session in 2025, as per Decision 45 COM 7B.54.

I would be grateful if your competent authorities could confirm, at their earliest convenience, whether the proposed timeframe is appropriate. The World Heritage Centre will provide draft Terms of Reference for the mission for their consideration in due course. Lastly, please note that the costs of the reactive monitoring missions are borne by the World Heritage Fund.

I am also pleased to transmit herewith the **ICOMOS Technical Review** (see **Annex**) of the proposal for the arrangement of the temporary roofing over the Church of the Nativity of the Virgin. Following a thorough evaluation, ICOMOS International provides a number of recommendations on the proposed arrangement. These include paying particular attention to the substructures of the south-east main pillar and of the external southern secondary pillar of the proposed scaffolding design.

I would be grateful if you could share the Technical Review with your relevant authorities for their consideration and keep the World Heritage Centre informed of the action taken on its recommendations. As is customary, ICOMOS and the World Heritage Centre remain at the disposal of your competent authorities for any clarification they may require.

.../...

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I thank you for your continuous collaboration and support in the implementation of the World Heritage Convention and remain,

Yours sincerely,

Lazare Eloundou Assomo
Director

Enc.: ICOMOS Technical Review

cc: Georgian National Commission for UNESCO
National Focal Point for the implementation of the Convention
ICOMOS International
ICCROM

ICOMOS Technical Review

Property	**Gelati Monastery**
State Party	**Georgia**
Property ID	**710bis**
Date inscription	**1994**
Criteria	**(iv)**
Project	**Proposal on the Arrangement of the Temporary Roofing over the Church of the Virgin**

Introduction

On 4 December 2023, ICOMOS received from the World Heritage Centre a project for arranging exterior scaffolding for the temporary roofing over the Church of the Virgin in the World Heritage property, provided by the State Party in conformity with Paragraph 172 of the Operational Guidelines.

This is a structural project for the arrangement of the construction of scaffolding over and around the Church of the Virgin in the property, following the Recommendations of the joint WHC/ICOMOS/ICCROM Advisory mission to the World Heritage property "Gelati Monastery", from 28 November to 2 December 2022, in order to carry out investigation works for the causes of water infiltration into the walls of the church, the assessment of the condition of the frescoes, the control of drying of the wet surfaces, and restoration works for the conservation / restoration of the frescoes that have suffered damage, and finally the installation of a new roof in the cathedral.

The 2022 joint Advisory mission has formulated the following *Developing indicators for monitoring the state of conservation of the attributes that convey the Outstanding Universal Value of the property* (Report, p.20):

> *4.1. Precondition to monitoring activities in the Main Church*
>
> *The State Party is advised to immediately carry out a project for the placement of an overall protective coverage of the monument. The following criteria for the design of the new protective roofing are suggested:*
>
> - *The overall coverage of the monument, including the dome, so that every possible area on its exterior and interior is accessible (in conjunction with the completion of the metal scaffolding in the interior of the building).*
> - *Ensuring the strength of the construction under difficult weather conditions (snow, rain and wind). Preferably, it should be reinforced by iron beams-elements capable of lifting heavy loads (snow), inclined for removing rainwater quickly, connected to each other by wind-resistance cross links (X), and anchored to point bases of concrete.*
> - *The protection of the facades of the monument from the weather conditions.*
> - *The protection of the workers on the monument under different climatic conditions, and ensuring access for the repair of the open joints of the structural stones of the building (e.g. vertical banners – metallic elements*

be placed on the sides, protecting the monument and the workers from side winds and rainwater).

- *Ensuring lighting for the workers, by placing transparent sections. The solution of strong plastic sheets to cover side luminaires, fixed on a suitable metal frame, should be examined.*
- *The protection of any archaeological finds (underground channels, etc.) in the areas where the roof supports are placed.*
- *The long-term maintenance of the protection roof in situ.*

Analysis

I. The main objection expressed in the State Party's cover letter is that the church should be completely covered, with the exception of its dome - which should remain uncovered throughout the work (which will take approximately 5 to 7 years) and be covered only at the end, if it is needed to replace its covering with a new covering system. The reason put forward is that covering the dome requires the installation of a pillar of 11 metal scaffolding-type supports within the central interior area of the cathedral. This arrangement practically impedes the conduct of liturgical services in the cathedral. Furthermore, it is stated that the existing roof of the Gelati Cathedral's dome is functioning effectively, and there has been no incidence of water infiltration.

To support its point of view, the State Party proposes two technical solutions for covering the church:

a) A first technical solution with full coverage of the church, including the dome, with the help of a support pillar, located in the centre of the church, and
b) An alternative technical solution, in which the covering of the dome is missing and, therefore, the support pillar is absent from the centre of the church.

On this regard, the Joint Advisory mission report has indicated that:

Assessment of conservation issues

"There is a clear understanding that the main problem was triggered by the inadequate roofing and waterproofing, which led to water infiltration. There also seems to be a clear agreement that the drying process must now start, favouring ventilation from the roof top (as already started in the west wing with the elevated temporary roof, and the removal of the tiles and loose material above the intrados). This will need to be extended to the other vaults and the dome (with an elevated roof covering all areas), to make sure the building dries slowly, with evaporation happening mostly towards the outside." (p.15).

Therefore, it is necessary to ensure the shielding of the entire structure from any potential source of moisture and to study the evolution of the phenomenon of moisture throughout the interior of the church as an integrated set of conditions under strike control.

"It is important to stress the direct link between the building, its walls, the roofs, and the decorative elements inside" (Joint AM report, p.15).

II. Regarding the State Party's cover letter and the Technical Report statement that "the existing roof of the Gelati Cathedral's dome is functioning effectively, and there has been no incidence of water infiltration" (Cover letter, p.2 and Annex 01, p.3).

i. During the Joint Advisory mission, it was not possible to closely inspect the uppermost part of the dome from the inside, as there was no interior scaffolding with such height present. The visual inspection, therefore, was made from the distance of the ring at the base of the tholobate, and with the help of telephoto lenses. Thus, it was not possible to assess with certainty the condition of the fresco of the Pantocrator. Nevertheless, in the photographs, there are many blurred spots in the depiction of the Pantocrator, which may very possibly be damages to the fresco due to moisture.

ii. Visible effects of long-term water infiltration accompanied with salt crystallization and moisture action on the church cupola's interior building blocks and its wall-paintings are assessed at the tholobate level of the dome. Moisture on the pillars between the window openings on the west side of the tholobate has caused serious damage to the representations of prophets, as well as to the building blocks of the ring base of the drum. It should be noted that these window openings have been walled in the distant past, either for reasons of strengthening the bearing capacity of the extremely tall dome, or to block the inflow of rainwater, or for both reasons. In fact, due to this fact, the only internal exit to the outside of the cathedral has also been blocked. In the western dome area, the effects of moisture (recent and older) are evident and are in fact within the masonry areas that have been repeatedly repaired with the use of cement even in the recent past, long after the walling of the window openings (Figs. No. 1, 2, 3, 4).

iii. The Technical Report acknowledges that *"The water infiltration problem arises at the meeting point of the temporary roof and the tholobate of the dome"* (Annex 01, p.7). The Joint Advisory mission found recent moisture phenomena still in progress at the ring of the tholobate, which have long-since progressed to the pendentives that support the dome, with devastating consequences for their frescoes. These findings of severely decayed areas were identified by the Joint Advisory mission report (p. 17 and photos 32, 33). In fact, the damaged pendentives are visible from the ground level of the cathedral. Only the South East pendentive retains its fresco (which may have been painted over in the past) (Figs. 5, 6, 7, 8, 9, 10, 11).

iv. Therefore, one cannot exclude the possibility of moisture inflow from the outside of the dome base and from the windows areas – which should be ruled out in advance before starting any work inside the church. A thorough and long-term close inspection is required at these points as well, in order to precisely identify the source(s) of the specific dampness. ICOMOS considers that this cannot be achieved while the dome remains "unroofed" and exposed to the harmful effects of the region's difficult weather conditions, especially considering the harsh winter climate.

v. From the above, it is understood that the alternative solution proposed by the State Party – i.e. to leave the dome uncovered - cannot be accepted, because there is a risk that the entire process of dehumidifying the frescoes and the integrated control of the conditions

inside the church will become ineffective in terms of identifying the sources of moisture inflow. Equally, regarding the actions for the treatment process and the conservation of the damaged wall-paintings. A differentiation on the protection conditions of the wall-paintings of the dome would undermine *"the necessary monitoring of the condition of the paintings, of the environmental conditions inside the church, and of water levels inside the walls*" (Joint Advisory mission report, Executive Summary, Recommendation 8).

vi. Finally, "*The roofing tiles should be changed over the dome of the Main Church and the other buildings of the monastery complex where the same glazed tiles have been used.*" This conclusion – recommendation of the joint Advisory mission refers to the quality of the tile materials used in the last covering of the roof of the church. This action will be required to be done at the final stage of the installation of the new roofing material: shaped copper on the roofs, for the reasons explained in the Joint Advisory mission report ("Guidelines for the new roof"), and of course presupposes the coverage of the entire dome.

Recommendations

It is stated in the Technical Report that: *"To stabilize horizontal loads such as wind and earthquakes, the dome structure required a pylon in the center of the church. In turn it makes the church impracticable both for the liturgy and for visitors."* (Annex 01, p.6).

In order to facilitate the liturgical functions inside the cathedral during the restoration works, ICOMOS advise that the Gelati Rehabilitation Committee study the following alternative solution:

Considering that the dome will be completely covered, and in view of the requirement of a central pillar (vertical bearing tower) in order to stabilize the dome structure against horizontal loads such as wind and earthquakes, it is not inevitable that this structure should reach to and rest on the ground level of the cathedral. The central pillar can rest at an intermediate horizontal plane, constructed at a suitable height from the ground level of the cathedral, with sufficient strength to receive the loads from the overlying structure. Judging from the provided scaffolding structure cross section plan (Annex 3, p.2), the intermediate plane could be constructed at the height of the foreseen first horizontal support (ca. 10,10 m.). Ultimately, this intermediate plane could be supported on the ground level by 4 metallic pillars at the four eagle points of the inscribed square inside the projection of the dome base circle, being cross connected to each other at a reasonable height. Alternatively, the working intermediate level could rely on the predicted heavy-duty towers beside the centre of the cathedral – those being additionally reinforced - or on a combination of both supporting systems (pillars and towers). Thus, this alternative solution will free up sufficient space in the central part of the cathedral (ca. 6,80 m. between the 4 metallic pillars), so that the performance of liturgical services would not be restricted, neither would the free access of pilgrims and visitors be hindered throughout the time frame of the restoration work.

An explanatory-schematic construction plan is attached, based on the modification of the proposed construction plans by the State Party (Fig. 12).

ICOMOS notes that similar problems are faced in the interior of Jvari Monastery Church, in Mtskheta, which is also visited by a large number of pilgrims and in which religious ceremonies are held, as well. In this case, the conservation project of Major Jvari Church, provided by the National Agency for Cultural Heritage Preservation of Georgia, proposed

the placement of a frame of 16 metallic pillars (at distances from 2,30 m. to 3,00 m. between them) in the central part of the church (8,00 m. x 8,60 m.) to adequately support the scaffolding of the restoration work (Structural design of construction scaffolding arrangement in the interior of the Jvari Monastery, 24/3/2023, plan on p.2).

Taking into consideration that there is a need for a thorough control of the existing condition and intervention for treatment of the causes of material degradation on the Major Jvari Church cupola interior surfaces, and restoration of the building elements, ICOMOS also advised in this case that the height extension of scaffolding construction and the research works reach the interior area of the dome (ICOMOS Technical Review, Structural design of construction scaffolding arrangement in the interior of Jvari Monastery, May 2023)

III. Sufficient technical data is not provided in the Technical Report regarding the composition and thickness of the proposed material for covering the exterior surface levels (Keder PVC), nor concerning the specifications for its resistance to the weight of snow and water, its resistance to wind pressure and its possible deformations in gusts of hot air by the proposed roof heating system, which will be used in the event of excessive snow (Annex 01, p.6, Snow and Heating).

IV. No construction details are provided in the Technical Report for fixing the specific covering material (Keder PVC) on the metal frames, nor on how to ensure the conditions of waterproofing and resistance to wind pressure at the fixing points, given that this material will cover all the exterior sides of the cathedral.

V. According to the calculations the Technical Report:

2. Snow s,k= 0.25 kN/m² The snow on the roof has to be removed, when the height of the snow exceeds 10 cm. (Annex 02, p.2)

The Technical Report proposes a roof heating system, which will be used for 2 or 3 weeks a year in the event of excessive snow. The system will be acting via heating the air which will heat the surface of the temporary coverage to +6 degrees Celsius to prevent snow from depositing on the temporary structure. The heating system will be powered by electricity and supported by the electric generator in the event of a lack of electricity (Annex 01, p.6, Snow and Heating).

The proposed system seems resourceful. However, the large extent of coverage areas should be taken into account. It is likely that a large number of similar devices will be required to work simultaneously in order to remove the snow loads. Has the resistance (non-deformation) capability of the covering material (Keder PVC) been calculated to the hot air waves that will impinge on it?

VI. In the Technical Report ICOMOS finds that no mention of the need to install a protective mesh or any other protective system for the workers on the scaffolding. The metallic mesh that should cover the scaffolding vertically and horizontally in the interior of the church ensures safe and uninterrupted work on it. It also protects visitors from falling objects from the height of the scaffolding.

Recommendations

Technical Report, Annex 02, p.105 states that *"The scaffolder has to check if the ground has a sufficient load bearing capacity!"*

Technical Report, Annex 02, p. 663, drawing No2 – AR 44230-0723: *"The load bearing capacity of the building and the ground has to be checked on site".*

On this matter ICOMOS notes that during archaeological excavations, ancient drainage channels have been found around the churches of the Monastery. The ancient water drainage system is out of order for a long time and, moreover, it is not visible as it is covered by the ground (cf. Photo Report on Drainage Collector restoration-rehabilitation (2018-2019) shared by Georgian Expert Team; Annex 2_State of conservation report Gelati Monastery, 2020, p. 234, Drawing N4 – see here attached: figs. 13, 14, 15, 16).

The ancient system is placed differently from the recent system (2019-2020) for the collection and passage of water, consisting of downpipes, sewer manholes and a sewage network outward from the Church of the Virgin. Consequently, particular attention should be paid to the substructures of the South East main pillar and of the external southern secondary pillar of the proposed design for the scaffolding structure.

ICOMOS remains at the disposal of the State Party for further clarification on the above or assistance as required.

ICOMOS, Charenton-le-Pont
February 2024

Annex: Figures

Annex: Figures

Fig. 1. The drum with visible results of active moisture. The walled window openings on the west side of the tholobate.

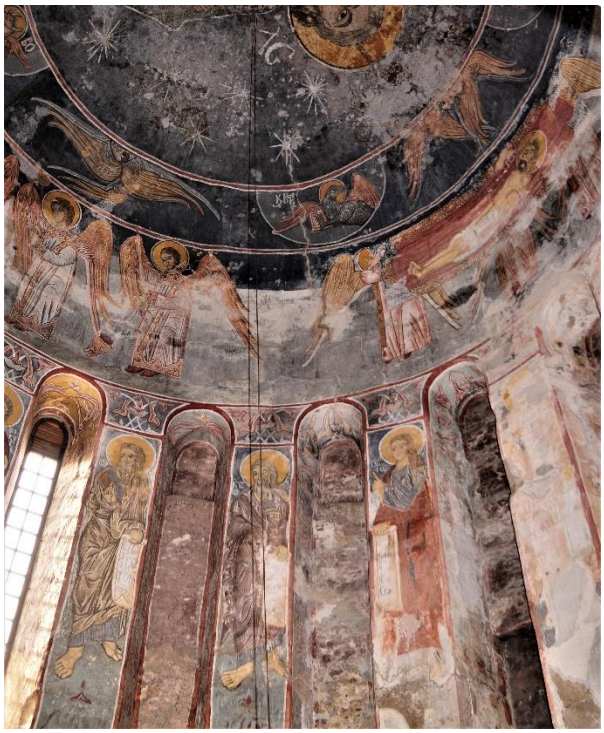

Fig. 2. The cupola with the representation of Pantocrator with evidence of moisture results.

Fig. 3. Drum walled window openings - west side of the tholobate.

Fig. 4. Drum base west side - the walled exit to outside of the cathedral: old and recent moisture results

Fig. 5. The ring at the base of drum - west side: moisture effects.

Fig. 6. N-W pendentive: moisture effects.

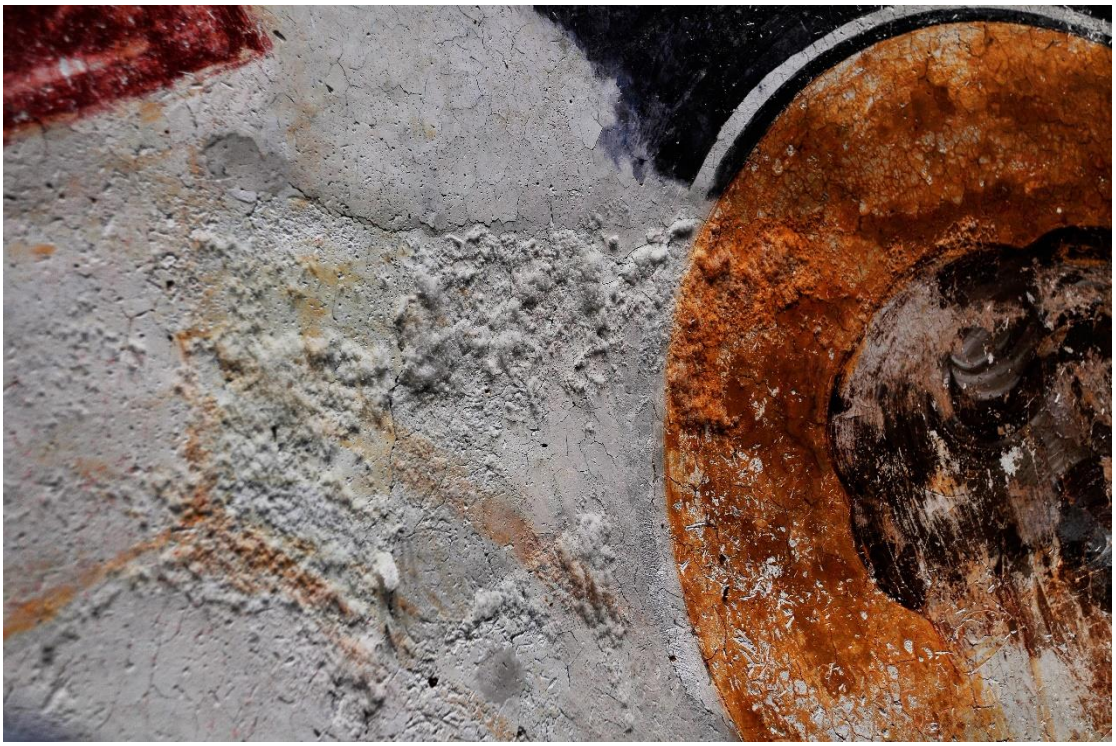

Fig. 7. N-W pendentive: moisture effects.

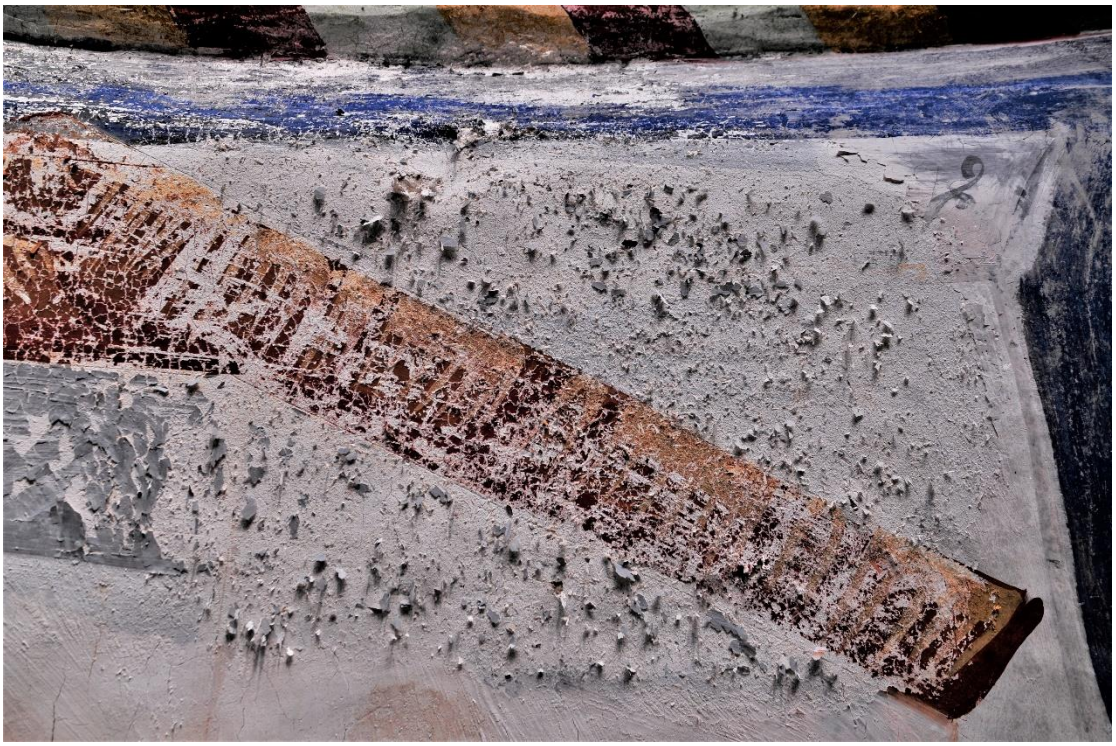

Fig. 8. N-W pendentive: moisture effects.

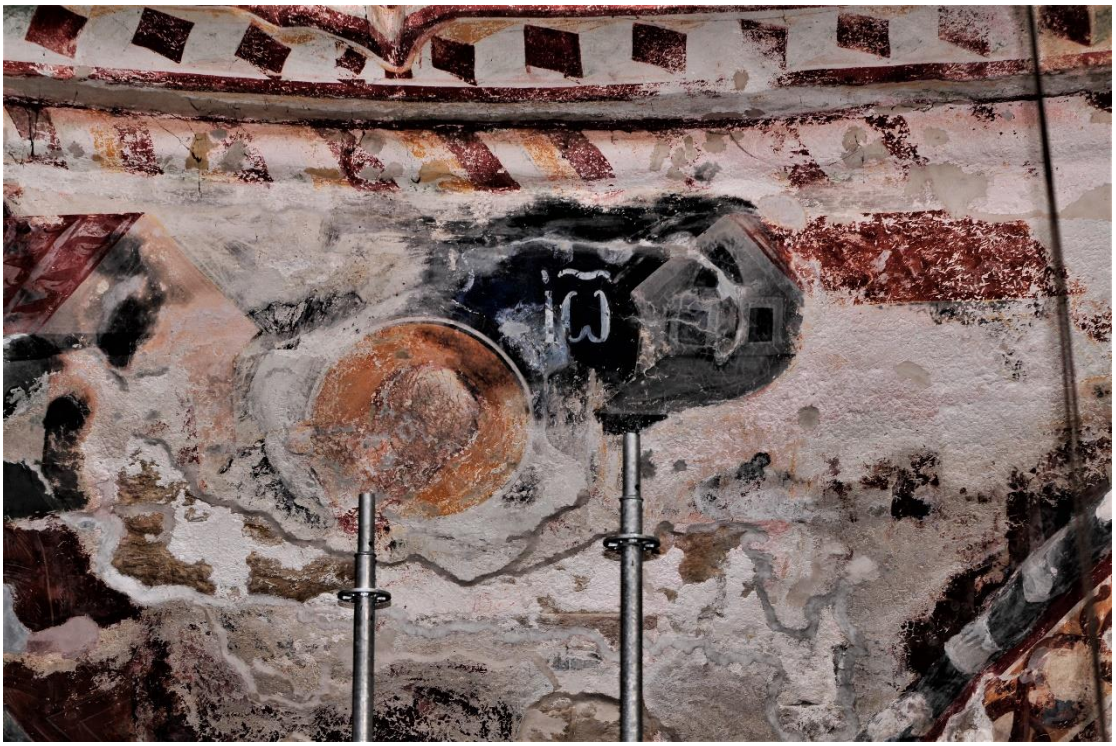

Fig. 9. S-W pendentive: moisture effects.

Fig. 10. N-E pendentive: moisture effects.

Fig. 11. S-E pendentive: existing condition.

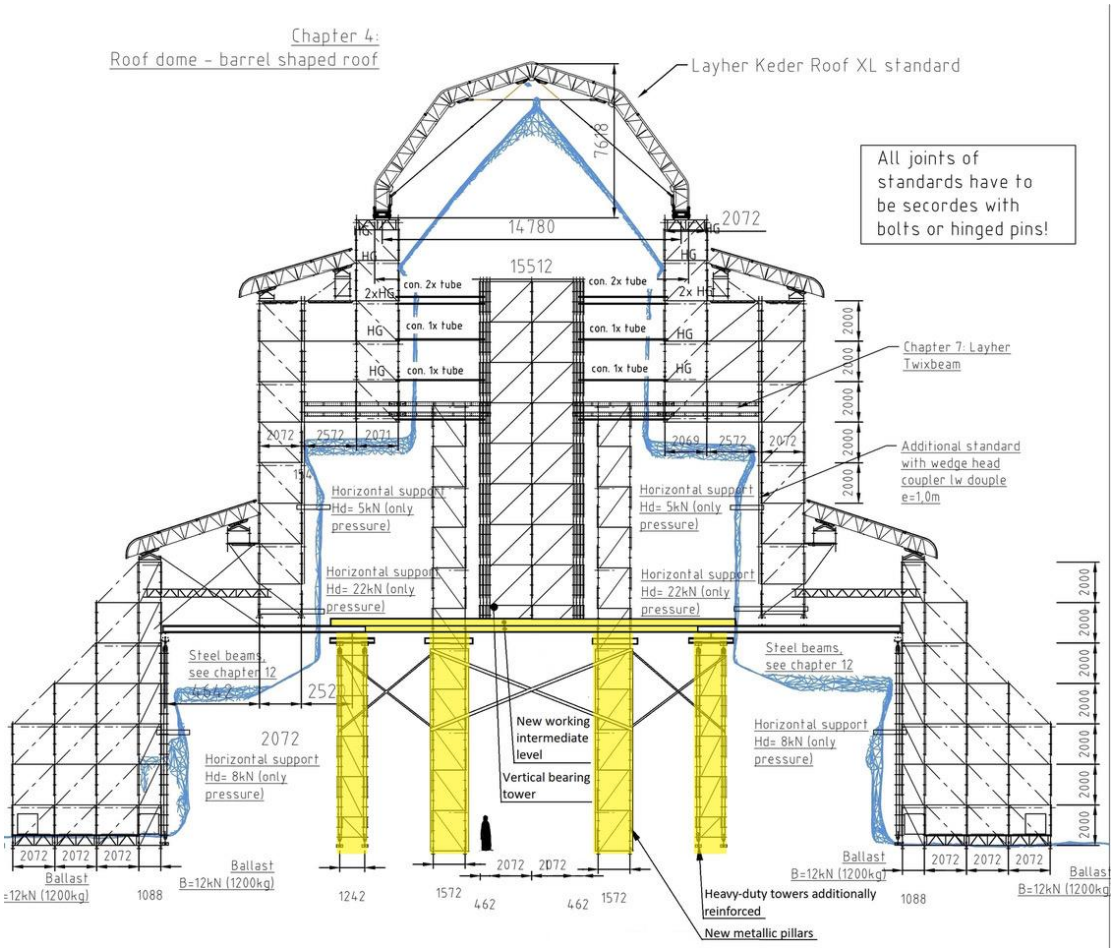

Fig. 12. Schematic alternative proposal for supporting the vertical bearing tower with full covering of the cupola.

Fig. 13. Ancient drainage channels found around the churches of the Monastery.

Fig. 14. Ancient drainage collector near the Cathedral of the Virgin.

Fig. 15. Photo documentation of drainage collector in the Monastery grounds near the churches.

Fig. 16. S-E side: The crepidoma of the Church of the Virgin with the old drainage system around it (2015 joint ICOMOS/World Bank Advisory mission report, fig.10)