

**St. Mary's Church in the village of  
*Labova e Kryqit* in Gjirokstra  
Analyses of the Church's Construction  
Stages, its Age and Some Static Issues**



**Archaeology**

**Keywords:** St. Mary's Church, the village Labova e Kryqit, Gjirokastra, cupola, arcade, static condition, byzantine architecture; restoration.

**Reshat Gega**

**Centre for Albanological Studies, Tirana, Albania.**

**Abstract**

St. Mary's Church, which is situated on the village of Labova e Kryqit (translated as Labova of the Cross in English) and falls under the municipality of Libohova, has brought to the repertoire of the Albanian Medieval Architecture the brilliant demonstration of one of the most wonderful architectonic formulation and such a great iconographic program in terms of its functions, the decoration of the interior and exterior that it might be compared to its equals in the elite of this genre in the Byzantine culture worldwide. The architectonic type of this church is defined as a cross imprinted with the upper volumes of its arms extending up to the level of the roof. Viewed from the perspective of the formulation of the compositional core area which consists of the square structure formed by four columns with three arcades among them to create the cubic base sustaining the tambour of the dome, this type of church provides the best example of a metropolitan style of church and shares similarities with other churches alike. Similar churches are found in the complex of Teotokos Peribleptos in Constantinople, built by the famous emperor Romano III Argjro, v.1028-1034. Other similar churches that we can mention are also the church of Teorakos Parnnakaristos, in Constantinople, dating from the XII century, Monastery of Saint John, in Libos (Fenari Isa Cami) in Constantinople which dates from the X-XII century, Saint George Church in Mangano, 1042-1057, etc.

**Introduction**

This monument has been attracting the scholars' attention since the beginning of its construction for its highly suggestive architectural style and especially for the visible leaning of the tambour towards the south-eastern direction.

After all the verifications and analysis made, we came to the conclusion that Saint Mary's Church in the village *Labova e Kryqit* has undergone some deformations as soon as its construction was finished. Therefore, it has been somehow fortified by adding some extra arches.

The causes for the deformations have been due to the incorrect implementation of the structural scheme in the core area of the architecture producing a great risk of its stability. The dimension of the tambour's cylinder has been calculated much smaller than it should have been. As a matter of fact, its base should have fitted the dimension of the framework formed by the walls onto the baptisteries in the church's hall. But, as the result of a big weight pushing downwards, the tambour has had the tendency to lean.

So far, we have noticed that the tambour's leaning movement is continuous since we still find out new cracks on it and the older cracks get even bigger.

Our idea to tackle and stabilize the phenomenon of the leaning and the degradation of the structures in the regions where the heavy weight of the tambour lies, is based on the balancing and redistribution of the weight in such a way as to provide a support on a larger surface on the backs of archways of the cross's wings.



**Fig. 1**

St. Mary's Church, which is situated on the village of Labova e Kryqit (translated as *Labova of the Cross* in English) and falls under the municipality of Libohova, has brought to the repertoire of the Albanian Medieval Architecture the brilliant demonstration of one of the most wonderful architectonic formulation and such a great iconographic program in terms of its functions, the decoration of the interior and exterior that it might be compared to its equals in the elite of this genre in the Byzantine culture worldwide. (Fig.1)

This monument has caught the attention of the public in general and many researchers in particular. Much criticism and many comments and analyses have been made regarding its architectonic style providing detailed explanations and descriptions about its constructional aspect. Some very special forms have been identified urging for further explanation on the style and the reasoning behind these special features within the so-called volume formulation and architectonic repertoire of its interior.<sup>21</sup>

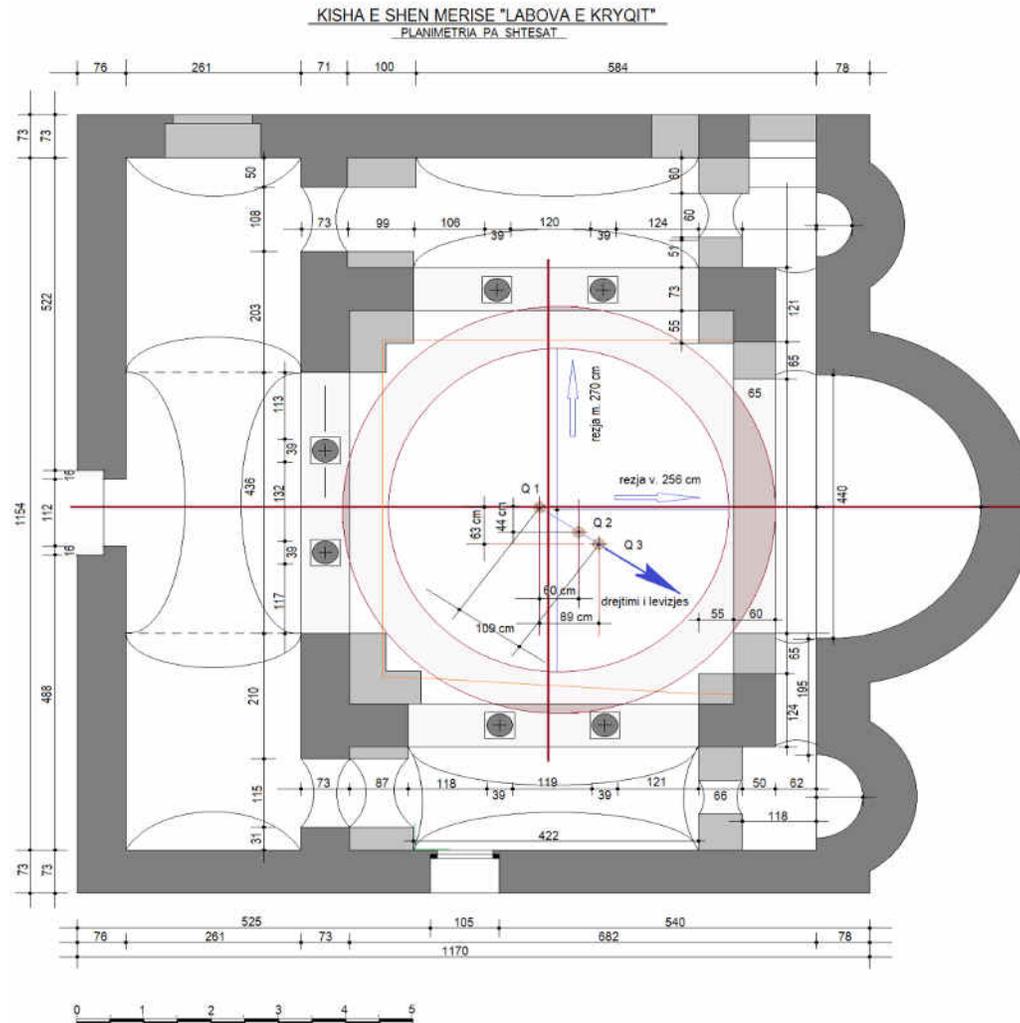
This article lays an emphasis on some major concerns about the structural and constructional issues of this monument. It will also cover some information regarding its architecture from its early stages of construction, aspects of its similarity with some other monuments and churches of the Byzantine period of time, applying a tangent reasoning on an approximate age of the construction.<sup>22</sup>

The architectonic type of this church is defined as a cross imprinted with the upper volumes of its arms extending up to the level of the roof. (Fig. 2). Viewed from the perspective of the formulation of the compositional core area which consists of the square structure formed by four columns with three arcades among them to create the cubic base sustaining the tambour of the dome, this type of church provides the best example of a metropolitan style of church and shares similarities with other churches alike. Similar churches are found in

<sup>21</sup> G.Sotiriu, *Kristianikëqë Visantini arkeologia*, Athina 1942, A, 381. Aleksander MEKSI, *Monumentet 9/1975*. Guntram KOCH, *Monumentet 1/1987*.

<sup>22</sup> Guntram KOCH, *Monumentet 1/1987*. It has been made a small comparison among other elements of this genre, in such a form that it looks like an attempt to accelerate the constructional date of this wonderful monument. classified as a monument of the X century. On the other hand, Aleksander Meksi, in *Monumentet 9/1975*, dates on the second half of the XIII century, which was an attempt to relocate the constructional date into V-VI century; from Gazment MUKA, "KISHA E LINDJES SË SHËN MËRISË NË LABOVËN E KRYQIT" 2013.

the complex of Teotokos Peribleptos in Constantinople, built by the famous emperor Romano III Argiuro, v.1028-1034.



**Fig. 2**

Other similar churches that we can mention are also the church of Teorakos Parnnarakistos, in Constantinople, dating from the XII century, Monastery of Saint John, in Libos (Fenari Isa Cami) in Constantinople which dates from the X-XII century, Saint George Church in Mangano, 1042-1057<sup>23</sup>, etc.

Regarding the repertoire of its ceramic plastic décor, the techniques used with the bricks built in the masonry during the original stage of its construction and the formulation of its interior, the church is so particular for such a provincial region. Therefore, these constructional aspects of Saint’s Mary Church in Labova e Kryqit, built during the X-XI century constitute so typical and familiar features of such a period of time. Such a perception is so well-grounded due to the existence of some other similar constructions found in many parts of the Balkans and capital cities during this period of time<sup>24</sup>.

<sup>23</sup> Vasileios Marinis, "Structure, Agency, Ritual, And The Byzantine Church", fq. 351

<sup>24</sup> Guntram KOCH, Monumentet 1/1987, fq. 27-52

In the previous studies, we can notice some detailed descriptions of the shape of the whole church plan, its volumes and the affinity among them. All these features determine the classification of this church in the group of churches characterized by the shape of a cross inside, covered with archways on the sides of the cross area and with a tambour supporting the dome in the centre of the construction. There has been given a fully detailed information regarding all the elements that constitute the interior of the church, such as the two-storey archads, with two cylindrical columns on each storey, placed all over the northern, southern and western part of the building, the apses and the alter, etc. This kind of construction belongs to the original project of the church and it is mainly a specific characteristic of the naos ideology of church building. This kind of constructional plan draws the attention on the inside construction with its highly suggestive view and its central area most vividly and transparently exposed with the elongated arms on the north and the south and the front part on the west. (Fig.3.)

The previous descriptions and studies have dwelt on all the possible constructional stages of the church from its very beginning including not only the interior but also the exterior volumes of the church.<sup>25</sup>

In this article there is a great concern shown about the static situation of this wonderful monument which is quite disturbing. We can most confidently claim that the static situation of the church which has gone through an Emergency Stage runs the risk of demolition and catastrophic destruction.

Despite the architectural formulation and all its characteristic features of masonry building techniques, Saint's Mary Church has always been a monument of great curiosity for the visitors due to the noticeable slanting position of the tambour supporting the cupola. (Fig. 4). Many comments and studies have been made about this phenomenon providing different explanations.<sup>26</sup> Many religious people inspired from religious doctrines provide explanations that the tambour of the church is leaning due to the very leaning position of the neck of Saint Mary in many images of her in the church iconography. In fact, the leaning of the tambour and some other deformations of the church have occurred because of an abnormal situation in the sustainability of the church architecture.



**Fig. 3**



**Fig. 4**

<sup>25</sup> Aleksander MEKSI, Monumentet 9/1975, fq. 83-85

<sup>26</sup> Aleksander MEKSI, Monumentet 9/1975, fq. 85-89

Analyzing the static situation in which this church is found and all the deformations due to the leaning of the cylindrical tambour, all the cracks and damages in some other regions of the building is a matter of very great importance for the very idea of intervening to make the necessary repair and reconstruction can be technically guaranteed.

All the previous comments prove that this phenomenon has been somehow not taken much care of. Not much attention has been shown to perceive and describe the very reasons leading to this situation. The dynamic development of the problem and the continuation of the deformations at the central area of the church have not been well understood. Meanwhile there is also no good understanding of the reasons that have brought about the static imbalance and dislevel. They have wrongly considered that what initiated the damage was the south-eastern pilaster of the framework where the cylinder of the tambour has been projected<sup>27</sup>, which might have led to some lowering of the whole structure making the tambour lean.

### **Description of the Church's Statitic Situation and Verifications**

Our first encounter with Saint Mary's Church of Labova e Kryqit dates from 2013, when we made part of a joint scientific expedition with some foreign archeology scientists in order to have a better understanding of the current situation of Albanian monuments and sites in the Valley of Drinos. While observing St. Mary's Church, the most important things that grabbed the attention were some phenomena and signs of architectural type that compared to some years ago revealed some deformations and changes. All the changes noticed as compared to the reconstruction of the church in 2006, made us understand that the church's architecture had some serious static problems to further evolve. All the deformations, movements, cracks, strains imposed and the loss of the constructing possibilities of the regions in the areas influenced by the tambour leaning are most noticeable and quite active.

Some decades ago, scholars considered the actual state of the monument to be good with quite a solid static stability. Whereas the deformations of the tambour were seen as harmless, for they were thought to have happened many years ago and later on discontinued. Based on some concrete signs that the church reveals, we evidenced that the problem is still there. Therefore, we undertook a thorough investigation of the whole static situation and the history of the previous interventions so that we could pinpoint the reasons for this happening and then bring forth the idea of stabilizing the structural deformations. Analyzing all the details carefully, all the deformations and cracks, we came to the conclusion that the situation did not prove to be a static one. On the contrary, we could clearly understand that there has been a constant movement; and moreover there have also been signs of an acceleration of the leaning of the tambour with its inclination from the south to the east. The most problematic signs and details we could notice were evidenced exactly on the side where the tambour had developed its leaning. As mentioned above, in order to have a better understanding of the changes and movements of the body of the church and particularly of the tambour's leaning, we referred to the situation of the monument in 2006, and compared it with the actual situation.

During 2005-2006 all the interventions in the church's interior and exterior were mainly focused on the treatment of the frescos, different surveys in order to further stretch this treatment, the placement of the panels with holes in the tambour double windows, which evoked the time of the X-XI century, as well as a series of smaller works for the facade. The first sign that we ever noted was the fact that all the panels fixed into the doubled windows, overlooked the first vertical cracks, whose axis coincides with the vertical that has cracked and architecture. (Fig.5) Meanwhile the two other windows, the northern and western ones do not have the cracks.

<sup>27</sup>Aleksander MEKSI, Monumentet 9/1975, fq. 89

The first noticeable thing we could detect was the existence of some vertical cracks on the fixed panels of the double windows on the eastern and southern part of the tambour whose axis corresponds to the bigger vertical crack found in the church's architecture. (Fig.5). Meanwhile the other two windows located in the north and west have no such crack. This made us reflect on the reasons why there do exist such vertical cracks only on the windows facing the east and south and why this is connected with the cracks on the church's masonry spreading from the very ground floor of the church? (Fig. 6) Thus, all the reasoning made brought us to the conclusion that there is an ongoing movement in the structure of the church's architecture. The reason why the active cracks are located into the southern and eastern part of the tambour is closely connected to the fact that the direction of the movement from the south to the east creates some strains exactly into this sector of the cylinder as a result of the resistance made in the area which serves to support it. This observation was more than enough to keep looking for some other signs and facts that would reveal some more details regarding this phenomenon and make us reflect on the dynamics of the tambour's continuous movements. Thus, we started observing the interior part of the church.

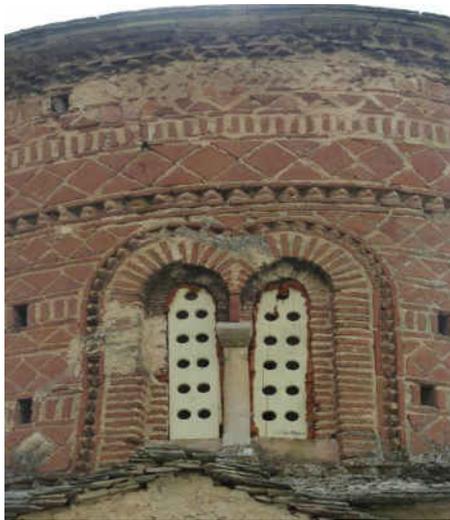


Fig. 5



Fig. 6

As described above, in the hall on the front part of the church there lays the tambour's dome with its heaviest weight falling onto the top of the walls rising above the baptistery into the north, south and west and also up to the edge of the covering calotte of the apses. Quite obviously, we noticed that there were some cracks and strains in the vertical axis of the eastern column in the the two-storey arcade on the southern part of the cross. (Fig.7). There were cracks even on the very regions on the edge of the apses, exactly on the region where the later repairs were made. (Fig.8). There were also noticed some other deformations on the eastern column of the second floor of the northern arcade which do not come as a result of the over-pushing onto it, but as a result of the pulling made onto the heads of the arcades' capitals leading to some cracks that have the tendency to fold the ends. (Fig.9) In order to be convinced that this was a situation of a continuous movement of the tambour, we made a test by asking the people who take care of the church's preservation to not even wipe it for some time especially on the southern part of it and in the region of the apses. About one week later we found pieces of limes that had fallen from the plastered ceiling and even bits of plaster. (Fig.10). This had happened on the south-eastern part where the tambour rests its heaviest weight. Taking into consideration the new conditions and the current situation that we were facing, we tried to take control and keep on doing some other verification regarding the church's issue of its (im)balance. As far as the deformations keep on going due to the continuous loss of tambour's balance which is well substantiated by the falling of plaster and other materials from the ceiling from time to time, we can claim that there is a high risk of a potential destruction of the church.

First we did some verifications of the volume geometry of the core area of the church in its interior. (Fig.2). We could approximately determine the dynamics of the movement of the gravity center of the tambour-cupola's body. (Fig.11, 12, 13). Based on the geometry of the layout, we could determine the center of the dome's figure that it is to have on the floor level and drew a comparison with the projection of the current center of the dome, as we checked its vertical position on the floor. There is a displacement onto the south-eastern direction which is unequivocally very disturbing. This kind of movement has resulted in an inclination of 89 cm towards the east and 63 cm towards the south, and has produced a straight movement of 109 cm long, while the interior diameter of the tambour is not even 5 metres. (Fig.2.11.12) This means that the head of the dome has moved from its original position for more than 1 meter and has thus led to a displacement of the center of gravity which influences directly on the destruction of the weight balance in the regions where the tabour rests and this constitutes the region of the cube base formed by the walls onto the two-storey arcades.

This is the reason why there are more cracks and deformations in the eastern arcade and southern part of the apses. All the craks that were identified in the second floor of the arcade, and the vertical axes of the eastern column, have shown the constant pushing being exerted which can bring about the rupture of the internal connections of the construction material .( Fig. 17). What strikes us most, is the tendency for the the wall to get detached from the column. It is exactly in this region of the southern arcade, on its southern facade where the church's construction and state faces the great problem. It is in this area where all the deformations, deviations and cracks, spurred by the displacement of the gravity centre, are mostly exposed and have exerted a negative influence which is so noticeable on this region of the southern arcade. The current situation of the building and the destruction of the construction material make it easy for us to understand that the destruction made and the loss of the sustaining possibilities of this region prove to be very alarming.



**Fig. 7**



**Fig. 8**



**Fig. 9**

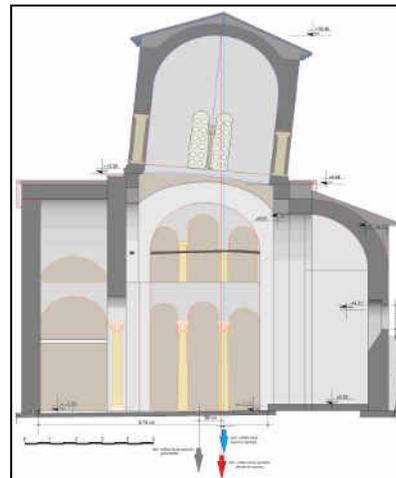
As mentioned above, there were found some small pieces of material falling from the wall's surface on the southern part of the apses. (Fig.8, 10). On the other hand, due to different stages of construction, there are also some vertical cracks, but at the same time we could also notice cracks which have occurred on the structure of the same phase. This happens due to the overload of the weight due to the gradual displacement of the tambour-cupola body. This evergrowing overweight in this region has exerted its own negative effects on the apse's walls, creating a vertical crack starting from the frame of the dome's roof edges, going to the eastern window of the tambour, falling onto the apses's window and ending onto the ground resulting into another horizontal crack on the cemented pavement which falls vertically with the façade of the apses. This crack is so specific as well as many other cracks and damages on the southern arcade since they give us the idea that its dynamics is restless. (Fig. 6,14)

Another sign which shows the same tendency of this movement, caused by the same negative factors, appears in the south-western pilaster of the core area and this is determined by the arcades of the church's hall. (Fig.15) As aforementioned, attached to these pilasters some pillars were added during another period of construction and the weight of some extra archs falls onto them down the inner periphery of the tambour's base. However there is something very important which needs to be clarified; all the extra arches were built later due to the two-storey arcades and the walls built onto them go up to the point and plan that they would meet the tambour's base. This is most noticeable especially in the inner part of the northern arcade and the archway over did. The changes have taken place one after the other through the passing of time. We will provide a thorough detailed analysis in what follows. (Fig.16)

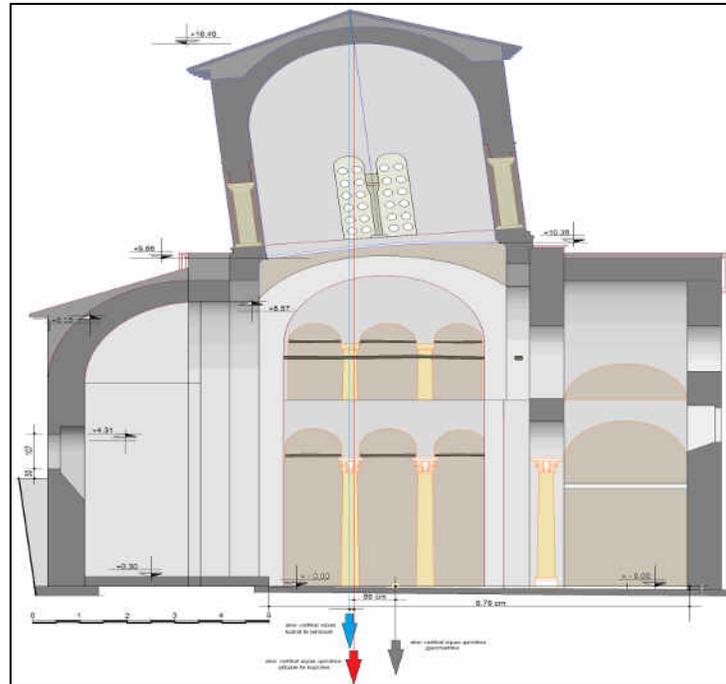
Meanwhile, we are still dealing with what happens to the south-western pilaster. On its eastern side there is a vertical crack which does not continue for long. It is characterized by continuous interruptions which look like segments starting from high up to the level of the base characterized by a tilt towards the western part. (Fig.15). This is a typical kind of rift found in those cases where two vertical fitting bodies move against each other vertically. Since their masonry does not function as a single body, they can have some independent lowering movements, but as long as they have been plastered without the dividing fugue, their movements lead to deformations on the plastering similar to those of torn paper or cardboard. The whole phenomenon is caused by the vertical overweight onto the legs of the extra archs producing a lowering or "dipping" process far more advanced as compared to the leg or the original pilaster.



**Fig. 10**



**Fig. 11**



**Fig. 12**

In this case we can easily understand that the original sustaining construction of the tambour-cupola is not able to properly provide the support for the whole load coming from above. Somehow, this is the first and most important defective thing that has brought the whole disorganization of distributing the weight inside a technically correct static scheme. All these verifications make us realize that this part of the church's construction has the biggest difficulties with the evergrowing weight due to the continuous leaning or dislocation of the tambour-cupola's body. Thus, we can notice that some deformations have occurred due to the constant pushing force, structural degradations of the walls' material and the disintegration in the shape of some big bits from the organic connections of the masonry, etc. (Fig.17).

However, this phenomenon of movement does not have the same dynamics in the northern arcade. There is not much of a tendency for a pressing moving force and the cracks are not fresh and very noticeable. Here we can notice a different activity of the arcades' elements. In the second floor coulms, especially in those of the eastern part, one can notice a leaning of the capital towards the inside as it rests with the column's head on the southern part of the section and its opposite side quite open. (Fig.9).

This kind of movement is "a twisted one" rather than that of a pressing one downwards. This is even noticed on the other capital but with some slight deformations. This phenomenon in the arcade and the sustaining structures of the northern side of the tambour's base can easily be explained by the mechanic movement that the tambour-cupola body is making. The leaning of the tambour's cylinder towards the south-eastern direction transfers all its weight on one side meanwhile on the other side the support of the weight is released. Considering that the tambour acts as an independent body despite the cracks caused by the movements, there is a decline in the region where the weight is displaced. This state of the tambour's cylinder dynamics causes some rotation or twist on the side of the northern arcade, a phenomenon which becomes visible noticing all the deformations of the second floor of the arcade. There are signs of deformations and cracks noticed on other parts too, but compared to this major problem caused by the leaning of the tambour-cupola body, they are of secondary importance. Many of these have occurred due to the first movements in the church's core area but they have been avoided to develop because of the further extensions and repair.

It is worth mentioning that at its initial stage, the phenomenon of the tambour's leaning brought also the disintegration of the basis of the arches structures, vaults and archways. Some damages and repairing work on big regions in the southern part of the cross have been made; some more mending is done on the outer part of the pases, etc. The western part of the cross has managed to survive risking no complete destruction and its current situation allows us to notice a specific crack that moves from north to south near the western wall.

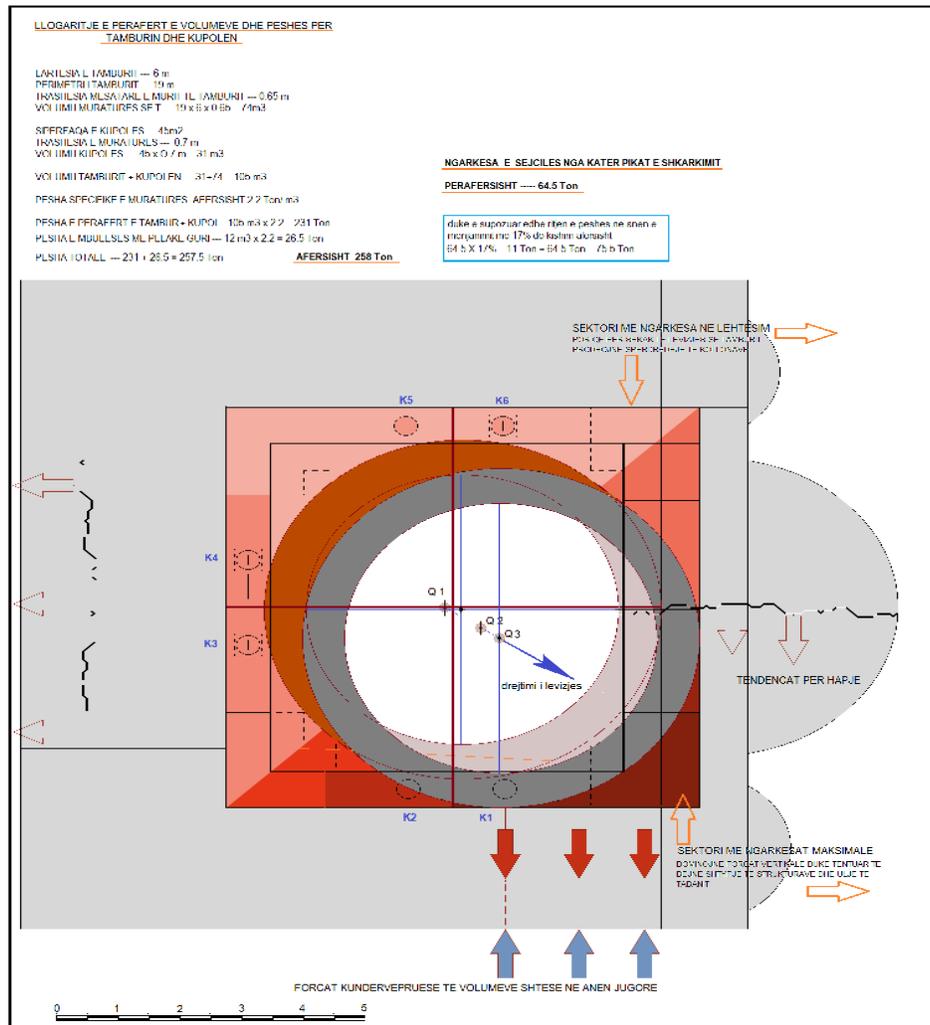


Fig. 13

The movement caused by the leaning of the tambour-cupola body has led to the loss of verticality for the major part of the columns of the two-story arcade. One can notice the deviation from the verticality and consequently damages have occurred due to the strain imposed on their bases. Due to this leaning position, the columns have lost their contact and the desired fitting with the sustaining surface of the bases by increasing the overweight for square cm in the contact zone. This condition has led to the break of the edges and the bottom part of the columns and bases as well. (Fig.18)

The new constructional volumes made to the church during the first phase, in the northern, southern and western part have caused a certain contra fort and neutralization of the forces tending to push forward, but this amplification factor is only present in the area on the base of the cross written from the outside and down. This means that the reinforcing additives made later, on the sides of the church play no important role in what is happening to its core structure, its tambour-cupola body and its base. (Fig.19).

This part of the architecture is undergoing a continuous process of deformation for the sustaining structures in the south-eastern area are under great pressure and its fabric is deteriorating. With the passing of the time, the material supporting the exaggerated overweight degrades and loses its own abilities. This phenomenon leads to some strains being imposed, and thus to some lowering in the structural frame at small milimetric levels. All that lowering in the structure, although small should be taken seriously as that can bring a much more significant movement of the region above, and that is the reason that there is a shift in the gravity centre. On the other side, the shift in the gravity centre brings the overweight onto the damaged areas, thus accelerating the degradation of the material and imposing strains and this leads to some more lowering of the structures which although slight in dimension, have the tendency to accelerate the shift of the gravity centre. And this is exactly the most alarming process which is affecting the verticality of the tambour-cupola body to such a loss of it that it might most definitely cause the total destruction of the church.

### Causes and Rationale

According to the description given and focusing on the geometrical situation of the church's core area, we have come up to a conclusion which we think constitutes the main reason for all the problems that have led to deformations, loss of verticality, a lowering on the centers of the upper ribs of the cube supporting the tambour base and all the other consequences. (Fig.20) It wasn't difficult to notice that the base of the tambour's cylinder does not fit with the dimensions of the cube's square formed by the walls onto the two-storey arcades. The surface where the tambour's base touches the wall of the cube is very small. (Fig.21).

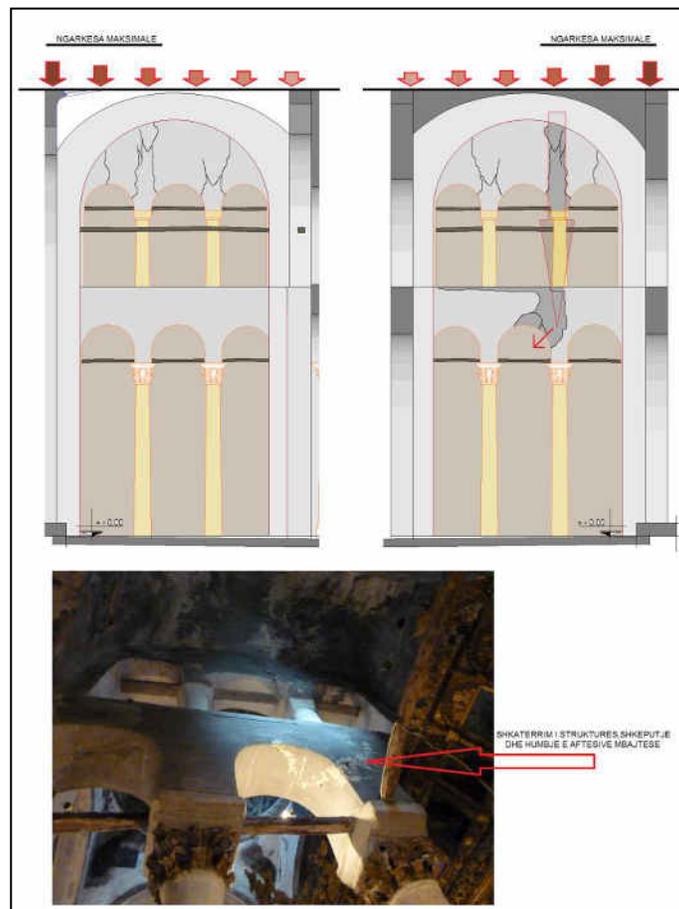


Fig. 14

By all our measurements made, we could evaluate that this surface covers no more than approximately 10 cm on the northern, southern and western side and the thickness of the tambour's wall is 70cm. The discrepancy of the tambour cylinder dimensions with those of the square where it was supposed to be sustained has brought a vertical slide of the tambour since the beginning by taking away the parts where it touched or was based on. This movement of the tambour has exerted its negative effects on the area where we can easily detect the breaking or the bending of the ribs of the base cube, as well as the bending of the corners of the cube with their direction towards the center of the square, by diagonals. (Fig.20, 22). This phenomenon is much more noticeable in the north-eastern and south-eastern corners and a bit less on the two other sides. This has happened because of the way that the shift in the verticality of the tambour's cylinder has occurred with its main tendency towards the south-east direction. However, many other problems are beginning to emerge with the deformation of the tambour's verticality which constantly leads to the deterioration of the static situation in center of the church.

The shift in the verticality exerted some partial tensions and pressures onto breaking the walls. This phenomenon has been continuous and the decision to intervene by putting on some reinforcing additives was taken only when this problem become very evident. At this moment there were some extra arches added to provide a better support for that part of the tambour's base which seemed to be "suspending in the air". (Fig.22, 23.) The period when the construction of the additional arches was made still remains to be clarified by subsequent analysis and surveys. It is highly likely that the interior of the church was decorated with frescos at the time of the construction of these arches.

There is no element of deformation which could let us think about a natural movement of the land in the central part of the church. The bottom part and the heads of the columns have always preserved a horizontal leveling. The movements that the columns' heads have experienced are deviations from the verticality which is a phenomenon caused by the abnormal position of the tambour and the side effects caused by its deformations. In this case, another negative phenomenon appears precisely with the process of the additives made to the core area of the church as mentioned above. Supporting arches were established down the base of the tambour's cylinder and the legs or the columns resting on the floor. This constructive system has absolutely helped in a better distribution of the weight coming from above. At the same time, it has prevented a vertical slide of the tambour's cylinder against the walls of the base's cube and consequently not let its ribs continue the deformation process. (Fig. 20). Meanwhile, these supplements constitute nothing but a new body of a certain measure and consequently, this would obviously cause deformations in the base where the weight is sustained (on the floor).

It is quite a fact that the region the weight falls on will undergo some compression and that is what has happened. The compression of the seabed where the new columns bank on has been gradual and has negatively influenced on the balance of the tambour's cylinder making its leaning advance even more.

In this general description, we gave the main signs that reveal some of the static problems of the Saint Mary's Church in Labova e Kryqit. The church's core area, the region where the tambour-cupola body is supported is moving actively and degrading due to the leaning of the tambour's cylinder. The gradual and continuous advancement of the gravity center shift brings an increase of the weight to be supported on the south-eastern area, and consequently accelerates the degradation of its building structures due to the strain imposed. The situation is deteriorating more and more.

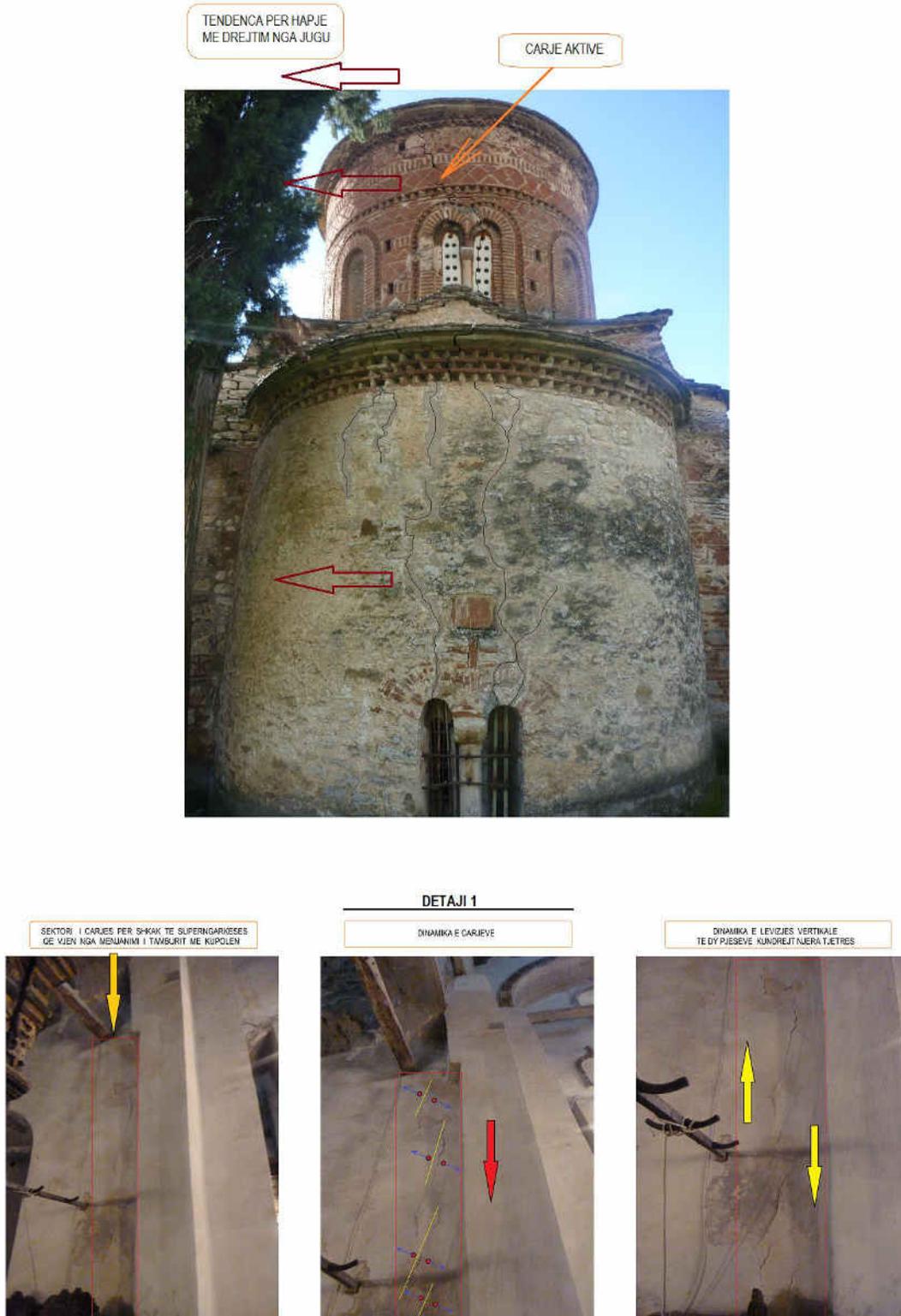
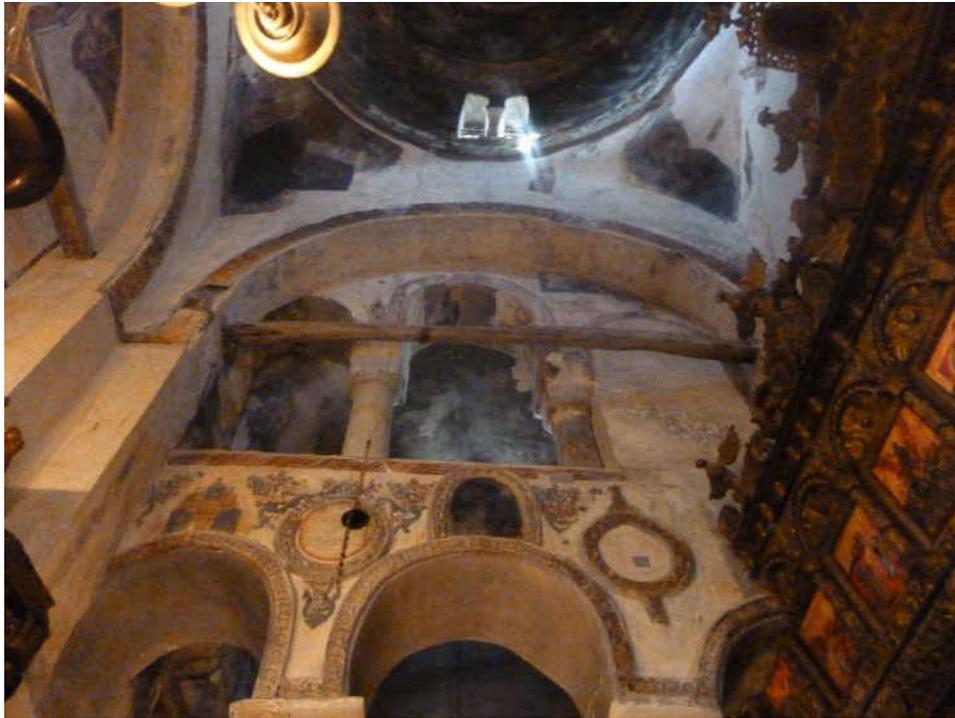


Fig. 15



**Fig. 16**



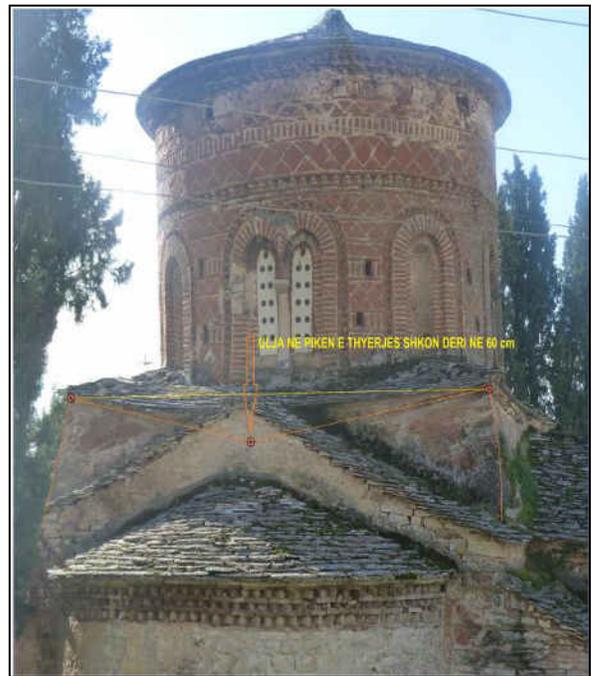
**Fig. 17**



**Fig. 18**



**Fig. 19**



**Fig. 20**

## Proposals for the Church's Stability

Based on the technical situation, the scheme and the structure that constitute the architecture of St. Mary's Church in Labova e Kryqit, we have analyzed and taken into consideration the possibility of intervening and stabilizing its further degradation. As we made known, the main defect causing the leaning of the tambour's cylinder and all the damages that followed was the application of a scheme which was not capable to properly administer the distribution of the weight from the top to the bottom in the direction towards the base or the floor.

In this situation, where problems seem to be numerous due to the loss of the constructive abilities in areas which bear the overweight, we shall propose a solution which will be satisfactory for many aspects. As we should be concentrating on the main problem, which is that of the ongoing leaning of the tambour's cylinder, we think that the solution must be that of holding back and stabilizing this movement, and at the same time relieving the structures, whereupon the pressure is exerted by the tambour-cupola body, from all the overweight. Therefore, this is to say that we hold back the shift in the gravity centre of the tambour together with the dome and avoid the concentration of the evergrowing overweight onto the structures on the south-eastern area, south arches and apses. We hold that it is necessary that in order to meet this objective, we have to introduce a load balancing system distributing all the weight to more capable and secure structures. For this purpose, we think to exploit the archways of the cross's wings. These archways come directly after the facet of the cube of the tambour's base and are covered by the roof. The top of the roofs match up with the tambour's axis and the top of the archways. We think that we can apply metallic structures according to these axes and this might serve as balancing and distributing the weight of the tambour over the backs of the archways of the cross's wings. (Fig. 24)

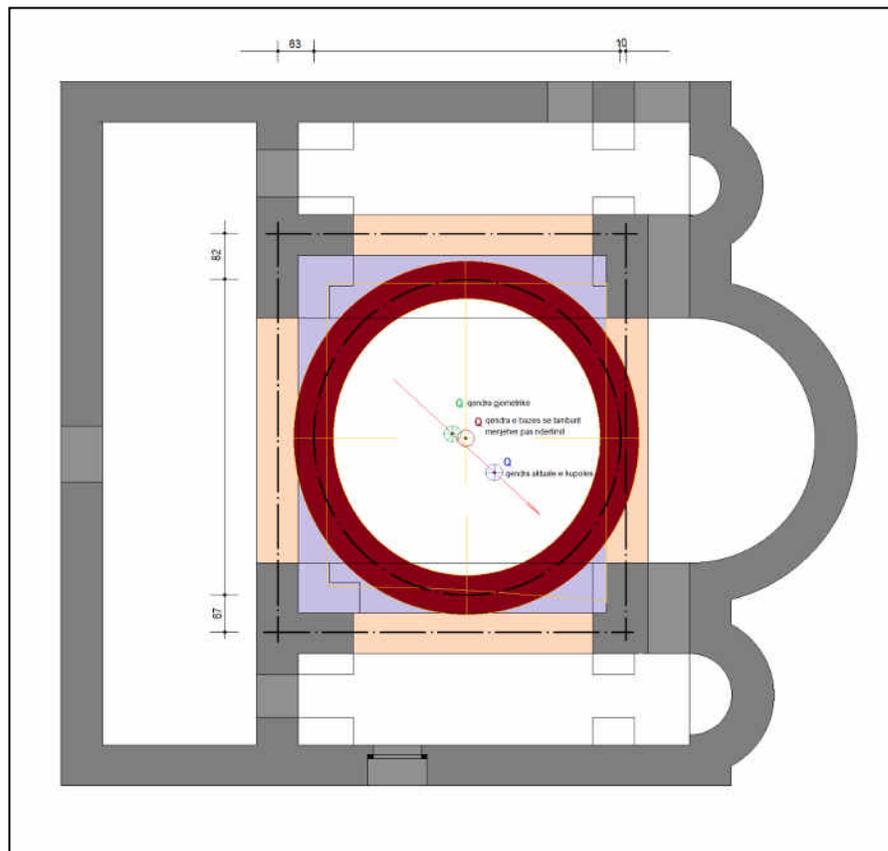


Fig. 21

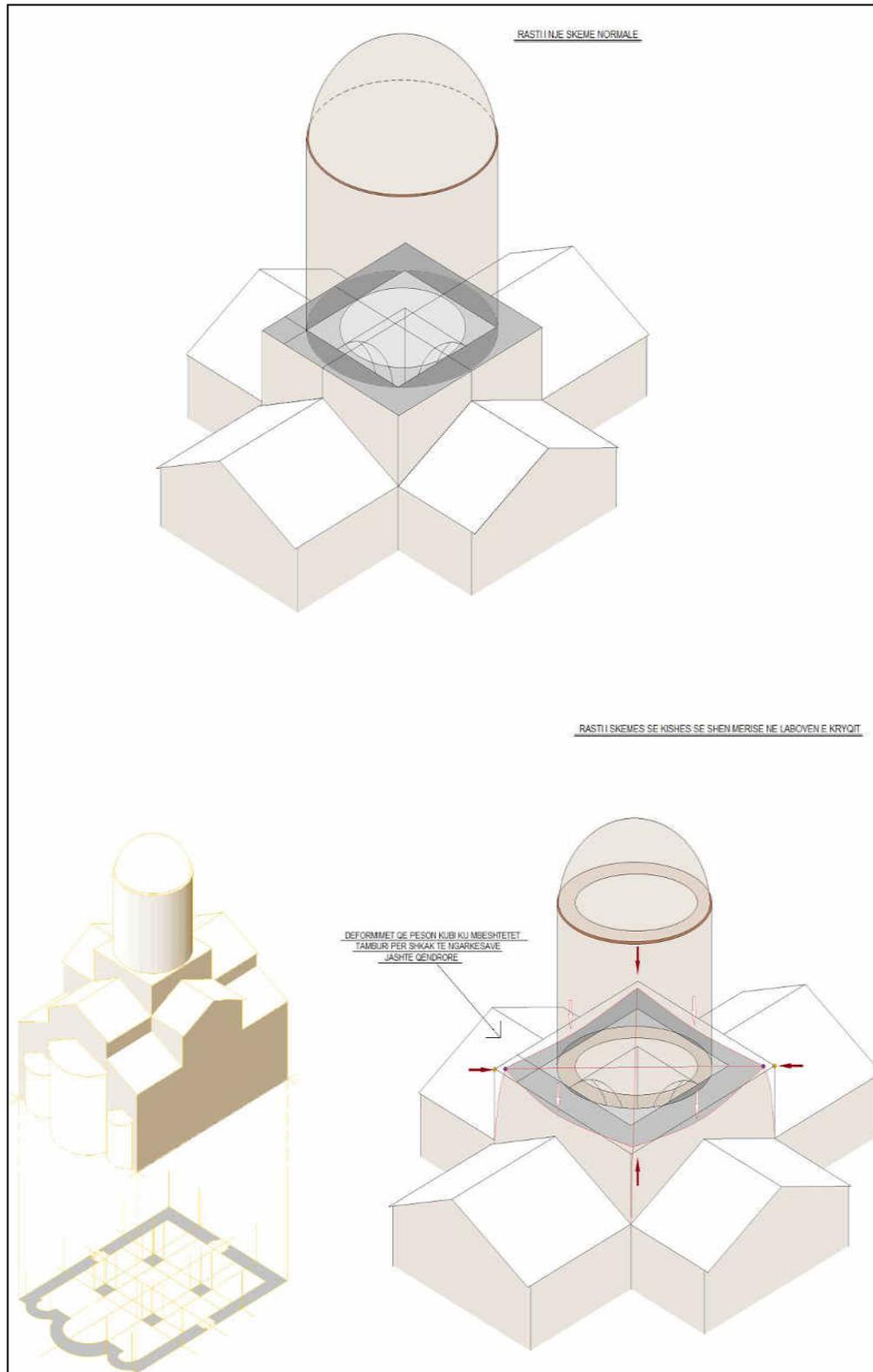


Fig. 22

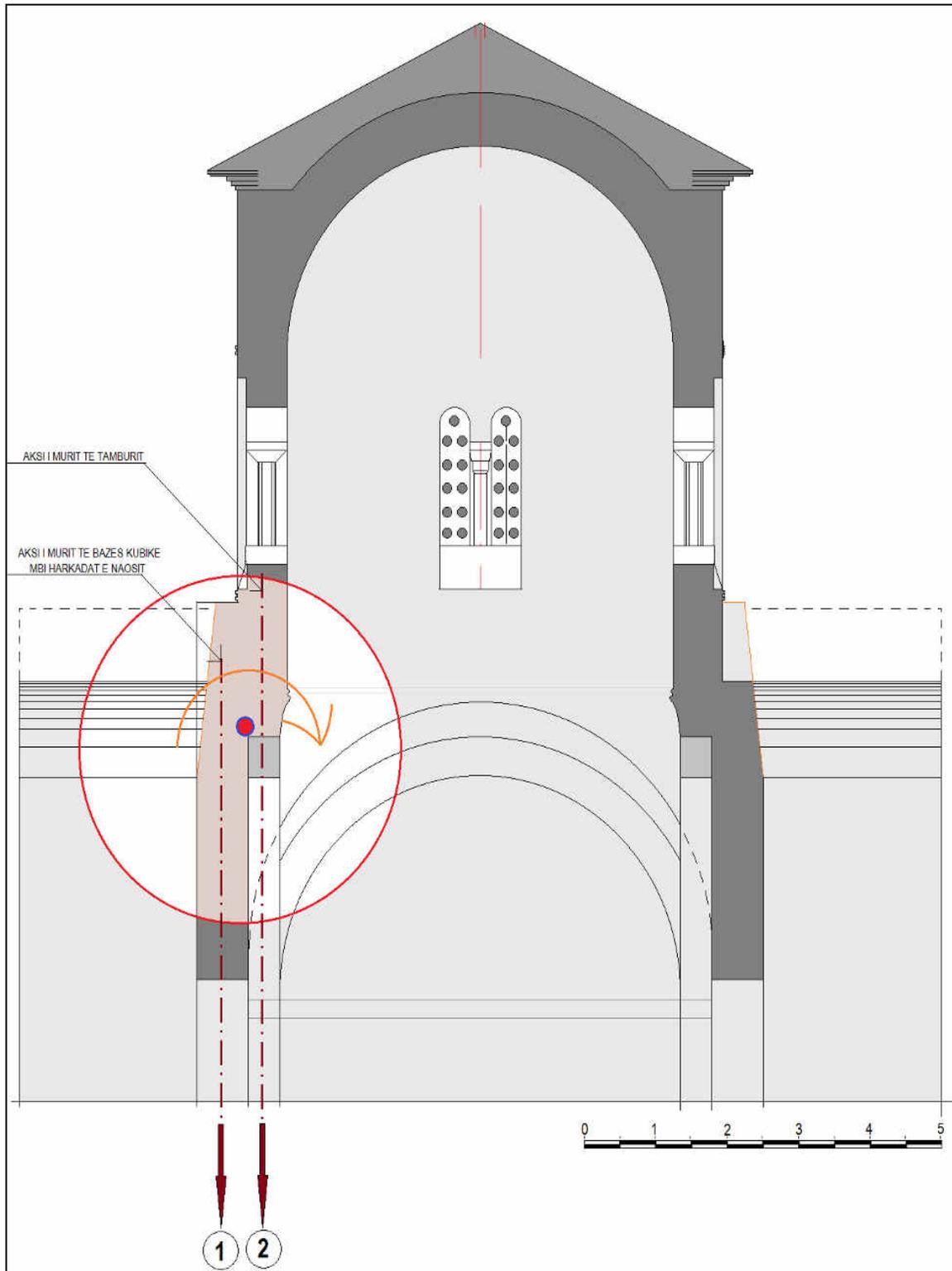
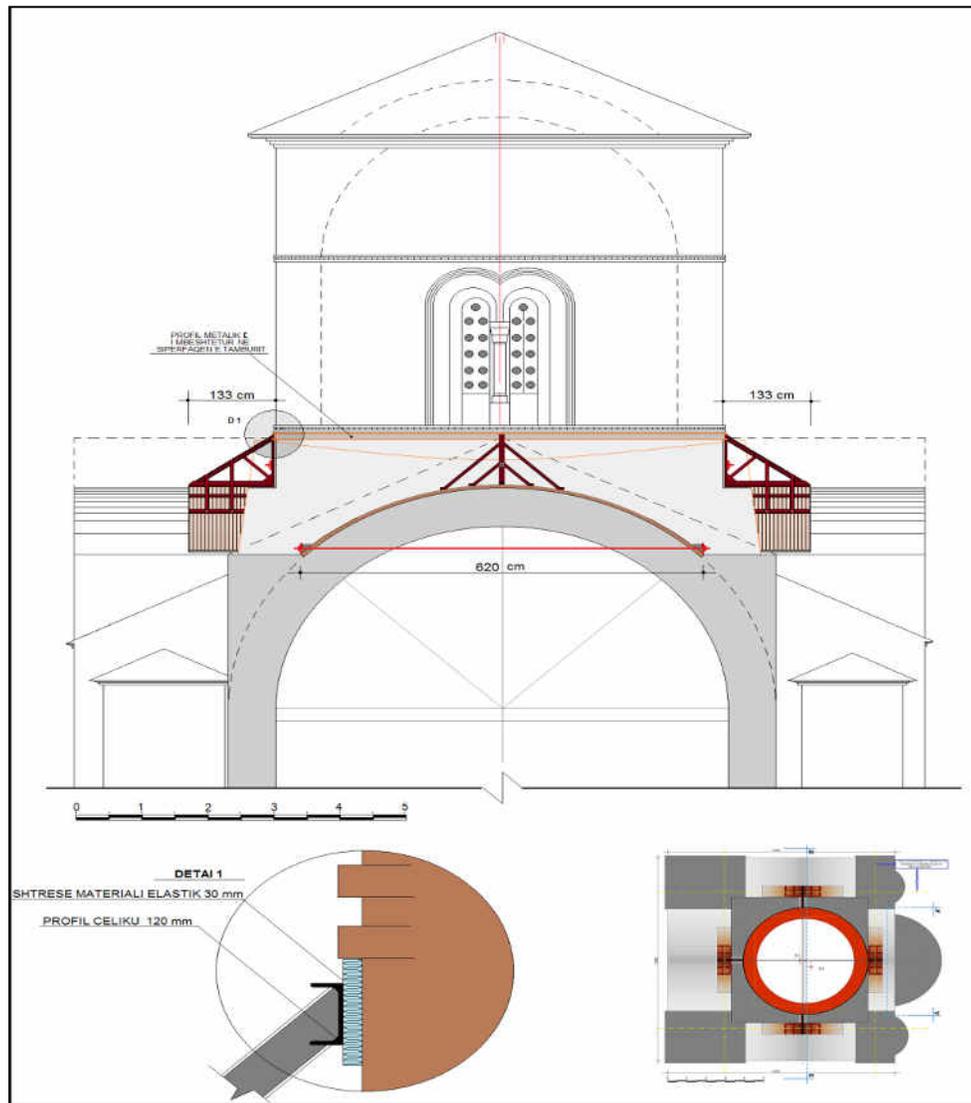


Fig. 23



**Fig. 24**

To carry this out, a metallic collar ring is needed which is to be established directly under the brick frames on the tambour base. (Fig.24).This ring should not be directly sustained onto the surface of the tambour, but onto a strong, solid plastic layer. It has to be equipped with a fastening device, so that it is well tightened to the tambour. The metallic structure in the shape of the wing will be tightened to the metallic ring collar of the tambour and at its lowest level, there will be a fastening with the straps which will go along the axes of the tambour. The proposal that we give for the provision of a framework and equipment serving for the load balancing and redistribution in such a way as to eliminate all the strains and abnormalities should be accompanied with some more interventions which would help to strengthen the structures involved. It is of great importance to mention that this idea brings a solution to the stability and alleviation of the strains urged onto the structures and at the same time all the parts of the architecture get integrated in a common collaboration, so that some constructive possibilities and capacities can be guaranteed. At the same time, the kind of intervention and equipment that we propose is in full accordance with the principle of reversibility.