

# The Great Mosque of Golpaygan: Architectural documentation and archaeological research, 2007–2008<sup>1</sup>

Lorenz Korn

## *Mosque architecture in Iran during the Saljuq Period*

During the period of the Great Saljuqs (11th–12th centuries), the development of Islamic religious architecture in Iran took a decisive turn. From older traditions, a new building type originated that was characterized by a monumental dome chamber in front of the *mihṛāb* and by large *īwāns* in the main axes of the courtyard. Most certainly, the first steps in developing this new shape of the mosque were taken in Isfahan, where the southern dome was probably constructed in or around 479–80/1086–87, and the *īwāns* around the courtyard were added in 515/1121<sup>2</sup>. The example of the Great Mosque of Isfahan served as a prototype, or at least as an inspiration, for the great mosques in neighbouring provincial towns and in other regions of Central and Western Iran. Among these, the mosques of Barsiyan, Qazvin, Borujerd, Ardistan, and Zavare are the best studied of those built during the Saljuq period.<sup>3</sup> Originating in Central Iran, the new type was adopted in other parts of the country and universally applied in Iran and Central Asia from the 12th–13th century onwards. While the Great Mosque of Isfahan forms the earliest and best known example of this new building type, other buildings can help to elucidate the process of development and the principles that it followed. The Friday Mosque of Golpaygan (Gulpāyigān), with a dome chamber dated to 508/1114–15, is one of the major mosque buildings of the period. A close examination of its structural history can contribute to the history of Iranian mosque architecture at large.

## *The Golpaygan Project*

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<sup>1</sup> The present text is a shortened and revised version of the paper given at the symposium. Full publication of the research on the Great Mosque of Golpaygan is still under way in articles on the campaigns in 2007 and 2008 respectively, cf. Korn et al. (forthcoming) a/b. – The two field campaigns were made possible through subsidies from the Max van Berchem Foundation, Geneva. Without this financial support, the Golpaygan project would not have been realized. Commitment in various respects was required on the part of the team members, who had to put up with unwonted conditions of housing and everyday life in Golpaygan, including cold temperatures in February 2007.

<sup>2</sup> Cf. Galdieri 1972–84, I, pp. 371–379, II, pp. 34–39, Grabar 1990. – The inscription in the south dome is discussed by Blair 1992, pp. 160–163, no. 61.

<sup>3</sup> For the mosque at Barsiyan, cf. Smith 1937 (with a misreading of the building inscription as 528 H. instead of 498 H.); for Qazvin cf. Wilber 1973; for Borujerd cf. Siroux 1947 and Mihriyar 1985; for Ardistan cf. Godard 1936 and Šīrāzī 1980; for Zavare cf. Godard 1936; for Qerve cf. Kleiss 1971, pp. 100–103 and Hillenbrand 1972. A brief overview of each of these mosques is given in Hāġġī Qāsimī 2004; cf. also Korn 2007b.

In 2007–2008, a joint field project was conducted at Golpaygan by the University of Bamberg and the Iranian Cultural Heritage Organisation (ICHHTO). Two campaigns involving small teams of archaeologists and architectural researchers aimed at recording features that could allow more detailed conclusions about the structural history of the Great Mosque of Golpaygan. Research questions that were addressed included a rather general aim of determining the various phases of construction, enlargement, and changes to the building from its foundation as a mosque to the present. In particular, it was to be proved whether the dome chamber was erected on bare ground as was the case in the Great Mosque of Isfahan, or whether it was inserted into an existing mosque. Further, an investigation was programmed to determine the nature of structures flanking the dome chamber prior to the constructions of the Qajar (19th c.) phase. A secondary aim was to explain how the Friday Mosque was located in the urban fabric.

During the first campaign in 2007, the mosque building was measured by hand (with the help of laser distance meters), and an exact ground plan was drawn. In addition to the two major building phases known from earlier publications, more details of the structural history of the mosque were explored. Archaeological research on the mosque, undertaken in both the 2007 and the 2008 campaigns, comprised nine soundings within the dome chamber, in the adjacent southeastern part of the prayer hall, and outside, beyond the *qibla* wall.<sup>4</sup>

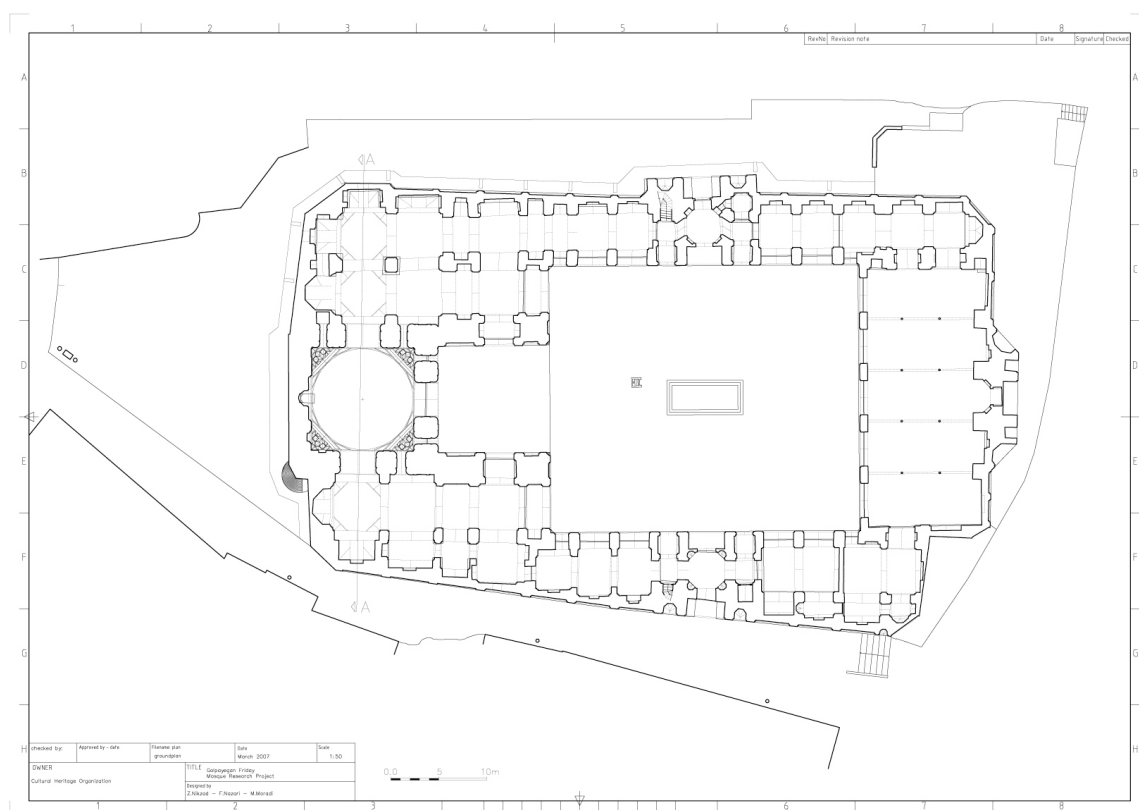


Fig. 1 Golpaygan, Great Mosque. Ground plan (oriented NW; drawing Z. Nikzad, ICHHTO)

<sup>4</sup> For a preliminary publication of the first archaeological campaign, cf. Korn 2007a.

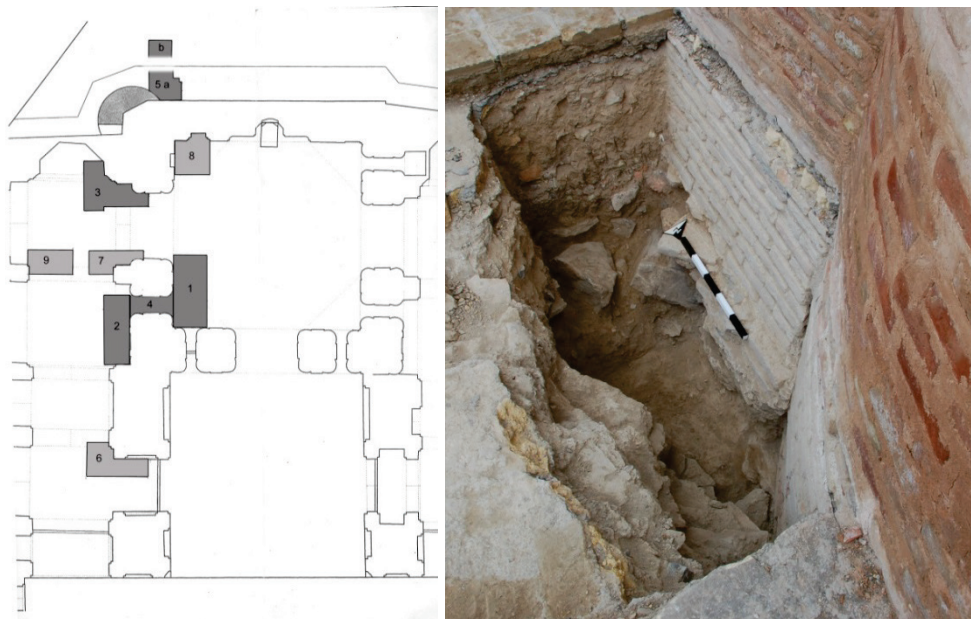


Fig. 2 Golpaygan, Great Mosque. Archaeological soundings in 2007 (areas 1–5, grey) and 2008 (areas 6–9, light grey)

Fig. 3 Area 5 showing the outside of the qibla wall abutting the remnant of the old minaret (2007)

Work in the Great Mosque of Golpaygan proved to be different from most other archaeological campaigns, since the building is in continuous use as the largest and most venerated mosque of the town. Therefore, archaeological work had to stop on Thursdays, all trenches had to be closed or fenced off, and the interior of the mosque had to be cleaned and the floor re-covered with carpets for the Friday prayer. The considerable number of visitors (both unofficial and official, including a camera team from the regional TV station) required constant daily attention. The uncovering of a well-shaft under the floor of the mosque (2008) raised particular interest and spawned the most fanciful theories among the onlookers, concerning the purpose and functioning of this underground structure.

### *Architectural Survey*

The basic structure of the Great Mosque of Golpaygan resembles that of many other Iranian mosques: a rectangular courtyard is framed with vaulted halls. A larger domed hall with *mihrāb* rises from among these vaults and is distinguished by its width and height as well as architectural forms and decoration. In the case of Golpaygan, the dome hall has long been identified as a work of the Saljuq period. Its precise date of construction could be fixed at 508 H./1114–15 A.D. thanks to the date in the *mihrāb* inscription that had been hidden due to a raised floor level and that was only uncovered in 1988.<sup>5</sup> It has long been recognized that the flanking halls belong to a much later phase of construction that can be dated to the first half of 19th century (Qajar period). However, the conclusions that could be drawn with respect to the structural history of the mosque were debated. In particular, André Godard's influential theory that the dome hall had been built as a freestanding *kiosque* (according to

<sup>5</sup> Cf. Gouchani 2004, pp. 8–13.

Godard, this applied to domed mosques of the Saljuq period in general) had been contradicted by Jean Sauvaget, and was also challenged by the findings of Eugenio Galdieri and Umberto Scerrato in the course of their examination of the Great Mosque of Isfahan. Reports from a construction campaign during the 1980s, when the northeastern wing of the mosque of Golpaygan was replaced by a reinforced concrete construction, state that bases of round brick pillars had come to light. Unfortunately, no documentation has been preserved, but this evidence would point to the existence of pre-Qajar period hypostyle halls that would have surrounded the courtyard, so that the dome chamber would probably not have stood isolated.



Fig. 4 Golpaygan, Great Mosque. Courtyard to SW (2008)

Another interesting feature of the Great Mosque of Golpaygan is the “*īwān*” between the dome hall and the courtyard. Presently it consists of two massive lateral walls, today roofed with a rather flat corrugated steel construction. While the present substance of the walls belongs to the Qajar period, it can be asked whether it was preceded by an earlier *īwān*. Besides, it can also be debated what shape was originally intended for the *īwān*, since the walls stand too far apart from each other to bear a pointed barrel vault according to the usual scheme.

The architectural survey of the dome chamber and the later parts of the mosque yielded information on several building phases, on the use of the mosque, on alterations made to its “original” structure, and on recent restorations for which archival records are lacking. From this evidence, it becomes clear that the mosque had a varied history with phases of decay and rebuilding, and that significant parts of the surfaces were cleaned and re-decorated during 20th century restoration works.

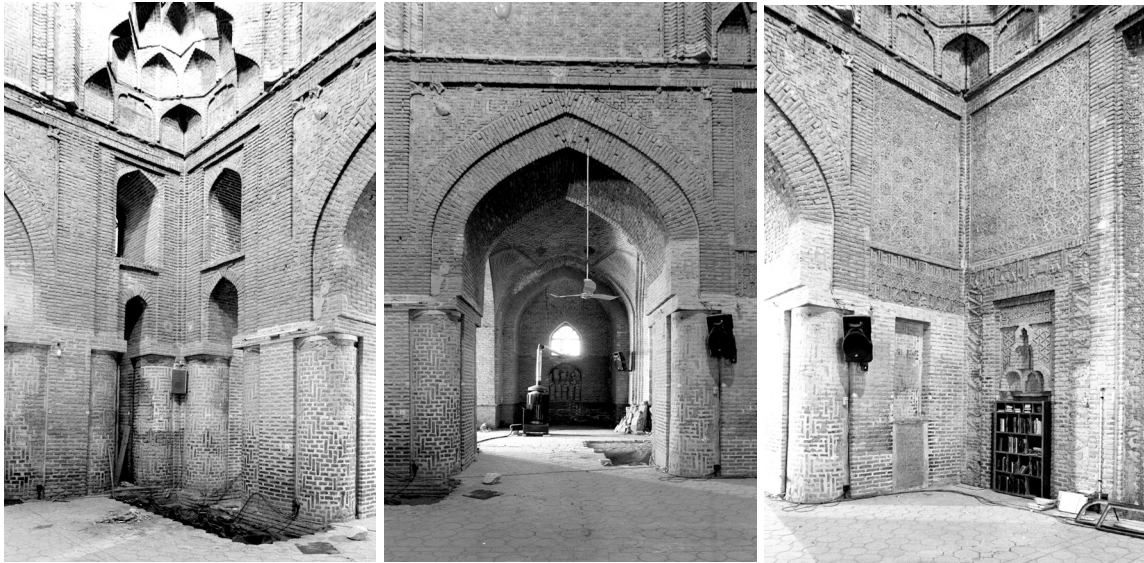


Fig. 5 Dome chamber, E corner. The regular order of the interior wall zone comprises large arcades in the central axes, flanked by superimposed small arcades. Area 1 of the archaeological soundings has just been opened (2007).

Fig. 6 Dome chamber, SE arcade. The arcade is asymmetrical to the axis of the hall, as visible from the difference with the transitional zone above (2007).

Fig. 7 Dome chamber, interior to S. The layout of this part is at variance with the regular order of the wall zone. The border of the mihrāb is visible on the right margin (2008).

For the early history of the mosque, it was important to observe the irregularities in the layout of the dome chamber. They can only be explained as results of accommodation to a pre-existing building, part of which was probably still standing when the dome chamber was built. Most probably, the asymmetrical design of the *qibla* wall and the arrangement of arches in the eastern wall of the dome hall take account of a minaret, traces of which can still be seen in the buttress-like structure on the southern corner, on the exterior of the dome chamber. Older photographs reveal a clear break in bond in the brick masonry where the dome chamber abuts the remaining portion of the minaret.

#### *Archaeological excavation*

In all, nine soundings were excavated in 2007–08, of which eight were located inside the mosque, namely, in the Saljuq dome hall and in the Qajar period halls adjacent to it on the south-eastern side. From the soundings, further conclusions could be reached concerning the structural history of the mosque. Several floor levels indicated different phases of use. There were no remnants of a brick floor that can be associated with the construction phase of the Saljuq dome chamber, but these might have been robbed during later phases. In one place, a waste pit was also excavated between two pillars of the dome chamber – evidence of inappropriate use of the mosque space for non-religious, quotidian purposes. The ceramic evidence of the upper layers consisted of a great mass of glazed and unglazed sherds of different periods that were certainly imported with earth fill from the exterior and utilized to level the mosque floor before the lateral vaulted halls were built during the Qajar period. In some deeper layers, ceramics were found that appear more characteristic of



certain periods and that give better evidence for dating. Generally, the ceramic evidence of medieval Central Iran is still too little known to date unglazed wares to a specific period.<sup>6</sup> The few coins that were found during the excavation were either residual (two Timurid silver coins in later fill) or part of a very small hoard of copper coins that was deposited under the floor in a corner of the prayer hall during the late Ilkhanid period.

#### *Foundations of the Saljuq dome hall*

Areas 1 and 2, located in the eastern corner of the dome hall and on the adjacent area outside the dome hall arcade, under the vaults of the Qajar annex, gave some insight into the construction of the foundations of the mosque. These consist of a local stone that was probably quarried just outside the town, and clay mortar. The natural soil on the construction site was hardened, perhaps by muddying and draining, so that a very firm layer of clay formed the basis on which the foundations were laid in shallow trenches, c. 1.2 m below the present level of the mosque. Boulders and rubble were embedded in clay mortar and the final layer sealed with some special mortar containing ash and lime. This mortar was apparently water-resistant. Together with the low capillary action of the foundations, it prevented humidity from rising within the walls and pillars of the dome chamber. In effect, damage from rising humidity is much less evident in the Saljuq parts of the mosque than in the Qajar parts, where it has assumed threatening proportions. On the exterior of the dome hall, the stone foundations are built in tapering steps, so that the lower layers project up to 1 m from the walls. The interior faces of the foundations were found to be completely vertical in the eastern corner of the dome hall, while being stepped in the southern corner, i. e. on the *qibla* side and adjacent to it.



Fig. 8 Area 2. Foundations on the SE exterior of the dome hall.

The lower parts of the dome hall pillars with their rounded corner columns excavated in areas 1-4 and 7 showed that three layers of bricks formed rectangular “plinths” from which the curved outline of the corner columns receded and which have their counterparts in the simple “capitals” above. The plinths had all been covered by the higher floor levels of later periods.

<sup>6</sup> The Italian-Iranian archaeological project at Isfahan, dealing with several hundreds of thousands sherds from the excavations in the Great Mosque of Isfahan, will certainly dramatically improve this situation. However, publications on unglazed wares are still being expected.

### Pre-Saljuq structures

In area 3, located in the south-west of the Qajar halls, the bulk of clay underlying the different layers of fill showed two interesting features. In the upper part, terminating c. 70 cm below the present floor level, structures of mud bricks were clearly visible. This feature testified to structures that were quite different from the baked brick walls of the Saljuq dome hall. Further down, c. 95 cm below the present floor level, a deep rift divided the bulk of clay, running in a direction parallel to the *qibla* wall. This seems to indicate structures of rammed earth that were oriented in the same direction as the present mosque.

In the *qibla* wall of the dome hall, the lowest layers of the brick masonry (partially already exposed by the 1988 soundings on the *mih̄rāb* inscriptions) contain a number of curved wedge-shaped bricks. The same curve was found on a number of wedge-shaped bricks that were used to lay a floor between two pillars of the dome chamber (are 4). In fact, during further excavations, a great number of these wedge-shaped bricks appeared in the fill under the floor of the Qajar halls. The bricks can best be explained as remnants of an earlier construction that comprised round pillars of a diameter of little more than 1 m. The building must have existed prior to the construction of the Saljuq dome hall, in which some part of its material was re-used.

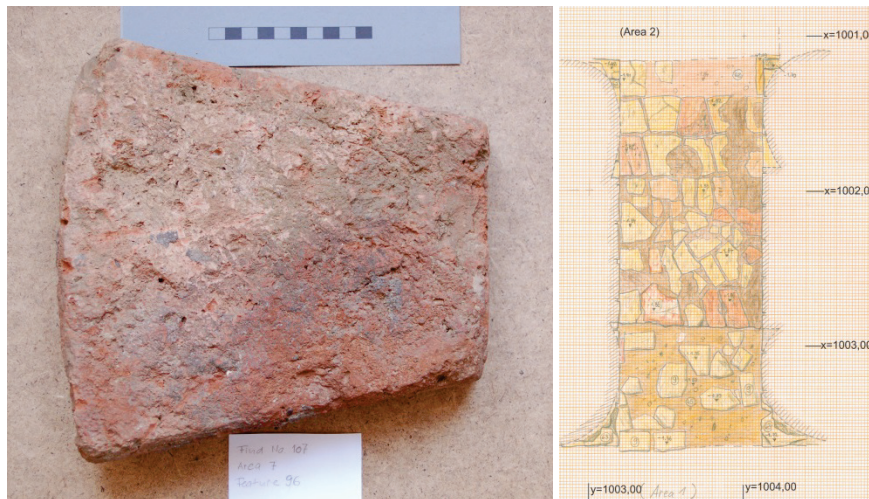


Fig. 9 Typical wedge-shaped brick, found in a layer of the Qajar period (2008).

Fig. 10 Area 4. Plan showing a floor made of re-used bricks, a number of them wedge-shaped.

Proof for the existence of an earlier hypostyle building was found in areas 1, 7 and 9. Area 1 was the first trench in which foundations of a pillar were unearthed. This structure, approximately 1 m square in plan, consisted of a stone foundation with brick layers on top. Its surface would have been just sufficient for a round pillar consisting of the wedge-shaped bricks mentioned above. The foundation was razed above the first brick layer, c. 60 cm below the present floor, most certainly when the Saljuq dome hall was built. The pillar of the central arcade in the south-eastern wall of the dome hall rests partly on the remnants of this foundation. A very similar structure was found in area 9, in a position very well aligned with the foundations in area 1. Assuming that the diameter of pillars measured 1 m, the inner width between the two would have extended over six meters – a distance that appears

very wide for an intercolumnation between brick pillars of this size, no matter how the construction bearing the roof continued further up. Halfway between the two structures that can certainly be interpreted as pillar foundations, remnants of a similar structure were unearthed in area 7, however heavily disturbed by foundations of the Qajar period. If this can be reconstructed as another pillar foundation belonging to the same structure, an intercolumnation of less than 3 m inner width, or 4 m between the axes, would have resulted. This appears quite narrow, but not impossible. Finally, the front of a structure that clearly resembles the pillar foundations became visible 12 m further north-east in area 6. If a regular spacing of grid points is assumed between these rows of foundations, it results in the same distance of 4 m between the axes.



Fig. 11 Area 1, view from NW, showing foundations of a hypostyle building. The pillar of the Saljuq dome hall rests partly on the older foundation (2007).

As an overall conclusion from the evidence from these remnants, it can be postulated that a hypostyle hall of brick pillars was standing in those parts of the present mosque extending from the interior of the Saljuq dome hall to the south-eastern exterior wall. How far it extended in any of the four directions cannot be said with certainty. However, it seems clear that it did not go beyond the *qibla* wall of the present mosque, not the least because there is convincing evidence of this area being used as a cemetery during the 20<sup>th</sup> century. No traces of a pre-Saljuq *qibla* wall were visible in area 8, but this may just be due to the fact that the construction trenches of the Saljuq dome hall were too deep and too wide to spare any remnants apart from the old minaret. On the other hand, the reports on pillar foundations that were noted in the eastern corner of the present mosque (as mentioned above) would agree with the proposed existence of a large hypostyle mosque prior to the construction of the Saljuq dome hall. Part of the hypostyle hall would have been razed for the construction of the dome hall. The other parts might have survived, intact or in ruin, until the Qajar period. At least, the use of a number of wedge-shaped bricks in the foundations of the Qajar pillars, as visible in area 7, indicates that this material was still available when the rebuilding of the lateral halls began in the early 19<sup>th</sup> century.



### *The question of the īwān*

The lateral walls which extend from the dome hall towards the courtyard façade can be securely dated to the Qajar period according to their fabric and architectural forms. Their exact purpose seems unclear, while the arrangement appears similar to that of walls supporting an *īwān* vault. Area 6 extended into the arched opening in the eastern “*īwān*” wall. Here, the foundations of the Qajar brick wall apparently rest on a layer of compressed, fine clay, c. 50 cm below the present floor. Underneath, more layers of brick appeared, in which all of the pieces were laid very carefully in six levels on a bedding of rubble. Characteristically, all of the brick pieces were fragments. These “foundations” continue through the space of the arched opening in the wall above. Laterally, they are limited by a row of bricks in vertical position, abutting against the pillar foundation mentioned above.



Fig. 12 Area 6, view from S. Six layers of brick form a ‘foundation’ that extends to the open space between the Qajar parts of the *īwān* wall. Adjacent to the right, foundations probably belonging to a pre-Saljuq pillar are visible.

There is no compelling conclusion from this evidence. However, one possible interpretation would be that the layers of brick fragments were indeed meant to serve as foundations. The Qajar period walls might just follow the line of earlier walls. That these walls were built later than the pre-Saljuq pillar foundations, and also later than the Saljuq dome hall, is indicated by the joints visible in areas 2 and 7. The questions remains what purpose these walls could have served, if they were too weak and too distant from their counterpart to have been part of a vaulted *īwān*. A possible answer might be seen in an *īwān* with a flat wooden roof on two rows of wooden columns, similar in shape to the present steel construction.

*Summary*

The architectural survey and the archaeological soundings in the Great Mosque of Golpaygan have brought substantial evidence for a revised and more detailed structural history of this mosque. It is now clear that the Saljuq dome chamber was built into an existing hypostyle mosque, whose parts were demolished. This is an exact parallel to the case of Isfahan thirty years earlier. A similar situation has been proved for the Great Mosque of Ardistān.<sup>7</sup> It seems that an *īwān* in front of the dome hall was also intended, but was only added later. If the *īwān* was ever roofed, this could only have been effected with a wooden construction. Substantial remnants of the pre-Saljuq hypostyle building were still in place and could be used as a source of bricks when the Qajar period halls were constructed in about 1835. The Saljuq dome chamber was therefore most certainly not conceived as a freestanding building, but as a splendidly decorated *maqṣūra*, crowning the central part of the mosque with a dome. In another study, it has been delineated to what detail the interior decoration of this dome hall has been preserved.<sup>8</sup> The rich epigraphic decoration yields additional information on the position taken by the patron of the building in the politico-religious debates that were ongoing during the Saljuq period.<sup>9</sup> Further studies of Saljuq domed mosques should involve an exact documentation of elevations that would allow further conclusions on the mode of construction. It might then be possible to say more about the way in which interior design of the domed spaces was actually planned.

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<sup>7</sup> Cf. Šīrāzī 1980.

<sup>8</sup> Cf. Korn 2012a.

<sup>9</sup> Cf. Korn 2012b.

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