

AC 2009-1701: MODERN AND TRADITIONAL ARCHITECTURE EDUCATION IN HERAT

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Modern and Traditional Architectural Education in Herat

Abstract

The people of Herat in Western Afghanistan had better civil infrastructure 500 years ago during the Timurids Dynasty than they do today. Whatever of architectural value is left in Herat is a reminder of the splendid Timurid period. The war of occupation by the Russians and the ensuing civil war damaged or destroyed whatever was left of an architectural style particular to Herat. Migration to and from neighboring countries during the war years has brought a hodgepodge of architectural styles from the neighboring countries which do not blend with the environment. Within one area of Herat, one can see examples of Roman and Iranian architecture, in addition to Pakistani-style buildings. For some buildings, it is impossible to tell what, if any, architectural style is followed.

Recently, there have been efforts to try to revive the original architecture of Herat by restoring historic buildings. This has been done with assistance from the Agha Khan Cultural Foundation and local authorities. In addition, through a grant from the World Bank to the Ministry of Higher Education, Government of the Islamic Republic of Afghanistan, Herat University in collaboration with the University of Hartford is working on a curriculum to introduce formal Architectural Engineering Education at Herat University.

This paper will present a brief history of Architecture in Herat followed by a discussion of the current situation. It will present the latest in curriculum development for an Architectural Engineering program at Herat University and the integration of traditional architecture into the curriculum, and finally will conclude with recommendations as how to reinvigorate traditional Herat architecture in the design of modern buildings.

Herat

Introduction

Herat, a city in western Afghanistan, represents some of the world's most spectacular medieval Islamic Architecture. Herat is situated just north of and in the fertile valley of Hari Rud (River).

Herat history goes back more than 2,000 years. The city has been a center of learning and religion, located on the trade routes and the seat of different rulers in different periods. It is generally known as Haraiva (Haroiva in Avesta and Areia or Aria in Greek) of the ancient civilization in the valley of Hari Rud which included today's Herat. Before Alexander's attack, its capital was called Artakoana but then it was destroyed by Alexander's army and most of its people were killed. Alexander laid the foundation of a new city in the same valley of Hari Rud, naming it Alexandria Areia. Alexander's troops built a fortress around the city, whose remains still dominate the city. Haraiva was conquered by the Arab Muslims around 650 B.C. (1).

Five hundred years ago, although there was no civil infrastructure such as electricity, water supply system, or highways in this ancient city, Heratis were living in much better conditions

and were more satisfied with their lives then than they are now. The “then” referred to is the era of the Timurids Dynasty in Herat, which can be summed up as the best period in Herat’s history. In fact, whatever is left as the magnificence and glory of Herat is the inheritance of that period. The remains of this glorious civilization, proof of which was their magnificent architecture, was destroyed during the wars starting in 1978. Everything was affected so completely during those years that we can say that no specific architectural style remains in Herat. Not only the building materials but also the appearance and structural plans have been totally changed.

The reason for Heratis’ better lives at the time of the Timurids was not that they had better facilities overall, but that they had facilities that were in proportion to the environment, and to the building equipment and materials available. The question comes to mind that if the climatic and geophysical conditions in Herat are almost the same as before, then why are the architectural styles and building materials so totally changed? Why were people very comfortable in their ancient residential houses, even though they had fewer facilities than now? The answer is that construction of buildings, like other civil facilities, was proportioned according to the climatic conditions, building materials available and provided appropriate features such as ventilation, pools, basements, and underground water tanks.

Architectural Background of Herat

The salient feature of architecture in Herat is its Islamic flavor, which flourished during the reign



of Ghoris, Kerts and Timurids dynasties. Most of the architectural remains in Herat belong to these periods and one can even say that the architecture in the Timurids period has been accepted as a distinct architectural style in Islamic architecture. After the expansion of Islam, many different architectural styles of different countries spread into the Islamic world and created the great architectural styles that characterized Herat’s architectural past. Thus, Islamic architecture is influenced by Roman, Byzantine and Central Asian architecture.

There is no evidence of a distinct architectural style in Herat before the Ghoris and the Timurids. Most of the architectural remains in Herat belong to the Timurids, Kerts and Ghoris periods. Two khanqas (a center of social and religious life of the Sufis) in Chisht and Masjed Jami (Figure 1) built by Ghiasuddin Ghauri are the oldest traces of Ghori Empire in Herat.

Figure 1: Masjed Jami, Ghoris



Figure 2: Qilla Ikhtiaruddin, Al-i- Kert

Al-i- Kerts Empire also contributed to Herat's architecture; Qilla Ikhtiaruddin (Figure 2) is a good example. This massive castle stands in the center of Herat City. During the Timurids period, Shahrukh Khan built his castle in Qilla Ikhtiaruddin, a complex of museum Pai Hesar, hamams (baths) and the fort called Bala Hesar. These structures have a remarkable resemblance to those in Greece and Rome, especially the paintings on the walls, which might be influenced by the frescoes in Greek architecture (4).

By far, most of the architectural remains belong to the Timurids Empire. The Timurids were skilled artisans; they learned poetry, mosaic design, painting and architecture from different countries. They built, reconstructed, and renovated many buildings in Herat. During the Timurids Empire, Shahrukh, Taimor's son, Gohar Shad, his wife and Hussain Bayeqra, turned Herat into a magnificent city. Though wars have destroyed much of Herat's architectural history, what is left is still very impressive.

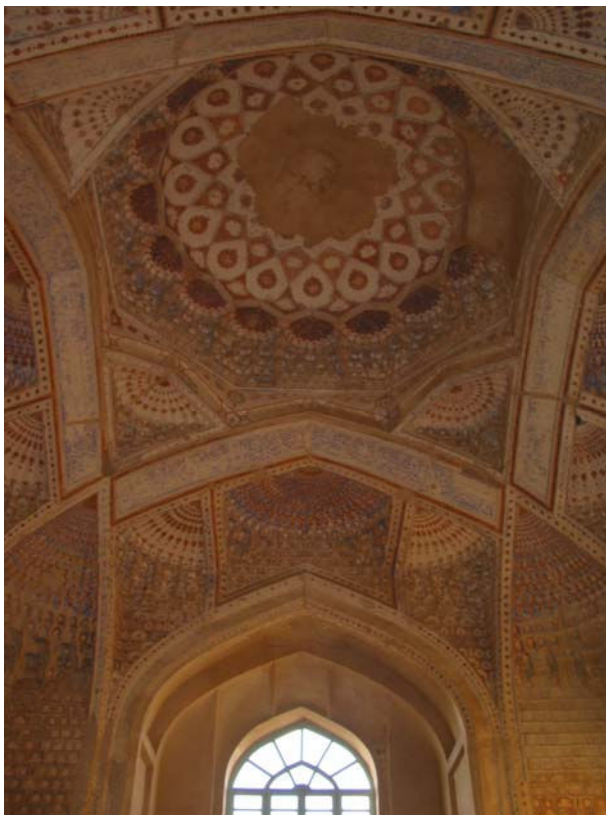


Figure 3: Gohar Shad Begum's Mausoleum

Among these buildings is the Musallah or complex of Gohar Shad Begum Mausoleum, which houses a mosque and a school. The Musallah used to have a 10m-high perimeter wall with twenty-four minarets in between, each one of 30m height. In the mausoleum of Gohar Shad (Figure 3) the ribbed dome is adorned with azure, green, white and yellow tiles, using an elegant geometric design in the Islamic tradition. (3)

The most magnificent and impressive signs of Islamic architecture are the five minarets in Herat (Figure 4). There used to be seven minarets, three inside and four outside of the Musallah built by Sultan Hussain Bayeqra. One of the minarets inside Musallah still stands; however, it is now reinforced with cables to keep it from leaning. The remaining two

collapsed in an earthquake. Gazar gah is another very



Figure 4: The Minarets of Herat, Timurids

impressive work of the Timurids. This is the place where Khaja Abdullah Ansar, a great poet and saint, was buried. But it was rebuilt by the Timurids in their style with colorful tiles and Chinese patterns. Takht Safar, which is not far from Gazar gah, is also a sign of glorious Afghan architecture, and includes a complex of gardens, trees, canals and fountains. During the Timurids period Masjid Jami also was renovated by Shahrukh Khan and Sultan Hussain Bayeqra in a very beautiful style (3), especially

the marble floor and the ornate mosaic work.

Brick structures with arched entrances, tiles, mosaic, plaster carving, and domed roofs are important features of the historic architecture in Herat.

Current Architectural Style, Influence of Neighboring Countries on Afghanistan

As a result of many years of war in the country, Afghans migrated to neighboring countries in large numbers. Upon their return, they brought with them different architectural styles from those countries. Iranian and Pakistani styles (Figure 5) are the more prominent ones. As a result, the city looks like a hodgepodge of buildings with no clear or distinct architectural style.

In order to revive the indigenous architecture in Herat, a number of activities are currently in the works. Agha Khan Trust with the financial support of UNESCO is following a plan to preserve the old city. As a result the Rehabilitation and Reconstruction Commission has been established with the mission of preserving the historical monuments.

Enforcing codes and standards will go a long way in preventing construction that violates the general setting of an urban environment.

Progress in Architecture Education

The main reason for the unregulated architectural influence from the neighboring countries is the lack of trained indigenous architects in Afghanistan, especially in Herat. The Faculty of Engineering at Herat University offers only one field of study at this time, civil engineering. Since its establishment in 1995, it has graduated 440 students in the civil engineering field.

Herat University, in partnership with the University of Hartford, has undertaken a program under which not only will the civil engineering major at Herat University be strengthened, but two new majors will also be established. One of the majors will be architecture. A proposed curriculum for the major is presented below. The first year will be a common year for both civil engineering and architecture majors, who will branch out at the end of the first year into architecture-specific courses (4). They will take a typical architecture course series consisting of sciences, engineering, studio design, and history. Efforts will be made to incorporate study of indigenous architecture styles in the design studio and the history courses.

Initially, faculty will be drawn from a pool whose members have a bachelor's degree in civil engineering. They will have additional training in the architecture field. Two faculty members from Herat University are currently undergoing training at the University of Hartford. They are pursuing their master's degrees in the civil engineering field, with an additional year of course work in architecture. Similarly two additional faculty members are being trained in the Republic of Slovak. Upon their return to Herat, there will be good team to start the program.



Figure 5: A recently built house in Herat

**FRESHMAN YEAR
FIRST SEMESTER**

IS 101	Islamic Studies	1
M 144	Calculus I	4
ES 220	Technical Drawing I	3
ES 141	Intro to Engineering	4
ENG 110	English I	4
HIS 110	History of Afghanistan	1
	Total:	17

**SOPHOMORE YEAR
THIRD SEMESTER**

IS 201	Islamic Studies	1
	History Of Architecture I	4
M 240	Calculus III (Calculus of several Variables)	4
PHY 113	Physics II	4
ENG 112	English III	3
ES 110	Engineering Mech. I (Statics)	3
	Total:	19

**JUNIOR YEAR
FIFTH SEMESTER**

IS 301	Islamic Studies	1
	Architectural Design II	4
CE 310	Structural Analysis	4
	Mechanical/Electrical Plumb System	4
	Technical Elective	3
CE 350	Surveying I	3
	Total:	19

SECOND SEMESTER

IS 102	Islamic Studies	1
M 145	Calculus II	4
ES 115	Computer Programming	3
PHY 112	Physics I	4
ENG 111	English II	3
ES 222	Technical Drawing II	3
	Total:	18

FOURTH SEMESTER

IS 202	Islamic Studies	1
	Architectural Design I	4
M 242	Differential Equations	3
	History of Architecture II	3
	Arch. Rendering/Models/Sketching	4
ES 212	Strength of Materials	4
	Total:	19

SIXTH SEMESTER

IS 302	Islamic Studies	1
	Architectural Design III	4
CE 310	Concrete I	4
	Urban Planning I	3
CE 312	Steel Design	3
	Landscape	3
	Total:	18

**SENIOR YEAR
SEVENTH SEMESTER**

IS 401	Islamic Studies	1
CE 410	Concrete II	4
	Technical Electives	3
	Architectural Design IV	4
	Technical Elective	3
	Urban Planning II	3
	Total:	18

EIGHTH SEMESTER

IS 402	Islamic Studies	1
	Architectural Design V	4
	Non Technical Elective	3
	Construction Documents	4
	Technical Elective	3
	Arch. Design Project	4
	Total:	19

Acknowledgment

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Bibliography

1. Herat, www.wikipedia.com
2. (2007) Keshawarz, M.S., Andar, Mohammad, and Maria Beebe, “*Civil Engineering Education in Afghanistan*” Proceedings of the 2007 Annual Meeting of the American Society of Engineering Education, June, Honolulu, Hawaii
3. (2006) *Frontline, India’s National Magazine* 23:22 (04-17 November).
4. (1981) Samizay, R. “*Islamic Architecture in Herat*”, Ministry of Information and Culture, Government of Afghanistan, pp 6-9