# Styles of Madrasas in the Registan Square in Samarkand during $(9^{th}$ - $11^{th}$ A.H / $15^{th}$ - $17^{th}$ A.D) centuries

# An Archaeological & Architectural study

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#### **Abstract**

Registan Square is regarded as one of the most beautiful remains of the Timurid State and its rulers who succeeded in the city. Prince Timur (771 - 807 AH / 1369 - 1405 AD) established it as a complex for Madrasas to spread science and culture and elevate the standard of people in the city, after being merely a wide space where people gathered to listen to royal statements and witness the implementation of public judgments. Although Samarkand includes a number of Madrasas that are considered educational institutions in addition to being unique historical architectural monuments, there is little left of these Madrasas. Such few remains are a model of the architectural styles of Madrasas in Central Asia, which is the dominant Ionian style in the region. Although these Madrasas were designed according to the Ionian style prevailing in the architecture of Islamic Madrasas in general, they were treated in a special local way, granting them a distinct architectural and artistic trait, not only in Central Asia, but also in the architecture of Islamic Madrasas as a whole.

Registan became the central square of Samarkand in the (9<sup>th</sup> AH /15<sup>th</sup> AD) century. A square was used as commercial and craft center and Ulugh Beg made it spiritual center. Ulugh Beg constructed a majestic madrasa and Sufi Khanka with a huge dome. By the (11<sup>th</sup> AH / 17<sup>th</sup> AD) century old buildings of Registan had been in collapse and the governor of Samarkand Yilnkush Bahadur built Sherdor Madrasa instead of Ulugh Beg 's Khanka and later Tilla Carrey Madrasa.

# **Keywords:**

Samarkand, Registan, Madrasa, Entrance, mihrab

#### الملخص

يعد ميدان الريكستان واحدا من أجمل ما خلفته لنا الدولة التيمورية وحكامها الذين تعاقبوا على المدينة حيث قام بإنشائها الأمير تيمور (771 - 807 هـ / 1369 – 1405 م) لتكون مجمعا للمدارس لنشر العلوم والثقافة والأرتقاء بأهل المدينة، بعد أن كانت مجرد ساحة واسعة يتجمع فيها الناس لسماع البيانات الملكية ومشاهدة تنفيذ الأحكام العلنية، وعلى الرغم من اشتمال مدينة سمر قندعلى العديد من المدارس التي تعد مؤسسات للتعليم إلى جانب كونها آثاراً معمارية تاريخية فريدة إلا أنه لم يتبق من هذه المدارس سوى القليل والتي تعد بدورها نموذج من الطرز المعمارية للمدارس في آسيا الوسطى وهو الطراز الإيواني السائد في المنطقة، على الرغم أن هذه المدارس قد صممت وفق الطراز الإيواني الغالب على عمارة المدارس الإسلامية بصفة عامة ، إلا أنها عولجت بطريقة محلية خاصة مما أكسبها طابعاً معمارياً وفنياً متميزاً ليس فقط في آسيا الوسطى بل في عمارة المدارس الإسلامية عامة، لقد أصبح ميدان الريكستان هو الساحة المركزية لسمرقند في القرن (9 هـ / 15م)، حيث تم استخدام الساحة كمركز تجارى وحرفي وجعلها "ألغ بك" مركزًا دينيًا، حيث شيد أولغ بك مدرسة ضخمة وخانقاة صوفية تم استخدام الساحة كمركز تجارى وحرفي وجعلها "ألغ بك" مركزًا دينيًا، حيث شيد أولغ بك مدرسة ضخمة وخانقاة صوفية تم استخدام الساحة كمركز تجارى وحرفي وجعلها "ألغ بك" مركزًا دينيًا، حيث شيد أولغ بك مدرسة ضخمة وخانقاة صوفية تم استخدام الساحة كمركز تجارى وحرفي وجعلها "ألغ بك" مركزًا دينيًا، حيث شيد أولغ بك مدرسة ضخمة وخانقاة صوفية

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بقبة ضخمة، وبحلول القرن (11هـ/ 17م) كانت المباني القديمة في ميدان الريكستان قد تهدمت فقام حاكم سمر قند "يلنگوش بهادر" ببناء مدرسة شير دار بدلاً من خانقاة "ألغ بك" و لاحقًا مدرسة "تيلا گاري".

# الكلمات الدالة:

سمر قند \_ الريگستان \_ مدر سة \_ المدخل \_ محر اب

#### 1. Introduction

Registan Square (Plate 1)<sup>(1)</sup> is regarded as one of the most significant historical and architectural sites remaining in Central Asia[1] in general and in Samarkand [2-3] in particular. This area was called "the sandy land" after the expansive sand that cut across its buildings, and was built during the rule of the Timurids [4-5-6] and the Shaybani [7-8]. The first to one build in it was Ulugh Beg in (811-852 AH/1409-1449 AD), establishing a Madrasa that has been bearing his name (811-822 AH / 1417-1420 AD), in addition to a caravan serai and Khanqah in the same period during which he established his Madrasa.

At the beginning of the (11<sup>th</sup> AH / 17<sup>th</sup> AD) century, and during the reign of Yilnkush Bahadur [9], his chief engineer Abd al-Jabbar ordered the reestablishment in the same place where the caravan serai and Khanqah were built, changing their function to be replaced with the Sherdor Madrasa in (1029-1042 AH /1619-1632 AD) [10], and Tilla- Kari Madrasa in (1051-1052 AH /1641-1642 AD). This change and reconstruction was not different from the design of other buildings, for the basic units of the Madrasa are the same as those of the caravan serai and Khanqah, where all facilities are concerned with accommodating students, Sufis, merchants, or travelers. Then the unified style comes to unite all these buildings [11].



- Plate 1: Registan Square in Samarkand

### 2. MIRZA ULUGH BEG MADRASA

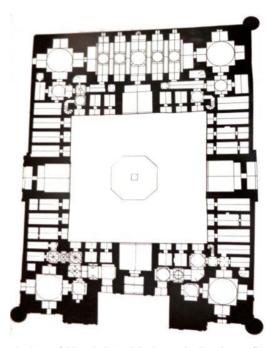
The Madrasa [12] is located in the western side of Registan Square facing the Sherdor Madrasa after Mirza Ulugh Beg bin Shah Rukh bin Amir Timur ordered its construction in (820 AH / 1417 AD), and it was completed in (823 AH / 1420 AD [13-14-15] (Plate 2).



- Plate 2: Ulugh Bek Madrasa in Registan Square in Samarkand [16]

#### 2.1 Architectural planning (Plate 3)

The Madrasa consists of a central open courtyard surrounded by four Iwans knotted with pointed arches, with an Iwan on each side, the deepest and largest of which is the western Iwan; the Qibla Iwan. The Iwans enclose the students 'dormitory rooms on two floors consisting of fifty rooms, in each of which two students live and overlook the courtyard, they are rectangular rooms knotted with pointed arches. Behind the main Iwan is a rectangular mosque that extends from north to south, consisting of two aisles, the arches of which run parallel to the prayer niche(mihrab) wall in the middle of the western wall of the Qibla. Each corner of the Madrasa includes a dars khana on the inside, which is a middle chamber surrounded by four flaps (a small Iwan) with a flap on each of its sides, and each of them is covered by a pointed dome with lobes hanging on a cylindrical neck [17] (Plate 4).



-Plate 3: The horizontal plan of Ulugh Bek Madrasa in Registan Square in Samarkand [18]



- Plate 4: The main Iwan and entrances to the courtyard of Ulugh Bek Madrasa

#### 2.2. External façades (Plate 5)

The Madrasa has four facades, the most important of which is the main north-eastern façade overlooking Registan Square, and it is divided into three sections, The middle part represents the main entrance (pichtak) flanked by two engaged columns, in the middle of this block, there is a rectangular stone knotted with a pointed arch. The soffit of this arch is decorated with two engaged polygonal columns in a spiral shape, each column has a marble base at the bottom of each side of the arch, the other two sections of the main façade have in the middle of each of them a rectangular entry knotted with a pointed arch, and in the middle there is a rectangular door surmounted by a rectangular window, knotted with a pointed arch, with a plaster veil hollowed out with geometric shapes, each door opening leading to the dars khana, The façades of the Madrasa, the main entrance and the side entrances are decorated with tiles and ceramic mosaics with floral and geometric motifs and inscriptions in various shapes and contents.

The corners of the façades of the Madrasa are supported by four conical minarets that rise up and end in a bell shape supported by several rows of stalactites. In both corners of the main façade, a cylindrical minaret had a top in the form of a balcony, carried on three levels of stalactites, but the balcony is now destroyed. The two minarets were covered from the bottom with marble panels topped with ceramic coverings that formed floral motifs, geometric shapes and inscriptions, where the body of each minaret was decorated with inscriptions in square Kufic script [19].



- Plate 5: The main façade of Ulugh Bek Madrasa in Registan Square

#### 2.3. Dars Khana

The Ulugh Beg Madrasa includes four rooms for study, with a room in each corner of the Madrasa, and the teaching khan is a square area in the middle of each there is a rectangular entrance that appears to have been knotted with a pointed arch, in which the stalactites that were used to fill its interior still remain, in the middle of each side from the bottom, there is a rectangular entrance. The south western entrance is solid and the teacher sits in it, the north-eastern entrance has a door opening leading to the students' cells, and the north western entrance is in the middle of the door leading to the mosque. As for the south eastern entrance, it had a door leading outside the Madrasa, but it is blocked right now. The ceiling of the dars khana is demolished and is currently covered by a wooden ceiling resting on a column in the middle of the room, and it seems that it was covered by a pointed dome erected on an octagonal base [19].

#### 3. SHERDOR MADRASA

The Sherdor Madrasa (Plates 6,7) is located in Registan Square in front of Ulugh Beg Madrasa. Its name means the gate of the lion, which comes from the pattern of lion that appears on the spandrels of the arches of the main façade. The establishment of it was ordered by Prince "Yilnkush Bahadur", the governor of the city of Samarkand during the reign of Imam Quli Khan (1020-1050 AH / 1611-1640 AD) by the chief architect of Samarkand, known as "Abdul-Jabbar", while the decorative design was developed by Professor Muhammad Abbas. This Madrasa replaced the convent (Khanaqah) of Mirza Ulugh Beg, as the construction began in (1029 AH / 1619 AD) and was completed in (1042 AH - 1632 AD) [20-21].



-Plate 6: Sherdor Madrasa in Registan Square in Samarkand

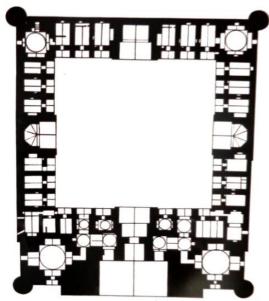


-Plate 7: The minaret and dome at the right corner of the main façade of Sherdor Madrasa

# **3.1.** Architectural planning (Plate 8)

The general plan of the Madrasa [22] consists of a central open courtyard surrounded by four Iwans with pointed arches that open their full width to the courtyard, which are wider and higher than the rest of the other arches surrounding the courtyard. The western Iwan (the qibla Iwan)

is considered the most important Iwan, which has the prayer niche (mihrab) in its middle, in a shape of a rectangle knotted with a pointed arch. The Iwans enclose the student's cells, which are divided into two floors. These cells are rectangular with pointed arches that open onto the courtyard by arches that are smaller and wider than the arches of the central Iwans. In each side of the Madrasa, there are six rectangular identical cells. Therefore, the whole number of the school cells is forty-eight cells. Subsequently, the Madrasa as a whole follows the prevailing plan type of four Iwans and a group of identical student cells [23] (Plate 9).



-plate 8: The horizontal plan of Sherdor Madrasa in Registan Square in Samarkand [24]



- Plate 9: The courtyard, the main Iwans of the Sherdor Madrasa

#### 3.2. External façades (Plate 10)

The Madrasa has four façades, the most important of which is the main façade, in the center of which is the main entrance. The spandrel is adorned with a pictorial scene that represents a golden lion chasing deer, and in the middle of the lion's body is the top of the sun disk in the form of a human face on a floor of various floral motifs. The entrance is flanked by two ribbed domes, each dome resting on a high cylindrical neck.

The four façades are interspersed with a group of arched rectangular openings for windows or entrances overlooking the students' dormitories. The corners of the Madrasa's façades are supported by four conical minarets that taper as one rises upwards, and end in a bell-shaped form supported by several rows of muqarnas [25].



- Plate 10: Pictorial view on one of the two arches of the main façade of Sherdor Madrasa [16]

#### 4. TILLA CARREY MADRASA

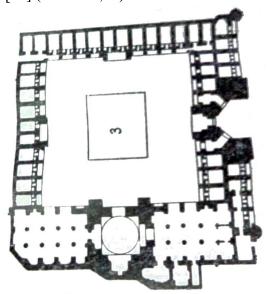
This Madrasa (Plate 11) is considered the third of the Registan Square buildings in Samarkand, as it is located at its northern side. It was called Tilla Carrey, meaning "the gold-plated Madrasa", it was named after its golden dome. It was established by Prince "Yilnkush Bahadur", governor of Samarkand. Construction took only one year from (1051 AH / 1641AD) until (1052 A.H / 1642 AD), while the decorative work continued for nineteen years, in which it was completed in (1071 AH / 1660 AD). The Madrasa site was occupied by "caravan serai" [26-27], which was built by Mirza Ulugh Beg while he was establishing the madrasa and the convent (khanqah) opposite to it, in order to cover their expenses through the income of the caravan serai [28].



- Plate 11: Tilla Carrey Madrasa in Registan Square in Samarkand

### 4.1. Architectural planning (Plate 12)

The Madrasa (Plate 13) consists of a central open courtyard surrounded by four Iwans knotted with pointed arches. The Iwans lead to the students' dormitory rooms on one floor, unlike Ulugh Beg and Sherdor Madrasa. The western side opens onto the courtyard through nine entrances with pointed arches, then the highest and widest point of which is the middle entrance that represents the rectangular Iwan. Its center is occupied with an entrance knotted with a pointed arch leading to a square horizontal hall, the center of which is filled with a rectangular entrance in which the mihrab block is situated. This hall is covered by a huge dome with a pointed sector. The middle hall and the mihrab in the middle of the western wall, as well as the dome covering it, are plated with gold and lapis lazuli. Thus, this Madrasa was named the gilded Madrasa, reflecting the state of this hall and its decorative elements coated in gold. The previous hall is surrounded by three corridors covered with 15 shallow domes where the arches of which extend parallel to the mihrab wall [11] (Plates 14,15).



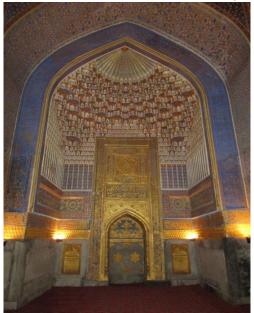
-Plate 12: The horizontal plan of Tilla Carrey Madrasa in Registan Square in Samarkand [24]



-Plate 13: The courtyard and main Iwans of Tilla Carrey Madrasa



-Plate 14: The western main Iwan of Tilla Carrey Madrasa



-Plate 15: The middle hall and the mihrab centered in the west wall plated with gold and lapis lazuli in Tilla Carrey Madrasa

#### 4.2. External façades

The southern façade is the main one, in the center of which is the main entrance block to the Madrasa. It is surrounded by a group of rectangular entrances with pointed arches on one floor. The two sides of the façade are occupied by two minarets, in which each minaret consists of a circular tower covered by a small dome with a pointed sector. The façade and its architectural elements are covered with tiles and ceramic mosaics with floral motifs and various inscriptions. The other three façades are less significant than the southern façade, despite being covered with tiles and ceramic mosaics as well, while the western façade extends to the middle, where an external pillar containing the mihrab block protrudes from it. The internal chamber of this three-sided horizontal pillar occupies the mihrab [25].

#### 5. ANALYTICAL STUDY

#### **5.1. Plan**

The Central Asian Madrasas under study appear to have a horizontal plan consisting of a central open courtyard surrounded by four Iwans, surrounded by students' dormitories (Kufri) from all sides. An architecturally-oriented mosque to be directed towards the qibla may be annexed to the general plan of the school, as seen in Ulugh Beg Madrasa behind the main Iwan of the Madrasa, reached through a door opening in the middle of the qibla Iwan in the form of a rectangular space of two corridors with arches parallel to the mihrab wall. In Sherdor Madrasa, it came to the right of those entering the Madrasa, in the form of a horizontal hall covered with a dome on which four flaps opened (small Iwan). On the other hand, the Tilla Carrey Madrasa differs from these Madrasas in that there is no mosque surrounds the entrance hall, for this Madrasa functioned as a mosque and a Madrasa together, in which the void spaces to the right and left of the qibla Iwan were planned on the western side of the school in the form of a canopy consisting of three corridors parallel to the mihrab wall[11].

The plan of the courtyard and the four Iwans is one of the plans that were common since the period of the Timurid period and the later periods until the period of the Mughal rule, where we find several examples of it in the main cities of Central Asia, including, for example: Ulugh Beg Madrasa (820-823 AH / 1417-1420 AD), Mir Arab Madrasa (942-946 AH / 1535-1539 AD), Abdullah Khan Madrasa (997 - 990 AH / 1588 - 1590 AD), Madhuri Khan Madrasa (951 - 954 AH / 1544 - 1547 AD), Abdul Aziz Khan Madrasa (1062 - 1063 AH / 1651 - 1652 AD), Sherdor Madrasa (1029 – 1042 AH / 1619 - 1632 AD), Tilla Kari Madrasa in Samarkand (1051-1071 AH / 1641-1660 AD), Muhammad Amin Khan Madrasa in Khiva (1268-1269 AH / 1852-1853 AD).

The horizontal plan of these Madrasas is a middle open courtyard with four corners beveled, and occupied by a group of student cells. The four sides of the courtyard with two Iwans on each side. They are the southwestern Iwan (the qibla Iwan and representing the main Iwan), and the northeastern Iwan (the opposite Iwan, or the entrance Iwan). And the two Iwans on the two sides are the northwest and southeast, and the rest of the courtyard's sides we find the student cells, where the Iwans and student cells overlooking the courtyard through a doorway with a pointed arch.

These Madrasas also are distinguished by the fact that an architectural complex is attached to them, as there are two halls at both ends of the entrance to the main façade in Central Asian Madrasas. On the left of the interior, we reach these two halls, as these halls were used as a

mosque on the right of the interior, as we see in Abdullah Khan Madrasa (990-997 AH / 1588-1590 AD), Abdul Aziz Khan Madrasa (1062-1073 AH / 1651-1652 AD) in Bukhara, Sherdor Madrasa (1029-1046 AH / 1619 - 1636 AD) in Samarkand.

We also found some attachments at the two ends of the southwestern Iwan , which includes the main Iwan ( the qibla Iwan) represented in classrooms, as we see in Madhuri Madrasa (  $951-954\ AH/1544-1547\ AD$ ) in Bukhara, which includes two large halls , each of which includes four Iwans , one of which was used as a winter mosque and the other is a classroom .At both ends of the southwestern side of Tilla Kari Madrasah (  $1051-1071\ AH/1641-1660\ AD$ ) in Samarkand there are two mosques, each mosque is an area with a rectangular plan divided into three riwaqs through two arcades that are covered with a group of shallow domes [29].

The Madrasas of Registan Square, especially Sherdor Madrasa (1029-1046~AH~/~1619-1636~AD) , and Tilla Kari Madrasa (the gilded ) ( 1056-1071~AH~/~1646-1660~AD) were distinguished by what is known as the opposite or confronted Madrasas (Qosh Madrasah), where in Bukhara there are at least two among the Madrasas with this name is Qosh Madrasah ,and under this name was mentioned Ulugh Beg Madrasa ( 820-823~AH~/~1417-1420~AD), and Abdul Aziz Khan Madrasa ( 1062-1063~AH~/~1651-1652~AD), which are located in the center of the city of Bukhara , and the other two Madrasas are Abdullah Khan (990-997~AH~/~1588-1590~AD), Madhuri Khan Madrasa (951-954~AH~/~1544-1547~AD)also located in Bukhara . The existence of these dual or doubled Madrasas is due to the fact that they were built during two different time stages from the date of foundation [30].

#### 5.2 Covering style and transition zones

The coverage of the mosques surrounding the Madrasas under study was characterized by the use of domes and vaults, where the central square areas were covered with huge Samarkand domes with shells whose height and diameter differ from one mosque to another, from the inside starting from circling by the arch of the neck while starting from the outside on a large area of the afore mentioned window lintel, which came with the intention of relieving pressure, therefore, these domes are characterized as double-built domes, an internal dome with semi-circular section and based on a medium neck , and an external dome with a pointed sector based on the neck extended in height ,so that it begins in the middle of the windows, while the rectangular spaces were covered with shallow vaults , the transition zone of both the domes and vaults came as spherical and triangles and Turkish.

This planning was used in the design of mosques attached to Madrasas, including the mosque attached to Murjaniya Madrasa in Baghdad (728 A.H / 1356 AD), the mosque attached to Al-Ashrafia Madrasa in Taiz in Yemen (800-803 AH / 1397 – 1400 AD) , the mosques attached to some Madrasas in Aleppo in Syria, such as Abu Al-Fawares Madrasa in Maarat Al-Nu-man (595 AH / 1198 AD), the Sultanate Madrasa (620 AH / 1223 AD), Al-Ashrafiya Madrasa (640 AH 1 1242 AD), Al-Kamiliya Madrasa dated to the first half of the seventh century A.H, the thirteenth century AD [31].

#### 6.ARCHITECTURAL ELEMENTS AND UNITS

# 6.1. Façades

From an architectural perspective, the main façades were focused on, where the block of the main entrance displayed the most important elements in the façades, as well as the minaret block

and the dome. In the distribution of these units, many elements were added to assert the architect's ability and knowledge of the principles of architecture, even in the minor architectural models. This was evident in the system of the facilities' façades that reflected ability and skill from an architectural perspective by means of external supports used by the architect due to the large extension of the Madrasa's external walls, which appeared in Ulugh Beg, Sherdor and Tilla Carrey Madrasa. The main façades were also divided into a number of deep and shallow entrances, which sometimes occupied a window opening covered with a wooden or plaster veil, as in the students' dormitories overlooking the main façades. These entrances had an important function in reducing the pressure resulting from the large extension of the Madrasa façades. Madrasa façades also contain architectural extensions such as the dars Khana Hall, the mosque, or the students' dormitories (Khu gari).

### **6.2.** The entrance (pichtak)

The plans of the main entrances of the Madrasas under study came with a horizontal, rectangular plan, as in Ulugh Beg and Sherdor Madrasa, or in a pentagon form, as in Tilla Carrey Madrasa. The heights of these Madrasas differed in accordance with each Madrasa's size, height and Iwans height. These entrances were used to reach the Madrasa courtyard indirectly, in which each Madrasa has one main entrance only.

#### **6.3.** Minarets (Guldasta)

The minarets in Madrasas were distinguished by assimilating with the style prevailing in Central Asia, having a circular horizontal plan with a cylindrical shape that tapers as one goes upwards. The hull ends in rows of bell shaped muqarnas (similar to the hats of Central Asian residents). These minarets were built of small bricks, and were used to call for prayer, for lighting, and for monitoring, The minarets were also distinguished by their presence on both sides of the main façade, such as the minarets of Ulugh Beg, Sherdor, Tilla Carrey, in addition to the distinctive decorative style that adorns its body with a group of round bands adorned with floral motifs, geometric shapes and inscriptions carved with brick molds, for example the Calan minaret [32-33] and the Bilkent minaret [9], while some of them were covered with ceramic mosaics [34].

#### 7. AFFECTING FACTORS

The Atmospheric environment played an important role in the plans of Islamic buildings in Central Asia generally and in the city of Samarkand in particular, where the temperature dropped to minus 20 in winter and rose up to 45 in summer , resulting in architectural styles that distinguished them from others, and this was clearly reflected on the plans of Registan Madrasas in the city of Samarkand , where the architect voluntarily worked in the facility to serve the atmospheric environment in making the Madrasa play its role in summer and winter, where the planning made the open court and the Iwans that on it to serve the Madrasa in summer , while the class room and the winter mosque came in the corners of the Madrasa and to the right and left of the interior to serve the Madrasa in winter , not only that , but the architect made the students, rooms not to open directly on the court ,but rather open through entrances with pointed arches that represent a link between the students' rooms and the court , in order to

protect students when they exit from the warm room to the open space directly, which cause the Madrasa's components in Central Asia to be a role model in very cold regions around the world.

#### 8. Discussion

The plans of the Madrasas appeared to be similar, representing an architectural unit with a consistent design, as the architecture depended on symmetry. Also, the reconstruction done by the Shaybani ruler to his Madrasa, in place of Ulugh Beg Khanqah, revealed such influence in the Madrasa façade architecture, as well as in the internal planning, being affected by the location and the selected available space. The architecture of Sherdor Madrasa was also affected, for its architectural units were inspired by Ulugh Beg Madrasa, in terms of the extremely high entrance and the minarets, in addition to the artistic divisions. That is, the Sherdor Madrasa was an exact copy of Ulugh Beg Madrasa, and the Madrasa's location also affected the determination of the best façade to be the main façade, selecting the western one for being opposite to Ulugh Beg Madrasa façade.

The layout of Tilla Carrey Madrasa was also affected by its location in one of the group sides in Registan Square, in the similarity of its layout with that of Ulugh Beg Madrasa. Also, the previous initial function of the facility as caravan serai to making the rooms and shelters the most important architectural units in its formation. The location also had an impact on the Madrasa's architecture and the layout of its external façades for being located along the main street, for the Madrasa's façade became the street's façade as well. Thus, if someone is coming to the center of the square, the extension of the Madrasa façade that occupies the horizontal view is noticed, along with the division of the façade in a group of identical windows that the architect followed as a form of the internal layout of the Madrasa. Thus, the location affected the design of the external façade until it became identical with the layout of the internal façades of the Madrasa on the courtyard, thus differing from the general form of the external façades of Ulugh Beg and Sherdor Madrasa.

# 9. Conclusion

The Madrasas under study assimilate in including four Iwans each, which unites them under the fourth type of Madrasa plans in Central Asia that is the most widespread and suitable for the function of the facility. An architectural style, represented in rinsing the corners of the courtyard, which was used to increase the vacant empty space that was occupied by a group of corner side rooms to increase the Madrasa's capacity for incoming students. The location of the attached mosque differed from one madrasa to another, as it appeared in Ulugh Beg Madrasa behind the main Iwan (the qibla Iwan), while it appeared in Sherdor Madrasa to the right of the entrance of the Madrasa. As for Tilla Carrey Madrasa, the spaces to the right and left of the qibla Iwan were planned in the form of a canopy consisting of three corridors. Diversity in the architecture of the Madrasas under study was found, as Ulugh Beg and Sherdor Madrasa consisted of two floors, while Tilla Carrey Madrasa had only one floor. The main façade represents the main and most important block in the building in its inclusion of the essential architectural elements, such as the main entrance, the minarets, and the domes, in addition to containing important architectural units such as the students' dormitories, the mosque, and the dars Khana.

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