

**MINISTRY OF SECONDARY AND HIGH EDUCATION
OF THE REPUBLIC OF UZBEKISTAN**

**URGENCH STATE UNIVERSITY
NAMED AFTER AL-KHOREZMI**

FACULTY OF “TECHNOLOGY”

DEPARTMENT OF “CONSTRUCTION AND ARCHITECTURE”

EXPLANATION LETTER

ON GRADUATE PROJECT FOR THE DEGREE OF BACHELOR

Theme of Graduation Project: **“Reconstruction of the tomb of Sayyid
Mokhi Rouyi Djakhon”**

Graduate:	Otabaev Makhmud
Chief of Department:	dotc. Rakhmanov.B.S.
Supervisor of Diploma Project	teach. Atamuratov A
Consultants	
1. Architecture	teach. Atamuratov A
2. Structural engineer	dotc. Rakhmanov.B.S.
3. Organization of Construction Technology	teach. Akimov.E
4. Economic Feasibility Assessment	dotc. Sabirov.B.
5. Labor and Environment Safety	proph. Rakhimov. R.
6. Consultant of English language	teach. Rajabov A

Urgench- 2017

URGENCH STATE UNIVERSITY
NAMED AFTER “AL-KHOREZMI” FACULTY OF “TECHNOLOGY”
DEPARTMENT OF “CONSTRUCTION AND ARCHITECTURE”
ASSIGNMENT TO PERFORM GRADUATION PROJECT FOR THE
DEGREE OF BACHELOR

Otabaev Makhmud Kuchkarovich
(full-name of graduate)

1. Theme of Graduation Project “Reconstruction of the tomb of Sayyid Mokhi Rouyi Djakhon”

was confirmed by order number № 205-T of Urgench State University on 12-november 2016 -years

2. References to implement diploma project: *_Site plan to lay purposed building out. Scale: 1:1000, 1:2000, _____*

3. References determined in explanation letter to *(hand-writing manuscript consisted of 70-80 A4 format pages):*

a) Architecture section is consisted of *site plan, master plan, architectural design concept, architectural composition, conclusion.*

b) Structure engineering section *assesses and designs fragments of structural elements of projecting building (separated component), walls, overlap, foundation, stair, beam, column, girder and so on (its volume is defined by assigned adviser)*

c) Organization of Construction technology section *comprises affairs of constructional assembly of purposed-erected building and its construction technology. Guidelines regarding the nomenclature and application of structural installations, work volume, expenditure on labor and mechanism in building site are also involved.*

d) Economic Feasibility Assessment *involves the prominent factors to erect the desired object as seen in the following:*

a) Expenses of salary;

b) Expenses of mechanism and technology used in and out site;

c) Expenses of main construction materials and structural component;

d) as well as the calculation of expenses of requisite equipments and identifying an estimate of total expenditure on construction works. As a result, estimating the economical effectiveness of investment expended to build the object is advisable. Economical feasibility and assessment is to great extent achieved with the assistance of so-called specialized software “Qurqiymatasos” 2005, which was launched in 2005 by “Uzadvarxitekqurilish” 2005.

d) Labour and Environmental Protection section: *Task for labour safety in graduation work should be assigned to student with an emphasis on the location of projecting building, the mode of its function and an exact specific condition of manufacture. In order to complete this section, the factors that should be given more prominence are:*

- An analysis of technical solutions to labor protection and sanitarian – service rooms, fire-extinguishing equipment as well as labor protection in the duration of construction in Legal and Project Documents.

- legal frames of Labor Safety and the provision of safe and healthy working condition and labor.

- regulations of the sanitarina and hygiene on site:

- safety-related matters;
- considerable heed to measures averting fire in construction and solutions to egress from the building while fire occurs.

e) **List of References** analyzes the studied sketches, figures, references, legal documents, scientific articles and external collected resources in detail. Gathered information should be concisely expressed. Graduate is eligible to write the manuscript using the pages of the Internet and personal card index.

f) **Content:** Work order of Graduate Project and Construction have to be demonstrated.

4. List of Courtesy Images of Diploma Project (Either model or four pages in A1 format adhered to 90x80 cm in board required):

a) **Architectural drawings** should illustrate site plan, wind direction, general plan, floor plans, front elevation, left and right elevation, three-dimensional image (perspective), interior design of particularly selected room, section and explication with the volume and square of internal spaces.

b) **Construction drawings** –should consist of the structure and locations of 18 beams (according to the mission assigned by adviser)

5. Assigned consultants on the sections of Graduation Project.

№	Sections of Graduation Project	Start Date	Completion Date	Signature	Full name of consultant
1	Architecture				teach. Atamuratov A
2	Construction				dotc. Rakhmanov.B.S.
3	Organization of Construction Technology				teach. Akimov.E
4	Economic feasibility assessment				dotc. Sabirov.B.
5	Labor and Environmental Protection				proph. Rakhimov. R.
6	Consultant of English language				teach. Rajabov A

Note: In accordance with the proposal of Supervisor of Graduation Work, the department that produces young specialists may invite external consultants on the particular sections of Graduation Work within allocated time limit

6. Assigned time _____

7. Expired time to submit Graduation Project _____

Supervisor: _____ Atamuratov.A
(signature)

Degree Project accepted by _____ M.K.Otabaev.
(signature)

Chief of Department of “Technology” _____ doc. Rakhmanov B.S
(signature)

With confident steps in the path of national development and the achievements of Uzbekistan's independence the example of the people to go into the urban architectural heritage, local conditions, compatibility, simplicity and comfort, is to be the center of attention to a number of aspects, such as the templates of the world optimistically. Achieved independence in 1995, for the first time in history, "architecture and urban planning," Law of the Republic of Uzbekistan.

"We are not people who recently appeared on the world stage. Our nation, our people and the land of ancient Khorezm "Avesta" times in their life, their culture, their history comes to live with. "

President Islam Karimov by history and future generations to reach their disposition to high alert us proud.

President of Uzbekistan Islam Karimov in the field of urban architecture and the construction of the city in the Republic of Uzbekistan "On measures to further improve the" Decree (No. 2000 dated April 26, 2595), the Cabinet of Ministers "in the field of architecture and construction measures to improve the control and organization of work "(April 27, 2000, No. 165)," of cities, district centers and urban-type village development plans and to build on the procedure approval "(August 14, 2000, No. 320)," the observance of the legislation in the field of architecture and urban planning measures to increase the liability of leaders and officials "(August 23, 2000 329-) think the fact that the decisions.

Urban development and implementation of laws and documents related to implementation of the scientists will also participate in scientific research. For example, the Tashkent Architecture and Construction Institute in the department of urban planning and landscape architecture professor. D.Latipov leadership of the country's leading experts shaharsoz ("Uzshaharsozlik LITI", "Toshboshplan" etc.) involved in the case, "O'zbekistonning yangi socio-economic development of shoroitida urban development concept". This is an important program in September 2001, the Cabinet of Ministers of the Republic of Uzbekistan approved by the national board of the prestigious architecture and urban planning.

Daylight map of the soil of Samarkand, Bukhara, Khiva, Shakhrisabz, Kokand, Tashkent and other ancient Navoiy, Zarafshan, Chirchik, Almalyk, such as a new town with pride. If the year 1926 only two shahar- Tashkent and Samarkand in Uzbekistan, but now their number has reached 17. In general, the country's 121 cities and 113 towns and settlements. The progress of the construction of the ancient cities of Uzbekistan, Tashkent city can be seen. The plan for the reconstruction of the city's "old town" and "new towns" are linked by narrow ararva yuruvchiNavoiy street 66 meters across the street, and the expansion of the new three-storey residential houses, a cinema the construction of administrative buildings, parks A. monument has been erected.

Fast Khorezm birthplace of many great events, holiday events and festivals kutlug`, new buildings, constructions witnessing the bitkazilishining land reborn. Ancient Khiva great occasion of the 2,500th anniversary celebrations of Al-Khwarizmi and Abu Raihan Beruni names Urgench International Airport, built on the edge of the gleam of two magnificent buildings, and Park City Turkey Turkey bird species.

The landscaped around the city channel separating the two Shovot "Avesta" erected on the 2,700th anniversary of me`marial Bign? three aspects to attract people's attention to itself. This area, which is very close to him with a binder Jaloladdin Manguberdi uyg`unlashib. Amir Temur in the central part of the main entrance of the binder, reconstructed, modern appearance, which looks. Al-Khwarizmi Hankin, Dashoguz central streets, such as repairs, new looks on. The restoration of the center of the city Uchganch Al-Khwarizmi was built in the boulevard, and the Clock Tower, in which carry a variety of views of the surrounding fountains, a statue erected in honor of the patriarch Al-Khwarizmi installed.

It is given to me based on the information given final qualifying works

Syed Mohi fit the theme of the World monument monument Ichan Kala in Khiva in Khorezm region is one of the architectural complex is part of village preserved architectural ansanbullardan.

"Syed Mohi Habitable World" Tomb lived in this Hive leaders are closely linked with the history of the mausoleum.

Our boradighan work on repair because the current level of underground water rises seen through the walls of the sabavbdan weathering and we bullae; development of measures to prevent Arnie.

Mr. Machir Ruyi World

This complex study of the history of the history of the Master, you need to know who they are. Because, after which the "moss", "Ruyi world," words you can understand immediately. Syed Greetings Mr. Arabic means leading from the descendants of the Prophet Muhammad Prophet honorary titles. The Muslim world, the economy, the flexibility of the words in Muhammad Sayyid cases ishlatiladi. Ayrim as a synonym of the term alayxissalomning Descendants of which Fatima's son-in-law Hazrati Ali Hassan generation tariff, al-Sayyid titles divided into separate generation. Originally from the date on which Arab descent The region is a text, this can be complex, marble and stone inscriptions. So, given to which parents Sayyid Sayyid Ahmad 1344 in Khorezm. His son Sayyid Muhammad which, belonging to the conference area in the north of the Amu Darya Turtkul located on the river and its xonakox towers convey to spring 1887 due to the shells of the Amu Darya river, which threatened to drainage. Master of which the descendants of the Khan of Khiva, Muhammad Rahimhon this vokif the incident, which his remains (bones) Bring to Khiva. "Riad Zakirov," says Syed Muhammad beauty of the influence which the Prophet Joseph and his attendant who died, benixoya beautifully convey to "Machir Ruyi world" (the world more beautiful on earth, moon-faced), which given to Musharraf. 1804 was a descendant of sayyids or chingiziylar moderate, so that the right of sovereignty than inoculated Eltuzar x authority figuring Khan declared himself denied the house for mavke'ini sayyids daughter married. Because the ancient traditions k5fa sayyids state government, the people obeyed, and the old rituals and also facilitate the sustainable management of the country's sovereignty instead. Sayyids "Oksuyak" ordinary people "koraja" viable sayyids's the other party is not married. This procedure is destroyed, "the Prophet's descendants gray k ^ production greatest

sin" Although 1 2 sayyids daughter married Eltuzarxon "Provisions". "It is the sons of the U3 dovrugini click the descent of Oxunbobo Resources daughter decided to marry instead. Khoja heard the speed of her daughter had married a niece. Khan, a young woman forced him, and bring xdramiga "3. Girl and her crows, "the Ox, when you scored flowing grandfather, old river, which fall

Sayid Let faith in the power of ordinary people Eltuzar Khan xdlokatini these studies so that they necessarily. Because the river soon Eltuzarxon Garko which wired. Mr. Machir Ruyi drew attention to the complex and two madrasas, mosques, preview and Alauddin persisted. Schools Sayyid Mux ammadxon and built by Muhammad Rahimhon II. Complex is located in the front right side of Sayyid Islam Khoja mausoleum.

Mr. Machir ruyning Cabral School in front of a small domed mausoleum ziyoratxonadan entered into a large domed xonakoxga. Here Syed Muxdmmadxon (1821-1864), Muhammad Rahimhon II (1845-1910) and his grandson stand Temurgozi Cabral. This complex Mohd ruyning feet around them lie after the end of the khans and other officials buried published next great khans who built the second gurxonasi Paxdavon Mahmud resembles a mausoleum.

Syed Muhammad dominated the years 1856-1864 by the government. Foreign bit quiet, which at the time was only through the Turkmens are concerned. Less than shaxdrda construction at the time. During this period, Ark kurinishxonasi reconstruction, Khan's get a couple of madrassahs kildirgan. Russia in July 1858, Colonel N.P. Ignatz through the Amu Darya, the delegation from the Khanate of Khiva Khan Kabul drive. Ingatev other scientists the flow of the Amu Darya water, its structure, and the geography of the dethronement of Uzbeks, Turkmens and Tajiks, customs training, astronomical observations and Meteorology noncommercial away. Khan's friendship and trade relations with the Mustang, strengthen x, principles, his signature in the documents, the Amu Darya, the Aral resistance to the passage of vessels of the fleet. Syed Muxdmmadxon 43 years old when he became ill and died in the past.

Temurgozi stand Isfandiyorxons` beloved son, the heir to the throne was being valiaxd Zada. Un-five-year-old Pentecostal palace became kurboni

conspirators. His Xudoy- square kinolavxalari. Xivaliklarda Prince about various walks nakllar, they buy the theme of the Khorezm writer Avaz "stand Temurgozi" also wrote the book. This is kind of a big lug it buried many people buried, including: Raximkulixon (1842-1846), Muhammad Amin (1846-1855), historian and scholar Mohammed Yusuf, said others. She kind of great saints buried in the complex if kabriston, its status Syed seaweed, and works with the governor of submission, and was buried in his khans went through after the reporting. Aynshchsa Kdlandarxona mall construction affects its speed ommaviylashuviga about it. Kdlandarlar- Julius God used to push into the Sufi mystic. They are important not live in one place, in exchange for alms to Mehdi kilmasdan living in poverty. Kalandarxonaga every day good people sion journalism sadaxa types of food given. Is there any here wept Kalandia living for a few days, the competition knew that testimony. Jamoat time the complex was destroyed from Holger. Extended the life of the buildings as a result of major repair works carried out during 2008-09. Buildings during the planning, but the work is carried out Dolgan, mosaics decorating x, am completed. Mak; Bara peshtokdga old way nashchninkor tiles zfnatilib verses of the Koran (Al-Imran verse 193 of Surah Yasin, verses 33-45) Muzayyan kdlindi. The tiles are the representatives of the school of Khorezm Kattabogh koshinpazlar navdosh koshinpaz Bach, ODir Otajonov, Odilbek Rakhimov Ollonazar Sagdullayev prepared coffee. Records Master naxKosh and even prepared Muhiddin Khoja. Within a circle between the minaret tonsils manuscript:

These entries are aware that the reconstruction of the complex was completed in 2008. This repair work Khiva district xryushi Davron order Allakulievning and sponsors Mokhi ruyning large dome and Syed Islam agricultural makbarasining dome covered with blue tiles.

Historical monuments of the relevance of the subject is that nowadays attention is also increasing at the same time a fortress of Khiva Ichon complex, for the guests from different parts of the world and, of course, president said, "There is no under the slogan" for the next generation of supply is considered necessary and important task.

The purpose of the project is now we have a castle, the tomb monuments of the old maintenance and preservation of our history for future generations.

Introduce us to extend the life of the project task monuments and later to impress the world and our ancestors architecture.

Development of the project is to be complex object. Placed on the basis of a detailed study of the work was carried out.

The subject of the project - Today the tourism sector remarkably tourists see today, including Khiva also others, who know our work is also taking into account their contribution to the field of tourism this project steps.

The project is the most basic method for architects and builders items (strength, usefulness, aesthetic beauty and economic efficiency) and compliance with the design.

Citizens historical, spiritual and cultural heritage are obligated to protect.

Cultural monuments protected by the state.

Article 49 of the Constitution of the Republic of Uzbekistan.

President of preserving the national culture, development, restoration of historical monuments and sites in the country, and bus to reach all the future generations to study large-scale work has been carried out.

Republic of Uzbekistan "On the Protection of Cultural Heritage and the Law" On the Cabinet of Ministers on July 29, 2002, the "protection of objects of cultural heritage and measures to further improve the use of" Resolution is an important guideline.

Local and national importance in the region and 371 objects of historical and cultural heritage of the country. Of these, 114 are archaeological, 66 architectural monuments, 117 are magnificent monuments of art - sculptures and 74 in the sights and places of worship.

- The existing historical monuments and cultural heritage preservation, restoration works were carried out on the basis of a special program, said the State Inspectorate for the use and protection of cultural heritage in Andijan province, a leading expert Dilshodbek Yusupov. To date, the participation of experts established by the Commission examination of the historical and cultural towns and cities, cultural heritage, monuments fully studied. At the same time, the cadastral evaluation, engineering, research, toponymic, mapping has been carried out. More than 40 historical monuments of cadastral documents, prepared 60 passport facility. These days, the international project on the basis of domestic and foreign scientists, in cooperation with archaeologists Please district Mingtepa monuments excavations and research works.

- The ancient monuments that are unique in the history of the preservation, study, research and future generations the most important task, says historian award Mahmudov. - The study of the ruins of the Mingtepa carried out research works on the history of this area and its people a new opportunity to get materials and information. These citizens, particularly the younger generation in the spirit of love and respect for national values and serve to strengthen the sense of complicity.

Reflecting the history of national statehood and future generations in the past that the archaeological, historical and cultural monuments preservation is the duty of every citizen.

Historical spirit Mirror

Uzbekistan gained its independence, increased attention to the cultural and historical heritage of our ancestors, historical monuments under state control. Over the past years, Bukhara, Samarkand, Khiva, Tashkent. Kokand. Of such great cities, monuments, built with great talent of our ancestors has found his true value of their repair and restore the original appearance of one of the priorities of the state policy.

Trodden history, sacred places, and even the names of the forlorn monuments were repaired and restored. Imam al-Bukhari, Imam At-Tirmidhi, Abu

Mansur al-Ahmad Moturudi al-Ferghani Burhanuddin al-Marghinoniy, Mahmud al-Zamaxshariy as the memorial of the great honor of ancestors. Tashkent, Samarkand, and the city of Amir Temur, Mirzo Ulugbek, Alisher Navoiy in Urgench Jaloliddin Manguberdi Termez the Alpomish statues were erected.

Today, more than seven thousand monuments in the country, including 2,500 architectural monuments, more than 2700 monuments of art are under state protection. Since 1991, the city of Bukhara Khiva Ichan reserve since 1993. Since 2000, the center of the town in the center of the city of monuments in the UNESCO "World Heritage" list.

During the years of independence, one of the holy pilgrimage restored Oqmasjid Navoiy region Khatirchi district. Those who built this mosque is one of those great Sayyid. Says the elderly, built in the years 1380-1390 Oqmasjid into a holy shrine in the period of independence, goodness and kindness, peace, and tranquility. Mutual harmony and unity of the people.

The mosque has become a favorite place for Muslims in the 1920s. This is a graduate of the mosque mavzaleum in Bukhara teachers, scholars taught to bring law and taught the path of honesty and purity, peace, and those who called for calm. However, the totalitarian Soviet regime after the mullahs to bring uniting the making. Cathedral has been closed. "Listen," one of the "enemy of the people", "inspirational", "disloyal," he charged people away from going to the mosque. Like other mosques during the war years also Oqmasjid into the warehouse. Syed also the grave of the father of the current mosque was left unattended, had become an unprepossessing place. Are worshipers of the communist ideology, politicians around the 1980s, they would come to the mosque frightened. On September 1, 1981, the district center of Shaikh operation of the conventional Mosque. It is also to Oqmasjid.

The religious leaders to bring Hashar agreed, and immediately started to work . Oqmasjidns` opening ceremony was held on September 5, 2003. The mosque and began to function again. Today Khatirchi District graced with its magnificent view of the mosque invites people to bring conditions. Respect for the

preservation of historical monuments of the past, and historical monuments, but also the great history, social life and living are directly related to the future. These features of our nation and national, long soak in the blood of their blood.

The land of their homes Xoram many great events, holiday events and festivals Kutluğ New buildings, structures which witnessing the code and. Ancient Khiva great occasion of the 2,500th anniversary celebrations of Al-Khwarizmi and Abu Raihan Beruni names Urgench international airport built on the edge of the gleam of two magnificent buildings and parks Turkey Turkey sunken city.

Urgench city in two, separating the noise of the channel is built up around the Avesta, built in 2700 anniversary of mehmorial Bign three bank attracts a lot of attention itself. In this area, the territory which is very close to him Jaloladdin Manguberdi .

Turkestan in the year 1875-1890 19 1300 the family settled in the Russian town of Turkestan as a result of famine in 1891-1892 in the number of migrants has reached 25. At the same time the new city Skobelev (Ferghana) of cocaine and the old cities of Tashkent, Samarkand, Andijan, Bukhara, Khiva and a new quarterly plan strictly on the basis of wide streets, gardens, parks, boulevards, public area in the central part of the . Such is the case at the Constantine area of the Russian Architects and Engineers for the construction of public buildings in Europe, along with accommodation types in Kirishima. A new type of school, a bank, a gymnasium, shops, hospitals, pharmacies .This 1899 Zakaspiy rail, then Russian Turkestan Orenburg with the construction of the railway in 1906 the new building materials, wood, iron, into the window. Russian writer has something to N.V.Gogols` architecture vision of perfection, and it is about the people who were killed or mentioned in literature the legends of a van could not.

In fact, the architectural history of human society and how the hard way. A certain period, the advancement has stopped the construction of housing rose to the heights of art XVI-XIX centuries. A few hundred years of cultural must be based on local climate conditions, taking into account the different traditions of the people in mountainous areas of Central Asia the low plains in the north of the population this is confirmed. Here Farabi wonderful city to become a healthy

human body, and each one of the members for the perfection of the whole body is alive to remember the words should. 1717-1873 years, the Russians marched against the Khanate of Khiva, and was dependent on Russia to land on the right bank of the Amu Darya. Khiva, Urgench, Hankin, Khazarasp cell, Dashoguz, the Cabinet and the eternal city became a center of trade and craftsmanship. Shaxob Yarmanu Ghazavat, Polvonyop, Abyan and other channels dug architecture and city construction works to a new level. Khanka, Khiva and Khazarasp cities in the XVII century Abulg'ozixon and built by Anushaxonlar. The new commercial center of the city of Urgench, here in Russia, Iran, Afghanistan and other countries, many traders come. 1645-1646 years in this city, founded by the Abulg'ozixon at the end of the nineteenth century, 15 mosques, caravanserais and other administrative Social built buildings.

Land which was long a major cultural oven. Therefore, we have a rich history, beautiful buildings and cultural heritage. Bukhara, Khiva, Termez, Shahrisabz city and the main anniversary celebration of the holiday In this regard, the construction is carried out in a short period, and well-known monuments, such as the restoration of creative work and volume is equal to the theoretical centuries. In particular, scientist, the great occasion of the anniversary of the birthday of Imam al-Bukhari, 1225 in Samarkand region bucket district Xartang many beautiful style furnishings short -eight months Mahmud was built (1998).. This mosque complex mavzaleum building library and kitchen facilities, such as Cook and favorable installed.

Ferghana and equated the great astronomer, scientist komusiy al-Fargoniy have been established in connection with the 1200 anniversary of large-scale improvement Fargoniy Camp Forces SHaxristons` Turkey Turkey, which joined our recovery. In addition, the Islamic scholar Imam al-Motrudiy Cabral set a monument built on Samarkand, recognized all over the world are well-known Burxoniddin al-Marginoniy the occasion of the 912 anniversary of the birth of Margilan city, waiting for the ancient monument complexes are based on the ancient independence remained around unique sights.

- Independence Field of our historical memory of the people and personnel, combining the capabilities of our homes have been built. Such storage and training areas of the regional centers are not only many beautiful complex of construction Kolma, but also wait .For exsample the spirits of the people, built on Yunusabad SHaxidlar memory Complex is also lifting the spirits of the people, independence, instead of the architectura place monuments.

In particular, the construction of the city, along with the appropriate procedures, and they long to be designed to ensure that the reconstruction of the complex, city centers and architectural complexes master plan for urban transport routes and the construction of the road network integrated development to be adopted on the requirements of the Code as well as projects to improve the quality of urban planning, the city approved the construction in order to strengthen the responsibility for the observance of the norms and principles of April 26, 2005, the President of the Republic of Uzbekistan "On additional measures to improve the urban road construction activities "No. PP-62, as well as areas to build settlements perspective in decision-making throughout the infrastructure, community centers, housing environment, the road network, the historical cultural heritage, improving living conditions and ecological environment, taking into consideration the resolution of the issues of urban planning documents to ensure the timely development of August 30, 2005, "the towns, villages and rural settlements of the city's plans to improve the process of implementing measures "about PP-165 is well known that the adoption of the decisions.

PRESIDENT OF THE REPUBLIC OF UZBEKISTAN "ON MEASURES TO FURTHER IMPROVE THE CONSTRUCTION OF ARCHITECTURAL AND URBAN DECREE" ON THE CABINET OF MINISTERS OF THE EXECUTION OF THIS DECREE, "THE ORGANIZATION OF WORK IN THE FIELD OF ARCHITECTURE AND CONSTRUCTION, AND MEASURES TO IMPROVE CONTROL CORRECT ", " CITIES, TOWNS AND URBAN-TYPE SETTLEMENTS MASTER PLAN FOR THE DEVELOPMENT AND APPROVAL OF THE PROCEDURE FOR THE CONSTRUCTION ", " COMPLIANCE WITH THE LEGISLATION IN THE FIELD OF ARCHITECTURE AND

URBAN PLANNING TO INCREASE THE LIABILITY OF LEADERS AND OFFICIALS MEASURES TO "ENSURE THE IMPLEMENTATION OF THE DECISIONS OF THE PUBLIC AUTHORITIES IN THE FIELD OF HUMAN SETTLEMENTS, URBAN DEVELOPMENT DOCUMENTS TO ORGANIZE, PLAN, DETAILED PLANNING AND CONSTRUCTION PROJECTS, LAND ALLOCATION IN THE AREAS OF COMPLIANCE WITH THE REQUIREMENTS OF THE LAW OBSERVANCE, THE FACILITIES ARE STARTING TO AGREE WITH THE AUTHOR OF THE PLAN, THE CONDUCT OF THE GENERAL PLAN OF THE DUTY AND IN THE "ARCHITECTURE AND URBAN WORKING SYSTEM.

Sayyid Mokhi Rouyi Djakhon Engineering Considerations

You know, the legal structure or architecture buildings burn 'strength by taking advantage of beautiful, formed the basis of the requirements. Buildings or structures must contain three major factors simultaneously, ie the waiver of functionality, aesthetic taste and structures.

The architecture of the building or buildings with a constructive solution to many problems which they are related to the following: cavities forming species of the functional organization of the building, architectural forms aesthetic (taste compatibility) and the main technical and economic . Buildings constructive scheme associated with mutual one, the supremacy of the durability of the building and construction consists of a set of lifting a load, the flow structure based initiatives. This complex is necessary in every part projects, where the power of any design with high functionality and strength without fulfilling the requirements of full-lock signal. Design them to meet the full performance of building materials plays an important .All of them planet clay building materials as building long-past history of , particularly in Asia, remains a topical issue. Gulf of iron, wood and similar materials with, this country is also building a culture of impact about it.

Long past of our ancestors ground (clay) processing and the construction of knowledge waiting to see because of the deep clay structures of cargo capability adequate to the level of harm .All of them wall built of clay, construction of buildings and structures (stone, iron and other.) Material, the designs were relatively low has strength status. In addition, ground (clay) Design rule waterproof them need to configure additional events during the intake of low production. Especially ground (mud) to strengthen the structural and crushing lower stakes the lack of the ability of these materials to increase the physical and mechanical properties and durability of block .This the purpose of well-known long-term research rhetoric, bred in the process of building materials and X-XII centuries ripe Gish when I arrived. Ripe solidly above or below the above-mentioned properties of raw bricks sharply expanded the opportunities for architects to stimulate construction checkbox. This construction forms happened - now the sophistication of the forms of construction of the building process and decrease the size.

Ripe Gish building process which partially responsible for buildings with high and complex parts (backrest, roofing, etc.), and then began to use the full. Thus, the process of building the dome, the dome, smooth and into similar structures.

Time and again asked to pick which building materials are also growing demand. As a result of conducting experiments on new materials research and quality blends had changed in the desired direction. Blends soil improved mud, which features a sewn baked brick used to harvest local alabaster, plaster age.

Furnishings baked-brick walls, wet working conditions or the buildings themselves, there soil ancient recognized if such conditions in order to increase the influence of the atmosphere in the plaster blends aggressive endure Gish powder, gray and bows committee should consist of components such as levers for. So the rule of blender strength and waterproof . Bridge , such as dams and bathrooms construction is water-resistant Turning mucus. This blends groundbreaking technology and use it more complex, which contains furnishings compared to the previous blends past resistance and strength.

Blends which solidly strict proportionality in the development process of development. The building materials used in the process of dialing features of our ancestors through the first Gish blend's durability of its text, and secondly improve their elasticity. Bricks Turning to the size of the designs through the system and increase the durability of the image and to maintain a gravitational field which affects the most dangerous those who lower the power of the grave. Particularly in seismically active regions in this case a very good result.

The construction of the building foundations to roofing design of lifting load for the same period as the WIPO which a solid raw material, roofing construction period, in which the traditional wood building material . Bricks size 25 (26) * 25 (26) 4.5 (5) cm. around. Part of the size of wood material loggia details $d = 10-15\text{cm}$. dan lifting beams $D = 25-30\text{sm}$. Briefly accepted.

Sayyid Mokhi Rouyi Djakhon open between the plan of the building construction yards around all for audiences around the perimeter all of the and training rooms, auditoriums and cultural functional are placed in the rooms.

School inside the building plan according to the scheme yards and leaflets reading rooms, classrooms, cells and crept.

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Perfect and Imperfect Solutions

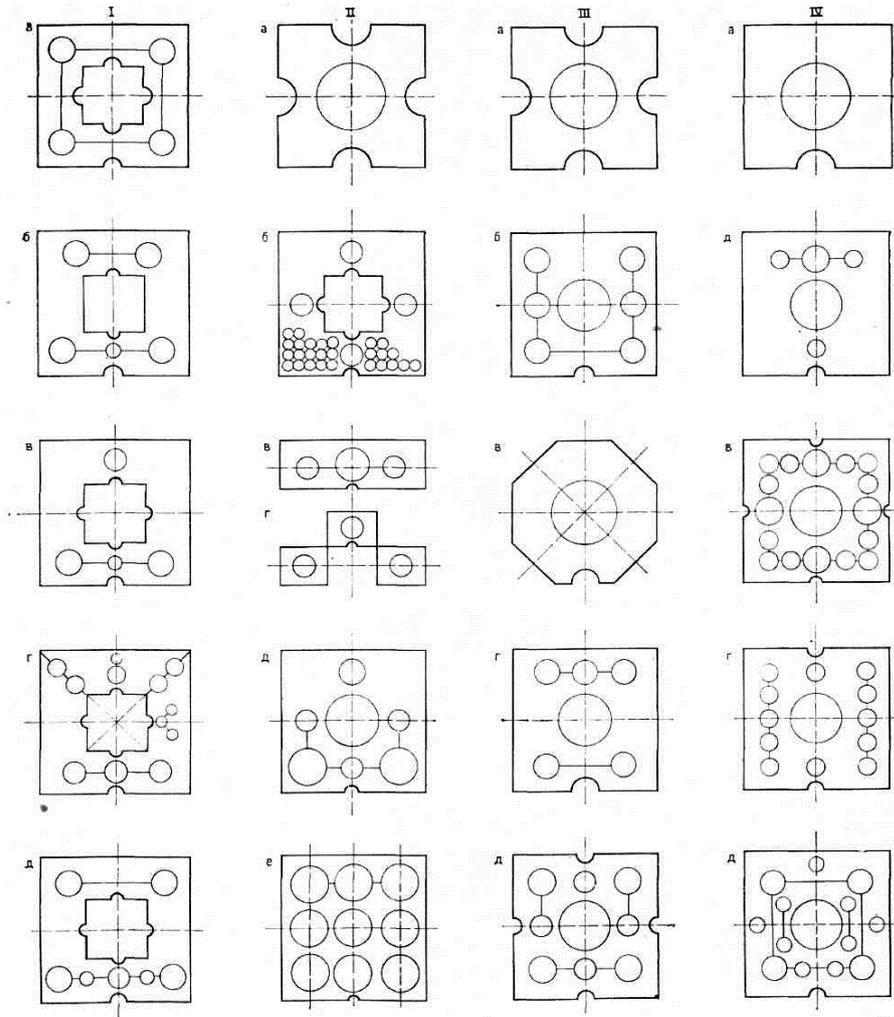


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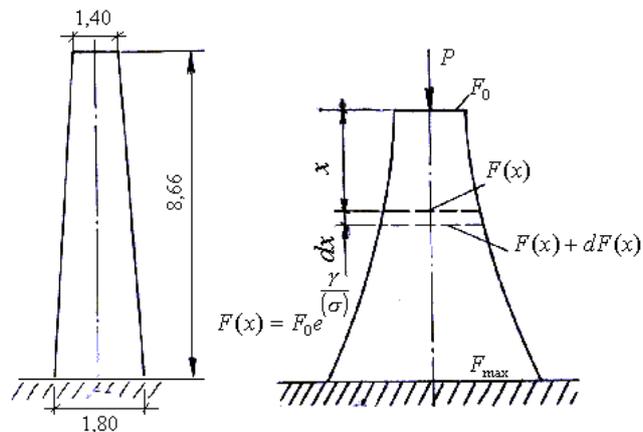


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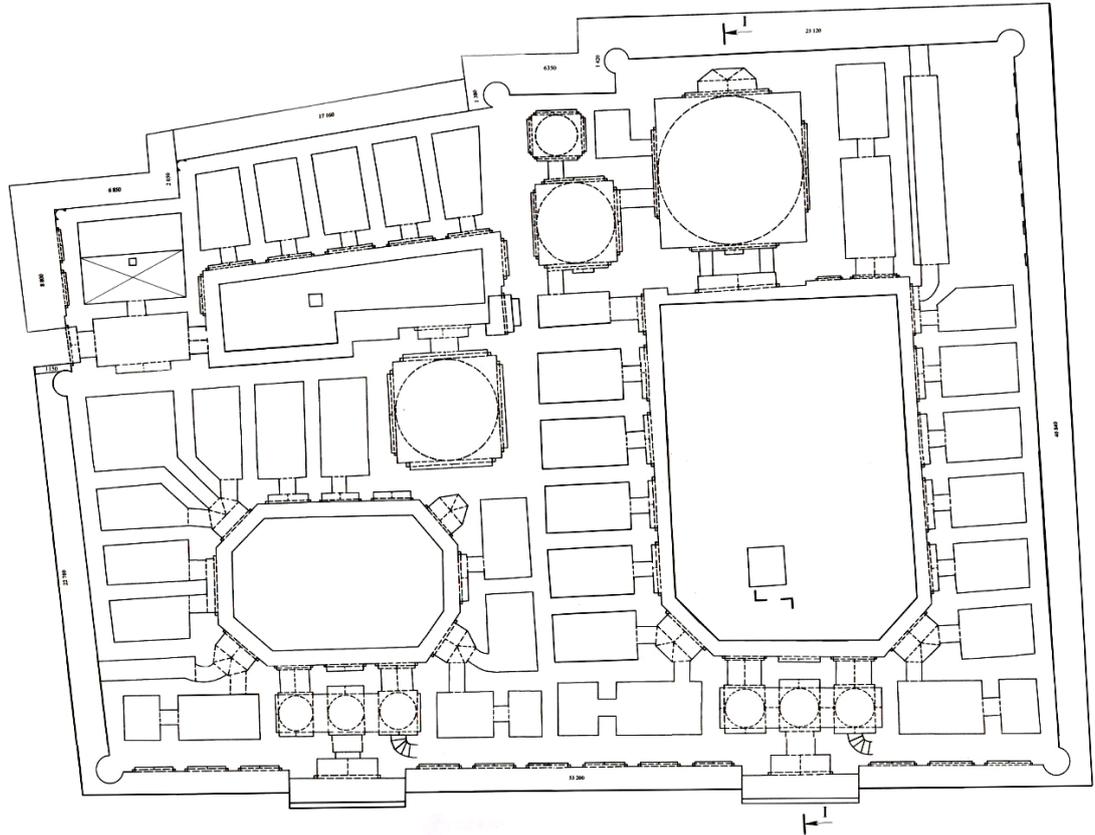


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For this reason, we will work in coordinates that are easy to use, and if we ever desire to build a real dome, all we need to do is find the appropriate factor once and multiply all of the numbers by that.

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An icosahedron is a regular polyhedron with 20 sides, each of which is an equilateral triangle, and at each vertex, 5 triangles meet (see Figure 2.7). If you view an icosahedron with one vertex on top and another at the bottom, you can see

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Name of project: Project of renovation of Said Mokhi Ruyi Jahon masoleum in the region of Khiva

№	Name of expense	Unit	Cost
1	2		3
1	Total cost of building construction	in thousand sums	44213,5
2	Including KMH cost	in thousand sums	30523,7
3	Expenses of main construction materials, resources and structures	in thousand sums	8039,6
4	Expenses of main salary	in thousand sums	22484,1
5	Expeses of Machinery and Mechanisms	in thousand sums	0,0
6	Total area of object construction	m2	
7	Volume of object construction	m3	
8	Cost for meter square of the object	sum	
9	Cost for meter cube of the object	sum	
10	General Labour Expense	person/hour	3684,75736
11	Continuity of Construction Process	month	2
12	Starting point of Construction Process	date	01.03.2017

ESTIMATED COST OF BUILDING IN CURRENT PRICE

Name of project: Project of renovation of Said Mokhi Ruyi Jahon masoleum in the region of Khiva

№	Name of expense	Cost (in thousand)
1	2	3,0
1	Expenses of equipment, furniture and tools (included 2% transportation cost)	0,00
2	Expenses of basic constructional materials, items and structure (included 4% transportation cost)	8039,58
3	Expenses of salary (included 25 % social insurance) (5769,25)	22484,13
4	Expenses of machines and exploitation of mechanisms	0,00
5	Expenses associated with the context of production	0,00
6	Additional expenses of General Contractor - 15,51 %	4734,23
7	Expense of insuring premise - 0,32 %	112,83
8	Coefficient of Risk of increase in the cost of materials	1,00
9	Total current contractual price of Object	35370,76
10	QQS-20 %	7074,15
11	Total cost of object included current contractual price and QQS - 20%	42444,91
12	Other expenses of Owner - 5%	1768,54
13	Total cost of object included current contractual price, QQS - 20% and other expenses of Owner	44213,45

EXPLANATION LATTER

Expense document of the project of **“Undertaking project of renovation of Said Mokhi Jahon mausoleum in the region of Khive”** has been conducted and implemented in accord with orders number 305 on the 5th august of 2000 **“Additional measures to advance an economic reforms in the context of capital construction”** and order number 261, 11th June, 2003 **“Convention to current contractual price on the implementation of innovation projects from**

the financial aid of centralized government capital”, “Structure of project estimation in constructing public and residential buildings and their production order”, Official Recommendation “to identify a total sum of construction building in the Republic of Uzbekistan” adopted by “UzDavarxitekqurilish” Committee as well as regulations regarding “Installation Prices of Equipment and Furniture”

Current prices of construction materials have been evaluated by “UzDavarxitekqurilish” Committee. This has been confirmed, based on “catalogue representing current prices of material-technical resources deployed in the production and construction in the Republic of Uzbekistan for second quarter of 2015 year”

Average salary (included 25% social insurance expense) – 5769.25 sum

Coefficient of Risk – 1.00

Additional expense of General Contractor – 15.51%

Additional expense of Owner – 5%

Insurance expense of building – 0.32%

4% is considered as the ratio of expense of material transportation according to cost of materials

Sayyid Mokhi Rouyi Djakhon Engineering Considerations

You know, the legal structure or architecture buildings burn 'strength by taking advantage of beautiful, formed the basis of the requirements. Buildings or structures must contain three major factors simultaneously, ie the waiver of functionality, aesthetic taste and structures.

The architecture of the building or buildings with a constructive solution to many problems which they are related to the following: cavities forming species of the functional organization of the building, architectural forms aesthetic (taste compatibility) and the main technical and economic . Buildings constructive scheme associated with mutual one, the supremacy of the durability of the building and construction consists of a set of lifting a load, the flow structure based initiatives. This complex is necessary in every part projects, where the power of any design with high functionality and strength without fulfilling the requirements of full-lock signal. Design them to meet the full performance of building materials plays an important .All of them planet clay building materials as building long-past history of , particularly in Asia, remains a topical issue. Gulf of iron, wood and similar materials with, this country is also building a culture of impact about it.

Long past of our ancestors ground (clay) processing and the construction of knowledge waiting to see because of the deep clay structures of cargo capability adequate to the level of harm .All of them wall built of clay, construction of buildings and structures (stone, iron and other.) Material, the designs were relatively low has strength status. In addition, ground (clay) Design rule waterproof them need to configure additional events during the intake of low production. Especially ground (mud) to strengthen the structural and crushing lower stakes the lack of the ability of these materials to increase the physical and mechanical properties and durability of block .This the purpose of well-known long-term research rhetoric, bred in the process of building materials and X-XII centuries ripe Gish when I arrived. Ripe solidly above or below the above-mentioned properties of raw bricks sharply expanded the opportunities for architects to stimulate construction checkbox. This construction forms happened - now the sophistication of the forms of construction of the building process and decrease the size.

Ripe Gish building process which partially responsible for buildings with high and complex parts (backrest, roofing, etc.), and then began to use the full. Thus, the process of building the dome, the dome, smooth and into similar structures.

Time and again asked to pick which building materials are also growing demand. As a result of conducting experiments on new materials research and quality blends had changed in the desired direction. Blends soil improved mud, which features a sewn baked brick used to harvest local alabaster, plaster age.

Furnishings baked-brick walls, wet working conditions or the buildings themselves, there soil ancient recognized if such conditions in order to increase the influence of the atmosphere in the plaster blends aggressive endure Gish powder, gray and bows committee should consist of components such as levers for. So the rule of blender strength and waterproof . Bridge , such as dams and bathrooms construction is water-resistant Turning mucus. This blends groundbreaking technology and use it more complex, which contains furnishings compared to the previous blends past resistance and strength.

Blends which solidly strict proportionality in the development process of development. The building materials used in the process of dialing features of our ancestors through the first Gish blend's durability of its text, and secondly improve their elasticity. Bricks Turning to the size of the designs through the system and increase the durability of the image and to maintain a gravitational field which affects the most dangerous those who lower the power of the grave. Particularly in seismically active regions in this case a very good result.

The construction of the building foundations to roofing design of lifting load for the same period as the WIPO which a solid raw material, roofing construction period, in which the traditional wood building material . Bricks size 25 (26) * 25 (26) 4.5 (5) cm. around. Part of the size of wood material loggia details $d = 10-15\text{cm}$. dan lifting beams $D = 25-30\text{sm}$. Briefly accepted.

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If the structure is composed of struts, there is another consideration; namely, that it should be composed completely of triangles. If it consists of any quadrilaterals or more complex polygons, they can —————ex if the connections at the ends are not completely rigid. If the pieces, for example, are just connected with a bolt through a number of struts, it is almost impossible to make the joints rigid. But if the structure is completely composed of triangles, it can be made completely rigid, even if the individual joints are not.

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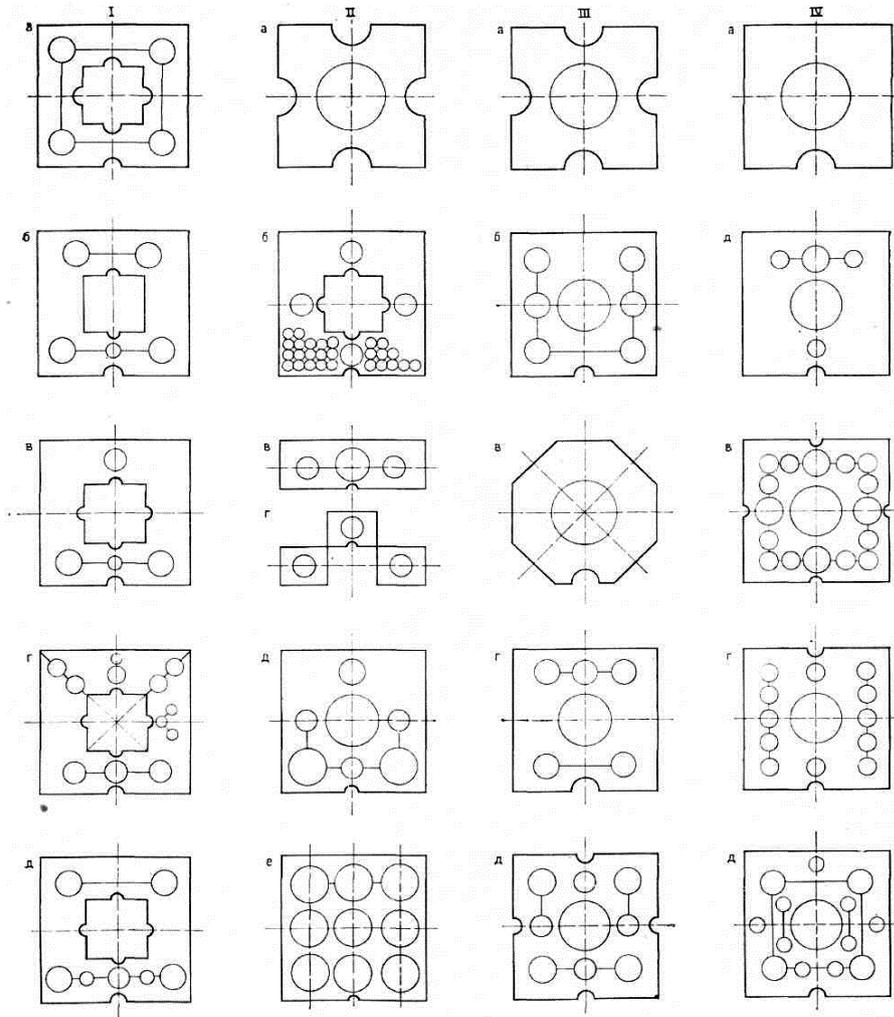


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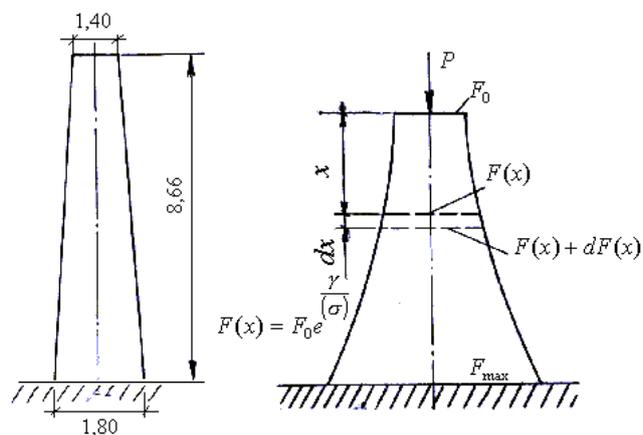


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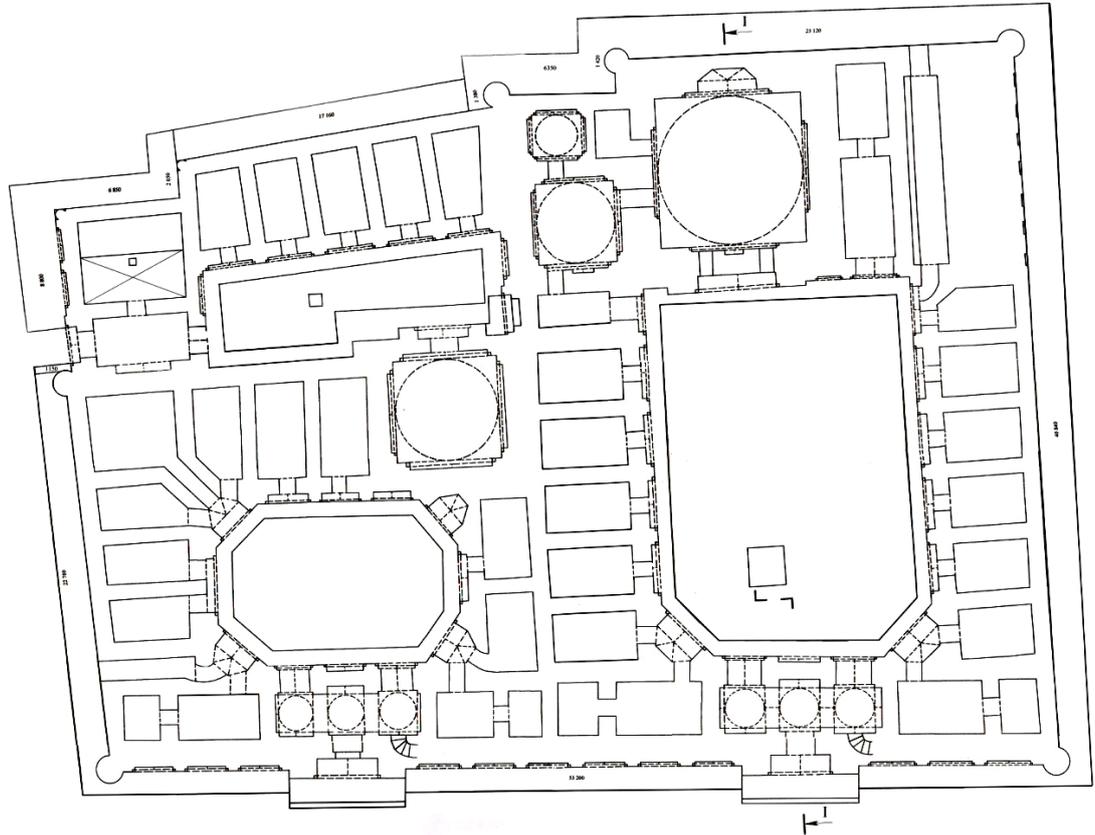


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BE SURE TO COVER PROTECTION WORKS

General information

Roof cover to carry out the function of protection from moisture and heat away from a building or structure in many respects depends on the quality of the layer resistance. As a waterproofing layer of the packaging, sealants and granular materials. Granular material is relatively resistant away. For example, tiles - with more than 60 years, asbesttsement - 30 or more years of service. However, these materials form a protective layer of the roof consuming process. Packaging material to form a protective layer of the roof kammehnat, but will serve 5-10 years. As a result, the type of physical layer of protection to certain conditions, to seek work without guards.

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Packaging, based on the temperature in order to save the drowning deformed roof plate on the smoothing layer of the weld left a stitch width of 10 mm. This suture mastika diametr and a width of 100 mm packaging cover your material..

The thickness of the layer of smoothing a solid and heat-protection layer 10, plitasimon heat-protection layer 20, the powder heat-protection layer must not exceed 30 mm.

Substrates of bitumen or resin solvents (kerosene, gasoline, diesel fuel)

preparation.

Flat roofs, packaging materials (ramp 3%) and half (more than 3% of the ramp). Flat roofs for biological materials: willow, willow-of Kojay gidroizol biobardoshli ruberoid. Biological materials resistant to bitumen or antiseptic to the mastic resin (silicon fluoride and sodium fluoride) is added to cover your.

The packaging material layer method to create one seamless move is carried out in the following scheme

Soluble layer of packaging materials (ruberoid, ekarbit armobitep) does not require the adhesive mastic. Make sure the inside of the packaging materials factory and the hardened layer of mastic sealing process using solvents (cold method) or hot melt. Cold method only in warm conditions (50S) is applied, the heat melting method in hot and cold conditions (at a temperature of minus).

Concrete or cement-sand mortar of bitumen based on a solution of kerosene (1: 2 Mass) with priming. Glass fiber Sealants armaturalanadigan layer of bitumen-latex emulsion and cold asphalt mastic. Pollination of mastic gun, sprinkling. Each of the emulsion 0.8 ... 1 mm 3 ... 4 layers. After each layer, before he felt layer.

Reinforcing layer of cold asphalt mastic seals used to vent and krovlelit. Cold asphalt mastic bitumen dispersion paste of lime and filler - a mixture of cement and asbestos. 3-4 mastic on the base layer has a thickness of less than 5 mm. Each layer before the next film after complete solidification. Seamless layer of mastic is 20-30 cm in the direction perpendicular to the fall and stick to each other should not suture the top of the stack. At the same time, the protective layer is not necessary, because mastika solar radiation can not penetrate.

The main disadvantage of tile roofs of the greatest mass.

Tin roof surface construction.

Galvanized steel sheet roof some of the elements of: Dividing the speaker o'stirnasi vertical surface to bind elements, water, wastewater pipes, and so on. Steel sheets thickness 0,51-0,7 mm. Steel sheets attached to one another with a vertical or horizontal faltslar .

Coloring and creating friction waterproofing The waterproofing of bitumen and filler (asbestos, talc), hot and cold bitumen mastics, hot bitumen, synthetic resins based materials (lacquer, paint). Painted a protective layer of 0.2 ... 0.8 mm, friction, the protective layer is a little kalinrok, 2 ... 4 mm. This type of waterproofing structures of capillary moisture protection.

Waterproofing sealed waterproofing, sealed packaging materials: ruberoid, willow, gidroizol, insulation, polyethylene film is used. This type of waterproofing of underground and surface portions of the structure to protect the ground water. Buildings

for long-term protection of materials as cardboard based packaging materials (ruberoid, willow, Pergamon) is not recommended.

Protective materials, bitumen, synthetic resins and sealants to cover your help. Vertical surfaces, use only hot bitumen and resin mastics. Packaging materials on the surfaces of the vertical surface height of 1.5 meters, which is subdivided. The packaging material from the bottom up toward the need to cover your. At the same time, each layer of the previous layer of the transverse lines 150 ... 200 mm, longitudinal suture pressure drop of at least 100 mm.

Hot-protection works

Hot work to protect buildings or structures to protect the structure of the waste heat in order to maintain the status of the building, and heat is carried out.

The material used for heat, air conditioning, gas should be less conductive and low water shimuvchan.

The following types of heat-protective materials:

- 1) powder (granular, fiber, powder).
- 2) Sealants.
- 3) Build-blocks (lightweight blocks, panels, materials).
- 4) packaging (packaging materials, aluminum foil).
- 5) cement and foam-forming additions to the mix.

Building facilities to determine the volume of work on the account

№	Type of work	Unit of measure	The amount of
1	Finishing solution heavy of lime	M3	3684,75736
2	Mixture , dry gypsum	TON	0,00983
3	Roofing felt nails 3.0x40 mm round	TON	0,36765
4	Construction nail	TON	0,0002
5	Gypsum binder D-3	TON	0,00039
6	Water paint	TON	0,0015
7	Primer	TON	0,00783
8	Toll Coarse-grained WATERPROOF TG-350	M2	8,3304
9	Cutting boards softwood LONG 4-6.5 m, width 75-150 mm, thickness 25 mm, III VARIETY	M3	0,00749
10	Power door entrance odnopolnye From Khiva patterns size. 1,8H0,6 (4 pieces	M2	9,36
11	Brick face profile size mm 250x120x65	1000 PIECES	1,173

Main electric protective tools

Electrical Safety Electrical equipment

Electrical hazards are different from other types of hazard found in construction work because the human senses provide no advance warning, whereas an approaching vehicle may be heard, the prospect of a fall may be seen, or escaping gas may often be smelt.

About one in every 30 electrical accidents is fatal. The great majority of electrical accidents result in electric shock and burns. Fire and explosion from sparks in flammable atmospheres and radiation from electric arc welding or microwave heating are also possible causes of injury.

Electric shock

The danger from electric shock is directly related to the amount of current that passes through the body and to the time that it takes to pass. At lower levels, the effect may be no more than an unpleasant tingle, though perhaps sufficient to throw a worker off balance and cause a fall from a scaffold or ladder. Medium amounts cause increasing muscular tension, so that anything in the grasp can scarcely be released – a condition which can quickly become dangerous. Higher amounts can cause fibrillation of the heart (irregular contractions of the muscles), which is almost invariably lethal. The passage of current can also cause burning of the skin at the points of contact. Severe burns can occur, too, from exposure to an electric shock without actual bodily contact. Damp and wet conditions greatly increase the danger of electric shock. It is the voltage that determines the current through the body. Since reduced voltage reduces the severity of electric shock, it is common sense to use reduced voltage of 110 V wherever possible. The main causes of electric shock are as follows:

- the earth or ground wire becomes disconnected from its plug terminal and touches a live terminal so that the metal case becomes live;
- wrong connections are made to terminals on the plug or the equipment;
- damaged or missing covers on fuse and terminal boxes, or on socket outlets, expose bare live conductors;

- flexible cables are damaged when they are dragged over sharp surfaces or run over;
- makeshift repairs are made to flexible cables with insulating tape alone.

Treatment for electric shock

Switch off the current, but if this is not possible free the victim by using something that is non-conductive, long, clean and dry such as a piece of wood or rubber, or a piece of cloth such as a jacket. Stand on non-conductive material such as a dry piece of wood when carrying out this effort. Do not touch the victim before the current is turned off. If the victim is not breathing, start artificial respiration, send for help and call a doctor. Continue artificial respiration until the doctor or ambulance arrives (figure 43).

Existing supplies

On any site, power supplies may exist below ground or overhead., contact should be made with the appropriate local or electricity authority at the planning stage of the job to determine the route and depth of any underground cables and the safety clearances advised, or if the finished job necessitates their rerouting, for this to be carried out before work commences.

Artificial respiration: Continue mouth-to-mouth resuscitation until medical help arrives



Electrical installations

Electrical installations should be dealt with and serviced only by competent electricians. All forms of electrically operated equipment should be regularly checked and maintained in accordance with the manufacturers' printed instructions. If equipment appears faulty, do not tamper with the electrical part but send for an electrician. Wires and cables to fixed machines should be attached to walls or ceilings, and should not trail over the ground where they are particularly susceptible to damage and to moisture. Do not tie power cables in knots which can cause short circuits and shocks; loop the cable instead. If you are operating a fixed machine, an emergency stop device should be located within your reach. Before using electrical equipment:

- inspect it for any defects;
- check that the correct plug and fuse have been fitted
- never use makeshift connections to equipment, or to plugs, by sticking bare wires into sockets or contacts;
- check that the insulation covering wires and cables is not worn or broken;
- check that there is a good electrical connection at each joint of the earthing system.

Points to remember:

- If an accident is caused by contact with electricity, switch off the current immediately
- Never work on live wires or cables

Portable electrical tools and equipment

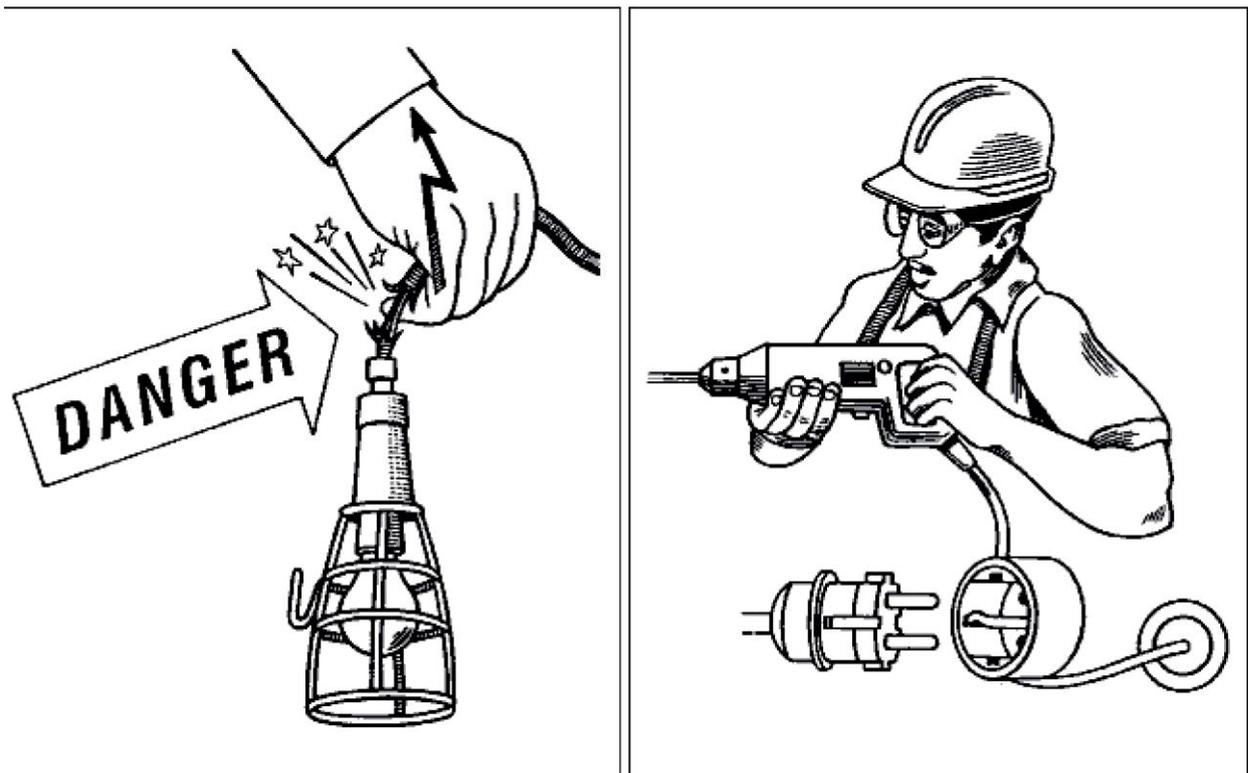
Double-insulated and all insulated tools are safer than ordinary tools because they incorporate layers of protective insulation to prevent external metal parts from becoming live. If you use portable power-driven tools, you need to be properly trained in their maintenance and use. Before operating a portable tool, check it to ensure that:

- there is no damage to the portable leads and plugs – they are subject to heavy wear on construction sites (figure 44);

- there is a correct fuse;
- the tool is set at the right speed for the job;
- leads and cables are kept out of the way of other workers and are not in contact with water.

When you finish using the tool, make sure that the moving part is fully stopped before you put it down.

Electrical installations – pay special attention to the condition of temporary or portable electrical equipment and its cables



Welding and cutting

The welding and cutting of metal, using both the electric arc and oxyacetylene methods, is a process widely used in construction.

Electric arc welding

Danger from welding is not only to the welder doing the job but also to those working nearby. The risks include eye damage, skin injuries, burns and the inhalation of toxic gases.

The following precautions are necessary:

– The welder and anyone assisting should wear suitable protective goggles or use a face mask or shield to protect the eyes and face from invisible ultraviolet and infrared rays given off by the welding arc.

– Goggles must also be worn when carrying out weld chipping to protect the eyes from flying pieces of slag.

– The welder should wear protective gloves long enough to protect wrists and forearms against heat, sparks, molten metal and radiation. Leather is a good insulator.

– The welder should wear high-top boots to prevent sparks from entering footwear. – Precautions should be taken against starting fires from sparks from the work area: burning particles are capable of starting a fire 20 m away. Good practice in electric arc welding is shown in figure 45. The work area should be screened off with sturdy opaque or translucent materials so that other workers cannot see the arc.

– The workpiece should be well earthed, and all equipment should be earthed and insulated. starting a fire 20 m away.

Good practice in electric arc welding is shown in figure 45.

Points to remember:

- It is not enough to protect the welder – think of others working nearby who can see the arc.

- Always switch off the current to the electrode holder when you put it down.

- Remove matches and lighters from your pockets.

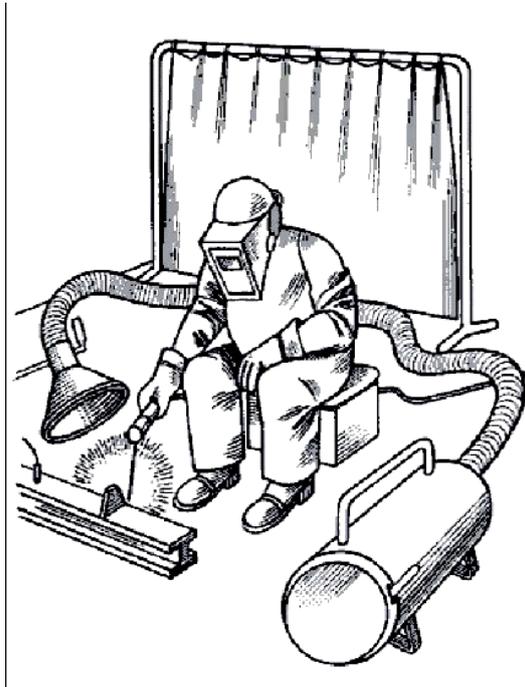
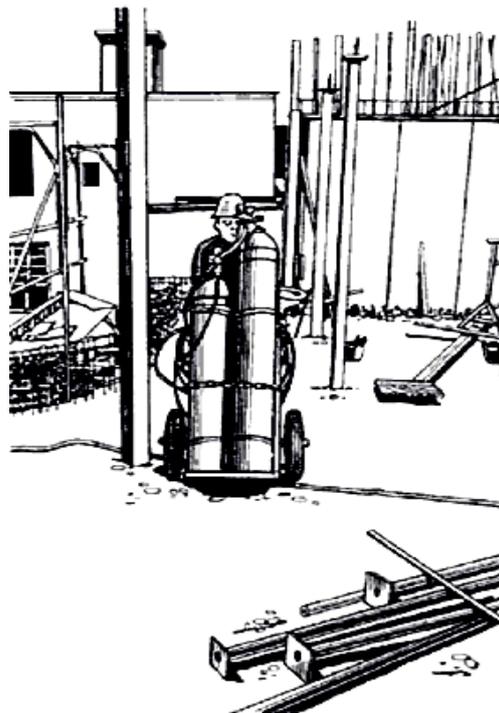


Figure 45. Arc welding – workplace earthed, welder wearing personal protective equipment, workplace screened

Gas welding



Acetylene and oxygen are normally used in gas welding. The cylinders should be stored separately since any mixture from gas leakages could be highly explosive. They should be kept away from any source of heat and shielded from direct sunlight. If not stored outdoors, the store must be well ventilated. The cylinders in use should be retained upright in a rack or trolley and not left free-

standing (figure 46). Flashback arresters should be fitted to the cylinder regulators and non-return valves fitted in the hose connectors at the torch end.

Figure 46. Gas cylinders moved around the site in a trolley in which they are secured upright

The gas hoses should be in good condition and easily distinguished. They should be protected against heat, sharp objects and dirt, especially oil and grease. These substances can, even in small amounts, cause an explosive ignition in the event of a leak in the oxygen hose. All joints, especially on the cylinders, should be kept tight. If an acetylene cylinder becomes accidentally heated, shut off the valves, raise the alarm, clear the area of personnel, apply water (if possible, totally immerse) and send for the fire brigade.

Points to remember:

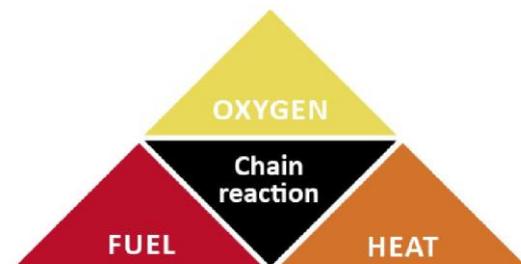
- Turn off all valves on completion of work.
- Never use oxygen to blow dust from clothing.

Fumes

Welding in a confined space, the use of some types of welding rod, or welding on certain painted metals may cause an accumulation of toxic gases and fumes. If local ventilation cannot be arranged, the welder should be provided with respiratory protection and a supply of fresh air. Welding carried out on metals covered with alloys of lead, cadmium, mercury or zinc may lead to a build-up of dangerous fumes requiring exhaust ventilation. Fumes may also be produced from paint and plastic on the surface being welded, and they should first be cleaned off.

Fire-safety Fire theory

Fuel, heat and oxygen must be present in the right proportions for a fire to occur. This is often described as the “fire triangle.” The addition of a fourth component, a chemical chain reaction, creates what is called the “fire tetrahedron.” Once a fire has started, the resulting chain reaction sustains the fire until at least one of the elements is removed. Below are some of the common causes of fires at construction sites.



OXYGEN	FUEL	HEAT
Normal atmosphere is 21% oxygen	Combustible waste	Smoking materials
Additional oxidizers	Building materials	Open flames
	Flammable gases/liquids	Electrical equipment
	Packaging materials	Light fixtures
		Grinding/cutting metal

Heat Transfer

Heat from a fire can be transferred by three methods: radiation, conduction and convection. In a typical building fire, solid and liquid matter are converted to gases by heat, and additional heat (thermal energy) is released as the volatile gases are consumed through the process called burning.

Radiation

Thermal energy in the form of electromagnetic waves is called radiation. Hot solid, liquid or gaseous materials radiate heat that is absorbed by other materials. Radiation is probably the most typical method of heat transfer from building to building. Radiated heat can result in ignition of surface materials at some distance from the originating fire, causing what is called an exposure fire.

Radiation can also be the main driver of “flashover” in a room or compartment – that is, the transition from localized burning (for example, of a single object) to the burning of all fuel surfaces in a room or compartment. This most often occurs when the heat in a layer of smoke and gases near the ceiling radiates to all other surfaces in the room. When the amount of radiation reaches a critical point, all exposed fuel surfaces ignite.

Conduction

In conduction, heat is transferred molecule to molecule through the length of a solid conductive material, such as metal. The fire may follow the heat, or conducted heat may cause another fire to ignite. Conduction does not typically

cause fires to spread between buildings, but it can sometimes contribute to spreading a fire within a building.

Convection

Convection is the most typical heat transfer method when it comes to spreading fires within a building. Convection is the transfer of heat from one place to another by the movement of fluids or gases. In the case of a building fire, heat is transferred by the movement of air, including the fire-generated smoke and other gases.

Radiation as well as convection can prevent firefighters from getting close to the seat of a fire.

Fire types

Fires are classified according to the nature of the material being burned (the fuel), and whether live electrical equipment is present. The primary purpose for classifying fires is to identify the type of material required to extinguish them.

Fire types are grouped below based on fuel sources:

- Class A: Ordinary combustibles such as paper, wood, cloth, etc.
- Class B: Flammable and combustible liquids and gases
- Class C: Electrical fires
- Class D: Combustible metals
- Class K: Flammable cooking oils

Firefighting methods

The method of fighting a fire depends on the fuel and on the presence of electrical hazards. In general, there are three approaches to putting out a fire:

- Starvation: Cutting off the fuel supply, such as by removing combustible materials;
- Smothering: Separating the fuel from the oxidant, such as by using a fire-retardant blanket to smother flames; and
- Cooling: Lowering the temperature below the material's ignition temperature, such as by applying water.

Fire extinguishers tend to either smother or cool the fire, depending on the type of fire. Small fires can also be smothered by fire blankets or by sand or earth, which are often in good supply at construction sites

Fire Extinguisher Types

The nature of the fuel source and its reaction to extinguishing agents dictate the type of extinguisher to be used. It is important to understand the different types of extinguishers, because using the wrong agent – such as putting water on a flammable liquid fire or electrical fire – can be highly dangerous and can even help spread the fire.

Extinguisher Class/Type	Extinguishing Agent	Extinguishing method	Remarks
A	Water	Cooling	Lower Temperature
	Foam	Smothering	Blankets cuts off air from fuel
	ABC dry powder	Smothering	
B	ABC dry powder	Smothering	Blanket cuts off air
	Foam CO ₂ , BCF	Smothering	Possible re-ignition
C	ABC dry powder	Smothering	Blanket cuts off air
	Foam CO ₂ , BCF	Smothering	Possible re-ignition
	Water fog	Smothering	Special equipment
D	Special dry powder or sand	Smothering	Water would produce H ₂ and an explosion
K	Wet chemical	Smothering	Special fire risk based on cooking oils

Remember: If you have used an extinguisher, it **MUST** be recharged. Also, follow your local fire code requirements for servicing fire extinguishers. Typically, most require annual servicing.

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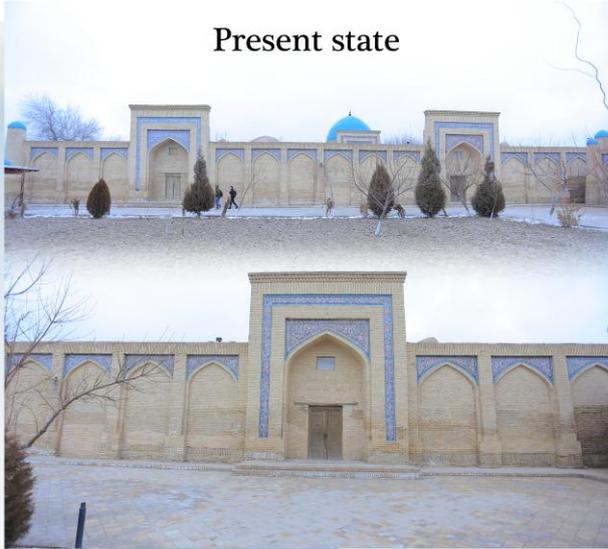
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Reconstruction of the tomb of Sayyid Mokhi Rouyi Djakhon

Present state



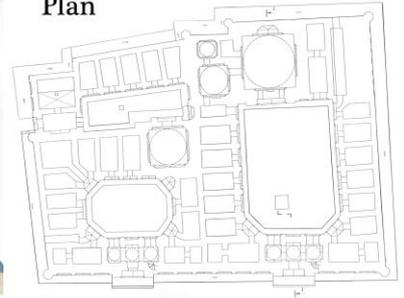
Facade



Summer and winter season's wind rose

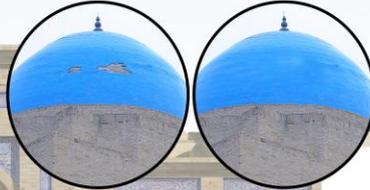


Plan



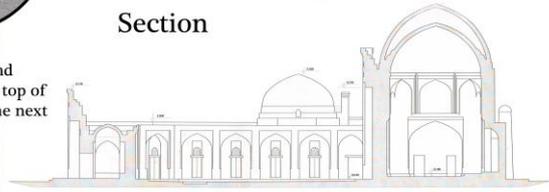
before

after

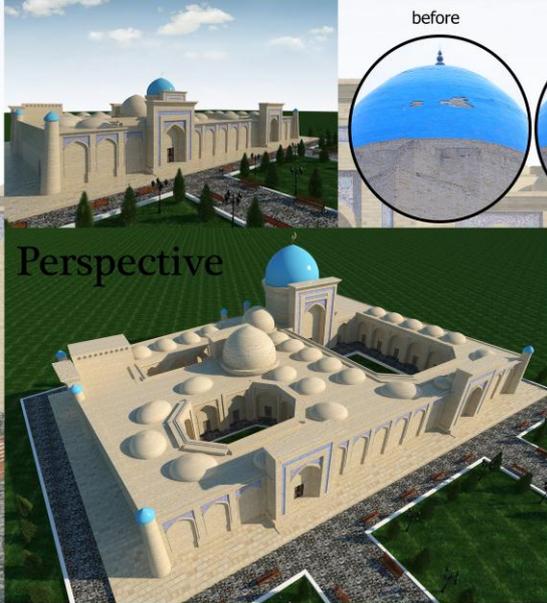


Broken and reconstructed top of the dome to the next state

Section



Perspective

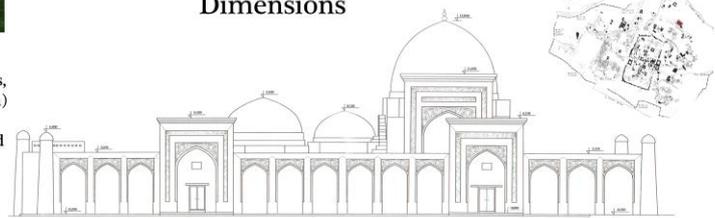


situation plan



The Khanate of Khiva consists of two parts: Ichan fortress (shahristan) and Dishan fortress (outer fortress)

Dimensions



before

after



Bouquet-type towers, bearded (foundation) of brick a result of the former state and the state after the reconstruction.