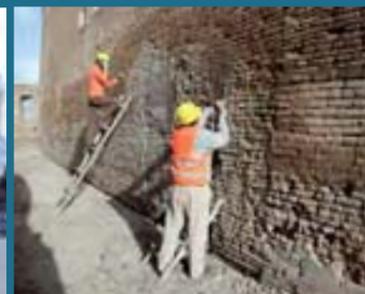
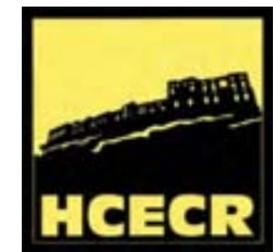


Erbil Citadel, Iraq Restoration and Rehabilitation of Shihab Chalabi house



Progress of the implemented works

March 2011, Dr. Mahmoud Bendakir

PROJECT PARTNERS

Embassy of France in Iraq

- Mr. Denis Gauer, Ambassador of France in Iraq;
- Mr. Jean-Michel Ledain, Counselor of cooperation and cultural action of the Service of cooperation and cultural action,
- Mr. Jean-Guy Sarkis, Department of Cooperation and Cultural Action
- Mr. Frederic Tissot, Consul General in Erbil

Ifpo

- M. François Burgat, Director of Ifpo;
- Cyril Roguet, Secrétaire général;
- Ms. Nicole Fouchet, Regional Accountant.

Ifpo-Iraq

- M. Hosham Dawod, Director of Ifpo-Iraq;
- Ms. Jessica Giraud, Researcher;
- Ms. Muriel Perez, Administrator.

Lafarge-Iraq

- Mr. Marcel COBUZ, Chief Executive Officer of Lafarge Cement Iraq;
- Mr. Atilla Pars, Chief Financial Officer;
- Mr. Vecdi Etkin, Sales Manager;
- Mr. Broosk Dara Mohamed, RMX Representative

HCECR (High Commission For Erbil Citadel Revitalization)

- M. Dara Yakubi, Head of HCECR;
- Ms. Ranan Tawfiq, Chief architect;
- M. Jawhar Putras Jarjes, Civil Engineer, supervisor of the project

MB Conservation (supervision of the restoration works)

- Dr. Mahmoud Bendakir, architect-Senior Expert, project manager;
- M. Hamid Reza, Project supervisor.

ACKNOWLEDGMENT

The first mission to launch the implementation phase for the conservation and rehabilitation of Shihab Chalabi house has received the full support from the representatives of the French Embassy in Iraq, the Ifpo center, the HCECR and the company of Lafarge which sponsoring this project. We are deeply grateful to all those who assisted us in carrying out this mission for their constant support, their contributions and their forthcoming nature. I would like to express my gratitude to all people who have provided their assistance and their support and particularly the Ifpo team responsible for the management of this project. I would like to thank Mr. François Burgat, Director of the Ifpo center, Cyril Roguet and Nicole Fouchet. In Erbil, the mission has received valuable support and permanent assistance from the Ifpo-Iraq team. In this regard, I warmly thank Mr. Hosham Daoud, Jessica Giraud, and Muriel Pérez. I also thank the responsible from the French Embassy in Iraq and the General Consulate in Erbil and in particular Mr. Denis Gauer, Ambassador of France in Iraq, Mr. Jean-Michel Ledain, Counselor of cooperation and cultural action of the Service of cooperation and cultural action, Mr. Jean-Guy Sarkis, Mr. Frederic Tissot, Consul General in Erbil, and Stéphane Tellier, Director of the French Institut in Erbil.

The success of this mission would not have been possible without the numerous contributions of HCECR staff. It benefited from the constant support of Mr. Dara Yakubi, Director of the HCECR, Ms. Ranan Tawfiq, Chief architect and Mr. Jawhar Putras Jarjes, Civil Engineer, who provided valuable information on the site and assisted us on the logistical issues. Many thanks for their warm welcome and their constant assistance which has allowed the effective starting of the restoration works.

This project has also received the valuable support of Lafarge Company who funded this project. Many thanks to Mr. Marcel COBUZ, Chief Executive Officer of Lafarge Cement Iraq, Mr. Atilla Pars, Chief Financial Officer, and Mr. Vecdi Etkin who provided us his continual assistance. We would thank also Mr. Broosk Dara Mohamed, RMX Representative, who will supervise the implementation phase for Lafarge.

Many thanks to the Chalabi house restoration team:

- M. Hamid Reza, Project Supervisor
- M. Taha Rassoul, Mason
- M. Assim Safar Sharif, Worker
- M. Wissam Abdullatif Sharif, Worker
- M. Chato Mouloud Mirza, Worker
- M. Shoqi Mouloud Khezer, Worker
- M. Rafah Mahsen, Worker
- M. Bassem Safer Sherif, Worker
- Yathsr Safer Sharif, Worker
- M. Walid Abdelletif, Worker
- M. Darya Anwar, Worker

PROJECT BACKGROUND

According to the partnership agreement for the development of cultural, scientific, and technical cooperation initiated by the Government of the French Republic and the Government of the Republic of Iraq, the project for the rehabilitation of Shihab Chalabi house was proposed and initiated by the local government of Kurdistan and the French Ministry of foreign affairs in order to accommodate the Ifpo center in Iraq. Within this general framework, a contract of partnership was signed on October 2010 between the company Lafarge, Ifpo (French Institute of the Near East) and the HCECR (High Commission for Erbil Citadel Revitalization), in the presence of the Embassy of France, the Governorate of Erbil and officials of Lafarge company.

On October 2011, inside Shihab Chalabi house, His Excellency Denis Gauer, Ambassador of France in Iraq and Mr. Dara Yakubi, director of the HCECR, proceeded to the signature of the lease granting the use of this historical building to house the Ifpo center. Following on that, Mr. Francois Burgat, director of the Ifpo and Mr. Attila Pars, Chief Financial Officer of Lafarge Company have proceeded to the signature of the funding partnership of the restoration and reuse of the Shihab Chalabi house.

To enable the effective implementation of the rehabilitation work, the Ifpo has contracted Dr. Mahmoud Bendakir, manager of the company MB Conservation, specialized in the field of conservation of architectural and archaeological heritage in order to supervise the restoration program over a period of six months.

LAUNCHING OF THE REHABILITATION WORK

Within the framework of the partnership project between the Ifpo, the HCECR and Lafarge for the rehabilitation of Shihab Chalabi house, a first mission was carried out from November 24 to December 11 to start the restoration works.

The main objectives of this mission were as following:

- Meeting with the HCECR for the validation of the general strategy and the restoration method statement proposed for the Implementation phase and organization of the restoration works in coordination with the HCECR technical staff;
- Supply of the site work in electricity and water as well as the modalities of accessibility to the site;
- Allocation by the HCECR of an accessible area in the vicinity of the Chalabi house for the storage of materials and removal of debris from site work;
- Identification of skilled workers to be engaged for the restoration works during the implementation phase;
- Identification of a local architect to be engaged on a permanent basis for the supervision of the restoration works;
- Securing the site work and installation of a site office within the Chalabi house to accommodate the technical staff and for the storage of equipment and tools;
- Purchase of required equipment, tools and construction materials for the restoration works;
- Start of the training program and the demonstration works to introduce the local staff to different methods and techniques of intervention;
- Implement restoration and rehabilitation works as specified in the conservation technical package already prepared by MB Conservation and validated by the HCECR and Unesco.

RESULTS ACHIEVED DURING THE MISSION

After several meetings and consultations with the HCECR technical staff, a team of two workers and a master was engaged on the site work very quickly. This team was reinforced day by day to achieve a total number of 9 workers.

The operational launch of restoration works has been made possible thanks to the mobilization of the members of the HCECR who provide help and support to identify skilled workers. The major part of the workers engaged was already involved in various restoration projects within the Erbil citadel. In addition, and after several consultations, a heritage architect, Mr. Hamid Reza, was hired by MB Conservation to supervise the restoration works during our absence and ensure a day by day monitoring of the restoration works over the entire period of the implementation phase.

Immediately after the starting of the implementation phase, several conservation activities were launched simultaneously and the work took a regular rate from the first week. As a first step an action plan has been discussed in detail and a list of priorities drawn up in order to finalize the preparation of the site work and the supplying of the conservation materials before starting the implementation of solid restoration work.

Three months after the beginning of the implementation phase, a significant progress has been made and important works are underway.

WORK PERFORMED:

- Removal of modern walls within the toilet area located at the ground level as proposed in the reuse plan;
- Removal of existing gypsum plaster affected by moisture as recommended in the condition assessment report;
- Removal of cement plaster at the wall base of the outer facades;
- Leveling and removal of the irregular concrete layer covering the floor of the rooms and the Iwan (portico);
- Removal of debris from the site work;
- Preparation of vertical cracks in the walls before proceeding to their treatment;
- Preparation of the walls for the electromechanical installation;
- Superficial cleaning of the gypsum stone walls, columns, arches and stone frame of doors and window;
- Removal of existing doors and windows;
- Removal of the decorated ceiling to inspect the condition of the wood structure of the roof;
- Consultations with contractors and artisans for specific works: electricity, plumbing, woodwork, ironwork, plasterwork;
- Reparation of the doors and windows frame;
- Plastering (on progress);
- Wiring;
- Plumbing;
- Construction of new walls for the toilet area and story floor;
- Lowering of the courtyard level;
- Installation of the courtyard drainage system;
- Ironwork cleaning;
- External wall cleaning;
- Parapet reconstruction.

The following pages depict the work already achieved.

IMPLEMENTATION STEPS



1. Ceiling and roof structure treatment

2. Internal and external walls treatment

3. Treatment of internal floors, stairs and steps

4. Treatment of gypsum stone masonry, columns and arches

5. Electrical, internet and plumbing

6. Doors, windows and openings

7. Lowering of the courtyard level and drainage

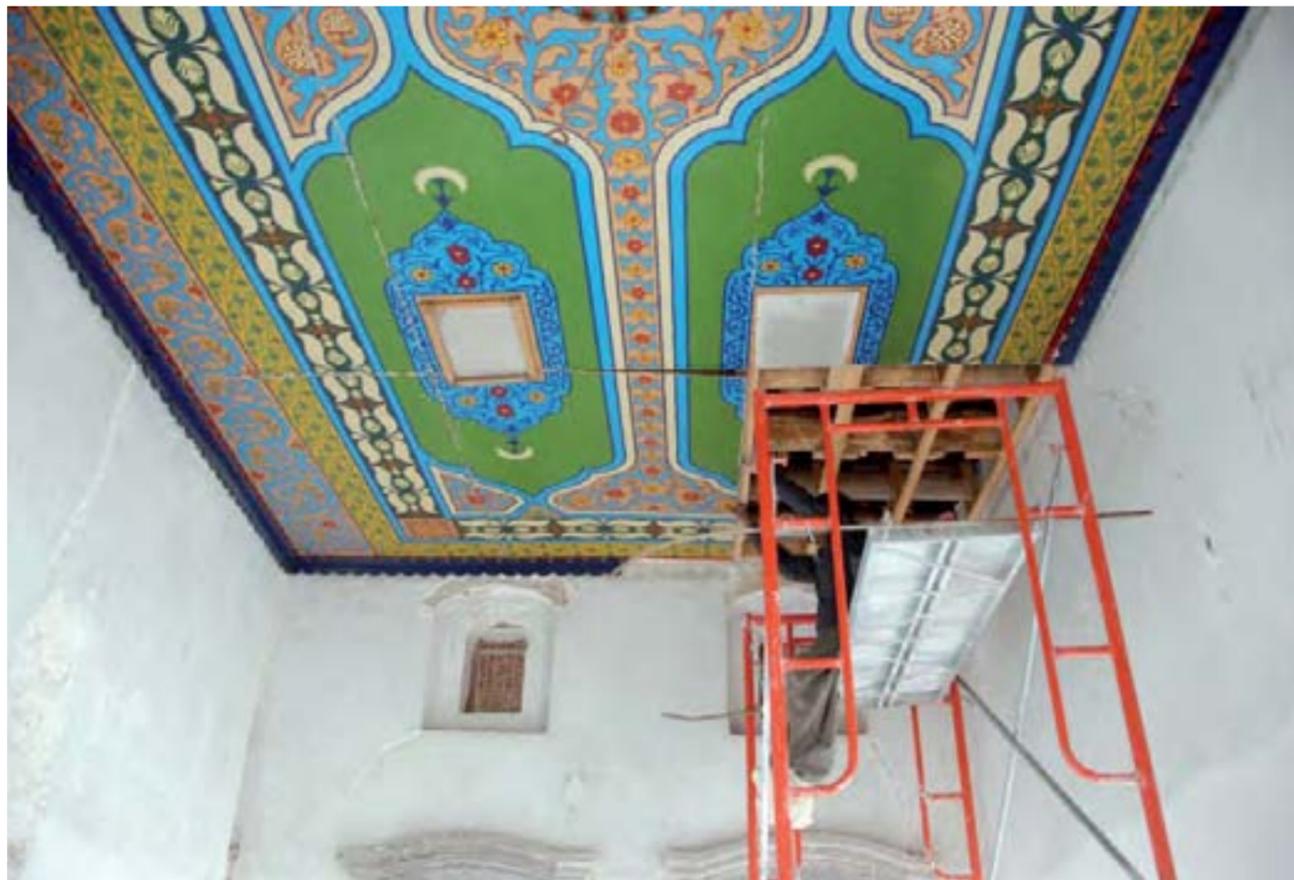
8. Ironwork and treatment of iron window grille

9. Terrace and parapet treatment





1. CEILING AND ROOF STRUCTURE TREATMENT



Type 1: New painted ceiling to be dismantled and replaced after cleaning and restoration work (locus N°11, 12C, 12D, 20, 21, 22)

Modern painted ceiling which was reconstructed during the 1980s restoration project using oil based paint.



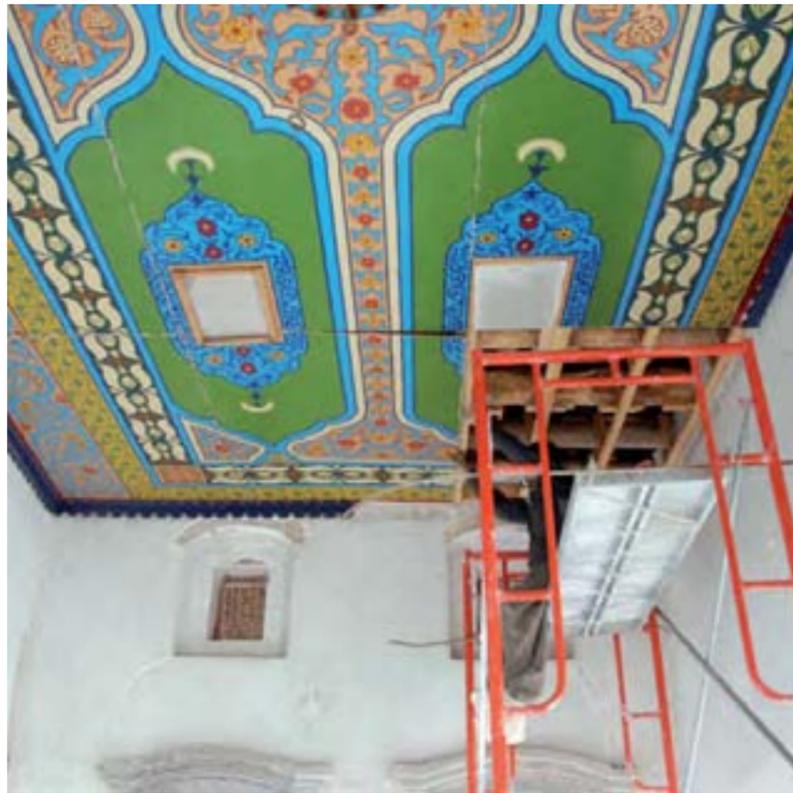
Type 2: Original painted ceiling to be restored in situ (Locus N° 12A, 12B, 12E, 13, 14, 15, 16, 18, 19)
Painted ceiling with natural pigments.



1. CEILING AND ROOF STRUCTURE TREATMENT



Steps of intervention for decorated ceiling : Type 1 (new painted ceiling to be dismantled and replaced after cleaning and restoration work)



Step1: Dismantling of the plywood panels of the decorated ceiling



Step2: Inspection and treatment of the roof wood structure



To be completed

Step3: Cleaning, retouching of damaged or missing parts and then re-assembling the plywood panels.



1. CEILING AND ROOF STRUCTURE TREATMENT



Steps of intervention for decorated ceiling : Type 1 (new painted ceiling to be dismantled and replaced after cleaning and restoration work)



INSTRUCTION FOR TERMITE TREATMENT

The dismantling of the plywood panels and the inspection of the wood roof structure revealed the existence of termites that attack the main beams and the decorated plywood panels. It is highly recommended to treat all the wood structure before reinstalling the decorated ceiling.

The products used for the treatment of wood will include one active biocide agent (pesticide) to protect the wood against the attack of lignivorous fungi and some so-called xylophagous insects, which are considered as biological attacks. Only products that are safe and environmentally friendly will be used.

For the in situ treatment of the existing wood structure of the roof, professional know-how is required in order to avoid the degradation of the decorative motifs. The suggested method is as follows:

- Brush and remove dust in order to allow a better penetration of the products on the wood;
- Inspect the portions that are highly infested and determine the degree of the attacks
- Make holes in the infested wood to receive the anti-termite injections
- Inject under pressure the wood treatments for large-section beams
- Finally, spray the product on the surface of the roof structure until the saturation of the wood is noticed.





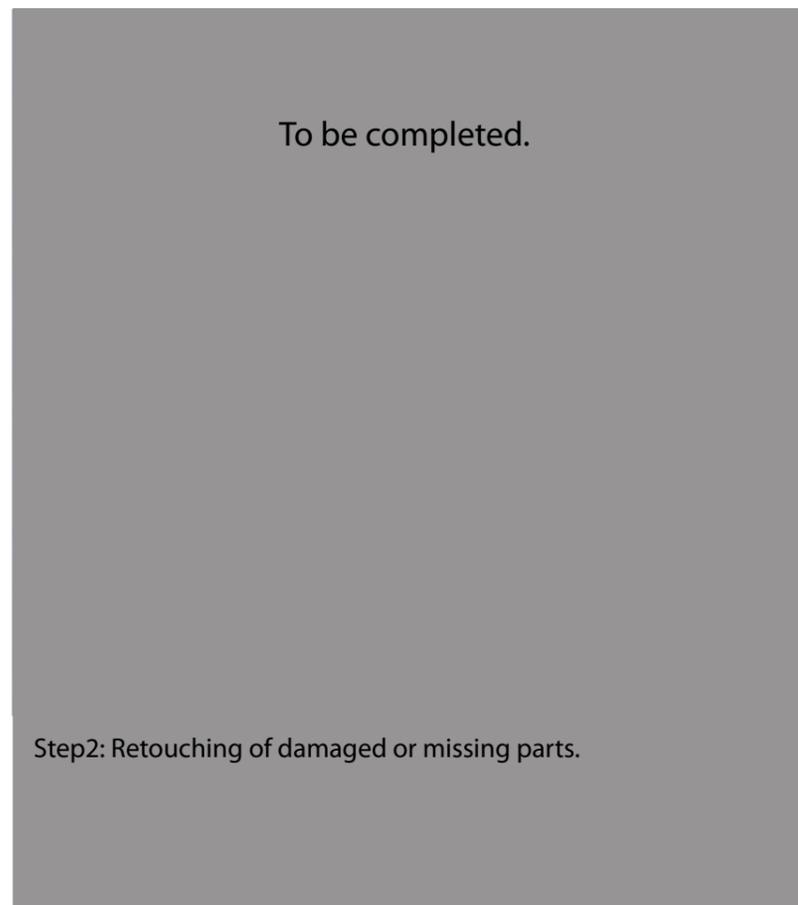
1. CEILING AND ROOF STRUCTURE TREATMENT



Steps of intervention for decorated ceiling : Type 2 (Historical painted ceiling to be restored in situ)



Step1: Cleaning of the decorated ceiling.



Step2: Retouching of damaged or missing parts.



2. INTERNAL AND EXTERNAL WALLS TREATMENT



Steps of intervention for wall treatment : Courtyard walls



STEPS OF INTERVENTION

- removal of the existing gypsum plaster. The gypsum plaster at some parts of the internal walls was affected and eroded by humidity and particularly the basement walls are more exposed to rising damp. Before applying a new plaster, it is recommended to remove the existing one to allow the wall to breath and to evaporate the excessive humidity;
- The surface of walls should be cleaned, dusted and thoroughly soaked with water before applying the coating to remove brittle pieces and dust particles clinging to the surface. A good surface preparation is essential to avoid problems such as cracks, and surface detachment. Heavily eroded walls and gaps require a preliminary straightening, the gaps should be filled and a flat surface restored on which the main coating will be applied evenly.
- Apply the new gypsum or lime plaster.



2. INTERNAL AND EXTERNAL WALLS TREATMENT



Steps of intervention for wall treatment : Courtyard walls



Plastering Locus 16:

First gypsum coat before applying the final coat.



2. INTERNAL AND EXTERNAL WALLS TREATMENT



Steps of intervention for wall treatment : Courtyard walls



CRACK TREATMENT

Once the cause of the crack is identified and eradicated, the crack can be treated as following:

- Clean the crack to remove dust.
- For vertical deep cracks insert «H» shape wooden ties in masonry, seal the wood ties inside the wall using lime or gypsum mortar at least 15 cm deep (the wood tie should be treated against humidity);
- Cap and seal the rest of the crack with a lime and sand mortar;
- Apply a new lime and sand plaster.



2. INTERNAL AND EXTERNAL WALLS TREATMENT



Steps of intervention for wall treatment : Construction of new walls





2. INTERNAL AND EXTERNAL WALLS TREATMENT

1. Ceiling and roof structure treatment

2. Internal and external walls treatment

3. Treatment of internal floors, stairs and steps

4. Treatment of gypsum stone masonry, columns and arches

5. Electrical, internet and plumbing

6. Doors, windows and openings

7. Lowering of the courtyard level and drainage

8. Ironwork and treatment of iron window grille

9. Terrace and parapet treatment

Steps of intervention for wall treatment : External walls



Step 1: Removal of debris and spoil heaps at the base of the wall



Step 1: Removal of debris and spoil heaps at the base of the wall



2. INTERNAL AND EXTERNAL WALLS TREATMENT



Steps of intervention for wall treatment : External walls



Step 2: Removal of cement plaster at the base of the wall



Step 2: Removal of cement plaster at the base of the wall



2. INTERNAL AND EXTERNAL WALLS TREATMENT



Steps of intervention for wall treatment : External walls



Step 3: Cleaning of the joints between the brick masonry and removal of cement and mud mortar



Step 3: Cleaning of the joints between the brick masonry and removal of cement and mud mortar



2. INTERNAL AND EXTERNAL WALLS TREATMENT



Steps of intervention for wall treatment : External walls



Step 3: Removal of PVC pipes, electrical wires, telegraph cable...



Step 3: Fill with a new masonry holes and gaps



2. INTERNAL AND EXTERNAL WALLS TREATMENT



Steps of intervention for wall treatment : External walls



1. Before intervention



2. During the cleaning process



2. During the cleaning process



2. INTERNAL AND EXTERNAL WALLS TREATMENT



Steps of intervention for wall treatment : External walls



Step 4: Repointing with a lime-sand-brick powder mortar



Step 4: Repointing with a lime-sand-brick powder mortar



3. TREATMENT OF INTERNAL FLOORS, STAIRS AND STEPS



Steps of intervention for floors, stairs and steps



Step 1: Removal of the concrete layer within the rooms and portico area



Step 1: Removal of the concrete layer within the rooms and portico area



3. TREATMENT OF INTERNAL FLOORS, STAIRS AND STEPS



Steps of intervention for floors, stairs and steps



Step 1: Removal of the concrete layer within the rooms and portico area



Step 2: Lowering the ground level of the toilet area



3. TREATMENT OF INTERNAL FLOORS, STAIRS AND STEPS



Steps of intervention for floors, stairs and steps



Step 2: Lowering the ground level of the toilet and reception area



Step 2: Lowering the ground level of the toilet and reception area



3. TREATMENT OF INTERNAL FLOORS, STAIRS AND STEPS



Steps of intervention for floors, stairs and steps



Step 3: Reconstructing the toilet ground level



Step 3: Reconstructing the toilet ground level



3. TREATMENT OF INTERNAL FLOORS, STAIRS AND STEPS



Steps of intervention for floors, stairs and steps



Step 4: Removing steps and the base of the stairs



Step 4: Removing steps and the base of the stairs



4. TREATMENT OF GYPSUM STONE MASONRY, COLUMNS AND ARCHES



Steps of intervention for treatment of gypsum stone masonry, columns and arches



Step 1: Superficial cleaning and washing of the gypsum stone elements

Objective

There are several major reasons for cleaning the historic stone masonry of the portico:

1. Treat the structural and humid pathologies to improve the resistance of the fragile gypsum stone masonry;
2. Improve the appearance of the gypsum stone masonry by removing non-compatible materials like painting, gypsum plaster, white cement mortar, cement joins and other intrusive materials;
2. Provide a clean surface treated to resist to rainfall water infiltration;
3. Replacing eroded pieces, repointing and refilling gaps and missed parts of the stone masonry.

Methodology

- Identify what is to be removed.
- Consider the historic appearance of the building.
- Choose the appropriate cleaning techniques and methods.
- Identify prior treatments and adapted restoration materials.



4. TREATMENT OF GYPSUM STONE MASONRY, COLUMNS AND ARCHES



Steps of intervention for treatment of gypsum stone masonry, columns and arches



Step 1: Superficial cleaning and washing of the gypsum stone elements

Cleaning techniques

Stone masonry cleaning methods generally are divided into 4 major groups: water, chemical, abrasive and laser cleaning.

- Water methods soften the dirt or soiling material and rinse the deposits from the masonry surface.
- Chemical cleaners react with dirt, soiling material or paint to effect their removal, after which the cleaning effluent is rinsed off the masonry surface with water. This technique is not recommended for fragile gypsum stone.
- Abrasive methods include blasting with grit, and the use of grinders and sanding discs, all of which mechanically remove the dirt, soiling material or paint (and, usually, some of the masonry surface). Abrasive cleaning is also often followed with a water rinse.
- Laser cleaning is a more sophisticated technique that is used sometimes by conservators to clean small areas of historic stone masonry. It can be quite effective for cleaning limited areas, but it is expensive and generally not practical for most historic masonry cleaning projects.



4. TREATMENT OF GYPSUM STONE MASONRY, COLUMNS AND ARCHES



Steps of intervention for treatment of gypsum stone masonry, columns and arches



Step 1: Superficial cleaning and washing of the gypsum stone elements



Step 2: Removal of gypsum plaster and gypsum painting



4. TREATMENT OF GYPSUM STONE MASONRY, COLUMNS AND ARCHES



Steps of intervention for treatment of gypsum stone masonry, columns and arches



Step 3: Mechanical abrasive cleaning to remove cement mortar



Step 3: Mechanical abrasive cleaning to remove cement mortar



4. TREATMENT OF GYPSUM STONE MASONRY, COLUMNS AND ARCHES



Steps of intervention for treatment of gypsum stone masonry, columns and arches



Step 3: Removal of concrete layer at the base of the column



Step 3: Removal of white cement mortar at the stone masonry joins



4. TREATMENT OF GYPSUM STONE MASONRY, COLUMNS AND ARCHES



Steps of intervention for treatment of gypsum stone masonry, columns and arches



Step 3: Eroded part of the window frame to be replaced



Step 3: Eroded part of the column base to be replaced



5. ELECTRICAL, INTERNET AND PLUMBING

1. Ceiling and roof structure treatment

2. Internal and external walls treatment

3. Treatment of internal floors, stairs and steps

4. Treatment of gypsum stone masonry, columns and arches

5. Electrical, internet and plumbing

6. Doors, windows and openings

7. Lowering of the courtyard level and drainage

8. Ironwork and treatment of iron window grille

9. Terrace and parapet treatment

Steps of intervention for electrical, internet and plumbing installation



Electrical wiring, phone wiring, and wiring for computer and internet networking



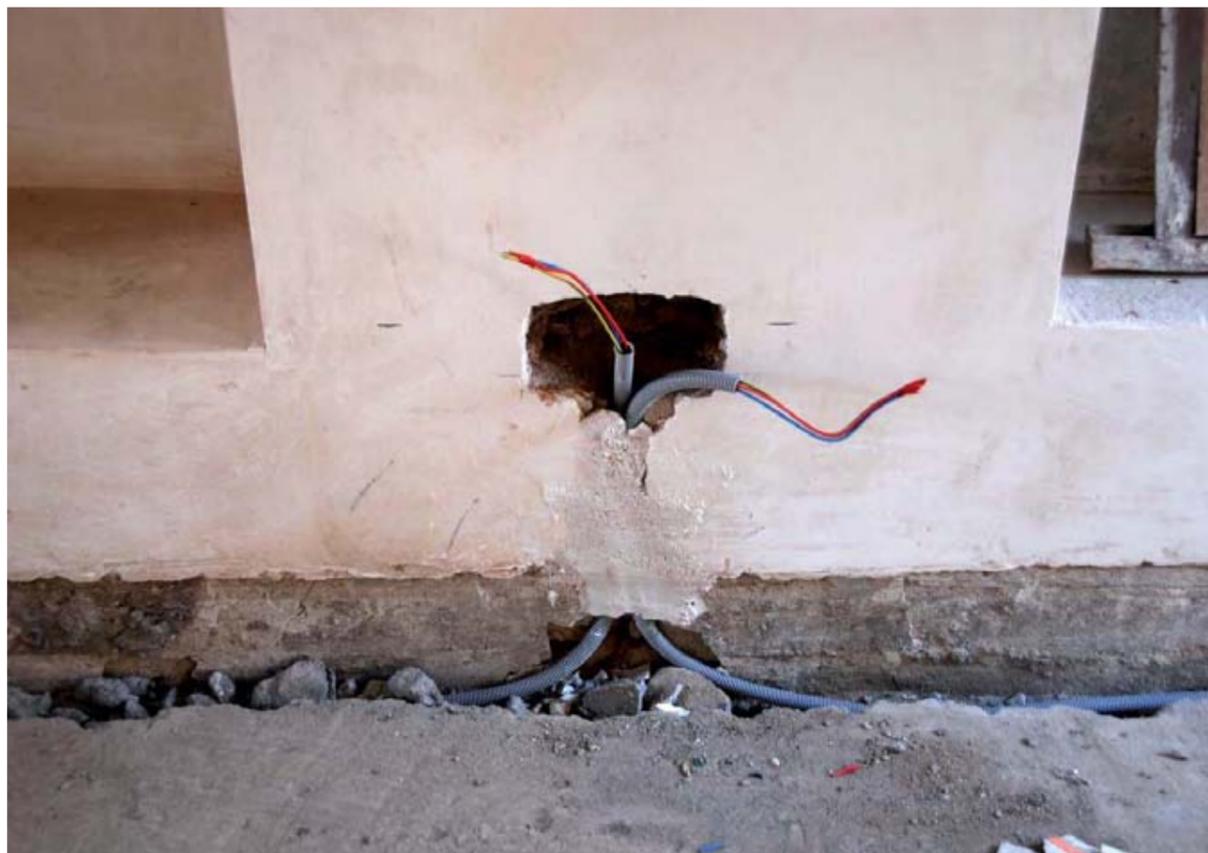
Electrical wiring, phone wiring, and wiring for computer and internet networking



5. ELECTRICAL, INTERNET AND PLUMBING



Steps of intervention for electrical, internet and plumbing installation



Electrical wiring, phone wiring, and wiring for computer and internet networking



Electrical wiring, phone wiring, and wiring for computer and internet networking



5. ELECTRICAL, INTERNET AND PLUMBING



Steps of intervention for electrical, internet and plumbing installation



Step 2: Plumbing (ground floor, toilet area)



Step 2: Plumbing (ground floor, toilet area)



5. ELECTRICAL, INTERNET AND PLUMBING



Steps of intervention for electrical, internet and plumbing installation



Step 2: Plumbing for air conditioning



Step 2: Plumbing for air conditioning



6. DOORS, WINDOWS AND OPENINGS



Steps of intervention for doors, windows and openings



Step 1: Removal of existing doors and windows



Step 1: Removal of existing doors and windows



6. DOORS, WINDOWS AND OPENINGS



Steps of intervention for doors, windows and openings



Step 1: Removal of existing doors and windows



Step 2: Plumbing for air conditioning



6. DOORS, WINDOWS AND OPENINGS



Steps of intervention for doors, windows and openings



Step 3: Installing new doors and windows



Step 3: Installing new doors and windows

7. LOWERING OF THE COURTYARD LEVEL AND DRAINAGE



1. Ceiling and roof structure treatment

2. Internal and external walls treatment

3. Treatment of internal floors, stairs and steps

4. Treatment of gypsum stone masonry, columns and arches

5. Electrical, internet and plumbing

6. Doors, windows and openings

7. Lowering of the courtyard level and drainage

8. Ironwork and treatment of iron window grille

9. Terrace and parapet treatment

Steps of intervention for lowering of the courtyard level and drainage



Step 1: Removal of debris from site work



Step 2: Removal of the existing paving and cement mortar

7. LOWERING OF THE COURTYARD LEVEL AND DRAINAGE



1. Ceiling and roof structure treatment

2. Internal and external walls treatment

3. Treatment of internal floors, stairs and steps

4. Treatment of gypsum stone masonry, columns and arches

5. Electrical, internet and plumbing

6. Doors, windows and openings

7. Lowering of the courtyard level and drainage

8. Ironwork and treatment of iron window grille

9. Terrace and parapet treatment

Steps of intervention for lowering of the courtyard level and drainage



Step 3: Digging and removal of mud soil



Step 3: Leveling and adjusting the ground level below the basement windows

7. LOWERING OF THE COURTYARD LEVEL AND DRAINAGE



1. Ceiling and roof structure treatment

2. Internal and external walls treatment

3. Treatment of internal floors, stairs and steps

4. Treatment of gypsum stone masonry, columns and arches

5. Electrical, internet and plumbing

6. Doors, windows and openings

7. Lowering of the courtyard level and drainage

8. Ironwork and treatment of iron window grille

9. Terrace and parapet treatment

Steps of intervention for lowering of the courtyard level and drainage



Step 4: Removal of the concrete below the level of the basement windows



Step 4: Removal of the concrete below the level of the basement windows

7. LOWERING OF THE COURTYARD LEVEL AND DRAINAGE



1. Ceiling and roof structure treatment

2. Internal and external walls treatment

3. Treatment of internal floors, stairs and steps

4. Treatment of gypsum stone masonry, columns and arches

5. Electrical, internet and plumbing

6. Doors, windows and openings

7. Lowering of the courtyard level and drainage

8. Ironwork and treatment of iron window grille

9. Terrace and parapet treatment

Steps of intervention for lowering of the courtyard level and drainage



Step 5: Installation of the courtyard drainage system



Step 5: Installation of the courtyard drainage system

7. LOWERING OF THE COURTYARD LEVEL AND DRAINAGE



1. Ceiling and roof structure treatment

2. Internal and external walls treatment

3. Treatment of internal floors, stairs and steps

4. Treatment of gypsum stone masonry, columns and arches

5. Electrical, internet and plumbing

6. Doors, windows and openings

7. Lowering of the courtyard level and drainage

8. Ironwork and treatment of iron window grille

9. Terrace and parapet treatment

Steps of intervention for lowering of the courtyard level and drainage



Before the lowering of the courtyard ground level



After the lowering of the courtyard ground level

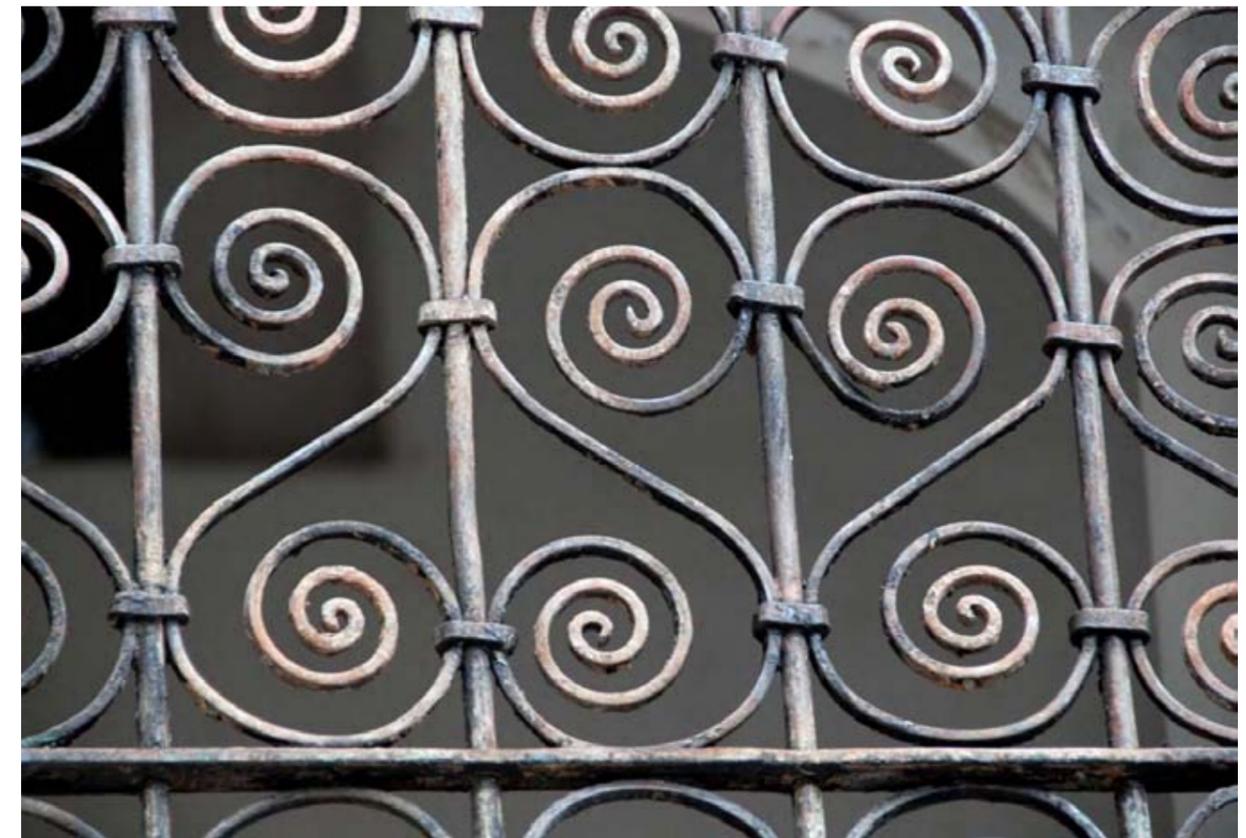
8. IRONWORK AND TREATMENT OF IRON WINDOW GRILLE



Steps of intervention for ironwork and treatment of iron window grille



1980s poor quality ironwork to be dismantled and replaced

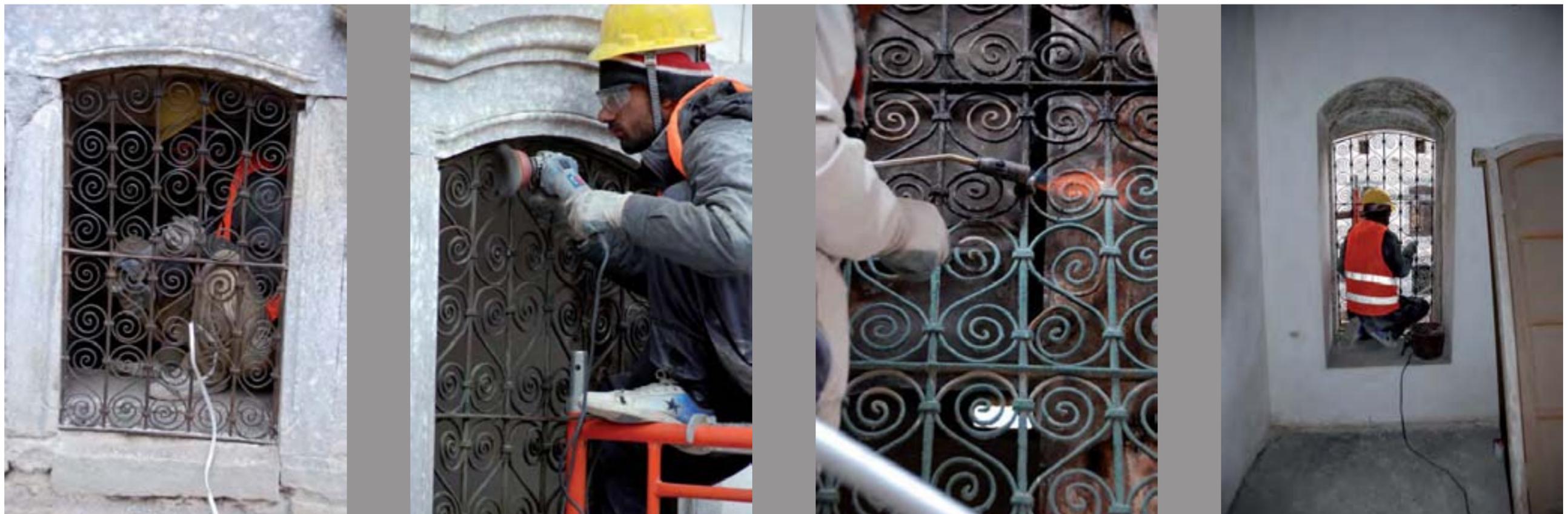


Historical ironwork to be restored

8. IRONWORK AND TREATMENT OF IRON WINDOW GRILLE



Steps of intervention for ironwork and treatment of iron window grille



1. Cleaning and removal of paintings before the traitment of ironwork

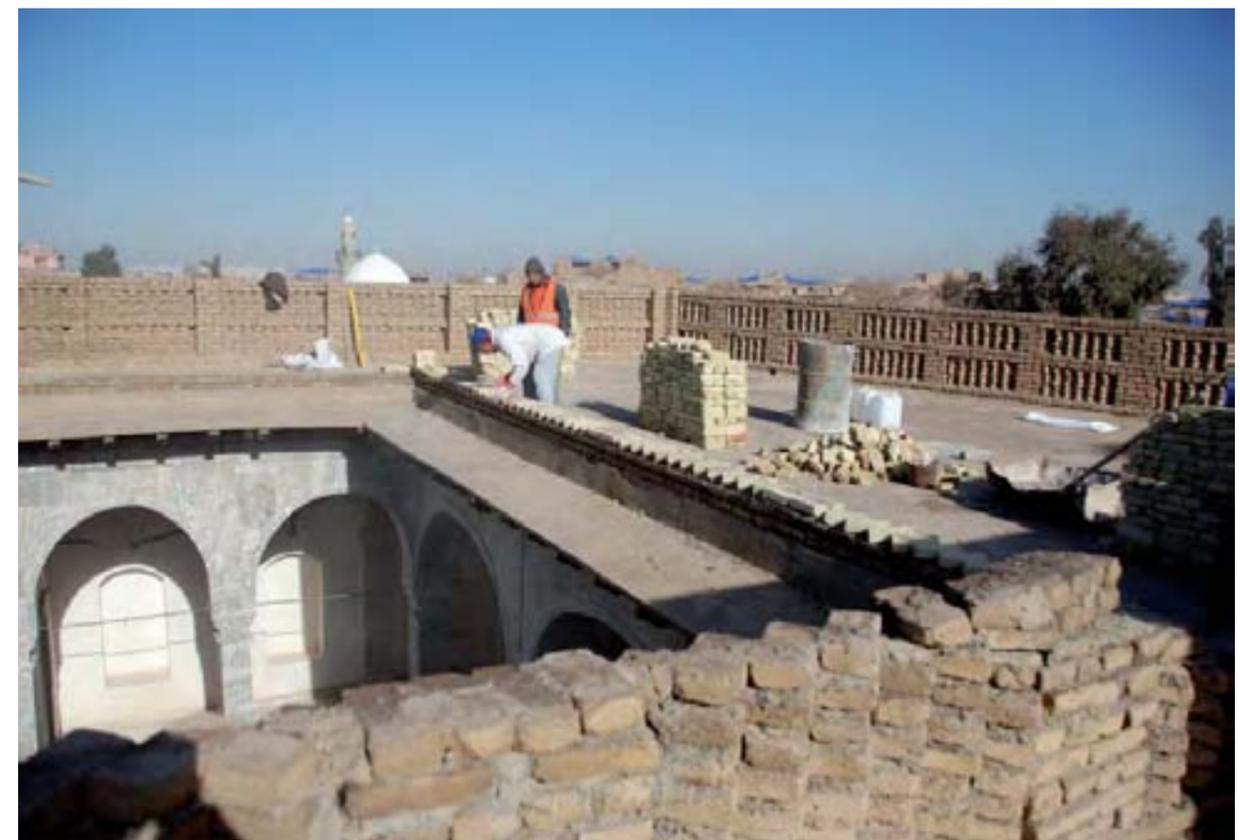
9. TERRACE AND PARAPET TREATMEN



Steps of intervention for terrace and parapet treatment



Parapet reconstruction



Parapet reconstruction

9. TERRACE AND PARAPET TREATMEN



Steps of intervention for terrace and parapet treatment



Parapet reconstruction



Parapet reconstruction

9. TERRACE AND PARAPET TREATMEN



Steps of intervention for terrace and parapet treatment



Before parapet reconstruction



After parapet reconstruction