

**Marota City**

**Executive Model File Guide for Construction License Engineering Studies in  
Marota City**

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## **Executive Model File Guide for Construction License Engineering Studies in Marota City:**

The objective of this guide:

Identifying integral engineering studies for acquiring construction licenses

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The file includes integrated engineering studies consistent with the preliminary design idea and includes diagrams and mathematical notes for all fields.

### **General Prerequisites**

1 - The studies are compatible with:

- The organizational diagram for the area and the perimeters
- Methodology and general/specific conditions for the plot.
- Guide lines and regulatory decisions included in the appendix

2 - Study shall be carried out according to local or international standards and codes with a justification note accompanied by a paper or digital copy.

3 - Diagrams should include all the dimensions, details, descriptions, and data, forwarded with a schedule for the required quantities for the building implementation .

4 - The administrative authority has the right to request additional studies if it deems it appropriate.

5 - The diagrams and mathematical notes shall be certified by the Syndicate of Engineers Damascus Branch after approval and before license is issued.

6 - The Studying and auditing authorities of the Syndicate of Engineers in Damascus are the sole responsible for the validity of the study.

7 - The study is submitted as follows:

- a. The study is paper and digital in PDF, BIM and AutoCAD format, in addition to other formats according to computer software used in the study and according to the approved layout by the administration , that is available on the site.
- b. Diagrams must be in 1/100 scale, other parts' details that need to be illustrated in an appropriate scale.
- c. An index should be prepared including file contents.

## **Architectural study includes :**

1 - A booklet containing the following:

1-1 A descriptive illustrative note of functional program of the building corresponding with the preliminary design idea and the submitted perspectives for the project.

1-2 A table for materials used on floors and facades in internal/external cladding.

1-3 All signs (symbols) on the diagrams of the materials used in structure and cladding in the horizontal perspectives and sections.

1-4 Diagram index

2- Architectural diagrams:

2-1 The general location illustrating the mass-perimeter relation with the surroundings and the means of linking with public properties.

2-2 Area plans for all floors including block carving (covering line)

2-3 Architectural projections for all stories including basements and rooftops including the following:

- Different floor levels with the illustrative height line and the general height line in relation to the levels in the projections, facades and sections
- Architectural and sanitary furnishing projections corresponding to all the fields.

2- 4 Sections:

At least two perpendicular sections, one of which passes the stairs and the basic elements, with all levels of ceilings, stairs flight and building entrances indicated, with flooring and stair section detailing of an appropriate scale.

2-5 Facades: façade projections of building blocks, including ones overlooking perimeters and skylights, indicating cladding materials and all architectural elements.

2-6 Architectural details and detailed executive plans with appropriate scales.

2-7 Perspectives illustrating the design ideas of project elements and facades while showing the surroundings that are corresponding with the submitted architectural plans.

2-8 Diagrams of green spaces and all the details of the coexistence space and Surrounding perimeter .

### **Geotechnical study which includes:**

Geotechnical report containing recommendations for design and implementation of the bases and foundations (Soil tolerance - type of foundations - foundation level - groundwater level if found – slope angle of the basis` digging-resulted sections on the horizon - possible land subsidence) these recommendations shall be based on deep probes carried out at the construction site in number and depths and on the tests necessary to determine the specifications of the foundation soil (characteristics of the foundation soil).

If the geotechnical report indicates the need to study the balance and stability of the setting up ` drilling bits , a detailed study should be provided for this, including the appropriate consolidation method if necessary.

Noting that during implementation, the foundation soil should be checked and matched with the report.

### **Structural study including the following:**

1- A booklet containing:

2-1 Explanatory justification note of the structural solution

2-2 Mathematical notes, with the need to render the building on the horizontal and vertical loads by one of the approved software, and attaching the computer file.

2-3 All signs (symbols) on the diagrams of the materials used in the horizontal perspectives, sections, and reinforcement tables.

2-4 Diagram index

2- Structural diagrams:

- 2-1 A projection showing the foundations placement with the carrier elements (axis)
- 2-2 Projections showing all structural, vertical, horizontal carrier elements
- 2-3 Longitudinal and transverse sections in all structural details.
- 2-4 Contact details of horizontal and vertical elements.
- 2-5 Details of expansion and landing joints of concrete elements.
- 2-6 Structural plan of the retaining walls (projections - sections - with its construction note) with the necessary structural details and a section showing the difference in the levels if found.

**Sanitary study including the following:**

1- A booklet including:

- 1-1 Explanatory Note: Includes design basis and all data and mathematical notes
- 1-2 All signs (symbols) on the diagrams of the materials and elements used in the horizontal projections and sections
- 1-3 Chart index

2- Sanitary charts:

2-1 Fresh water

- Sweet water installations for all floors with tables and signs (symbols) for the materials used and their specifications
- Water tanks, their placements and details in accordance with the requirements of the General Organization for Drinking Water and Sanitation
- Linking with the public network, and water meters connected to the smart network

2-2 Sewage

- Sewage installations with schedules and signs (symbols) for the materials used and their specifications.
- Linking with the public network

- Details (main drain – drains – pipe fittings – odor ventilation – pumps)
- 2-3 Rain water
- Rooftops slope and rainwater drainage installations network with tables and signs (symbols) for the materials used and their specifications
  - Linking with the public network
- 2-4 If the structure requires oil and grease traps, the study body must submit detailed structural and operational plans for the traps showing the dimensions, specifications and equipment used in the traps in addition to the specifications of these equipment.

**The public safety and fire extinguishing network including the following:**

1- A booklet including:

- 1-1 Explanatory note: Includes design basis, all data and notes for the safety and security standards, especially in terms of warning, saving, and fire fighting
- 1-2 All signs (symbols) on the diagrams of the materials and elements used in the horizontal projections and sections
- 1-3 Chart index

2- Charts:

- 2-1 Fire network installations with indicated fire nozzles, electronic sprays, and sensors
- 2-2 Water tanks for fires
- 2-3 The required pumps and their specifications
- 2-4 Linking mechanism with the smart network
- 2-5 Emergency evacuation lights using special batteries (ones that work when power is cut out to illuminate stairs and building exits)
- 2-6 Early detection systems for fire in all floors and architectural spaces of the building of various uses

**study including the following:**

1 - A booklet including:

1-1 All data and mathematical notes, indicating the quality of the plants and trees used, as well an explanatory note explaining why the trees and plants were selected as well as their suitability to the site environment.

1-2 All signs (symbols) on the diagrams of the materials and elements used in the horizontal projections and sections

1-3 Chart index

2 - Charts

2-1 Watering installations network and its sewage

2-2 Plant distribution

2-3 Garden insulation

2-4 Showing the means of supply from watering network and meters, means of linking with the smart network

2-5 Tanks and pumps

**Electrical study that includes**

1 - A booklet including:

1-1 Electrical basis of the study (according to electrical installation system commissioned by the Syndicate of Engineers or...)

1-2 The type of usage (residential – commercial)

1. 3 Mathematical notes including:

- Determining electric potential (illumination – outlets – heavy equipment..)

- Calculating main and sub-lines diameters

- Calculating earthing network according to the method adopted in the study

- Other studies data (Fire alarm – lightning protection – elevator – light – emergency – external illumination set – audio – reactive capacity...)

1-4 All signs (symbols) on the charts

1-5 Chart index



## 2 - Chart

### 2-1 Illumination network:

- Internal lighting of the facility and the locations of optical points, switches, and presses with determining the average electrical capacity and locations of transmitters and tube diameters .
- Shared illumination board and lighting charts for shared places in building .
- Decorative lighting for facades .
- Determining smart meter rooms, main and sub electrical panels or apartment panels.
- Determining the ascending wire pod which includes various electrical wiring for distribution to the apartments and floors.
- Night and day warning lighting for aircraft

### 2-2 Electric outlet network:

- Electrical outlet for all apartments with determining the average electrical capacity and the locations of the transmitters and tube diameters

### 2-3 Determining shaft opening that includes all ascending electrical installations to be distributed to the apartments

### 2-4 Detailed sections and additional illustrative or box drawings of the buildings of a special nature that need (box drawings of the main and sub distribution boards - details ...).

### 2-5 Installing main and sub-panels with transmitter diameters

### 2-6 Earthing network with an earthing well

### 2-7 Lightning protection rod

### 2-8 Backup generation set and its capacity, linking method with the gas network and the conversion center.

### 2-9 Elevator charts (Electro-mechanic):

- Cross-section (internal dimensions of the well and wall thickness)
- Longitudinal section (engines room with a section in it)
- Electrical panel dedicated for elevator execution
- Required mechanical study of the elevator

Smart network:

- Fiber optic network charts
- Locations of Sensors and controllers with all types
- Surveillance cameras placement
- Landline charts inside the apartments
- IP TV installation charts inside the apartments
- Smart network meters chart
- Com-room chart with its components, in addition to surveillance room
- Smart network linking details with all services
- The basic smart network inside the buildings must be designed in a way allowing its occupants later to utilize any service within the organizational area

**Mechanical study which includes:**

1- A booklet containing:

- 1-1 Mathematical note: including study basis – building description – location – direction – determining climate conditions – internal conditions – the heating method adopted in the design (collective – singular – central) – boiler capacity – burner capacity – chimney dimensions...
- 1-2 All signs (symbols) on the diagrams of the materials and elements used in the horizontal projections and sections
- 1-3 Chart index

2 - Charts:

- 2-1 Technical floors, their details and noise dampers.
- 2-2 Details of ventilation ducts for kitchens and bathrooms.
- 2-3 Ventilation , sanitary services' air expulsion in the natural way as possible, chimney air expulsion by force if required, garage ventilation – air expulsion - if found.
- 2-4 Heating and hot water generating :

- Basement projection showing shared gas heating equipment, boiler and chimney locations, smoke collector, connections and installations located in the basement with basic dimensions
- Floor projections showing heating units - thermal transfer or floor heating equipment (according to design), its supply and the parts connected to the equipment, showing pipe diameters and thermal loads for each space, and specification of the set device.
- Vertical section (one or more sections) to indicate the path of ascending installations.
- Mechanical equipment details in boiler room
- A box drawing of the installations if other projections are not sufficient to explain the required implementation.

#### Details:

Symbolic chart of heating circuit - boilers - installations - equipment - hot water preparation for domestic uses (hot water cylinder - linkage) - pipe suspension details - thermal expansion capacity details - smoke collectors details – ascending installation details whenever necessary - installation details of the thermal transmission device.

#### 2-5 Air conditioning:

- Installing air conditioning units to all floors .

#### 2-6 Solar power:

- Mathematical note
- A chart illustrating solar panels placement with their dimensions
- Ascending/descending tube installation chart with their diameters and specifications
- Solar power generation chart

#### 2-7 Garbage collection and disposal

- Charts illustrating garbage shafts
- Detailed charts of the used equipment
- Safety charts for garbage network
- Ventilation
- Garbage collection rooms with ventilation details and all the equipment used

2-8 Water/thermal insulation

- Mathematical note concerning insulation
- Insulators placement charts
- Insulation details (designed and executed according to Syrian Arab Code)
- Pools and floor gardens insulation charts

2-9 Acoustic insulation: The requirements stated in the approved code must be met for the acoustic performance associated with the internal noise standard from external sources, as well as the acoustic performance associated with the noise standard issued by mechanical devices, and the values of internally-created acoustic insulation, and internal sound pressure levels resulting from shocks

2-10 Pools equipment and insulation charts (if found)

**Gas network containing the following :**

1- A booklet including:

1-1 Mathematical note

1-2 All signs (symbols) on the diagrams of the materials and elements used in the horizontal projections and sections

1-3 Chart index

2 - Charts:

2-1 Network meters placement

2-2 Vertical and horizontal installations and cables for all floor

2-3 Safety and protection network

2-4 The method of connecting the private network of the building with the public one, clarifying the method of handling gas installations

### **Coordination plans which includes:**

Showing all networks for all disciplines (sewage, fresh water networks, fire tanks, electricity, smart network, gas network ..... ) on architectural projections, and vertical and horizontal sections for these charts are organized where it is necessary to clarify the compatibility of networks with each other, explaining each network placement with levels and connection with infrastructure.

### Attachments

- Legislative Decree No. 66 for the year 2012 and law no /10/ year 2018
- General and special conditions of the organizational schematic
- Lands Construction Law 82 for the year 2010
- The system of profession practice in the Syndicate of Engineers
- Codes proposed by the Damascus governorate and the Syndicate of Engineers in Damascus for consultation.
- Guide lines issued by Damascus Governorate
- The administration of decree 66 Infrastructures prerequisites .