



FEMALE ASSOCIATION

Department of Construction Management and Technology

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01 LOCATION ANALYSIS

MOROCCO :

Morocco officially the Kingdom of Morocco is a country in the Maghreb region of North Africa. It overlooks the Mediterranean Sea to the north and the Atlantic ocean to the west, and has land borders with Algeria to the east and Mauritania to the south. It spans an area of 710,815 Km² with a population of 37 million.



RABAT:

It is the capital of Morocco, it is located on the Atlantic ocean at the mouth of the river Bou Regreg, it was founded in the 12th century by Almohads and now it is considered to be the country's 7th largest city with an urban population of approximately 580,000 and a metropolitan population of 1.2 million.



YACOUB AL MANSOUR :

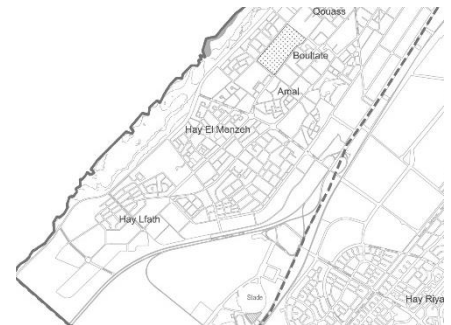
It is an urban zone in Rabat bordered by the Atlantic ocean on the west, by the historic District Hassan on the north, and by district Agdal hayriad on the east.



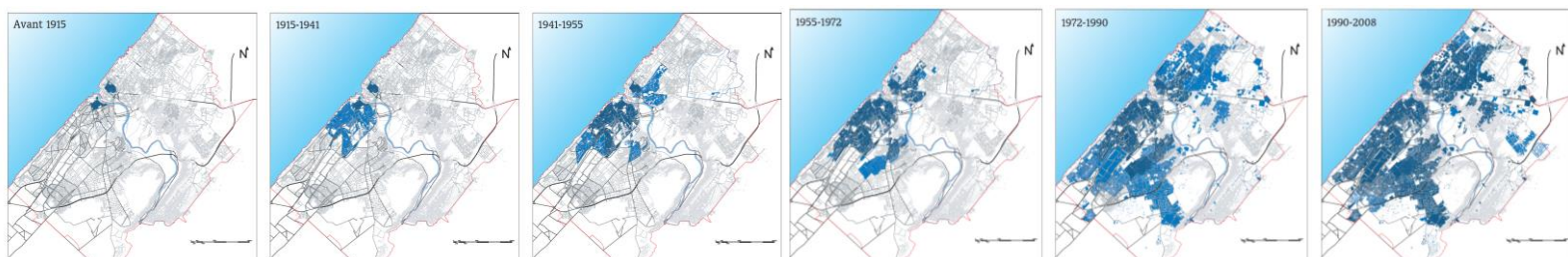
- the first most populated district in Rabat, it is home to 202,300 inhabitants over an area of 1,338 hectares
- The zone accommodates mostly families of low to medium incomes

OUR PLOT :

It is located in Yacoub al Mansour, in a residential neighbourhood, the plot had a triangular shape surrounded by streets all along its border, the longest side of the plot is facing a main street called Al Majd Avenue while the remaining sides of the plot are bordered by 2 low intensity traffic streets used mainly by the residents living on the adjacent building blocks.



URBAN DEVELOPMENT OF RABAT



02 SITE ANALYSIS

THE BUILDING SITE LOCATION



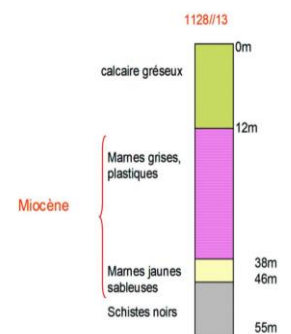
Plot size: 2534m²

Building site :: 1567m²

Topography : Flat terrain

SOIL CHARACTERISTIC

The main extracted materials are in particular :Gravel, dune sand alluvial sand and clay tl soil is diversified clayey in most rural areas and sandy in the coastal zone ; these are so with a high water retention capacity and moisture brought by oceanic mass



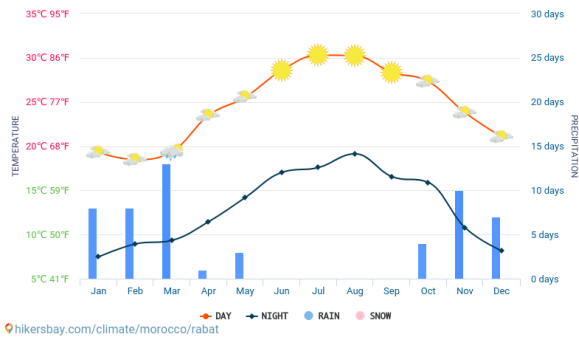
02 SITE ANALYSIS

///// CLIMATE /////

The climate in Morocco varies depending on the region and the time of the year, the weather conditions range from the cool wet winters on the north to the hot arid desert on the south, but in general we can consider that the country has a tropical climate with temperatures reaching as high as 35°C and as low as 5°C in the Sahara region.

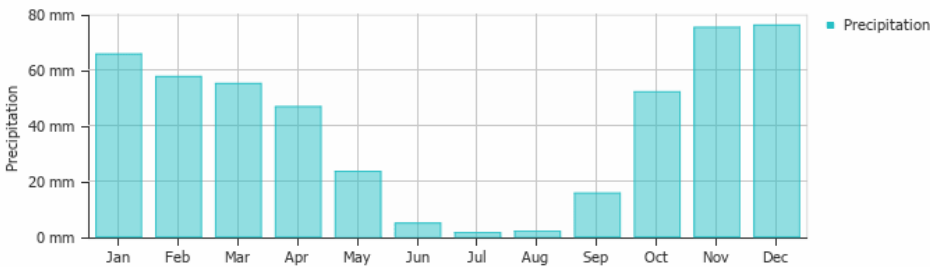
Precipitation trends have a high degree of variability in Morocco. However, through the past several decades, observed trends have shown more erratic rainfall and an overall decline in precipitation. Additionally, seasonal rainfall patterns have shifted to longer and more intense rain events in October and November, which often cause flooding, but with substantial reductions in rainfall during the rest of the year.

Average monthly temperature precipitation in Rabat

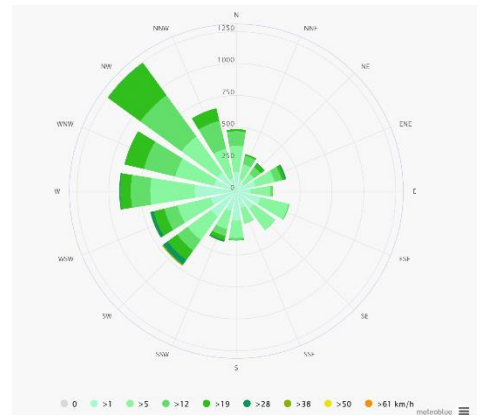
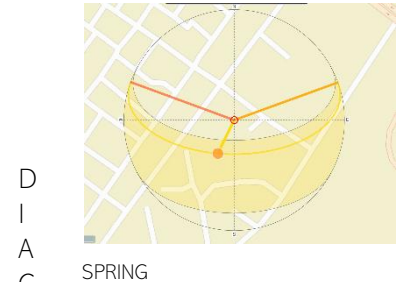
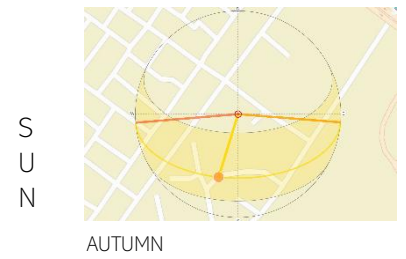
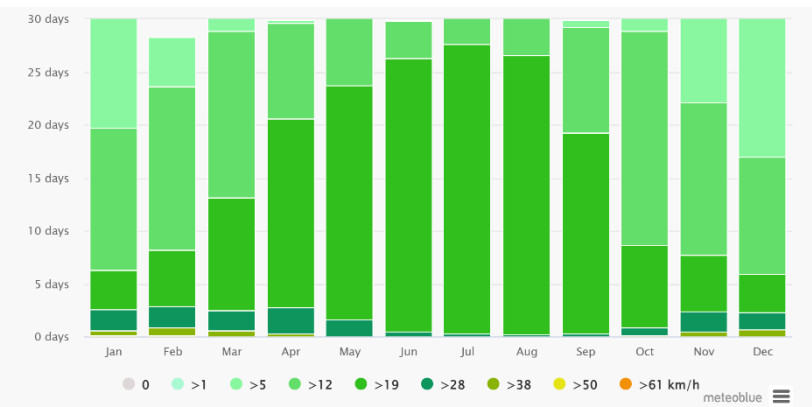


Rabat city is characterized by mild, wet winters and warm, dry summers. Most of the annual rainfall in Rabat occurs during the winter. December and January are the wettest months.

Average precipitation in Rabat



Wind speed



03 PROJECT OVERVIEW

///// SOCIAL CONTEXT /////

Women's status in society has been a subject of significant interest and concern in Morocco, Traditionally Moroccan society adhered to conservative gender roles with women primarily responsible for domestic duties over the past few decades the country had experienced important social and economic changes and women's roles have evolved accordingly Nevertheless those changes are rather slow among the urban settlement where the poverty rate is higher and the extremely conservative values are persistently dominating .

Challenges facing women in Moroccan economic sector :

Gender discrimination :Women continue to face unequal pay , limited career advancement and barriers to entering certain professions

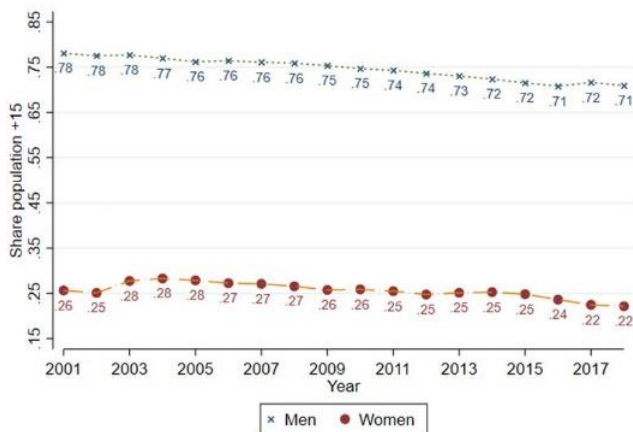
Educational Disparities : illiteracy rates are higher among women in Morocco compared to men

Socio-cultural norms : Traditional gender roles often prioritize women's roles within the household over pursuing careers

Lack of family support :The burden of household and caregiving responsibilities disproportionately falls on women making it challenging for them to balance work and family life

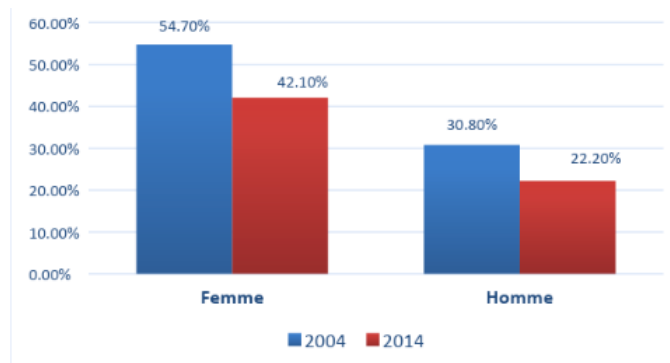
Informal Economy ;Many women work in the informal economy where labor protections and benefits are limited and they are constantly facing exploitation and financial instability

Comparison of Gender labor force participation in percentage



Source: HCP Enquete Nationale de Emploi, 2001-2018

Illetracy among women and men



///// URBAN CONTEXT /////

Morocco has a rich cultural heritage and diverse landscape .the Moroccan architecture is characterized by a fusion of styles, each leaving an indelible mark on the landscape like the Islamic influence which we can be perceived in the geometric patterns and symbolic motifs ,the hispano -moorish influence which is showcased in the decorative arches and Stucco detailing , More features are characterizing the architecture of Morocco as for example ,the Zelij and ceramic tiles mosaics , the open courtyard and gardens and water surfaces .

The country has been experiencing rapid urbanization in recent years , this process has brought about numerous urban challenges such as unemployment and income inequality , lack of adequate green spaces and public parks impacting the quality of urban life ,neglecton of the preservation of historic monuments ...

///// FUNCTION /////

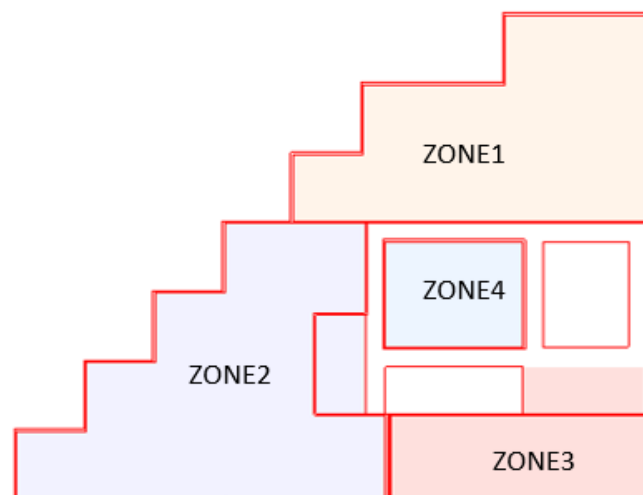
The function of the building is a female association in the middle of a highly dense residential neighbourhood , where mostly families of low to medium income live . the building will be a a meeting , working and learning space where all women of the city can come together in order to benefit from each other experiences and learn together new skills , women from different social classes and background will gather to help one an other in forging a bright future for them and for the community they belong to .

The building will include classrooms , workshop and will be designed in accordance to the social cultural norm of the country , the goal is to bring a feeling of home to the spaces where the users will spend most of their time in , and a drive a sense of familiarity and ease to the heart and mind of the visitors .

///// AIM OF THE PROJECT /////

the project will help in empowering women economically by providing access to training and education and financial resources , when women have the knowledge and tools to start and manage their businesses they can contribute more substantially to the economy , moreover this project will strengthen communities by fostering a sense of solidarity and shared purpose , this program will support educational initiatives which will encourage girls and women to pursue education and skill development .

the design process is developed in compliance with architectural heritage of the city as well as with the evolving needs of the society .



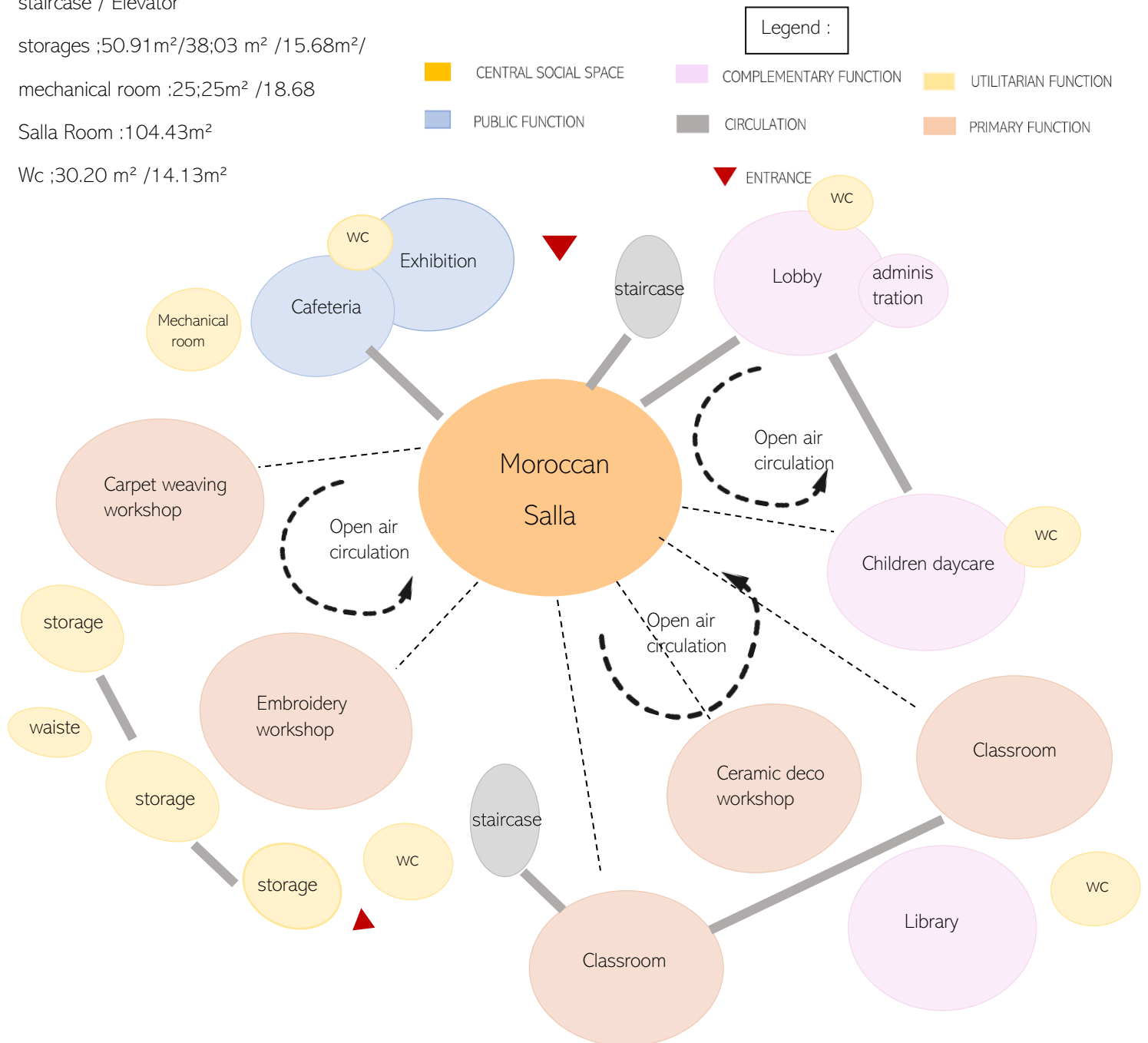
04 BUILDING PROGRAM

GROUND FLOOR :

- Cafeteria / Exhibition : 116.28 m²
- Lobby : 52.76 m²
- Administration : 13.53 m²
- Ceramic decoration workshop : 78.76m²
- Carpet weaving workshop : 162.48 m²
- Embroidery workshop : 75.38 m²
- Children daycare : 108.94 m²
- staircase / Elevator
- storages : 50.91m²/38.03 m² /15.68m²/
- mechanical room : 25.25m² /18.68
- Salla Room : 104.43m²
- Wc ; 30.20 m² /14.13m²

1ST FLOOR :

- Classroom 1: 78.76 m²
- Classroom 2 : 78.76 m
- Computer room 78.76
- Library : 140.02
- Terraces
- Storage : 50.91 m²
- WC : 38.70 m²/14.13m²



05 PROJECT CONDITION DESCRPTION

///// DEMAND AND SUPPLY /////

Female association is a vital project for the economic empowerment of women , Most Moroccan women living in highly dense neighborhood or in rural areas suffer from poverty and cannot fulfill their basic needs , Giving the most dominant cultural norms are still prevailing in those places , women are not encouraged to start their own small business and have no to little access to basic education , their roles are limited to taking care of their children and households , Fortunately there was a huge step done by the government to raise the awareness of the Moroccan population about the issue of gender inequality and the lack of female representation in the business market , More and more female cooperation are being inaugurated .there are 47000 across the country that benefit local businesses and communities and the Government is offering special funds for such programs . Our project will be one of many projects that focus solely on promoting Women socioeconomic advancements , the location where we decided to establish it fits perfectly to the city needs since it is in a low to medium income urban zone in the Capital city of Rabat . We expect that most users will be coming from the neighboring districts .

///// BENEFITS /////

Economical

- Empowerment and economic independence
- Reduced poverty
- Increased workforce participation
- Entrepreneurship and small business development
- Financial inclusion
- Reduction in Gender pay gap,
- Innovation and creativity
- Investment in Human capital

Social

- Being part of a supportive community
- Raising awareness
- social change and equality
- inclusivity and diversity
- Skill building education and personal growth
- Breaking societal stereotypes and barriers

///// CHALLENGES /////

Economical

- Funding and resource constraints
- Donor dependence
- Financial sustainability
- Cost of programs and services
- Inflation and rising costs
- Market opportunities

Social

- Societal stigma
- External resistance
- Cultural barriers
- Lack of support

///// CONSTRUCTION NEEDS /////

This project covers 2900.25 m² of land , it includes :

Public Zone ; Cafeteria/exibiton , lobby/reception , office , staircase and elevator , library and event space

Private Zone : Workshops , Classrooms , Moroccan Salla , Children daycare , Offices , Counselling rooms , Kitchenette

Service Zone : Storages , WC , ,Waste , Surveillance room , Mechanical room , Electrical room

Each Zone has its own functional building requirements , the transportation of building materials is ensured by the Main road on the west side of the building site , the site will be prepared before the start of the construction ,the land use will align with the local zoning regulation and land use policies to avoid legal issues , inspections will be conducted throughout the

construction process to ensure that the building meets established standards requirements , technology and communication infrastructure will be provided . an effective collaboration among all participants will be a key element in ensuring that the building serves its intended purpose .

///// FINANCING AND LEGAL BACKGROUND /////

This Female association Is a profit organization , Funded mainly by the public organization OCDO (office du developpement de cooperation) and partially by raised donations from different sources , the project will conduct revenues by the selling of Artifacts made by women working inside the workshops , the public zone will have its part of contribution as well to the generated profit , For instance , the cafeteria is expected to have daily users , the event space on the 1st floor can be rented during the whole week for special occasions , A monthly subscription is necessary for the access to the library by the non users of the workshops and education facilities inside the building .

A percentage of revenues for each sold product will be given to the Woman or Women producing it , and the remaining percentage will be contributing for the maintenance and operation cost of the building , if the contribution of a woman reached required cost limit of contribution per month , she will have the total freedom to sell her other products independently using the social network she had build over during her active participation in the programs provided by the facility ,

The Building will be considered under the same provisions as Cultural and educational center owned by the government in the country , the building ownership will be transferred of Yacoub al Mansour Cconsulate after its completion , and the construction should follow the building code of the city working under the Decree n° 2-13-424 du 13 rejeb 1434 .

----- 06 PARTICIPANTS OF THE PROJECT -----

Client : municipality

Statutory authorities

- Statutory body: official permission for legislation, to establish this body, the cabinet resolution should be passed.
- Municipality building permit department including planning department
- Civil defence department
- Transportation and road department
- Environment and public health department
- Code consultant

Role :

- Enforcing local state and national building codes and regulations
- Review construction plans
- Issuing building permits that grant legal authorization for the construction of buildings and structures
- Ensuring that the project comply with established standards and safety requirements

Service providers :

- Electricity company
- Water company
- Gas company
- Telephone, internet

Role

- electrical power supply
- gas works
- water works
- sewage works

Architect :

The architect can be an individual or firm chosen by the client , he needs to fulfill the regulations and follow the legal prescriptions , the architectural team will have to work in coordination with the project manager , other engineers such as civil ,electrical engineer and more .

Role ,

- Prepare the documentation and the technical drawing according to the national standards
- Coordinate the work between the co-operative designers
- outline planning consent, -planning consent/ building permit, -construction plan
- supervise the construction site , fulfillment plans
- help the client in a professional to attain the building permit

Cooperative designers and professionals

Role ,

- prepare supplementary specialist documentation in different fields: structural design, installation design, electric design, landscape architecture, fire protection, monument, archaeological research, cost and time estimation/calculation,

Tasks and duties:

- prepare documentations according the national/international standards and legal prescriptions,
- continuous co-operation and communication with the designer architect

Contractor:

The contractor will be chosen through the tendering process , he must be in cooperation with the architect and and the sub-contractors during the construction.

Role

- prepare the construction process
- construct the building according the contract.

Task duties

- participate in the tendering process
- contract with the client and with sub-contractors
- construct the building according the national/international standards and legal prescriptions

Quality surveyor:

the selection of a quality surveyor is part of a tendering process in this case .

Role

- ensure professionalism by controlling the plans and the construction work
- propose alteration of the plan for the client, if it is technically or financially reasonable
- take part in the hand over process
- control the plans in accordance
- control the assignment of the building
- ensure the prosecution of the prescribed tests
- control the construction
- inform the client if the completed work is according to the contract

Project manager or PM team

can be an individual or a firm. They help the project with their professional work according to their contract in some or all of the following fields:

- quality surveying
- consultation

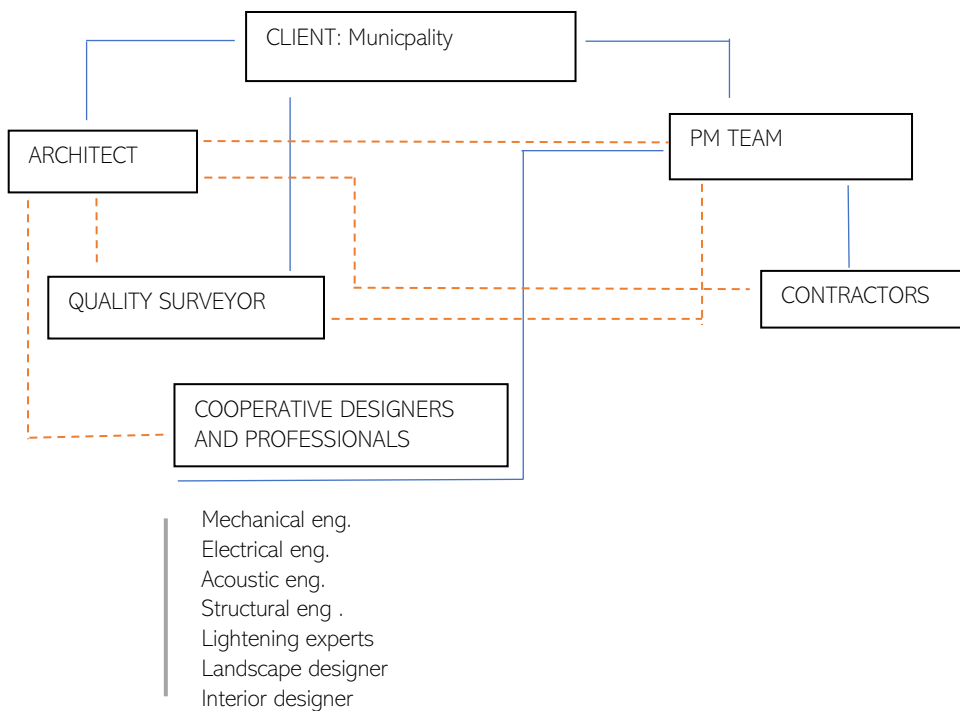
- o communication between the participants of the project
- o preparation of the construction project
- o selection of the other participants of the project

Consultants:

can be an individual or a firm. They help the project with their professional advice, it can be:

- o directly or in a form of documentation
- o for the whole project or for single tasks

///// FLOW CHART /////



07 PLANNING OF THE PROJECT

The planning of a construction project is critical phase that involves defining project goals objective scope , and the strategies necessary for it successful execution .a proper planning ensures that the project is completed on time within budget and following the required quality standards .

Project initiation phase includes identifying project purpose and objectives , the stakeholders , and conducting a feasibility study to asses the project viability

Project concept and design phase which involves developing preliminary concept plans , establishing the project team and setting the budget and the schedule .

Legal and regulatory requirements by revising the legal and regulatory requirements and ensuring its compliance with building code

Project funding by determining the budget and securing financing commitments

Project organization by setting up the roles and responsibilities of key team members

Risk assessment by identifying potential risks and challenges and developing a risk management to address them effectively

Project planning and scheduling by developing a project schedule with milestones and critical path analysis along with creating a work breakdown structure

Resource allocation by determining the required resources such as materials , equipment and labour and handling them based on project needs and budget constraints

Procurements and contracts by identifying the materials and services that need to be procured , selecting suppliers or subcontractors and executing construction contracts

Quality control and assurance by establishing quality control plan and conducting quality audits

Communication and reporting by determining the reporting structure and frequency of project status reports

Site managements and organization by providing plans including site access laydown areas and traffic management

Monitoring and control by implementing a system that monitors project progress and performance

Handover including the final inspections, testing ,commissioning and the transition to operations and preparing as built drawings operation and maintenance manuals and training for end-users .

Post project evaluation by assessing the outcomes and the project performance .

08 CONSTRUCTION TECHNOLOGIES DESCRIPTION

Site preparation :

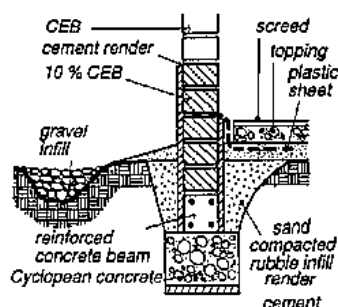
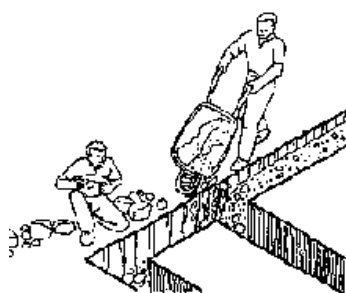
the evaluation of the topography and soil conditions should be completed first before any work starts , existing vegetation on the site is removed , afterwards the site is graded and leveled to establish a flat surface , the soil is compacted to increase its loadbearing capacity and ensure the stability of the foundation and the entire structure , all the utilities lines are disconnected to rerouted to ensure that they won't be damaged during excavation and construction nevertheless temporary utilities such as electrical connections and water supply and sanitation facilities are installed , the site is kept inaccessible from the outside to any unauthorized individuals by fencing and roads and pathways are managed to facilitate the circulation of the construction equipment and personnel .

Excavation:

The trench of the strip foundation is marked on the soil , the excavation carried out using excavators , the soils ls removed within the border of the trench lines until reaching the required depth level of 1 m below the soil level .in some areas where RC Columns a strip foundation or pad foundation made of reinforced concrete will be realized , the spoils is stockpiled nearby on the designated public garden zone of the building and then transported later on by the mean of a dump truck .

Foundation (Cyclopean concrete /Reinforced concrete)

Reinforcement is installed for the Strip foundation of Rc Columns within the formwork perimeter, the concrete is poured inside the foundation formwork ,on the other hand concrete mixed with rocks (Cyclopean concrete)is poured into the trench of the strip foundation below the Masonry walls filling it until the top level , then it being smoothed to achieve a uniform even surface



Ground floorslab :

Gravel bed is the first completed layer, vapor barrier is placed on top of the prepared subgrade to help preventing moisture from rising through the concrete ,

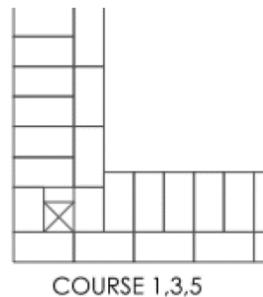
A formwork for the connecting beam is installed on top of the already completed strip foundation, reinforcement for both the beam and load bearing slab is made simultaneously, then concrete is poured covering both the beam and the slab together , the slab total thickness should be 24cm

PVC Waterproofing :

the first 3 SCEB blocks of the external masonry wall are set, PVC waterproofing is applied over , covering the prepared surface of RC slab and the exterior side of the connecting beam completely , and the wall from the outside until reaching +30 cm above 0,00 m level .

SCEB Loadbearing walls :

Vertical ring beam reinforcement is fixed to the connecting beam at negative and positive corners of the walls , One course of SCEB is laid after the other continuously using mortar joint in between , each course is made up by the combination of the 2 blocks laid in different orientations to reach the desired thickness 44.3 cm ,wall , after one storey is completed the vertical ring beam is being filled with concrete from the top by the help of a concrete pump and the bond beam holding the wall together is constructed following the same way as for the connecting beam of the foundation (formwork -steel reinforcement-concrete placement).



RC Shear walls

As a first step the formwork is installed defining the shape and dimensions of the shear wall , then comes the vertical and horizontal reinforcement bars , anchor bolts are required for proper connection of the shear wall to the foundation beam , concrete then is poured , after curing additional connection element are used to attach both the shear wall and the bond beam of SCEB walls .

Rc columns :

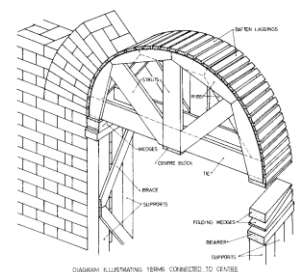
The reinforcement rebars are fixed tightly to the RC strip foundation or to the pad foundation depending on the situation,after the rebars reach the level of one storey the concrete is poured inside the formwork , after curing additional connection element are used to attach both the columns and the bond beam .

SCEB infill walls:

The courses of SCEB infill walls are laid down between the rc column, between each course a mortar bed is done to ensure the bonding .

Arc corridor with SCEB ::

The corridor SCEB wall is completed with the arch openings , a formwork is placed underneath each arc opening .and it can be removed once the arc is completed and the mortar joint between the blocks are dry .



RC slabs and beams :

The First floor and the roof slab are composed of the Rc loadbearing part which supported by beams placed underneath ,the formwork is placed first , then the reinforcement rebars are constructed for both slab and beams together according to the technical drawings , later on concrete is poured on top of them . Beam and slab are inseparable so they are constructed as one combined element . the slab is formed after the loadbearing walls and columns are completely dry.

RC staircase

Shaft and staircase opening are considered during the 1st floor slab construction, the staircase formwork is made for the slab of flight first, reinforcement is placed, then concrete is poured later, after the concrete is cured, the steps of flight are completed in the same way on the top of the finished flight slab with 20cm thickness

Roof thermal insulation :

The XPS thermal insulation is mechanically fastened with special bolts. The waterproofing membrane also and it is overlapped. The workers must be supported by safety grips all the time, and they should be dressed in special non-slippery boots.

Façade thermal insulation :

15 cm Eps thermal insulation is covering the exposed wall surface exposed to the outside weather conditions, it requires a mechanical fixing with special bolts, and covered with fiber mesh and thin layer of plastering Etics

Windows and doors

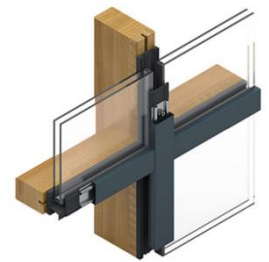
A flashing tape is applied around the opening, during its positioning shims are placed to ensure the window / door is plumb, insulation strips are used to fill the gaps between the window/ door frame and the opening, additional sealing joints are needed where the window /door meets the wall to create weatherproof seal.

Façade / wall Painting

Walls are being plastered, 1st layer is a made with a mix cement lime plaster, and 2nd layer is Tadelakt wall finishing and it is applied after the 1st one is totally dry.

Curtain wall :

Chosen product is Stabalux Timber curtain wall of 3.9m height and 4.7m width, a total of 3 curtain walls with 3 glass panels are used on the ground floor at the cafeteria and reception space.



Partition walls

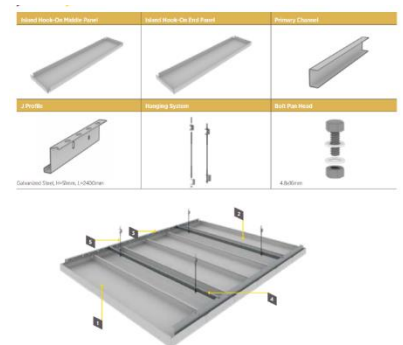
SCEB masonry wall of thickness 100 mm and 230 mm, the block used is 230x190x100mm

Dry wall system with gypsum plasterboard, manufacturer KNAUF, used in the WC with thickness of 50mm

Suspended ceiling

ISLAND HOOK-ON Product is used in all the spaces in Zone 1, 2,3 except in the external corridor ceiling which will be only plastered. the height of the panel is 40 mm and width 600mm, they are laid between the beams, And hanged 350 mm from the slab

Fully customized suspended ceiling by NOWN manufacturer will be used for the Salla room Zone 4, Skylight windows will be installed in the roof of the Salla room, and the three dimensional shape of the suspended ceiling will help in filtering the light that can access from the top, the suspended ceiling will be fixed by the help of hangers as well.



Installation work

The pipes and other installations are driven through the suspended ceiling and the shafts

Ceiling painting

in the corridors, the ceilings are painted with matte acrylic paint. It is applied manually.

Floorfinishing /Porcelain tiles

Size :600x600x20

Online Website : porcelain-tiles.co.uk

Existing showrooms in UK;



Handrail

The wooden frame of the handrail is fixed to the slab in the 1st floor where arches opening are built, and around terrace slab for protection reasons.

Skylight window

The chosen product is from Velux Manufacturer, **Size : X**

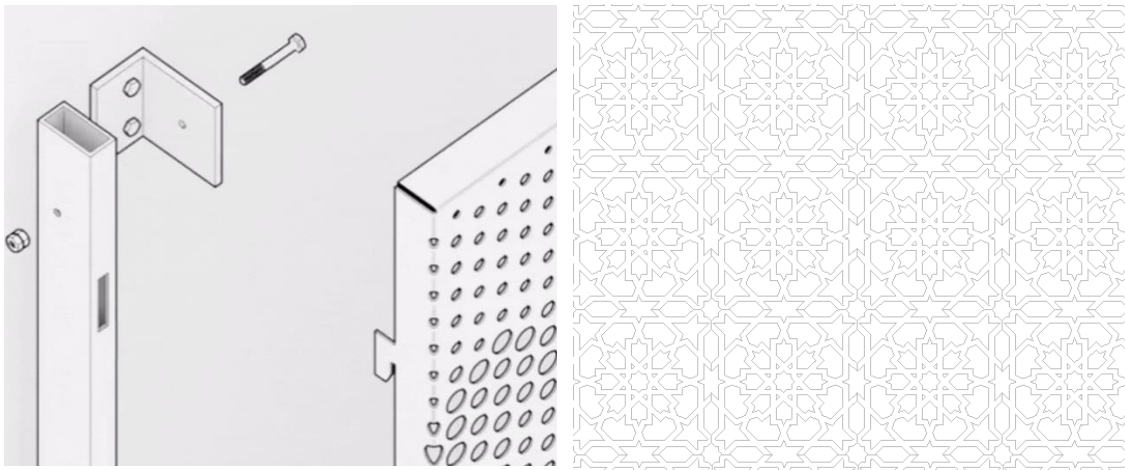


The fixed rooflight

Our fixed rooflights are ideally suited to rooms where daylight is the only priority and spaces like roof terraces where an opening window wouldn't work.

Screen Facade panels :

The screen facade panel are perforated following a traditional Moroccan pattern, the panels are fixed to the vertical continuous support and the later is fixed to L brackets and then the walls by the help of bolts.



09 TOOLS AND MACHINERY

Excavator : Excavators are heavy construction machines used primarily for digging trenches, holes, and foundations. They're equipped with a boom, stick, and bucket, powered by hydraulic cylinders and motors

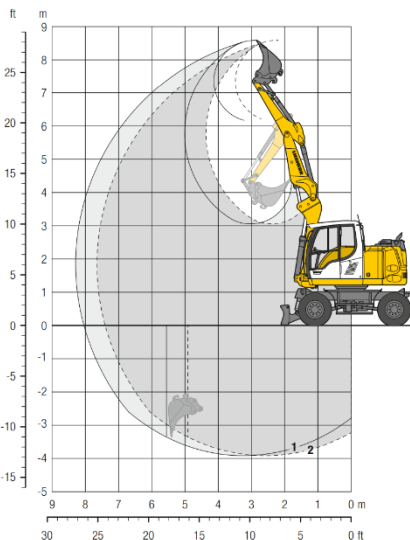
Wheeled Excavator
A 910 Compact
L1200



Generation 6
Operating Weight 12,100 - 13,100 kg
Engine 95 kW / 118 HP
Stage V
Bucket Capacity 0.15 - 0.33 m³

LIEBHERR

Backhoe Bucket
with Two-Piece Boom 4.00 m



Digging Envelope

with quick coupler	1
Stick length	m 1.85
Max. digging depth	m 3.95
Max. reach at ground level	m 8.05
Max. dumping height	m 6.20
Max. teeth height	m 8.60
Min. equipment radius	m 3.32

2 with stick 1.85 m at max. equipment offset

Digging Forces

without quick coupler	1
Max. digging force (ISO 6015)	kN 45.3
	t 4.6
Max. breakout force (ISO 6015)	kN 55.9
	t 5.7

Operating Weight

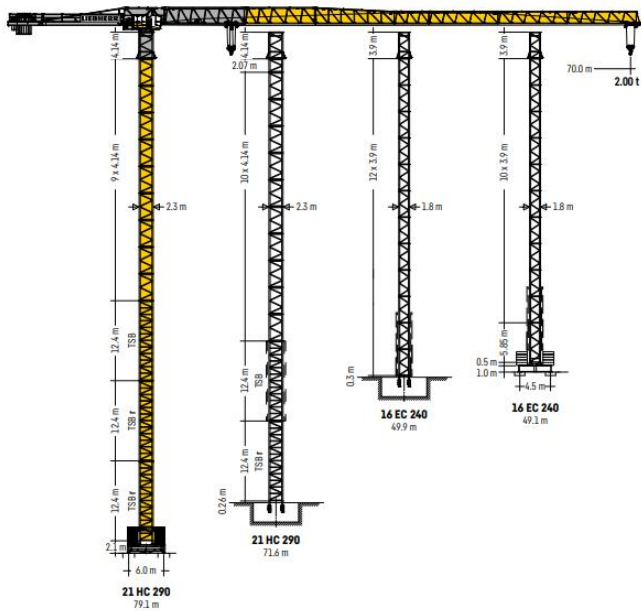
The operating weight includes the basic machine with 8 tyres plus intermediate rings, two-piece boom 4.00 m, stick 1.85 m, quick coupler SWA 33 and bucket 750 mm / 0.33 m³.

Undercarriage versions	Weight (kg)
A 910 Compact L1200 with rear blade	12,000
A 910 Compact L1200 with rear two-piece blade	12,200
A 910 Compact L1200 with rear outriggers	12,000
A 910 Compact L1200 with rear two-piece + front blade	12,800
A 910 Compact L1200 with rear outriggers + front blade	12,700

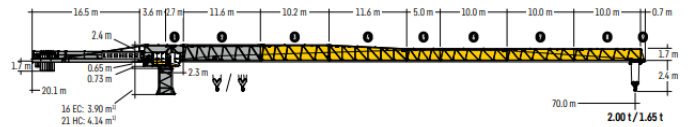
Tower crane :

Tower crane from LIEBHERR type NC-B 12-70 is used for lifting and moving heavy materials and equipment to different height within a construction site. the tower crane should reach a 40m radius so it can reach the farthest point at the building site .

Crane superstructures



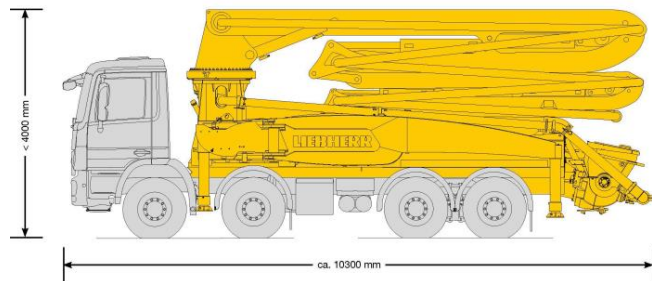
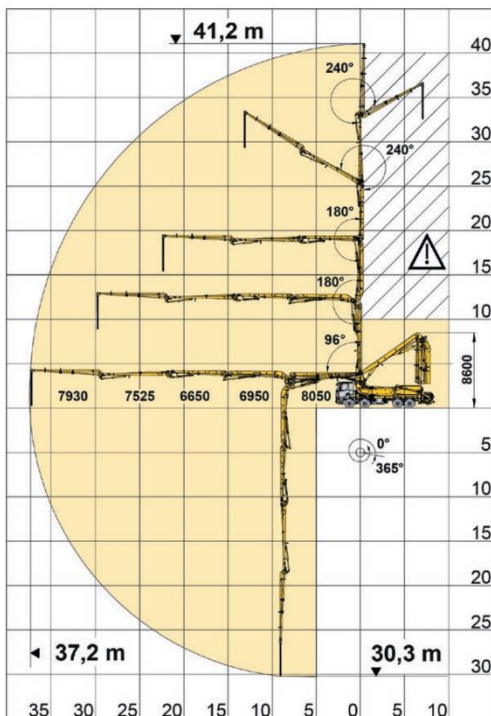
Radius and capacity



Hoist what you want – up to 12,000 kg.

<p>Steel bars approx. 1,200 kg</p>	<p>Stone pallets approx. 700 – 800 kg</p>	<p>Filigree ceilings approx. 900 – 2,000 kg</p>
<p>½ m³ concrete buckets approx. 1,150 kg</p>	<p>Prefabricated concrete element approx. 3,500 – 4,500 kg</p>	<p>Material containers up to 12,000 kg</p>

Concrete pump :



It is used for efficiently transferring liquid concrete to the desired location within the construction site ,for Rc columns and vertical ring beam at the masonry wall corner .

Concrete mixer truck :



HTM 805

Truck mixer

The new truck mixer Generation 05 with its 8 m³ drum also impresses with a further reduction in empty weight, improved ergonomics and ease of cleaning. With this platform solution, Liebherr offers the greatest possible flexibility and safety for attachments.

Unit

Water capacity 9.30 m³

Geometric drum capacity 14.84 m³

Concrete clay compressed brick machine

It is an automatic clay compressed brick machine from LONTTO , LT5-10 adopts hydraulic static pressure for forming interlocking bricks with capacity of 14400pcs/8hours and a pressure of 60MPA



Description	Tech Data	Capacity
Dimension	2300*1900*1600mm	
Pressure	60MPA	
Operating Mode	Automatic	
Mixer model	JQ500	
Moulding Period	5-7s	
Weight	2000KGS	
Volatge	220-440V or By The Customers Requirement	
Power	11 KW	
Raw material	Clay, soil, cement, sand ,water, etc.	

Description	Tech Data		Capacity	
	Size(LxWxH)	Pcs/Mould	Forming	Pcs/Shift
300x150x100mm	5	5-10s	3600pcs	14400-28800
150x150x100mm	10	5-10s	7200pcs	28800
300x150x100mm	5	5-10s	3600pcs	14400-28800

Truck / Forklift

Truck is used to transport all the building materials to the site, load-bearing and non-loadbearing materials.

Forklift is used for moving the pallets of bricks across the site



Lifting slings:

The slings are essential for any lifting operations.

A sling is a removable accessory that enables a machine or device, such as a crane for example, to lift a load by linking the lifting device and the load to be lifted (object, vehicle,etc..)



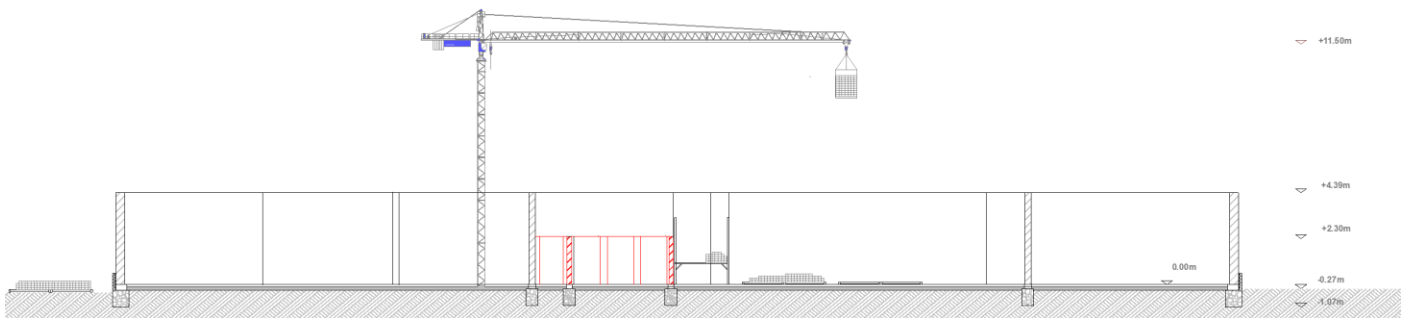
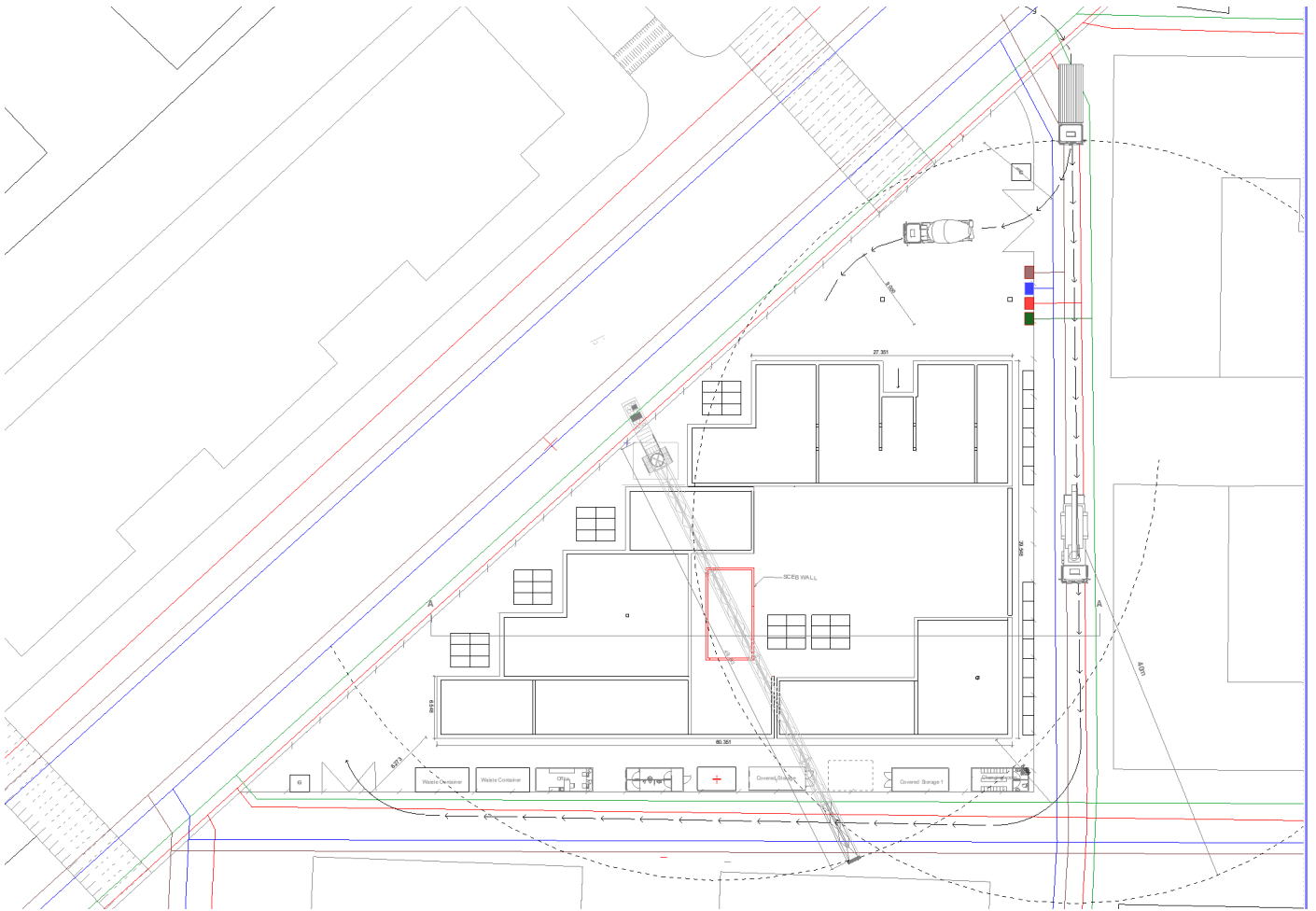
Formwork

The main frames of the formwork are made of S355 , All the formworks are from TECON manufacturer

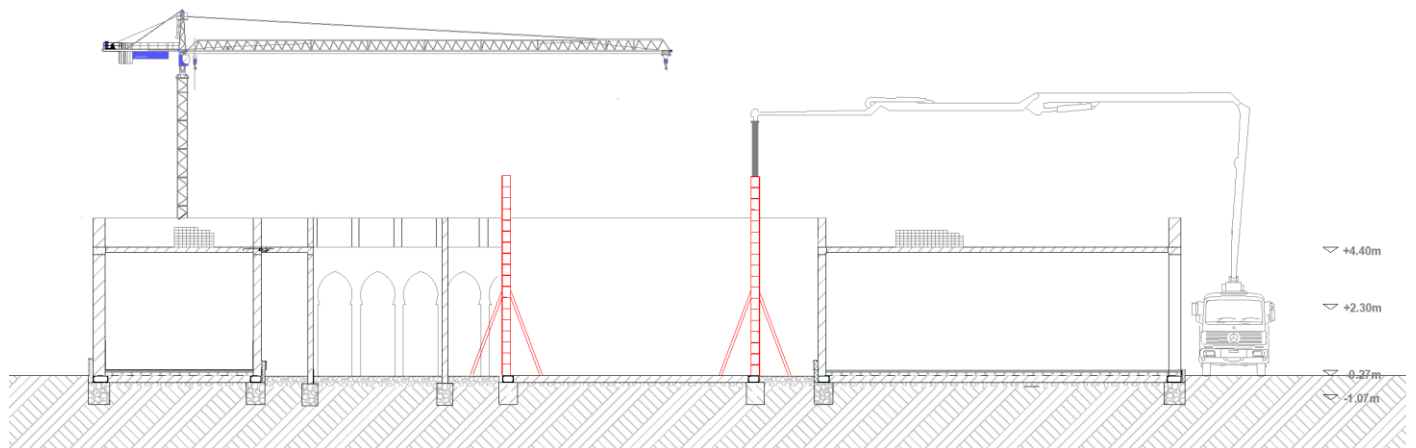
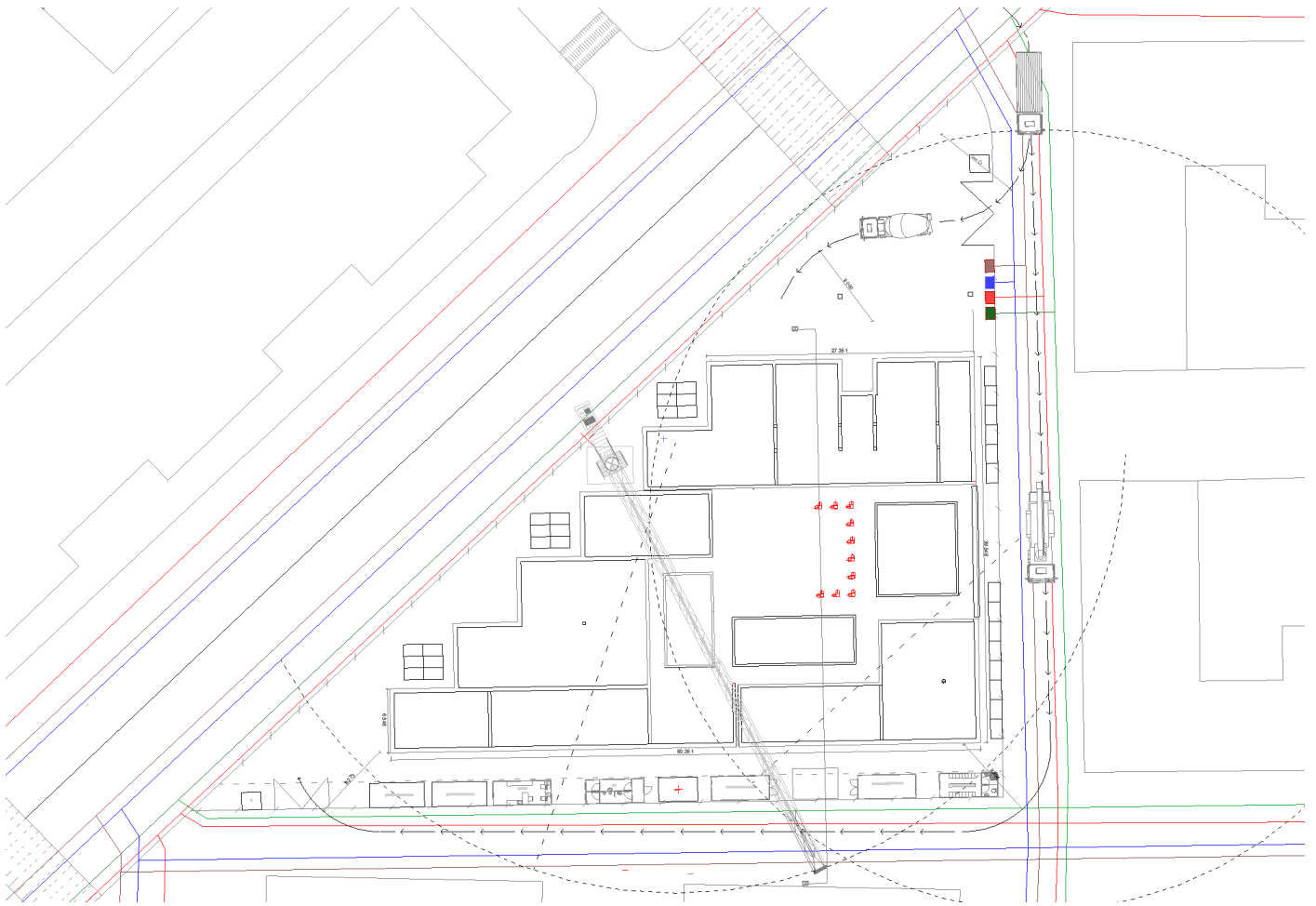


10 CONSTRUCTION SITE ORGANIZATION

///// MASONRY WALL BRICK PHASE /////



///// RC COLUMN PHASE /////



11 TIME SCHEDULING

