DIWAN OF H.H. THE RULER OF DUBAI

INTERNATIONAL DESIGN COMPETITION

JULY 1984
COMPETITION DESIGN REPORT  

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THE DIWAN OF H.H. THE RULER OF DUBAI
The design of the Diwan of H.H. The Ruler of Dubai presents a valuable challenging opportunity for the professionals concerned to present not only an architectural form commensurate to the status of this significant project but also to participate in setting a precedent for a new era of modernism and creative transformation of Dubai urban form and character that is seen to have its roots in the great heritage of Arab-Islamic Architecture which evolved over the centuries.

This project presents an opportunity to offer Dubai a new vision of a remodelled but unmistakable identity parallel to a status of a thriving (Arab, Gulf) Islamic metropolis.
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1 Ideology and Architectural Philosophy

Our ideology and architectural philosophy is based on the essence of our cultural heritage and is deeply rooted in the principle of its continuity. Contemporary architecture links the past with the future in a process of continuous evolution. The phenomenon of Arab-Islamic heritage is like a pillar, based on the human scale in planning and architecture, its interaction with the environment aspires towards unity and integration. Our studies and research is the result of actual work in the fields of planning and architecture that goes back forty years. It symbolises the establishment of an awareness of the Arab-Islamic cultural heritage spread over fourteen hundred years and three continents.

Our philosophy determines the course of our design methodology which is enriched and enhanced by the Arab-Islamic heritage and by our experience and the experience of the world in the fields of planning, technology and economics. It therefore becomes integral with the global cultural stream.

Our work in the fields of architecture and planning stems from logical systems based on the human scale and on logical integration of elements like a musical composition. Our inspiration stems from the work of the Arab-Islamic architect presented to us through living symbols of heritage in Andalus and Arab-Islamic countries.

Compositional unity is an objective of our work in planning and design. The unity of the structure dominates while it contains the elements of variety and diversity, overcoming the monotony of repetition and promoting the concept to a level of harmony and creativeness.

Our philosophy derives from the Arab-Islamic heritage, the principles of honesty in expression and purity in the use of architectural systems and elements within a clear and logical framework. It relies on materials expressive of their nature, that are delicate and tactile in quality, and on spaces clearly defined within the composition, without ambiguity. The simplicity of architectural composition reflects our architectural heritage, for simplicity promotes dignity and strength.

Our objective is to give the Arab character its significant place in this significant project, where simplicity becomes a force and the integrity of the design and its unity forms the overall system working in harmony with diversity and variety in the composition of elements. The Diwan of H.H. The Ruler of Dubai serves as a symbol of the original Arab culture with its relevance to the global cultural situation.

Our philosophy shows an organic incorporation of the concept of technology, as the available means for the execution of the idea and the achievement of the aspiration within the required criteria. It is not allowed to dominate the civic atmosphere of the Arab environment. Technology constitutes one of the pillars of the economic equation which is the basis of our projects, and the economic aspect, in broad sense, is an integral part of our philosophy and assumes an active role in the course of our work.
The design concept is based upon the logical and creative interaction between the various elements of space, mass and form, together with the requirements of the brief and forming an organic entity in the fabric of Dubai at the macro city scale level and in the local Bastakiya area at the micro level. The design concept also aims at creating a new civic scale to Dubai Metropolis sympathetic to the surrounding traditional Architectural quality and scale. It lends itself to generating a distinctive river front civic nucleus. This nucleus will be further emphasised vertically in Dubai horizon by means of some 40 meter high fountain acting as a landmark and spraying the creek water with a series of mushroom and dome water shapes subsidiary to the main vertical spout.

The proposed design for this designated site will offer a new composition where the elements and components of Arab-Islamic Architecture together with the values of the cultural heritage will form complete unity and promotes the continuity of the Tradition.
The river Northern elevational character of the proposed Diwan building lends itself to blend its character in harmony with the existing Rulers' Office in proportion, scale, size and in its architectural vocabulary. Together they define a newly introduced civic scale commensurate to that of the traditional surrounding. This well defined statement has been carefully composed so as not to undermine the definite new entity of the proposed Diwan building.
1 and 2: Invitation of city views through to the inner spatial composition of the courtyard is one of the important aspects taken into consideration during the evolution of the design concept.

3: The Architecture of The Diwan Of H.H. The Ruler Of Dubai in its pure physical setting and expression is viewed in the context of an urban fabric of Dubai with a vision of an Arab Islamic Gulf townscape.

4: The Diwan Of H.H. The Ruler of Dubai offers an opportunity to consolidate the creek panoramic views and to further enhance the unmistakable intrinsic environmental character it has always been associated with.
THE PROPOSED DUBAI BUILDING IN THE NEIGHBORHOOD OF DUBAI
SITE PLANNING

The positioning of the building on site takes into consideration the following:

1. Establishing a well defined axial relationship between the existing outer creek side road, Al Saif Road, and the Eastern entry gateway thus offering a formal ceremonial road to be used by the ruler, executives and VIP's.

2. Respecting the limitations imposed by the existing Rulers office. The position of the proposed Diwan is such that it enables the two buildings to be linked by means of a suspended bridge. The bridge is designed to align with the existing circulation routes of the existing building at the higher level should this be regarded essential by the client.

3. The creation of a direct and organic relationship between the building and the creek. This helps consolidating the creek front development rather than leaving wide and unmanageable open spaces.

4. Maintaining direct and dual visual linkage between the city views and the spatial composition of the building.
AXIAL RELATIONSHIP

Although the building is not designed on the basis of a definite and formal axial symmetry in the classical sense, it does however display a system of axial relationship that is in parts imposed and others implied.

The axial system helps defining the position of key elements in the design and showing their hierarchical relationships.

At a human scale these axes are sometimes hidden or implied. An informal and sometimes asymmetrical relationship is often exhibited but always controlled by means of scale and proportion in order to preserve balance and harmony with vitality and richness.

These axes are designed to provide a framework on which circulation within and outside the building is easily identified. They are expressed by means of vehicular movement routes, pedestrian links, waterways and channels, paving patterns, mural walls, arcades, pergolas, etc.
The spatial composition of the building is based upon a very clear definition of zoning of the various functions and levels of activities and their relationship to the surrounding context.

The Rulers suite and the annexed Diwan office is positioned to the northern part of the building fronting the creek. The Majlis and the assembly hall are designed to occupy the western side of the site.

They are planned formally to provide uniformity for the Diwan plaza which is enclosed by the proposed Diwan building to the East, the existing Rulers office to the North and West and the boundary wall to the south.

The Public Hall is located to the Southern part of the building in close proximity to the proposed southern access road. This location helps to minimize disturbance to the privacy of the inner formal functions.

1. MAIN GOVERNMENT OFFICE
2. MAIN MAJLIS
3. ASSEMBLY HALL
4. PUBLIC HALL
5. GOVERNMENT DEPARTMENTS
6. RULER'S EXISTING OFFICE
7. LINK BRIDGE
Government offices are distributed along the Eastern upper part of the building and on direct contact with the Diwan offices on one hand and to the public hall on the other.

The proposed scheme also offers a clear definition of vehicular and pedestrian circulation systems organically related to the various parts of the building. The ceremonial access road to the East is framed by an eastern gateway leading to the formal drive court which in turn leads to the Rulers' car park. Vehicular access for staff and public car park is also provided through a specially designated central gate. VIPs', Executives and guests are provided with an entry exit gateway situated to the south fronting and to the southern boundary road. This entry is structural on an axis which narrowly separates the proposed building from the existing. The view through this axis will be framed by the suspended bridge focusing on the high creek fountain.

Staff working in the existing Rulers' office premises will have a special entry gate on the far western end of the Diwan plaza.

**MASSING**

The massing and proportion of the building are seen primarily in relation to the skyline of Dubai. For functional integrity and to provide a panoramic visual balance the proposed design of the Diwan and the existing Rulers' office are linked by a suspended bridge. The Rulers office and the annexe Diwan offices "main Government office", occupies the dominant Northern boundary of the site directly fronting into the creek in accordance with their status. The Octagonal assembly hall is positioned in dynamic and axial equilibrium to the mass of the building. It is projected beyond the units of the rectangular box thus expressing its functional significance in a pure but bold geometrical form. The main majlis is situated in a position adjacent to the Rulers' cabinet.

**VOLUMETRIC ANALYSIS**

The ground floor with its various levels is conceived as a physical and visual linkage in the project. The volumetric composition is based on the organic relationship between interior space and their extensions to the exterior covering plazas, courtyards, riwads, & gardens to form an integral system emphasising the functional and spatial unity of the design.

The transparencies and free flow of volumes is one of the main themes upon which the design concept has evolved. The volumes of the two courtyards are connected through single floor height of the ground floor. They are also connected to the outside world through double floor height on the eastern side of the building.

The dynamic interplay allows exciting spatial qualities. Courtyards, terraces, bridges, mashrabiya, arcades, ramps and steps all serve to extend the concept allowing an architecture whose roots lie in the traditional Islamic use of space but whose potential can be realised and developed using modern materials and technology.
VOLUMETRIC ANALYSIS
FUNCTIONAL LAYOUT

The complex is divided into four functional zones. The main Government office and Rulers' cabinet, the main majlis and Assembly zone, the Government departments and the public hall.

BASEMENT LEVEL - 2.5

The basement level only extends to the Unit of the Rulers' entry pavilion at level 2.5 where the Rulers' private strong room is situated. Direct access to the strong room is made possible via the Rulers' private core which can be accessible either from the entry pavilion level or at the upper first floor level where this office is situated.

LOWER GROUND FLOOR: LEVEL - 1.5

This level is occupied only by Rulers' car park and staff car park to the south. A system of ramps is introduced for each of these two car parks. They are both naturally ventilated and have direct natural lighting.

GROUND FLOOR: LEVEL - 0.00 and + .60

The main courtyard contained within the building volume is expressed at 0.00 level. The courtyard at this level is only interrupted by the colour structures supporting the central bridge further middle of the courtyard.

To the South of the courtyard and relatively independent from it is the public hall. This hall is raised from the courtyard level by 60 cmm thus creating a low podium in which the building at this end rests. Annexes to the public hall on the western side is a proposed public ammenties terrace. This is envisaged as a forum for public gathering to extend their aspirations, needs and cultural activities in close contact.

1. Eastern Gateway.
2. Western Gateway.
3. Ceremonial Drive court.
4. Rulers Entry pavilion.
5. Rulers Car park.
8. V.I.P Entrance Hall.
10. Public Hall.
11. Information & Public Relations Department.
12. V.I.P Entrance.
13. Public & Staff car Park.
Offices for protocol and receptions are situated on the western side adjacent to the western gateway.

**RULES ENTRY PAVILION**

This is a raised platform to a height of 1.0 m situated off the drivecourt on central axis of the courtyard. It is covered by a double height "pavilion" atrium covered with a decorative see through timber screen backed with solar glass. The entry pavilion is provided with built in seats and intricately paved and decorated with ceramic on stone.

The pavilion platform provides a pleasant environment with direct views to the creek. It is an intermediate transition volume prior to entering the offices above. A grandiose stairs is located on a subaxis opposite to the pavilion Diwan and leading directly to the upper Reception Atrium.

The upper Reception Atrium defines a semi private space of the Rulers' office. It is designed to act as a reception hall for the Rulers' wing.

The atrium structure is composed of a double thin concrete skin cladded with timber externally and faced from inside with marble and turquoise mosaic. It admits natural light with a refracted and faded intensity. The triple height volume of the atrium helps defining and emphasising the status and dominance of this wing in the general massing.

**VIEW OF RULERS ENTRY PAVILION FROM COURTYARD.**
FIRST FLOOR LEVEL: + 5.4

The main Government office is located along the Northern elevation of this floor. It consists of the Rulers' office, Chairman and Director of the Diwan.

The scheme also suggest the addition of a special executive suite for the Deputy Ruler situated at the North-Eastern corner of the building.

The zone is directly connected with the main majlis and the assembly hall which are allocated the western elevation over looking onto the Diwan plaza. The majlis and offices annexed to the assembly hall are situated along the central bridge axis terminated by the Rulers' private office to the East and the majlis for the assembly hall to the west.

Offices related to public hall are situated on this level directly above the public terrace zone. These are horizontally connected to the Government offices at the eastern side of the public hall by means of an external suspended gallery overlooking onto the courtyard.

MEZZANINE LEVEL: + 8.4

This is an intermediate floor level occupied by Government offices on both sides of the public hall visually and functionally connected to the lower floors and direct reach to the upper Government departments. Those departments allocated on this level are more related to the public affairs than those occupying the upper floor.

The General departments of the Rulers' affairs is also situated on this level. It occupies the upper part of the Diwan Directors office and in direct visual and physical contact with the Government main office through two cores at each end of the office.

1. Upper reception atrium
2. Rulers' private office
3. Deputy Rulers' office
4. Chairman of Diwan office
5. Director of Diwan office
6. Main Majlis
7. Assembly Halls' Majlis
8. Reception gallery
9. Assembly hall
10. Chief Auditors office
11. Accounting department
12. Majlis secretariat office
UPPER FLOOR LEVEL: + 11.4

This floor acts as a roof structure expressed as a solid monolithic beam structure perforated to achieve slight exposure to the outside but gaining natural lighting through an articulated ceiling lighting. Most of the Government departments occupy the eastern top elevation vertically connected to the lower floors by means of three cores equally spaced to ensure efficient circulation system throughout the floor.

Staff lounge & common facilities are suggested on this floor at the south western corner of the building. Provision for light snacks and refreshments as well as a space to be used as a small library.

The proposed design also provides a roof terrace at this level to be accessible by both the public and the staff. A small prayer hall is also provided in this terrace.

1. Diwan Secretariat
2. Social Affairs Dept
3. Diwan Cultural Gallery
4. Legal Affairs Dept
5. Foreign Affairs Dept
6. Recording & Archives
7. Staff common room
8. Roof terrace & prayer hall
Circulation

Access to the building from the east is provided from "Al Seef Road". This road when slightly realigned and improved can give a direct and axial approach to the proposed Diwan and the existing Rulers’ office. It is therefore envisaged for this road to turn into a ceremonial approach defined by a gateway further away from the site. This gateway is echoed by two other gates on the same axis defining the Eastern and Western gates of the building.

As the ceremonial roads reach the Eastern gateway it converges onto an octagonal drive court forming the formal courtyard. A special drop off platform and pavilion is allowed for H.H. the Ruler of this courtyard from which direct access will be made possible to his cabinet on the upper floor.

Private car-park for the Rulers’ cars is provided in a half sunken floor directly accessible from the drive court by a system of ramps.

The ceremonial drive court in turn leads to the proposed Diwan plaza on the west.

It is at this point where the road layout has been modified and rerouted to allow for maximum efficiency and to regulate vehicular movement within the plaza.

VIP cars entering the site from the Southern gateway will be directed to their specially designated car park off the plaza.
PEDESTRIAN CIRCULATION

Two separate entrances are provided for staff and public. They are situated on the Southern part of the building directly accessible from the two level car park allocated for permanent staff members and for the public visiting the public hall.

A further VIP and dignitaries entrance is provided on the Western side of the building opening onto a grandiose entrance hall and reception above.

The Rulers' and Diwan office is horizontally linked to the existing building by means of a suspended bridge described earlier on. It is also horizontally connected to the Malu majlis and the Assembly hall through a double height Arcade overlooking on to the courtyard.

Vertical circulation within the building is via core areas containing lifts, fire escape stairs and sanitary facilities.

SECURITY

The site is well defended and surrounded by means of a boundary wall. Gateways forming part of the boundary wall will be provided with control security check boxes equipped with surveillance and detection equipment monitored in a central security control room.

Access to the complex is restricted to two entry gateways described above.

Additional security control points will be provided at the entrances to the building.

1. Taxis & buses drop off
2. Staff entrance
3. Public entrance
4. VIP Entrance
LANDSCAPE DESIGN

The exterior design and landscaping scheme is an extension of the overall planning and architectural concept, developed in the context of the rich tradition of the Arabic and Islamic landscape and garden design. The extent of the exterior space, the axes of orientation and the relation to the surroundings is demonstrated in the site layout.

Landscaped areas will be planted to provide a variety of colour, shade and texture using trees to provide shade in the parking areas and to give horizontal or vertical emphasis where required. Planting materials will be selected from species appropriate to local environmental conditions and also for easy maintenance. Plant boxes, troughs or tubs will be used where necessary.

Plazas, patios, terraces, courts and pathways will be paved using a variety of patterns in natural stone, marble, concrete or coloured ceramic enriched with decorative arabesque bond or geometric designs. The degree of complexity or enrichment used will be appropriate to the size, status, use and level of enclosure of the area.
1. PLAZA LANDSCAPE
2. INNER COURTYARD
   HARD LANDSCAPE
3. CREEK CORNICE
   LANDSCAPE
CULTURAL PAVILION

This pavilion is provided on the upper floor suspended above the Eastern gateway.

It is devoted to the arts and culture of the Arab-Islamic world.

Permanent exhibition of applied arts, crafts and Architectural exhibitions can be displayed.

The cultural pavilion can also accommodate some events such as lectures, seminars and other Religious events.
GATEWAYS

The gateways emphasize the importance of approach and are regarded essential elements in the vocabulary of the Arab-Islamic Architecture.

The traditional load bearing arch becomes a free studying precast element which introduces new architectural quality.
3. The Scheme

3. المشروع المفترض
4 Engineering Services

4.1 STRUCTURAL DESIGN

4.1.2 Design Parameters

4.1.2.1 Codes

Act 318-77
CP 110
Uniform Building Regulations
Local Building Regulations

4.1.2.2 Structural Materials

The basic structural material is cast in place reinforced concrete. Others include structural steel and precast concrete for cladding.

4.1.2.3 Loads

Minimum live loads for floors to be according to the Uniform Building Code or CP3 Chapter V. Soil lateral pressures on retaining wall to be according to soil testing report.

4.1.2.4 Wind Loads

Local records for maximum speed and directions of wind to be used in determining wind velocity. Minimum wind velocity to be used 160 KM/PH. Wind loads to be determined in accordance with CP3 Chapter V.

4.1.2.5 Seismic Loads

Structural members shall be designed to resist seismic forces in combination with other loads. Design guides according to ACI 318-77 and WBC.

4.1.2.6 Thermal Stresses

Effect of temperature variations on structure shall be investigated depending on the range of temperature variation and dimension of continuous construction.

4.1.3 Structural Design Concept

4.1.3.1 General Philosophy

Of necessity there will be an interstructure relationship between the foundations, superstructure and external works. The site may present problems concerning soil compaction and high water tables. And the proposed solutions must be fully analysed to ascertain the effect on all elements of the project.

4.1.3.2 Foundations

It is noted that the soil testing company acting as advisor in soil mechanics engineering will provide recommendations regarding the choice of foundations. This decision is very much an integral part of the site treatment as a whole, and must interact with the superstructure.

4.1.3.3 Superstructure

4.1.3.3.1 Wall Construction System

The external wall construction is envisaged to be the cavity type with suitable insulation in between. The building is envisaged to be cladded with precast reconstructed stone with rough texture finish and with natural sandstone colour.

4.1.3.3.2 Columns

Columns to be cast in-situ reinforced concrete and to be designed as part of frame to resist axial loads, lateral loads and biaxial moments.

4.1.3.3.3 Roof Construction

The roof structure will be of insitu reinforced concrete with suitable waterproofing and insulation layers and precast concrete slabs.

4.1.3.3.4 External Works

Roads and car parking areas will be of concrete of sufficient construction to support the live loads. Pedestrian areas will be hand paved in concrete and stone.
4.2 MECHANICAL & SANITARY SERVICES

4.2.1 Introduction

The aim of this technical document is to describe in general the requirements, design objectives and systems in connection with the Mechanical Engineering Services. The buildings' rectangular form and heavy construction materials combined with the architectural solar shading designed to protect the building fenestration against direct solar radiation and security reasons provide a good background for an efficient and economical air conditioning system.

The principles of design will take into account the building fabric factors, climate data and maintenance of indoor environmental working conditions. The diversity and complexity of spatial user requirements call for flexibility and functional reliability from the very high standards of design requirements of the Mechanical Engineering Services.

4.2.2 Services to be Included

The Mechanical Engineering Services will comprise of the following:-

- Air Conditioning and Ventilation systems
- Chilled and hot water and AC-piping system
- Plumbing and internal drainage system
- External drainage systems for foul, storm and surface water
- Irrigation water system
- Fire protection system
- Building services automation and control

4.2.3 Maintenance of Low Noise Criteria

To avoid the noise problems encountered with heavy machineries such as chillers, diesel engines for generators, pumps etc and to arrange better possibilities for general maintenance and control, we feel it is recommended to concentrate the main equipment on the roof at the site's boundary.

4.2.4 Technical Data

Outdoor design conditions
- Summer: 42°C min - 48°C max
- Winter: 14°C min - 24°C max
- Annual rain fall: 20 mm

Indoor design conditions
- Summer: 23°C Dry Bulb 50/60% RH
- Winter: 21°C Dry Bulb 50/60% RH

- Technical rooms

Building construction

<table>
<thead>
<tr>
<th>Description</th>
<th>U-value</th>
<th>Thermal insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>-External walls</td>
<td>0.6</td>
<td>50mm insulation</td>
</tr>
<tr>
<td>-Roof</td>
<td>0.4</td>
<td>100mm insulation</td>
</tr>
<tr>
<td>-Partition</td>
<td>3.5</td>
<td>no insulation</td>
</tr>
<tr>
<td>-Windows</td>
<td>4.0</td>
<td>with external double glazed shading</td>
</tr>
<tr>
<td>-Internal floors</td>
<td>1.3 downwards</td>
<td>1.5 upwards</td>
</tr>
</tbody>
</table>

Ventilation requirements

A thorough analysis will be made to determine the necessary amount of outdoor fresh air for every diversity in spatial uses. In general, ventilation rates will be in accordance with latest ASHRAE's standards and recommendations.

A positive pressure in the building will be maintained to avoid ingress of dust. Arrangements shall be made to use a greater amount of outdoor filtered air during suitable weather conditions.

Noise criteria

All necessary provisions will be made to
External drainage

Storm water will be collected with gravity and will be discharged into the city storm-water network.

4.2.10 Irrigation Water Supply

Water for irrigation will be taken from the city's brackish water network. On demand, this water be pumped for irrigation.

4.2.12 Fire Protection Systems

In accordance with the NFPA codes for the fire protection, a wet pipe fire hose system with portable fire extinguishers will be arranged inside the buildings. Moreover, external fire hydrants will be arranged with a facility for the fire brigade's connection. Fire alarm and detection systems will be provided as are described under the electrical services. The approved final scheme will be analysed as per NFPA and UBC guidelines. As per the result of the analysis, fire protection, fighting and detection systems will be provided to conform.
reduce noise level from HVAC systems. In order to achieve desired noise criteria in the air conditioned space, sound attenuators, acoustic linings, insulation panels, vibration isolators etc., will be provided where necessary. In general, the following noise rating will be considered as basic design values.

<table>
<thead>
<tr>
<th>Space Use</th>
<th>Noise Level dBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>General offices</td>
<td>40</td>
</tr>
<tr>
<td>Main Assembly Hall</td>
<td>30-35</td>
</tr>
<tr>
<td>Corridors</td>
<td>45</td>
</tr>
<tr>
<td>Cafeteria</td>
<td>45</td>
</tr>
<tr>
<td>Congress Hall</td>
<td>25-30</td>
</tr>
<tr>
<td>Waiting rooms</td>
<td>30-35</td>
</tr>
<tr>
<td>Reception Hall</td>
<td>40</td>
</tr>
<tr>
<td>Air intake and exhaust air grilles, roof extract fans</td>
<td>60</td>
</tr>
</tbody>
</table>

4.2.5 Utilities

- Heating Electric hot water boilers (50% standby capacity)
- Irrigation From the city network water (brackish)
- Fire water From the city network and storage tanks.

4.2.6 Codes and Standards

The mechanical engineering design work for these buildings will be carried out in accordance with the requirements set out by the concerned authorities of Dubai, USA and Western Europe for different services. High standards will be maintained in the design and specification of the Mechanical Services in the light of low maintenance, desired noise criteria and high efficiency.

4.2.7 Description of System

Air conditioning and ventilation systems of approximate capacity of 560 tonnes is anticipated for this project. All occupied enclosed areas will be fully air conditioned. Plant rooms, some storage areas and car parks will be mechanically ventilated and conditioned where necessary. The air conditioner systems will meet the following requirements:

- Introduction of sufficient amount of filtered outdoor fresh air for ventilation.
- Proper air uniform distribution of conditioned air to maintain the specified comfortable room temperature and humidity conditions throughout the year.
- Improvement of the operational economy by varying the outdoor air amount in relation outdoor climatic conditions based on energy optimisation.
- Reliable system arrangement by providing centralised cooling, heating and power generating equipment with standby capacity.
- Positive pressurisation of area in order to avoid ingress of dust and hot air.
- Negative pressurisation of areas such as kitchens, toilets.
- The proposed AC-system will be finalised after a comparative study of various low velocity systems.

4.2.8 Heating and Cooling System

Heating System

If so desired heating water will be produced in centralised electric boilers. Heating water will be pumped through a piping network to the different buildings for heating and domestic hot water.

4.2.9 Internal Drainage

Internal drainage

The sanitary drainage will be of gravity type. Sewage from all building will be collected and discharged into the city sewage network.
4.3 ELECTRICAL SERVICES

4.3.1 General

All the electrical installations will comply with the local regulations complimented with international Electrotechnical Commission (IEC) regulations. All equipment shall comply with the latest relevant IEC recommendations.

4.3.2 Power System

The project will be provided with a substation of approximate capacity 2-3 KVA.

To ensure proper working conditions in the building during possible power failure in the city network, the power distribution is divided into normal and essential networks. The essential network which is fed from stand-by diesel generating sets during black-outs will provide all power to important areas, lifts, security systems and security lighting. The stand-by network will also feed 50% of general lighting of offices, corridors and waiting areas as well as part of socket outlets. Systems of great importance and sensitivity like security exit, emergency exit and socket outlets in important spaces will be on un-interrupted power supply.

4.3.3 Wiring System

Busbars and cables will be used as feeders from 11 KV transformers to maintain switchboards and forward to final distribution boards. The wiring will be in accordance to B.S. Standards.

4.3.4 Illumination

Indoor illumination

Both incandescent and fluorescent lamps are envisaged. Incandescent lamps are mainly used where a sophisticated atmosphere is required. Fluorescent lamps are generally used in offices kitchens, technical rooms, etc.

Recommended Illumination for some interiors:

- Offices: 300
- Main Assembly Hall: 500
- Offices: 500
- Kitchen: 600
- Entrance Hall, lobbies: 200
- Waiting areas: 600
- Foyers: 200
- Corridors: 200
- Stairs: 150
- Cafeterias: 300

Special lighting to complement Islamic and Arabic architecture are envisaged in special areas.

All escape routes are marked with exit sign luminaries. The power supply for these is ensured with accumulator batteries for a period of 2 hours in the case of failure in the standby power network.

Outdoor illumination

External floodlighting will be designed in harmony and complementary to the Arabic and Islamic architecture and centrally controlled to vary the emphasis as per particular usage.

4.3.5 Lighting Control

Dimming facilities will be provided for the main important areas.

4.3.6 Lightning Protection

The protection of the buildings against lightning is assured by a lightning protection system.

4.3.7 Earthing

The earthing network consists of bare copper conductors and electrodes. Main earth leads are installed to all main distribution boards.
4.4 TELECOMMUNICATION SYSTEMS

4.4.1 Telephone and Telex System

The complex will be equipped with separate electronic private automatic branch exchanges (PABX). In addition to this, direct lines will be provided for VIP's security control and telecommunication rooms. The internal telephone network is also used for telex. PABX will have at least the following facilities: paging, short number dialling, conference, wait and ring again.

4.4.2 Intercom System

Separate electronic intercom systems will be provided. The intercom systems will have tie lines between each other, and a separate service intercom will be installed in technical spaces.

4.4.3 Central Antenna System

Central antenna system including antennas, amplifiers and a distribution network will be provided to receive and distribute radio and TV-broadcasts.

4.4.9 Fire Alarm System

The buildings will be provided with electronic fire alarms. The centre will be located in the security control room. The Fire Alarm Centre will, in case of fire, give alarm and control the function of air handling units for respective areas, and transfer the alarm to the fire brigade.

4.4.11 Security Protection Methods and Proposals

Consultants wish to state that they are fully aware of the very high status of this project and the quality and confidentiality required in specifying the security protection systems. With this in mind the consultants would prefer to provide a detailed analysis at a later stage, to include:

1. Visual surveillance and monitoring
2. Access control-monitoring and locking
3. Communications and aid calling
4. Space detection - indoor, outdoor, boundary
## SCHEDULE OF APPROXIMATE AREAS

### Ground Floor

<table>
<thead>
<tr>
<th>Area</th>
<th>Area in Sq. m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RULERS' ENTRY PAVILION</td>
<td>500</td>
</tr>
<tr>
<td>RECEPTION, PUBLIC HALL &amp; TERRACE</td>
<td>800</td>
</tr>
<tr>
<td>OFFICES &amp; SERVICES</td>
<td>400</td>
</tr>
<tr>
<td>Sp. UNDERGROUND PARKING</td>
<td>1125</td>
</tr>
<tr>
<td>STAFF. DOUBLE LEVEL PARKING</td>
<td>4000</td>
</tr>
<tr>
<td>EXTERNAL LANDSCAPING, ROADWAYS</td>
<td>10250</td>
</tr>
</tbody>
</table>

### First Floor

<table>
<thead>
<tr>
<th>Area</th>
<th>Area in Sq. m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RULERS' WING</td>
<td>1300</td>
</tr>
<tr>
<td>RULERS' ASS. OFFICES</td>
<td>350</td>
</tr>
<tr>
<td>RULERS' MAJLIS</td>
<td>200</td>
</tr>
<tr>
<td>VIP WING</td>
<td>900</td>
</tr>
<tr>
<td>ASSOCIATED OFFICE TO THE VIP WING</td>
<td>700</td>
</tr>
<tr>
<td>OTHER OFFICES, SERVICES &amp; GALLERY</td>
<td>1100</td>
</tr>
</tbody>
</table>

### Second Floor

<table>
<thead>
<tr>
<th>Area</th>
<th>Area in Sq. m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFFICE AREAS</td>
<td>1900</td>
</tr>
<tr>
<td>STAFF COMMON FACILITIES</td>
<td>300</td>
</tr>
<tr>
<td>SERVICES</td>
<td>300</td>
</tr>
<tr>
<td>GALLARIES &amp; TRANSLATION ROOM</td>
<td>200</td>
</tr>
</tbody>
</table>
5 Outline Cost Estimate

THE COST ESTIMATE FOR BUDGETING PURPOSES BASED ON PREVIOUS CONSTRUCTION.

NOTES IN DUBAI IS HEREWITH UNDERLINED:

5.1 SUBSTRUCTURE & DEWATERING & SITE PREPARATION.
   DH  5,500,000

5.2 SUPER STRUCTURE (CAVITY WALL CONSTRUCTION) WITH NATURAL OR RECONSTRUCTED STONE CLADDING.
   DH  15,000,000

5.3 FINISHES
   DH  5,000,000

5.4 SPECIAL FINISHES FOR RULERS’ WING & VIP WING
   DH  3,000,000

5.5 AIRCONDITIONING & VENTILATION & PLUMBING
   DH  4,500,000

5.6 ELECTRICALS
   DH  2,000,000

5.7 SITE WORK & LANDSCAPING
   DH  6,500,000

5.8 ALLOW FOR SPECIAL WATERWAYS & FOUNTAIN
   DH  500,000

TOTAL DH 42,000,000

ALLOW FOR CONTIGENCIES, e.g. SECURITY SYSTEMS ETC.
i.e. DH 4,200,000

THUS GRAND TOTAL ESTIMATE IS
say DH 46,200,000

OPTIONAL

FOR WATERWAYS BANK REQUIREMENTS ALLOW
DH  6,000,000

FOR FURNITURE & FURNISHING ALLOW
DH 14,000,000

DH 46,000,000
6. Programme

The time schedule for the scope of anticipated services is outlined hereunder:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Preliminary Design</td>
<td>30 days</td>
</tr>
<tr>
<td>Final Design</td>
<td>40 days</td>
</tr>
<tr>
<td>Preliminary Working Drawings</td>
<td>55 days</td>
</tr>
<tr>
<td>Production &amp; Final Working Drawings and Document</td>
<td>55 days</td>
</tr>
<tr>
<td>Tendering &amp; Award of Contract</td>
<td>4-5 months</td>
</tr>
<tr>
<td>Construction Period</td>
<td>2 years</td>
</tr>
</tbody>
</table>

The above schedule takes into consideration reasonable approval periods by the client for the various stages.
(11th item in box 1 of archive received August 2012.)