

KUWAIT STATE AUDIT BUREAU



Concept & Location

The State Audit Bureau of Kuwait manages and monitors public funds on behalf of the Kuwait Government and National Assembly. An important institution in Kuwait, the State Audit Bureau commissioned a new 30,000 m² headquarters complex with state-of-the-art office space, IT-based auditing facilities, conference centre, training facilities and library in 2004.

The project site with an area of 10,000 m² was located in Shuwaikh area, adjacent to the existing buildings of the Arab Organization Building and the Arab Shipping Company Headquarters and also included an adjacent site of 11,340 m². A car parking building for 950 cars and a civil defense shelter for 300 persons was also located on the adjacent site.

The complex comprises three ten-storey office buildings linked by full-height atria and sky gardens with the complete façade fronted by a spectacular curved glazed perimeter wall.

The project was envisaged as a high-quality office space, to accommodate a total of 800 personnel who required “state of the art” IT-based Auditing Facilities, a Conference Centre together with Training Facilities, Library, and Cafeteria.

The ground floor of the atria provides generous circulation and foyer spaces for the conference centre and other common facilities. Internal landscaping is a highlight of the design as the plants within the atria and in the sky gardens provide pleasant views within the building. On the North Western boundary, an imposing entrance is carved into the building form. The South

Eastern elevation is formed by a spectacular curved glazed wall, which gives exciting views into the building itself. And the project was the first to feature under floor air conditioning in Kuwait, which was a major achievement in DSE’s history.

The innovative Delmatic lighting management system provides fully flexible switching and dimming of lighting within the complex: lighting within corridor and circulation areas is controlled on a circuit basis (and related to occupation of adjoining office areas) while each office luminaire is independently switched and/or dimmed to provide total flexibility within cellular and open-plan zones. Scene-setting dimming from control panels and infra-red devices is provided within meeting rooms on the executive floors.

Vehicular access to the site includes entry from SW boundary and exit from the NE boundary. Separate ramps provide access for VIP’s up to the main entrance and for vehicles down to the basements. The main internal circulation for the 3 office buildings are linked by a single line of bridges from which the lifts are accessed. Vertical circulation consists of two banks of panoramic lifts for the general staff, one VIP lift, a goods lift and 3 fire rescue lifts; these serve all floors including the basements.

Owing to the high profile nature of the clientele, a very high level of expertise with the detailed MEP works was required. Drake & Scull were chosen to carry out the MEP works on this prestigious project, and DSE’s innovative work on the SAB was lauded by the industry, and DSE were feted with awards for this project in 2006.



Scope of Work

Kuwait was awarded the contract to undertake the Supply, Installation, Testing, and Commissioning & Maintenance of:

- Central Air Conditioning & Ventilation Systems
- Close-control Air Conditioning Systems
- Central Cooling Plants
- Domestic Water Supply
- Drainage
- Fire Fighting systems
- Electrical Power Distribution
- Lighting
- Uninterruptible Power Supply
- Standby Power
- Fire Alarm systems
- Security Systems
- Building Management Systems

Challenges

The State Audit Bureau was the first project in which DSE had to install a unique Flexible Under floor Air Conditioning, Power Distribution & Cable Management systems. This was the first instance of such technology being used in Kuwait and DSE had to come up with a plan on how to execute this aspect perfectly.

As work progressed on the site, the DSE team encountered snags which required fundamental changes in design on a fairly large scale, particularly in the HVAC systems. Blending the changes seamlessly with the existing design was another challenge for the DSE team.

Another interesting aspect of the project was the high levels of sound attenuation generated within the building. A study of material acoustics had to be undertaken to investigate the cause of the cross-talk between facilities/offices and to come up with solutions to eliminate them.

Surface condensation was also a major challenge, especially over the curved glazed perimeter walls, which had to be reduced and eliminated to minimize damage to external surfaces.



DSE Innovation

The DSE team started working at the site in the beginning of 2004. After a study of the design and the project plan, the problem areas and challenges were identified. Solutions to these were then conceived and implemented in a step by step manner.

The original designs for the HVAC systems were found to be inadequate to properly service the needs of the massive complex. With proactive interactions and discussions with the clients and other stakeholders, DSE were able to incorporate fundamental changes in design on a fairly large scale in HVAC systems.

This required the team to come up with innovative and viable solutions, to merge the new changes with the old design seamlessly.

DSE also undertook the design and implementation of a flexible under floor Air Conditioning, Power Distribution & Cable Management system, which was the first time such a technology had been adopted in the region. Underfloor air distribution (UFAD) is an air distribution strategy for providing ventilation and space conditioning in buildings as part of the design of an HVAC system. UFAD systems use the underfloor plenum beneath a raised floor to provide conditioned air through floor diffusers directly to the occupied zone.

DSE installed high performance acoustic modules that significantly reduced sound attenuation in the HVAC systems. This resulted in the complete elimination of cross-talk between facilities and the offices.

DSE conditioned the 10 storey high atria with specially designed and strategically placed jet diffusers. Besides this, DSE also undertook the design & implementation of a Jet air curtain over the entire curved glazed perimeter wall. This helped to prevent

surface condensation buildup on the perimeter walls, thus eliminating one of the commonly observed problems in the initial stages of construction.

From an electrical point of view, the innovative Delmatic lighting management system was successfully integrated into the design of the building. This innovative system provided a flexible switching and dimming of lighting within the complex.

The lighting within the corridor and circulation areas utilized state of the art technology, and was controlled by the occupation of adjoining office areas. The lighting system also allowed for the flexibility to allow individual office lights to be independently switched and/or dimmed. The lighting control panels also featured unique infra-red devices for the meeting rooms on the executive floors.

DSE was able to successfully complete the MEP works within the time schedule and the State Audit Bureau Headquarters was successfully inaugurated in 2006. The Kuwait State Audit Bureau set new benchmarks for its innovative architecture and internal systems. DSE's work was appreciated and lauded by both the client and the industry. During the 1st Middle East MEP awards DSE was awarded the "best medium project" award for their work on the State Audit Bureau.