

20 Years
Experience

Projects History



King Abdul Aziz Int'l Conference



Main Contractor



Our Partner

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Project Information

Client : King Abdulaziz Conference Palace
Consultant : Not available
Main Contractor : STC – Special Project
Subcontractor (Low Current Systems): DSIT with Telecare
Project Duration : March 2014 – June 2014
Contract Value (Low Current Package): SAR 6.6 million

Scope of work (Low Current System)

DSIT successfully executed the **Wi-Fi solution with Jammer System** for King Abdulaziz International Conference Center, ensuring integration standards.

- 1. Structured Cabling System (SCS)**
 - o Fiber optic backbone and copper cabling (Cat6A)
 - o More than 120 data points across
 - o Redundant backbone links for high availability
- 2. Indoor and Outdoor Wi-Fi Access points**
 - o Aruba Wi-Fi solution.
 - o Heat Map for 2.4GHz, 5GHz, Bluetooth coverage indoor and outdoor.
- 3. Jammer system (From SunSky)**
 - o Blocking cellular networks (such as GSM, 3G, 4G LTE, and 5G)
- 4. Re-arrangement Data Cabinet**
 - o Re-arrange data Cabinet 42U.
 - o Add UPS 8KVA.
- 5. Router**
 - o Install and configure STC Router (Cisco C8300-2N2S-4T)
- 6. Redundant link (Microwave)**
 - o Supply and install temporary tower (35 m).
 - o Alignment with STC Point to Multi point.
 - o configure the Uplink with the STC Router.



PRINCE PRIVATE PALACE
RIYADH

DIYAR 
Saudi Diyar Consultants
Consultant



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**CLICK
HERE**

More details
& Pictures

2015

Project Information

Client : Confidential (Private Palace Owner)
Consultant : Saudi Diyar Consultants (Diyar)
Main Contractor : ASCON Askan Al-Mabani Cont. Co.
Subcontractor (Low Current Systems): DSIT
Project Duration : May 2015 – December 2017
Contract Value (Low Current Package): SAR 7 million

Scope of work (Low Current System)

- This project is considered the pride of the projects that were completed by the Digital Supplies Corporation team. The project lasted for 3 years and included the following items:
- Supply and installation of the CCTV system from Panasonic which includes 32 external cameras and 27 internal cameras with VMS software.
- IP TV system, from Exterity, in addition to the SMATV from Televes, the solution cover around 102 TV.
- Telephone system from Avaya, with linking it to their PBX system.
- Wi-Fi system from Aruba, supplying and installing 62 internal access points and 18 external access points, in addition to a centralized controller for these points, and controlling the assumed capacity for each user, or group of users, with a network monitoring system. The intercom system from 2N Company has been linked to the telephone system.
- Network Firewall system from the Fortinet. In addition to supplying and installing a computer network for each building, and connecting it to a core switch, the passive components from Panduit, Active components from Cisco, and servers from HP.

1. Structured Cabling & Network Infrastructure

- Cat6A shielded cabling with 1,200+ data points.
- Fiber optic backbone linking multiple palace buildings (main villa, guest house, staff accommodation).
- Centralized data rack system with concealed design to match interiors.

2. Security & Surveillance Systems (Panasonic)

- 350+ high-resolution IP cameras from Panasonic (fixed, PTZ, thermal for perimeter).
- Video analytics (intrusion detection, face recognition, license plate recognition).
- Secure storage servers with 180-day retention.

3. Access Control & Smart Entry (Honeywell)

- Biometric and RFID access for VIP and staff entrances.

- Integration with villa main gates and barriers.
- Visitor management system with pre-registration.

4. Smart Home & Automation (Crestron)

- Lighting control (scenes, dimming, scheduling).
- Motorized curtains & blinds.
- Multi-room audio and video distribution (cinema, majlis, lounges, private suites).
- Integration with HVAC for energy efficiency.

5. Public Address & Audio Distribution (Bosch)

- Multi-zone BGM system with high-end speakers (indoor & outdoor).
- Zoning for Majlis, private halls, gardens, swimming pool, and mosque.
- Dedicated prayer call (Adhan) integration system.

6. IPTV & Satellite Distribution (Exterity)

- IPTV system for 97+ outlets across palace.
- Centralized satellite distribution with 4K channels.

7. Home Cinema System (Klipsch, Barco, Yamaha)

- Dedicated private theatre with Dolby Atmos sound.
- 4K projector, acoustic wall treatment, and recliner seating.

Key Achievements

- Delivered a **fully integrated smart palace** with luxury-grade systems.
- Integration of **security, AV, automation, and safety systems** into one central control platform.
- Customized solutions tailored for privacy, elegance, and user convenience.

Manpower & Resources

- **Project Manager:** 1
- **Site Engineers:** 2 (specialized in LV & low current systems)
- **Skilled Technicians:** 3 (structured cabling, security, and AV systems)
- **Helpers & General Labor:** 7

Coordination & Management

- Weekly coordination meetings with Consultant & Main Contractor.
- Close collaboration with **BMS & Fire alarm** to ensure interface compatibility.
- Coordination with **civil and MEP trades** to finalize conduit routing, ceiling coordination, and electrical provisions.
- Integration testing with **Palace IT Department** for PIS (Hospital Information System) and PACS (Picture Archiving & Communication System).

Completion Certificates & Other

**ASKON Al-Mabani Construction Co.**

Date : 02/03/2017
Ref. : L/17/0207

Certificate of Project Completion

Client	Confidential (Private Palace Owner)
Sub Contractor	DSIT – Digital Supply for IT
Project	Subcontracting to install and accomplish low current system (IP TV, IP Phone, CCTV, Access Control, WiFi, Data & Home Theater)

we refer to your requirement and we hereby confirm that all operations of low current system (IP TV, IP Phone, CCTV, Access Control, WiFi, Data & Home Theater) in the above-mentioned project have been completed by DSIT (Digital Supply for IT).



Authorized Signature
Mohamad Abu Shanab

For additional details regarding this certificate
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Transmittal To SDC (Materials)
☐ Submittal
☐ Resubmittal

Date	24-Jun-15	Project Code	SDC Contr	Project Title	ARIAGA PALACE (SITE B) RIYADH	Trans. No.	RY-1319-EE-MTL- AR CE/SE ME EE	Department	0015-REV1
To	☐ Resident Engineer ☐ Head Office ☐ Others			From	ISKAN ALMABANI CO. LTD				

Contractor Use

Item No.	Division	Item Description (Name, Type, Size, Capacity, Specific Use, Etc.)	Manufacturer or Designer	Dwg. No., Catalog No., Brochure No., Others	No. of Copies
1	ELEC-MECH	IP CCTV	PANASONIC	CATALOGUE	3
TECHNICAL SUBMITTAL					

Submitted by
Name: Hassan Bazh
Title: Project Manager
Signature: [Signature]
Enclosures: [Blank]

Saudi Diyar Use

Item #	1
Code	2/3
Reviewed By	M.B.

Action Code
1. No Exceptions Taken
2. Make Corrections as Noted
3. Amend and Resubmit
4. Rejected
See Remarks

Remarks:
a) Installation shall only proceed when Action Code is 1 or 2.
b) Action Code 3, shall be resubmitted within time limit set in the contract.
c) Review does not relieve the Contractor from Responsibility of Compliance with all requirements of contract documents.

Special Instructions
Please refer to attached SDC comments

Reviewed by:
Name: A. ALABRAZEH
Title: S.E. Eng
Signature: [Signature]
Date: 29/02/2015

Signed off by:
Name: [Signature]
Title: [Signature]
Signature: [Signature]
Date: 3/7/2015

F-CS07/B



Princess Noura bint Abdulrahman University



Consultant

شركة سعودي اوجيه المحدودة
SAUDI OGER LTD



Main Contractor

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Project Information

Client : Princess Noura bint Abdulrahman University
Consultant : Dar Al-Handasah
Main Contractor : Saudi Oger LTD.
Subcontractor (Low Current Systems): DSIT
Project Duration : February 2014 – September 2016
Contract Value (Low Current Package): SAR 41 million

Scope of work (Low Current System)

The Digital Supplies Establishment proudly completed the following scope of work:

- **Audio and Lighting Systems** – Full installation and integration of sound and lighting systems.
- **Curtain Control Units** – Implementation of control systems for more than three (3) layers of curtains.
- **Backup Power Systems & Generators** – Supply and installation of emergency power systems and electrical generators.
- **Centralized Control Integration** – All of the above systems (audio, lighting, curtains, and backup power) were fully interconnected and integrated to be managed seamlessly through unified control panels.

1. Audio System

- Supply and install CU6011 Central Unit (Qty. 6)
- Supply and Install Array Speakers (14 Speakers x 4 array) from Klipsch.
- Supply and Install Mixer TASCAM SS-R1 (Qty. 6).

2. Lighting System

- Supply and install front of house (FOH), side, back, stage wash, cyclorama, and specials (More than 1,700 pcs)
- Design dimming and power distribution (constant power vs. dimmed circuits)
- Plan cabling routes (DMX, Ethernet, power) to avoid interference with audio and curtain systems.
- Install lighting bars, trusses, and hoists (if motorized, coordinate with curtain control system).
- Hang and clamp all lighting fixtures in designed positions
- Connect DMX or Art-Net cables from each fixture to the lighting control rack.
- Install the lighting console (Avolites) and network nodes

3. Power Protection

- Supply and Install power stabilizer Surgex SX1213i (Qty. 12)
- Supply and install UPS APC SRT3000RMXLW (Qty. 6)
- Supply and install Batteries APC SRT96RMB (Qty. 32)
- Run power cables from the backup power system (generator/UPS) to lighting dimmer racks and distribution panels

4. Control Units

- Install touch panels control stations that will interface with the unified theater control panel (for curtain, audio, lights integration).
- Integrate lighting control processor with the central control system (AMX).
- Program the unified control panel to include lighting scenes (e.g., "Presentation", "Intermission", "Blackout", "Rehearsal").
- Set up triggers between lighting and curtain controls: e.g., when curtain opens → stage lights fade up.
- Coordinate lighting cues with the audio system for show-critical events.
- Patch all fixtures with correct addresses in the lighting console
- Create basic palettes (colors, gobos, positions, beam shapes).
- Program preset scenes for different theater uses: (General house lights, Stage wash, Spotlight positions, Silent blackout & Emergency egress lighting)

5. Cabling and Backbone

- Connecting All the Devices with Cat6A (CommScope) to Cisco Switch model 2960.
- Connecting all the speakers, array speakers, microphone with Audio cable (Belden)
- Cabling Control cable to all the light unit in stage and the theatre.
- Connect lighting distribution to the emergency power supply so essential lighting works during outage.
- Install grounding and surge protection for all lighting equipment.

6. Documentation & Training

- Create as-built drawings showing cable routes, DMX addresses, and circuit numbers.
- Write a lighting operation manual for theater staff.
- Train operators on both the lighting console and the unified control panel
- Provide maintenance checklist (cleaning fixtures, lamp replacement, software updates)
- Conduct a full technical rehearsal with the client
- Adjust lighting levels based on client feedback
- Obtain sign-off for the lighting system as part of the overall theater project



NATIONAL GUARD HOSPITAL



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Project Information

Client : National Guard Hospital -Main Laboratory
Consultant : Not Available
Main Contractor : Abbott
Subcontractor (Low Current Systems): DSIT
Project Duration : July 2017 – Oct. 2017
Contract Value (Low Current Package): SAR 0.8 million

Scope of work (Low Current System)

Provide a complete turnkey solution to install a fully operational Abbott laboratory. Conduct site assessment and design the lab layout to meet Abbott's specifications. Prepare facility infrastructure including HVAC, electrical, plumbing, and data cabling as required. Deliver, assemble, and install all Abbott instruments and any automation track system. Perform installation and operational qualification (IQ/OQ), integrate with Abbott informatics, and test end-to-end performance. Train laboratory staff and hand over the lab with full documentation and service agreement.

1. Site Assessment & Design

- Conduct on-site survey to evaluate existing space, utilities (power, water, HVAC), and network infrastructure.
- Determine optimal layout for Abbott instruments, automation track, and workstations to ensure efficient workflow.
- Prepare detailed engineering drawings and utility requirement plans based on Abbott's technical specifications.

2. Infrastructure Preparation

- Upgrade electrical supply: install dedicated circuits, surge protection, and emergency power connections (UPS/generator) for all Abbott analyzers.
- Modify HVAC system to maintain required temperature and humidity ranges for instrument operation.
- Install purified water system (Reverse Osmosis/Deionized) where required (e.g., for ARCHITECT or Alinity systems).
- Run compressed air lines (oil-free, dried) if needed for pneumatic systems.
- Install structured data cabling (Cat6/fiber) and network switches for LIS (Laboratory Information System) integration.

3. Equipment Delivery, Assembly & Installation

- Coordinate delivery, unpacking, and positioning of all Abbott instruments (e.g., Alinity series, ARCHITECT, i-STAT, Cell-DYN, etc.).
- Assemble and install each analyzer according to Abbott's installation checklist.

- Connect instruments to power, data, water, and compressed air.
- Install Abbott automation track modules (if specified) and connect to analyzers.
- Set up Abbott Informatics systems (e.g., AIM, STARLIMS) on dedicated servers/workstations.

4. Qualification, Integration & Testing

- Perform Installation Qualification (IQ) and Operational Qualification (OQ) for every instrument per Abbott protocols.
- Integrate all analyzers with the Laboratory Information System (LIS) and middleware.
- Conduct end-to-end testing: sample loading, processing, results reporting, and data backup.
- Simulate power failure to verify seamless transition to backup power.
- Test all safety and alarm systems

5. Training & Documentation

- Provide role-based training for lab supervisors, technicians, and IT staff (instrument operation, maintenance, software use, troubleshooting).
- Deliver complete documentation: as-built drawings, IQ/OQ reports, user manuals, service contacts, and warranty certificates.
- Schedule on-site post-installation support for 2–4 weeks (or as agreed) to ensure smooth transition.



Princess Office (Private)



Main Contractor

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Project Information

Client : Princess Office (Private)
Consultant : Not available.
Main Contractor : Vera
Subcontractor (Low Current Systems): DSIT
Project Duration : Dec. 2017 – September 2018
Contract Value (Low Current Package): SAR 0.7 million

Scope of work (Low Current System)

Wonderfully and professionally, our team has delivered a unique business office, covering all client requirements: providing internet and distributing it to all work areas and the outdoor garden area, along with installing CCTV cameras and door access control systems, equipping the meeting room, setting up the telephone system, as well as the SMATV system.

1. Structured Cabling System (SCS)

- Install Category 6A U/FTP copper cabling from a central telecom room to each workstation (minimum 2 data outlets per employee = 64 outlets).
- Provide 2 voice outlets per employee (or shared VoIP over data) with RJ45 jacks.
- Run cable trays, conduits, and trunking as required for neat and safe routing.
- Terminate all cables on patch panels (24/48 ports) in a standard 19-inch rack.
- Label both ends of each cable clearly according to approved labeling scheme.
- Test all links for performance (fluke test) and provide test reports

2. Network Infrastructure

- Supply and install two managed Layer 2/3 core switch with 48 Gigabit PoE+ ports (to support Wi-Fi APs and IP phones).
- Install one additional 24-port switch for expansion or departmental segregation if needed.
- Install a rack-mount UPS (3 kVA) to support all network equipment and switches.
- Install a firewall/router with content filtering and VPN capabilities for secure internet access.
- Configure VLANs: data, voice, guest Wi-Fi, CCTV, access control (minimum 5 VLANs).

3. Wireless LAN (Wi-Fi)

- Perform site survey to determine optimal access point placement for complete coverage (12 APs for 32 employees over ~800–950 m²).
- Supply and install ceiling-mount Wi-Fi 6 access points powered via PoE from the switch.
- Connect APs to a central wireless controller (cloud-based).

- Configure SSIDs: internal staff, guest, and IoT (with separate passwords/authentication).

4. IP CCTV System

- Determine camera locations: main entrance, reception, corridors, pantry, server room, and emergency exits.
- Supply and install 19 IP dome/bullet cameras (5 MP, IR night vision, PoE).
- Install a network video recorder (NVR) with 32 channels, 12 TB storage (minimum 30 days retention).
- Provide a dedicated 24" monitor at reception for live viewing.
- Configure motion detection recording and remote viewing via mobile app.

5. Access Control System (ACS)

- Install access control at main entrance, server room, and management office (22 doors).
- Provide magnetic locks, exit buttons, and door contact sensors for each controlled door.
- Supply IP-based controller panel (PoE or separate power supply) and one backup power supply unit.
- Integrate with an access control software (web-based) allowing time schedules and audit logs.
- Provide key override for emergency egress.

6. Public Address & Background Music (PA/BGM)

- Install 16 ceiling speakers (10W each) in open office area, meeting room, pantry and gardens.
- Supply Bosch mixer-amplifier (4 * 250W) with Bluetooth/AUX input for background music.
- Connect a dedicated microphone for paging (emergency or general announcements).
- Provide volume control knobs in open office and meeting room.
- Configure PA system can override BGM during emergency announcements.

7. Audio-Visual System (Meeting Room – for 18 persons)

- Install one 65" 4K commercial display on wall.
- Supply one wireless presentation system (Barco Clickshare) for screen sharing.
- Install a soundbar with built-in microphone for video conferencing (Zoom/Teams ready).
- Install a remote control and simple instruction panel for users.

8. Rack, Cabling Management & Labelling

- Supply and mount a 22U floor-standing network rack.
- Arrange all patch panels, switches, NVR, and controllers neatly with horizontal/vertical cable managers.
- Provide power distribution unit (PDU) with surge protection.
- Clearly label all cables, patch panels, wall outlets, and devices.



Shaikh Palace (Private)

ACKD

Consultant



Main Contractor

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Project Information

Client : Shaikh Palace (Private)
Consultant : Ackd Consult
Main Contractor : EFCO
Subcontractor (Low Current Systems): DSIT
Project Duration : February 2019 – September 2022
Contract Value (Low Current Package): SAR 6.7 million

Scope of work (Low Current System)

The scope of work includes the supply and installation of integrated low-current systems for a project consisting of 6 buildings (main building, 3 villas for the owner's sons, a female guest villa, and a male guest villa). The systems include: an indoor and outdoor CCTV system with 48 cameras, an Avaya IP telephone system with 102 units, an Exterity brand IP TV system, an SMATV system serving 51 rooms, a full villa audio system, a Video on Demand (VOD) system, and a luxury home theater equipped with the latest devices from Klipsch, Sony, Yamaha, and Crestron, in addition to license plate recognition (ANPR) and facial recognition cameras.

1. CCTV System (Surveillance)

- Supply and installation of 48 indoor and outdoor IP cameras.
- Cameras include: License Plate Recognition (ANPR) cameras, and Facial recognition cameras.
- All associated cabling, power supplies, NVRs (Network Video Recorders), storage, and management software.

2. IP Telephony System

- Supply and installation of Avaya IP telephone system.
- Total of 102 IP telephones (models as per specifications).
- Includes IP-PBX, gateways, PoE switches, and configuration for all extensions across 6 buildings.

3. IP TV System

- Supply and installation of IP TV system, brand: Exterity.
- Supply and installation Dish farm from WiSi brand.
- Includes headend, encoders, middleware, set-top boxes (STBs) 56 TV, and cabling.

4. SMATV System (Satellite Master Antenna Television)

- Supply and installation of SMATV system serving 53 rooms across all buildings.
- Includes satellite dishes, LNBs, multi-switches, amplifiers, splitters, and outlet points.

5. Audio System for Entire Villa

- Supply and installation of a distributed audio system covering all areas of the villa complex (6 buildings).
- Includes ceiling/wall speakers, amplifiers, source selection, and control interfaces.

6. Video on Demand (VOD) System

- Supply and installation of a VOD system allowing playback of selected content across the premises.
- Includes server, storage, streaming software, and integration with TV network.

7. Home Theatre System (Luxury)

- Supply and installation of a high-end home theater system including:
 - **Klipsch** speakers (front, center, surround, subwoofers).
 - **Sony** short-throw 4KJ projector.
 - **Yamaha** AV receiver and audio processing.
 - **Crestron** automation and control system (touch panels, lighting/curtain integration, etc.).
- Full acoustic treatment as required, cabling, and calibration

8. Structured Cabling System (SCS)

- Supply and installation of a complete structured cabling infrastructure (copper and fiber) for all low-current systems (CCTV, IP Telephony, IP TV, SMATV, Audio, VOD, Home Theater, ANPR, Facial Recognition).
- Copper Cabling: Category Cat 7 U/FT, certified for 10GbE.
- Fiber Optic Cabling: OM4 multimode and OS2 single-mode fiber for backbone connections between buildings.
- Cable Management: Ladder racks, J-hooks, D-rings, finger duct, and vertical cable managers in racks.
- Pathways: Conduits (PVC & EMT), cable trays, and fire-stopping at penetrations.
- Supply and installation of 19" server racks (42U Qty 4) for main building, and wall-mount or floor-mount swing racks for satellite buildings.
- Basic PDUs (horizontal or vertical, 0U/1U) with multiple C13 and C19 outlets.
- Copper Patch Panels: 24-port or 48-port Cat 7 shielded patch panels with rear cable management bars.
- Fiber Patch Panels: 1U sliding fiber enclosures with splice trays and adapter panels (LC duplex).
- Keystone Jacks: Shielded Cat 7 keystone jacks, color-coded per system (blue for data, red for IPTV, yellow for telephony).
- Faceplates: Single-gang, dual-gang, or modular faceplates in white/cream to match interior décor.
- Centralized synchronization of all clocks across hospital departments.



Prince Office (Private)



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Project Information

Client : Prince Office (Private) -Hitteen Dist.
Consultant : Not available
Main Contractor : ASCON Askan Almabani Cont. Co.
Subcontractor (Low Current Systems): DSIT
Project Duration : Aug 2020 – September 2021
Contract Value (Low Current Package): SAR 5.8 million

Scope of work (Low Current System)

Supply, install, configure, test, and commission all low-current and IT infrastructure systems for a three-floor office building with a total area of 2,800 m² and approximately 130 employees. The scope includes a fully equipped data center, structured cabling for data and IP telephony, a complete Cisco unified communication and wireless solution, physical access control for 34 doors, time attendance system, and a fully integrated conference room.

1. Server & Storage Hardware

- Supply and install HP servers (model and quantity as per final specification) Windows Server Standard 2022 LTS, SQL Server (Standard or Enterprise edition as required), File Server & FTP server.
- Synology storage system with usable capacity exceeding 120 TB (RAID protected). Configure with appropriate RAID level (RAID 6) and hot-spare drives.

2. Operating Systems & Applications

- Install and license Microsoft Windows Server 2022 Standard LTS (number of licenses covering required physical or virtual cores).
- Install and configure Microsoft SQL Server (licensing per core or server + 6 CAL).
- Configure File Server with appropriate folder structures, NTFS permissions, and quota management.
- Configure FTP Server (secure FTP over SSL/TLS) with user isolation and access logs.

3. Networking Hardware (Data Center Edge)

- Supply and install routers (enterprise grade) for WAN connectivity and inter-VLAN routing.
- Supply and install next-generation firewall with features:
 - Stateful inspection, IPS/IDS, application control, URL filtering.
 - VPN support (site-to-site and remote access SSL/IPsec).

4. Data Center Cabling & Accessories

- Horizontal and vertical structured cabling within racks
- Patch panels, cable management, and labeled termination
- Grounding, bonding, and surge protection

5. Structured Cabling (Data & Voice)

- Supply and install one data outlet (Cat 6A) per employee workstation – total of 130 outlets + spares (approx. 10%)
- Each outlet serves both data and Cisco IP phone (dual-port faceplate or daisy-chained through phone switch).
- Cabling from workstations to floor distribution racks (telecommunications rooms) on each floor.
- OM4 multimode fiber or OS2 single-mode fiber between main distribution (data center) and floor distribution racks.
- Redundant backbone links

6. Cisco IP Telephony System

- Supply and install Cisco Unified Communications Manager (Call Manager) or Cisco Business Edition appliance.
- Cisco IP phones for all 130 employees (model: e.g., Cisco 7841 or 8851 with PoE).
- Voice VLAN configuration with QoS (DSCP/CoS) across all switches.
- Extension-to-extension calling, call forwarding, hunt groups, auto-attendant.
- Voicemail (Cisco Unity Connection).
- Integration with existing PSTN lines or SIP trunk.

7. Cisco Wi-Fi Solution

- Supply and install Cisco Wi-Fi access points (Catalyst 9164 series).
- Number determined by site survey (minimum coverage for 2,800 m² over 3 floors, with overlapping cells for seamless roaming).
- Ceiling or wall-mount as required.
- Cisco wireless controller (physical appliance or virtual) with licenses for all Aps.
- Guest Wi-Fi with captive portal and bandwidth limits.
- WPA3-Enterprise with 802.1X authentication using RADIUS (integration with Active Directory).

8. Access Control System (Honeywell)

- Supply and install: Electric locking device (magnetic lock or electric strike).
- Supply and install: Door contact sensor (open/close status).
- Supply and install: Request-to-exit (REX) motion sensor or push button.
- Supply and install: Proximity card reader (13.56 MHz, support for MIFARE or similar).
- Supply and install: Emergency break-glass or manual override where required (fire code compliance).
- Networked access control panels (one per floor)
- Access control server software (on-premises) with database of up to 500 users (expandable).
- Configuration of schedules, access levels, and audit trails

9. Time Attendance System

- Supply and install biometric (fingerprint) or RFID time attendance terminals at main entrances (quantity: 4 units – main entrance, back door, and two floor entries).
- Terminals to be networked (PoE or Wi-Fi) and integrated with access control system.
- Integration with Active Directory for user management.
- Time attendance software on-premises for:
 - Employee clock-in/out logging.
 - Shift scheduling, overtime calculation, and absence tracking.
 - Export to payroll system (e.g., CSV/Excel).

10. Conference Room System

- Supply and install all-in-one conference room solution or separate components:
- Large format display (86", 4K, Sony).
- PTZ camera (4K, wide angle, auto-framing).
- Ceiling microphone array.
- Full-range sound bar or speakers + amplifier.
- Wireless presentation system (Crestron AirMedia).
- Meeting room controller (touch panel) for one-touch join.
- Support for Microsoft Teams, Zoom, or Webex (licensed as required).
- HDMI and USB plug-and-play connectivity for laptops.
- Basic wall panels or acoustic ceiling tiles if required for echo reduction.

11. Additional Scope Elements

- Supply and install Cisco Catalyst switches (PoE+) to power:
 - IP phones (130 units).
 - Wi-Fi access points (26 units).
 - Access control door (12 units).
 - Time attendance terminals (4 Units).
 - Conference room devices (12 units).
- Stackable switches per floor, with 10Gb uplinks to data center.
- Data center UPS: Online double-conversion UPS (e.g., 10–20 kVA) with runtime for servers, storage, routers, firewall, core switches.
- Floor distribution racks: Small UPS (1–2 kVA) for intermediate switches and small PoE devices.
- Data center: 2x 42U server racks (front/rear perforated doors, cable management).
- Floor telecom rooms: 1x 15U or 22U wall-mount or floor-mount swing rack per floor.
- Single sign-on (SSO) where possible (Active Directory integration for Wi-Fi, access control, time attendance, file server).
- Central logging and monitoring, syslog server.



DoubleTree by Hilton



Main Contractor



Main Contractor

CONTACT

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Project Information

Client : DoubleTree by Hilton-Riyadh
Consultant : Mohamed Harasani Architects.
Main Contractor : ASCON Askan Almabani Cont. Co.
Subcontractor (Low Current Systems): DSIT
Project Duration : March 2021 – Aug 2021
Contract Value (Low Current Package): SAR 2.7 million

Scope of work (Low Current System)

Supply and installation of an Exterity IPTV system serving 156 rooms, integrated with a complete Televes satellite dish farm. This SOW is structured to be used for tendering, project execution, or contractual purposes.

1. Satellite Dish Antennas (Televes)

- Supply and install Televes aluminum satellite dishes (offset design) for corrosion resistance, lightweight construction, and long service life.
- 130cm & 100cm size of dishes to be received (Astra, Hotbird, Eutelsat, Arabsat, Nilesat). A typical configuration for 156 rooms includes
- Supply and install Televes Quattro LNBs for each dish, depending on required polarity and band configuration. Ensure ultra-low noise figure ≤ 0.3 dB and high gain ≥ 60 dB for optimal signal quality across long cable runs.
- Install a centralized Televes multiswitches system to combine signals from all dishes and feed them to the Exterity IPTV gateways.
- A cascade of Televes multiswitches MS524C: 5-input, 24-output, provides for future expansion and ensures each Exterity tuner receives the correct polarization/band.
- Supply and install Televes multiband headend amplifiers (Minikom Launch LTE700) to boost signal without introducing distortion or intermodulation.
- RF redistribution over coaxial networks in addition to IP, include Televes T.0X or T12 series headend amplifiers to mix multiple satellite and terrestrial channels into a single coaxial output.

2. Coaxial Cabling & Passive Components (Dish to IP Gateway Location)

- Supply and install high-quality coaxial cable (RG-6 or RG-11, double-shielded, low-loss) from each LNB to the multiswitches inputs, and from multiswitches outputs to the Exterity satellite gateway inputs.
- Provide all necessary F-type connectors, ground blocks, lightning arrestors, splitters, and attenuators to ensure a clean, interference-free signal path.
- Document dish alignment coordinates (azimuth, elevation, polarization), multiswitches port mapping, and signal level measurements at each point.

- Perform end-to-end RF signal verification (carrier-to-noise ratio, bit-error rate) before connecting to the Exterity system.

3. Exterity IPTV Headend & Signal Processing

- Supply and install Exterity AvediaStream TV gateways for DVB-S/S2 satellite input. Suitable models include.
 - g4418 or g4415 (high-density satellite gateways) – each with multiple tuners to receive 20–80 satellite channels.
 - g4315 (two DVB-S/S2 inputs) for smaller channel counts.
 - g4417-pi for content-protected channels.
- Tuner count to be sized for 156 rooms:
 - 1 tuner per required channel is not necessary (multicast streaming allows many rooms to view the same channel simultaneously).
 - Estimate 30–50 tuners for a standard hotel package (50 international and local channels). The exact number depends on total channels to be delivered.
- Gateways to be installed in a **19" equipment rack** in the central headend (data center or telecom room)
- Each gateway shall:
 - Descramble (if Conditional Access Modules – CAMs – are provided) and demodulate DVB-S/S2 signals.
 - Output MPEG-2 or H.264 transport streams over UDP/RTP multicast to the facility's LAN.
 - Be managed and configured via Exterity's AvediaServer Director.

4. Exterity HDMI Encoders (For Local/Signage Content)

- Supply and install Exterity AvediaStream HDMI encoders (e3830) to encode local video sources (welcome channel, information channel, digital signage, promotional content).
- Each encoder shall accept HDMI input (up to 1080p) and output an H.264 IP multicast stream for distribution over the LAN.
- Provide any required source devices (media player for looping welcome video).
- Supply and install Exterity AvediaServer hardware platform and licensed software to serve as the core of the IPTV system
- Suitable models for 156 rooms:
 - AvediaServer c1520 – ideal for small to medium installations, with 4×1Gb Ethernet ports, single hard drive, 1U form factor.
 - AvediaServer c1565 – for higher performance, with up to 24 TB RAID storage, dual power supplies, and 4×1Gb ports.
- The AvediaServer shall provide
 - Middleware for user interface, Electronic Program Guide (EPG), and guest portal.
 - Device management (discovery, configuration, monitoring of gateways, encoders, and receivers).

- Video-on-Demand (VOD) server with ability to store and stream a library of movies and content.
- Digital signage content management.
- Integration with Property Management System (PMS) for guest name display, check-out, and billing (e.g., integration with Opera, Fidelio, or other PMS).
- AvediaServer software is licensed for 156 concurrent active endpoints (STBs or Smart TVs) and for the number of live TV channels to be delivered.
- Provide a dedicated IPTV VLAN on the facility's managed Ethernet switch(es) with IGMP snooping enabled to control multicast traffic.
- Ensure QoS (DiffServ/DSCP) is configured to prioritise video streams.
- Connect all headend devices (gateways, encoders, AvediaServer) to the core network switch using Cat 6A copper cabling.
- Link aggregation (LACP) to be configured on AvediaServer ports for bandwidth and redundancy.

5. In-Room System Smart TV (without STB)

- Supply 156 hospitality-grade Smart TVs LG pre-loaded with Exterity ArtioGuest client (or middleware-compatible application), eliminating the need for separate STBs.
- Connecting Smart TVs to the network via wired Ethernet.
- Provide and terminate Cat 6A Ethernet cabling from each room's outlet to the floor distribution switch.
- Install one (1) double-gang faceplate per room with an RJ-45 data port for the STB/Smart TV (and optionally a second port for guest Wi-Fi).
- Label all outlets with unique room identifiers.
- Live TV with channel list, electronic program guide (EPG), favourite channel selection, and parental control.
- Video-on-Demand (VOD) – a library of movies and content (content licensing to be separately procured or provided by the client).
- Language selection (e.g., Arabic, English, French) and accessibility features (subtitles, audio description if required).
- Guest services:
 - Welcome message with guest name (via PMS integration)
 - Wake-up call scheduling.
 - Room service ordering.
 - Housekeeping requests.
 - Concierge information (hotel directory, restaurant menus, spa, local attractions).
 - Check-out and bill viewing.

6. Central Management & Monitoring

- AvediaServer Director software to provide:
 - Centralised configuration and firmware updates for all Exterity devices.

- Real-time monitoring of device health, bandwidth usage, and stream status.
- Logging and alerting (SNMP traps to the facility's network management system).
- Content management interface for the hotel IT team to:
 - Update the VOD library (add, remove, categories movies).
 - Modify the EPG (channel lineup and scheduling).
 - Edit the guest portal's welcome messages, branding, and menu items.
 - Manage user access and permissions.
- PMS integration (as required) via standard API or Exterity's PMS gateway module, enabling guest name, check-out, and billing data exchange.

7. System Integration & Dependencies

- Facility LAN – The IPTV system relies on the existing or newly installed managed Ethernet network, carrying multicast video traffic (IGMP snooping, PIM if required, and QoS).
- Wi-Fi – If the facility has a guest Wi-Fi network, the IPTV system may be made accessible over Wi-Fi to allow guests to watch TV on tablets or smartphones.
- Property Management System (PMS) – For interactive guest services.
- UPS/Backup Power – All headend equipment (gateways, AmediaServer, core switches, multiswitches power supplies) shall be connected to an online UPS with sufficient runtime to maintain service during short power interruptions.



Private Prince's Villa



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Project Information

Client : Private Prince's Villa
Consultant : Not available
Main Contractor : Future Horizons Contracting.
Subcontractor (Low Current Systems): DSIT
Project Duration : Sep. 2022 – October 2022
Contract Value (Low Current Package): SAR 0.4 million

Scope of work (Low Current System)

Supply, installation, testing, and commissioning of a complete Carbon Film Electric Radiant Floor Heating System. The project covers a total heated area of 12,700 square meters. The selected system must be capable of functioning as the primary heat source for these zones, providing a comfortable, energy-efficient, and low-maintenance solution suitable for a high-traffic commercial hospitality environment.

1. Electrical Infrastructure & Control

- Dedicated Circuits: Provide and install dedicated electrical circuits from the main distribution panel to serve the heating load of each room/zone.
- Thermostats: Supply and install programmable thermostats for each thermal zone (per room or per logical heating area). Each room must be capable of controlling its own temperature independently.
- Protection: Each heating circuit must be protected by a dedicated 30mA Residual Current Device (RCD) to ensure electrical safety.
- Installation Boxes: Provide and install junction boxes for all electrical terminations. A 25mm deep junction box for the thermostat location. A separate 4"x4" electrical box for connections.
- Cabling: All connection cables from the thermostat to the heating film embedded in cut channels within the insulation layer or run within conduit to avoid creating pressure points under the finished floor.

2. Subfloor Preparation & Heating System Installation

- Insulation Layer: Supply and install a high-quality extruded polystyrene (XPS) or polyurethane foam insulation board (6mm Depron, or thicker 12mm where applicable) across the entire prepared subfloor.
- Channels for Cabling: Mechanically cut channels (grooves) into the insulation layer to accommodate the floor sensor probe and the connection wires.
- Heating Film Layout: Unroll and cut the carbon heating film according to a detailed layout plan.
 - The film cut at designated intervals to fit the dimensions of the room.
 - Floor covering limitations. (laminated luxury vinyl tile) are compatible and rated for use with underfloor heating.
- Protective Layer: After laying and connecting the film, install a protective polyethylene overlay board or similar

protection layer to shield the heating elements before the final floor finish is installed.

- Sensor Placement: Installing the floor temperature sensor in one of the pre-cut channels in the insulation layer, positioned centrally within the heated area.

3. Finishing, Commissioning & Documentation

- Final Floor Covering: Lay the specified hotel-grade floor finish (LVT, or engineered wood) over the protective layer.
- Electrical Testing: Conduct mandatory electrical testing of the system before and after the final floor covering is installed.
 - Insulation Resistance Test (Megger): Perform an insulation resistance test to ensure the heating elements are not damaged and there is no short to ground.
 - Continuity Test: Verify the integrity of all electrical connections.
- Commissioning: Energize the system to commission its operation. Verify that all thermostats communicate correctly with their respective heating zones and sensors.
- Handover Documentation: Upon completion, provide complete as-built documentation to the client.



Shaikh Thiyab's Palace



Consultant



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Project Information

Client : Shaikh Thiyab's Palace
Consultant : Mohamed Harasani Architects
Main Contractor : ASCON Askan Almabani Cont. Co.
Subcontractor (Low Current Systems): DSIT
Project Duration : Jan 2023 – July 2025
Contract Value (Low Current Package): SAR 3.1 million

Scope of work (Low Current System)

This scope of work encompasses the complete design, supply, installation, testing, commissioning, and handover of all structured cabling, network infrastructure, low-current systems, power works, and a centralized KNX-based smart home automation platform for a prestigious Royal compound. The compound consists of six distinct structures requiring different but integrated levels of service:

- **Main Palace:** The primary residential, administrative, and representational building. Requires the highest level of security, resilience, and system density.
- **Four Villas for Owner's Sons (4 total):** High-end, private family residences, each with an identical suite of automation and low-current systems.
- **Woman's Majlis:** An independent ceremonial and social reception hall for women. Requires its own dedicated headend, secure audio/video processing, and independent yet network-connected automation.
- **Man's Majlis:** The counterpart for men. This hall demands advanced audio-visual capabilities for presentations and large gatherings, plus full climate and lighting orchestration.
- **Entertainment Villa:** A dedicated leisure structure for home theater, gaming, spa and sports viewing. Requires high-performance audiovisual systems, immersive automation scenes, and seamless integration with the palace for content sharing.

1. Structured Cabling (Data, Voice, Audio/Video)

- **Backbone:** Install a redundant, high-speed fiber optic backbone (SMF OM4) linking the Main Palace, the four Villas, both Majlis, and the Entertainment Villa. A central MDF in the Palace will house the core network, while each building has its own IDF
- **Horizontal Cabling:** Deploy Category 6A (Cat6A) shielded cabling for all data, voice, and control endpoints.
- **Outlets:** Install single and double-gang RJ45 outlets for user devices, and system equipment as per architectural layout.
- **Core Switching:** Install an enterprise-grade (e.g., Cisco Catalyst) core switch stack in the Palace MDF with 10/40Gb uplinks.
- **Access Switching:** Managed PoE+ switches in each building's IDF to power IP cameras, access control panels, IP telephones, and Wi-Fi access points.

- Wi-Fi: Implement a mesh or controller-based Wi-Fi 6/6E system providing seamless coverage to all interior and key exterior areas. Use hidden or architecturally discreet access points in the Majlises and Palace.
- Firewalls & Security: Deploy a next-generation firewall (NGFW) for network security, content filtering, and secure VPN access for remote management.
- **CCTV System:** Deploy a 4K IP-based surveillance system with:
 - High-definition dome and bullet cameras for all entries, parking areas, perimeters, and strategic interior zones (e.g., entrances, corridors, sensitive rooms).
 - ANPR (Automatic Number Plate Recognition) cameras at the main compound gates.
 - Facial recognition cameras for authorized personnel and VIP identification.
 - Centralized NVR (Network Video Recorder) with a minimum 30-day storage capacity and remote viewing capability.
- **Access Control System (ACS):** Install a biometric and smart card access system for all 34 (or more) identified doors, including:
 - Fingerprint and/or facial recognition readers for high-security areas (Palace private zones, server rooms, Majlis entrances).
 - Proximity card readers for general staff areas.
 - Electromagnetic locks or electric strikes, door contacts, and request-to-exit buttons.
 - Integration with KNX to trigger “welcome” lighting scenes upon authorized entry.
- Intrusion Detection System (IDS): Install PIR (Passive Infrared) and magnetic contact sensors on all ground-floor windows and secondary doors. Connect to a 24/7 monitored alarm system with integration to the ACS.
- **Audio & Video Signal Distribution (AV over IP),** Deploy an AV over IP matrix (e.g., using IP-based encoders/decoders) allowing any video source (media players, satellite receivers, cameras) to be displayed on any screen across the compound.
- Point of Use: Provide user-friendly touch panels or remotes in each room to select content. This system will also feed the central public address (PA) and background music system, with individual zone control.
- **Public Address (PA) & Background Music, System:** Install a distributed, paging-ready PA system for each building, integrated with the fire alarm system for emergency announcements.
- Background Music: Use the same speakers for streaming high-fidelity music from a central media server, local device inputs, or internet radio sources, controllable via wall panels or mobile app.
- **IP Intercom:** Deploy a video-enabled, IP-based intercom at the main security gate, palace entrance, majlis entrances, and staff station points. Integrate with the KNX and ACS systems to allow remote door release.

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- **Structured Wiring & Racking**, Central Racks: Provide 19-inch equipment racks in each building's designated telecom room with:
 - Passive patch panels (Cat6A and fiber).
 - Active network switches (PoE+).
 - UPS systems.
 - Servers for management platforms
- **Cable Management**: All cabling will be neatly bundled, labeled per industry standards, and secured using J-hooks, ladder racks, or conduit as appropriate.
- **Fire Alarm & Life Safety Integration**, Supply and install an addressable fire alarm panel for each building, with all necessary smoke/heat detectors, manual call points, sounder/beacons, and alarm notification devices.
- **Integration**: Relay the fire alarm status (trigger signal) to the KNX system to:
 - Automatically unlock all access-controlled doors in the affected zone/building.
 - Cut off ventilation and air-handling units to prevent smoke spread.
 - Trigger emergency lighting and flashing beacons, and send an alert to security and a central monitoring station.
- **Lightning Protection & Surge Suppression**, External Protection: Install a complete lightning protection system (air terminals, down conductors, grounding network) for all buildings in compliance with international standards (e.g., NF C 17-102, IEC 62305).
- **Internal Protection**: Equip all main distribution boards, ELV racks, and sensitive electronic equipment with Type 1 and Type 2 surge protection devices (SPDs) to guard against transients from lightning or grid switching.
- **Grounding**: Establish a common, low-resistance ($\leq 1 \Omega$) grounding network for all buildings, tying together electrical, telecommunication, and lightning protection earths.

2. Power Works

- **Main & Sub-Distribution**, Incoming Supply: Based on the estate's load calculation, coordinate with the local utility for a dedicated transformer (2 MVA for a compound of this size). The Palace will have its own main low-voltage switchboard (MLVS).
- **Panelboards**: Provide a main distribution panel (MDP) in the Palace, and sub-distribution panels (SDPs) in each Villa, Majlis, and Entertainment Villa. Include adequate spare ways for future expansion
- **Feeder Cables**: Run heavy-duty, low-voltage armored cables from the Palace MDP to each SDP, sized for full load and voltage drop.
- **Lighting & Power Circuits**, install dedicated lighting circuits for each room/zone, controlled by KNX or traditional switches. dimmable LED drivers for all general lighting.
- **Convenience Outlets (Receptacles)**: Install appropriately spaced general-purpose outlets rated

13A – 16A, with USB-charging ports at strategic locations.

- **Specialty Circuits:** Provide dedicated circuits for:
 - Kitchen appliances (ovens, hobs, refrigerators, dishwashers).
 - Laundry equipment.
 - HVAC equipment (AHUs, FCUs, heat pumps).
 - IT and AV racks (isolated power for sensitive electronics).
 - Fountains, landscape lighting, irrigation pumps, and other external loads.
- **Emergency & Standby Power:** Diesel Generator (DG): Supply and install a sound-attenuated diesel generator 250 kVA for the Palace and common facilities. Auto-start and auto-transfer switch (ATS) for seamless backup.
- **Uninterruptible Power Supply (UPS):** Provide online double-conversion UPS units for:
 - Palace: 2× 20 kVA units (N+1 redundancy) for the data center, security room, and AV rack.
 - Villas: 1× 5–10 kVA UPS per villa for the local rack and selected outlets.
 - Majlises: 1× 10 kVA for the AV and control headend.
 - Entertainment Villa: 1× 10 kVA for the home theater equipment.
- **Battery Bank:** Sizing to support 30–60 minutes of full load runtime, with automatic generator start as the fallback.
- **Earthing & Bonding,** Install a TN-S or TN-C-S earthing system with a dedicated earth bar at each panel.
- **Roof & Mechanical Bonding:** Bond the lightning rods, water pipes, gas lines, ductwork, and structural steel to the main earth grid.
- **Cable Management & Finishing,** Concealed Wiring: All power cabling run inside PVC, EMT, or rigid conduits embedded in walls, floors, or within ceiling voids, with proper separation from low-current cables (min 30 cm or shielded trays).
- **Junction Boxes:** 9cm deep, fire-rated junction boxes for all connection points, accessible for future maintenance.
- **Final Finishes:** Switches, outlets, and other visible devices from a premium architectural series (Jung) with custom-matching colors/ finishes to the room décor.

3. Smart Home Automation (KNX)

- **System Architecture,** the core automation bus shall be KNX (ISO/IEC 14543), providing a decentralized, peer-to-peer, multi-vendor open standard.
- **Backbone:** Install a combination of twisted pair (TP) and IP (KNXnet/IP) lines for flexibility:
 - TP for reliable, no-latency actuator/sensor communication within each building.

- IP (via the structured cabling network) for high-speed backbone, remote access, and integration of media and multi-touch panels.
- Lines & Devices: Substantial number of KNX devices. For reference, a similar 16-line system supported over 475 devices in a castle. Our design includes:
 - Main Palace: 10 KNX lines
 - Each Villa: 3 lines.
 - Each Majlis: 2 lines.
 - Entertainment Villa: 3 lines
 - Total: 611+ KNX devices (sensors, actuators, and interfaces)
- **Lighting Control:** KNX dimming actuators and switching actuators for all lighting loads. Use DALI gateways for integration with high-end architectural dimming zones.
- Functions: Centralized and decentralized control (individual room keypads, touchscreens, mobile app). Programmed scenes: "Welcome" / "Departure" / "Dinner" / "Evening" / "Cleaning" / "Security"
- **HVAC Control,** Interface with the VRV/VRF system (Daikin) or FCU controllers (Modbus-to-KNX gateway).
- Per Room: KNX thermostats (or virtual interface via touch panel) in every habitable room, setpoint adjustment $\pm 1^{\circ}\text{C}$, with separate temperature and humidity sensors for common return air.
- Zone scheduling, setpoint limiting, energy-saving "unoccupied" setbacks, and central commands (e.g., "Shut down all HVAC during a fire alarm").
- **Motorized Shading & Blinds,** KNX actuators to manage the estate's motorized roller blinds, blackout curtains, and sheer fabrics.
- **Audio-Visual & Home Theatre Integration:** via KNX IR interface to control each building's AV distribution matrix, home theater projector, screen, receiver, and streaming devices.
- KNX touch panel can trigger the "Movie" scene: dim lights to 5%, lower the projector screen, close all blackout curtains, set HVAC to 22°C , and start the AV system.
- Multi-room Audio: Control of source selection, volume, and zones via KNX touch panels or a mobile app.
- **Irrigation & Landscape,** KNX actuator connected to a solenoid-based irrigation controller.
- Supply and install KNX weather station (rain, evapotranspiration data) and time schedule.
- **Pool, Spa & Fountain Control,** KNX dry-contact relays to start/stop pool pumps, heaters, and water features.
- Lighting: KNX dimmer for submerged pool/spa lighting (LED).
- Monitoring: Temperature sensors and flow switches for alarms.
- **Gate, Garage Door,** KNX on-off actuators for electromechanical gate openers, and garage door openers.
- KNX binary inputs to receive door open/closed status.
- Automated Sequences: KNX programmable logic to create "Arrival" (open gate, open garage, activate

driveway lights) and "Departure" (close gate, lock doors) scenes, triggered by a dedicated keypad, mobile app, or vehicle transponder

- **User Interfaces**, Wall-Mounted Keypads: Jung, or 4-8 button keypads in each room (stainless steel finish).
- Touch panels: 10.1" in-wall or touch panels in strategic positions: palace living areas, majlis entrances, and main bedrooms.
- Mobile App: A branded, secure mobile application (for Android and iOS) for remote control of the entire estate, accessible only via VPN or with integrated two-factor authentication.



Credit Suisse



Consultant



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Project Information

Client : Credit Swiss– Saudi Arabia
Consultant : Khatib & Alami Consultant
Main Contractor : Modern Building Solution for Building
Subcontractor (Low Current Systems): DSIT
Project Duration : Oct. 2024 – Sep. 2025
Contract Value (Low Current Package): SAR 1.9 million

Scope of work (Low Current System)

Installation of a server, low-current, and security system for a bank. This SOW is designed to be adapted for a specific project, incorporating relevant local banking regulations (SAMA Cybersecurity Framework for Saudi Arabia) and international standards.

All work, materials, and methodologies must adhere to the following key standards, with particular emphasis on the **SAMA Cybersecurity Framework** and the **TIA-942** standard for data center design.

1. Server Room & Data Center Infrastructure

- **Physical & Architectural Requirements**, the server room is an independent, enclosed space with solid concrete walls.
- Access Points: Only one or two controlled entry doors.
- Fire Suppression: Install FM-200 gaseous fire suppression system, compliant with NFPA 2001.
- Raised Flooring: Install a raised access floor (600mm high).
- **Power & UPS (Uninterruptible Power Supply)**, Provide two independent power feeds from the main switchgear to the server room (40KVA).
- UPS System: Deploy a N+1 redundant UPS configuration for server racks, with a 30-minute battery runtime at full load for controlled shutdown.
- Power Distribution: Install two separate Power Distribution Units (PDUs) per rack with smart metering.
- **Precision Cooling**, Redundant CRAC/CRAH Units: Deploy N+1 CRAC units with variable speed fans and hot-aisle/cold-aisle containment.
- Environmental Set Points: Maintain server room temperature at 20°C–24°C (±1°C) and relative humidity at 45%–55% (±5%).
- **Environmental Monitoring** Install a comprehensive BMS/EMS monitoring system for power, temperature, humidity, leak detection (under raised floor), smoke detection, and door contacts.
- Connect to the central BMS with SMS and email alerts.

- **Racks & Cabling Management**, Supply and install standard 8 x 42U server racks (black).
- Manage all server and switch cabling with vertical/horizontal cable managers.

2. Low-Current & Network Systems

- **Structured Cabling**, Backbone Cabling: Install OS2 single-mode fiber between server rooms, IDF/MDFs, and all security headends. Provide 100% redundancy for core links.
- Horizontal Cabling: Deploy Cat 6A U/FTP cabling to all data outlets.
- End-Points: Install approximately 3 data outlets per workstation (83 point), plus dedicated outlets for IP cameras, door controllers, Wi-Fi APs, printers, and teller stations.
- **Network Infrastructure**, Core Switches: Deploy two redundant, modular core switches (Cisco Catalyst 9500 or 9600).
- Access Switches: Install PoE+ switches in all IDFs to power cameras, WAPs, and IP phones.
- Routing & Firewall: Install enterprise routers with DDoS protection and a Next-Generation Firewall cluster (A/P) with IPS/IDS, application control, and full SSL inspection.
- **IP Telephony (VoIP)**, Cisco Unified Communications Manager (CUCM) PBX platform.
- IP phones for all staff (Cisco 7800 and 8800 series with encryption).
- **High-Availability Wi-Fi**, Provide Cisco Wi-Fi 6/6E APs for 100% coverage.
- Implement WPA3-Enterprise with 802.1X RADIUS authentication.

3. Security Systems (Integrated Physical Security)

- **CCTV & Video Surveillance**, Deploy a fully digital, 4K IP-based surveillance system with centralized management software.
- Strategic Coverage: Full coverage for all identified areas: all public entrance/exits, all teller and customer service counters, safe deposit and vault rooms, all ATM vestibules, server rooms, IT and wiring closets, high-value transaction areas, and all employee entrances and corridors (73 cameras).
- Minimum Camera Performance:
 - Resolution: 8MP (4K)
 - Facial & License Plate Capture: At 20m range, images must clearly show facial features and vehicle license plates.
 - Storage: Centralized NVR with enterprise hard drives providing 90 days of continuous recording.
 - Tamper Detection: All cameras must support video motion tamper detection.
- **Access Control System (ACS)**, Platform: A hardware/software system for electronic door control.

- Card Credentials & Readers: 13.56 MHz smart card readers with keypad for multi-factor authentication (card + PIN).
- Biometric Readers: For server rooms and high-security zones, install fingerprint and/or facial recognition readers
- Door Hardware: Install electric door strikes and heavy-duty magnetic locks that interface with the fire alarm system for "fail-safe" unlocking in emergencies.
- Controlled Doors: Secure all sensitive areas.
- Visitor Management: Provide a dedicated kiosk station to issue temporary cards.
- **Intrusion Detection System (IDS)**, Alarm Control Panels: Install a professional, bank-grade alarm panel.
- Perimeter Protection: Magnetic contacts on all external doors and PIR motion sensors in all high-risk zones (main lobby after hours).
- Duress Alarms: Install a silent "hold-up" button (HUB) at each teller station.
- **ATM Security**, for each ATM machine, a dedicated camera provides a clear view of the user's face as well as a clear view of the area around the machine to record any suspicious activity.
- **Intercom & PA**, Install IP-based video intercoms at all public entry points.

4. Integrated Security Management Center (SMC)

- A central physical location that houses the main server racks for security applications, the video wall, and the operator consoles.
- The SMC will integrate and cross-reference events between systems:
 - Video Verification of Alarms: An intrusion alarm triggers the nearest CCTV camera feed.
 - Access & Video: A card swipe is logged, and the system pulls up the video of that door at that time.
 - Centralized Logging: A Security Information and Event Management (SIEM) system collects logs from servers, firewalls, and ACS.
- Provide a modular operator console and a video wall of 4×4 55-inch commercial displays

5. Testing, Commissioning & Quality Assurance

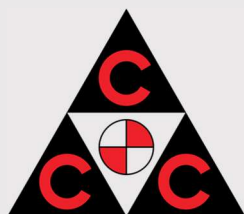
- Cat6A Cabling: 100% Fluke DSX certification.
- Access Control: 100% functional test of every lock, reader, and contact.
- CCTV: Coverage verification (camera angle and focus) and recording verification.
- UPS & Generator: Simulated load transfer tests (mains → UPS → generator).
- The installed system must be tested against SAMA and PCI DSS Requirement 9 physical security standards.
- A formal risk assessment will be conducted post-installation.



Royal Comm. AlUla

HOPKINS
ARCHITECTS

Consultant



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Project Information

Client : Royal Commission for AlUla
Consultant : Hopkins Architects
Main Contractor : Consolidated Contractors Co (CCC)
Subcontractor (Low Current Systems): DSIT
Project Duration : July 2023 – March 2025
Contract Value (Low Current Package): SAR 6.2 million

Scope of work (Low Current System)

Supply, installation, testing, and commissioning of a complete low-current systems package, together with standby power generation and uninterruptible power supply (UPS) infrastructure, covering the full facility. The scope is designed to deliver an integrated, reliable, and future-ready backbone for data, communications, security, and emergency power across the site.

1. Structured Cabling (Data & Voice)

- Supply and install Category 6A (Cat6A) horizontal cabling for all data and voice outlets, terminated on labeled patch panels in a standard 19-inch rack. Provide a fibre optic backbone (OM4/OS2 as applicable) linking the main distribution frame (MDF) to intermediate distribution frames (IDFs) on each floor or building. Install cable trays, conduits, and trunking as required for neat, safe, and code-compliant routing. Test and certify all copper and fiber links, with full test reports provided at handover.

2. Network Infrastructure

- Supply and install managed core and access switches (PoE+) to power IP phones, Wi-Fi access points, and IP cameras. Install a firewall/router with content filtering, VPN, and intrusion prevention for secure network access. Configure VLANs for data, voice, guest Wi-Fi, CCTV, and access control segregation. Supply and install Wi-Fi 6-class access points sized by site survey for complete coverage across all occupied areas.

3. IP Telephony System

- Supply and install an IP-PBX / unified communications platform with IP handsets for all users. Configure voice VLAN with QoS prioritization, extension-to-extension calling, voicemail, and auto attendant. Integrate with existing PSTN lines or SIP trunk as required.

4. CCTV & Video Surveillance

- Supply and install IP dome and bullet cameras covering all entrances, perimeters, parking areas, and critical interior zones. Provide a network video recorder (NVR) with adequate

storage capacity for the required retention period, plus remote viewing via mobile app. Configure motion detection recording and alerting.

5. Access Control System (ACS)

- Supply and install proximity card and/or biometric readers, electromagnetic locks or electric strikes, door contacts, and request-to-exit devices at all controlled doors. Provide access control server software with scheduling, access-level configuration, and audit trails. Provide key override for emergency egress in compliance with fire and life-safety codes.

6. Intrusion Detection System (IDS)

- Install magnetic door/window contacts and PIR motion sensors at all perimeter and high-risk points. Connect to a monitored alarm panel with remote notification and integration to the access control system.

7. Fire Alarm Integration

- Coordinate with the fire alarm system to trigger emergency unlocking of access-controlled doors, shutdown of HVAC/ventilation where required, and activation of emergency lighting and notification devices upon alarm.

8. Public Address (PA) & Background Music

- Install a distributed, paging-ready PA system integrated with the fire alarm system for emergency announcements. Provide background music distribution with zone-level volume control via wall panels or a central controller.

9. SMATV / IPTV Distribution

- Supply and install a satellite/terrestrial signal distribution system (SMATV) or IPTV headend as applicable, serving all required outlet points. Provide amplifiers, splitters, and outlet points sized for the full channel lineup and outlet count.

10. Standby Power – Diesel Generator

- Supply and install a sound-attenuated diesel generator sized to the facility's emergency and essential load, complete with automatic transfer switch (ATS) for seamless failover. Provide fuel storage/supply, exhaust and ventilation systems, and acoustic enclosure in compliance with local regulations. Commission with full load-bank testing and simulated mains-failure transfer tests.

11. Uninterruptible Power Supply (UPS)

- Supply and install online double-conversion UPS units sized to protect servers, network equipment, security systems, and other critical loads, with N+1 redundancy where specified. Provide battery banks sized for the required runtime, with automatic generator start as

fallback. Install power distribution units (PDUs) with surge protection at all racks and critical panels.

12. Testing, Commissioning & Handover

- Perform 100% functional testing of all structured cabling, network, security, and power systems. Conduct simulated load-transfer tests across the mains → UPS → generator chain.
- Provide complete as-built documentation, test reports, and training to the client's operations team prior to final handover.