



TECHNICAL & BUDGETARY PROPOSAL · D2-CN25-128

ELV, ICT, AV, Security & Smart-Building Systems

Waldorf Astoria Hotel & Branded Residences (Project 108)
Boulevard North-West — Other Assets (Project 196)

EMPLOYER	Diriyah Company
MAIN CONTRACTOR	UCC-HAC JV
PRESENTED TO	Hassan Allam Holding
SUPPLIER	MSD Solutions
DOCUMENT	Rev. 00 — Oct 2026

PRESENTED BY



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Prepared by MSD Solutions for Hassan Allam Holding · Diriyah — Waldorf Astoria Hotel & Branded Residences Project
Implementary and initial proposal only. All systems, layouts, brands, quantities and figures are indicative and subject to the final drawings, the full project study, consultant approval and the confirmed project scope.

01 · EXECUTIVE SUMMARY

Proposal overview

MSD Solutions is pleased to present this complementary proposal for the extra-low-voltage, ICT, audio-visual, security, life-safety and smart-building systems at Diriyah, for Diriyah Company through the main contractor UCC-HAC JV. The scope covers two zones: Waldorf Astoria Hotel & Branded Residences (Project 108, consultant SSH) and Boulevard North-West — Other Assets (Project 196, consultant Omrania).

857	28	61.6M
Indexed BOQ rows reviewed	Systems catalogued	Budgetary total, SAR incl. VAT (Base)

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02 · PROJECT SCOPE

Zones & scope basis

Zone	Name	Consultant	Indexed rows
Project 108	Waldorf Astoria Hotel & Branded Residences	SSH	702
Project 196	Boulevard North-West — Other Assets	Omrania	155

Of 56 system/zone combinations reviewed, 38 carry indexed BOQ rows and are priced in this study. The remaining 18 are listed as hold points pending scope confirmation. Optional items (screening, smart city, traffic, leak detection) are shown as concepts only.

Scope coverage by system

System	Category	Hotel rows	Assets rows
Structured cabling, FTTX & data networks	Connected Infrastructure	180	22
Telephone system	Connected Infrastructure	58	Confirm
GSM / DAS	Connected Infrastructure	3	Confirm
ELV containment & infrastructure interfaces	Connected Infrastructure	15	11
Home automation & GRMS	Smart Hospitality	24	5
Clock system	Smart Hospitality	1	Confirm
Audio visual system	Guest Experience	45	8
Background music	Guest Experience	16	Confirm
IPTV system	Guest Experience	17	Confirm
Digital signage	Guest Experience	5	Confirm
CCTV / video surveillance	Safety & Security	71	15
Access control & intrusion alarms	Safety & Security	41	16
Intercom systems	Safety & Security	14	7
Common electronic security equipment	Safety & Security	Confirm	6
Fire detection, alarm & voice evacuation	Safety & Security	32	43
Firefighter two-way communication	Safety & Security	4	2
Disabled toilet alarm	Safety & Security	8	Confirm
Gas detection	Safety & Security	1	Confirm
Parking control, gate barriers & CPMS	Arrival & Mobility	20	11
Electric vehicle charging	Arrival & Mobility	2	Confirm
Lighting control	Smart Building	129	4
Building management & control	Smart Building	4	3
Energy metering & BTU meters	Smart Building	10	1
CO / NOx parking ventilation sensors	Smart Building	2	1
People & baggage screening	Optional / Verify	Confirm	Confirm
Smart City	Optional / Verify	Confirm	Confirm
Traffic management	Optional / Verify	Confirm	Confirm
Water leak detection	Optional / Verify	Confirm	Confirm

03 · SYSTEMS CATALOGUE

System descriptions

Connected Infrastructure

Structured cabling, FTTX & data networks

Single-mode fibre backbone from the MDF to every IDF, Cat6A horizontal cabling to outlets and access points, and a resilient core/distribution/access switching fabric carrying every converged ELV service.

Key components: OS2 fibre risers, Cat6A U/FTP horizontal, Core & access PoE++ switches, Wi-Fi 6E access points, 42U racks & PDUs · Interfaces: All IP-based ELV systems, ISP / telecom operators, Electrical (UPS, earthing)

Telephone system

Hospitality-grade IP-PBX with SIP trunks providing guestroom, concierge and back-of-house voice, voicemail, wake-up calls and PMS-integrated call accounting.

Key components: IP-PBX / call server, Guestroom IP phones, Admin & concierge consoles, SIP gateways · Interfaces: PMS, Data network, Emergency services routing

GSM / DAS

Neutral-host distributed antenna system extending multi-operator cellular coverage into basements, back-of-house and guest floors with concealed ceiling antennas.

Key components: Head-end / BTS interface, Fibre remote units, Concealed antennas, Passive splitters · Interfaces: Mobile operators (CST approval), Containment

ELV containment & infrastructure interfaces

Dedicated ELV trays, trunking, conduits and back-boxes segregated from LV power, with defined responsibility boundaries at each interface.

Key components: Perforated & ladder trays, Conduits & back-boxes, Fire-stopping at penetrations, Earth bonding · Interfaces: Electrical contractor, Architect / ceilings, MEP coordination

Smart Hospitality

Home automation & GRMS

Guest room management integrating lighting scenes, HVAC set-points, curtains, DND/MUR and occupancy, linked to front desk and PMS for check-in/out energy states.

Key components: Room controller, Designer keypads, Thermostat, Curtain motors, Occupancy sensors · Interfaces: PMS, BMS, Lighting control, Door locks

Clock system

GPS/NTP master clock synchronising time across displays, staff areas and all networked systems for consistent event logging.

Key components: GPS receiver, NTP master clock, PoE slave clocks · Interfaces: Data network, CCTV/ACS logs

Guest Experience

Audio visual system

Ballroom, meeting and boardroom AV with matrix switching, projection/LED, conferencing, wireless presentation and touch-panel control.

Key components: AV-over-IP encoders/decoders, Projectors / LED walls, DSP & amplifiers, Control touch panels · Interfaces: Data network, Lighting control, Background music

Background music

Zoned background music for lobby, F&B, spa and corridors with local volume control and fire-alarm muting interface.

Key components: Music sources & streamers, Zone mixers, Ceiling / pendant speakers, Wall volume controls · Interfaces: Fire alarm (mute), AV system

IPTV system

Hospitality IPTV head-end delivering live channels, personalised welcome screens, casting and hotel information integrated with PMS.

Key components: Satellite / IP head-end, Middleware server, Hospitality TVs, Casting appliances · Interfaces: PMS, Data network, GRMS

Digital signage

Centrally managed displays for wayfinding, event schedules and brand content with scheduled playlists.

Key components: CMS server, Media players, Commercial displays, Interactive kiosks · Interfaces: Data network, Event booking

Safety & Security

CCTV / video surveillance

IP video surveillance with discreet architectural cameras, recording servers, analytics and a central security monitoring room.

Key components: Fixed & PTZ IP cameras, NVR / storage, VMS workstations, Video wall · Interfaces: Access control, Intrusion, Data network

Access control & intrusion alarms

Credential-based access for guest, staff and service zones with intrusion detection on sensitive areas and full audit trail.

Key components: Controllers, Readers (mobile/card), Mag-locks & door contacts, PIR & intrusion panels · Interfaces: CCTV, Fire alarm (release), HR / PMS

Intercom systems

IP video intercom between entrances, car park, lifts and the concierge / security desk.

Key components: Door stations, Master stations, Lift & refuge call points · Interfaces: Access control, Telephone

Common electronic security equipment

Shared security platform — servers, UPS and command-room furniture — counted once to avoid duplication with CCTV and ACS.

Key components: PSIM / security servers, Command consoles, UPS · Interfaces: CCTV, ACS, Intercom

Fire detection, alarm & voice evacuation

Addressable fire detection with networked panels and voice evacuation, engineered to the approved fire strategy and authority requirements.

Key components: Addressable panels, Smoke / heat detectors, Manual call points, VA amplifiers & speakers · Interfaces: BMS, Lifts, Access control release, HVAC shutdown

Firefighter two-way communication

Fire-rated two-way communication between the fire command point, refuges and firefighting lobbies.

Key components: Master control panel, Outstations, Fire-rated cabling · Interfaces: Fire alarm

Disabled toilet alarm

Pull-cord emergency call in accessible toilets with over-door indication and staff annunciation.

Key components: Pull-cord unit, Reset button, Over-door light, Annunciator · Interfaces: BMS (optional)

Gas detection

Gas detection in kitchens and plant spaces with shut-off valve interlock and alarm signalling.

Key components: Gas sensors, Control panel, Solenoid valve interface · Interfaces: Fire alarm, BMS, Mechanical

Arrival & Mobility

Parking control, gate barriers & CPMS

Vehicle access and car-park management with ANPR, barriers, bay guidance and payment interfaces for guests and residents.

Key components: ANPR cameras, Barriers, Bay sensors & signs, Pay stations · Interfaces: Access control, Valet / PMS

Electric vehicle charging

Networked AC/DC chargers with dynamic load management; power supply remains under the electrical division.

Key components: AC wallbox / DC chargers, Load management, OCPP back-office · Interfaces: Electrical supply, Parking system

Smart Building

Lighting control

DALI-2 based lighting control with astronomical scheduling, scene setting and daylight harvesting from golden hour to night.

Key components: DALI controllers, Scene panels, Sensors, Dimmer modules · Interfaces: GRMS, BMS, AV

Building management & control

BACnet/IP building management monitoring plant, HVAC and critical alarms with trends and operator dashboards.

Key components: Supervisory server, DDC controllers, Field sensors, Operator workstations · Interfaces: Fire alarm, Metering, GRMS, Chillers / AHUs

Energy metering & BTU meters

Electrical, water and chilled-water BTU metering feeding energy analytics and tenant billing.

Key components: Multifunction meters, BTU meters, Data concentrators · Interfaces: BMS, Utilities

CO / NO_x parking ventilation sensors

Gas sensing in enclosed car parks driving jet-fan staging to maintain air quality with minimal energy.

Key components: CO / NO₂ sensors, Control panel, Fan interface · Interfaces: BMS, Mechanical ventilation

Optional / Verify

People & baggage screening

Concept only — screening station for VIP events. No indexed BOQ rows; subject to owner confirmation.

Key components: Walk-through detector, X-ray screener · Interfaces: Security operations

Smart City

Conceptual district-level data integration option. No indexed BOQ rows; subject to master-developer strategy.

Key components: Urban data platform · Interfaces: District systems

Traffic management

Optional arrival-road flow monitoring. No indexed BOQ rows; subject to confirmation.

Key components: Traffic sensors, VMS signs · Interfaces: Parking

Water leak detection

Optional leak sensing for risers and plant rooms. No indexed BOQ rows; subject to confirmation.

Key components: Rope / spot sensors, Leak panel · Interfaces: BMS

04 · SUGGESTED SUPPLIERS

Brand options per system

Brands are suggested options only, subject to consultant approval and approved submittals. Trademarks belong to their respective owners.

System	Suggested brands
Structured cabling, FTTX & data networks	Cisco, Huawei, Fortinet
Telephone system	Cisco, Huawei
GSM / DAS	Huawei
ELV containment & infrastructure interfaces	Schneider Electric, ABB
Home automation & GRMS	Schneider Electric, Siemens, ABB
Clock system	Siemens
Audio visual system	Sony, Samsung, JBL, Bose
Background music	Fohhn, Bose, JBL
IPTV system	VITEC, Samsung, LG
Digital signage	Samsung, LG
CCTV / video surveillance	Bosch, Samsung, Sony
Access control & intrusion alarms	Bosch, Siemens
Intercom systems	Bosch
Common electronic security equipment	Bosch, Siemens
Fire detection, alarm & voice evacuation	Siemens, Bosch
Firefighter two-way communication	Siemens
Disabled toilet alarm	ABB
Gas detection	Siemens
Parking control, gate barriers & CPMS	Bosch
Electric vehicle charging	ABB, Schneider Electric, Siemens
Lighting control	Schneider Electric, ABB, Siemens
Building management & control	Siemens, Schneider Electric, ABB
Energy metering & BTU meters	Schneider Electric, ABB, Siemens
CO / NOx parking ventilation sensors	Siemens
People & baggage screening	To be confirmed
Smart City	Huawei, Cisco
Traffic management	To be confirmed
Water leak detection	Siemens

05 · BUDGETARY COST STUDY

ELV, ICT, security & smart building

Conceptual budget derived from the MSD cost model. Not a quotation. Low and High apply $\times 0.7$ and $\times 1.5$ to the direct cost.

Build-up (SAR)	Low	Base	High
Direct systems cost	20,179,425	28,827,750	43,241,625
Preliminaries 8%	1,614,354	2,306,220	3,459,330
Contingency 20%	4,358,756	6,226,794	9,340,191
Overhead & markup 15%	3,922,880	5,604,115	8,406,172
Subtotal excl. VAT	30,075,415	42,964,879	64,447,318
VAT 15%	4,511,312	6,444,732	9,667,098
Budgetary total incl. VAT	34,586,727	49,409,610	74,114,416

06 · BUDGETARY COST STUDY

Audio-visual, BGM, IPTV & signage

Conceptual budget derived from the MSD cost model. Not a quotation. Low and High apply $\times 0.7$ and $\times 1.5$ to the direct cost.

Build-up (SAR)	Low	Base	High
Direct systems cost	4,990,160	7,128,800	10,693,200
Preliminaries 8%	399,213	570,304	855,456
Contingency 20%	1,077,875	1,539,821	2,309,731
Overhead & markup 15%	970,087	1,385,839	2,078,758
Subtotal excl. VAT	7,437,334	10,624,764	15,937,145
VAT 15%	1,115,600	1,593,715	2,390,572
Budgetary total incl. VAT	8,552,935	12,218,478	18,327,717

07 · LINE-BY-LINE PRICING

Base scenario breakdown

Ref	Solution	Supply	Install	Eng.	T&C	Direct	Incl. VAT
A-29	Structured cabling, FTTX & data networks	510,000	112,200	30,600	25,500	678,300	1,162,579
A-32	Home automation & GRMS	250,000	55,000	15,000	12,500	332,500	569,892
A-37	CCTV / video surveillance	390,000	85,800	23,400	19,500	518,700	889,031
A-38	Access control & intrusion alarms	310,000	68,200	18,600	15,500	412,300	706,666
A-39	Intercom systems	175,000	38,500	10,500	8,750	232,750	398,924
A-40	Common electronic security equipment	160,000	35,200	9,600	8,000	212,800	364,731
A-42	Fire detection, alarm & voice evacuation	650,000	143,000	39,000	32,500	864,500	1,481,718
A-43	Firefighter two-way communication	85,000	18,700	5,100	4,250	113,050	193,763
A-45	Parking control, barriers & CPMS	290,000	63,800	17,400	14,500	385,700	661,074
A-46	ELV containment & interfaces	370,000	81,400	22,200	18,500	492,100	843,440
A-48	Lighting control	210,000	46,200	12,600	10,500	279,300	478,709
A-49	Building management & control	280,000	61,600	16,800	14,000	372,400	638,279
A-50	Energy metering & BTU meters	80,000	17,600	4,800	4,000	106,400	182,365
A-52	CO / NOx parking sensors	75,000	16,500	4,500	3,750	99,750	170,968
H-01	Structured cabling, FTTX & data networks	3,200,000	704,000	192,000	160,000	4,256,000	7,294,614
H-02	Telephone system	460,000	101,200	27,600	23,000	611,800	1,048,601
H-03	GSM / DAS	680,000	149,600	40,800	34,000	904,400	1,550,105
H-04	Home automation & GRMS	2,100,000	462,000	126,000	105,000	2,793,000	4,787,090
H-09	CCTV / video surveillance	1,650,000	363,000	99,000	82,500	2,194,500	3,761,285
H-10	Access control & intrusion alarms	1,220,000	268,400	73,200	61,000	1,622,600	2,781,071
H-11	Intercom systems	330,000	72,600	19,800	16,500	438,900	752,257
H-14	Fire detection, alarm & voice evacuation	1,550,000	341,000	93,000	77,500	2,061,500	3,533,329
H-15	Firefighter two-way communication	190,000	41,800	11,400	9,500	252,700	433,118
H-16	Disabled toilet alarm	95,000	20,900	5,700	4,750	126,350	216,559
H-17	Parking control, barriers & CPMS	650,000	143,000	39,000	32,500	864,500	1,481,718
H-18	ELV containment & interfaces	740,000	162,800	44,400	37,000	984,200	1,686,879
H-19	Clock system	100,000	22,000	6,000	5,000	133,000	227,957
H-20	Lighting control	2,250,000	495,000	135,000	112,500	2,992,500	5,129,025
H-21	Building management & control	1,700,000	374,000	102,000	85,000	2,261,000	3,875,264
H-22	Energy metering & BTU meters	440,000	96,800	26,400	22,000	585,200	1,003,009

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Ref	Solution	Supply	Install	Eng.	T&C	Direct	Incl. VAT
H-23	Gas detection	90,000	19,800	5,400	4,500	119,700	205,161
H-24	CO / NOx parking sensors	165,000	36,300	9,900	8,250	219,450	376,129
H-25	Electric vehicle charging	230,000	50,600	13,800	11,500	305,900	524,300
A-33	Audio visual system (AV)	370,000	81,400	22,200	18,500	492,100	843,440
H-05	Audio visual system (AV)	2,800,000	616,000	168,000	140,000	3,724,000	6,382,787
H-06	Background music (AV)	760,000	167,200	45,600	38,000	1,010,800	1,732,471
H-07	IPTV system (AV)	850,000	187,000	51,000	42,500	1,130,500	1,937,632
H-08	Digital signage (AV)	580,000	127,600	34,800	29,000	771,400	1,322,149

08 · HOLD POINTS

Scope awaiting confirmation

These combinations have no indexed BOQ rows and are excluded from all totals until scope is confirmed.

Ref	Zone	System	Guidance
H-12	Hotel	Common electronic security equipment	Shared platform/servers/UPS for security; verify platform overlap.
H-13	Hotel	People and baggage screening	Screening equipment is NOT indexed; optional only on design confirmation.
H-26	Hotel	Smart City	No indexed BOQ rows. Do not price as committed scope.
H-27	Hotel	Traffic management	No indexed BOQ rows. Do not price as committed scope.
H-28	Hotel	Water leak detection	No indexed BOQ rows. Do not price as committed scope.
A-30	Assets	Telephone system	IP telephony/PBX, endpoints, gateways and integration; hotel only indexed.
A-31	Assets	GSM / DAS	Indoor cellular coverage/DAS; operator coordination and survey required.
A-34	Assets	Background music	Zoned hospitality music systems, amplifiers, distributed loudspeakers.
A-35	Assets	IPTV system	IPTV headend, middleware, guest TV connectivity and integration; Assets unindexed.
A-36	Assets	Digital signage	Content management players, commercial signage, brackets and software.
A-41	Assets	People and baggage screening	Screening equipment is NOT indexed; optional only on design confirmation.
A-44	Assets	Disabled toilet alarm	Accessible bathroom call and annunciation system.
A-47	Assets	Clock system	Master time/synchronization clocks; Hotel index only.
A-51	Assets	Gas detection	Gas detectors and panel interfaces; hotel index only.
A-53	Assets	Electric vehicle charging	EV charging hardware, control and load management, electrical interface by others.
A-54	Assets	Smart City	No indexed BOQ rows. Do not price as committed scope.
A-55	Assets	Traffic management	No indexed BOQ rows. Do not price as committed scope.
A-56	Assets	Water leak detection	No indexed BOQ rows. Do not price as committed scope.

09 · DELIVERY & CONTACT

How MSD delivers

Design & submittals — Shop drawings, riser schematics, material submittals and interface matrices coordinated with the consultants.

Procurement — Approved-brand sourcing with factory testing where applicable and staged delivery to site.

Installation — Containment, cabling and device installation by certified MSD teams under HSE supervision.

Testing & commissioning — Point-to-point testing, integrated systems tests and witnessed acceptance.

Handover — As-built drawings, O&M; manuals, training and defects-liability support.

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