

SPARKLINE × LEYARD

TRANSPARENT LED MEDIA FACADE PROPOSAL

VERDUN BUILDING

Transparent LED Media Facade

Technical & Commercial Proposal · SKV-VRD-PRP-001 · Rev. A — Preliminary · November 2026

Exclusive LED manufacturer: LEYARD

PRELIMINARY — subject to site survey, mock-up testing, LEYARD quotation and engineering approval

SPARKLINE proposes converting the glazed facades of the VERDUN Building into a synchronized transparent media facade using LEYARD ISKY transparent LED technology, installed indoors behind the existing curtain wall. The recommended Balanced option covers six zones (≈2,247 m² preliminary) with ISKY-N10.4 on the towers and ISKY-N7.8 on the curved podium band. The system preserves daylight and views (manufacturer-rated transparency ≥75–80%; installed transparency to be measured on a mock-up), operates as one canvas or six independent screens, and creates a premium advertising and civic-celebration asset. All figures are preliminary estimates pending survey, LEYARD quotation and regulatory approvals.

- Indoor installation behind existing glass — no change to the external architecture.
- Existing as-built SLD (LLC-VT-E001) shows a 630 A ATS / MDB — insufficient for the LED connected load; a dedicated new supply is required.
- LEYARD rated operating temperature is 0–40 °C: active ventilation of the glass cavity is a design-critical requirement.
- Blue-tinted glass reduces perceived brightness; daytime advertising visibility must be proven by mock-up.
- Advertising revenue is not guaranteed and depends on municipal advertising licensing.

PRELIMINARY — subject to site survey, mock-up testing, LEYARD quotation and engineering approval



Conceptual rendering

LED AREA **2,250 m²**	ZONES **6**	CAPEX (INCL. VAT) **21.2M SAR**
CONNECTED LOAD **1,620 kW**	5-YR ROI (BASE) **46%**	PAYBACK (BASE) **3.69 yrs**

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Building Analysis

VERDUN is a mixed-use tower on a corner roundabout plot: a two-level curved glazed podium with white columns at ground level, three glazed tower volumes rising to approximately L11–L12, white parametric lattice frames on the concave main tower, and cantilevered metallic fins at every slab edge. The curtain wall uses blue-tinted reflective glazing with slab-edge spandrels. These fins, lattices and spandrels are preserved; the LED is set back inside, aligned to vision-glass zones only.

Uploaded drawings reviewed

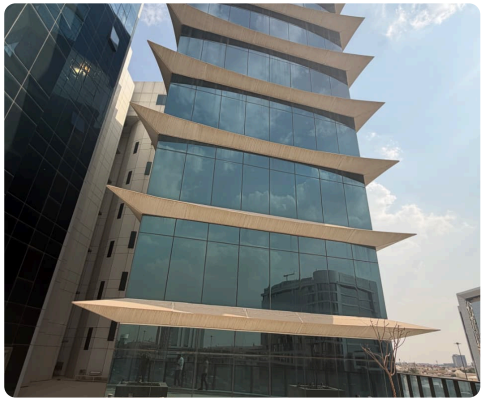
- SINGLE LINE DIAGRAM.pdf — LLC-VT-E001 (as-built, Aug 2020): MDB + EMDB, 630 A ATS, standby generator
- TYPICAL FLOOR POWER.pdf — riser and DB locations on typical floor
- SPIDER.pdf — **not received; required**

Drawings are used as references for existing infrastructure, not as proof of available LED electrical capacity.











Original Building



Proposed – Daytime, Front Facade · *Conceptual rendering*



Proposed – Night, Full Synchronized · *Conceptual rendering*



Transparent LED Switched Off (night) · *Conceptual rendering*



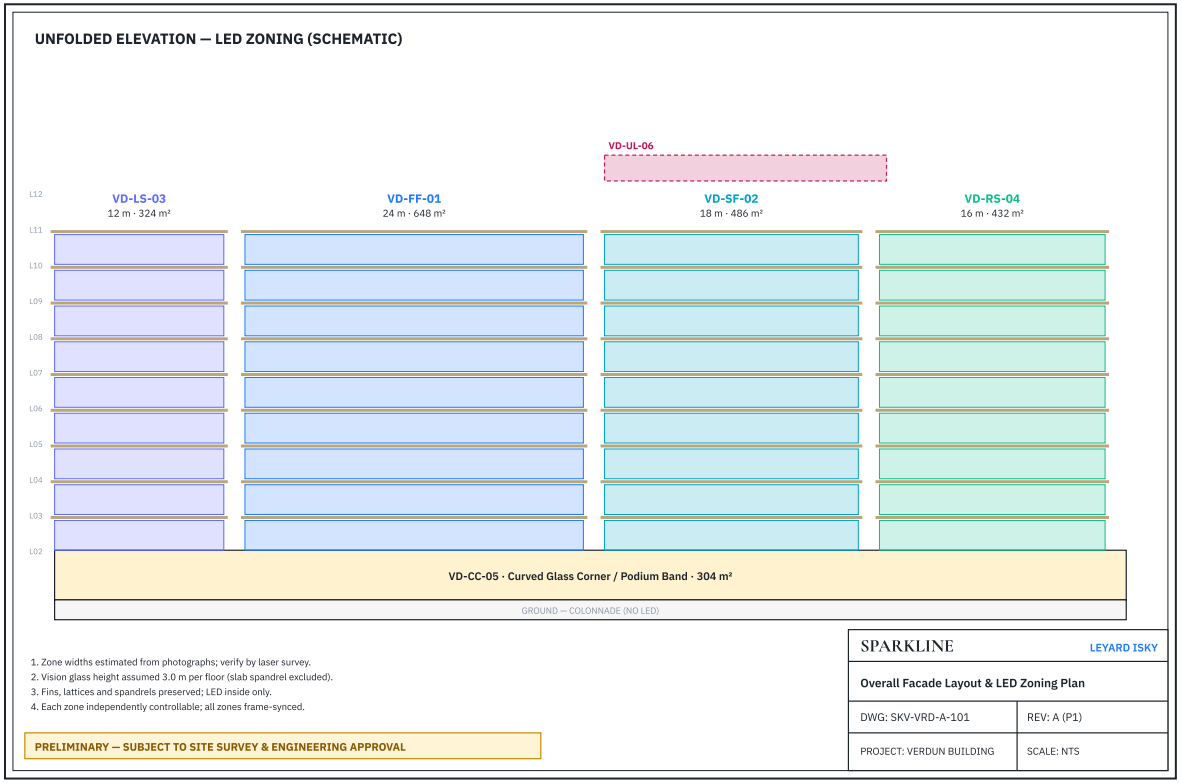
Transparent LED Switched On · *Conceptual rendering*



Interior View Looking Outward · *Conceptual rendering*

Code	Zone	Floors	W × H (m)	m²	Model	Cabinets	Max kW	Signal	Est. investment (SAR)
VD-FF-01	Main Front Facade (concave tower)	L03–L11	24 × 27.0	648	ISKY-N10.4	324	467	Fiber + loop	4,025,060
VD-SF-02	Secondary Front Facade (central finned tower)	L03–L11	18 × 27.0	486	ISKY-N10.4	243	350	Fiber + loop	3,029,990
VD-LS-03	Left Side Facade (finned wing)	L03–L11	12 × 27.0	324	ISKY-N10.4	162	233	Fiber + loop	2,035,030
VD-RS-04	Right Side Facade (east tower)	L03–L11	16 × 27.0	432	ISKY-N10.4	216	311	Fiber + loop	2,698,300
VD-CC-05	Curved Glass Corner / Podium Band	L01–L02	95 × 3.2	304	ISKY-N7.8	152	219	Fiber + loop	2,124,990
VD-UL-06	Upper-Level Crown Glass	L12	20 × 2.8	56	ISKY-N10.4	28	40	Fiber + loop	388,930

Structure: ceiling-hung aluminium; installation: hanging; maintenance: from interior aisle ≥600 mm. Dimensions preliminary and editable.



PRELIMINARY — subject to site survey, mock-up testing, LEYARD quotation and engineering approval

Specification	ISKY-N3.9	ISKY-N7.8	ISKY-N10.4	ISKY-T10.4
Pixel pitch	3.9 / 7.8 mm	7.9 / 7.8 mm	10.4 mm	10.4 mm
Transparency (rated)	≥75%	≥75%	≥80%	≥80%
Brightness (cd/m²)	5000–5500	5000–5500	5000–5500	5000–5500
Pixel density (dot/m²)	32,256	16,128	9,216	9,216
Cabinet resolution	502 × 128	252 × 128	192 × 96	192 × 96
Viewing distance	>4 m	>8 m	>10 m	>10 m
Weight	13 kg/m²	13 kg/m²	12 kg/m²	12 kg/m²
Max power	720 W/m²	720 W/m²	720 W/m²	720 W/m²
Avg power	260 W/m²	260 W/m²	260 W/m²	260 W/m²
Heat (≈avg power)	≈887 BTU/h·m²	≈887 BTU/h·m²	≈887 BTU/h·m²	≈887 BTU/h·m²
Refresh	≥1920 Hz	≥1920 Hz	≥1920 Hz	≥1920 Hz
IP (front/back)	IP30	IP30	IP30	IP43
Structural	Hanging / stacking	Hanging / stacking	Hanging / stacking	Hanging / stacking
Maintenance	Plug-in strips	Plug-in strips	Plug-in strips	Plug-in strips
Availability	Confirm with LEYARD	Confirm with LEYARD	Confirm with LEYARD	Confirm with LEYARD
Est. cost/m² (indicative)	6,800 SAR	4,600 SAR	3,900 SAR	4,300 SAR

Source: official LEYARD Vteam Isky project series specification (verified). Prices are indicative, not a LEYARD quotation.

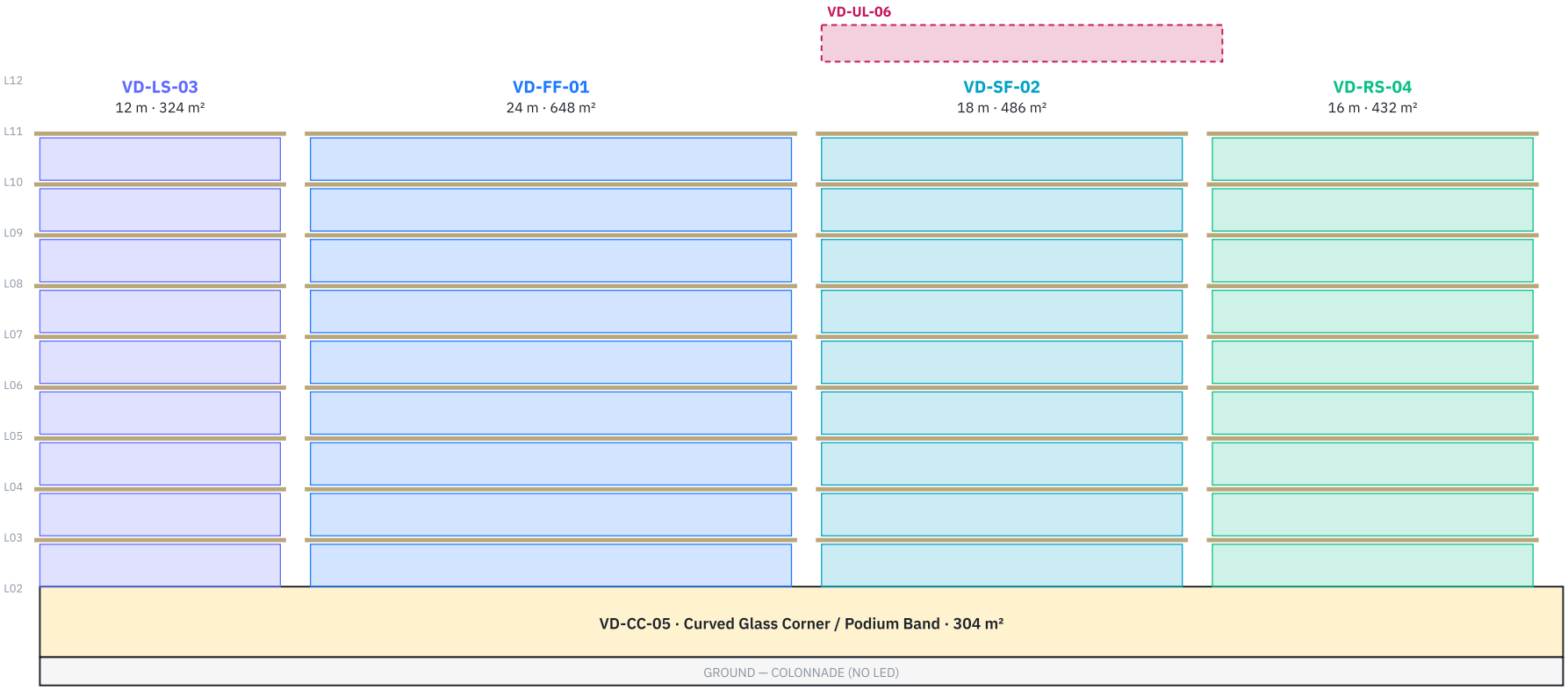
Effect of the blue-tinted glass

Effective brightness ≈ LED brightness × glass visible-light transmission (VLT). Blue tint also shifts white point toward blue; content colour calibration is performed through the glass. Effective see-through transparency ≈ LED transparency × glass VLT relative to the existing view. The glass VLT has NOT been provided — values are editable assumptions.

Glass VLT (assumed)	Effective brightness	Approx. effective transparency (N10.4)
30%	1,500–1,650 nit	≈24% of open view
40%	2,000–2,200 nit	≈32% of open view
50%	2,500–2,750 nit	≈40% of open view

Manufacturer-rated transparency does not equal installed-system transparency. A physical mock-up is recommended before final product approval.

UNFOLDED ELEVATION — LED ZONING (SCHEMATIC)



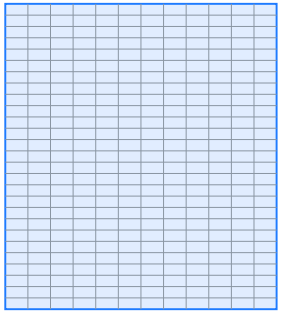
1. Zone widths estimated from photographs; verify by laser survey.
2. Vision glass height assumed 3.0 m per floor (slab spandrel excluded).
3. Fins, lattices and spandrels preserved; LED inside only.
4. Each zone independently controllable; all zones frame-synced.

PRELIMINARY — SUBJECT TO SITE SURVEY & ENGINEERING APPROVAL

SPARKLINE	LEYARD ISKY
Overall Facade Layout & LED Zoning Plan	
DWG: SKV-VRD-A-101	REV: A (P1)
PROJECT: VERDUN BUILDING	SCALE: NTS

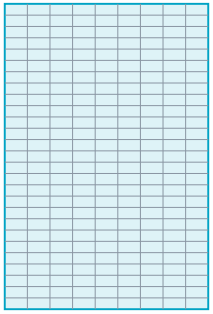
INDIVIDUAL ZONE ELEVATIONS — DIMENSIONS & CABINETS

VD-FF-01 — Main Front Facade (concave tower)



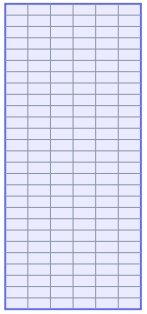
24 m × 27.0 m · 648 m² · ISKY-N10.4 · 324 cab.

VD-SF-02 — Secondary Front Facade (central finned tower)



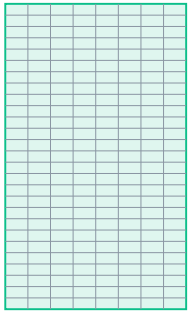
18 m × 27.0 m · 486 m² · ISKY-N10.4 · 243 cab.

VD-LS-03 — Left Side Facade (finned wing)



12 m × 27.0 m · 324 m² · ISKY-N10.4 · 162 cab.

VD-RS-04 — Right Side Facade (east tower)



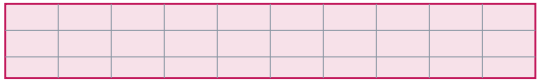
16 m × 27.0 m · 432 m² · ISKY-N10.4 · 216 cab.

VD-CC-05 — Curved Glass Corner / Podium Band



95 m × 3.2 m · 304 m² · ISKY-N7.8 · 152 cab.

VD-UL-06 — Upper-Level Crown Glass



20 m × 2.8 m · 56 m² · ISKY-N10.4 · 28 cab.

1. Cabinet grid 2000×1000 mm (custom ≤2 m length per LEYARD).
2. Final cabinet set-out to mullion centres after survey.

PRELIMINARY — SUBJECT TO SITE SURVEY & ENGINEERING APPROVAL

SPARKLINE	LEYARD ISKY
Individual Facade Elevations	
DWG: SKV-VRD-A-102	REV: A (P1)
PROJECT: VERDUN BUILDING	SCALE: NTS

FLOOR-BY-FLOOR LED ALLOCATION

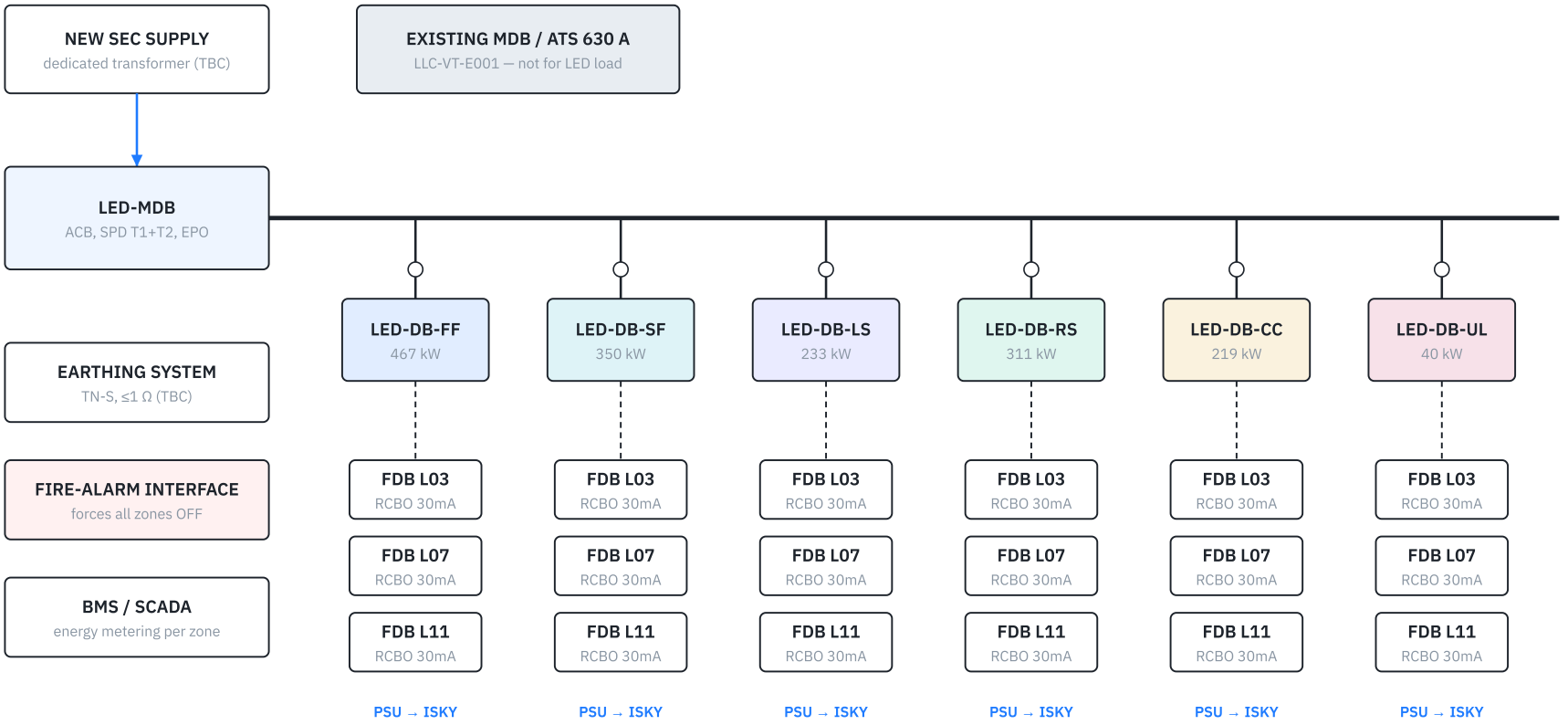
Floor	VD-FF-01	VD-SF-02	VD-LS-03	VD-RS-04	VD-CC-05	VD-UL-06	m² / max kW
L01–02					304 m²		304.0 / 218.9
L03	72 m²	54 m²	36 m²	48 m²			210.0 / 151.2
L04	72 m²	54 m²	36 m²	48 m²			210.0 / 151.2
L05	72 m²	54 m²	36 m²	48 m²			210.0 / 151.2
L06	72 m²	54 m²	36 m²	48 m²			210.0 / 151.2
L07	72 m²	54 m²	36 m²	48 m²			210.0 / 151.2
L08	72 m²	54 m²	36 m²	48 m²			210.0 / 151.2
L09	72 m²	54 m²	36 m²	48 m²			210.0 / 151.2
L10	72 m²	54 m²	36 m²	48 m²			210.0 / 151.2
L11	72 m²	54 m²	36 m²	48 m²			210.0 / 151.2
L12						56 m²	56.0 / 40.3

1. Floor numbering assumed; confirm against architectural set.
2. Max load at 720 W/m² (LEYARD datasheet).

PRELIMINARY — SUBJECT TO SITE SURVEY & ENGINEERING APPROVAL

SPARKLINE	LEYARD ISKY
Floor-by-Floor LED Layout	
DWG: SKV-VRD-A-103	REV: A (P1)
PROJECT: VERDUN BUILDING	SCALE: NTS

PROPOSED LED SINGLE-LINE DIAGRAM

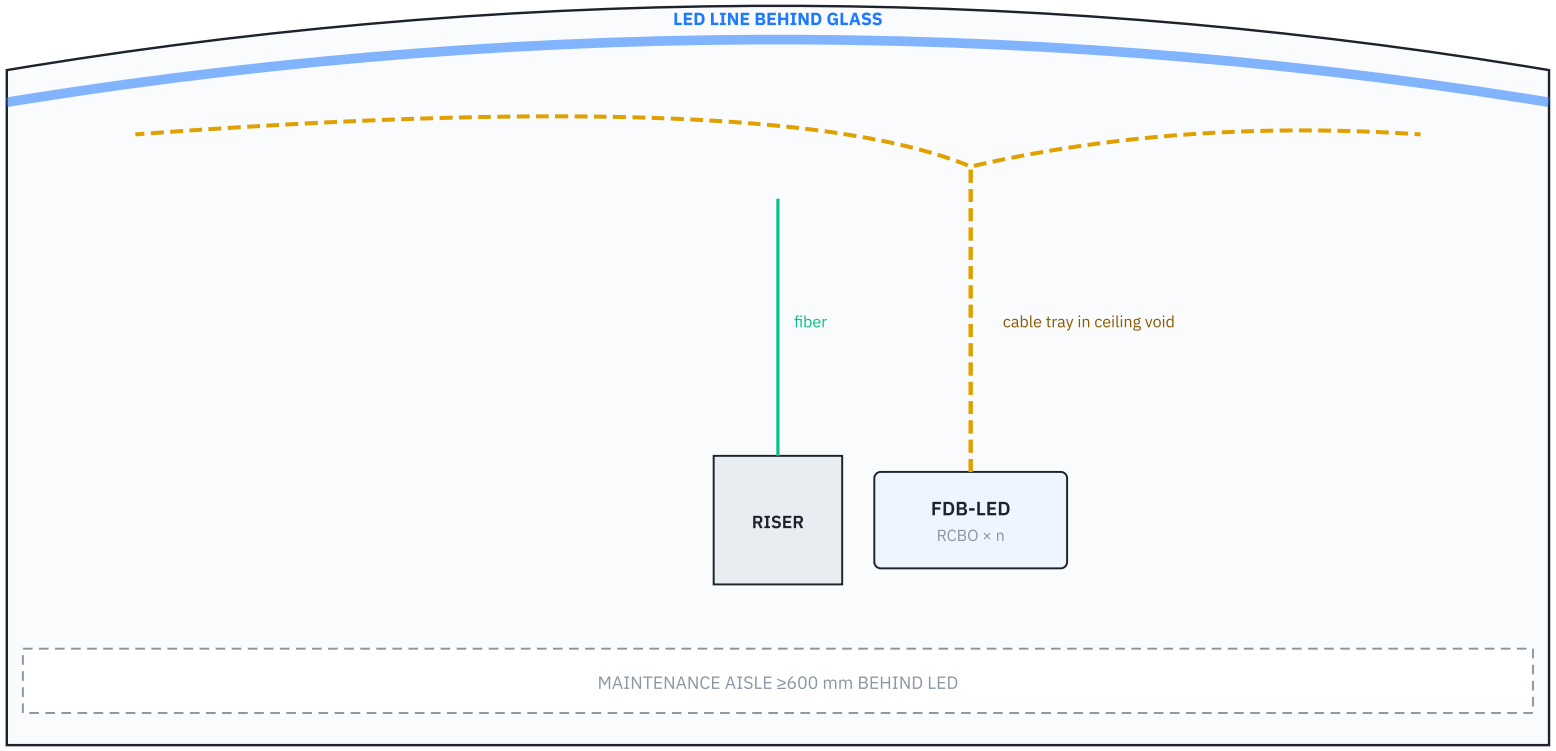


1. Existing SLD reviewed as reference only — no spare capacity assumed.
2. Breaker ratings & cable sizes by electrical engineer of record.
3. Type 1+2 surge protection at LED-MDB; Type 2 at each FDB.

PRELIMINARY — SUBJECT TO SITE SURVEY & ENGINEERING APPROVAL

SPARKLINE	LEYARD ISKY
Proposed LED Electrical Single-Line Diagram	
DWG: SKV-VRD-E-201	REV: A (P1)
PROJECT: VERDUN BUILDING	SCALE: NTS

TYPICAL FLOOR POWER DISTRIBUTION & CABLE ROUTING

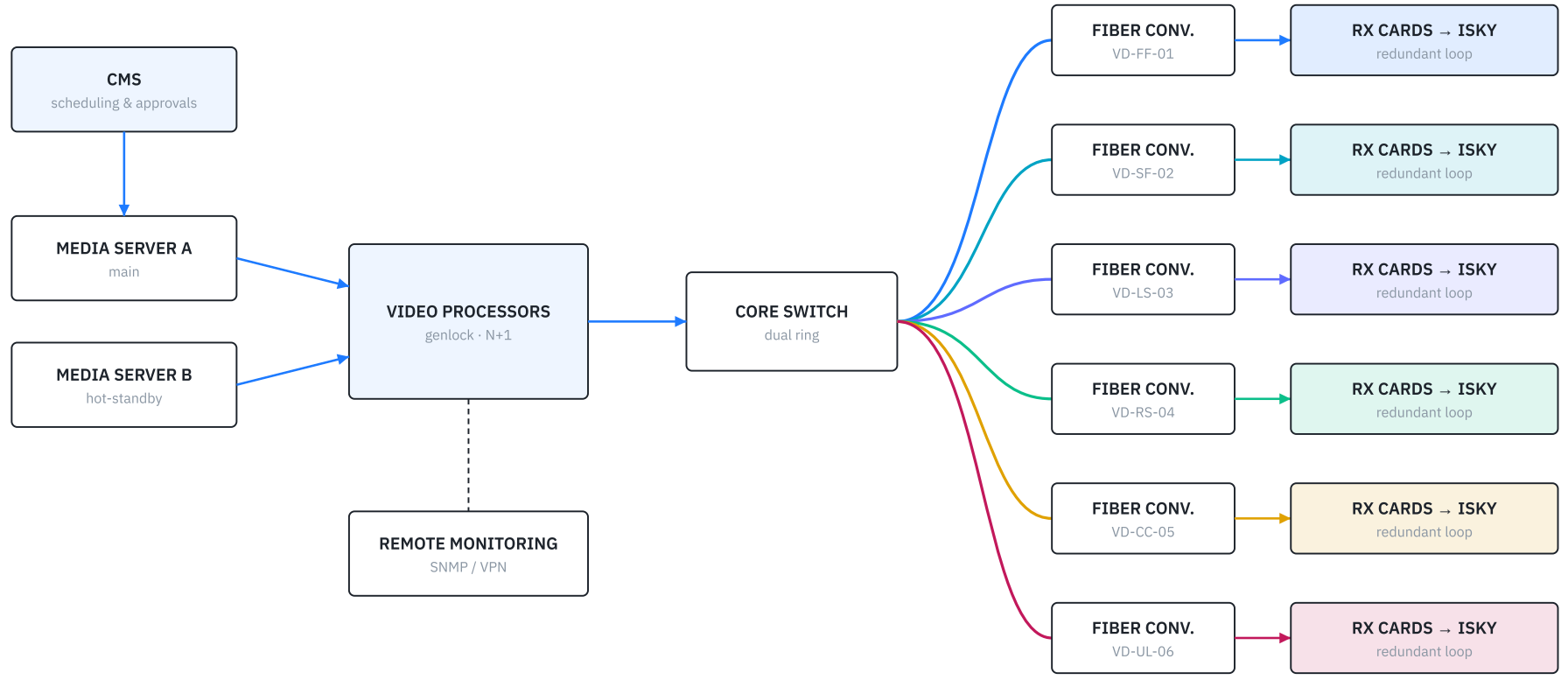


1. Reference: existing TYPICAL FLOOR POWER drawing (riser & DB locations).
2. Separate LED circuits; no connection to tenant DBs.

PRELIMINARY — SUBJECT TO SITE SURVEY & ENGINEERING APPROVAL

SPARKLINE	LEYARD ISKY
Floor Power Distribution & Cable Routing	
DWG: SKV-VRD-E-202	REV: A (P1)
PROJECT: VERDUN BUILDING	SCALE: NTS

SIGNAL, FIBER & VIDEO PROCESSING ARCHITECTURE

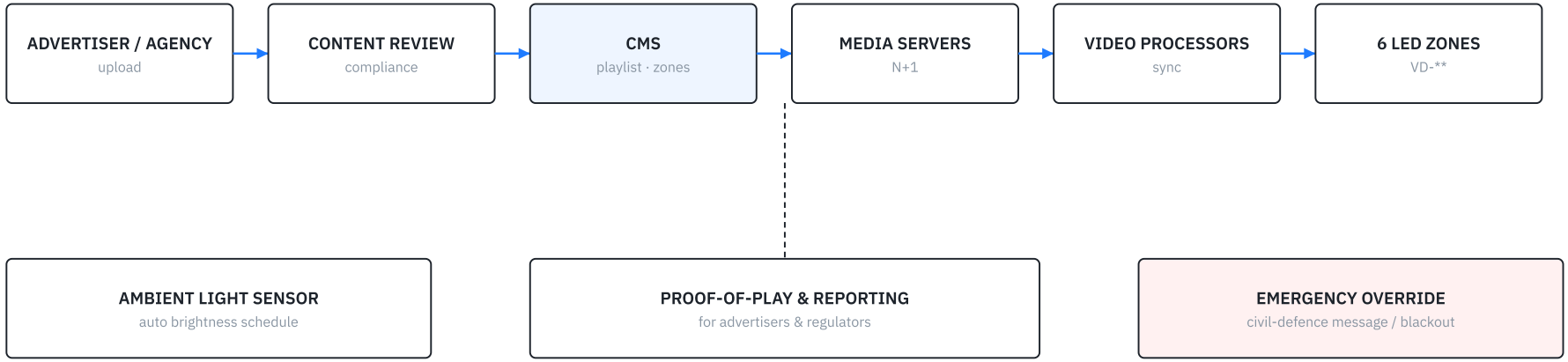


1. Processor/receiving-card models per LEYARD system design.
2. Single synchronized canvas or 6 independent outputs.

PRELIMINARY — SUBJECT TO SITE SURVEY & ENGINEERING APPROVAL

SPARKLINE	LEYARD ISKY
Signal, Fiber & Video Processing Architecture	
DWG: SKV-VRD-T-301	REV: A (P1)
PROJECT: VERDUN BUILDING	SCALE: NTS

CONTENT MANAGEMENT ARCHITECTURE

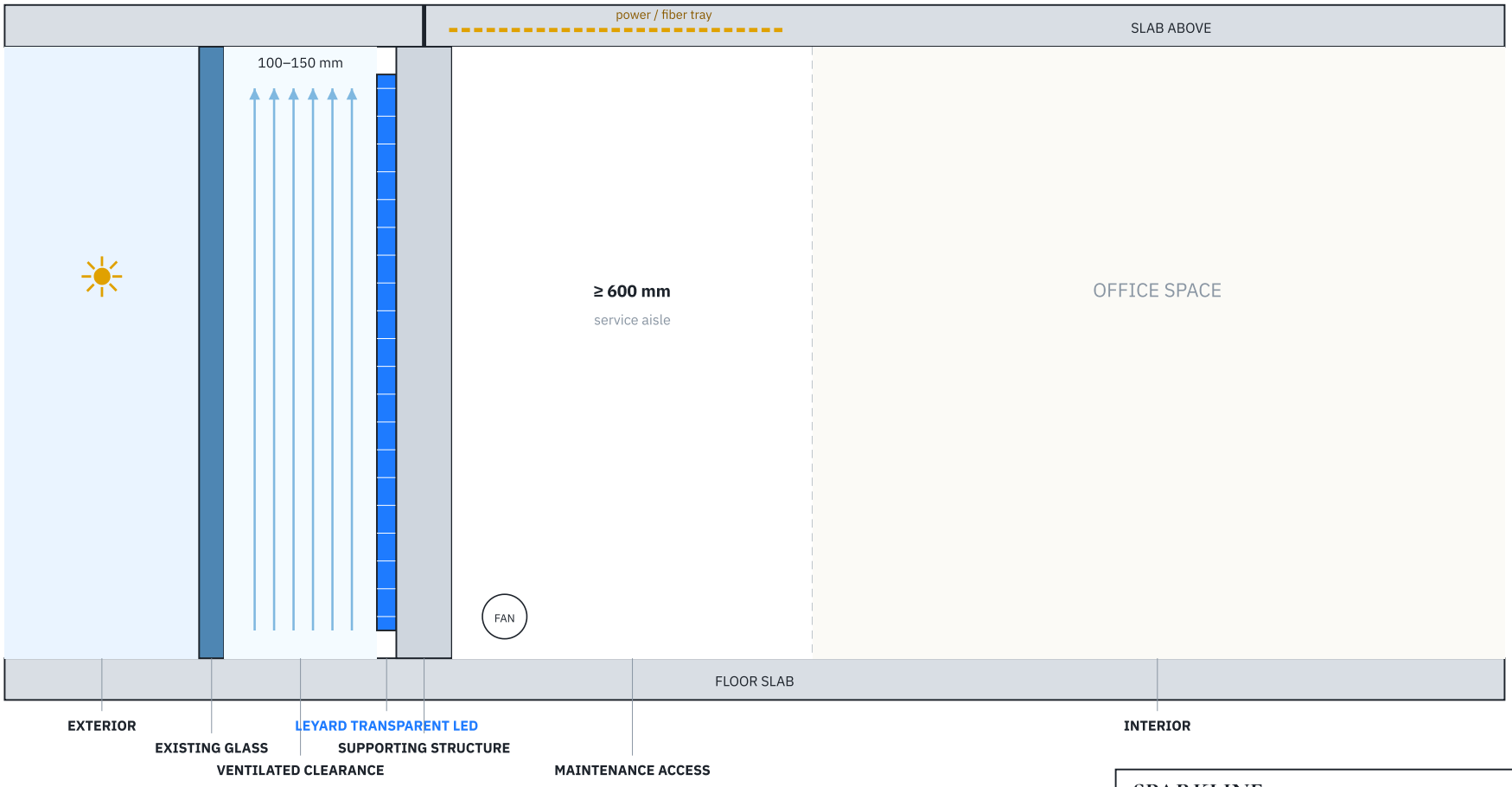


1. Content must comply with municipal advertising regulations.

PRELIMINARY — SUBJECT TO SITE SURVEY & ENGINEERING APPROVAL

SPARKLINE	LEYARD ISKY
Content Management Architecture	
DWG: SKV-VRD-T-302	REV: A (P1)
PROJECT: VERDUN BUILDING	SCALE: NTS

INSTALLATION CROSS-SECTION — EXTERIOR TO INTERIOR

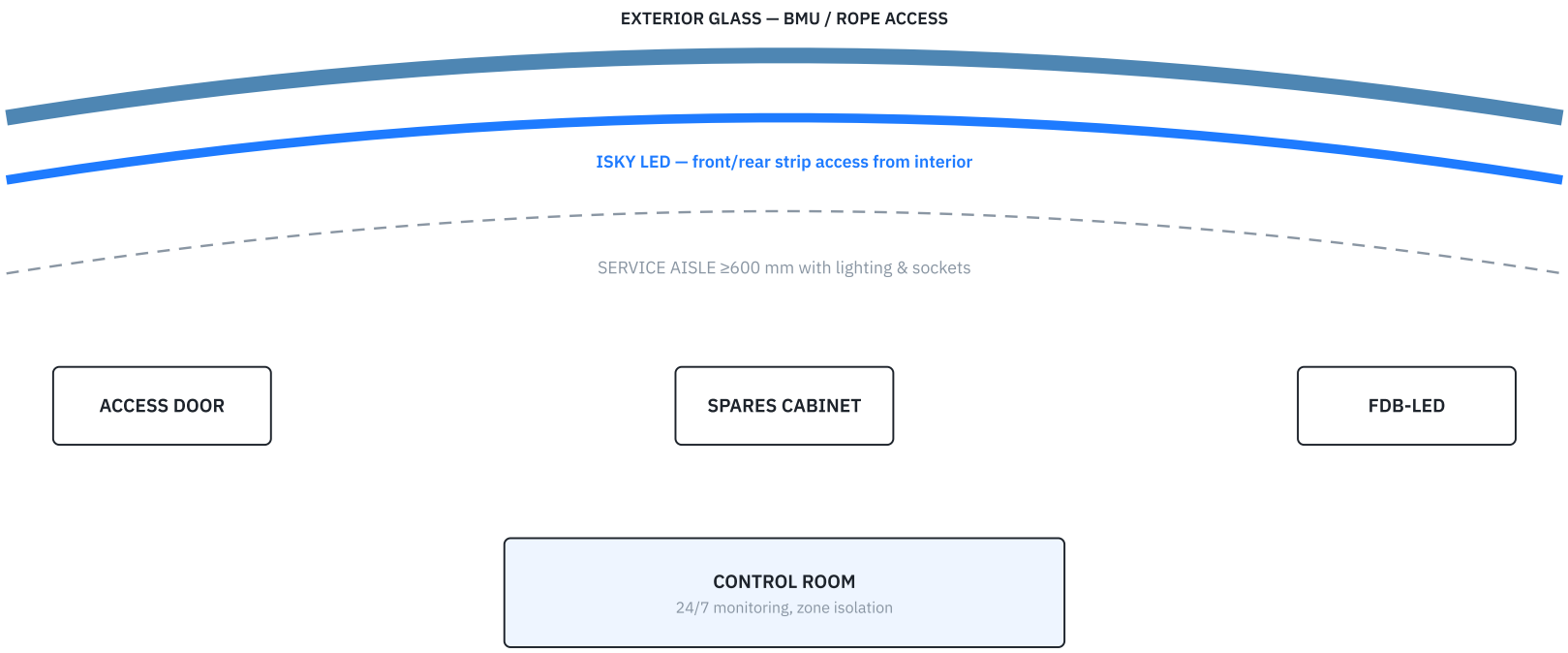


1. Cabinet depth 57 mm (profile box 107 mm) — LEYARD.
2. Ventilated clearance prevents heat build-up; target cavity ≤40 °C.
3. Top hanger to slab soffit; bottom restraint only (no load on glass).

PRELIMINARY — SUBJECT TO SITE SURVEY & ENGINEERING APPROVAL

SPARKLINE	LEYARD ISKY
Supporting Structure & Installation Cross-Section	
DWG: SKV-VRD-S-401	REV: A (P1)
PROJECT: VERDUN BUILDING	SCALE: NTS

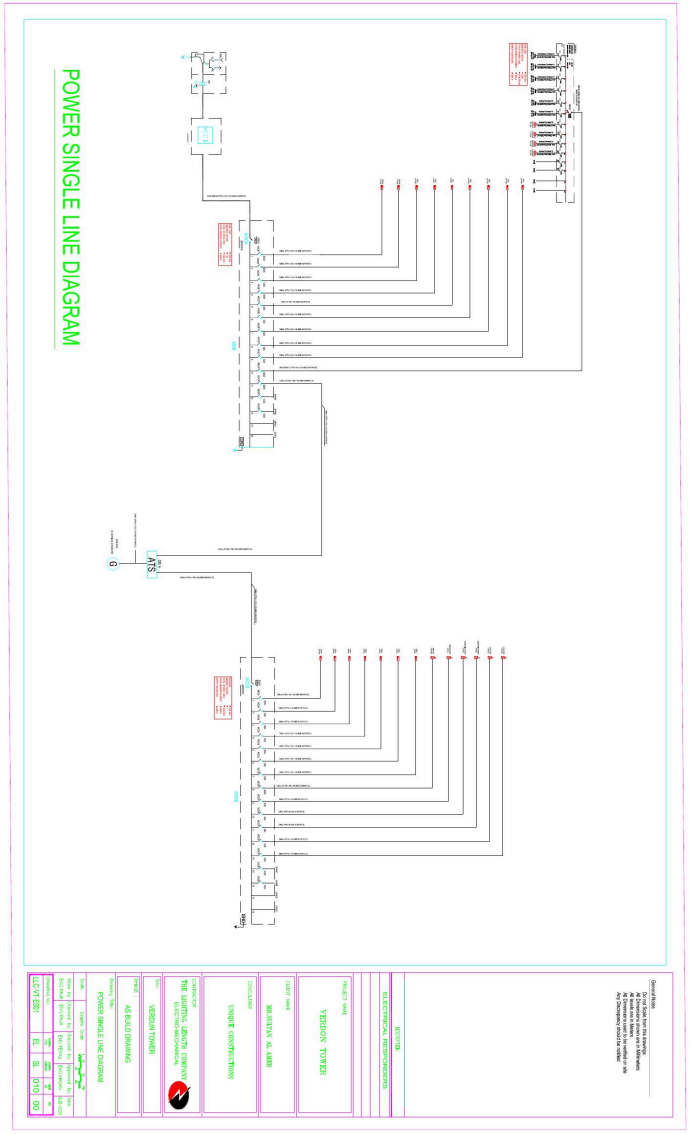
MAINTENANCE ACCESS DIAGRAM



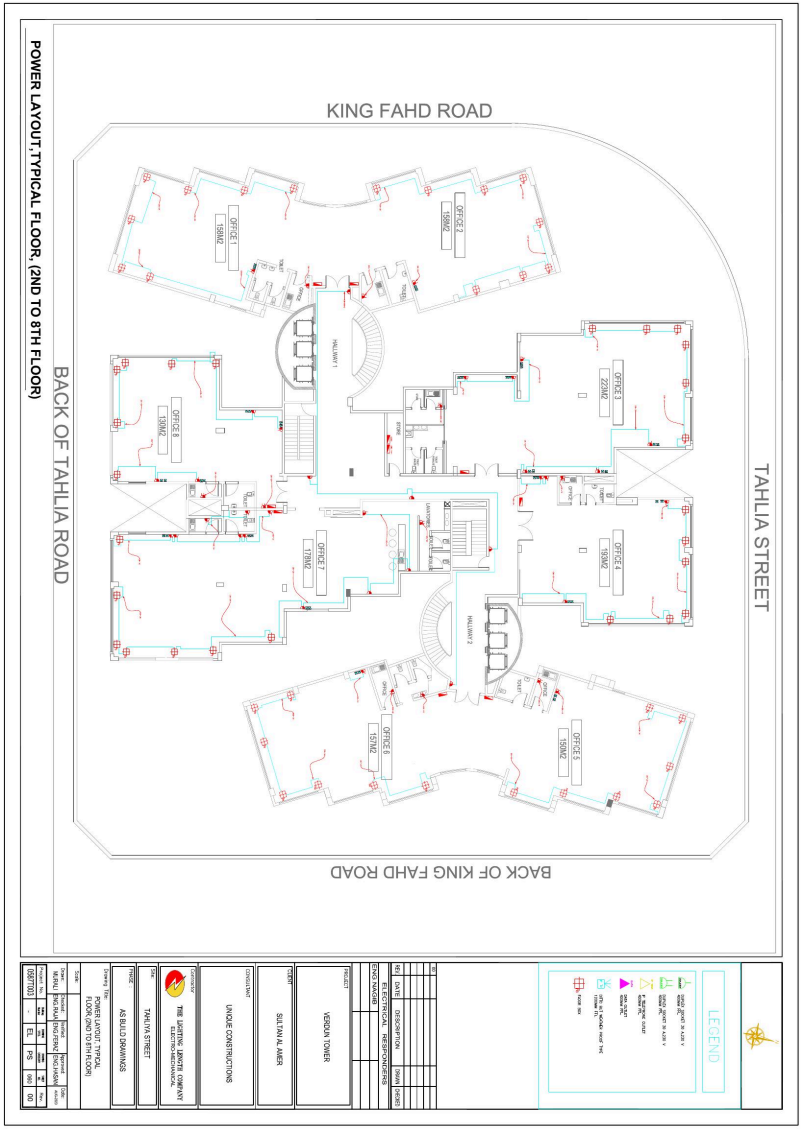
1. Rope access by certified IRATA technicians only.
2. Tenant coordination for aisle access in occupied floors.

PRELIMINARY — SUBJECT TO SITE SURVEY & ENGINEERING APPROVAL

SPARKLINE	LEYARD ISKY
Maintenance Access Diagram	
DWG: SKV-VRD-S-402	REV: A (P1)
PROJECT: VERDUN BUILDING	SCALE: NTS



SINGLE LINE DIAGRAM — LLC-VT-E001 (client-supplied)



TYPICAL FLOOR POWER (client-supplied)

Electrical architecture

```
Main Electrical Supply → LED Distribution Boards → Floor Distribution Boards → LED Power Supplies → LEYARD Transparent LED Displays
```

- Protection: main ACB, 30 mA RCBO per final circuit
- Earthing: TN-S with bonding of all frames
- Surge protection: Type 1+2 at LED-MDB, Type 2 at each FDB
- Emergency isolation: EPO push-button & fire-alarm interface
- Energy metering per zone via BMS

Item	Value
Connected load (720 W/m²)	1,620 kW
Approx. current 400 V 3φ, pf 0.95	2,461 A
Operating load (260 W/m² × 70% dimming)	410 kW
Operating hours / day	12
Annual energy	1,793,610 kWh
Annual energy cost (0.30 SAR/kWh)	538,083 SAR
Heat dissipated indoors	≈410 kW
Existing ATS rating	630 A (≈415 kVA)

Connected load exceeds the existing board rating; a dedicated supply is required. All assumptions are editable on the website.

```
Content Management System → Media Servers → Video Processors → Fiber/Network Distribution → Floor Controllers → Individual LED Zones
```

- Dual fiber ring for network redundancy
- 24/7 central monitoring & remote diagnostics
- Individual facade control
- Building-wide frame synchronization (genlock)
- N+1 media servers
- Ambient-light automatic brightness

LEYARD datasheet: synchronous control via DVI; inputs incl. HDMI/DVI/HD-SDI; AC 100–240 V, 50/60 Hz.

01

Site Inspection

Survey every vision-glass bay, slab edge, soffit, ceiling void, riser and electrical room; laser scan facades.

02

Glass Compatibility Assessment

Measure VLT, reflectance and tint spectrum; test LED visibility through glass at noon and night.

03

Structural Assessment

Verify slab/soffit anchor capacity for 12–13 kg/m² plus frame; pull-out tests.

04

Final Site Measurements

Confirm bay widths, mullion centres and heights; finalise cabinet layout (2000×1000 mm, custom ≤2 m).

05

Supporting Structure Design

Ceiling-hung aluminium frame, 300–500 mm behind glass, with ventilated clearance and service gap.

06

Mounting Bracket Installation

Install top hangers to slab soffit and bottom restraints to floor; level within ±1 mm.

07

Transparent LED Installation

Hang LEYARD ISKY cabinets per manufacturer method (hanging/stacking); align seams to mullions.

08

Electrical Connections

Terminate from floor LED-DBs via RCBO-protected circuits; earth bonding of all frames.

09

Fiber and Signal Connections

Fiber from control room to floor converters; daisy-chain receiving cards with redundant loop.

10

System Programming

Map pixels per zone into one canvas; configure independent and synchronized modes.

11

Display Calibration

Brightness/colour calibration measured from street through the tinted glass; ambient-light schedule.

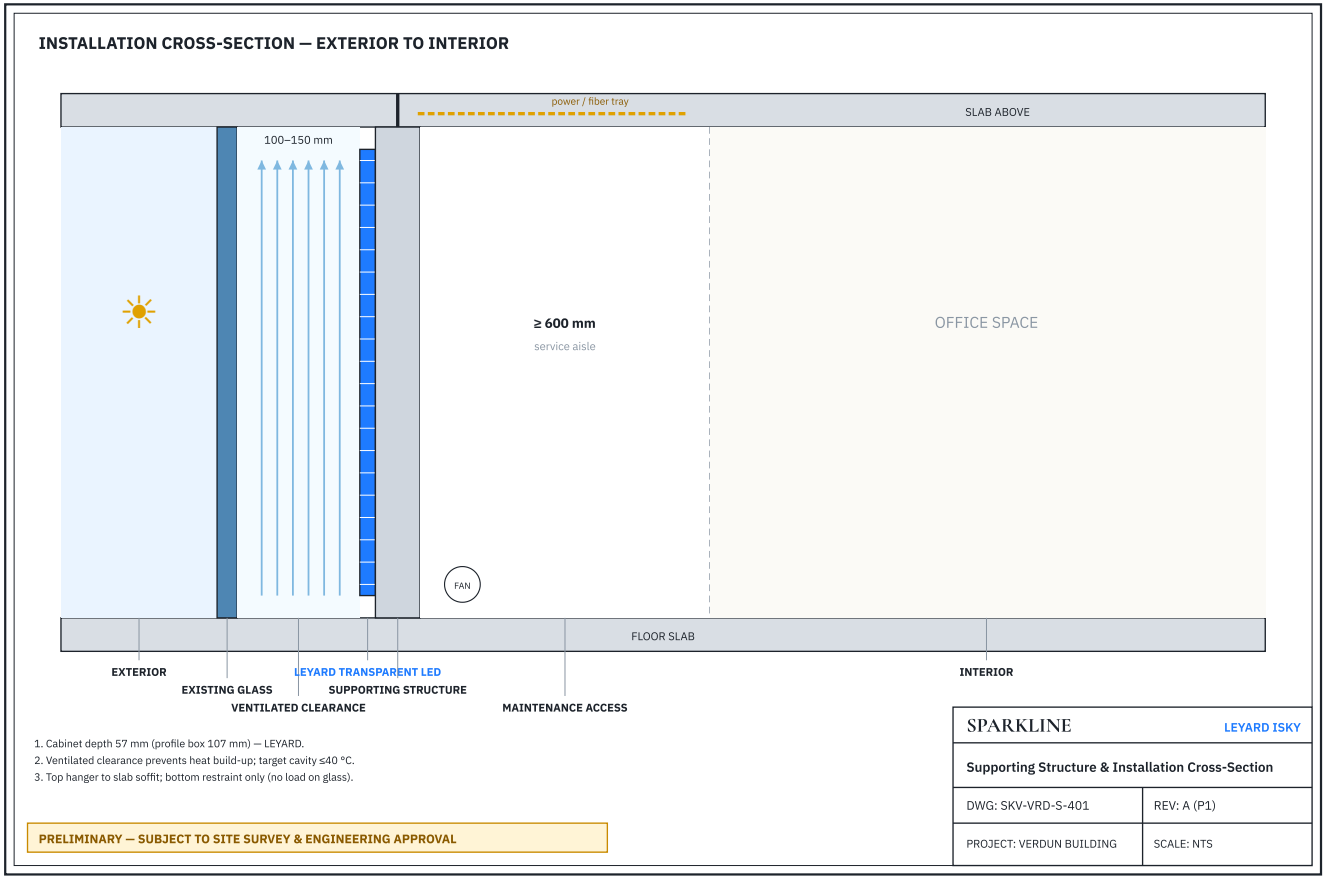
12

Testing and Commissioning

72-hour burn-in, thermal logging, failover tests, as-built handover.

Verified manufacturer requirements followed (hanging/stacking installation). Operating 0–40 °C, humidity 35–85%.

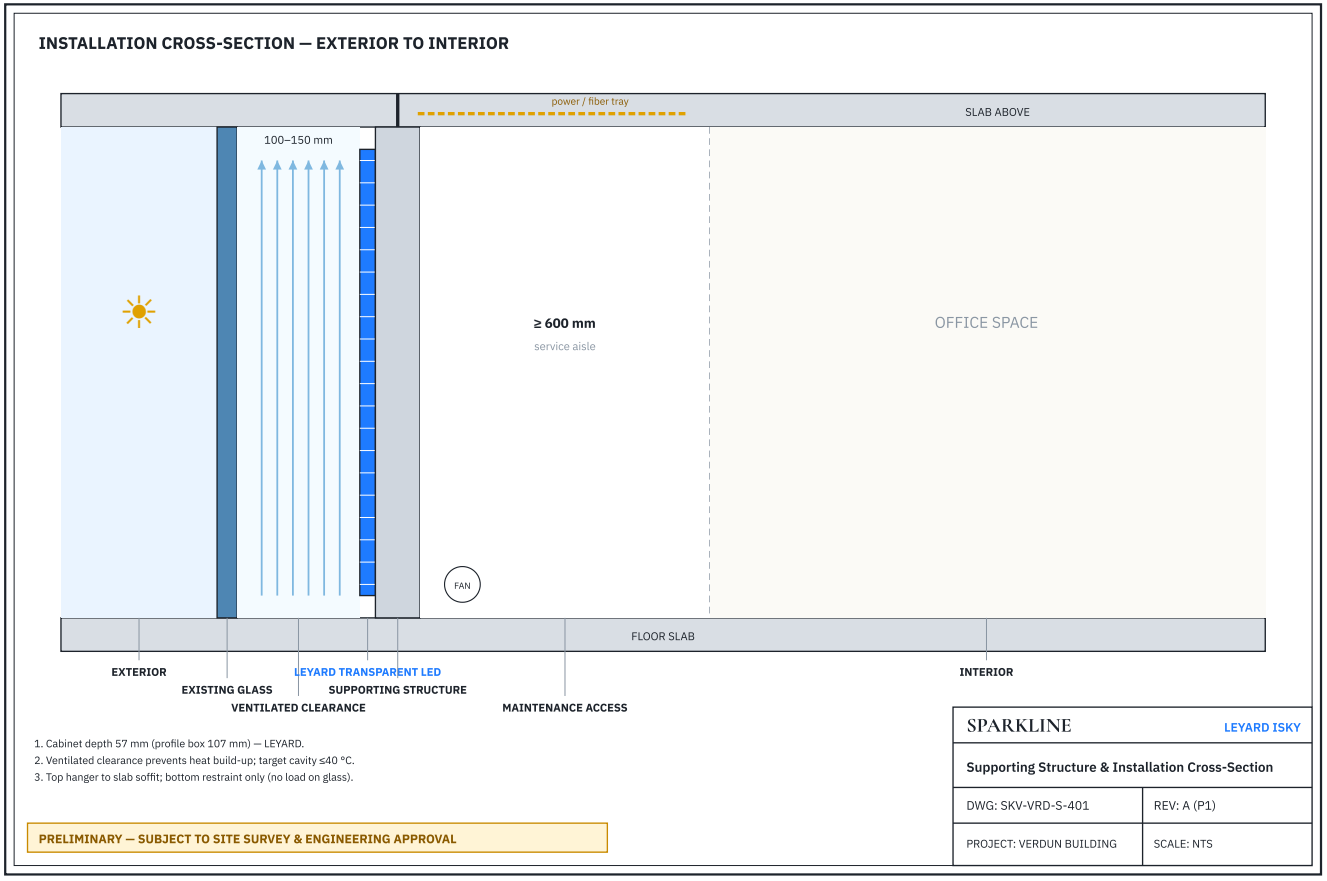
01 Complete Installation Overview



01 Survey & mock-up	02 Structure & brackets	03 LED hanging	04 Power & fiber	05 Calibrate & commission

⚠ SAFETY: Permit-to-work; occupied floors protected.

02 Interior-to-Exterior Installation Section



01 Glass

02 Ventilated clearance 100–150 mm

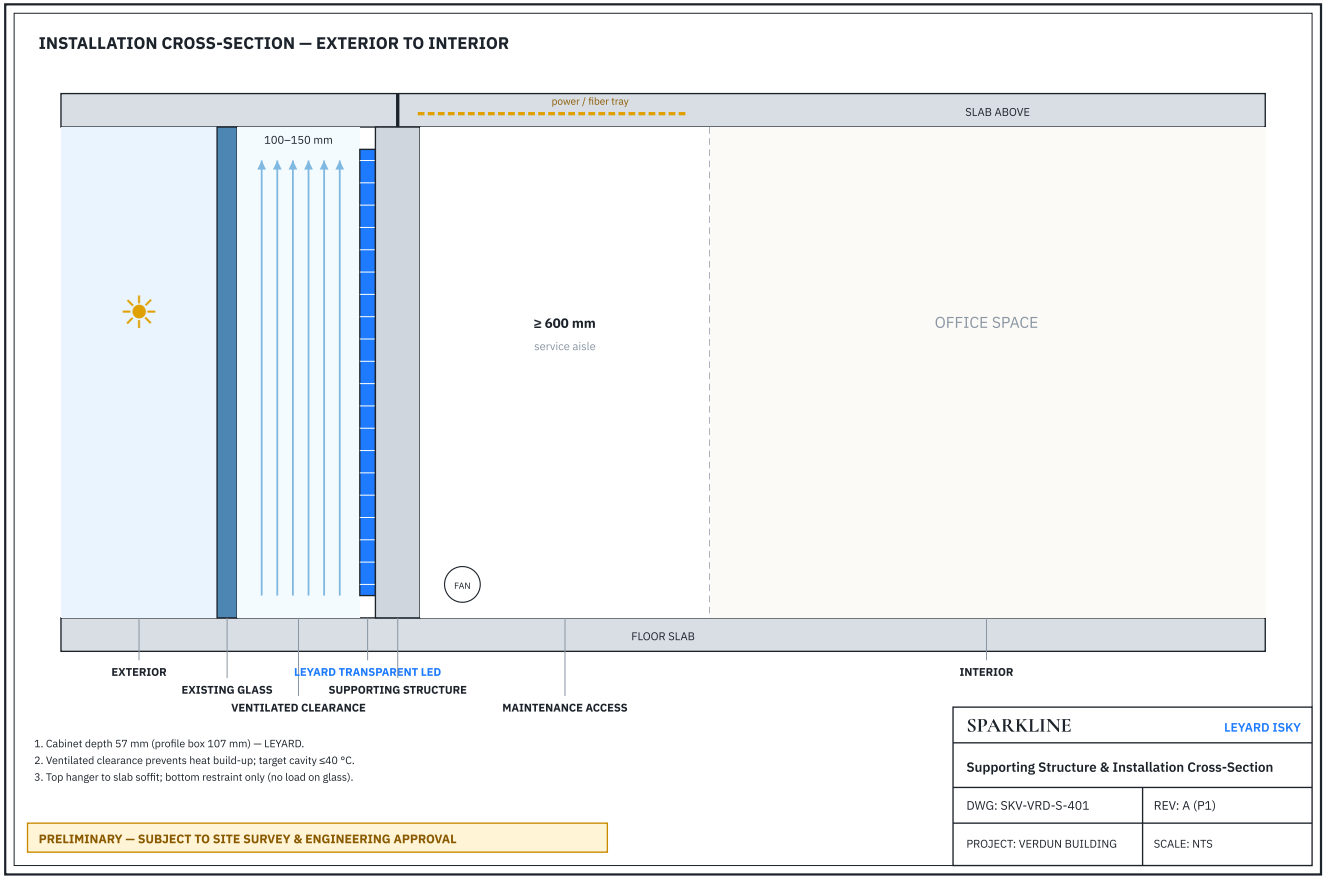
03 LED plane

04 Frame

05 Service aisle ≥600 mm

⚠ **SAFETY: No contact between LED and glass.**

03 LED Supporting Structure

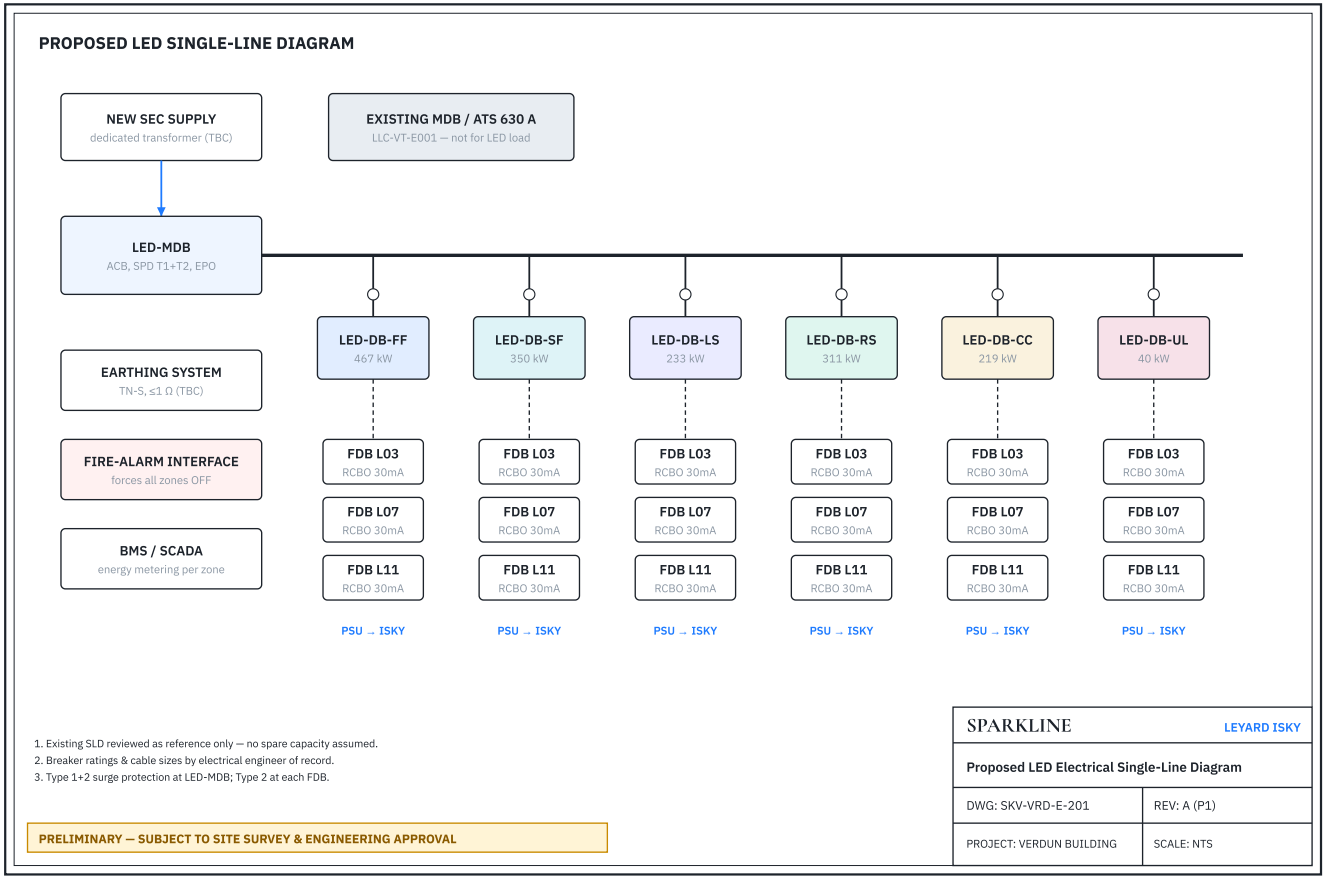


01 Soffit anchors	02 Top hanging beam	03 Vertical mullions	04 Bottom restraint	05 Seismic/anti-sway ties

⚠ SAFETY: Design SF ≥ 2.0; certified anchors.

04 Electrical Distribution

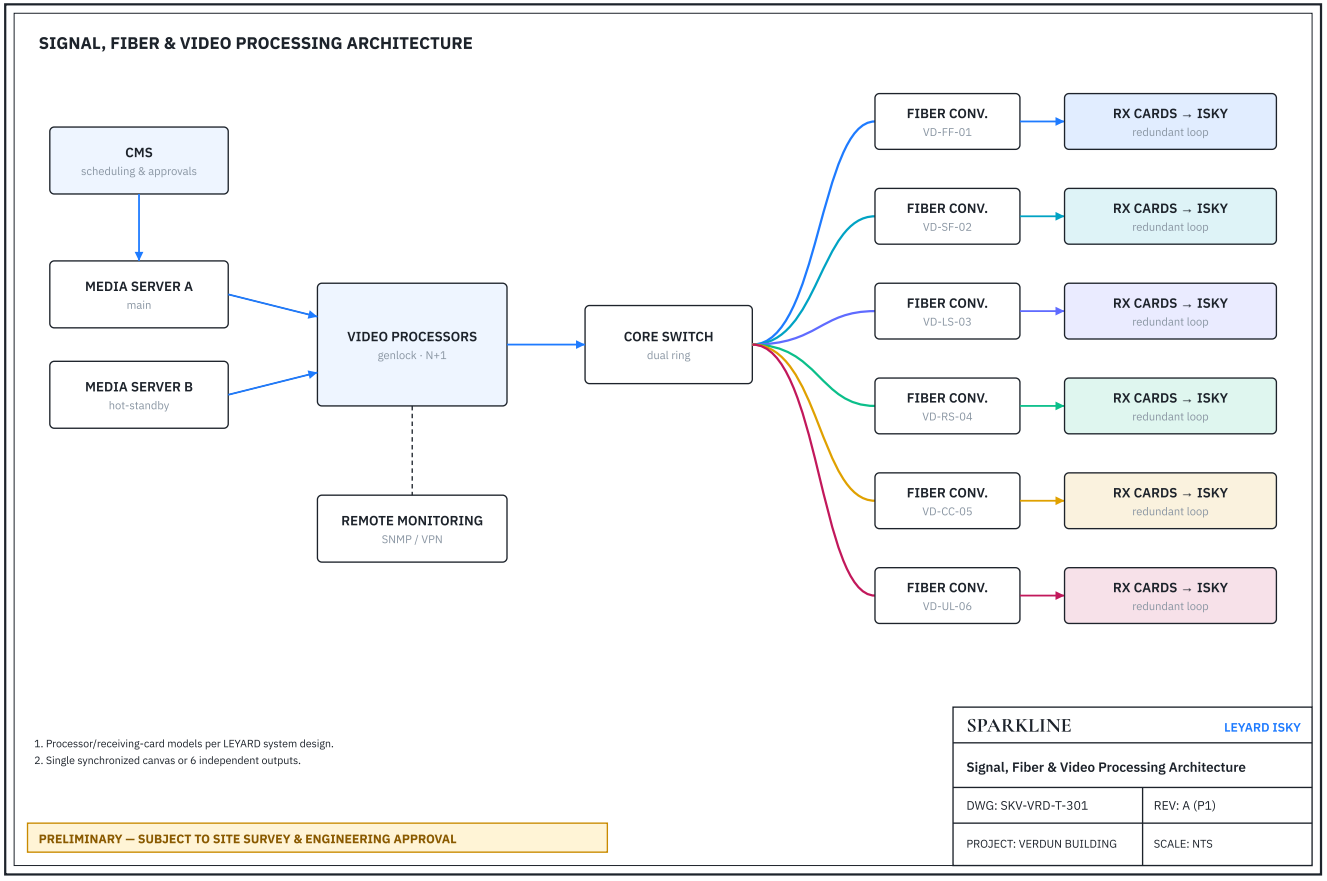
SPARKLINE × LEYARD



01 New LED MDB	02 Riser cable	03 Floor LED-DB	04 RCBO circuits	05 Cabinet PSUs

⚠ SAFETY: LOTO before any work.

05 LED Signal Distribution



01 Media server

02 Video processor

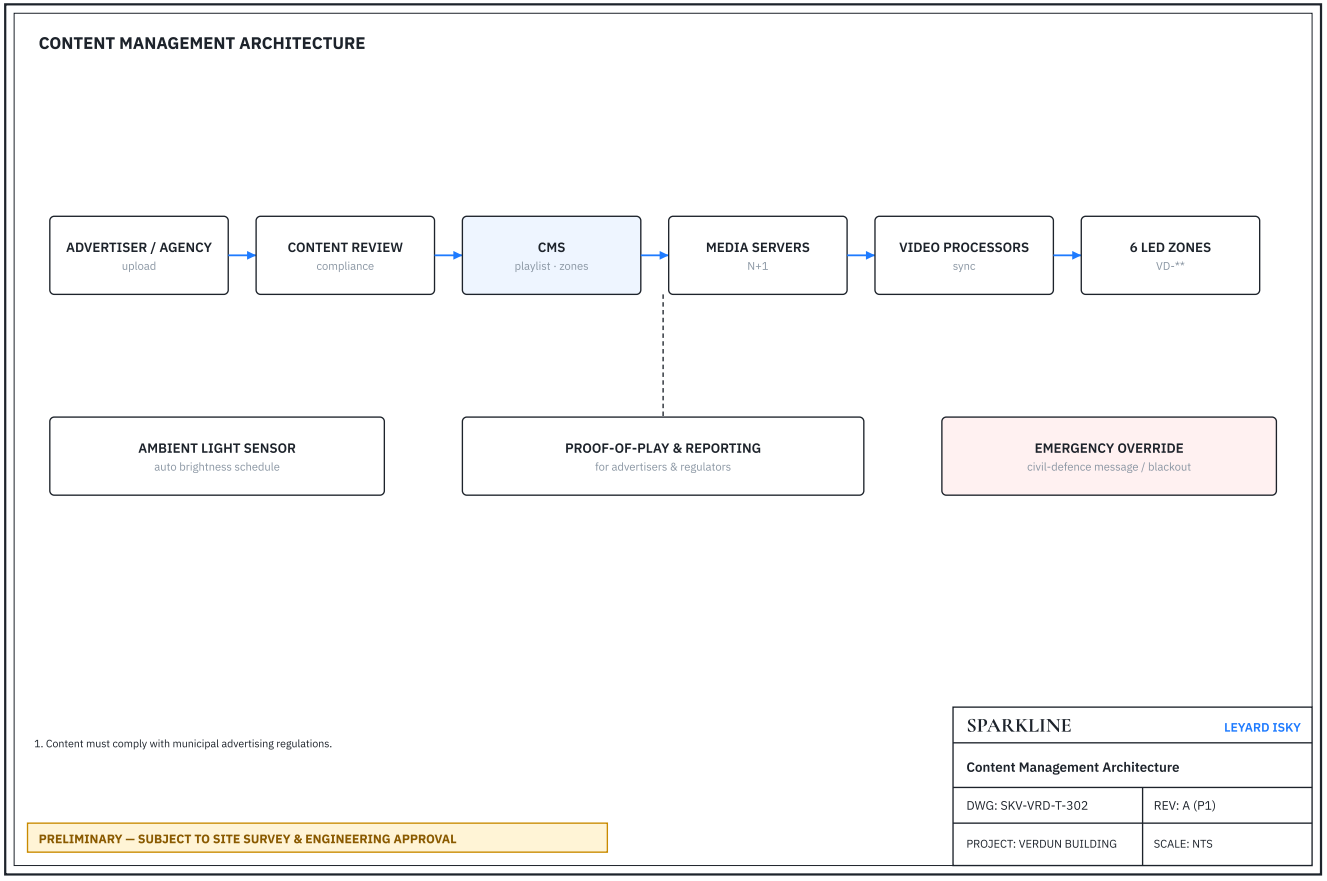
03 Fiber converter

04 Receiving cards

05 Redundant loop

⚠ **SAFETY: Laser-safe fiber handling.**

06 Content Management Architecture



01 CMS scheduling

02 Approval workflow

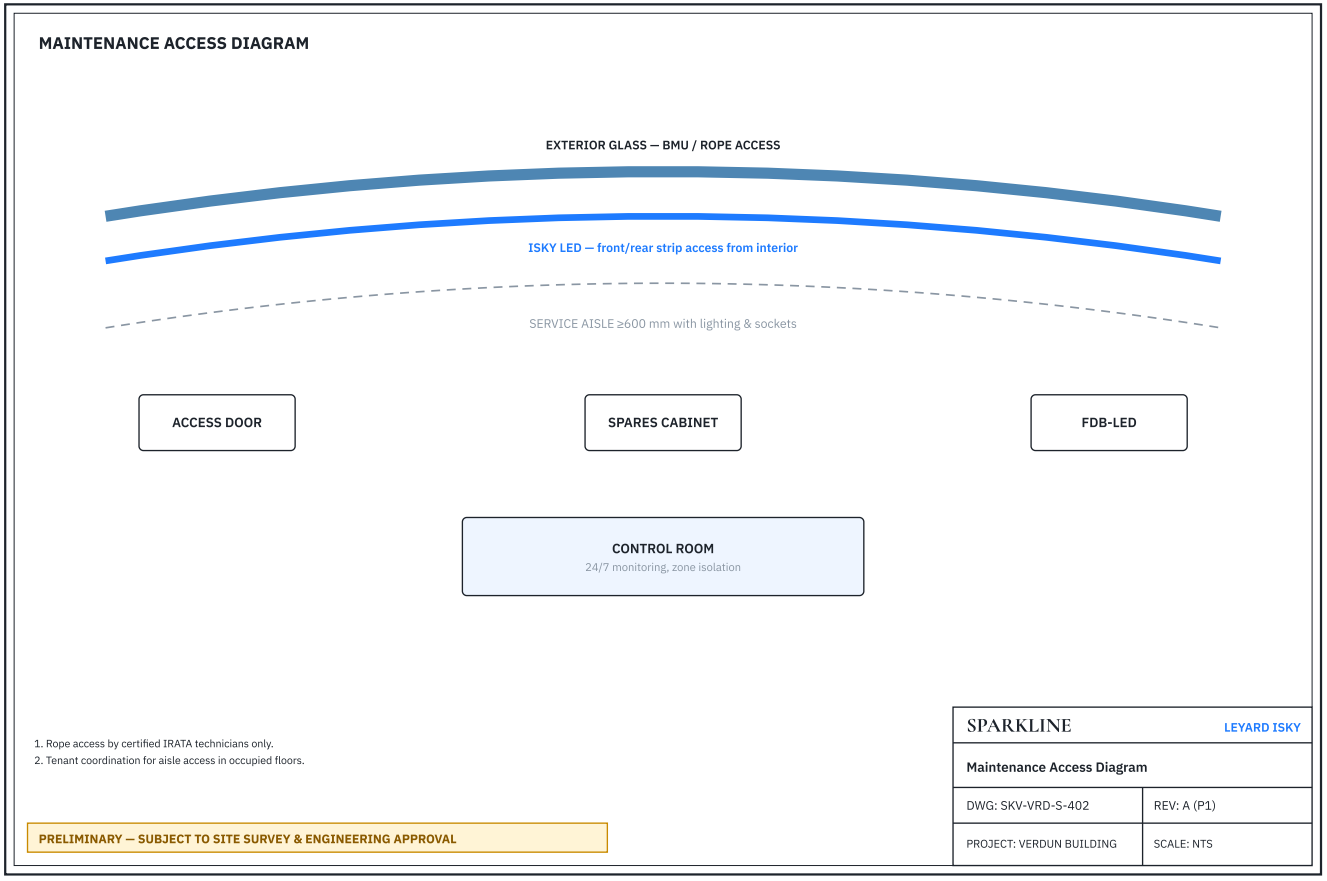
03 Zone mapping

04 Proof-of-play

05 Remote monitoring

⚠ **SAFETY: Role-based access; content regulator compliance.**

07 Glass Cleaning Procedures



01 Isolate LED zone

02 Exterior via BMU/rope access

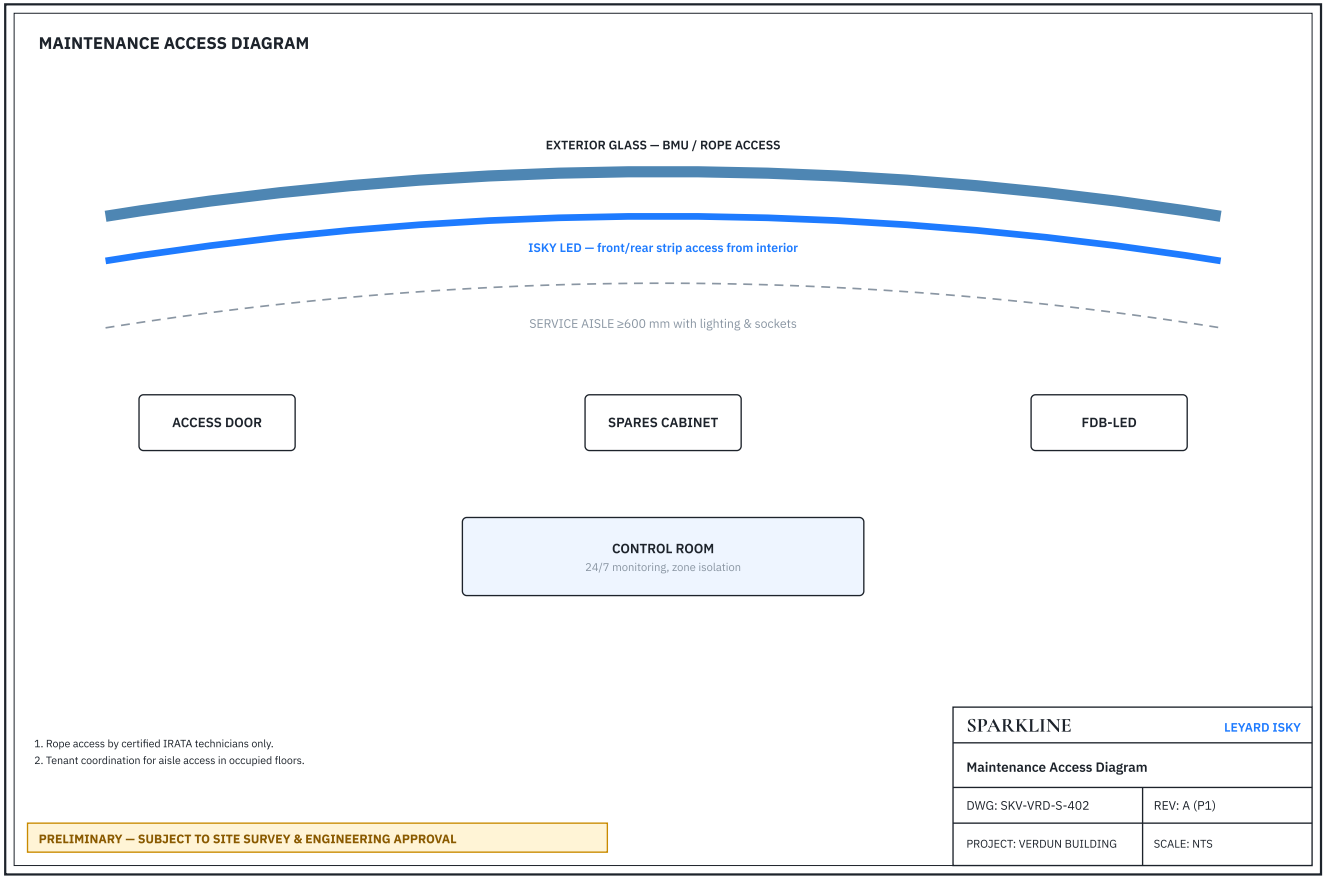
03 Interior via service aisle

04 Neutral pH, lint-free

05 Inspect & restore

⚠ **SAFETY: No liquid spray on LED strips.**

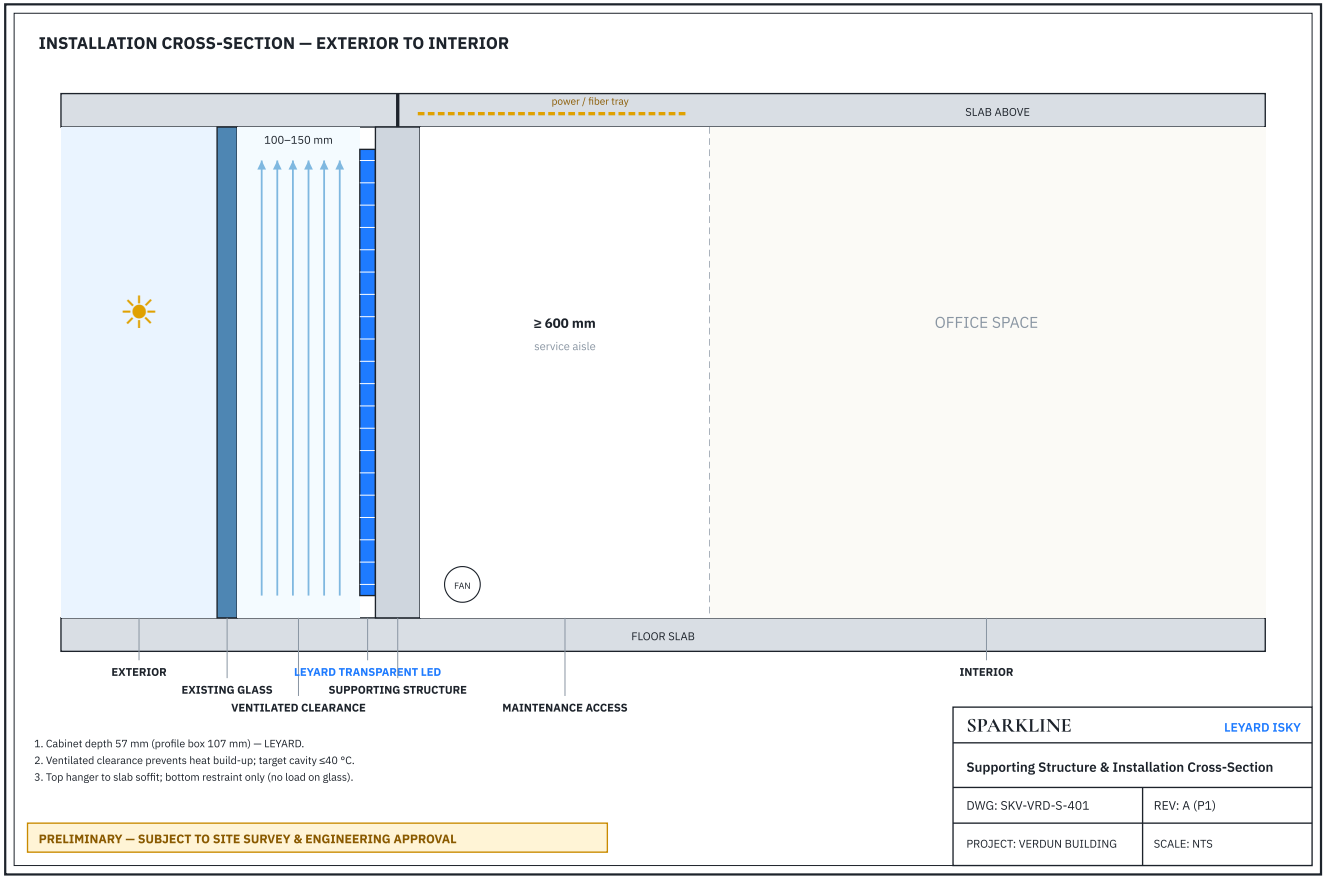
08 Preventive Maintenance



01 Remote diagnostics	02 Thermal scan	03 Torque check	04 Dust removal	05 Firmware update

⚠ SAFETY: Work at height <2 m only from aisle.

09 LED Module Replacement



01 Identify via monitoring

02 Isolate circuit

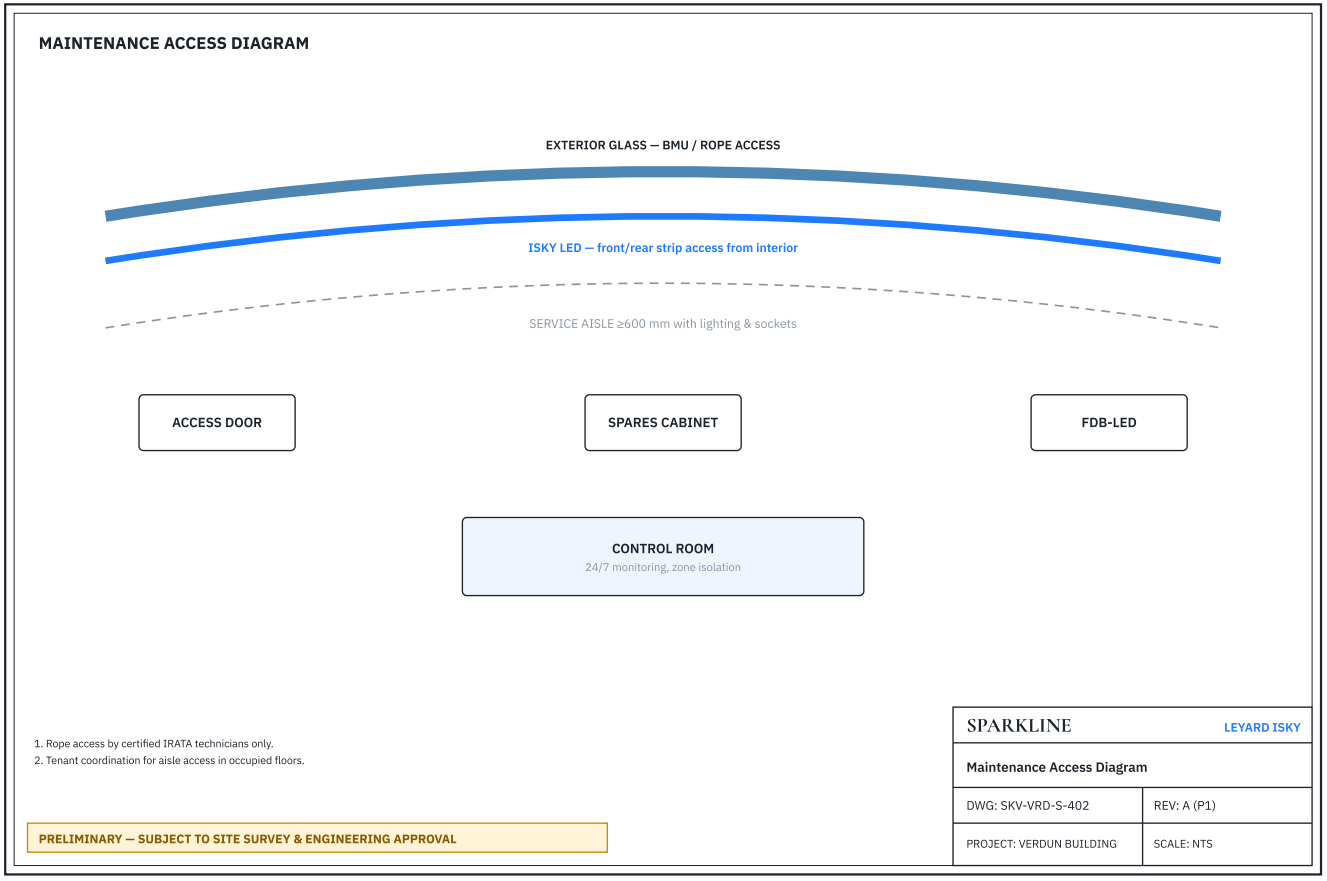
03 Unplug LED strip

04 Insert spare (same batch)

05 Recalibrate

⚠ **SAFETY: ESD wrist strap mandatory.**

10 Emergency Maintenance



01 Alarm received	02 Emergency isolation (EPO)	03 Blank content / zone off	04 Dispatch within 4 h	05 Root-cause report

⚠ SAFETY: Fire-alarm interface forces all zones OFF.

Exterior Glass Cleaning

Monthly via existing BMU/rope access; dust-heavy season fortnightly.

Interior Glass Cleaning

Quarterly from service aisle; LED zone switched off and cooled.

Transparent LED Cleaning

Quarterly dry anti-static brush / low-pressure air; never liquids.

Electrical Inspection

Quarterly IR scan of DBs, RCD trip test, earth continuity.

Module Replacement

Hot-swap LED strips from the aisle; same-batch spares.

Power Supply Replacement

Isolate circuit, swap PSU, verify voltage and load.

Video Processor Maintenance

Monthly log review, firmware per LEYARD release, failover test.

Network Maintenance

Fiber loss test annually; switch redundancy test quarterly.

Thermal Inspection

Continuous cavity temperature sensors; alarm at 38 °C, auto-dim/off at 40 °C.

Emergency Repairs

24/7 hotline, 4-hour response, zone isolation from control room.

Daily Monitoring

- ☐ Remote health dashboard: dead pixels, PSU, receiving cards
- ☐ Cavity temperature & humidity log
- ☐ Proof-of-play verification

Weekly Inspection

- ☐ Visual walk of service aisles
- ☐ Ventilation fans & filters
- ☐ Street-side visual check day & night

Monthly Maintenance

- ☐ Exterior glass clean
- ☐ Processor/server log review
- ☐ Backup & content archive

Quarterly Preventive

- ☐ Interior glass & LED dust removal
- ☐ IR thermography of DBs
- ☐ Failover and UPS tests

Annual Plan

- ☐ Full colour re-calibration
- ☐ Structural fixings torque audit
- ☐ Fiber OTDR test, firmware upgrade

Five-Year Strategy

- ☐ Replenish spares from same batch (yr 3)
- ☐ Media server refresh (yr 4–5)
- ☐ Performance audit vs. original brightness

Recommended spare parts

- LED strips/modules: 3% of installed quantity, same production batch
- Power supplies: 5% of installed quantity
- Receiving cards: 5%; sending cards: 1 per processor
- Fiber converters/SFPs: 2 per floor
- Ventilation fans & filters: 10%

Estimated annual maintenance cost

Option	Annual maintenance (2.5% of equipment)
Economy	164,441 SAR
Balanced (Recommended)	257,133 SAR
Premium	307,488 SAR

Saudi National Day

Saudi green, palm & swords emblem, Najdi geometry flowing in sync across all zones.

Suggested duration: 90 s loop, 18:00–02:00, 23 Sept week

Animation storyboard

1. Dark → green sunrise sweeps L03→L11
2. “عزّنا بطبعنا” rises on the towers; slogans run along the podium
3. Emblem reveal on main facade
4. Building-wide pulse finale
5. Crown Prince Mohammed bin Salman — cinematic hero across the main towers
6. Leadership tribute: King Salman & Crown Prince Mohammed bin Salman on the main towers

Content mapping by LED zone

Zone	Content
VD-FF-01	Emblem & hero
VD-SF-02	Patterns
VD-CC-05	Running motif band



Night – complete building view · Conceptual rendering





Daytime (limited visibility)

Saudi Founding Day

Earth tones, Sadu weaving, Diriyah mud-brick silhouettes and historical storytelling.

Suggested duration: 120 s narrative, 22 Feb week

Animation storyboard

1. Sadu thread draws across podium
2. “رجال جبل طويق” rises on the towers over the Diriyah skyline
3. 1727 → today timeline
4. Warm gold finale
5. Crown Prince Mohammed bin Salman — cinematic hero across the main towers
6. Leadership tribute: King Salman & Crown Prince Mohammed bin Salman on the main towers

Content mapping by LED zone

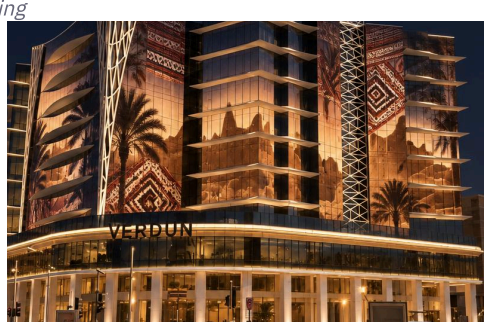
Zone	Content
VD-FF-01	Diriyah scene
VD-RS-04	Sadu pattern
VD-CC-05	Timeline band



Night – complete building view · Conceptual rendering



Daytime (limited visibility)



Eid Celebrations

Golden crescents, lanterns and illuminated arabesques on deep navy.

Suggested duration: 60 s loop, Eid nights

Animation storyboard

1. Stars twinkle across towers
2. Crescent ascends main facade
3. Lanterns descend secondary facade
4. Eid greeting (approved text)

Content mapping by LED zone

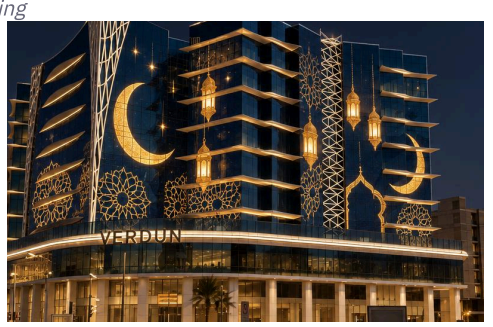
Zone	Content
VD-FF-01	Crescent
VD-SF-02	Lanterns
VD-RS-04	Arabesque



Night – complete building view · Conceptual rendering



Daytime (limited visibility)



New Year Celebration

Full-building countdown and synchronized digital fireworks at midnight.

Suggested duration: 10-min countdown + 3-min show

Animation storyboard

1. Countdown digits on main facade
2. Zones light one by one at T-10
3. Midnight fireworks burst
4. Shimmer fade-out

Content mapping by LED zone

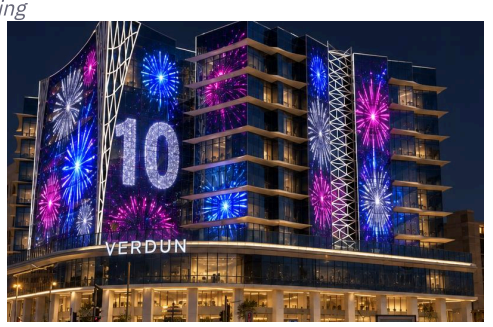
Zone	Content
VD-FF-01	Countdown
VD-SF-02	Fireworks
VD-RS-04	Fireworks



Night – complete building view · Conceptual rendering



Daytime (limited visibility)



Luxury Advertising

Automotive, watches, fashion, technology, hospitality and real-estate campaigns.

Suggested duration: 15 s / 30 s spots in 3-min loop

Animation storyboard

1. Dark cinematic open
2. Product hero on main facade
3. Detail close-up on side tower
4. Brand end-frame

Content mapping by LED zone

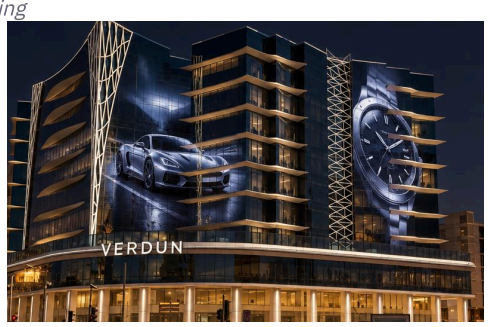
Zone	Content
VD-FF-01	Hero product
VD-RS-04	Detail
VD-CC-05	Call-to-action



Night – complete building view · Conceptual rendering



Daytime (limited visibility)



Sports & Entertainment

Football celebrations, major events, concerts and entertainment campaigns.

Suggested duration: Live event windows, 30 s loops

Animation storyboard

1. Stadium light beams
2. Player hero moment
3. Confetti across all zones
4. Score/fixture band (licensed)

Content mapping by LED zone

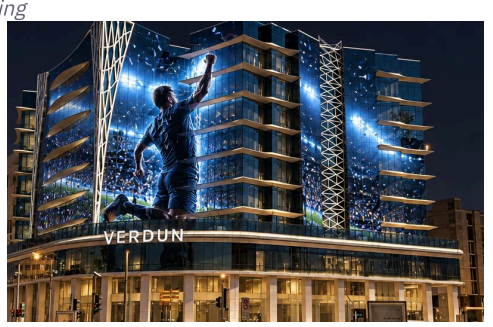
Zone	Content
VD-FF-01	Player
VD-SF-02	Crowd
VD-CC-05	Score band



Night – complete building view · Conceptual rendering



Daytime (limited visibility)



Architectural Digital Art

Flowing particles, fluid ribbons and geometric patterns that respond to the building's form.

Suggested duration: Generative, 5–20 min pieces

Animation storyboard

1. Particles gather at lattice edges
2. Ribbons flow around fins
3. Geometry pulse to ambient sound
4. Calm dissolve

Content mapping by LED zone

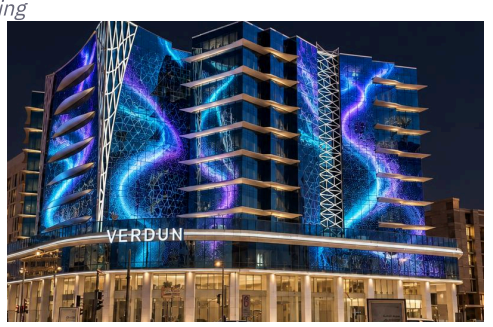
Zone	Content
VD-FF-01	Flow field
VD-SF-02	Ribbons
VD-UL-06	Skyline glow



Night – complete building view · Conceptual rendering



Daytime (limited visibility)



Corporate Branding

VERDUN identity, corporate campaigns and approved tenant advertising.

Suggested duration: Ambient identity, between ad loops

Animation storyboard

1. Silver wave reveal
2. VERDUN wordmark
3. Tenant spotlight
4. Subtle ambient hold

Content mapping by LED zone

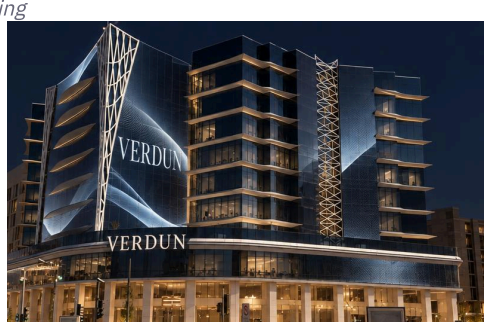
Zone	Content
VD-FF-01	VERDUN wordmark
VD-SF-02	Tenant
VD-CC-05	Wayfinding



Night – complete building view · Conceptual rendering



Daytime (limited visibility)



FIFA World Cup 2034

Host-nation celebration: golden trophy, Saudi green light beams, stadium crowd and confetti across every zone. Requires official FIFA licensing for marks.

Suggested duration: Match nights + 90-day build-up, 60 s loops

Animation storyboard

1. Stadium floodlights sweep up the towers
2. Ball flies from podium to main facade
3. Trophy reveal with gold burst
4. Fixture & countdown band (licensed)

Content mapping by LED zone

Zone	Content
VD-FF-01	Trophy hero
VD-SF-02	Crowd & flags
VD-CC-05	Fixtures band



Night – complete building view · Conceptual rendering



Daytime (limited visibility)



AFC Asian Cup 2027

Continental football: Asia map of light, player in action and blue-gold trails. Saudi Arabia hosts in 2027.

Suggested duration: Tournament month, 45 s loops

Animation storyboard

1. Asia map lights city by city
2. Player strikes across main facade
3. Light trail wraps the curved podium
4. Match-day result band (licensed)

Content mapping by LED zone

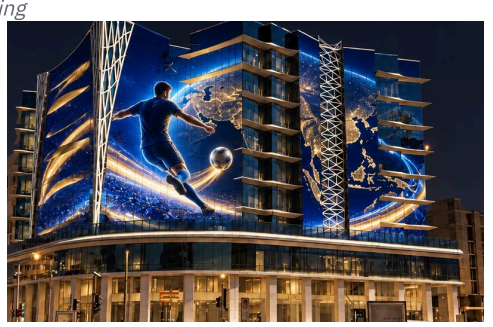
Zone	Content
VD-FF-01	Player
VD-RS-04	Asia map
VD-CC-05	Results band



Night – complete building view · Conceptual rendering



Daytime (limited visibility)



Esports World Cup

Neon cyan/magenta gaming arena, holographic trophy and glitch circuitry — Riyadh's annual summer esports festival.

Suggested duration: 8-week summer season, 30 s loops

Animation storyboard

1. Glitch boot-up across all zones
2. Gamer hero with headset
3. Holographic trophy spins
4. Live bracket/stream band (licensed)

Content mapping by LED zone

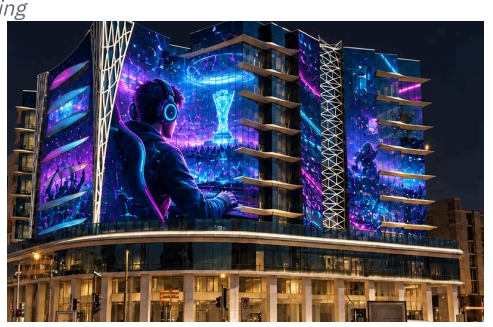
Zone	Content
VD-FF-01	Gamer hero
VD-SF-02	Arena
VD-CC-05	Bracket band



Night – complete building view · Conceptual rendering



Daytime (limited visibility)

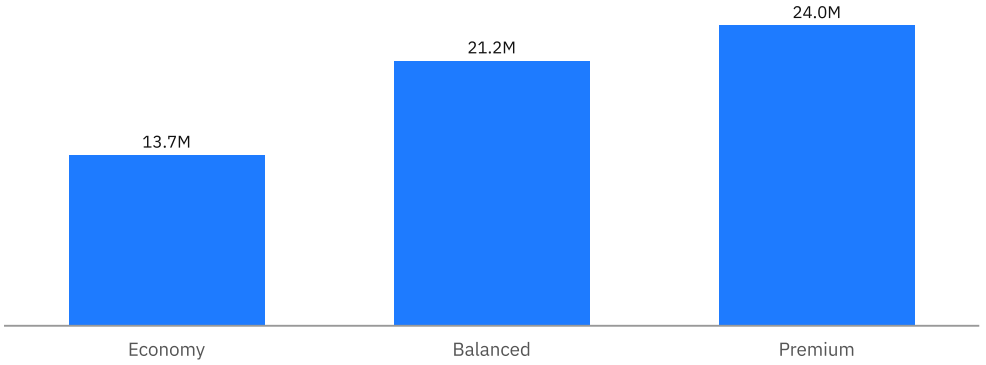


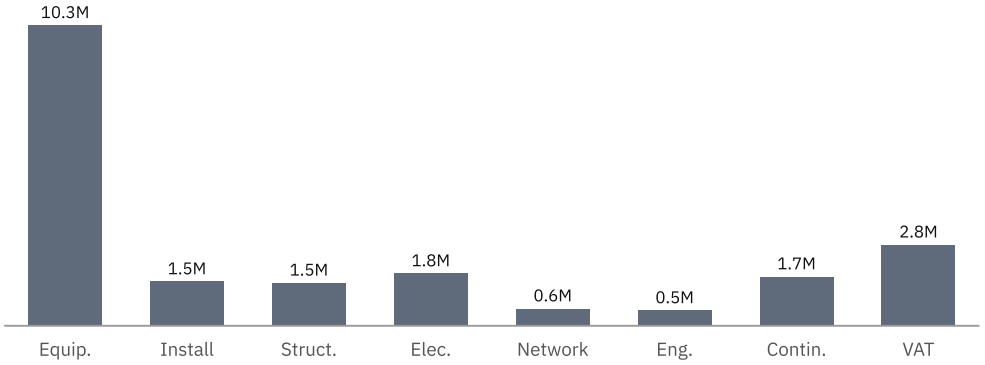
Consolidated BOQ — Balanced option. Individual zone BOQs are included per zone below and in the editable Excel.

#	Description	Manufacturer	Model	Specification	Unit	Qty	Unit (SAR)	Total (SAR)	Remarks	Status
VD-FF-01.01	LEYARD transparent LED display – Main Front Facade (concave tower)	LEYARD Vteam	ISKY-N10.4	P10.4 mm, ≥80% rated transparency, 5000–5500 cd/m², 192 × 96 px/cabinet	m²	648	3,900	2,527,200	324 cabinets 2000×1000 mm; indoor behind glass	Estimate
VD-FF-01.02	Ceiling-hung aluminium supporting frame, brackets & anchors	SPARKLINE (local fab.)	AL-6063-T5	Designed for 12 kg/m² + safety factor 2.0	m²	648	650	421,200	Slab/soffit anchor capacity to be verified	To be confirmed
VD-FF-01.03	LED power supplies & cabinet power harness	LEYARD Vteam	Per datasheet	AC 100–240 V input	No.	324	180	58,320	Confirm if integrated in cabinet price	To be confirmed
VD-FF-01.04	Floor LED distribution boards, MCB/RCBO, SPD, cabling, earthing	Schneider / ABB (or equal)	LED-FDB	Connected load 466.6 kW (720 W/m² max)	kW	467	1,100	513,260	Supply capacity NOT confirmed by existing SLD	Estimate
VD-FF-01.05	Fiber backbone, receiving cards distribution & signal cabling	Corning / CommScope (or equal)	OM4 / OS2	Redundant fiber loop per zone	Lot	1	70,920	70,920	Route via existing risers – survey	Estimate
VD-FF-01.06	Installation accessories, fixings, cable trays	Various	—	Stainless/zinc-plated	m²	648	120	77,760	—	Estimate
VD-FF-01.07	Installation labour (structure, LED, terminations)	SPARKLINE	—	Night/weekend works in occupied floors	m²	648	550	356,400	—	Estimate
VD-SF-02.01	LEYARD transparent LED display – Secondary Front Facade (central finned tower)	LEYARD Vteam	ISKY-N10.4	P10.4 mm, ≥80% rated transparency, 5000–5500 cd/m², 192 × 96 px/cabinet	m²	486	3,900	1,895,400	243 cabinets 2000×1000 mm; indoor behind glass	Estimate
VD-SF-02.02	Ceiling-hung aluminium supporting frame, brackets & anchors	SPARKLINE (local fab.)	AL-6063-T5	Designed for 12 kg/m² + safety factor 2.0	m²	486	650	315,900	Slab/soffit anchor capacity to be verified	To be confirmed
VD-SF-02.03	LED power supplies & cabinet power harness	LEYARD Vteam	Per datasheet	AC 100–240 V input	No.	243	180	43,740	Confirm if integrated in cabinet price	To be confirmed
VD-SF-02.04	Floor LED distribution boards, MCB/RCBO, SPD, cabling, earthing	Schneider / ABB (or equal)	LED-FDB	Connected load 349.9 kW (720 W/m² max)	kW	350	1,100	384,890	Supply capacity NOT confirmed by existing SLD	Estimate
VD-SF-02.05	Fiber backbone, receiving cards distribution & signal cabling	Corning / CommScope (or equal)	OM4 / OS2	Redundant fiber loop per zone	Lot	1	64,440	64,440	Route via existing risers – survey	Estimate
VD-SF-02.06	Installation accessories, fixings, cable trays	Various	—	Stainless/zinc-plated	m²	486	120	58,320	—	Estimate
VD-SF-02.07	Installation labour (structure, LED, terminations)	SPARKLINE	—	Night/weekend works in occupied floors	m²	486	550	267,300	—	Estimate
VD-LS-03.01	LEYARD transparent LED display – Left Side Facade (finned wing)	LEYARD Vteam	ISKY-N10.4	P10.4 mm, ≥80% rated transparency, 5000–5500 cd/m², 192 × 96 px/cabinet	m²	324	3,900	1,263,600	162 cabinets 2000×1000 mm; indoor behind glass	Estimate
VD-LS-03.02	Ceiling-hung aluminium supporting frame, brackets & anchors	SPARKLINE (local fab.)	AL-6063-T5	Designed for 12 kg/m² + safety factor 2.0	m²	324	650	210,600	Slab/soffit anchor capacity to be verified	To be confirmed
VD-LS-03.03	LED power supplies & cabinet power harness	LEYARD Vteam	Per datasheet	AC 100–240 V input	No.	162	180	29,160	Confirm if integrated in cabinet price	To be confirmed
VD-LS-03.04	Floor LED distribution boards, MCB/RCBO, SPD, cabling, earthing	Schneider / ABB (or equal)	LED-FDB	Connected load 233.3 kW (720 W/m² max)	kW	233	1,100	256,630	Supply capacity NOT confirmed by existing SLD	Estimate
VD-LS-03.05	Fiber backbone, receiving cards distribution & signal cabling	Corning / CommScope (or equal)	OM4 / OS2	Redundant fiber loop per zone	Lot	1	57,960	57,960	Route via existing risers – survey	Estimate
VD-LS-03.06	Installation accessories, fixings, cable trays	Various	—	Stainless/zinc-plated	m²	324	120	38,880	—	Estimate
VD-LS-03.07	Installation labour (structure, LED, terminations)	SPARKLINE	—	Night/weekend works in occupied floors	m²	324	550	178,200	—	Estimate
VD-RS-04.01	LEYARD transparent LED display – Right Side Facade (east tower)	LEYARD Vteam	ISKY-N10.4	P10.4 mm, ≥80% rated transparency, 5000–5500 cd/m², 192 × 96 px/cabinet	m²	432	3,900	1,684,800	216 cabinets 2000×1000 mm; indoor behind glass	Estimate
VD-RS-04.02	Ceiling-hung aluminium supporting frame, brackets & anchors	SPARKLINE (local fab.)	AL-6063-T5	Designed for 12 kg/m² + safety factor 2.0	m²	432	650	280,800	Slab/soffit anchor capacity to be verified	To be confirmed
VD-RS-04.03	LED power supplies & cabinet power harness	LEYARD Vteam	Per datasheet	AC 100–240 V input	No.	216	180	38,880	Confirm if integrated in cabinet price	To be confirmed

#	Description	Manufacturer	Model	Specification	Unit	Qty	Unit (SAR)	Total (SAR)	Remarks	Status
VD-RS-04.04	Floor LED distribution boards, MCB/RCBO, SPD, cabling, earthing	Schneider / ABB (or equal)	LED-FDB	Connected load 311 kW (720 W/m² max)	kW	311	1,100	342,100	Supply capacity NOT confirmed by existing SLD	Estimate
VD-RS-04.05	Fiber backbone, receiving cards distribution & signal cabling	Corning / CommScope (or equal)	OM4 / OS2	Redundant fiber loop per zone	Lot	1	62,280	62,280	Route via existing risers – survey	Estimate
VD-RS-04.06	Installation accessories, fixings, cable trays	Various	—	Stainless/zinc-plated	m²	432	120	51,840	—	Estimate
VD-RS-04.07	Installation labour (structure, LED, terminations)	SPARKLINE	—	Night/weekend works in occupied floors	m²	432	550	237,600	—	Estimate
VD-CC-05.01	LEYARD transparent LED display – Curved Glass Corner / Podium Band	LEYARD Vteam	ISKY-N7.8	P7.9 / 7.8 mm, ≥75% rated transparency, 5000–5500 cd/m², 252 × 128 px/cabinet	m²	304	4,600	1,398,400	152 cabinets 2000×1000 mm; indoor behind glass	Estimate
VD-CC-05.02	Ceiling-hung aluminium supporting frame, brackets & anchors	SPARKLINE (local fab.)	AL-6063-T5	Designed for 13 kg/m² + safety factor 2.0	m²	304	650	197,600	Slab/soffit anchor capacity to be verified	To be confirmed
VD-CC-05.03	LED power supplies & cabinet power harness	LEYARD Vteam	Per datasheet	AC 100–240 V input	No.	152	180	27,360	Confirm if integrated in cabinet price	To be confirmed
VD-CC-05.04	Floor LED distribution boards, MCB/RCBO, SPD, cabling, earthing	Schneider / ABB (or equal)	LED-FDB	Connected load 218.9 kW (720 W/m² max)	kW	219	1,100	240,790	Supply capacity NOT confirmed by existing SLD	Estimate
VD-CC-05.05	Fiber backbone, receiving cards distribution & signal cabling	Corning / CommScope (or equal)	OM4 / OS2	Redundant fiber loop per zone	Lot	1	57,160	57,160	Route via existing risers – survey	Estimate
VD-CC-05.06	Installation accessories, fixings, cable trays	Various	—	Stainless/zinc-plated	m²	304	120	36,480	—	Estimate
VD-CC-05.07	Installation labour (structure, LED, terminations)	SPARKLINE	—	Night/weekend works in occupied floors	m²	304	550	167,200	—	Estimate
VD-UL-06.01	LEYARD transparent LED display – Upper-Level Crown Glass	LEYARD Vteam	ISKY-N10.4	P10.4 mm, ≥80% rated transparency, 5000–5500 cd/m², 192 × 96 px/cabinet	m²	56	3,900	218,400	28 cabinets 2000×1000 mm; indoor behind glass	Estimate
VD-UL-06.02	Ceiling-hung aluminium supporting frame, brackets & anchors	SPARKLINE (local fab.)	AL-6063-T5	Designed for 12 kg/m² + safety factor 2.0	m²	56	650	36,400	Slab/soffit anchor capacity to be verified	To be confirmed
VD-UL-06.03	LED power supplies & cabinet power harness	LEYARD Vteam	Per datasheet	AC 100–240 V input	No.	28	180	5,040	Confirm if integrated in cabinet price	To be confirmed
VD-UL-06.04	Floor LED distribution boards, MCB/RCBO, SPD, cabling, earthing	Schneider / ABB (or equal)	LED-FDB	Connected load 40.3 kW (720 W/m² max)	kW	40	1,100	44,330	Supply capacity NOT confirmed by existing SLD	Estimate
VD-UL-06.05	Fiber backbone, receiving cards distribution & signal cabling	Corning / CommScope (or equal)	OM4 / OS2	Redundant fiber loop per zone	Lot	1	47,240	47,240	Route via existing risers – survey	Estimate
VD-UL-06.06	Installation accessories, fixings, cable trays	Various	—	Stainless/zinc-plated	m²	56	120	6,720	—	Estimate
VD-UL-06.07	Installation labour (structure, LED, terminations)	SPARKLINE	—	Night/weekend works in occupied floors	m²	56	550	30,800	—	Estimate
PRJ.01	Video processors / sending controllers (incl. 1 hot-standby)	LEYARD-approved	TBC by LEYARD	Frame-locked multi-zone sync	No.	7	85,000	595,000	Model per LEYARD system design	To be confirmed
PRJ.02	Media servers, redundant pair (N+1)	TBC	4K multi-output	Genlock, 24/7 duty	No.	2	160,000	320,000	—	Estimate
PRJ.03	Content management software & scheduling licence	TBC	Enterprise CMS	Remote monitoring, proof-of-play	Lot	1	180,000	180,000	—	Estimate
PRJ.04	Core network switches, firewall, UPS for control room	Cisco / Aruba (or equal)	—	Dual-ring redundancy	Lot	1	220,000	220,000	—	Estimate
PRJ.05	Engineering, design, structural & electrical calculations	SPARKLINE	—	4% of equipment	Lot	1	367,612	367,612	—	Estimate
PRJ.06	Mock-up, testing & commissioning	SPARKLINE / LEYARD	—	1.5% of equipment	Lot	1	137,855	137,855	Physical mock-up mandatory	Estimate
PRJ.07	Spare parts (LED strips, PSUs, receiving cards)	LEYARD Vteam	—	3% of LED value	Lot	1	269,634	269,634	Same production batch	Estimate
PRJ.08	Shipping, customs, insurance, site logistics	—	—	2.5% of equipment	Lot	1	229,758	229,758	—	Estimate
PRJ.09	Regulatory approvals (municipality, civil defence, advertising licence)	—	—	Fees & consultancy	Lot	1	150,000	150,000	Prerequisite to operation	To be confirmed
	Subtotal before contingency & VAT							**16,772,159**		

Item (SAR)	Economy	Balanced (Recommended)	Premium
Total LED area (m²)	1,438	2,250	2,250
Equipment supply	6,577,620	10,285,300	12,299,500
Installation	963,460	1,507,500	1,507,500
Supporting structures	934,700	1,462,500	1,462,500
Electrical infrastructure	1,138,940	1,782,000	1,782,000
Network infrastructure	412,520	580,000	580,000
Engineering & approvals	379,505	517,612	598,180
Logistics	143,441	229,758	280,113
Testing & spares	254,310	407,489	498,128
Contingency 10%	1,080,450	1,677,216	1,900,792
VAT 15%	1,782,742	2,767,406	3,136,307
TOTAL CAPEX	**13,667,688**	**21,216,781**	**24,045,020**
Annual electricity	343,895	538,083	538,083
Annual maintenance	164,441	257,133	307,488
Annual OPEX (excl. commission)	1,508,336	1,795,216	1,845,571



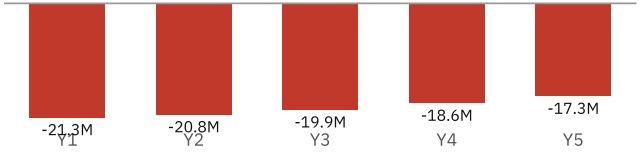


PRELIMINARY — subject to site survey, mock-up testing, LEYARD quotation and engineering approval

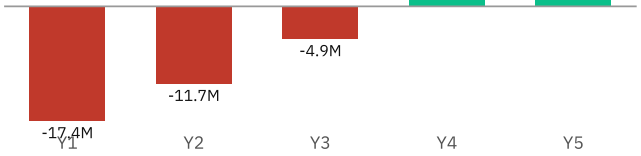
15 Advertising Revenue & Five-Year ROI

Scenario	Y1 net	Y2 net	Y3 net	Y4 net	Y5 net	Y1 revenue	5-yr ROI	Payback
Conservative	-79,594	545,781	889,274	1,245,765	1,296,852	2,078,880	-81.6%	>5 yrs
Base Case	3,799,688	5,675,208	6,827,971	7,162,572	7,510,781	6,582,240	46%	3.69 yrs
Optimistic	8,624,064	12,015,818	12,837,149	13,708,199	14,631,960	12,316,800	191.4%	2.04 yrs

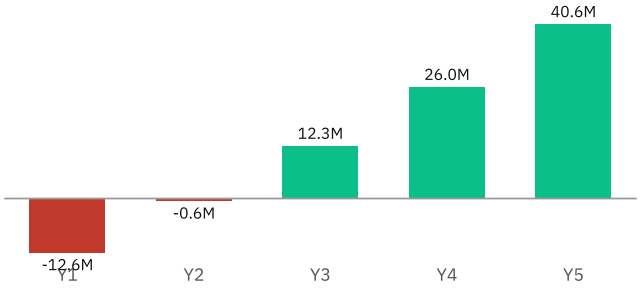
Conservative — cumulative net − CAPEX



Base Case — cumulative net − CAPEX



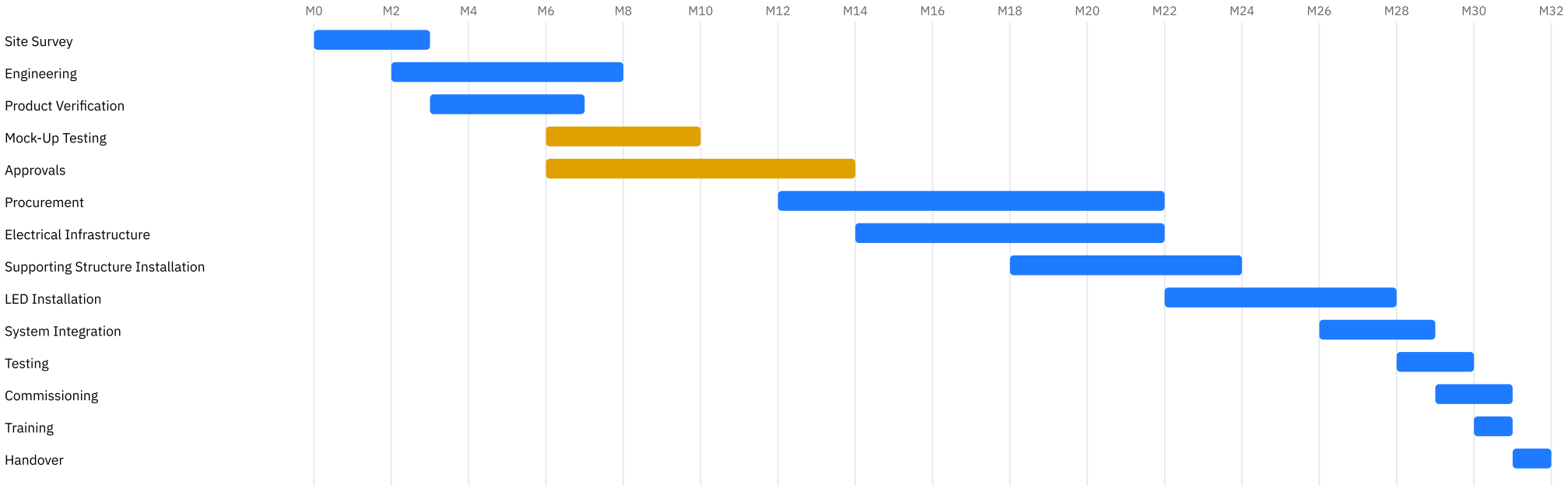
Optimistic — cumulative net − CAPEX



Annual Net Cash Flow = Revenue − OPEX; Operating Return = Net ÷ CAPEX × 100; Five-Year ROI = (Cumulative Net − CAPEX) ÷ CAPEX × 100. Revenues are not guaranteed and require advertising licensing.

Risk	Level	Mitigation
Glass Compatibility	High	Measure VLT/reflectance; mock-up on worst-case bay.
Structural Loads	Medium	12–13 kg/m² + frame; soffit pull-out tests; structural engineer sign-off.
Solar Heat Gain	High	Cavity may exceed 40 °C on sun-facing facades; forced ventilation and thermal sensors.
Thermal Management	High	Link to HVAC; auto-dim/shutdown; ~0.26 kW/m² dissipated indoors.
Daytime Visibility	High	5,000–5,500 nit before glass losses; prioritise night programming; mock-up proof.
Effective Transparency	Medium	Rated ≥75–80% ≠ installed; measure on mock-up from interior.
Electrical Capacity	High	Existing 630 A ATS insufficient; new SEC supply / transformer required.
Fire Safety	Medium	Civil Defence approval; FA interface; non-combustible frame; sprinkler coverage check.
Maintenance Access	Medium	≥600 mm aisle behind LED; tenant coordination for occupied floors.
Regulatory Approvals	High	Municipality building permit and Civil Defence before procurement.
Advertising Permissions	High	Municipal advertising licence is a prerequisite to any revenue.
Roadside Distraction	Medium	Brightness limits, no rapid flashing, traffic authority guidance.
Equipment Reliability	Low	≥100,000 h lifespan (rated); N+1 servers; spares; warranty terms TBC.

17 Implementation Schedule



Indicative ≈32 months incl. approvals; mock-up and approvals (amber) are the critical path.

1. Adopt the Balanced option as the design basis: ISKY-N10.4 (≥80% rated transparency) on towers, ISKY-N7.8 on the podium band.
2. Build a 2 × 3 m physical mock-up on a south/west bay before final product approval; measure installed transparency, brightness through glass, colour shift and cavity temperature over 14 days.
3. Obtain the official LEYARD quotation, latest datasheet confirmation and warranty terms.
4. Commission an electrical capacity study and apply for a dedicated supply.
5. Secure municipal advertising licence and Civil Defence approval before procurement.

Commercial Conclusion

The VERDUN transparent media facade can become one of the region's most recognisable architectural media landmarks while preserving the building's design and interior daylight. The opportunity is commercially attractive under base-case assumptions, but it is gated by four verifications: glass/mock-up performance, thermal behaviour, electrical supply and advertising licensing. SPARKLINE recommends proceeding immediately with Phase 0 — survey, mock-up and approvals — as a low-cost, decision-grade step.



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Direct contact details (phone / account lead) to be confirmed by SPARKLINE.

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