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بسم الله الرحمن الرحيم

Secretariat of Kulhudhuffushi City Council
Kulhudhuffushi, Rep· of Maldives

Technical Information – Supply and Installation of Hallway Signage Display and Background Sound System

1. Introduction

This part sets out the technical requirements for the work introduced on page 1: supplying and installing a digital signage display and a background sound system at Kulhudhuffushi City Council, HDh. Kulhudhuffushi, and supplying 9 TVs.

The display will be mounted in portrait orientation and will loop video reels and public notices. Ceiling speakers in the false ceiling will play quiet background music through the lobby and walkways. When a video has sound and it is needed, it can be played through the same speakers instead of the display's built-in speakers, using the amplifier controls.

The speaker layout drawing (Rev 6) is included as Annex A. It shows every speaker position, cable route, the amplifier position and both volume control positions. The CAD file is available on request.

2. Scope of work

1. Supply every item listed in Section 3 in its original packaging. Items 12–15 (TVs, wall brackets and floor stand) are supply only: deliver them to the City Council, with no installation.
2. Install 10 ceiling loudspeakers in the false ceiling at the positions shown on the drawing. Fit each speaker with its fire dome and set it to the 3 W tap.
3. Install the 100 V speaker cabling along the routes on the drawing, as three runs:
   - **Line A:** amplifier → lobby volume control → 2 lobby speakers.
   - **Line B home run:** amplifier → walkway volume control in IT & comms section. No speakers on this run.
   - **Line B feed:** walkway volume control → 8 walkway speakers.
4. Supply all installation materials needed to finish the work: conduit, cable supports and clips, junction boxes, flush back boxes, cable labels and fixings.
5. Install the amplifier and the background music player at the position marked in reception.
6. Install the two volume controls in flush back boxes, 1.2 m above floor level, at the marked positions:
   - **VC-A (lobby):** in reception, next to the amplifier.
   - **VC-B (walkways):** in IT & comms.
7. Mount the signage display in portrait orientation on the lobby side of the reception south wall, at the position shown on the drawing. The screen centre should be about 1.5 m above floor level.
8. Provide the display's power and data on the reception side of the same wall, and drill through the wall for the display's power, data and audio cables. The power point is a switched socket in a recessed back box, fed from the existing distribution board in the wall

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at the amplifier position. The data point is a Cat6 cable with an RJ45 faceplate, run to the existing network switch in the call centre (above the counter-side door), terminated and tested at both ends.

9. Provide a dedicated power socket for the amplifier and music player, fed from the same distribution board. The distribution board must stay accessible after the amplifier is installed.
10. Mount the DI box beside the amplifier. Run the display's audio lead through the wall to the DI box, then connect the DI box to amplifier input 4 and the music player's balanced output to amplifier input 3, using balanced XLR leads.
11. Configure the display:
    - portrait orientation
    - looping playback from the built-in player
    - daily on/off schedule
    - internal speakers off
    - fixed audio output level
    - remote control and menu locked
12. Test and commission the whole system (see Section 4).
13. Make good all ceiling tiles and wall finishes, and remove all debris.
14. Hand over:
    - as-built drawing
    - record of settings (speaker taps, amplifier and volume control settings, display configuration)
    - short operating briefing for staff

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3. Items to be supplied

Item No: 1
Description: Mixer amplifier
Quantity: 1
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Power output	60 W rated / 90 W maximum	
Speaker outputs	Floating 100 V and 70 V line; 8 Ω	
Mic/line inputs	4 balanced inputs with 16 V phantom power; sensitivity 1 mV (mic) / 200 mV (line)	
Input connectors	Input 1: 5-pin connector with push-to-talk priority and ducking; Inputs 2–4: 3-pin XLR	
Priority	Input 2: VOX priority with ducking	
Music inputs	3 stereo RCA (cinch), summed to mono, 200 mV; each with its own selector and volume control	
Telephone/emergency input	7-pin pluggable connector; VOX-activated (50 mV threshold, 150 ms attack, 2 s release); overrides all other inputs; own preset volume control	
Chime	2-tone pre-announcement chime	
Line output	Balanced 3-pin XLR, 1 V; switchable to music-only	
Announcement output	100 V announcement-only output with 3-wire remote volume override	
Tone control	Bass and treble ±12 dB	
Frequency response	50 Hz–20 kHz (+1/−3 dB)	
Distortion	Under 1% at rated power, 1 kHz	
Signal-to-noise ratio	Music inputs 70 dB or more; mic 63 dB or more	
Power supply	230 V AC ±10%, 50/60 Hz; 200 VA	
Dimensions & weight	2U, 19" wide: 430 × 100 × 270 mm (W × H × D); about 8.5 kg; charcoal	
Mounting	Stand-alone use; 19" rack brackets included	
Warranty	1 year minimum, manufacturer's warranty	

Reference image (indicative only):



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Item No: 2
Description: Ceiling loudspeaker
Quantity: 11 (10 + 1 spare)
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Driver	12 cm (5") full-range cone	
Rated input	6 W at 100 V	
100 V taps	6 W (1.7 kΩ), 3 W (3.3 kΩ), 1.5 W (6.7 kΩ), 0.8 W (13 kΩ)	
70 V taps	3 W, 1.5 W, 0.8 W, 0.4 W	
Sensitivity	94 dB (1 W, 1 m)	
Maximum SPL	99 dB (1 m)	
Frequency response	80 Hz–20 kHz	
Fire protection	Steel fire dome fitted	
Certification	EN 54-24:2008 and BS 5839-8:2008	
Terminals	Push-in terminals with bridge connection, for 0.5–3 mm² cable	
Grille & finish	Flat steel grille, traffic white (RAL 9016)	
Dimensions	Outer diameter 180 mm; mounting hole 156 mm; depth 70 mm	
Ceiling thickness	5–25 mm	
Protection	IP 21C	
Warranty	1 year minimum, manufacturer's warranty	

Reference image (indicative only):



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Item No: 3
Description: Volume control – lobby (VC-A)
Quantity: 1
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Type	100 V line wall attenuator	
Rated power	30 W	
Attenuation	5-position rotary switch: OFF, −18, −12, −6 and 0 dB	
Terminals	Push-in terminal block	
Finish	White ABS knob, panel and plate (RAL 1013)	
Dimensions & weight	70 × 120 × 52.4 mm (W × H × D); 210 g	
Operating temperature	−10 to +50 °C	
Accessories	Matching flush back box	

Reference image (indicative only):



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Item No: 4
Description: Volume control – walkways (VC-B)
Quantity: 1
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Type	100 V line wall attenuator	
Rated power	60 W	
Attenuation	5-position rotary switch: OFF, −18, −12, −6 and 0 dB	
Terminals	Push-in terminal block	
Finish	White ABS knob, panel and plate (RAL 1013)	
Dimensions & weight	70 × 120 × 52.4 mm (W × H × D); 210 g	
Operating temperature	−10 to +50 °C	
Accessories	Matching flush back box	

Reference image (indicative only):



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Item No: 5
Description: Loudspeaker cable
Quantity: 150 m
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Conductors	2 × 1.5 mm² stranded copper, twisted pair	
Sheath	LSZH or fire-rated	
Application	100 V line audio	

Reference image (indicative only):



Item No: 6
Description: Background music player
Quantity: 1
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Type	Professional 19" rack-mount media player	
Sources	CD, SD/SDHC card, USB storage, Bluetooth receiver and AM/FM tuner	
Bluetooth	Version 4.2; A2DP and AVRCP profiles	
Outputs	Balanced XLR line outputs; unbalanced line outputs; separate tuner output	
Recording	Records to SD card and USB storage	
Power recovery	Power-on Play: starts playback automatically when power is applied	
Playback modes	Repeat playback	
Dimensions	482.6 × 45 × 300.5 mm (W × H × D)	
Warranty	1 year minimum, manufacturer's warranty	
Remark	Balanced XLR output connects to amplifier input 3	

Reference image (indicative only):



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Item No: 7
Description: Audio isolator / DI box
Quantity: 1
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Type	Passive direct-injection (DI) box; no power required	
Transformer	12:1 ratio, with Faraday / mu-metal shield	
Inputs	6.35 mm (¼") jack, RCA, 3.5 mm and XLR female; left and right summed to mono; thru-puts on the front-panel inputs	
Output	Balanced XLR male, pin 2 hot, 150 Ω	
Input impedance	140 kΩ (unbalanced)	
Frequency response	20 Hz–18.5 kHz (±0.2 dB)	
Controls	−15 dB input pad; 180° polarity reverse; ground lift	
Dimensions & weight	82.6 × 127 × 47.6 mm (W × H × D); 0.73 kg	
Remark	Mounted beside the amplifier in reception; takes the display's 3.5 mm output (lead passes through the wall); XLR output connects to amplifier input 4	

Reference image (indicative only):



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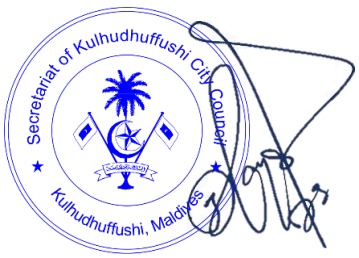
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Item No: 8
Description: Audio cables
Quantity: 1 lot
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Display lead	Shielded 3.5 mm stereo (TRS) male to male, 3 m, gold-plated contacts	
Music player lead	Balanced XLR female to XLR male, 1 m, shielded twisted pair, metal-shell connectors	
DI box lead	Balanced XLR female to XLR male, 1 m, shielded twisted pair, metal-shell connectors	
Length	Display lead passes through the wall to the DI box beside the amplifier; all other leads at the amplifier position	
Remark	No unbalanced connections between equipment other than the display lead	

Item No: 9
Description: Surge-protected power outlet
Quantity: 1
Technical specifications:

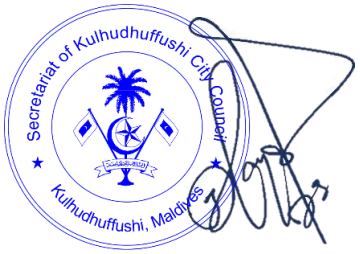
Feature Category	Technical Specification Requirements	Supplier Spec
Outlets	At least 4	
Protection	Surge protected	
Use	Amplifier and music player	
Socket type	Universal	



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Item No: 10
Description: Commercial signage display
Quantity: 1
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Screen size	75" class (74.5" viewable)	
Resolution	3840 × 2160 at 60 Hz	
Brightness	500 cd/m² (typical)	
Contrast ratio	4000:1	
Response time	8 ms	
Haze	25%	
Viewing angle	178° / 178°	
Operation	Rated by the manufacturer for 24/7 operation in landscape and portrait	
Bezel	Even 13.4 mm on all four sides	
Depth	28.5 mm or less	
Mounting	VESA 400 × 400, holes centred on the back	
Video inputs	3 × HDMI 2.0 (HDCP 2.2); 1 × DisplayPort 1.2	
Other ports	2 × USB 2.0; RS-232C in and out; 1 × RJ45; 3.5 mm stereo audio out	
Wireless	Wi-Fi and Bluetooth built in	
Speakers	Built-in 2 × 10 W	
Media player	Embedded system-on-chip player running the manufacturer's signage operating system version 7.0 or later; USB playback and scheduling; no external player	
Internal storage	16 GB	
Protection	IP5X dust resistance	
Operating temperature	0–40 °C	
Dimensions & weight	1681.5 × 960.1 mm; 33.4 kg	
Warranty	2 years minimum, manufacturer's warranty	



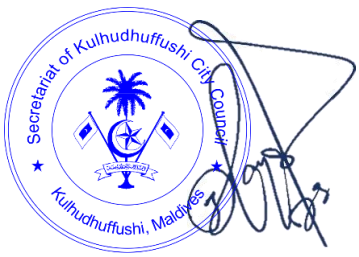
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Reference image (indicative only):



Item No: 11
Description: Display wall mount
Quantity: 1
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Type	Slim fixed wall mount	
Compatibility	Item 10; VESA 400 × 400	
Orientation	Rated by its manufacturer for portrait use	
Load rating	80 kg or more	
Wall gap	35 mm or less	
Security	Security locking	
Warranty	1 year minimum, manufacturer's warranty	



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Item No: 12
Description: 55" smart TV
Quantity: 8
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Screen size	55" class	
Panel & resolution	LED, 3840 × 2160	
Model year	2024 or newer	
Processing	4K processor with 4K upscaling	
HDR	HDR10+	
Ports	3 × HDMI 2.0 (one with eARC); 2 × USB-A; 1 × RJ45	
Wireless	Wi-Fi 5 and Bluetooth 5.2	
Audio	20 W 2.0-channel; object-tracking sound; simultaneous playback with a compatible soundbar	
Casting	AirPlay 2 and screen mirroring	
Mounting	VESA 200 × 200	
Dimensions & weight	1232.1 × 708.8 × 25.7 mm (W × H × D) without stand; 15.5 kg	
Power consumption	80 W typical	
Warranty	1 year minimum, manufacturer's warranty	
Remark	Supply only	

Reference image (indicative only):



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Item No: 13
Description: 65" smart TV
Quantity: 1
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Screen size	65" class	
Panel & resolution	LED, 3840 × 2160	
Model year	2024 or newer	
Processing	4K processor with 4K upscaling	
HDR	HDR10+	
Ports	3 × HDMI 2.0 (one with eARC); 2 × USB-A; 1 × RJ45	
Wireless	Wi-Fi 5 and Bluetooth 5.2	
Audio	20 W 2.0-channel; object-tracking sound; simultaneous playback with a compatible soundbar	
Casting	AirPlay 2 and screen mirroring	
Mounting	VESA 400 × 300	
Dimensions & weight	1450.9 × 831.9 × 25.7 mm (W × H × D) without stand; 20.9 kg	
Warranty	1 year minimum, manufacturer's warranty	
Remark	Supply only	

Reference image (indicative only):



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Item No: 14
Description: TV wall bracket (for 55" TVs)
Quantity: 8
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Type	Low-profile fixed wall bracket	
Compatibility	Item 12 (55" TVs); VESA 200 × 200	
Load rating	30 kg or more	
Wall gap	35 mm or less	
Material & finish	Steel, black	
Accessories	Wall anchors suitable for masonry	
Remark	Supply only	

Item No: 15
Description: TV floor stand (for 65" TV)
Quantity: 1
Technical specifications:

Feature Category	Technical Specification Requirements	Supplier Spec
Type	Free-standing steel floor stand	
Compatibility	Item 13 (65" TV); VESA 400 × 300	
Load rating	40 kg or more	
Adjustment	Height-adjustable mounting	
Stability	Stable for a 65" screen without wall fixing	
Remark	Supply only	

Reference image (indicative only):



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4. Installation requirements

- **Positions:** follow the drawing. A speaker may move up to 0.5 m to clear lights, AC diffusers, smoke detectors or the ceiling grid. Any larger change needs the City Council's approval.
- **Cable routing:**
  - Run all 100 V cable above the false ceiling in conduit or on proper supports, never lying loose on ceiling tiles.
  - Keep it separate from mains power cables.
  - Make joints only at speaker terminals or in junction boxes.
- **Wall boxes:** fit both volume controls and the display power/data point flush, in boxes recessed into the wall, with no surface trunking in public areas.
- **Display mounting:** fix into solid wall or proper backing with anchors rated for the display's weight. Leave the ventilation clearance the manufacturer specifies. Drill the wall penetration neatly and make good both faces of the wall.
- **Testing:**
  - Measure and record the impedance of each 100 V line before connecting it to the amplifier.
  - Balance the levels so the background music is even along the walkways.
  - Confirm there is no hum, buzz or distortion with the display audio and the music playing.
  - Confirm both volume controls work across their full range.
- **Workmanship:** cut ceiling tiles neatly to the speaker's template. Replace any tile that gets damaged. Leave the work areas clean each day.
- **Warranty:** applies only to items 1, 2, 6, 10, 11, 12 and 13, for at least the period stated in each item's table. All warranty periods start from the date of handover. During the warranty period the supplier pays for collecting faulty items from, and returning them to, Kulhudhuffushi, and repairs or replaces them within 30 days. Bidders state the warranty period for each item in the Supplier Spec column.

5. Compliance, submission and site visit

What to submit

- For each item in Section 3, state the exact brand and model offered, and complete the Supplier Spec column.
- Attach the manufacturer's datasheet and a clear photo of each offered item. Mark on the datasheet where each specification point is met.
- Give an itemised price in MVR that follows the item numbers in Section 3, including delivery to the City Council office. Show installation, testing and commissioning separately. State whether prices include GST.
- Give the delivery and installation period in days.

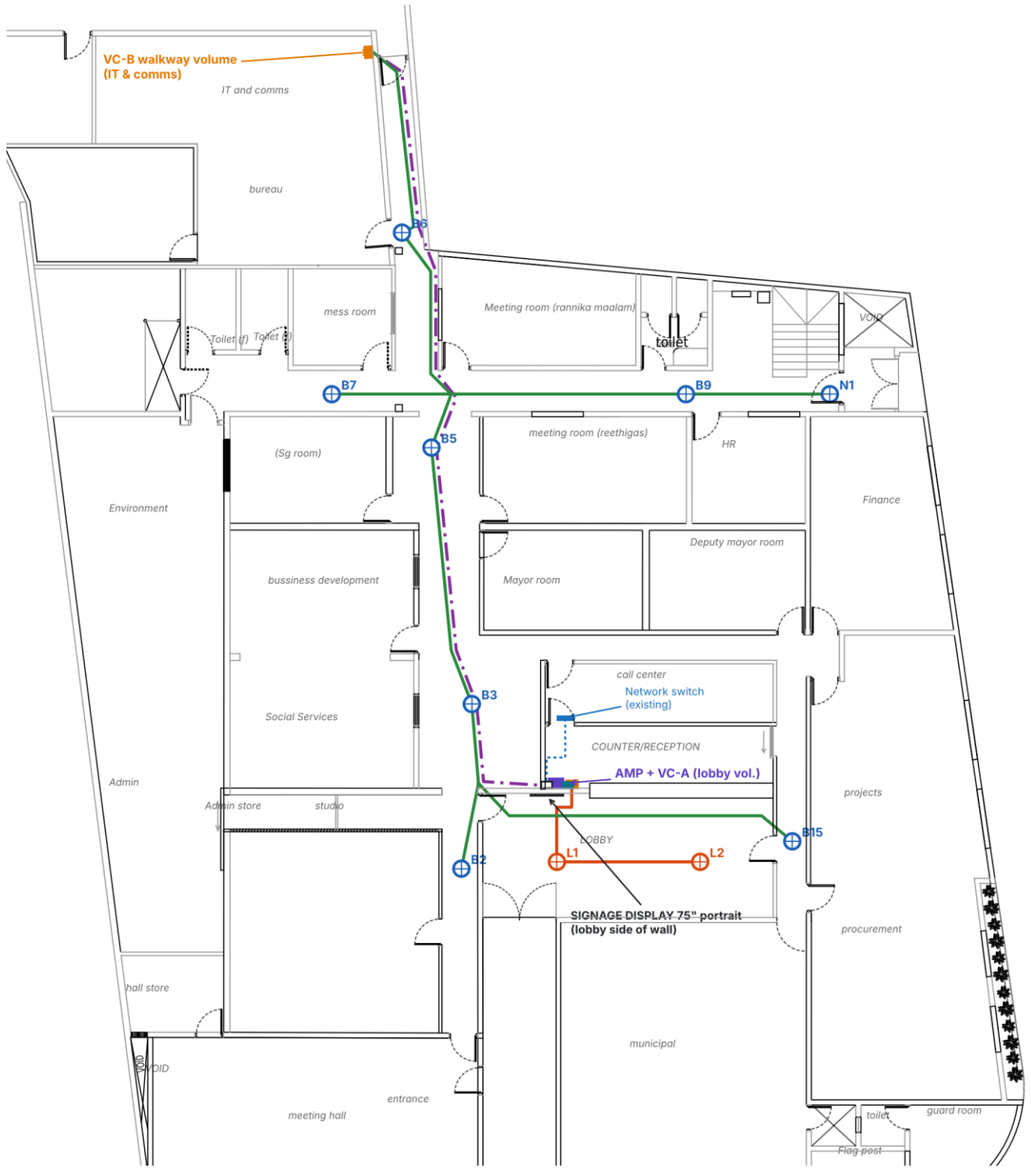
Site visit

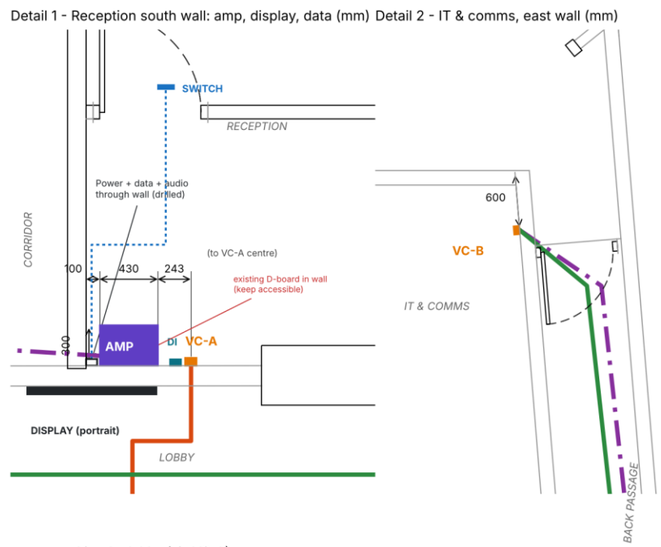
- The City Council will provide the CAD drawing of the building.
- Parties may visit the site to check ceiling and wall conditions and cable routes. Coordinate the visit at least 5 working days in advance.

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Annex A – Speaker layout and wiring drawing (Rev 6)

Kulhudhuffushi City Council - Ceiling Speakers, Wiring, Volume Controls & Signage Display (Rev 6) | Ground floor





- Line A - lobby (via VC-A)
- Line B home run - amp to VC-B (no speakers on it)
- Line B feed - VC-B to walkway speakers
- Amplifier, wall-mounted (approx. 430 × 300)
- 100V volume control (wall plate, 1.2 m AFF)
- Signage display, 75" portrait (lobby side)
- DI box (beside amplifier)
- Cat6 to existing network switch (call centre)

Equipment

- Amp: 60 W 100V mixer-amp, wall-mounted at reception (with music player)
- VC-A: 100V attenuator 30 W, lobby (L1, L2 = 6 W)
- VC-B: 100V attenuator 60 W, walkways (8 spk = 24 W)
- Speakers: 10 × 5" 100V ceiling, fire dome, 3 W tap (order 11 incl. 1 spare)
- Display: 75" portrait on lobby side of reception south wall; power, data and audio through the wall
- DI box beside amp; display audio and music player into amp inputs 4 and 3 (XLR)

Cable - 2 × 1.5 mm2 LSZH / fire-rated

- Line A 7 m | Line B home run 25 m | Line B feed & branches 50 m
- Total ~82 m + drops/slack (~110 m) → order 150 m (or 2 × 100 m)
- Home run and feed share the corridor ceiling: label both cables at each end

Notes

- Power for amp and display from the existing D-board in the wall at the amp position; keep it accessible.
- Cat6 from display to existing switch above the call-centre door (~6 m incl. drops).
- Positions on corridor centrelines; adjust on site for lights, AC, detectors.
- Ceiling height assumed 2.7-3.0 m. No speakers inside Municipal or on first floor.

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