REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ACOUSTIC REPORT AND DRAWINGS FOR THE CONSTRUCTION OF AKKAR ONE DAY SURGERY GOVERNEMENTAL HOSPITAL SAHLEH - AKKAR, LEBANON

ACOUSTIC REPORT AND DRAWINGS

ETEC
Etudes Techniques SAL
P.O.Box 11-6078 - Beirut
Ph 961-1-364304/5 Fax 367747
E-mail: etecsal@cyberia.net.lb
Info@etecsal.com
Website: www.etecsal.com

July, 2026

Table of Contents

1. Executive Summary 4
2. Project Description 4
3. Scope of Work 4
4. Reference Standards & Design Criteria 5
   4.1 General Acoustic Objectives 5
5. Building Construction 6
   5.1 External Envelope 6
   5.2 Internal Partitions 6
6. External Noise Assessment & Façade Acoustic Performance 6
   6.1 Environmental Noise Survey & WHO Guidelines 6
   6.2 Façade Sound Insulation & Composite R_w Calculation 6
7. Internal Acoustic Performance (Airborne & Impact) 7
   7.1 Airborne Sound Insulation 7
   7.2 Privacy Categories 8
   7.3 Impact Sound Insulation 8
8. Comprehensive Room-by-Room Criteria & Schedules 8
   8.1 Room-by-Room Acoustic Background Noise & Reverberation Criteria 8
   8.2 Wall Partition Schedule 9
   8.3 Door Schedule 10
   8.4 Suspended Ceiling Recommendations 10
   8.5 Tiles and Floor Covering 11
9. Building Services Noise & Vibration Control 11
   9.1 HVAC Noise Assessment 11
   9.2 Generator, Mechanical Equipment & Vibration Isolation 12
   9.3 Vibration Isolation 12
   9.4 Ductwork & Airflow Attenuation 12
   9.5 Casing & Plenum Noise Control 13
   9.6 False Ceiling & Room Solutions 13
   9.7 Air Outlets & Terminal Units 13
10. Compliance Matrix 13
11. Conclusions 14
12. Appendices 15
    Appendix A: Acoustic Drawings (Basement, Ground & First Floor Plans 15
    Appendix B: Wall legend / Partition schedule 19
    Appendix C: Acoustic Details 21

Acoustic: Key Terms Reference

Term	Full Name	What It Measures	Better Is
NC	Noise Criteria	US standard for rating steady background/mechanical noise (HVAC), based on octave-band sound pressure levels	Lower
NR	Noise Rating	ISO/European equivalent of NC; same octave-band curve-fit concept, used more outside the US	Lower
STC	Sound Transmission Class	US/ASTM lab rating of how well a wall, door, or window blocks airborne sound	Higher
Rw	Weighted Sound Reduction Index	ISO/European lab equivalent of STC; not directly interchangeable but serves the same purpose	Higher
FIIC	Field Impact Insulation Class	Field-measured rating of impact sound insulation (e.g. footfall) for a floor/ceiling assembly	Higher
NRC	Noise Reduction Coefficient	Single-number average of a material's sound absorption at 250, 500, 1000, and 2000 Hz	Higher
CAC	Ceiling Attenuation Class	Rates how well a suspended ceiling prevents sound from traveling between rooms through a shared plenum	Higher

1. Executive Summary

This Acoustic Design Report presents a comprehensive evaluation and specification of the acoustic performance for the One-Day Surgery Government Hospital in Akkar, Lebanon. The report is structured to meet the stringent requirements of the Council for Development and Reconstruction (CDR), the Lebanese Ministry of Public Health, the norms and the specialist ensuring a submission-ready tender document.

The design establishes a healing environment that prioritizes patient privacy, speech confidentiality, and optimal medical equipment performance while complying with local and international healthcare standards. The evaluation covers the basement, ground floor, and first floor, addressing airborne sound insulation, building services noise, and vibration control. The design incorporates international best practice and compliance with key standards including the International Health Facility Guidelines (iHFG), HTM 08-01, ISO 717-1, ISO 16283, ISO 10140, EN 12354, ISO 3382, WHO Environmental Noise Guidelines, FGI Guidelines, and IFC/World Bank EHS Guidelines.

2. Project Description

The One-Day Surgery Government Hospital in Akkar is a new multi-story healthcare facility designed to provide high-quality surgical and outpatient services to the local population. The architectural layout follows the approved organigram by CDR and MOH after reviewed drawings, organizing the hospital over three primary levels:

- **Basement:** High-noise and technical areas including Radiology (including CT scan, Fluoroscopy, General X-Ray, Ultrasound and Mammography), General Laboratory, Morgue, Laundry, and Technical Departments (Boilers, Pumps, Waste, Kitchen).
- **Ground Floor:** High-traffic clinical areas including the Main Hall, Waiting Areas, Admission and Billing Department, Administration, Outpatient Department (Consultation and Examination), Emergency Department, and Technical Area (Generators and Transformers).
- **First Floor:** Highly sensitive clinical areas including the Operating Department (Operating Rooms 1 & 2, Scrub Up), Pharmacy, Pre-op, Recovery, Day Surgery Ward, Labor/Delivery, Nursery, CSSD, and 14-Bed Patient Wards.

3. Scope of Work

The scope of this comprehensive acoustic evaluation includes:

- Review of architectural and structural layouts for acoustic implications, including site plans detailing vehicle flow and ambulance parking.
- Assessment of external environmental noise, vehicular noise, and façade performance.
- Specification of internal partition constructions, wall and door schedules, and required laboratory R_W values for all critical adjacencies.
- Recommendations for suspended ceilings, floors, and finishes to achieve required absorption, reverberation time control, and impact insulation.
- HVAC, mechanical, and electrical services noise and vibration control measures, including duct silencers, acoustic lining, flexible connectors, vibration isolation, equipment inertia bases, and NC/NR targets.
- Acoustic engineering calculations estimating composite R_w, room reverberation times, transmission loss, and flanking transmission considerations.
- Provision of an acoustic compliance matrix against international and Lebanese standards.

4. Reference Standards & Design Criteria

The acoustic design and criteria are based on the latest editions of the following standards and guidelines:

- iHFG: International Health Facility Guidelines (Part G: Acoustics, October 2025)
- HTM 08-01: Acoustics (NHS England, 2024 update)
- ISO 717-1:2020: Rating of sound insulation in buildings and of building elements
- ISO 16283: Field measurement of sound insulation in buildings
- ISO 10140: Laboratory measurement of sound insulation of building elements
- EN 12354: Prediction of acoustic performance of buildings from element performance
- ISO 3382: Measurement of room acoustic parameters (reverberation time)
- WHO: Environmental Noise Guidelines for the European Region (2019)
- FGI: Guidelines for Design and Construction of Hospitals (2022)
- IFC/World Bank: Environmental, Health and Safety Guidelines (Environmental Noise Management)
- Lebanese National Regulations: LIBNOR, Ministry of Public Health standards.

4.1 General Acoustic Objectives

- Patient privacy and speech confidentiality: Prevent overhearing of confidential conversations in consultation, examination, and ward areas.
- Noise control: Minimize intrusion of external and internal noise sources into sensitive spaces.
- Staff comfort and wellbeing: Provide a calm environment for staff concentration and communication.
- Medical equipment performance: Ensure noise and vibration do not interfere with

sensitive equipment (e.g., CT Scanners).
- Environmental noise protection: Limit noise emissions to the surrounding community (≤50 dB(A) daytime and ≤40 dB(A) night at residential boundaries).

5. Building Construction

5.1 External Envelope

The architectural configurations assessed for the building envelope are as follows:

- External Walls: Double masonry wall comprising a 200 mm solid block wall, a 50 mm air cavity, and a 100 mm block wall (Total wall thickness = 350 mm). For example: The laboratory R_w is estimated at 60–65 dB.
- Windows: Double-glazed aluminum windows, with typical R_w of 31–40 dB for a standard insulated glass unit (IGU).
- Roof: Concrete slab with insulation and waterproofing; R_w 50–55 dB typical.

5.2 Internal Partitions

- Masonry: 150-200 mm blockwork with render (estimated R_w 50–55 dB).

6. External Noise Assessment & Façade Acoustic Performance

6.1 Environmental Noise Survey & WHO Guidelines

Based on the site layout and ambulance routing, the building envelope must attenuate external environmental and vehicular noise. For Akkar, typical rural to peri-urban background levels are expected to be 45–55 dB(A) daytime and 35–45 dB(A) nighttime.

6.2 Façade Sound Insulation & Composite R_w Calculation

The composite façade sound insulation is determined by the weakest element (typically double-glazed windows and stone cladding). The overall sound reduction index ($R_{w,comp}$) is calculated using area-weighted summation per EN 12354-3:

$$R_{w,comp} = -10 \log_{10} (\Sigma (S_i \times 10^{-R_{w,i}/10}) / S_{tot})$$

The proposed 350 mm double masonry wall (isolated cavity, mass law dictates structural R_w > 60 dB) is highly effective against low-frequency traffic noise. Standard double-glazed aluminum windows act as the acoustic weak point (R_w 31–35 dB). Assuming a glazed area of 20% of the façade, the composite R_w will be approximately 40–45 dB, sufficient to meet the strict internal criteria. For noise-sensitive areas facing the main road or ambulance bay, acoustic laminated glazing is recommended.

7. Internal Acoustic Performance (Airborne & Impact)

7.1 Airborne Sound Insulation

Sound insulation ratings are based on the weighted standardized level difference ($D_{nT,w}$) measured in the field. To transition from the mandated field measurement ($D_{nT,w}$) to the specified laboratory requirement (R_w) for masonry construction, the following empirical calculation is applied per the iHFG appendix:

$$R_w \equiv D_{nT,w} - 10 \log(T/T_r) + 10 \log(S / 0.16V) + 4$$

Where:

- S = common area of separating element (m²)
- V = volume of receiving room (m³)
- T = measured reverberation time
- T_r = reference reverberation time (0.8 seconds)

A simplified equation for masonry walls is: $R_w \equiv D_{nT,w} + 10 \log(S/V) + 11$

Note: For lightweight light weight wall construction, the constant factor changes from 11 to 14 to account for flanking transmission variations. All acoustic walls must extend slab-to-slab to prevent flanking noise through the ceiling void.

7.2 Privacy Categories

- **Confidential:** Normal speech is inaudible (Consulting, Examination). Requires high partition ratings ($D_{nT,w}$ ≥ 47 dB).
- **Private:** Normal speech is audible but not intelligible (Operating Theatres, Labor). ($D_{nT,w}$ ≥ 42 dB).
- **Moderate:** Speech is audible/intelligible but not intrusive (Multi-bed Wards). ($D_{nT,w}$ ≥ 37 dB).

7.3 Impact Sound Insulation

To minimize structure-borne noise, floors over noise-sensitive areas require a maximum field value rating of

$L'_{nT,w}$ ≤ 65 dB. Treatment involves floating screeds, resilient underlays, or cushioned vinyl finishes.

8. Comprehensive Room-by-Room Criteria & Schedules

8.1 Room-by-Room Acoustic Background Noise & Reverberation Criteria

Department / Space Type	Max Background Noise (NC/NR)	Max Reverberation Time (T60)	Ceiling Absorption / Floor Recommendation
Operating Theatres	NC/NR 40	≤ 0.6 seconds	Class C, Washable / Resilient Vinyl
Single/Multi-bed Wards & Recovery	NC/NR 30	0.6 - 0.8 seconds	Class A/B / Cushioned Vinyl
Consultation / Examination Rooms	NC/NR 35	0.6 - 0.8 seconds	Class B/C / Resilient
Emergency / A&E	NC/NR 40	≤ 0.8 seconds	Class B/C / Hard Terrazzo

Laboratories / Pharmacy / Clean Utility	NR 40 (NR 60 with open sash)	0.8 - 1.0 seconds	Class C / Hard Surface
Corridors / Waiting / Nurses Station	NC/NR 40	≤ 1.0 seconds	Class A/B / Carpet or Vinyl
Administration / Offices	NC/NR 35	0.6 - 0.8 seconds	Class A/B / Carpet
Kitchen / Laundry	NC/NR 50	-	-
Plantrooms / Mechanical / Generator	NC/NR 70	N/A	Concrete with Inertia Base

8.2 Wall Partition Schedule

Detailed partition types based on required field $D_{nT,w}$ translated to laboratory R_w values for all critical adjacencies.

Adjacency	Target	Recommended Lab	Construction Description
Operating ↔ Operating	52	≥ 60	Drywall (Double studs, staggered) or Dense Concrete
Operating ↔ Corridor	47	55	Masonry (200mm) or Heavy Drywall
Patient ↔ Patient	42	50 - 52	Drywall with acoustic insulation cavity
Patient ↔ Corridor	42	50	Standard Drywall / Masonry
Patient ↔ Toilet	42	≥ 45 - 50	Blockwork (full height)
Consultation ↔ Consultation	47	52 - 55	Drywall (Double layer board w/ insulation cavity)

Consultation ↔ Corridor	42	45 - 47	Masonry / Drywall
Laboratory ↔ Corridor	37	40	Standard Partition
Mechanical ↔ Occupied Area	57+	60 - 65+	Dense Reinforced Concrete (300mm+) with acoustic lining
Generator ↔ Hospital	-	≥ 65	Dense Reinforced Concrete
Lift Shaft ↔ Patient Areas	52+	55 - 60	Reinforced Concrete / Concrete Block

8.3 Door Schedule

Doors are the weakest link in partition acoustic integrity. To maintain the composite insulation rating, doors must feature continuous perimeter compression seals and automatic drop-down threshold seals.

Door Location	Minimum Rating (Rw)	Construction & Seal Details
Patient Rooms (Single/Multi-bed/ Recovery)	35 dB	54 mm solid core w/ perimeter & undercut seals
Operating Theatres / Laboratories	30 - 40 dB	45 - 59 mm solid core w/ perimeter & head jamb seals (Fire-rated)
Consultation / Examination Rooms	30 dB	45 mm solid core w/ drop-down threshold
Administration / Offices	30 dB	Standard acoustic core
Mechanical / Generator / Plantroom	45 dB	69 mm steel acoustic door with double perimeter seals

8.4 Suspended Ceiling Recommendations

Acoustically absorbent ceilings are critical for controlling reverberation. Absorptive

materials must have a minimum absorption area equivalent to a Class C absorber covering at least 80% of the floor area.

Area	NRC	CAC	Fire Rating / Moisture Resistance	Suitability
Patient Rooms, Wards, Corridors	≥ 0.70 - 0.85	≥ 35 - 40	Class A (1 hr) / Standard	Healthcare Grade
Operating Theatres, Labs	≥ 0.60 - 0.90	≥ 35 - 40	Class A (1 hr) / High	Washable / ISO Class 5, Moisture-resistant
Wet Areas, Toilets, Kitchens, Laundry	≥ 0.60 - 0.80	≥ 35	Class A (1 hr) / 100% RH	Healthcare Grade, Cleanable

8.5 Tiles and Floor Covering

Based on the concrete thickness of the typical slab, as it is designed, to reach FIIC ≥50, the slab of more than 350mm solid core and the tiles cover of 100mm satisfy the above-mentioned requirement.

9. Building Services Noise & Vibration Control

9.1 HVAC Noise Assessment

HVAC noise within rooms must be free of tonal hums, throbbing, or pulsing. The duct aerodynamic design must adhere to specific velocity limits:

- **NC 30 Areas (Patient Wards):** Maximum main velocity = 5 m/s; branch velocity = 3.8 m/s.
- **NC 40 Areas (ORs, Emergency):** Maximum main velocity = 8.6 m/s; branch velocity = 6.5 m/s.
- **Duct Silencers:** Specified for all main supply and extract ducts to sensitive spaces. Ensure silencer pressure drop does not exceed 55 Pa generally, and 40 Pa for higher performance.
- **Acoustic Lining & Cross-Talk:** 25–50 mm mineral wool lining. Cross-talk attenuation is required for all ductwork connecting "Confidential" or "Private" rooms (e.g., adjacent Consultation rooms) using internally lined flexible ducts or proprietary

baffles.
- **Grilles and Diffusers (GRDs):** Selected for NC/NR 20 or lower at design airflow.

9.2 Generator, Mechanical Equipment & Vibration Isolation

- **Plantrooms:** Ventilation fans should not exceed NC/NR 70 or 75 dB L_{Aeq} at 1 meter. Acoustic enclosures and acoustically rated ventilation louvres are required.
- **Generators:** Acoustic enclosures with composite wall/roof R_w ≥ 45 dB. Each engine-generator must be bolted to a separate sub-frame with resilient mountings and skid vibration isolators (minimum 50 mm static deflection) mounted on a 100 mm thick housekeeping pad.
- **Air Handling Units (AHUs) & Fans:** Install on double deflection neoprene mounts (minimum 10 mm static deflection). Flexible connectors must be used at all fan and AHU connections. The first five supports for ductwork on either side of the vibration source must have vibration isolators.
- **Pumps:** Base-mounted pumps ≥ 1.1 kW must be bolted to prefabricated concrete inertia bases weighing not less than 1.5 times the combined weight of the fluid-filled pump and motor.
- **Medical Equipment:** MRI, CT, Audiology should be located away from vibration sources; floating floors or room-in-room construction used as required to meet VC-A/VC-B vibration criteria.
- **Pipe Isolation:** Flexible pipe connectors (reinforced rubber or corrugated metal), resilient inserts, neoprene hangers, and spring hangers must be used adjacent to acoustically sensitive space.

Hospitals require strict noise control (typically NC 25 - 30) to aid patient recovery and ensure speech privacy. When AHUs and FCUs are installed above false ceilings, they act as primary noise sources via vibration and breakout. Valid mitigation strategies include equipment decoupling, acoustic lining, and sound-attenuating ceilings.

9.3 Vibration Isolation

- **Spring Hangers:** Suspend all AHUs and FCUs from the concrete slab using heavy-duty, spring-type vibration isolators to prevent mechanical noise from transferring into the ceiling grid.
- **Flexible Connections:** Use flexible canvas/rubber duct connectors between the equipment and the main rigid ductwork to stop vibration transmission.
- **Inertia Bases:** Where possible, install lightweight inertia bases or rubber pad mounts directly beneath the AHU/FCU chassis.

9.4 Ductwork & Airflow Attenuation

- **Acoustic Lining & Attenuators:** Install lined acoustic ductwork or rigid rectangular duct silencers (attenuators) on the supply and return air paths to absorb fan hum and rumble.
- **Acoustic Flexible Ducting:** Utilize minimum 1 m to 1.5 m lengths of acoustic flexible duct for the final diffuser drops to dissipate turbulent air noise.

- **Velocity Reduction:** Keep duct air velocities below 3 m/s to prevent roaring and whistling sounds.

9.5 Casing & Plenum Noise Control

- **Casing Insulation:** Wrap the sheet metal casings of AHUs/FCUs with high-density acoustic lagging (mass-loaded vinyl combined with foam) to reduce breakout noise into the plenum.
- **Plenum Barriers (Sound Baffles):** Build mineral-wool acoustic barriers (e.g., Autex Baffleblock) directly in the ceiling plenum above partition walls. This stops sound from flanking over the walls and disrupting privacy in adjacent exam or patient rooms.
- **Return Air Positioning:** Avoid placing return air grilles directly underneath the FCU inlet. Route the return air path using lined plenums to force sound through an absorption baffle rather than an open grille.

9.6 False Ceiling & Room Solutions

- **High-Mass Tiles:** Use high NRC (Noise Reduction Coefficient) and STC (Sound Transmission Class) rated ceiling tiles. Perforated metal tiles with acoustic rockwool backing provide both excellent sound absorption and the hygienic, cleanable properties required for hospitals.
- **Edge Sealing:** Ensure the false ceiling is sealed tightly at the perimeter and avoid resting ceiling supports directly on the A/C pipes to prevent mechanical buzzing.

9.7 Air Outlets & Terminal Units

Air outlets (diffusers, grilles, and linear slots) are the final point of delivery for conditioned air. Because they sit directly inside patient and clinical spaces, any noise generated here cannot be attenuated by upstream duct lining.

10. Compliance Matrix

Requirement	Standard / Target	Design Solution / Compliance
External noise ingress (wards)	≤ 40 dB L_{Aeq}, 1hr daytime	Double masonry wall + double glazing; composite R_w ≥ 45 dB
Internal background noise (wards)	NC/NR 30	HVAC design, low-velocity ducting, duct silencers, acoustic ceiling
Airborne insulation (Consulting to Corridor)	$D_{nT,w}$ ≥ 47 dB	Partition R_w 52 dB, sealed door R_w 30 dB
Impact insulation (Floors over wards)	$L'_{nT,w}$ ≤ 65 dB	Floating screed / resilient underlay

Reverberation time (Operating Theatres)	T60 ≤ 0.6 s	NRC ≥ 0.60 washable ceiling, Class C absorbers
Plantroom noise to occupied space	$D_{nT,w}$ ≥ 60 dB	R_w 65+ dB partition, acoustic door R_w 45 dB
Generator boundary noise	≤ 50 dB(A) night	Acoustic enclosure, louvres, 50 mm static deflection vibration isolation
Building services noise (ORs)	NC/NR 40	Duct silencers, low-velocity design, vibration isolation

11. Conclusions

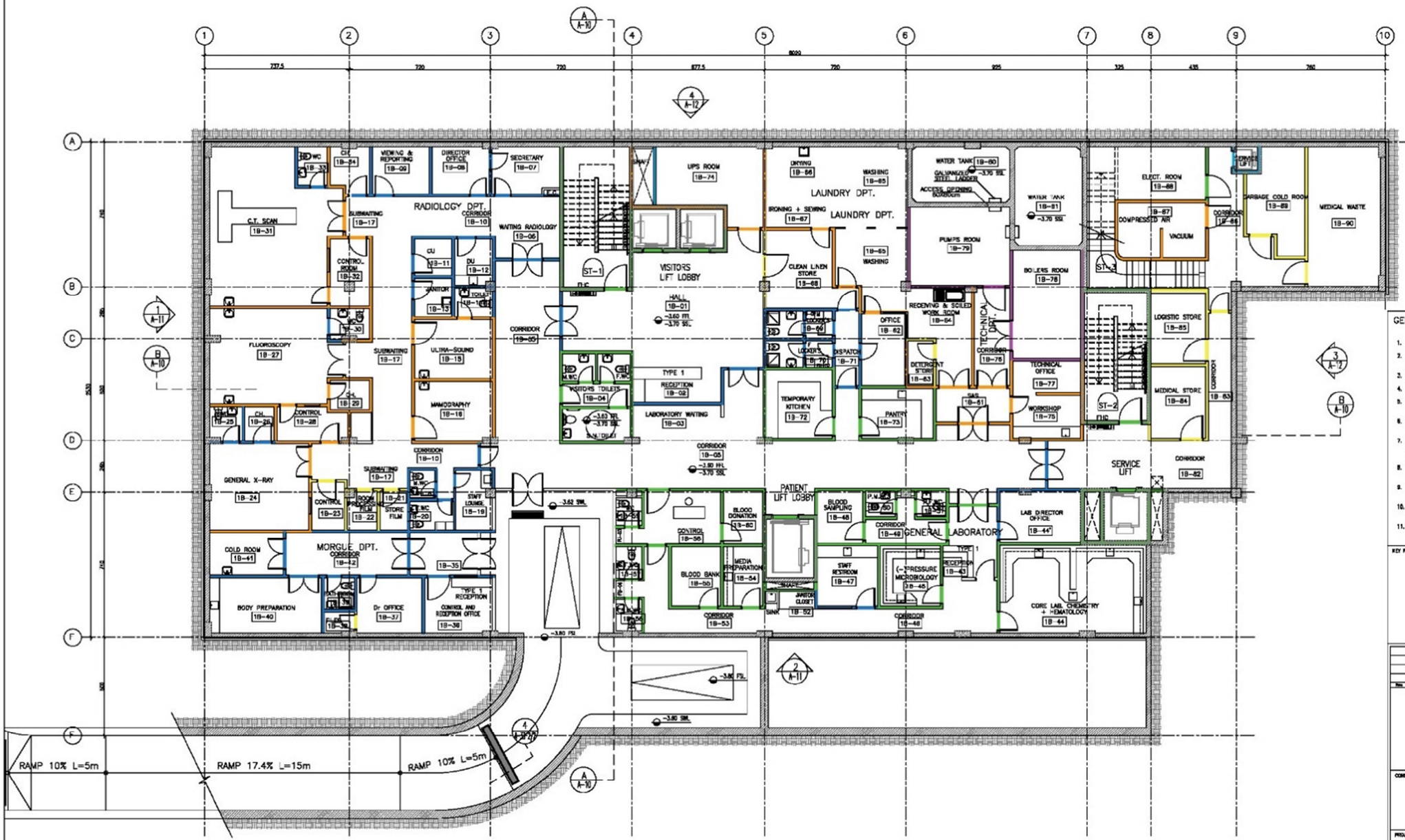
The acoustic design strategy for the One-Day Surgery Government Hospital in Akkar integrates stringent architectural acoustics, mechanical noise mitigation, and vibration isolation to establish a compliant healing environment. Developed in accordance with international best practice (iHFG Part G, HTM 08-01, WHO guidelines) and Lebanese regulatory requirements, the specified constructions, wall and door schedules, suspended ceiling recommendations, and HVAC noise control measures provide a robust framework for tendering and construction.

To achieve the necessary sound transmission loss for all spaces requiring an Acoustic Rating of R_w **≥ 50**, the use of high-density **solid masonry** construction is required to ensure adequate airborne noise attenuation.

Strict implementation of the partition schedule—particularly ensuring all masonry partitions seal completely against the structural slab soffit for flanking control—alongside the specified mechanical vibration isolation, will guarantee compliance with CDR mandates. Field testing and commissioning (per ISO 16283 and ISO 3382) remain essential prior to handover to verify that the facility delivers a high-quality acoustic environment ensuring speech confidentiality, operational efficiency, and community noise protection.

12. Appendices

Appendix A: Acoustic Drawings (Basement, Ground & First Floor Plans



LEGEND:

- Rw 35
- Rw 40
- Rw 45
- Rw 50
- Rw 55
- Rw 60

GENERAL NOTES

1. ALL DIMENSIONS ARE IN CENTIMETERS , LEVELS ARE IN METERS .
2. ALL MATERIAL AND EQUIPMENT SHALL TAKE THE PRIOR APPROVAL OF THE CLIENT BEFORE CONSTRUCTION
3. DO NOT SCALE DWGS. ONLY FIGURED DIMENSIONS MUST BE CONSIDERED
4. FOR SYMBOLS & ABBREVIATIONS REFER TO DWG A-01
5. ALL ARCHITECTURAL DWGS MUST BE READ IN CONJUNCTION WITH STRUCTURAL & ELECTRO-MECHANICAL DWGS
6. ALL DIMENSIONS MUST BE VERIFIED BY THE CONTRACTOR BEFORE PREPARATION OF SHOP DRAWINGS
7. THE CONTRACTOR SHALL SUBMIT THE SHOP DRAWING AS PER ACTUAL SITE MEASUREMENTS FOR APPROVAL, BEFORE COMMENCING THE WORK/FABRICATION ON SITE.
8. THE CONTRACTOR MUST INFORM THE ARCHITECTURE ENGINEER ABOUT ANY CONTRADICTION OF ANY KIND BEFORE BEGINNING OF CONSTRUCTION
9. FINISH FLOOR ELEVATIONS AND FINISH CEILING HEIGHTS ARE INDICATED ON THE FLOOR AND REFLECTED CEILING PLANS RESPECTIVELY
10. FINISHING TREATMENT OF FLOORS , WALLS AND CEILINGS AS PER SCHEDULE OF FINISHES
11. DATUM LEVEL +897.20 EQUAL TO +0.00 BUILDING PROJECT LEVEL

KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSULTANT:

ETEC
Established in 1968 - C.R. 19013
P.O.BOX 11-4676 BEIRUT-LEBANON
Tel: 961/1/294304/8 Fax: 1/297747
E-mail : etecmail@cyberia.net.lb
WEB SITE: WWW.etecmail.com

PROJECT:

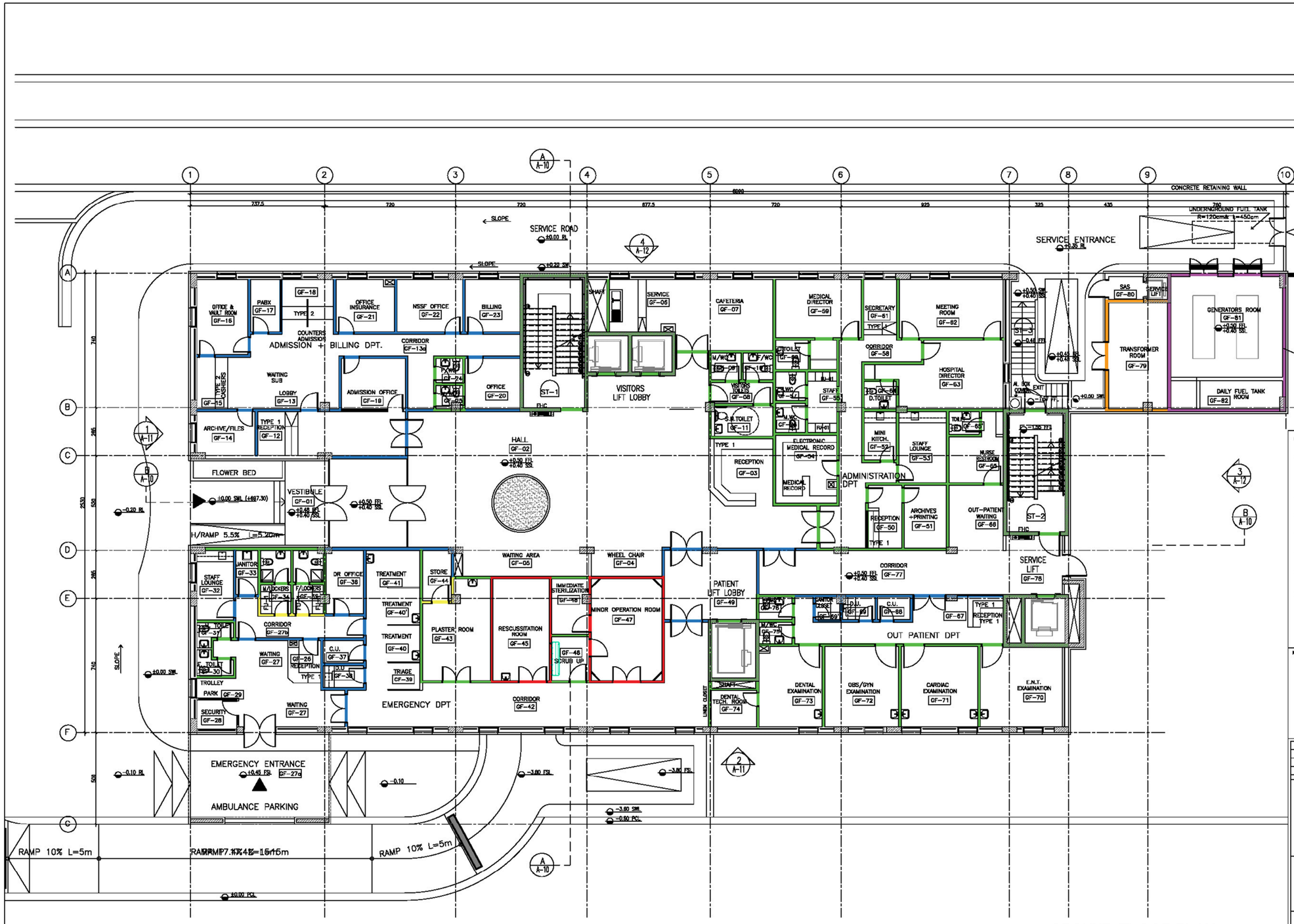
AKKAR BAHLEH GOVERNMENTAL HOSPITAL
PRELIMINARY DETAILED DRAWINGS
PHASE 4

TITLE:

FIRST BASEMENT - ACOUSTIC DRAWING

DRAWN BY:	R.F.	JULY 2025		FILE:	ASCH-A44
CHECKED BY:	F.T.	JULY 2025		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2025		SCALE:	1/100
DRAWING NO.:	A44			REVISION	00

FIRST BASEMENT PLAN
ACOUSTIC DRAWING



GENERAL NOTES

1. ALL DIMENSIONS ARE IN CENTIMETERS , LEVELS ARE IN METERS .
2. ALL MATERIAL AND EQUIPMENT SHALL TAKE THE PRIOR APPROVAL OF THE CLIENT BEFORE CONSTRUCTION
3. DO NOT SCALE DWGS. ONLY FIGURED DIMENSIONS MUST BE CONSIDERED
4. FOR SYMBOLS & ABBREVATIONS REFER TO DWG A-01
5. ALL ARCHITECTURAL DWGS MUST BE READ IN CONJUNCTION WITH STRUCTURAL & ELECTRO-MECHANICAL DWGS
6. ALL DIMENSIONS MUST BE VERIFIED BY THE CONTRACTOR BEFORE PREPARATION OF SHOP DRAWINGS
7. THE CONTRACTOR SHALL SUBMIT THE SHOP DRAWING AS PER ACTUAL SITE MEASUREMENTS FOR APPROVAL, BEFORE COMMENCING THE WORK/FABRICATION ON SITE.
8. THE CONTRACTOR MUST INFORM THE ARCHITECTURE ENGINEER ABOUT ANY CONTRADICTION OF ANY KIND BEFORE BEGINNING OF CONSTRUCTION
9. FINISH FLOOR ELEVATIONS AND FINISH CEILING HEIGHTS ARE INDICATED ON THE FLOOR AND REFLECTED CEILING PLANS RESPECTIVELY
10. FINISHING TREATMENT OF FLOORS , WALLS AND CEILINGS AS PER SCHEDULE OF FINISHES
11. DATUM LEVEL +897.30 EQUAL TO ±0.00 BUILDING PROJECT LEVEL

KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSULTANT:

ETEC
Established in 1965 - C.R. 16013
P.O.BOX 11-6079 BEIRUT-LEBANON
Tel: 951/1/354304/5 Fax: 1/357747
E-mail : etecsal@cyberia.net.lb
WEB SITE: WWW. etecsal.com

PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
PRELIMINARY DETAILED DRAWINGS
PHASE 4

TITLE:

GROUND FLOOR PLAN - ACOUSTIC DRAWING

	Name	Date	Signature		
DRAWN BY:	R.F.	JULY 2025		FILE:	ASGH-A45
CHECKED BY:	F.T.	JULY 2025		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2025		SCALE:	1/100
DRAWING NO.:	A45			REVISION	00

GROUND FLOOR PLAN
ACOUSTIC DRAWING