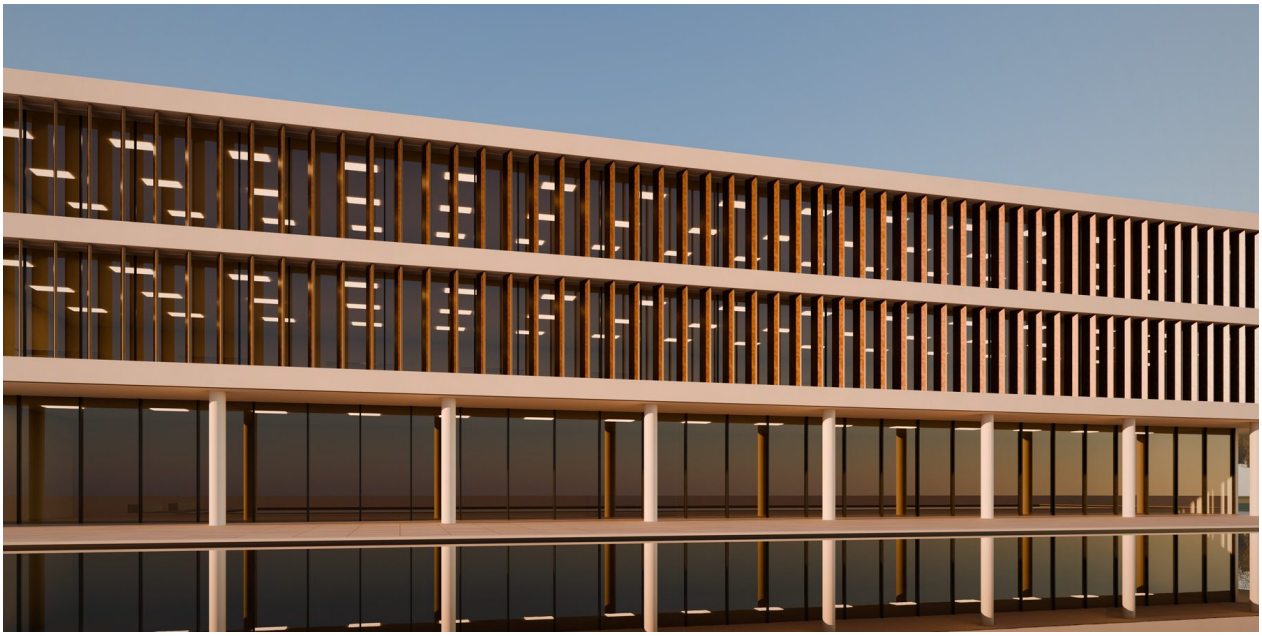
HÔPITAL DE MONTVALLIER

DRAFT · NOT FOR PUBLICATION
internal review until 30.10.2026

Ville de Montvallier · Hôpital de Montvallier · Direction technique



Renewal of the heating, ventilation and air-conditioning installations of the surgical wing (Building B)

Renouvellement des installations CVC de l'aile chirurgicale (bâtiment B)

Tender documents — Lot 3 HVAC: conditions, technical specification, bill of quantities and offer form

Tender reference	HdM-2026-CVC-03 (open procedure, public procurement)
Contracting authority	Ville de Montvallier, represented by the Hôpital de Montvallier, Direction technique
Engineer	Lehmann Vuille Ingénierie CVS SA, Avenue de Cour 112, 1007 Lausanne
Document status	DRAFT v0.9 for internal review — tracked changes and comments shown
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Review note. This draft is circulated to the members of the project committee with change tracking switched on. Changes by the hospital (Claire Rochat) and by the engineer (Marc Dubey-Lenoir) are shown in colour with their author and date; comments in the margin indicate points to be settled at the committee meeting of 30 October 2026. The published version will be issued without changes, comments or the engineer's cost estimate (Art. 6, conditional section).

(Dispositions générales)

1.1 Contracting authority *(Pouvoir adjudicateur)*

The contracting authority is the Ville de Montvallier, Place de l'Hôtel-de-Ville 1, Montvallier, represented by the Direction technique of the Hôpital de Montvallier (hereinafter “the hospital”). The hospital has appointed Lehmann

Vuille Ingénierie CVS SA as engineer for the design, the tender procedure and the supervision of the works (hereinafter “the engineer”).

1.2 Subject of the tender *(Objet du marché)*

The tender covers the complete renewal of the heating, ventilation and air-conditioning installations of the surgical wing (Building B, levels +1 to +4), comprising six operating theatres, the intensive care unit, the recovery room and the sterile services department. The works include the supply, installation, commissioning and validation of four air-handling units, the air distribution, the heat and cold generation for the wing, the controls and their integration into the hospital building management system (BMS), as detailed in 3 and 4.

1.3 Procedure *(Procédure)*

The contract is awarded in an open procedure according to the intercantonal agreement on public procurement and the cantonal implementing law. The procedure is subject to the international agreements on public procurement. Variants are admitted only in addition to an offer for the official solution and must be presented separately (9.1).[1]

1.4 Schedule *(Calendrier)*

Step	Date	Remarks
Publication of the call for tenders	2 November 2026	official gazette and procurement platform
Site visit (compulsory)	17 November 2026, 10:00	meeting point: main entrance Building B
Deadline for written questions	24 November 2026	by e-mail, see 1.7
Publication of answers	1 December 2026	to all registered bidders
Deadline for submission of offers	~~8 December 2026~~15 December 2026, 12:00	receipt at the hospital, not postmark
Opening of offers	15 December 2026, 14:00	not public; minutes sent to bidders
Award decision (planned)	February 2027	
Start of works on site	June 2027	phase 1, see 5
Completion of all phases	October 2028	including validation of the operating theatres

Table 1 *Schedule of the tender procedure and of the works.*

1.5 Language, currency and validity *(Langue, monnaie et validité)*

The procedure is conducted in French; offers may be submitted in French or German. Technical documents of manufacturers are accepted in English. Prices are stated in Swiss francs (CHF), excluding VAT, with VAT shown separately. Offers remain binding for nine~~six~~ months after the deadline for submission.

1.6 Site visit and questions *(Visite des lieux et questions)*

Participation in the site visit is compulsory; bidders who do not attend are excluded. Questions must be sent in writing to marches.cvc@hopital-montvallier.ch before the deadline given in 1. Questions and answers are published anonymously to all bidders.

1.7 Tender dossier *(Dossier d'appel d'offres)*

The tender dossier consists of the parts listed below. Only the documents marked “to be returned” form part of the offer; the others remain with the bidder.

Part	Content	Format	To be returned
A	Conditions of the procedure and of the contract (Art. 1, 2, 7 – 10 of this document)	PDF	no
B	Technical specification (Art. 3 – 5) with annexes B and C	PDF	no
C	Bill of quantities (Art. 6), editable version	XLSX / PDF	yes, priced

[1] Partial offers for individual sub-lots are not admitted. The hospital reserves the right to award the optional items of group 4 separately.

Part	Content	Format	To be returned
D	Offer form, guaranteed values, references and declarations (Annex A)	PDF, form	yes, signed
E	Documents D1 to D7 (Art. 3.4)	PDF, DWG, CSV	no

Table 2 *Parts of the tender dossier.*

1.8 Confidentiality and data protection *(Confidentialité et protection des données)*

The tender documents may only be used for the preparation of the offer. Plans of the hospital, in particular those of the operating suite and the technical rooms, are confidential and must be returned or destroyed after the procedure. Personal data contained in the offers are processed only for the purposes of the procedure and are kept for ten years in accordance with the cantonal archives law.

1.9 Legal remedies *(Voies de droit)*

The call for tenders, the exclusion of a bidder and the award decision may be appealed within ten days of notification to the cantonal administrative court. An appeal has no suspensive effect unless the court decides otherwise. Appeals concerning the tender documents must be lodged within ten days of their publication.

(Conditions de participation)

2.1 Eligibility *(Qualité pour soumissionner)*

Any company established in Switzerland or in a state party to the international agreements on public procurement may submit an offer, provided that it complies with the provisions on occupational safety, working conditions, equal pay for women and men and environmental protection applicable at the place of performance.

2.2 Suitability criteria *(Critères d'aptitude)*

The bidder must meet all of the following criteria; offers that do not meet one of them are excluded without further examination.

No.	Criterion	Evidence
C1	At least ~~two~~three references for HVAC installations in operating theatres in the last ten years, each with a contract value above CHF 1.5 m	Reference forms signed by the clients
C2	Average annual turnover of at least CHF 12 m in the last three financial years	Audited accounts or bank confirmation
C3	Quality management system certified to ISO 9001	Valid certificate
C4	Project manager with at least 8 years of experience in hospital HVAC	CV and reference projects
C5	Site manager present full-time during the works, French-speaking	CV, declaration
C6	Insurance cover for third-party liability of at least CHF 10 m per event	Insurance certificate

Table 3 *Suitability criteria and evidence to be enclosed with the offer.*

2.3 Consortia and subcontracting *(Communautés de soumissionnaires et sous-traitance)*

Consortia are admitted; one member must be designated as lead partner and is jointly and severally liable. Subcontracting is admitted up to 40 % of the contract value, except for the air-handling units and the controls, which must be supplied and commissioned by the bidder itself or by a consortium member. All subcontractors must be named in the offer form (Annex A).

2.4 Grounds for exclusion *(Motifs d'exclusion)*

a) the bidder has not paid social security contributions or taxes that are due;

b) the bidder has entered into agreements that restrict effective competition;

c) the offer is incomplete, late, or does not meet the suitability criteria of 2.2;

d) the bidder did not attend the compulsory site visit (1.7).

3 Existing installations and scope of works *(Installations existantes et étendue des travaux)*

3.1 Building *(Bâtiment)*

Building B was built in 1994 and extended in 2009. It houses the operating suite on level +2 (operating theatres OP 1 to OP 6 with anterooms, a clean corridor and a recovery room with 14 beds), the intensive care unit on level +3 (16 beds, of which 4 isolation rooms) and the sterile services department on level +1. The plant room on level +4 contains the four existing air-handling units and the distribution headers for heating and chilled water.



Figure *1 Clean corridor of the existing operating suite (level +2).*

The operating suite must remain in service throughout the works; at most one theatre may be out of service at the same time, and never two adjacent ones. The hospital operates around the clock; emergency surgery is performed in OP 6, which must remain available at all times except during phase 3 (see 5).

3.2 Existing installations *(Installations existantes)*

The existing air-handling units AHU-B1 to AHU-B4 date from 1994. They have reached the end of their service life: casings are corroded, the run-around heat recovery has an efficiency of only 45 %, and the humidifiers no longer meet current hygiene requirements. The pneumatic controls of 1994 were partly replaced by electronic controllers in 2009 but are not connected to the BMS.

3.3 Scope of works *(Étendue des travaux)*

- dismantling and disposal of the existing AHUs, ductwork and controls in the areas concerned;
- four new hygienic air-handling units with rotary heat recovery and steam humidification;
- new air distribution with VAV control, fire dampers and terminal HEPA filters;
- six laminar airflow ceilings for the operating theatres;
- two air-to-water heat pumps/chillers with heat recovery for domestic hot water;
- controls, field devices and BMS integration; commissioning and validation;
- temporary measures to keep the operating suite in service during the works.

3.4 Documents available to bidders *(Documents mis à disposition)*

The following documents can be downloaded from the procurement platform after registration; paper copies of the plans are available for consultation at the Direction technique.

Ref.	Document	Format
D1	Floor plans levels +1 to +4, Building B, scale 1:100 (2024 survey)	PDF, DWG
D2	Schematics of the existing air-handling units AHU-B1 to AHU-B4	PDF
D3	Duct routing plans, levels +1 to +4	PDF, DWG
D4	Energy monitoring data of the wing, 2022 – 2025 (15-minute values)	CSV
D5	Hygiene report on the existing installations, March 2026	PDF
D6	Structural assessment of the plant room slab for the new units	PDF
D7	Fire protection concept of Building B, revision 2025	PDF

Table 4 *Documents made available to the bidders.*

3.5 Interfaces with other lots *(Interfaces avec les autres lots)*

The works of Lot 3 are carried out together with four other lots awarded separately. The responsibilities at the interfaces are defined in 5; the coordination of the lots is the task of the general site management appointed by the hos-

pital.

Lot	Contractor's scope	Interface with Lot 3
1 Building works	Openings, plinths, ceilings, dust barriers of the building	Lot 3 supplies the position plans of openings and loads; Lot 1 executes
2 Electrical installations	Power supply to control panels, lighting, earthing	Lot 2 supplies up to the main switch of each control panel
4 Sanitary installations	Domestic hot water, reverse-osmosis supply, drains	Lot 3 connects humidifiers and the heat recovery to the points provided by Lot 4
5 Medical gases	Anaesthetic gas scavenging in the operating theatres	Lot 3 provides the extract volume flows and the interlocks

Table 5 *Interfaces between Lot 3 and the other lots.*

(Exigences techniques)

4.1 Design conditions *(Conditions de dimensionnement)*

The installations shall be designed for the room conditions of 6. The room classes follow the Swiss guideline SWKI VA105-01 for ventilation in medically used rooms. Outdoor design conditions are -10 °C in winter and 32 °C / 40 % relative humidity in summer.

Area	Room class	Temperature	Relative humidity	Air flow	Pressure	Final filter
Operating theatres OP 1–6	1a	18–26 °C	30–60 %	LAF ≥ 0.23 m/s	+15 Pa	H13
Anterooms, clean corridor	1b	20–24 °C	30–60 %	≥ 10 /h	+10 Pa	ePM1 80 %
Recovery room	2	22–24 °C	30–60 %	≥ 6 /h	+5 Pa	ePM1 80 %
Intensive care unit	2	22–26 °C	30–60 %	≥ 6 /h	±0 Pa	ePM1 80 %
ICU isolation rooms	1b	22–26 °C	30–60 %	≥ 12 /h	−10 / +10 Pa	H13
Sterile services, clean zone	2	20–24 °C	30–60 %	≥ 8 /h	+10 Pa	ePM1 80 %
Sterile services, dirty zone	3	20–26 °C	—	≥ 8 /h	−10 Pa	ePM1 50 %

Table 6 *Design conditions by area (pressures relative to the adjacent corridor).*

4.2 Air-handling units *(Monoblocs de traitement d'air)*

The air-handling units shall be of hygienic design according to EN 13053 and VDI 6022, with stainless steel drain pans, smooth inner surfaces and inspection doors with windows on both sides of each component. The requirements for each unit are listed in 7; the schematic of AHU-B2 is shown in Figure 3 (Annex B).

Unit	Serves	Supply air (m³/h)	Heat recovery	SFP (W/(m³/s))	Sound power (dB(A))
AHU-B1	OP 1–3 with anterooms	24,000	rotary, ≥ ~~70 %~~75 %	1,650	72
AHU-B2	OP 4–6 with anterooms	24,000	rotary, ≥ 75 %	1,650	72
AHU-B3	ICU, recovery room	18,500	rotary, ≥ 75 %	1,500	70
AHU-B4	Sterile services	12,000	plate, ≥ 70 %	1,400	68
Total		**78,500**			

Table 7 *Main requirements for the air-handling units (total supply air computed in the table).*

4.2.1 Filters *(Filtres)*

Filter classes are specified according to ISO 16890 (ePM1, ePM10) for coarse and fine filters and EN 1822 for HEPA filters. Each filter stage shall be equipped with a differential pressure transmitter connected to the BMS, with alarm at the final pressure drop recommended by the manufacturer.

4.2.2 Construction of the units *(Construction des monoblocs)*

Component	Requirement
Casing (EN 1886)	Mechanical strength D1, air leakage L1, filter bypass F9, thermal transmittance T2, thermal bridging TB2
Inner surfaces	Stainless steel 1.4301 or powder-coated, smooth, without exposed insulation
Drain pans	Stainless steel 1.4301, sloped in two directions, with siphon and dry-running protection
Fans	EC fan walls, two fans per unit for AHU-B1 and AHU-B2 (n-1 redundancy at 70 % flow)
Coils	Copper tubes, aluminium fins with epoxy coating, fin spacing ≥ 2.5 mm, removable
Humidifiers	Steam, hygienically designed lance, absorption distance ≤ 0.9 m
Dampers	Tightness class 4 (EN 1751), with position feedback
Access	Doors with inspection windows and interior lighting in every section
Vibration	Fans on spring isolators; flexible connections to the ductwork

Table 8 *Construction requirements for all air-handling units.*

4.3 Operating theatre ceilings *(Plafonds des salles d'opération)*

Each operating theatre shall be equipped with a laminar airflow ceiling of at least 3.2 × 3.2 m with integrated H13 filters, an air velocity of 0.23 to 0.25 m/s at 2.0 m above the floor and a protected zone covering the operating table and the instrument tables. The recovery time from 100 to 1 % of the particle concentration shall not exceed 10 minutes in the room and 2 minutes in the protected zone (4.8).

4.4 Heat and cold generation *(Production de chaleur et de froid)*

Two reversible air-to-water heat pumps of 420 kW cooling capacity each, with a refrigerant of global warming potential below 150, shall supply chilled water at 8/14 °C and low-temperature heating water at 55/40 °C. The condenser heat shall be recovered for the preheating of domestic hot water. Redundancy: one unit shall cover 70 % of the design cooling load of the operating suite.

Unit	Heating coil (kW)	Cooling coil (kW)	Humidifier (kg/h)	Heat recovery (kW, winter)
AHU-B1	168	196	45	214
AHU-B2	168	196	45	214
AHU-B3	124	142	34	165
AHU-B4	86	92	0	96
Total	**546**	**626**	**124**	**689**

Table 9 *Design capacities of the coils, humidifiers and heat recovery (totals computed in the table).*

4.5 Controls and building management *(Régulation et gestion technique)*

The controls shall be based on freely programmable automation stations communicating with the hospital BMS via BACnet/IP. All operating theatres shall have a room control panel showing temperature, humidity, pressure difference and LAF status, with a switch for the reduced night mode. Alarms with patient-safety relevance shall be transmitted to the technical on-call service within 30 seconds.

4.5.1 Data points *(Points de données)*

The minimum data points per air-handling unit are listed in 10. All analogue values are trended every minute and stored for three years in the BMS.

Data point	Type	Signal	Alarm	Trend
Supply air temperature	AI	Pt1000	high / low	yes
Supply air humidity	AI	0–10 V	high / low	yes
Extract air temperature and humidity	AI	0–10 V	—	yes

Data point	Type	Signal	Alarm	Trend
Differential pressure filters F01, F02, F03	AI	0–10 V	final Δp	yes
Supply and extract air flow	AI	BACnet	deviation > 10 %	yes
Fan speed set point	AO	BACnet	—	yes
Fan operation and fault	DI	BACnet	fault	no
Damper position M01, M02	AO / DI	0–10 V	end position	no
Valves heating and cooling coils	AO	0–10 V	—	yes
Humidifier output	AO	0–10 V	fault	yes
Frost protection thermostat	DI	contact	frost	no
Fire damper status (per damper)	DI	contact	closed	no
Room pressure OP 4 – OP 6	AI	0–10 V	< +8 Pa	yes
LAF ceiling status	DI	BACnet	fault	no

Table 10 *Minimum data points per air-handling unit (AI/AO analogue, DI digital).*

4.6 Energy efficiency *(Efficacité énergétique)*

The installations shall reduce the final energy demand of the wing for heating, cooling and air transport by at least 35 % compared with 2024 (reference: 1,840 MWh). The bidder shall state the guaranteed values for the specific fan power, the heat recovery efficiency and the seasonal performance of the heat pumps; these values are contractual and are verified during the first year of operation.

Figure 2 compares the monthly final energy demand of the wing in 2024 with the target after the renewal. The largest savings are expected in winter, from the rotary heat recovery and the reduced night mode of the operating theatres, and in summer from the free cooling of the heat pumps.

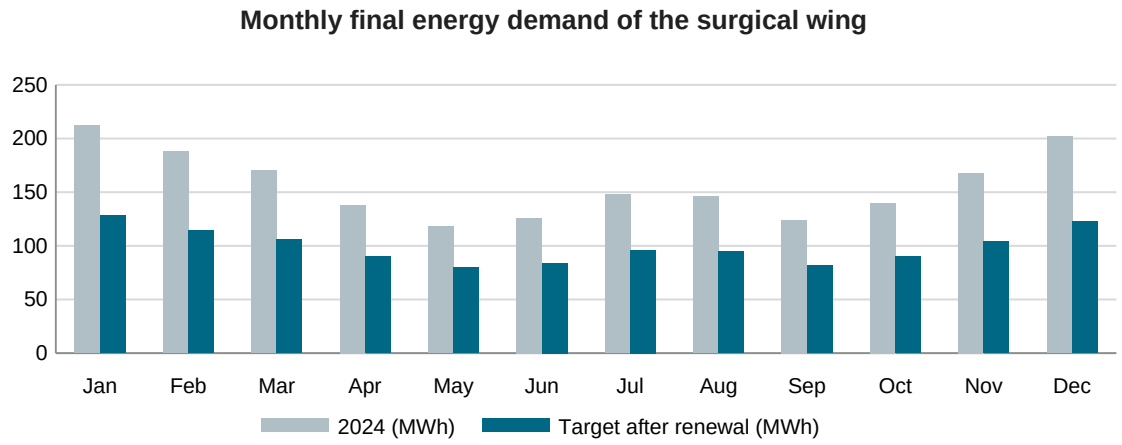


Figure 2 *Monthly final energy demand for heating, cooling and air transport: 2024 measured (1,880 MWh) and target (1,192 MWh, -37 %).*

4.7 Acoustic requirements *(Exigences acoustiques)*

The sound pressure levels of 11 shall not be exceeded with all installations in normal operation, measured at 1.2 m above the floor and 1 m from walls. Tonal components are not admitted in patient rooms.

Room	LpA max. day	LpA max. night
Operating theatres (LAF in operation)	48 dB(A)	45 dB(A)
Intensive care unit, patient areas	35 dB(A)	30 dB(A)
Recovery room	40 dB(A)	35 dB(A)
Sterile services	50 dB(A)	50 dB(A)

Room	LpA max. day	LpA max. night
Façade, 1 m from plant room louvres	45 dB(A)	40 dB(A)

Table 11 *Maximum sound pressure levels.*

4.8 Hygiene, commissioning and validation *(Hygiène, mise en service et validation)*

Before handover, each operating theatre shall be validated by an independent body according to SWKI VA105-01: particle counts at rest, recovery time, airflow visualisation and pressure cascade. HEPA filters shall be leak-tested in situ. The hygiene inspection according to VDI 6022 shall be carried out before commissioning and after one year of operation.

4.9 Documentation, training and maintenance *(Documentation, formation et maintenance)*

- as-built drawings in DWG and PDF, schematics and data point lists, updated after commissioning;
- operating and maintenance manuals in French, with spare parts lists and maintenance intervals;
- training of the hospital's technical staff (at least 24 hours, in two groups);
- maintenance during the warranty period, with quarterly visits and filter changes;
- an optional maintenance contract for years 3 to 5, priced separately in the offer form.

(Exécution et phasage)

The works shall be executed in four phases so that the operating suite remains in service. Within each phase the contractor shall plan the works in detail and submit the plan to the hospital six weeks in advance.

Phase	Period	Works	Areas out of service
1	Jun – Oct 2027	Heat pumps, plant room, AHU-B4 (sterile services)	Sterile services: temporary unit
2	Nov 2027 – Mar 2028	AHU-B1, distribution and LAF ceilings OP 1–3	OP 1 and OP 3, then OP 2
3	Apr – Jul 2028	AHU-B2, distribution and LAF ceilings OP 4–6	OP 4 and OP 6 ~~(4 weeks)~~(3 weeks max.), then OP 5
4	Aug – Oct 2028	AHU-B3, ICU and recovery room; final validation	ICU: 4 beds at a time

Table 12 *Phasing of the works.*

5.1 Infection control *(Prévention des infections)*

All works in or adjacent to patient areas are subject to an infection control risk assessment. Works of class IV require dust-tight barriers with negative pressure, HEPA-filtered extraction, sticky mats and daily particle monitoring at the boundary. ~~The hospital's hygiene service may stop the works at any time without compensation.~~ The hygiene service of the hospital may suspend the works if the limits are exceeded; the contractor bears the costs of suspensions caused by non-compliance with the agreed measures.

5.2 Noise, vibration and shutdowns *(Bruit, vibrations et coupures)*

Noisy works (above 70 dB(A) in adjacent rooms) are allowed from 07:00 to 09:30 and from 15:00 to 18:00 on working days only. Shutdowns of heating, chilled water or electrical supplies must be announced ten working days in advance and approved by the hospital.

5.3 Site logistics *(Logistique de chantier)*

Access to the plant room on level +4 is through the goods lift of Building C (load 2,500 kg, door 1.4 × 2.1 m) outside the hours of 07:00 to 08:30 and 11:30 to 13:30, when the lift is reserved for meals. Large components are lifted onto the roof by crane on two Saturdays to be agreed with the hospital; the crane position is on the staff car park P2, which the hospital closes for the purpose.

5.4 Health, safety and fire protection *(Sécurité, santé et protection incendie)*

The contractor appoints a safety officer for the site. Hot works require a written permit from the hospital's fire officer; fire alarm detectors in the work areas are disabled only for the duration of the permit and under fire watch. Es-

cape routes of the hospital must remain free at all times.

(Descriptif quantitatif et estimation)

The bill of quantities (BoQ) lists the positions to be priced by the bidders in the offer form. In this internal draft the engineer's cost estimate is entered as unit prices; the estimate is contained in a conditional section that is hidden in the published version (user field *Published* = 1).

Pos.	Description	Unit	Quantity	Unit price CHF	Total CHF
1	**Preliminary works and dismantling**				
1.01	Site installation, containers, protection of circulation areas	LS	1	68,000.00	68,000
1.02	Dust barriers and negative-pressure enclosures (class IV)	m²	420	145.00	60,900
1.03	Dismantling of existing AHUs B1–B4, incl. disposal	pce	4	18,500.00	74,000
1.04	Dismantling of ductwork and insulation	kg	21,500	4.20	90,300
1.05	Temporary ventilation of the operating suite (phases 2–3)	week	14	6,800.00	95,200
1.06	Craning and transport into the plant room, level +4	LS	1	42,000.00	42,000
	Subtotal 1 — Preliminary works and dismantling				**430,400**
2	**Air-handling units**				
2.01	AHU-B1, OP 1–3, 24,000 m³/h, hygienic design	pce	1	486,000.00	486,000
2.02	AHU-B2, OP 4–6, 24,000 m³/h, hygienic design	pce	1	486,000.00	486,000
2.03	AHU-B3, ICU and recovery room, 18,500 m³/h	pce	1	372,000.00	372,000
2.04	AHU-B4, sterile services, 12,000 m³/h	pce	1	268,000.00	268,000
2.05	Steam humidifiers 45 kg/h incl. reverse-osmosis water	pce	3	38,500.00	115,500
2.06	Spare filter sets for the first replacement	set	4	9,400.00	37,600
	Subtotal 2 — Air-handling units				**1,765,100**
3	**Air distribution**				
3.01	Galvanised ductwork, airtightness class C	kg	38,600	14.50	559,700
3.02	Duct insulation, mineral wool 50 mm, aluminium cladding	m²	1,850	68.00	125,800
3.03	Fire dampers EI 90, motorised, with BMS feedback	pce	46	1,450.00	66,700
3.04	VAV terminal units, pressure-independent	pce	58	2,350.00	136,300
3.05	Laminar airflow ceilings 3.2 × 3.2 m with H13 filters	pce	6	96,000.00	576,000
3.06	Terminal HEPA filter housings H13 with test port	pce	34	2,850.00	96,900
3.07	Silencers and attenuators	pce	24	3,100.00	74,400
3.08	Supply and extract grilles, swirl diffusers	pce	186	240.00	44,640
3.09	Air flow measurement and balancing	LS	1	36,000.00	36,000
3.10	Cleaning and hygiene certification of the ductwork	m²	2,400	9.50	22,800
	Subtotal 3 — Air distribution				**1,739,240**
4	**Heat and cold generation**				
4.01	Air-to-water heat pump / chiller 420 kW, GWP < 150	pce	2	298,000.00	596,000
4.02	Hydraulic groups for coils, incl. pumps and valves	pce	8	14,800.00	118,400
4.03	Steel pipework DN 40–150, insulated	m	1,240	185.00	229,400
4.04	Buffer tank 3,000 l and expansion vessel	pce	1	28,500.00	28,500

Pos.	Description	Unit	Quantity	Unit price CHF	Total CHF
4.05	Heat recovery to domestic hot water preheating	LS	1	64,000.00	64,000
4.06	Water treatment and filling station	LS	1	18,500.00	18,500
4.07	Heat meters and cold meters, M-Bus	pce	12	1,650.00	19,800
	Subtotal 4 — Heat and cold generation				**1,074,600**
5	**Controls and building management**				
5.01	Automation stations, BACnet/IP	pce	6	21,500.00	129,000
5.02	Field devices: sensors, actuators, Δp transmitters	pce	412	285.00	117,420
5.03	Room control panels for operating theatres	pce	6	7,800.00	46,800
5.04	Integration into the hospital BMS, graphics, alarms	LS	1	86,000.00	86,000
5.05	Electrical control panels	pce	4	46,000.00	184,000
	Subtotal 5 — Controls and building management				**563,220**
6	**Testing, validation and documentation**				
6.01	Commissioning and integrated system tests	LS	1	54,000.00	54,000
6.02	Validation of operating theatres (SWKI VA105-01)	room	6	7,400.00	44,400
6.03	In-situ leak tests of HEPA filters	pce	40	380.00	15,200
6.04	As-built documentation, O&M manuals, training	LS	1	38,000.00	38,000
	Subtotal 6 — Testing, validation and documentation				**151,600**
	Total excluding VAT				**5,724,160**
	VAT 8.1 %				463,657
	Total including VAT				**6,187,817**

Table 13 *Bill of quantities with the engineer's cost estimate (totals and subtotals are table formulas; the header row repeats on every page).*

The estimate includes a reserve of 5 % within the unit prices for the temporary measures of the phasing. It does not include the fees of the engineer and of the validation body, which are covered by separate contracts.

6.1 Options *(Options)*

The following options are priced separately in the offer form and are not included in the total. The hospital decides on each option at the award or within twelve months.

Pos.	Option	Unit	Quantity
O.1	Preparation of the air distribution for a future operating theatre OP 7 (level +2, east)	LS	1
O.2	Maintenance contract for years 3 to 5, including filter changes and hygiene inspections	year	3
O.3	Energy monitoring dashboard for the hospital's energy manager	LS	1
O.4	Additional spare fan unit for AHU-B1/B2 (stored on site)	pce	1

Table 14 *Options to be priced separately.*

(Critères d'adjudication et évaluation)

The contract is awarded to the most advantageous offer, determined by the criteria and weights of 15. Each criterion is scored from 0 (not assessable) to 5 (very good); the weighted scores are added up.

Criterion	Weight	Sub-criteria and scoring basis
Price	40%	Total price excluding VAT, scored with the formula below
Technical quality	25%	Execution concept, phasing during operation, quality of the products offered, hygiene concept

Criterion	Weight	Sub-criteria and scoring basis
Organisation and key personnel	15%	Project manager, site manager, availability, organisation chart
References	10%	Relevance of references beyond the suitability criterion C1
Energy and sustainability	10%	Guaranteed SFP, heat recovery and heat pump performance; refrigerant; life-cycle concept
Total	**100%**	

Table 15 *Award criteria and weights.*

The price is scored linearly between the lowest offer, which receives the maximum score, and an offer 50 % more expensive, which receives zero:

$$N_P = max\left(0;\, 5 - \frac{10 \cdot P - P_{min}}{P_{min}}\right) \tag{1}$$

16 illustrates the method with three fictitious offers; the scores are computed in the table itself so that bidders can check the arithmetic.

	Offer 1	Offer 2	Offer 3
Price excl. VAT (CHF)	5,460,000	5,890,000	6,210,000
Price score (0–5)	5.00	4.21	3.63
Technical quality (0–5)	3.5	4.5	4.0
Organisation (0–5)	3.0	4.0	4.5
References (0–5)	4.0	4.0	3.0
Energy (0–5)	3.5	4.0	4.5
Weighted total	**4.08**	**4.21**	**3.88**

Table 16 *Example of an evaluation with three fictitious offers (scores computed by table formulas).*

In the example, offer 2 obtains the highest weighted total although it is not the cheapest: its better technical score outweighs the price difference of 7.9 %. In case of equal totals the offer with the higher technical score is preferred.

(Conditions contractuelles)

a) The contract is based on the general conditions of SIA standard 118 (2013), completed by these tender documents. In case of contradiction the tender documents prevail.

b) Warranty period and penalties: see 8.1 below.

c) Retention: 10 % of each instalment until acceptance, then a warranty bond of 5 % of the final account.

d) Prices are fixed until 31 December 2027; thereafter they are adjusted with the official construction price index for building services, Lake Geneva region.

e) Invoices are paid within 30 days after approval by the engineer; place of jurisdiction is Montvallier.

8.1 Warranty and penalties *(Garantie et pénalités)*

The warranty period is ~~two~~five years from acceptance for the whole installation and ten years for concealed defects. For each calendar day of delay in returning an operating theatre to service, a penalty of CHF ~~1,000~~2,000 is due, capped at 10 % of the contract value. Penalties do not release the contractor from its obligation to complete the works.

(Remise des offres)

9.1 Content of the offer *(Contenu de l'offre)*

The offer shall be submitted in one paper copy and on a USB stick (PDF and the BoQ in the format provided), in a sealed envelope marked “HdM-2026-CVC-03 — do not open”. It shall contain, in this order:

- the completed and signed offer form (Annex A) — **mandatory**;
- the priced bill of quantities;
- the evidence for the suitability criteria (3);
- the documents for the evaluation of the award criteria (7);
- the list of subcontractors and the declarations of Annex A.

9.2 Opening of offers *(Ouverture des offres)*

Offers are opened by a committee of the hospital and the engineer. The minutes, listing the bidders and the total prices, are sent to all bidders. Offers are checked for arithmetic errors; the corrected totals are used for the evaluation.

(Documents contractuels et ordre de priorité)

The contract consists of the following documents, which apply in the order listed:

a) the contract deed signed by both parties;
b) the minutes of the negotiation of the offer, if any;
c) the present tender documents, including the answers to the questions;
d) the priced bill of quantities and the offer form of the successful bidder;
e) the general conditions of SIA standard 118 and the technical standards cited in 4;
f) the other documents of the offer of the successful bidder.

To be completed by the bidder. The grey fields can be filled in on screen; the form must then be printed, dated and signed by persons authorised to sign for the company.

A.1 Bidder

Company name: ……

Legal form: SA / AG

Address:

Contact person: <name and function of the contact person>.....

E-mail / telephone:

Commercial register number: CHE-……

A.2 Offer

Total price excluding VAT:

Validity of the offer until:

Variant submitted: No variant / Variant A (phasing) / Variant B (equipment)

Number of subcontractors:

A.3 Guaranteed technical values

Parameter	Required	Guaranteed by the bidder	Unit
Specific fan power AHU-B1 / B2	≤ 1,650	……	W/(m³/s)
Specific fan power AHU-B3	≤ 1,500	……	W/(m³/s)
Temperature efficiency of rotary heat recovery	≥ 75	……	%
Seasonal coefficient of performance of heat pumps (SCOP)	≥ 3.8	……	—
Seasonal energy efficiency ratio in cooling (SEER)	≥ 5.2	……	—
Sound power of AHU casing, AHU-B1 / B2	≤ 72	……	dB(A)
Recovery time 100 : 1 in the operating theatre	≤ 10	……	min
Delivery time of the AHUs after order	≤ 26	……	weeks

Table 17 *Guaranteed values (contractual, verified during the first year of operation, Art. 4.6).*

A.4 Declarations (tick each box)

☐ We have taken part in the compulsory site visit on 17 November 2026.

☐ We accept the tender documents and the answers published to the questions.

☐ We comply with occupational safety, working conditions and equal pay at the place of performance.

☐ We have paid the social security contributions and taxes that are due.

☐ We confirm the guaranteed energy values stated in our offer (Art. 4.6).

☐ We enclose the evidence for all suitability criteria C1 to C6.

A.5 References for criterion C1

Describe three reference projects (operating theatres, last ten years, contract value above CHF 1.5 m).

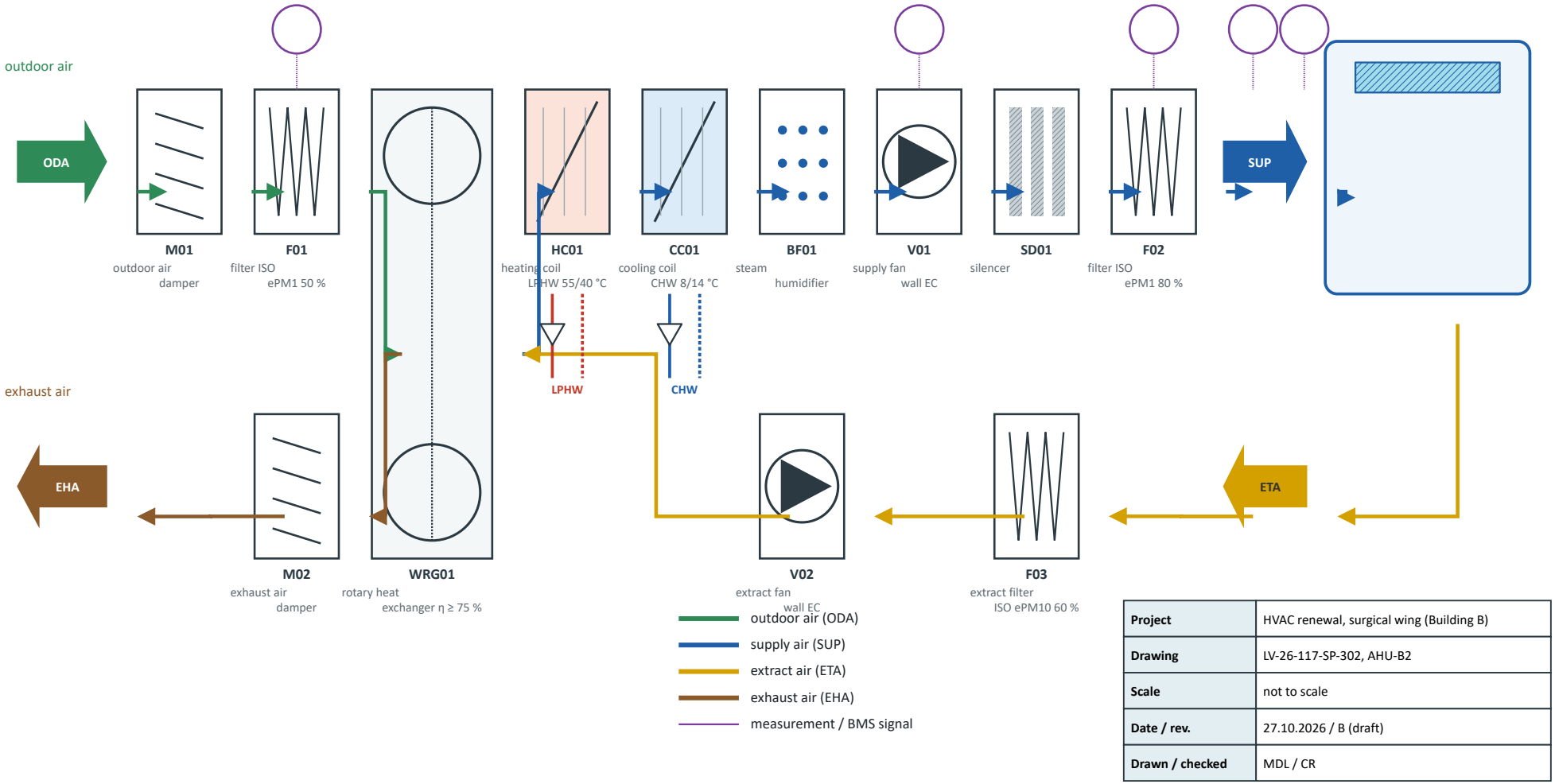
	Reference 1	Reference 2	Reference 3
Client and project	……	……	……
Hospital / location	……	……	……
Scope of the bidder	……	……	……
Contract value (CHF, excl. VAT)	……	……	……

	Reference 1	Reference 2	Reference 3
Period of execution	……	……	……
Number of operating theatres	……	……	……
Contact person at the client (name, telephone)	……	……	……

Table 18 *Reference form (input fields, to be completed on screen or by hand).*

A.6 Signature

Place and date	Name(s) in capitals	Signature(s) and company stamp



Project	HVAC renewal, surgical wing (Building B)
Drawing	LV-26-117-SP-302, AHU-B2
Scale	not to scale
Date / rev.	27.10.2026 / B (draft)
Drawn / checked	MDL / CR

Figure 3 *Schematic of air-handling unit AHU-B2 serving the operating theatres OP 4 to OP 6 (shapes joined by connectors).*

Tags follow the hospital's equipment numbering: M = damper, F = filter, WRG = heat recovery, HC/CC = heating/cooling coil, BF = humidifier, V = fan, SD = silencer. The control functions are described in 4.5.

Design values per room. The air change rate is computed in the table from the supply air flow and the room volume; heat loads include persons, lighting and medical equipment.

Room	No.	Area (m²)	Height (m)	Volume (m³)	Supply (m³/h)	Extract (m³/h)	Air changes (/h)	Pressure (Pa)	Heat load (W)	LpA (dB(A))
OP 1	2.104	48.2	3.2	154	5,600	5,100	36.3	+15	2,400	48
OP 2	2.106	48.2	3.2	154	5,600	5,100	36.3	+15	2,400	48
OP 3	2.108	52.6	3.2	168	6,100	5,500	36.2	+15	2,600	48
OP 4	2.112	48.2	3.2	154	5,600	5,100	36.3	+15	2,400	48
OP 5	2.114	48.2	3.2	154	5,600	5,100	36.3	+15	2,400	48
OP 6 (emergency)	2.116	56.0	3.2	179	6,400	5,800	35.7	+15	2,900	48
Anterooms OP 1–6	2.1xx	57.0	2.8	160	2,400	2,100	15.0	+10	1,800	45
Clean corridor	2.120	118.0	2.8	330	3,300	2,600	10.0	+10	1,200	45
Recovery room (14 beds)	2.140	186.0	2.9	539	3,800	3,500	7.0	+5	6,200	40
ICU, open area (12 beds)	3.110	310.0	2.9	899	5,600	5,400	6.2	0	8,800	35
ICU isolation rooms (4)	3.12x	90.0	2.9	261	1,600	1,600	6.1	+10	1,900	35
ICU anterooms (4)	3.13x	20.8	2.7	56	560	480	10.0	+5	200	40
Sterile services, clean zone	1.210	142.0	3.0	426	3,600	3,200	8.5	+10	9,600	50
Sterile services, packing	1.220	96.0	3.0	288	2,400	2,200	8.3	+10	4,100	50
Sterile services, dirty zone	1.230	88.0	3.0	264	2,100	2,500	8.0	-10	6,800	50
Sterile store	1.240	74.0	3.0	222	900	800	4.1	+5	600	45
Total		1,483.2		4,410	61,160	56,080			56,300	

Table 19 *Room data of the areas served by Lot 3 (volume, air changes and totals computed in the table).*

Indicative programme from the start of works in June 2027 to the final validation in October 2028. The bidder shall submit a detailed programme with its offer; milestones M1 to M4 are contractual.

Activity	2027							2028									
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
Site installation, plant room preparation																	
Heat pumps and hydraulics (phase 1)																	
AHU-B4, sterile services (phase 1)																	
Temporary ventilation of the operating suite																	
AHU-B1, OP 1 – 3 (phase 2)																	
LAF ceilings OP 1 – 3																	
AHU-B2, OP 4 – 6 (phase 3)																	
LAF ceilings OP 4 – 6																	
AHU-B3, ICU and recovery room (phase 4)																	
BMS integration and commissioning																	
Validation of the operating theatres																	
Documentation and training																	
Milestones					M1					M2				M3			M4

Table 20 *Indicative programme; M1 heat generation in service, M2 OP 1 – 3 validated, M3 OP 4 – 6 validated, M4 final acceptance.*