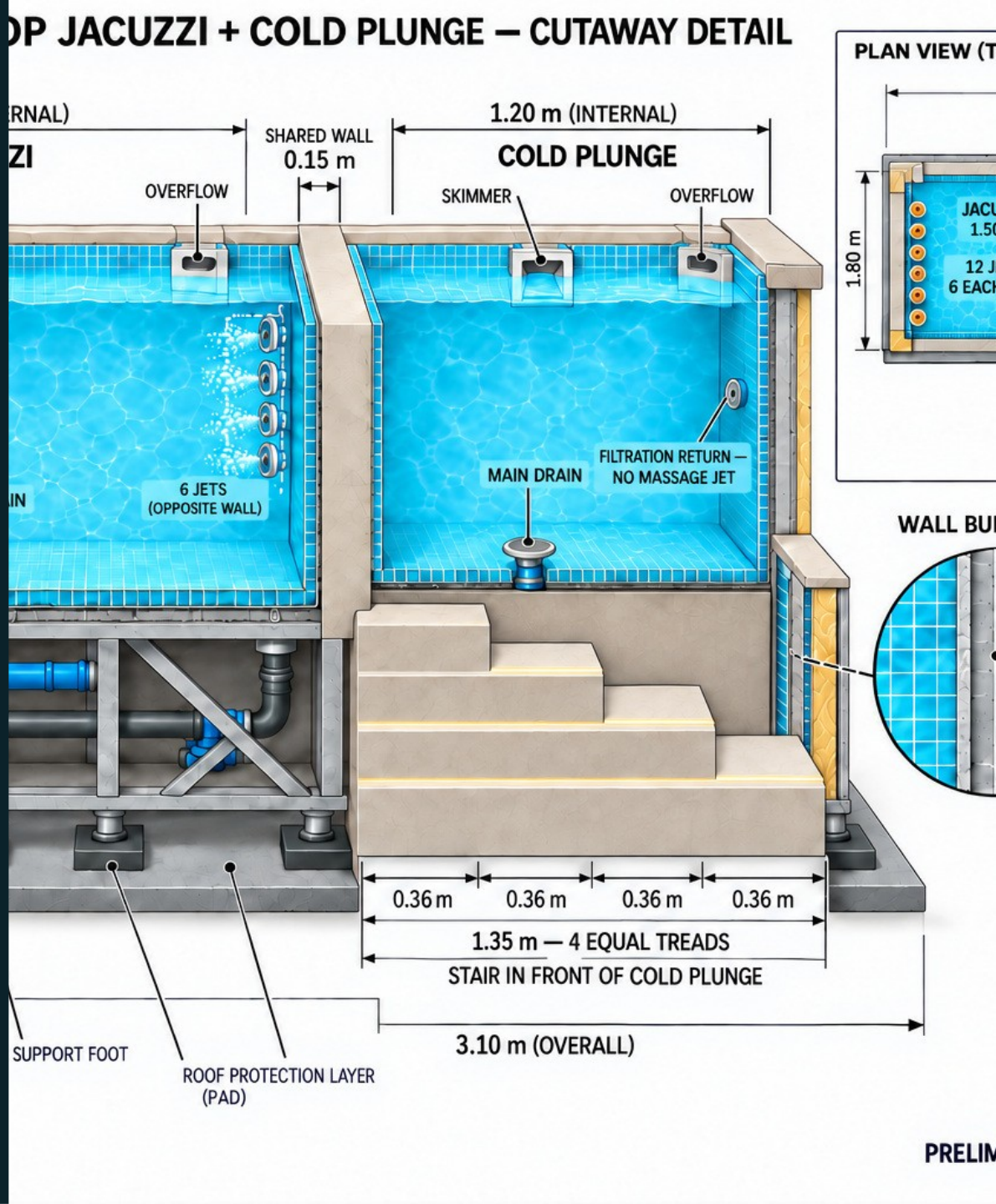
ROOFTOP JACUZZI + COLD PLUNGE

Concept, MEP requirements and roof loading

COMET SPA INTERIOR

Preliminary design presentation



Project configuration

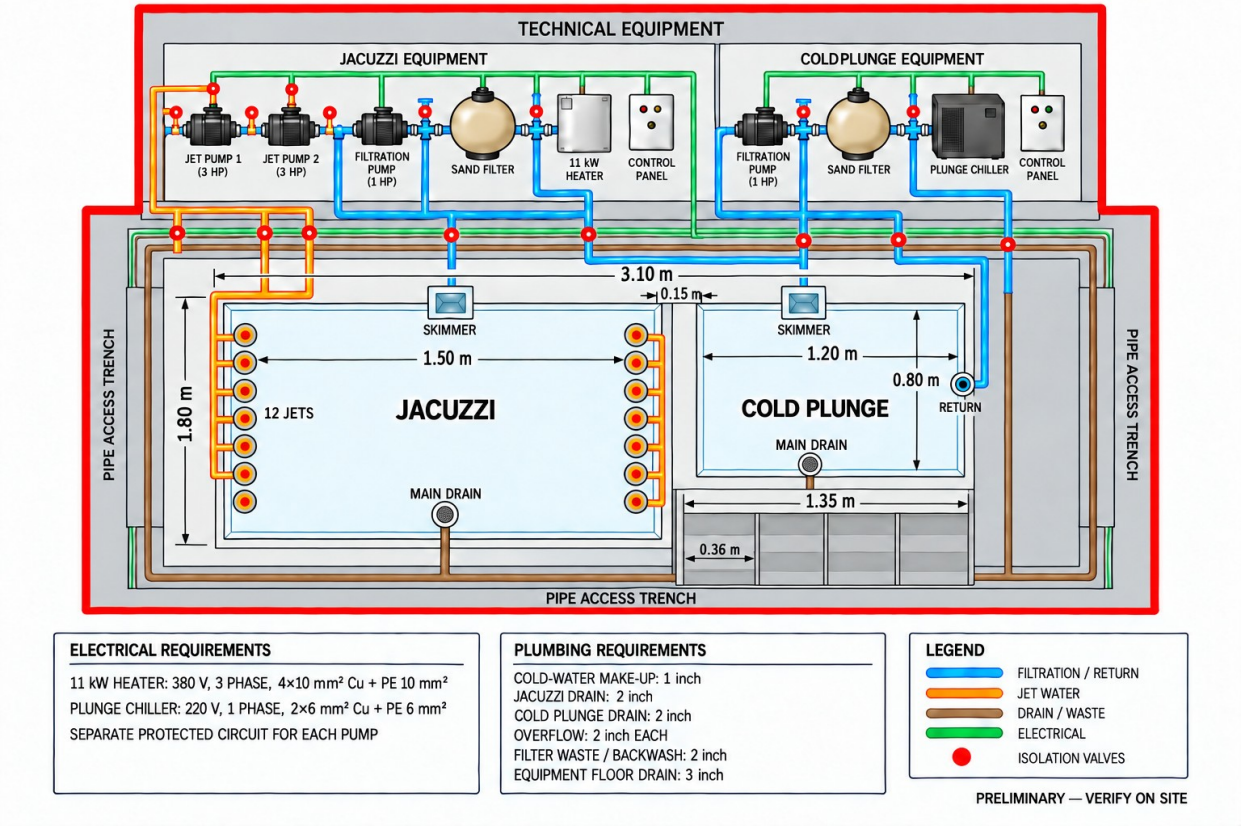
Compact rooftop arrangement

Jacuzzi internal size
1.50 × 1.50 m

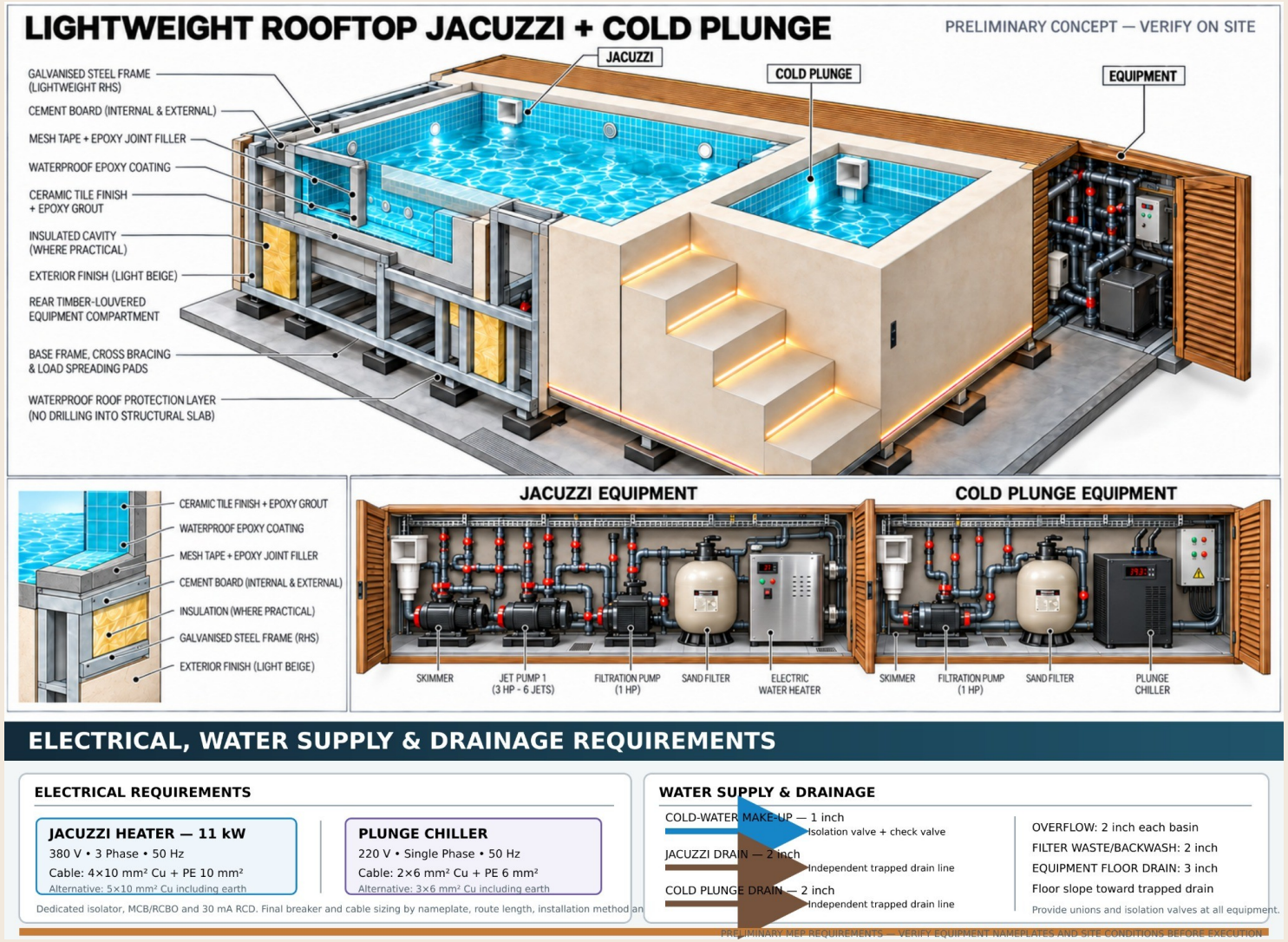
Cold plunge internal size
1.20 × 0.80 m

Clear separation wall
0.15 m

Overall footprint
3.10 × 1.80 m



Lightweight rooftop construction

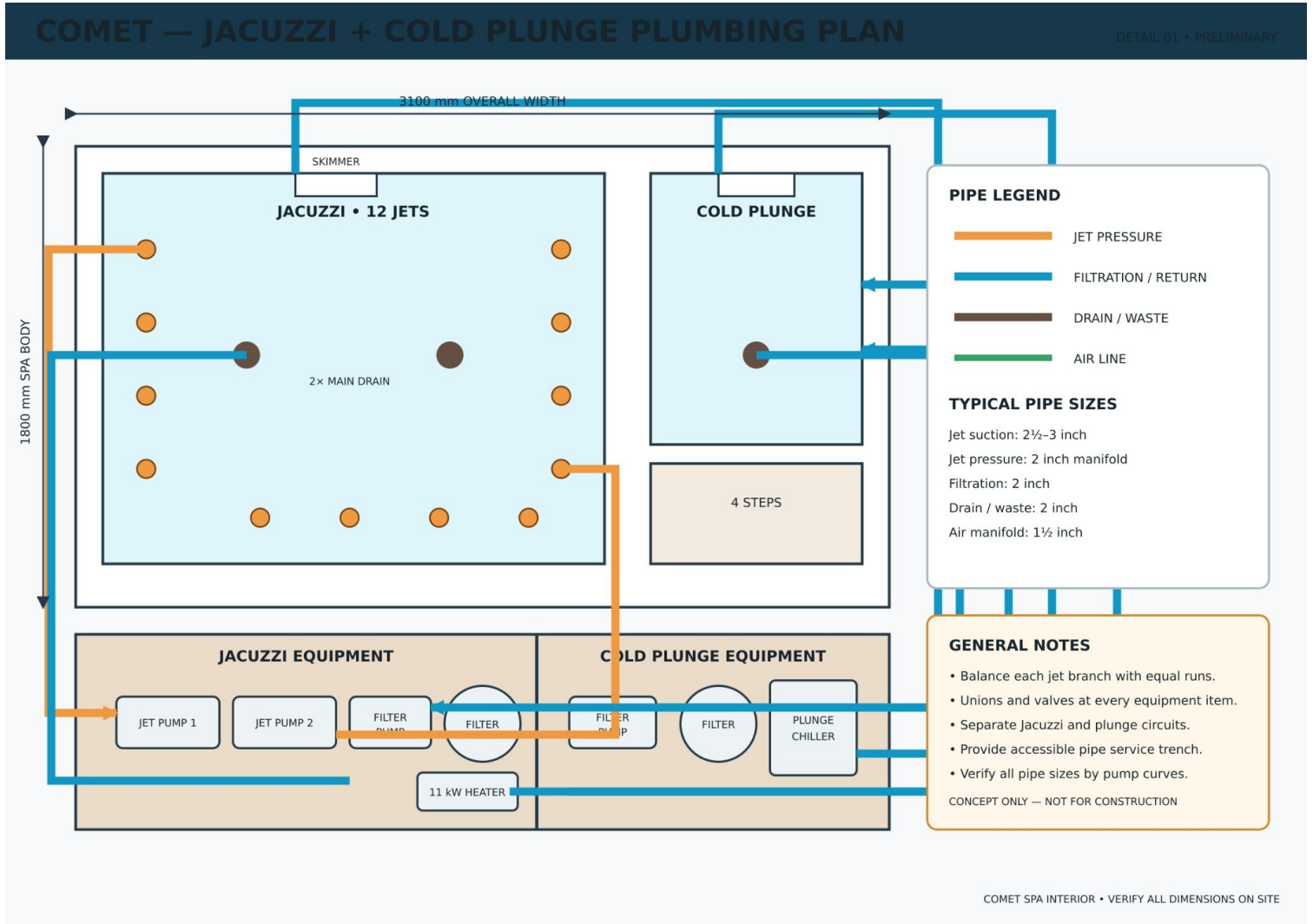


Construction concept

Galvanised RHS steel frame
Cement board lining
Waterproof epoxy system
Ceramic tile finish
Insulation where practical
Roof protection pads below supports

No drilling into the structural slab without structural approval.

Plumbing plan

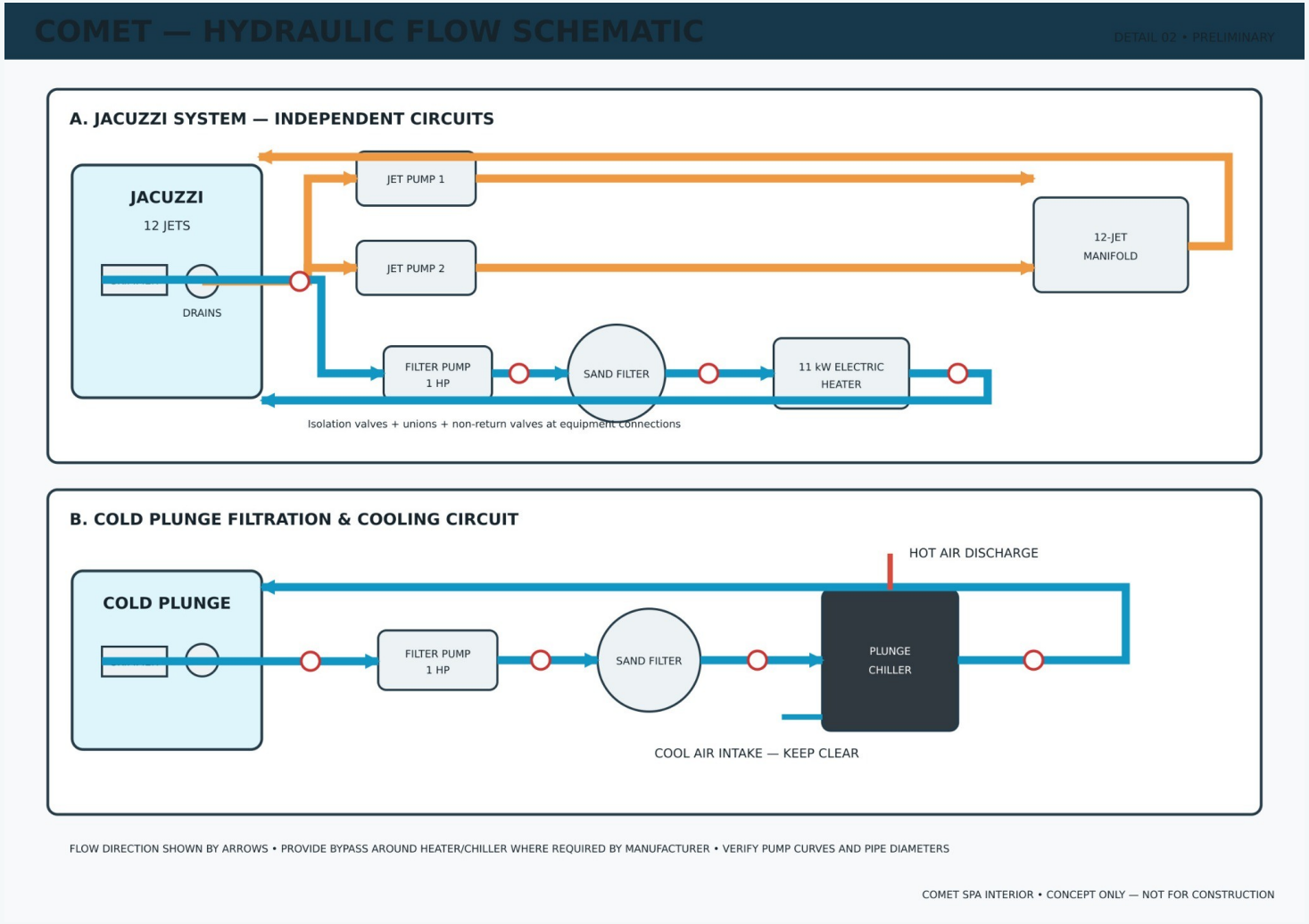


Pipe requirements

Cold-water make-up: 1 in
Jacuzzi drain: 2 in
Cold plunge drain: 2 in
Overflow: 2 in each basin
Filter waste / backwash: 2 in
Equipment floor drain: 3 in

Provide unions and isolation valves at all equipment connections.

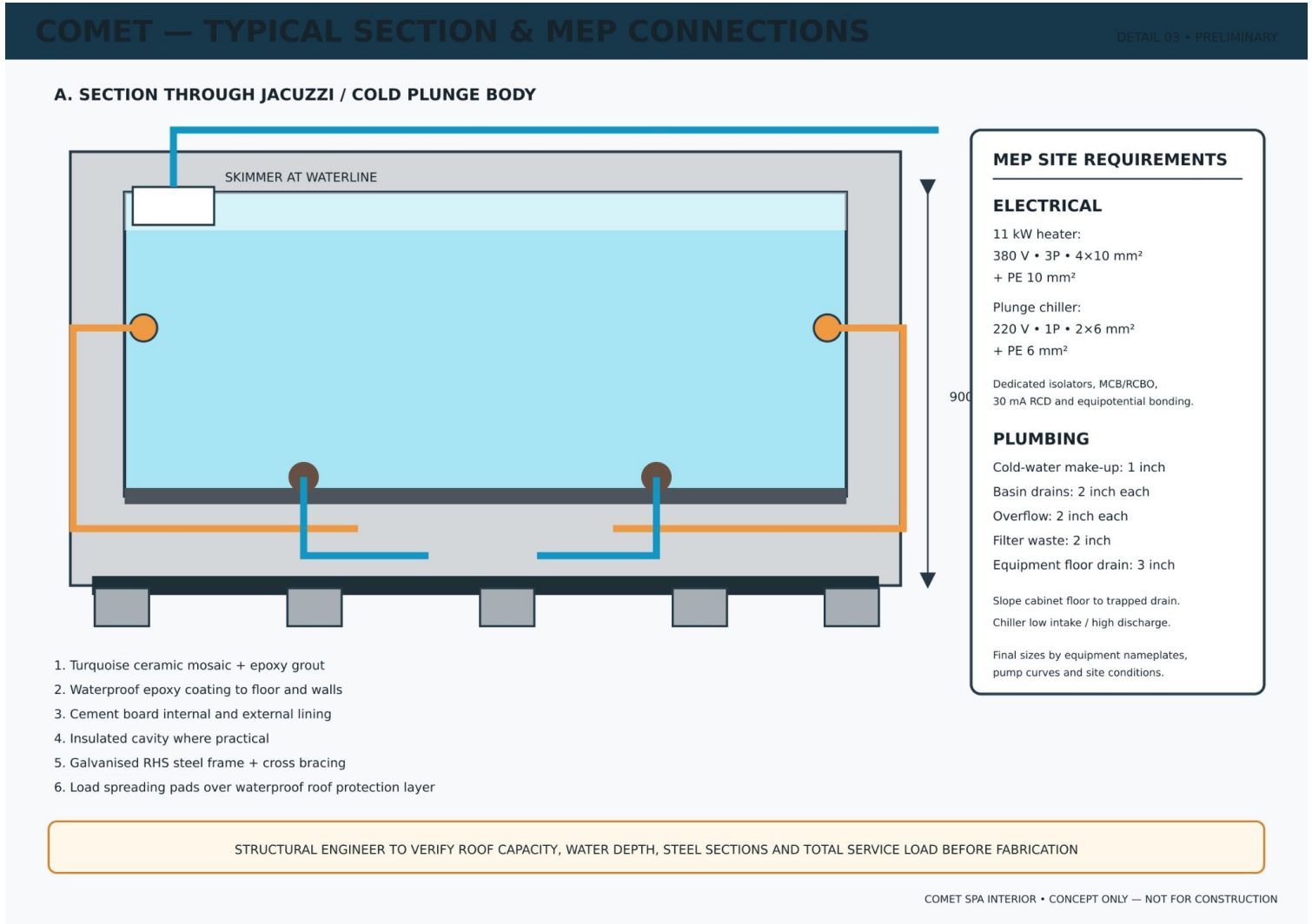
Hydraulic schematic



Jacuzzi: two jet pumps plus a dedicated filtration circuit

Cold plunge: filtration, sand filter and chiller loop

Section and MEP coordination

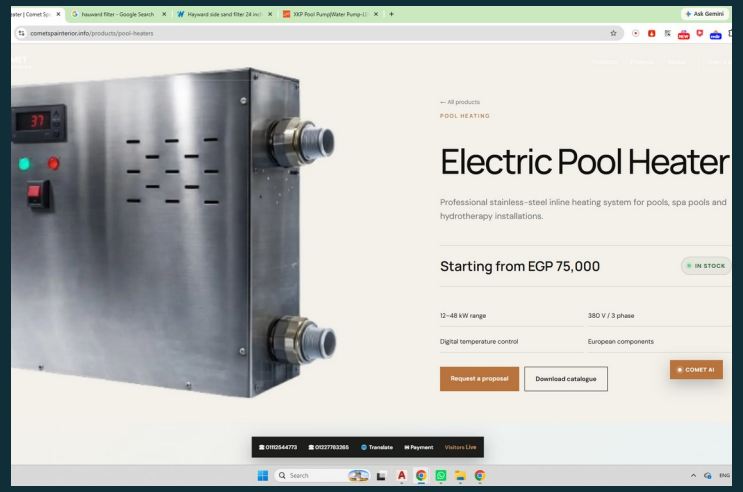


Coordination points

Single main drain per basin
No massage jets in cold plunge
Jacuzzi jets only
Independent trapped drain lines
Access trench around equipment
Floor slope toward floor drain

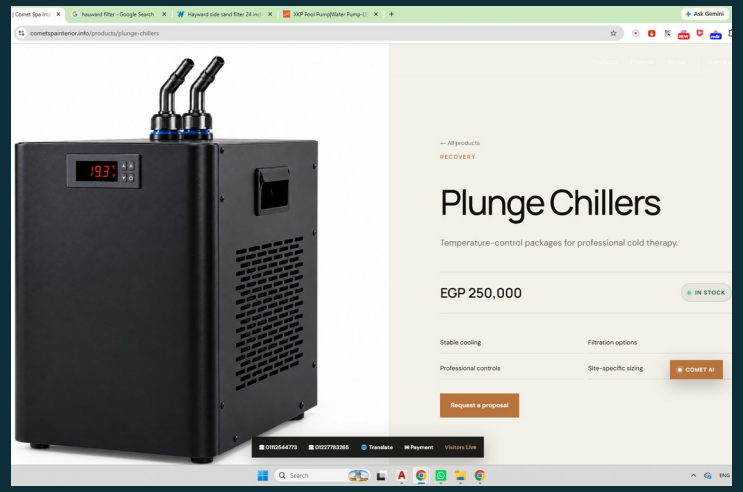
Maintain service access to pumps, filter, heater and chiller.

Electrical requirements



Jacuzzi heater

11 kW
380 V, 3 phase, 50 Hz
4 × 10 mm² Cu + PE 10 mm²



Cold plunge chiller

220 V, single phase, 50 Hz
2 × 6 mm² Cu + PE 6 mm²

Protection and installation

Dedicated isolator for every major load

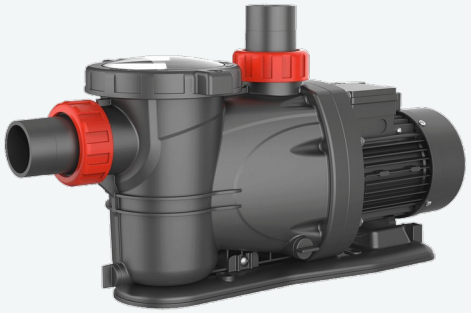
MCB or RCBO matched to nameplate current

30 mA RCD protection

Separate protected circuit for each pump

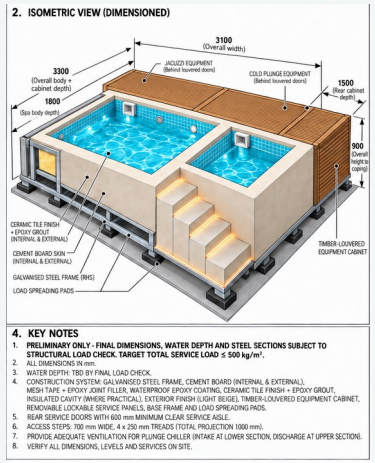
Final sizing by route length and installation method

Equipment schedule



Jet pump

2 units • 3 HP



Filtration pump

Jacuzzi + plunge



Sand filter

One per circuit

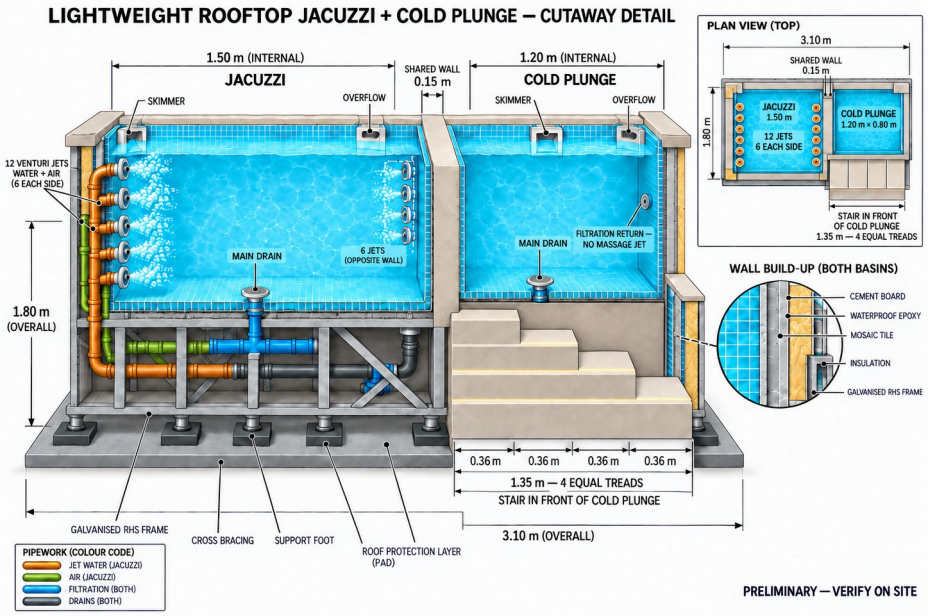


Control panel

Protected enclosure

Final equipment selection and breaker sizes shall follow manufacturer nameplates.

Roof load schedule



ROOF SLAB LOAD SCHEDULE — EXACT TARGET 510 kg/m²

DETAILED OPERATING LOADS

LOAD ITEM	MASS (kg)	LOAD (kN)
Jacuzzi water (1.50 × 1.50 × 0.75 m)	1,687.50	16.55
Cold plunge water (1.20 × 0.80 × 0.75 m)	720.00	7.06
Jacuzzi shell + finishes	700.00	6.87
Cold plunge shell + finishes	350.00	3.43
Galvanised steel frame	350.00	3.43
External stair	250.00	2.45
MEP equipment + pipework	450.00	4.41
Occupants: Jacuzzi 6 + Plunge 1	700.00	6.87
Subtotal before contingency	5,207.50	51.09
Contingency 10%	520.75	5.11
TOTAL OPERATING MASS	**5,728.25 kg**	

LOAD-SPREADER DESIGN

STEEL LOAD-SPREADER PLATFORM

JACUZZI + COLD PLUNGE UNIT
3.10 × 1.80 m footprint

3.10 × 3.623 m = 11.232 m²

Required effective spread area:	11.232 m²
Effective dimensions:	3.10 × 3.623 m
Total operating mass:	5,728.25 kg

FINAL DISTRIBUTED ROOF LOAD
510.000 kg/m²

PRELIMINARY — USE CONTINUOUS STEEL GRILLAGE ALIGNED WITH ROOF BEAMS. FINAL MEMBER SIZES, SUPPORT LOCATIONS AND SLAB APPROVAL BY STRUCTURAL ENGINEER.

Design distributed load

510 kg/m²

Parameter	Design value
Total operating mass	5,728.25 kg
Load-spreader size	3.10 × 3.623 m
Effective area	11.232 m²
Distributed load	510 kg/m²

Structural engineer to verify slab capacity, support locations and load path before fabrication.

Design basis

- Overall footprint 3.10 × 1.80 m
- Jacuzzi 1.50 × 1.50 m
- Cold plunge 1.20 × 0.80 m
- Separation 0.15 m
- One drain per basin
- Cold plunge without massage jets
- Roof design load 510 kg/m²

PRELIMINARY DESIGN
VERIFY DIMENSIONS, NAMEPLATES AND SITE CONDITIONS BEFORE EXECUTION

