n-TOF review

HVAC and cooling systems

YB-JIG 15/06/07

HVAC system

HVAC system proposal #1

Principle

• 100% recycling
• No pressure control
•Area treated comprise between doors 202 & 203

Air Handling Unit

• An access section with door
• A filter section
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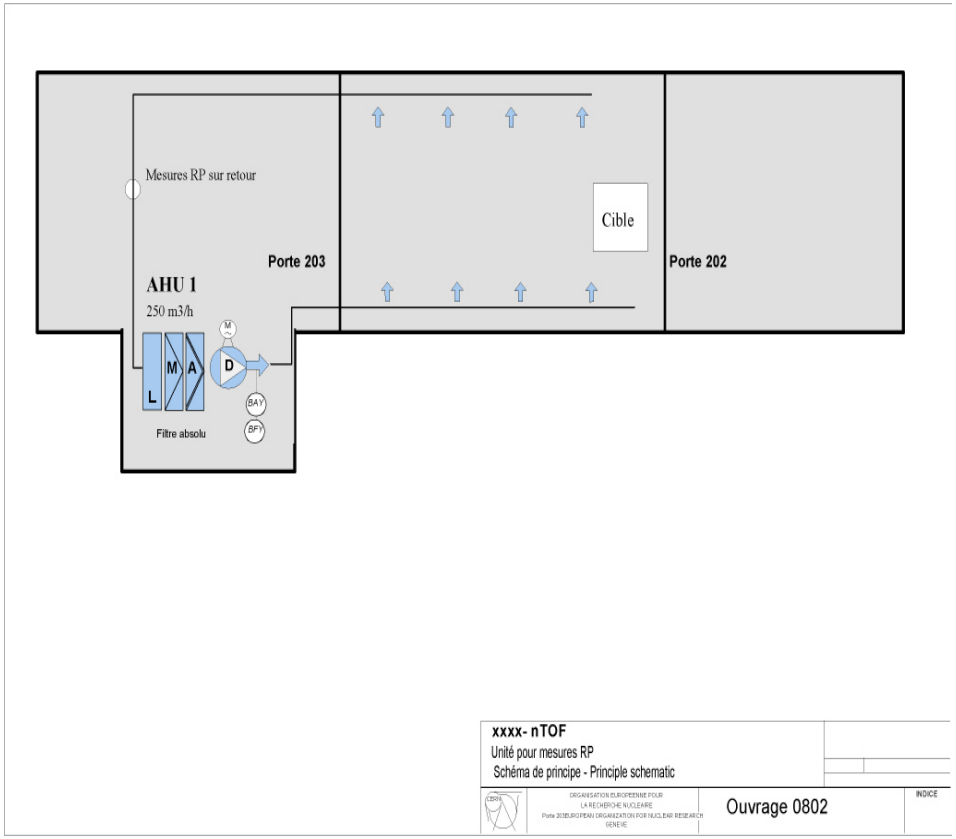
•A filter section, absolute filter
•A fan section with centrifugal fan, and one speed motor
•Tapping for RP monitoring system



Estimate

Total : 35 kCHF

HVAC system proposal #2

Principle

• One 100% recycling AHU + one extraction AHU
• No pressure control
•Area treated comprise between doors 202 and 203
•AHUs located in bldg. 375

Air Handling Units

• recycling AHU same as for proposal #1
• Extraction to be designed in accordance with the RP requirements for contaminant dispersion.
•By-pass of the extraction filters for cold smoke extraction

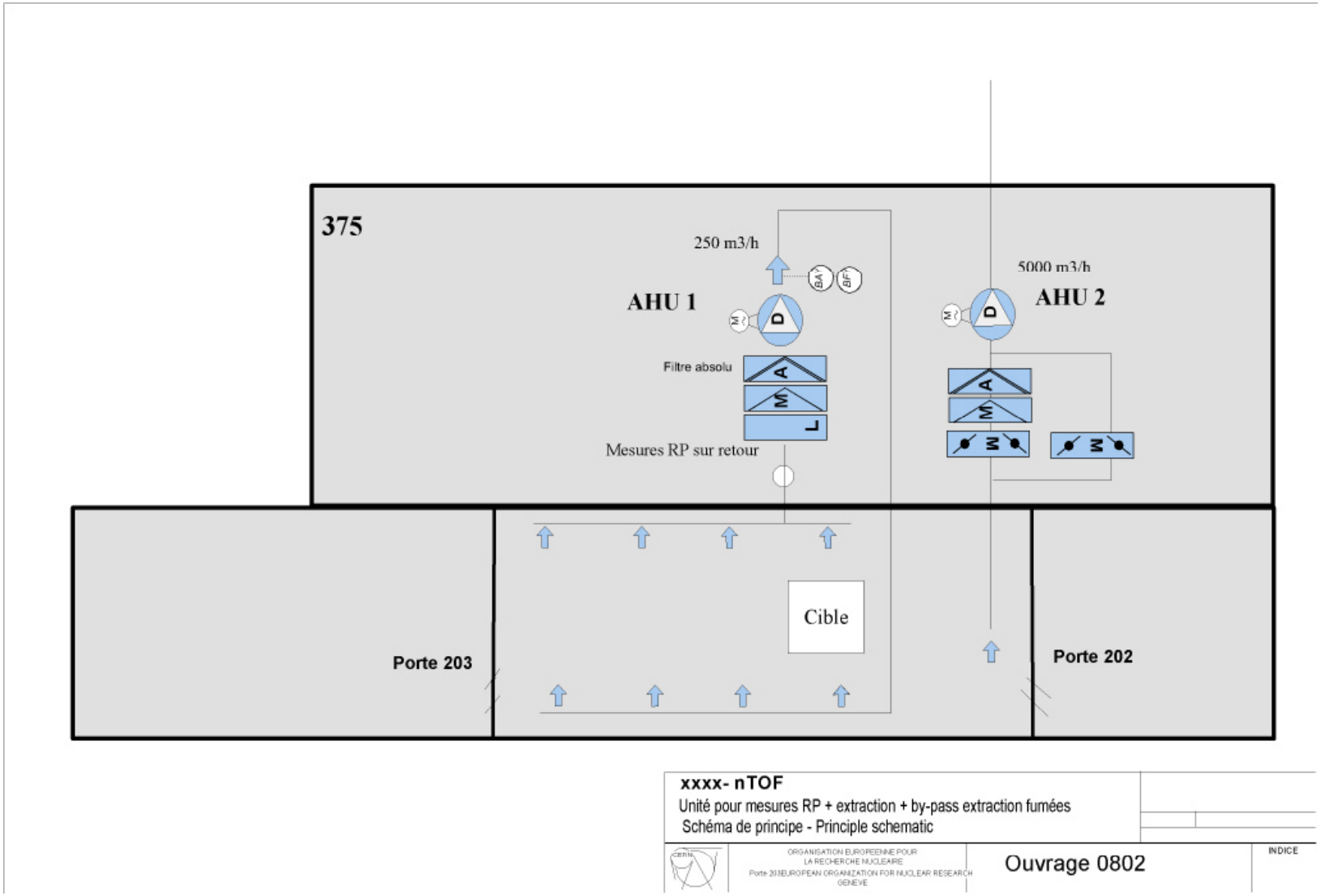
Estimate

35 kCHF (AHU1) + 40 kCHF (AHU2) + 15 kCHF (electrical) + 40 kCHF (CE works)
Total : 130 kCHF

Operating modes

•To be determined
•Smoke extraction policy to be defined

HVAC system proposal #2



HVAC system proposal #3

Principle

• One 100% recycling AHU + one extraction AHU + one fresh air AHU
• Differentiel pressure control
•Area treated comprise between doors 202 and 203
•AHUs located in bldg. 375

Air Handling Units

• Recycling AHU, extraction AHU same as for proposal #2
• Fresh air AHU fitted with heating and cooling coils

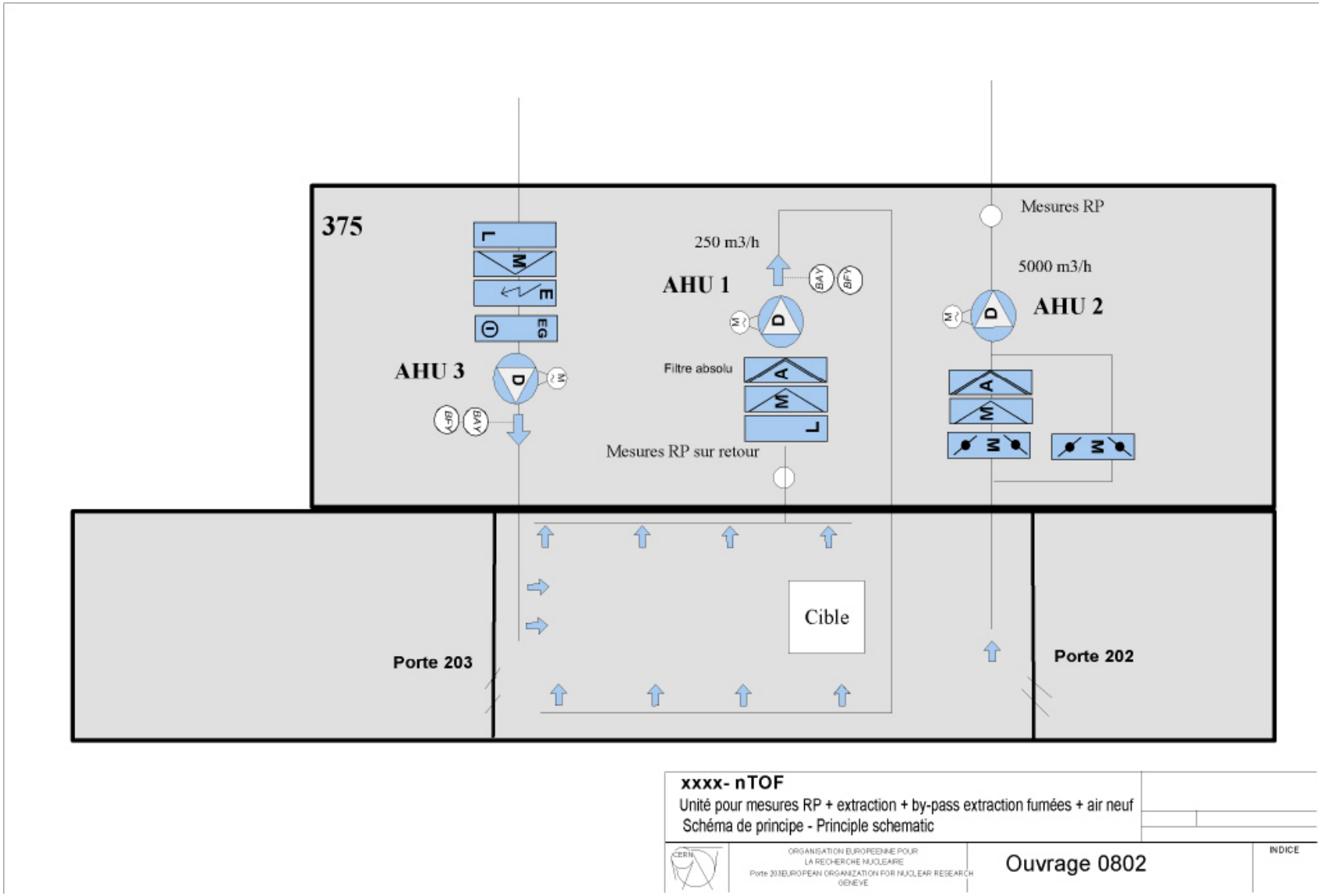
Estimate

35 kCHF (AHU1) + 40 kCHF (AHU2) + 15 kCHF (electrical) + 40 kCHF (CE works) + 50 kCHF (AHU3)
Total : 180 kCHF

Operating modes

•To be determined
•Smoke extraction policy to be defined

HVAC system proposal #3




exhausts


exhausts


exhausts

Water cooling system

Water cooling system : proposal #1

Present state

• Contamination of the pipes with radioactive isotopes (higher degree of contamination in the lower part)

Cleaning proposal

• Installation of a high capacity ion-exchange cartridge (200l)
• Circulation of water through the circuit (target removed) and recuperation of the contaminant in the resin
• If required, cleaning of the circuit with a nitric acid

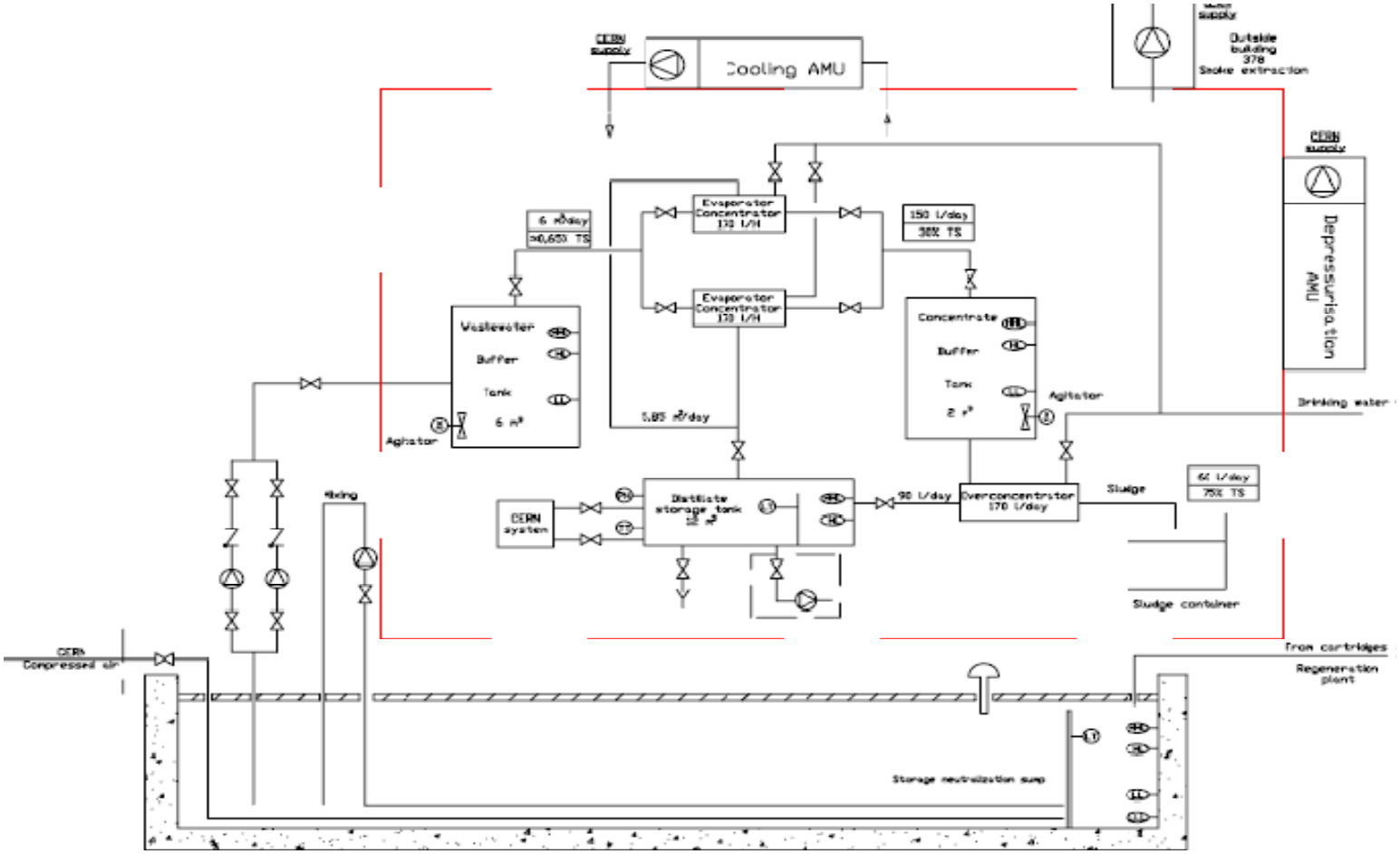
Waste disposal

•Regeneration of the cartridge and treatment of the regeneration wastewater (possibility to store the cartridge for a given time before treatment) at CERN
•If required, neutralization of the acid and treatment at CERN

Estimate

• Around 15kCHF

Water cooling system : wastewater treatment



Water cooling system : proposal #2

Dismantling of the distribution circuit and installation of a new one (to be decided if the cooling station is replaced)

Estimate

•Estimate based on CV contract pricelist : < 60 kCHF

•3-5 weeks of work

Constrains

•No CV Contractors qualified for this work

Consequences

•Need to launch MS and IT (technical specification to be written, delay for the answers and signature of the contract, …)

•Planning : MS 6 weeks, IT 6 weeks, award of contract 3 weeks, works (incl. design + execution) 6 weeks

Summary

Task	Estimate	Duration (tendering + works)
Ventilation proposal #1	35 kCHF	10 weeks
Ventilation proposal #2	130 kCHF	14 weeks
Ventilation proposal #3	180 kCHF	17 weeks
Water cooling proposal #1	15 kCHF	-
Water cooling proposal #2	>200kCHF	21 weeks