

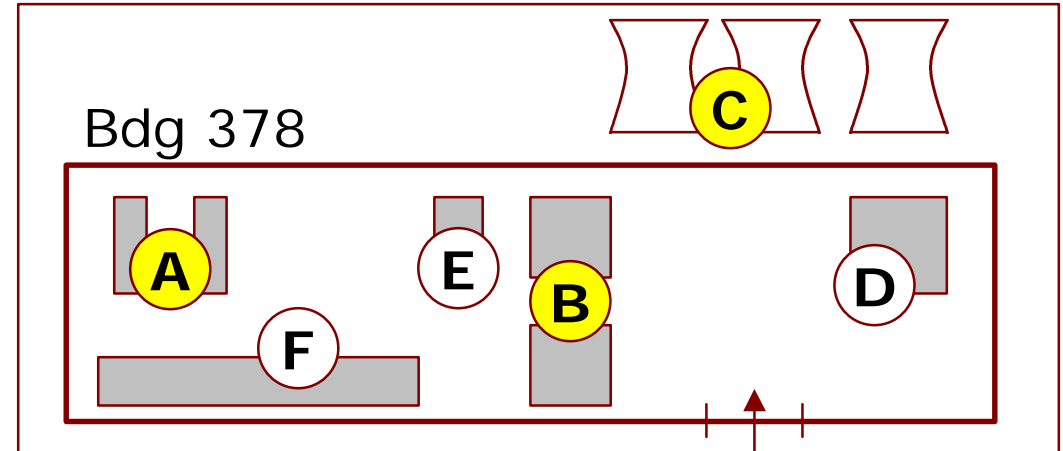
# **West Cooling Area**

**Project for Modernisation of the Building 378**

- **The revision of the project**
- **R-12 Water chiller**
- **Demineralised Water Installation**
- **Cooling Tower**

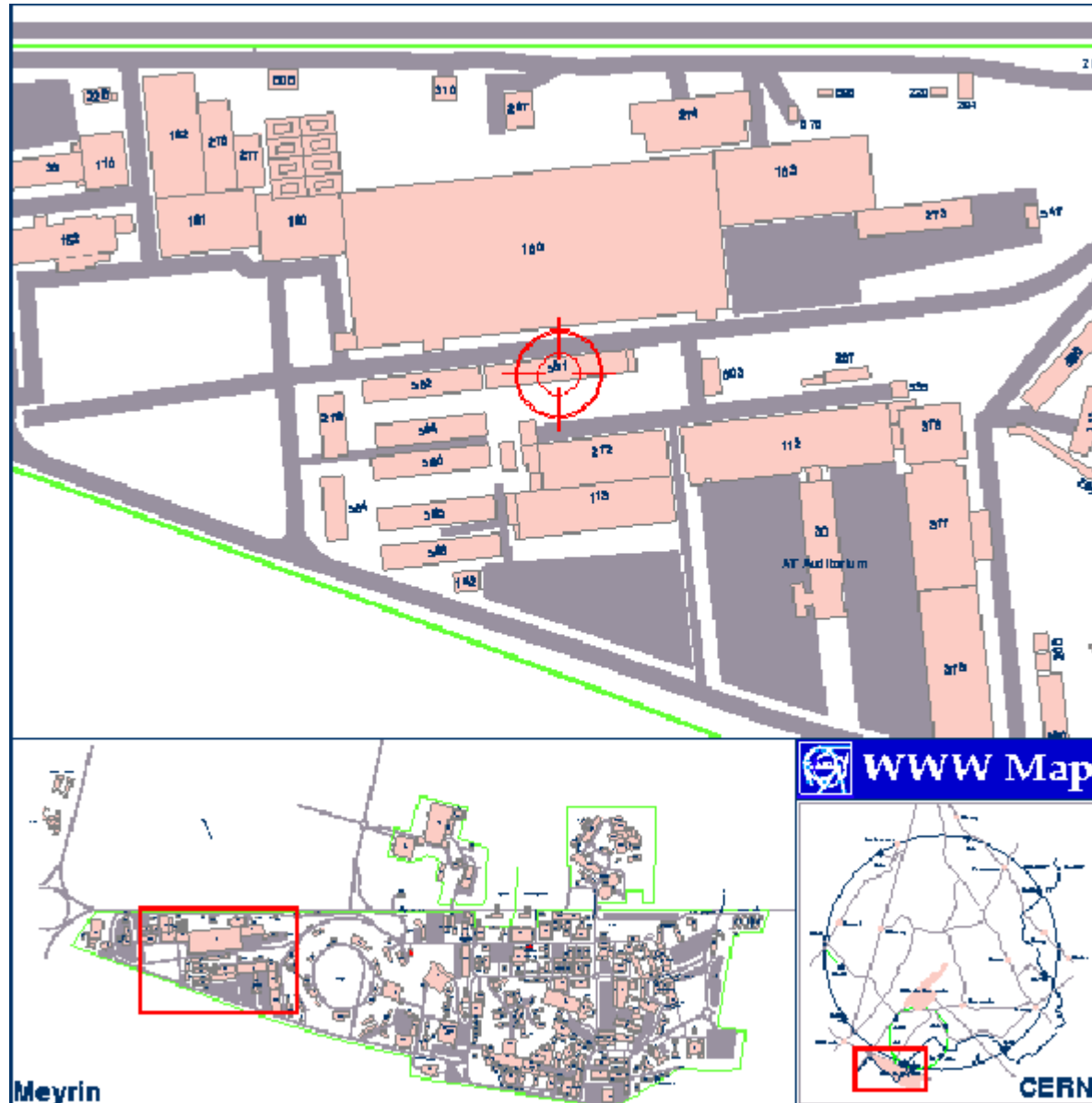
# The West Cooling Area project concern some installations of building 378

## Building Location at CERN



- A - Water chillers
- B – Demineralised Water installations
- C – Cooling Towers
- D – Mixed Bed Cartridges Regeneration Plant
- E – Heat Exchangers
- F – Pumping Station

# The foreseen connection to the West Zone cooling towers



## FREON R-12 elimination problem

The R-12 has to be evacuated only by an agreed company.

At CERN we had 10 tons of used R-12 and about 760 kg of clean and new R-12 . It was a big environmental problem.

To get rid of this product CERN has to pay for its elimination :

If the R-12 could be recycled the foreseen cost was 20 kCHF.

If the R-12 was found contaminated by other refrigerating fluids, it had to be destroyed.

The cost was more than 120 kCHF.

**But in some countries the trade of R-12 is not yet forbidden .**

So I found an agreed company that:

-Recycled the used R12 at no cost

-Accepted to pay for transport, oil elimination, supply of the 750 kg vacuum containers, tubing and the transfer pump.

-Paid us 10.5 CHF/kg the clean and bottled R-12

**In this way CERN solved all R-12 environmental problem and instead of spending 20 or 120 kCHF, it earned about 7500 CHF.**

A modification of the hydraulic circuit has been implemented, condemning a 50 m length of 600 mm dia. old tubing, valves and other very worn parts and rationalizing the circuit.

And by the end the three groups have been dismantled by GEMATEC and the resulting 75 tons of materials have been sold as selected scrap metal.

At the moment we gave the authorization to the temporary installation of the machine to clean the 16 m long tubes for LHC, this work was very satisfactorily ended.

We think to use the space that was under the old chillers to store the “warm” SPS mixed bed cartridges before their regeneration

## Demineralised water installations

It is the largest installation at CERN, providing 25 m<sup>3</sup>/h of 0.1 µS demineralised water but it is a more than 30 years old installation.

Nevertheless it has always been very well maintained

After a careful analysis of the circuit, I decided to ask for a replacement quotation for the most worn parts: the valves.

And for the obsolete process control unit too.



## Cooling tower

In front of the 378 building is a group of five large towers, but only one still works (the T2) and is not in its best shape.

There is also another tower, dismissed by long time.

But the rain has no minerals and is a little bit acid, so the packing of this tower after years of rain is pretty new!

And the plastic lined concrete basin too.

It is a 4-5 MW Thermotank tower that equipped the Sulzer cooling station

I asked for a repair quotation to the Scottish firm that took the business of the dead Thermotank.