



# Complex buildings and safety systems at ILL

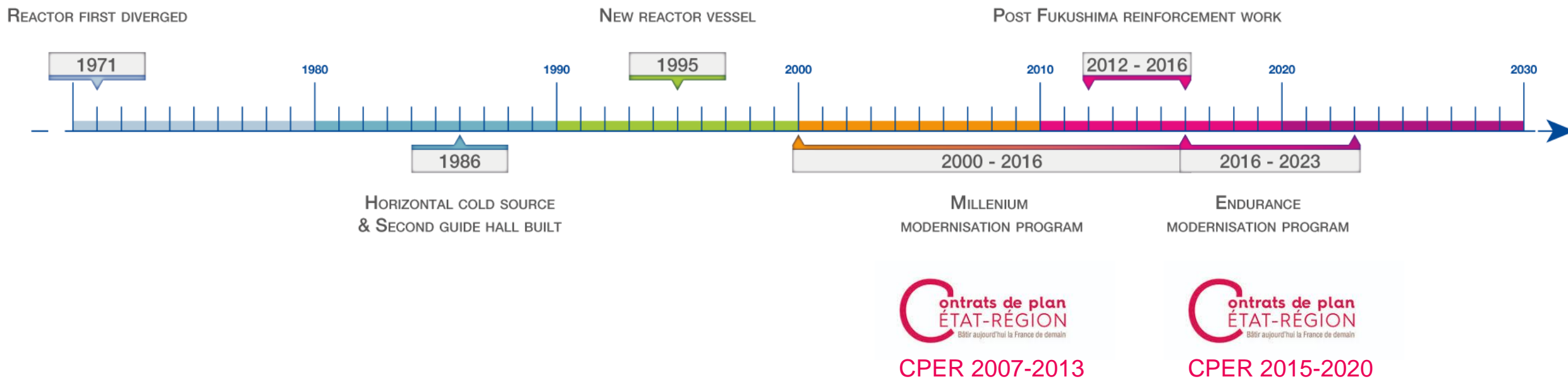
# AFTER MORE THAN 50 YEARS, WE ARE STILL THE EUROPEAN REFERENCE SOURCE



The ILL operates the most intense neutron source in the world,  
at the service of international scientists,  
to carry out cutting edge research at the frontiers' of modern science.

# MODERNISATION PROGRAMMES

A constant upgrade of our facilities and instruments is the secret of our excellent, modern and highly efficient instrumentation suite (see also Parallel session C1: High Precision and Large Mechanical Components - D. Bazzoli)



Modernizations and upgrades of the reactor, of the infrastructure buildings, of the security and safety on site allows to provide a healthy work environment and to respond to new regulatory requests.

# SECURITY: INSTALLATION OF A PHYSICAL PROTECTION SYSTEM

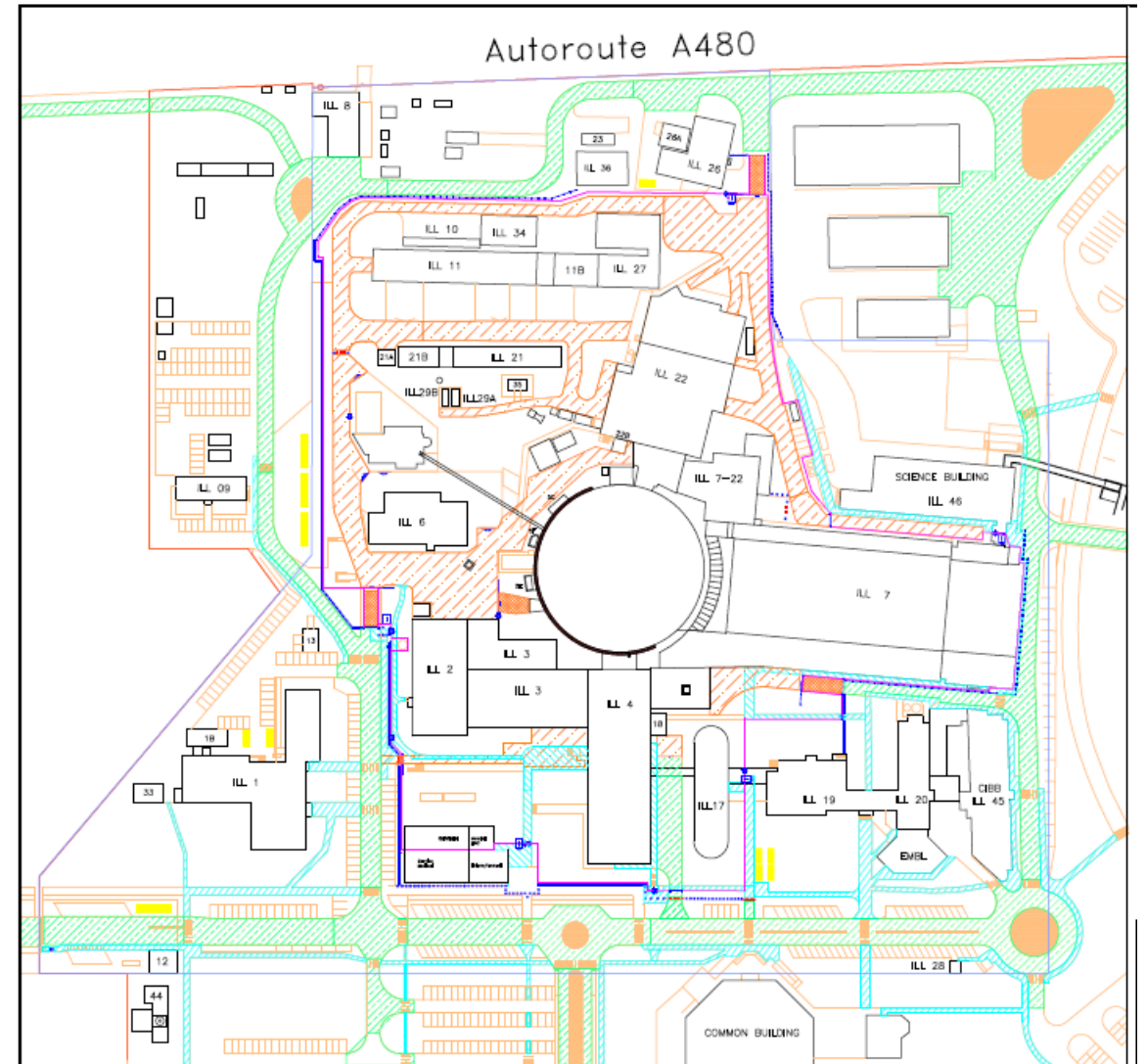
Two main french laws define the needs for the physical protection project (RPP), settling the obligations for Nuclear Installations.

Creation of a ZAC (Controlled Access zone) including most of the buildings of the Institute.

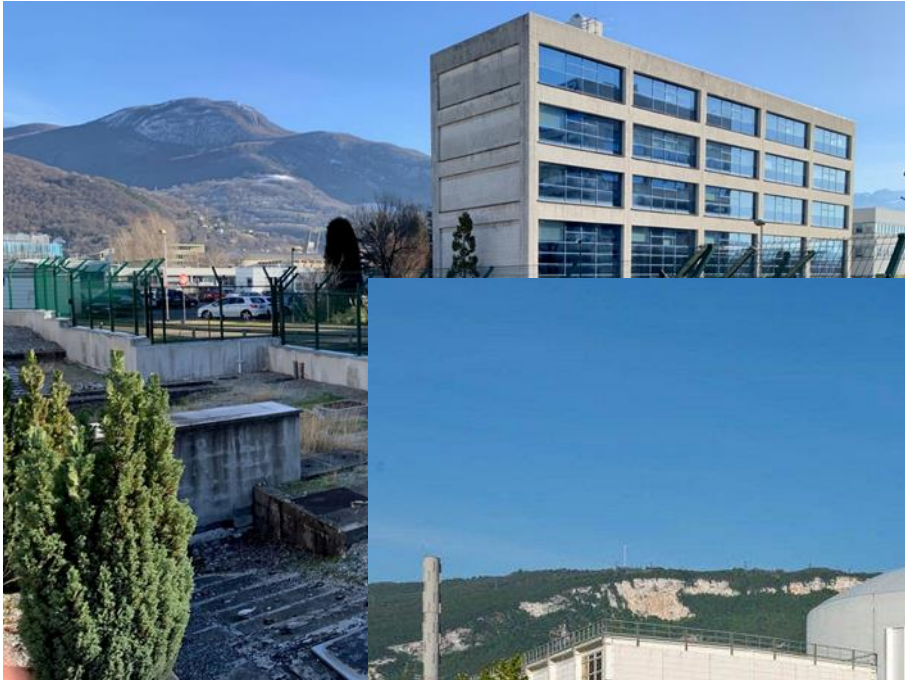
Project size and duration:

- 2 km of detecting fence
- 1 reception building
- 12 access points for pedestrians, material and authorized vehicles
- Video control
- Infrastructure and control room.
- Lightening strike protection

First step: 4 years (2018-2022) and 12 M€



# SECURITY SYSTEM: CONTROLLED ACCESS ZONE



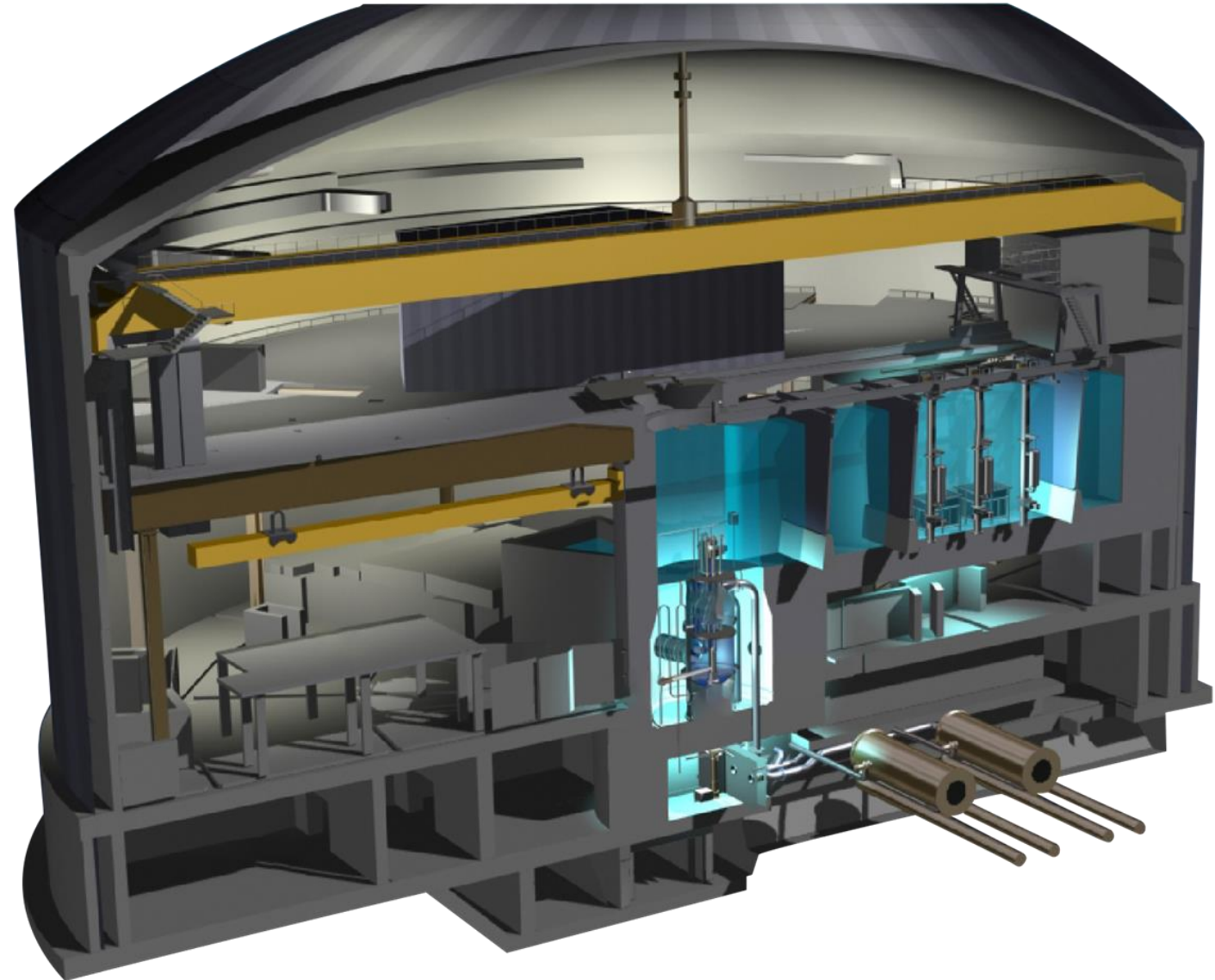
Industries involved:  
Civil engineering/construction  
Intrusion detection systems  
Video surveillance

Next step: protection of experimental areas and reactor building in preparation **IT**

# SAFETY SYSTEMS: FIRE PROTECTION EVOLUTION

The reactor building is a structure sealed from the outside inside which several different instruments are located.

In order to comply with safety rules and to guarantee an efficient fire fighting protection, a more efficient system needs to be implemented, capable to function also in case of major natural disaster



# SAFETY SYSTEMS: FIRE PROTECTION

Protection reactor building and experimental hall from the propagation of fire due to the presence of highly flammable materials

Example: Panther Instrument



30 tons. of borated HDPE

Applied measures: containment pool and fire retardant wall

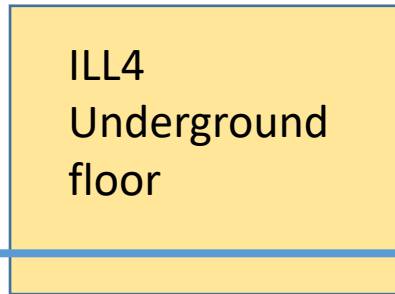
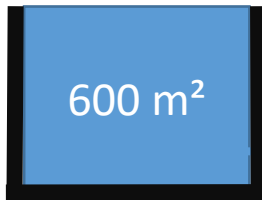
- *Panther is also a very good example of industrial collaboration for the supply of PEHD and vacuum chamber*

# SAFETY SYSTEMS: FIRE PROTECTION EVOLUTION

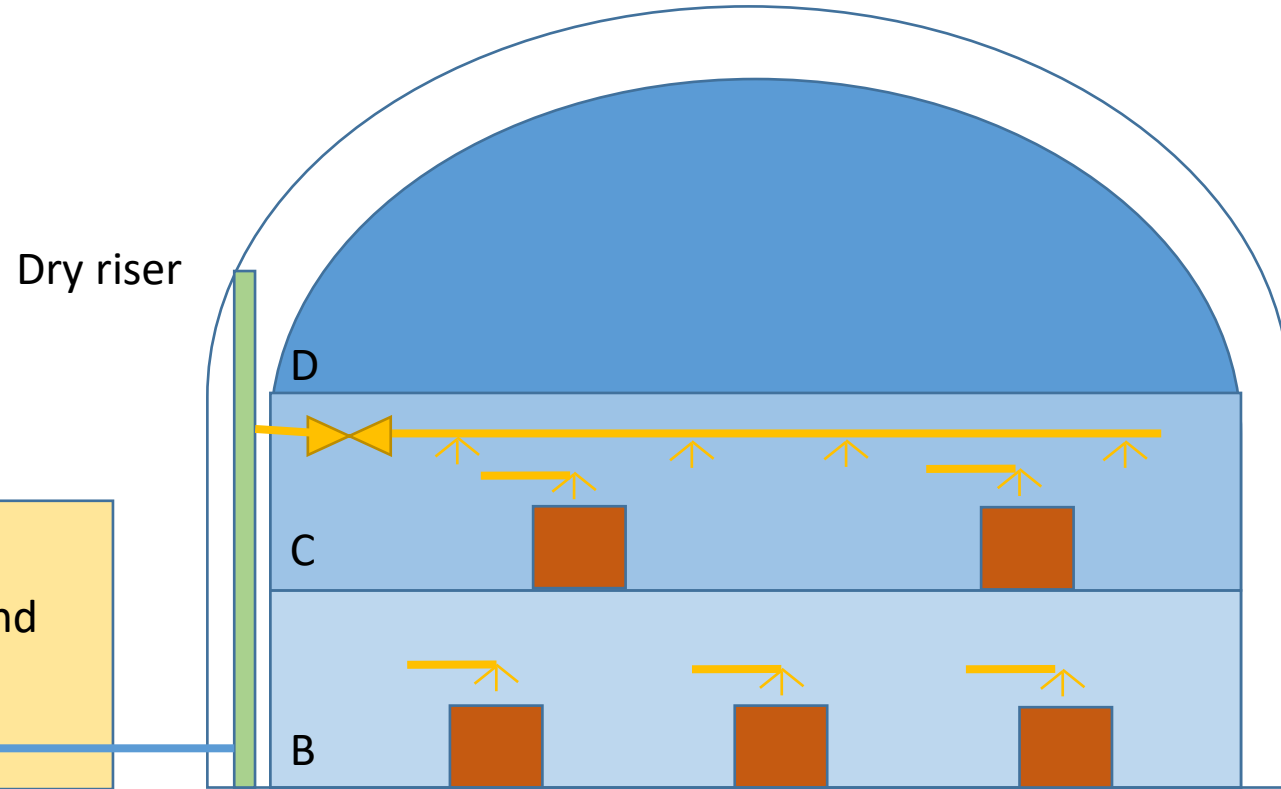
Installation of a permanently connected sprinkler system



Installation of the circuit and 600 Sprinkler Heads able to resist an earthquake



NF EN12845 or APSADRI  
ILL project owner and project manager  
Realization: 08/2023 - 04/2024      Budget: 4 M€







**Big Science  
Business  
Forum  
2022**

*THE EUROPEAN NEUTRON SOURCE*