

- 1.Engineering solution
- 2.Administrative approach

THE PSS (Personnel Safety System)

PSS Objective:

- NOBODY is inside the Bunker + Tunnel+BLs
- NOBODY receive more that 1 mSv/year

PSS Patrol (2 + 1 persons / 1 person):

- Training
- Responsibility in each 'search button'
- MUST guarantee that NOBODY is left IN

1. Engineering solution

3. PSS - BASIC DESIGN

- ❖ The PSS will be implemented and installed by an external company:
- ✓ Main technical specs:
 - Scope: LINAC, booster, storage ring & BLs
 - SIL-3: redundant and diverse
 - PLC based
 - Modular structure: LINAC + booster+ storage tunnel & BLs
 - 3 cabinets
- ✓ Main bidder's supplies:
 - Hardware: SIL3-PLC, emergency buttons, etc.
 - PLC code
 - Installation
 - Certification (by an external company)

1. Engineering solution

❖ PSS components control:

✓ LINAC:

- e- Gun
- RF klystron
- Bending magnet
- Bremsstrahlung shutter

✓ Booster:

- RF IOT
- Specific magnets (dipole and/or quadrupole)

✓ Storage Ring:

- RF IOTs
- Specific magnets (dipole and/or quadrupole)

✓ Front End:

- Photon & Bremsstrahlung shutters

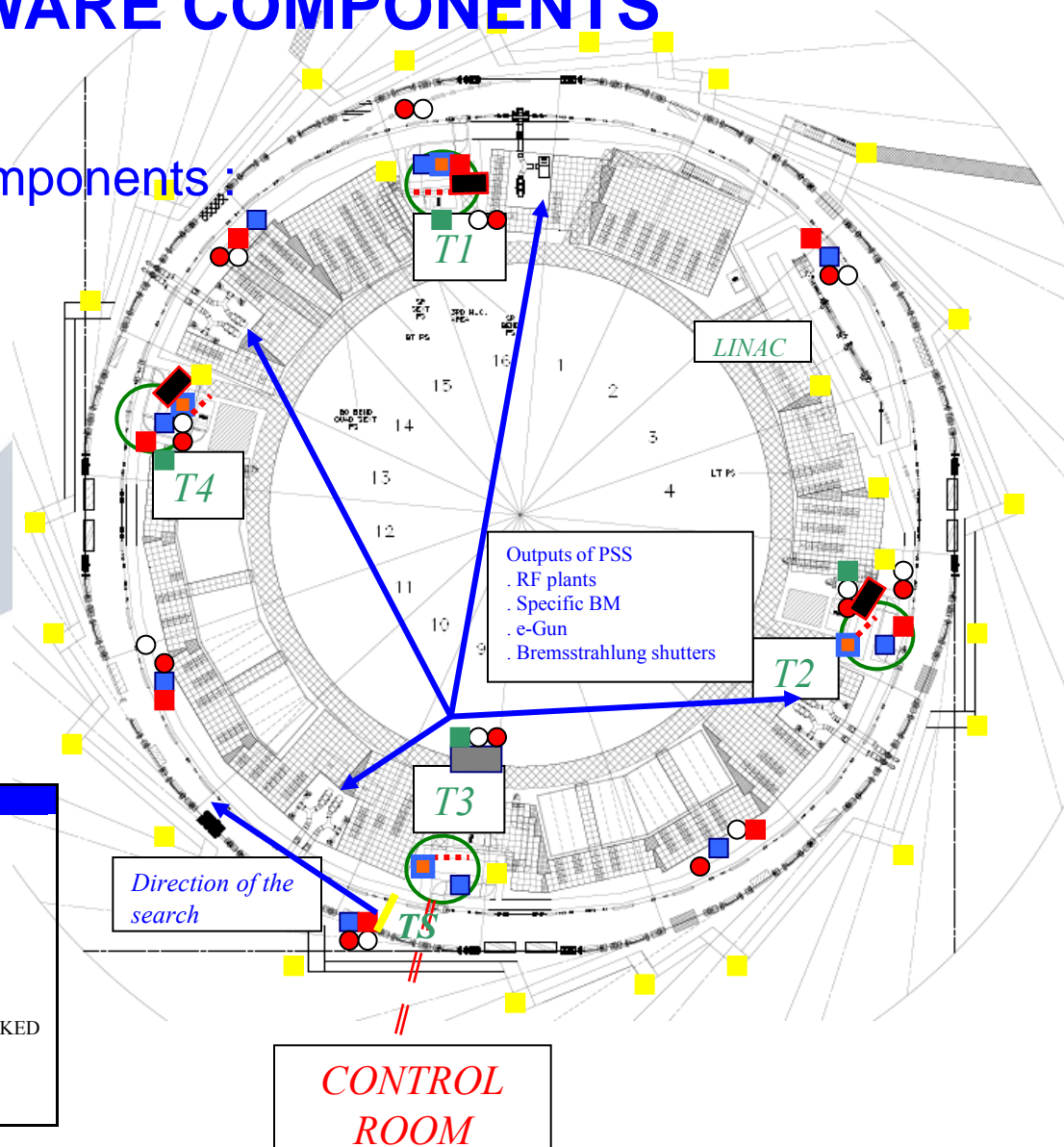
✓ BLs:

- Safety shutters

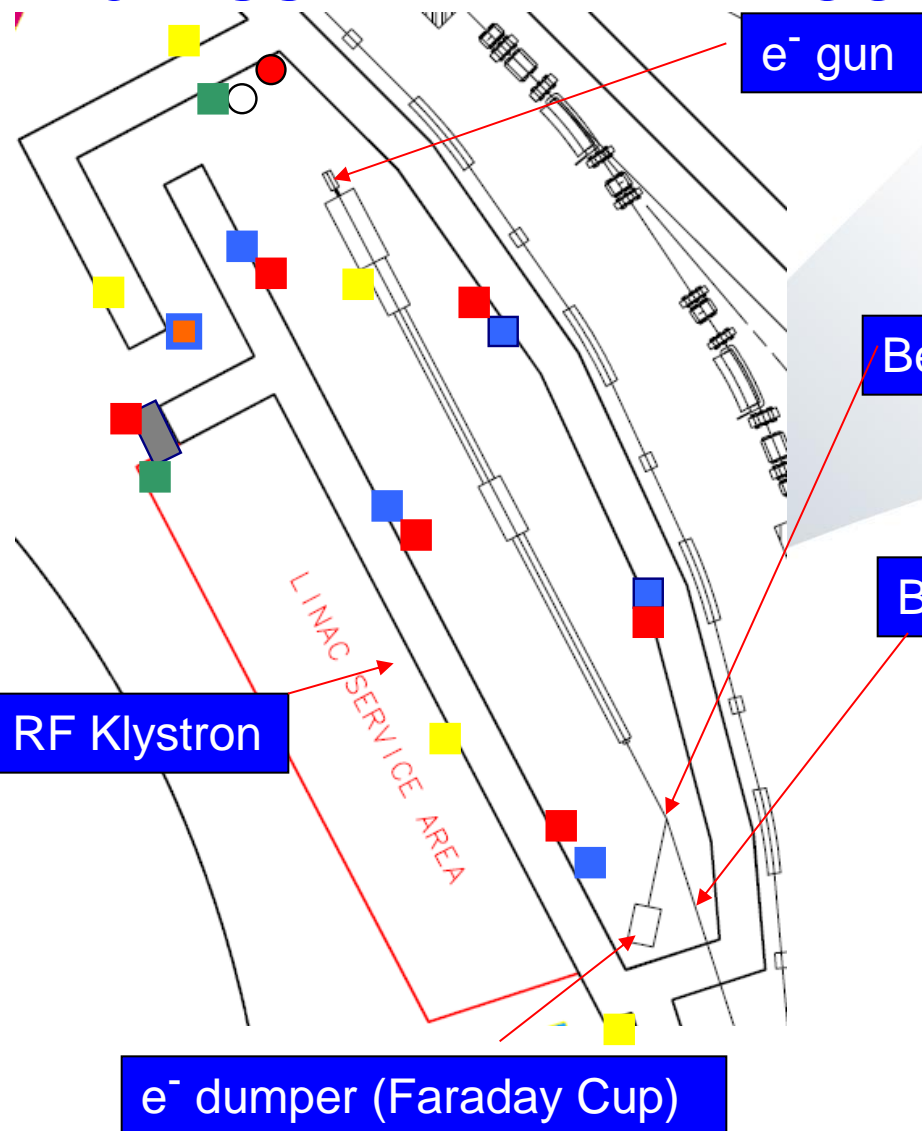
3. PSS - HARDWARE COMPONENTS

❖ PSS Layout

✓ Layout for the PSS components :



3. PSS - HARDWARE COMPONENTS



❖ PSS Layout
✓ LINAC detail

Symbol	Meaning
	Search button
	Emergency button
	Access door
	Sector door.
	Main PSS cabinet with buttons and key panels
	Secondary PSS cabinet with buttons and key panels
	Siren and blinking light
	Light panel: BEAM ON, OPEN, RESTRICTED, INTERLOCKED
	Radiation monitor
	Button to open the door. From inside.
	Loudspeaker

1. Engineering solution

THE PSS (Personnel Safety System)

The access to the Tunnel is controlled by:
(you will get the permission from)

The PSS (no permit at all):

When the PPS cabinet light is **RESTRICTED**,
INTERLOCKED or **BEAM ON**

- When the Search Starts: sound + message + light -
> **LEAVE THE BUNKER / TUNNEL IMMEDIATELY**

Control Room:

When the PPS cabinet light is **OPEN**

Nowadays, please contact Control Room

1. Engineering solution

PSS: CONTROL TUNNEL ACCESS



1. Engineering solution

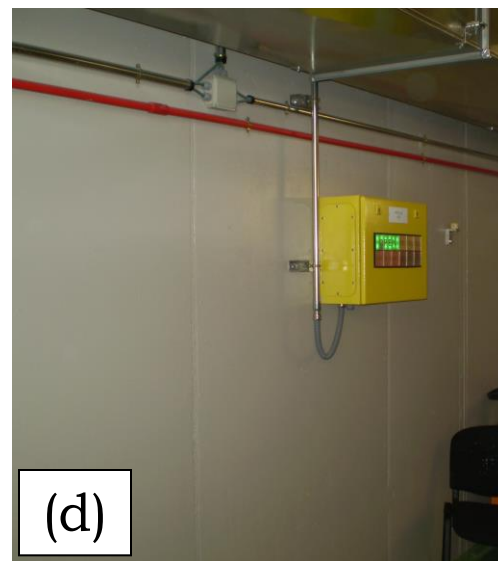
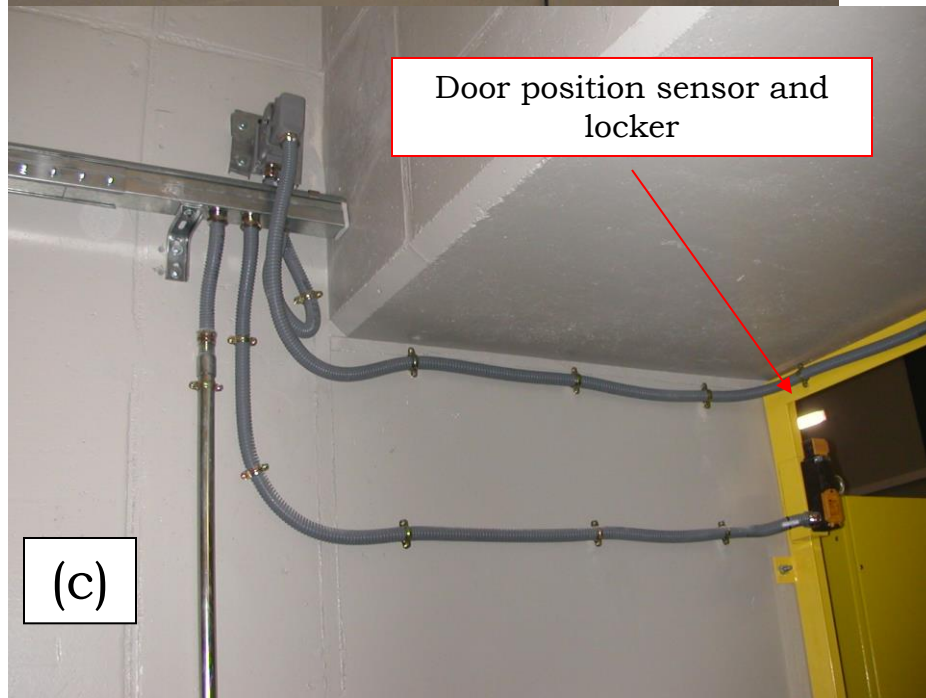
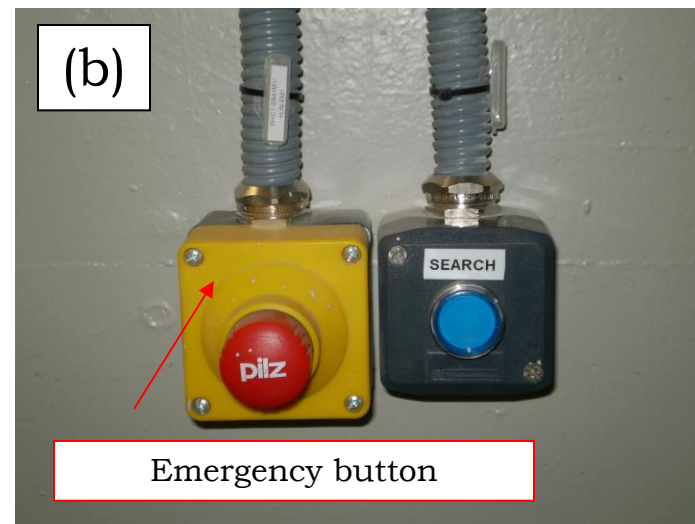
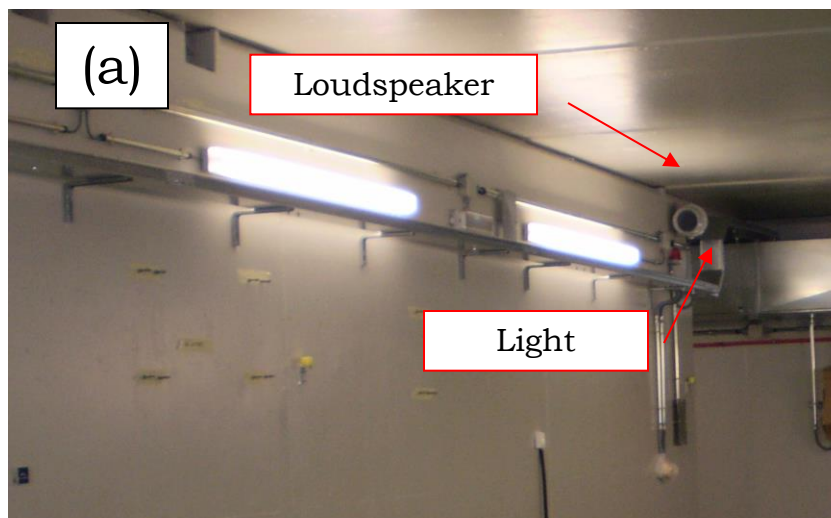
PSS - CONTROL TUNNEL ACCESS



1. Engineering solution



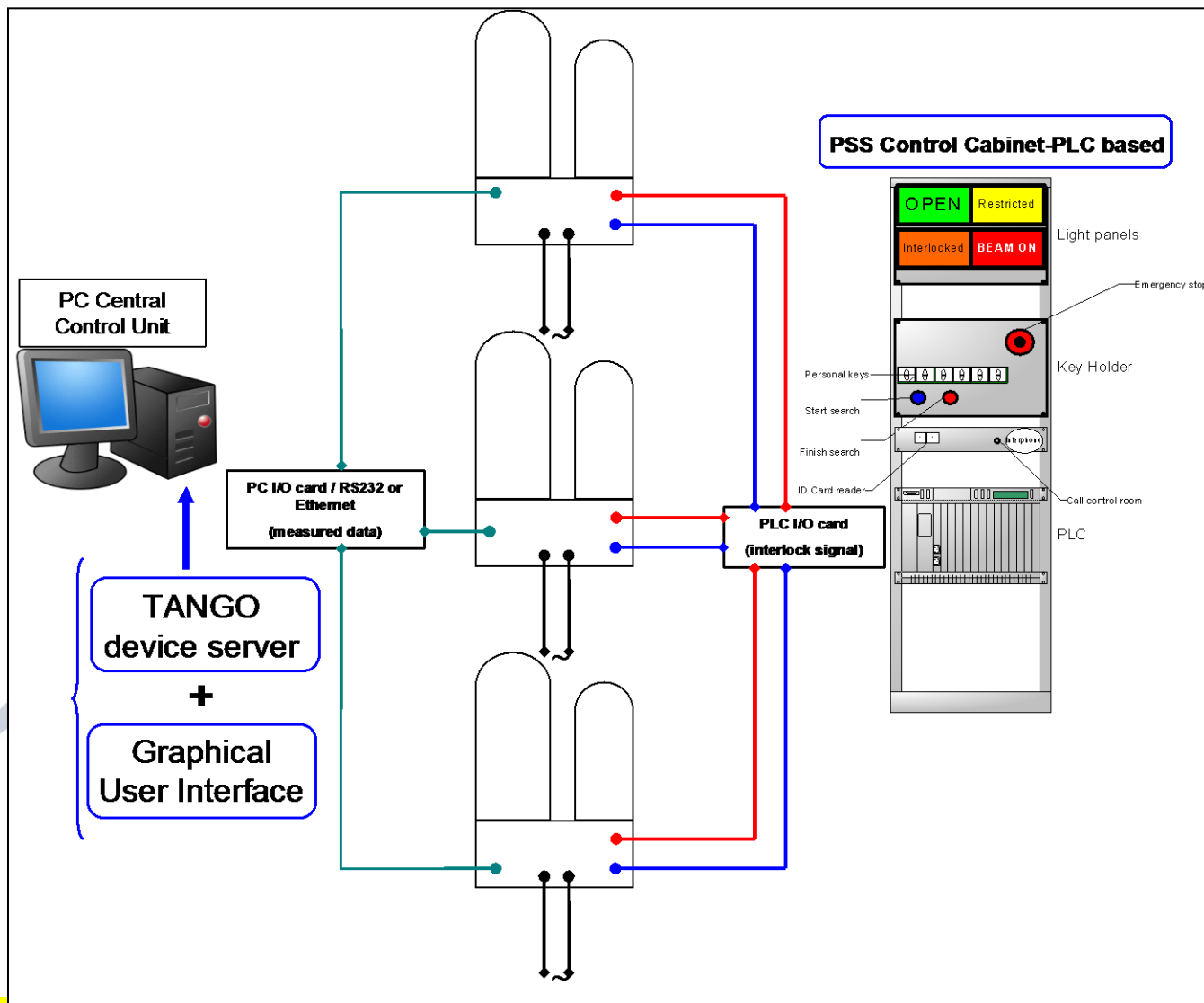
1. Engineering solution



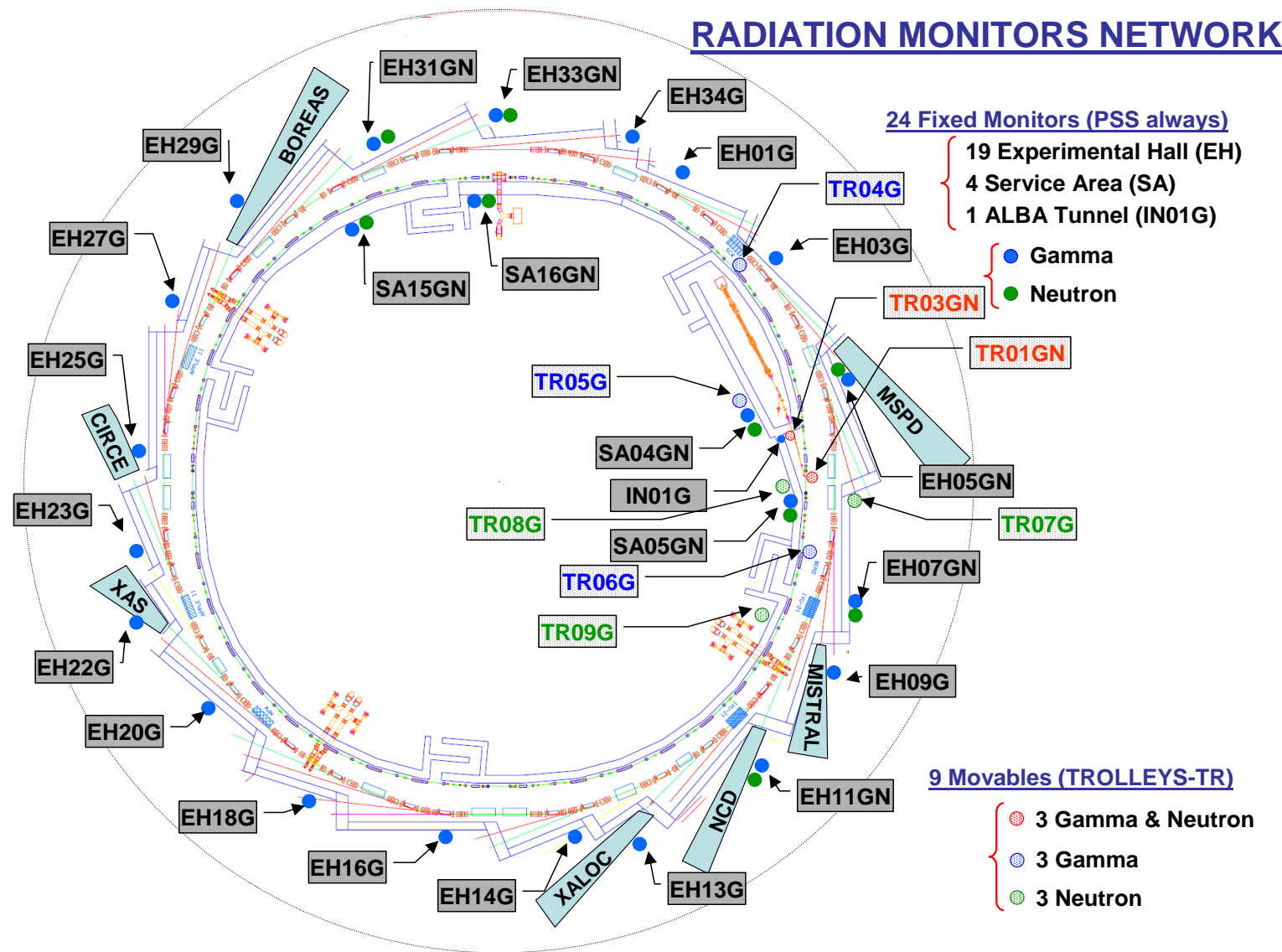
1. Engineering solution

3. PSS - HARDWARE COMPONENTS

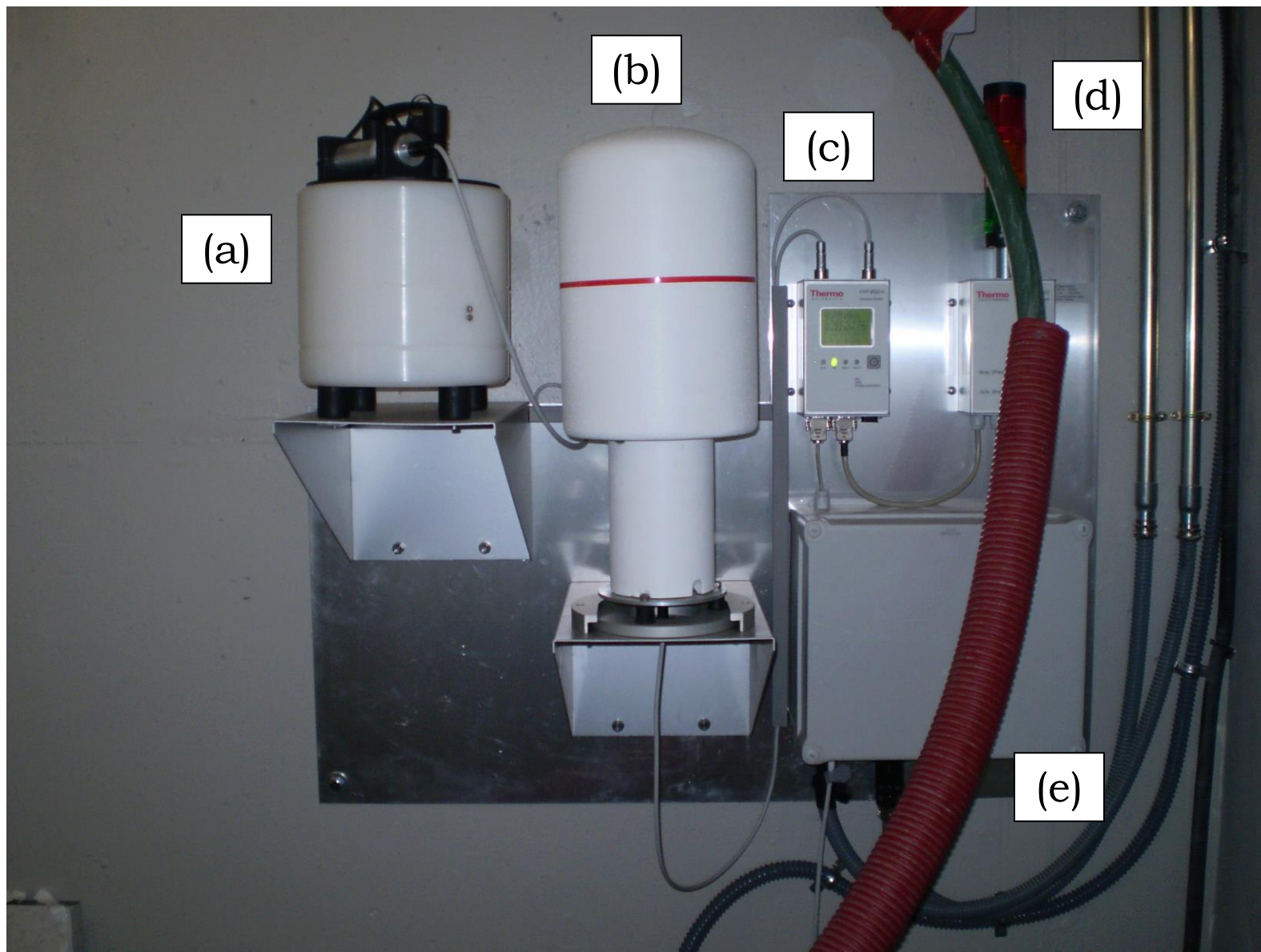
❖ Radiation monitors network:



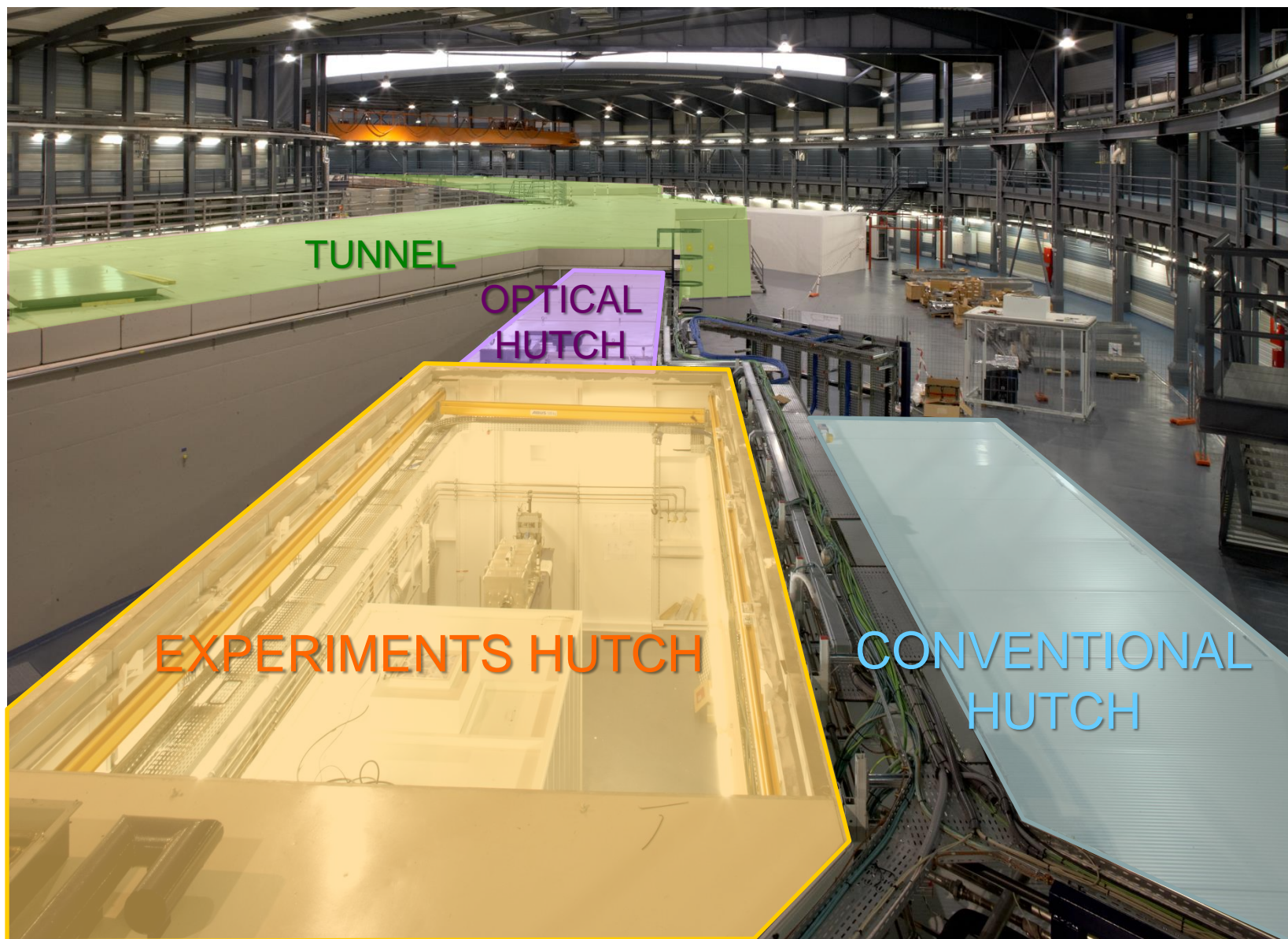
1. Engineering solution



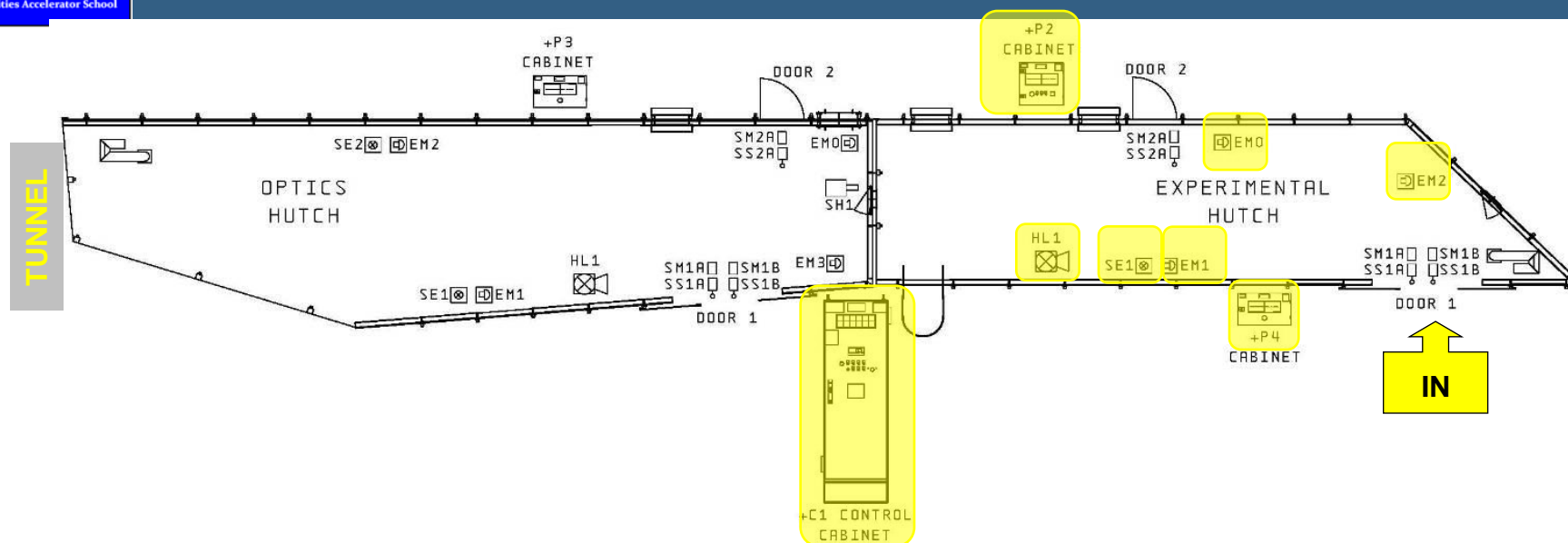
1. Engineering solution



1. Engineering solution



1. Engineering solution



PSS Cabinets

Lead doors

Horns



Search buttons



Emergency buttons



2. Administrative approach

ACCESS TO THE EXPERIMENTAL HALL



FREE ACCESS

2. Administrative approach

ACCESS TO THE EXPERIMENTAL HALL



**ACCESS WITH
ELECTRONIC
PERSONAL
DOSIMETER**

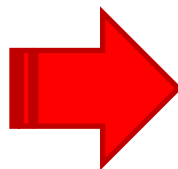
An Electronic Personal Dosimeter - EPD:

- Registers radiation received by an individual
- Is used as an additional backup for radiation control



2. Administrative approach

ACCESS TO THE EXPERIMENTAL HALL



**USER ARE NOT
AUTHORISED
TO ENTER**



2. Administrative approach

TWO RULES:

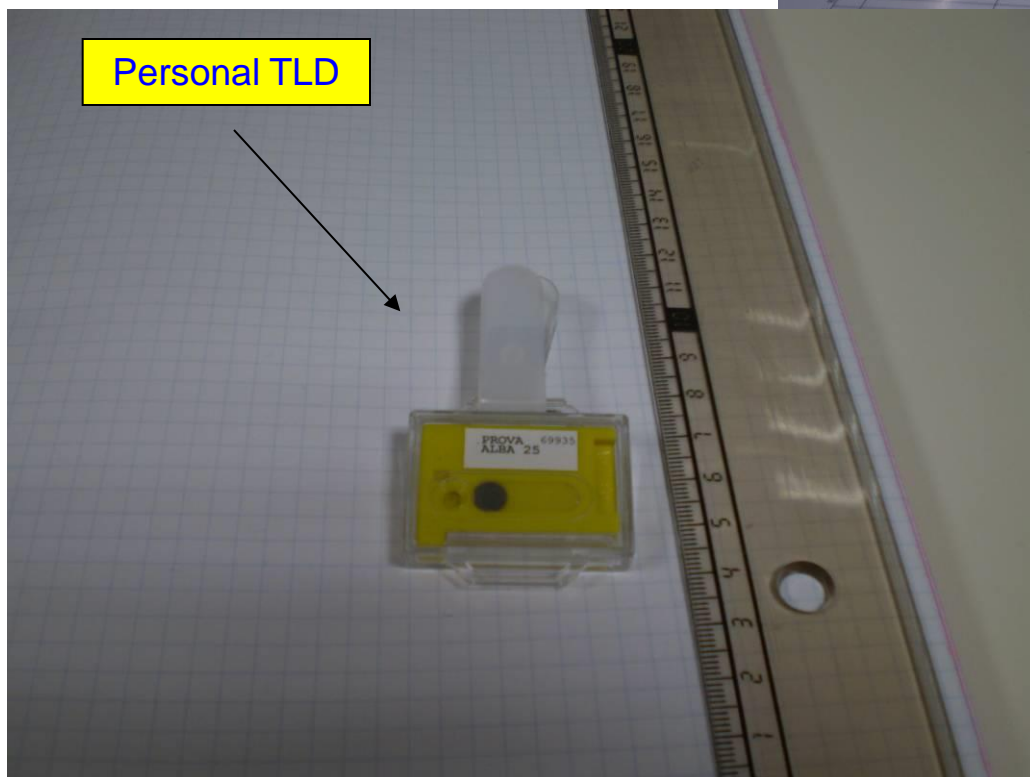
- ✓ Everybody in a Watched/Controlled zone **MUST**:
 - Wear a TLD dosimeter (all workday) and:
 1. Take your TLD always with you in a visible place.
 2. Do not knock it.
 3. Do not warm it up, ie do not put next to a heater
 - Use an electronic dosimeter
- ✓ Accelerators operation

2. Administrative approach

EPD: Electronic Dosimeter



Personal TLD



2. Administrative approach

➤ Radiation Safety Protocol

