Tunnel Temp Issues (Limitations, Requirements, Desirable Features, Design)

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Major Breakdown

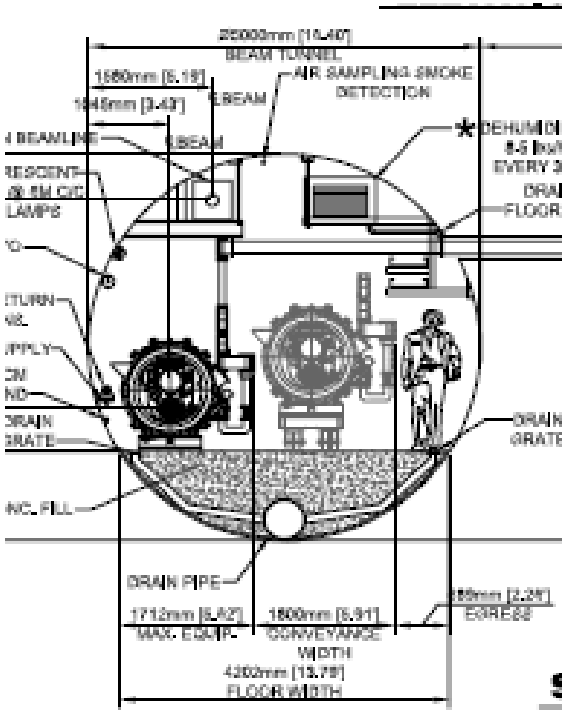
- Creature Comforts
  - **Work environment**
  - **Productivity**
- Machine environment
  - **Life cycle cost**
  - **Reliability**

Creature Comforts

- A combination of temperature and humidity – WB & DB Temperature
  - **Initial installation, during operations, during shutdowns periods**
  - **OSHA Guidelines**
    - Criteria is subjective, based on type of work and % of rest time allotment
  - **Need to understand the type of work, duration of work, and hazards of the work in order to reach a consensus that is reasonable,**

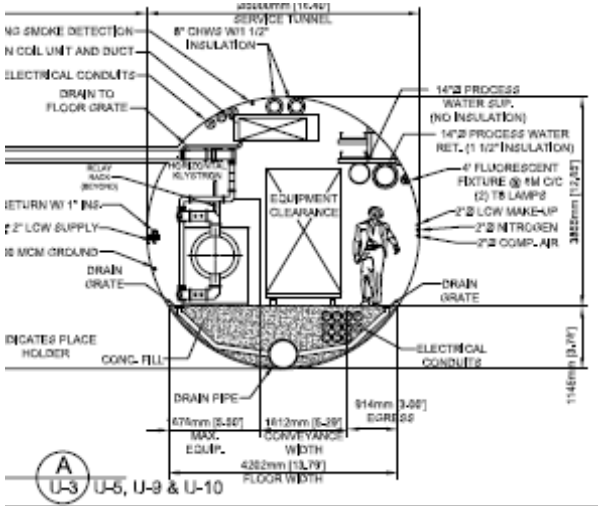
Machine Environment

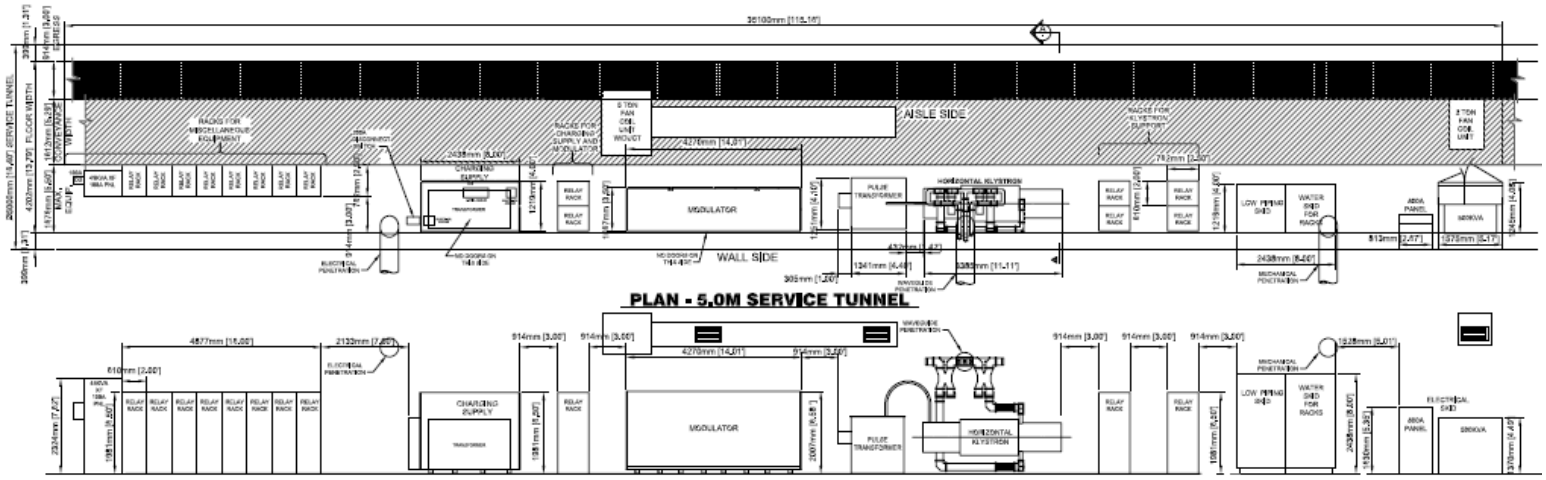
- Beam Tunnel
  - **Humidity**
    - Conventional will require the humidity to be maintained below “wet” conditions to protect conduits, concrete, and structural attachments.
    - Other requirements?
  - **Air Flow**
    - Flow for humidity control, personnel access, and to control gas build-up.
    - Fire and purge separate.
  - **Temperature (Stability)**
    - ?



Machine Environment

- Service Tunnel
  - **Humidity**
  - **Air Flow**
  - **Temperature**





Service Tunnel

- Humidity and Air Flow – similar requirements as Beam Tunnel.
- Temperature
  - **Heat to air can be controlled for a number of components. Air temperature models being modeled at Fermilab. (Just started – need three weeks)**
  - **Certain components benefit from a reduced operating temperature – can be resolved via a number of alternative designs.**
  - **Currently the criteria for temperature stems from assumptions made for creature comforts.**

Creature Comforts – Service Tun.

- Discussion topics
  - **Current design assumptions**
  - **Tunnel occupancy, frequency, type of work activities**
  - **Consensus on OSHA description**
  - **Design alternatives and cost drivers**