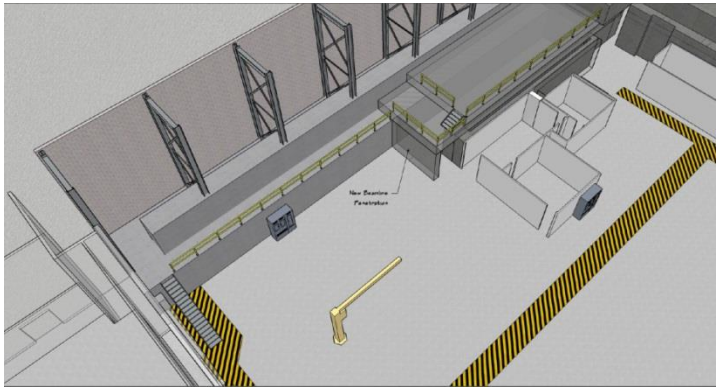
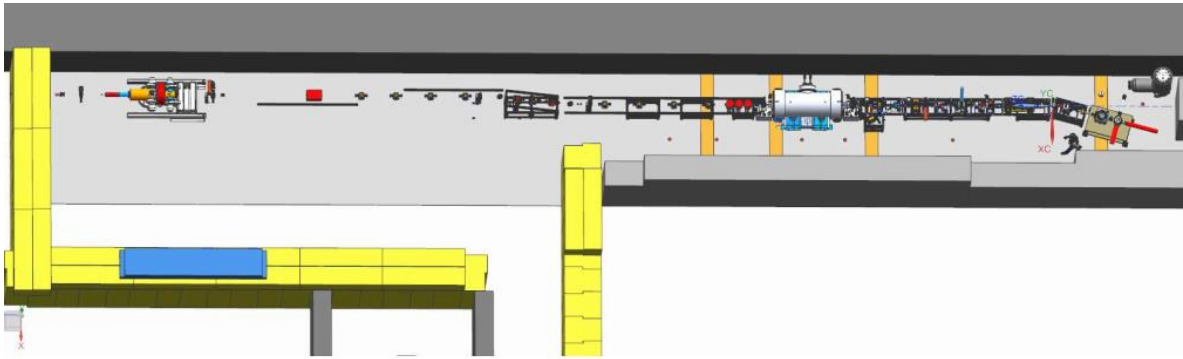
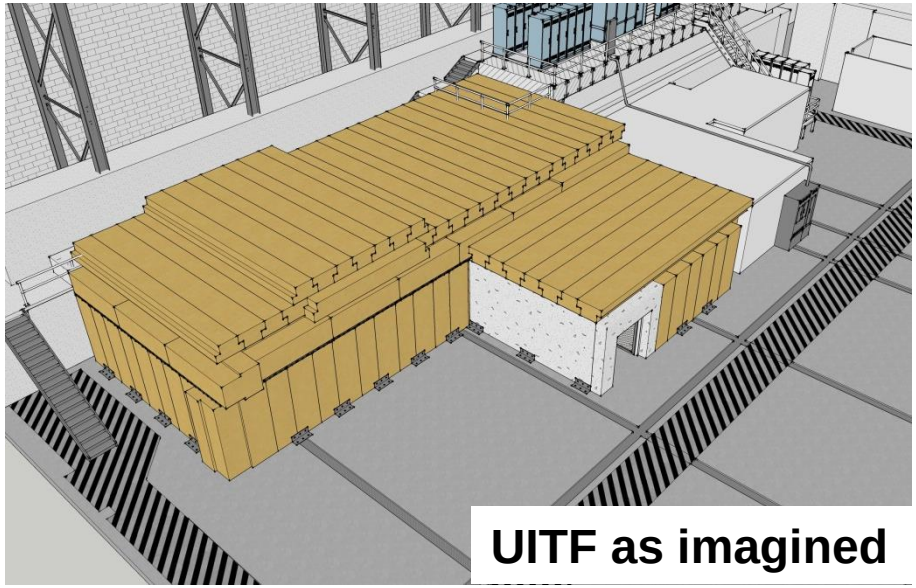
To refresh your memory…

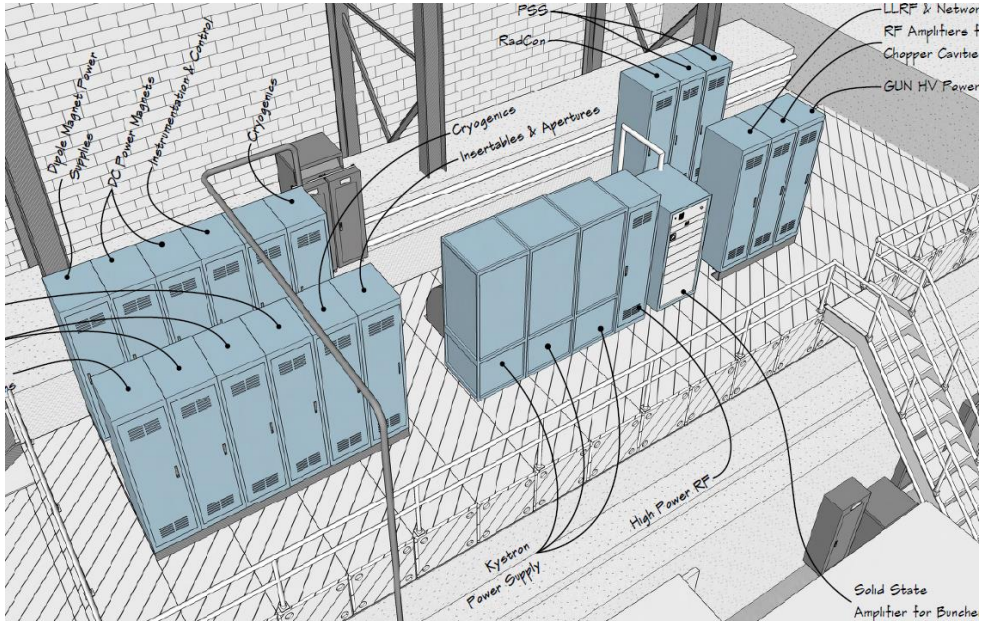
What we started with…



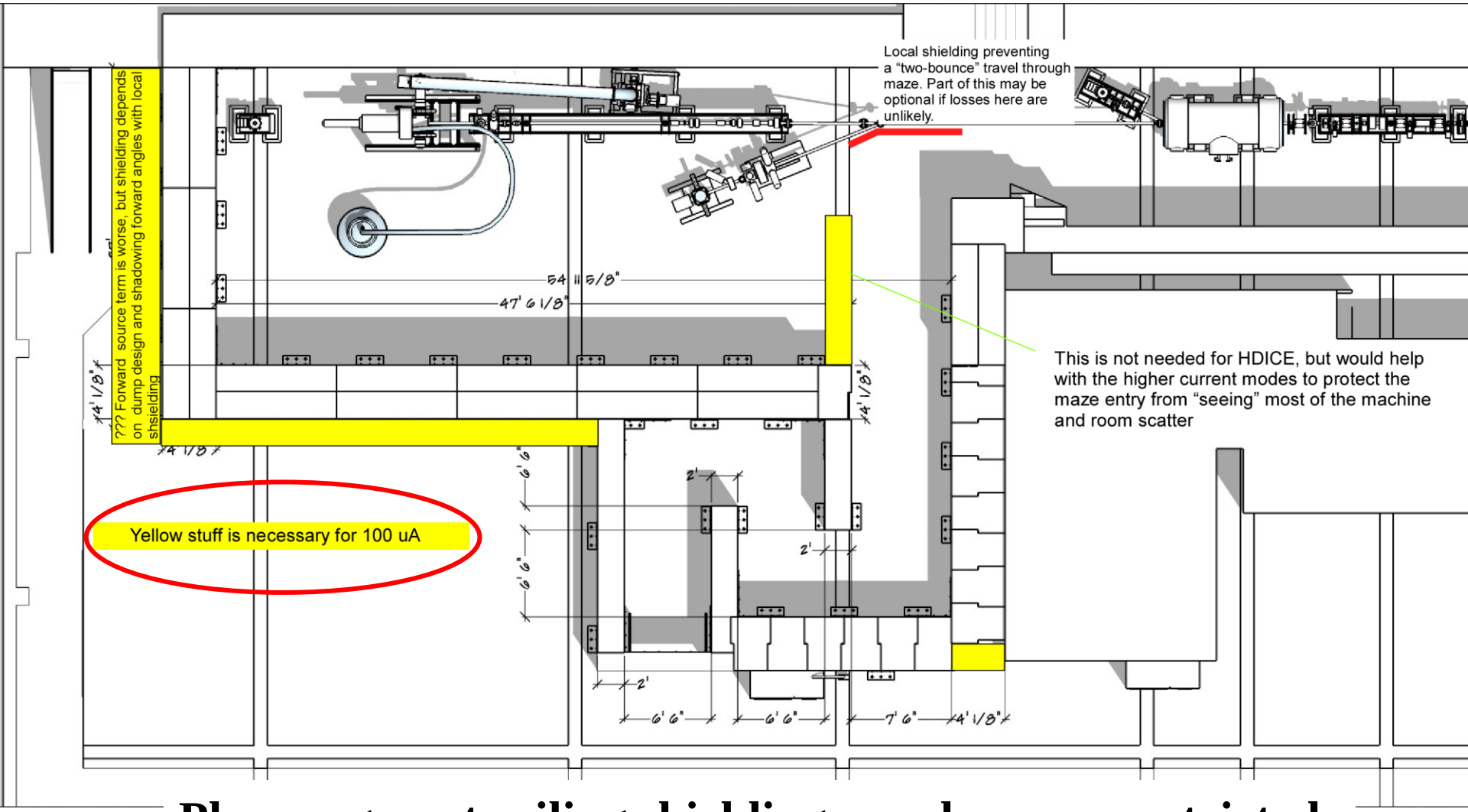




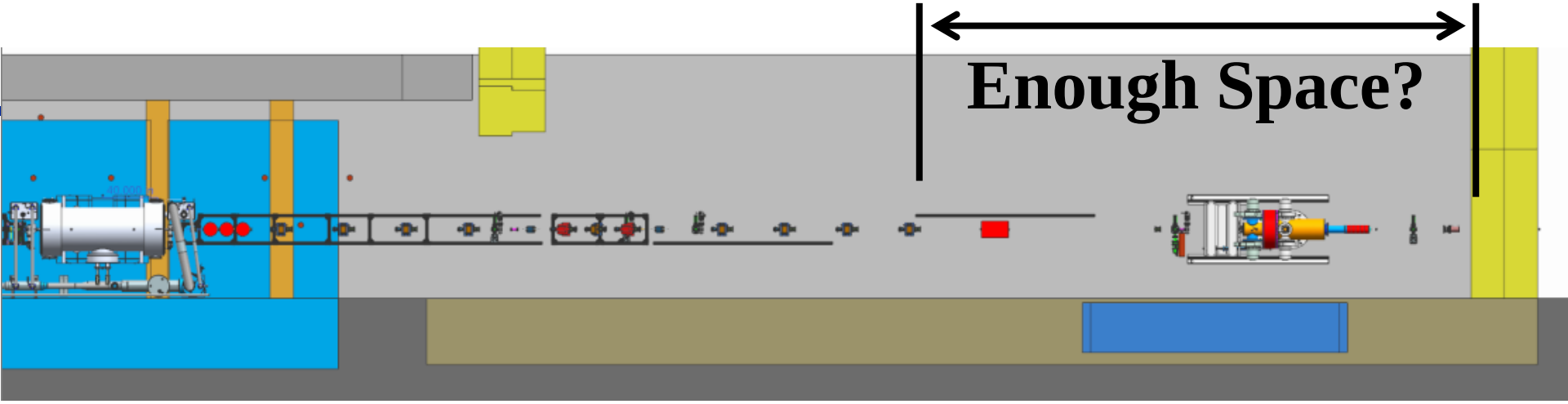
UITF as imagined



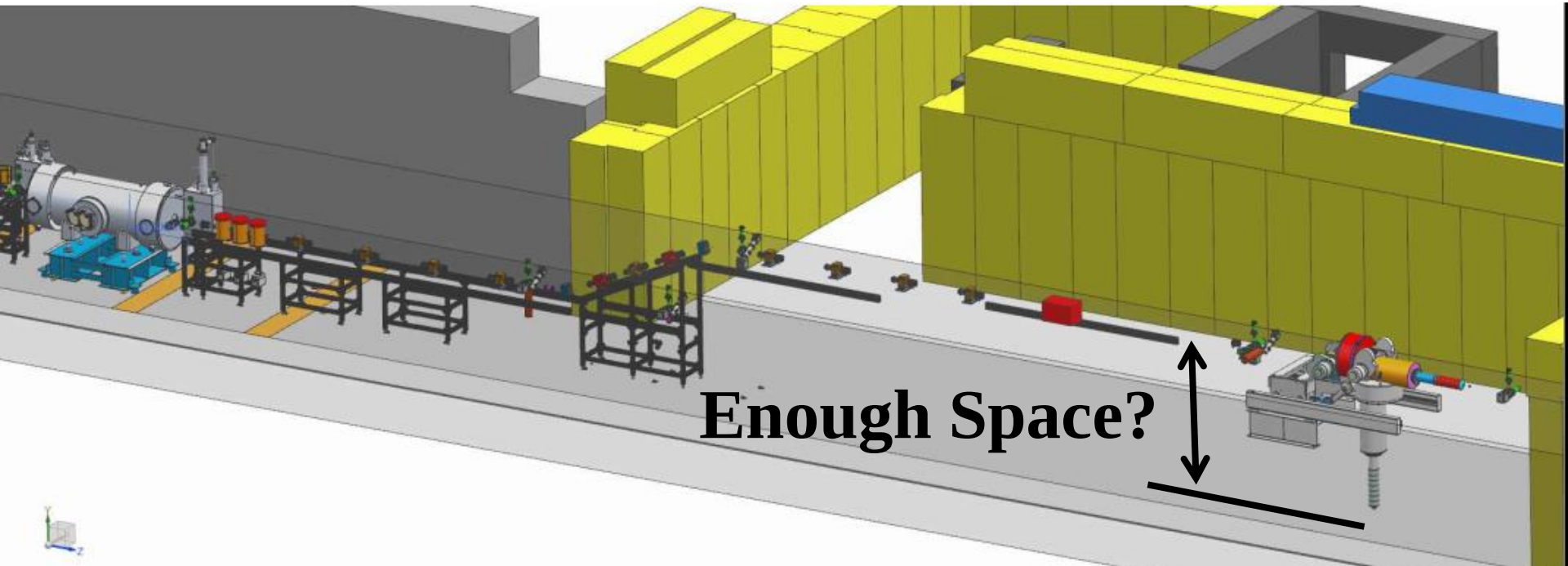
Approved Labyrinth and a plan for 100uA

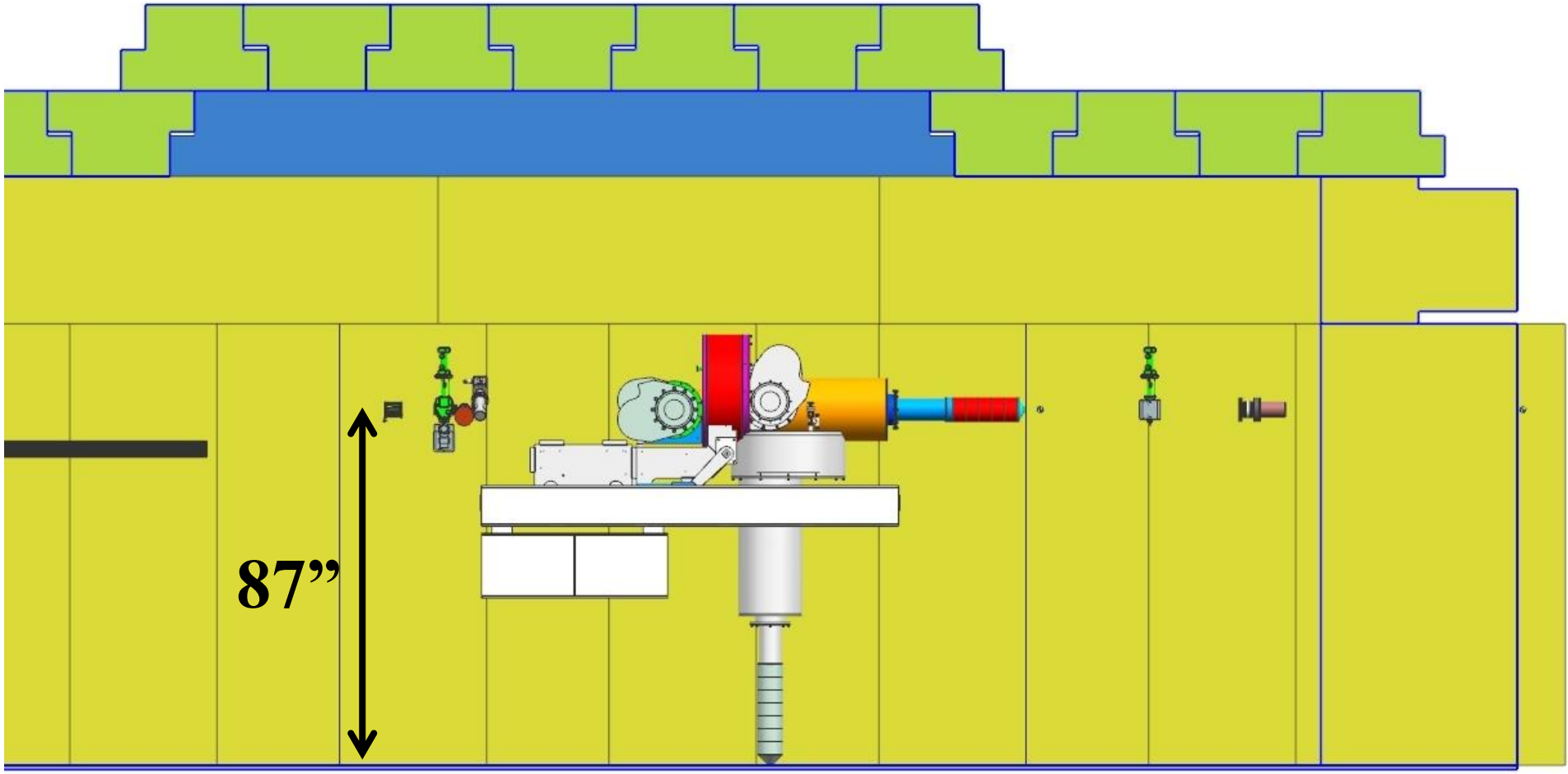


Plus: augment ceiling shielding, maybe some restricted areas, and be generous with local shielding of dumps



- **The chicane dictates 11 quads to provide a tight and round beam at HDIce, does this leave enough space for HDIce? Consider raster and beam dump requirements**
- **Physics Division should provide accurate HDIce model, Shaun needs a Physics Designer POC**





Need to agree on height soon, as this affects many things

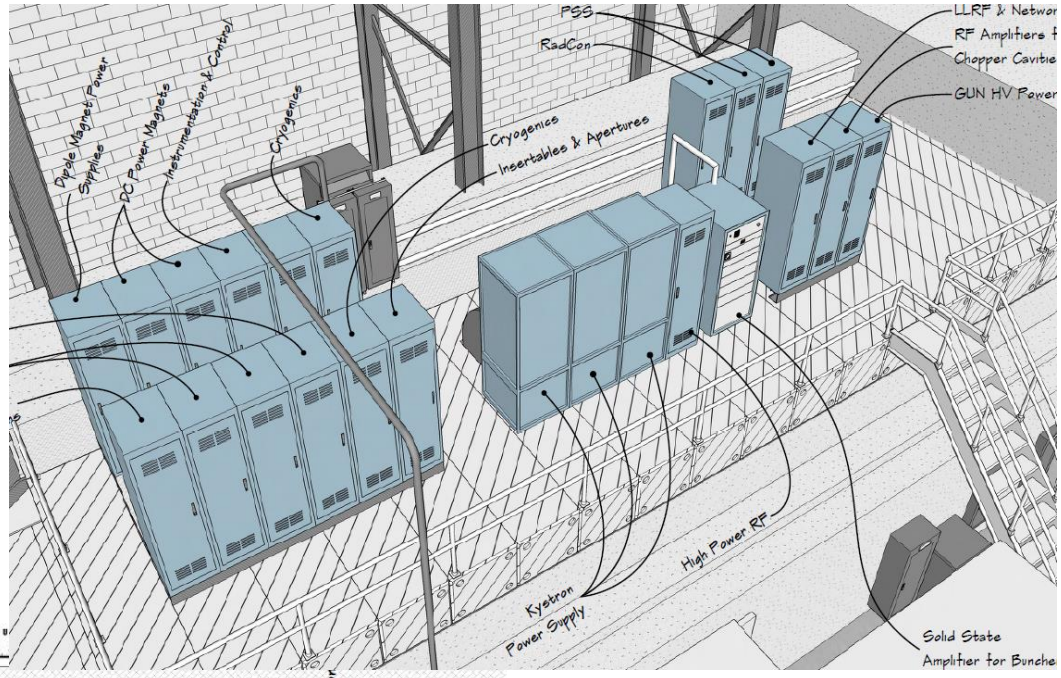
Cave 1 cleared out

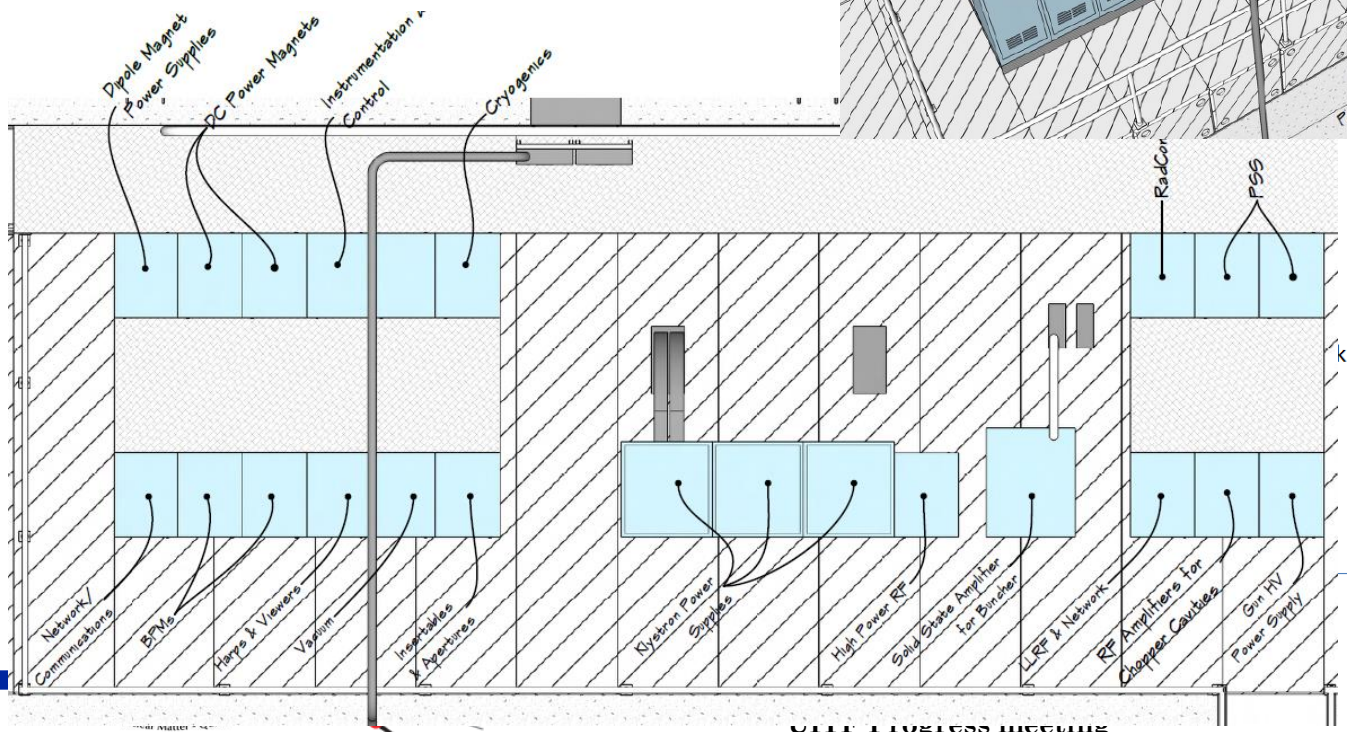
…and then filled back up

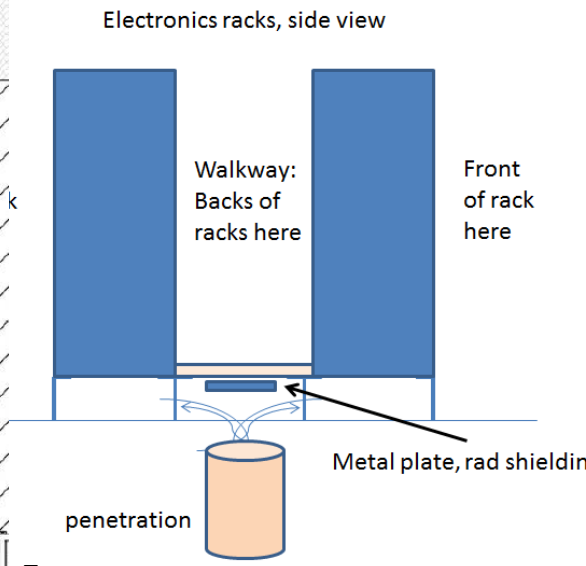
- Unistrut added to walls for utilities, LCW piping being installed
- keV beamline girders in house
- S&A checked monuments, identified gun and girder locations

Rack layout now more clearly defined

- **Consensus on layout**
- **Working with system owners to finalize electrical requirements**
- **Build it, populate the racks**







Move these racks here

- Top of cave cleared out
- Installed LCW lines
- Building rack platform

Status Facilities Tasks

- **Jib crane removal was completed on 8/25/15.**
- **Access Stair purchase order issued 8/18/15. Preconstruction meeting held 8/20/15. Shop drawings due 9/4/15, with installation scheduled for completion by 9/25/15.**
- **Control Room carpet, Dennis met with Tuskegee Contracting on 8/26/15 to review job. They will provide the labor, we provide materials. Will have labor quote by 8/28/15. Estimate completion date of 9/9/15.**
- **Leo Meire working with installation Group, LCW piping complete 9/15/15.**
- **For Cave 1 electrical work, schedule as follows:**
  Electrical drawings in progress and should be complete 9/4/15.
  Complete technical and ESH reviews, send purchase req to procurement 9/18/15.
  Contractor site visit 9/25/15 with bids due 10/2/15. Award first week of October, completion date will depend on panel lead time, but tentative date is <u>11/6/15</u>.
- **Facilities updated cost estimates: $307k direct procurement, plus 43 PW labor. Original estimate $300k total, procurement + labor.**

Status Cryo

Related to ¼ Cryomodule

- **Drawings complete within 6 weeks (October 8, 2015)**
- **Plumbing installed by Feb 1, 2016**
- **They prefer we provide a keep-out space during installation, but we would like to start building beamline…**
- **Cryo didn't considered computer controls…resources are available, but added cost**

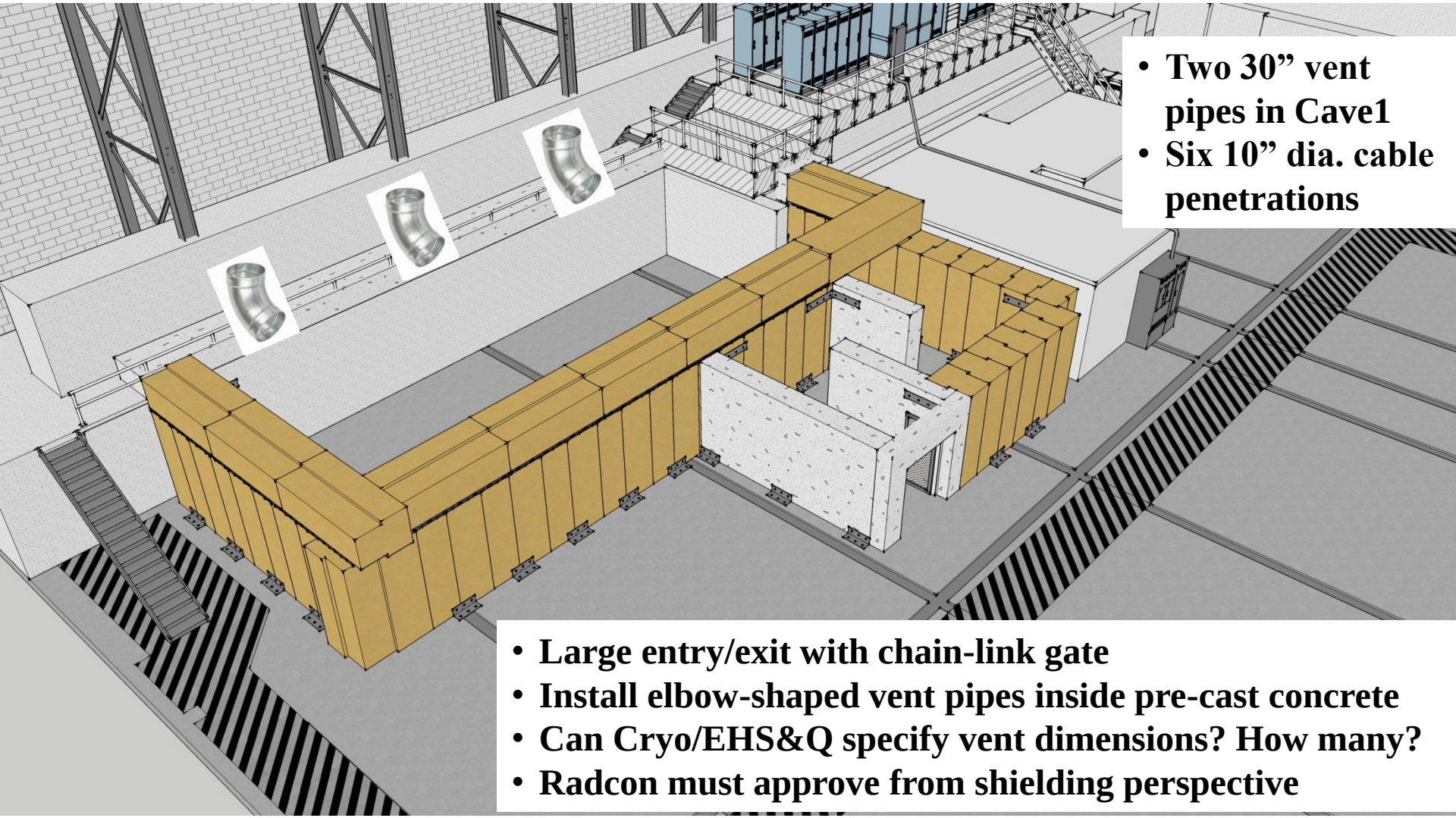
Related to HDIce

- **Must get to know HDIce, to design warm return**

Related to ODH assessment

- **LERF building 18 vault assigned OHD0 because of two 12" diameter vent pipes to outside. UITF is more "holy"**

Simple ODH solution? vent pipes



- Two 30” vent pipes in Cave1
- Six 10” dia. cable penetrations

- Large entry/exit with chain-link gate
- Install elbow-shaped vent pipes inside pre-cast concrete
- Can Cryo/EHS&Q specify vent dimensions? How many?
- Radcon must approve from shielding perspective

Schedule Ramifications

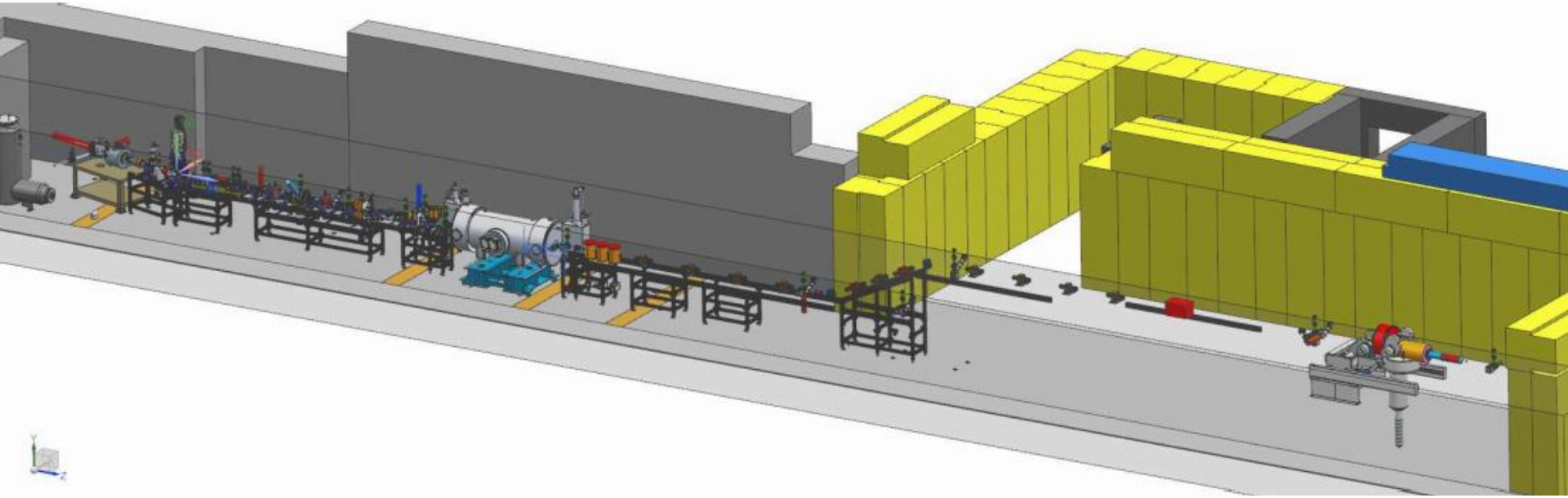
- Commission ¼ CM (no beam), scheduled for Jan 2016
  - Facilities – electricity to racks by Nov 2015
  - Control room – complete by Nov 2015, with computer terminals
  - SRF checkout of ¼ CM present condition – complete Nov 2015
  - Low Level RF – Hovater and Seidman have provided MO and LL RF control boards by Dec 2015
  - High Power RF – klystron chassis and controls complete by Dec 2015
  - Network controls (IOCs) – complete by Dec 2015
  - Software control of RF – complete by Jan 2016
  - Facilities - adequate shielding (Cave2 with a roof) – Feb 2016
  - Cryo - plumbing to ¼ CM and controls complete Feb 2016
  - ODH - SSG installed permanent system by Feb 2016, or we are using portable system from CEBAF
  - EHS&Q approvals…

Schedule Ramifications

- Commission ¼ CM (no beam), scheduled for Feb 2016
  - Electric/FM – 150 k$
  - Control room – -
  - SRF checkout of ¼ CM present condition – -
  - Low Level RF – 25 k$
  - High Power RF – 56 k$
  - Network controls – -
  - Software control of RF – -
  - adequate shielding (Cave2 with a roof) – 95 k$
  - Cryo – 90 k$
  - ODH - SSG 6 k$
  - EHS&Q approvals…

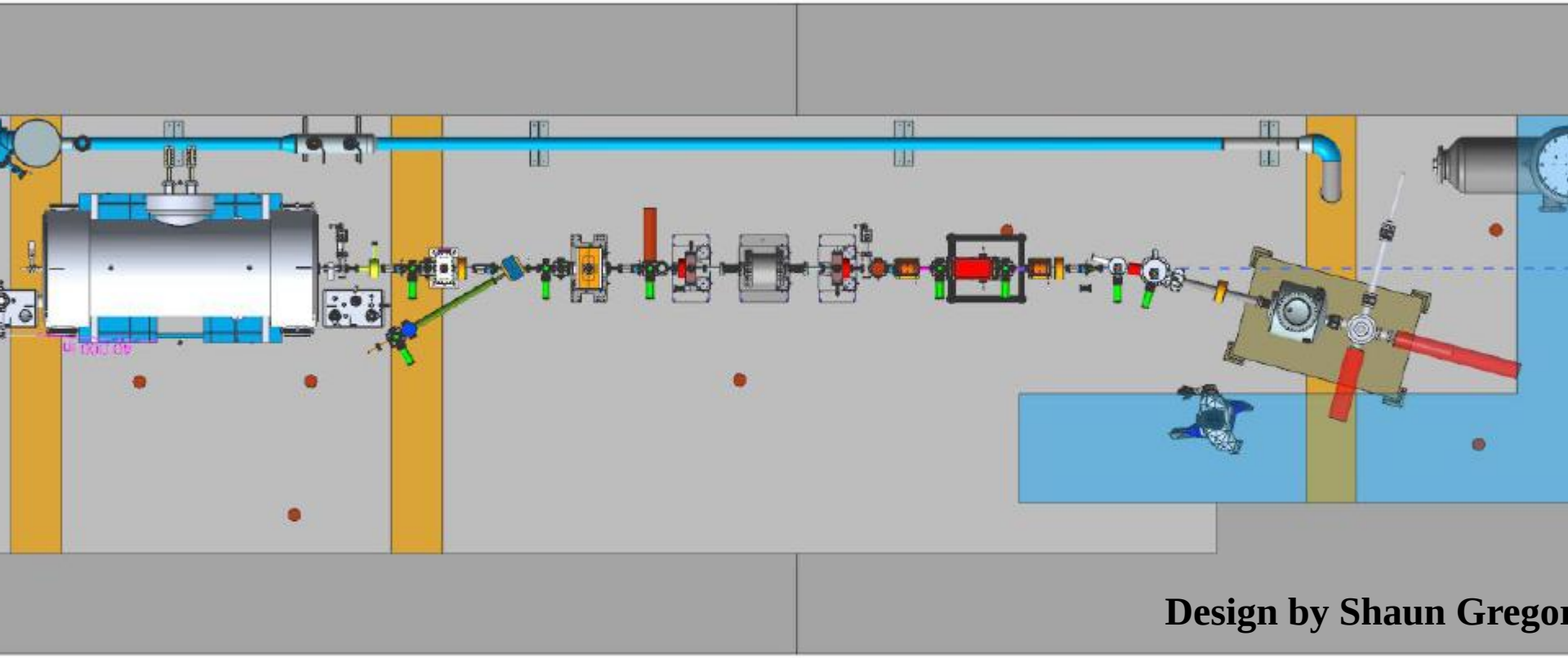
Total 422 k$

Contractor Forrest Ellingsworth wrapping up details of keV beamline



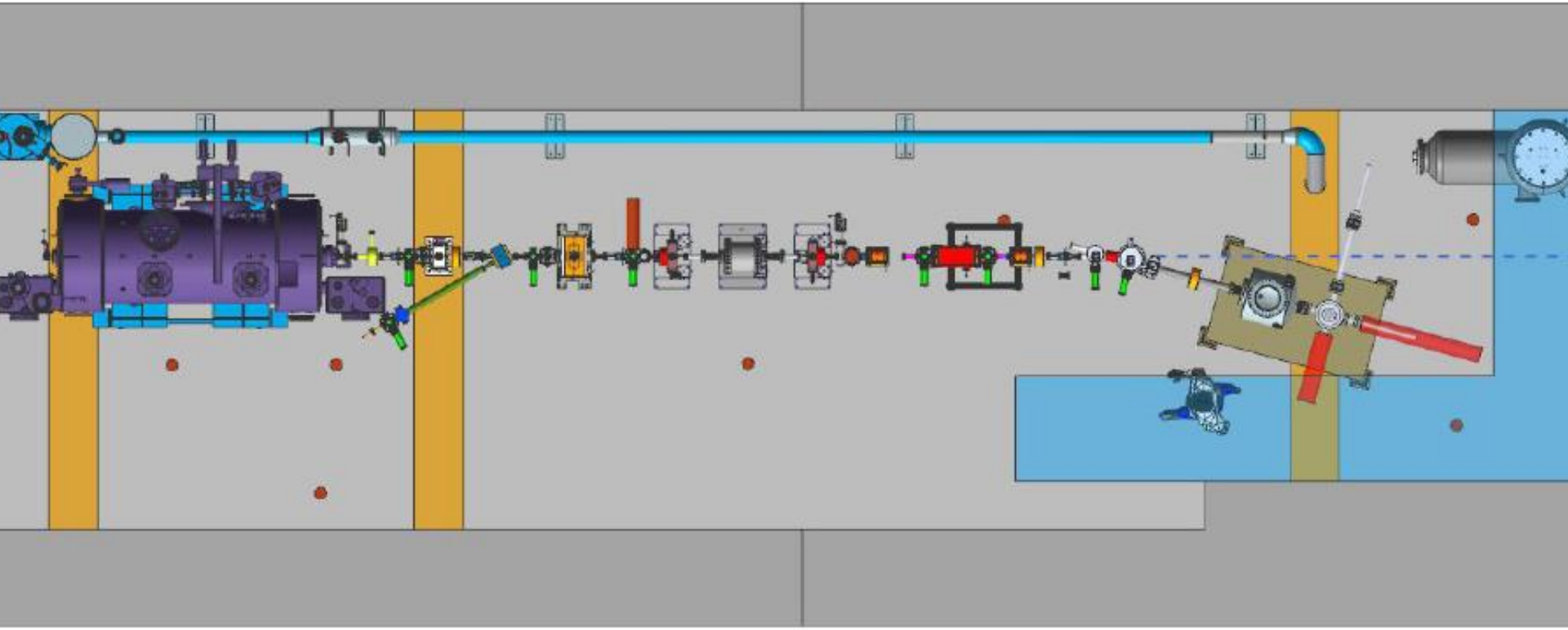
Shaun Gregory has started the MeV beamline design

Today's layout, ready to cut metal…..



Cryo lines hug the wall, waveguides on same side as cryo lines
Heat exchanger added to the mix, Rao says this will make things more efficient and stable

Cryo lines compatible with old and new ¼ CM…



Looks similar to our “upgrade injector” front end

Schedule Ramifications

- **Current status:**
  - **Utility work is key focus now, particularly *electricity to racks***
  - **Source group starting to put keV beamline together**
  - **ODH assessment must be completed soon, for Tom Renzo to make progress on Cave2 structural design**
- **Next month activities (September)**
  - **LCW complete**
  - **Compressed air and GN_2 complete**
  - **Electrical requirements delivered to Jason/Facilities**
  - **Stairway to top of Cave1 installed**
  - **ODH assessment complete, ideally with ODH0 assignment**
  - **Voltage applied to gun at GTS, plan Y**
  - **MeV beamline design complete to 80%, done with contractor**

Schedule Ramifications

- **In two months (October):**
  - **Facilities working on electricity to racks**
  - **Klystron rack finished, Seidman building control panel**
  - **Apply high voltage to new gun design at GTS, plan Z**
  - **Renzo working on Cave2, precast and bracing**
  - **Move more shield blocks into place. Build as much of Cave2 perimeter as possible**
- **Recall, next big milestone…commission ¼ CM (no beam), scheduled for Jan. 2016 (cryo, ODH, LL and HP RF, software, adequate shielding, EHS&Q approvals)**