PXIE Enclosure Design

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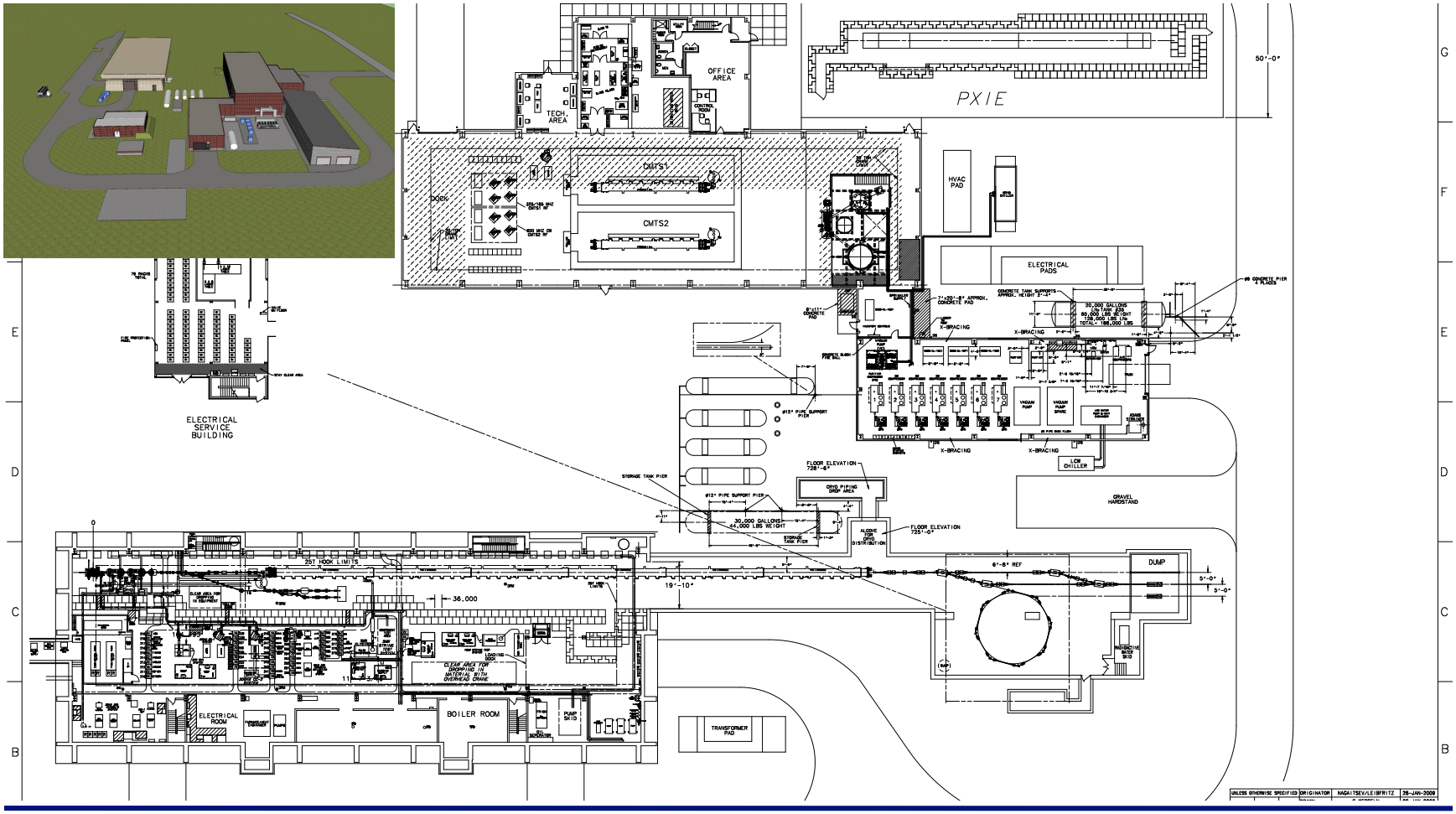
May 8, 2012

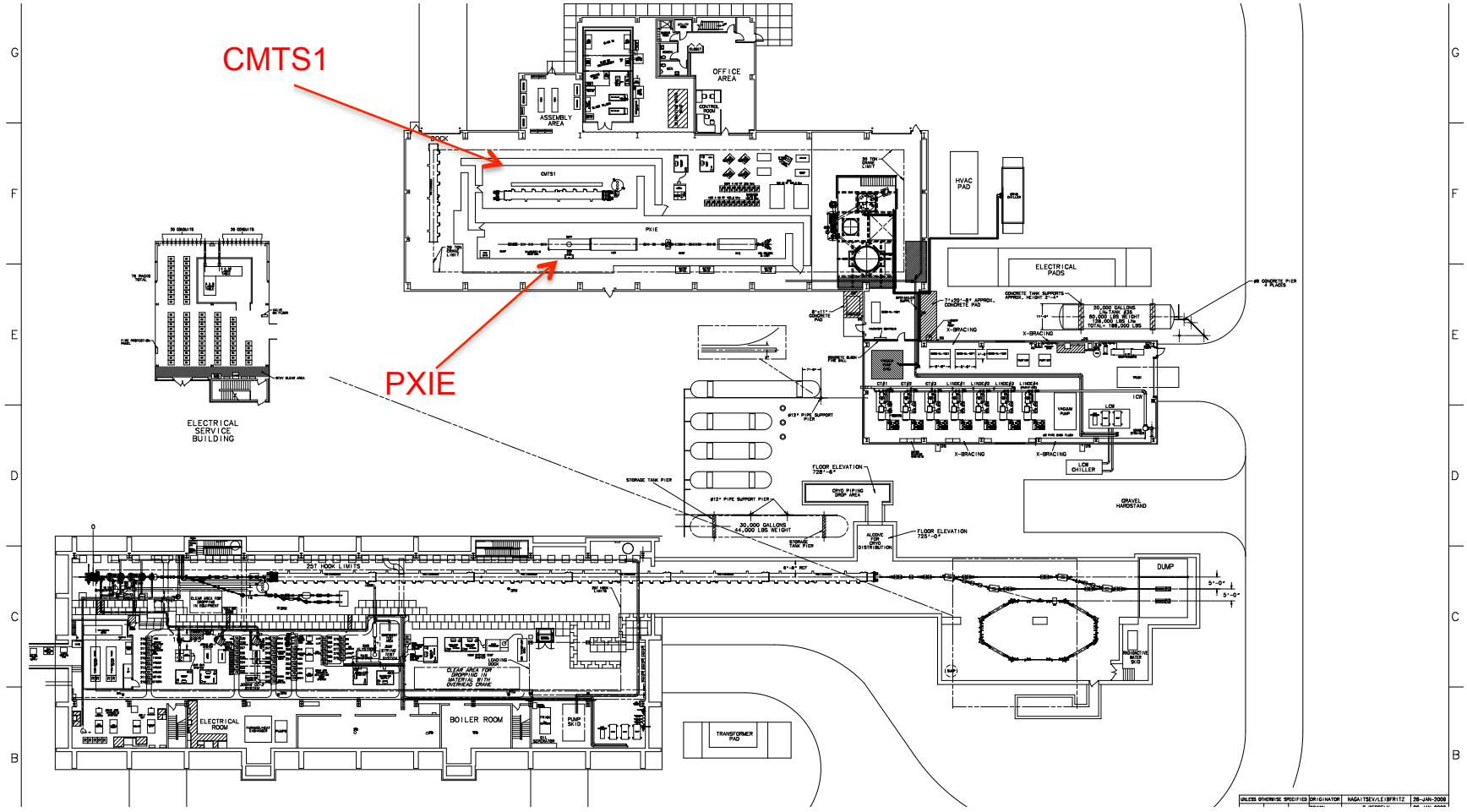
CryoModule Test Facility
CMTF

- CMTF is a new set of buildings (adjacent to NML) originally designed to house two helium cryoplants and two cryomodule test stands

CMTF Building
(Old Plan)



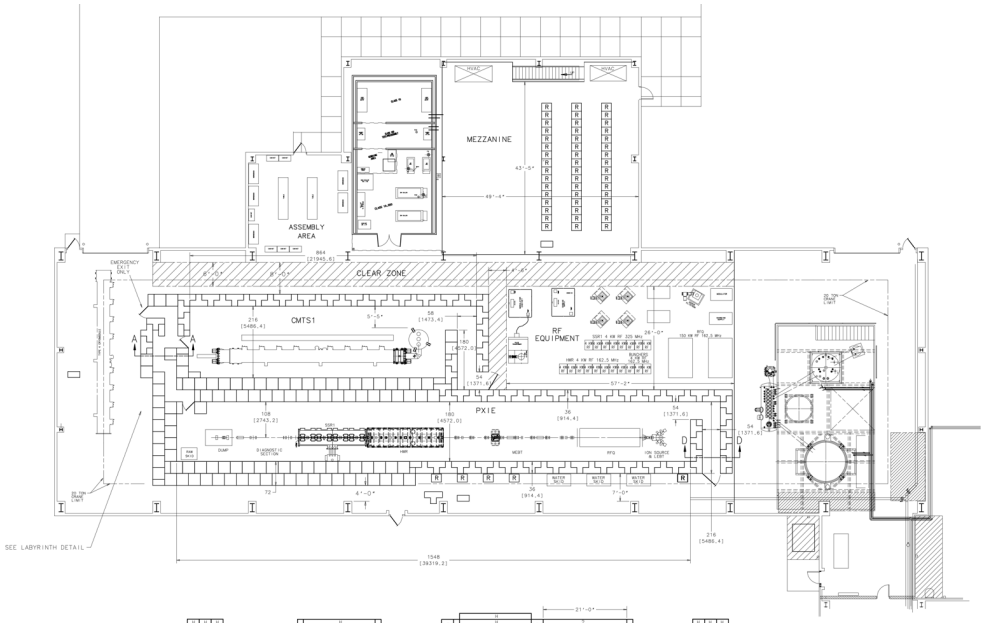
CMTF Building
(New Plan)

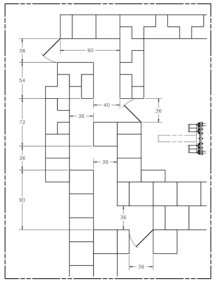


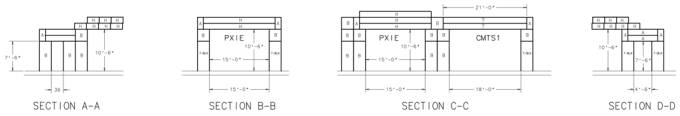
PXIE Enclosure

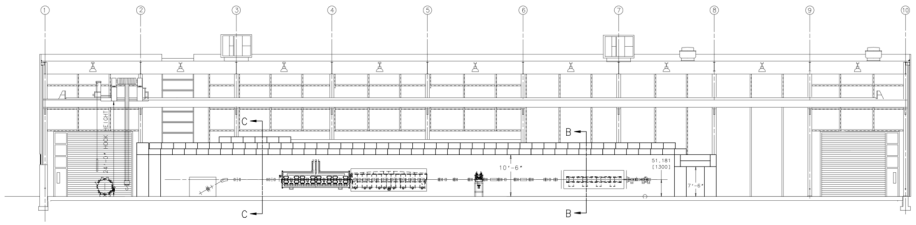
- Recent decision to site PXIE inside existing CMTF building
  - Share this facility with the Cryomodule Test Stand 1 (CMTS1)
- Constraints of cave imposed by building
  - Must maintain loading dock area
  - CMTS1 cave needs to fit
  - Space for support equipment
  - Crane height of 24’
- Size of PXIE cave
  - 10.5’ height (vs. 16’ for PX tunnel)
  - 15’ width (same as PX tunnel)
  - 129’ (39.3m) length (maximum due to building length)
- Cave design similar to NML
  - 3’ and 6’ walls, 3’ roof

PXIE Enclosure

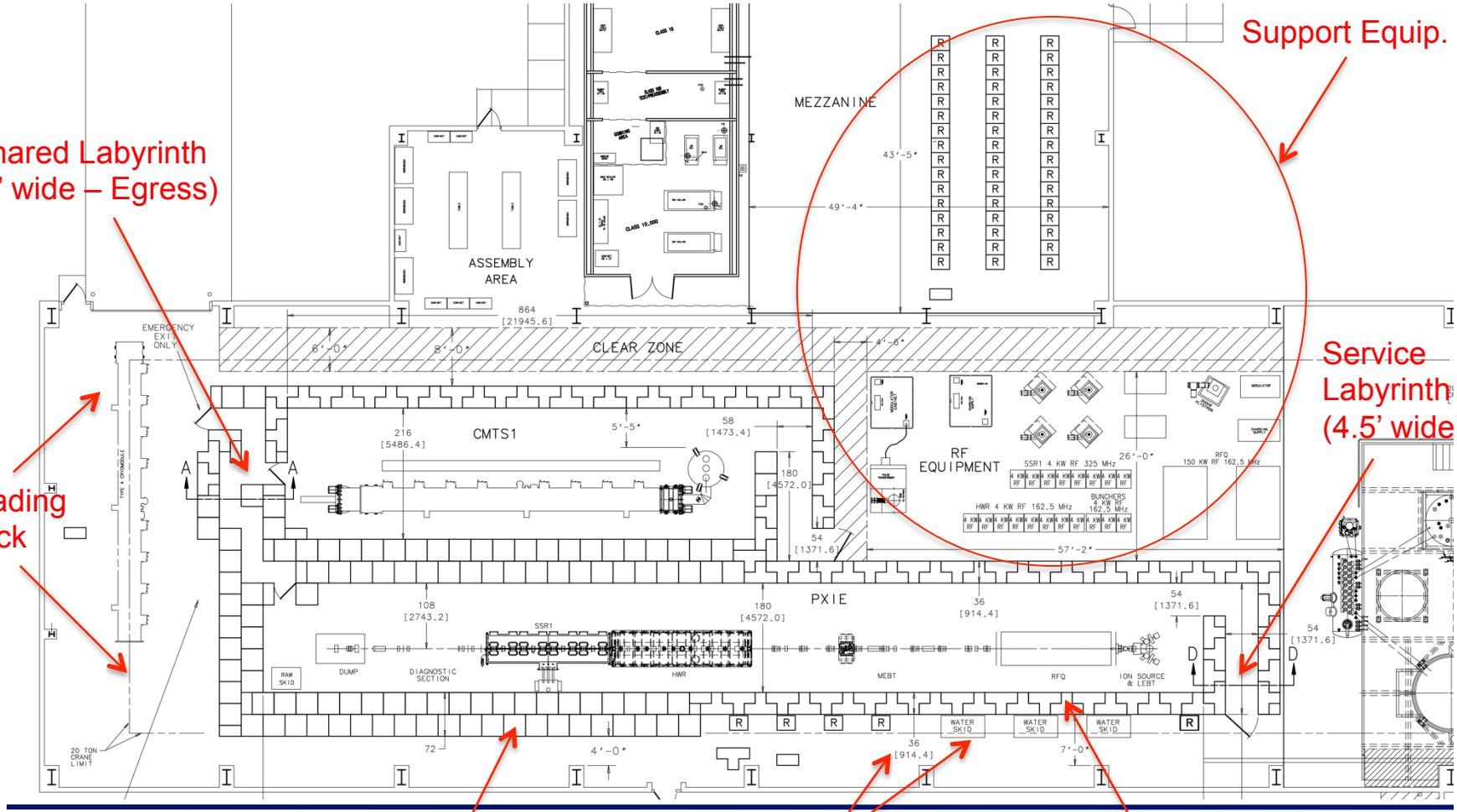




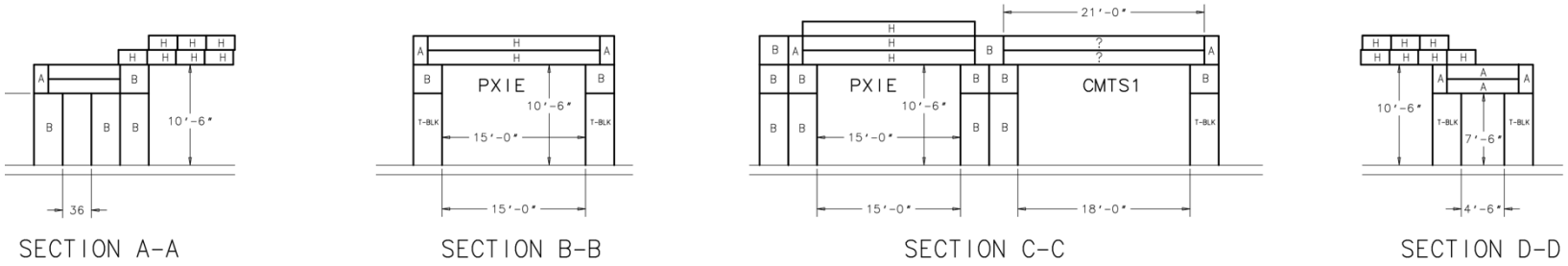


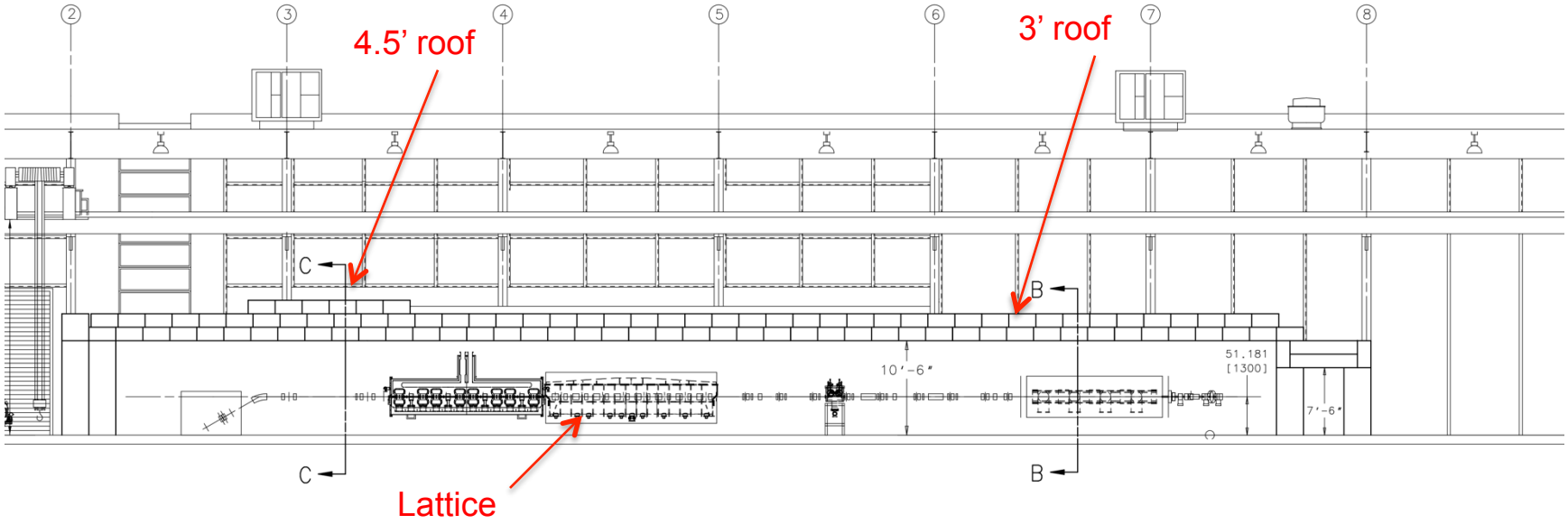


Plan View

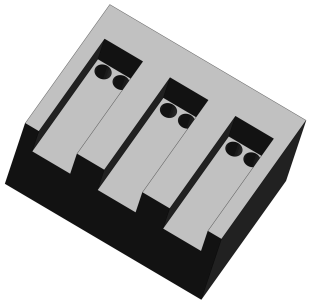

Support Equip.
Shared Labyrinth
(3' wide – Egress)
Service
Labyrinth
(4.5' wide)
Loading
Dock
MEZZANINE
ASSEMBLY
AREA
CLEAR ZONE
CMTS1
RF
EQUIPMENT
PXIE
SSR1
DUMP
DIAGNOSTIC
SECTION
HWR
MEBT
RFQ
ION SOURCE
& LEBT
WATER
SKID
RAW
SKID
20 TON
CRANE
LIMIT
EMERGENCY
EXIT
ONLY
6' walls
Aisle & water skids
3' walls

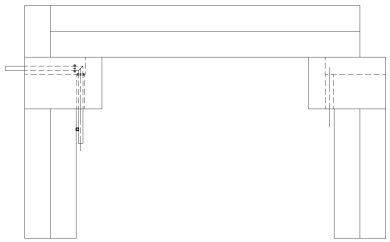
Elevation/Cross-Sections

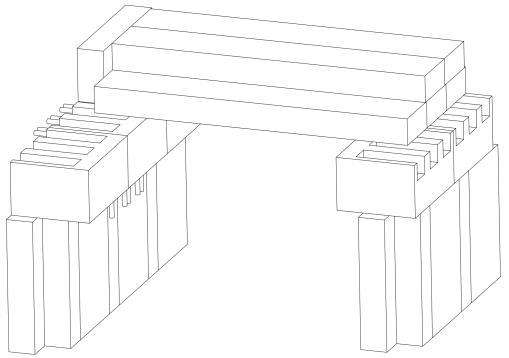


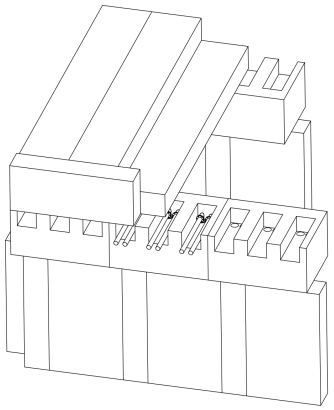


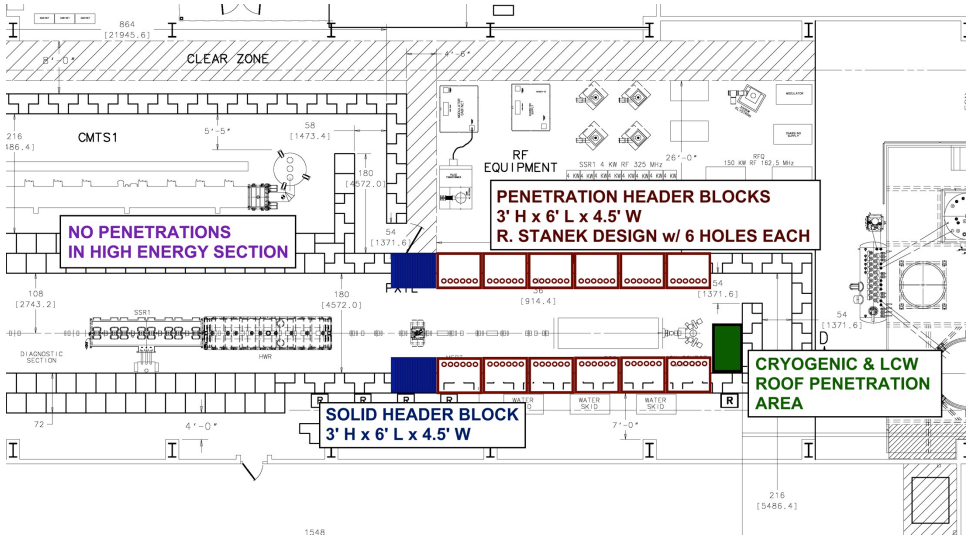
Penetrations











Next Steps

- Remaining Issues
  - Finalize penetration details
  - Determine RAW skid size and location
  - ODH ventilation system for cave
  - Determine rack and RF equipment placement
    - 50 Racks shown on (50’ x 40’) mezzanine (space for additional 30)
    - RF equipment will be tight
- Develop 3-D model of cave
- Continue work on radiation analysis (Tony’s talk)

Next Steps (cont.)

- Epoxy coat floor (FY12)
  - Approximately $30-$40k
- Setup alignment network in building
- Complete block count – order necessary blocks (FY12)
  - Rough 1st count (~$300k)
    - 64 “T” blocks (~$2.5k/ea.) = $160k (32 more for CMTS1 = $80k)
    - 12 Custom penetration blocks ($5k/ea?) = $60k
    - 13 “A” blocks = $30k
    - 173 “B” blocks = $0 (250 in inventory)
    - 6 “C” blocks = $0 (129 in inventory)
    - 95 “H” blocks = $0 (112 in inventory)

Tentative Schedule

- Finalize cave design and obtain initial Rad. approval (June)
- Order shield blocks (July) (could begin earlier)
- Receive blocks (October)
- Cave walls installed and outfitted (Feb. 2013)