

ATL – Accelerator Technical Laboratory

Phase I – Facilities Requirements & Assumptions

Current Injector Test Cave – Up to 200 KeV electron beam. Limited to low energy beam, possibly up to 500 KeV.

Proposed ATL – Develop in three overlapping phases. Phase I – 5-10 MeV Injector. Two main components:

1. Injector with a quarter cryomodule capable of generating up to 5-10 MeV of electron beam and pulse structures
2. Infrastructure for both the injector and the cryomodule development area (Phase II & III). Includes RF, Cryogenics, etc.

Facilities Requirements:

Civil – None

Structural –

1. Cut opening in existing Injector test cave north wall. Relocate utilities at the opening on this wall.
2. Configure existing shielding blocks for the north and west walls of the extended testing cave, the labyrinth at northwest corner of the existing injector test cave, and the roof for the extended test cave.
 - a. Provide support of roof planks on the east wall of the extended injector cave.
 - b. Provide seismic support, as required, for stacked shielding blocks.
 - c. Contract labor and equipment for installation of shielding blocks and roof planks.
3. Potential alternate solution is provide structural walls with an opening to facilitate rolling in a cryomodule.

Mechanical

1. HVAC – provide cooling and air handling unit with air distribution
2. LCW
3. Instrument Air

Fire Protection

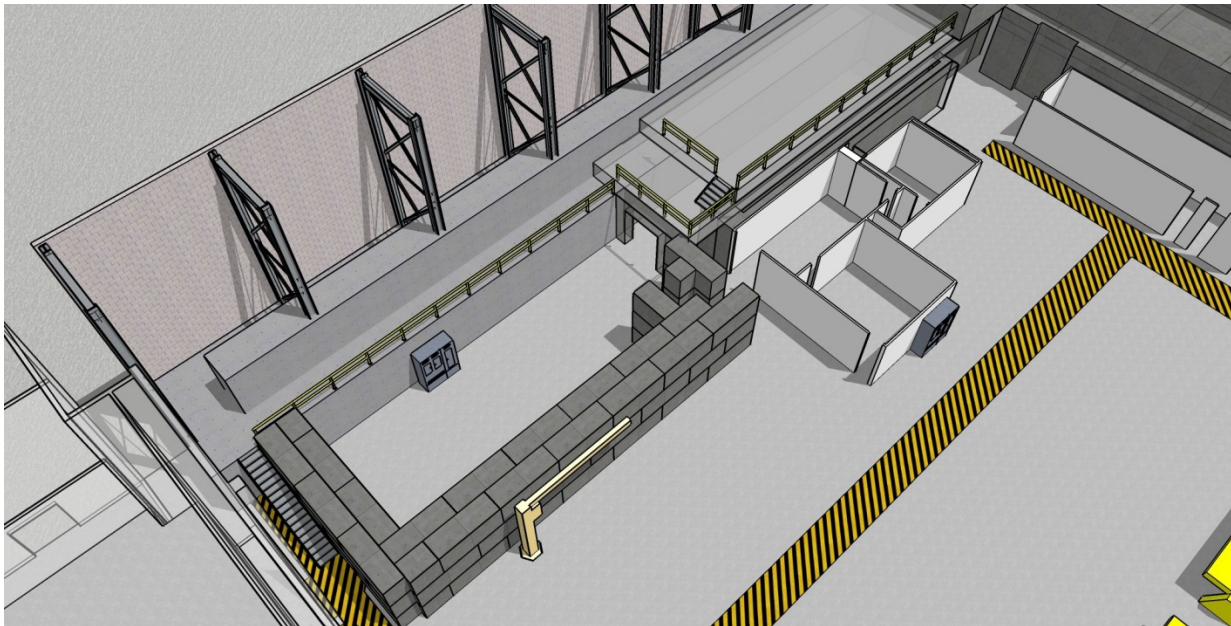
1. Sprinklers
2. Fire Detection & Alarms

Electrical

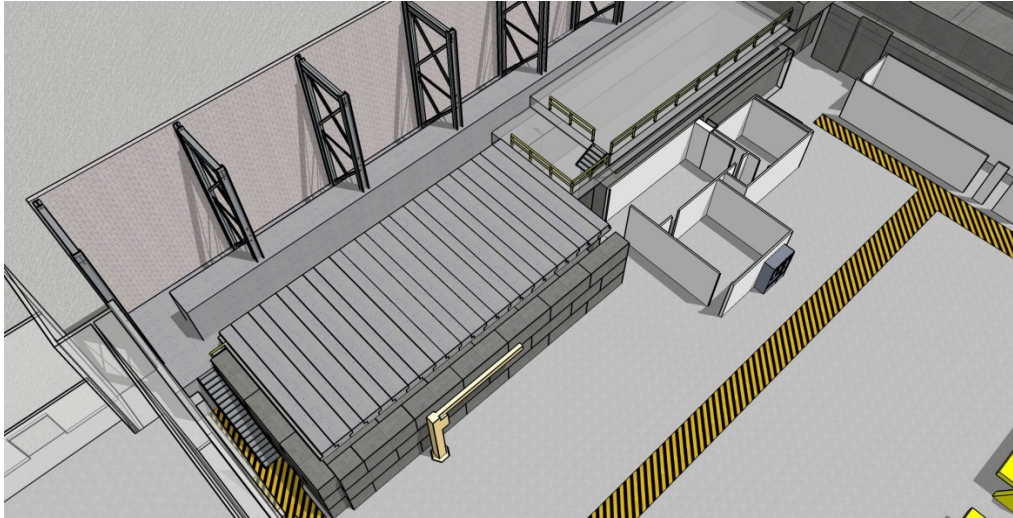
1. Power for RF power supplies and electronic instrumentation racks.
2. Lighting
3. Relocate the IPC from inside the extended test cave to exterior.

Assumptions:

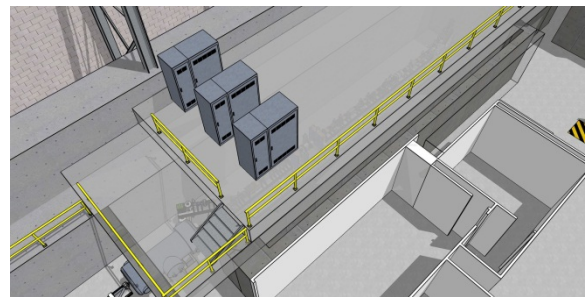
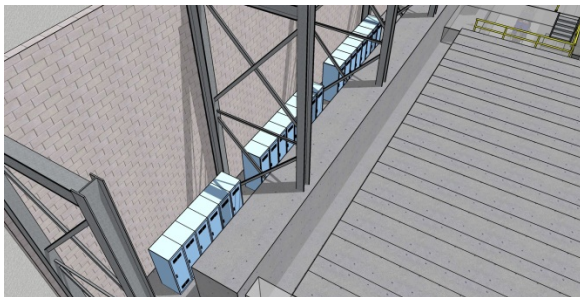
1. Adequate shielding blocks and beams are available on site for the north and west walls plus labyrinth and the roof.
2. Test Lab highbay northeast corner exit will remain.
3. No trench and/or depression into the existing floor. Components will be added to the beamline in lieu of the floor trench as discussed during the meeting of Oct 10, 2013.
4. Seismic supports can be provided with simple structural framing members.
5. Interior dimensions of the extended test cave will be adjusted to use existing shielding blocks without modifications.
6. Adequate radiation shielding is provided with the double layer of SEG shield blocks on the walls and 21" depth of concrete on the roof.
7. Facilities utilities will be located on the existing east wall of the extended test cave to the maximum extent possible.
8. Fire sprinkler and lighting coverage may need to be supported independently or attached to the west wall.
9. No additional enclosures needed in the high bay for cooling of equipment located outside of the test cave.
10. For Phase II & III, additional Facilities infrastructure will be required. Anticipate the majority of Facilities infrastructure installed under Phase I will need to be reworked.



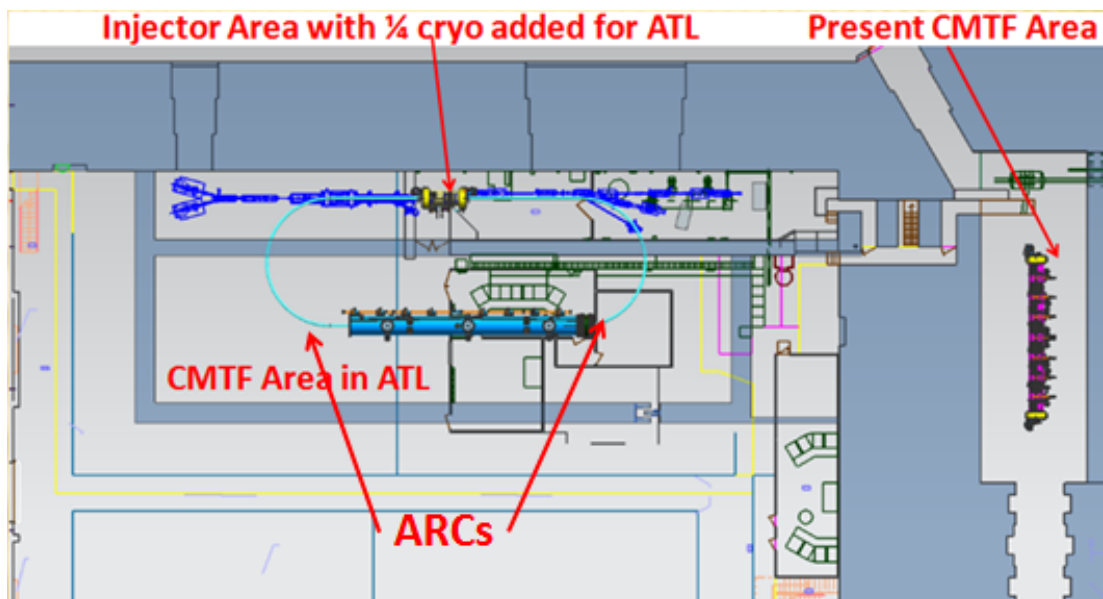
Phase I Configuration – without the roof planks. Alternate solution is structural walls with a 20' wide opening to roll in a cryomodule.



Phase I Configuration with the roof planks.



Proposed location of electronic instrumentation racks and RF power racks.



Phase II/III Configuration