Space for Cassette production and the Steel

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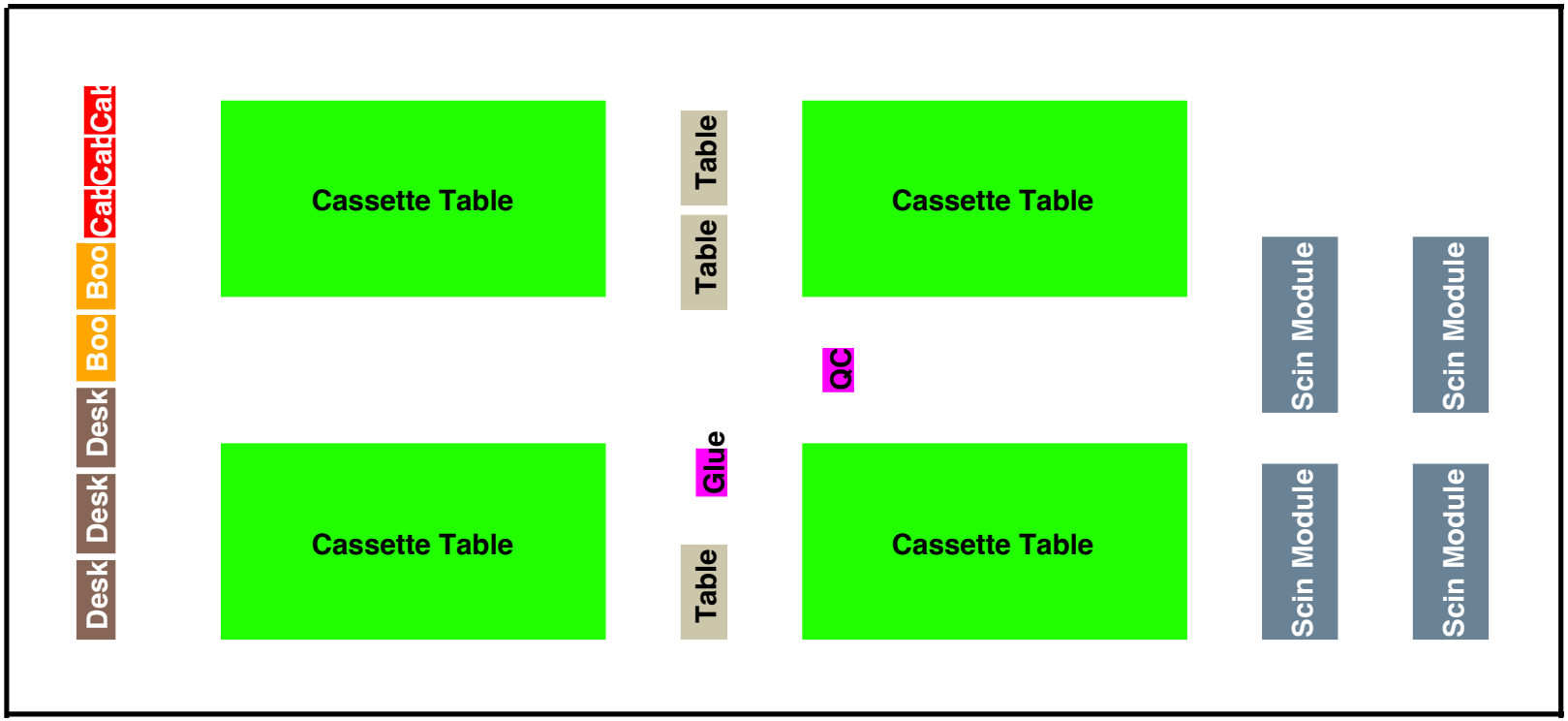
TMS

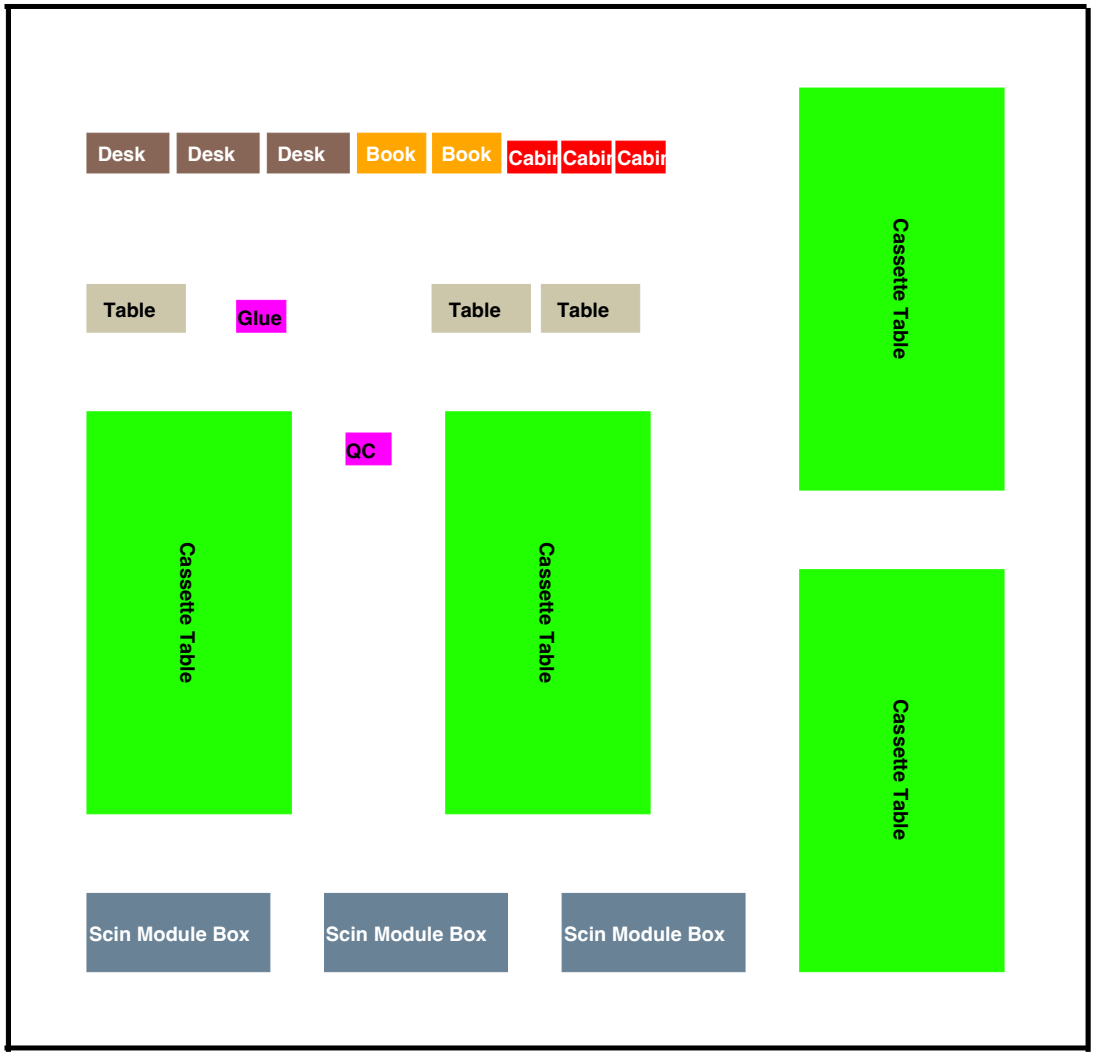
- To make a cassette space request, I wanted a layout
- Layout is in ROOT
- I was able to construct 2 layouts, both with 4 cassette tables
  - But one the cassette area is meant to be a possible staging space to get the cassettes out, since we don't have a procedure now.
- Some dimensions I used
  - Cassette Table 7.7m x 3.8 m
  - Box of Scintillators panels = 3.4 m x 1.5 m
  - Aisle width = 60", but occasional I use 40"
    - During out visit at IERC, Flor de Maria Blaszczyk suggested 60" as what Fermilab wanted.
    - I want to check with Safety
  - Everything else is just regular Lab stuff
- With the layouts I propose talking to Rick Ford with this layout along with discussion on the steel.
  - I will get to a problem with the steel later.

2x2 Layout



- Dimension 31.2m x 13.8 m
- If we squeeze the aisle, we might be able to get this in Lab F, Lab F is 35 m x 11.3 m
  - There is some more space on the north side of Lab F (top of layout) , but no crane coverage
  - There is an area on the south side, but it has a different crane
- We can reduce the length by ~ 4 m by getting rid of one the the cassette tables and rotating the other cassette table by 90 degrees
- This layout and the next do not give an option for storing cassettes.

Another Layout



- Dimension = 20 m x 20 m
- 3 scintillator module boxes instead of 4.
- Getting rid of one of the Cassette tables doesn't reduce the Dimensions much
- I propose to go the Rick Ford with these 2 drawings and saying this is the amount of space we need

TMS Steel

- Jeff sent out an email about the Steel
- I responded to it by sending out an email to Jeff, Marco, Tom and Lidija
- Jeff responded. I will only discuss one point and not in his detail. He presents this problem:
  - If you go to google and look at how much weight a warehouse floor can support, we need to put the steel in at least 28 piles, plus some space needed around each pile.
    - Its worse than this as we need to QC the steel and so we need 2 sets of piles, before QC and after QC. Actually this does not take up that more space
  - I check this and he is to be correct, but a little optimistic
- TMD steel plates weigh about 827 tons.
- I haven't done a layout of the steel because of this problem.
- What about the Iron Thrown, does it have space requirement for the steel before it is assembled?

Lab E, CCFR Detector

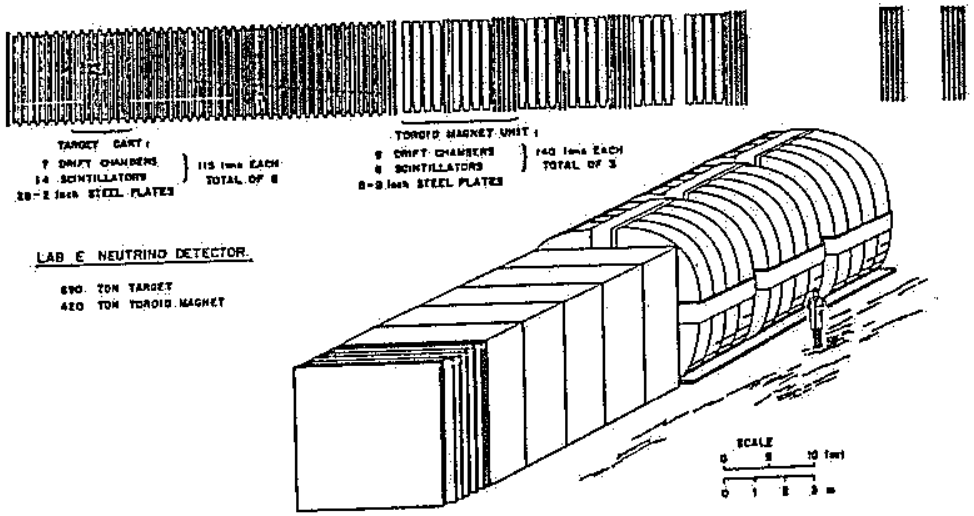


Figure 3.1: The CCFR Neutrino Detector: side and perspective views. The neutrino beam enters from the left in these views.

From Paul Quintas's Thesis

- 6 carts -115 tons each
  - Each cart is supported by 2 steel strips which rested on the concrete floor
  - ~ 10m x 12" x 1" I think
    - Could be 2"
- 3 Toroids-140 each
  - Each toroid is supported by 2 steel beam in imbedded in the concrete
- Total 1110 tons > 827 tons
- Both the target and the toroid were on Hilman rollers so they could be moved into the test beam.
- If we use Lab E for storing the steel, we might want to use part of Lab F for measurements.
  - This may impact putting the cassette factory in Lab F

Other Labs

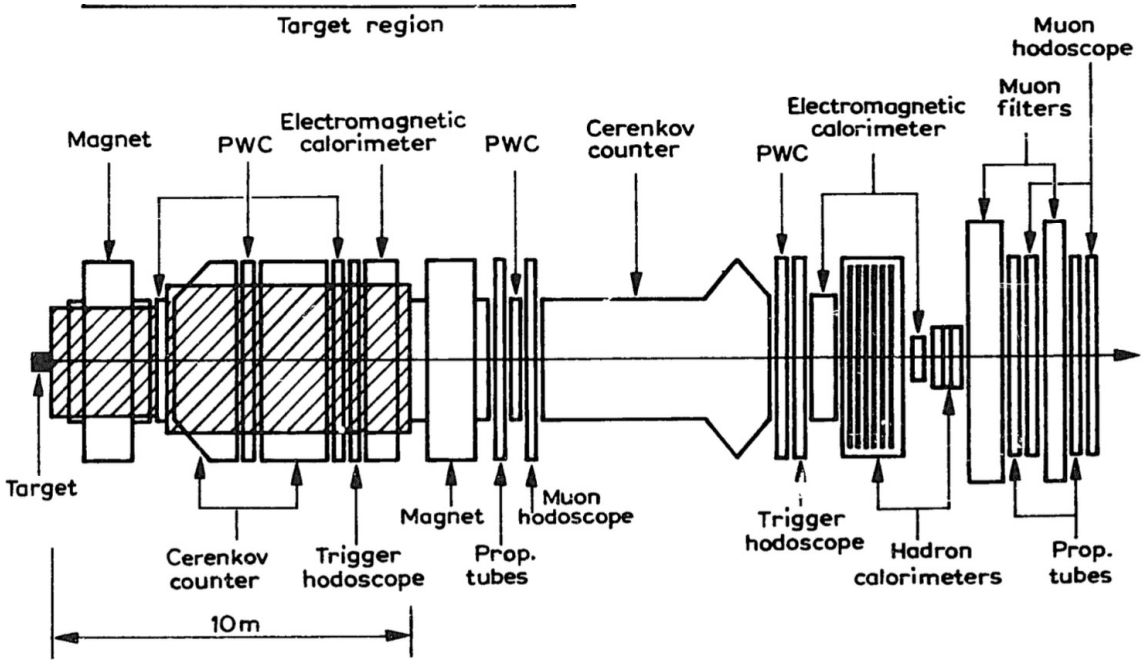


Fig. 1. Schematic representation of the E687 spectrometer. The inset at the top shows the target region and the silicon microstrip detector.

- Wide Band housed E687.
  - Weight not close to CCFR
- Lab F was built later than Lab E
  - For the Tohoku Bubble Chamber,
- The floors for Lab F and Wide Band would not need to be as strong as Lab E floor.
- There were some heavy neutrino experiments where SiDet is, but we can't put the steel in SiDet
- The Old Muon Lab had the Chicago Cyclotron in it.

PPD

- All these Fix Target experimental buildings are controlled by PPD.
- The DO assembly Hall (DAB) is controlled by PPD, not sure who controls CDF.
- There may be some tech support space, but it may not have a robust floor.
- We are planning on having another discussion with Rick Ford
  - Show him the layout for the cassette production
  - Discuss the Steel
- We will need Fermilab techs for crane operations.
  - Rick Ford suggests we try to work in building which already has techs, he says it will be easier to get the space. Rick said this worked well for SBND.
- We will probably have to discuss the steel with Engineering (Is FESS in Engineering. Fermilab has changed and renamed departments?)
- I think we will need to talk and work with a civil engineer at Fermilab to be sure what ever space we get for the steel is safe for both the building and us.
- Hopefully, there might be some documentations for some of these labs. They were built back in the 1970s, early 80s.
- I don't think we need an engineer to decide on the cassette space, but later on we will have show that our procedures are safe.
- We will need a plan on how the steel is stored, and hence how the space is filled