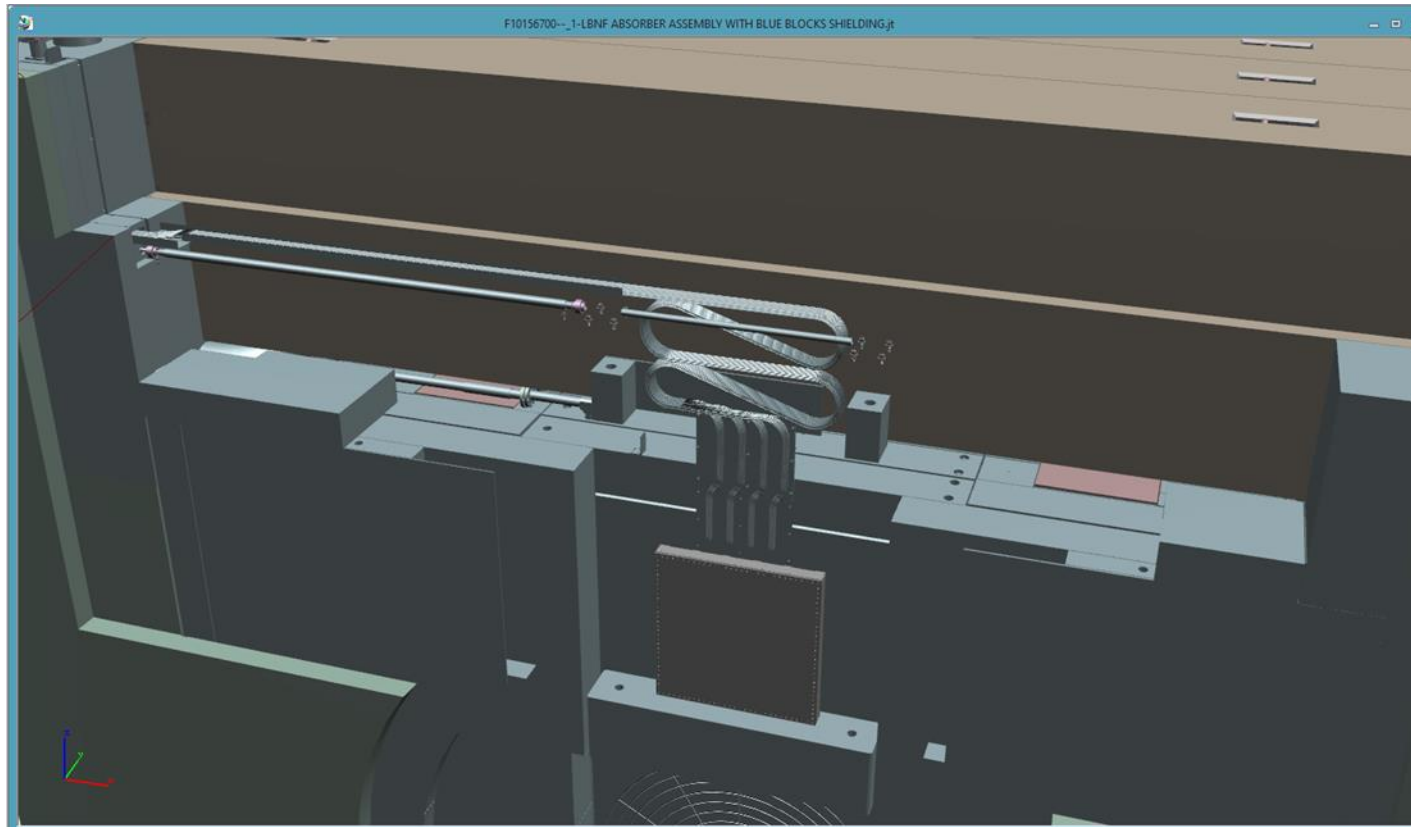
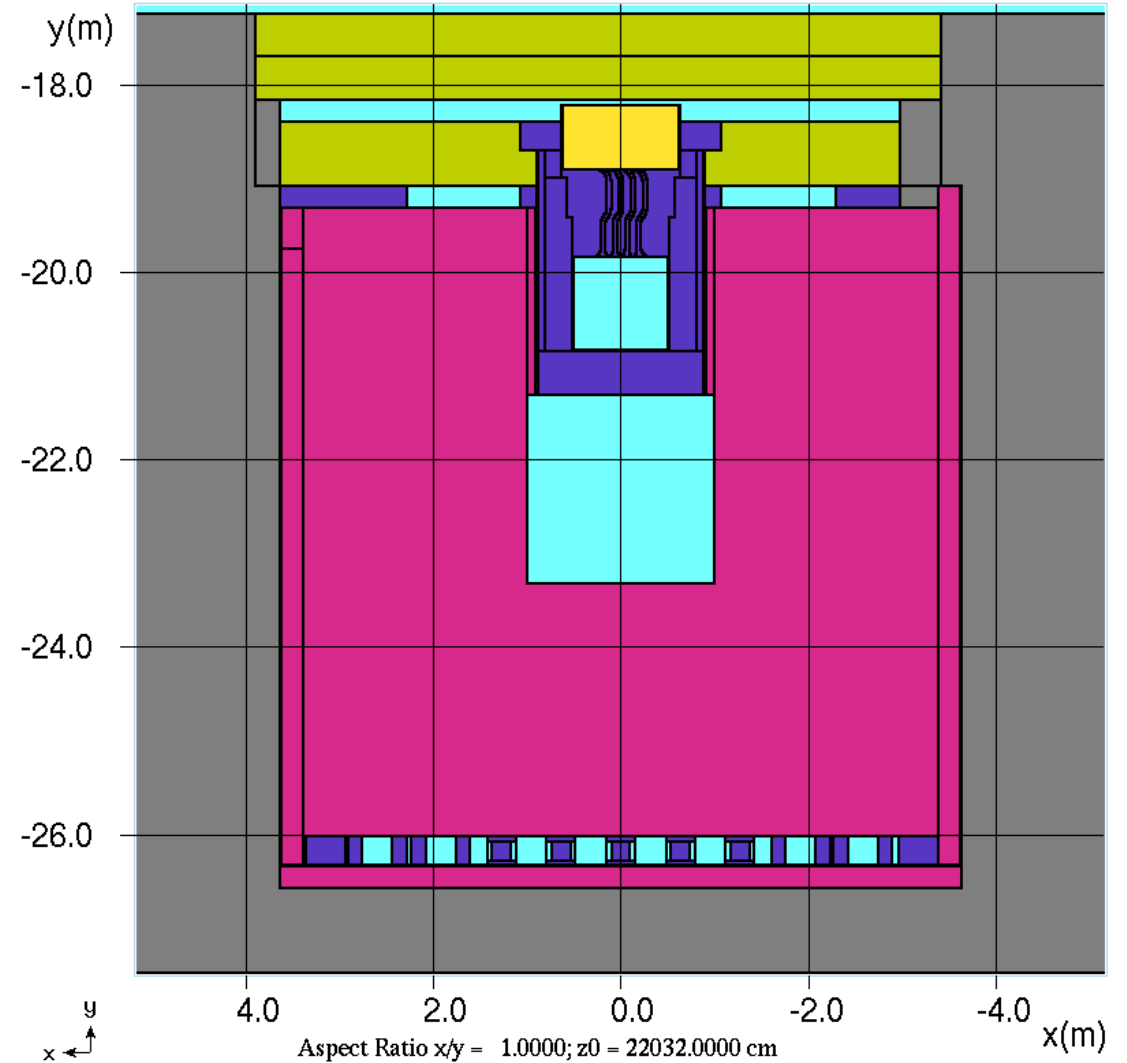
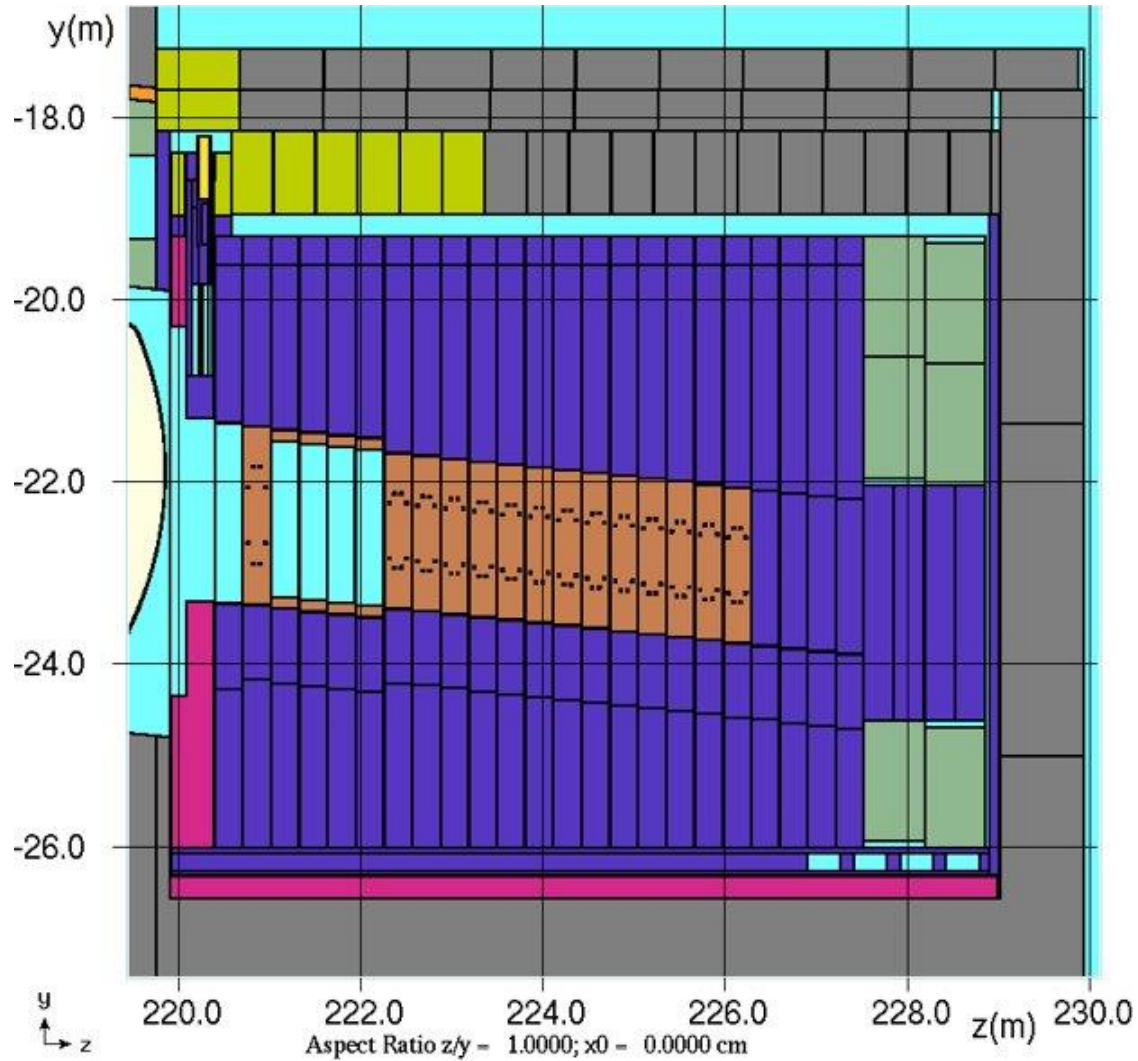


## 131.NSCFB.03.01.01.02 – Radiation Modeling – Absorber Complex and Decay Pipe

- Work on implementation of the most recent updates to Hadron Absorber model (submitted by V. Sidorov in the end of May) is close to completion. The Figures below show a 3D view of internal structure of the block with Hadron Monitor and openings for cables as implemented in the CAD model as well as several views from the updated MARS model.

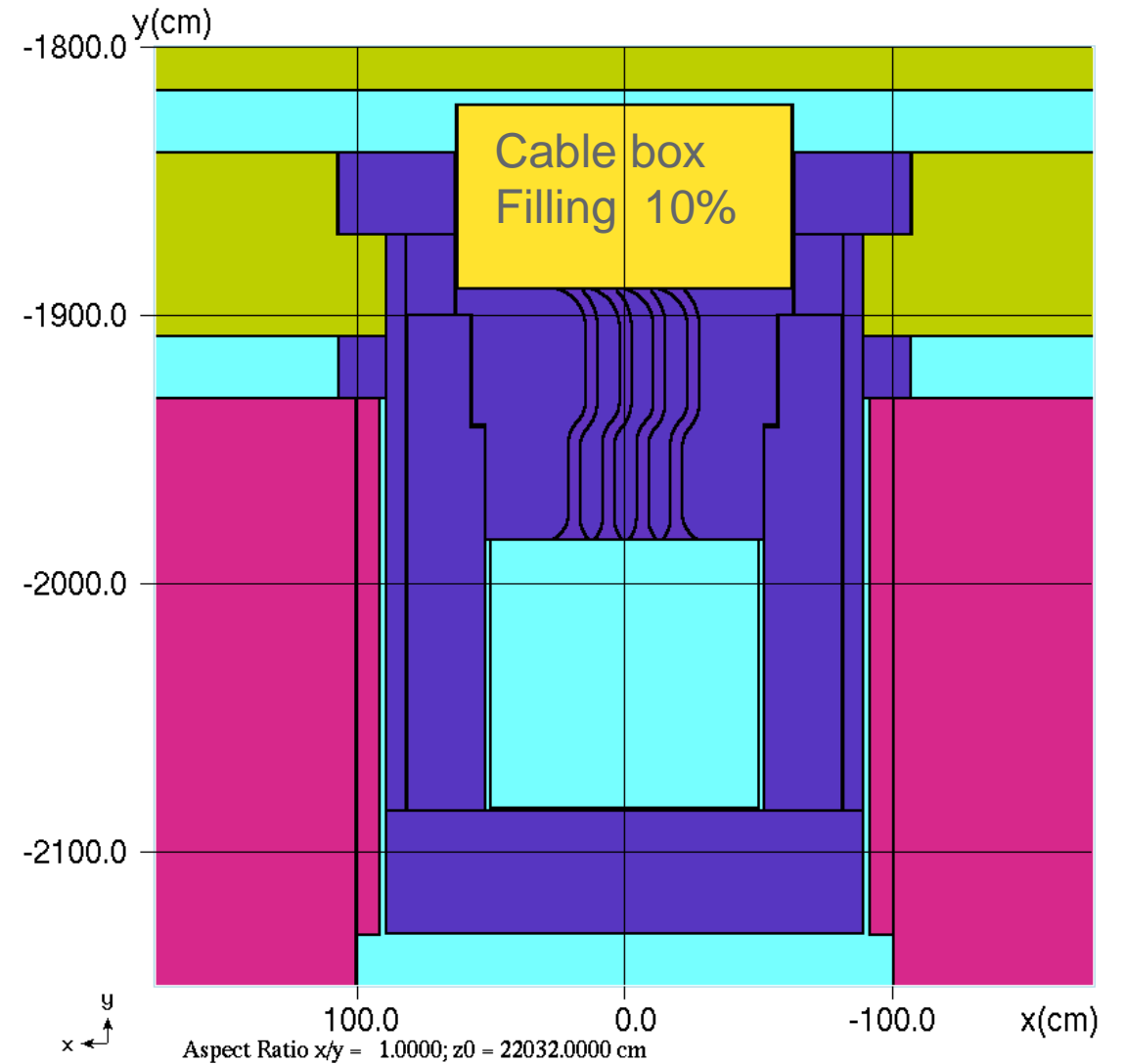
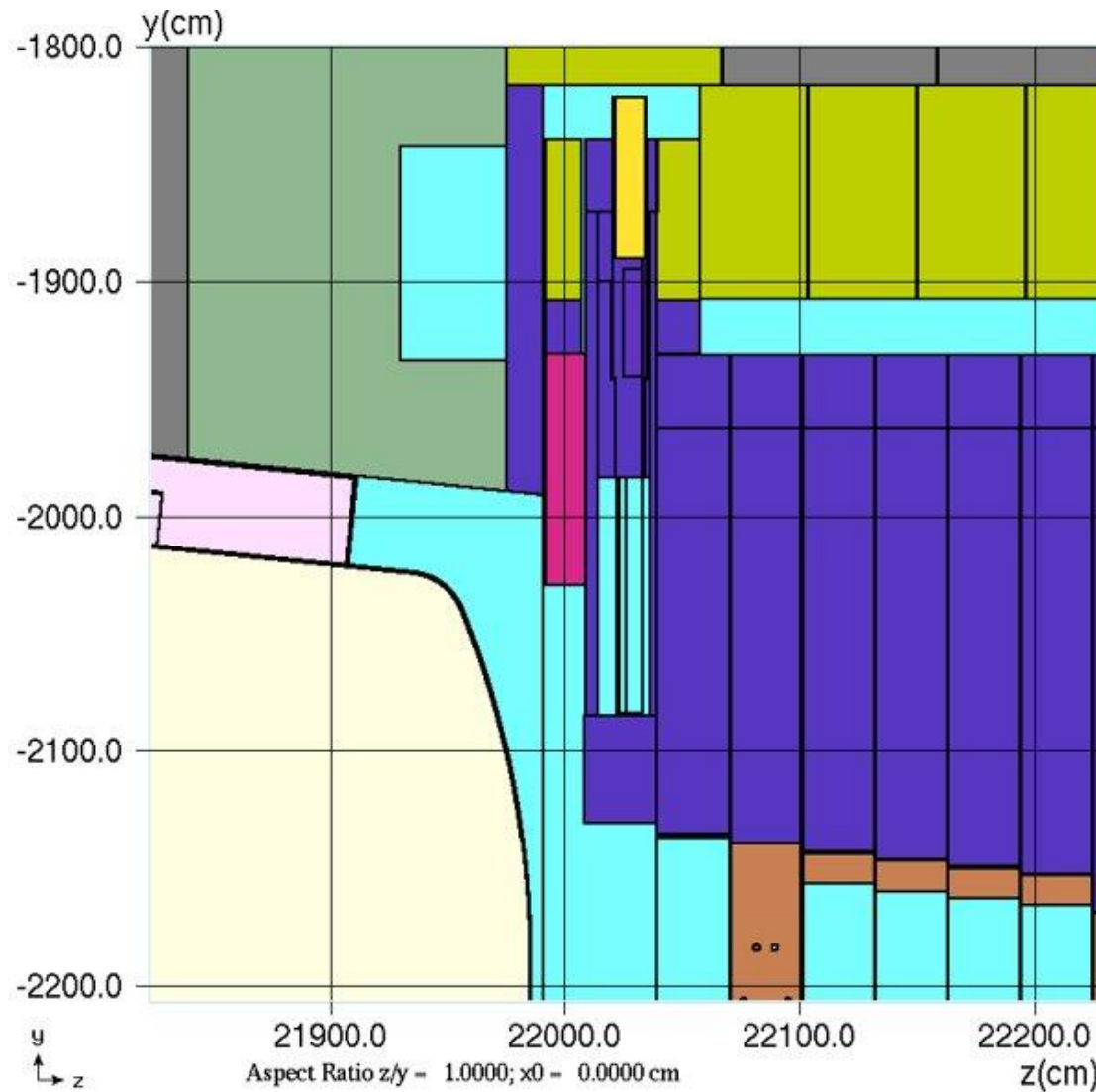


# 131.NSCFB.03.01.01.02 – Radiation Modeling – Absorber Complex and Decay Pipe



# 131.NSCFB.03.01.01.02 – Radiation Modeling – Absorber Complex and Decay Pipe

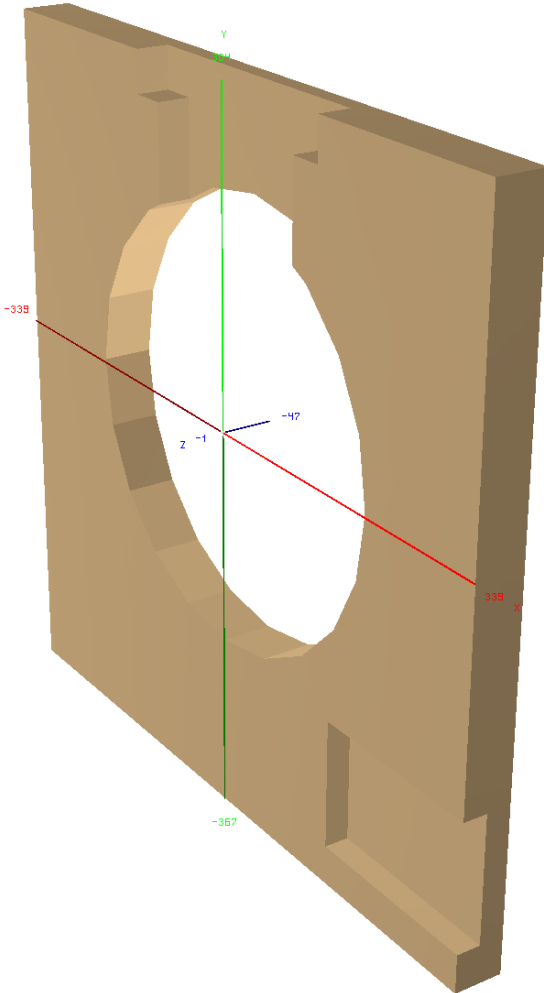
## F10224562--\_1-HADEES Retractive system version-3



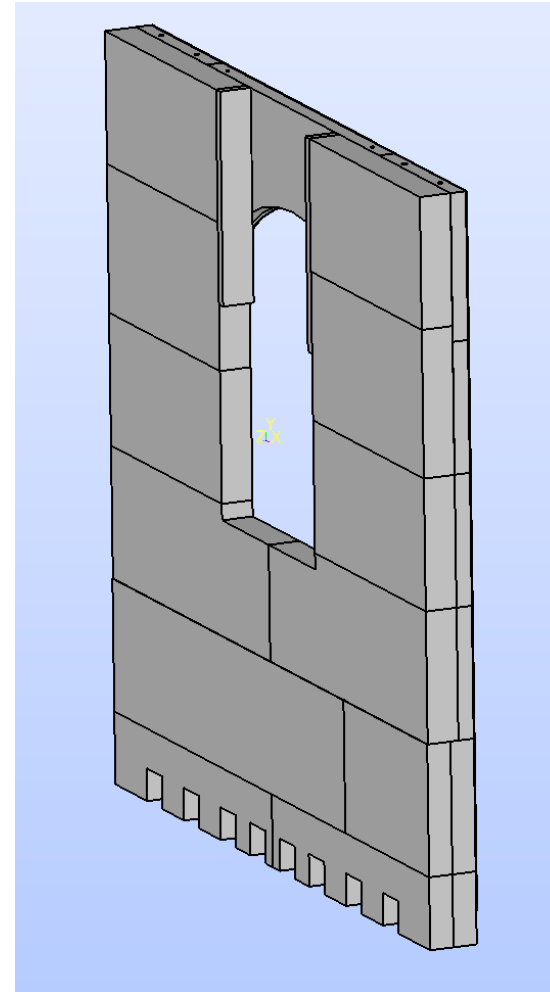
# 131.NSCFB.03.01.01.02 – Radiation Modeling – Absorber Complex and Decay Pipe

## Updated Front Shielding

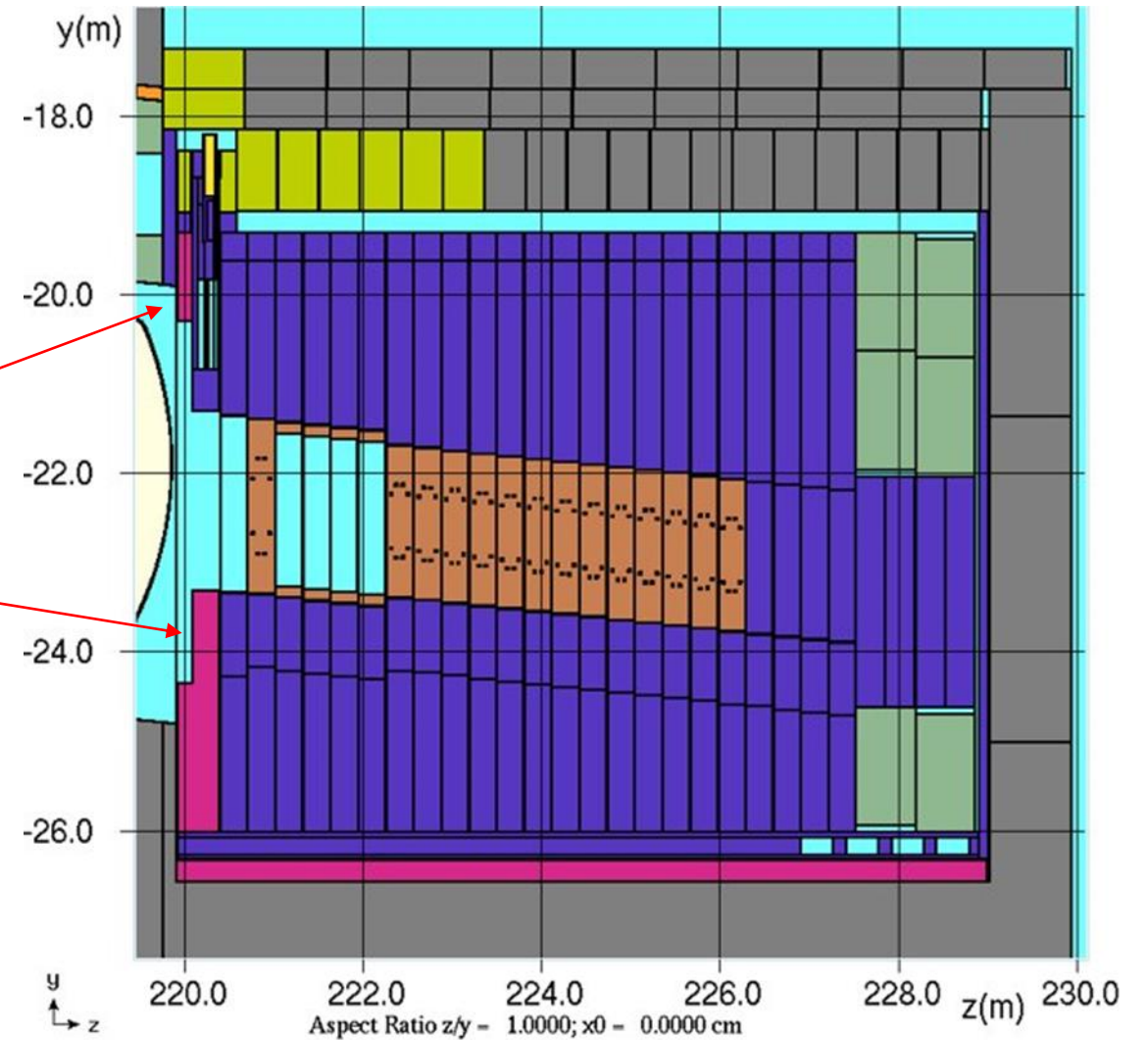
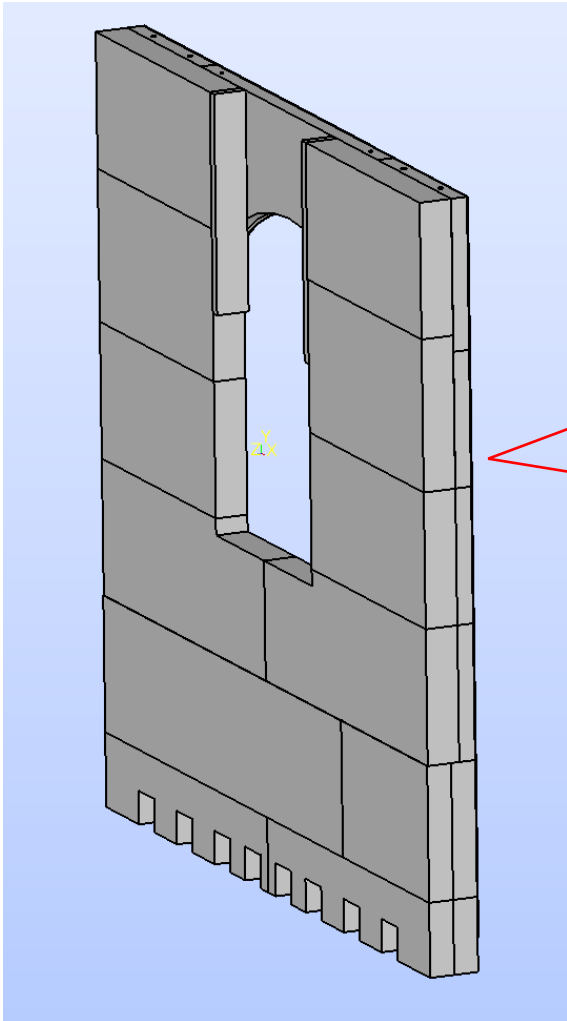
Previous



Current



# 131.NSCFB.03.01.01.02 – Radiation Modeling – Absorber Complex and Decay Pipe

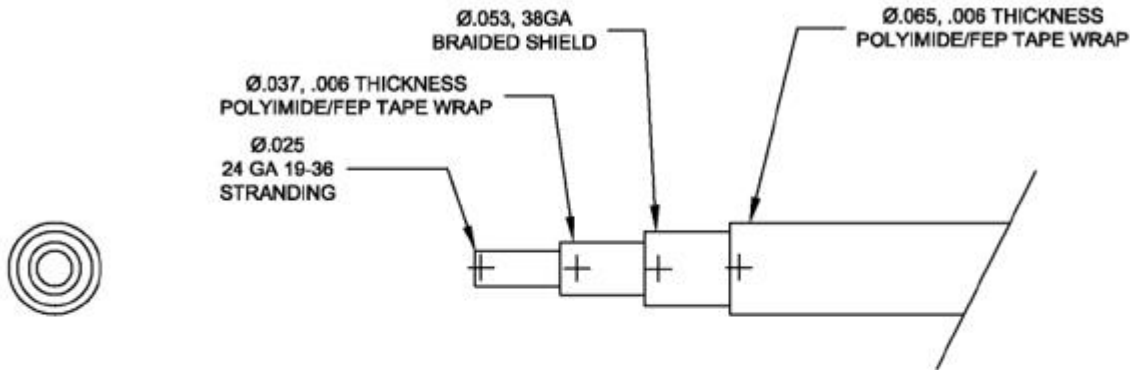


## Pre-defined conditions for residual dose calculations

- The residual dose calculations should be done for 200-day irradiation and for several cooling times (1 day, 3 days, 7 days, 14 days).
- Irradiation geometry corresponds to the recent drawings by V. Sidorov (with Hadron Monitor in upper position).
- For cooling geometry, 2 cases should be considered: (i) 4 upper leftmost blocks are removed; (ii) 4 upper leftmost blocks are removed, and 2 lower leftmost blocks are removed as well (that is 6 blocks total). For both the scenarios, the Hadron Monitor assembly is in place.
- Regarding the cable box filling (see p. 3) above, the 10% filling with cables is assumed as a conservative estimate.
- The geometry model of the cables should correspond to the right figure shown on the next page (p. 7, AWG 50-Ohm coaxial cable). Composition of the kapton insulation is shown on the left figure, and both the conductor and pleated layer are assumed to be natural copper.



# Pre-defined conditions for residual dose calculations

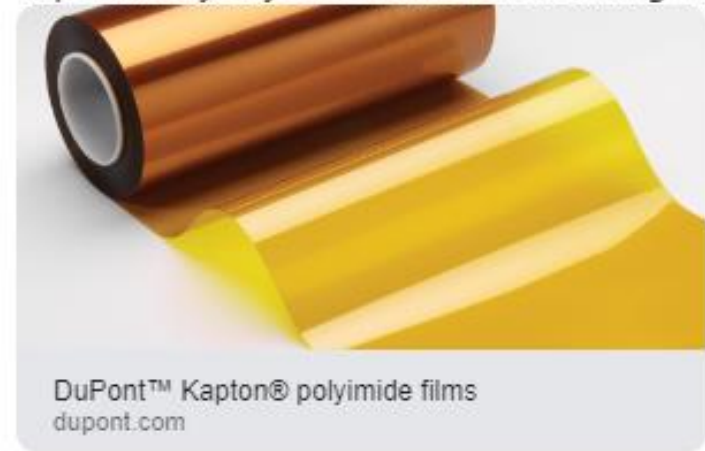


polyimide - kapton film (NIST.gov)

- C 69.1% by weight
- O 20.9 %
- N 7.3 %
- H 2.7%

W.L. GORE QUOTE B02098-PM-A  
 ALL CONDUCTORS SILVER PLATED  
 COPPER  
 RATED WORKING VOLTAGE:  
 1200 VOLTS DC

| UNLESS OTHERWISE SPECIFIED  | ORIGINATOR | W.L. GORE      | 08-15-00 |
|---|------------|----------------|----------|
| FRACTIONS   | DECIMALS   | ANGLES         | DRAWN    |
| ±   | ±          | ±              | CHECKED  |
| 1. BREAK ALL SHARP EDGES<br>1/64 MINIMUM                                    |            | APPROVED       |          |
| 2. DO NOT SCALE DRAWING   |            | USED ON        |          |
| 3. DIMENSIONING IN ACCORD<br>WITH ASME Y14.5 STANDARDS                      |            | MATERIAL-      |          |
| ✓ MAKE ALL DIMENSIONED SURFACES   |            |                |          |
| FERMI NATIONAL ACCELERATOR LABORATORY<br>UNITED STATES DEPARTMENT OF ENERGY |            |                |          |
| RADIATION RESISTANT COAXIAL CABLE<br>GORE CUSTOM KTN1231 REV 1P             |            |                |          |
| SCALE   | FILED      | DRAWING NUMBER | REV.     |
| 10:1  |            |                |          |



For last 3 Hadron Monitors we used wire similar to;

