



# **SiD MDI Update Topics for Discussion**

Tom Markiewicz/SLAC  
ILC BDS Meeting  
15 May 2007

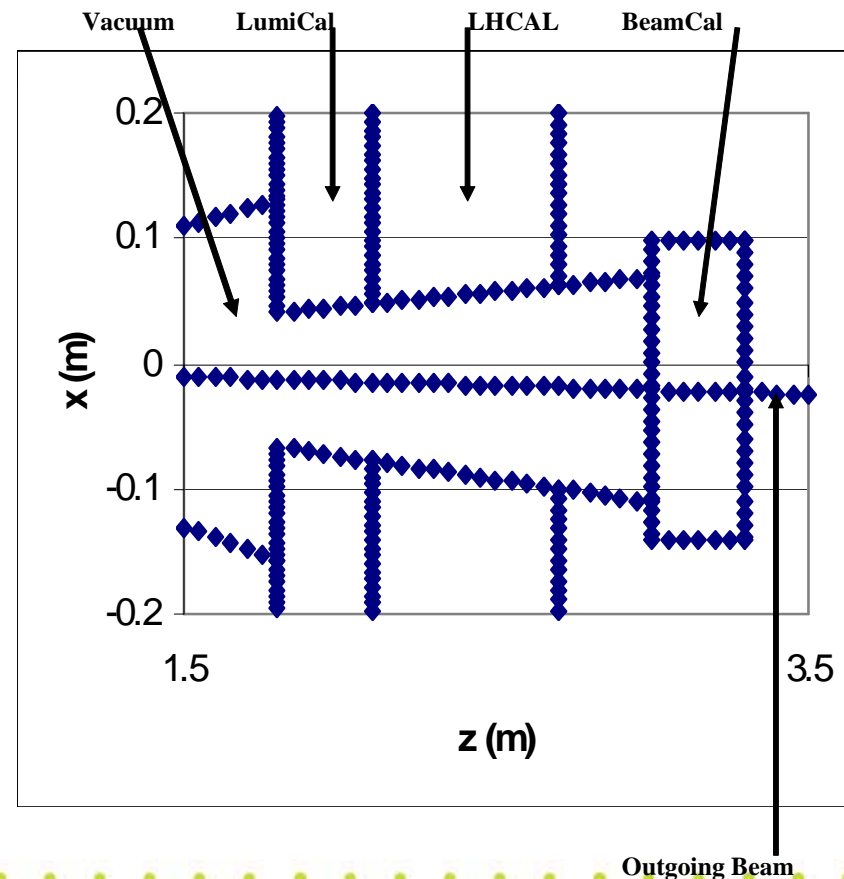
A horizontal line of small yellow dots runs across the bottom of the slide, mirroring the one at the top.



# FCAL BeamPipe Discussions

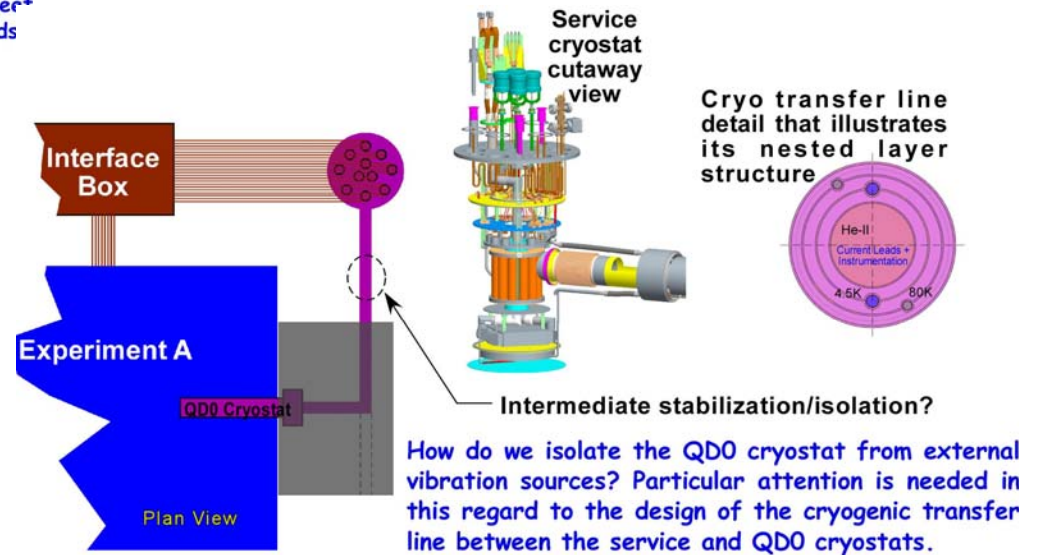
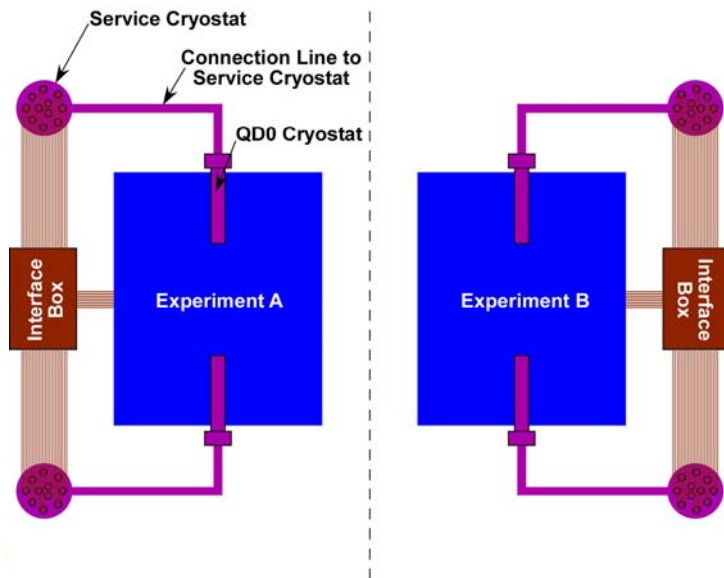
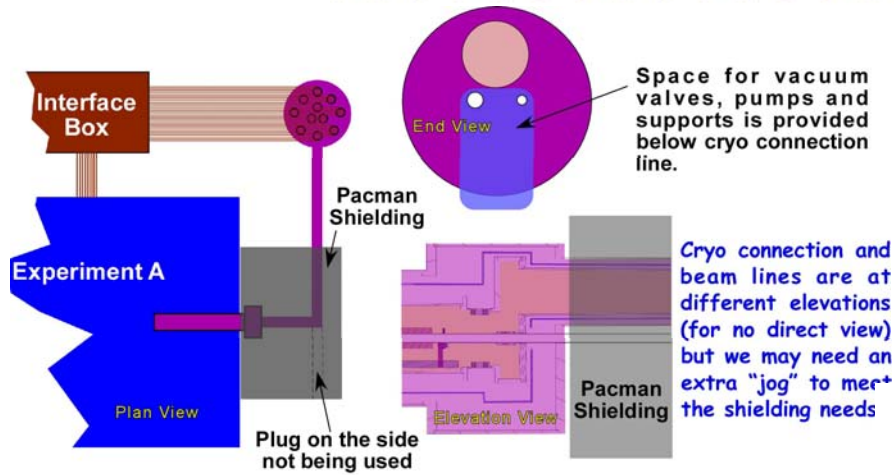
- SiD FCAL group focused on ONE Device which covers 30-80mrad and to a first approximation ignores LUMI aspects of BEAMCAL (inspired by LCD Design)

LumiCal Inner Edge	≈30mrad about outgoing beam
LumiCal Outer Edge	≈113mrad about 0mrad (ECAL)
LumiCal Fiducial Region	≈40-80mrad about outgoing beam
BeamCal Outer Edge	≈40mrad about outgoing beam
LumiCal	≈25 X <sub>0</sub> Silicon - Tungsten
BeamCal	≈25 X <sub>0</sub> Rad-hard Silicon or Diamond - Tungsten





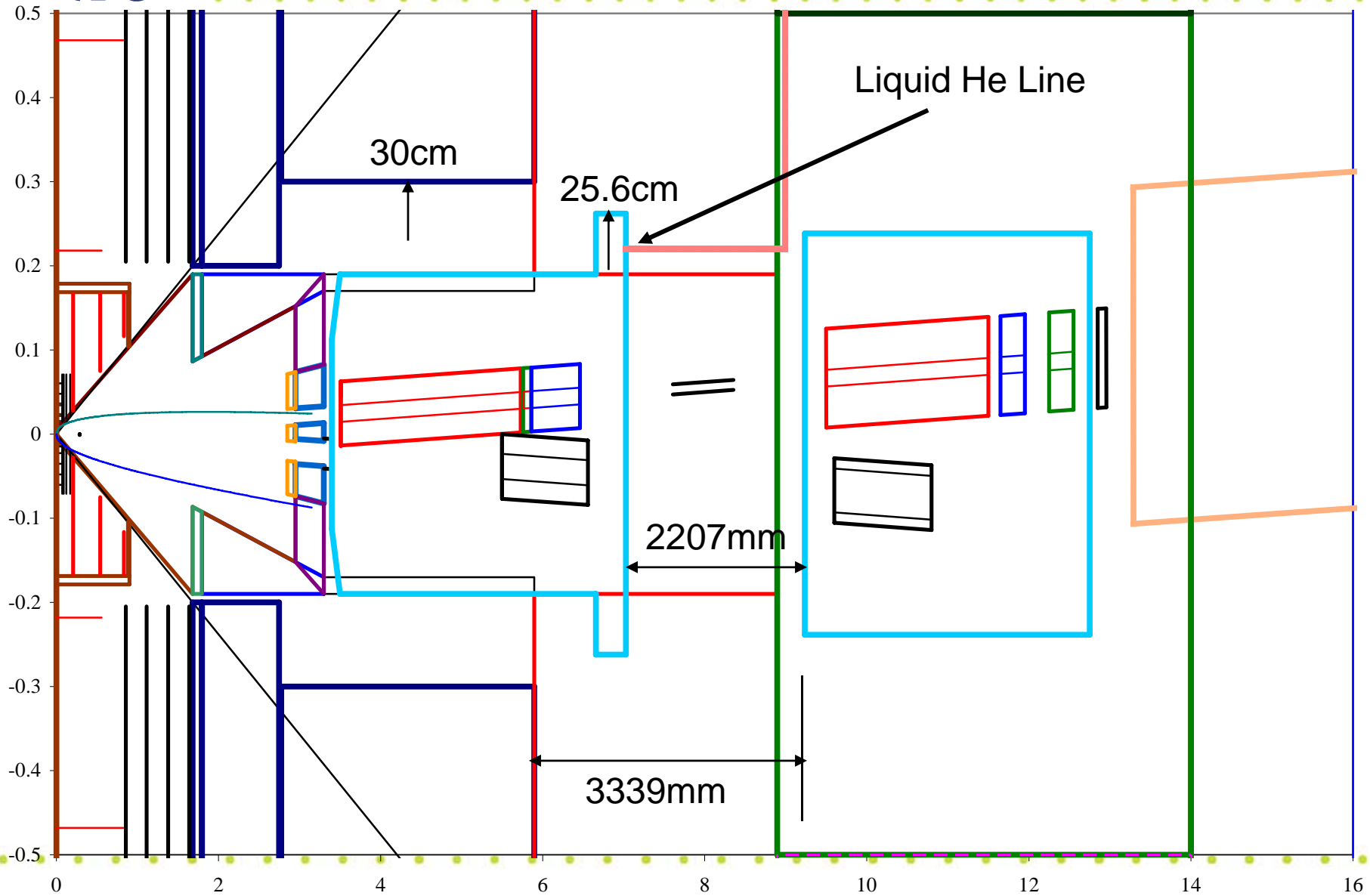
# Brett's Schematics





SiD  $r < 50\text{cm}$ ,  $L^* = 3.664\text{m}$ ,  $14\text{mrad}$ ,  
Push-Pull, QF @  $9.5\text{m}$ , Door Closed

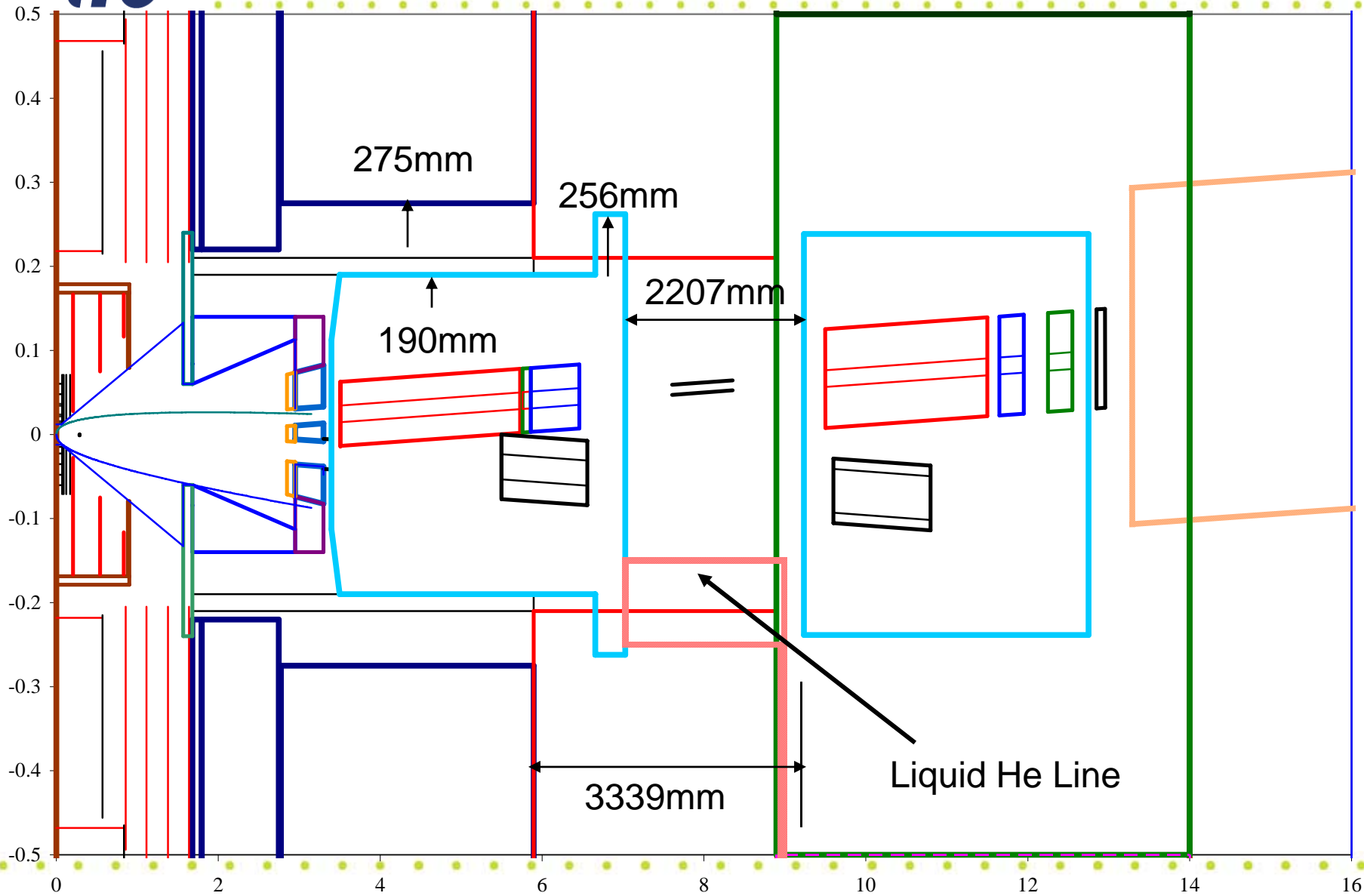
OLD





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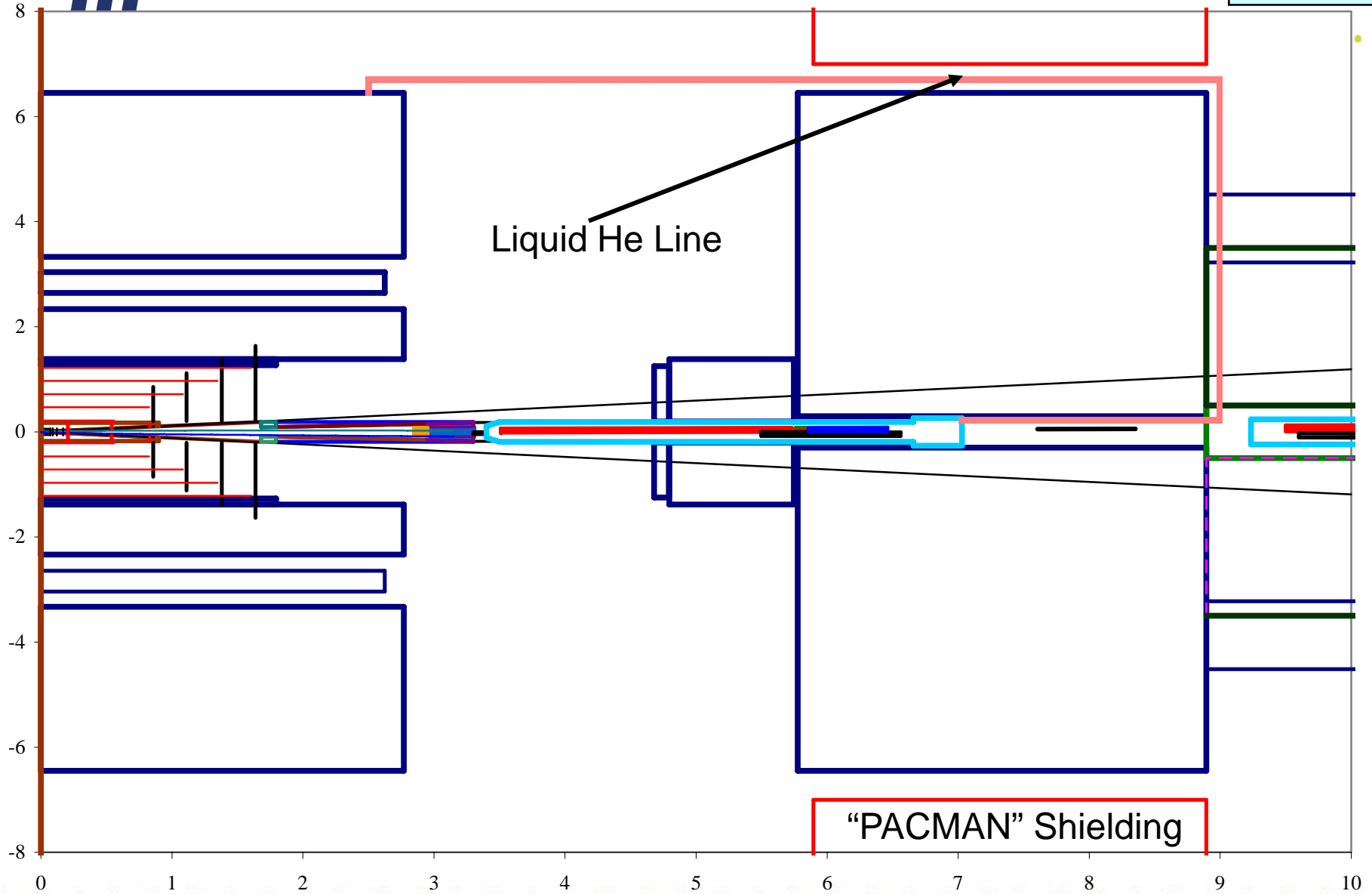
**NEW**





# Door Open, Permanent QD0 Liquid He Line

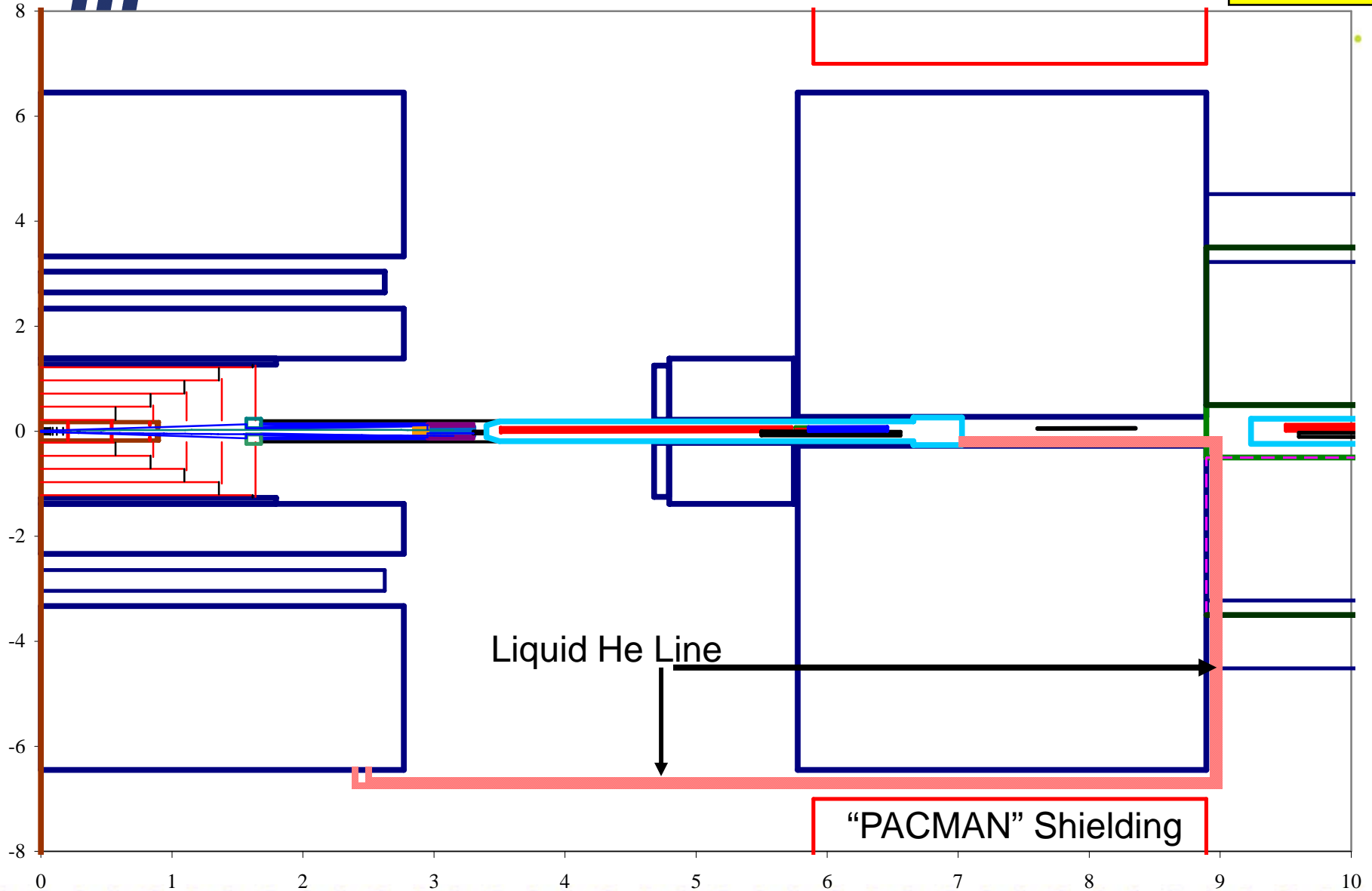
**OLD**





# Door Open, Permanent QD0 Liquid He Line

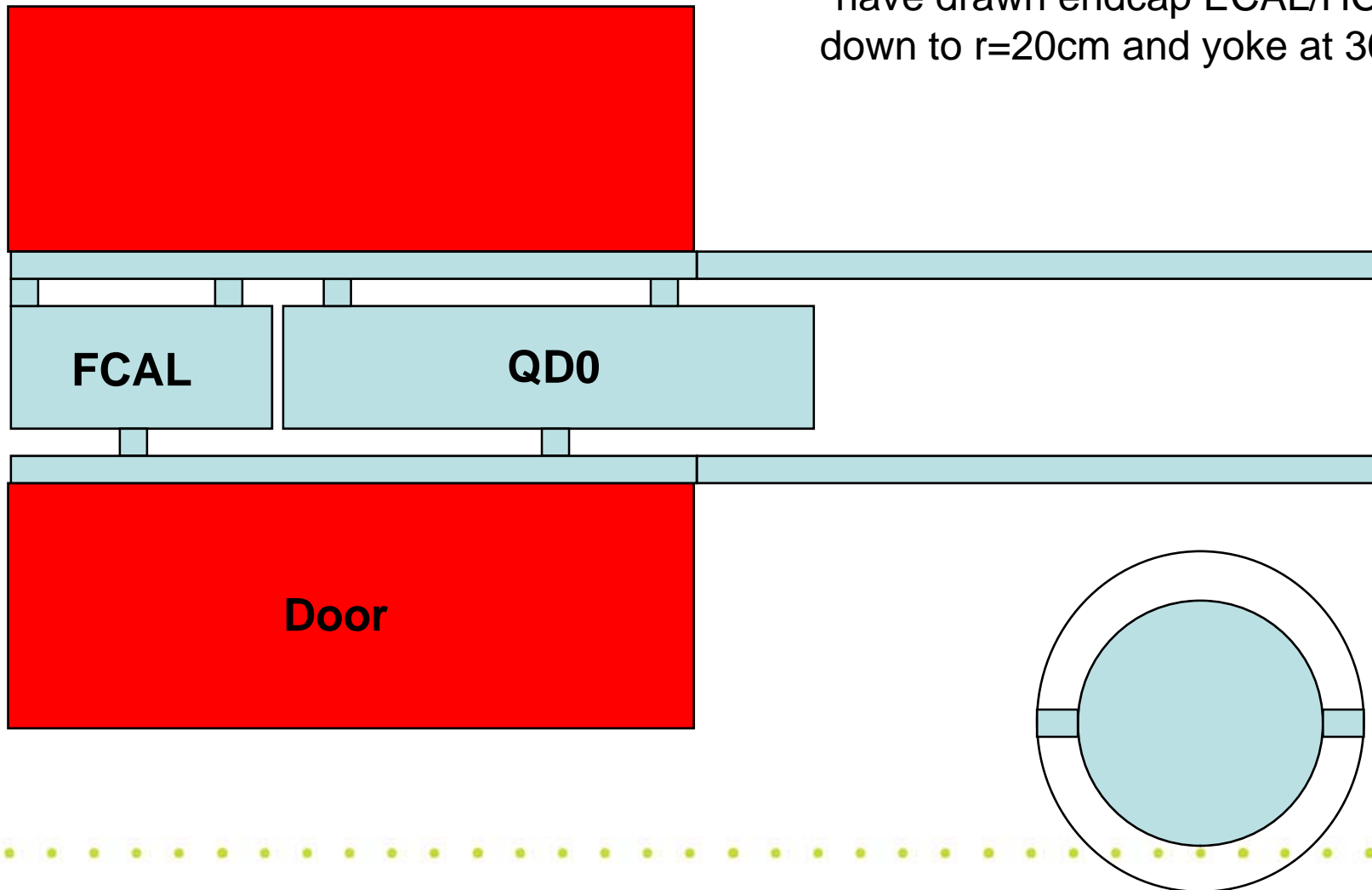
**NEW**





# Plan & Elevation View of FCAL/QD0 Support

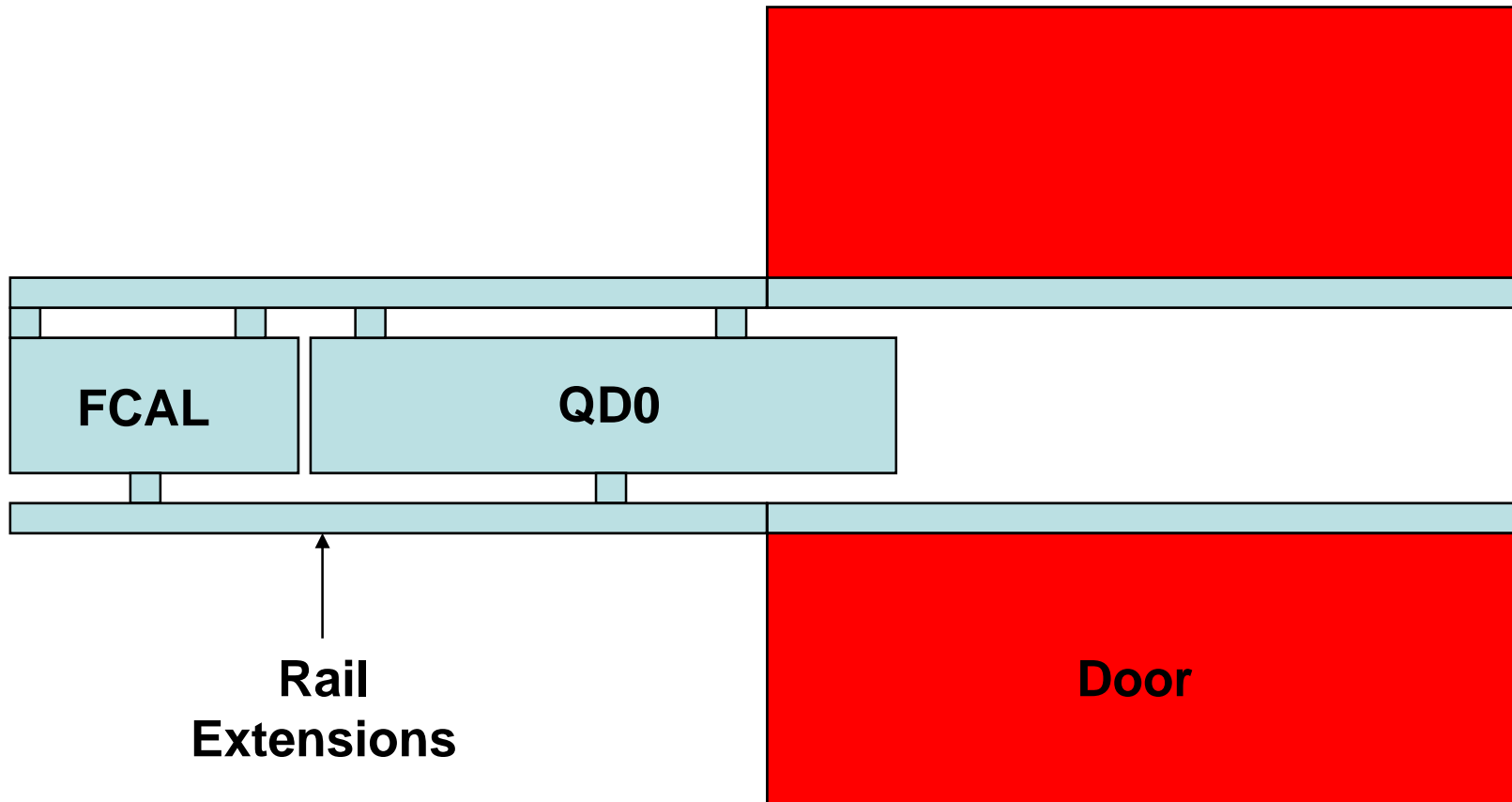
Ignore for the moment fact that I have drawn endcap ECAL/HCAL down to  $r=20\text{cm}$  and yoke at  $30\text{cm}$







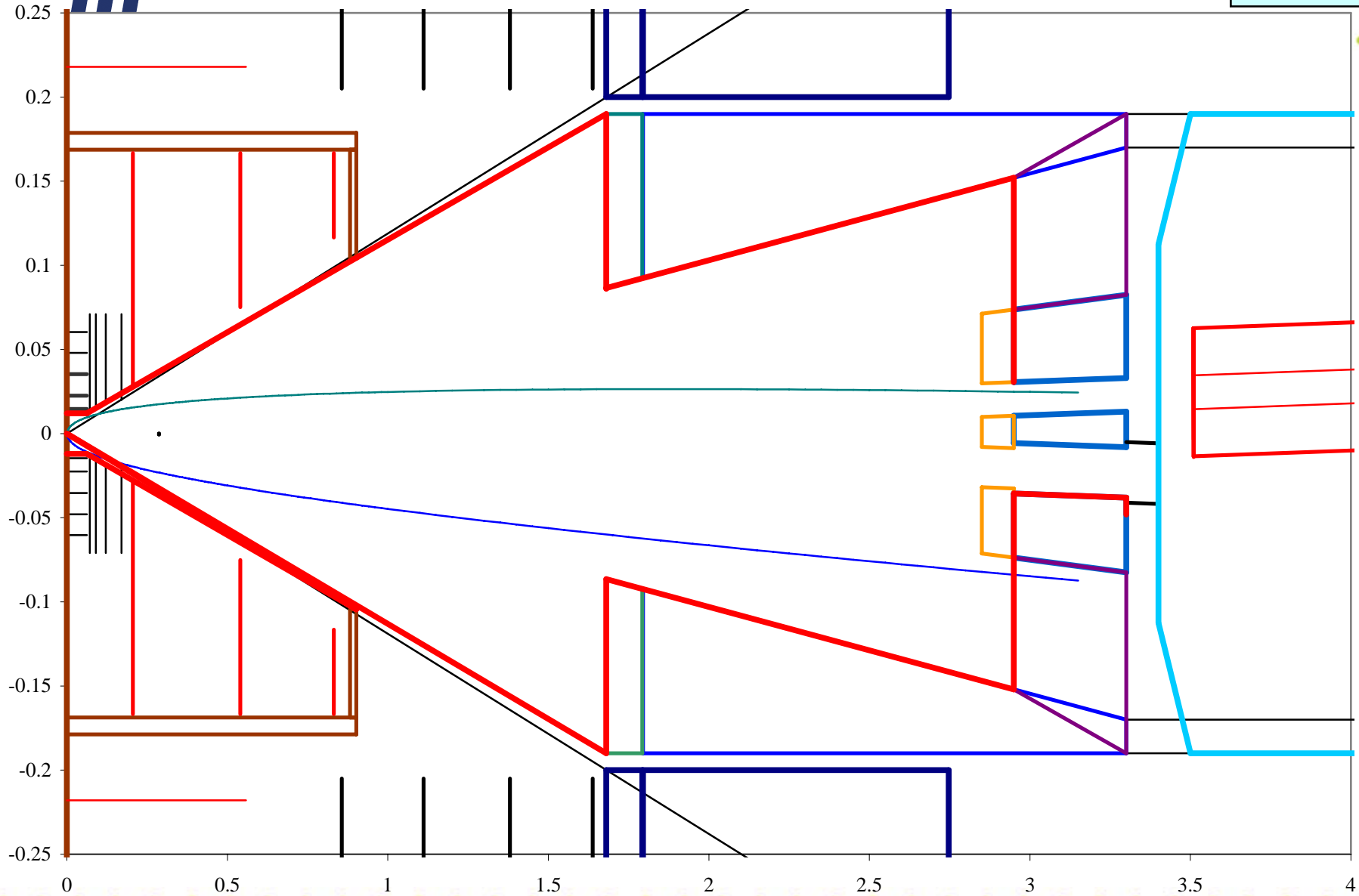
# FCAL/QD0 Supported with Door Open





# Detail of FCAL

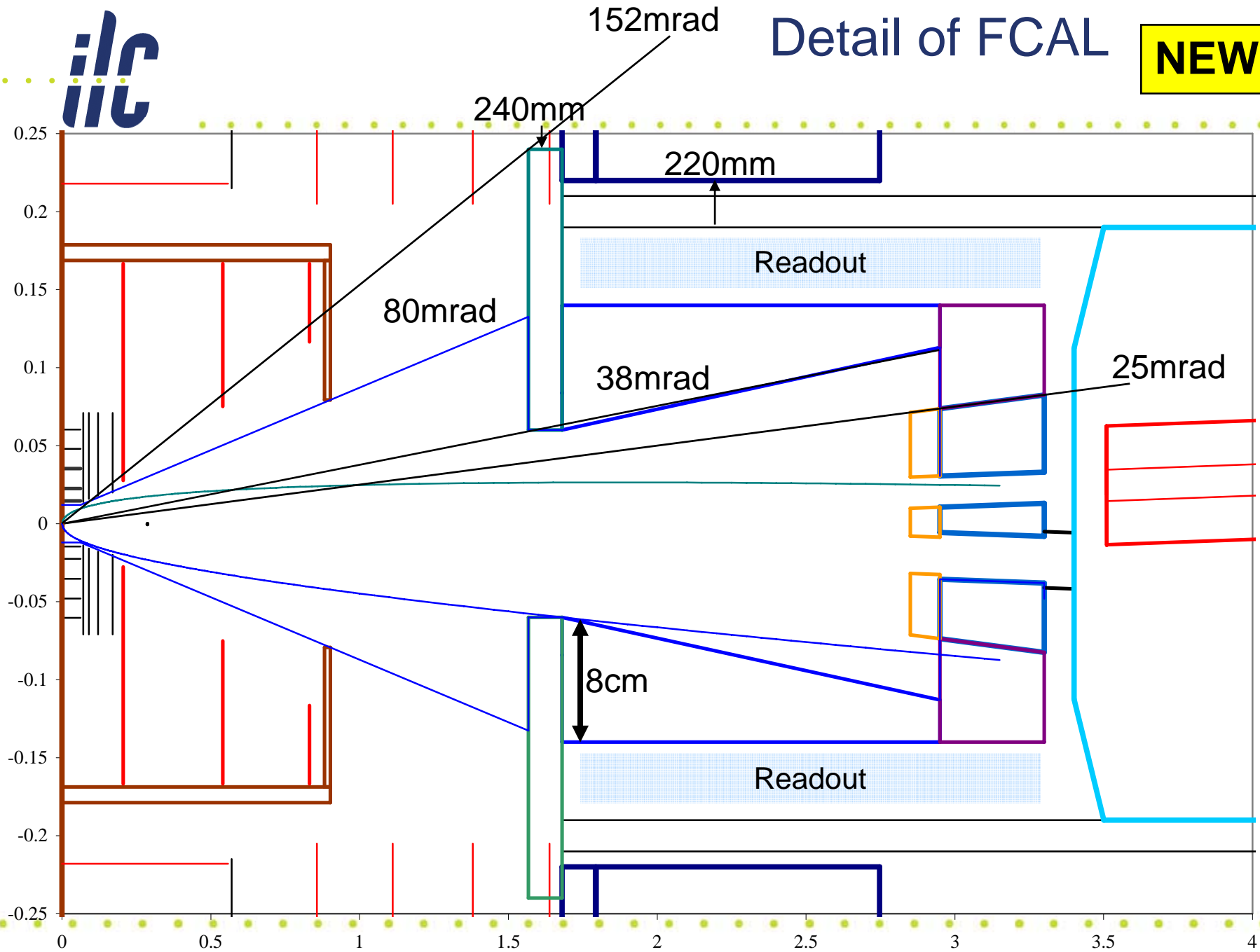
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# Detail of FCAL

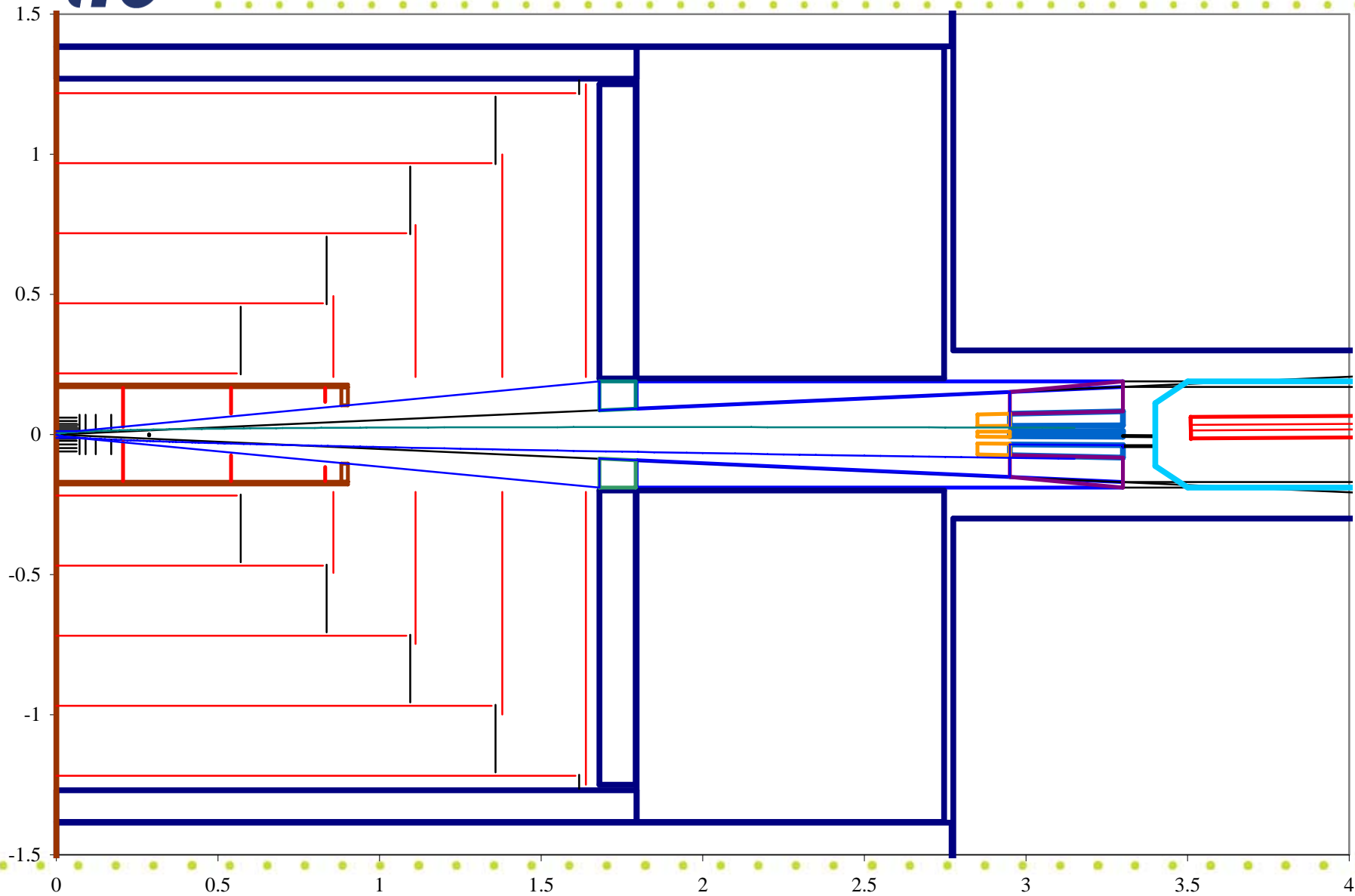
**NEW**





Unlike SLD, Tracker **CANNOT** Be used to Support  
FCAL+Mask Package → **MUST HANG OFF QD0**

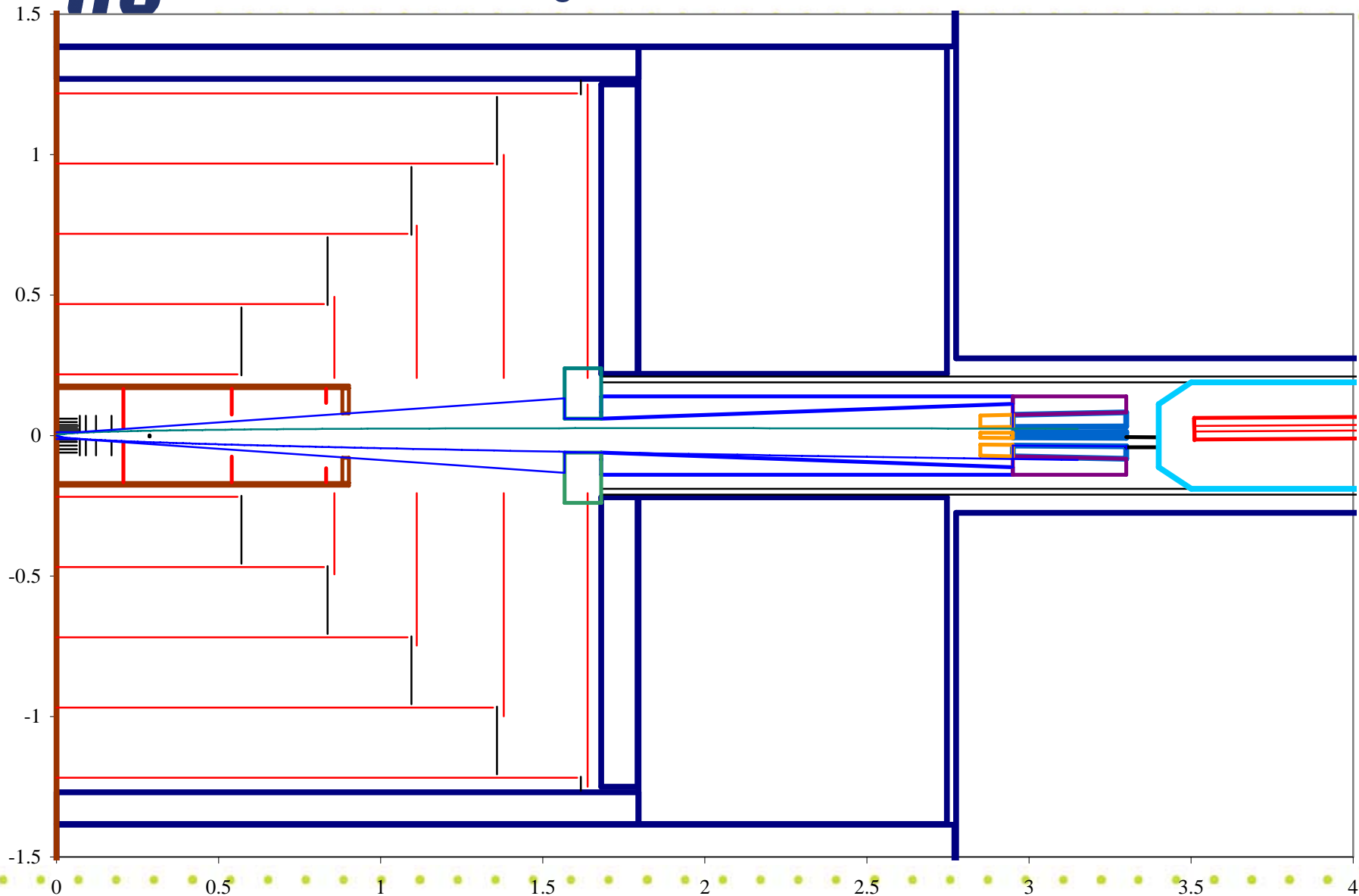
**OLD**





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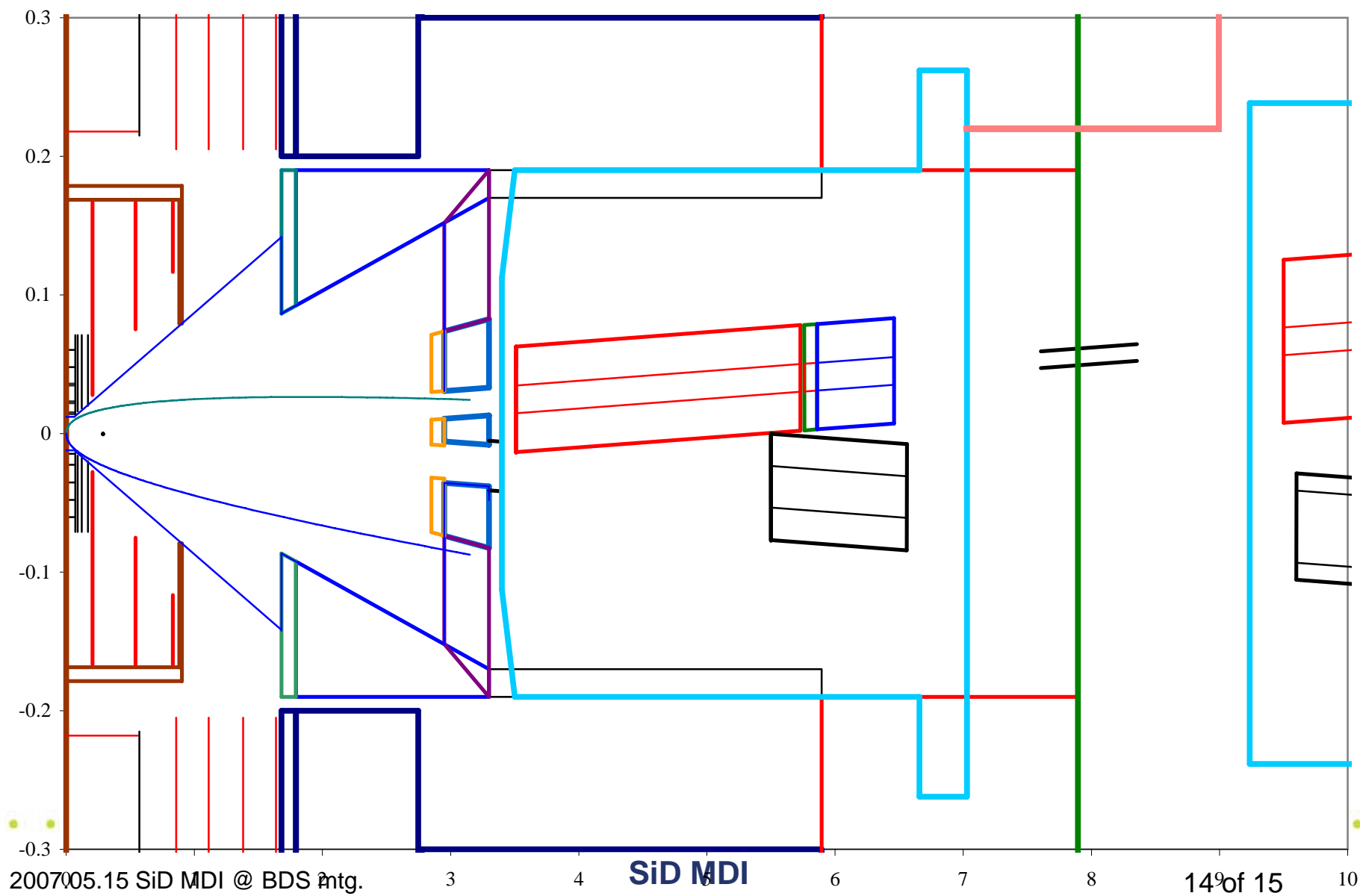




113mrad < FCAL < 51mrad with 80 mrad beampipe

need to rethink LUMICAL-ECAL radial overlap @ z=1.68m

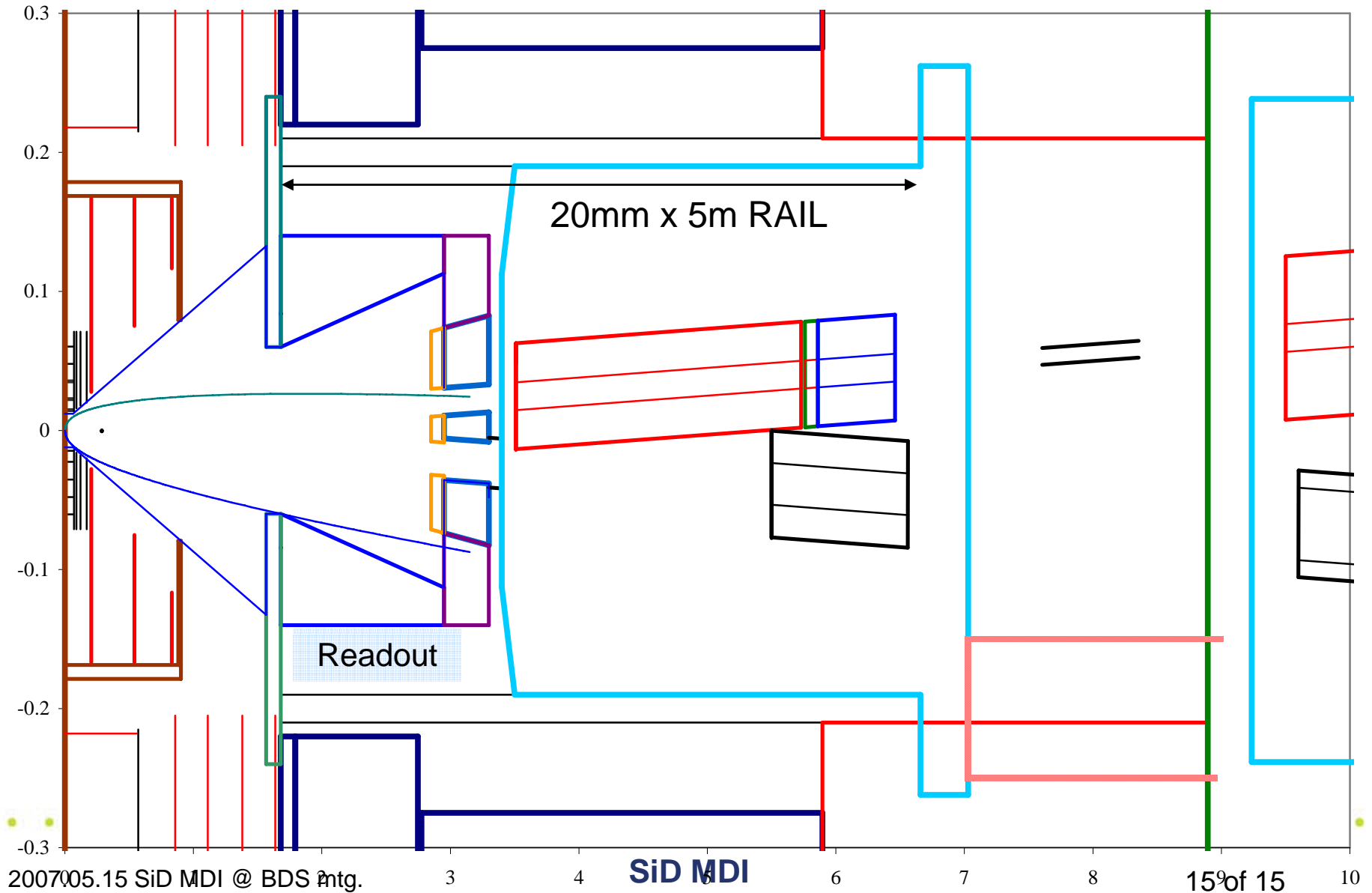
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113mrad < FCAL < 51mrad with 80 mrad beampipe  
need to rethink LUMICAL-ECAL radial overlap @ z=1.68m

**NEW**





**Bonus Material Follows**







# Pair Radius in cm at Z=168 cm

	4 Tesla			5 Tesla		
	ANTI-DID	NO DID	DID	ANTI-DID	NO DID	DID
N	5.2 / 4.7	5.1 / 5.5	5.8 / 6.5	4.7 / 4.1	4.4 / 5.1	5.3 / 6.1
Q	4.7 / 4.2	4.4 / 5.1	5.3 / 6.0	4.2 / 3.8	3.8 / 4.6	4.8 / 5.6
Y	4.6 / 4.2	4.6 / 5.1	5.5 / 6.0	4.3 / 3.9	4.1 / 4.6	4.9 / 5.7
P	6.3 / 6.0	6.2 / 6.8	6.8 / 7.6	5.7 / 5.3	5.5 / 6.1	6.4 / 7.0
H	7.0 / 6.6	6.8 / 7.3	7.4 / 8.2	6.2 / 5.9	6.1 / 6.7	6.7 / 7.5

Radius in black is measured from solenoid axis (x,y) = (0., 0.).

Radius in red is measured from extraction line (x,y) = (-1.176 cm, 0.)



# SiD Open for Access to the VXD Region

What Opening is Required for Access ON Beamline?

