Design Meeting Summary

MD Work Order #: RC100609.1223H.W04047 Date: 2 Mar 2016

Project/Task: Mechanical Design of Proton Detector

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Issues discussed/results:

Some brainstorming was done regarding mounting of the aluminized mylar cathode and its associated corona ring (photo of whiteboard sketch – page 2).

Some more details regarding the gating grid and micromegas board were discussed – as well as two copper rings to which will reside in the space between the gating grid and micromegas board (mark-up of David's slide – page 3).

Four more feedthroughs need to be added to the design …

(a) one feedthrough for the field cage ground

(b) one feedthrough needs for the gating grid, 360 V-ish

(c) two feedthroughs for the copper rings, ≤ 300 V-ish

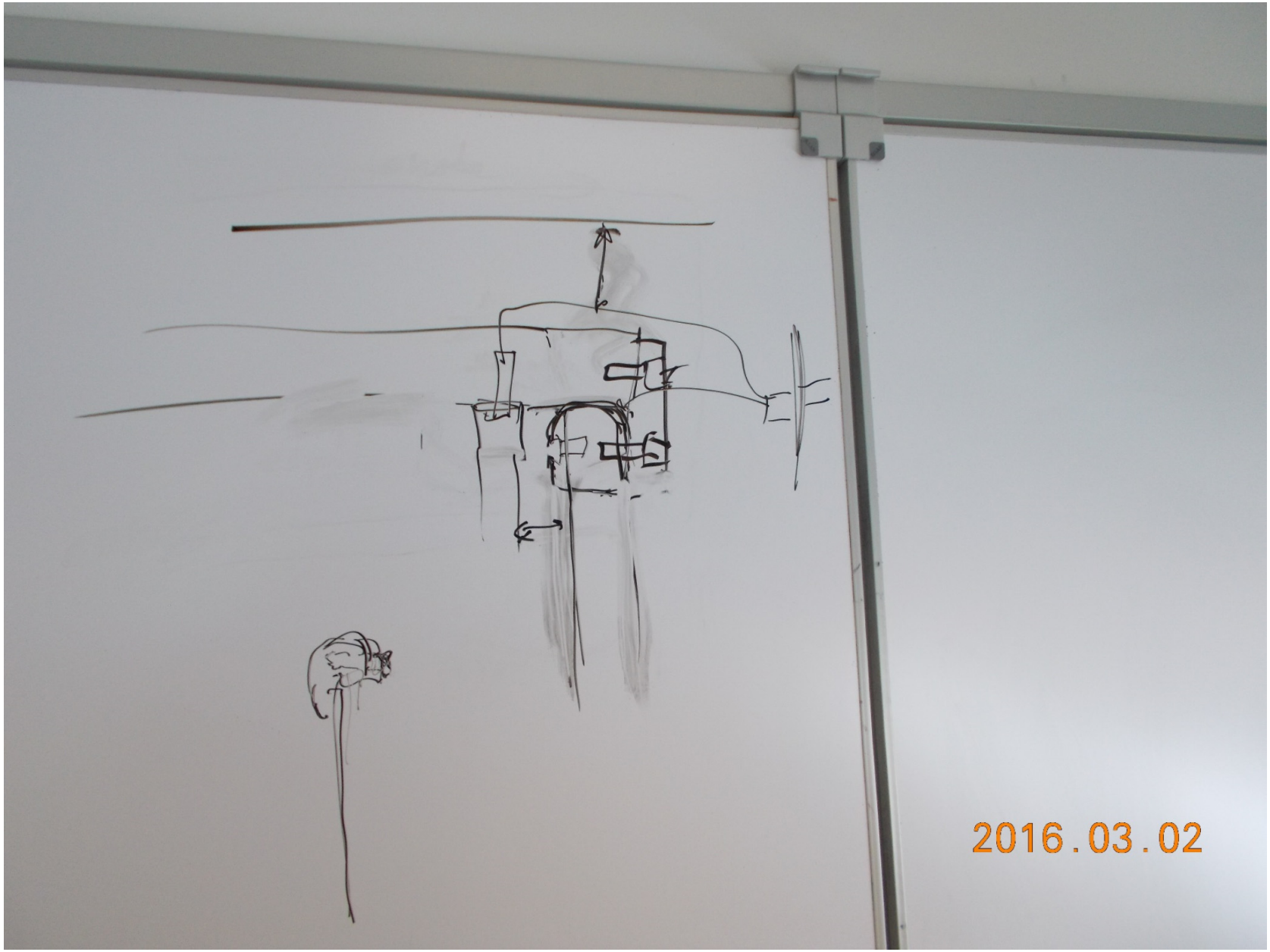
Locating these four feedthroughs on the upstream flange (6 kV end of the assembly) presents a challenge in regards to keeping the wires isolated to prevent sparking.

The air gap may need to become shorter than the current distance of 15 cm – certainly shouldn't be made any longer.

The beam entry window needs to be changed from aluminum to Kapton.

The vacuum chamber can now be made of stainless steel.

The O-ring grooves on the vacuum chamber end flanges can be changed from dovetail to rectangular shaped cross-section.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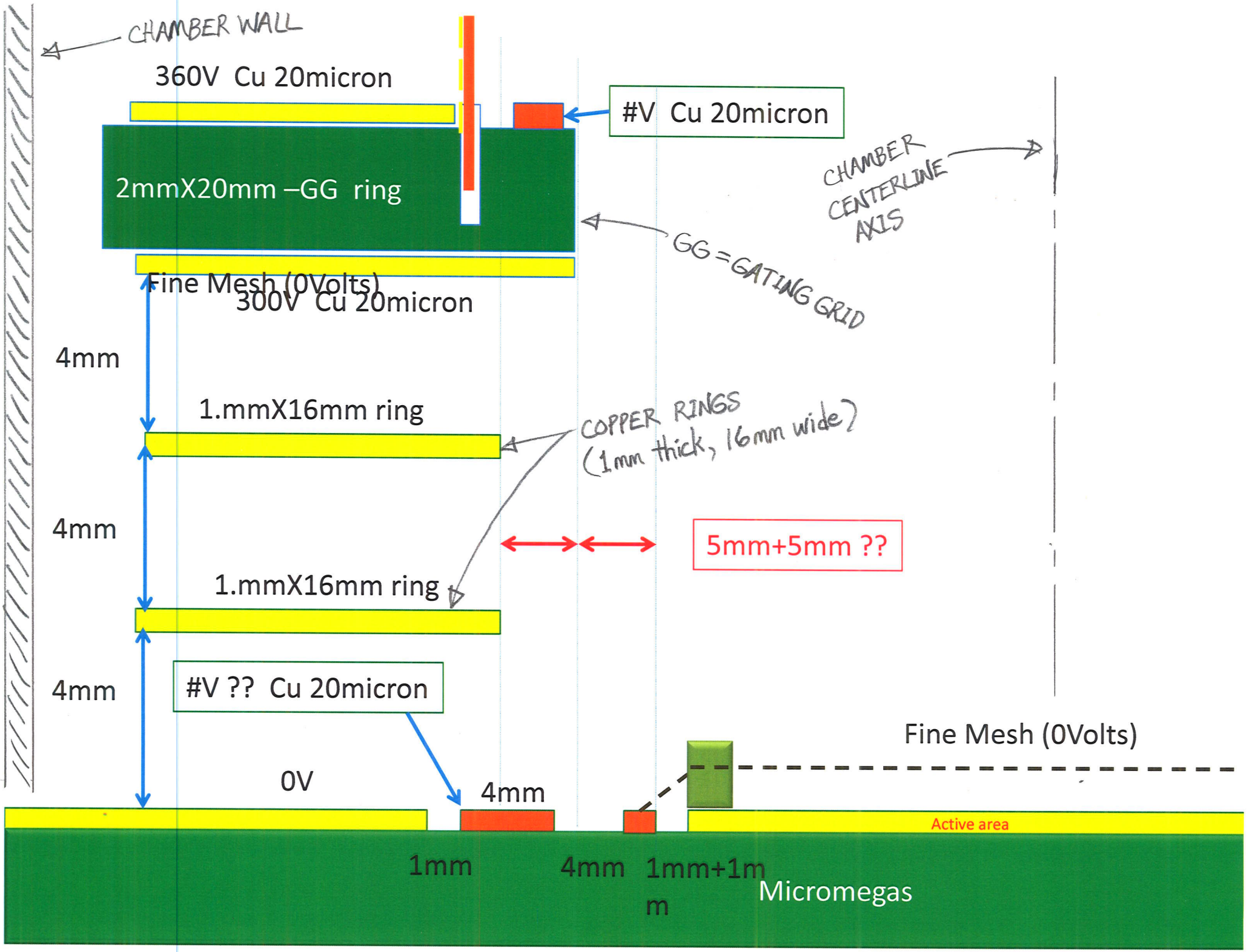
CHAMBER WALL
360V Cu 20micron
#V Cu 20micron
2mmX20mm –GG ring
CHAMBER CENTERLINE AXIS
GG = GATING GRID
Fine Mesh (0Volts)
300V Cu 20micron
4mm
1.mmX16mm ring
COPPER RINGS (1mm thick, 16mm wide)
4mm
5mm+5mm ??
1.mmX16mm ring
4mm
#V ?? Cu 20micron
Fine Mesh (0Volts)
0V
4mm
Active area
1mm
4mm
1mm+1mm
Micromegas