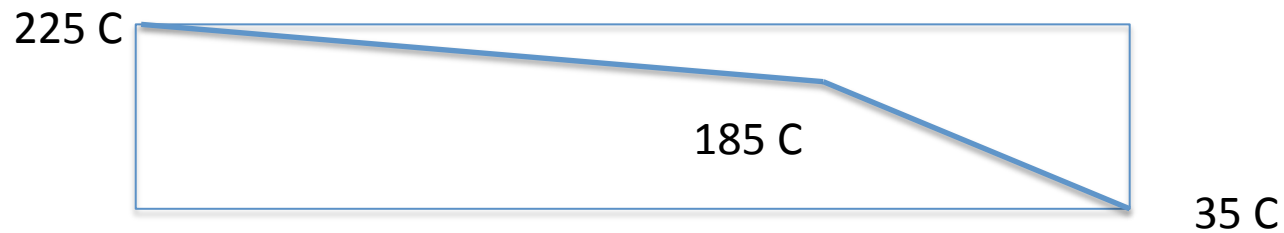
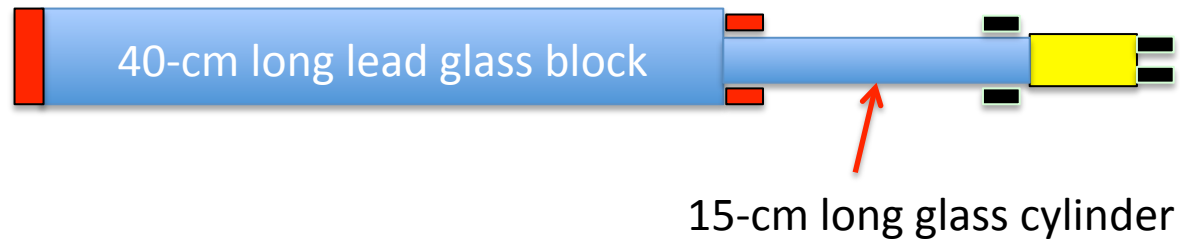


ECAL for GEp/SBS

B. Wojtsekhowski, June 28, 2017

ECAL collaboration
JLab/YerPhi/SBU/JMU/NCCU

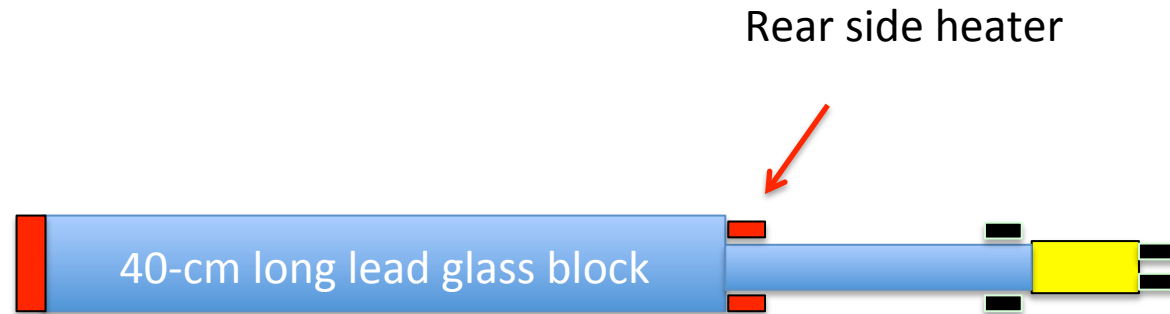
Temperature profile



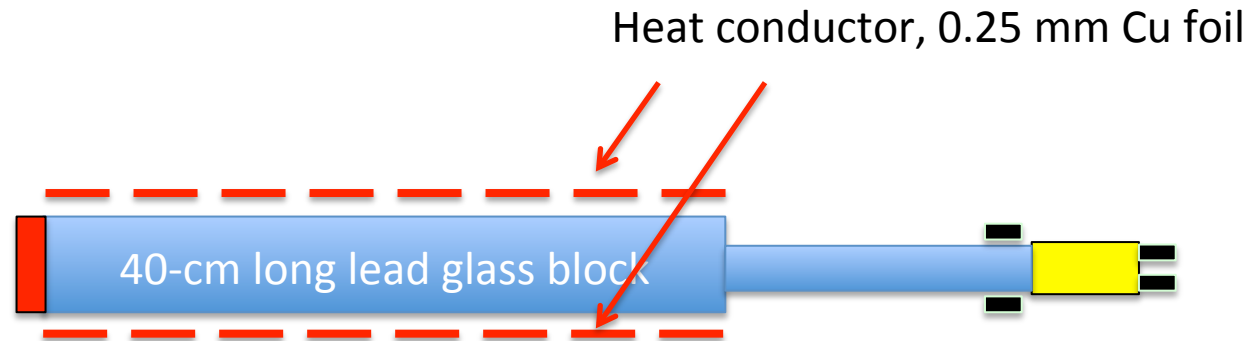
Temperature profile

$$0.008 \times 7 \times 200 / 20 = 0.6 \text{ W heat through light guide}$$

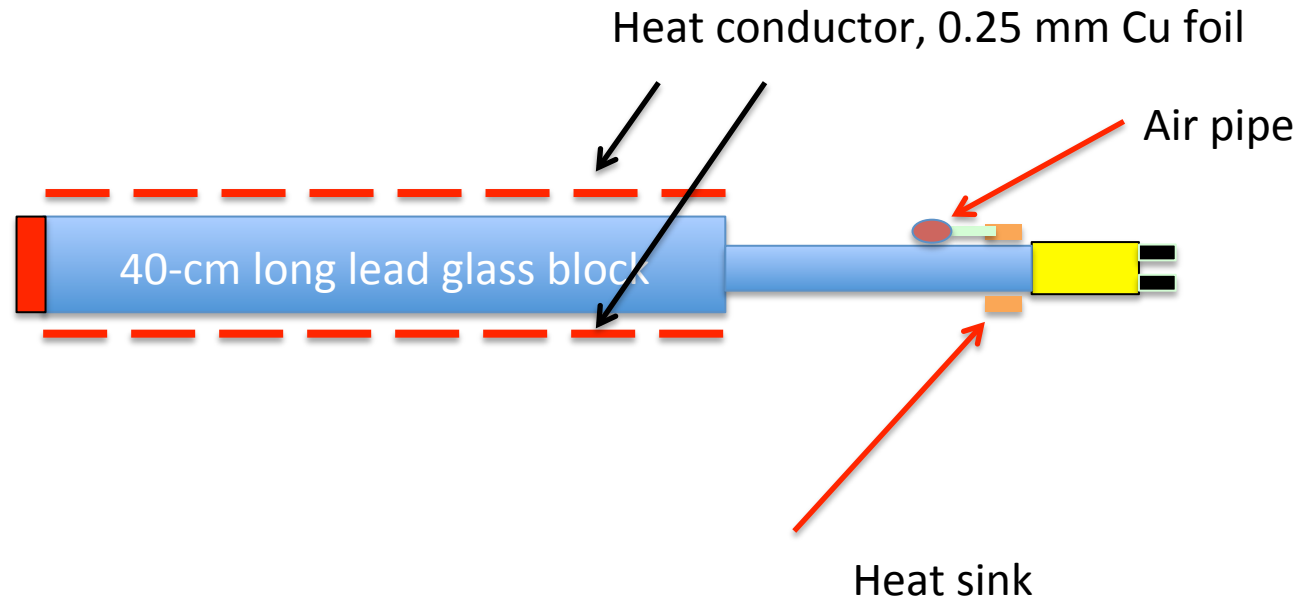
The scheme, since 11/2013



A new scheme of heat supply

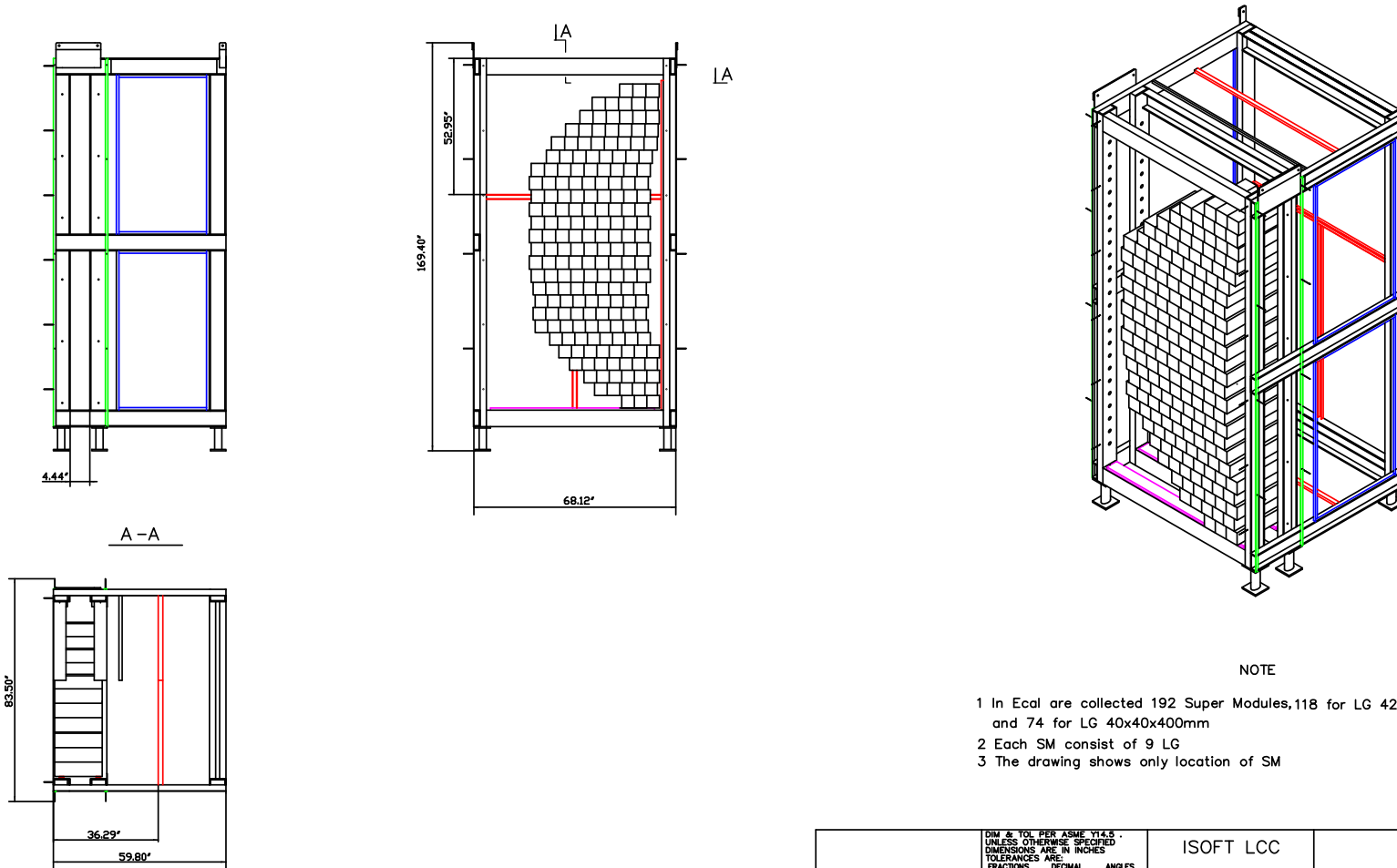


Cooling concept



Design of the detector

LOCATION SM IN ECAL



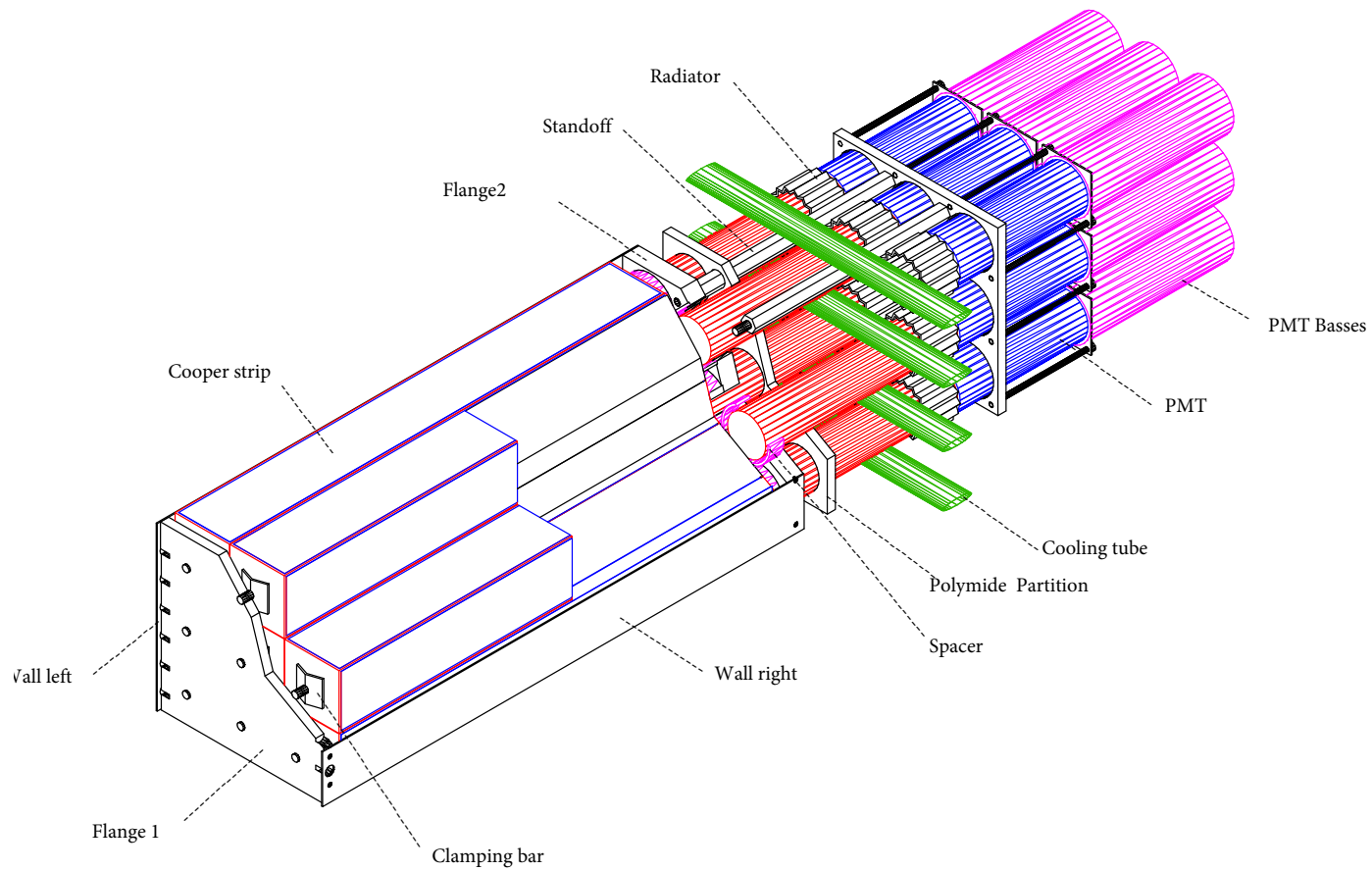
NOTE

- 1 In Ecal are collected 192 Super Modules, 118 for LG 42.5x42.5x340mm and 74 for LG 40x40x400mm
- 2 Each SM consist of 9 LG
- 3 The drawing shows only location of SM

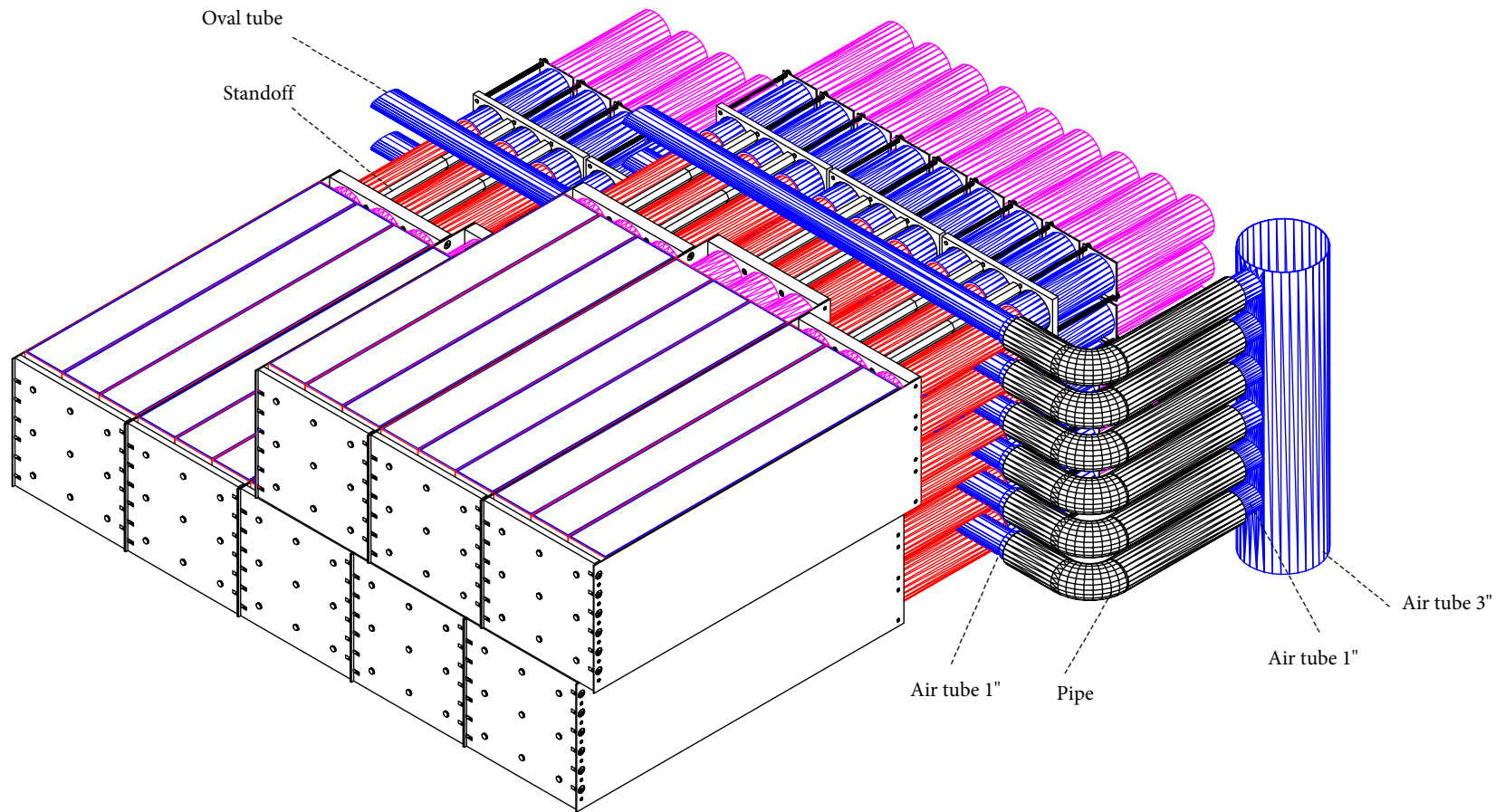
DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMAL ANGLES ± .005 ± .50°		ISOFT LCC			
MATERIAL X		THIRD ANGLE PROJECTION	APPROVALS	DATE	ECAL 1700
FINISH MACHINED SURFACES UNLESS OTHERWISE NOTED DEBURR & BREAK ALL SHARP EDGES			DRAWN Sargsyan		
DO NOT SCALE DRAWING			CHECKED Shahinyan		SIZE DWG. NDL B
			APPROVED Wojtsekhowski		SCALE
			APPROVED Jackson		USED OR ASST. NO. XXXX-Y-XXX

Super module

Super Modul General View

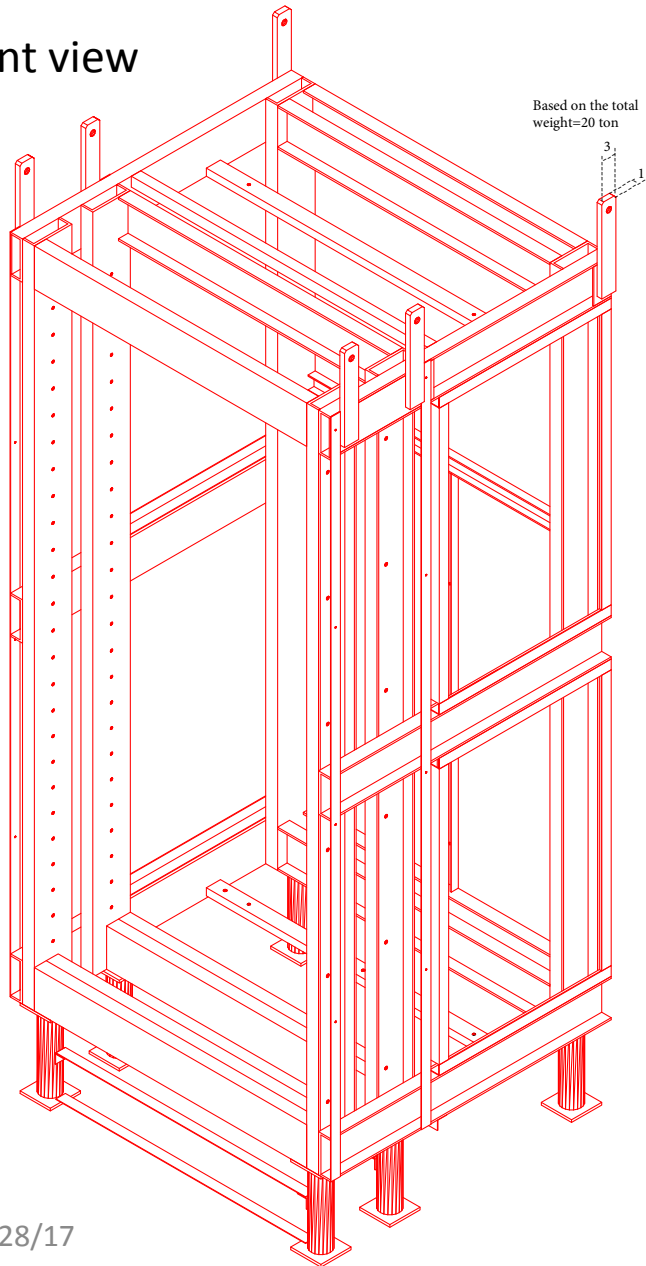


Cooling scheme

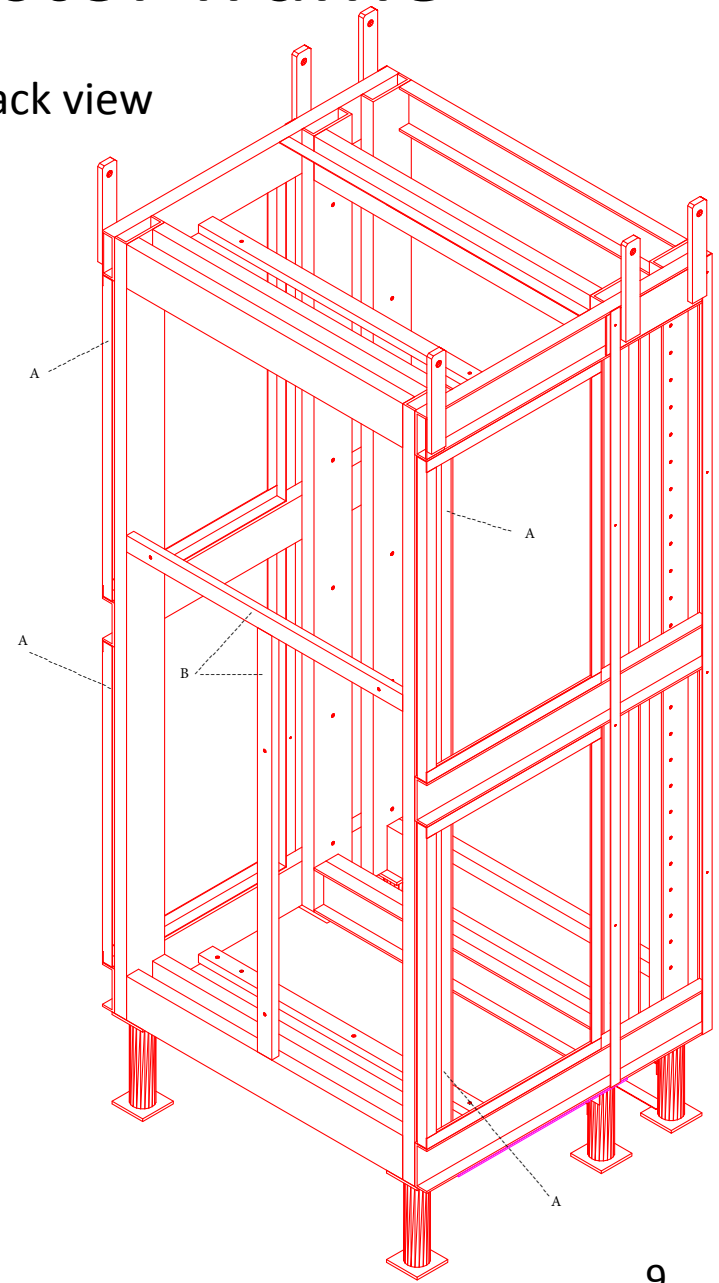


Design of the detector frame

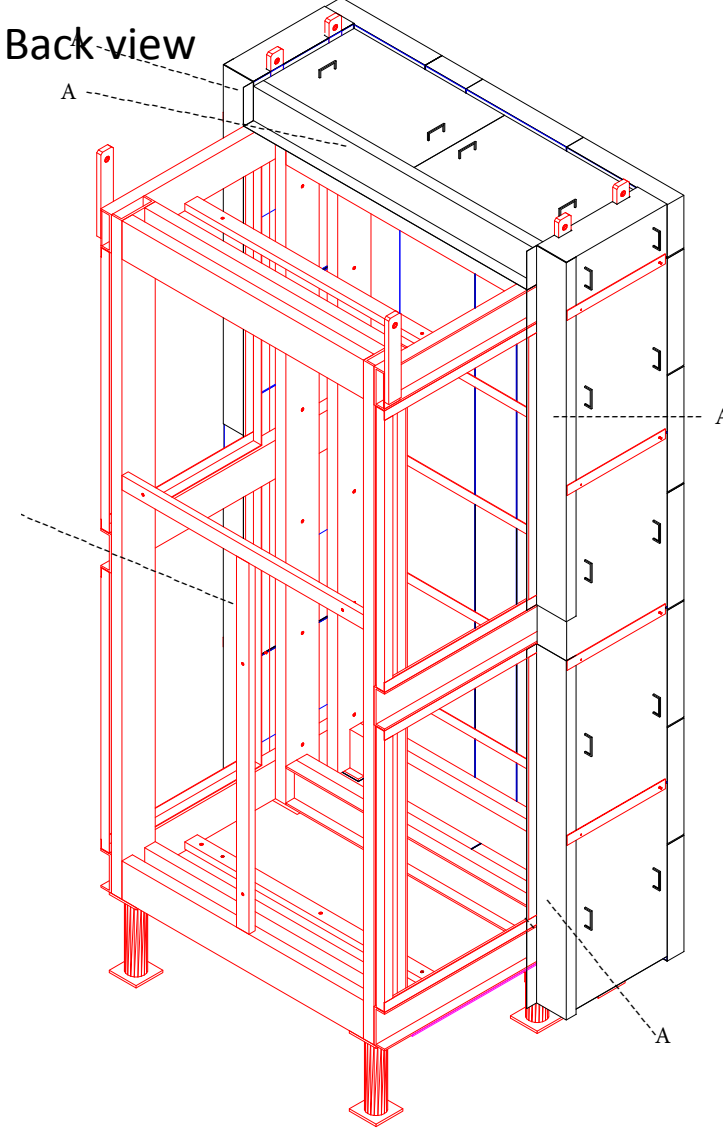
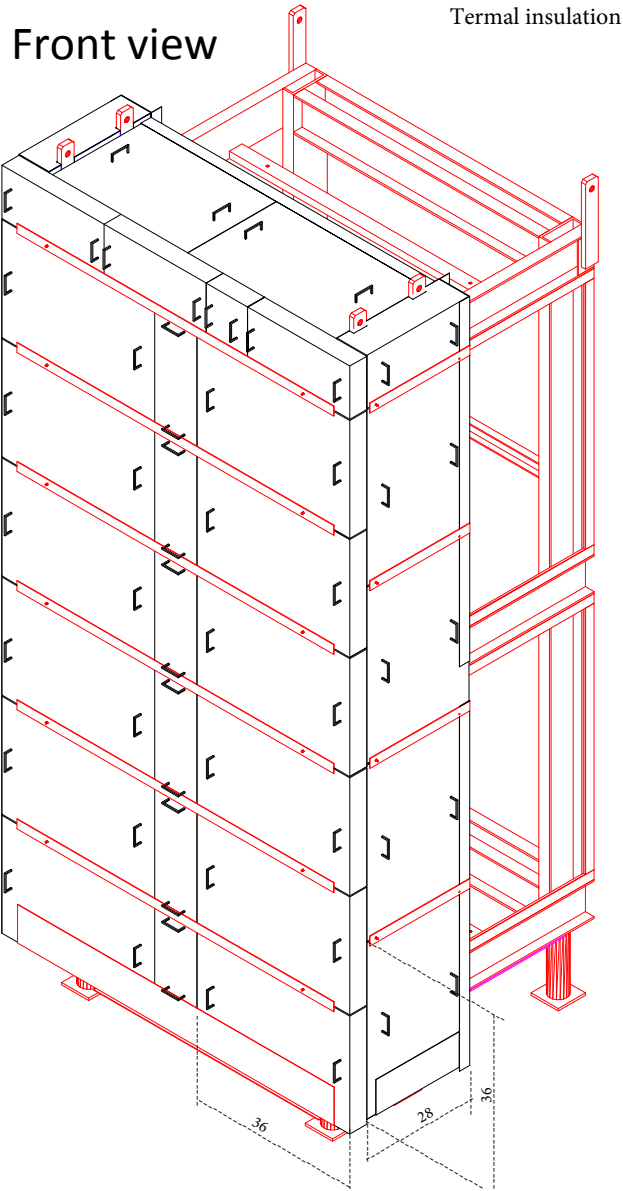
Front view



Back view

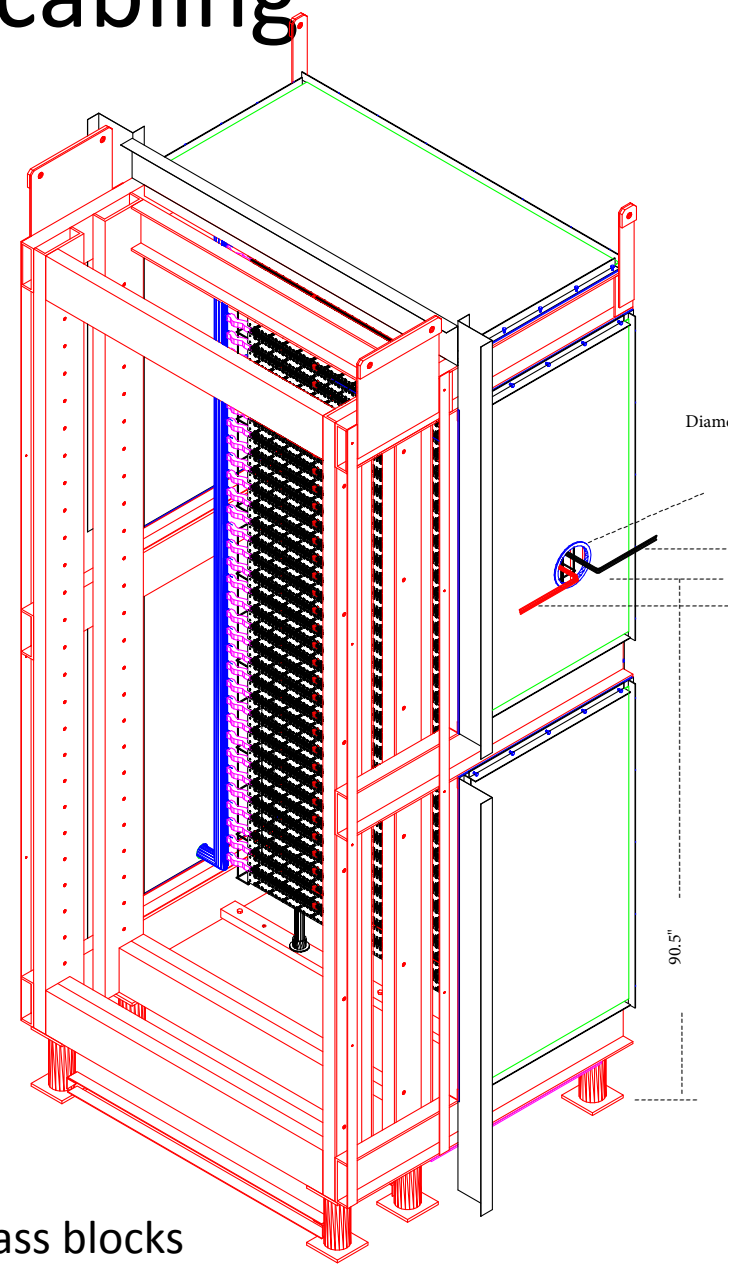
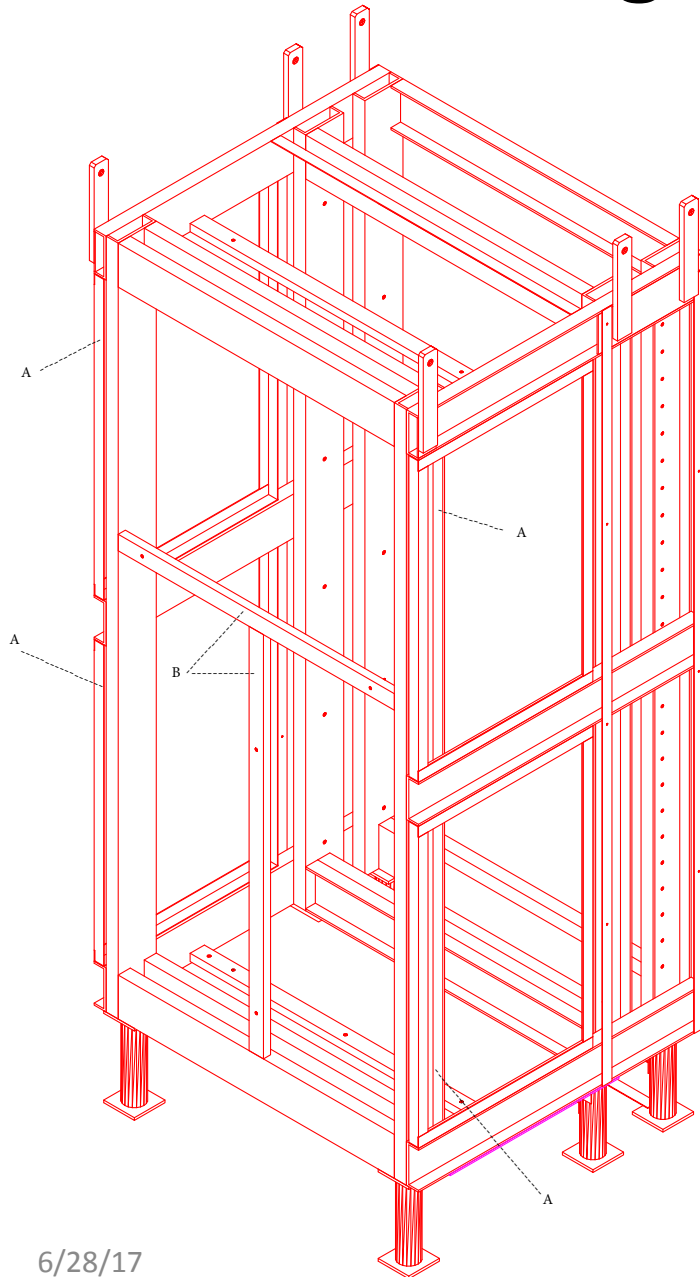


Design of the oven heat panels



Design of the cabling

07.04_1



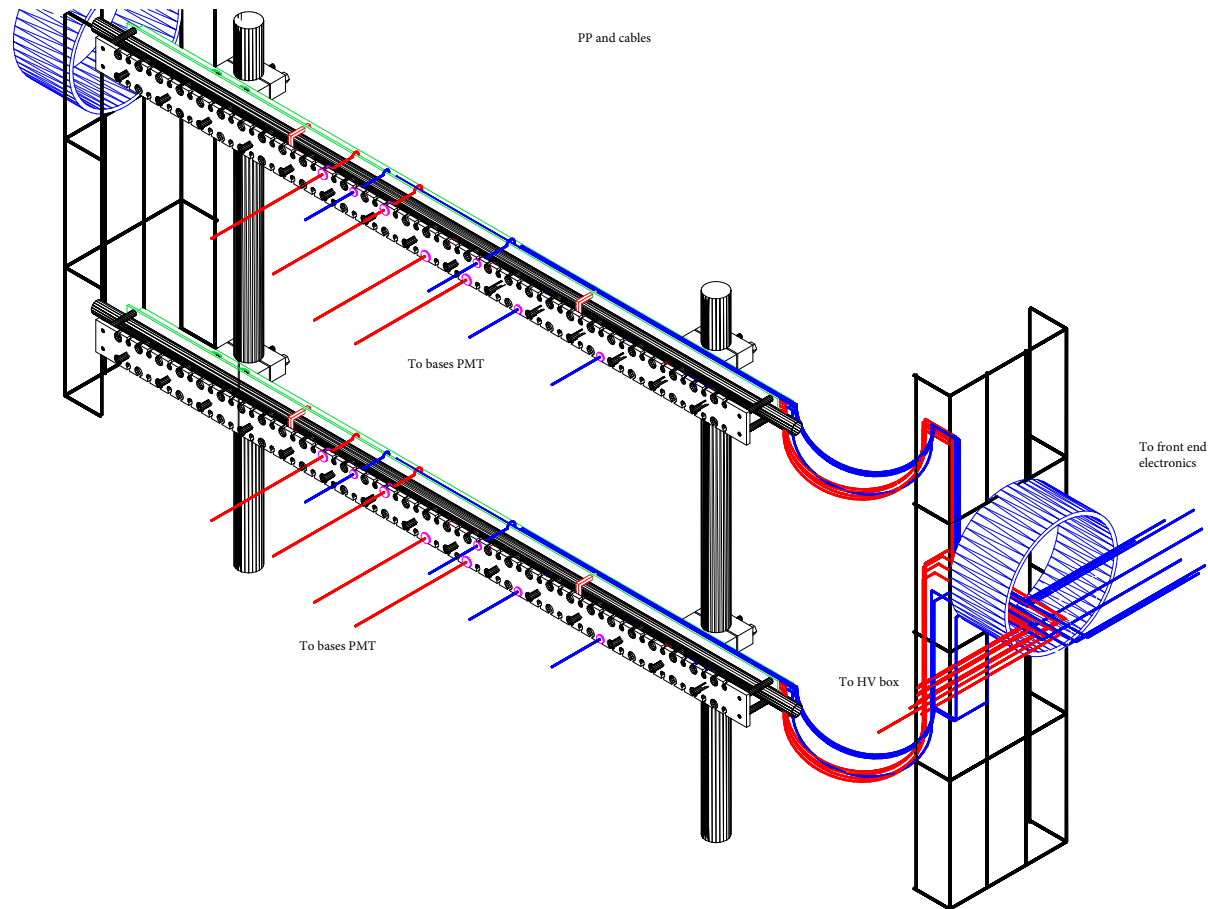
The lead-glass blocks
are not shown

6/28/17

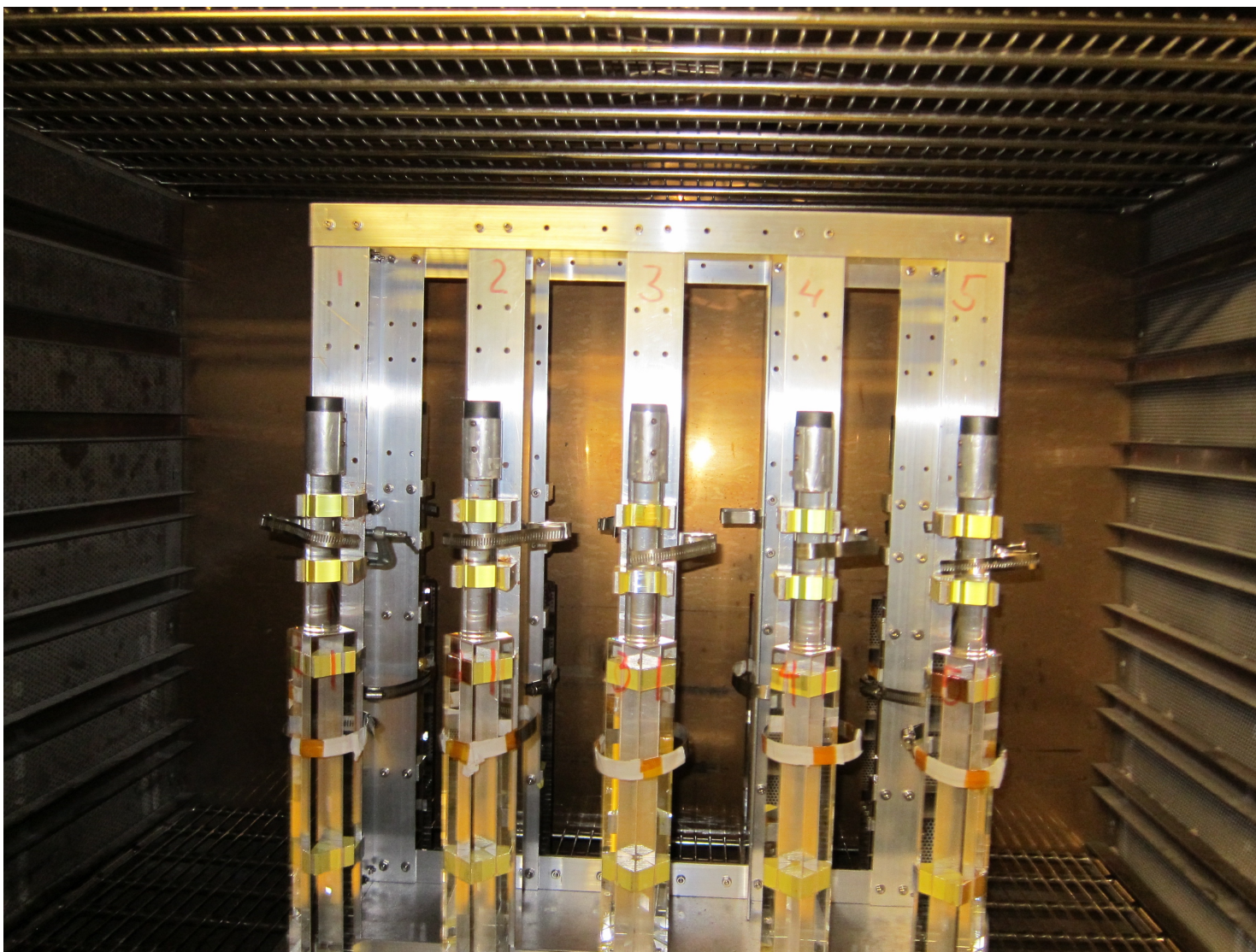
Bogdan Wojciechowski

11

Cabling panels



Gluing of the light guides

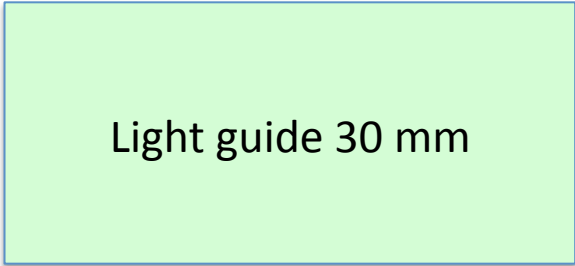


6/28/17

Bogdan Wojtsekhowski

13

Gluing of the light guides air bubbles problem

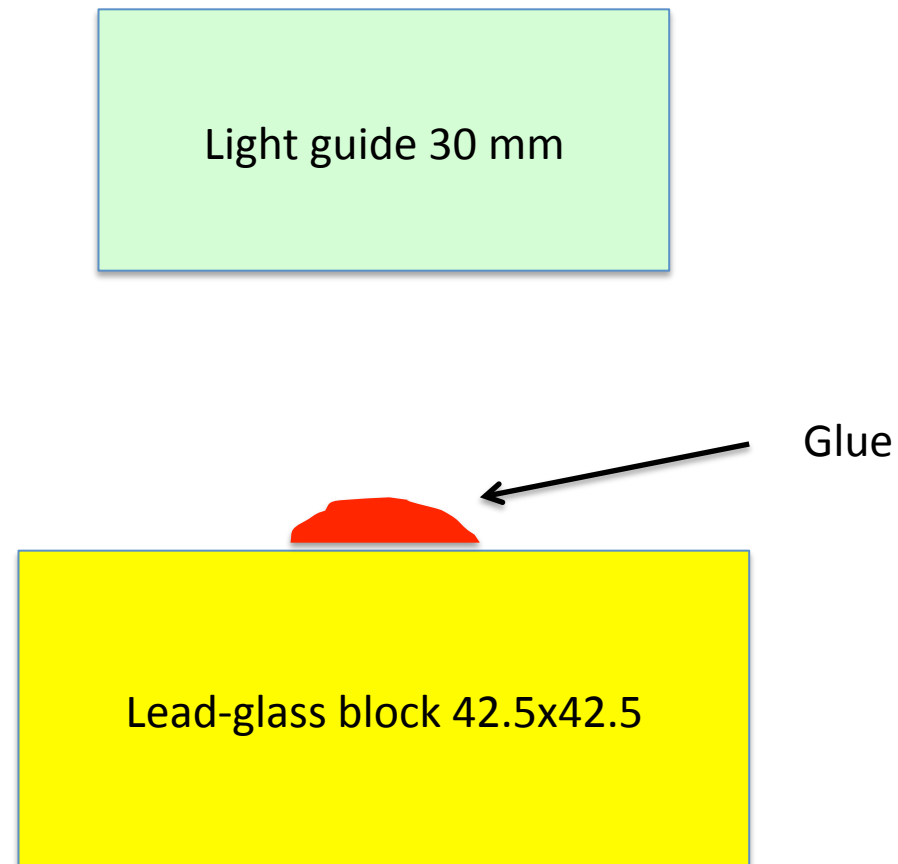


Light guide 30 mm

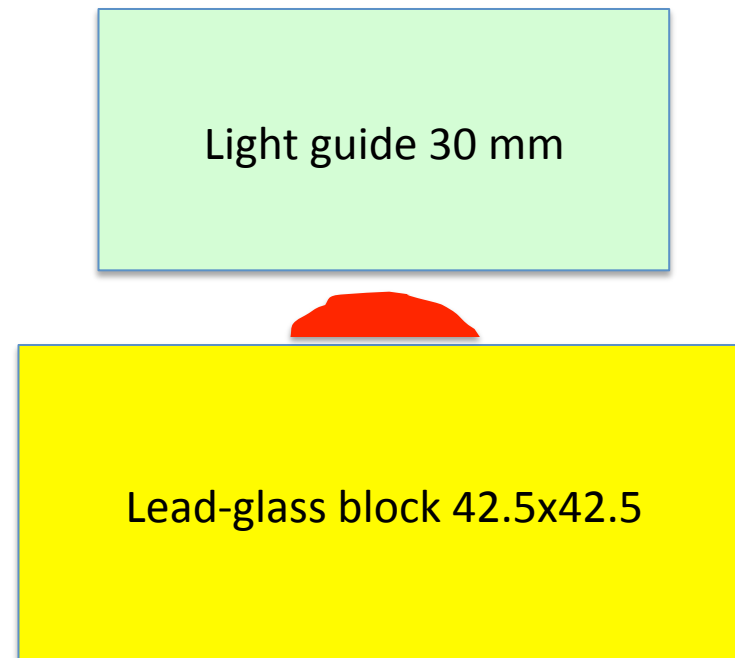


Lead-glass block 42.5x42.5

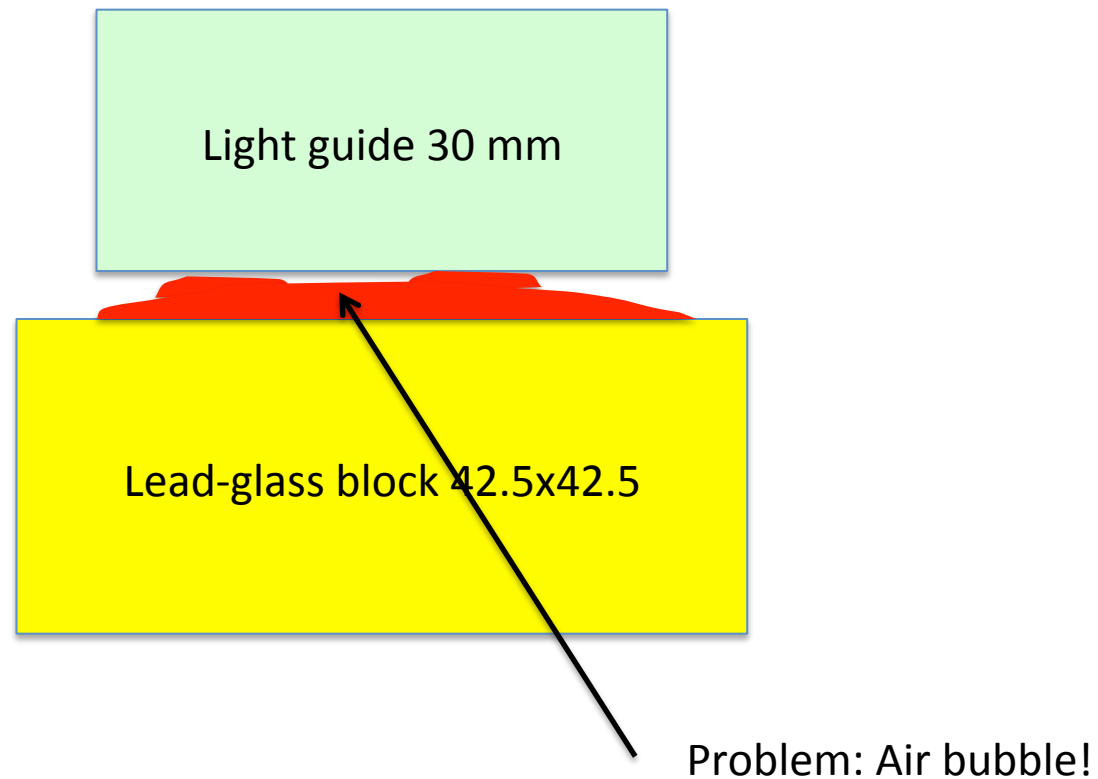
Gluing of the light guides air bubbles problem



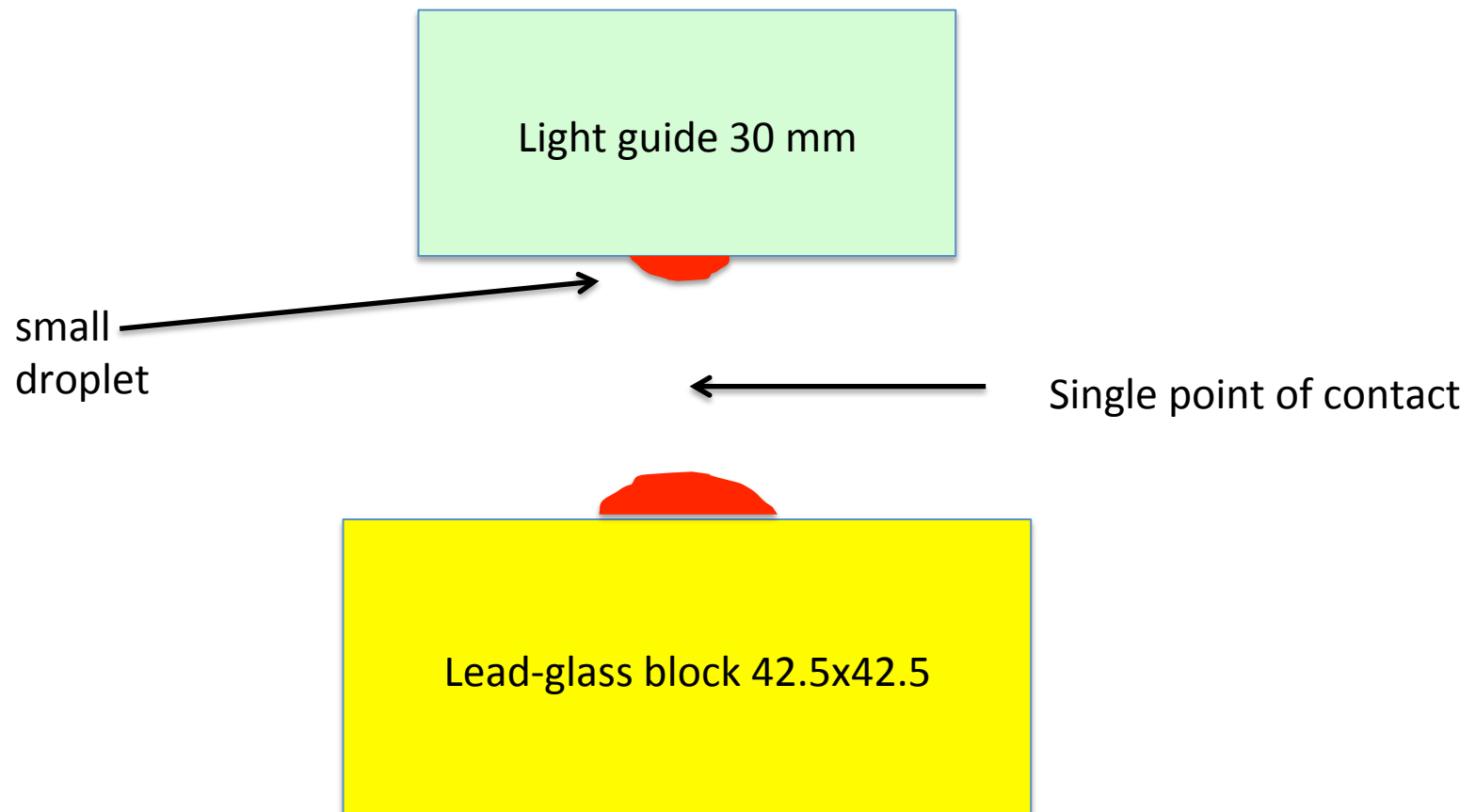
Gluing of the light guides air bubbles problem



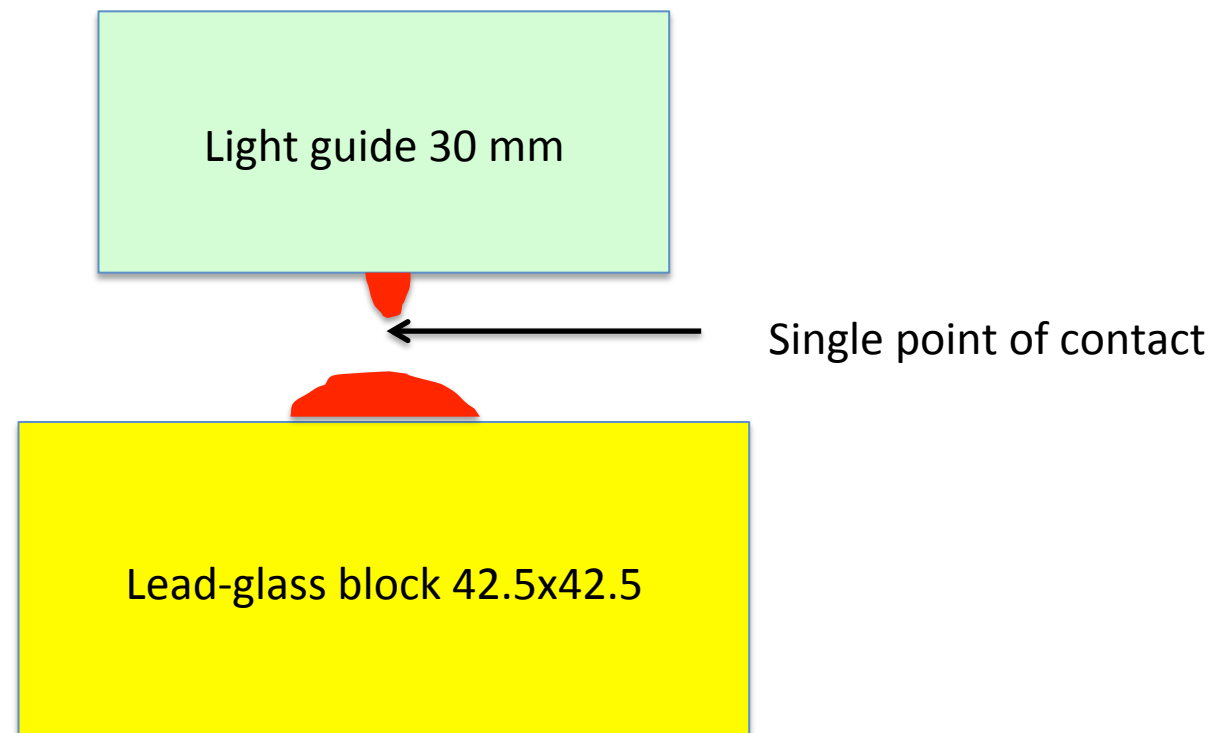
Gluing of the light guides air bubbles problem



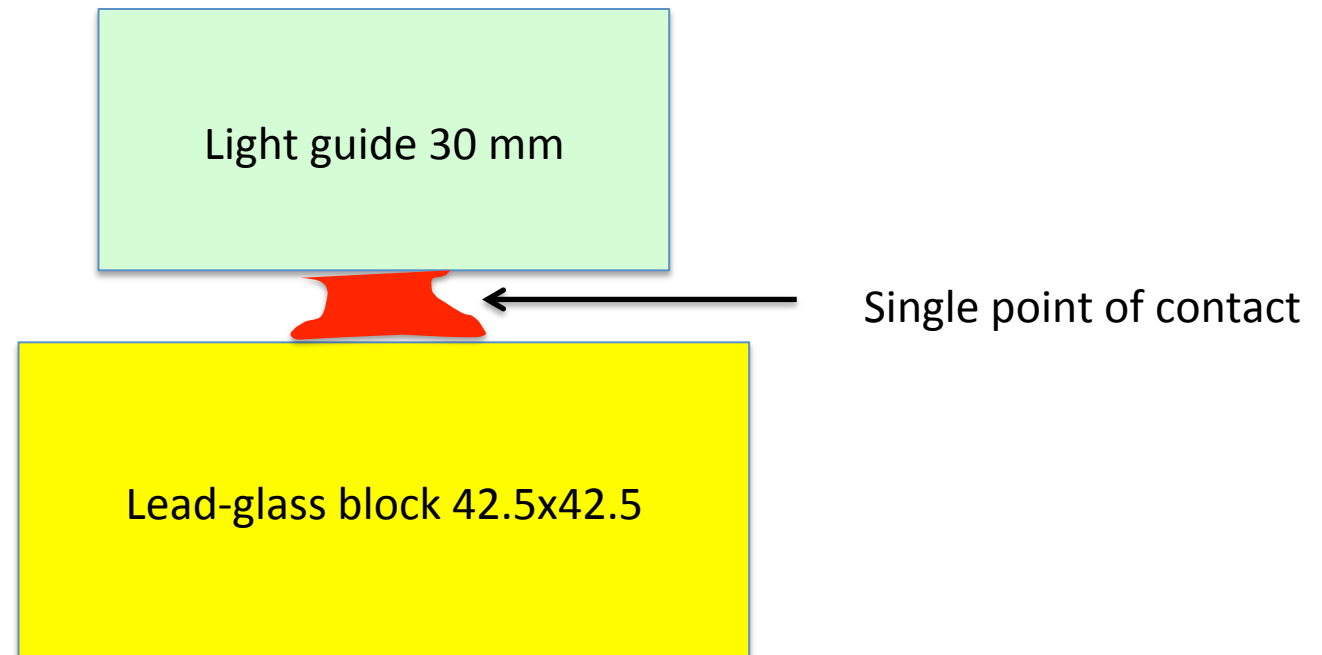
Gluing of the light guides air bubbles problem and **solution**



Gluing of the light guides air bubbles problem and **solution**

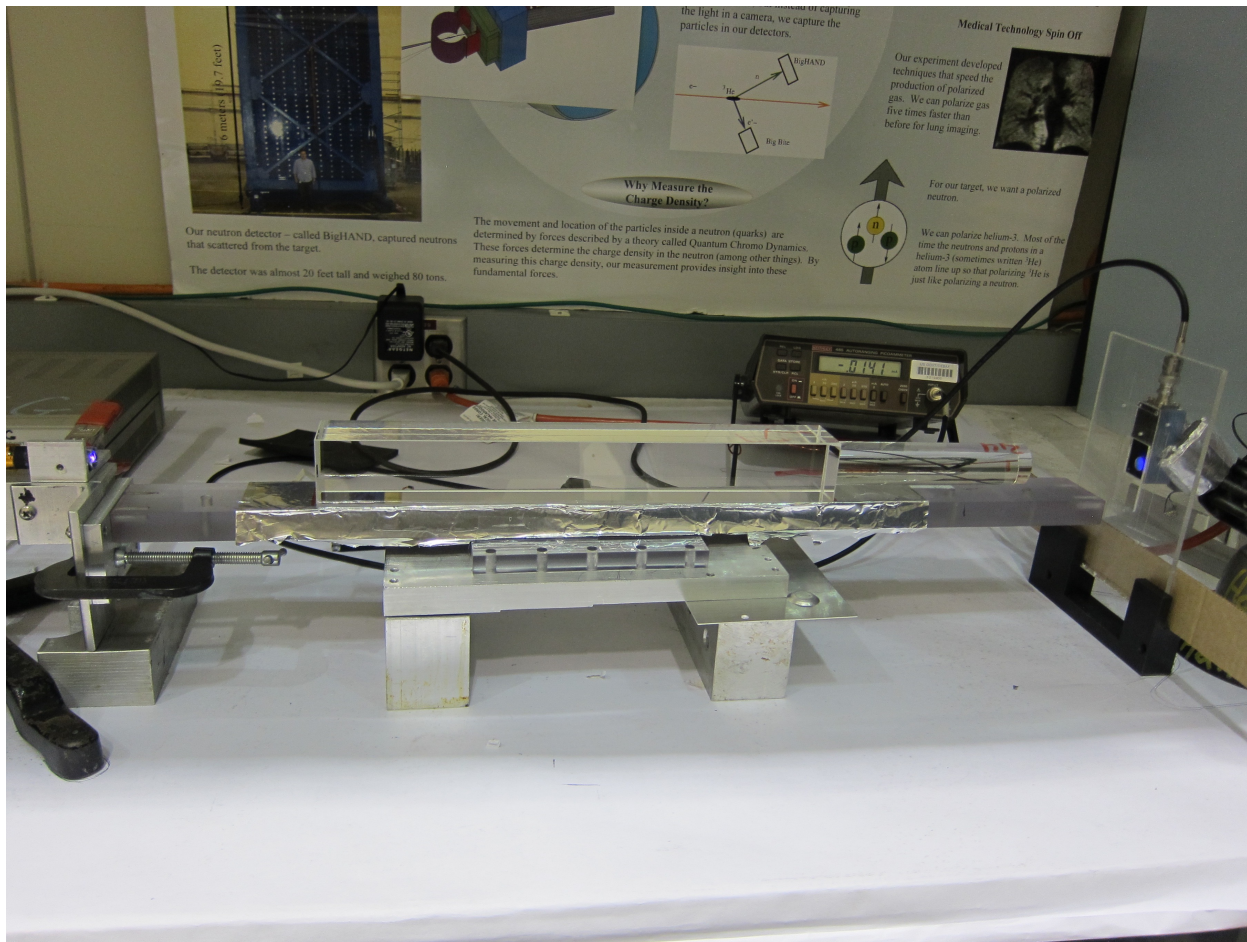


Gluing of the light guides air bubbles problem and **solution**

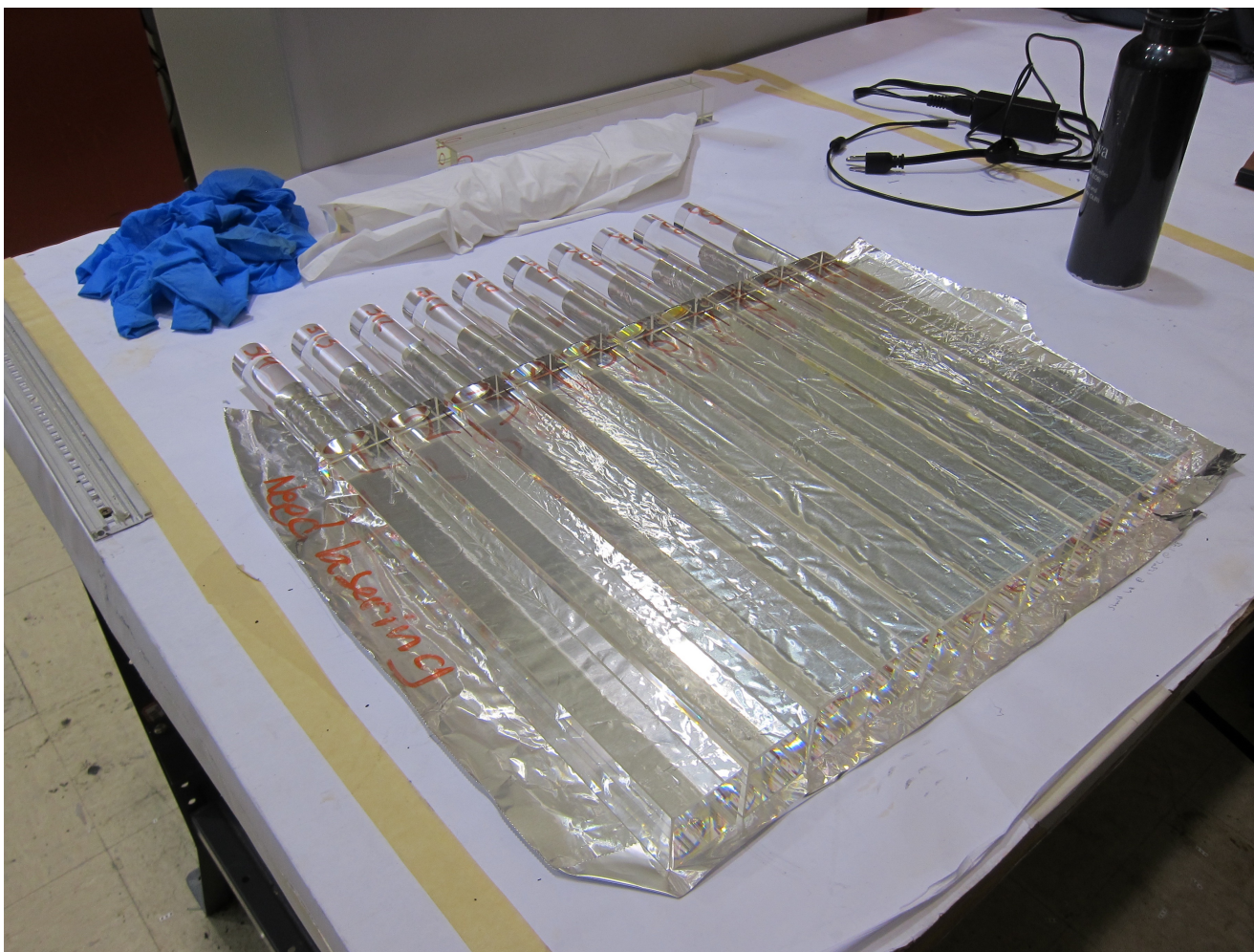


Gluing of the light guides

405 nm laser setup for transparency test



Gluing of the light guides



Gluing of the light guides



Joseph Laroche
St. Mary University

Current and projected activities

- ANL/SBU– test of the Cu strips and air jet cooling,
next is a fin-heat sink ~ 2 months
- YerPhi – design of the SM (done), the main frame: 1-2 months to complete
- JLab – analysis of frame temp. deformation, spring design ~ two weeks
- NCCU – procurement LG (done), TP(done), Ti (done), SM (in progress)
- JLab/SMU+CNU – LG gluing, 280 BK7 (+~250 BS) done, 1200 more to do
- JLab engineers – evaluation of the ECAL design, ~ 1 month after YerPhi
- NCCU – assembling SM (9-12/2017), procurement of the main frame