ALICE EMCal R&D Program

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EMCal R&D Program

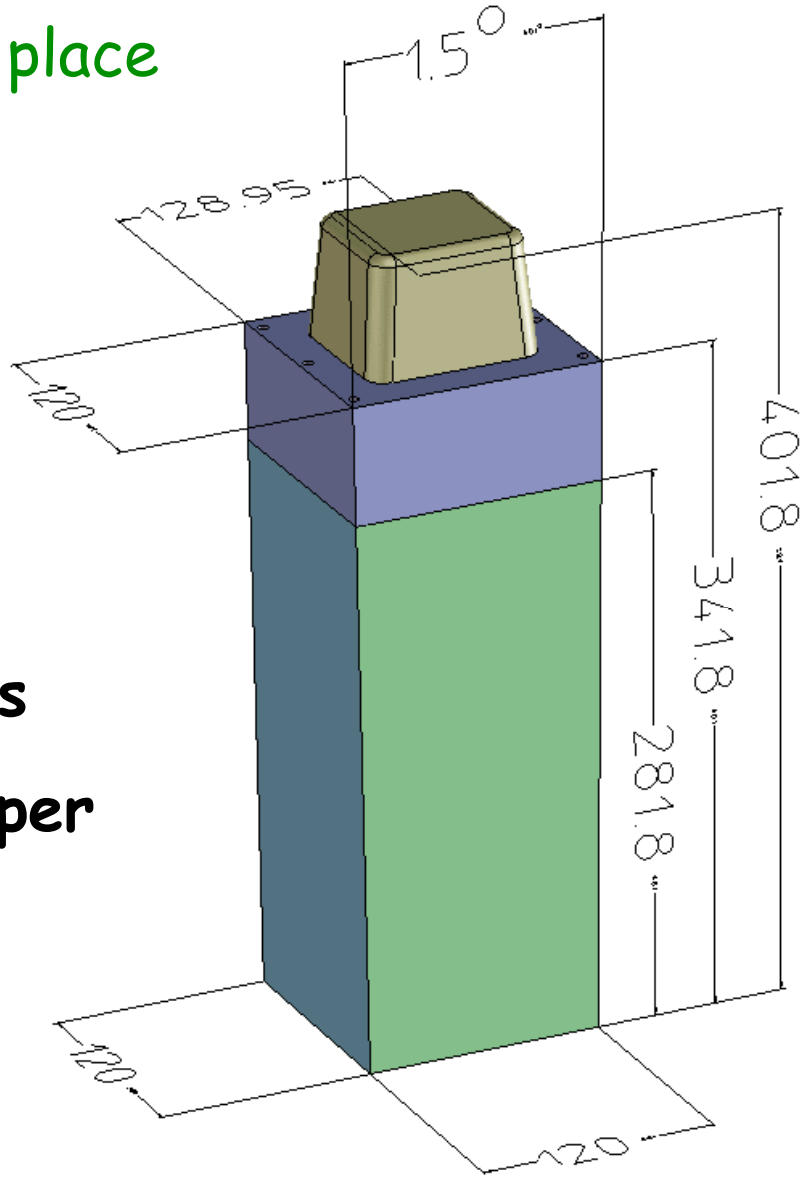
Goals:

1. Design, fabricate, install EMCal support structure

   (Joseph's talk)

2. Design, prototype, test EMCal Modules and strip modules through to mass production ready (this talk)

EMCal design starting place



EMCal module = 4 Towers

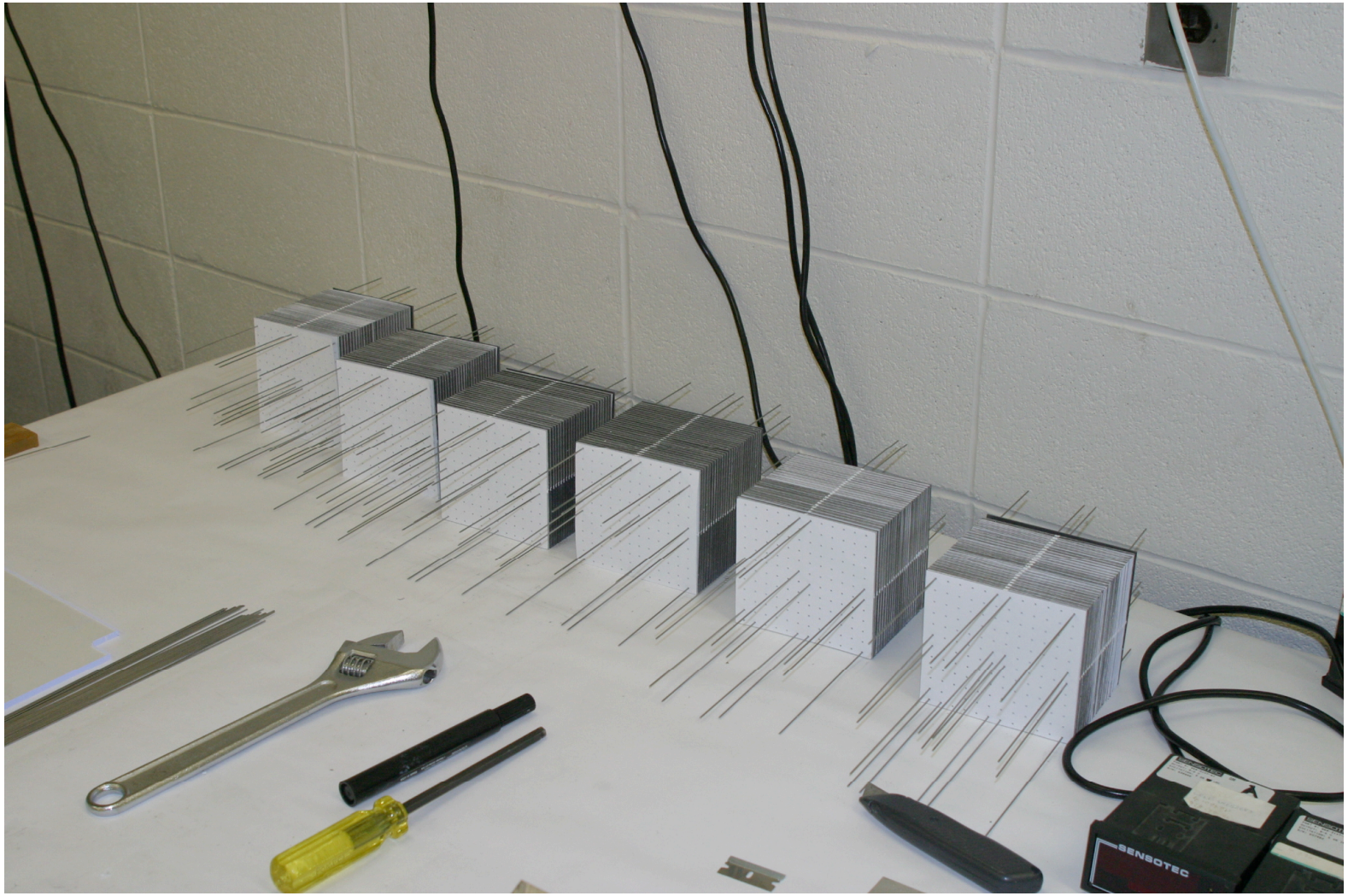
TRD1 Geometry, 1.5° taper

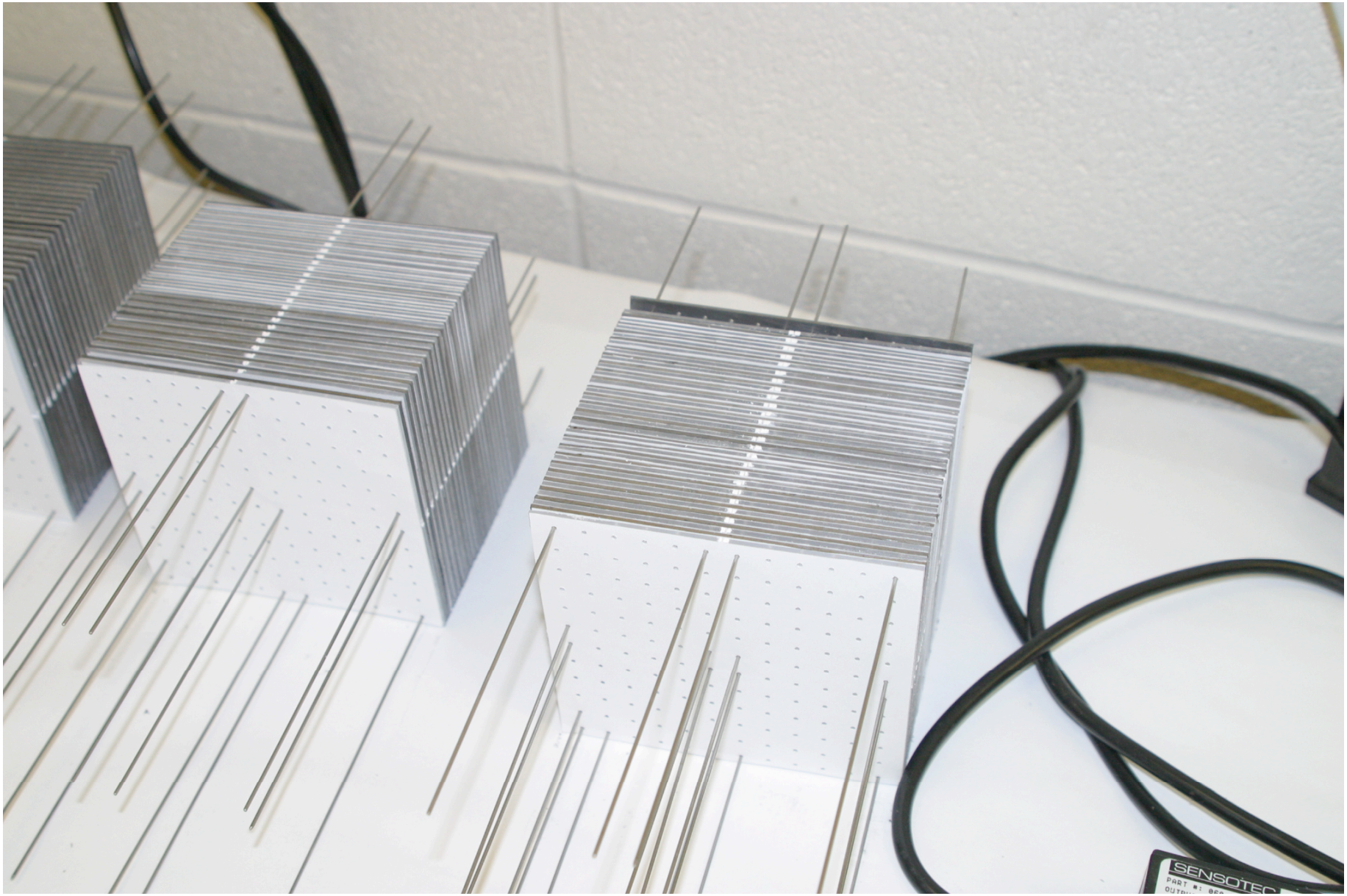
~ 6cm x 6cm towers

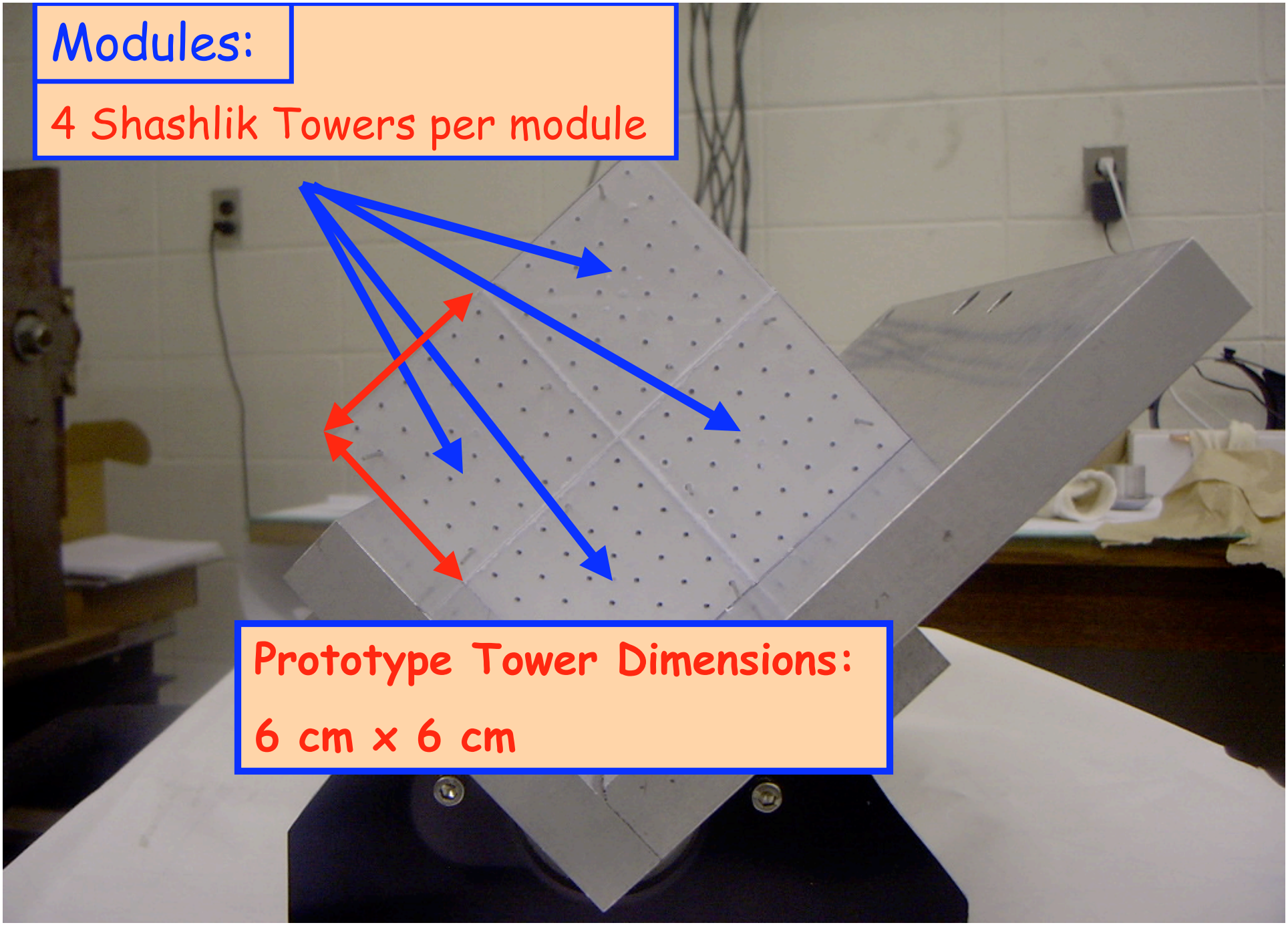
Close to final design

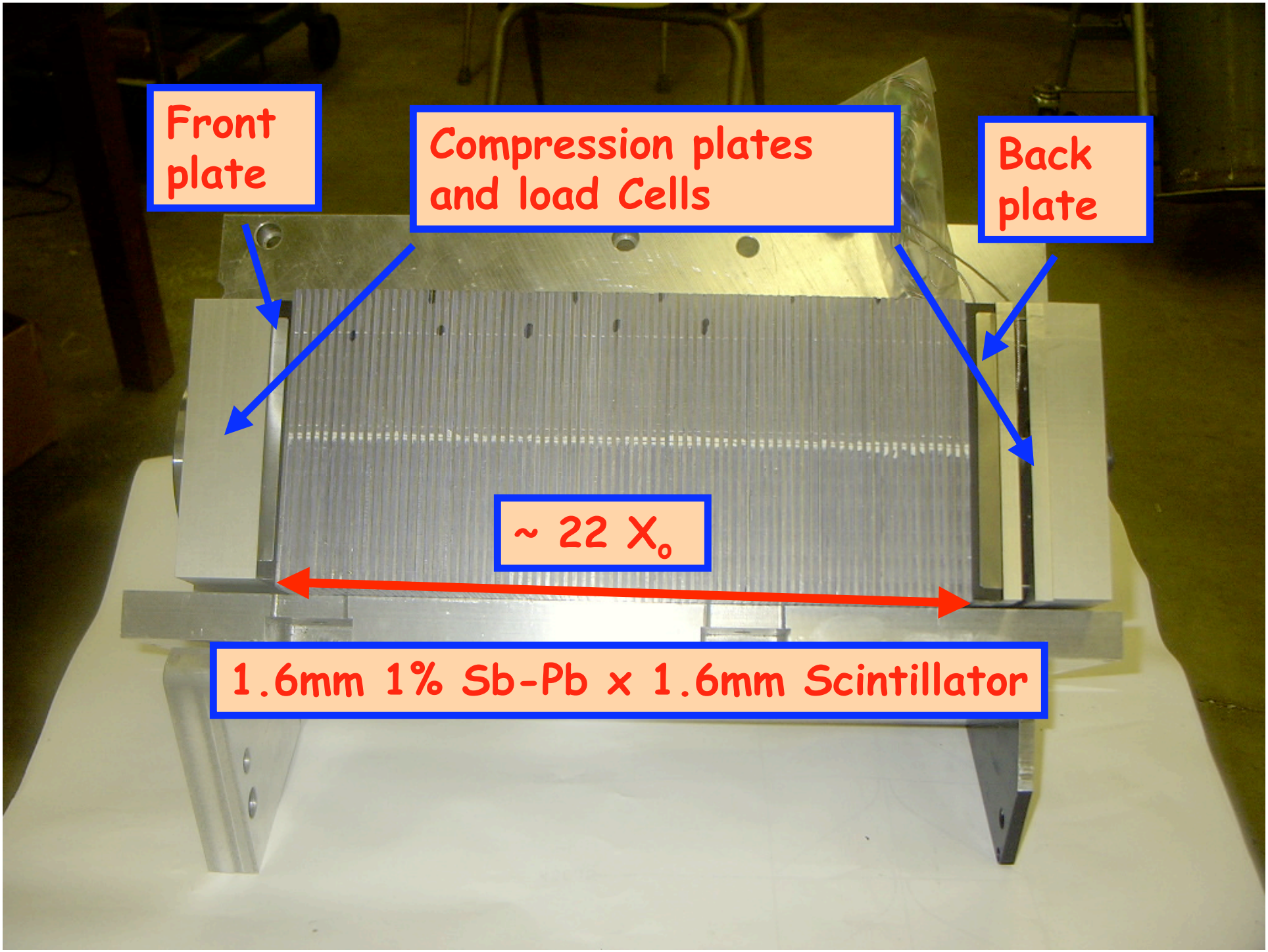
Mechanical assembly

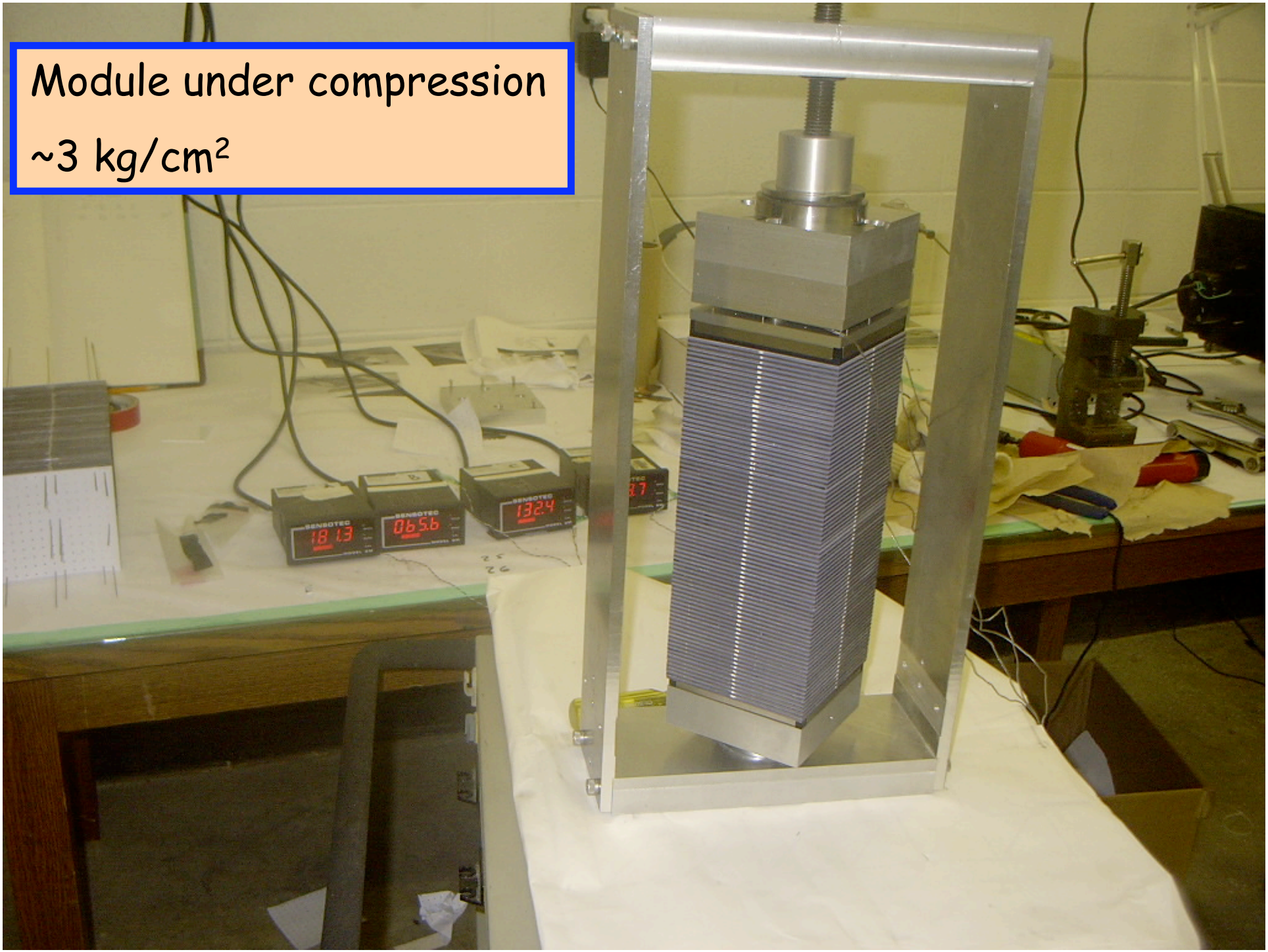
Module Stacking

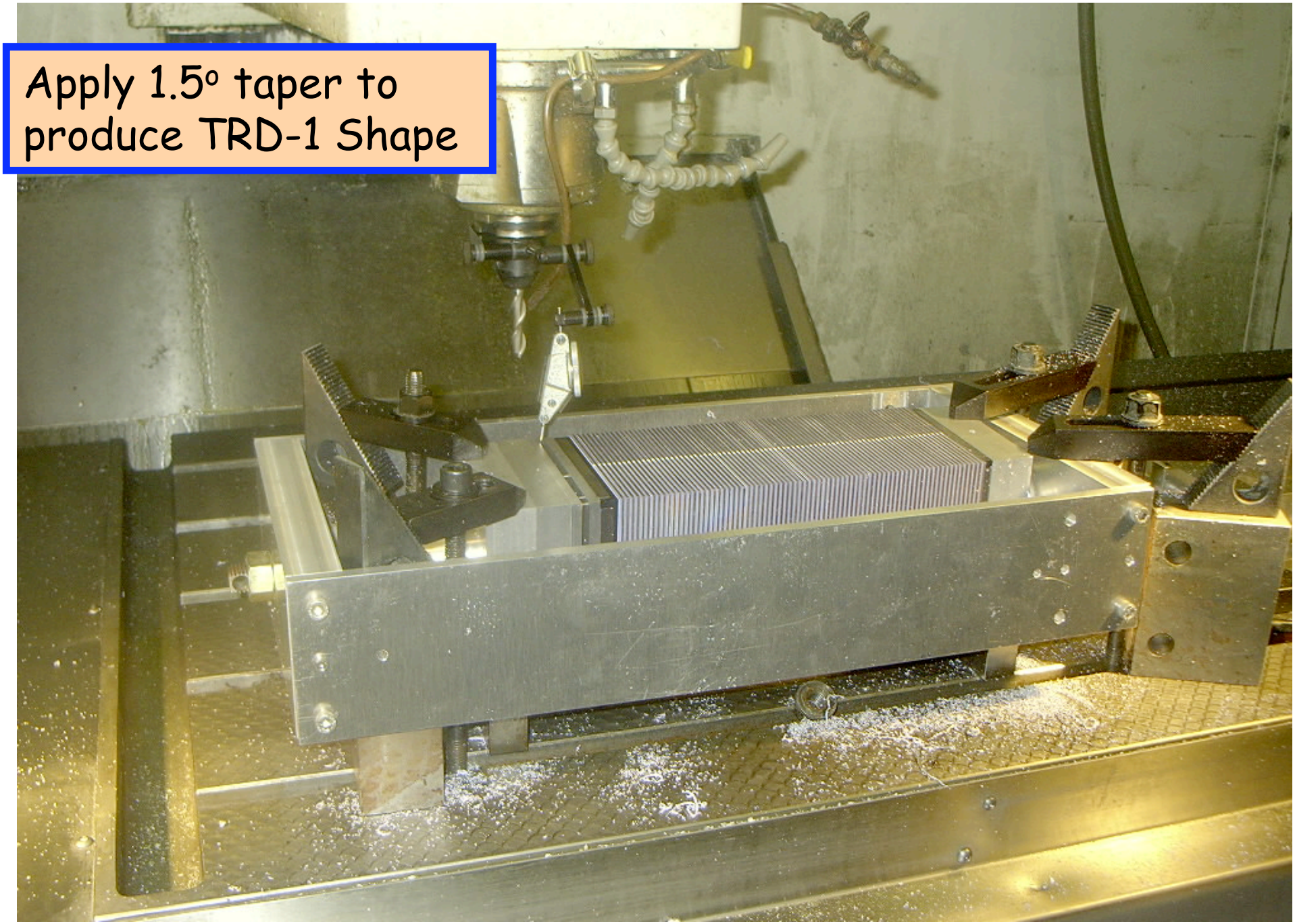


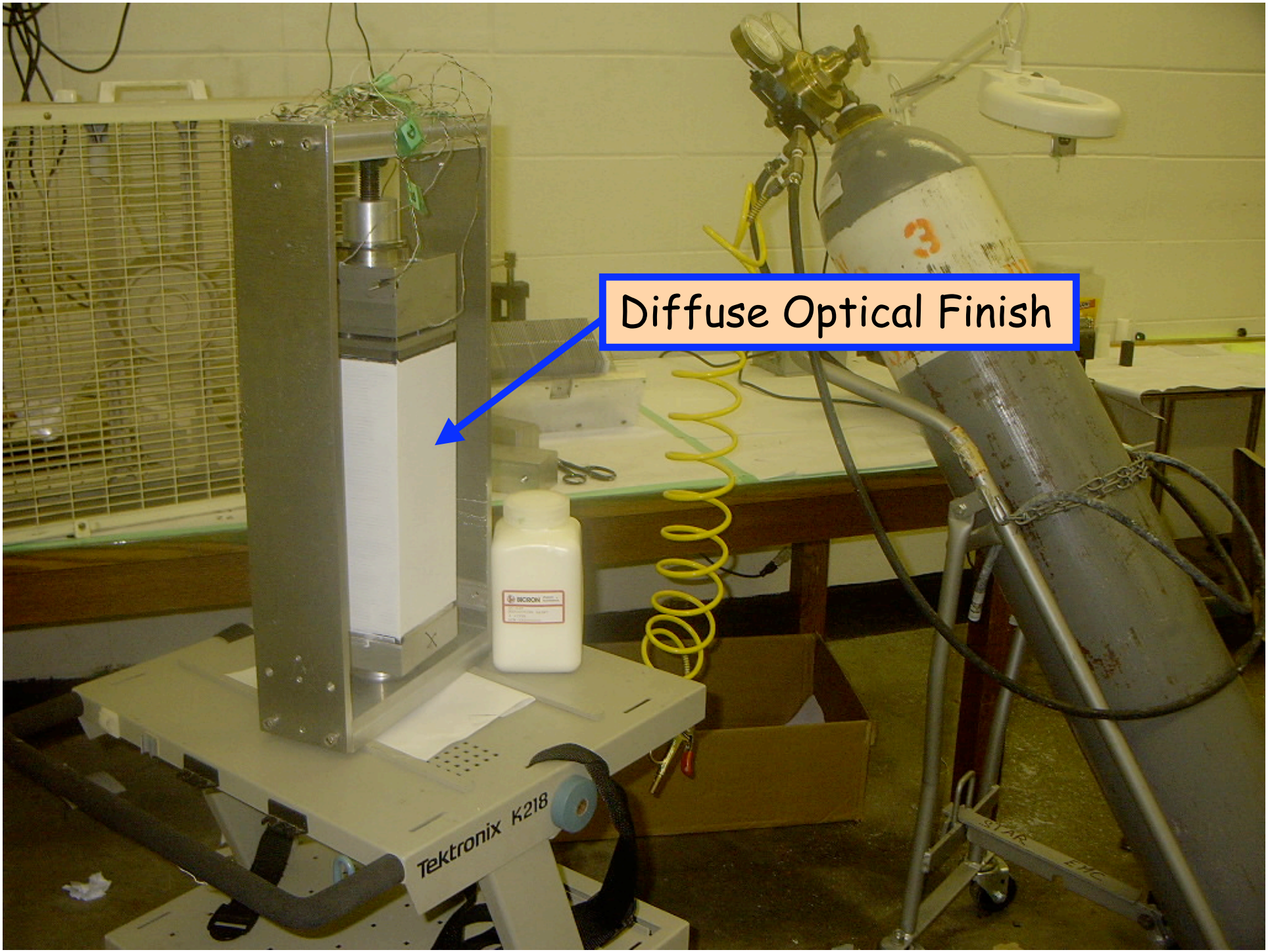

SENSOTEC

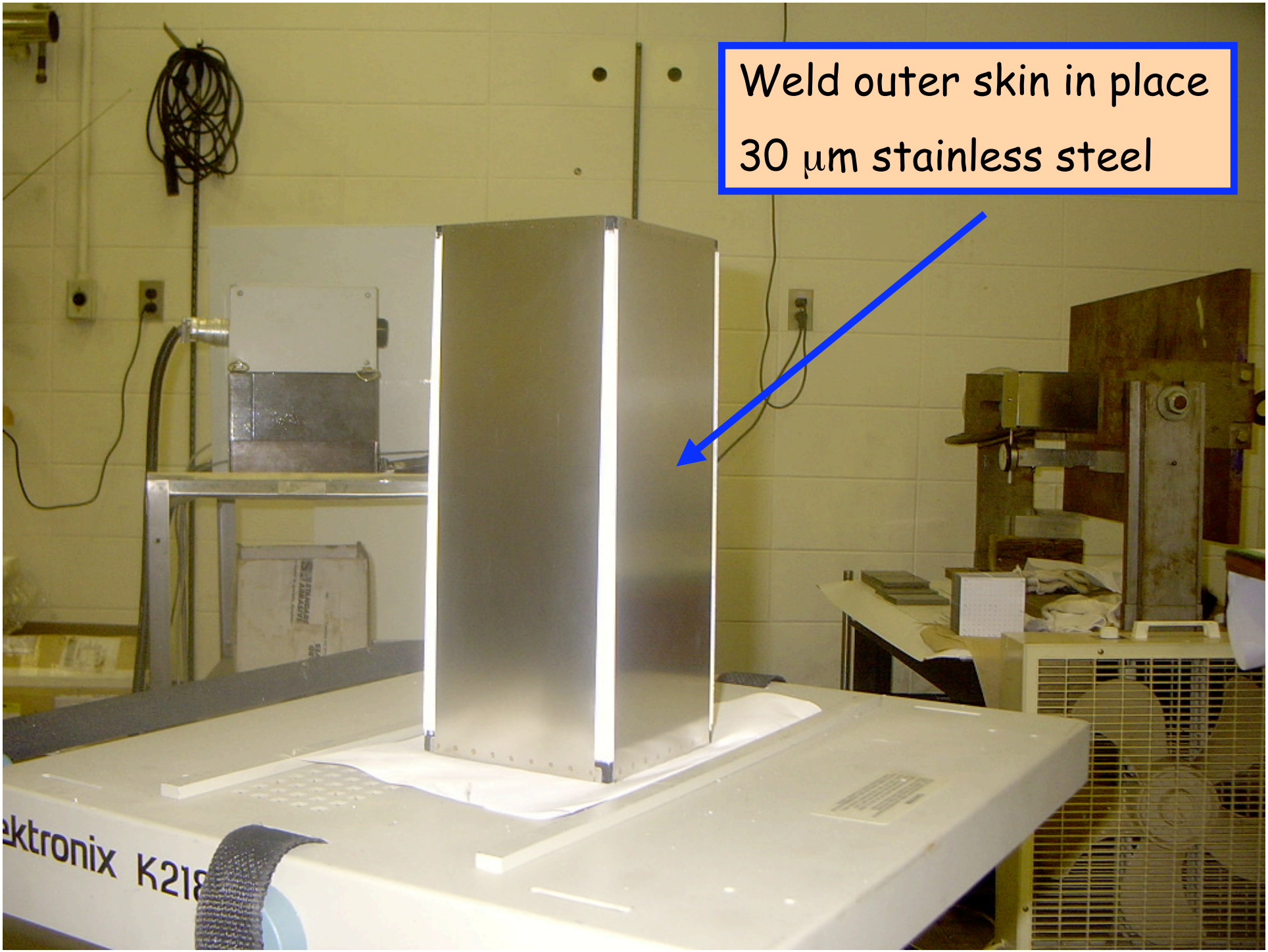

Modules:
4 Shashlik Towers per module
Prototype Tower Dimensions:
6 cm x 6 cm


Front plate
Compression plates and load Cells
Back plate
~ 22 X_o
1.6mm 1% Sb-Pb x 1.6mm Scintillator


Module under compression
~3 kg/cm²

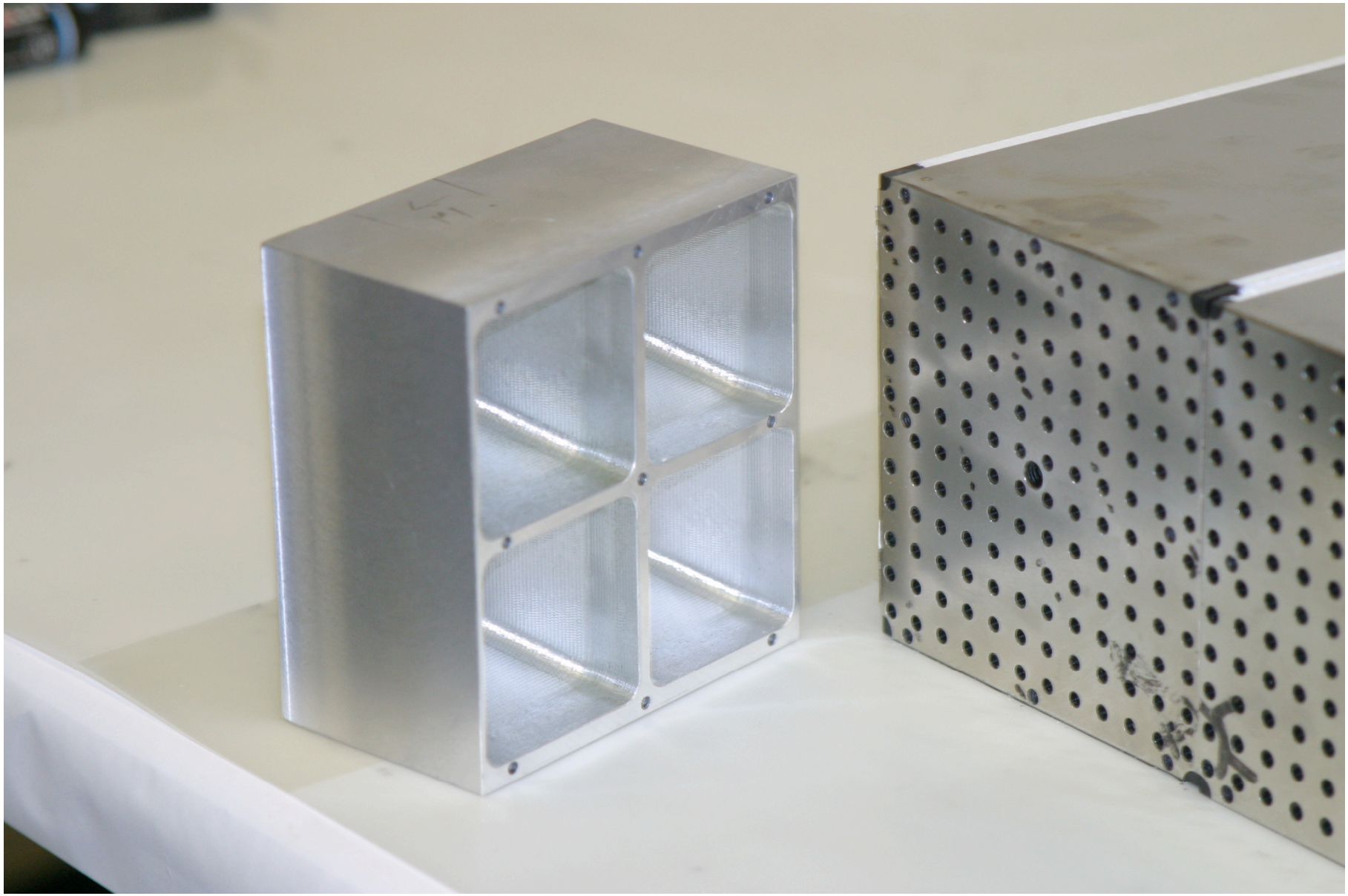

Apply 1.5° taper to
produce TRD-1 Shape


Diffuse Optical Finish
Tektronix K218

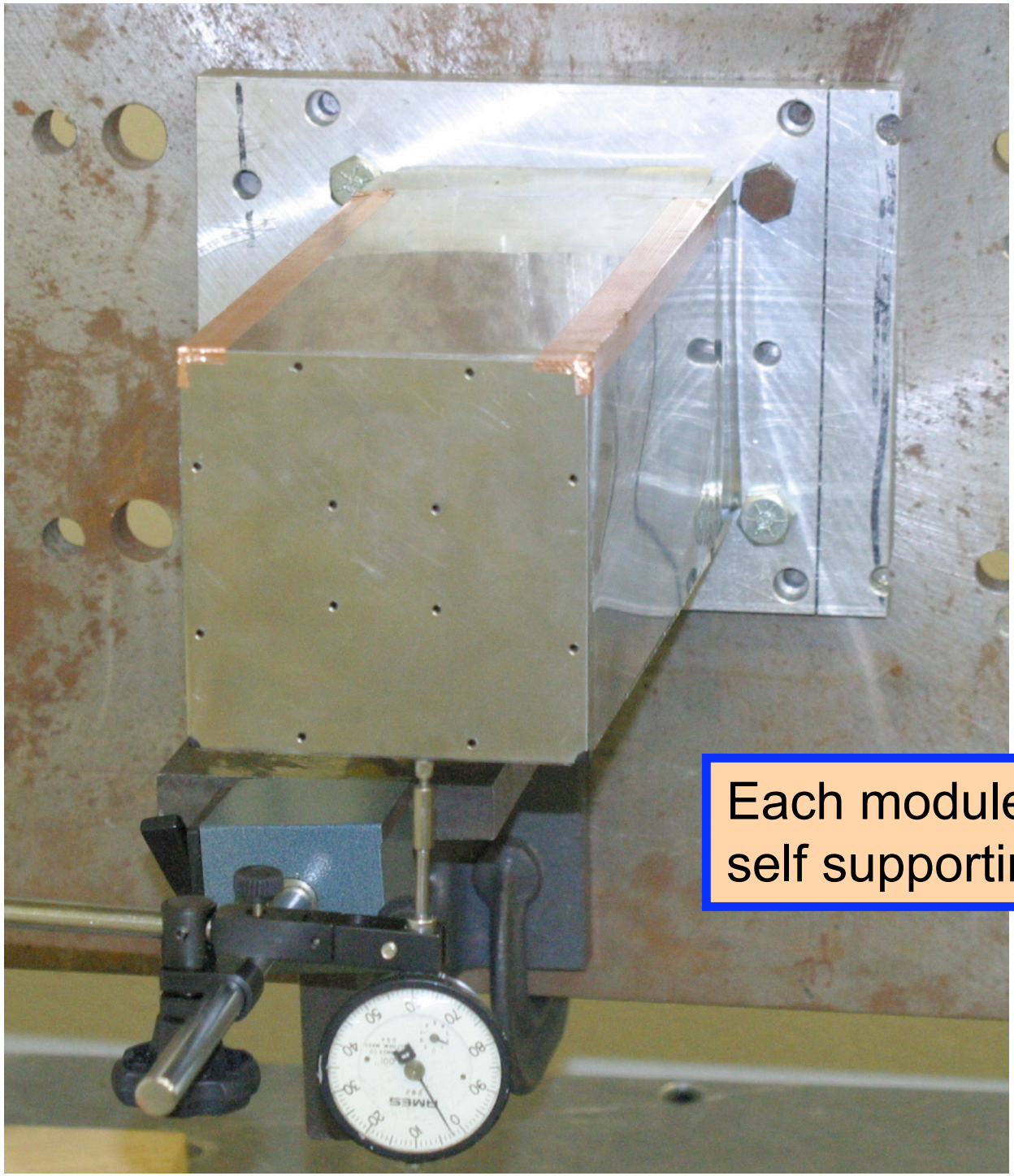

Weld outer skin in place
30 μm stainless steel
ektronix K218

Modules 1 through 12

Transition Piece



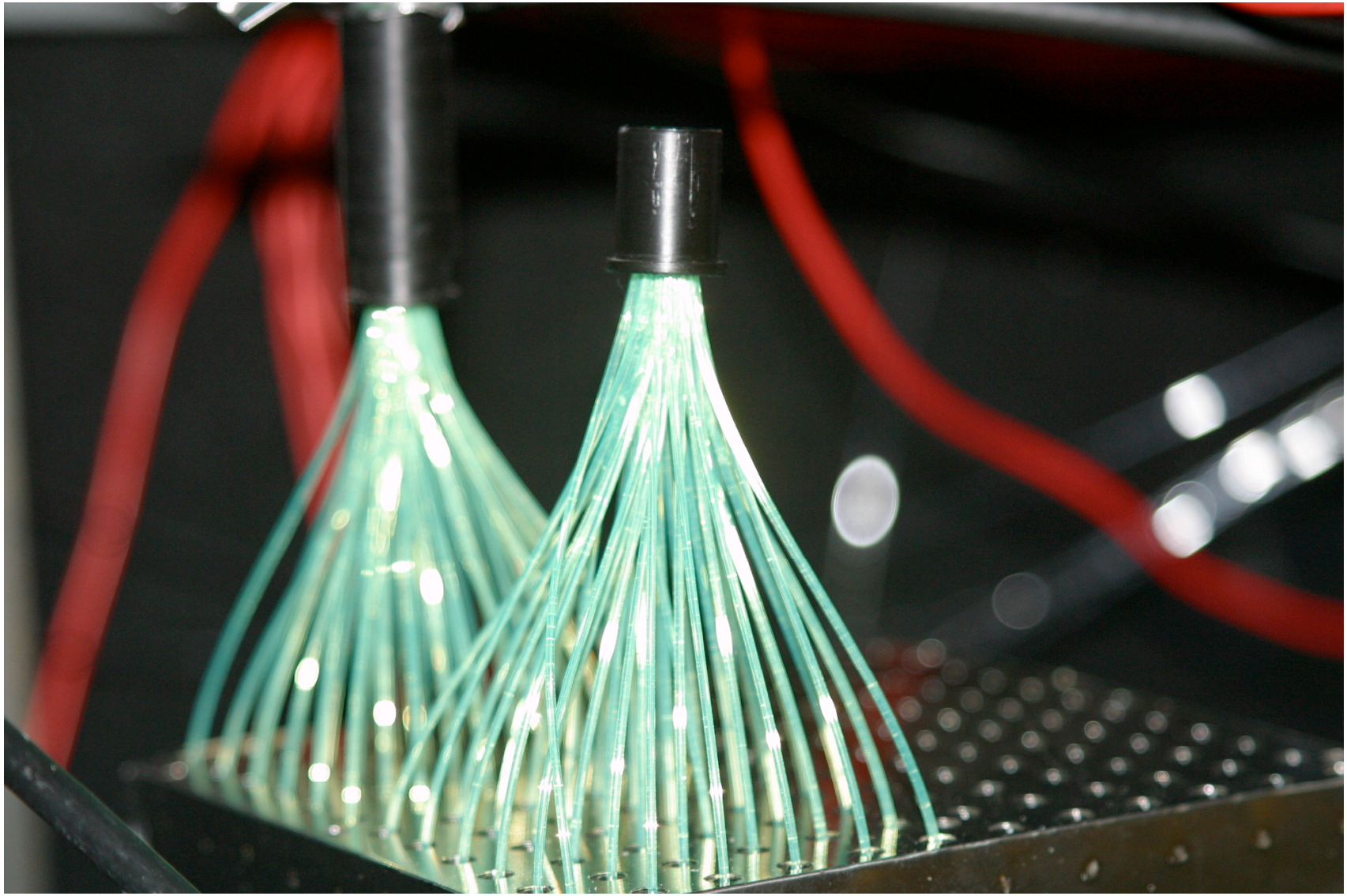
Strong Back



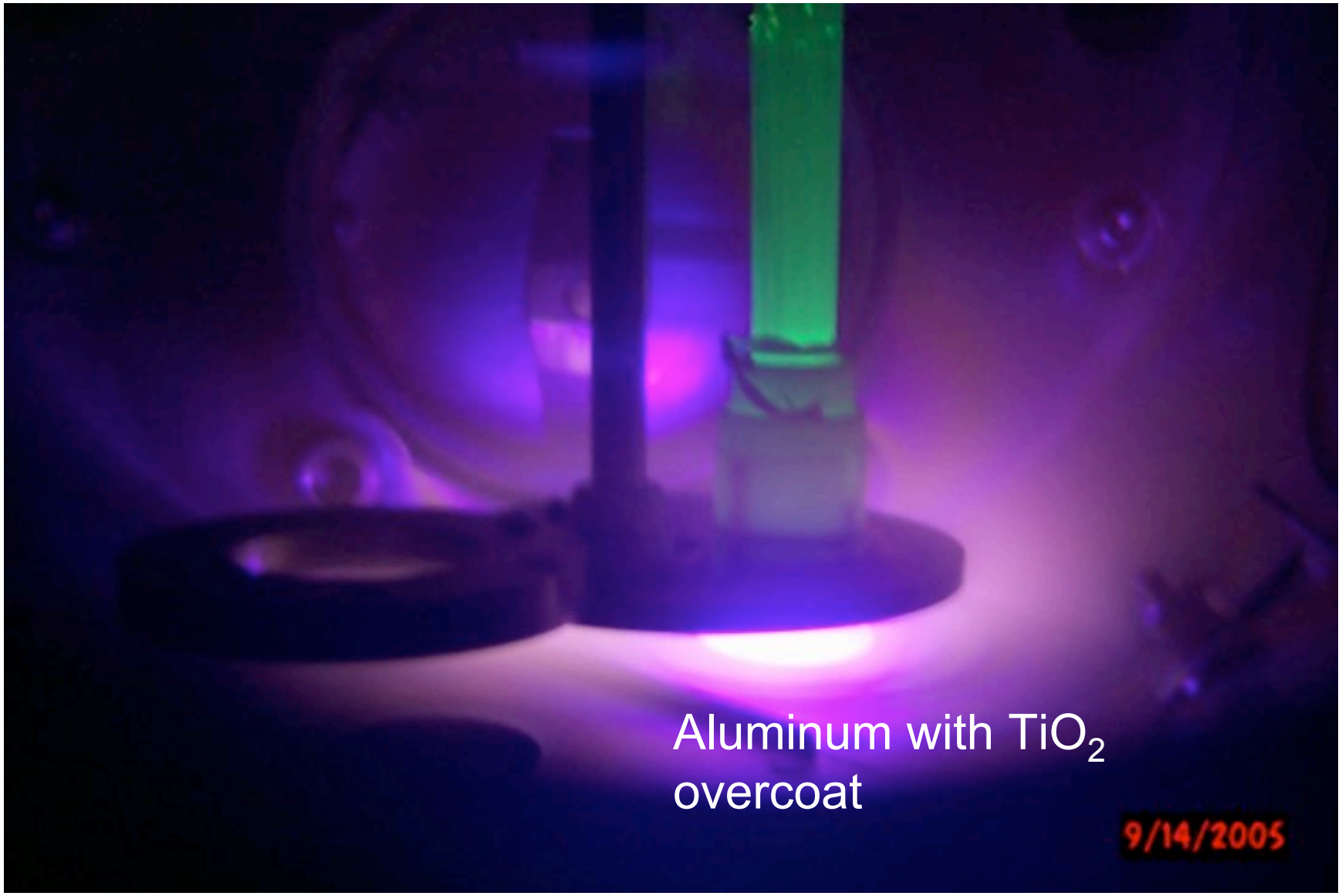
Each module is a self supporting unit

Fibers

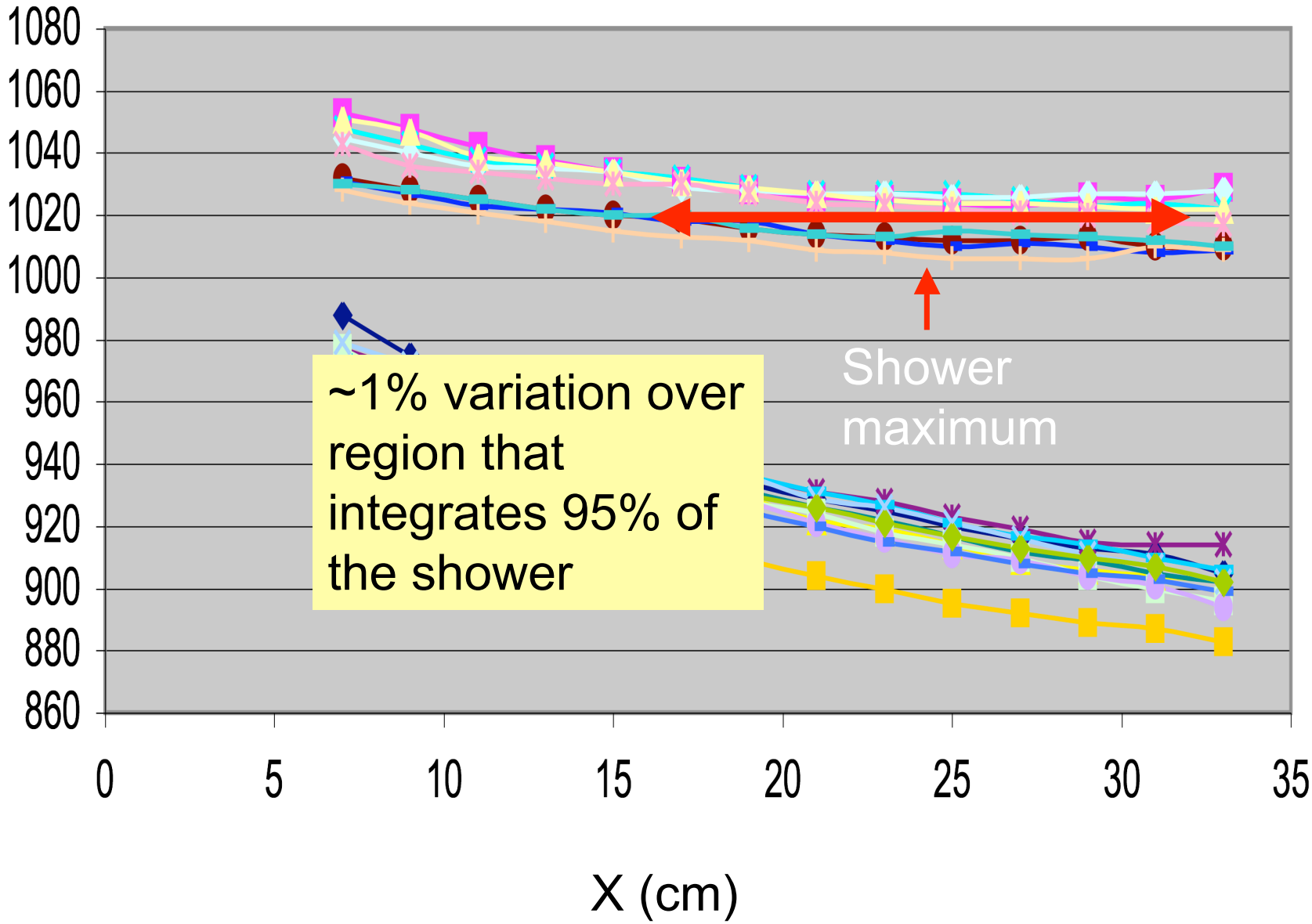
Fiber Bundle



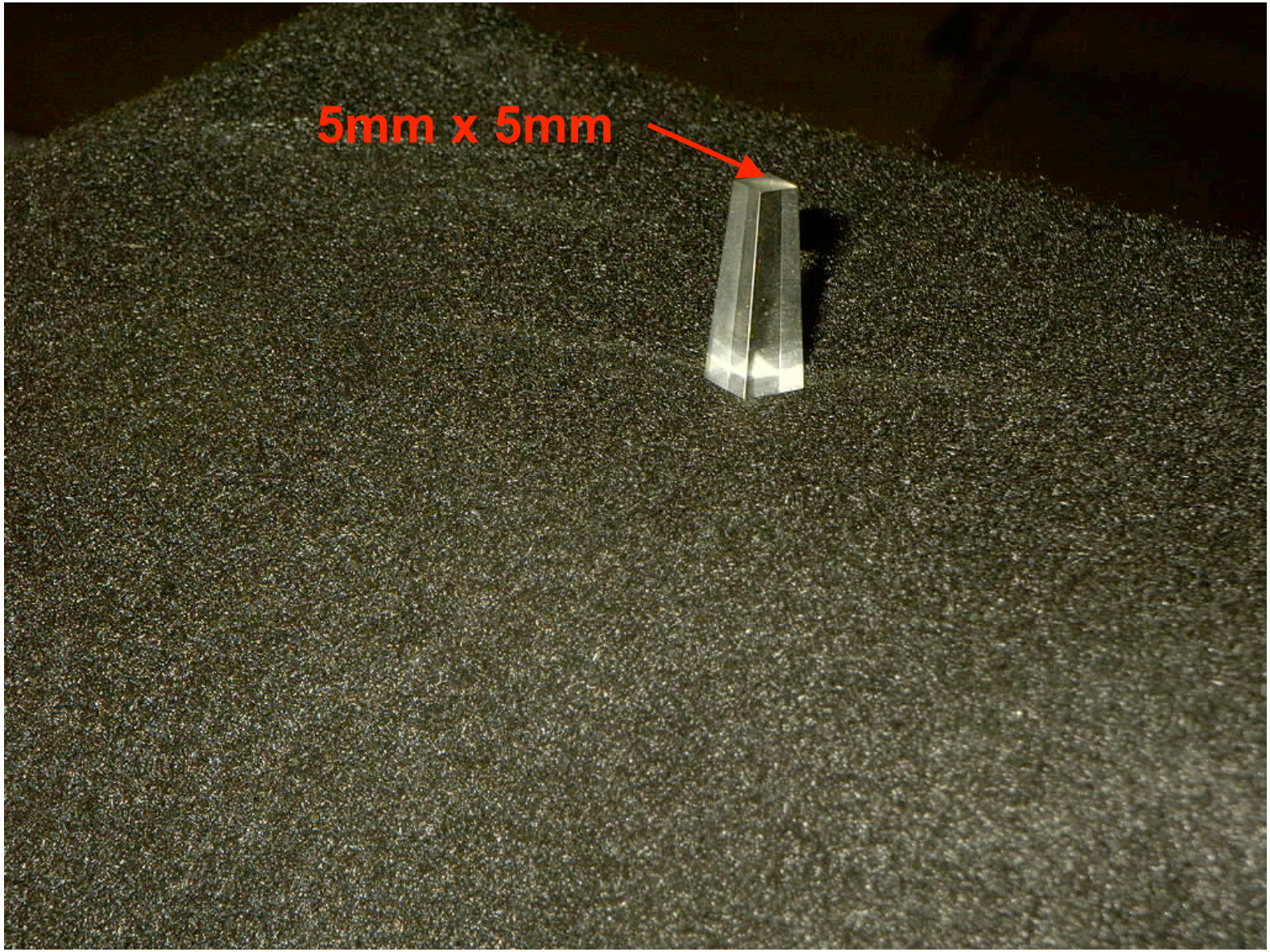
Mirroring Fiber ends



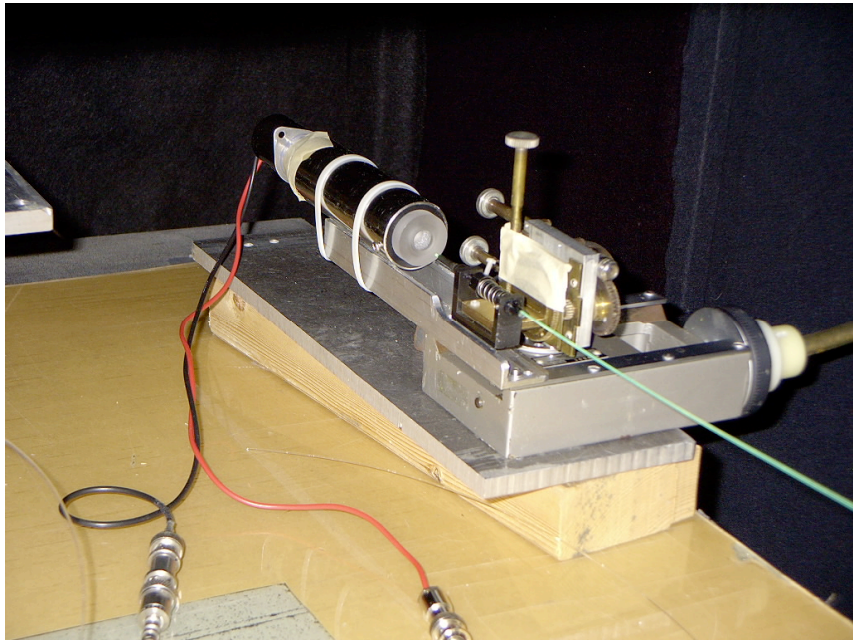
Relative transmitted intensity versus source position

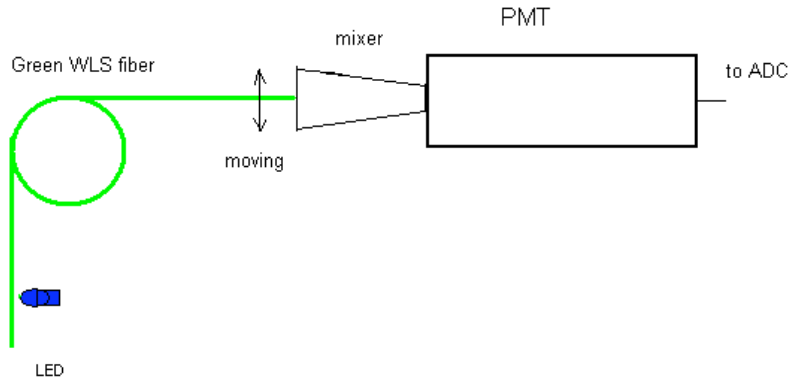


Light guide

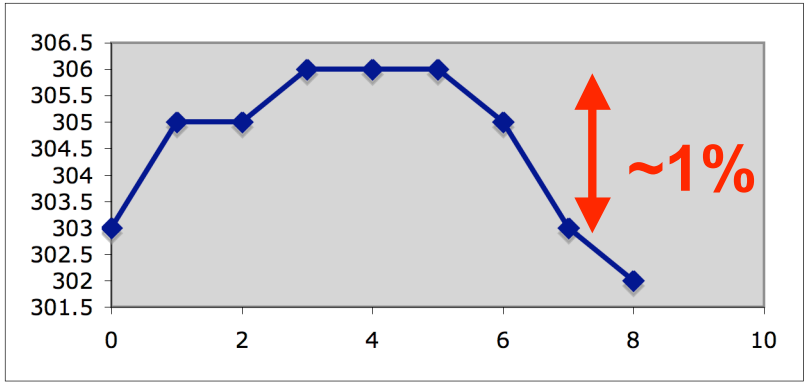


Light guide tests



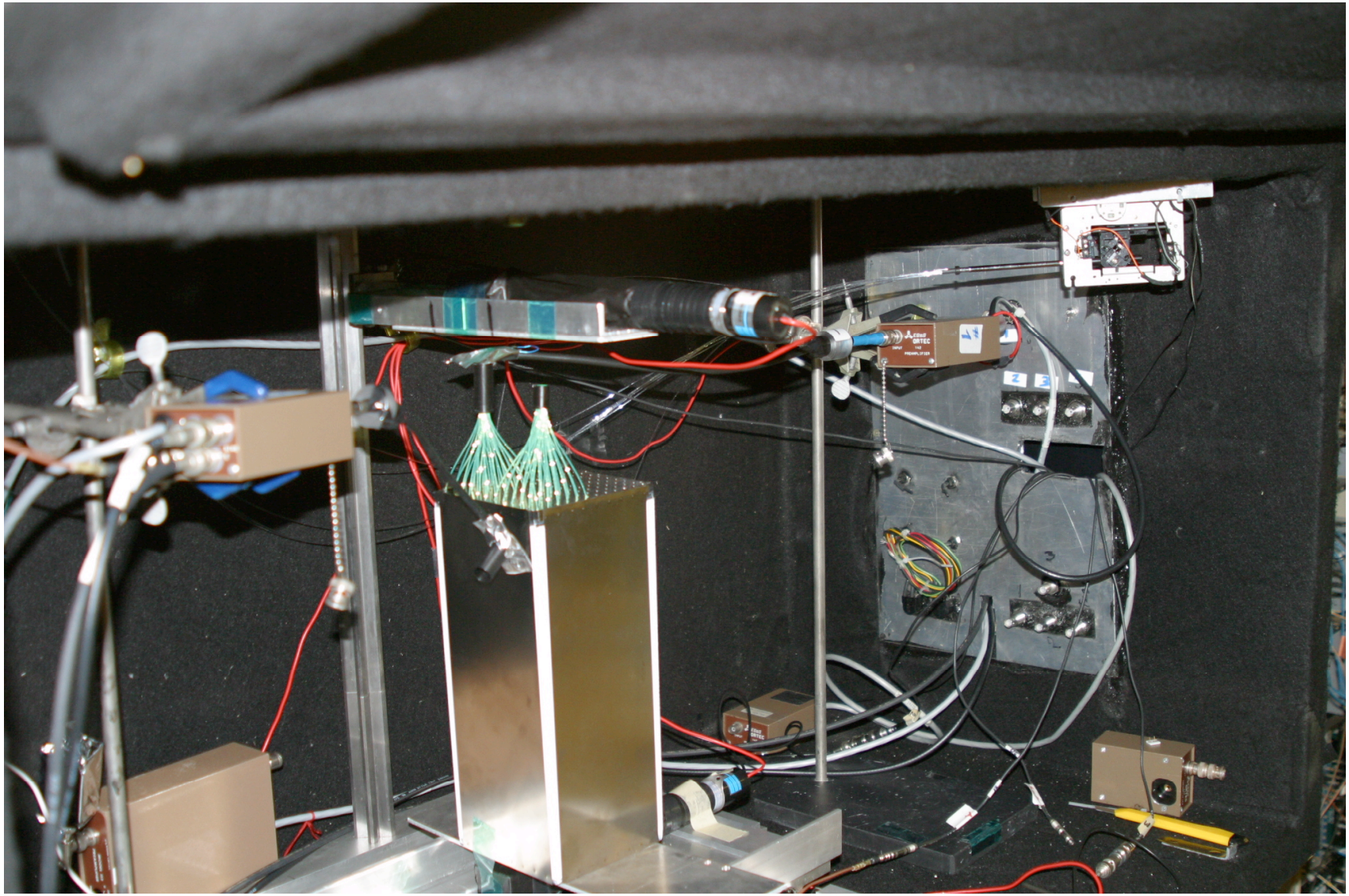


Intensity (arb. units) vs. position



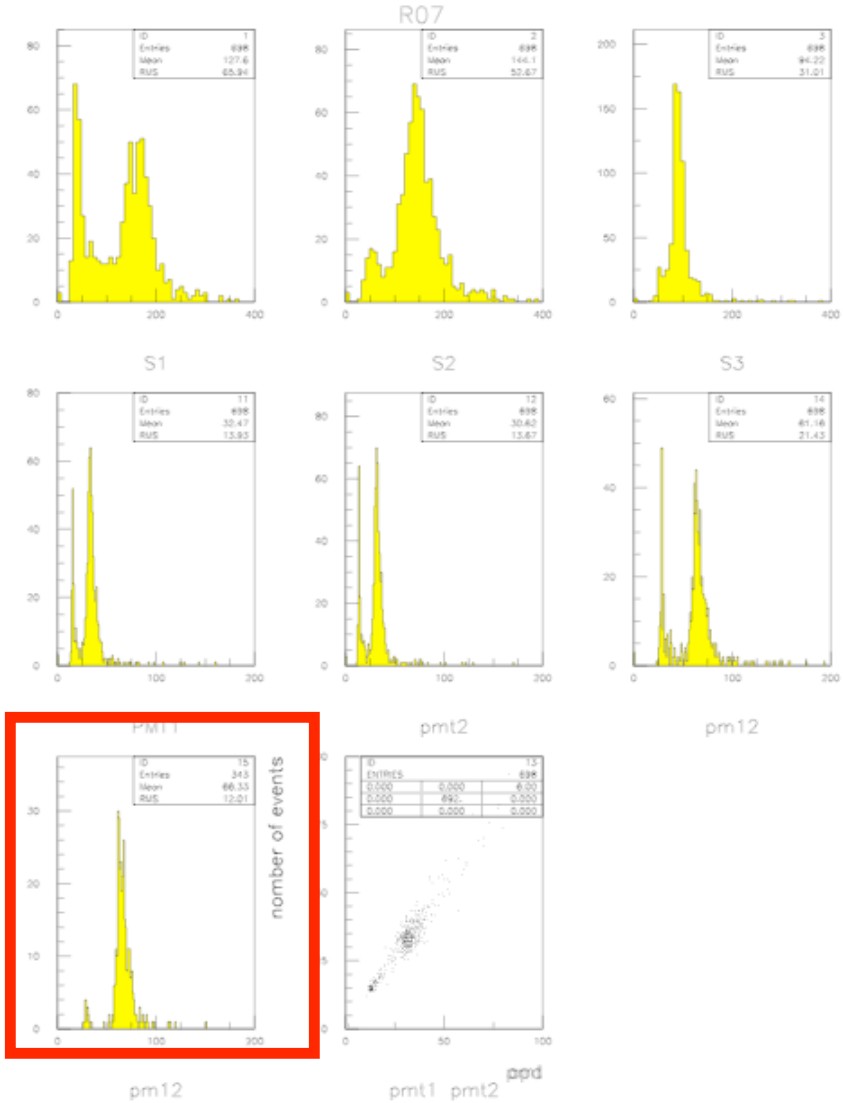
X (mm)

Cosmic test

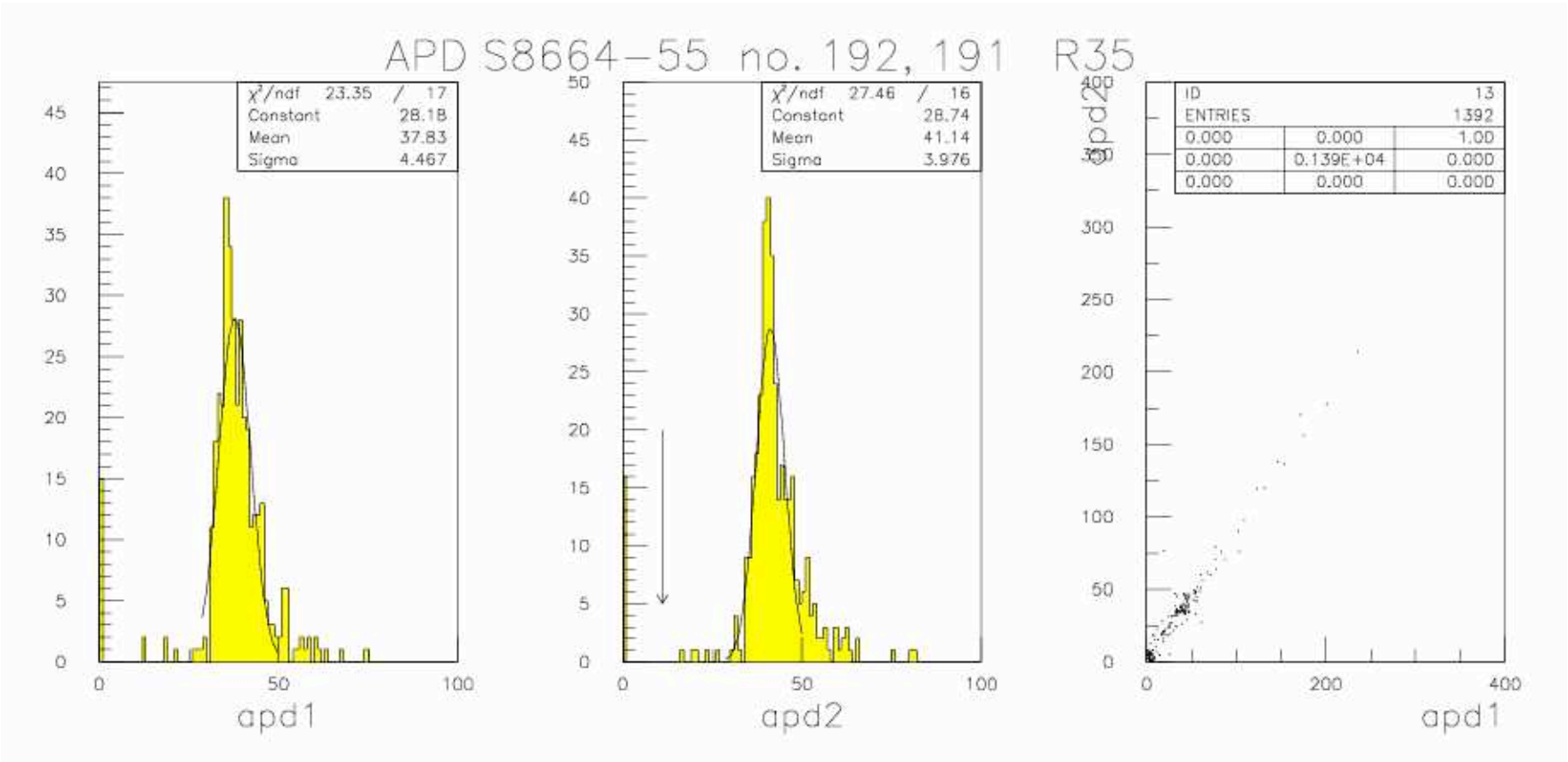
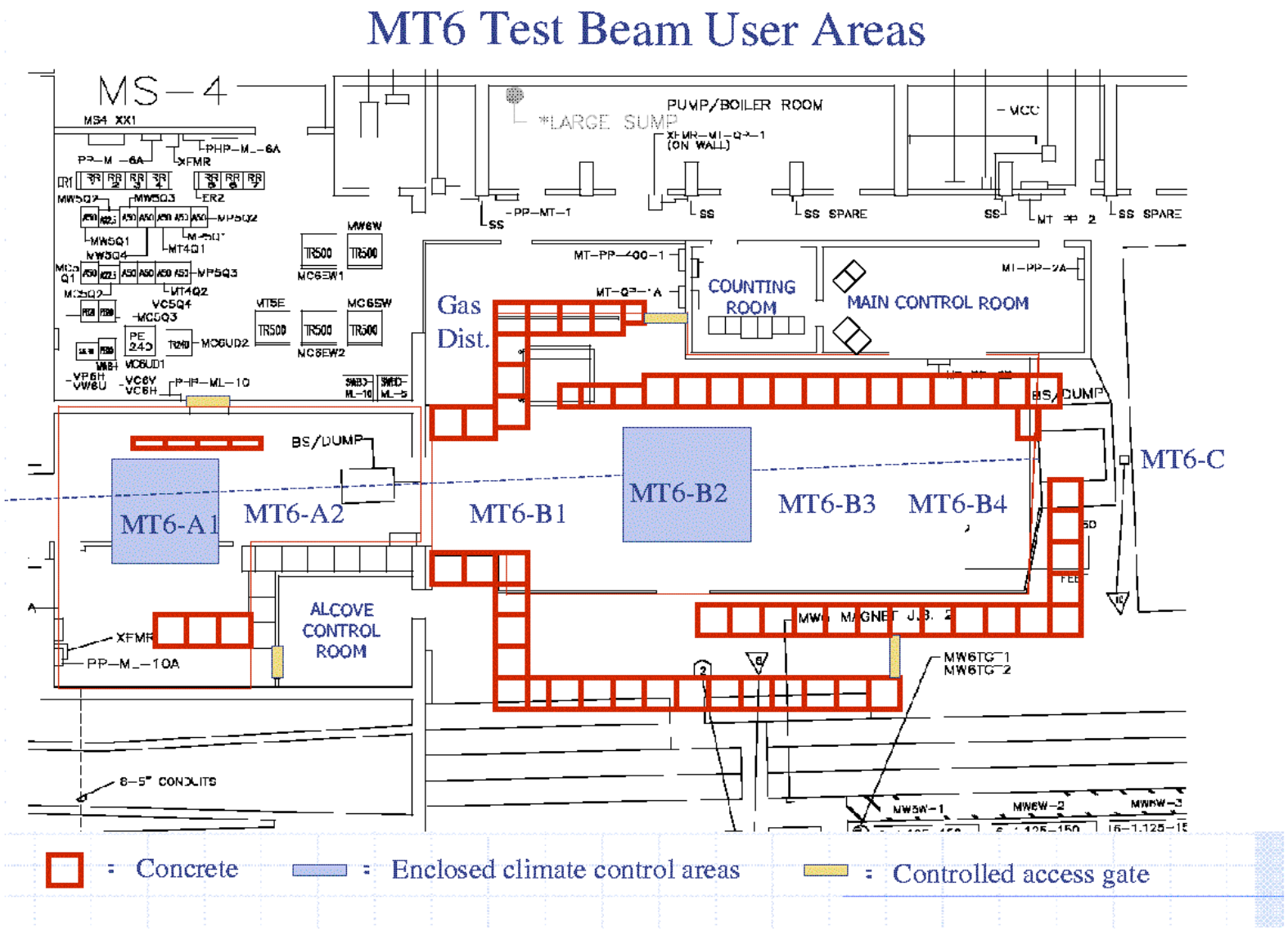


Tower cosmic test results with PMTs

These tests result in "absolute" p.e. yield per MeV calibration for our module structure at "known" quantum efficiency



Cosmic tests with APD



Now, on to the test beam ……