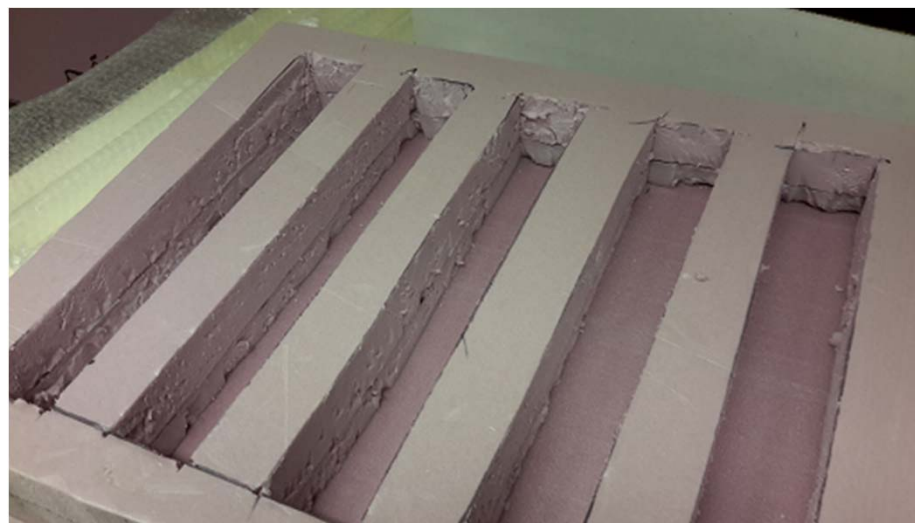




## *Shaping Foam (II)*

- ⊕ *Cutting 1.5'' foam using a box cutter +*
- ⊕ *Gluing a 0.5'' bottom.*
- ⊕ *Works but results are "rough"*
- ⊕ *Time consuming too.*
- ⊕ *3-5 boxes finished this way.*



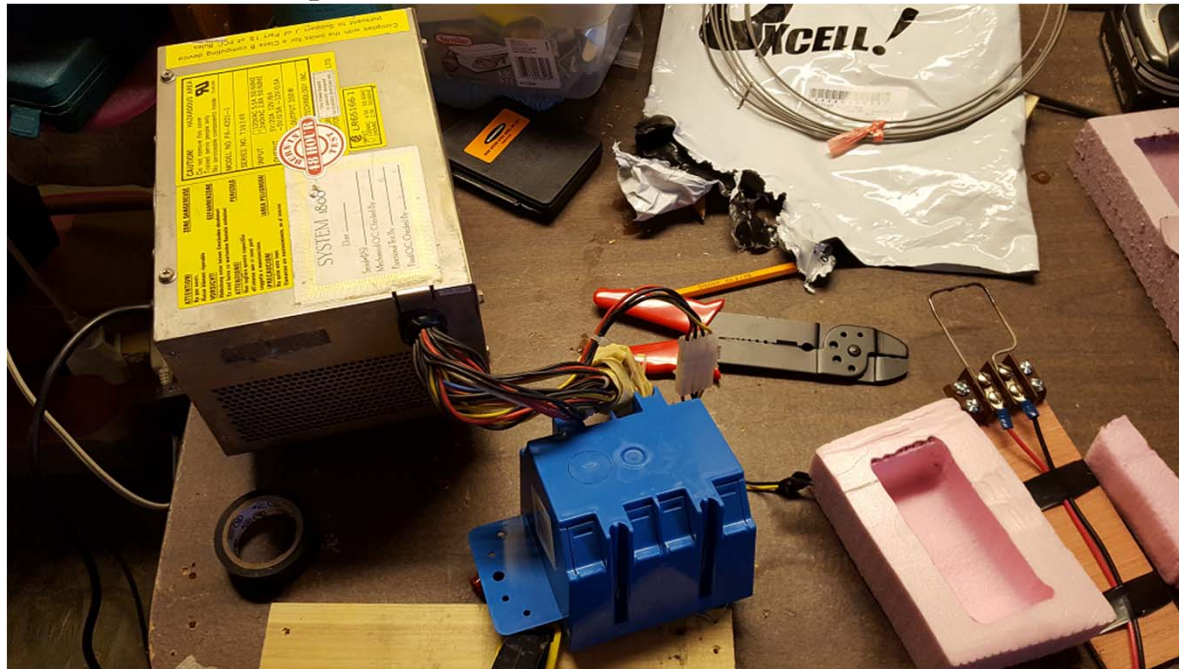


## Shaping Foam (III)

**Using a "hot frame" to (try to cut) blind holes in 2" foam. (Also tried to melt whole hole ☹. )**

**Use thicker (2 mm) Ni-Cr wire**

**... and lots of Amps! Use Old PC Power Supply.**

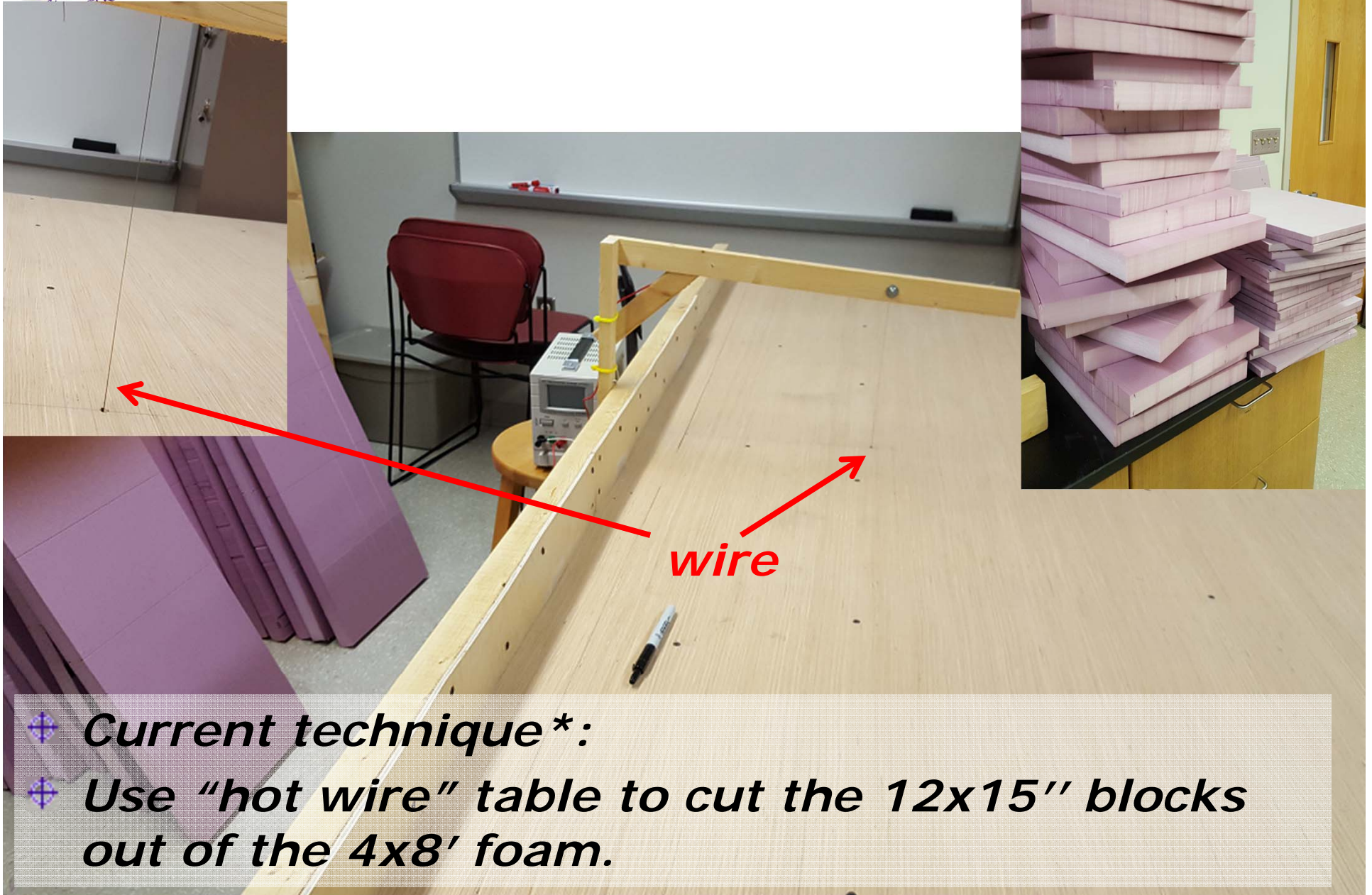


**Does not work for long cuts (wire bends).**

**However, helped us get to the current solution!**



# Shaping Foam (IV)



- ❖ **Current technique\*:**
- ❖ **Use "hot wire" table to cut the 12x15" blocks out of the 4x8' foam.**



# Shaping Foam (IVb)

Mark (using a template) the outline of the holes

- ✦ Cut on a band saw. (Adam)
- ✦ Glue bottom 0.5" layer



- ✦ Works well!
- ✦ ~20 boxes done!

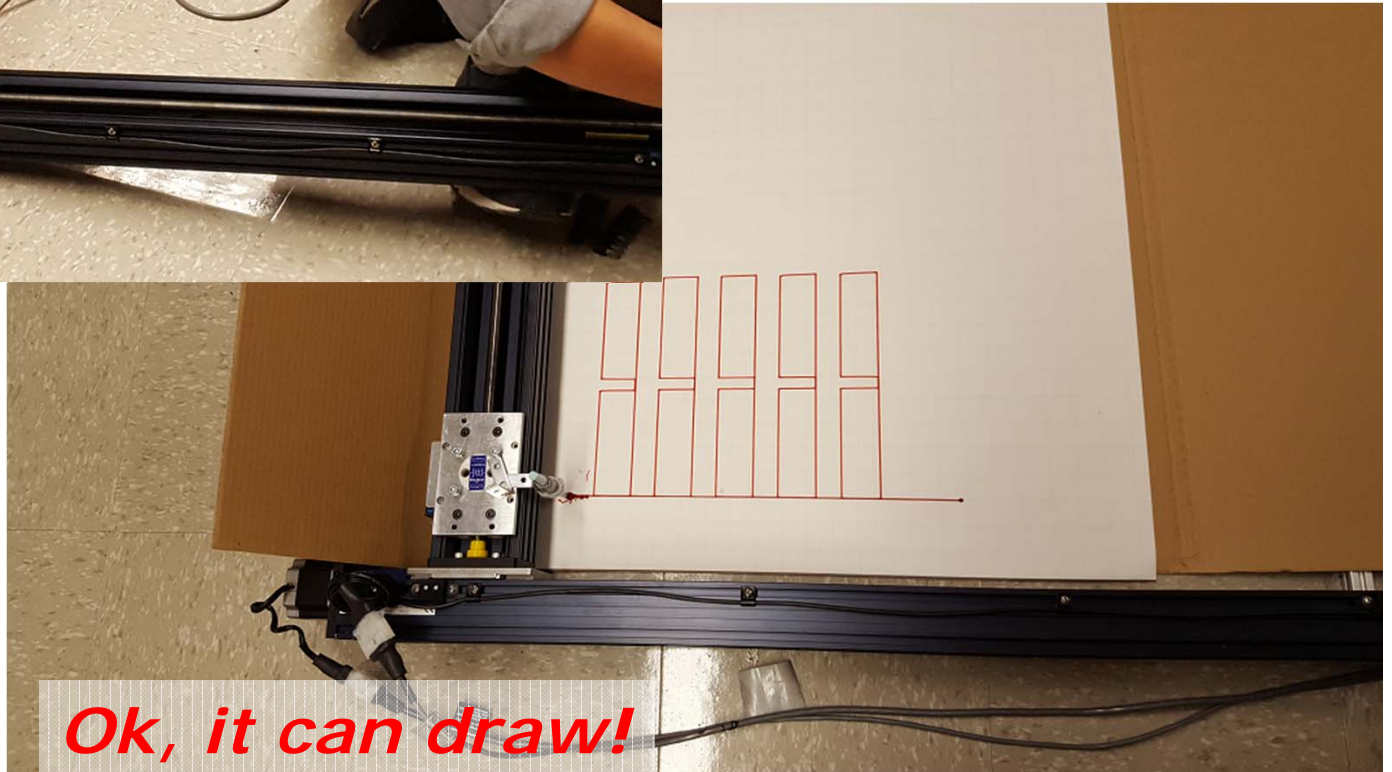
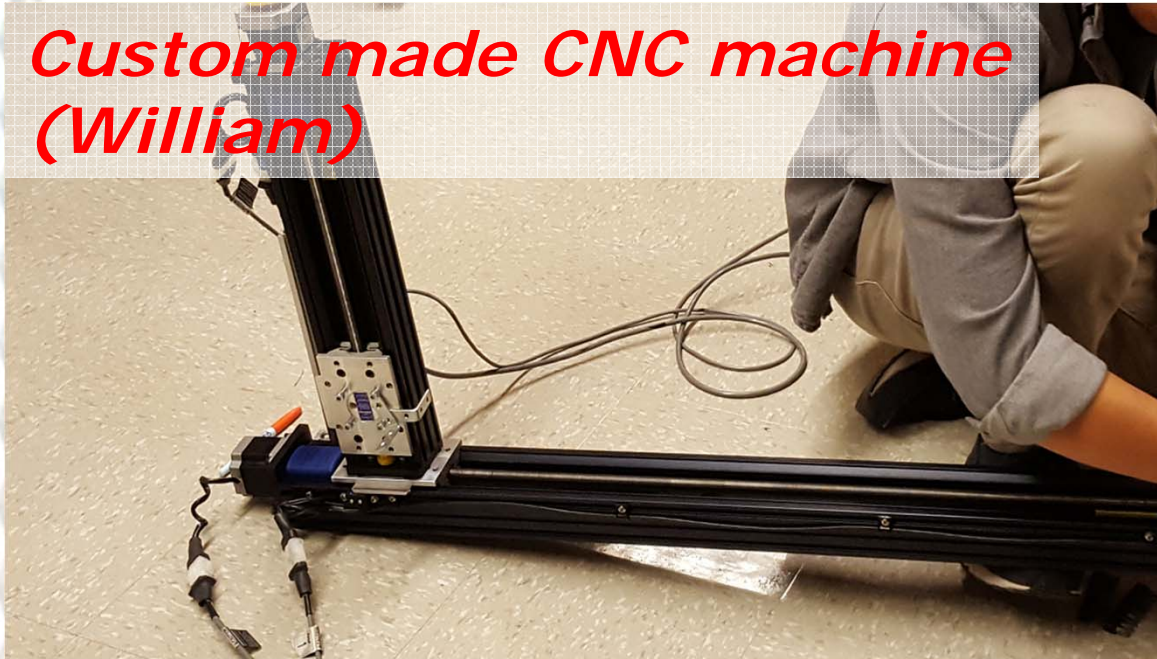




# Shaping Foam (V)

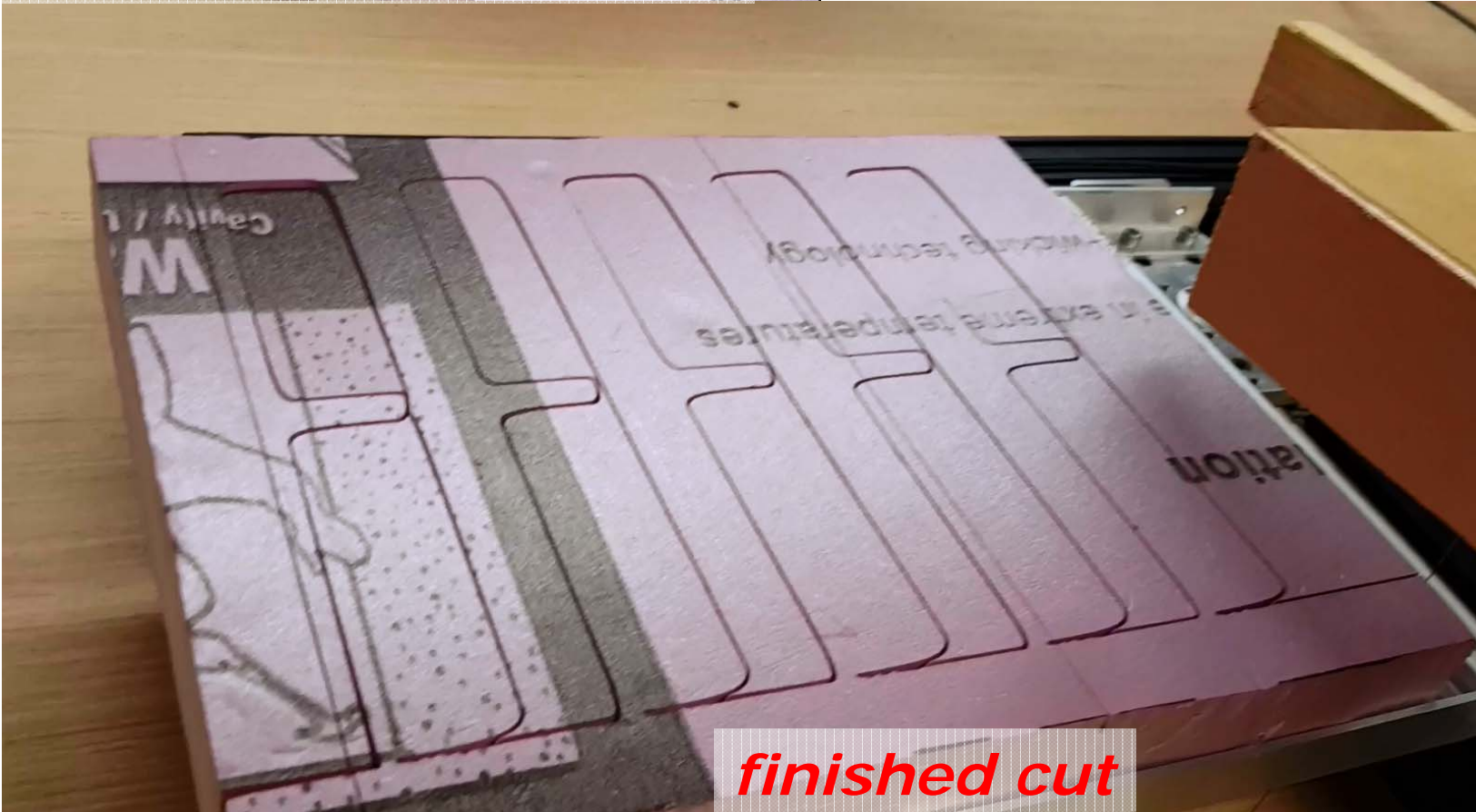
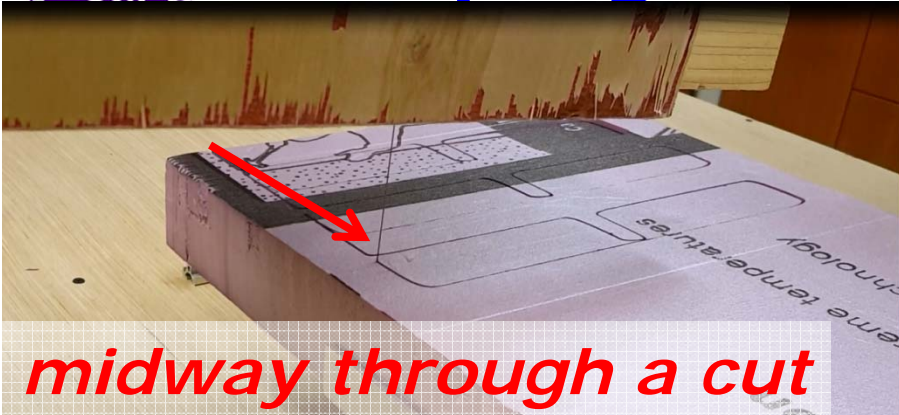
⊕ **This is how we will finish** (at least a few boxes)

**Custom made CNC machine  
(William)**



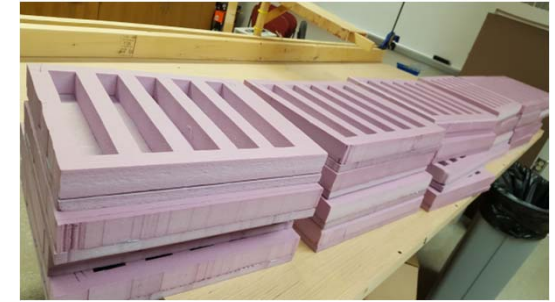
**Ok, it can draw!**

# Shaping Foam (Vb)





# ***Current Status (I)***



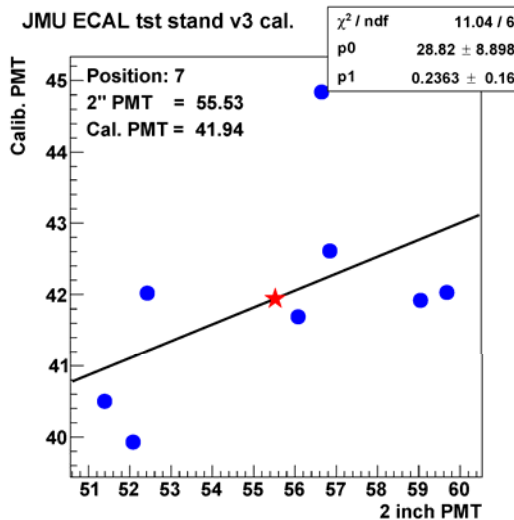
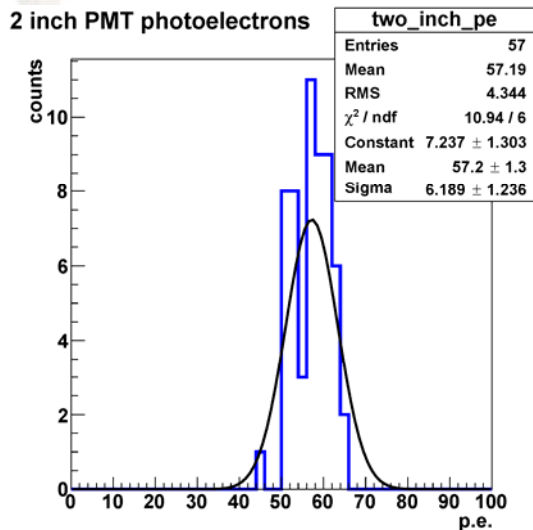
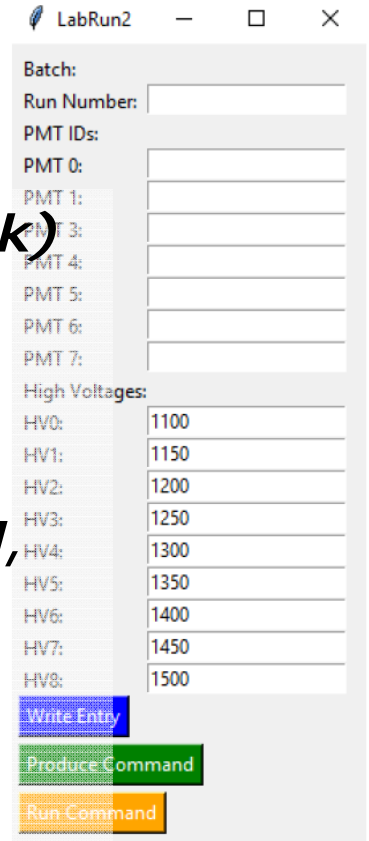
- ⊕ ***Cutting & gluing foam is workable.***
- ⊕ ***Reasonable quality. Fast (if built in quantity).***
- ⊕ ***Cost: ~\$30/box including labor, mats., etc.***
- ⊕ ***Built ~25 boxes thus far. Finish building over the next month.***
- ⊕ ***Used to transport more PMTs***  
***JLab -> JMU (240-400 per trip)***
- ⊕ ***Current count: ~1400 tubes @ JMU.***





# Current Status (II)

- ⊕ **Restarted testing tubes in earnest (Will, Patrick)**
  - ⊕ **William & GN to-do list: finish GUI**
- ⊕ **Recalibration of the test stand (IN & GN)**
  - ⊕ **Lot of time since last batch tested.**
  - ⊕ **Several “distracting” factors (coda3, GRINCH, HCPS, commissioning exp. prep.)**
  - ⊕ **Not much has changed!**
- ⊕ **Two boxes done, third box in-progress (100+)**
- ⊕ **Adding ~20 more tubes/day.**



Meeting



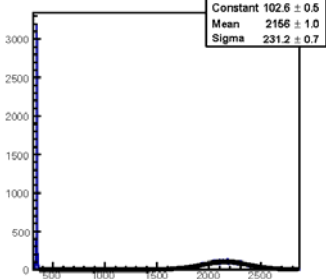




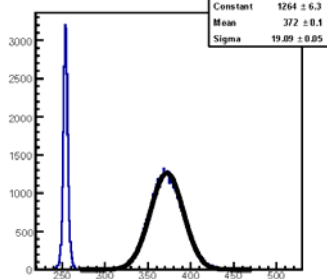
# Current Status (III)

⊕ Just a page w/ test results.

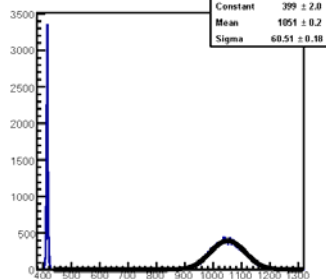
Run 4708 2inch PMT



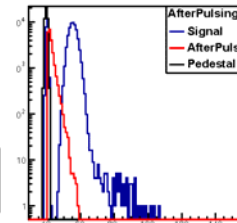
PMT 72



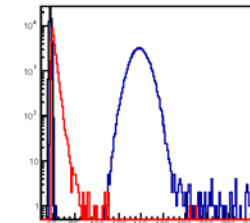
PMT 73



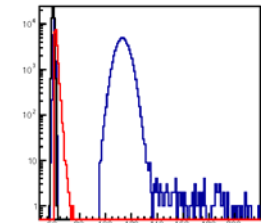
MT 72



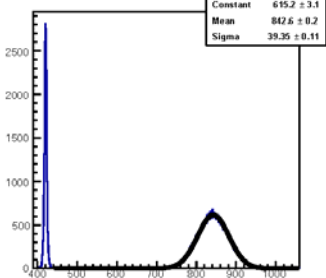
PMT 73



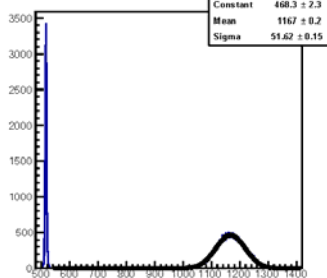
PMT 74



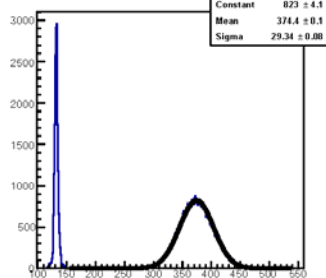
PMT 74



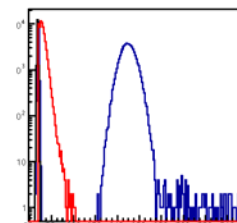
PMT 75



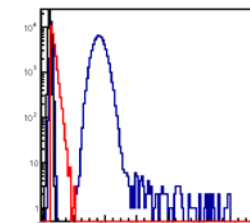
PMT 76



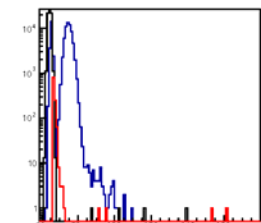
MT 75



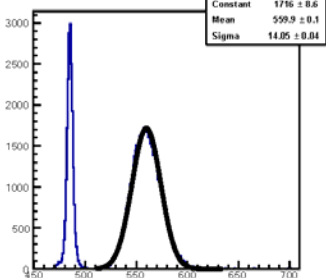
PMT 76



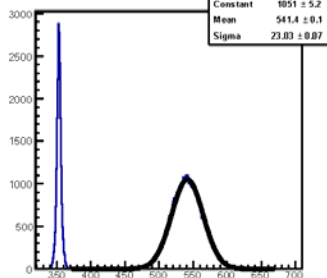
PMT 77



PMT 77



PMT 78

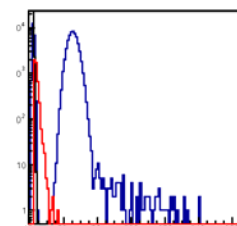


ECAL PMT Testing @ JMU

ID	Gain	Rel.DQE
72	4.82e+05	1.36
73	8.97e+05	0.98
74	5.73e+05	0.84
75	6.38e+05	0.70
76	5.54e+05	1.76
77	4.11e+05	0.61
78	4.39e+05	3.77

Wed, 01 Nov 2017 13:55:52

MT 78



ECAL AfterPulse Testing

ID	Count-Prob	Charge-Prob
72	0.2623	0.0410
73	0.4085	0.0141
74	0.2122	0.0068
75	0.9275	0.0434
76	0.2602	0.0179
77	0.0186	0.0036
78	0.0769	0.0062

Wed, 01 Nov 2017 13:56:36



# Outlook



- ⊕ *Expanded the scope of the ECAL work*
- ⊕ *Reasonable (and affordable) solution for storing/transport.*
- ⊕ *Finish moving tubes to JMU by the end of 2017.*
- ⊕ *Finish testing tubes by Summer 2018.*
- ⊕ *PMTs stay in storage @JMU until needed.*