


From: O'Connor, Thomas P. toconnor@anl.gov 
Subject: RE: Backing structures and frames for TOF
Date: October 30, 2015 at 1:21 PM
To: Steffen Strauch strauch@sc.edu

OT

Hi Steffen,

You're welcome for the information. I hope it was helpful. As I stated in my previous e-mail the frames in my models are based upon extrusions from 8020 Inc. You can learn more about 8020 here <https://8020.net/> Based upon my experience with 8020 I'd guess the framework the scintillators could cost up to \$7500 (we still need to design a way to adjust separation between two layers). The rails and carriages on the floor could get up to \$2500 so the total is \$10,000. Other types of extrusions are available and I've attached a brochure from Rose Kreiger as an example. According to Paul the Rose Kreiger extrusions are readily available at PSI so we should consider using them regardless of where the frames are built in order to allow easy changes in the future. For now I still think \$10,000 is a good upper limit.

As for the backing structures my intention was to create a preliminary design so I could add something to the model and your CLAS design was something that was already proven. We can certainly simplify, from a mechanical standpoint, to save money but that's your decision. Rose Kreiger offers 30x100 and 40x100 extrusions, among others. Could we use one of these extrusions instead of the foam/aluminum as the backing structure? That would reduce the cost considerably and probably simplify the assembly. If you have any thoughts or suggestions I'd like to hear them.

Cheers,

Tom

-----Original Message-----

From: Steffen Strauch [<mailto:strauch@sc.edu>]
Sent: Friday, October 30, 2015 9:54 AM
To: O'Connor, Thomas P.
Subject: Re: Backing structures and frames for TOF

Dear Tom,

Many thanks for the information.

That we might build these structures here at USC came up only recently. Do you have a very rough estimate of what the cost would be (possibly error on the high side)? We have to submit our next MUSE funding proposal soon and I don't think our shop will have a chance to generate an estimate that quickly.

Also, the backing structure for the CLAS project was quite sophisticated. It needed to be 'low material' but strong and rigid enough to hold the bars in various orientations. Sagging needed to be prevented. Our bars are only oriented vertically. So, we might have a chance of a simpler and more economical approach. Each CLAS backing structure cost about \$850. Maybe a simpler sheet of aluminum would do for us? We could secure the two bars on the structure and then 'hang' them securely into the frame?

For now I leave the \$850 for each pair in our proposed budget, but I hope we can save some cost here.

Many thanks,
Steffen

On Oct 29, 2015, at 6:07 PM, O'Connor, Thomas P. <toconnor@anl.gov> wrote:

Good Afternoon Steffen,

I've attached a pdf model of the scintillator arrays as I have designed them. It's not finalized so if you have any suggestions for improvement I'd be happy to make some changes. The backing structure is an adaptation of your design for the CLAS12 detector. I made the ends square whereas your CLAS ends were tapered. Notice that for the front wall I had to flip the backing structure because the tube diameter is thicker than the scintillator. I have two scintillators per module. Whoever made the backing structures for class could certainly make these too. The framework is comprised of aluminum extrusions from 8020 Inc. Extrusions from other companies will work just as well but I have a library of these parts so it was easiest for me to use 8020 for the initial layouts. The rails and carriages supporting the scintillators are just some generic parts from McMaster Carr. Once again I just threw them into the layout to show the idea and other rails/carriages can be used here too. If you have any experience with these types of parts and can recommend something I'd appreciate it. I haven't revised the phototube parts to the newest model yet so the actual lengths of scintillator plus tubes are not correct. I don't have detailed drawings for any of these pieces yet. If you need drawings to talk with your shop let me know what you would like and I can create something.

Regards,
Tom
<[Scintillator Arrays.pdf](#)>



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