



A 3D CAD rendering of a detector structure, likely for the SciBooNE Muon Range Detector Counters. The structure is composed of several vertical and horizontal beams, with a central section that appears to be a detector array. The rendering is semi-transparent, showing the internal components and the overall geometry of the detector. The background is a light blue gradient.

Construction of, and Component Testing for, the SciBooNE Muon Range Detector Counters

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April 12 2008

- Muon Range Detector role in SciBooNE
- PMT testing and counter construction
- counter testing
- detector assembly
- installation in SciBooNE enclosure
- recycling awards!

role of the MRD

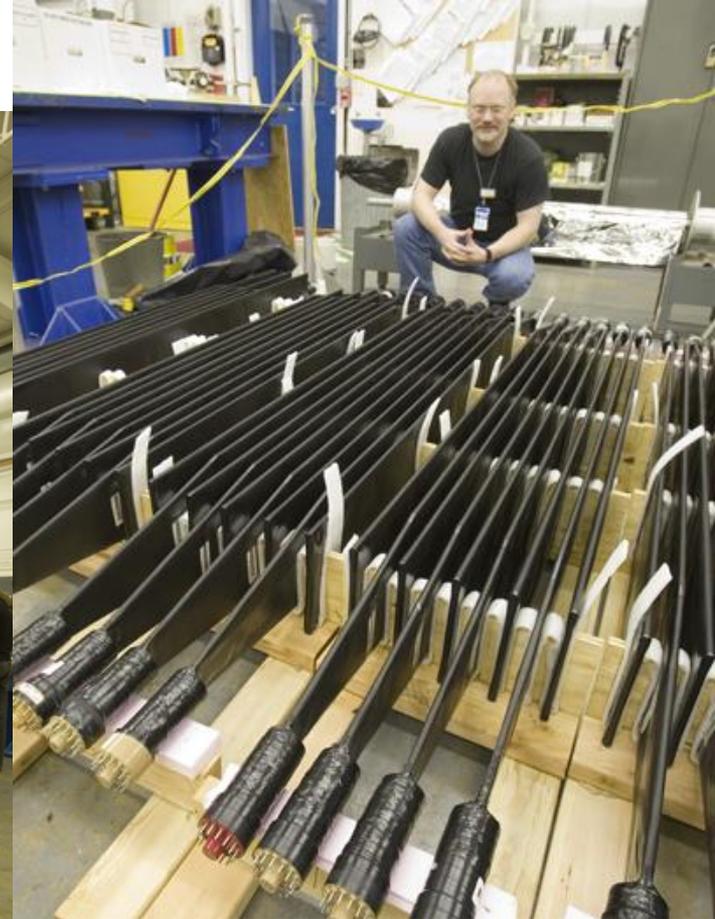
- most downstream component of SciBooNE
- as the name implies, its *raison d'être* is to track, identify, and determine the energy of traversing muons

role of the MRD

- sampling calorimeter, alternating layers of steel and scintillator
- twelve 9' x 10' layers of steel, each two inches thick
- total of 48 tons of absorber material
- 362 scintillator paddles:
 - seven horizontal layers of 26 counters each
 - six vertical layers of 30 counters each.
- able to range out virtually all muons of momentum 0.9 GeV/c or lower that pass within its angular acceptance
- resolution: 100 MeV or better

components

- scintillator panels: recycled from an earlier FNAL experiment
 - vertical panels were shortened before construction
- PMTs: recycled and borrowed
- five different varieties used:
 - EMI 9954KB (KTeV)
 - EMI 9839B
 - EMI 9939B
 - Hamamatsu 2154-05 (NuTeV)
 - RCA 6392A

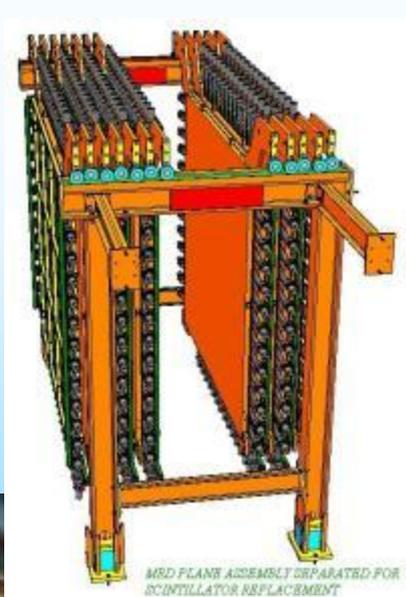
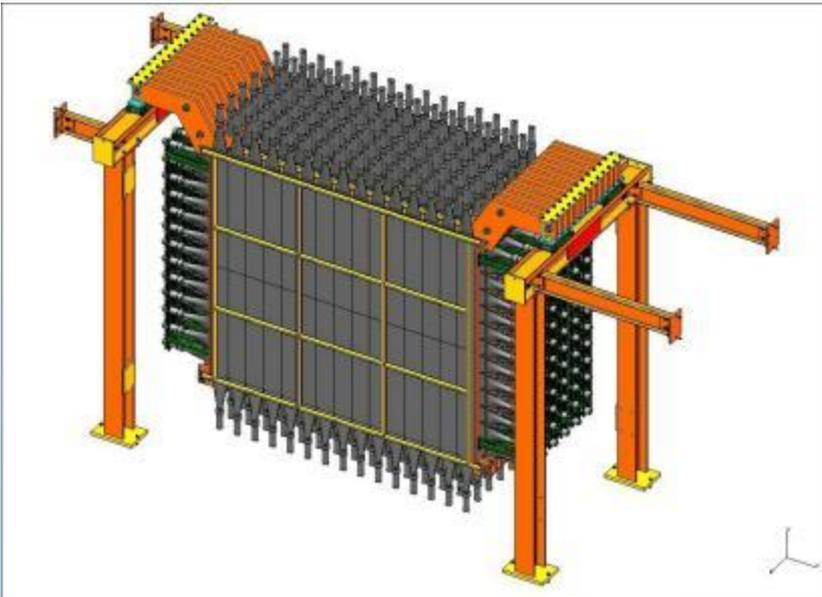


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assembly
highlights

from counters to planes to calorimeter

- counter prototyping, assembly: May – Dec 2006
- frame built, steel panels in place: Oct – Dec 2006

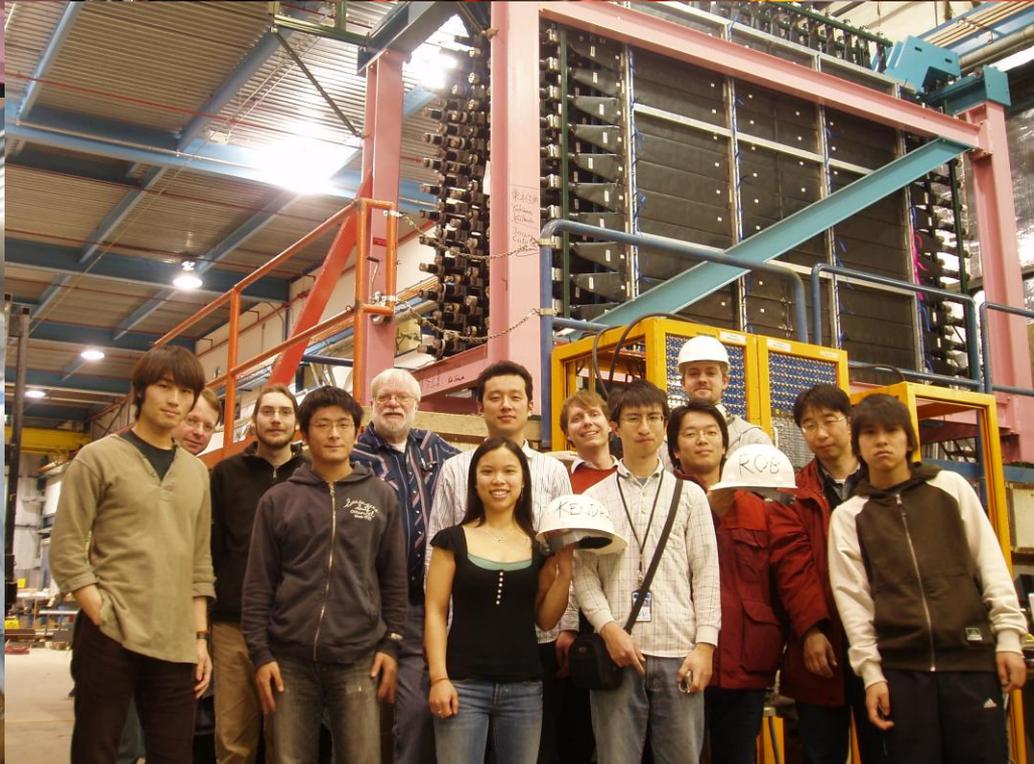


from counters to planes to calorimeter

- counter prototyping, assembly: May – Dec 2006
- frame built, steel panels in place: Oct – Dec 2006
- counter panels built into detector frame:
Dec 2006 – Mar 2007



detector assembly



from counters to planes to calorimeter

- counter prototyping, assembly: May – Dec 2006
- frame built, steel panels in place: Oct – Dec 2006
- counter panels built into detector frame:
Dec 2006 – Mar 2007

- move to detector enclosure: 23 Apr 2007









from counters to planes to calorimeter

- counter prototyping, assembly: May – Dec 2006
- frame built, steel panels in place: Oct – Dec 2006
- counter panels built into detector frame:
Dec 2006 – Mar 2007

- move to detector enclosure: 24 Apr 2007
- began taking data late May 2007
- beam data June 2007

SciBooNE recycling awards

- Jan 08: DOE Office of Science Noteworthy Practice Award / pollution prevention

 **Fermilab Today** Friday, January 18, 2008

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Calendar	Feature	Announcement
<p>Friday, Jan. 18 3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over 4 p.m. Joint Experimental-Theoretical Physics Seminar - One West Speaker: C. Leonidopoulos, CERN Title: The LHC Trigger Challenge and the CMS Strategy 8 p.m. Fermilab Lecture Series - Auditorium Tickets: \$5 Speaker: Chris Quigg</p>	<p>SciBooNE recognized for reusing science</p>  <p>Camillo Mariani (top), and Lucio Ludovici (middle), both from University of Rome, La Sapienza, and Chris Richardson and John Cornele from Fermilab install re-used electromagnetic calorimeter modules into an element of the SciBooNE experiment.</p>	<p>Apply now for HCP Summer School session</p>  <p>The third CERN-Fermilab Hadron Collider Physics Summer School, which will be held at Fermilab August 12-22, 2008, is now accepting applications through Feb. 29.</p> <p>Applicants should be advanced graduate students or young postdocs with a strong interest in hadron collider</p> <p>CERN-Fermilab Hadron Collider Physics Summer School registration is open until Feb. 29.</p>

SciBooNE recycling awards

- Apr 08: DOE Office of Science P2 Star Award for reuse of materials

 **Fermilab Today** Monday, April 7, 2008

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Furlough Information	Feature	Safety Tip of the Week
<p>New furlough information, including an up-to-date Q&A section, appears on the furlough Web pages daily.</p>	<p>SciBooNE wins DOE-wide award for pollution prevention</p>  <p>Camillo Mariani (top) and Lucio Ludovici (middle), both from University of Rome, La Sapienza, and Chris Richardson and John Cornele, both of Fermilab, install re-used electromagnetic calorimeter modules into an element of the SciBooNE experiment.</p> <p>The SciBooNE experiment, which is tucked away in a small cement building no larger than a commercial elevator shaft, recently stood out in the national</p>	<p>Share the road</p>  <p>Click on the above photo to watch a 7-minute YouTube bicycle traffic safety video from the National Highway Traffic Safety Administration. (Adobe Flash Player required)</p> <p>Fermilab is a great place to ride a bicycle. We have interesting scenery, a paved bike path and plenty of lightly-traveled roadways. Unfortunately, when motorists and bicyclists meet,</p>
Layoff Information		
<p>New information on Fermilab layoffs, including an up-to-date Q&A section, appears on the layoff Web pages daily.</p>		
Calendar		
<p>Monday, April 7 THERE WILL BE NO PARTICLE ASTROPHYSICS SEMINAR THIS WEEK</p>		

summary

- building a detector from recycled materials on a limited budget posed its own challenges
- the MRD group was able to move from prototype counter panel to beam-data-ready detector in about 13 months
- recycling efforts on SciBooNE in general have resulted in DOE affirmation of good practice

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