

 national accelerator laboratory	Author M. L. Perl	Section Summer Study	Page 1 of 1
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Subject

PROGRESS REPORT ON GROUP B. 4, NEUTRAL BEAMS

The basic report on the design and use of neutron beams has been given by M. Longo in an unpublished report from the University of Michigan (FN-142). Toner has commented on it with respect to layout, radiation, shielding and alignment.

J. H. Smith (B. 4-68-17) has studied the K_2^0 beam requirements and he and A. Wattenberg looked in detail at a K_2^0 experiment (B. 4-68-27). As discussed with A. Read, the neutron beam is best at 0 mrad because there it is most peaked at the high energy end. The K_2^0 beams are better at larger angles, above 5 mrad, because there the neutron contamination is smaller. Thus, it appears the neutron beams and K_2^0 beams should go through separate channels, and will be designed together only insofar as all beams from a single target must be designed with the entire set of beams in mind.

Detailed designs are needed for both types of beams, particularly with respect to the muon shield. In collaboration with Longo, we will look into a specific 0 mrad neutron beam. A smaller flux, and consequently a smaller hole in the muon shield will be considered.