



MULTIPLE MIRROR TELESCOPE OBSERVATORY

Smithsonian Astrophysical Observatory and Steward Observatory, University of Arizona

Reply to: MMT Observatory
University of Arizona
Tucson, Arizona 85721
(602) 621-1558

INTERNAL TECHNICAL MEMORANDUM 87-1

Date: June 9, 1987
From: D. Blanco
Re: MMT Upgrade: First order impact of various primary diameters and focal ratios on the building and yoke.

First cut studies have shown that the yoke and building of the MMT could accommodate a 6.5 M f/1 Cassegrain without major modifications. However, by enlarging the yoke or "bulging" the building shutters, it would be possible to install a primary larger than 6.5 M and slower than f/1. At what point is it necessary to make these modifications?

The attached graph shows roughly where it becomes necessary to enlarge the chamber by one, two, or three meters or to enlarge the yoke as a function of primary diameter from 6 to 7.25 M and focal ratios from f/0.8 to f/1.6. The upper boundary was arbitrarily set by no more than 3 M chamber extension, while the 7.25 M limit is a best guess at the point where the enlarged yoke runs into main structural elements of the building.

At a minimum, upgrading the MMT will require replacing the OSS. With carefully planned logistics, rework on the building shutters could be done in parallel with OSS installation but with some inevitable increase in safety hazards to the work crews. Any modification to the yoke must be completed prior to installing the OSS, so the time to complete this task must be added in series.

MMT UPGRADE :
 FIRST ORDER IMPACT OF VARIOUS DIAMETERS & F/#'s

