



MULTIPLE MIRROR TELESCOPE OBSERVATORY

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Mirror Coating at the Sunnyside Facility - An Operational Guide
(Revised and updated version of MMT Internal Technical Memorandum 87-2)

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I. INTRODUCTION

The following is a revised version of a previous memo (87-2) that summarized the operation of coating the MMT mirrors at the Sunnyside coating facility. Most of the procedures described here were related to me by Bill Kindred and J.T. Williams as we coated the mirrors. These procedures evolved from painstaking, frustrating, and time consuming trial and error, and their presentation here is meant to save someone else a lot of time and effort. This summary might also be used as a refresher by someone with experience, just to get back in the mirror coating mode.

The viewpoint presented here is entirely operational. Some information pertains specifically to Sunnyside and some to mirror coating in general. Much of the new material evolved from mirror coating adventures with A. Bauer. Chiefly, it concerns filament loading, the pumping and electrical systems, and new techniques that have arisen in response to problems. Some further information and references can be found in Columbus Project Technical Memorandum UA-88-06.

The procedures for doing the MMT primary mirrors are given step-by-step, whereas less effort is made to order the steps elsewhere.

Any additions or corrections to this report are welcome.

II. PRIMARY MIRROR COATING

The primary mirror coating process generally takes 3 days, although it can be done in less. Three days is preferable because the mirror should spend the night after stripping in the clean room drying out and the next night in the chamber pumping out.

A. Uncrating

Be sure to have planned where to put the mirror crate once it's off the truck and where to put the top of the crate. Also, the handling ring has to go on so the crate should be centered with respect to the hoist. Leave room for the mirror cart to roll inside the building and to the washing area (see Figure 1).

There are two crates--one with pins through the bottom ends of the side bolts and one with nuts. The one with pins requires the pin puller. The one with nuts requires the bolt puller and a lever arm (2 x 4 works fine), as the bolts fit tightly.

The crate with pins has steel bars through the bottom with holes to mount the clevises when lifting. The crate with nuts requires additional steel bars to lift from the bottom (none are mounted). For safety's sake, never lift from any other place on the crate.

The sides of both crates detach, leaving the crate bottom with a raised cushioned portion to accommodate the mirror. The mirror should be centered on the raised portion for the crate with pins but not for the other crate. One should mark the mirror location on the crate with nuts before lifting it off, as the raised portion is a bit off center in at least one crate.

B. Handling Ring

The metal parts of the handling ring should be cleaned with acetone if the ring has not been in use for a long time. However, the rubber pads should