M1 segment - building movement & coating facility

Steven E. Bauman
Operations Group Manager/Mechanical Engineer

Canada France Hawaii Telescope Corporation

http://mse.cfht.hawaii.edu
Coating equipment

• Mirror coating facility
  • Location - Inner concrete pier - basement level

• Coating equipment
  • Roughing pumps, turbo pumps, vacuum chambers
  • Safe storage room for spare segments
  • Working storage room for segments in process
Coating equipment

• Handling equipment
  • Coating room platform lift
  • 22 ton & 1 ton polar crane for mirror segment handling
  • Segment handling elevator
  • Segment handling carts
  • Handling and lifting equipment
Inner concrete pier - basement level
1st floor equipment details
Platform lift location
New coating room lift platform

- The platform moves segments (on handling carts) from the 1st floor to the coating chamber facility level (basement level).
- Lockout tag-out provisions for equipment
- Smooth, precise motion
Coating facility cranes

- Two polar cranes and various equipment available for MSE
  - 22 ton and 1 ton crane equipment
  - Handling and lifting equipment
  - Lifting straps, cables, hooks, shackles
  - Crane motors, controllers, and gear reduction units could be upgraded...
Coating facility cranes

- Cranes move segment mirror assemblies (SMA’s) from:
  - handling carts to wash/stripping stand
  - cleaning/stripping stand to coating chambers
  - coating chambers to handling carts
  - various handling operations in coating facility
Segment transport to coating facility
Segment handling carts

Mirror segment handling carts, simple A-frame construction with trunnion rotational supports
Segments are transported on individual handling carts from the observing floor in a designated segment elevator to the 1st floor where they are moved to the coating facility via a sealed door and elevated platform.
Thank You!  
Merci!  
谢谢!
Questions?

Email: bauman@cfht.hawaii.edu