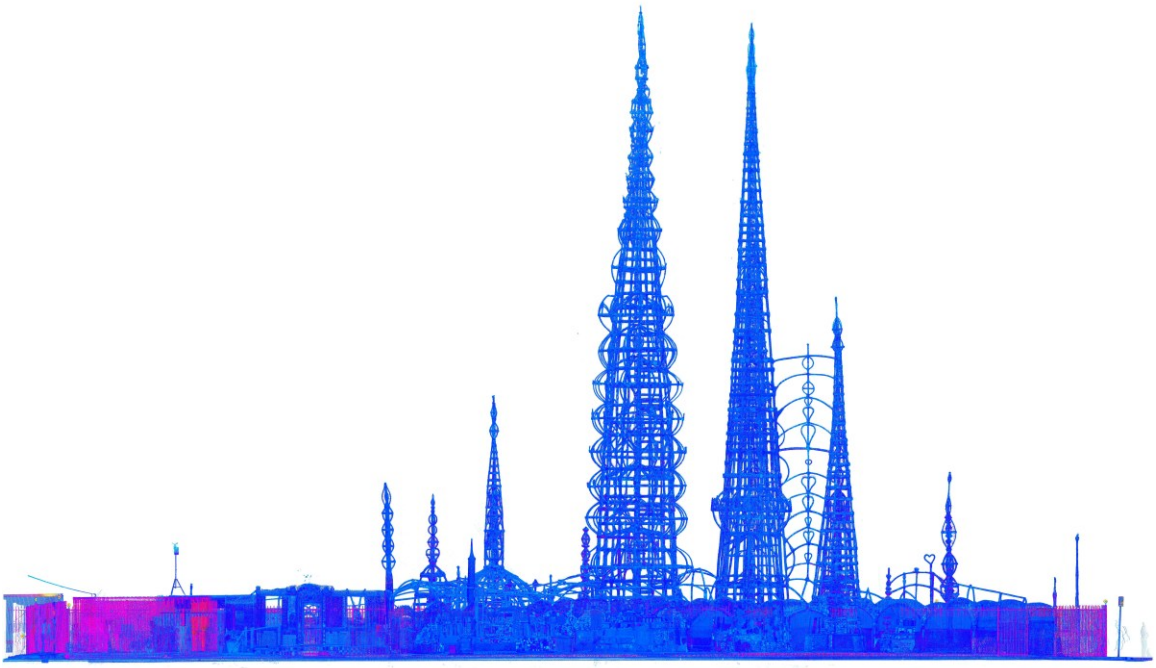
LACMA

LACMA, DCA, and Watts Towers

Progress Report July 2012 through September 2012 (Sixth Progress Report)

Prepared for the DCA, City of Los Angeles, by Frank Preusser and Mark Gilberg



Summary

During the reporting period we continued the organization and review of existing documentation and information (hardcopy and electronic). Work on the fallen fragments has continued.

The remedial condition survey was completed. Inspection and photo-documentation of the three tall towers with a spotting scope and photography with a telephoto lens continued. Comparison of the current condition of the monuments with the Rand photographs was continued.

Research in potential crack fillers, repair mortars, and adhesives continued and a variety of materials was purchased for testing and evaluation.

Data-logging crack monitoring equipment (strain gauges, displacement transducers, and thermocouples) was installed in August and operates satisfactory.

The three six inch cores at the bases of the tall towers were reset.

Three graduates from the Getty/UCLA Program on Archaeological and Ethnographic Conservation and two recent graduates from Verbum Dei High School successfully completed a two months internship funded by the Ahmanson Foundation.

Accomplishments

Staffing

On August 18 Israel Campos left the team to go back to College. His contributions were many and very valuable. We wish him the very best.

On August 13 Christina Angela Fisher and Mariana Ruiz started as full time Research Assistants.

Jennifer Kishi, a UCLA student, was hired on a part-time, temporary basis to review and create an inventory of the Watts Towers material in the UCLA Archives.

Consultants

- Mr. Mel Green (Melvyn Green & Associates, Inc.) will address once again the stability of the Towers, starting with a review of the Ehrenkrantz calculations. We also discussed structural safety issues with the office trailer.

- Prof. Bruno Pernet from the California State University Long Beach continued his study of the seashells on the Towers.[1]

- Mr. Etien Frett from BASF Corp. visited the Towers on August 7 to discuss repair mortars and adhesives.

- Prof. Harry Jones (TAMU) visited August 30 and 31 to help with the installation and set-up of the crack monitoring system.

- We met with Beril Bicer-Simsir of the Getty Conservation Institute to discuss a variety of issues related to repair mortars and mortar testing (8/30 at the GCI, 9/6 at the Towers).

Office

Nothing to report.

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[1] LACMA is only providing access to the site and to the existing photographic records.

Chemical Safety

No incidents to report.

General Safety

In discussions with Mr. Mel Green it was determined that the floor in the sample storage room of the Office Trailer needs to be re-enforced. Mel prepared a proposal and we will obtain quotes in October.

Site Maintenance and Improvements

The site is surveyed daily for any fallen ornaments and other problems. The daily survey also includes visual examination for new cracks or significant changes in existing cracks.

GSD has provided an estimate for removing and replacing the platform that currently covers the footprint of Rodia's house. This estimate also includes replacing the existing electrical box and bringing any other electric services up to code.

Archival Research

Jennifer Kishi completed the inventory of the Watts Towers files at the UCLA Archives in an effort to locate early photographic images which can be used to establish dates of construction and subsequent alterations to the various monuments.

We obtained 160 color slides taken by the designer George Nelson in 1976 and 1978. They were donated to the project by his widow. The slides have been digitized and re-housed.

The UCLA/Verbum Dei interns successfully used the reorganized archive to establish treatment histories for the A and B Towers.

Treatment Database

Ms. Colleen Boye has installed the first version of the new treatment database on the server and it is currently undergoing testing.

Re-Photography of the Artwork

The re-photography of the higher elevations of the tall towers with a telephoto lens continues.

X-Radiographs

Nothing new to report

Inventory of Detached Ornaments

Ms. Kimberly Blanks has continued to make good progress. She is now working on the large fragments stored in the West room of the Office Trailer.

UCLA/Verbum Dei Internship Program

Three graduates from the Getty/UCLA Training Program in Archaeological and Ethnographic Conservation (Lily Doan, Molly Gleeson, Suzanne Morris) and two recent graduates from Verbum Dei High School (Hector Morataya, Jesus Real) spent July and August on site for a summer internship. This program was financed by a grant from the Ahmanson Foundation. During this period they carried out four projects:

1. Establish a history of interventions for the A Tower (Attachment 1)
2. Establish a history of interventions for the B Tower (Attachment 2)
3. Condition survey and remedial treatment of the overheads (Attachment 3)
4. Map delaminations of the floor using a combination of thermal imaging and sounding (Attachment4)

Condition Survey

The remedial condition survey and stabilization of loose ornaments and mortar has been completed. The last sections to be completed were the overheads which were documented and treated by the UCLA/Verbum Dei interns in July and August.

Floor Study

The three 6 inch cores from the bases of the three tall towers have been reset after documentation and analyses (Figures 1a-c).

To complete our study of the floor, the UCLA/Verbum Dei interns mapped out areas of delamination within the cement slab (figure 2). This complements the ground penetrating radar study that looked at voids under the slab.

The floor is now completely mapped in terms of its topography, sections, cracks, voids, and delaminations. Based on these studies and comparisons with historic photographs we came to the conclusion that no significant changes occurred during the last 25 years and that there were no movements that would give cause for concern.

Figure 1a: CTO core

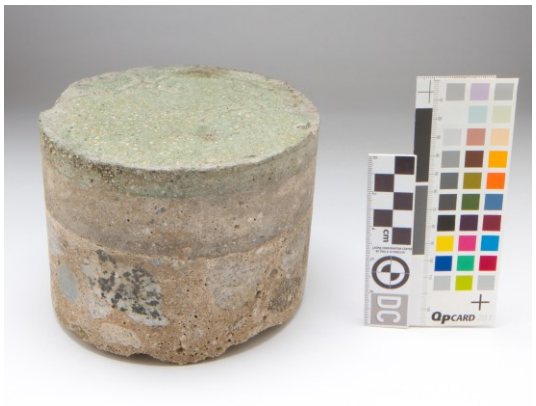


Figure 1b: WTO core

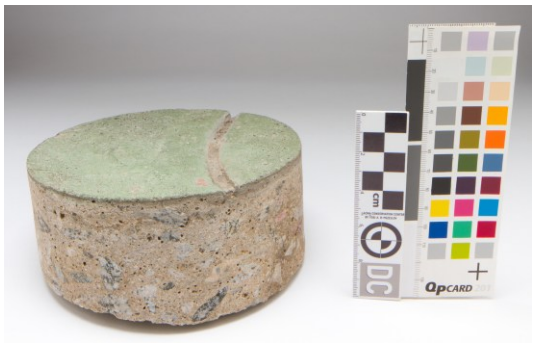


Figure 1c: ETO core

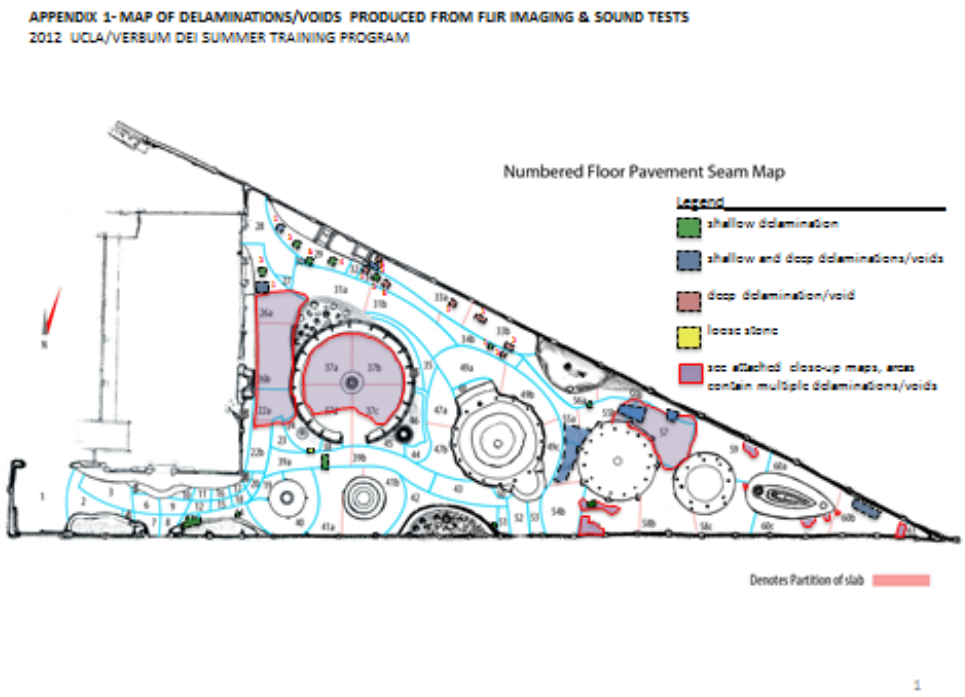


Figure 2: Map of floor delaminations.

Evaluation of Changes since Rand Photo Campaign

Mr. Israel Campos continued comparing the Rand photographs with the current state of preservation of the monument and after his departure Mariana Ruiz took over this task. Currently we are concentrating on the tall towers.

A much more in depth study of the A and B Towers was carried out by the UCLA/Verbum Dei interns. In addition to the Rand photo comparison they went through the archive and the treatment database and compiled a treatment history for both sculptures.

Evaluation of Cracks

Monitoring of selected cracks with plaster bridges and telltales continued. We also continued monitoring cracks to determine if they are propagating lengthwise.

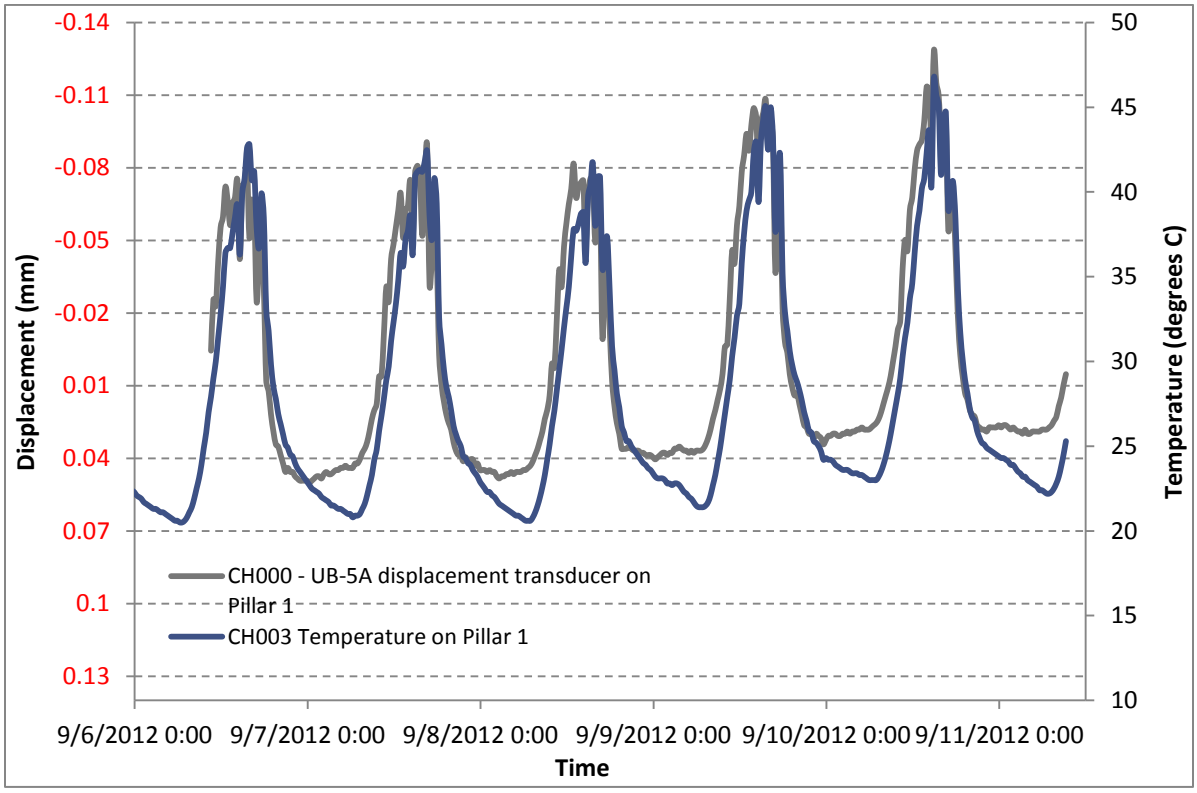
On August 30th and 31st we installed with the help of Harry Jones displacement transducers, strain gauges, and thermocouples (Figure 3). These sensors are connected to a battery operated datalogger.

There is a clear correlation between the crack gaps and the surface temperature. As the cement heats up the cracks close, as it cools down the cracks open (Figure 4).

The transducers will stay in place for at least one year to check for any long term trends

Figure 3: Locations on Central Tower of monitors

Figure 4: Displacement (plotted in reverse) and temperature data collected from 9/6/12-9/11/12



Weather Station

The Weather Station continues to reliably record the environmental conditions. The data are downloaded and processed at regular intervals by Ms. Kimberly Blanks.

Thermal Imaging

Currently the thermal imaging program is on hold due to other, more pressing issues.

Thermal imaging was however used in the study of the delaminated areas of the floor (see floor studies).

Weather Events

During the reporting period we had a number of high temperature events. Spot measurements with a Fluke IR Thermometer showed that at an air temperature of 75°F temperatures on sun exposed surfaces exceeded 121°F. On August 15th, during a site inspection at ~11 am we heard two consecutive pop sounds followed by small glass fragments shattering on the floor (NE of the Gazebo). Wind speed was less than 5 mi/hr and there was no seismic activity. This clearly demonstrated that a significant amount of loss of ornaments is due to thermal stresses.

Identification and Evaluation of Conservation Materials

Almost all of the repair mortars, elastomeric crack fillers, and adhesives we identified as promising have been obtained. Testing procedures have been designed. The Getty Conservation Institute agreed to let us use some of their aging facilities and discussions are underway with the UCLA Department of Civil & Environmental Engineering about some physical testing of mortar and adhesive samples.

Next Steps

In the next quarter we plan a variety of activities:

- Installation of accelerometers (vibration monitors) and associated monitoring equipment.
- Expansion of the crack monitoring program.
- Implementation of a detailed testing program for repair mortars, adhesives, and elastomeric crack fillers.
- Identify equipment and potential consultants for corrosion monitoring.
- Begin evaluating migrating corrosion inhibitors.
- Complete the fragment inventory

Fundraising

No updates this quarter.

Respectfully submitted by Frank Preusser, Senior Conservation Scientist, Conservation, with support from Mark Gilberg, Suzanne D. Booth and David G. Booth Conservation Center Director.

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