

# California Preservation Foundation 2017

## Stewardship of Stanford Buildings

Sapna Marfatia

Stanford University



*Service Level*



**Level 1a**  
**Iconic**



**Level 2a**  
**Research**  
**Intensive**



**Level 1b**  
**Heritage**



**Level 2b**  
**General**



# Levels of Service

## *Assessment*

Level 1 projects require both an assessment of the operational maintenance requirements for the building by the Zone Manager or MPC, and an historical preservation needs analysis by the UA/CPD.

## *Process*

**Step 1:** Zone Manager or Maintenance Program Coordinator (MPC) identifies a preventative, reactive or IIP maintenance project;

**Step 2:** UA/CPD outlines the historical preservation priorities and requirements related to the maintenance project;

**Step 3:** Zone Manager or MPC defines the complete scope, budget and schedule for the maintenance project;

**Step 4:** UA/CPD agrees on the historic preservation scope of the project and outlines construction logistic requirements (i.e. fencing, educational information, temporary signage, etc.)

**Step 5:** Zone Manager submits a Form 1 for all IIP projects.

1

## *Assessment*

Level 2 projects require an assessment of the operational needs for the building, as well as a review of the proposed project by the UA/CPD for buildings that are part of an architecturally distinct collection (such as the Science and Engineering Quadrangle and the Knight Management Center) or involve any visible exterior improvement or change.

## *Process*

**Step 1:** Zone Manager or Maintenance Program Coordinator (MPC) identifies a preventative, reactive or IIP maintenance project;

**Step 2:** UA/CPD reviews the scope of the project and advises the Zone Manager or MPC of any additional measures that may be necessary to ensure that the architectural character of the building is preserved;

**Step 3:** Zone Manager or MPC defines the complete scope, budget and schedule for the maintenance project;

**Step 4:** Zone Manager submits a Form 1 for all IIP projects.

2

# Decision by Committee

- Dreaded by most, but a secret to success in our stone projects
- Managing opinions and getting multiple options from SMEs
- Agreeing on compromises



# Building Assessments

- Cornerstone for larger projects
- Typically 6mos-1yr prior to construction start
- SU standard template includes:
  - Existing conditions survey
  - Recommendations and budgetary estimates
  - Detailed appendices
  - Photos
  - Survey drawings
  - Product sheets

**STANFORD ART GALLERY (03-001)**  
 Exterior Conditions Assessment

May 2015 Stanford Art Gallery  
EXTERIOR CONDITIONS ASSESSMENT

**II. EXISTING CONDITIONS**

Stanford Art Gallery  
 Exterior Repairs Budgetary Estimate\* 5/21/2015

Item #	Task Description	Cost	
<b>Item 1: Consultants</b>			<b>\$13,254</b>
	Geotech services	\$6,422	

North Elevation  
 Survey Notes  
 1/22/15

	Clean Arcade Paving	\$9,384	
<b>Item 6: Wood Repairs/Window Repairs</b>			<b>\$179,384</b>
	Repair Rot and Water Damage @ Eaves	\$32,640	
	Refinish/Paint Eaves and Exposed Wood Elements	\$111,520	
	Refinish All Entrance Doors to Match	\$20,264	
	Replace Deteriorated Sealants at Windows	\$14,960	

occurring at the handrail attachment points on the south elevation stair wall.

Minor cracking is also visible inside the arcade, where previous partition attachment points remain embedded in the stone. Most attachment points are wood, and do not impact the stone's condition, but are highly visible. Small cracks adjacent to embedded



Minor cracking at column base at northeast entrance to arcade. (ARG, 2015)



# Level 1a – Iconic

Cantor Center for Visual Arts  
at Stanford University

DRAFT Exterior Condition Assessment



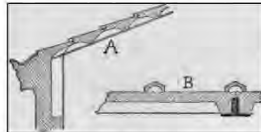
prepared by  
Stanford University  
Stanford, California

prepared by  
Architectural Resources Group, Inc.  
Architects, Planners & Conservators  
San Francisco, California

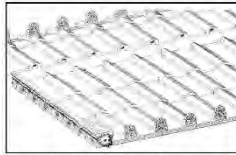
December 2012  
Project No. 12131

Cantor Arts Center at Stanford University Exterior Condition Assessment  
Stanford, CA DRAFT December 2012

The original roof system was designed by Ransome and was composed of cast concrete slabs suspended between iron girders. The concrete slabs were approximately 10' 0" x 2'-6" and arranged in a single running, with a 2' back overhang. A strip of lead was inserted into each horizontal joint for flashing. The slabs were capped with an angled barrel tile oriented in a vertical direction at 30 to 40° on center. The architect, George Percy, described this as a "perfect representation of a flat Grecian tile or marble roof". The concrete had an integral set color, however the color additive affected the quality of the concrete making it porous. As a result, the concrete roof was painted shortly after construction. Sometime later, the concrete was covered with a raised iron metal roof, likely tin. The barrel caps were removed for installation of the metal roof, however the original concrete slabs are still in place.



Layout of Ransome's roof system for the Stanford Museum wings, from F.L. Keller, *Architectural Construction and Superstructure*, 1909, Figure 689.



Stanford Mason's stepped concrete slabs and barrel caps may have served as a model for the roof of the museum wings at Stanford. (Illustration from Walter, Nancy A., "Commerce is made: University building in the late 19th and early 20th centuries," *Stanford University*, Vol. 1, 1999, p. 100).

Architectural Resources Group

Background & Introduction 4

Cantor Arts Center at Stanford University Exterior Condition Assessment  
Stanford, CA DRAFT December 2012

## EXISTING CONDITIONS

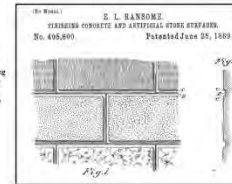
### EXTERIOR WALLS

At the main building and gallery wings, the exterior walls are reinforced concrete with a multiple layers of parging and/or cement plaster, pigmented to match the color of sandstone that is widely used on campus buildings. The plaster is scored to resemble blocks of natural stone. The rusticated basement is integrally-colored concrete cast in the form of ashlar masonry. The surface was soiled after the forms were removed and is an example of rough-poned work. The triminals are constructed of brick and faced with integrally-colored cement plaster.



Exterior concrete walls are covered with colored and scored cement plaster, while the rusticated basement wall finish was cast in place and tooled. (ARIG, 2012)

The technique for forming and tooling the basement walls was patented by Ernest Ransome in 1889. (Courtesy Google Patent Search, viewed online November 2012)



Architectural Resources Group

Existing Conditions 9

Cantor Arts Center at Stanford University Exterior Condition Assessment  
Stanford, CA DRAFT December 2012

## 1998 ADDITION

Preventive maintenance is important to remove dirt and biological growth before significant staining can occur. In the short term, stains and deposits of biological growth at the tops of plaster panel walls should be removed using warm water and a non-acidic biocide such as D/2. Routine building maintenance should include washing the plaster walls every 5-10 years.



Stains and biologic growth should be cleaned before carrying out preventive lapping or coating of walls. (ARIG, 2012)

Long-term preventive measures should be undertaken to discourage biological growth and minimize the frequency of surface cleaning. Potential preventive treatments to minimize water absorption of the plaster include the application of a clear water repellent or a masonry paint matching the color of the existing plaster. Alternatively, the design of the stone caps could be modified. The stone could be completely covered with a metal coping with a drip edge, or a small metal drip edge, possibly zinc, could be inserted into the joint below the stone cap.

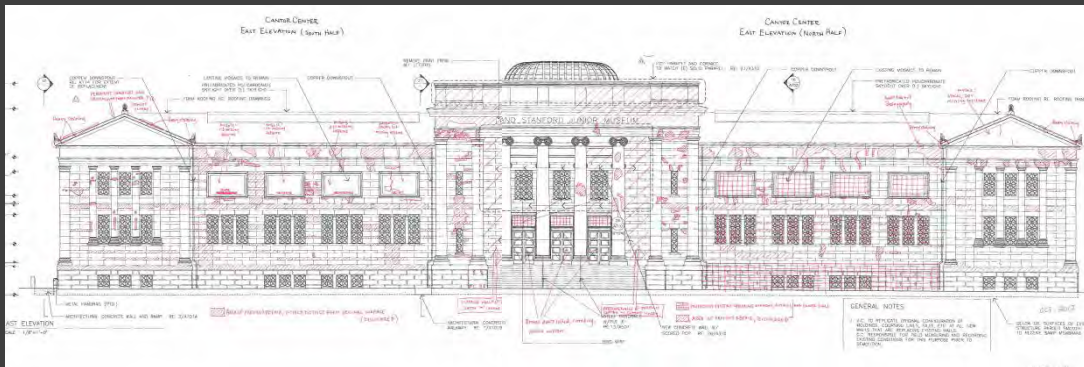
Deterioration of the metal expansion joints is not easily repaired and may continue in the future. Because there are no reports or evidence the joints are causing waterproofing problems, the issue seems to be primarily aesthetic. No work is recommended at this time. In order to be corrected, the plaster joints would have to be removed and reinstalled at considerable cost.



Deteriorated plaster panels cannot be easily repaired, and will eventually need to be replaced. (ARIG, 2012)

Architectural Resources Group

Recommendations 36



## MAINTENANCE & DESTRUCTION SCHEDULE

FEATURE	THREATENING	ROUTINE MAINTENANCE		CYCLE 10 MAINTENANCE	
		Annual (1x Yearly)	Bi-Annual (2x Yearly)		
Exterior Walls	<ul style="list-style-type: none"> <li>Removes leaves, dirt, and soil accumulations from the base of walls, twice a year</li> </ul>	<ul style="list-style-type: none"> <li>Clean ground soiling and deposits of biological growth</li> </ul>	<ul style="list-style-type: none"> <li>Engage a contractor to inspect and lightly clean masonry annually</li> </ul>	<ul style="list-style-type: none"> <li>Implement total inspection of masonry repair per recommendations and findings of multi-year study</li> </ul>	
Windows and Skylights	<ul style="list-style-type: none"> <li>Dry cleaning brush or vacuum wall, ceiling and above all windows and tiles, twice a year</li> </ul>	<ul style="list-style-type: none"> <li>Wash painted surfaces</li> <li>Inspect window joints and replace disturbed or missing caulk</li> </ul>	<ul style="list-style-type: none"> <li>Lubricate and tighten window hardware</li> <li>Spot paint areas of paint loss</li> </ul>	<ul style="list-style-type: none"> <li>Paint windows</li> </ul>	<ul style="list-style-type: none"> <li>Examine, document and clean</li> <li>Remove excessive paint accumulation before repainting (multi-year samples of historic paint have been collected)</li> </ul>
Roofing Doors	<ul style="list-style-type: none"> <li>Dry cleaning brush or vacuum wall, ceiling and above all doors, twice a year</li> </ul>	<ul style="list-style-type: none"> <li>Engage a contractor to clean and wax bronze doors</li> </ul>	<ul style="list-style-type: none"> <li>Inspect hardware, lubricate and tighten as needed</li> </ul>	N/A	N/A
Roofing and Drainage	<ul style="list-style-type: none"> <li>Inspect roof drains 2-4 times a year for blockages and leaks, remove leaves and trash from downspout and gutters</li> </ul>	<ul style="list-style-type: none"> <li>Inspect frame roof rafters for cracks and rot; repair or re-embed</li> <li>Inspect metal coping and repair deteriorated areas, as needed</li> <li>Inspect gutters, downspouts, and downspout repair deteriorated joints as needed</li> </ul>	<ul style="list-style-type: none"> <li>Replace gutters, as needed</li> </ul>	<ul style="list-style-type: none"> <li>Inspect from roof</li> </ul>	<ul style="list-style-type: none"> <li>Replace roof membranes every 30 years</li> </ul>

# Level 1a – Iconic

## Hoover Tower Cleaning and Restoration

### Treatment Report

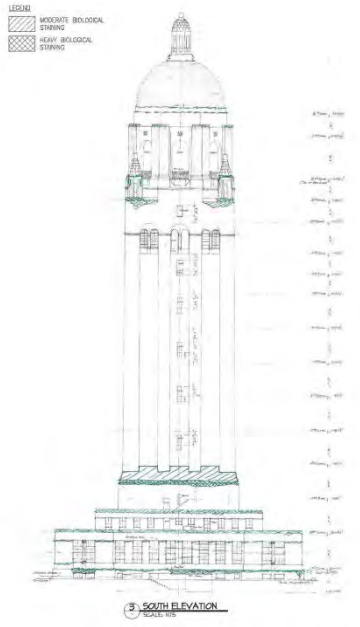


Figure 15- Pattern of staining occurring under pinacles.



Figure 16- Close-up of staining under pinacles.



Figure 17- One repair method at a corner window, showing the building's architectural detail.

# HOOVER TOWER RESTORATION

## PROCESS

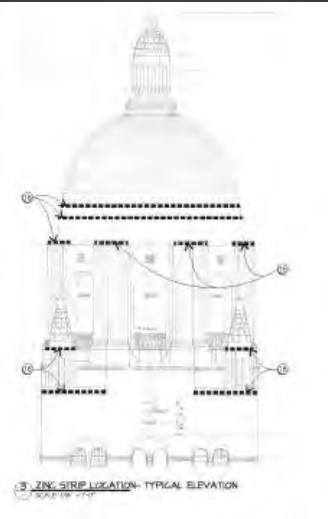
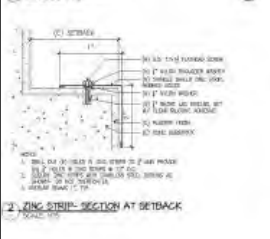
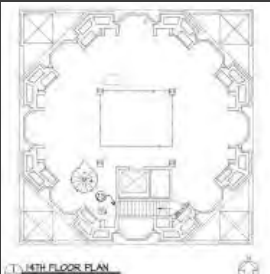
- Step 1:** Install scaffold and protection for pedestrians. Using a crane, moveable platforms and scaffolding will be installed from the Observation Deck level to provide access to the exterior of the building.
- Step 2:** Exterior walls will be cleaned using liquid cleaners and water.
- Step 3:** Exterior repairs will be made to the building using the most advanced techniques to ensure preservation of the historic building.
- Step 4:** Metal windows will be painted.
- Step 5:** Building will be inspected for completeness.
- Step 6:** Using a crane, scaffolding and platforms will be removed from the Observation Deck level.



Stanford University Project Manager: William Yeung 650.723.4464  
Completion Date:

prepared for:  
**Stanford University**  
Stanford, California

prepared by:  
**ARG Conservation Services**  
San Francisco, California  
LH#799517  
February 2012  
CS#11952

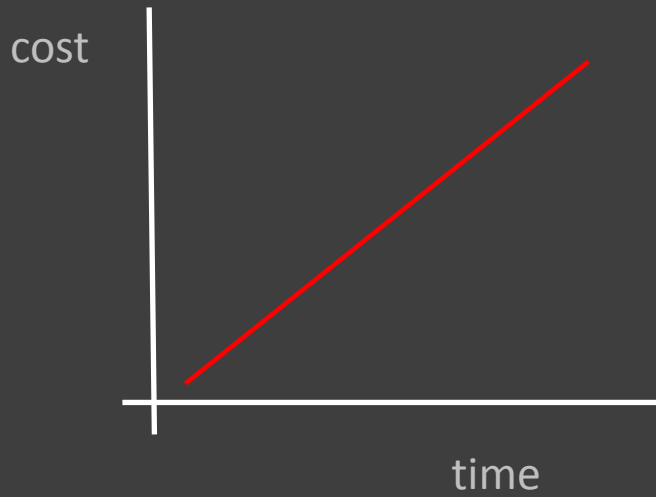


## Hoover Tower Recommended Treatment Priorities

IMMEDIATE WORK Within 1 Year	SERIOUS WORK 1-3 YEARS	MAJOR WORK 3-5 YEARS
<b>EXTERIOR CLEANING:</b> Clean the building to remove staining from biological growth. Repair cracks and eroded stucco. Test zinc strips to prevent occurrence of biological growth.	<b>ROOFING:</b> Replace first and second floor asphalt roofing at the end of its useful life.	<b>STUCCO:</b> Evaluate potential graffiti prevention and protection measures.
<b>STUCCO REPAIR:</b> Repair cracks in stucco using epoxy injection. Repair spalled stucco using appropriately formulated mortar.	<b>MISC:</b> Reverse deterioration of library heating tower windows. Coordinate with roofing repairs.	<b>OBSERVATION DECK:</b> Replace floor coating with historically appropriate treatment.
<b>CAST-IRON:</b> Repair cracked piers in balustrade structure by re-embedding reinforcing bar and anchoring concrete. Paint to restore level of care.	<b>WINDOWS:</b> Restore glazing at flooding tower windows where ductwork was previously removed. Perform maintenance on glazing putty and paint.	<b>LIGHTNING ROD:</b> Investigate the possibility of installing a lightning arrest system on top of tower.
<b>WINDOWS:</b> Replace deteriorated glazing putty and repair all windows above second floor level.	<b>WINDOWS:</b> Repair access doors in Observation Deck grills.	<b>WINDOWS:</b> Repair hardware to improve operability and prevent deformation of sashes.
<b>HAND RAILS:</b> Fill gaps at post attachments to prevent water intrusion and corrosion.	<b>LOADING DOCK:</b> Extend loading hood in front of freight elevator and reconfigure. Repair cracks in decking and apply new sealant coating to prevent water intrusion.	<b>WINDOWS:</b> Replace protective glazing at the Basily Room.
<b>STAIRS:</b> Repair deteriorated mortar at granite steps to prevent water intrusion.	<b>INTERIORS:</b> Install negative-side waterproofing to limit water intrusion in tower. Repair plaster at exterior of tower arches.	Implement Long-Term Inspection and Maintenance Program for stucco, pinacles, ball joints, roofing, gutters, deck coatings, windows, grills, and hardware.



## *Level 1a – Iconic*





# Level 1a – Iconic

## Stanford University Green Library West Wing Exterior Assessment

Stanford, California



prepared for  
Stanford University  
Stanford, California

prepared by  
Architectural Resources Group, Inc.  
Architects, Planners & Conservators  
San Francisco, California

December 2012

Project No. 1119



### TREATMENT MATRIX

Following is a Treatment Matrix containing a prioritized list of architectural treatments addressing observed deterioration and deficiencies in historic building materials. Treatments are organized into discrete projects to facilitate phasing of future work. In addition, a Maintenance and Inspection Schedule is included that identifies cyclic maintenance procedures for building features and elements.

PROJECT	PRIORITY	PROJECT TYPE	LOCATIONS	DESCRIPTION
Masonry Conservation Treatment Testing	High	Planning/Investigative	Stonework at West Elevation; entrance and arcade; stone masonry at base of the north elevation	Laboratory testing of masonry to determine appropriate repair methods. Further cleaning tests at West Elevation; fabric samples and moisture testing; setting of stone water treatment treatments and lime wash treatment
Masonry Rehabilitation	High	Waterproofing	Central stone pilasters at the West Elevation; granite quoins	Repair deteriorated stone mortar joints at west elevation and granite repair work on quoins and backwork at North and West Elevation; install membrane repair at eroded base; drainage system; replace deteriorated mortar at East Elevation level; replace deteriorated mortar parapet at South Elevation window openings
Urgent Preventive Maintenance Tasks	High	Waterproofing	North facade roof; ledger holes and sills; sills at North and West Elevation	Install gaskets at North facade; install lead membrane at North, East, and South Elevation ledges; remove building-mounted sign fixtures below roof line at West Elevation; gutters
Window Rehabilitation	High	Waterproofing	Steel windows in the West and South elevations	Replace metal window sills at South Elevation window openings; repair deteriorated glazing gaskets and caulking; repair deteriorated lintel sills; Elevation openings; steel window panels; repair metal sills at library study windows (repair as needed)
Roof Rehabilitation	MEDIUM	Waterproofing	Chapel roof/terrace/ledger	Replace deteriorated roof edge coping; repair broken and missing tiles; install sheet metal caps at protruding steel rods; seal open joints at Sills



Sample Location II, at the base of the central projection north face, where it meets the north arcade wall. (ARG, 2012)



Area II, after pre-wetting and before application of biocides. (ARG, 2012)



Area II, before application of biocides. (ARG, 2012)

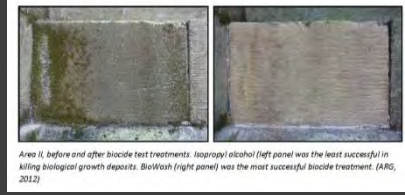
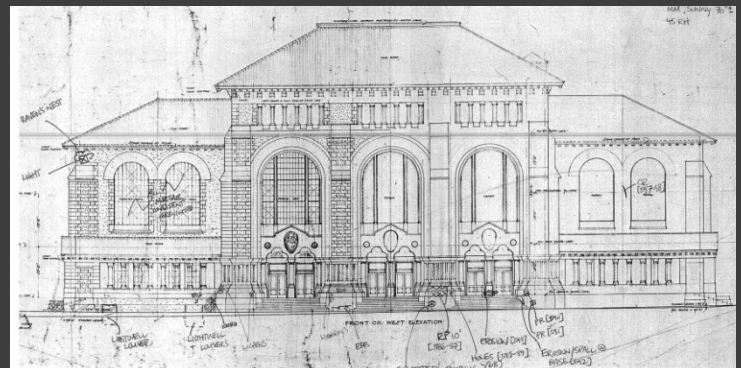


Area II, shortly after application of biocides. (ARG, 2012)



Area II, after 22 days of biocide dwell time. (ARG, 2012)

MAINTENANCE & INSPECTION SCHEDULE			
FEATURE	BIODIVERSITY MAINTENANCE		CYCLIC MAINTENANCE
	Annual (1x/Year)	Biannual (2x/Year)	
<b>Exterior Walls</b>	<ul style="list-style-type: none"> <li>Remove lichen, moss, and soft accumulations from the base of walls, twice a year</li> <li>City cleaning: brush or vacuum soil, calcium and debris off North walls, every month</li> </ul>	<ul style="list-style-type: none"> <li>Clean historic light fixtures at main entrance and arcade under the supervision of a qualified conservator</li> </ul>	<ul style="list-style-type: none"> <li>Inspect twice and bi-annual joints for deteriorated or missing mortar</li> <li>Clean deposits of biological growth</li> </ul>
<b>Windows</b>	<ul style="list-style-type: none"> <li>City cleaning: brush or vacuum soil, calcium and debris off stone and glass, every month</li> </ul>	<ul style="list-style-type: none"> <li>Wash painted surfaces</li> <li>Inspect window sills and ledges attached to masonry surface</li> </ul>	<ul style="list-style-type: none"> <li>Paint windows</li> </ul>
<b>Doors</b>	<ul style="list-style-type: none"> <li>City cleaning: brush or vacuum soil, calcium and debris off stone and glass, every month</li> </ul>	<ul style="list-style-type: none"> <li>Vacuum and wipe down painted wood doors and frames</li> <li>Wash painted metal doors</li> <li>Inspect window sills and ledges attached to masonry surface</li> </ul>	<ul style="list-style-type: none"> <li>Repair door hardware</li> <li>Paint door</li> </ul>
<b>Roofing and Parapets</b>	<ul style="list-style-type: none"> <li>Inspect roof twice 3-4 times a year for blockages and leaks; remove leaves and tree litter from roof and gutters</li> </ul>	<ul style="list-style-type: none"> <li>Inspect roof twice for insect damage and rot</li> <li>Inspect roof and replace loose, missing, or damaged tiles</li> </ul>	<ul style="list-style-type: none"> <li>Repair roof penetrations</li> <li>Repair roof flashing and sealant joints</li> <li>Repair roof penetrations</li> <li>Repair roof flashing and sealant joints</li> <li>Repair roof penetrations</li> <li>Repair roof flashing and sealant joints</li> </ul>
<b>Exterior Walking Surfaces</b>	<ul style="list-style-type: none"> <li>City cleaning: sweep, dry mop, or vacuum soil, calcium and debris from decorative pavement, twice a week</li> <li>City cleaning: clean decorative pavement with neutral pH soap and mild detergent, once a month</li> </ul>	<ul style="list-style-type: none"> <li>Spot clean stains in decorative pavement</li> <li>Apply sealant selectively to high-traffic areas</li> </ul>	<ul style="list-style-type: none"> <li>Inspect decorative pavement and repair cracks in bricked sections</li> <li>Apply water to water decorative pavement surface</li> </ul>



Area II, before and after biocide test treatments. Isopropyl alcohol (left panel) was the least successful in killing biological growth deposits. BioWash (right panel) was the most successful biocide treatment. (ARG, 2012)

# Level 2a – Heritage

**Roble Gym Exterior Plaster  
Assessment and Recommendations**  
Stanford University



prepared for  
**Stanford University**  
Stanford, California

prepared by  
**Architectural Resources Group, Inc.**  
Architects, Planners & Conservators  
San Francisco, California

August 2008

#08017

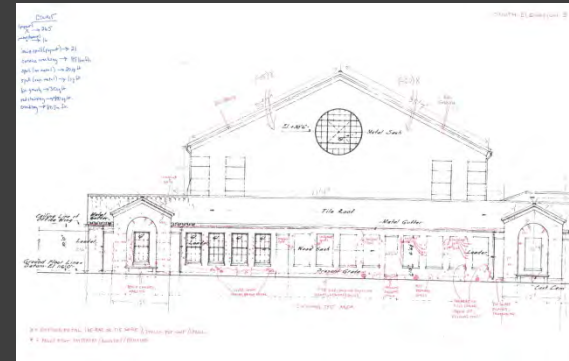


*Test patch areas were squared off with a grinder and chiselled to receive the patching material.*

*A custom color patching plaster was applied to test areas and scraped level with the surrounding plaster, then left to cure.*



*After the patch dried, liquid stains were applied to complete the visual integration of the repair material with the original plaster.*



*Cleaning test panels were created to assess leaving light red staining left and heavier red staining right. In each panel, a cleaning practice of ammonium citrate is on the left, a water practice is in the center, and repeated water spraying took place on the right.*



*All of the tested methods removed some staining, but the ammonium citrate was the most effective material, removing significant staining using relatively gentle tools.*

## **Large Spalls High Treatment Priority**

At a few locations on the building large-scale spalling of plaster and concrete reveals rusting reinforcing metal in these areas of loss. This condition is generally confined to buttress and plaster elements and occurs at outside corners where exposure to weathering is the greatest. Large spalls likely result from a combination of inadequately embedded reinforcing metal, poor quality control of the poured concrete, and water penetration.

Treatment consists of removing corrosion from the metal and coating it with a rust inhibitive paint, then patching the area with new concrete and matching plaster.

There are about seven occurrences of large-spalls totaling approximately 20 square feet.



*The corroding metal exposed by this large spall was sufficiently covered by concrete. The concrete is dominated by large aggregate, which inhibits cohesion of the matrix.*



# Level 2a – Heritage

## Stanford Old Student Union, Clubhouse and Nitery Exterior Conditions Assessment DRAFT



prepared for:  
Stanford University  
Stanford, California

prepared by:  
Architectural Resources Group, Inc.  
Architects, Planners & Constructors  
San Francisco, California  
May 2012

June 2012

Old Student Union Complex  
Stanford University  
DRAFT  
June 2012

### Windows and Doors

Historic wood windows at the Old Student Union remain intact and in generally fair condition. Window types include double hung, casement and fixed, all with wood sash and wood frame. Typical conditions include minor wood rot at sills or muntins, minor gouges or other damage at wood, broken or missing sash cords, loose or missing hardware, and generally difficult operation. There are all typical and repairable conditions for historic wood windows in fair condition. No impalpable conditions were observed. At the east elevation, a number of windows at the first floor have a holding and degraded paint film. This appears to be a result of poor paint preparation and the windows are otherwise in fair condition like others at the building.

All primary doors at the building are glazed aluminum, and appear to be relatively new and in good condition. Historic glazed wood doors remain at some ground floor spaces, providing secondary entrances to the building. Historic doors are in fair condition, with minor deteriorated conditions similar to those at the historic windows. In particular, wood components near grade exhibit moderate wood rot and decay.



At left, typical window conditions at the Old Union include minor wood deterioration. On the right, historic wood door components near grade exhibit moderate wood decay, as far as this side light at the east elevation. (Source: ARG, 2012).

Old Student Union Complex  
Stanford University  
DRAFT  
June 2012

### EXISTING CONDITIONS

#### Old Student Union Building



The primary facade of the Old Student Union Building faces east, with the main entrance at the center. (Source: ARG, 2012)

#### General Description

The Old Union (originally referred to as the "New Union" after its construction) is a three-story reinforced concrete structure with a painted, integrally-colored stucco finish and clay tile roof. The building reflects the California Mission Revival style prevalent throughout the Stanford campus. The primary (east) facade has two towers that each rise above the main roof and terminate with a dome and lantern. The center section of the primary elevation projects in front of the central wing of the building, creating two side courtyards that are lined with arcades. Behind (west) of the central core of the building, there are three additional row wings: two three-story wings at the north and south ends of the structure, and a one-story "kitchen" wing at the center.



This aerial view of the Old Union clarifies the complicated footprint of the building. The east wing projects out from the center core, creating two side courtyards, while three additional wings extend out at the rear facade. (Source: Google Maps, 2012)

Architectural Resources Group

Existing Conditions 4

Old Student Union Complex  
Stanford University  
DRAFT  
June 2012

### Decorative Cast Concrete Elements

The Nitery also features decorative cast concrete elements, but they are generally smaller and less detailed than those at the Old Union and central arcade. The towers at the east side of the building are capped with concrete domes and ornamented with small cast pieces. There are also small cast pieces below some window sills. All are in good condition, although some of the more delicate details are obscured by a heavy paint layer. No cracking or displacement was observed.

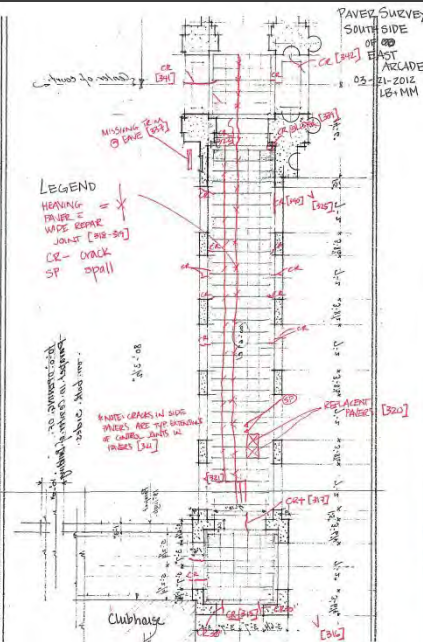
### Windows and Doors

Windows are primarily wood casements, with a handful of aluminum replacements at the east elevation. Wood windows are in fair condition, except at the south elevation, where they are in poor condition because they receive the most direct sunlight and have the least protection from weathering. The aluminum replacement windows are also in fair condition. At the south elevation, typical window conditions include wood splitting, peeling paint, detaching joints and deteriorated glazing gaskets. The west elevation has a band of wood casement windows, at which all glazing lines have been covered with an opaque film. From the interior, many windows are difficult to operate and some hardware is loose or missing.

All primary exterior doors are not original to the building, and are typically glazed aluminum and in good condition. The emergency exit at the north elevation is flush metal, and a glazed wood door remains in fair condition at the north terrace, with minor damage at the base and threshold.

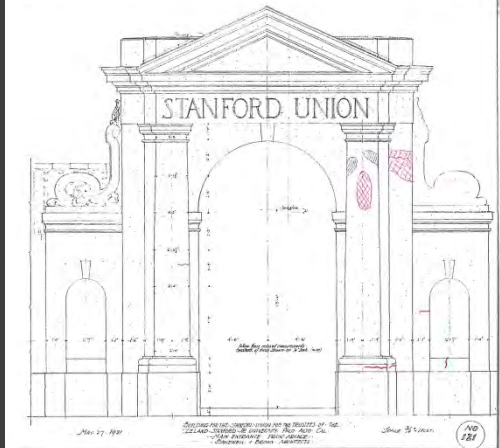


Wood windows are in fair condition, except at the south elevation, where at right where deterioration includes cracked window parts, missing paint and splitting and raised wood grain. (Source: ARG, 2012).



PAVED SURVEY  
SOUTH SIDE  
OF  
EAST  
ARCADE  
21-2012  
LB+MM

ARCADE SURVEY  
EAST ELEVATION  
OF  
EAST ARCADE  
04-03-2012  
LB+MM



LEGEND  
HEAVY PAINT  
CRACK  
SP  
NOT IN PLAN/EXTERNAL DIFFERENTIAL



OLD UNION SURVEY  
EAST ELEVATION  
04-03-2012  
LB+MM

LEGEND  
HEAVY PAINT  
CRACK  
SP  
NOT IN PLAN/EXTERNAL DIFFERENTIAL

# Level 1b – Heritage

## Stanford University Encina Commons Condition Assessment

Stanford, California



prepared for  
Stanford University  
Stanford, California

prepared by  
Architectural Resources Group, Inc.  
Architects, Planners & Constructors  
San Francisco, California

December 2012  
Project No. 12072



Photograph of Encina Commons plaster sample cross-section. (ARG/CS, 2011)



Particle-size distribution of Encina Commons plaster aggregate. (ARG/CS, 2011)



Blue tape was placed alongside test areas at a large horizontal crack at the south tower during a recent plaster assessment. (ARG/CS, 2011)

Stress cracks at the concrete walls are the result of normal temperature fluctuations and concrete shrinkage. (ARG, 2012)



<sup>1</sup> Step 2 Seismic Evaluation for Encina Commons (San Francisco: Forell/Ebesser Engineers, Inc., December 15, 2003), 4.



Corroding reinforcing metal is exposed at this concrete spall adjacent to the south tower. (ARG, 2012)



Brick fragments are visible in the spalled patch at a south tower column capital. (ARG/CS, 2011)



Test Panel 4, Triton X-114, before and after cleaning. (ARG/CS, 2011)

The cleaning trials took place in the same location as previous cleaning conducted by the Watten Company in 2006. Photographs provided by Watten document a similar pattern of organic growth and staining. This area also displays unevenness in the color of the cast stone substrate – evidence of previous repairs.



Previous cleaning conducted at Encina Commons. (Watten Company, 2006)



Plaster de-bonding is associated with cracking and efflorescence at the south tower arches. (ARG/CS, 2011)



Pavement is cracked and buckled at the south elevation. (ARG, 2012)



Map cracking throughout the pavement is the result of faulty installation. (ARG, 2012)

Concrete steps at the east end of the south elevation are cracked and spalled, due to building movement evident in the adjacent cracked concrete walls.



Concrete steps at the south end of the east elevation are cracked and spalled. (ARG, 2012)



The plywood exterior ramp at the west arcade is in poor condition, but is in compliance. (ARG, 2012)

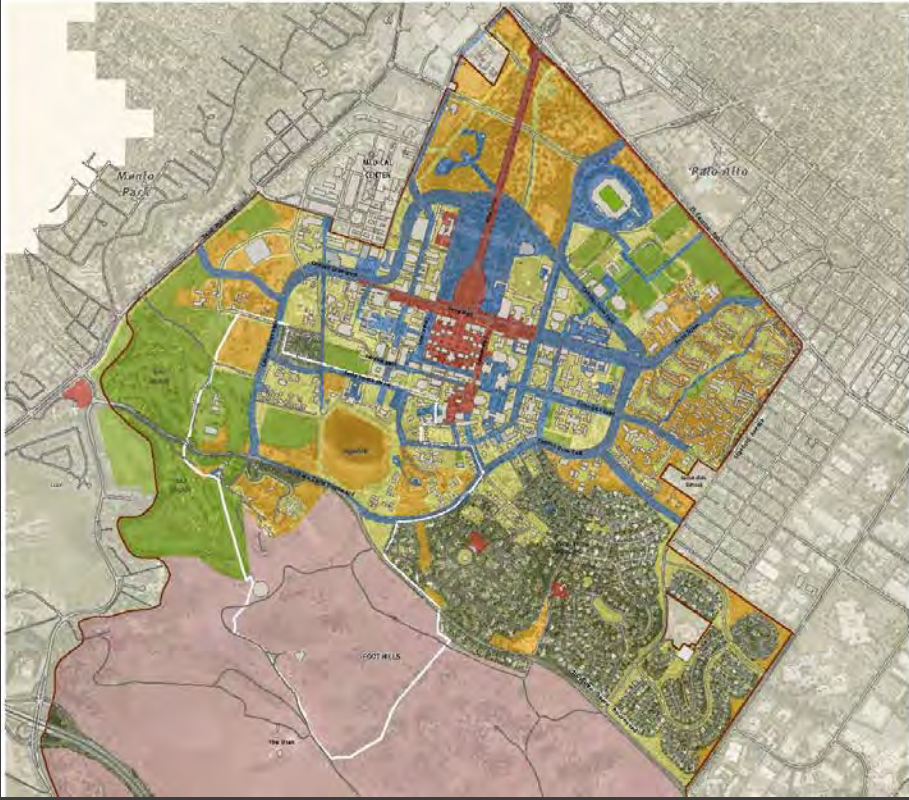


# Grounds Maintenance Guidelines

## STANFORD UNIVERSITY GROUNDS MAINTENANCE GUIDELINES



University Architect/Planning Office  
July 23, 2010



Maintenance Area	Maintenance Type	Frequency	Tasks	Notes
Redwood City	Maintenance Type A	Quarterly	Trimming, weeding, mulching	See specific guidelines for Redwood City
Medical Center	Maintenance Type B	Quarterly	Trimming, weeding, mulching	See specific guidelines for Medical Center
Main Campus	Maintenance Type C	Quarterly	Trimming, weeding, mulching	See specific guidelines for Main Campus
Other Areas	Maintenance Type D, E, F	Quarterly	Trimming, weeding, mulching	See specific guidelines for other areas

- Maintenance Level A
- Maintenance Level B
- Maintenance Level C
- Maintenance Level D
- Maintenance Level E
- Maintenance Level F



# Historic Photos





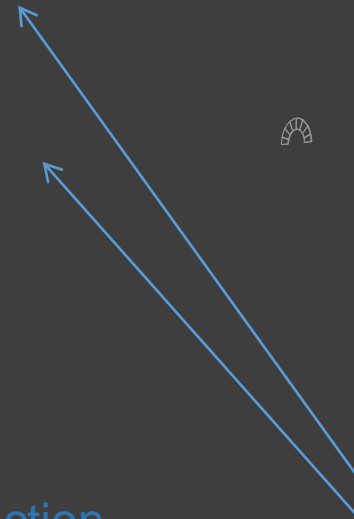
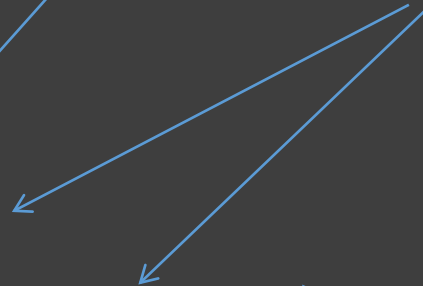
# Existing Conditions



# South-East Building Perspective

Cupola Inspection

Roof Inspection



Crack Inspection

Front Inspection

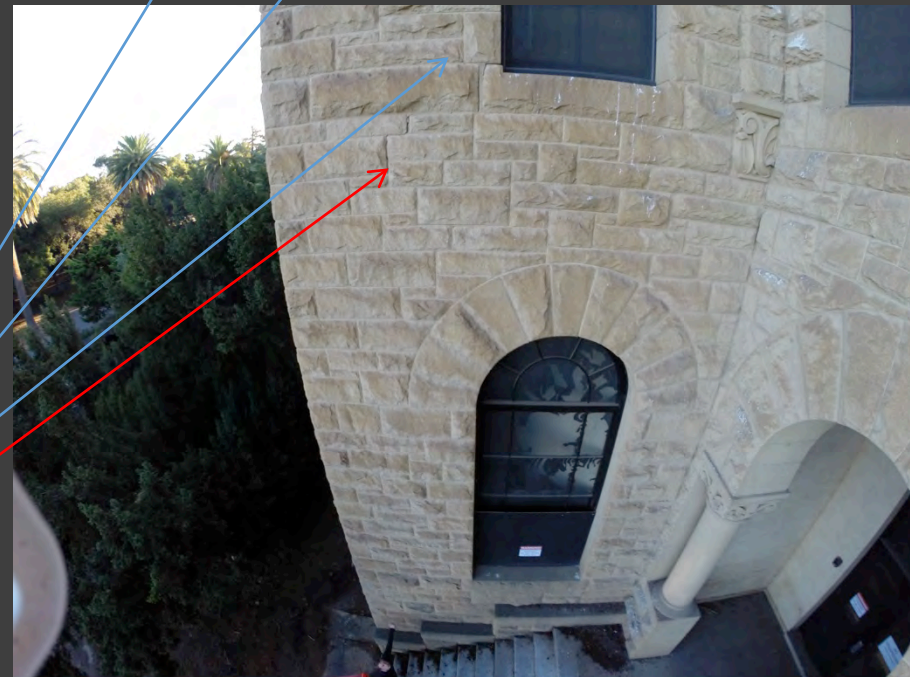


# Front Inspection





# Crack Inspection



Easy-to-see cracks around frames

Difficult-to-see crack in mortar



# Roof Inspection (1)





# Roof Inspection (2)





# Cupola Inspection













# Questions?



Sapna Marfatia

Stanford University